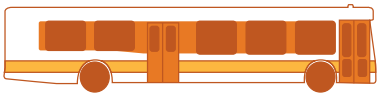
TRANSPORTATION IMPROVEMENT PROGRAM

FFYS 2020-24

Public Review Draft



Transportation Improvement Program and Air Quality Conformity Determination

Federal Fiscal Years 2020-24

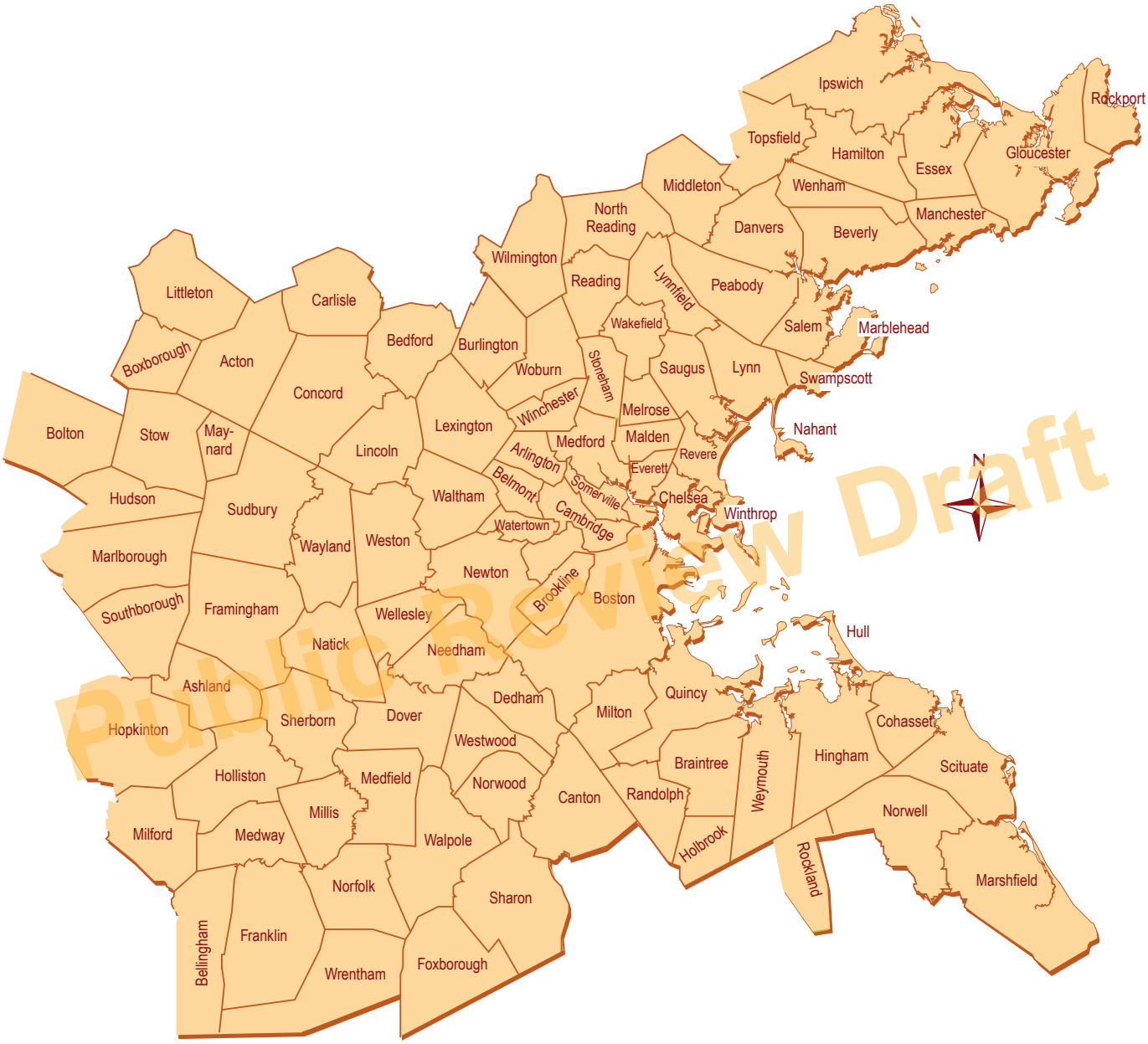
Boston Region MPO

Endorsed by the MPO, xxxx

Prepared by
The Central Transportation Planning Staff:
Staff to the Boston Region Metropolitan Planning Organization

Directed by the Boston Region Metropolitan Planning Organization,
which is composed of the

Massachusetts Department of Transportation
Metropolitan Area Planning Council
Massachusetts Bay Transportation Authority
MBTA Advisory Board
Massachusetts Port Authority
Regional Transportation Advisory Council
City of Boston
City of Beverly
City of Everett
City of Framingham
City of Newton
City of Somerville
City of Woburn
Town of Arlington
Town of Bedford
Town of Braintree
Town of Lexington
Town of Medway
Town of Norwood
Federal Highway Administration (nonvoting)
Federal Transit Administration (nonvoting)



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION MUNICIPALITIES

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The Massachusetts Bay Transportation Authority, Cape Ann Transportation Authority, and MetroWest Regional Transit Authority, which are Federal Transit Administration Section 5307(c) applicants, have consulted with the MPO and concur that the public involvement process adopted by the MPO for the development of the Transportation Improvement Program satisfies the public hearing requirements that pertain to the development of the Program of Projects for regular Section 5307, Urbanized Area Formula Program, grant applications, including the provision for public notice and the time established for public review and comment.

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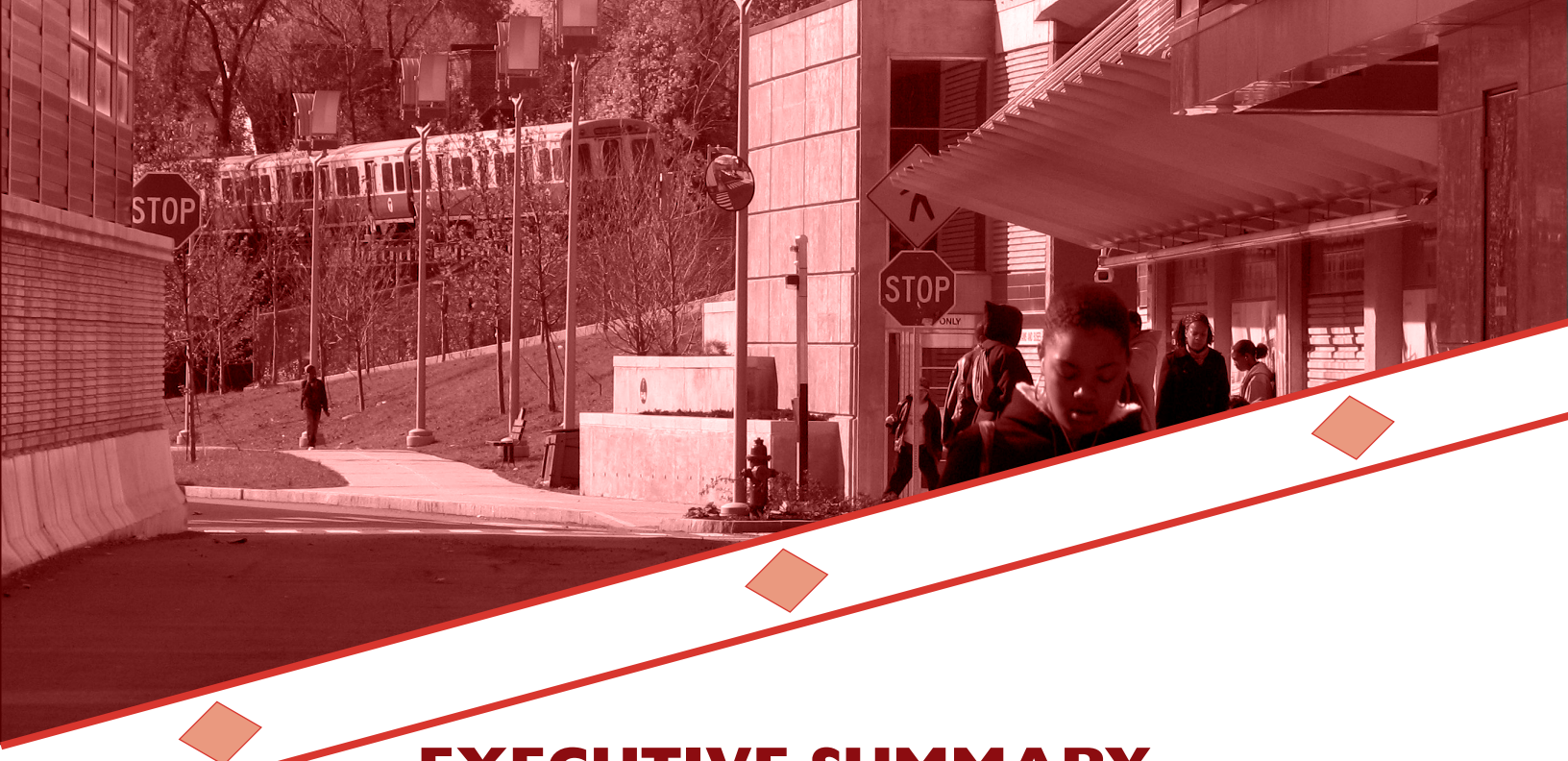


EXECUTIVE SUMMARY

FEDERAL FISCAL YEARS 2020-24 TRANSPORTATION IMPROVEMENT PROGRAM

INTRODUCTION

The Boston Region Metropolitan Planning Organization's (MPO) five-year transportation capital investment plan, the Federal Fiscal Years (FFYs) 2020-24 Transportation Improvement Program (TIP), is the near-term investment program for the region's transportation system. Guided by the Boston Region MPO's vision, goals, and objectives, the TIP prioritizes investments that preserve the current transportation system in a state of good repair, provide safe transportation for all modes, enhance livability, and improve mobility throughout the region. These investments fund major highway reconstruction, arterial roadway and intersection improvements, maintenance and expansion of the public transit system, bicycle path construction, and infrastructure improvements for pedestrians.

The Boston Region MPO is guided by a 22-member board with representatives of state agencies, regional organizations, and municipalities; its jurisdiction extends roughly from Boston north to Ipswich, south to Marshfield, and west to municipalities along Interstate 495. Each year, the MPO conducts a process to decide how to spend federal transportation funds for capital projects. The Central Transportation Planning Staff (CTPS), which is the staff to the MPO, manages the TIP development process.

MPO staff coordinates the evaluation of project funding requests, proposes programming of current and new projects based on anticipated funding levels, supports the MPO board in developing a draft TIP document, and facilitates a public review of the draft before the MPO board endorses the final document.

FFYS 2020-24 TIP INVESTMENTS

The complete TIP program is available in Chapter 3 of this document and online at **www.ctps.org/tip**. The TIP tables provide details of how funding is allocated to each programmed project and capital investment program. These tables are organized by federal fiscal year, and are grouped by highway and transit programs.

Highway Program

The Highway Program of the TIP funds the priority transportation projects advanced by the Massachusetts Department of Transportation (MassDOT) and the cities and towns within the Boston region. The program is devoted primarily to preserving and modernizing the existing roadway network by resurfacing highways, replacing bridges, and reconstructing arterial roadways.

In Massachusetts, Federal-Aid Highway Program funding is apportioned by MassDOT, which allocates funding to Grant Anticipation Notes (GANs) payments, various statewide programs, and Regional Targets for the state's MPOs. In the FFYs 2020–24 TIP, roadway, bridge, and bicycle and pedestrian programs account for more than $1.2 billion in funding to the Boston region. The Regional Target funding provided to the MPOs may be programmed for projects at the discretion of each MPO, whereas MassDOT has discretion to propose its recommended projects for statewide programs, such as those related to bridge repairs and interstate highway maintenance.

Transit Program

The Transit Program of the TIP provides funding for projects and programs that address the capital needs prioritized by the three transit authorities in the region: the Massachusetts Bay Transportation Authority (MBTA), the Cape Ann Transportation Authority (CATA), and the MetroWest Regional Transit Authority (MWRTA). The Transit Program is predominantly dedicated to achieving and maintaining a state of good repair for all assets throughout the transit system. The FFYs 2020–24 TIP includes $3.1 billion in transit investments by the transit authorities that will support state of good repair, modernize transit systems, and increase access to transit. The Green Line Extension project is a major project programmed in this TIP that will expand transit service. Additionally, during development of the FFYs 2020-24 TIP, the MPO decided to allocate a portion of the Regional Target funds in fiscal year 2021 to the MBTA for transit modernization.

REGIONAL TARGET PROGRAM DETAILS

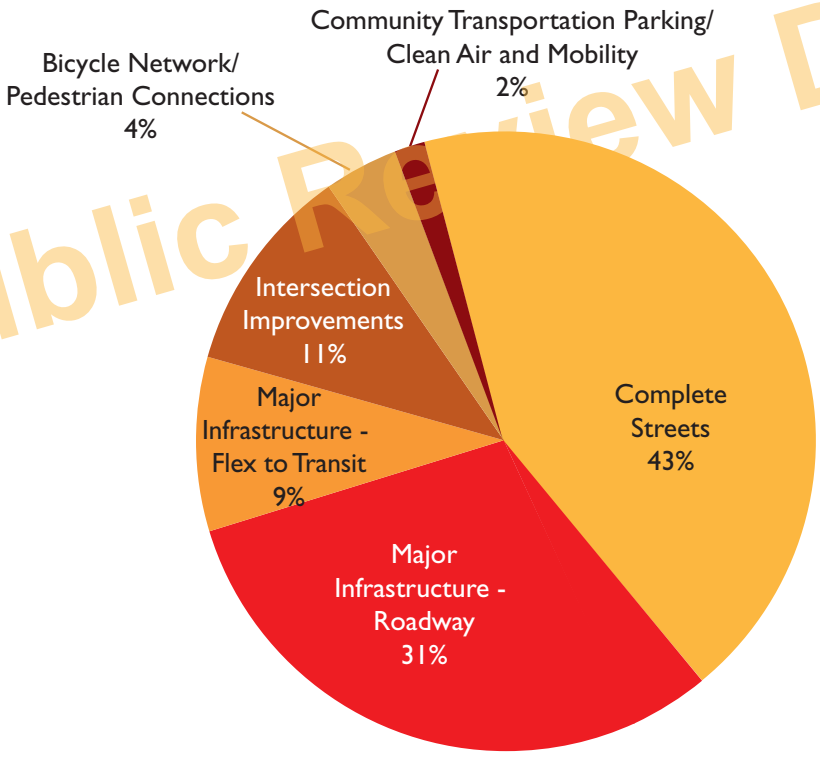
During FFYs 2020–24, the Boston Region MPO plans to fund 47 projects and programs with its Regional Target funding:

- 26 Complete Streets projects, such as the rehabilitation of Essex Street in Lynn
- Five Major Infrastructure projects, such as the reconstruction of Rutherford Avenue in Boston

- Eleven Intersection Improvements projects, such as improvements to the intersection of Lowell Street and Woburn Street in Wilmington
- Four Bicycle Network and Pedestrian Connections projects, such as the extension of the Independence Greenway in Peabody
- A Community Transportation Program, which will support projects that provide first- and last-mile connections in the region

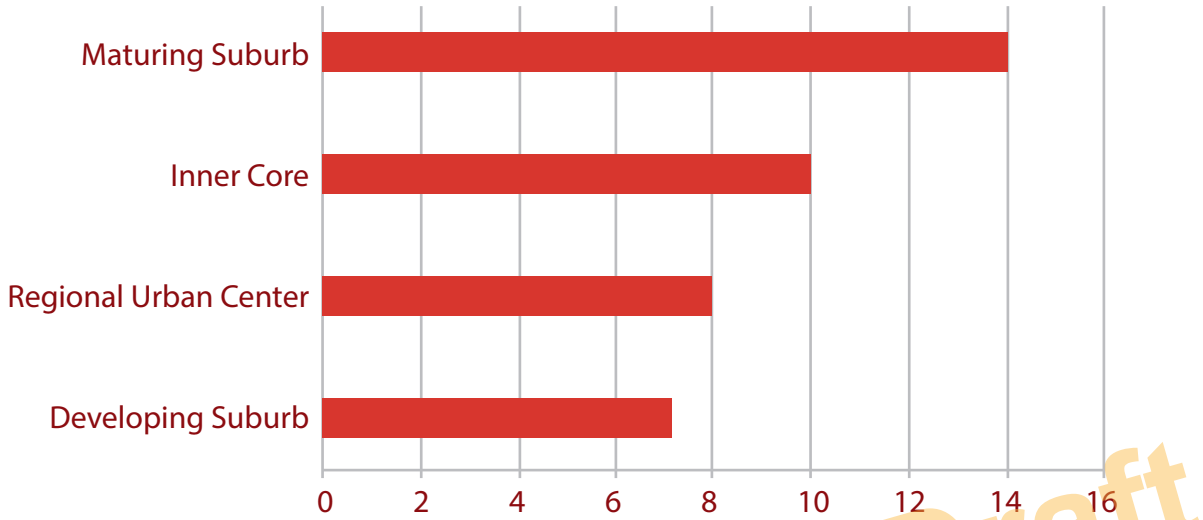
Figure ES-1 shows how the Regional Target funding for FFYs 2020–24 is distributed across the MPO's investment programs. As the chart shows, the Boston Region MPO's Regional Target Program is devoted primarily to modernizing and expanding the transportation network through Major Infrastructure and Complete Streets investments.

Figure ES-1
FFYs 2020-24 TIP Regional Target Funding by Investment Program



These investments will be implemented in 39 cities and towns throughout the MPO region, ranging from high-density, built-out, inner core communities to developing suburbs. Figure ES-2 identifies the type of communities—as defined by the Metropolitan Area Planning Council (MAPC)—that will receive these investments.

FIGURE ES-2
MPO Municipalities Containing FFYs 2020–24 TIP Program Projects by Community Type



- *Developing suburb* investments include roadway reconstruction and corridor improvements in Bellingham, Cohasset, Hopkinton, Ipswich, Littleton, and Walpole; and intersection improvements in Littleton and Wrentham.
- *Regional urban center* investments include intersection improvements in Beverly, Framingham, and Norwood; pedestrian and bike improvements in Peabody and Framingham; and roadway reconstruction and corridor improvements in Beverly, Framingham, Lynn, Milford, Peabody, Quincy, and Woburn.
- *Inner core* investments include corridor reconstructions in Boston, Chelsea, Everett, Malden, Newton, Watertown, and Winthrop; and the Green Line Extension in Cambridge, Medford, and Somerville.
- *Maturing suburb* investments include intersection improvements in Acton, Marblehead, Reading, Wilmington, and Ashland; bikeway extensions in Bedford and Sudbury; a community transportation program in Burlington; and corridor improvements in Ashland, Dedham, Hingham, Holbrook, Hull, Needham, and Wilmington.

FINANCING THE FFYS 2020-24 TIP

Highway Program

The TIP Highway Program was developed with the assumption that federal funding for the state would range between $676 million and $739 million annually over the next five years (these amounts include only federal funds and include the funds that would be set aside as payments for the Accelerated Bridge Program).

The process of deciding how to use this federal funding in the Boston region follows several steps. First, MassDOT reserves funding for GANs debt service payments for the Accelerated Bridge Program; annual GANs payments range between $81 million and $98 million annually over the five years of this TIP.

The remaining Federal-Aid Highway Program funds are budgeted to support state priorities and regional (that is, MPO) priorities. In this planning cycle, $734 million to $792 million annually was available for programming statewide (these amounts include both federal dollars and the local match). MassDOT customarily provides the local match (which can also be provided by other entities); thus, projects are typically funded with 80 percent federal dollars and 20 percent state dollars, depending on the funding program.

Next, MassDOT allocates funding across the following funding categories:

- **Reliability Programs:** These programs include the Bridge Program—comprising inspections, systematic maintenance, and National Highway System (NHS) and non-NHS improvements—the Pavement Program, the Roadway Improvements Program, and the Safety Improvements Program.
- **Modernization Programs:** These programs include the Americans with Disabilities Act (ADA) Retrofit Program, the Intersection Improvement Program, the Intelligent Transportation Systems (ITS) Program, and the Roadway Reconstruction Program.
- **Expansion Programs:** These programs include the Bicycle and Pedestrian Program and the Capacity Program.

Finally, once these needs have been satisfied, MassDOT allocates the remaining funding among the state's MPOs for programming. This discretionary funding for MPOs is sub-allocated by formula to determine the Regional Target amounts. MassDOT develops these targets in consultation with the Massachusetts Association of Regional Planning Agencies (MARPA). This TIP was programmed with the assumption that the Boston Region MPO will have between $102 million and $110 million annually for Regional Target amounts (which consist of federal funding and state funding for the local match).

Each MPO may decide how to prioritize its Regional Target funding. Given that the Regional Target funding is a subset of the Highway Program, the MPO typically programs the majority of funding for roadway projects; however, the MPO has flexed portions of its highway funding to the Transit Program for both transit expansion and transit modernization projects. The TIP Highway Program details the projects that will receive Regional Target funding from the Boston Region MPO and statewide infrastructure projects within the Boston region.

Transit Program

The Federal Transit Administration (FTA) allocates the funds programmed in the TIP Transit Program according to formula. The three regional transit authorities in the Boston Region MPO area that are recipients of these funds are the MBTA, CATA, and MWRTA. The MBTA, with its extensive transit program and infrastructure, is the recipient of the preponderance of the region's federal transit funds.

Under the federal transportation legislation, Fixing America's Surface Transportation (FAST) Act, funding is allocated by the following categories:

- **Section 5307 (Urbanized Area Formula Grants):** Provides grants to urbanized areas to support public transportation based on levels of transit service, population, and other factors
- **Section 5337 (Fixed Guideway/Bus):** Seeks to maintain public transportation systems in a state of good repair through replacement and rehabilitation capital projects
- **Section 5339 (Bus and Bus Facilities):** Provides funding to replace, rehabilitate, and purchase buses and related equipment, and to construct bus-related facilities
- **Section 5309 (Fixed Guideway Capital Investment Grants):** Provides grants for new and expanded rail, bus rapid transit, and ferry systems that reflect local priorities to improve transportation options in key corridors
- **Section 5310 (Enhanced Mobility of Seniors and Individuals with Disabilities):** Provides funding to support transportation to meet the special needs of older adults and persons with disabilities

THE TIP DEVELOPMENT PROCESS

Overview

When determining which projects to fund through the Regional Target funding process, MPO members collaborate with municipalities, state agencies, members of the public, advocacy groups, and other stakeholders. The MPO board uses evaluation criteria in its project selection process to help identify and prioritize projects that advance the MPO's goals, which are categorized as follows:

- Safety
- System Preservation
- Capacity Management/Mobility
- Clean Air/Sustainable Communities
- Transportation Equity
- Economic Vitality

Additionally, the MPO has established investment programs, which are designed to direct Regional Target funding towards MPO priority areas over the next 25 years, to help meet these goals. The investment programs are as follows:

- Intersection Improvements
- Complete Streets
- Major Infrastructure
- Bicycle Network and Pedestrian Connections
- Community Transportation/Parking/Clean Air and Mobility

Projects that the MPO selects to receive Regional Target funding through the TIP development process are included in one of the five programs listed above.

In recent years, the MPO has been incorporating performance-based planning and programming (PBPP) practices into its TIP development and other processes. These practices are designed to help direct MPO funds towards achieving specific outcomes for the transportation system. The MPO's goals and investment programs are key components of its PBPP framework. In FFY 2018, the MPO began to set targets for specific performance measures. Over time, the MPO will more closely link its performance targets, investment decisions, and monitoring and evaluation activities.

Outreach and Data Collection

The outreach process begins early in the federal fiscal year, when cities and towns designate TIP contacts and begin developing a list of priority projects to be considered for federal funding, and the MPO staff asks the staffs of cities and towns in the region to identify their priority projects. MPO staff compiles the project funding requests into a *Universe of Unprogrammed Projects*, a list of all projects identified as potential candidates to receive funding through the TIP. The *Universe* includes projects that are fully designed and ready to be advertised for construction, those that are undergoing preliminary engineering and design, and projects still in the conceptual or planning stage. MPO staff also collects data on each project in the *Universe* so that the projects may be evaluated.

Project Evaluation

MPO staff evaluates projects based on how well they address the MPO's goals. In order for MPO staff to conduct a complete project evaluation, the project must have a functional design report or be at a 25-percent design stage; or its plans must include the level of detail defined in a functional design report. The evaluation results are posted on the MPO's website where project proponents, municipal officials, and members of the public may review them and provide feedback.

TIP Readiness Day

An important step toward TIP programming takes place midway through the TIP development cycle at a meeting—referred to as TIP Readiness Day—that both MassDOT and MPO staff attend. At this meeting, MassDOT project managers provide updates about cost and schedule changes related to currently programmed projects. These cost and schedule changes must be taken into account as MPO staff helps the MPO board consider updates to the already programmed years of the TIP, as well as the addition of new projects in the outermost year of the TIP.

Staff Recommendation and Draft TIP

Using the evaluation results and information about project readiness (that is, when a project likely would be fully designed and ready for construction), staff prepares the *First-Tier List of Projects*. This list contains those projects that are supported by a project proponent (a municipality or MassDOT) and that could be made ready for advertising within the TIP's time horizon—the next five federal fiscal years. The projects are ranked based on the evaluation results.

MPO staff then prepares a recommendation or a series of programming scenarios for how to program the Regional Target funding in the TIP based on the *First-Tier List of Projects* and other considerations, such as whether a project was included in the LRTP, addresses an identified transportation need, or promotes distribution of transportation investments across the region. The staff recommendation is always financially constrained—meaning, subject to available funding. There was approximately $533 million of Regional Target funding available to the Boston Region MPO for FFYs 2020–24. In this TIP cycle, the MPO discussed the staff recommendation and programming scenarios for the Regional Target Program for highway projects and selected a preferred program in March, 2019.

In addition to prioritizing the Regional Target funding, the MPO also reviews and endorses the Statewide Infrastructure Items and Bridge Programs that MassDOT recommends for programming. The MPO also reviews and endorses programming of funds for the MBTA's, CATA's, and MWRTA's capital programs.

APPROVING THE TIP

After selecting a preferred programming scenario, usually in April, the MPO votes to release the draft TIP for a 21-day public review period, during which the MPO invites members of the public, municipal officials, and other stakeholders in the Boston region to review the proposed program. During the public review period, MPO staff hosts open-house style public meetings to discuss the draft TIP document and elicit additional comments.

After the public review period ends, the MPO reviews all municipal and public comments and may change elements of the document or its programming. The MPO then endorses the

TIP and submits it to the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) for approval. MassDOT incorporates the MPO-endorsed TIP into the State Transportation Improvement Program (STIP). The FHWA, FTA, and US Environmental Protection Agency review the STIP for certification by September 30, the close of the federal fiscal year.

UPDATES TO THE TIP

Even after the TIP has been finalized, administrative modifications, amendments, and adjustments often must be introduced because of changes in project status, project cost, or available revenues. This may necessitate reprogramming a project in a different funding year or programming additional funds for a project.

Notices of administrative modifications and amendments are posted on the MPO's website. If an amendment is necessary, the Regional Transportation Advisory Council—the public advisory board to the MPO—is informed, and the MPO notifies affected municipalities and other stakeholders via email. The MPO typically holds a 21-day public review period before taking final action on an amendment. In extraordinary circumstances, the MPO may vote to shorten the public comment period to a minimum of 15 days. Administrative modifications and adjustments are generally minor and usually do not warrant a public review period.

STAY INVOLVED WITH THE TIP

Public input is an important aspect of the transportation planning process. Please visit **www.bostonmpo.org** for more information about the MPO, to view the entire TIP, and to submit your comments. You also may wish to sign up for email news updates and notices by contacting **publicinfo@ctps.org** or signing up at **www.ctps.org/subscribe**.
To request a copy of the TIP in accessible formats, please contact the MPO staff by any of the following means:

Mail:	Boston Region MPO c/o CTPS Certification Activities Group 10 Park Plaza, Suite 2150 Boston, MA 02116-3968
Telephone:	857.702.3700
TTY:	617.973.7089
Fax:	617.570.9192
Email:	publicinfo@ctps.org

CHAPTER 1
3C TRANSPORTATION PLANNING AND THE BOSTON REGION MPO

Decisions about how to allocate transportation funds in a metropolitan area are guided by information and ideas garnered from a broad group of people, including elected officials, municipal planners and engineers, transportation advocates, and interested residents. Metropolitan planning organizations (MPOs) are the bodies responsible for providing a forum for this decision-making process. Each metropolitan area in the United States with a population of 50,000 or more—also known as an urbanized area—is required by federal legislation to establish an MPO, which decides how to spend federal transportation funds for capital projects and planning studies for the area.

THE TRANSPORTATION PLANNING PROCESS

The federal government regulates the funding, planning, and operation of the surface transportation system through the federal transportation program, which was enacted into law through Titles 23 and 49 of the United States Code. Section 134 of Title 23 of the Federal-Aid Highway Act and Section 5303 of the Federal Transit Act, as amended, require that urbanized areas conduct a transportation planning process, resulting in plans and programs consistent with the planning objectives of the metropolitan area, in order to be eligible for federal funds.

The most recent reauthorization of the surface transportation law is the Fixing America's Surface Transportation (FAST) Act. The FAST Act sets policies related to metropolitan transportation planning. The law requires all MPOs to carry out a continuing, comprehensive, and cooperative (3C) transportation planning process.

3C Transportation Planning

The Boston Region MPO is responsible for carrying out the 3C planning process in the Boston region and has established the following objectives for the process:

- Identify transportation problems and develop possible solutions.
- Ensure that decision-making balances short- and long-range considerations and adequately reflects the range of possible future scenarios, options, and consequences.
- Represent both regional and local considerations, as well as both transportation and non-transportation objectives and impacts, in the analysis of project issues.
- Assist implementing agencies in effecting timely policy and project decisions with adequate consideration of environmental, social, fiscal, and economic impacts, and with adequate opportunity for participation by other agencies, local governments, and the public.
- Help implementing agencies to prioritize transportation activities in a manner consistent with the region's needs and resources.
- Comply with the requirements of the FAST Act, the Americans with Disabilities Act of 1990 (ADA), the Clean Air Act (CAA), the Civil Rights Act of 1964, Executive Order 12898 (regarding environmental justice), Executive Order 13166 (regarding outreach to populations with limited English-language proficiency), and Executive Order 13330 (regarding the coordination of human-services transportation).

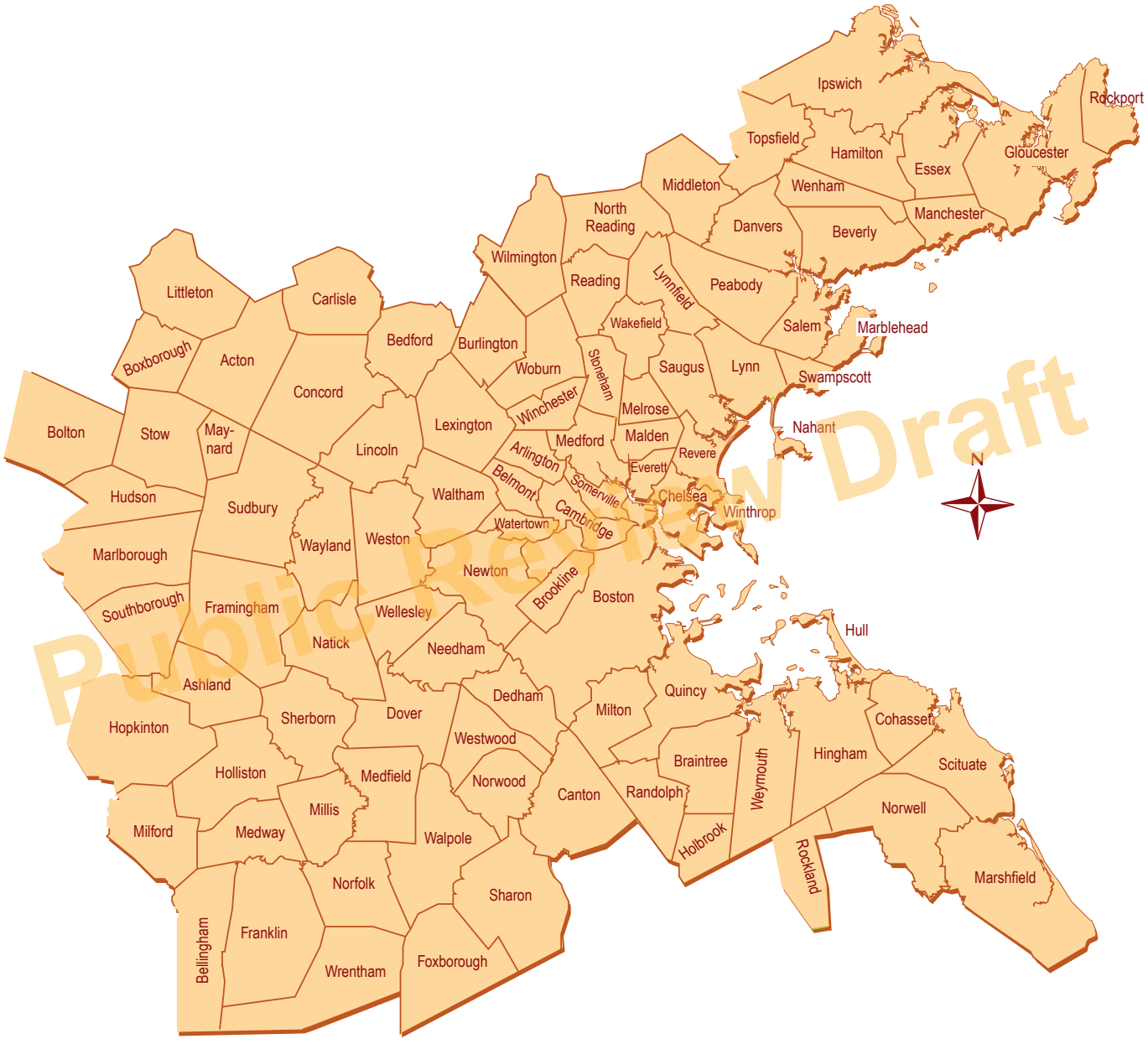
More information about the federal, state, and regional guidance governing the transportation planning process and about the regulatory framework in which the MPO operates can be found in Appendix F.

THE BOSTON REGION MPO

The Boston Region MPO's planning area extends across 97 cities and towns from Boston north to Ipswich, south to Marshfield, and west to Interstate 495.

Figure 1-1 shows the map of the Boston Region MPO's member municipalities.

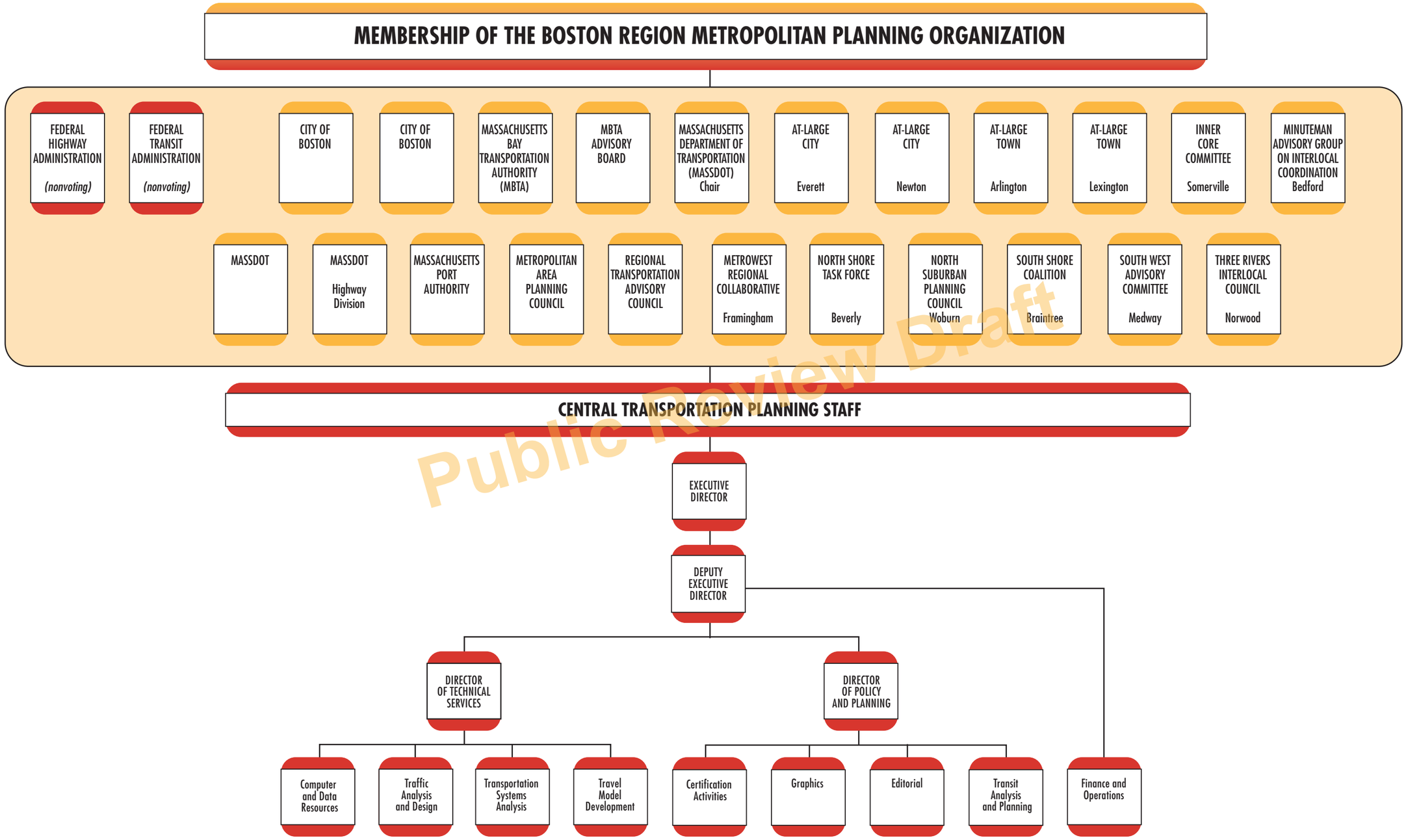
Figure 1-1
Municipalities in the Boston Region



The MPO's board comprises 22 voting members. Several state agencies and regional organizations and the City of Boston are permanent voting members, while 12 municipalities are elected as voting members for three-year terms. Eight municipal members represent each of the eight subregions of the Boston region, and there are four at-large municipal seats. The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) participate on the MPO board as advisory (nonvoting) members. More details about the MPO's permanent members can be found in Appendix F.

Figure 1-2 shows MPO membership and the organization of the Central Transportation Planning Staff (CTPS), which serves as staff to the MPO.

Figure 1-2
Boston Region MPO Organizational Chart



MARCH 2019

MPO Central Vision Statement

The MPO board agreed upon the following vision statement on January 17, 2019, in preparation for the upcoming adoption of *Destination 2040*, the MPO's next Long-Range Transportation Plan (LRTP):

The Boston Region MPO envisions a modern, well-maintained transportation system that supports a sustainable, healthy, livable, and economically vibrant region. To achieve this vision, the transportation system must be safe and resilient; incorporate emerging technologies; and provide equitable access, excellent mobility, and varied transportation options.

Certification Documents

As part of its 3C process, the Boston Region MPO annually produces the Transportation Improvement Program (TIP) and the Unified Planning Work Program (UPWP). These documents, along with the quadrennial LRTP, are referred to as *certification documents* and are required for the MPO's process to be certified as meeting federal requirements; this certification is a prerequisite for receiving federal transportation funds. In addition to the requirement to produce the LRTP, TIP, and UPWP, the MPO must establish and conduct an inclusive public participation process, as well as maintain transportation models and data resources to support air quality conformity determinations and long- and short-range planning work and initiatives.

The following is a summary of each of the certification documents:

- The LRTP guides decision-making about investments that will be made in the Boston region's transportation system over the next two decades. It defines an overarching vision of the future of transportation in the region, establishes goals and objectives that will lead to achieving that vision, and allocates projected revenue to transportation projects and programs consistent with established goals and objectives. The Boston Region MPO produces an LRTP every four years. *Charting Progress to 2040* is the LRTP that was endorsed by the MPO board in 2015 and will be in effect until the next LRTP, *Destination 2040*, is adopted in 2019. Figure 1-3 shows the MPO's goals and objectives, as approved by the MPO board in January 2019 in accordance with the preparation of *Destination 2040*.
- The TIP is a multiyear, multimodal program of transportation improvements that is consistent with the LRTP. It describes and prioritizes transportation projects that are expected to be implemented during a five-year period. The types of transportation projects funded include major highway reconstruction and maintenance, arterial and intersection improvements, public transit expansion and maintenance, bicycle paths and facilities, and improvements for pedestrians. The TIP contains a financial plan that shows the revenue sources, current or proposed, for each project. The TIP serves as the implementation arm of the MPO's LRTP, and the Boston Region MPO updates the TIP annually. An MPO-endorsed TIP is incorporated into the State Transportation Improvement Program (STIP) for submission to the FHWA, FTA, and US Environmental Protection Agency for approval.

- The UPWP contains information about transportation planning studies that will be conducted by MPO staff during the course of a federal fiscal year, which runs from October 1 through September 30. The UPWP also describes all of the supportive planning activities undertaken by the MPO staff, including data resources management, preparation of the federally required certification documents, and ongoing regional transportation planning assistance. The UPWP, which is produced annually, is often a means to study transportation projects and alternatives before they are advanced for further design, construction, and possible future programming through the TIP. The studies and work products programmed for funding through the UPWP are integrally related to other planning initiatives conducted by the Boston Region MPO, the Massachusetts Department of Transportation, the Massachusetts Bay Transportation Authority, the Massachusetts Port Authority, the Metropolitan Area Planning Council, and municipalities in the Boston region.

Figure 1-3
LRTP Goals and Objectives, as of Spring 2019

CENTRAL VISION STATEMENT

The Boston Region Metropolitan Planning Organization envisions a modern, well-maintained transportation system that supports a sustainable, healthy, livable, and economically vibrant region. To achieve this vision, the transportation system must be safe and resilient; incorporate emerging technologies; and provide equitable access, excellent mobility, and varied transportation options.

GOALS	OBJECTIVES
SAFETY	
Transportation by all modes will be safe	• Reduce the number and severity of crashes and safety incidents for all modes • Reduce serious injuries and fatalities from transportation • Make investments and support initiatives that help protect transportation customers, employees, and the public from safety and security threats
SYSTEM PRESERVATION	
Maintain and modernize the transportation system and plan for its resiliency	• Maintain the transportation system, including roadway, transit, and active transportation infrastructure, in a state of good repair • Modernize transportation infrastructure across all modes • Prioritize projects that support planned response capability to existing or future extreme conditions (sea level rise, flooding, and other natural and security-related man-made impacts)

CAPACITY MANAGEMENT AND MOBILITY

Use existing facility capacity more efficiently and increase transportation options

- Improve access to and accessibility of all modes, especially transit and active transportation
- Support implementation of roadway management and operations strategies to improve travel reliability, mitigate congestion, and support non-single-occupant vehicle travel options
- Emphasize capacity management through low-cost investments; prioritize projects that focus on lower-cost operations and management-type improvements such as intersection improvements, transit priority, and Complete Streets solutions
- Improve reliability of transit
- Increase percentage of population and employment within one-quarter mile of transit stations and stops
- Support community-based and private-initiative services and programs to meet first/last-mile, reverse commute, and other non-traditional transit/transportation needs, including those of people 75 years old or older and people with disabilities
- Support strategies to better manage automobile and bicycle parking capacity and usage at transit stations
- Fund improvements to bicycle and pedestrian networks aimed at creating a connected network of bicycle and accessible sidewalk facilities (both regionally and in neighborhoods) by expanding existing facilities and closing gaps
- Increase percentage of population and places of employment with access to facilities on the bicycle network
- Eliminate bottlenecks on freight network and improve freight reliability
- Enhance freight intermodal connections

TRANSPORTATION EQUITY

Ensure that all people receive comparable benefits from, and are not disproportionately burdened by, MPO investments, regardless of race, color, national origin, age, income, ability, or sex

- Prioritize MPO investments that benefit equity populations*
- Minimize potential harmful environmental, health, and safety effects of MPO funded projects for all equity populations*
- Promote investments that support transportation for all ages (age-friendly communities)
- Promote investments that are accessible to all people regardless of ability

*Equity populations include people who identify as minority, have limited English proficiency, are 75 years old or older or 17 years old or younger, or have a disability; or are members of low-income households.

CLEAN AIR/SUSTAINABLE COMMUNITIES

Create an environmentally friendly transportation system

- Reduce greenhouse gases generated in Boston region by all transportation modes
- Reduce other transportation-related pollutants
- Minimize negative environmental impacts of the transportation system
- Support land-use policies consistent with smart, healthy, and resilient growth

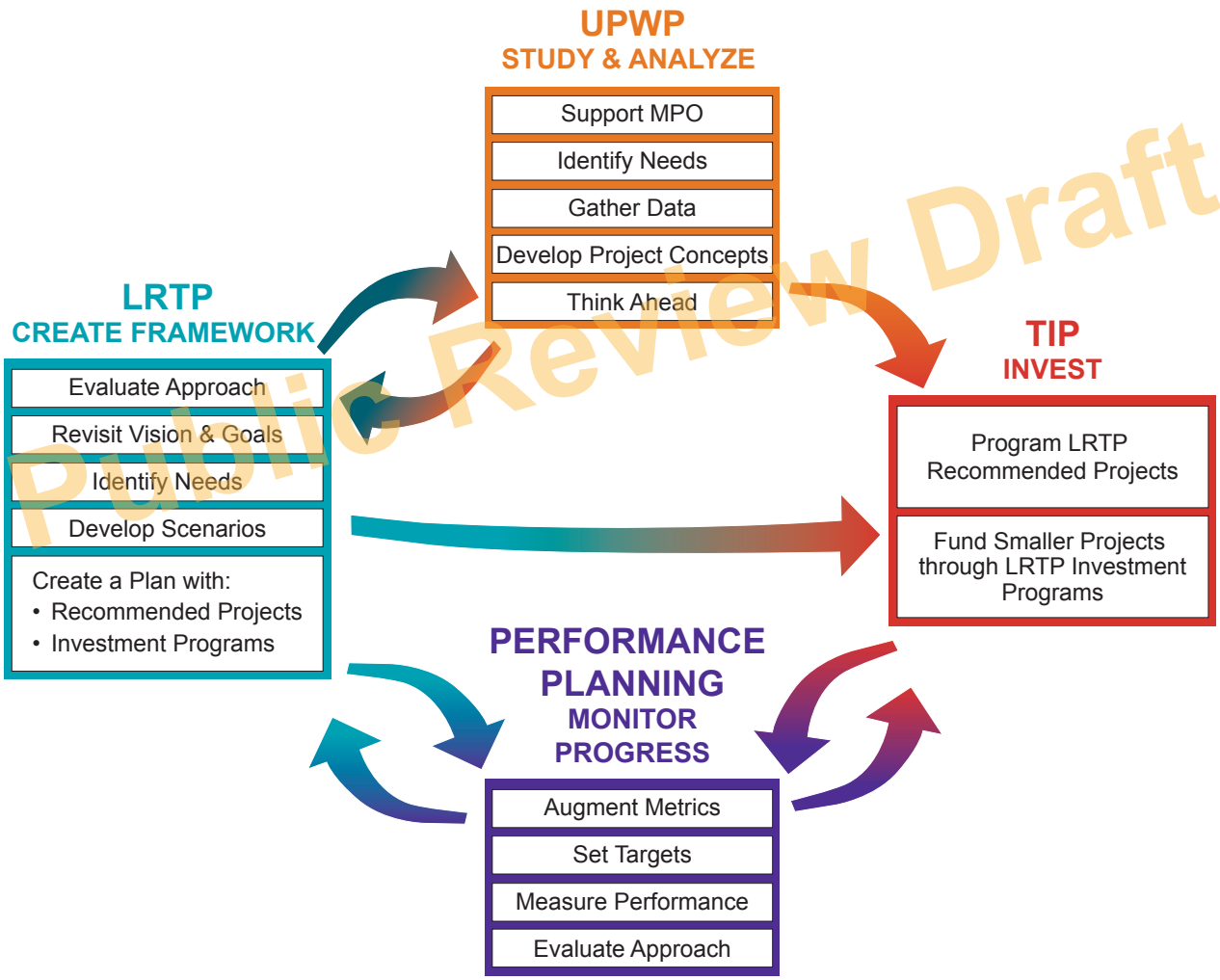
ECONOMIC VITALITY

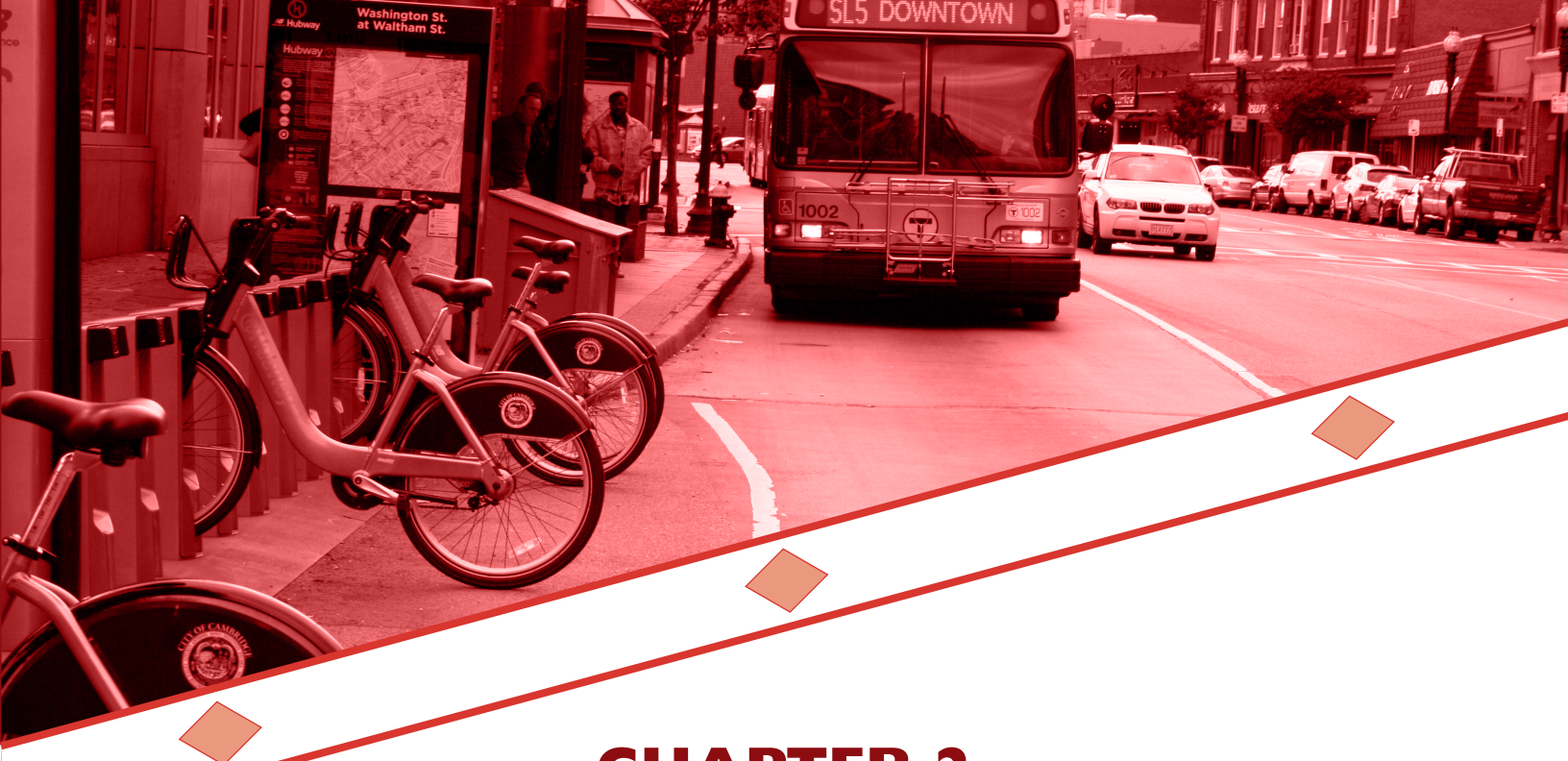
Ensure our transportation network provides a strong foundation for economic vitality

- Respond to mobility needs of the workforce population
- Minimize burden of housing and transportation costs for residents in the region
- Prioritize transportation investments that serve residential, commercial, and logistics targeted development sites and "Priority Places" identified in MBTA's Focus 40 plan
- Prioritize transportation investments consistent with compact-growth strategies of the regional land-use plan

Figure 1-4 depicts the relationship between the three certification documents and the MPO's performance-based planning and programming process, which is a means to monitor progress towards the MPO's goals and continuously evaluate the MPO's approach to achieving them.

Figure 1-4
Relationship between the LRTP, TIP, UPWP, and Performance-Based Planning Process





CHAPTER 2

THE TIP PROCESS

INTRODUCTION TO THE TIP PROCESS

One of the most important decisions a metropolitan planning organization (MPO) faces is deciding how to allocate limited funds for transportation projects and programs. Transportation improvements are part of the solution to many critical regional, state, national, and even global problems, such as traffic congestion, air pollution, fatalities and injuries on roadways, climate change, and environmental injustice. Because there is not nearly enough funding available for all of the necessary and worthy projects that would address these problems, an MPO's investment choices must be guided by policies that help identify the most viable and effective solutions.

As described in Chapter 1, the Boston Region MPO develops a Long-Range Transportation Plan (LRTP) and a Transportation Improvement Program (TIP) to prioritize the expenditure of federal funds on transportation projects. The MPO staff manages the development of both plans. The annual development process for the TIP involves evaluating project funding requests from municipalities and state transportation agencies. The MPO staff also proposes programming for new and ongoing projects based on anticipated yearly funding levels, supports the MPO board by creating a draft TIP document, and facilitates a public involvement process that affords the public an opportunity to comment on proposed projects and review the draft TIP before the MPO board endorses the final document.

FUNDING THE TIP

Federal Funding Framework

The first step in allocating federal transportation funds is the passage by the United States Congress of a multi-year act that establishes a maximum level of federal transportation funding per federal fiscal year (FFY).[1] The establishment of this level of funding is referred to as an *authorization*.

After the authorization level has been established, the United States Department of Transportation annually allocates funding among the states according to various federal formulas. This allocation is referred to as an *apportionment*. The annual apportionment rarely represents the actual amount of federal funds that are ultimately committed to a state because of federally imposed limitations on spending in a given fiscal year, referred to as the *obligation authority*. In Massachusetts, TIPs are developed based on the estimated obligation authority.

Federal Highway Program

The FFYs 2020-24 TIP's Highway Program was developed with the assumption that funding from the Federal-Aid Highway Program for the Commonwealth of Massachusetts would range between approximately $676 million and $740 million annually over the next five years. These amounts include the funds that would be set aside initially by the Massachusetts Department of Transportation (MassDOT) as payments for the Accelerated Bridge Program and exclude required matching funds.

The process of deciding how to use this federal funding in the Boston region follows several steps. MassDOT first reserves funding for Grant Anticipation Notes (GANs) debt service payments for the Accelerated Bridge Program; annual GANs payments range between approximately $82 million and $99 million annually over the five years of this TIP.

The remaining Federal-Aid Highway Program funds are budgeted to support state and regional (i.e., MPO) priorities. In this TIP, there is a total of approximately $734 million to $793 million assumed to be annually available statewide for programming (these amounts include both federal dollars and the state-provided local match). MassDOT customarily provides the local match (which can also be provided by other entities); thus, projects are typically funded with 80 percent federal dollars and 20 percent state dollars, depending on the funding program.

Regional Targets

1 The most recent authorization act, Fixing America's Surface Transportation Act, was signed into law on December 4, 2015.

The Regional Targets are discretionary funds for MPOs, suballocated by formula to each metropolitan planning region. (The Boston Region MPO receives about 43 percent of the total funds available statewide for Regional Targets.) MassDOT developed the target formula in consultation with the Massachusetts Association of Regional Planning Agencies (MARPA).

Each MPO in the state can decide how to prioritize its Regional Target funding. Given that the Regional Target funding originates from the Federal-Aid Highway Program, the Boston Region MPO board typically programs the majority of its target funding on roadway projects; however, the MPO board has flexed portions of its TIP Highway Program funding to the TIP's Transit Program, as when the MPO board gave its support to the Green Line Extension transit expansion project.

During the next five years, the Boston Region MPO's total Regional Target funding will be approximately $533 million, an average of $107 million per year. To decide how to spend its Regional Target funding, the MPO engages its 97 cities and towns in an annual TIP development process.

Federal Highway Administration Programs

The Federal-Aid Highway Program dollars discussed in this section come through several Federal Highway Administration (FHWA) funding programs, each of which has unique requirements. Table 2-1 shows these programs, which come from the Fixing America's Surface Transportation (FAST) Act and fund projects in the FFYs 2020–24 TIP.

Table 2-1
Federal Highway Administration Programs Applicable to the FFYs 2020-24 Transportation Improvement Program

FAST Act Program	Eligible Uses
Congestion Mitigation and Air Quality Improvement (CMAQ)	A wide range of projects to reduce congestion and improve air quality in nonattainment and maintenance areas for ozone, carbon monoxide, and particulate matter
Highway Safety Improvement Program (HSIP)	Implementation of infrastructure-related highway safety improvements
National Highway Performance Program (NHPP)	Improvements to interstate routes, major urban and rural arterials, connectors to major intermodal facilities, and the national defense network; replacement or rehabilitation of any public bridge; and resurfacing, restoring, and rehabilitating routes on the Interstate Highway System
Surface Transportation Block Grant Program (STBGP) [formerly the Surface Transportation Program (STP)]	A broad range of surface transportation capital needs, including roads; transit, sea, and airport access; and vanpool, bicycle, and pedestrian facilities
Transportation Alternatives Program (TAP)	A set-aside from the STBGP that funds the construction of infrastructure-related projects (for example, sidewalk, crossing, and on-road bicycle facility improvements)
Metropolitan Planning	Facilities that contribute to an intermodal transportation system, including intercity bus, pedestrian, and bicycle facilities
National Highway Freight Program (NHFP)	Projects that improve the efficient movement of freight on the National Highway Freight Network

Source: Federal Highway Administration.

Federal Transit Program

Federal aid for public transit authorities is allocated by formula to urbanized areas (UZAs). MassDOT is the recipient of this federal aid in the Boston UZA. In UZAs with populations greater than 200,000, such as the Boston UZA, the distribution formula factors in passenger-miles traveled, population density, and other factors associated with each transit provider. The three regional transit authorities (RTAs) in the Boston Region MPO area are the Massachusetts

Bay Transportation Authority (MBTA), MetroWest Regional Transit Authority (MWRTA), and Cape Ann Transportation Authority (CATA). The MBTA, with its extensive transit program and infrastructure, is the recipient of the preponderance of federal transit funds in the region.

The Federal Transit Administration (FTA) distributes funding to transit agencies through several different programs. Table 2-2 shows FTA programs that come from the FAST Act and support transit investments in the FFYs 2020-24 TIP.

Table 2-2
Federal Transit Administration Programs Applicable to the FFYs 2020-24 Transportation Improvement Program

FAST Act Program	Eligible Uses
Urbanized Area Formula Grants (Section 5307)	Transit capital and operating assistance in urbanized areas
Fixed Guideway/Bus (Section 5337)	Replacement, rehabilitation, and other state-of-good-repair capital projects
Bus and Bus Facilities (Section 5339)	Capital projects to replace, rehabilitate, and purchase buses and related equipment, and to construct bus-related facilities
Enhanced Mobility of Seniors and Individuals with Disabilities (Section 5310)	Capital expenses that support transportation to meet the special needs of older adults and persons with disabilities
Fixed-Guideway Capital Investment Grants (Section 5309)	Grants for new and expanded rail, bus rapid transit, and ferry systems that reflect local priorities to improve transportation options in key corridors

Source: Federal Transit Administration.

INVESTMENT FRAMEWORKS

MPO Investment Framework

As mentioned previously, each MPO in the state can decide how to prioritize the Regional Target funding it receives through the processes established by FHWA and MassDOT. The Boston Region MPO's LRTP defines the investment framework that informs the specific investment decisions made in the TIP by establishing

- the MPO's transportation vision, goals, and objectives, which shape the MPO's TIP evaluation criteria;
- MPO investment programs; and
- other guidelines that help the MPO determine how to allocate funding across its investment programs.

MPO Goals and Objectives

The MPO's goals and objectives provide the foundation for the TIP evaluation criteria the MPO board uses when selecting roadway projects to be funded with Regional Target dollars. MPO staff compares candidate projects' characteristics to these criteria to evaluate whether individual projects can help the MPO advance its various goals. The criteria are based on the MPO's goals and objectives, which were adopted for its current LRTP, *Charting Progress to 2040*.

MPO Investment Programs

In *Charting Progress to 2040*, the MPO strengthened the link between its spending and improvements to transportation performance by establishing a series of investment programs. These investment programs focus on specific types of projects that the MPO expects will help achieve its goals and objectives for the transportation system. The MPO created these programs to give municipalities the confidence that if they design these types of projects the MPO will be willing to fund them through the LRTP and TIP:

- Complete Streets
- Intersection Improvements
- Bicycle Network and Pedestrian Connections
- Major Infrastructure (including highway funds flexed to major transit infrastructure)
- Community Transportation/Parking/Clean Air and Mobility

The MPO allocates its Regional Target dollars to these investment programs by assigning them to TIP projects that meet the investment programs' criteria. Figure 2-1 provides details about these investment programs and their relationship to the MPO's goals.

Figure 2-1
MPO Investment Programs

Intersection Improvements

Funds projects to modernize intersection geometry and signalization to improve safety and mobility. Improvements may include

- Adding turning lanes
- Modernizing existing signals or adding signals
- Shortening crossing distances for pedestrians
- Improving sidewalks
- Adding curb cuts
- Updating signal operations

Complete Streets

Funds projects that modernize roadways to improve safety and mobility for all users. Improvements may include

- Providing continuous sidewalks
- Providing bicycle lanes, cycle tracks or other bicycle facilities
- Updating signals at intersections along a corridor
- Improving other corridor infrastructure, such as bridges, drainage, pavement and roadway geometry

Bicycle Network and Pedestrian Connections

Funds projects to expand bicycle and pedestrian networks to improve safe access to transit, schools, employment centers, and shopping destinations. Improvements may include

- Constructing new off-road bicycle or multi-use paths
- Improving bicycle and pedestrian crossings
- Building new sidewalks
- Providing traffic calming or other Complete Streets-type upgrades
- Enhancing signage and lighting

KEY: MPO GOALS — Safety; System Preservation and Modernization; Capacity Management and Mobility; Clean Air/ Sustainable Communities; Transportation Equity; Economic Vitality

Figure 2-1
MPO Investment Programs (cont. 2)

Community Transportation/Parking/Clean Air and Mobility Program

Funds a variety of project types, including but not limited to:

- **Transit Operations and Improvements:** This category includes projects that close gaps in the transit network, such as first- and last-mile solutions and needs not covered by existing fixed route transit or paratransit services. These may focus on shuttle operations, partnerships with transportation network companies, or transit enhancements. This program may also support the coordination of transit service or small capital improvements with existing or future fixed-route service.

- **Parking Management:** This category supports the adoption of innovative parking management strategies or the construction of additional parking for automobiles or bicycles.

- **Bicycle and Pedestrian Improvements:** This category supports minor infrastructure improvements near transit stations, with the goal of making walking or biking to transit safer, thereby facilitating first- and last-mile connections.

- **Education and Wayfinding:** Projects in this category could include travel instruction, training on new technologies, signage, and pilot or demonstration projects.

Major Infrastructure Program

Funds projects that modernize and/or expand major highways and arterials to reduce congestion and improve safety.

Improvements may include

- Constructing expressway interchanges to eliminate weaving and reduce the likelihood of rollovers
- Adding travel lanes on expressways
- Adding/removing grade separations on major arterials

This program may also support transit by flexing highway funds to transit and bridge projects.

Projects in this program cost more than $20 million and/or add capacity to the transportation system.

KEY: MPO GOALS — Safety; System Preservation and Modernization; Capacity Management and Mobility; Clean Air/ Sustainable Communities; Transportation Equity; Economic Vitality

Other Funding Guidelines

When creating investment scenarios for *Charting Progress to 2040,* the MPO applied guidelines which were designed to strike a balance between large-scale projects that would be included in its Major Infrastructure program and lower cost, operations and management-type projects. (Major Infrastructure projects are those that cost more than $20 million or that add capacity to the transportation network). Such a balance would help the MPO address its goals and provide more opportunities for the MPO to distribute federal transportation dollars to projects throughout the region, as opposed to concentrating it in a few large-scale projects. *Charting Progress to 2040* focused on investing federal transportation dollars over a 20-year period, but several guidelines are relevant to shorter-term TIP programming, including the following:

- No more than 50 percent of available funding in each LRTP five-year time band should be allocated to major infrastructure projects.
- If one major infrastructure project requires more than 50 percent of funding in a particular time band, it should not be programmed.

The MPO can consider LRTP-based guidelines such as these when determining how to program Regional Target funding over the relevant five-year period for the TIP.

MassDOT and Transit Agency Investment Frameworks

MassDOT, in coordination with the MBTA, updates its rolling five-year Capital Investment Plan (CIP) on an annual basis. This planning document identifies priority roadway, transit, bridge, and statewide infrastructure projects for the five MassDOT divisions and the MBTA. The CIP process uses a framework that prioritizes funding according to MassDOT's strategic goals (listed in descending order of priority):

- **Reliability Investments:** These investments are oriented toward maintaining and improving the overall condition and reliability of the transportation system. They include capital maintenance projects, state-of-good-repair projects, and other asset management and system preservation projects.
- **Modernization Investments:** These are investments that enhance the transportation system to make it safer and more accessible and to accommodate growth. These projects address compliance with federal mandates or other statutory requirements for safety and/or accessibility improvements; exceed state-of-good-repair thresholds to substantially modernize existing assets; and provide expanded capacity to accommodate current or anticipated demand on transportation systems.
- **Expansion Investments:** These are investments that provide more diverse transportation options for communities throughout the Commonwealth. They expand highway, transit, and rail networks and/or services, or they expand bicycle and pedestrian networks to provide more transportation options and address health and sustainability objectives.

MassDOT and the MBTA have created investment programs for the CIP that relate to these strategic goals, and allocate funding to these goals and programs in ways that emphasize their priority.

- **Reliability Programs:** MassDOT Highway Division programs in this area include the Bridge Program—including inspections, systematic maintenance, and National Highway System (NHS) and non-NHS improvements—the Pavement Program, the Roadway Improvements Program, and the Safety Improvements Program. MBTA Reliability programs include its Revenue Vehicles Program; Track, Signals, and Power Program; Bridge and Tunnel Program; Stations Program; Facilities Program; and Systems Upgrade/Other investments.
- **Modernization Programs:** These MassDOT Highway Division programs in this area include the Americans with Disabilities Act (ADA) Retrofit Program, the Intersection Improvement Program, the Intelligent Transportation System (ITS) Program, and the Roadway Reconstruction Program. MBTA programs in this area include the Red and Orange Improvements Program, the Commuter Rail Safety and Resiliency Program, the Accessibility Program, the Risk Management and Mitigation Program, the Automated Fare Collection (AFC) Program, and the Customer Experience and Technology Improvements Program.
- **Expansion Programs:** MassDOT Highway Division programs in this area include the Bicycle and Pedestrian Program and the Capacity Program. The MBTA's major expansion program is for the Green Line Extension.

Other program areas discussed in the CIP include the following:

- **Regional Targets:** Projects in this category are funded with Regional Target funds and prioritized by MPOs.
- **Planning/Adjustments/Pass-Throughs:** This category includes award adjustments, change orders, and related project expenses. These dollars also support metropolitan planning efforts, MassDOT planning and research activities, the MassRIDES Program, MassDOT's Recreational Trails Program, and improvements to railroad grade crossings.

The regional transit authorities (RTAs) in the Boston region—the MetroWest Regional Transit Authority (MWRTA) and the Cape Ann Transportation Authority (CATA)—coordinate with the MassDOT Rail and Transit Division to develop their capital programs, the federally funded components of which are reflected in the CIP according to the framework described above.

The MPO's TIP reflects federally funded MassDOT, MBTA, and RTA investments in the CIP that will be made in the Boston region. MassDOT's Rail and Transit Division also distributes FTA Section 5310 funds and other funds to other transit providers in the region—these investments, when programmed, are reflected in the TIP as well.

DEVELOPING THE TIP

Project Selection Process

Overview

The MPO applies its investment framework when developing the TIP. The MPO board's process for selecting projects to receive highway discretionary—or Regional Target—funding relies on evaluation criteria to help identify and prioritize projects that advance the MPO's goals. The criteria are based on the MPO's goals and objectives, which were adopted for *Charting Progress to 2040*. All projects are required to show consistency with the LRTP and other statewide and regional plans. Other considerations include the readiness of a project for construction and municipal support for the project. Background information about the TIP project evaluation process is presented in Appendix A. Following adoption of the next LRTP, *Destination 2040*, in June 2019, the TIP evaluation criteria will be reviewed to determine if any changes or improvements are necessary to enhance alignment with the MPO's revised goals and objectives, or to reflect up-to-date best practices in performance-based planning.

Outreach and Data Collection (October–December)

The TIP development process begins early in the federal fiscal year when cities and towns in the region designate staff as TIP contacts and begin developing a list of priority projects to be considered for federal funding. Each fall, the MPO staff asks these TIP contacts to identify their city or town's priority projects and then the MPO staff elicits input from interested parties and members of the general public.

New projects must be initiated by the MassDOT Highway Division before they can be considered for programming in the TIP. MassDOT details the project initiation process and posts relevant documents on its Project Review Committee's webpage, **www.massdot.state.ma.us/highway/Departments/ProjectManagement/ProjectReviewCommittee.aspx.**

Municipal TIP Contacts and the MPO staff coordinate to update each project's Project Funding Application Form through the MPO's Interactive TIP Database, **www.bostonmpo.org/apps/tip11/tip_query.html**, which summarizes information about each project's background, infrastructure condition and needs, development status, and ability to help the region attain the MPO's goals and objectives.

The MPO staff compiles the project funding requests into a *Universe of Unprogrammed Projects* list, which consists of all identified projects being advanced for possible funding. The *Universe* includes projects that are fully designed and ready to be advertised for construction, those that are undergoing preliminary engineering and design, and projects still in the conceptual planning stage.

The MPO staff also monitors the anticipated greenhouse gas (GHG) emissions that would result from each project in order to consider these impacts when prioritizing transportation investments. For more information on GHG emission monitoring and evaluation, see Appendix B.

Project Evaluation (December–February)

The MPO staff uses its project evaluation criteria to logically and transparently evaluate and select projects for programming in the TIP that advance the MPO's vision for transportation. This process favors projects that support the following goals:

- Transportation by all modes will be safe
- Maintain and modernize the transportation system and plan for its resiliency
- Use existing facility capacity more efficiently and increase transportation options
- Create an environmentally friendly transportation system
- Ensure that all people receive comparable benefits from, and are not disproportionately burdened by, MPO investments, regardless of race, color, national origin, age, income, ability, or sex
- Ensure our transportation network provides a strong foundation for economic vitality

The project evaluation scoring methodology consists of 28 criteria that support the six goals and related objectives of the MPO's LRTP. A list of the TIP evaluation criteria (in Figure 2-2) provides an overview of the goals, criteria, and scoring values.

In order for the MPO staff to conduct a complete project evaluation, the project must have a functional design report or be at a 25 percent design stage, or its plans must include the level of detail defined in a functional design report. See MassDOT's *Project Development and Design Guide* for information about the contents of a functional design report. This guide is available at **www.massdot.state.ma.us/highway/DoingBusinessWithUs/ManualsPublicationsForms/ProjectDevelopmentDesignGuide.aspx**.

The summary of evaluation results for projects considered for programming in this TIP is available in Appendix A. The table contains the total project rating for each project. For more details about the evaluation criteria used to score projects, see Appendix A.

TIP Readiness Day (February)

The MPO staff meets with members of the MassDOT Highway Division and MassDOT District project managers to review cost and schedule changes related to currently programmed projects, which are undergoing design review, permitting, and right-of-way acquisition. The MPO board then considers these updated project construction costs and changes to the expected dates for construction advertisement when making decisions about changes to TIP programming. These changes have an impact on the ability of the MPO to program its target funds for new projects in the five-year TIP.

Staff Recommendation and Project Selection (March–April)

Using the evaluation ratings and information gathered about project readiness (when a project likely would be fully designed and ready for construction), staff prepares a *First-Tier List of Projects*. This list cites the projects that both earned the highest ratings in the MPO's evaluation process and that could be made ready for advertising within the TIP's time horizon—the next five FFYs.

The MPO staff strongly considers the *First-Tier List of Projects* when preparing a recommendation to the MPO for projects to program in the TIP. Other considerations for project selection include whether a project was programmed in the LRTP, LRTP-based guidelines for allocating funds to different programs or project types, distribution of investments across the region, and availability of sufficient funding.

Figure 2-2
Transportation Improvement Program Evaluation Criteria

GOALS	CRITERIA	Project Rating
Safety	• Crash Severity Value: EPDO index • Crash Rate: intersection or corridor • Improves truck-related safety issue • Improves bicycle safety • Improves pedestrian safety • Improves safety or removes an at-grade railroad crossing	30
System Preservation and Modernization	• Improves substandard roadway bridge(s) • Improves substandard pavement • Improves substandard traffic signal equipment • Improves transit asset(s) • Improves substandard sidewalk(s) • Improves emergency response • Improves ability to respond to extreme conditions	29
Capacity Management/ Mobility	• Reduces transit vehicle delay • Improves pedestrian network and ADA accessibility • Improves bicycle network • Improves intermodal accommodations/connections to transit • Improves truck movement • Reduces vehicle congestion	29
Clean Air/ Sustainable Communities	• Reduces CO_2 • Reduces other transportation-related emissions • Addresses environmental impacts • Is in an EOEEA-certified "Green Community"	16
Transportation Equity	• Serves Title VI/non-discrimination populations	12
Economic Vitality	• Serves targeted development site • Consistent with the compact growth strategies of MetroFuture • Provides multimodal access to an activity center • Leverages other investments (non-TIP funding)	18

ADA = Americans wth Disabilities Act. CO_2 = Carbon Dioxide. EOEEA = Executive Office of Energy and Environmental Affairs. EPDO = Equivalent Property Damage Only.

Selection Process for State and Transit Agency Prioritized Projects

As discussed above, the selection of transit, bridge, and statewide infrastructure projects for programming in the TIP draws primarily from MassDOT's Capital Investment Plan (CIP). MassDOT and the MBTA select individual projects for inclusion in CIP programs using a process recommended by the independent Project Selection Advisory Council (PSAC) and/or based on data from asset management systems maintained by MassDOT or MBTA divisions. The following criteria from the PSAC process guide project selection:

- **System Preservation:** Projects should contribute to a state of good repair on the system.
- **Mobility:** Projects should provide efficient and effective modal options.
- **Cost Effectiveness:** Projects should result in benefits commensurate with costs and should be aimed at maximizing the return on the public's investment.
- **Economic Impact:** Projects should support strategic economic growth in the Commonwealth.
- **Safety:** Projects should contribute to the safety and security of people and goods in transit.
- **Social Equity and Fairness:** Projects should equitably distribute both the benefits and the burdens of investments among all communities.
- **Environment and Health Impacts:** Projects should maximize the potential positive health and environmental aspects of the transportation system.
- **Policy Support:** Projects should get credit if they support local or regional policies or plans or state policies not addressed through the other criteria.

Projects that receive the highest priority are those that meet MassDOT's goals for maintaining and improving the overall condition and reliability of the system; modernizing the system to make it safer and more accessible and to accommodate growth; and expanding and diversifying transportation options for communities. These project prioritization processes may also reflect other planning initiatives, such as *Focus40*, the MBTA's 25-year investment plan.

As discussed above, the transit element of the TIP also includes the Federal-Aid Programs of the other two RTAs in the region, CATA and MWRTA.

Once selection processes are complete, these agencies submit their lists of bridge projects, statewide infrastructure items, and transit capital projects to the MPO for review.

APPROVING THE TIP

Approval of Draft TIP for Public Review

The MPO board considers the project evaluation results, *First-Tier List of Projects*, and staff recommendation when prioritizing projects for Regional Target funding. The body also considers public comments, the regional importance of projects, and other factors. In addition to prioritizing the Regional Target funding, the MPO board reviews statewide infrastructure items, the Bridge Program, and the capital programs for the MBTA, CATA, and MWRTA before voting to release a draft TIP for public review.

The MPO board votes to release the draft document for public review and invites members of the public, municipal officials, and other stakeholders in the Boston region to review the proposed TIP. The MPO staff hosts outreach events during the public review period to elicit comments on the draft document (see Appendix C).

Approval of the Draft TIP

After the public review period ends, the MPO staff and board review all municipal and public comments, and the board may change the programming or the document as appropriate before endorsing the TIP. MassDOT staff incorporates the MPO-endorsed TIP into the State Transportation Improvement Program (STIP) and submits it to the FHWA and FTA for approval. The FHWA, FTA, and US Environmental Protection Agency review the STIP and certify it by September 30, the end of the federal fiscal year.

UPDATING THE TIP

The TIP is a dynamic program that may be amended and adjusted throughout the year. Administrative modifications and amendments are often introduced because of changes in project status (advertisement readiness), project cost, project design scope, or available revenue. An amendment is a revision that requires public review and a demonstration of fiscal constraint.

Consistent with federal guidelines, the Boston Region MPO must release an amendment if there is (1) a change in project cost of $500,000 or more, for projects valued at $5 million or less, or (2) a change of 10 percent or more of the project cost, for projects valued greater than $5 million. Cost changes that are less than these threshold amounts may be considered in the form of administrative modifications or adjustments, which must still undergo MPO board action for approval. Although a public review period is not required for administrative modifications or adjustments, one may be offered at the MPO board's discretion.

All proposed amendments are presented in a public setting at an MPO meeting, and details are posted on the MPO's website, **bostonmpo.org**. Public notices are distributed through the MPO's email contact list, which members of the public may join by signing up on the MPO's

website. TIP contacts at the affected municipalities and the public are notified of pending amendments at the start of an amendment's public review period.

Public Notice

Notices of draft TIP amendments include a summary of the amendment's contents, dates of the public review period, contact information for submitting a comment to the MPO, and the date, time, and location that the MPO will vote on that amendment. Also during the public review period, the MPO staff notifies and briefs the Regional Transportation Advisory Council about the amendment and relays comments from the Advisory Council, if any, to the MPO board. Municipal representatives and members of the public are invited to submit written or oral testimony at the MPO meetings at which amendments are discussed or voted upon.

The MPO typically holds a 21-day public review period before taking final action on an amendment. In extraordinary circumstances, the MPO may vote to shorten the public review period to a minimum of 15 days. (These circumstances are detailed in the MPO's *Public Participation Plan*.)

The MPO's website is the best place to find current information about the TIP. All changes to the draft TIP and changes to the endorsed TIP, such as amendments and modifications that have been approved by the MPO, are available on the TIP webpage, **bostonmpo.org/tip**.

Comments or questions about the draft TIP materials may be submitted directly to the MPO staff via the website, email, or US mail, or voiced at MPO meetings and other public MPO events.

CHAPTER 3
HIGHWAY AND TRANSIT PROGRAMMING

The Transportation Improvement Program (TIP) tables included in this chapter present a listing of all the projects and programs funded with federal highway and transit aid in the Boston region during federal fiscal years (FFYs) 2020–24. These funding tables are also included as part of the State Transportation Improvement Program (STIP).

Table 3-1 presents a summary of the Boston Region Metropolitan Planning Organization's (MPO) share of Regional Target funds from the Federal-Aid Highway Program. The allocation of these funds is constrained by projections of available federal aid. As shown in Table 3-1, the MPO has programmed these discretionary funds within the limits of projected funding for highway funding programs. As such, the FFYs 2020–24 TIP Regional Target Program complies with financial constraint requirements. The details of this funding and the specific projects programmed with Regional Target funding are shown in Section 1A of each annual element of the TIP tables (Table 3- 2). Section 1A includes the regionally prioritized projects funded during a given federal fiscal year. The other sections in Table 3-2 (sections 1B, 2A, 2B, 2C, 3, and 4) list the following:

- Projects funded with earmarks or discretionary grant funds
- State-prioritized bridge repairs and rehabilitation, pavement maintenance, safety improvements, retrofits for accessibility (as required by the Americans with Disabilities Act), intersection improvements, roadway reconstruction, and bicycle and pedestrian projects
- Projects funded by sources other than federal aid

Each annual element of Table 3-2 also lists the federally funded transit projects and programs in the Boston region that the Massachusetts Bay Transportation Authority (MBTA), MetroWest Regional Transit Authority, and Cape Ann Transportation Authority plan to undertake. Table 3-3 provides additional information related to the MBTA's programs and projects planned in the region.

The second part of the chapter includes detailed descriptions of projects, including evaluation scores (for projects funded by the MPO's Regional Target Program), project proponents, and funding details. The pages are organized alphabetically by the municipality in which each project is located.

Table 3-1
Boston Region MPO Regional Target Program
MPO Discretionary Funds Sourced from the Federal-Aid Highway Program

Regional Target Program	FFY 2020	FFY 2021	FFY 2022	FFY 2023	FFY 2024	Total
Regional Target Obligation Authority	$102,478,656	$104,552,877	$106,681,829	$109,011,849	$110,440,638	$533,165,849
Regional Target Funds Programmed	$102,478,656	$104,552,877	$106,681,829	$109,011,849	$110,440,638	$533,165,849
Regional Target Funds Unprogrammed	$0	$0	$0	$0	$0	$0

Note: These figures include state matching funds, but exclude earmarked funds.

FFY = federal fiscal year.

Source: Boston Region Metropolitan Planning Organization.

Table 3-2
Federal Fiscal Years 2020-24 Transportation Improvement Program

2020 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
											Present information as follows, if applicable: **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
►Section 1A / Regionally Prioritized Projects											
►Regionally Prioritized Projects											
	Planning / Adjustments / Pass-throughs	1570	Boston Region	Multiple	GREEN LINE EXTENSION PROJECT- EXTENSION TO COLLEGE AVENUE WITH THE UNION SQUARE SPUR	6	CMAQ	$ 18,412,068	$ 14,729,654	$ 3,682,414	Construction; STBG+CMAQ+Section 5309 (Transit) Total MPO Contribution = $190,000,000; Total funding in this TIP = $49,131,200; AC Yr 5 of 6; funding flexed to FTA; match provided by local contributions
	Roadway Reconstruction	606635	Boston Region	Multiple	NEEDHAM-NEWTON- RECONSTRUCTION OF HIGHLAND AVENUE, NEEDHAM STREET & CHARLES RIVER BRIDGE, N-04-002, FROM WEBSTER STREET (NEEDHAM) TO ROUTE 9 (NEWTON)	6	HSIP	$ 4,500,000	$ 4,050,000	$ 450,000	Construction; CMAQ+HSIP+TAP+STBG Total Cost = $29,601,436; AC Yr 2 of 2; MPO Evaluation Score = 75
	Roadway Reconstruction	606635	Boston Region	Multiple	NEEDHAM-NEWTON- RECONSTRUCTION OF HIGHLAND AVENUE, NEEDHAM STREET & CHARLES RIVER BRIDGE, N-04-002, FROM WEBSTER STREET (NEEDHAM) TO ROUTE 9 (NEWTON)	6	STBG	$ 12,905,937	$ 10,324,750	$ 2,581,187	Construction; CMAQ+HSIP+TAP+STBG Total Cost = $29,601,436; AC Yr 2 of 2; MPO Evaluation Score = 75
	Roadway Reconstruction	606043	Boston Region	Hopkinton	HOPKINTON- SIGNAL & INTERSECTION IMPROVEMENTS ON ROUTE 135	3	CMAQ	$ 2,365,425	$ 1,892,340	$ 473,085	Construction; CMAQ+STBG Total Cost = $7,946,749
	Roadway Reconstruction	606043	Boston Region	Hopkinton	HOPKINTON- SIGNAL & INTERSECTION IMPROVEMENTS ON ROUTE 135	3	STBG	$ 5,581,324	$ 4,465,059	$ 1,116,265	Construction; CMAQ+STBG Total Cost = $7,946,749
	Roadway Reconstruction	607652	Boston Region	Everett	EVERETT- RECONSTRUCTION OF FERRY STREET, SOUTH FERRY STREET AND A PORTION OF ELM STREET	4	CMAQ	$ 1,884,270	$ 1,507,416	$ 376,854	Construction; CMAQ+STBG+HSIP+TAP Total Cost = $16,119,557; MPO Evaluation Score = 73
	Roadway Reconstruction	607652	Boston Region	Everett	EVERETT- RECONSTRUCTION OF FERRY STREET, SOUTH FERRY STREET AND A PORTION OF ELM STREET	4	HSIP	$ 1,050,296	$ 945,266	$ 105,030	Construction; CMAQ+STBG+HSIP+TAP Total Cost = $16,119,557; MPO Evaluation Score = 73
	Roadway Reconstruction	607652	Boston Region	Everett	EVERETT- RECONSTRUCTION OF FERRY STREET, SOUTH FERRY STREET AND A PORTION OF ELM STREET	4	STBG	$ 12,460,579	$ 9,968,463	$ 2,492,116	Construction; CMAQ+STBG+HSIP+TAP Total Cost = $16,119,557; MPO Evaluation Score = 73
	Roadway Reconstruction	607652	Boston Region	Everett	EVERETT- RECONSTRUCTION OF FERRY STREET, SOUTH FERRY STREET AND A PORTION OF ELM STREET	4	TAP	$ 724,412	$ 579,530	$ 144,882	Construction; CMAQ+STBG+HSIP+TAP Total Cost = $16,119,557; MPO Evaluation Score = 73; TAP Proponent = Everett
	Roadway Reconstruction	604123	Boston Region	Ashland	ASHLAND- RECONSTRUCTION ON ROUTE 126 (POND STREET), FROM THE FRAMINGHAM T.L. TO THE HOLLISTON T.L.	3	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; STBG+CMAQ+TAP Total Cost = $16,304,925; MPO Evaluation Score = 54
	Roadway Reconstruction	604123	Boston Region	Ashland	ASHLAND- RECONSTRUCTION ON ROUTE 126 (POND STREET), FROM THE FRAMINGHAM T.L. TO THE HOLLISTON T.L.	3	STBG	$ 13,198,444	$ 10,558,755	$ 2,639,689	Construction; STBG+CMAQ+TAP Total Cost = $16,304,925; MPO Evaluation Score = 54
	Roadway Reconstruction	604123	Boston Region	Ashland	ASHLAND- RECONSTRUCTION ON ROUTE 126 (POND STREET), FROM THE FRAMINGHAM T.L. TO THE HOLLISTON T.L.	3	TAP	$ 2,106,481	$ 1,685,185	$ 421,296	Construction; STBG+CMAQ+TAP Total Cost = $16,304,925; MPO Evaluation Score = 54; TAP Proponent = Ashland
	Roadway Reconstruction	602261	Boston Region	Walpole	WALPOLE- RECONSTRUCTION ON ROUTE 1A (MAIN STREET), FROM THE NORWOOD T.L. TO ROUTE 27, INCLUDES W-03-024 OVER THE NEPONSET RIVER	5	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; STBG+CMAQ+TAP Total Cost = $19,906,002; MPO Evaluation Score = 51
	Roadway Reconstruction	602261	Boston Region	Walpole	WALPOLE- RECONSTRUCTION ON ROUTE 1A (MAIN STREET), FROM THE NORWOOD T.L. TO ROUTE 27, INCLUDES W-03-024 OVER THE NEPONSET RIVER	5	STBG	$ 17,047,565	$ 13,638,052	$ 3,409,513	Construction; STBG+CMAQ+TAP Total Cost = $19,906,002; MPO Evaluation Score = 51

2020 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ ***Present information as follows, if applicable:*** **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Roadway Reconstruction	602261	Boston Region	Walpole	WALPOLE- RECONSTRUCTION ON ROUTE 1A (MAIN STREET), FROM THE NORWOOD T.L. TO ROUTE 27, INCLUDES W-03-024 OVER THE NEPONSET RIVER	5	TAP	$ 1,858,437	$ 1,486,750	$ 371,687	Construction; STBG+CMAQ+TAP Total Cost = $19,906,002; MPO Evaluation Score = 51; TAP Proponent = Walpole
	Roadway Reconstruction	608275	Boston Region	Malden	MALDEN - EXCHANGE STREET DOWNTOWN IMPROVEMENT PROJECT	4	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; CMAQ+STBG Total Cost = $1,988,532; MPO Evaluation Score = 59
	Roadway Reconstruction	608275	Boston Region	Malden	MALDEN - EXCHANGE STREET DOWNTOWN IMPROVEMENT PROJECT	4	STBG	$ 988,532	$ 790,826	$ 197,706	Construction; CMAQ+STBG Total Cost = $1,988,532; MPO Evaluation Score = 59
	Intersection Improvements	608347	Boston Region	Beverly	BEVERLY- INTERSECTION IMPROVEMENTS @ 3 LOCATIONS: CABOT STREET (ROUTE 1A/97) @ DODGE STREET (ROUTE 1A), COUNTY WAY, LONGMEADOW ROAD & SCOTT STREET, MCKAY STREET @ BALCH STREET & VETERANS MEMORIAL BRIDGE (ROUTE 1A) AT RANTOUL, CABOT, WATER & FRONT STREETS	4	CMAQ	$ 1,520,271	$ 1,216,217	$ 304,054	Construction; CMAQ+HSIP Total Cost = $4,394,886; MPO Evaluation Score = 63
	Intersection Improvements	608347	Boston Region	Beverly	BEVERLY- INTERSECTION IMPROVEMENTS @ 3 LOCATIONS: CABOT STREET (ROUTE 1A/97) @ DODGE STREET (ROUTE 1A), COUNTY WAY, LONGMEADOW ROAD & SCOTT STREET, MCKAY STREET @ BALCH STREET & VETERANS MEMORIAL BRIDGE (ROUTE 1A) AT RANTOUL, CABOT, WATER & FRONT STREETS	4	HSIP	$ 2,874,615	$ 2,587,154	$ 287,462	Construction; CMAQ+HSIP Total Cost = $4,394,886; MPO Evaluation Score = 63
							Regionally Prioritized Projects subtotal ►	**$ 102,478,656**	$ 82,825,416	$ 19,653,240	◄ Funding Split Varies by Funding Source

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 102,478,656**	**$ 102,478,656**	**◄Total Budget**	**$ 0 Target Funds Available**
STBG programmed ►	$ 62,182,381	$ 49,745,905	◄ **STBG**	
HSIP programmed ►	$ 8,424,911	$ 7,582,420	◄ **HSIP**	
CMAQ programmed ►	$ 27,182,034	$ 21,745,627	◄ **CMAQ**	
TAP programmed ►	$ 4,689,330	$ 3,751,464	◄ **TAP**	

Section 1A instructions: **MPO Template Name)** Choose Regional Name from dropdown list to populate header and MPO column; **Column C)** Enter ID from ProjectInfo; **Column E)** Choose Municipality Name from dropdown list; **Column H)** Choose the Funding Source being used for the project - if multiple funding sources are being used enter multiple lines; **Column I)** Enter the total amount of funds being programmed in this fiscal year and for each funding source; **Column J)** Federal funds autocalculates. Please verify the amount and only change if needed for flex. **Column K) N**on-federal funds autocalculates. Please verify the split/match - if matching an FTA flex, coordinate with Rail & Transit Division before programming; **Column L)** Enter Additional Information as described - please do not use any other format.

►Section 1B / Earmark or Discretionary Grant Funded Projects

►Other Federal Aid

			Boston Region		Other Federal Aid		HPP	$ -	$ -	$ -	
							Other Federal Aid subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

►Section 2A / State Prioritized Reliability Projects

►Bridge Program / Inspections

	Bridge Program		Boston Region		Bridge Inspection			$ -	$ -	$ -	
							Bridge Program / Inspections subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

►Bridge Program / Off-System

2020 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ *Present information as follows, if applicable:* **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Bridge Program		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
							Bridge Program / Off-System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Bridge Program / On-System (NHS)											
	Bridge Program	604173	Boston Region	Boston	BOSTON- BRIDGE REPLACEMENT, B-16-016, NORTH WASHINGTON STREET OVER THE BOSTON INNER HARBOR	6	NHPP-On	$ 26,291,954	$ 21,033,563	$ 5,258,391	AC Year 4 of 6, Total Cost $176,318,433
	Bridge Program	605342	Boston Region	Stow	STOW- BRIDGE REPLACEMENT, S-29-001, (ST 62) GLEASONDALE ROAD OVER THE ASSABET RIVER	3	NHPP-On	$ 6,706,560	$ 5,365,248	$ 1,341,312	
	Bridge Program	605287	Boston Region	Chelsea	CHELSEA- ROUTE 1 VIADUCT REHABILITATION (SB/NB) ON C-09-007 & C-09-011	6	NHPP-On	$ 39,152,831	$ 31,322,265	$ 7,830,566	AC Year 3 of 4, Total Cost $213,972,689
	Bridge Program	604952	Boston Region	Multiple	LYNN- SAUGUS- BRIDGE REPLACEMENT, L-18-016=S-05-008, ROUTE 107 OVER THE SAUGUS RIVER (AKA - BELDEN G. BLY BRIDGE)	4	NHPP-On	$ 14,694,121	$ 11,755,297	$ 2,938,824	AC Year 2 of 5, Total Cost $84,253,135
	Bridge Program		Boston Region		Bridge Program / On-System (NHS)			$ -	$ -	$ -	
							Bridge Program / On-System (NHS) subtotal ►	**$ 86,845,466**	$ 69,476,373	$ 17,369,093	◄ Funding Split Varies by Funding Source
►Bridge Program / On-System (Non-NHS)											
	Bridge Program		Boston Region		Bridge Program / On-System (Non-NHS)			$ -	$ -	$ -	
							Bridge Program / On-System (Non-NHS) subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Bridge Program / Systematic Maintenance											
	Bridge Program		Boston Region		Bridge Program / Systematic Maintenance			$ -	$ -	$ -	
							Bridge Program / Systematic Maintenance subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Interstate Pavement											
	Interstate Pavement		Boston Region		Interstate Pavement			$ -	$ -	$ -	
							Insterstate Pavement subtotal ►	**$ -**	$ -	$ -	◄ 90% Federal + 10% Non-Federal
►Non-Interstate Pavement											
	Non-Interstate Pavement	609101	Boston Region	Peabody	PEABODY - PAVEMENT PRESERVATION AND RELATED WORK ON ROUTE 128	4	NHPP	$ 5,025,000	$ 4,020,000	$ 1,005,000	
	Non-Interstate Pavement	609102	Boston Region	Multiple	WENHAM - GLOUCESTER - PAVEMENT PRESERVATION AND RELATED WORK ON ROUTE 128	4	NHPP	$ 13,083,840	$ 10,467,072	$ 2,616,768	
	Non-Interstate Pavement	608482	Boston Region	Multiple	CAMBRIDGE-SOMERVILLE- RESURFACING AND RELATED WORK ON ROUTE 28	Multiple	NHPP	$ 7,080,000	$ 5,664,000	$ 1,416,000	
	Non-Interstate Pavement		Boston Region		Non-Interstate Pavement			$ -	$ -	$ -	
							Non-Interstate Pavement subtotal ►	**$ 25,188,840**	$ 20,151,072	$ 5,037,768	◄ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements	609222	Boston Region	Arlington	ARLINGTON - SPY POND SEDIMENT REMOVAL	4	STBG	$ 950,000	$ 760,000	$ 190,000	
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
							Roadway Improvements subtotal ►	**$ 950,000**	$ 760,000	$ 190,000	◄ 80% Federal + 20% Non-Federal
► Safety Improvements											

2020 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ ***Present information as follows, if applicable:*** **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Safety Improvements	608611	Boston Region	Multiple	CANTON- MILTON- RANDOLPH- REPLACEMENT AND REHABILITATION OF THE HIGHWAY LIGHTING SYSTEM AT THE ROUTE 24/ROUTE 1/I-93 INTERCHANGE	6	NHPP	$ 8,735,250	$ 6,988,200	$ 1,747,050	
	Safety Improvements	608608	Boston Region	Braintree	BRAINTREE- HIGHWAY LIGHTING IMPROVEMENTS AT I-93/ROUTE 3 INTERCHANGE	6	HSIP	$ 2,688,726	$ 2,419,853	$ 268,873	AC Year 2 of 2
	Safety Improvements	608205	Boston Region	Multiple	READING TO LYNNFIELD- GUIDE AND TRAFFIC SIGN REPLACEMENT ON A SECTION OF I-95 (SR 128)	4	HSIP	$ 4,500,000	$ 4,050,000	$ 450,000	
	Safety Improvements		Boston Region		Safety Improvements			$ -	$ -	$ -	
							Safety Improvements subtotal ►	**$ 15,923,976**	$ 13,458,053	$ 2,465,923	◄ Funding Split Varies by Funding Source
►Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits		Boston Region		ADA Retrofits			$ -	$ -	$ -	
							ADA Retrofits subtotal ►	$ -	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Intersection Improvements											
	Intersection Improvements		Boston Region		Intersection Improvements			$ -	$ -	$ -	
							Intersection Improvements subtotal ►	$ -	$ -	$ -	◄ Funding Split Varies by Funding Source
►Intelligent Transportation Systems											
	Intelligent Transportation Systems		Boston Region		Intelligent Transportation Systems			$ -	$ -	$ -	
							Intelligent Transportation System subtotal ►	$ -	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Roadway Reconstruction											
	Roadway Reconstruction	608835	Boston Region	Medford	MEDFORD- IMPROVEMENTS AT BROOKS ELEMENTARY SCHOOL (SRTS)	4	TAP	$ 989,895	$ 791,916	$ 197,979	
	Roadway Reconstruction	608743	Boston Region	Salem	SALEM- IMPROVEMENTS AT BATES ELEMENTARY SCHOOL (SRTS)	4	TAP	$ 384,658	$ 307,726	$ 76,932	
	Roadway Reconstruction	608791	Boston Region	Winchester	WINCHESTER- IMPROVEMENTS AT VINSON-OWEN ELEMENTARY SCHOOL (SRTS)	4	TAP	$ 1,671,716	$ 1,337,373	$ 334,343	
	Roadway Reconstruction		Boston Region		Roadway Reconstruction			$ -	$ -	$ -	
							Roadway Reconstruction subtotal ►	**$ 3,046,269**	$ 2,437,015	$ 609,254	◄ Funding Split Varies by Funding Source
►Section 2C / State Prioritized Expansion Projects											
►Bicycles and Pedestrians											
	Bicycles and Pedestrians		Boston Region		Bicycles and Pedestrians			$ -	$ -	$ -	
							Bicycles and Pedestrians subtotal ►	$ -	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Capacity											
	Capacity		Boston Region		Capacity			$ -	$ -	$ -	
							Capacity subtotal ►	$ -	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 3 / Planning / Adjustments / Pass-throughs											
►Planning / Adjustments / Pass-throughs											

2020 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ *Present information as follows, if applicable:* **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
			Boston Region		ABP GANS Repayment	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program II, (SPR II), Research	Multiple		$ -	$ -	$ -	
			Boston Region		Railroad Crossings	Multiple		$ -	$ -	$ -	
			Boston Region		Recreational Trails	Multiple		$ -	$ -	$ -	
							Other Statewide Items subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

►Section 4 / Non-Federally Aided Projects

►Non-Federally Aided Projects

	Non Federal Aid		Boston Region		Non-Federal Aid			$ -		$ -	
							Non-Federal Aid subtotal►	**$ -**		$ -	◄100% Non-Federal

2020 Summary

	TIP Section 1 - 3 ▼	TIP Section 4: ▼	Total of All Projects ▼	
Total ►	$ 234,433,207	$ -	$ 234,433,207	◄ Total Spending in Region
Federal Funds ►	$ 189,107,929		$ 189,107,929	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 45,325,278	$ -	$ 45,325,278	◄ Total Non-Federal Spending in Region

701 CMR 7.00 Use of Road Flaggers and Police Details on Public Works Projects / 701 CMR 7.00 (the Regulation) was promulgated and became law on October 3, 2008. Under this Regulation, the CMR is applicable to any Public works Project that is performed within the limits of, or that impact traffic on, any Public Road. The Municipal Limitation referenced in this Regulation is applicable only to projects where the Municipality is the Awarding Authority. For all projects contained in the TIP, the Commonwealth is the Awarding Authority. Therefore, all projects must be considered and implemented in accordance with 701 CMR 7.00, and the Road Flagger and Police Detail Guidelines. By placing a project on the TIP, the Municipality acknowledges that 701 CMR 7.00 is applicable to its project and design and construction will be fully compliant with this Regulation. This information, and additional information relative to guidance and implementation of the Regulation can be found at the following link on the MassDOT Highway Division website: http://www.massdot.state.ma.us/Highway/flaggers/main.aspx

Transportation Improvement Program (TIP)
Project List (FY2020)

FTA Program	Project Number	Transit Agency	FTA Activity Line Item	Project Description	Carryover (unobligated)	Federal Funds	State Funds	TDC	Local Funds	Total Cost
5307										
5307	RTD0007515	Cape Ann Transportation Authority	117A00	PREVENTIVE MAINTENANCE		$285,000	$0	$0	$71,250	$356,250
5307	RTD0007521	Cape Ann Transportation Authority	114206	ACQUIRE - SHOP EQ/COMP/SFTWR		$55,000	$13,750	$0	$0	$68,750
5307	RTD0007984	MetroWest Regional Transit Authority	114200	ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES		$181,510	$225,000	$0	$0	$406,510
5307	RTD0007985	MetroWest Regional Transit Authority	440000	TECHNOLOGY SUPPORT/CAPITAL OUTREACH		$160,000	$180,000	$0	$0	$340,000
5307	RTD0007986	MetroWest Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV		$1,600,000	$400,000	$0	$0	$2,000,000
5307	RTD0007987	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT) - BLANDIN		$333,211	$225,000	$0	$0	$558,211
5307	RTD0007320	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT) - Framingham Commuter Rail Station (FCRS)		$125,000	$175,000	$0	$0	$300,000
5307	RTD0007955	Massachusetts Bay Transportation Authority (MBTA)	121200	Revenue Vehicle Program - 5307		$121,172,978	$0	$0	$30,293,245	$151,466,223
5307	RTD0008235	Massachusetts Bay Transportation Authority (MBTA)	126301	Signals/Systems Upgrade Program - 5307		$28,323,647	$0	$0	$7,080,912	$35,404,559
					Subtotal	$152,236,346	$1,218,750	$0	$37,445,407	$190,900,503
5309										
5309	RTD0007975	Massachusetts Bay Transportation Authority (MBTA)	132303	Green Line Extension Project		$150,000,000	$0	$0	$150,000,000	$300,000,000
					Subtotal	$150,000,000	$0	$0	$150,000,000	$300,000,000
5310										
					Subtotal	$0	$0	$0	$0	$0
5311										
					Subtotal	$0	$0	$0	$0	$0
5337										
5337	RTD0007960	Massachusetts Bay Transportation Authority (MBTA)	123400	Stations and Facilities Program - 5337		$57,577,842	$0	$0	$14,394,461	$71,972,303
5337	RTD0007961	Massachusetts Bay Transportation Authority (MBTA)	124400	Signals/Systems Upgrade Program - 5337		$76,229,292	$0	$0	$19,057,323	$95,286,615
5337	RTD0008237	Massachusetts Bay Transportation Authority (MBTA)	122405	Bridge & Tunnel Program -5337		$26,823,759	$0	$0	$0	$26,823,759
					Subtotal	$160,630,893	$0	$0	$33,451,784	$194,082,677
5339										
5339	RTD0007962	Massachusetts Bay Transportation Authority (MBTA)	111400	Bus Program - 5339		$6,611,840	$0	$0	$1,652,960	$8,264,800
					Subtotal	$6,611,840	$0	$0	$1,652,960	$8,264,800
5320										
					Subtotal	$0	$0	$0	$0	$0
Other Federal										
					Subtotal	$0	$0	$0	$0	$0
Other Non-Federal										
Other Non-Federal	RTD0008062	Cape Ann Transportation Authority	111240	BUY ASSOC CAP MAINT ITEMS		$0	$15,000	$0	$0	$15,000
					Subtotal	$0	$15,000	$0	$0	$15,000
					Total	$469,479,079	$1,233,750	$0	$222,550,151	$693,262,980

Funds listed under the Carry Over column are included in the Federal Amount

2021 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ ***Present information as follows, if applicable:*** **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
►Section 1A / Regionally Prioritized Projects											
►Regionally Prioritized Projects											
	Planning / Adjustments / Pass-throughs	1570	Boston Region	Multiple	GREEN LINE EXTENSION PROJECT-EXTENSION TO COLLEGE AVENUE WITH THE UNION SQUARE SPUR	6	CMAQ	$ 30,719,132	$ 24,575,306	$ 6,143,826	Construction; STBG+CMAQ+Section 5309 (Transit) Total MPO Contribution = $190,000,000; AC Yr 6 of 6; Total funding in this TIP = $49,131,200; funding flexed to FTA; match provided by local contributions
	Roadway Reconstruction	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	NHPP	$ 22,115,687	$ 17,692,550	$ 4,423,137	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC Yr 1 of 3
	Roadway Reconstruction	606453	Boston Region	Boston	BOSTON- IMPROVEMENTS ON BOYLSTON STREET, FROM INTERSECTION OF BROOKLINE AVENUE & PARK DRIVE TO IPSWICH STREET	6	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; CMAQ+TAP+STBG Total Cost = $8,852,517; MPO Evaluation Score = 58
	Roadway Reconstruction	606453	Boston Region	Boston	BOSTON- IMPROVEMENTS ON BOYLSTON STREET, FROM INTERSECTION OF BROOKLINE AVENUE & PARK DRIVE TO IPSWICH STREET	6	TAP	$ 812,432	$ 649,946	$ 162,486	Construction; CMAQ+TAP+STBG Total Cost = $8,852,517; MPO Evaluation Score = 58; TAP Proponent = Boston
	Roadway Reconstruction	606453	Boston Region	Boston	BOSTON- IMPROVEMENTS ON BOYLSTON STREET, FROM INTERSECTION OF BROOKLINE AVENUE & PARK DRIVE TO IPSWICH STREET	6	STBG	$ 7,040,085	$ 5,632,068	$ 1,408,017	Construction; CMAQ+TAP+STBG Total Cost = $8,852,517; MPO Evaluation Score = 58
	Bridge Program	604996	Boston Region	Woburn	WOBURN- BRIDGE REPLACEMENT, W-43-017, NEW BOSTON STREET OVER MBTA	4	STBG	$ 15,482,660	$ 12,386,128	$ 3,096,532	Construction; Total Cost = $15,482,660; MPO Evaluation Score = 55
	Roadway Reconstruction	608228	Boston Region	Framingham	FRAMINGHAM- RECONSTRUCTION OF UNION AVENUE, FROM PROCTOR STREET TO MAIN STREET	3	HSIP	$ 1,000,000	$ 900,000	$ 100,000	Construction; STBG+HSIP+TAP Total Cost = $8,504,804; MPO Evaluation Score = 58
	Roadway Reconstruction	608228	Boston Region	Framingham	FRAMINGHAM- RECONSTRUCTION OF UNION AVENUE, FROM PROCTOR STREET TO MAIN STREET	3	TAP	$ 1,006,391	$ 805,113	$ 201,278	Construction; STBG+HSIP+TAP Total Cost = $8,504,804; MPO Evaluation Score = 58; TAP Proponent = Framingham
	Roadway Reconstruction	608228	Boston Region	Framingham	FRAMINGHAM- RECONSTRUCTION OF UNION AVENUE, FROM PROCTOR STREET TO MAIN STREET	3	STBG	$ 6,498,413	$ 5,198,730	$ 1,299,683	Construction; STBG+HSIP+TAP Total Cost = $8,504,804; MPO Evaluation Score = 58
	Roadway Reconstruction	606501	Boston Region	Holbrook	HOLBROOK- RECONSTRUCTION OF UNION STREET (ROUTE 139), FROM LINFIELD STREET TO CENTRE STREET/WATER STREET	5	STBG	$ 2,454,293	$ 1,963,434	$ 490,859	Construction; TAP+STBG+Earmark Total Cost = $4,270,631; MPO Evaluation Score = 45
	Roadway Reconstruction	606501	Boston Region	Holbrook	HOLBROOK- RECONSTRUCTION OF UNION STREET (ROUTE 139), FROM LINFIELD STREET TO CENTRE STREET/WATER STREET	5	TAP	$ 289,088	$ 231,270	$ 57,818	Construction; TAP+STBG+Earmark Total Cost = $2,285,168; MPO Evaluation Score = 45; TAP Proponent = Holbrook
	Intersection Improvements	606130	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1A & UPLAND ROAD/WASHINGTON STREET & PROSPECT STREET/FULTON STREET	5	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; CMAQ+STBG Total Cost = $4,028,045; MPO Evaluation Score = 53
	Intersection Improvements	606130	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1A & UPLAND ROAD/WASHINGTON STREET & PROSPECT STREET/FULTON STREET	5	STBG	$ 3,028,045	$ 2,422,436	$ 605,609	Construction; CMAQ+STBG Total Cost = $4,028,045; MPO Evaluation Score = 53

2021 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ ***Present information as follows, if applicable:*** **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Roadway Reconstruction	608146	Boston Region	Marblehead	MARBLEHEAD- INTERSECTION IMPROVEMENTS AT PLEASANT STREET & VILLAGE, VINE AND CROSS STREETS	4	STBG	$ 786,568	$ 629,254	$ 157,314	Construction; STBG Total Cost = $786,568; MPO Evaluation Score = 40
	Intersection Improvements	608443	Boston Region	Multiple	LITTLETON- AYER- INTERSECTION IMPROVEMENTS ON ROUTE 2A AT WILLOW ROAD AND BRUCE STREET	3	HSIP	$ 1,000,000	$ 900,000	$ 100,000	Construction; HSIP+STBG Total Cost = $2,589,272; MPO Evaluation Score = 36
	Intersection Improvements	608443	Boston Region	Multiple	LITTLETON- AYER- INTERSECTION IMPROVEMENTS ON ROUTE 2A AT WILLOW ROAD AND BRUCE STREET	3	STBG	$ 1,589,272	$ 1,271,418	$ 317,854	Construction; HSIP+STBG Total Cost = $2,589,272; MPO Evaluation Score = 36
	Intersection Improvements	607305	Boston Region	Reading	READING- INTERSECTION SIGNALIZATION @ ROUTE 28 & HOPKINS STREET	4	HSIP	$ 750,419	$ 675,377	$ 75,042	Construction; HSIP+STBG Total Cost = $1,750,419; MPO Evaluation Score = 38
	Intersection Improvements	607305	Boston Region	Reading	READING- INTERSECTION SIGNALIZATION @ ROUTE 28 & HOPKINS STREET	4	STBG	$ 1,000,000	$ 800,000	$ 200,000	Construction; HSIP+STBG Total Cost = $1,750,419; MPO Evaluation Score = 38
	Roadway Reconstruction	602077	Boston Region	Lynn	LYNN- RECONSTRUCTION ON ROUTE 129 (LYNNFIELD STREET), FROM GREAT WOODS ROAD TO WYOMA SQUARE	4	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; CMAQ+STBG Total Cost = $4,980,392; MPO Evaluation Score = 38
	Roadway Reconstruction	602077	Boston Region	Lynn	LYNN- RECONSTRUCTION ON ROUTE 129 (LYNNFIELD STREET), FROM GREAT WOODS ROAD TO WYOMA SQUARE	4	STBG	$ 3,980,392	$ 3,184,314	$ 796,078	Construction; CMAQ+STBG Total Cost = $4,980,392; MPO Evaluation Score = 38
	Planning / Adjustments / Pass-throughs	BN0009	Boston Region	Multiple	COMMUNITY TRANSPORTATION PROGRAM	N/A	CMAQ	$ 2,000,000	$ 1,600,000	$ 400,000	Planning, Design, or Construction; Set Aside for LRTP Clean Air and Mobility Program
							Regionally Prioritized Projects subtotal ►	**$ 104,552,877**	$ 59,342,038	$ 14,491,707	◄ Funding Split Varies by Funding Source

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 104,552,877**	**$ 104,552,877**	**◄Total Budget**	**$ 0** **Target Funds Available**
STBG programmed ►	$ 63,975,415	$ 51,180,332	**◄ STBG**	
HSIP programmed ►	$ 2,750,419	$ 2,475,377	**◄ HSIP**	
CMAQ programmed ►	$ 35,719,132	$ 4,000,000	**◄ CMAQ**	
TAP programmed ►	$ 2,107,911	$ 1,686,329	**◄ TAP**	

Section 1A instructions: **MPO Template Name)** Choose Regional Name from dropdown list to populate header and MPO column; **Column C)** Enter ID from ProjectInfo; **Column E)** Choose Municipality Name from dropdown list; **Column H)** Choose the Funding Source being used for the project - if multiple funding sources are being used enter multiple lines; **Column I)** Enter the total amount of funds being programmed in this fiscal year and for each funding source; **Column J)** Federal funds autocalculates. Please verify the amount and only change if needed for flex. **Column K) N**on-federal funds autocalculates. Please verify the split/match - if matching an FTA flex, coordinate with Rail & Transit Division before programming; **Column L)** Enter Additional Information as described - please do not use any other format.

►Section 1B / Earmark or Discretionary Grant Funded Projects

►Other Federal Aid

	Roadway Reconstruction	606501	Boston Region	Holbrook	HOLBROOK- RECONSTRUCTION OF UNION STREET (ROUTE 139), FROM LINFIELD STREET TO CENTRE STREET/WATER STREET	5	HPP	$ 1,527,250	$ 1,221,800	$ 305,450	Demo ID MA177
	Roadway Reconstruction	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	Other FA	$ 12,655,015	$ 10,124,012	$ 2,531,003	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC Yr 1 of 3; Other Federal Aid = HIP (Boston)
	Roadway Reconstruction	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	Other FA	$ 17,830,184	$ 14,264,147	$ 3,566,037	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC Yr 1 of 3; Other Federal Aid = HIP (Boston)
							Other Federal Aid subtotal ►	**$ 32,012,449**	$ 25,609,959	$ 6,402,490	◄ Funding Split Varies by Funding Source

►Section 2A / State Prioritized Reliability Projects

2021 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ *Present information as follows, if applicable:* **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
►Bridge Program / Inspections											
	Bridge Program		Boston Region		Bridge Inspection			$ -	$ -	$ -	
							Bridge Program / Inspections subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Bridge Program / Off-System											
	Bridge Program	608637	Boston Region	Maynard	MAYNARD- BRIDGE REPLACEMENT, M-10-006, CARRYING FLORIDA ROAD OVER THE ASSABET RIVER	3	STBG-BR-OFF	$ 1,646,400	$ 1,317,120	$ 329,280	
	Bridge Program	608079	Boston Region	Sharon	SHARON- BRIDGE REPLACEMENT, S-09-003 (40N), MASKWONICUT STREET OVER AMTRAK/MBTA	5	STBG-BR-OFF	$ 5,755,240	$ 4,604,192	$ 1,151,048	
	Bridge Program		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
							Bridge Program / Off-System subtotal ►	**$ 7,401,640**	$ 5,921,312	$ 1,480,328	◄ 80% Federal + 20% Non-Federal
►Bridge Program / On-System (NHS)											
	Bridge Program	604173	Boston Region	Boston	BOSTON- BRIDGE REPLACEMENT, B-16-016, NORTH WASHINGTON STREET OVER THE BOSTON INNER HARBOR	6	NHPP-On	$ 30,389,655	$ 24,311,724	$ 6,077,931	AC Year 5 of 6, Total Cost $176,318,433
	Bridge Program	605287	Boston Region	Chelsea	CHELSEA- ROUTE 1 VIADUCT REHABILITATION (SB/NB) ON C-09-007 & C-09-011	6	NHPP-On	$ 29,992,990	$ 23,994,392	$ 5,998,598	AC Year 4 of 4, Total Cost $213,972,689
	Bridge Program	604952	Boston Region	Multiple	LYNN- SAUGUS- BRIDGE REPLACEMENT, L-18-016=S-05-008, ROUTE 107 OVER THE SAUGUS RIVER (AKA - BELDEN G. BLY BRIDGE)	4	NHPP-On	$ 12,969,789	$ 10,375,831	$ 2,593,958	AC Year 3 of 5, Total Cost $84,253,135
	Bridge Program		Boston Region		Bridge Program / On-System (NHS)			$ -	$ -	$ -	
							Bridge Program / On-System (NHS) subtotal ►	**$ 73,352,434**	$ 58,681,947	$ 14,670,487	◄ Funding Split Varies by Funding Source
►Bridge Program / On-System (Non-NHS)											
	Bridge Program	608596	Boston Region	Essex	ESSEX- SUPERSTRUCTURE REPLACEMENT, E-11-001 (2TV), ROUTE 133\MAIN STREET OVER ESSEX RIVER	4	NHPP-Off	$ 4,511,360	$ 3,609,088	$ 902,272	
	Bridge Program		Boston Region		Bridge Program / On-System (Non-NHS)			$ -	$ -	$ -	
							Bridge Program / On-System (Non-NHS) subtotal ►	**$ 4,511,360**	$ 3,609,088	$ 902,272	◄ 80% Federal + 20% Non-Federal
►Bridge Program / Systematic Maintenance											
	Bridge Program	608610	Boston Region	Newton	NEWTON- STEEL SUPERSTRUCTURE CLEANING (FULL REMOVAL) AND PAINTING OF N-12-055	6	NHPP-On	$ 2,304,000	$ 1,843,200	$ 460,800	
	Bridge Program		Boston Region		Bridge Program / Systematic Maintenance			$ -	$ -	$ -	
							Bridge Program / Systematic Maintenance subtotal ►	**$ 2,304,000**	$ 1,843,200	$ 460,800	◄ Funding Split Varies by Funding Source
►Interstate Pavement											
	Interstate Pavement	608208	Boston Region	Multiple	QUINCY - MILTON - BOSTON - INTERSTATE MAINTENANCE AND RELATED WORK ON I-93	6	NHPP	$ 27,371,469	$ 24,634,322	$ 2,737,147	
	Interstate Pavement		Boston Region		Interstate Pavement			$ -	$ -	$ -	
							Insterstate Pavement subtotal ►	**$ 27,371,469**	$ 24,634,322	$ 2,737,147	◄ 90% Federal + 10% Non-Federal
►Non-Interstate Pavement											
	Non-Interstate Pavement	608467	Boston Region	Marlborough	MARLBOROUGH- RESURFACING AND RELATED WORK ON ROUTE 20	3	NHPP	$ 14,358,240	$ 11,486,592	$ 2,871,648	

2021 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ *Present information as follows, if applicable:* **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Non-Interstate Pavement	607477	Boston Region	Multiple	LYNNFIELD-PEABODY RESURFACING AND RELATED WORK ON ROUTE 1	4	NHPP	$ 7,721,542	$ 6,177,234	$ 1,544,308	
	Non-Interstate Pavement		Boston Region		Non-Interstate Pavement			$ -	$ -	$ -	
							Non-Interstate Pavement subtotal ►	**$ 22,079,782**	$ 17,663,826	$ 4,415,956	◄ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
							Roadway Improvements subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements		Boston Region		Safety Improvements			$ -	$ -	$ -	
							Safety Improvements subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits		Boston Region		ADA Retrofits			$ -	$ -	$ -	
							ADA Retrofits subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Intersection Improvements											
	Intersection Improvements	608562	Boston Region	Somerville	SOMERVILLE- SIGNAL AND INTERSECTION IMPROVEMENTS ON I-93 AT MYSTIC AVENUE AND MCGRATH HIGHWAY (TOP 200 CRASH LOCATION)	4	HSIP	$ 5,181,613	$ 4,663,452	$ 518,161	
	Intersection Improvements	607342	Boston Region	Milton	MILTON- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 28 (RANDOLPH AVENUE) & CHICKATAWBUT ROAD	6	HSIP	$ 1,478,849	$ 1,330,964	$ 147,885	
	Intersection Improvements	607748	Boston Region	Acton	ACTON- INTERSECTION & SIGNAL IMPROVEMENTS ON SR 2 & SR 111 (MASSACHUSETTS AVENUE) AT PIPER ROAD & TAYLOR ROAD	3	HSIP	$ 5,657,725	$ 5,091,952	$ 565,772	
	Intersection Improvements	607761	Boston Region	Swampscott	SWAMPSCOTT- INTERSECTION & SIGNAL IMPROVEMENTS AT SR 1A (PARADISE ROAD) AT SWAMPSCOTT MALL	4	HSIP	$ 1,157,036	$ 1,041,333	$ 115,704	
	Intersection Improvements		Boston Region		Intersection Improvements			$ -	$ -	$ -	
							Intersection Improvements subtotal ►	**$ 13,475,223**	$ 12,127,701	$ 1,347,522	◄ Funding Split Varies by Funding Source
►Intelligent Transportation Systems											
	Intelligent Transportation Systems		Boston Region		Intelligent Transportation Systems			$ -	$ -	$ -	
							Intelligent Transportation System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Roadway Reconstruction											
	Roadway Reconstruction	608911	Boston Region	Belmont	BELMONT- IMPROVEMENTS AT WELLINGTON ELEMENTARY SCHOOL (SRTS)	4	TAP	$ 1,614,288	$ 1,291,430	$ 322,858	
	Roadway Reconstruction	607901	Boston Region	Dedham	DEDHAM- PEDESTRIAN IMPROVEMENTS ALONG ELM STREET & RUSTCRAFT ROAD CORRIDORS	6	CMAQ	$ 3,019,061	$ 2,415,249	$ 603,812	

2021 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ *Present information as follows, if applicable:* **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Roadway Reconstruction	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	NHPP	$ 6,901,660	$ 5,521,328	$ 1,380,332	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC Yr 1 of 3
	Roadway Reconstruction	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	HSIP	$ 8,376,444	$ 7,538,800	$ 837,644	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC Yr 1 of 3
							Roadway Reconstruction subtotal ►	**$ 19,911,453**	$ 16,766,807	$ 3,144,646	◄ Funding Split Varies by Funding Source
►Section 2C / State Prioritized Expansion Projects											
►Bicycles and Pedestrians											
	Bicycles and Pedestrians	609066	Boston Region	Multiple	NEWTON- WESTON- MULTI-USE TRAIL CONNECTION, FROM RECREATION ROAD TO UPPER CHARLES RIVER GREENWAY INCLUDING RECONSTRUCTION OF PED BRIDGE N-12-078=W-29-062	6	CMAQ	$ 2,767,958	$ 2,214,367	$ 553,592	
	Bicycles and Pedestrians	607888	Boston Region	Multiple	BOSTON- BROOKLINE- MULTI-USE PATH CONSTRUCTION ON NEW FENWAY	6	CMAQ	$ 3,345,372	$ 2,676,298	$ 669,074	
	Bicycles and Pedestrians		Boston Region		Bicycles and Pedestrians			$ -	$ -	$ -	
							Bicycles and Pedestrians subtotal ►	**$ 6,113,331**	$ 4,890,664	$ 1,222,666	◄ 80% Federal + 20% Non-Federal
►Capacity											
	Capacity		Boston Region		Capacity			$ -	$ -	$ -	
							Capacity subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 3 / Planning / Adjustments / Pass-throughs											
►Planning / Adjustments / Pass-throughs											
			Boston Region		ABP GANS Repayment	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program II, (SPR II), Research	Multiple		$ -	$ -	$ -	
			Boston Region		Railroad Crossings	Multiple		$ -	$ -	$ -	
			Boston Region		Recreational Trails	Multiple		$ -	$ -	$ -	
							Other Statewide Items subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 4 / Non-Federally Aided Projects											
►Non-Federally Aided Projects											
	Non Federal Aid		Boston Region		Non-Federal Aid			$ -		$ -	
							Non-Federal Aid subtotal►	**$ -**		$ -	◄100% Non-Federal

2021 Summary

	TIP Section 1 - 3: ▼	TIP Section 4: ▼	Total of All Projects ▼	
Total ►	$ 282,366,885	$ -	$ 282,366,885	◄ Total Spending in Region
Federal Funds ►	$ 231,090,864		$ 231,090,864	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 51,276,022	$ -	$ 51,276,022	◄ Total Non-Federal Spending in Region

2021 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
											Present information as follows, if applicable: **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information

701 CMR 7.00 Use of Road Flaggers and Police Details on Public Works Projects / 701 CMR 7.00 (the Regulation) was promulgated and became law on October 3, 2008. Under this Regulation, the CMR is applicable to any Public works Project that is performed within the limits of, or that impact traffic on, any Public Road. The Municipal Limitation referenced in this Regulation is applicable only to projects where the Municipality is the Awarding Authority. For all projects contained in the TIP, the Commonwealth is the Awarding Authority. Therefore, all projects must be considered and implemented in accordance with 701 CMR 7.00, and the Road Flagger and Police Detail Guidelines. By placing a project on the TIP, the Municipality acknowledges that 701 CMR 7.00 is applicable to its project and design and construction will be fully compliant with this Regulation. This information, and additional information relative to guidance and implementation of the Regulation can be found at the following link on the MassDOT Highway Division website: http://www.massdot.state.ma.us/Highway/flaggers/main.aspx

Transportation Improvement Program (TIP)
Project List (FY2021)

FTA Program	Project Number	Transit Agency	FTA Activity Line Item	Project Description	Carryover (unobligated)	Federal Funds	State Funds	TDC	Local Funds	Total Cost
5307										
5307	RTD0007516	Cape Ann Transportation Authority	117A00	PREVENTIVE MAINTENANCE	2020 - $285,000	$285,000	$0	$0	$71,250	$356,250
5307	RTD0007522	Cape Ann Transportation Authority	114206	ACQUIRE - SHOP EQ/COMP/SFTWR	2020 - $55,000	$55,000	$13,750	$0	$0	$68,750
5307	RTD0007318	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT) - Framingham Commuter Rail Station (FCRS)	2020 - $125,000	$125,000	$175,000	$0	$0	$300,000
5307	RTD0007988	MetroWest Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV	2020 - $1,600,000	$1,600,000	$400,000	$0	$0	$2,000,000
5307	RTD0007989	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT) - BLANDIN	2020 - $350,000	$350,000	$225,000	$0	$0	$575,000
5307	RTD0007990	MetroWest Regional Transit Authority	114200	ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES	2020 - $224,636	$224,636	$225,000	$0	$0	$449,636
5307	RTD0007991	MetroWest Regional Transit Authority	440000	TECHNOLOGY SUPPORT/CAPITAL OUTREACH	2020 - $150,000	$150,000	$180,000	$0	$0	$330,000
5307	RTD0007963	Massachusetts Bay Transportation Authority (MBTA)	121200	Revenue Vehicle Program - 5307		$123,245,036	$0	$0	$30,811,259	$154,056,295
5307	RTD0007978	Massachusetts Bay Transportation Authority (MBTA)	126301	Signals/Systems Upgrade Program - 5307		$16,379,600	$0	$0	$4,094,900	$20,474,500
5307	RTD0008239	Massachusetts Bay Transportation Authority (MBTA)	123400	5307 - Stations and Facilities Program		$12,428,382	$0	$0	$3,107,096	$15,535,478
					Subtotal	$154,842,654	$1,218,750	$0	$38,084,505	$194,145,909
5309										
5309	RTD0007976	Massachusetts Bay Transportation Authority (MBTA)	132303	Green Line Extension Project		$100,000,000	$0	$0	$100,000,000	$200,000,000
					Subtotal	$100,000,000	$0	$0	$100,000,000	$200,000,000
5310										
					Subtotal	$0	$0	$0	$0	$0
5311										
					Subtotal	$0	$0	$0	$0	$0
5337										
5337	RTD0007966	Massachusetts Bay Transportation Authority (MBTA)	123400	Stations and Facilities Program - 5337		$58,562,423	$0	$0	$36,113,857	$94,676,280
5337	RTD0007967	Massachusetts Bay Transportation Authority (MBTA)	124400	Signals/Systems Upgrade Program - 5337		$77,532,813	$0	$0	$19,383,203	$96,916,016
5337	RTD0008238	Massachusetts Bay Transportation Authority (MBTA)	122405	5337 - Bridge & Tunnel Program		$27,282,445	$0	$0	$6,820,611	$34,103,056
					Subtotal	$163,377,681	$0	$0	$62,317,671	$225,695,352
5339										
5339	RTD0007968	Massachusetts Bay Transportation Authority (MBTA)	111400	Bus Program - 5339		$6,724,903	$0	$0	$1,681,226	$8,406,129
					Subtotal	$6,724,903	$0	$0	$1,681,226	$8,406,129
5320										
					Subtotal	$0	$0	$0	$0	$0
Other Federal										
Other Federal	RTD0007983	Massachusetts Bay Transportation Authority (MBTA)	126301	PTC - RRIF/TIFIA Financing		$354,451,665	$0	$0	$88,612,916	$443,064,581
					Subtotal	$354,451,665	$0	$0	$88,612,916	$443,064,581
Other Non-Federal										
Other Non-Federal	RTD0008022	Cape Ann Transportation Authority	111203	Replace 30' buses/trolleys (1)		$0	$500,000	$0	$0	$500,000
Other Non-Federal	RTD0008064	Cape Ann Transportation Authority	111240	BUY ASSOC CAP MAINT ITEMS		$0	$15,000	$0	$0	$15,000
					Subtotal	$0	$515,000	$0	$0	$515,000
					Total	$779,396,903	$1,733,750	$0	$290,696,318	$1,071,826,971

Funds listed under the Carry Over column are included in the Federal Amount

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Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ ***Present information as follows, if applicable:*** **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
►Section 1A / Regionally Prioritized Projects											
►Regionally Prioritized Projects											
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	NHPP	$ 14,664,180	$ 11,731,344	$ 2,932,836	Construction; NHPP+STBG+TAP Total Cost = $152,000,000; AC Yr 1 of 5; Total funding in this TIP = $111,685,278; MPO Evaluation Score = 59
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	STBG	$ 7,609,193	$ 6,087,354	$ 1,521,839	Construction; NHPP+STBG+TAP Total Cost = $152,000,000; AC Yr 1 of 5; Total funding in this TIP = $111,685,278; MPO Evaluation Score = 59
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	TAP	$ 1,282,990	$ 1,026,392	$ 256,598	Construction; NHPP+STBG+TAP Total Cost = $152,000,000; AC Yr 1 of 5; Total funding in this TIP = $111,685,278; MPO Evaluation Score = 59; TAP Proponent = Boston
	Intersection Improvements	605857	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1 & UNIVERSITY AVENUE/EVERETT STREET	5	CMAQ	$ 3,000,000	$ 2,400,000	$ 600,000	Construction; HSIP+CMAQ+STBG+NHPP Total Cost = $10,166,526; MPO Evaluation Score = 55
	Intersection Improvements	605857	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1 & UNIVERSITY AVENUE/EVERETT STREET	5	HSIP	$ 631,724	$ 568,552	$ 63,172	Construction; HSIP+CMAQ+STBG+NHPP Total Cost = $10,166,526; MPO Evaluation Score = 55
	Intersection Improvements	605857	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1 & UNIVERSITY AVENUE/EVERETT STREET	5	NHPP	$ 2,873,029	$ 2,298,423	$ 574,606	Construction; HSIP+CMAQ+STBG+NHPP Total Cost = $10,166,526; MPO Evaluation Score = 55
	Intersection Improvements	605857	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1 & UNIVERSITY AVENUE/EVERETT STREET	5	STBG	$ 3,661,773	$ 2,929,418	$ 732,355	Construction; HSIP+CMAQ+STBG+NHPP Total Cost = $10,166,526; MPO Evaluation Score = 55
	Bicycles and Pedestrians	607738	Boston Region	Bedford	BEDFORD- MINUTEMAN BIKEWAY EXTENSION, FROM LOOMIS STREET TO THE CONCORD T.L.	4	CMAQ	$ 6,489,964	$ 5,191,971	$ 1,297,993	Construction; CMAQ+TAP Total Cost = $8,234,946; MPO Evaluation Score = 47
	Bicycles and Pedestrians	607738	Boston Region	Bedford	BEDFORD- MINUTEMAN BIKEWAY EXTENSION, FROM LOOMIS STREET TO THE CONCORD T.L.	4	TAP	$ 1,744,982	$ 1,395,986	$ 348,996	Construction; CMAQ+TAP Total Cost = $8,234,946; MPO Evaluation Score = 47; TAP Proponent = Bedford
	Bicycles and Pedestrians	608164	Boston Region	Sudbury	SUDBURY- BIKE PATH CONSTRUCTION (BRUCE FREEMAN RAIL TRAIL)	3	CMAQ	$ 8,834,137	$ 7,067,310	$ 1,766,827	Construction; CMAQ+TAP Total Cost = $9,334,137; MPO Evaluation Score = 40
	Bicycles and Pedestrians	608164	Boston Region	Sudbury	SUDBURY- BIKE PATH CONSTRUCTION (BRUCE FREEMAN RAIL TRAIL)	3	TAP	$ 500,000	$ 400,000	$ 100,000	Construction; CMAQ+TAP Total Cost = $9,334,137; MPO Evaluation Score = 40; TAP Proponent = Sudbury
	Roadway Reconstruction	607777	Boston Region	Watertown	WATERTOWN- REHABILITATION OF MOUNT AUBURN STREET (ROUTE 16)	6	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; HSIP+CMAQ+STBG Total Cost = $15,120,000; MPO Evaluation Score = 75
	Roadway Reconstruction	607777	Boston Region	Watertown	WATERTOWN- REHABILITATION OF MOUNT AUBURN STREET (ROUTE 16)	6	HSIP	$ 2,000,000	$ 1,800,000	$ 200,000	Construction; HSIP+CMAQ+STBG Total Cost = $15,120,000; MPO Evaluation Score = 75
	Roadway Reconstruction	607777	Boston Region	Watertown	WATERTOWN- REHABILITATION OF MOUNT AUBURN STREET (ROUTE 16)	6	STBG	$ 12,120,000	$ 9,696,000	$ 2,424,000	Construction; HSIP+CMAQ+STBG Total Cost = $15,120,000; MPO Evaluation Score = 75
	Roadway Reconstruction	608078	Boston Region	Chelsea	CHELSEA- RECONSTRUCTION ON BROADWAY (ROUTE 107), FROM CITY HALL AVENUE TO THE REVERE C.L.	6	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; CMAQ+STBG Total Cost = $9,669,765; MPO Evaluation Score = 61
	Roadway Reconstruction	608078	Boston Region	Chelsea	CHELSEA- RECONSTRUCTION ON BROADWAY (ROUTE 107), FROM CITY HALL AVENUE TO THE REVERE C.L.	6	STBG	$ 8,669,765	$ 6,935,812	$ 1,733,953	Construction; CMAQ+STBG Total Cost = $9,669,765; MPO Evaluation Score = 61
	Roadway Reconstruction	608229	Boston Region	Acton	ACTON- INTERSECTION & SIGNAL IMPROVEMENTS AT KELLEY'S CORNER, ROUTE 111 (MASSACHUSETTS AVENUE) AND ROUTE 27 (MAIN STREET)	3	CMAQ	$ 3,000,000	$ 2,400,000	$ 600,000	Construction; CMAQ+TAP+STBG Total Cost = $15,141,463; MPO Evaluation Score = 45

2022 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ *Present information as follows, if applicable:* **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Roadway Reconstruction	608229	Boston Region	Acton	ACTON- INTERSECTION & SIGNAL IMPROVEMENTS AT KELLEY'S CORNER, ROUTE 111 (MASSACHUSETTS AVENUE) AND ROUTE 27 (MAIN STREET)	3	STBG	$ 11,941,463	$ 9,553,170	$ 2,388,293	Construction; CMAQ+TAP+STBG Total Cost = $15,141,463; MPO Evaluation Score = 45
	Roadway Reconstruction	608229	Boston Region	Acton	ACTON- INTERSECTION & SIGNAL IMPROVEMENTS AT KELLEY'S CORNER, ROUTE 111 (MASSACHUSETTS AVENUE) AND ROUTE 27 (MAIN STREET)	3	TAP	$ 200,000	$ 160,000	$ 40,000	Construction; CMAQ+TAP+STBG Total Cost = $15,141,463; MPO Evaluation Score = 45; TAP project proponent = Acton
	Roadway Reconstruction	608889	Boston Region	Framingham	FRAMINGHAM- TRAFFIC SIGNAL INSTALLATION AT EDGELL ROAD AND CENTRAL STREET	3	CMAQ	$ 1,680,000	$ 1,344,000	$ 336,000	Construction; CMAQ+STBG Total Cost = $1,814,400; MPO Evaluation Score = 41
	Roadway Reconstruction	608889	Boston Region	Framingham	FRAMINGHAM- TRAFFIC SIGNAL INSTALLATION AT EDGELL ROAD AND CENTRAL STREET	3	STBG	$ 134,400	$ 107,520	$ 26,880	Construction; CMAQ+STBG Total Cost = $1,814,400; MPO Evaluation Score = 41
	Roadway Reconstruction	608887	Boston Region	Bellingham	BELLINGHAM- REHABILITATION AND RELATED WORK ON ROUTE 126, FROM DOUGLAS DRIVE TO ROUTE 140	3	CMAQ	$ 2,000,000	$ 1,600,000	$ 400,000	Construction; CMAQ+STBG+TAP Total Cost = $4,380,828; MPO Evaluation Score = 45
	Roadway Reconstruction	608887	Boston Region	Bellingham	BELLINGHAM- REHABILITATION AND RELATED WORK ON ROUTE 126, FROM DOUGLAS DRIVE TO ROUTE 140	3	STBG	$ 1,500,000	$ 1,200,000	$ 300,000	Construction; CMAQ+STBG+TAP Total Cost = $4,380,828; MPO Evaluation Score = 45
	Roadway Reconstruction	608887	Boston Region	Bellingham	BELLINGHAM- REHABILITATION AND RELATED WORK ON ROUTE 126, FROM DOUGLAS DRIVE TO ROUTE 140	3	TAP	$ 880,828	$ 704,662	$ 176,166	Construction; CMAQ+STBG+TAP Total Cost = $4,380,828; MPO Evaluation Score = 45
	Roadway Reconstruction	601607	Boston Region	Hull	HULL- RECONSTRUCTION OF ATLANTIC AVENUE AND RELATED WORK FROM NANTASKET AVENUE TO COHASSET TOWN LINE	5	STBG	$ 7,263,401	$ 5,810,721	$ 1,452,680	Construction; Total Cost = $7,263,401; MPO Evaluation Score = 44
	Planning / Adjustments / Pass-throughs	BN0009	Boston Region	Multiple	COMMUNITY TRANSPORTATION PROGRAM	N/A	CMAQ	$ 2,000,000	$ 1,600,000	$ 400,000	Planning, Design, or Construction; Set Aside for LRTP Clean Air and Mobility Program
							Regionally Prioritized Projects subtotal ►	**$ 106,681,829**	$ 85,608,636	$ 21,073,193	◄ Funding Split Varies by Funding Source

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 106,681,829**	**$ 106,681,829**	**◄Total**	**$ 0 Target Funds Available**
STBG programmed ►	$ 70,437,204	$ 56,349,763	**◄ STBG**	
HSIP programmed ►	$ 2,631,724	$ 2,368,552	**◄ HSIP**	
CMAQ programmed ►	$ 29,004,101	$ 23,203,281	**◄ CMAQ**	
TAP programmed ►	$ 4,608,800	$ 3,687,040	**◄ TAP**	

Section 1A instructions: **MPO Template Name)** Choose Regional Name from dropdown list to populate header and MPO column; **Column C)** Enter ID from ProjectInfo; **Column E)** Choose Municipality Name from dropdown list; **Column H)** Choose the Funding Source being used for the project - if multiple funding sources are being used enter multiple lines; **Column I)** Enter the total amount of funds being programmed in this fiscal year and for each funding source; **Column J)** Federal funds autocalculates. Please verify the amount and only change if needed for flex. **Column K) N**on-federal funds autocalculates. Please verify the split/match - if matching an FTA flex, coordinate with Rail & Transit Division before programming; **Column L)** Enter Additional Information as described - please do not use any other format.

►Section 1B / Earmark or Discretionary Grant Funded Projects

►Other Federal Aid

	Other Federal Aid	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	Other FA	$ 11,607,808	$ 9,286,246	$ 2,321,562	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC Yr 2 of 3; Other Federal Aid = NHPP-E

2022 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ *Present information as follows, if applicable:* **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Other Federal Aid	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	Other FA	$ 11,607,808	$ 9,286,246	$ 2,321,562	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC Yr 2 of 3; Other Federal Aid = NHPP-E
	Other Federal Aid	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	Other FA	$ 11,607,808	$ 9,286,246	$ 2,321,562	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC Yr 2 of 3; Other Federal Aid = NHPP-E
			Boston Region		Other Federal Aid		HPP	$ -	$ -	$ -	
							Other Federal Aid subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 2A / State Prioritized Reliability Projects											
►Bridge Program / Inspections											
	Bridge Program		Boston Region		Bridge Inspection			$ -	$ -	$ -	
							Bridge Program / Inspections subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Bridge Program / Off-System											
	Bridge Program	608255	Boston Region	Stow	STOW- BRIDGE REPLACEMENT, S-29-011, BOX MILL ROAD OVER ELIZABETH BROOK	3	STBG-BR-OFF	$ 3,612,223	$ 2,889,779	$ 722,445	
	Bridge Program		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
							Bridge Program / Off-System subtotal ►	**$ 3,612,223**	$ 2,889,779	$ 722,445	◄ 80% Federal + 20% Non-Federal
►Bridge Program / On-System (NHS)											
	Bridge Program	608614	Boston Region	Boston	BOSTON- BRIDGE SUBSTRUCTURE REPAIRS, B-16-179, AUSTIN STREET OVER I-93 RAMPS, MBTA COMMUTER RAIL AND ORANGE LINE	6	NHPP-On	$ 5,000,000	$ 4,000,000	$ 1,000,000	
	Bridge Program	607327	Boston Region	Wilmington	WILMINGTON- BRIDGE REPLACEMENT, W-38-002, ROUTE 38 (MAIN STREET) OVER THE B&M RAILROAD	4	NHPP-On	$ 10,760,960	$ 8,608,768	$ 2,152,192	
	Bridge Program	604173	Boston Region	Boston	BOSTON- BRIDGE REPLACEMENT, B-16-016, NORTH WASHINGTON STREET OVER THE BOSTON INNER HARBOR	6	NHPP-On	$ 28,825,728	$ 23,060,582	$ 5,765,146	AC Year 6 of 6, Total Cost $176,318,433
	Bridge Program	604952	Boston Region	Multiple	LYNN- SAUGUS- BRIDGE REPLACEMENT, L-18-016=S-05-008, ROUTE 107 OVER THE SAUGUS RIVER (AKA - BELDEN G. BLY BRIDGE)	4	NHPP-On	$ 22,307,071	$ 17,845,656	$ 4,461,414	AC Year 4 of 5, Total Cost $84,253,135
	Bridge Program		Boston Region		Bridge Program / On-System (NHS)			$ -	$ -	$ -	
							Bridge Program / On-System (NHS) subtotal ►	**$ 66,893,759**	$ 53,515,007	$ 13,378,752	◄ Funding Split Varies by Funding Source
►Bridge Program / On-System (Non-NHS)											
	Bridge Program	608929	Boston Region	Wilmington	WILMINGTON- BRIDGE REPLACEMENT, W-38-003, BUTTERS ROW OVER MBTA	4	NHPP-Off	$ 5,183,360	$ 4,146,688	$ 1,036,672	
	Bridge Program		Boston Region		Bridge Program / On-System (Non-NHS)			$ -	$ -	$ -	
							Bridge Program / On-System (Non-NHS) subtotal ►	**$ 5,183,360**	$ 4,146,688	$ 1,036,672	◄ 80% Federal + 20% Non-Federal
►Bridge Program / Systematic Maintenance											
	Bridge Program	608866	Boston Region	Multiple	NEWTON- WESTON- STEEL SUPERSTRUCTURE CLEANING (FULL REMOVAL) AND PAINTING OF 3 BRIDGES: N-12-051, W-29-011 & W-29-028	6	NHPP-On	$ 2,349,900	$ 1,879,920	$ 469,980	

2022 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ ***Present information as follows, if applicable:*** **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Bridge Program		Boston Region		Bridge Program / Systematic Maintenance			$ -	$ -	$ -	
							Bridge Program / Systematic Maintenance subtotal ►	**$ 2,349,900**	$ 1,879,920	$ 469,980	◄ Funding Split Varies by Funding Source
►Interstate Pavement											
	Interstate Pavement		Boston Region		Interstate Pavement			$ -	$ -	$ -	
							Insterstate Pavement subtotal ►	**$ -**	$ -	$ -	◄ 90% Federal + 10% Non-Federal
►Non-Interstate Pavement											
	Non-Interstate Pavement	608817	Boston Region	Multiple	SALEM-LYNN - RESURFACING AND RELATED WORK ON RTE 107	4	NHPP	$ 2,278,125	$ 1,822,500	$ 455,625	
	Non-Interstate Pavement	608818	Boston Region	Danvers	DANVERS - RESURFACING AND RELATED WORK ON ROUTE 114	4	NHPP	$ 1,003,590	$ 802,872	$ 200,718	
	Non-Interstate Pavement	608480	Boston Region	Foxborough	FOXBOROUGH - RESURFACING AND RELATED WORK ON US ROUTE 1	5	NHPP	$ 7,072,920	$ 5,658,336	$ 1,414,584	
	Non-Interstate Pavement		Boston Region		Non-Interstate Pavement			$ -	$ -	$ -	
							Non-Interstate Pavement subtotal ►	**$ 10,354,635**	$ 8,283,708	$ 2,070,927	◄ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements	608599	Boston Region	Multiple	CANTON- SHARON- FOXBOROUGH- NORWOOD- WALPOLE- STORMWATER IMPROVEMENTS ALONG ROUTE 1, ROUTE 1A & INTERSTATE 95	5	STBG	$ 526,235	$ 420,988	$ 105,247	
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
							Roadway Improvements subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements	609060	Boston Region	Multiple	LYNNFIELD- PEABODY- DANVERS- GUIDE AND TRAFFIC SIGN REPLACEMENT ON I-95/128 (TASK 'A' INTERCHANGE)	4	HSIP	$ 495,860	$ 446,274	$ 49,586	
	Safety Improvements	609090	Boston Region	Multiple	BOSTON- MILTON- QUINCY- HIGHWAY LIGHTING SYSTEM REPLACEMENT ON I-93, FROM NEPONSET AVENUE TO THE BRAINTREE SPLIT	6	NHPP	$ 9,568,000	$ 7,654,400	$ 1,913,600	
	Safety Improvements		Boston Region		Safety Improvements			$ -	$ -	$ -	
							Safety Improvements subtotal ►	**$ 10,063,860**	$ 8,100,674	$ 1,963,186	◄ Funding Split Varies by Funding Source
►Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits		Boston Region		ADA Retrofits			$ -	$ -	$ -	
							ADA Retrofits subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Intersection Improvements											
	Intersection Improvements	608567	Boston Region	Peabody	PEABODY- IMPROVEMENTS AT ROUTE 114 AT SYLVAN STREET, CROSS STREET, NORTHSHORE MALL, LORIS ROAD, ROUTE 128 INTERCHANGE AND ESQUIRE DRIVE	4	HSIP	$ 1,815,480	$ 1,633,932	$ 181,548	
	Intersection Improvements	608569	Boston Region	Quincy	QUINCY- INTERSECTION IMPROVEMENTS AT ROUTE 3A (SOUTHERN ARTERY) AND BROAD STREET	6	HSIP	$ 3,132,000	$ 2,818,800	$ 313,200	

2022 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ *Present information as follows, if applicable:* **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Intersection Improvements		Boston Region		Intersection Improvements			$ -	$ -	$ -	
							Intersection Improvements subtotal ►	**$ 4,947,480**	$ 4,452,732	$ 494,748	◄ Funding Split Varies by Funding Source
►Intelligent Transportation Systems											
	Intelligent Transportation Systems		Boston Region		Intelligent Transportation Systems			$ -	$ -	$ -	
							Intelligent Transportation System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Roadway Reconstruction											
	Roadway Reconstruction	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NFP	$ 27,500,000	$ 22,000,000	$ 5,500,000	a) Construction; Total Federal Participating Cost (TFPC) = $189,451,000; AC Yr 1 of 5
	Roadway Reconstruction	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NHPP	$ 12,233,939	$ 9,787,151	$ 2,446,788	a) Construction; Total Federal Participating Cost (TFPC) = $189,451,000; AC Yr 1 of 5
	Roadway Reconstruction		Boston Region		Roadway Reconstruction			$ -	$ -	$ -	
							Roadway Reconstruction subtotal ►	**$ 39,733,939**	$ 31,787,151	$ 7,946,788	◄ Funding Split Varies by Funding Source
►Section 2C / State Prioritized Expansion Projects											
►Bicycles and Pedestrians											
	Bicycles and Pedestrians		Boston Region		Bicycles and Pedestrians			$ -	$ -	$ -	
							Bicycles and Pedestrians subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Capacity											
	Capacity		Boston Region		Capacity			$ -	$ -	$ -	
							Capacity subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 3 / Planning / Adjustments / Pass-throughs											
►Planning / Adjustments / Pass-throughs											
			Boston Region		ABP GANS Repayment	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program II, (SPR II), Research	Multiple		$ -	$ -	$ -	
			Boston Region		Railroad Crossings	Multiple		$ -	$ -	$ -	
			Boston Region		Recreational Trails	Multiple		$ -	$ -	$ -	
							Other Statewide Items subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 4 / Non-Federally Aided Projects											
►Non-Federally Aided Projects											
	Non Federal Aid	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NFA	$ 18,112,483		$ 18,112,483	Construction; Total Federal Participating Cost (TFPC) = $189,451,000; AC Yr 1 of 5
	Non-Federally Aided Projects		Boston Region		Non-Federal Aid			$ -		$ -	
							Non-Federal Aid subtotal►	**$ 18,112,483**		$ 18,112,483	◄100% Non-Federal

2022 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
											Present information as follows, if applicable: **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information

2022 Summary

	TIP Section 1 - 3: ▼	TIP Section 4: ▼	Total of All Projects ▼	
Total ►	$ 249,820,985	$ 18,112,483	$ 267,933,468	◄ Total Spending in Region
Federal Funds ►	$ 200,664,294		$ 200,664,294	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 49,156,691	$ 18,112,483	$ 67,269,174	◄ Total Non-Federal Spending in Region

701 CMR 7.00 Use of Road Flaggers and Police Details on Public Works Projects / 701 CMR 7.00 (the Regulation) was promulgated and became law on October 3, 2008. Under this Regulation, the CMR is applicable to any Public works Project that is performed within the limits of, or that impact traffic on, any Public Road. The Municipal Limitation referenced in this Regulation is applicable only to projects where the Municipality is the Awarding Authority. For all projects contained in the TIP, the Commonwealth is the Awarding Authority. Therefore, all projects must be considered and implemented in accordance with 701 CMR 7.00, and the Road Flagger and Police Detail Guidelines. By placing a project on the TIP, the Municipality acknowledges that 701 CMR 7.00 is applicable to its project and design and construction will be fully compliant with this Regulation. This information, and additional information relative to guidance and implementation of the Regulation can be found at the following link on the MassDOT Highway Division website: http://www.massdot.state.ma.us/Highway/flaggers/main.aspx

Transportation Improvement Program (TIP)
Project List (FY2022)

FTA Program	Project Number	Transit Agency	FTA Activity Line Item	Project Description	Carryover (unobligated)	Federal Funds	State Funds	TDC	Local Funds	Total Cost
5307										
5307	RTD0007517	Cape Ann Transportation Authority	117A00	PREVENTIVE MAINTENANCE	2021 - $285,000	$285,000	$0	$0	$71,250	$356,250
5307	RTD0007518	Cape Ann Transportation Authority	114206	ACQUIRE - SHOP EQUIPMENT	2021 - $55,000	$55,000	$13,750	$0	$0	$68,750
5307	RTD0007317	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT) - Framingham Commuter Rail Station (FCRS)	2021 - $137,500	$137,500	$175,000	$0	$0	$312,500
5307	RTD0007992	MetroWest Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV	2021 - $1,600,000	$1,600,000	$400,000	$0	$0	$2,000,000
5307	RTD0007993	MetroWest Regional Transit Authority	114200	ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES	2021 - $224,775	$224,775	$225,000	$0	$0	$449,775
5307	RTD0007994	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT) - BLANDIN	2021 - $375,813	$375,813	$225,000	$0	$0	$600,813
5307	RTD0007995	MetroWest Regional Transit Authority	440000	TECHNOLOGY SUPPORT/CAPITAL OUTREACH	2021 - $162,500	$162,500	$180,000	$0	$0	$342,500
5307	RTD0007969	Massachusetts Bay Transportation Authority (MBTA)	121200	Revenue Vehicle Program - 5307		$125,352,526	$0	$0	$31,338,132	$156,690,658
					Subtotal	$128,193,114	$1,218,750	$0	$31,409,382	$160,821,246
5309										
5309	RTD0007979	Massachusetts Bay Transportation Authority (MBTA)	133302	Green Line Extension		$46,121,000	$0	$0	$46,121,000	$92,242,000
					Subtotal	$46,121,000	$0	$0	$46,121,000	$92,242,000
5310										
					Subtotal	$0	$0	$0	$0	$0
5311										
					Subtotal	$0	$0	$0	$0	$0
5337										
5337	RTD0007971	Massachusetts Bay Transportation Authority (MBTA)	122405	Bridge & Tunnel Program - 5337		$27,748,975	$0	$0	$6,937,244	$34,686,219
5337	RTD0007972	Massachusetts Bay Transportation Authority (MBTA)	123400	Stations and Facilities Program - 5337		$59,563,840	$0	$0	$14,890,960	$74,454,800
5337	RTD0007973	Massachusetts Bay Transportation Authority (MBTA)	126301	Signals/Systems Upgrade Program - 5337		$78,858,624	$0	$0	$19,714,656	$98,573,280
5337	RTD0008240	Massachusetts Bay Transportation Authority (MBTA)	126301	5307 - Signals/Systems Upgrade Program		$29,300,598	$0	$0	$7,325,150	$36,625,748
					Subtotal	$195,472,037	$0	$0	$48,868,010	$244,340,047
5339										
5339	RTD0007974	Massachusetts Bay Transportation Authority (MBTA)	111400	Bus Program - 5339		$6,839,898	$0	$0	$1,709,975	$8,549,873
					Subtotal	$6,839,898	$0	$0	$1,709,975	$8,549,873
5320										
					Subtotal	$0	$0	$0	$0	$0
Other Federal										
					Subtotal	$0	$0	$0	$0	$0
Other Non-Federal										
Other Non-Federal	RTD0008065	Cape Ann Transportation Authority	111240	BUY ASSOC CAP MAINT ITEMS		$0	$15,000	$0	$0	$15,000
					Subtotal	$0	$15,000	$0	$0	$15,000
					Total	$376,626,049	$1,233,750	$0	$128,108,367	$505,968,166

Funds listed under the Carry Over column are included in the Federal Amount

2023 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ ***Present information as follows, if applicable:*** **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
►Section 1A / Regionally Prioritized Projects											
►Regionally Prioritized Projects											
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	NHPP	$ 13,000,000	$ 10,400,000	$ 2,600,000	Construction; NHPP+STBG+TAP Total Cost = $152,000,000; AC Yr 2 of 5; Total funding in this TIP = $111,685,278; MPO Evaluation Score = 59
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	STBG	$ 20,268,422	$ 16,214,738	$ 4,053,684	Construction; NHPP+STBG+TAP Total Cost = $152,000,000; AC Yr 2 of 5; Total funding in this TIP = $111,685,278; MPO Evaluation Score = 59
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	TAP	$ 1,000,000	$ 800,000	$ 200,000	Construction; NHPP+STBG+TAP Total Cost = $152,000,000; AC Yr 2 of 5; Total funding in this TIP = $111,685,278; MPO Evaluation Score = 59; TAP Proponent = Boston
	Roadway Reconstruction	608348	Boston Region	Beverly	BEVERLY - RECONSTRUCTION OF BRIDGE STREET	4	CMAQ	$ 3,000,000	$ 2,400,000	$ 600,000	Construction; CMAQ+STBG Total Cost = $8,504,923; MPO Evaluation Score = 66
	Roadway Reconstruction	608348	Boston Region	Beverly	BEVERLY - RECONSTRUCTION OF BRIDGE STREET	4	STBG	$ 5,504,923	$ 4,403,938	$ 1,100,985	Construction; CMAQ+STBG Total Cost = $8,504,923; MPO Evaluation Score = 66
	Roadway Reconstruction	608933	Boston Region	Peabody	PEABODY - REHABILITATION OF CENTRAL STREET	4	CMAQ	$ 3,000,000	$ 2,400,000	$ 600,000	Construction; CMAQ+HSIP+STBG Total Cost = $10,819,200; MPO Evaluation Score = 61
	Roadway Reconstruction	608933	Boston Region	Peabody	PEABODY - REHABILITATION OF CENTRAL STREET	4	HSIP	$ 1,500,000	$ 1,350,000	$ 150,000	Construction; CMAQ+HSIP+STBG Total Cost = $10,819,200; MPO Evaluation Score = 61
	Roadway Reconstruction	608933	Boston Region	Peabody	PEABODY - REHABILITATION OF CENTRAL STREET	4	STBG	$ 6,319,200	$ 5,055,360	$ 1,263,840	Construction; CMAQ+HSIP+STBG Total Cost = $10,819,200; MPO Evaluation Score = 61
	Roadway Reconstruction	607244	Boston Region	Winthrop	WINTHROP - RECONSTRUCTION & RELATED WORK ALONG WINTHROP STREET & REVERE STREET CORRIDOR	6	CMAQ	$ 2,000,000	$ 1,600,000	$ 400,000	Construction; CMAQ+STBG+TAP Total Cost = $5,644,800; MPO Evaluation Score = 47
	Roadway Reconstruction	607244	Boston Region	Winthrop	WINTHROP - RECONSTRUCTION & RELATED WORK ALONG WINTHROP STREET & REVERE STREET CORRIDOR	6	STBG	$ 3,084,800	$ 2,467,840	$ 616,960	Construction; CMAQ+STBG+TAP Total Cost = $5,644,800; MPO Evaluation Score = 47
	Roadway Reconstruction	607244	Boston Region	Winthrop	WINTHROP - RECONSTRUCTION & RELATED WORK ALONG WINTHROP STREET & REVERE STREET CORRIDOR	6	TAP	$ 560,000	$ 448,000	$ 112,000	Construction; CMAQ+STBG+TAP Total Cost = $5,644,800; MPO Evaluation Score = 54; TAP Proponent = Winthrop
	Roadway Reconstruction	605743	Boston Region	Ipswich	IPSWICH - RESURFACING & RELATED WORK ON CENTRAL & SOUTH MAIN STREETS	4	STBG	$ 2,419,502	$ 1,935,602	$ 483,900	Construction; STBG+TAP Total Cost = $2,939,052; MPO Evaluation Score = 47
	Roadway Reconstruction	605743	Boston Region	Ipswich	IPSWICH - RESURFACING & RELATED WORK ON CENTRAL & SOUTH MAIN STREETS	4	TAP	$ 519,550	$ 415,640	$ 103,910	Construction; STBG+TAP Total Cost = $2,939,052; MPO Evaluation Score = 47; TAP Proponent = Ipswich
	Roadway Reconstruction	608707	Boston Region	Quincy	QUINCY - RECONSTRUCTION OF SEA STREET	6	STBG	$ 6,066,683	$ 4,853,346	$ 1,213,337	Construction; STBG+TAP Total Cost = $6,292,937; MPO Evaluation Score = 40
	Roadway Reconstruction	608707	Boston Region	Quincy	QUINCY - RECONSTRUCTION OF SEA STREET	6	TAP	$ 226,254	$ 181,003	$ 45,251	Construction; STBG+TAP Total Cost = $6,292,937; MPO Evaluation Score = 40; TAP Project Proponent = Quincy
	Roadway Reconstruction	608007	Boston Region	Multiple	COHASSET/SCITUATE - CORRIDOR IMPROVEMENTS AND RELATED WORK ON JUSTICE CUSHING HIGHWAY (ROUTE 3A), FROM BEECHWOOD STREET TO HENRY TURNER BAILEY ROAD	5	HSIP	$ 1,500,000	$ 1,350,000	$ 150,000	Construction; HSIP+STBG+TAP Total Cost = $8,971,636; MPO Evaluation Score = 37

2023 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ ***Present information as follows, if applicable:*** **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Roadway Reconstruction	608007	Boston Region	Multiple	COHASSET/SCITUATE - CORRIDOR IMPROVEMENTS AND RELATED WORK ON JUSTICE CUSHING HIGHWAY (ROUTE 3A), FROM BEECHWOOD STREET TO HENRY TURNER BAILEY ROAD	5	STBG	$ 7,331,404	$ 5,865,123	$ 1,466,281	Construction; HSIP+STBG+TAP Total Cost = $8,971,636; MPO Evaluation Score = 37
	Roadway Reconstruction	608007	Boston Region	Multiple	COHASSET/SCITUATE - CORRIDOR IMPROVEMENTS AND RELATED WORK ON JUSTICE CUSHING HIGHWAY (ROUTE 3A), FROM BEECHWOOD STREET TO HENRY TURNER BAILEY ROAD	5	TAP	$ 140,232	$ 112,186	$ 28,046	Construction; HSIP+STBG+TAP Total Cost = $8,971,636; MPO Evaluation Score = 37; TAP Proponent = MassDOT
	Roadway Reconstruction	607899	Boston Region	Dedham	DEDHAM - PEDESTRIAN IMPROVEMENTS ALONG BUSSEY STREET, INCLUDING SUPERSTRUCTURE REPLACEMENT, D-05-010, BUSSEY STREET OVER MOTHER BROOK	6	STBG	$ 3,841,584	$ 3,073,267	$ 768,317	Construction; STBG+TAP Total Cost = $4,368,780; MPO Evaluation Score = 35
	Roadway Reconstruction	607899	Boston Region	Dedham	DEDHAM - PEDESTRIAN IMPROVEMENTS ALONG BUSSEY STREET, INCLUDING SUPERSTRUCTURE REPLACEMENT, D-05-010, BUSSEY STREET OVER MOTHER BROOK	6	TAP	$ 527,196	$ 421,757	$ 105,439	Construction; STBG+TAP Total Cost = $4,368,780; MPO Evaluation Score = 35; TAP Proponent = Dedham
	Intersection Improvements	603739	Boston Region	Wrentham	WRENTHAM - CONSTRUCTION OF A SLIP RAMP FROM ROUTE 1A NB TO I-495 SB AND ASSOCIATED INTERSECTION IMPROVEMENTS ALONG ROUTE 1A	5	HSIP	$ 2,500,000	$ 2,250,000	$ 250,000	Construction; HSIP+STBG+TAP Total Cost = $13,103,505; MPO Evaluation Score = 55
	Intersection Improvements	603739	Boston Region	Wrentham	WRENTHAM - CONSTRUCTION OF A SLIP RAMP FROM ROUTE 1A NB TO I-495 SB AND ASSOCIATED INTERSECTION IMPROVEMENTS ALONG ROUTE 1A	5	STBG	$ 10,103,505	$ 8,082,804	$ 2,020,701	Construction; HSIP+STBG+TAP Total Cost = $13,103,505; MPO Evaluation Score = 55
	Intersection Improvements	603739	Boston Region	Wrentham	WRENTHAM - CONSTRUCTION OF A SLIP RAMP FROM ROUTE 1A NB TO I-495 SB AND ASSOCIATED INTERSECTION IMPROVEMENTS ALONG ROUTE 1A	5	TAP	$ 500,000	$ 400,000	$ 100,000	Construction; HSIP+STBG+TAP Total Cost = $13,103,505; MPO Evaluation Score = 55; TAP Proponent = MassDOT
	Roadway Reconstruction	608051	Boston Region	Wilmington	WILMINGTON- RECONSTRUCTION OF ROUTE 38 (MAIN STREET), FROM ROUTE 62 TO THE WOBURN CITY LINE	4	CMAQ	$ 6,000,000	$ 4,800,000	$ 1,200,000	Construction; CMAQ+HSIP+STBG Total Cost = $12,098,594; MPO Evaluation Score = 59
	Roadway Reconstruction	608051	Boston Region	Wilmington	WILMINGTON- RECONSTRUCTION OF ROUTE 38 (MAIN STREET), FROM ROUTE 62 TO THE WOBURN CITY LINE	4	HSIP	$ 1,000,000	$ 900,000	$ 100,000	Construction; CMAQ+HSIP+STBG Total Cost = $12,098,594; MPO Evaluation Score = 59
	Roadway Reconstruction	608051	Boston Region	Wilmington	WILMINGTON- RECONSTRUCTION OF ROUTE 38 (MAIN STREET), FROM ROUTE 62 TO THE WOBURN CITY LINE	4	STBG	$ 5,098,594	$ 4,078,875	$ 1,019,719	Construction; CMAQ+HSIP+STBG Total Cost = $12,098,594; MPO Evaluation Score = 59
	Planning / Adjustments / Pass-throughs	BN0009	Boston Region	Multiple	COMMUNITY TRANSPORTATION PROGRAM	N/A	CMAQ	$ 2,000,000	$ 1,600,000	$ 400,000	Planning, Design, or Construction; Set Aside for LRTP Clean Air and Mobility Program
							Regionally Prioritized Projects subtotal ►	**$ 109,011,849**	$ 87,859,479	$ 21,152,370	◄ Funding Split Varies by Funding Source

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 109,011,849**	**$ 109,011,849**	**◄Total**	**$ (0) Funds Over Programmed**
STBG programmed ►	$ 83,038,617	$ 66,430,894	**◄ STBG**	
HSIP programmed ►	$ 6,500,000	$ 5,850,000	**◄ HSIP**	
CMAQ programmed ►	$ 16,000,000	$ 12,800,000	**◄ CMAQ**	

Section 1A instructions: **MPO Template Name)** Choose Regional Name from dropdown list to populate header and MPO column; **Column C)** Enter ID from ProjectInfo; **Column E)** Choose Municipality Name from dropdown list; **Column H)** Choose the Funding Source being used for the project - if multiple funding sources are being used enter multiple lines; **Column I)** Enter the total amount of funds being programmed in this fiscal year and for each funding source; **Column J)** Federal funds autocalculates. Please verify the amount and only change if needed for flex. **Column K) N**on-federal funds autocalculates. Please verify the split/match - if matching an FTA flex, coordinate with Rail & Transit Division before programming; **Column L)** Enter Additional Information as described - please do

2023 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
											Present information as follows, if applicable: **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	not use any other format.						TAP programmed ►	$ 3,473,232	$ 2,778,586	◄ **TAP**	

►Section 1B / Earmark or Discretionary Grant Funded Projects

►Other Federal Aid

	Other Federal Aid	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	Other FA	$ 11,607,808	$ 9,286,246	$ 2,321,562	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC Yr 3 of 3; Other Federal Aid = NHPP-E
							Other Federal Aid subtotal ►	**$ 11,607,808**	$ 9,286,246	$ 2,321,562	◄ Funding Split Varies by Funding Source

►Section 2A / State Prioritized Reliability Projects

►Bridge Program / Inspections

	Bridge Program		Boston Region		Bridge Inspection			$ -	$ -	$ -	
							Bridge Program / Inspections subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

►Bridge Program / Off-System

	Bridge Program		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
							Bridge Program / Off-System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal

►Bridge Program / On-System (NHS)

	Bridge Program	606728	Boston Region	Boston	BOSTON- BRIDGE REPLACEMENT B-16-365, BOWKER OVERPASS OVER STORROW DRIVE (EB)	6	NHPP-On	$ 24,009,700	$ 19,207,760	$ 4,801,940	
	Bridge Program	606902	Boston Region	Boston	BOSTON- BRIDGE RECONSTRUCTION/REHAB, B-16-181, WEST ROXBURY PARKWAY OVER MBTA	6	NHPP-On	$ 6,900,000	$ 5,520,000	$ 1,380,000	
	Bridge Program	604952	Boston Region	Multiple	LYNN- SAUGUS- BRIDGE REPLACEMENT, L-18-016=S-05-008, ROUTE 107 OVER THE SAUGUS RIVER (AKA - BELDEN G. BLY BRIDGE)	4	NHPP-On	$ 18,409,727	$ 14,727,781	$ 3,681,945	AC Year 5 of 5, Total Cost $84,253,135
	Bridge Program		Boston Region		Bridge Program / On-System (NHS)			$ -	$ -	$ -	
							Bridge Program / On-System (NHS) subtotal ►	**$ 49,319,427**	$ 39,455,541	$ 9,863,885	◄ Funding Split Varies by Funding Source

►Bridge Program / On-System (Non-NHS)

	Bridge Program	608197	Boston Region	Boston	BOSTON- SUPERSTRUCTURE REPLACEMENT, B-16-107, CANTERBURY STREET OVER AMTRAK/MBTA	6	NHPP-Off	$ 4,678,280	$ 3,742,624	$ 935,656	
	Bridge Program		Boston Region		Bridge Program / On-System (Non-NHS)			$ -	$ -	$ -	
							Bridge Program / On-System (Non-NHS) subtotal ►	**$ 4,678,280**	$ 3,742,624	$ 935,656	◄ 80% Federal + 20% Non-Federal

►Bridge Program / Systematic Maintenance

	Bridge Program	608609	Boston Region	Multiple	NEWTON- WESTWOOD- STEEL SUPERSTRUCTURE CLEANING (FULL REMOVAL) AND PAINTING OF 2 BRIDGES: N-12-056 & W-31-006	6	NHPP-Off	$ 2,142,857	$ 1,714,285	$ 428,571	
	Bridge Program		Boston Region		Bridge Program / Systematic Maintenance			$ -	$ -	$ -	
							Bridge Program / Systematic Maintenance subtotal ►	**$ 2,142,857**	$ 1,714,285	$ 428,571	◄ Funding Split Varies by Funding Source

►Interstate Pavement

2023 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
											Present information as follows, if applicable: **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Interstate Pavement		Boston Region		Interstate Pavement			$ -	$ -	$ -	
							Interstate Pavement subtotal ►	**$ -**	$ -	$ -	◄ 90% Federal + 10% Non-Federal
►Non-Interstate Pavement											
	Non-Interstate Pavement	608484	Boston Region	Multiple	CANTON-MILTON - RESURFACING AND RELATED WORK ON ROUTE 138	6	NHPP	$ 18,639,846	$ 14,911,877	$ 3,727,969	
	Non-Interstate Pavement	608498	Boston Region	Multiple	HINGHAM-WEYMOUTH-BRAINTREE - RESURFACING AND RELATED WORK ON ROUTE 53	6	NHPP	$ 8,458,240	$ 6,766,592	$ 1,691,648	
	Non-Interstate Pavement		Boston Region		Non-Interstate Pavement			$ -	$ -	$ -	
							Non-Interstate Pavement subtotal ►	**$ 27,098,086**	$ 21,678,469	$ 5,419,617	◄ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
							Roadway Improvements subtotal ►	$ -	$ -	$ -	◄ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements	609053	Boston Region	Multiple	CANTON- DEDHAM- NORWOOD- HIGHWAY LIGHTING IMPROVEMENTS AT I-93 & I-95/128	6	NHPP	$ 5,432,056	$ 4,345,645	$ 1,086,411	
	Safety Improvements		Boston Region		Safety Improvements			$ -	$ -	$ -	
							Safety Improvements subtotal ►	**$ 5,432,056**	$ 4,345,645	$ 1,086,411	◄ Funding Split Varies by Funding Source
►Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits		Boston Region		ADA Retrofits			$ -	$ -	$ -	
							ADA Retrofits subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Intersection Improvements											
	Intersection Improvements	608052	Boston Region	Norwood	NORWOOD- INTERSECTION & SIGNAL IMPROVEMENTS AT US 1 (PROVIDENCE HIGHWAY) & MORSE STREET	5	HSIP	$ 1,668,001	$ 1,501,201	$ 166,800	
	Intersection Improvements	608564	Boston Region	Watertown	WATERTOWN- INTERSECTION IMPROVEMENTS AT ROUTE 16 AND GALEN STREET	6	HSIP	$ 2,688,000	$ 2,419,200	$ 268,800	
	Intersection Improvements	608566	Boston Region	Marlborough	MARLBOROUGH- IMPROVEMENTS AT ROUTE 20 (EAST MAIN STREET) AT CURTIS AVENUE	3	HSIP	$ 2,688,000	$ 2,419,200	$ 268,800	
	Intersection Improvements		Boston Region		Intersection Improvements			$ -	$ -	$ -	
							Intersection Improvements subtotal ►	**$ 7,044,001**	$ 6,339,601	$ 704,400	◄ Funding Split Varies by Funding Source
►Intelligent Transportation Systems											
	Intelligent Transportation Systems		Boston Region		Intelligent Transportation Systems			$ -	$ -	$ -	
							Intelligent Transportation System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Roadway Reconstruction											
	Roadway Reconstruction	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NFP	$ 30,000,000	$ 24,000,000	$ 6,000,000	a) Construction; Total Federal Participating Cost (TFPC) = $189,451,000; AC Yr 2 of 5

2023 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ *Present information as follows, if applicable:* **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Roadway Reconstruction	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	NHPP	$ 12,234,709	$ 9,787,767	$ 2,446,942	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC Yr 3 of 3
							Roadway Reconstruction subtotal ►	**$ 42,234,709**	$ 33,787,767	$ 8,446,942	◄ Funding Split Varies by Funding Source
►Section 2C / State Prioritized Expansion Projects											
►Bicycles and Pedestrians											
	Bicycles and Pedestrians	608943	Boston Region	Boston	BOSTON- NEPONSET RIVER GREENWAY (PHASE 3)	6	CMAQ	$ 6,067,404	$ 4,853,923	$ 1,213,481	
	Bicycles and Pedestrians		Boston Region		Bicycles and Pedestrians			$ -	$ -	$ -	
							Bicycles and Pedestrians subtotal ►	**$ 6,067,404**	$ 4,853,923	$ 1,213,481	◄ 80% Federal + 20% Non-Federal
►Capacity											
	Capacity		Boston Region		Capacity			$ -	$ -	$ -	
							Capacity subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 3 / Planning / Adjustments / Pass-throughs											
►Planning / Adjustments / Pass-throughs											
			Boston Region		ABP GANS Repayment	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program I, (SPR I), Planning	Multiple		$ -	$ -	$ -	
			Boston Region		Railroad Crossings	Multiple		$ -	$ -	$ -	
			Boston Region		Recreational Trails	Multiple		$ -	$ -	$ -	
							Other Statewide Items subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 4 / Non-Federally Aided Projects											
►Non-Federally Aided Projects											
	Non Federal Aid	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NFA	$ 18,112,483		$ 18,112,483	Construction; Total Federal Participating Cost (TFPC) = $189,451,000; AC Yr 2 of 5
	Non-Federally Aided Projects		Boston Region		Non-Federal Aid			$ -		$ -	
							Non-Federal Aid subtotal►	**$ 18,112,483**		$ 18,112,483	◄100% Non-Federal

2023 Summary

	TIP Section 1 - 3: ▼	TIP Section 4: ▼	Total of All Projects ▼	
Total ►	$ 264,636,477	$ 18,112,483	$ 282,748,960	◄ Total Spending in Region
Federal Funds ►	$ 213,063,582		$ 213,063,582	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 51,572,895	$ 18,112,483	$ 69,685,378	◄ Total Non-Federal Spending in Region

701 CMR 7.00 Use of Road Flaggers and Police Details on Public Works Projects / 701 CMR 7.00 (the Regulation) was promulgated and became law on October 3, 2008. Under this Regulation, the CMR is applicable to any Public works Project that is performed within the limits of, or that impact traffic on, any Public Road. The Municipal Limitation referenced in this Regulation is applicable only to projects where the Municipality is the Awarding Authority. For all projects contained in the TIP, the Commonwealth is the Awarding Authority. Therefore, all projects must be considered and implemented in accordance with 701 CMR 7.00, and the Road Flagger and Police Detail Guidelines. By placing a project on the TIP, the Municipality acknowledges that 701 CMR 7.00 is applicable to its project and design and construction will be fully compliant with this Regulation. This information, and additional information relative to guidance and implementation of the Regulation can be found at the following link on the MassDOT Highway Division website: http://www.massdot.state.ma.us/Highway/flaggers/main.aspx

Transportation Improvement Program (TIP)
Project List (FY2023)

FTA Program	Project Number	Transit Agency	FTA Activity Line Item	Project Description	Carryover (unobligated)	Federal Funds	State Funds	TDC	Local Funds	Total Cost
5307										
5307	RTD0007519	Cape Ann Transportation Authority	117A00	PREVENTIVE MAINTENANCE	2022 - $285,000	$285,000	$0	$0	$71,250	$356,250
5307	RTD0007520	Cape Ann Transportation Authority	111203	Replace Two 30-FT BUS	2019 - $175,000; 2020 - $175,000; 2021 - $175,000; 2022 - $175,000	$700,000	$175,000	$0	$0	$875,000
5307	RTD0007523	Cape Ann Transportation Authority	114403	Rehab/Reno-repave parking lot (match in 24)		$80,000	$0	$0	$0	$80,000
5307	RTD0007316	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT) - Framingham Commuter Rail Station (FCRS)	2022 - $155,000	$155,000	$175,000	$0	$0	$330,000
5307	RTD0007996	MetroWest Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV	2022 - $1,600,000	$1,600,000	$400,000	$0	$0	$2,000,000
5307	RTD0007997	MetroWest Regional Transit Authority	114200	ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES	2022 - $225,000	$225,000	$225,000	$0	$0	$450,000
5307	RTD0007998	MetroWest Regional Transit Authority	440000	TECHNOLOGY SUPPORT/CAPITAL OUTREACH	2022 - $172,600	$172,600	$180,000	$0	$0	$352,600
5307	RTD0007999	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT) - BLANDIN	2022 - $400,000	$400,000	$225,000	$0	$0	$625,000
5307	RTD0007977	Massachusetts Bay Transportation Authority (MBTA)	121200	Revenue Vehicle Program - 5307		$127,496,055	$0	$0	$31,874,014	$159,370,069
5307	RTD0008241	Massachusetts Bay Transportation Authority (MBTA)	126301	5307 - Signals/Systems Upgrade Program		$29,801,639	$0	$0	$7,450,410	$37,252,049
					Subtotal	$160,915,294	$1,380,000	$0	$39,395,674	$201,690,968
5309										
					Subtotal	$0	$0	$0	$0	$0
5310										
					Subtotal	$0	$0	$0	$0	$0
5311										
					Subtotal	$0	$0	$0	$0	$0
5337										
5337	RTD0007980	Massachusetts Bay Transportation Authority (MBTA)	122405	Bridge and Tunnel Program - 5337		$28,223,483	$0	$0	$7,055,871	$35,279,354
5337	RTD0008177	Massachusetts Bay Transportation Authority (MBTA)	121200	5337 - Stations and Facilities Program		$60,582,381	$0	$0	$15,145,595	$75,727,976
5337	RTD0008242	Massachusetts Bay Transportation Authority (MBTA)	126301	5337 - Signals/Systems Upgrade Program		$80,207,107	$0	$0	$20,051,777	$100,258,884
					Subtotal	$169,012,971	$0	$0	$42,253,243	$211,266,214
5339										
5339	RTD0007982	Massachusetts Bay Transportation Authority (MBTA)	111400	Bus Program - 5339		$6,956,861	$0	$0	$1,739,215	$8,696,076
					Subtotal	$6,956,861	$0	$0	$1,739,215	$8,696,076
5320										
					Subtotal	$0	$0	$0	$0	$0
Other Federal										
					Subtotal	$0	$0	$0	$0	$0
Other Non-Federal										
Other Non-Federal	RTD0008066	Cape Ann Transportation Authority	111240	BUY ASSOC CAP MAINT ITEMS		$0	$15,000	$0	$0	$15,000
					Subtotal	$0	$15,000	$0	$0	$15,000
					Total	$336,885,126	$1,395,000	$0	$83,388,132	$421,668,258

Funds listed under the Carry Over column are included in the Federal Amount

2024 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
											Present information as follows, if applicable: **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
►Section 1A / Regionally Prioritized Projects											
►Regionally Prioritized Projects											
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	NHPP	$ 16,000,000	$ 12,800,000	$ 3,200,000	Construction; NHPP+STBG+TAP Total Cost = $152,000,000; AC Yr 3 of 5; Total funding in this TIP = $111,685,278; MPO Evaluation Score = 59
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	STBG	$ 34,860,493	$ 27,888,394	$ 6,972,099	Construction; NHPP+STBG+TAP Total Cost = $152,000,000; AC Yr 3 of 5; Total funding in this TIP = $111,685,278; MPO Evaluation Score = 59
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	TAP	$ 3,000,000	$ 2,400,000	$ 600,000	Construction; NHPP+STBG+TAP Total Cost = $152,000,000; AC Yr 3 of 5; Total funding in this TIP = $111,685,278; MPO Evaluation Score = 59; TAP Proponent = Boston
	Bicycles and Pedestrians	609211	Boston Region	Peabody	PEABODY- INDEPENDENCE GREENWAY EXTENSION	4	CMAQ	$ 1,972,500	$ 1,578,000	$ 394,500	Construction; CMAQ+TAP Total Cost = $2,228,447; MPO Evaluation Score = 34
	Bicycles and Pedestrians	609211	Boston Region	Peabody	PEABODY- INDEPENDENCE GREENWAY EXTENSION	4	TAP	$ 255,947	$ 204,758	$ 51,189	Construction; CMAQ+TAP Total Cost = $2,228,447; MPO Evaluation Score = 34
	Bicycles and Pedestrians	608006	Boston Region	Framingham	FRAMINGHAM- PEDESTRIAN HYBRID BEACON INSTALLATION AT ROUTE 9 AND MAYNARD ROAD	3	TAP	$ 1,028,024	$ 822,419	$ 205,605	Construction; TAP Total Cost = $1,028,024; MPO Evaluation Score = 26; TAP Proponent = Framingham
	Roadway Reconstruction	609252	Boston Region	Lynn	LYNN- REHABILITATION OF ESSEX STREET	4	CMAQ	$ 6,000,000	$ 4,800,000	$ 1,200,000	Construction; CMAQ+HSIP+STBG Total Cost = $19,664,320; MPO Evaluation Score = 66
	Roadway Reconstruction	609252	Boston Region	Lynn	LYNN- REHABILITATION OF ESSEX STREET	4	HSIP	$ 4,000,000	$ 3,600,000	$ 400,000	Construction; CMAQ+HSIP+STBG Total Cost = $19,664,320; MPO Evaluation Score = 66
	Roadway Reconstruction	609252	Boston Region	Lynn	LYNN- REHABILITATION OF ESSEX STREET	4	STBG	$ 9,664,320	$ 7,731,456	$ 1,932,864	Construction; CMAQ+HSIP+STBG Total Cost = $19,664,320; MPO Evaluation Score = 66
	Intersection Improvements	605168	Boston Region	Hingham	HINGHAM- INTERSECTION IMPROVEMENTS AT ROUTE 3A/SUMMER STREET ROTARY	5	TAP	$ 1,500,000	$ 1,200,000	$ 300,000	Construction; TAP+STBG Total Cost = $8,700,001; MPO Evaluation Score = 55; TAP Proponent = Hingham
	Intersection Improvements	605168	Boston Region	Hingham	HINGHAM- INTERSECTION IMPROVEMENTS AT ROUTE 3A/SUMMER STREET ROTARY	5	STBG	$ 7,200,001	$ 5,760,001	$ 1,440,000	Construction; TAP+STBG Total Cost = $8,700,001; MPO Evaluation Score = 55
	Roadway Reconstruction	609257	Boston Region	Everett	EVERETT- REHABILITATION OF BEACHAM STREET, FROM ROUTE 99 TO CHELSEA CITY LINE	4	HSIP	$ 1,000,000	$ 900,000	$ 100,000	Construction; HSIP+TAP+STBG Total Cost = $10,648,800; MPO Evaluation Score = 54
	Roadway Reconstruction	609257	Boston Region	Everett	EVERETT- REHABILITATION OF BEACHAM STREET, FROM ROUTE 99 TO CHELSEA CITY LINE	4	TAP	$ 1,500,000	$ 1,200,000	$ 300,000	Construction; HSIP+TAP+STBG Total Cost = $10,648,800; MPO Evaluation Score = 54; TAP Proponent = Everett
	Roadway Reconstruction	609257	Boston Region	Everett	EVERETT- REHABILITATION OF BEACHAM STREET, FROM ROUTE 99 TO CHELSEA CITY LINE	4	STBG	$ 8,148,800	$ 6,519,040	$ 1,629,760	Construction; HSIP+TAP+STBG Total Cost = $10,648,800; MPO Evaluation Score = 54
	Roadway Reconstruction	609054	Boston Region	Littleton	LITTLETON- RECONSTRUCTION OF FOSTER STREET	3	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; CMAQ+TAP+STBG Total Cost = $4,086,153; MPO Evaluation Score = 38
	Roadway Reconstruction	609054	Boston Region	Littleton	LITTLETON- RECONSTRUCTION OF FOSTER STREET	3	TAP	$ 500,000	$ 400,000	$ 100,000	Construction; CMAQ+TAP+STBG Total Cost = $4,086,153; MPO Evaluation Score = 38; TAP Proponent = Littleton
	Roadway Reconstruction	609054	Boston Region	Littleton	LITTLETON- RECONSTRUCTION OF FOSTER STREET	3	STBG	$ 2,586,153	$ 2,068,922	$ 517,231	Construction; CMAQ+TAP+STBG Total Cost = $4,086,153; MPO Evaluation Score = 38
	Intersection Improvements	609253	Boston Region	Wilmington	WILMINGTON- INTERSECTION IMPROVEMENTS AT LOWELL STREET (ROUTE 129) AND WOBURN STREET	4	CMAQ	$ 3,400,000	$ 2,720,000	$ 680,000	Construction; CMAQ+HSIP Total Cost = $3,944,000; MPO Evaluation Score = 53

2024 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
											Present information as follows, if applicable: **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Intersection Improvements	609253	Boston Region	Wilmington	WILMINGTON- INTERSECTION IMPROVEMENTS AT LOWELL STREET (ROUTE 129) AND WOBURN STREET	4	HSIP	$ 544,000	$ 489,600	$ 54,400	Construction; CMAQ+HSIP Total Cost = $3,944,000; MPO Evaluation Score = 53
	Intersection Improvements	608436	Boston Region	Ashland	ASHLAND- REHABILITATION AND RAIL CROSSING IMPROVEMENTS ON CHERRY STREET	3	STBG	$ 1,148,400	$ 918,720	$ 229,680	Construction; STBG Total Cost = $1,148,400; MPO Evaluation Score = 38
	Roadway Reconstruction	608045	Boston Region	Milford	MILFORD- REHABILITATION ON ROUTE 16, FROM ROUTE 109 TO BEAVER STREET	3	HSIP	$ 1,000,000	$ 900,000	$ 100,000	Construction; HSIP+STBG Total Cost = $3,132,000; MPO Evaluation Score = 43
	Roadway Reconstruction	608045	Boston Region	Milford	MILFORD- REHABILITATION ON ROUTE 16, FROM ROUTE 109 TO BEAVER STREET	3	STBG	$ 2,132,000	$ 1,705,600	$ 426,400	Construction; HSIP+STBG Total Cost = $3,132,000; MPO Evaluation Score = 43
	Planning / Adjustments / Pass-throughs	BN0009	Boston Region	Multiple	COMMUNITY TRANSPORTATION PROGRAM	N/A	CMAQ	$ 2,000,000	$ 1,600,000	$ 400,000	Planning, Design, or Construction; Set Aside for LRTP Clean Air and Mobility Program
							Regionally Prioritized Projects subtotal ►	**$ 110,440,638**	$ 89,006,910	$ 21,433,728	◄ Funding Split Varies by Funding Source

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 110,440,638**	**$ 110,440,638**	**◄Total Budget**	**$ (0) Funds Over Programmed**
STBG programmed ►	$ 81,740,167	$ 65,392,134	**◄ STBG**	
HSIP programmed ►	$ 6,544,000	$ 5,889,600	**◄ HSIP**	
CMAQ programmed ►	$ 14,372,500	$ 11,498,000	**◄ CMAQ**	
TAP programmed ►	$ 7,783,971	$ 6,227,177	**◄ TAP**	

Section 1A instructions: **MPO Template Name)** Choose Regional Name from dropdown list to populate header and MPO column; **Column C)** Enter ID from ProjectInfo; **Column E)** Choose Municipality Name from dropdown list; **Column H)** Choose the Funding Source being used for the project - if multiple funding sources are being used enter multiple lines; **Column I)** Enter the total amount of funds being programmed in this fiscal year and for each funding source; **Column J)** Federal funds autocalculates. Please verify the amount and only change if needed for flex. **Column K) N**on-federal funds autocalculates. Please verify the split/match - if matching an FTA flex, coordinate with Rail & Transit Division before programming; **Column L)** Enter Additional Information as described - please do not use any other format.

►Section 1B / Earmark or Discretionary Grant Funded Projects

►Other Federal Aid

			Boston Region		Other Federal Aid		HPP	$ -	$ -	$ -	
							Other Federal Aid subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

►Section 2A / State Prioritized Reliability Projects

►Bridge Program / Inspections

	Bridge Program		Boston Region		Bridge Inspection			$ -	$ -	$ -	
							Bridge Program / Inspections subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

►Bridge Program / Off-System

	Bridge Program	TBD	Boston Region	Canton	CANTON-BRIDGE REPLACEMENT, C-02-042, REVERE COURT OVER EAST BRANCH NEPONSET RIVER	6	STBG-BR-OFF	$ 2,721,360	$ 2,177,088	$ 544,272	
	Bridge Program	TBD	Boston Region	Hamilton	HAMILTON-BRIDGE REPLACEMENT, WINTHROP STREET OVER IPSWICH RIVER	4	STBG-BR-OFF	$ 3,698,544	$ 2,958,835	$ 739,709	
	Bridge Program		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
							Bridge Program / Off-System subtotal ►	**$ 6,419,904**	$ 5,135,923	$ 1,283,981	◄ 80% Federal + 20% Non-Federal

►Bridge Program / On-System (NHS)

	Bridge Program	608703	Boston Region	Wilmington	WILMINGTON- BRIDGE REPLACEMENT, W-38-029 (2KV), ST 129 LOWELL STREET OVER I 93	4	NHPP-On	$ 17,137,875	$ 13,710,300	$ 3,427,575	
	Bridge Program		Boston Region		Bridge Program / On-System (NHS)			$ -	$ -	$ -	

2024 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ *Present information as follows, if applicable:* **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
					Bridge Program / On-System (NHS) subtotal ►			**$ 17,137,875**	$ 13,710,300	$ 3,427,575	◄ Funding Split Varies by Funding Source
►Bridge Program / On-System (Non-NHS)											
	Bridge Program	608522	Boston Region	Middleton	MIDDLETON- BRIDGE REPLACEMENT, M-20-003, ROUTE 62 (MAPLE STREET) OVER IPSWICH RIVER	4	NHPP-Off	$ 4,073,920	$ 3,259,136	$ 814,784	
	Bridge Program		Boston Region		Bridge Program / On-System (Non-NHS)			$ -	$ -	$ -	
					Bridge Program / On-System (Non-NHS) subtotal ►			**$ 4,073,920**	$ 3,259,136	$ 814,784	◄ 80% Federal + 20% Non-Federal
►Bridge Program / Systematic Maintenance											
	Bridge Program		Boston Region		Bridge Program / Systematic Maintenance			$ -	$ -	$ -	
					Bridge Program / Systematic Maintenance subtotal ►			**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Interstate Pavement											
	Interstate Pavement		Boston Region		Interstate Pavement			$ -	$ -	$ -	
					Insterstate Pavement subtotal ►			$ -	$ -	$ -	◄ 90% Federal + 10% Non-Federal
►Non-Interstate Pavement											
	Non-Interstate Pavement	609402	Boston Region	Multiple	FRAMINGHAM - NATICK - RESURFACING AND RELATED WORK ON ROUTE 9	3	NHPP	$ 25,711,400	$ 20,569,120	$ 5,142,280	
	Non-Interstate Pavement	608495	Boston Region	Multiple	CONCORD-LINCOLN-LEXINGTON RESURFACING AND RELATED WORK ON ROUTE 2A	4	NHPP	$ 3,262,500	$ 2,610,000	$ 652,500	
	Non-Interstate Pavement	609399	Boston Region	Randolph	RANDOLPH - RESURFACING AND RELATED WORK ON ROUTE 28	6	NHPP	$ 7,407,946	$ 5,926,357	$ 1,481,589	
	Non-Interstate Pavement	609396	Boston Region	Multiple	RANDOLPH - MILTON - RESURFACING AND RELATED WORK ON ROUTE 28	6	NHPP	$ 7,407,946	$ 5,926,357	$ 1,481,589	
	Non-Interstate Pavement		Boston Region		Non-Interstate Pavement			$ -	$ -	$ -	
					Non-Interstate Pavement subtotal ►			**$ 43,789,792**	$ 35,031,834	$ 8,757,958	◄ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
					Roadway Improvements subtotal ►			**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements	609058	Boston Region	Multiple	PEABODY TO GLOUCESTER- GUIDE AND TRAFFIC SIGN REPLACEMENT ON ROUTE 128	4	HSIP	$ 1,903,664	$ 1,713,298	$ 190,366	
	Safety Improvements		Boston Region		Safety Improvements			$ -	$ -	$ -	
					Safety Improvements subtotal ►			**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											

2024 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ ***Present information as follows, if applicable:*** **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Intersection Improvements	607759	Boston Region	Boston	BOSTON- INTERSECTION & SIGNAL IMPROVEMENTS AT THE VFW PARKWAY & SPRING STREET	6	HSIP	$ 1,075,772	$ 968,194	$ 107,577	
	Intersection Improvements		Boston Region		Intersection Improvements			$ -	$ -	$ -	
							Intersection Improvements subtotal ►	**$ 7,885,320**	$ 7,096,788	$ 788,532	◄ Funding Split Varies by Funding Source
►Intelligent Transportation Systems											
	Intelligent Transportation Systems		Boston Region		Intelligent Transportation Systems			$ -	$ -	$ -	
							Intelligent Transportation System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Roadway Reconstruction											
	Roadway Reconstruction	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NHPP	$ 50,000,000	$ 40,000,000	$ 10,000,000	a) Construction; Total Federal Participating Cost (TFPC) = $189,451,000; AC Yr 3 of 5
	Roadway Reconstruction		Boston Region		Roadway Reconstruction			$ -	$ -	$ -	
							Roadway Reconstruction subtotal ►	**$ 50,000,000**	$ 40,000,000	$ 10,000,000	◄ Funding Split Varies by Funding Source
►Section 2C / State Prioritized Expansion Projects											
►Bicycles and Pedestrians											
	Bicycles and Pedestrians	608948	Boston Region	Multiple	BELLINGHAM- FRANKLIN- SOUTHERN NEW ENGLAND TRUNK TRAIL (SNETT) CONSTRUCTION	3	CMAQ	$ 3,201,600	$ 2,561,280	$ 640,320	
	Bicycles and Pedestrians	608995	Boston Region	Multiple	SUDBURY- STOW- HUDSON- MASS CENTRAL RAIL TRAIL WAYSIDE	3	CMAQ	$ 6,670,000	$ 5,336,000	$ 1,334,000	
	Bicycles and Pedestrians	607329	Boston Region	Multiple	WAKEFIELD- LYNNFIELD- RAIL TRAIL EXTENSION, FROM THE GALVIN MIDDLE SCHOOL TO LYNNFIELD/PEABODY T.L.	4	CMAQ	$ 11,080,749	$ 8,864,599	$ 2,216,150	
							Bicycles and Pedestrians subtotal ►	**$ 20,952,349**	$ 16,761,879	$ 4,190,470	◄ 80% Federal + 20% Non-Federal
►Capacity											
	Capacity		Boston Region		Capacity			$ -	$ -	$ -	
							Capacity subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 3 / Planning / Adjustments / Pass-throughs											
►Planning / Adjustments / Pass-throughs											
			Boston Region		ABP GANS Repayment	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program I, (SPR I), Planning	Multiple		$ -	$ -	$ -	
			Boston Region		Railroad Crossings	Multiple		$ -	$ -	$ -	
			Boston Region		Recreational Trails	Multiple		$ -	$ -	$ -	
							Other Statewide Items subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 4 / Non-Federally Aided Projects											
►Non-Federally Aided Projects											
	Non Federal Aid	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NFA	$ 18,112,483		$ 18,112,483	Construction; Total Federal Participating Cost (TFPC) = $189,451,000; AC Yr 3 of 5

2024 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
											Present information as follows, if applicable: **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Non-Federally Aided Projects		Boston Region		Non-Federal Aid			$ -		$ -	
							Non-Federal Aid subtotal ►	**$ 18,112,483**		$ 18,112,483	◄100% Non-Federal

2024 Summary

	TIP Section 1 - 3: ▼	TIP Section 4: ▼	Total of All Projects ▼	
Total ►	$ 260,699,797	$ 18,112,483	$ 278,812,280	◄ Total Spending in Region
Federal Funds ►	$ 210,002,770		$ 210,002,770	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 50,697,027	$ 18,112,483	$ 68,809,510	◄ Total Non-Federal Spending in Region

701 CMR 7.00 Use of Road Flaggers and Police Details on Public Works Projects / 701 CMR 7.00 (the Regulation) was promulgated and became law on October 3, 2008. Under this Regulation, the CMR is applicable to any Public works Project that is performed within the limits of, or that impact traffic on, any Public Road. The Municipal Limitation referenced in this Regulation is applicable only to projects where the Municipality is the Awarding Authority. For all projects contained in the TIP, the Commonwealth is the Awarding Authority. Therefore, all projects must be considered and implemented in accordance with 701 CMR 7.00, and the Road Flagger and Police Detail Guidelines. By placing a project on the TIP, the Municipality acknowledges that 701 CMR 7.00 is applicable to its project and design and construction will be fully compliant with this Regulation. This information, and additional information relative to guidance and implementation of the Regulation can be found at the following link on the MassDOT Highway Division website: http://www.massdot.state.ma.us/Highway/flaggers/main.aspx

Transportation Improvement Program (TIP)
Project List (FY2024)

FTA Program	Project Number	Transit Agency	FTA Activity Line Item	Project Description	Carryover (unobligated)	Federal Funds	State Funds	TDC	Local Funds	Total Cost
5307										
5307	RTD0008023	Cape Ann Transportation Authority	117A00	PREVENTIVE MAINTENANCE	2023 - $285,000	$285,000	$0	$0	$71,250	$356,250
5307	RTD0008016	MetroWest Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERVICE	2023 - $1,600,000	$1,600,000	$400,000	$0	$0	$2,000,000
5307	RTD0008017	MetroWest Regional Transit Authority	114200	ACQUISITION OF BUS SUPPORT EQUIP/ FACILITIES	2023 - $225,000	$225,000	$225,000	$0	$0	$450,000
5307	RTD0008018	MetroWest Regional Transit Authority	440000	TECHNOLOGY SUPPORT/CAPITAL OUTREACH	2023 - $172,600	$172,600	$180,000	$0	$0	$352,600
5307	RTD0008019	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT) - BLANDIN	2023 - $400,000	$400,000	$225,000	$0	$0	$625,000
5307	RTD0008021	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT) - Framingham Commuter Rail Station (FCRS)	2023 - $155,000	$155,000	$175,000	$0	$0	$330,000
5307	RTD0008245	Massachusetts Bay Transportation Authority (MBTA)	121200	5307 - Revenue Vehicle Program		$129,676,237	$0	$0	$32,419,060	$162,095,297
5307	RTD0008246	Massachusetts Bay Transportation Authority (MBTA)	126301	5307 - Signals/Systems Upgrade Program		$30,311,246	$0	$0	$7,577,812	$37,889,058
					Subtotal	$162,825,083	$1,205,000	$0	$40,068,122	$204,098,205
5309										
					Subtotal	$0	$0	$0	$0	$0
5310										
					Subtotal	$0	$0	$0	$0	$0
5311										
					Subtotal	$0	$0	$0	$0	$0
5337										
5337	RTD0008247	Massachusetts Bay Transportation Authority (MBTA)	122405	5337 - Bridge & Tunnel Program		$28,706,104	$0	$0	$7,176,526	$35,882,630
5337	RTD0008248	Massachusetts Bay Transportation Authority (MBTA)	126301	5337 - Signals/Systems Upgrade Program		$81,578,648	$0	$0	$20,394,662	$101,973,310
5337	RTD0008249	Massachusetts Bay Transportation Authority (MBTA)	123400	5337 - Stations and Facilities Program		$61,618,340	$0	$0	$15,404,585	$77,022,925
					Subtotal	$171,903,092	$0	$0	$42,975,773	$214,878,865
5339										
5339	RTD0008244	Massachusetts Bay Transportation Authority (MBTA)	111400	5339 - Bus Program		$7,075,823	$0	$0	$1,768,956	$8,844,779
					Subtotal	$7,075,823	$0	$0	$1,768,956	$8,844,779
5320										
					Subtotal	$0	$0	$0	$0	$0
Other Federal										
					Subtotal	$0	$0	$0	$0	$0
Other Non-Federal										
Other Non-Federal	RTD0008024	Cape Ann Transportation Authority	114403	REPAVE LOT (FED MATCH IN 2023)		$0	$20,000	$0	$0	$20,000
Other Non-Federal	RTD0008067	Cape Ann Transportation Authority	111240	BUY ASSOC CAP MAINT ITEMS		$0	$15,000	$0	$0	$15,000
					Subtotal	$0	$35,000	$0	$0	$35,000
					Total	$341,803,998	$1,240,000	$0	$84,812,851	$427,856,849

Funds listed under the Carry Over column are included in the Federal Amount

Table 3-3
Federal Fiscal Years 2020-24 Transportation Improvement Program
MBTA Federal Capital Program
FFY 2019 and FFY 2020-2024 TIP - Project List and Descriptions (80% Federal Share)

Source	TIP Program	Project Name	FFY19 (Fed $)	FFY 20-24 (Fed $)	Total (Fed $)	Project Description
5307 - Revenue Vehicles						
5307	Revenue Vehicles	Delivery of 460 40 ft Buses - FY 2021 to FY 2025		$178,351,548	$178,351,548	Procurement of 40-foot electric and hybrid buses for replacement of diesel bus fleet.
5307	Revenue Vehicles	DMA Replacement		$82,690,000	$82,690,000	Procurement of 60-foot Dual Mode Articulated (DMA) buses to replace the existing fleet of 32 Silver Line Bus Rapid Transit buses and to provide for ridership expansion projected as a result of Silver Line service extension to Chelsea.
5307	Revenue Vehicles	Green Line Type 10 Light Rail Fleet Replacement		$165,599,999	$165,599,999	Replacement of Light Rail Vehicles to replace the existing Green Line Type 7 and 8 Fleets.
5307	Revenue Vehicles	Locomotive Overhaul	$43,907,679		$43,907,679	Overhaul of commuter rail locomotives to improve fleet availability and service reliability systemwide.
5307	Revenue Vehicles	LoNo Bus Procurement Project	$2,187,991		$2,187,991	Supplemental funding for the procurement of Battery Electric 60 ft Articulated Buses for operation on the Silver Line.
5307	Revenue Vehicles	MBTA Catamaran Overhauls	$7,782,681		$7,782,681	Replacement of major systems and refurbishment of seating and other customer facing components on two catamarans (Lightning and Flying Cloud).
5307	Revenue Vehicles	Midlife Overhaul of New Flyer Allison Hybrid 60ft Articulated Buses		$12,702,054	$12,702,054	Overhaul of 25 hybrid buses, brought into service in 2009 and 2010, to enable optimal reliability through the end of their service life.
5307	Revenue Vehicles	Option Order Procurement of 194 New Flyer Hybrid 40 ft Buses (5307)	$96,329,062		$96,329,062	Procurement of 40-foot buses with hybrid propulsion to replace Emission Controlled Diesel (ECD) buses that have reached the end of their service life.
5307	Revenue Vehicles	Overhaul of Kawasaki 900 Series Bi-Level Coaches		$35,360,000	$35,360,000	Overhaul and upgrade of existing systems on commuter rail coaches that were brought into service in 2005 to enable optimal reliability through the end of their service life.
5307	Revenue Vehicles	Procurement of Battery Electric 40 ft Buses and Related infrastructure (5307)		$24,559,232	$24,559,232	Procurement of Battery Electric 40-ft. buses and supporting infrastructure to serve as a pilot for determining bus propulsion technologies for future procurements.
5307	Revenue Vehicles	Procurement of Bi-Level Commuter Rail Coaches		$127,680,000	$127,680,000	Procurement of bi-level commuter rail coaches to replace existing cars that have exceeded their service life.
5307	Revenue Vehicles	Red Line No. 3 Car - Targeted Reliability Improv.	$35,226,739		$35,226,739	Overhaul and upgrade of selected systems on Red Line fleet vehicles to extend service life until planned replacement.
			$185,434,152	**$626,942,833**	**$812,376,985**	
5307 - Signals and Systems						
5307	Signals and Systems	ATC Implementation on the MBTA North Side Commuter Rail Lines (5307)	$28,384,529	$58,937,468	$87,321,997	Design and install automatic train control systems on all MBTA Commuter Rail North Side Lines. Improvements will include increased train traffic capacity and operational reliability on all lines.
5307	Signals and Systems	Green Line Track Upgrade		$73,179,263	$73,179,263	Replacement of select track components on the Green Line to bring them to a state of good repair.
5307	Signals and Systems	Signal Program - Red/Orange Line (5307)	$35,738,496		$35,738,496	Various signal upgrades and improvements along both the Red and Orange Lines.
5307	Signals and Systems	Signals and Systems - Program Allowance	$2	$1,999,999	$2,000,001	TIP program allowance for future cost adjustments
			$64,123,027	**$134,116,730**	**$198,239,757**	
5307 - Stations and Facilities						
5307	Stations and Facilities	Charlestown Bus - Seawall Rehab		$11,228,382	$11,228,382	Rehabilitation of existing seawall to protect bus maintenance facility from future storm and flooding events.
5307	Stations and Facilities	Elevator Program	$26,886,141		$26,886,141	Installation of new redundant elevators and the replacement of existing elevators at various stations, in order to mitigate degradation of station elevators and to maintain station accessibility during elevator maintenance.
5307	Stations and Facilities	Harvard Square Busway Repairs	$14,992,676		$14,992,676	Rehabilitation of roadway, drainage and catenary infrastructure at the Harvard Square Busway.
5307	Stations and Facilities	Hingham Ferry Dock Modification		$1,200,000	$1,200,000	Capital improvements and modifications to the existing ferry dock in Hingham.
			$41,878,817	**$12,428,382**	**$54,307,199**	

Source	TIP Program	Project Name	FFY19 (Fed $)	FFY 20-24 (Fed $)	Total (Fed $)	Project Description
5337 - Signals and Systems						
5337	Signals and Systems	Alewife Crossing Improvements		$10,073,531	$10,073,531	As part of the Red/Orange Line Infrastructure Improvement Program, this project will involve the upgrade of track switches at Alewife Station and associated retrofits to accomodate these new components.
5337	Signals and Systems	ATC Implementation on the MBTA North Side Commuter Rail Lines (5337)	$51,357,042	$47,320,968	$98,678,010	Design and install automatic train control systems on all MBTA Commuter Rail North Side Lines. Improvements will include increased train traffic capacity and operational reliability on all lines.
5337	Signals and Systems	Green Line Central Tunnel Track and Signal Replacement		$96,000,000	$96,000,000	Replacement of the existing 25 cycle signal system and associated wayside equipment at Government Center, Copley and Park Street Interlockings, and related track work.
5337	Signals and Systems	Green Line D Branch Track and Signal Replacement	$40,400,000	$40,880,362	$81,280,362	Replacement of track and signal system components on the Highland Branch of the Green Line from Reservoir to Riverside Stations, including replacement of obsolete 25 Hz track circuits with modern solid-state 100 Hz track circuits.
5337	Signals and Systems	Infrastructure Asset Management Program Phase 1		$17,129,196	$17,129,196	Collection of infrastructure based asset data in order to update MBTA asset management databases, and manage asset and life cycle/risk management practices.
5337	Signals and Systems	MCRS2 v17 and Business Process Update	$4,160,000		$4,160,000	Updates and improvements to MBTA asset management systems and business processes.
5337	Signals and Systems	North Station Terminal Signal	$34,275,127		$34,275,127	Upgrades to the commuter rail signal/communication system in the North Station area required for more efficient phasing of future track alignments, including support for the future Draw1 Bridge Replacement Project.
5337	Signals and Systems	Power Systems Resiliency Program		$17,600,000	$17,600,000	Installation of nine new duct bank systems to replace damaged power infrastructure at West Fourth Street, Dudley Square, Arlington Street, Causeway Street, two locations on Commonwealth Ave and three locations on Beacon Street.
5337	Signals and Systems	Red Line Interlock Upgrades	$9,600,000		$9,600,000	Replacement of existing interlocking signal components on the Red Line to bring the assets to a state of good repair.
5337	Signals and Systems	Signal Program - Red/Orange Line (5337)	$47,283,331	$109,962,428	$157,245,759	Various signal upgrades and improvements along both the Red and Orange Lines.
5337	Signals and Systems	System-Wide Radio		$55,439,999	$55,439,999	Replacement of existing radio system for MBTA Police to support critical two-way communication for MBTA Transit Police and to support a secure and Interoperable Radio System.
5337	Signals and Systems	Worcester Line Track Improvements Incl. 3rd Track Feasibility Study	$1,001,643		$1,001,643	Design Phase Services for the proposed Framingham/Worcester Line third track. It will include assessments of proposed operation, alternatives analysis and design plans.
			$188,077,143	$394,406,484	$582,483,627	
5337 - Stations and Facilities						
5337	Stations and Facilities	Codman Yard Expansion and Improvements		$26,280,432	$26,280,432	Infrastructure improvements to Codman Yard, an additional Red Line storage facility, to accommodate the new vehicle fleet.
5337	Stations and Facilities	Commonwealth Ave Stations Access		$23,463,054	$23,463,054	Addressing accessibility issues along the B branch of the Green Line along Commonwealth Avenue.
5337	Stations and Facilities	Downtown Crossing Vertical Transportation Improvements Phase 2		$5,926,390	$5,926,390	Construction of two new redundant elevators, in order to improve accessibility and to provide for future elevator maintenance without rendering the station temporarily inaccessible.
5337	Stations and Facilities	Elevator Program Multiple Location Design		$38,978,268	$38,978,268	Design for the installation of new redundant elevators and the replacement of existing elevators system wide.
5337	Stations and Facilities	Feasibility Study of Remaining Inaccessible Stations - Green Line		$9,120,000	$9,120,000	Feasibility study and preliminary design for inaccessible Green Line stations
5337	Stations and Facilities	Forest Hills Improvement Project		$26,089,763	$26,089,763	Improvements at Forest Hills Station on the Orange Line and Needham Commuter Rail Line to comply with ADA accessibility standards. Work will also include infrastructure and other improvements.
5337	Stations and Facilities	Lynn Station & Parking Garage Improvements Phase II		$26,461,132	$26,461,132	Extensive rehabilitation efforts include reconstruction of the existing commuter rail platform, upgrade of mechanical and electrical systems at the station, and structural repairs and code compliance retrofits to the garage.
5337	Stations and Facilities	Natick Center Station Accessibility Project		$33,822,690	$33,822,690	Accessibility improvements at the Natick Center commuter rail station on the Framingham/Worcester Line.
5337	Stations and Facilities	Newton Commuter Rail Stations		$16,511,946	$16,511,946	For a conceptual design and operational analysis study of the Newton commuter rail stations, with additional funding for various accessibility and infrastructure improvements.

Source	TIP Program	Project Name	FFY19 (Fed $)	FFY 20-24 (Fed $)	Total (Fed $)	Project Description
5337	Stations and Facilities	Newton Highlands Green Line Station Accessibility Project		$18,375,283	$18,375,283	Improvements at Newton Highlands station on the D branch of the Green Line to comply with ADA accessibility standards.
5337	Stations and Facilities	Oak Grove Station Vertical Transportation Improvements	$28,232,566		$28,232,566	Retrofit of the existing Oak Grove station on the Orange Line to bring it into full compliance with ADA standards, including the replacement of existing elevators, construction of two new elevators, various parking and path of travel upgrades.
5337	Stations and Facilities	Park Street Station Wayfinding Improvements Construction	$14,903,909		$14,903,909	Replacement of existing signage with updated ADA-compliant standard graphics at the lobby, Green Line platform, Red Line platform and Winter Street concourse as well as related architecture improvements such as lighting and illuminated exit signs.
5337	Stations and Facilities	Ruggles Station Upgrade		$2,599,003	$2,599,003	Design for state of good repair improvements to Ruggles Station on the Orange Line.
5337	Stations and Facilities	Silver Line Gateway - Phase 2	$27,856,962		$27,856,962	Includes the building of a new commuter rail station adjacent to the new Chelsea Bus Rapid Transit (BRT) Station located at the Mystic Mall, as well as decommissioning of the existing Chelsea Commuter Rail Station and signal prioritization.
5337	Stations and Facilities	South Attleboro Station Improvements		$3,580,654	$3,580,654	Needs assessment and design services associated with accessibility, structural, parking and multi-modal facility improvements for the South Attleboro commuter rail station.
5337	Stations and Facilities	Symphony Station Improvements		$33,416,159	$33,416,159	Upgrades to the existing Symphony Station on the Green Line in order to provide a modern, accessible, code-compliant facility.
5337	Stations and Facilities	Winchester Center Station		$32,196,320	$32,196,320	Renovation and accessibility improvements to Winchester Center Station on the Lowell and Haverhill commuter rail lines.
5337	Stations and Facilities	Stations and Facilities - Program Allowance		$1,083,733	$1,083,733	TIP program allowance for future cost adjustments
			$70,993,437	**$297,904,827**	**$368,898,264**	
5337 - Bridge and Tunnel						
5337	Bridge and Tunnel	Bridge Bundling Contract (Rehabilitation of 6 Bridges)	$58,362,436	$27,252,649	$85,615,085	Replacement of 6 commuter rail bridges: Lynn Fells Parkway in Melrose (Haverhill Line); Parker Street in Lawrence (Haverhill Line); Commercial Street in Lynn (Newburyport/Rockport Line); Bacon Street in Wellesley (Worcester Line); Intervale Road in Weston (Worcester Line); and High Line Bridge in Somerville (Lowell Line).
5337	Bridge and Tunnel	Bridges - Design		$7,999,999	$7,999,999	Design for high priority bridge repairs system wide.
5337	Bridge and Tunnel	East Cottage Street Bridge		$12,687,557	$12,687,557	Replacement of East Cottage Street bridge with a new superstructure and substructure to meet design code/ standards, as well as MBTA and FTA State of Good Repair requirements.
5337	Bridge and Tunnel	Emergency Bridge Design / Inspection & Rating	$8,000,000		$8,000,000	Inspection of bridge assets system wide for determination of asset condition ratings and subsequent prioritization and scoping for repairs to select bridges.
5337	Bridge and Tunnel	Emergency Bridge Repair	$6,399,999		$6,399,999	Repairs to bridges system wide, based on asset condition as determined by system wide inspections.
5337	Bridge and Tunnel	Inspection and Rating of MBTA Systemwide Bridges		$4,000,000	$4,000,000	Inspection of bridge assets system wide for determination of asset condition ratings and subsequent prioritization and scoping for repairs to select bridges.
5337	Bridge and Tunnel	Longfellow Approach		$44,000,000	$44,000,000	Rehabilitation of the Longfellow Approach Viaduct, Charles/MGH Station platforms, and Span 1 of the Longfellow Bridge.
5337	Bridge and Tunnel	Norfolk Avenue Bridge		$11,240,000	$11,240,000	Replacement of bridge carrying the Fairmont (Dorchester) Line Commuter Rail service over Norfolk Avenue in Boston.
5337	Bridge and Tunnel	Robert Street Bridge		$12,928,771	$12,928,771	Replacement of bridge carrying the Needham Line Commuter Rail service over Robert Street in Roslindale.
5337	Bridge and Tunnel	Structural Repairs Systemwide		$4,000,000	$4,000,000	Repairs to bridge or other structures system wide on an emergency or planned basis.
5337	Bridge and Tunnel	Tunnel Inspection Systemwide		$8,600,000	$8,600,000	Inspection to assess condition of transit tunnels system wide.
5337	Bridge and Tunnel	Tunnel Rehab		$6,075,791	$6,075,791	Repair and rehabilitation of transit tunnels system wide.
			$72,762,435	**$138,784,767**	**$211,547,202**	

Source	TIP Program	Project Name	FFY19 (Fed $)	FFY 20-24 (Fed $)	Total (Fed $)	Project Description
5339 - Bus and Bus Facility						
5339	Bus and Bus Facilities	60' New Flyer Bus Overhaul		$22,938,000	$22,938,000	Midlife overhaul of 60 forty-foot BAE Hybrid buses delivered in 2014 - 2015 from New Flyer to ensure continued reliable operations and to meet expected useful life.
5339	Bus and Bus Facilities	Option Order Procurement of 194 New Flyer Hybrid 40 ft Buses (5339)	$6,537,703		$6,537,703	Procurement of 40-foot buses with hybrid propulsion to replace Emission Controlled Diesel (ECD) buses that have reached the end of their service life.
5339	Bus and Bus Facilities	Procurement of Battery Electric 40ft Buses and Related infrastructure (5339)	$6,500,678	$11,271,325	$17,772,003	Procurement of Battery Electric 40-ft. buses and supporting infrastructure to serve as a pilot for determining bus propulsion technologies for future procurements.
5339	Bus and Bus Facilities	Bus and Bus Facilities - Program Allowance	$749,402		$749,402	TIP program allowance for future cost adjustments
			$13,787,783	**$34,209,325**	**$47,997,108**	

DETAILED PROJECT DESCRIPTIONS

Field Definitions

Proponent: This field lists the primary advocate for each project, who is responsible for seeing the project through to completion.

ID Number: This number references the project's identification number in the Massachusetts Department of Transportation's (MassDOT) project-tracking system.

Project Type: This field provides the type of project programmed. For those projects programmed using Regional Target funds (projects listed in section 1A of the TIP tables), the MPO's four project categories are used (Bicycle/Pedestrian, Complete Streets, Intersection Improvements, and Major Infrastructure). For those projects programmed directly by MassDOT (projects listed in sections 1B, 2A, 2B, 2C, 3, and 4), MassDOT's STIP Program categories are used.

Cost: This is the total project cost as programmed in the TIP.

Scoring Summary: This table shows the number of points awarded to the project across each of the MPO's project evaluation categories. MPO staff has not evaluated all projects in the TIP; staff only evaluates projects that are being considered for funding with the MPO's Regional Target funding. The field definitions for the tables are as follows:

- **Safety:** Safety (30 possible points)
- **Sys Pres:** System Preservation and Maintenance (29 possible points)
- **CM/M:** Capacity Management/Mobility (29 possible points)
- **CA/SC:** Clean Air/Sustainable Communities (16 possible points)
- **TE:** Transportation Equity (12 possible points)
- **EV:** Economic Vitality (18 possible points)
- **Total:** This is the summation of the project's scores across the above six categories (134 possible points)

Project Description: The description of the project is based, in part, on the written description of the project on MassDOT's Project Information website. In some cases, these descriptions have been modified to clarify the details of the projects. Projects evaluated by the MPO tend to have more detailed descriptions, as more complete project documentation was provided to MPO staff for these projects.

Funding Summary: Funding tables are included for each project and show the following information:

- **Year:** This field provides the federal fiscal year(s) during which the project is programmed for funding.
- **Federal and Non-Federal Funds:** These fields show a breakdown of project funding from federal and non-federal sources. Typically, these fields will show an 80/20 split, with federal funds accounting for 80 percent of project funding and a 20 percent state match accounting for the remaining funds.
- **Total Funds Programmed:** This field shows the total funding programmed for the project based on the year of expenditure.

Information regarding TIP projects changes periodically. For more information on all projects please visit MassDOT's Project Information website, www.massdot.state.ma.us/highway/ProjectInfo.aspx, the Boston Region MPO's website, www.bostonmpo.org, or contact Matt Genova, TIP Manager, at mgenova@ctps.org.

Acton: Intersection Improvements at Massachusetts Avenue (Route 111) and Main Street (Route 27) (Kelley's Corner)

Proponent: Acton

ID Number: 608229

Project Type: Intersection Improvements

Cost: $ 15,141,463

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	15 out of 30	8 out of 29	10 out of 29	8 out of 16	0 out of 12	4 out of 18	45 out of 134

Project Description

This project involves improvements to address traffic congestion and the safety of pedestrians and bicyclists through the addition of turning lanes and the reduction and consolidation of curb cuts. Full accommodations for vehicular, bicycle, and pedestrian travel and upgraded signage and wayfinding will also be established to improve accessibility for all users who travel to and from the nearby businesses.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$12,113,170	---	---	$12,113,170
Non-Federal Funds	---	---	$3,028,293	---	---	$3,028,293
Total Funds	**---**	**---**	**$15,141,463**	**---**	**---**	**$15,141,463**

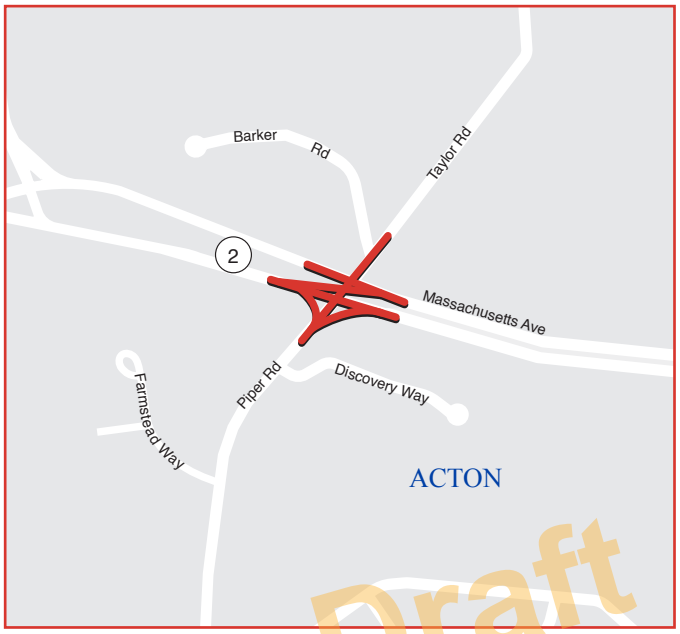
Acton: Intersection and Signal Improvements on Routes 2 and 111 (Massachusetts Avenue) at Piper Road and Taylor Road

Proponent: Acton

ID Number: 607748

Project Type: Intersection Improvements

Cost: $5,657,725



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project will make upgrades at the intersection to improve safety. The upgrades will include signs, pavement markings, and traffic signals as identified through a Road Safety Audit process in the Town of Acton.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$5,091,952	---	---	---	$5,091,952
Non-Federal Funds	---	$565,772	---	---	---	$565,772
Total Funds	**---**	**$5,657,725**	**---**	**---**	**---**	**$5,657,725**

Arlington: Spy Pond Sediment Removal

Proponent: MassDOT

ID Number: 609222

Project Type: Roadway Improvements

Cost: $950,000

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Spy Pond sediment removal

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$760,000	---	---	---	---	$760,000
Non-Federal Funds	$190,000	---	---	---	---	$190,000
Total Funds	**$950,000**	**---**	**---**	**---**	**---**	**$950,000**

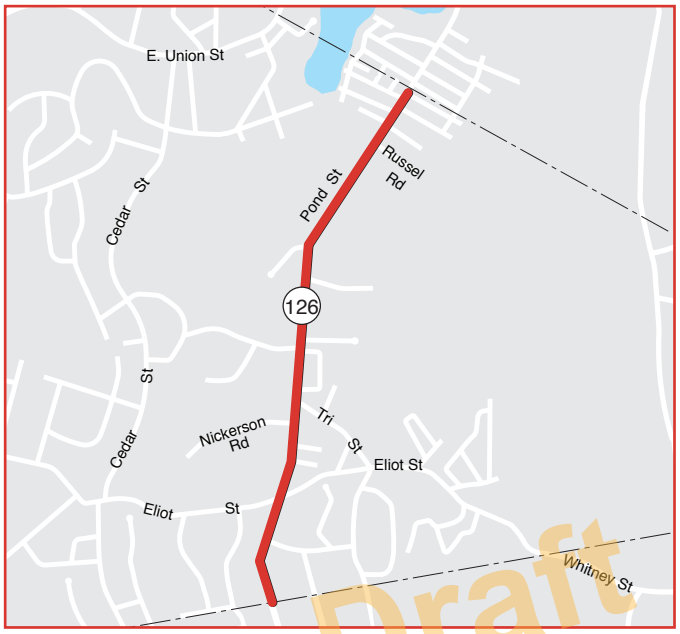
Ashland: Reconstruction on Route 126 (Pond Street), from the Framingham Town Line to the Holliston Town Line

Proponent: Ashland

ID Number: 604123

Project Type: Complete Streets

Cost: $16,304,925



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	12 out of 30	10 out of 29	15 out of 29	8 out of 16	3 out of 12	9 out of 18	57 out of 134

Project Description

The project limits are from the Framingham town line to the Holliston town line, a distance of 1.7 miles. The project consists of milling and resurfacing with minor box widening. Traffic improvements at the intersection of Route 126 and Elliot Street entail signalization, stone masonry retaining wall construction, minor drainage improvements, installation of granite curbing and edging, construction of sidewalks and the resetting of guardrail.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$13,043,940	---	---	---	---	$13,043,940
Non-Federal Funds	$3,260,985	---	---	---	---	$3,260,985
Total Funds	**$16,304,925**	**---**	**---**	**---**	**---**	**$16,304,925**

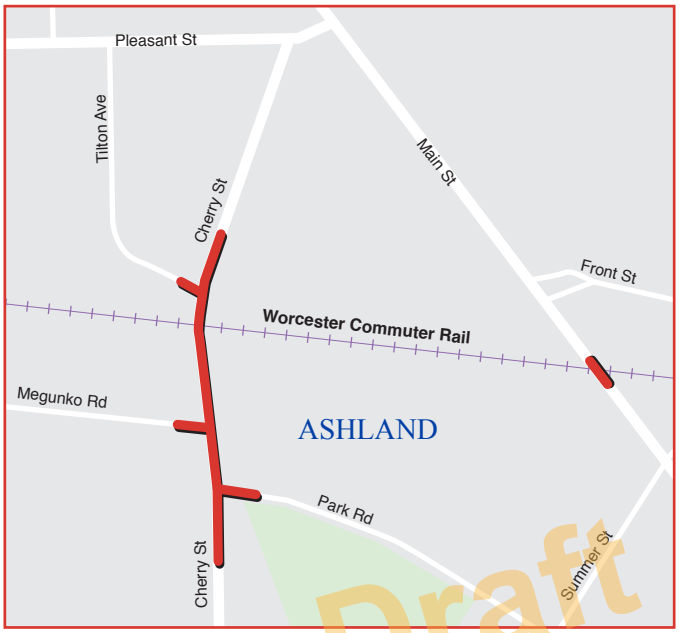
Ashland: Rehabilitation and Rail Crossing Improvements on Cherry Street

Proponent: Ashland

ID Number: 608436

Project Type: Intersection Improvements

Cost: $1,148,400



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	12 out of 30	10 out of 29	5 out of 29	2 out of 16	1 out of 12	8 out of 18	38 out of 134

Project Description

The primary purpose of the project is to improve the safety features for the roadway corridors of Cherry Street and Main Street in order to establish a Federal Railroad Administration Quiet Zone surrounding the railroad crossings on those two roadways. This goal will primarily be accomplished through the installation of roadway medians and the enhancement of existing railroad crossing signals and gates. In addition, the project addresses a critical gap in the pedestrian sidewalk network through the construction of new sidewalks. The project's other goals include improving the existing roadway condition through pavement reconstruction and enhancing stormwater drainage in the project area.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$918,720	$918,720
Non-Federal Funds	---	---	---	---	$229,680	$229,680
Total Funds	**---**	**---**	**---**	**---**	**$1,148,400**	**$1,148,400**

Ayer and Littleton: Intersection Improvements on Route 2A at Willow Road and Bruce Street

Proponent: MassDOT

ID Number: 608443

Project Type: Intersection Improvements

Cost: $2,589,272

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	17 out of 30	4 out of 29	9 out of 29	4 out of 16	1 out of 12	1 out of 18	36 out of 134

Project Description

The primary purpose of this project is to reduce angled collisions and improve the pavement condition of the intersection on Route 2A at Willow Road and Bruce Street. This goal will primarily be accomplished by reconstructing the skewed intersection and adding a new signal system. In addition, the project will also address safety for pedestrians and bicyclists through the provision of 5-foot wide shoulders and the addition of crosswalks..

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$2,171,418	---	---	---	$2,171,418
Non-Federal Funds	---	$417,854	---	---	---	$417,854
Total Funds	**---**	**$2,589,272**	**---**	**---**	**---**	**$2,589,272**

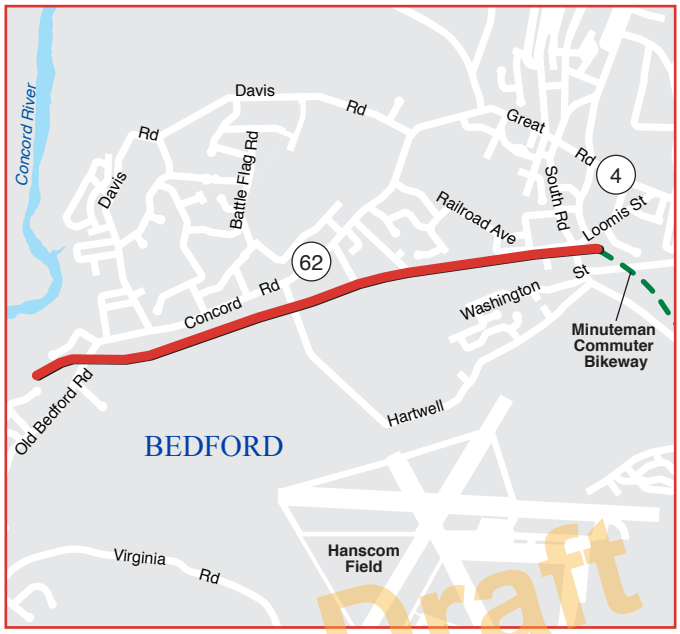
Bedford: Minuteman Bikeway Extension, from Loomis Street to the Concord Town Line

Proponent: Bedford

ID Number: 607738

Project Type: Bicycle and Pedestrian

Cost: $8,234,946



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	7 out of 30	13 out of 29	15 out of 29	7 out of 16	1 out of 12	4 out of 18	47 out of 134

Project Description

The Minuteman Bikeway currently ends at Depot Park, in Bedford, near the intersection of South Road and Loomis Street. This project would extend the bikeway by making a 1,665 foot portion of Railroad Avenue accessible to bikes and by constructing 8,800 feet of bikeway on the Reformatory Branch Trail, from Railroad Avenue past Concord Road to Wheeler Drive, near the Bedford/Concord town line. As a part of the Railroad Avenue reconstruction, sidewalks, bike accommodations, new drainage, pavement markings and signs, and defined curb cuts will be constructed.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$6,587,957	---	---	$6,587,957
Non-Federal Funds	---	---	$1,646,989	---	---	$1,646,989
Total Funds	**---**	**---**	**$8,234,946**	**---**	**---**	**$8,234,946**

Bellingham: South Main Street (Route 126), from Mechanic Street (Route 140) to Douglas Drive

Proponent: Bellingham

ID Number: 608887

Project Type: Complete Streets

Cost: $4,380,828

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	12 out of 30	12 out of 29	12 out of 29	5 out of 16	0 out of 12	4 out of 18	45 out of 134

Project Description

The primary purpose of this project is to improve the poor curb reveal pavement condition and the lack of facilities for pedestrians and bicyclists. The project will include full-depth pavement reclamation and the reconstruction of existing sidewalks with 5-foot shoulders to accommodate bicycle travel. In addition, pedestrian signal poles and intersection warning signage will be added to improve pedestrian safety and reduce rear-end collisions on Easy Street.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$3,504,662	---	---	$3,504,662
Non-Federal Funds	---	---	$876,166	---	---	$876,166
Total Funds	**---**	**---**	**$4,380,828**	**---**	**---**	**$4,380,828**

Bellingham and Franklin: Southern New England Trunk Trail (SNETT) Construction

Proponent: MassDOT

ID Number: 608948

Project Type: Bicycle and Pedestrian

Cost: $3,201,600

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Southern New England Trunk Trail (SNETT) Construction

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$2,561,280	$2,561,280
Non-Federal Funds	---	---	---	---	$640,320	$640,320
Total Funds	**---**	**---**	**---**	**---**	**$3,201,600**	**$3,201,600**

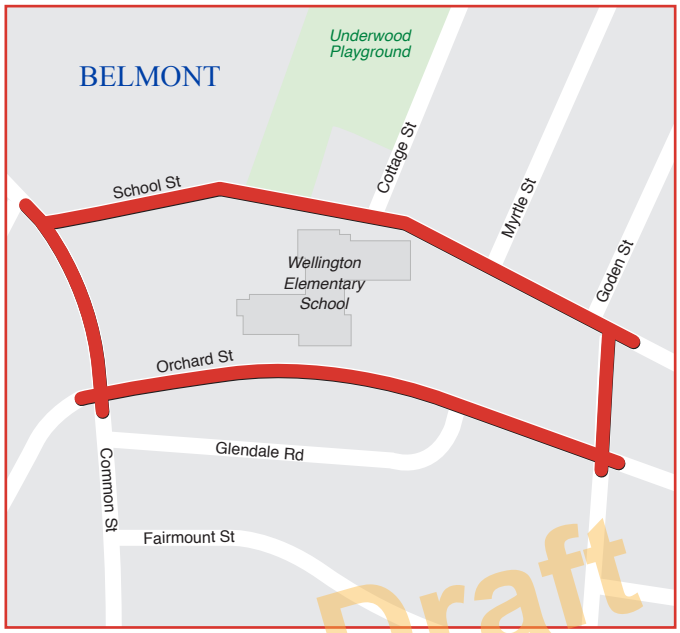
Belmont: Safe Routes to School Improvements at Wellington Elementary School

Proponent: MassDOT

ID Number: 608911

Project Type: Bicycle and Pedestrian

Cost: $1,614,288



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Safe Routes to School improvements at Wellington Elementary School

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$1,291,430	---	---	---	$1,291,430
Non-Federal Funds	---	$322,858	---	---	---	$322,858
Total Funds	**---**	**$1,614,288**	**---**	**---**	**---**	**$1,614,288**

Beverly: Intersection Improvements at Three Locations: Cabot St. (Route 1A/97) at Dodge St. (Route 1A), County Way, Longmeadow Rd. and Scott St.;. McKay St. at Balch St.; and Veterans Memorial Bridge (Route 1A) at Rantoul, Cabot, Water and Front Sts.

Proponent: Beverly

ID Number: 608347

Project Type: Intersection Improvements

Cost: $4,394,886

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	15 out of 30	12 out of 29	13 out of 29	11 out of 16	3 out of 12	9 out of 18	63 out of 134

Project Description

The project involves updating and modernizing traffic signal equipment at the intersections of Cabot Street at Dodge Street/County Way/Longmeadow Road and Cabot Street at Rantoul Street/Front Street/Water Street/Goat Hill Lane; signalizing or installing a modern roundabout at the intersection of McKay Street at Balch Street; and providing on-street bicycle accommodations and ADA compliant wheelchair ramps at sidewalks at each intersection. Pavement milling and overlay at each intersection is also included in this work.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$3,803,370	---	---	---	---	$3,803,370
Non-Federal Funds	$591,516	---	---	---	---	$591,516
Total Funds	**$4,394,886**	**---**	**---**	**---**	**---**	**$4,394,886**

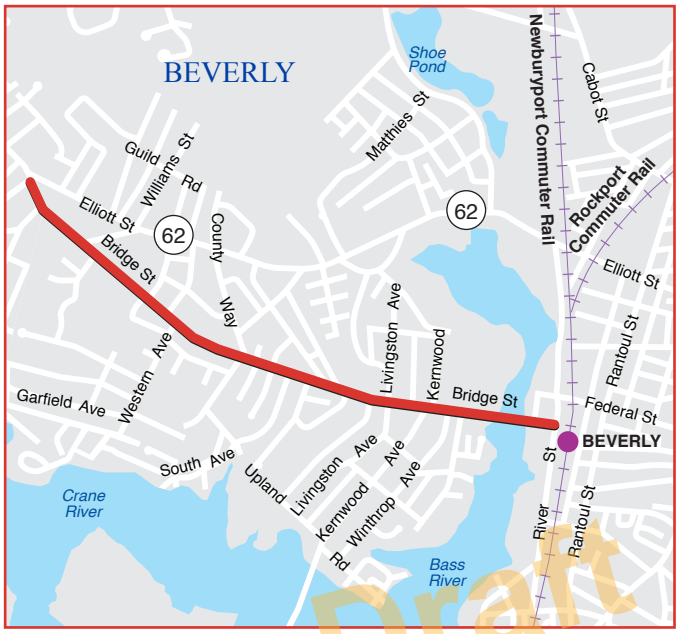
Beverly: Rehabilitation of Bridge Street

Proponent: Beverly

ID Number: 608348

Project Type: Complete Streets

Cost: $8,504,923



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	13 out of 30	14 out of 29	16 out of 29	9 out of 16	4 out of 12	10 out of 18	66 out of 134

Project Description

The project involves rehabilitation of pavement and sidewalks along the Bridge Street corridor from the Danvers town line to River Street, excluding the Hall Whitaker drawbridge. The project includes cross section improvements to accommodate on-street parking and on-street bicycle accommodations. Existing traffic signal equipment at the intersection of Bridge Street at Livingstone Avenue will be upgraded, and new traffic signals will be installed at the intersection of Bridge Street with Kernwood Avenue and the intersection of Bridge Street with River Street. Under the proposed project, continuous cement concrete sidewalks with vertical granite curb will be provided along both sides of the roadway for the full length of the project. As part of the proposed project, a 7-foot wide parking shoulder will be provided on the eastbound side of the roadway to prevent vehicles from parking on the sidewalk. Additionally, a 5-foot wide bicycle lanes shoulder will be provided along the corridor. Minor realignments will be performed at the intersections of Bridge Street with Cressy Street, County Way/Bates Park Avenue, and Eastern Avenue/Dolloff Avenue.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$6,803,938	---	$6,803,938
Non-Federal Funds	---	---	---	$1,700,985	---	$1,700,985
Total Funds	---	---	---	**$8,504,923**	---	**$8,504,923**

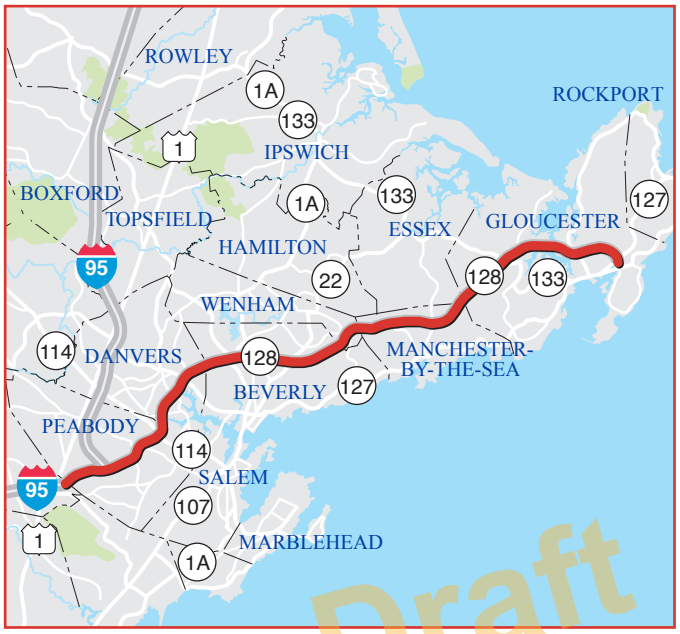
Beverly, Danvers, Essex, Gloucester, Manchester-by-the-Sea, Peabody, and Wenham: Peabody to Gloucester–Guide and Traffic Sign Replacement on Route 128

Proponent: MassDOT

ID Number: 609058

Project Type: Safety Improvements

Cost: $1,903,664



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Guide and traffic sign replacement on Route 128

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$1,713,298	$1,713,298
Non-Federal Funds	---	---	---	---	$190,366	$190,366
Total Funds	**---**	**---**	**---**	**---**	**$1,903,664**	**$1,903,664**

Boston: Bridge Reconstruction/Rehabilitation, B-16-181, West Roxbury Parkway over MBTA

Proponent: MassDOT

ID Number: 606902

Project Type: Bridge

Cost: $6,900,000

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

This project will involve the reconstruction of this bridge which is currently rated at 5, 5, and 4.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$5,520,000	---	$5,520,000
Non-Federal Funds	---	---	---	$1,380,000	---	$1,380,000
Total Funds	**---**	**---**	**---**	**$6,900,000**	**---**	**$6,900,000**

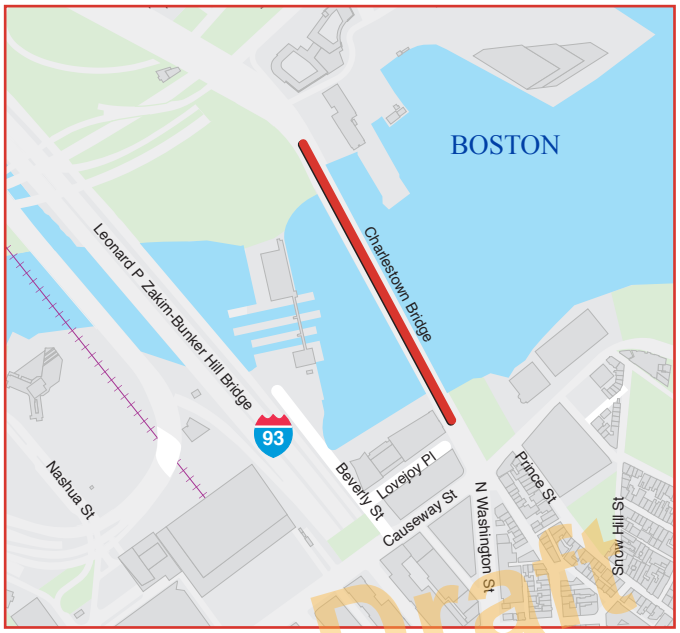
Boston: Bridge Replacement, North Washington Street over the Boston Inner Harbor

Proponent: MassDOT

ID Number: 604173

Project Type: Bridge

Cost: $85,507,337



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The North Washington Street Bridge is a historic structure constructed in 1898. The bridge consists of ten approach spans and a swing span, which is not operational. The bridge is structurally deficient and is posted as weight restricted. There have been extensive emergency repairs done to the bridge in the past few years. Currently the two center lanes on the swing span are closed due to steel deterioration. The City of Boston proposes to replace the bridge. The existing granite/concrete bridge piers on the approach spans will be replaced with reinforced concrete V piers and continuous trapezoidal steel box girders. The proposed deck will provide for increased bicycle and pedestrian accommodations between Kearney Square and Rutherford Avenue. This project is funded over five federal fiscal years (FFYs 2017-21). The total estimated cost of the project is $144,066,616. Of that amount, $6,400,000 was funded in FFY 2017 and the remaining $137,666,616 is funded in FFYs 2018-21.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$21,033,563	$24,311,724	$23,060,582	---	---	$68,405,869
Non-Federal Funds	$5,258,391	$6,077,931	$5,765,146	---	---	$17,101,468
Total Funds	**$26,291,954**	**$30,389,655**	**$28,825,728**	**---**	**---**	**$85,507,337**

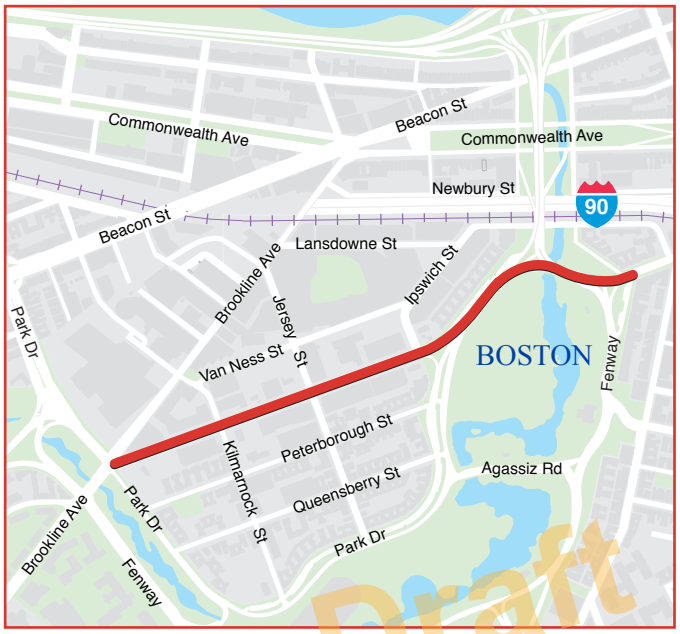
Boston: Improvements on Boylston Street, from Intersection of Brookline Avenue and Park Drive to Ipswich Street

Proponent: Boston

ID Number: 606453

Project Type: Complete Streets

Cost: $8,852,517



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	7 out of 30	6 out of 29	15 out of 29	12 out of 16	8 out of 12	12 out of 18	60 out of 134

Project Description

This roadway improvement project will enhance pedestrian mobility and safety by providing neck downs at intersections. In addition, exclusive bike lanes in both directions will be established along Boylston Street to encourage local and regional bicycle travel. The project also involves an upgrade of the existing geometric layout and old signal equipment to reduce vehicular congestion and increase overall safety.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$7,082,014	---	---	---	$7,082,014
Non-Federal Funds	---	$1,770,503	---	---	---	$1,770,503
Total Funds	---	**$8,852,517**	---	---	---	**$8,852,517**

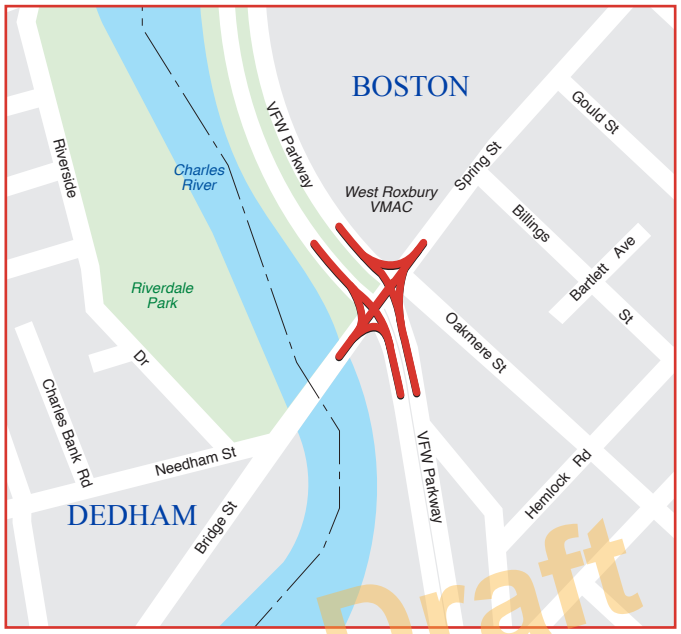
Boston: Intersection and Signal Improvements at the VFW Parkway and Spring Street

Proponent: MassDOT

ID Number: 607759

Project Type: Intersection Improvements

Cost: $1,075,772



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project will make upgrades at the intersection to improve safety. The upgrades will include signs, pavement markings, and traffic signals as identified through a Road Safety Audit process.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$968,194	$968,194
Non-Federal Funds	---	---	---	---	$107,577	$107,577
Total Funds	**---**	**---**	**---**	**---**	**$1,075,772**	**$1,075,772**

Boston: Neponset River Greenway (Phase 3)

Proponent: Boston

ID Number: 608943

Project Type: Bicycle and Pedestrian

Cost: $6,067,404

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	11 out of 30	4 out of 29	9 out of 29	10 out of 16	7 out of 12	1 out of 18	42 out of 134

Project Description

This project will provide the final northern link of the Neponset River Greenway with the addition of approximately 0.77 miles of 10-foot paved, shared-use path between Tenean Beach and Morrissey Boulevard. The extension of the greenway will improve accessibility for pedestrian and bicycle transportation to Boston from Readville, Hyde Park, Milton, Mattapan, and Dorchester and will provide ADA-accessible connections to MBTA bus Routes 201 and 202 and the Savin Hill and Fields Corner MBTA stations.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$4,853,923	---	$4,853,923
Non-Federal Funds	---	---	---	$1,213,481	---	$1,213,481
Total Funds	**---**	**---**	**---**	**$6,067,404**	**---**	**$6,067,404**

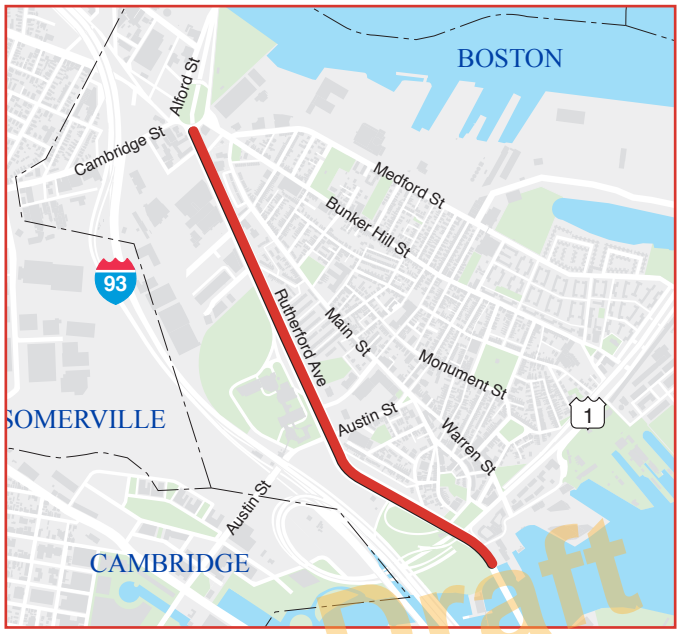
Boston: Reconstruction of Rutherford Avenue, from Sullivan Square to North Washington Street Bridge

Proponent: Boston

ID Number: 606226

Project Type: Major Infrastructure

Cost: $152,000,000



Scoring Summary

This project is funded using Regional Target funds, but was not evaluated using the MPO's TIP scoring criteria.

Project Description

The reconstruction of Rutherford Avenue from Sullivan Square to the North Washington Street Bridge will make the road a multi-modal urban boulevard corridor. This project will be funded over five years, starting in FFY 2022. The total project cost is estimated to be $152,000,000, and the total funding in the FFYs 2020-24 TIP is $111,685,278. Earmark discretionary funding of $8,578,930 is intended to be used for design of the project. Funding in future TIP years (FFYs 2025-26) will be approximately $40,314,722 in order to make up the entire estimated construction cost (total federal participating cost).

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$18,845,091	$27,414,738	$43,088,394	$89,348,223
Non-Federal Funds	---	---	$4,711,273	$6,853,684	$10,772,098	$22,337,055
Total Funds	**---**	**---**	**$23,556,364**	**$34,268,422**	**$53,860,492**	**$111,685,278**

Boston: Roadway, Ceiling and Wall Reconstruction, New Jet Fans, and other Control Systems in Sumner Tunnel

Proponent: MassDOT

ID Number: 606476

Project Type: Major Infrastructure

Cost: $126,544,9317

Scoring Summary

This project is partially funded using Regional Target funds, but was not evaluated using the MPO's TIP scoring criteria

Project Description

This project aims to repair the existing deterioration in Sumner Tunnel by reconstructing the roadway pavement, replacing existing jet fans with modern enhancements, and repairing cracking and corrosion on the tunnel's walls and ceiling. The total cost of this project is $126,544,931, with $22,115,687 in Regional Target funding allocated to the project. The rest of the project is funded using statewide funds.

Source	2020	2021	2022	2023	2024	Total
Federal Funds	---	$54,303,192	$27,858,739	$19,074,014	-	$101,235,945
Non-Federal Funds	---	$13,575,798	$6,964,685	$4,768,503	-	$25,308,986
Total Funds	---	$67,878,990	$34,823,424	$23,842,517	-	$126,544,931

Boston: Superstructure Repairs, Bowker Overpass over Storrow Drive (Eastbound)

Proponent: MassDOT

ID Number: 606728

Project Type: Bridge

Cost: $24,009,700

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project consists of bridge deck, parapet, expansion joint, and substructure repairs to B-16-365(4FK), the Bowker Overpass over Storrow Drive eastbound.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$19,207,760	---	$19,207,760
Non-Federal Funds	---	---	---	$4,801,940	---	$4,801,940
Total Funds	**---**	**---**	**---**	**$24,009,700**	**---**	**$24,009,700**

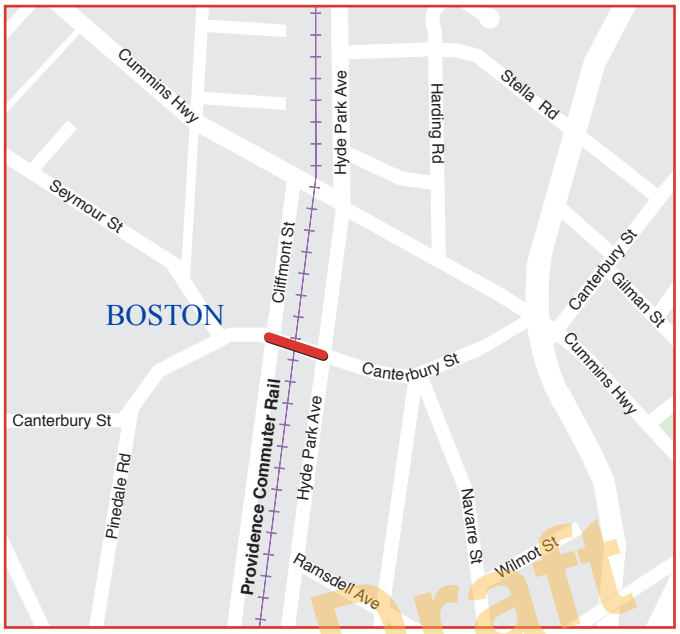
Boston: Superstructure Replacement, B-16-107, Canterbury Street over Amtrak/ MBTA

Proponent: MassDOT

ID Number: 608197

Project Type: Bridge

Cost: $4,678,280



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Superstructure Replacement, B-16-107, Canterbury Street over Amtrak/MBTA tracks

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$3,742,624	---	$3,742,624
Non-Federal Funds	---	---	---	$935,656	---	$935,656
Total Funds	**---**	**---**	**---**	**$4,678,280**	**---**	**$4,678,280**

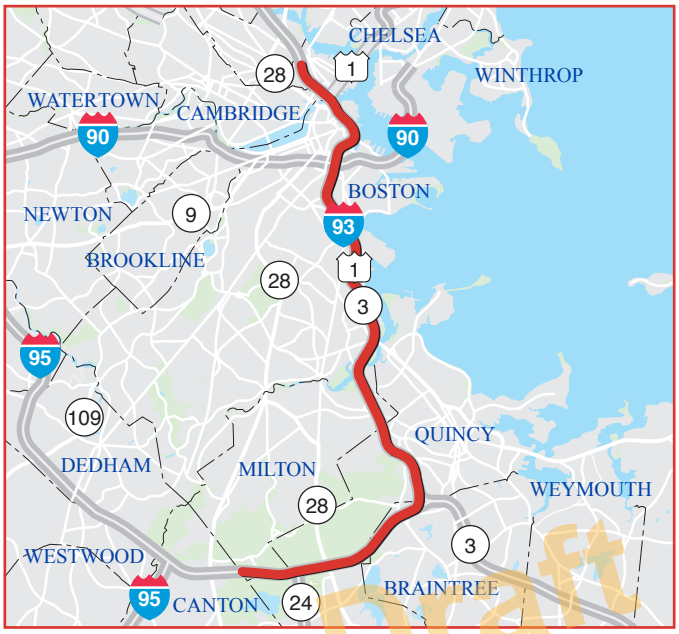
Boston, Braintree, Milton, Quincy, Randolph, and Somerville: Interstate Maintenance Resurfacing and Related Work on Interstate 93

Proponent: MassDOT

ID Number: 608208

Project Type: Interstate Pavement

Cost: $27,371,469



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project is an interstate maintenance resurfacing project on the Southeast Expressway. A preservation treatment or thin-bonded overlay is proposed to extend the pavement service life and improve safety.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$24,634,322	---	---	---	$24,634,322
Non-Federal Funds	---	$2,737,147	---	---	---	$2,737,147
Total Funds	---	**$27,371,469**	---	---	---	**$27,371,469**

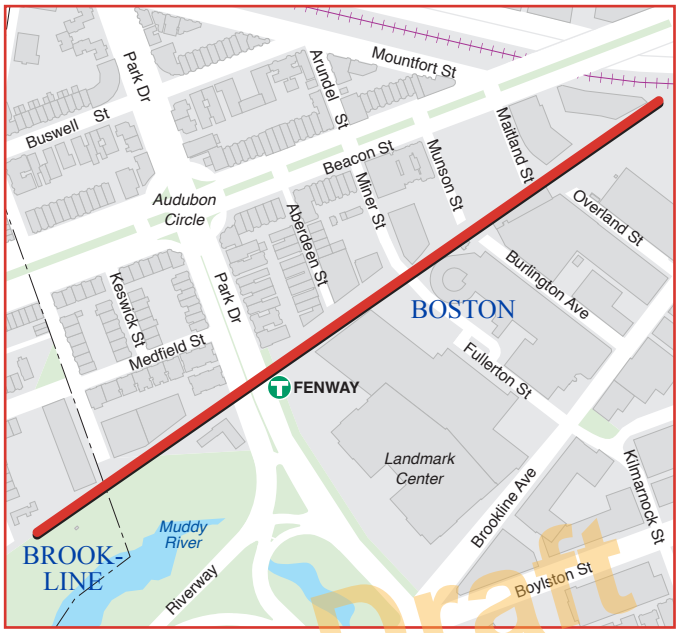
Boston and Brookline: Multi-use Path Construction on New Fenway

Proponent: Boston, Brookline

ID Number: 607888

Project Type: Bicycle and Pedestrian

Cost: $3,345,372



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

This project will construct a new 1,700 foot long multi-use bike/pedestrian pathway from the Muddy River in Brookline to Maitland Street in Boston. The project will improve access to the Fenway MBTA station and the Yawkey commuter rail station and provide a non-motorized transportation link to key job centers and new mixed-use developments planned for the Fenway area.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$2,676,298	---	---	---	$2,676,298
Non-Federal Funds	---	$669,074	---	---	---	$669,074
Total Funds	**---**	**$3,345,372**	**---**	**---**	**---**	**$3,345,372**

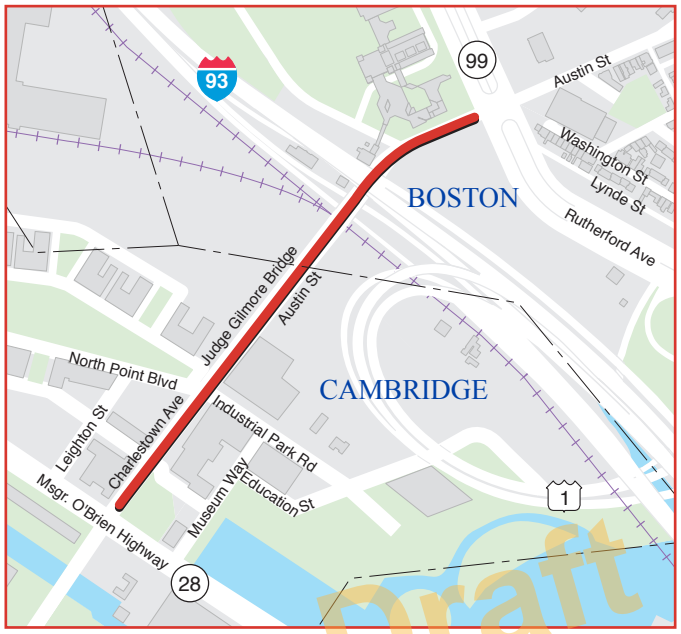
Boston and Cambridge: Superstructure Replacement, B-16-179, Austin Street over Interstate-93 Ramps, MBTA Commuter Rail and Orange Line

Proponent: MassDOT

ID Number: 608614

Project Type: Bridge

Cost: $5,000,000



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project will replace the superstructure of bridge B-16-179, which carries Austin Street over the Interstate 93 ramps and the MBTA commuter rail and Orange Line tracks in Boston.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$4,000,000	---	---	$4,000,000
Non-Federal Funds	---	---	$1,000,000	---	---	$1,000,000
Total Funds	**---**	**---**	**$5,000,000**	**---**	**---**	**$5,000,000**

Boston, Milton and Quincy: Highway Lighting System Replacement on Interstate 93, from Neponset Avenue to the Braintree Split

Proponent: MassDOT

ID Number: 609090

Project Type: Safety Improvements

Cost: $9,568,000

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Highway Lighting System Replacement on Interstate 93, from Neponset Avenue to the Braintree Split

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$7,654,400	---	---	$7,654,400
Non-Federal Funds	---	---	$1,913,600	---	---	$1,913,600
Total Funds	**---**	**---**	**$9,568,000**	**---**	**---**	**$9,568,000**

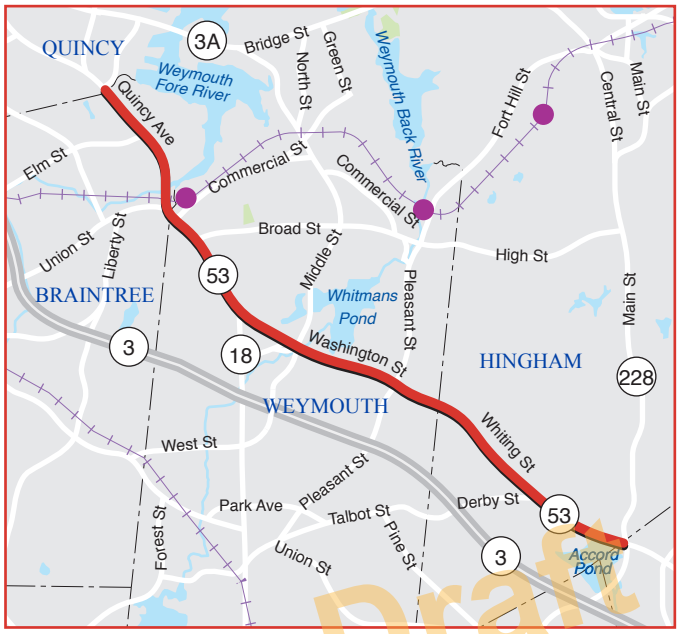
Braintree, Hingham and Weymouth: Resurfacing and Related Work on Route 53

Proponent: MassDOT

ID Number: 608498

Project Type: Non-Interstate Pavement

Cost: $8,458,240



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Resurfacing and related work on Route 53

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$6,766,592	---	$6,766,592
Non-Federal Funds	---	---	---	$1,691,648	---	$1,691,648
Total Funds	---	---	---	**$8,458,240**	---	**$8,458,240**

Braintree and Quincy: Highway Lighting Improvements at Interstate 93 and Route 3 Interchange

Proponent: MassDOT

ID Number: 608608

Project Type: Safety Improvements

Cost: $2,688,726

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project consists of highway lighting improvements at the interchange of Interstate 93 and Route 3 in Braintree.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$2,419,853	---	---	---	---	$2,419,853
Non-Federal Funds	$268,873	---	---	---	---	$268,873
Total Funds	**$2,688,726**	**---**	**---**	**---**	**---**	**$2,688,726**

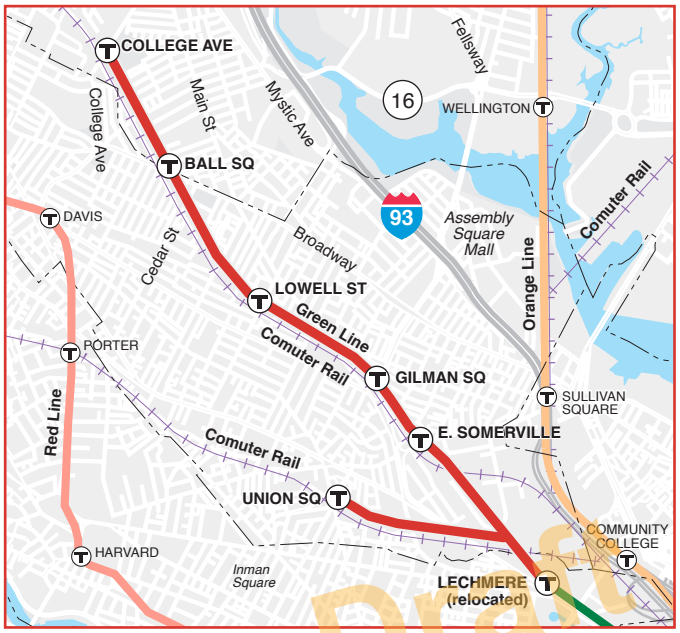
Cambridge and Somerville: Green Line Extension Project - Extension to College Avenue with the Union Square Spur

Proponent: MBTA

ID Number: 1570

Project Type: Major Infrastructure

Cost: $190,000,000



Scoring Summary

This prject is partially funded using Regional Target funds, but was not evaluated using the MPO's TIP scoring criteria.

Project Description

The purpose of this project is to improve corridor mobility, boost transit ridership, improve regional air quality, ensure equitable distribution of transit services, and support opportunities for sustainable development. The project will extend the MBTA Green Line from a relocated Lechmere Station in East Cambridge to College Avenue in Medford, with a branch to Union Square in Somerville.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$14,729,654	$24,575,306	---	---	---	$39,304,960
Non-Federal Funds	$3,682,414	$6,143,826	---	---	---	$9,826,240
Total Funds	**$18,412,068**	**$30,719,132**	**---**	**---**	**---**	**$49,131,200**

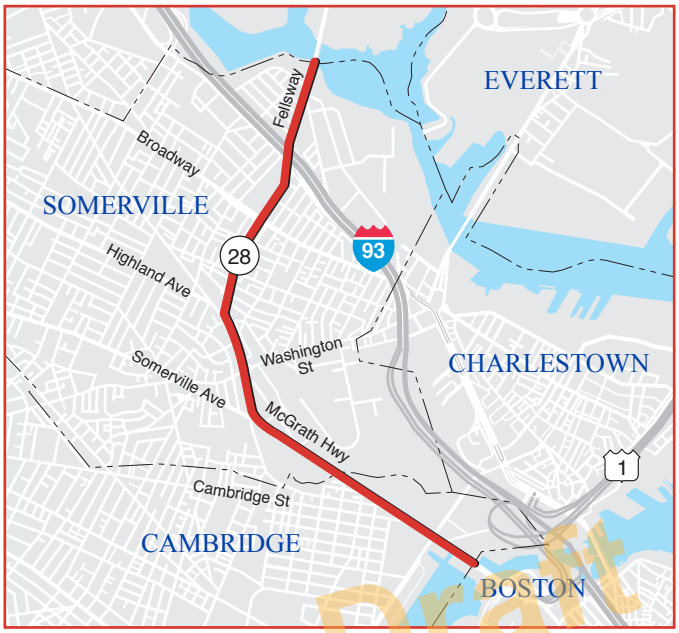
Cambridge and Somerville: Resurfacing and Related Work on Route 28

Proponent: MassDOT

ID Number: 608482

Project Type: Non-Interstate Pavement

Cost: $7,080,000



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project consists of resurfacing on Route 28 in Cambridge and Somerville.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$5,664,000	---	---	---	---	$5,664,000
Non-Federal Funds	$1,416,000	---	---	---	---	$1,416,000
Total Funds	**$7,080,000**	**---**	**---**	**---**	**---**	**$7,080,000**

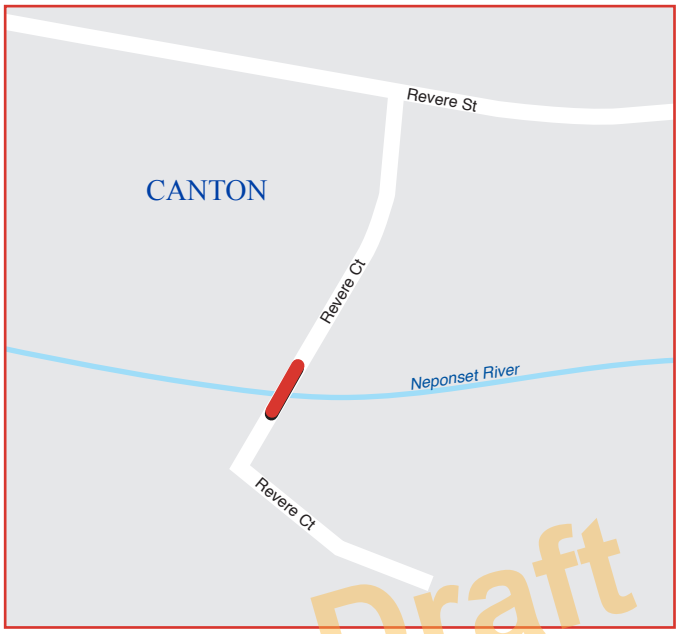
Canton: Bridge Replacement, C-02-042 (33V) Revere Court over East Branch of the Neponset River

Proponent: MassDOT

ID Number: 1931

Project Type: Bridge

Cost: $2,721,360



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Bridge replacement, C-02-042, 33V, Revere Court over east branch of the Neponset River

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$2,177,088	$2,177,088
Non-Federal Funds	---	---	---	---	$544,272	$544,272
Total Funds	**---**	**---**	**---**	**---**	**$2,721,360**	**$2,721,360**

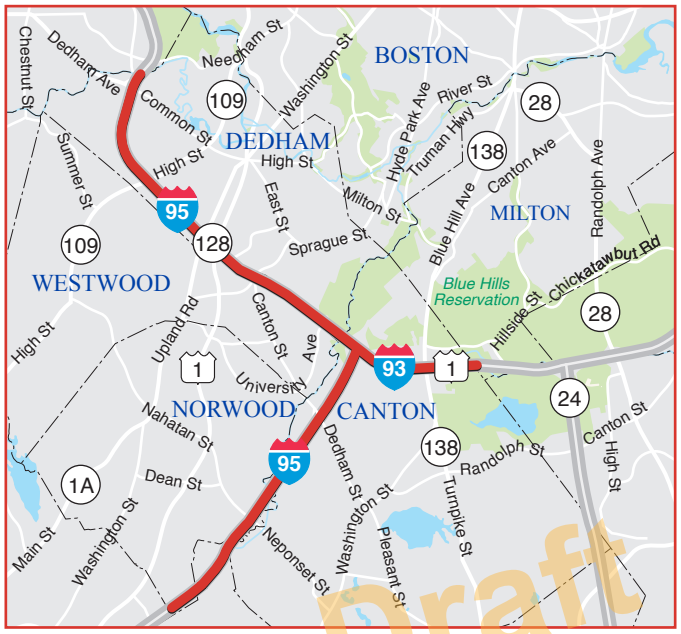
Canton, Dedham, Norwood, Sharon, and Westwood: Highway Lighting Improvements at Interstate 93 and Interstate 95/Route 128

Proponent: MassDOT

ID Number: 609053

Project Type: Safety Improvements

Cost: $5,432,056



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Highway lighting improvements at Interstate 93 and Interstate 95/Route 128

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$4,345,645	---	$4,345,645
Non-Federal Funds	---	---	---	$1,086,411	---	$1,086,411
Total Funds	**---**	**---**	**---**	**$5,432,056**	**---**	**$5,432,056**

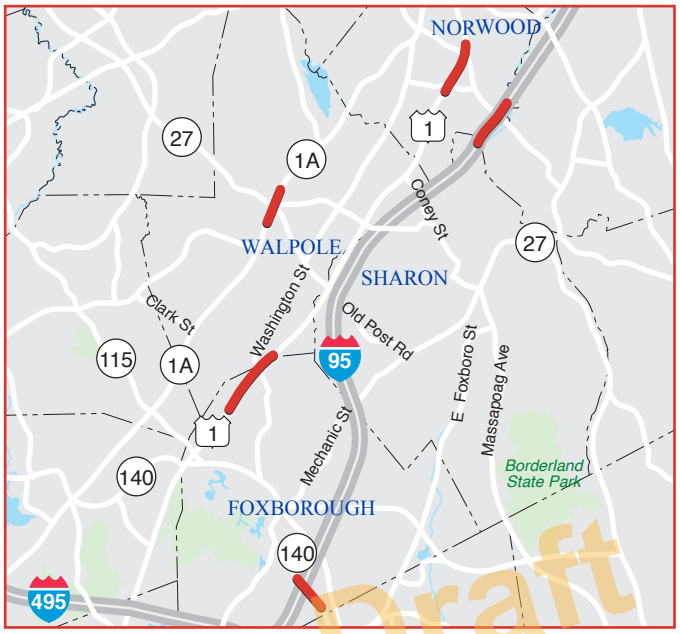
Canton, Foxborough, Norwood, Sharon, and Walpole: Stormwater Improvements along Route 1, Route 1A, and Interstate 95

Proponent: MassDOT

ID Number: 608599

Project Type: Roadway Improvements

Cost: $526,235



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project consists of stormwater drainage improvements along Route 1, Route 1A, and Interstate 95.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$420,988	---	---	$420,988
Non-Federal Funds	---	---	$105,247	---	---	$105,247
Total Funds	**---**	**---**	**$526,235**	**---**	**---**	**$526,235**

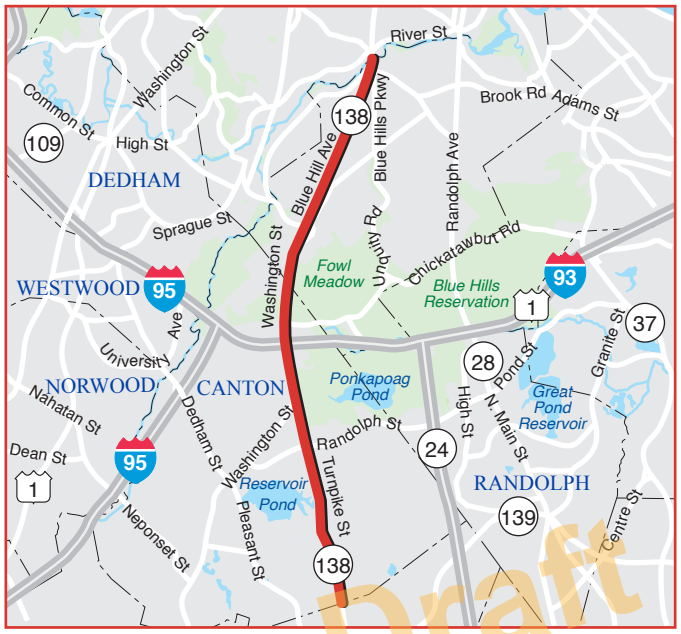
Canton and Milton: Resurfacing and Related Work on Route 138

Proponent: MassDOT

ID Number: 608484

Project Type: Non-Interstate Pavement

Cost: $18,639,846



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project consists of resurfacing on Route 138 in Canton and Milton.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$14,911,877	---	$14,911,877
Non-Federal Funds	---	---	---	$3,727,969	---	$3,727,969
Total Funds	**---**	**---**	**---**	**$18,639,846**	**---**	**$18,639,846**

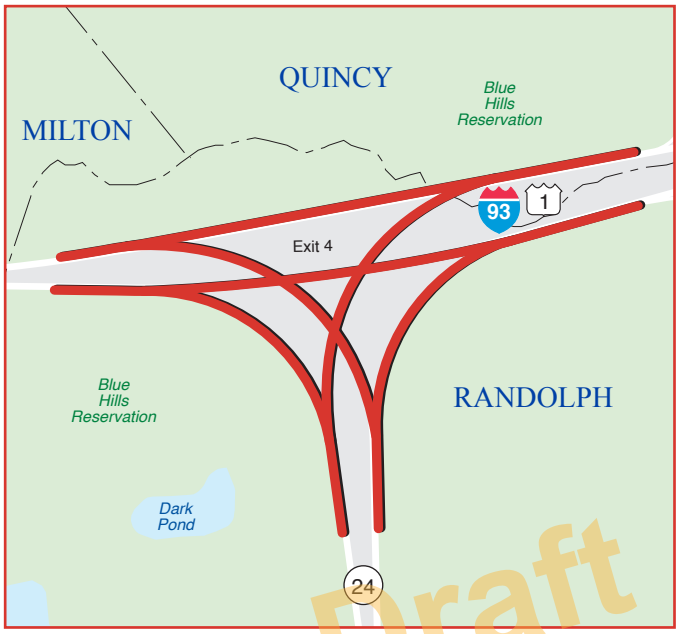
Canton, Milton, and Randolph: Replacement and Rehabilitation of the Highway Lighting System at the Route 24/Route 1/Interstate 93 Interchange

Proponent: MassDOT

ID Number: 608611

Project Type: Safety Improvements

Cost: $8,735,250



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project involves of replacement and rehabilitation of the highway lighting system at the interchange of Route 24, Route 1, and Interstate 93 in Canton, Milton, and Randolph.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$6,988,200	---	---	---	---	$6,988,200
Non-Federal Funds	$1,747,050	---	---	---	---	$1,747,050
Total Funds	**$8,735,250**	**---**	**---**	**---**	**---**	**$8,735,250**

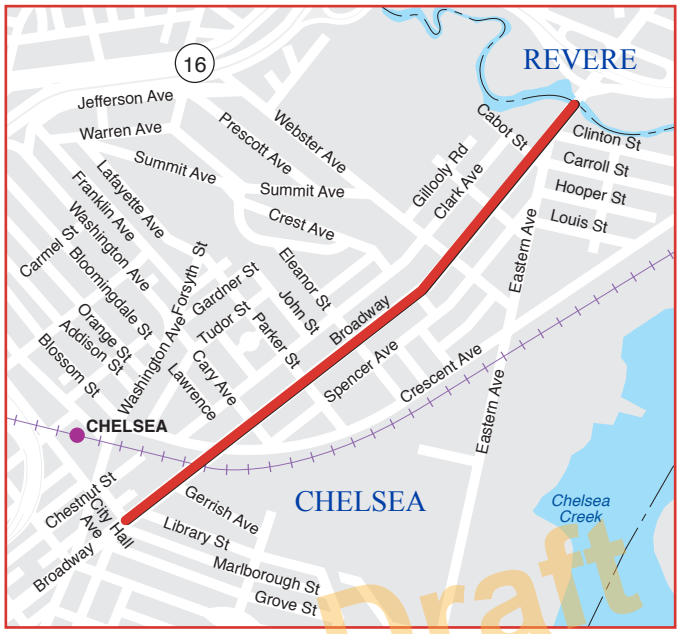
Chelsea: Reconstruction of Broadway, from City Hall Avenue to the Revere City Line

Proponent: Chelsea

ID Number: 608078

Project Type: Complete Streets

Cost: $9,669,765



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	17 out of 30	10 out of 29	5 out of 29	8 out of 16	12 out of 12	9 out of 18	61 out of 134

Project Description

This project will reconstruct of one mile of Broadway. Improvements to the roadway will include surface and subsurface work, including replacement of utilities; construction of a dedicated bike lane along Broadway; and upgrades to the existing sidewalk network, including the installation of ADA compliant ramps at all intersections.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$7,735,812	---	---	$7,735,812
Non-Federal Funds	---	---	$1,933,953	---	---	$1,933,953
Total Funds	---	---	$9,669,765	---	---	$9,669,765

Chelsea: Bridge Betterment, Route 1 over Arlington and 5th Street/MBTA Railroad/ Spruce Street

Proponent: MassDOT

ID Number: 605287

Project Type: Bridge

Cost: $69,145,821

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Bridge betterment, Route 1 over Arlington and 5th Street/MBTA Railroad/Spruce Street

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$31,322,265	$23,994,392	---	---	---	$55,316,657
Non-Federal Funds	$7,830,566	$5,998,598	---	---	---	$13,829,164
Total Funds	**$39,152,831**	**$29,992,990**	**---**	**---**	**---**	**$69,145,821**

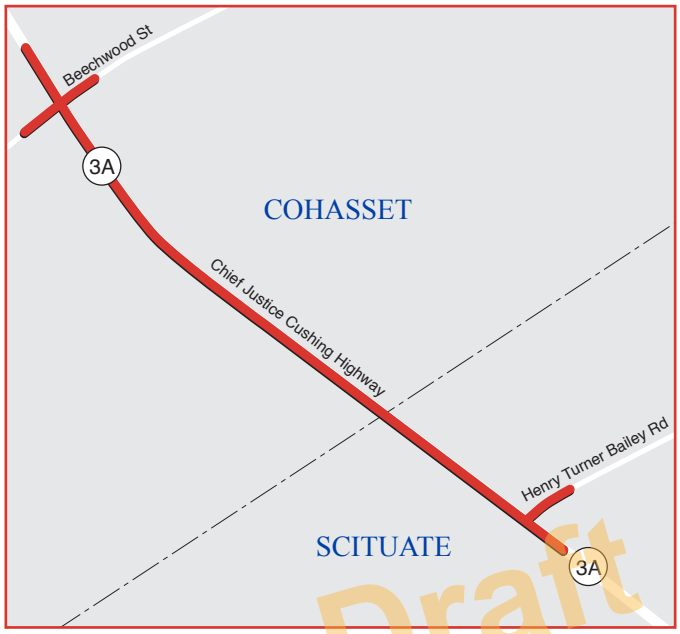
Cohasset and Scituate: Corridor Improvements and Related Work on Justice Cushing Highway (Route 3A), from Beechwood Street to the Scituate Town Line

Proponent: Cohasset

ID Number: 608007

Project Type: Complete Streets

Cost: $8,971,636



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	16 out of 30	4 out of 29	8 out of 29	5 out of 16	1 out of 12	3 out of 18	37 out of 134

Project Description

Work on this project includes corridor improvements from the Beechwood Street intersection to the Cohasset/Scituate town line. The Route 3A/Beechwood Street intersection will be upgraded with new traffic signal equipment as well as minor geometric improvements. The Route 3A/Henry Turner Bailey Road intersection will be reviewed for meeting requirements for traffic signals as well as geometric improvements. Pedestrian and bicycle accommodation will be included along the corridor.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$7,327,309	---	$7,327,309
Non-Federal Funds	---	---	---	$1,644,327	---	$1,644,327
Total Funds	---	---	---	$8,971,636	---	$8,971,636

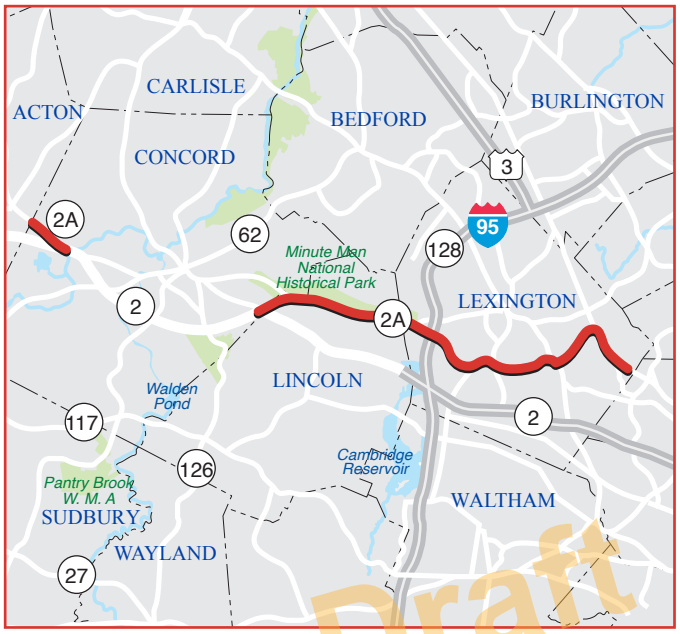
Concord, Lexington, and Lincoln: Resurfacing and Related Work on Route 2A

Proponent: MassDOT

ID Number: 608495

Project Type: Non-Interstate Pavement

Cost: $3,262,500



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project consists of resurfacing and related work on Route 2A.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$2,610,000	$2,610,000
Non-Federal Funds	---	---	---	---	$652,500	$652,500
Total Funds	**---**	**---**	**---**	**---**	**$3,262,500**	**$3,262,500**

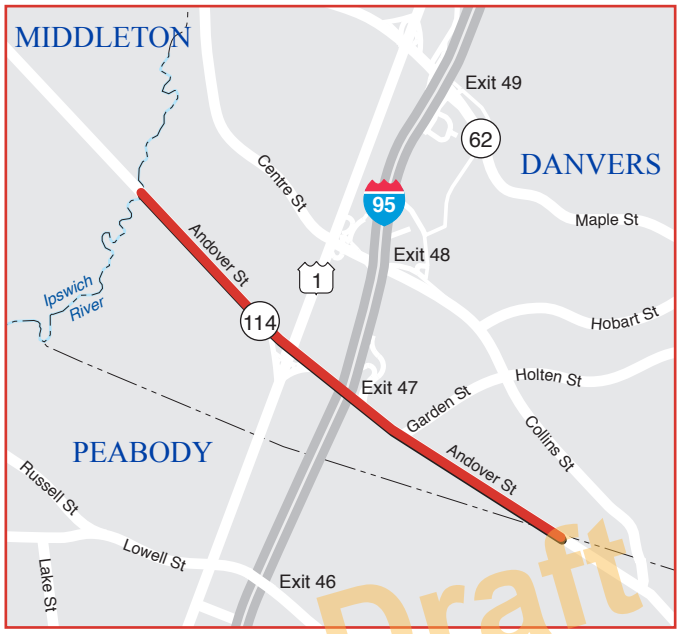
Danvers: Resurfacing and Related Work on Route 114

Proponent: MassDOT

ID Number: 608818

Project Type: Non-Interstate Pavement

Cost: $1,003,590



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project consists of resurfacing and related work on Route 114.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$802,872	---	---	$802,872
Non-Federal Funds	---	---	$200,718	---	---	$200,718
Total Funds	**---**	**---**	**$1,003,590**	**---**	**---**	**$1,003,590**

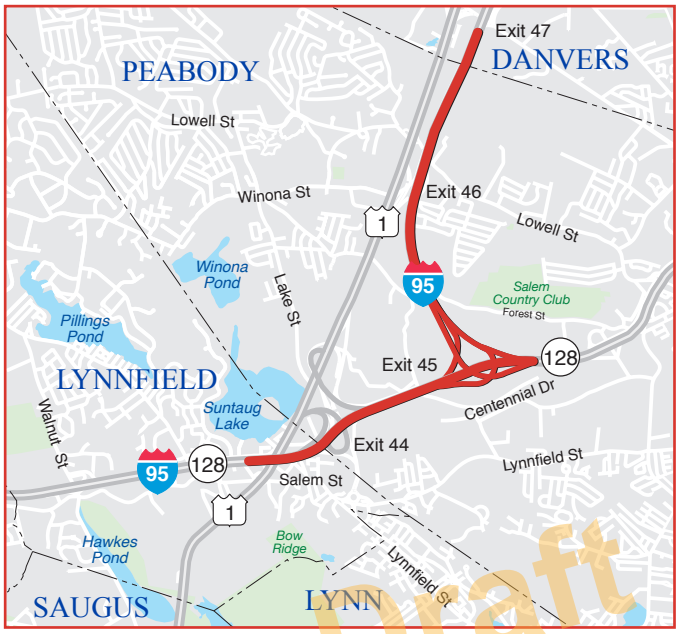
Danvers, Lynnfield, and Peabody: Guide and Traffic Sign Replacement on Interstate 95/Route 128 (Task 'A' Interchange)

Proponent: MassDOT

ID Number: 609060

Project Type: Safety Improvements

Cost: $495,860



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Guide and Traffic Sign Replacement on Interstate 95/Route 128 (Task 'A' Interchange)

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$446,274	---	---	$446,274
Non-Federal Funds	---	---	$49,586	---	---	$49,586
Total Funds	**---**	**---**	**$495,860**	**---**	**---**	**$495,860**

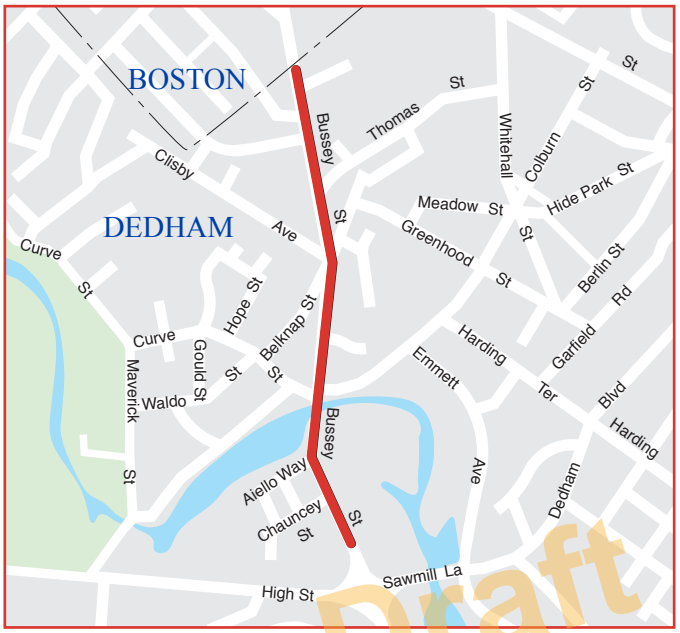
Dedham: Pedestrian Improvements along Bussey Street

Proponent: Dedham

ID Number: 607899

Project Type: Complete Streets

Cost: $4,368,780



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	5 out of 30	8 out of 29	5 out of 29	5 out of 16	7 out of 12	5 out of 18	35 out of 134

Project Description

Improvements along the Bussey Street corridor will include resetting and setting the curb and reconstructing ADA compliant sidewalks and ramps on both sides of the roadway. Some area of pavement reconstruction may be necessary to obtain the necessary curb reveal. Minor geometric improvements are expected at the intersection with Colburn Street and Clisby Avenue to make them more pedestrian friendly, current conditions include expansive pavement width. Shared bicycle accommodations are planned.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$3,495,024	---	$3,495,024
Non-Federal Funds	---	---	---	$873,756	---	$873,756
Total Funds	**---**	**---**	**---**	**$4,368,780**	**---**	**$4,368,780**

Dedham: Pedestrian Improvements along Elm Street and Rustcraft Road Corridors

Proponent: Dedham

ID Number: 607901

Project Type: Roadway Reconstruction

Cost: $3,019,061

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Improvements along the Elm Street and Rustcraft Road corridor will primarily consist of the installation of new curbing, sidewalks, and ramps on both sides of the corridor. This area will also require drainage improvements to modify stormwater management from sheet flow to catch basins, which is necessary with the installation of new curbs and sidewalks. Minor roadway widening is anticipated to achieve a minimum roadway width to accommodate a five-foot bicycle lane. An off-road area for drop off and pick up at the Dedham Corporate Center Station on the MBTA commuter rail has already been constructed by the Town of Dedham.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$2,415,249	---	---	---	$2,415,249
Non-Federal Funds	---	$603,812	---	---	---	$603,812
Total Funds	**---**	**$3,019,061**	**---**	**---**	**---**	**$3,019,061**

Essex: Superstructure Replacement, E-11-001 (2TV), Route 133 (Main Street) over Essex River

Proponent: MassDOT

ID Number: 608596

Project Type: Bridge

Cost: $4,511,360

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

This bridge preservation project will address the bridge that carries Route 133 (Main Street) over the Essex River in Essex.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$3,609,088	---	---	---	$3,609,088
Non-Federal Funds	---	$902,272	---	---	---	$902,272
Total Funds	**---**	**$4,511,360**	**---**	**---**	**---**	**$4,511,360**

Essex, Gloucester, Manchester-by-the-Sea, and Wenham: Pavement Preservation and Related Work on Route 128

Proponent: MassDOT

ID Number: 609102

Project Type: Non-Interstate Pavement

Cost: $13,083,840

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Pavement preservation and related work on Route 128

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$10,467,072	---	---	---	---	$10,467,072
Non-Federal Funds	$2,616,768	---	---	---	---	$2,616,768
Total Funds	**$13,083,840**	**---**	**---**	**---**	**---**	**$13,083,840**

Everett: Reconstruction of Ferry Street, South Ferry Street, and a Portion of Elm Street

Proponent: Everett

ID Number: 607652

Project Type: Complete Streets

Cost: $16,119,557

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	14 out of 30	15 out of 29	15 out of 29	10 out of 16	12 out of 12	9 out of 18	75 out of 134

Project Description

The project will reconstruct Ferry Street from the Malden city line (Belmont Street) to Route 16 and Elm Street between Ferry Street and Woodlawn Street. The work will include resurfacing and construction of new sidewalks, wheelchair ramps, and curb extensions. The traffic signals at five locations and the fire station will be upgraded. The signalized intersection at Chelsea Street will be replaced by a roundabout.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$13,000,675	---	---	---	---	$13,000,675
Non-Federal Funds	$3,118,882	---	---	---	---	$3,118,882
Total Funds	**$16,119,557**	**---**	**---**	**---**	**---**	**$16,119,557**

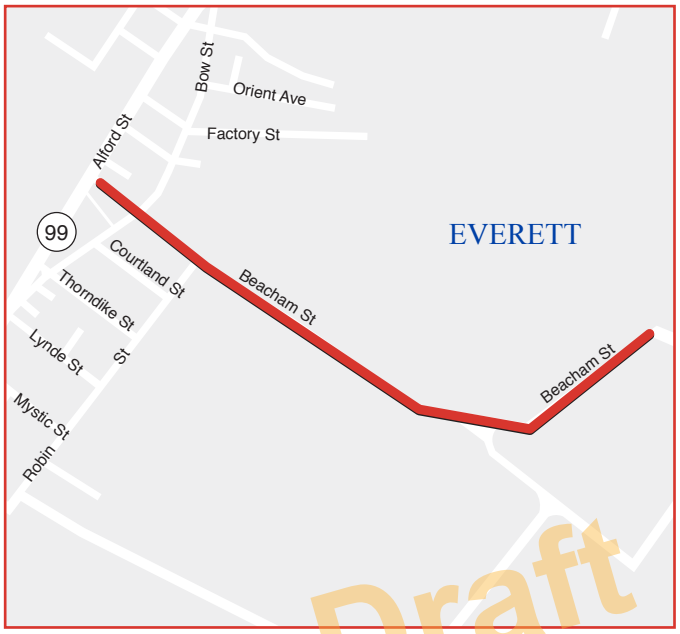
Everett: Rehabilitation of Beacham Street, from Route 99 to Chelsea City Line

Proponent: Everett

ID Number: 609257

Project Type: Complete Streets

Cost: $10,648,800



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	19 out of 30	10 out of 29	13 out of 29	4 out of 16	7 out of 12	1 out of 18	54 out of 134

Project Description

This Complete Streets project involves the reconstruction of Beacham Street to reduce vehicular collisions and improve bicycle travel. This project also includes the implementation of a shared-use bike path with a buffer along 0.65 miles of the Beacham Street corridor, a major connection between Boston, Somerville, and Cambridge, and Chelsea and East Boston. To promote pedestrian safety, upgrades to traffic signals, pavement markings, and sidewalk conditions will be incorporated to reduce conflict with vehicular traffic and provide an ADA-compliant travel route.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$8,619,040	$8,619,040
Non-Federal Funds	---	---	---	---	$2,029,760	$2,029,760
Total Funds	**---**	**---**	**---**	**---**	**$10,648,800**	**$10,648,800**

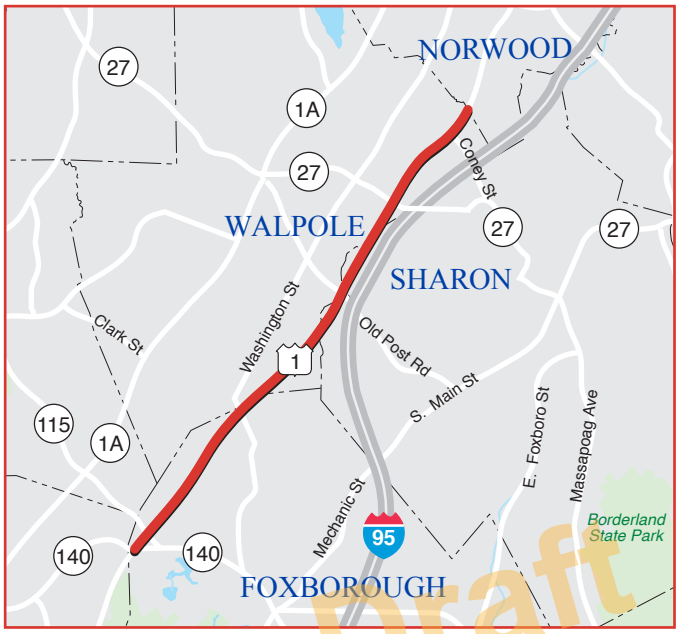
Foxborough, Sharon, and Walpole: Resurfacing and Related Work on Route 1

Proponent: MassDOT

ID Number: 608480

Project Type: Non-Interstate Pavement

Cost: $7,072,920



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project consists of resurfacing on Route 1 in Foxborough, Sharon, and Walpole.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$5,658,336	---	---	$5,658,336
Non-Federal Funds	---	---	$1,414,584	---	---	$1,414,584
Total Funds	**---**	**---**	**$7,072,920**	**---**	**---**	**$7,072,920**

Framingham: Pedestrian Hybrid Beacon Installation at Route 9 and Maynard Road

Proponent: Framingham

ID Number: 608006

Project Type: Bicycle and Pedestrian

Cost: $1,028,024

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	11 out of 30	6 out of 29	2 out of 29	2 out of 16	1 out of 12	4 out of 18	26 out of 134

Project Description

The proposed project will construct an at-grade pedestrian crossing across Route 9 in the vicinity of Maynard Road and the Framingham fire station. The crossing will be controlled by a pedestrian hybrid beacon (HAWK signal). The project also includes the reconstruction of the existing emergency signal for the Framingham fire station on Route 9.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$822,419	$822,419
Non-Federal Funds	---	---	---	---	$205,605	$205,605
Total Funds	---	---	---	---	**$1,028,024**	**$1,028,024**

Framingham: Reconstruction of Union Avenue, from Proctor Street to Main Street

Proponent: Framingham

ID Number: 608228

Project Type: Complete Streets

Cost: $8,504,804

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	19 out of 30	16 out of 22	6 out of 29	0 out of 16	10 out of 12	13 out of 18	60 out of 134

Project Description

The project involves improvements to Union Avenue from Proctor Street to Main Street, with limited work on intersecting local roadways. Specifically, the proposed improvements include full-depth pavement reconstruction, sidewalk reconstruction, traffic signal improvements, streetscape improvements, bicycle accommodation, warning and regulatory signing, and pavement markings. The existing traffic signal at Mt. Wayte Avenue will be reconstructed and new traffic signals will be erected at the intersections of Union Avenue with Lincoln Street and Walnut Street. Streetscape and ornamental lighting improvements will be made from the south end of the project area to the intersection of Union Avenue and Lincoln Street. Minor roadway widening of less than two feet is proposed between Proctor Street and Lexington Street in order to provide a sufficient cross section for travel lanes, bike lanes, and on-street parking. The Town of Framingham is constructing significant stormwater improvements as part of a separate utility project to be completed prior to the roadway improvements.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$6,903,843	---	---	---	$6,903,843
Non-Federal Funds	---	$1,600,961	---	---	---	$1,600,961
Total Funds	**---**	**$8,504,804**	**---**	**---**	**---**	**$8,504,804**

Framingham: Traffic Signal Installation at Edgell Road at Central Street

Proponent: Framingham

ID Number: 608889

Project Type: Intersection Improvements

Cost: $1,814,400

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	9 out of 30	10 out of 29	7 out of 29	9 out of 16	2 out of 12	4 out of 18	41 out of 134

Project Description

This project will improve vehicular operations and safety by installing traffic signals and geometric improvements at the intersection of Edgell Road and Central Street. The geometric improvements include realigning and widening the roadway to provide a southbound left-turn lane and a northbound right-turn lane along Edgell Road. The project also addresses pedestrian and bicyclist safety through the addition of bike lanes, crosswalks, and a new traffic signal. Sidewalks along both sides of all roadways will be ADA/ABA compliant.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$1,451,520	---	---	$1,451,520
Non-Federal Funds	---	---	$362,880	---	---	$362,880
Total Funds	**---**	**---**	**$1,814,400**	**---**	**---**	**$1,814,400**

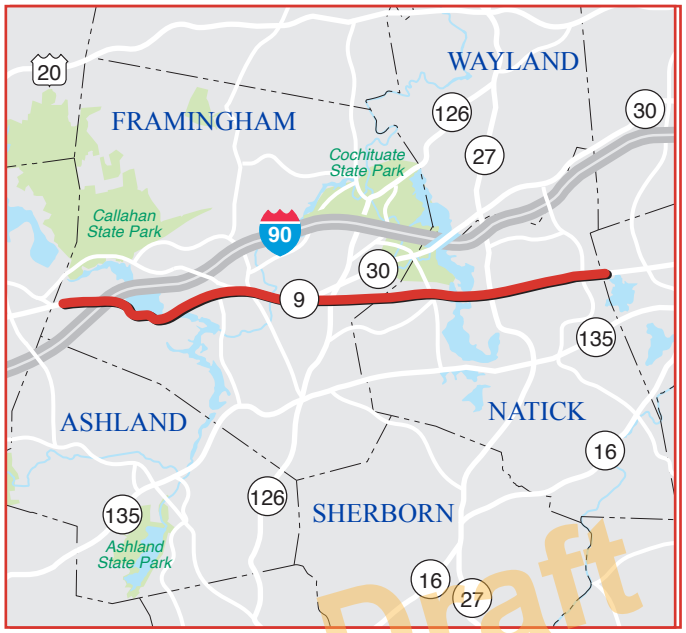
Franklin and Natick: Resurfacing and Related Work on Route 9

Proponent: MassDOT

ID Number: 609402

Project Type: Non-Interstate Pavement

Cost: $25,711,400



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Resurfacing and related work on Route 9

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$20,569,120	$20,569,120
Non-Federal Funds	---	---	---	---	$5,142,280	$5,142,280
Total Funds	**---**	**---**	**---**	**---**	**$25,711,400**	**$25,711,400**

Hamilton: Bridge Replacement, Winthrop Street over Ipswich River, H-03-002 (2R5)

Proponent: MassDOT

ID Number: 1932

Project Type: Bridge

Cost: $3,698,544

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Bridge replacement, Winthrop Street over Ipswich River, H-03-002 (2R5)

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$2,958,835	$2,958,835
Non-Federal Funds	---	---	---	---	$739,709	$739,709
Total Funds	**---**	**---**	**---**	**---**	**$3,698,544**	**$3,698,544**

Hingham: Intersection Improvements at Route 3A/Summer Street Rotary

Proponent: Hingham

ID Number: 605168

Project Type: Complete Streets

Cost: $8,700,001

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	10 out of 30	16 out of 29	17 out of 29	10 out of 16	0 out of 12	2 out of 18	55 out of 134

Project Description

The project improves multimodal access between Hingham Center, residential areas, and Hingham Harbor by extending the existing buffered, shared-use bike path from Rockland Street to the Hingham inner harbor. In addition, improvements to reduce vehicular accidents will be incorporated through the establishment of turn lanes and a small roundabout at the intersection of Route 3A and Summer Street.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$6,960,001	$6,960,001
Non-Federal Funds	---	---	---	---	$1,740,000	$1,740,000
Total Funds	---	---	---	---	$8,700,001	$8,700,001

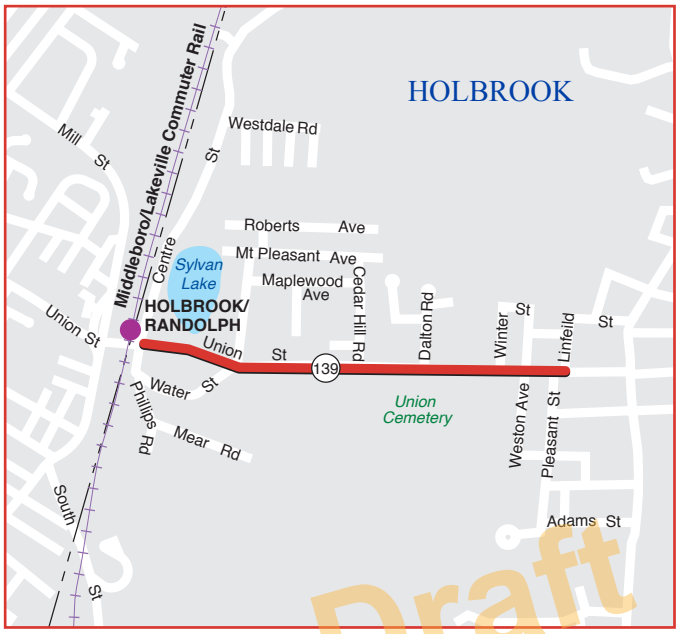
Holbrook: Reconstruction of Union Street (Route 139), from Linfield Street to Centre Street/Water Street

Proponent: Holbrook

ID Number: 606501

Project Type: Complete Streets

Cost: $4,270,631



Scoring Summary

This project was evaluated by MPO staff in FFY 2015 using a prior version of the TIP scoring criteria. Under those criteria, this project received the following scores: System Preservation, Modernization, and Efficiency (10 out of 36 points); Livability and Economic Benefit (13 out of 29 points); Mobility (7 out of 25 points); Environment and Climate Change (5 out of 25 points); Environmental Justice (0 out of 10 points); and Safety and Security (13 out of 29 points). This project's total score is 48 points out of a possible 154 points.

Project Description

The purpose of this project is to rehabilitate a segment of Union Street from Linfield Street to Centre Street and Water Street. The proposed improvements will address poor roadway pavement conditions, deteriorating sidewalks, a lack of curbing, and needed drainage improvements. The project will also address the need for upgraded pavement markings, signage, and guard rails. This project is funded using a combination of MPO Regional Target funds ($2,743,381) and Federal High-Priority Project (HPP) funds ($1,527,250)

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$3,416,504	---	---	---	$3,416,504
Non-Federal Funds	---	$854,127	---	---	---	$854,127
Total Funds	---	**$4,270,631**	---	---	---	**$4,270,631**

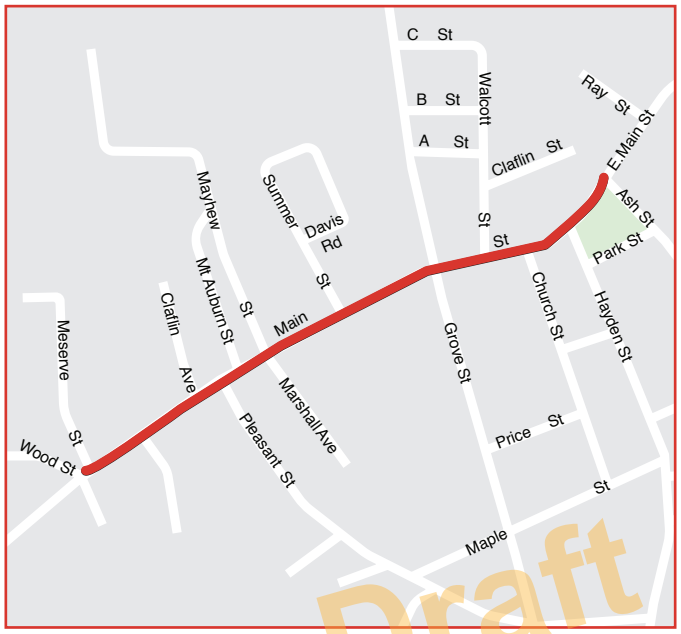
Hopkinton: Signal and Intersection Improvements on Route 135

Proponent: Hopkinton

ID Number: 606043

Project Type: Complete Streets

Cost: $7,946,749



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	16 out of 30	14 out of 29	12 out of 29	13 out of 16	1 out of 12	9 out of 18	65 out of 134

Project Description

The project involves improvements at the intersections of Route 135 with Route 85, Pleasant Street, and Wood Street. The improvements include signal equipment upgrades, geometric modifications, and the addition of lanes at the Route 85 intersection; possible signalization at Pleasant Street; and minor widening, geometric modifications, and equipment upgrades at Wood Street. The project includes pavement rehabilitation from Ash Street to Wood Street, drainage improvements as needed, reconstruction of sidewalks and wheelchair ramps, and streetscape enhancements in the town center.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$6,357,399	---	---	---	---	$6,357,399
Non-Federal Funds	$1,589,350	---	---	---	---	$1,589,350
Total Funds	**$7,946,749**	**---**	**---**	**---**	**---**	**$7,946,749**

Hopkinton and Westborough: Reconstruction of Interstate 90/Interstate 495 Interchange

Proponent: MassDOT

ID Number: 607977

Project Type: Roadway Reconstruction

Cost: $189,451,000

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project would improve the interchange of Interstate 90 and Interstate 495. A number of alternatives are being developed and evaluated in a feasibility study. This project is funded over five federal fiscal years (FFYs 2022-26) for a total cost of $189,451,000.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$31,787,151	$24,000,000	$40,000,000	$95,787,151
Non-Federal Funds	---	---	$7,946,788	$6,000,000	$10,000,000	$23,946,788
Total Funds	**---**	**---**	**$39,733,939**	**$30,000,000**	**$50,000,000**	**$119,733,939**

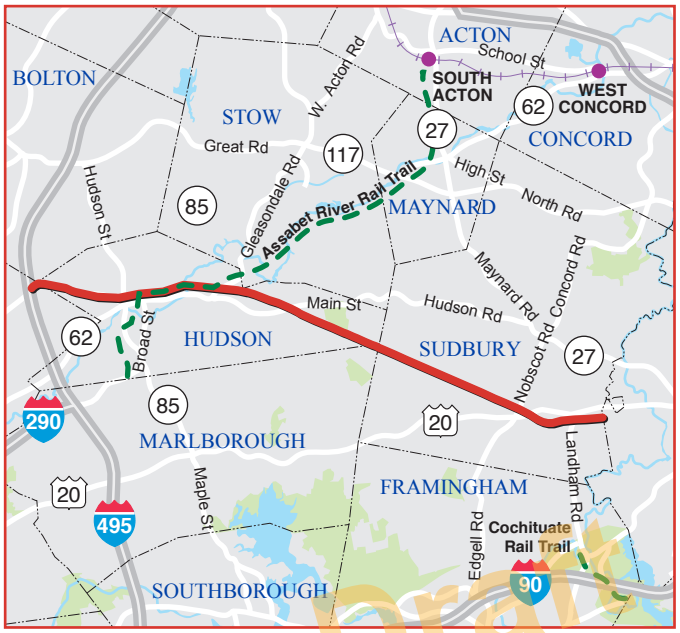
Hudson, Stow, and Sudbury: Mass Central Rail Trail Wayside

Proponent: DCR

ID Number: 608995

Project Type: Bicycle and Pedestrian

Cost: $6,670,000



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Mass Central Rail Trail Wayside in Hudson, Stow, and Sudbury

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$5,336,000	$5,336,000
Non-Federal Funds	---	---	---	---	$1,334,000	$1,334,000
Total Funds	---	---	---	---	**$6,670,000**	**$6,670,000**

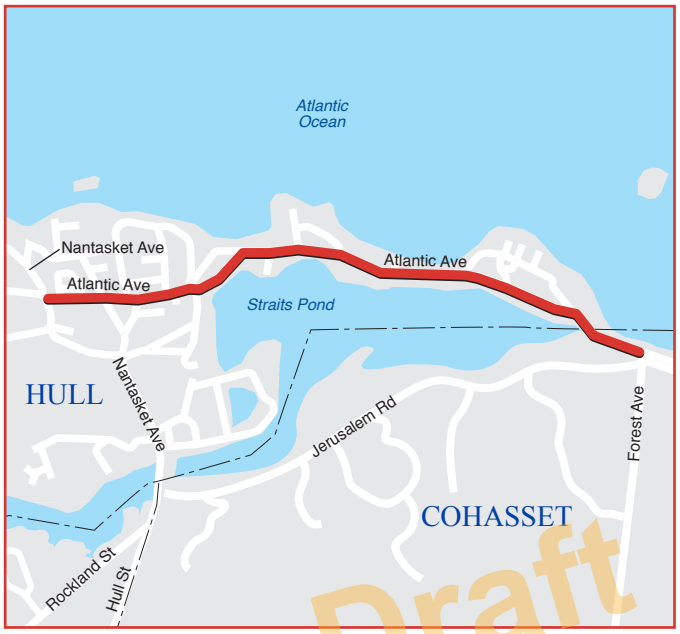
Hull: Reconstruction of Atlantic Avenue and Related Work, from Nantasket Avenue to Cohasset Town Line

Proponent: Hull

ID Number: 601607

Project Type: Complete Streets

Cost: $7,263,401



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	11 out of 30	13 out of 29	8 out of 29	6 out of 16	2 out of 12	4 out of 18	44 out of 134

Project Description

This project involves the improvement of pavement condition through the reconstruction of Atlantic Avenue from Nantasket Avenue to the Cohasset town line. The addition of a 5.5-foot wide sidewalk will also be included in the roadway reconstruction. Drainage improvements will be incorporated through the installation of new drainage structures, grates, inlets, and pipes and the rebuilding of existing stormwater infrastructure.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$5,810,721	---	---	$5,810,721
Non-Federal Funds	---	---	$1,452,680	---	---	$1,452,680
Total Funds	**---**	**---**	**$7,263,401**	**---**	**---**	**$7,263,401**

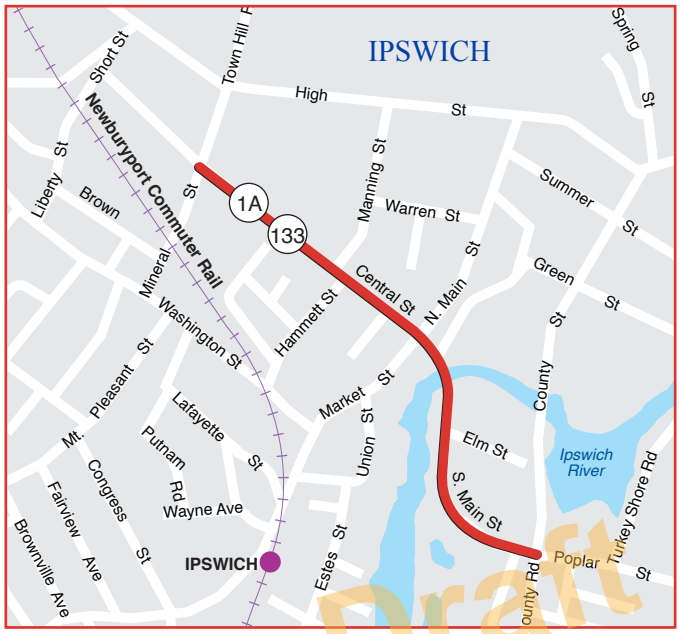
Ipswich: Resurfacing and Related Work on Central and South Main Streets

Proponent: Ipswich

ID Number: 605743

Project Type: Complete Streets

Cost: $2,939,052



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	11 out of 30	10 out of 29	10 out of 29	6 out of 16	2 out of 12	8 out of 18	47 out of 134

Project Description

In Ipswich, the project will reconstruct the roadway between Mineral Street and Poplar Street (3,200 feet) to improve the roadway surface. Minor geometric improvements at intersection and pedestrian crossings will be included. Sidewalks and wheelchair ramps will be improved in selected areas for ADA compliance. The drainage system is undersized and will be upgraded.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$2,351,242	---	$2,351,242
Non-Federal Funds	---	---	---	$587,810	---	$587,810
Total Funds	---	---	---	**$2,939,052**	---	**$2,939,052**

Littleton: Reconstruction of Foster Street

Proponent: Littleton

ID Number: 609054

Project Type: Complete Streets

Cost: $4,086,153

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	12 out of 30	3 out of 29	11 out of 29	5 out of 16	1 out of 12	6 out of 18	38 out of 134

Project Description

This project involves the improvement of pedestrian and bicycle travel along the corridor through the construction of a 10-foot shared-use bike path on the northwest side of Foster Street. This new facility will support planned future mixed-use residential and commercial development around the Littleton/495 MBTA commuter rail station. Additional safety improvements include new pedestrian beacons, grass buffers, pavement reclamation, and the widening of Foster Street.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$3,268,922	$3,268,922
Non-Federal Funds	---	---	---	---	$817,231	$817,231
Total Funds	---	---	---	---	**$4,086,153**	**$4,086,153**

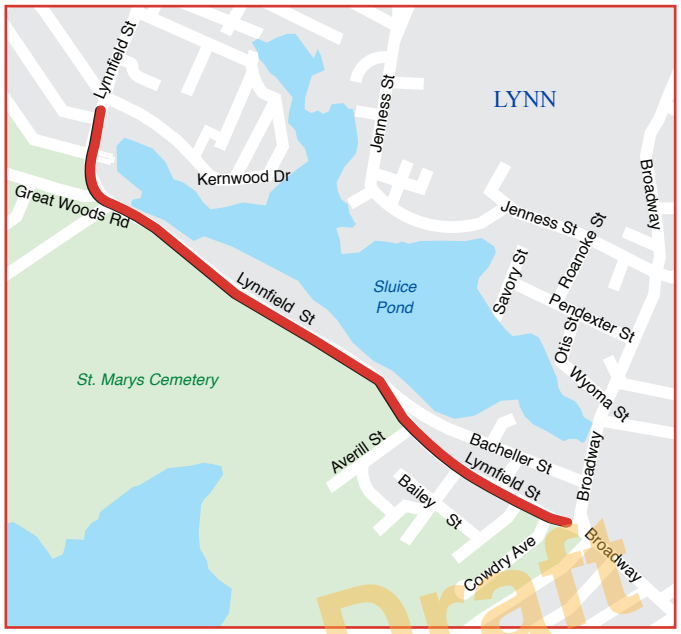
Lynn: Reconstruction on Route 129 (Lynnfield Street), from Great Woods Road to Wyoma Square

Proponent: Lynn

ID Number: 602077

Project Type: Complete Streets

Cost: $4,980,392



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	12 out of 30	9 out of 29	8 out of 29	4 out of 16	4 out of 12	4 out of 18	41 out of 134

Project Description

This roadway and safety improvement project on Route 129 in Lynn includes drainage improvements, curbing, new sidewalks, wheelchair ramps, intersection improvements, pavement markings, signing, landscaping, and other incidental work. The project limits are from Colonial Avenue to about 150 feet south of Floyd Avenue (between Floyd and Cowdrey Road) for a total of 0.72 miles.

Source	()FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$3,984,314	---	---	---	$3,984,314
Non-Federal Funds	---	$996,078	---	---	---	$996,078
Total Funds	---	**$4,980,392**	---	---	---	**$4,980,392**

Lynn: Rehabilitation of Essex Street

Proponent: Lynn

ID Number: 609252

Project Type: Complete Streets

Cost: $19,664,320

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	19 out of 30	17 out of 29	9 out of 29	8 out of 16	10 out of 12	3 out of 18	66 out of 134

Project Description

This project is focused on making key safety improvements for pedestrian and bicyclists. Existing sidewalks on Essex Street will be reconstructed to ADA/AAB standards and will be complemented by the addition of new on-street bicycle facilities. Pedestrian safety will be improved through the construction of curb bump-outs at intersections to reduce crosswalk length. In addition, operational improvements such as signal updates and pavement markings will be established to enhance safety.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$16,131,456	$16,131,456
Non-Federal Funds	---	---	---	---	$3,532,864	$3,532,864
Total Funds	---	---	---	---	**$19,664,320**	**$19,664,320**

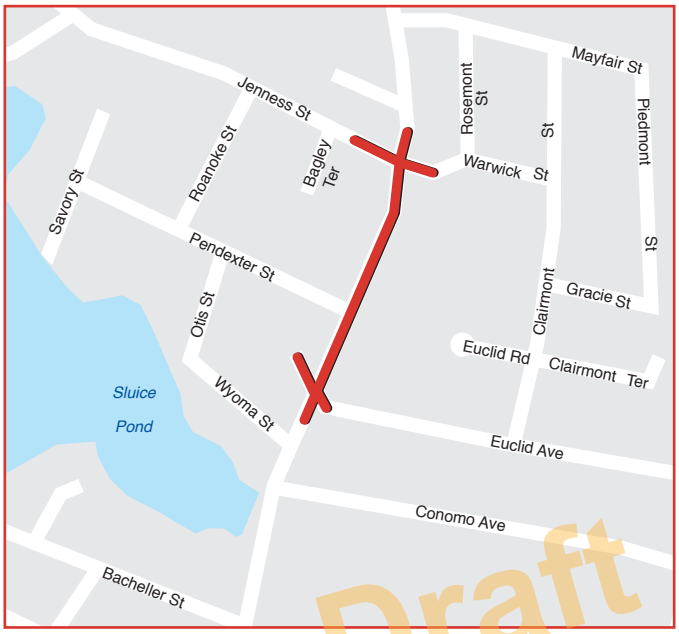
Lynn: Traffic and Safety Improvements at Two Locations on Broadway

Proponent: Lynn

ID Number: 609254

Project Type: Intersection Improvements

Cost: $6,809,548



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	13 out of 30	13 out of 29	7 out of 29	2 out of 16	1 out of 12	3 out of 18	39 out of 134

Project Description

This project involves multimodal safety and operational improvements at two locations on Broadway. Existing sidewalks will be reconstructed with the addition of on-street bicycle facilities close to connections to adjacent facilities. Operational improvements include traffic signal updates at Broadway's intersections with Euclid Avenue and Jenness and Warwick Streets. Drainage improvements and pavement reconstruction will also be incorporated to improve access to businesses and schools.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$6,128,593	$6,128,593
Non-Federal Funds	---	---	---	---	$680,955	$680,955
Total Funds	---	---	---	---	**$6,809,548**	**$6,809,548**

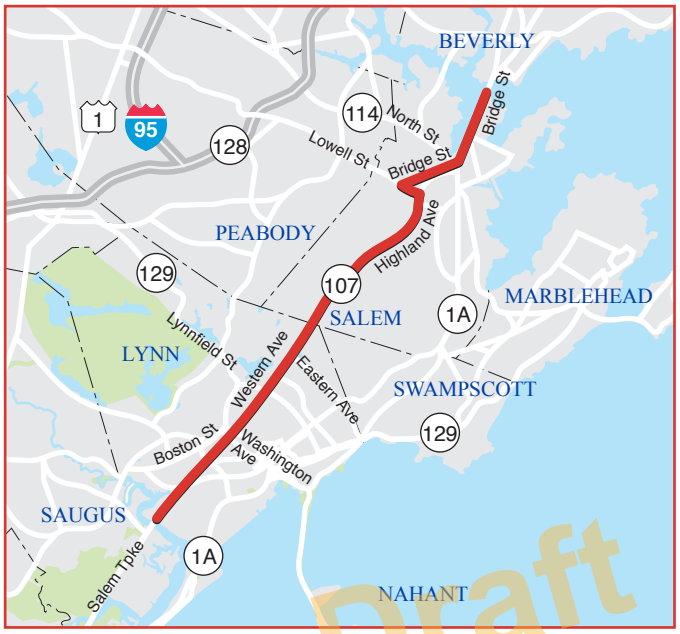
Lynn and Salem: Resurfacing and Related Work on Route 107

Proponent: MassDOT

ID Number: 608817

Project Type: Non-Interstate Pavement

Cost: $2,278,125



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Resurfacing and related work on Route 107

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$1,822,500	---	---	$1,822,500
Non-Federal Funds	---	---	$455,625	---	---	$455,625
Total Funds	**---**	**---**	**$2,278,125**	**---**	**---**	**$2,278,125**

Lynn and Saugus: Bridge Replacement, Route 107 over the Saugus River (a.k.a. Belden G. Bly Bridge)

Proponent: MassDOT

ID Number: 604952

Project Type: Bridge

Cost: $84,253,135

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

This project consists of the construction of the Route 107 (Fox Hill Bridge), which spans the Saugus River. The new bridge will serve as the permanent replacement for the proposed temporary drawbridge. The new bridge (a.k.a. Belden G. Bly Bridge) will be a single leaf bascule drawbridge. This project is funded over five years (FFYs 2019-23) for a total cost of $84,253,135.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$11,755,297	$10,375,831	$17,845,656	$14,727,781	---	$54,704,565
Non-Federal Funds	$2,938,824	$2,593,958	$4,461,414	$3,681,945	---	$13,676,141
Total Funds	**$14,694,121**	**$12,969,789**	**$22,307,071**	**$18,409,727**	**---**	**$68,380,708**

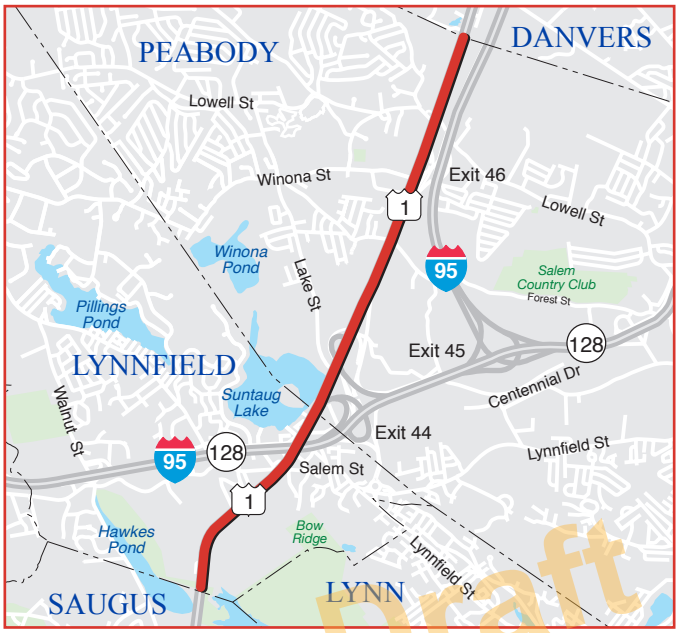
Lynnfield and Peabody: Resurfacing and Related Work on Route 1

Proponent: MassDOT

ID Number: 607477

Project Type: Non-Interstate Pavement

Cost: $7,721,542



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project will resurface 2.7 miles of Route 1 in Lynnfield and Peabody from milepoint 58.8 to 61.5.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$6,177,234	---	---	---	$6,177,234
Non-Federal Funds	---	$1,544,308	---	---	---	$1,544,308
Total Funds	---	**$7,721,542**	---	---	---	**$7,721,542**

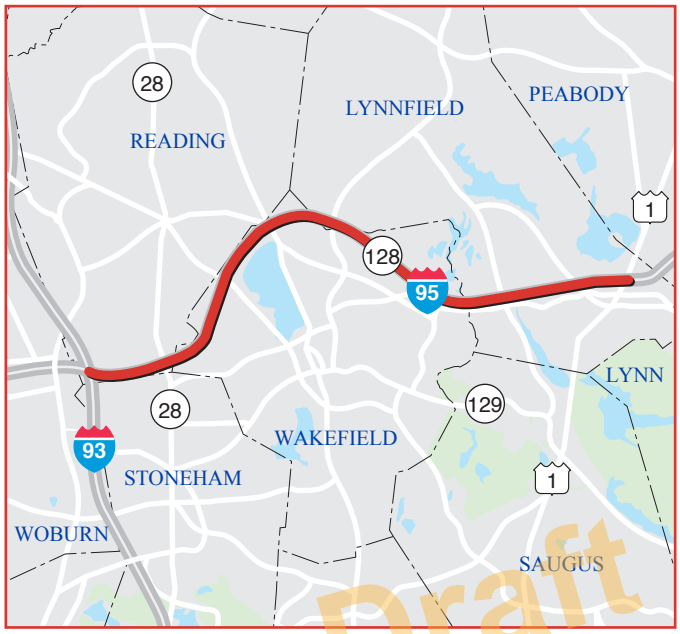
Lynnfield, Reading and Wakefield: Guide and Traffic Sign Replacement on a Section of Interstate 95

Proponent: MassDOT

ID Number: 608205

Project Type: Safety Improvements

Cost: $4,500,000



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

This project consists of replacing guide and traffic signs, and supports, on Interstate 95 (Route 128) between Route 28 (Exit 38) in Reading and Route 1 (Exit 44) in Lynnfield, including applicable signs on intersecting secondary roads. To ensure driver safety, new signs and supports will meet current retro-reflectivity and design standards.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$4,050,000	---	---	---	---	$4,050,000
Non-Federal Funds	$450,000	---	---	---	---	$450,000
Total Funds	**$4,500,000**	**---**	**---**	**---**	**---**	**$4,500,000**

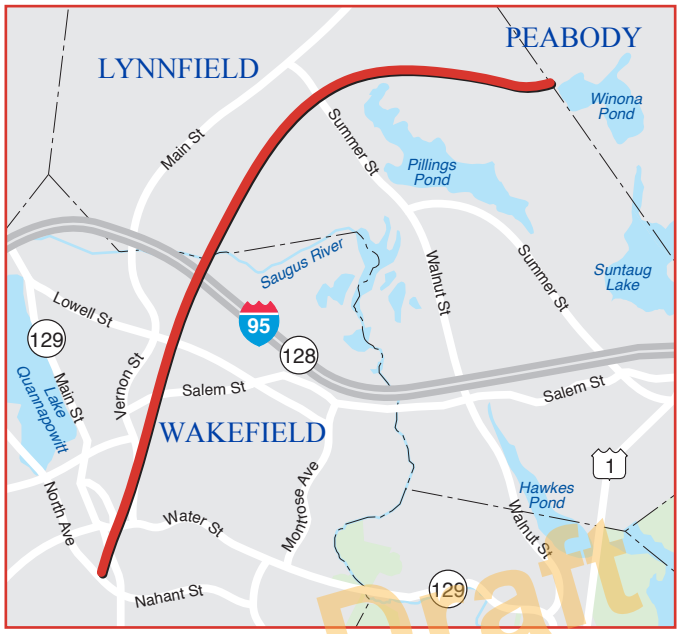
Lynnfield and Wakefield: Rail Trail Extension, from the Galvin Middle School to Lynnfield/Peabody Town Line

Proponent: Lynnfield, Wakefield

ID Number: 607329

Project Type: Bicycle and Pedestrian

Cost: $11,080,749



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The proposed Wakefield/Lynnfield Rail Trail extends from the Galvin Middle School in Wakefield north to the Lynnfield/Peabody town line, a distance of approximately 4.4 miles. Approximately 1.9 miles of the trail is located within Wakefield and 2.5 miles in Lynnfield. The corridor is the southern section of the former Newburyport Railroad and will connect to Peabody and the regional Border to Boston Trail.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$8,864,599	$8,864,599
Non-Federal Funds	---	---	---	---	$2,216,150	$2,216,150
Total Funds	**---**	**---**	**---**	**---**	**$11,080,749**	**$11,080,749**

Malden: Lighting and Sidewalk Improvements on Exchange Street

Proponent: MassDOT

ID Number: 608275

Project Type: Complete Streets

Cost: $1,988,532

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	10 out of 30	10 out of 29	12 out of 29	5 out of 16	10 out of 12	12 out of 18	59 out of 134

Project Description

The project will replace street lighting along Exchange Street from Abbott Street to just east of Middlesex Street. The project will provide new LED street lights to improve access and amenities in the Downtown Malden Business District. Sidewalks and ramps will be reconstructed in the area.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$1,590,826	---	---	---	---	$1,590,826
Non-Federal Funds	$397,706	---	---	---	---	$397,706
Total Funds	**$1,988,532**	**---**	**---**	**---**	**---**	**$1,988,532**

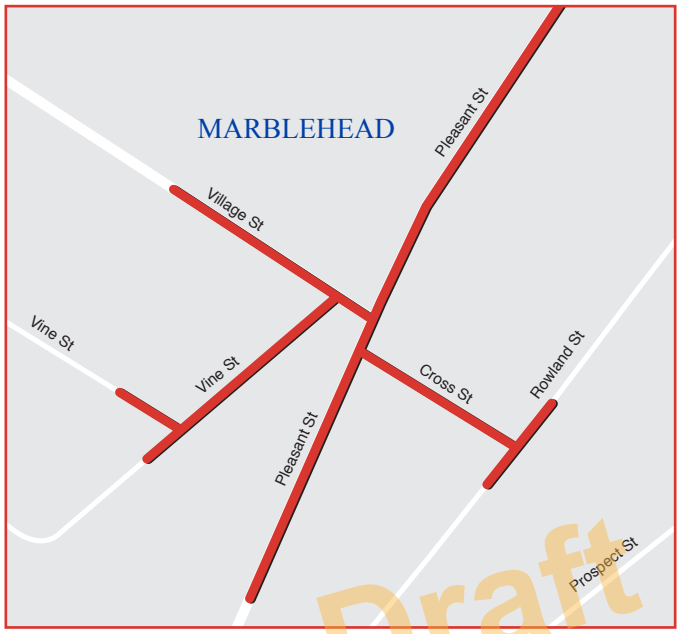
Marblehead: Intersection Improvements to Pleasant Street at Village, Vine, and Cross Streets

Proponent: Marblehead

ID Number: 608146

Project Type: Intersection Improvements

Cost: $786,568



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	8 out of 30	10 out of 29	9 out of 29	3 out of 16	1 out of 12	9 out of 18	40 out of 134

Project Description

The intersection improvements will include realignment of Vine Street to form a T intersection; narrowing and realigning Pleasant Street to minimize crossing distance; the installation of new sidewalks and signs; enhanced lighting; modest drainage modifications; ADA/AAB crossing enhancements; and shared bicycle accommodations. The project area is approximately 800 linear feet: 400 linear feet on Pleasant Street (200 feet east and west of the intersection), 150 linear feet on Village Street, 150 linear feet on Vine Street, and 100 linear feet on Cross Street. Drainage and utility adjustments will be made as needed to accommodate the proposed intersection channelization modifications.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$629,254	---	---	---	$629,254
Non-Federal Funds	---	$157,314	---	---	---	$157,314
Total Funds	**---**	**$786,568**	**---**	**---**	**---**	**$786,568**

Marlborough: Improvements at Route 20 (East Main Street) at Curtis Avenue

Proponent: MassDOT

ID Number: 608566

Project Type: Intersection Improvements

Cost: $2,688,000

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Improvements at Route 20 (East Main Street) at Curtis Avenue

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$2,419,200	---	$2,419,200
Non-Federal Funds	---	---	---	$268,800	---	$268,800
Total Funds	**---**	**---**	**---**	**$2,688,000**	**---**	**$2,688,000**

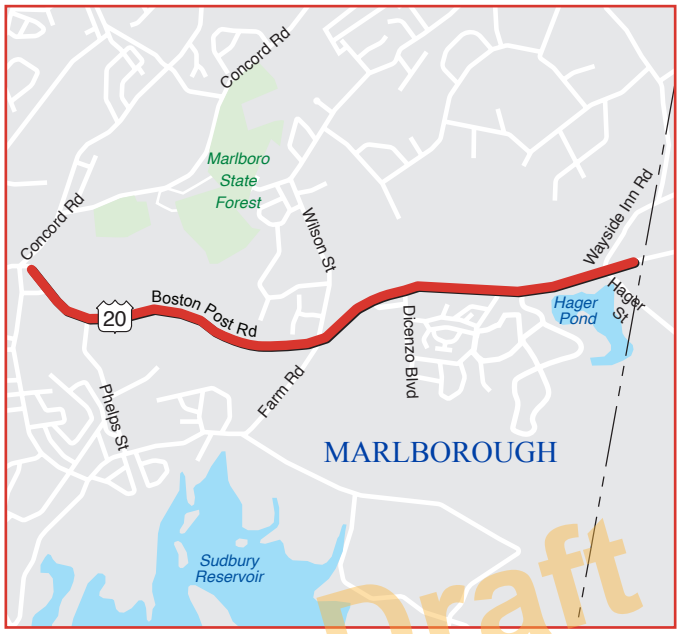
Marlborough and Sudbury: Resurfacing on Route 20 in Sudbury and Marlborough

Proponent: MassDOT

ID Number: 608467

Project Type: Non-Interstate Pavement

Cost: $14,358,240



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project consists of resurfacing on Route 20 in Sudbury and Marlborough.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$11,486,592	---	---	---	$11,486,592
Non-Federal Funds	---	$2,871,648	---	---	---	$2,871,648
Total Funds	**---**	**$14,358,240**	**---**	**---**	**---**	**$14,358,240**

Maynard: Bridge Replacement, M-10-006, Florida Road over Assabet River

Proponent: MassDOT

ID Number: 608637

Project Type: Bridge

Cost: $1,646,400

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project will replace the bridge that carries Florida Road over the Assabet River in Maynard.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$1,317,120	---	---	---	$1,317,120
Non-Federal Funds	---	$329,280	---	---	---	$329,280
Total Funds	**---**	**$1,646,400**	**---**	**---**	**---**	**$1,646,400**

Medford: Safe Routes to School Improvements at Brooks Elementary

Proponent: Medford

ID Number: 608835

Project Type: Roadway Reconstruction

Cost: $989,895

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Safe Routes to School improvements at Brooks Elementary

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$791,916	---	---	---	---	$791,916
Non-Federal Funds	$197,979	---	---	---	---	$197,979
Total Funds	**$989,895**	**---**	**---**	**---**	**---**	**$989,895**

Middleton: Bridge Replacement, M-20-003, Route 62 (Maple Street) over Ipswich River

Proponent: MassDOT

ID Number: 608522

Project Type: Bridge

Cost: $4,073,920

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project will replace the bridge that carries Route 62 (Maple Street) over the Ipswich River in Middleton.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$3,259,136	$3,259,136
Non-Federal Funds	---	---	---	---	$814,784	$814,784
Total Funds	---	---	---	---	**$4,073,920**	**$4,073,920**

Milford: Rehabilitation on Route 16, from Route 109 to Beaver Street

Proponent: Milford

ID Number: 608045

Project Type: Complete Streets

Cost: $3,132,000

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	20 out of 30	7 out of 29	9 out of 29	-1 out of 16	3 out of 12	5 out of 18	43 out of 134

Project Description

This project supports enhanced vehicular safety and traffic flow through the implementation of a road diet, additional roadway reconstruction, and enhanced signalization on the Route 16 (East Main Street) corridor from Route 109 (Medway Road) to Beaver Street. In addition, the project also addresses pedestrian and bicyclist safety through the addition of pavement markings for shared-use bike lanes and the construction of new 6-foot sidewalks along both sides of the roadway.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$2,605,600	$2,605,600
Non-Federal Funds	---	---	---	---	$526,400	$526,400
Total Funds	**---**	**---**	**---**	**---**	**$3,132,000**	**$3,132,000**

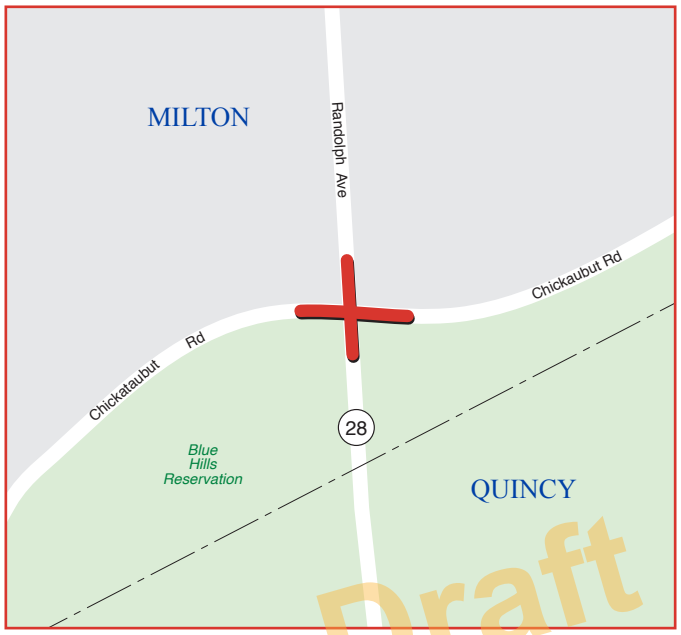
Milton: Intersection and Signal Improvements at Route 28 (Randolph Avenue) and Chickatawbut Road

Proponent: MassDOT

ID Number: 607342

Project Type: Intersection Improvements

Cost: $1,478,849



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

This intersection ranked second in the 2008-10 Statewide Top 200 Intersection Crash List. This project addresses the high number and severity of crashes that occur at this intersection.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$1,330,964	---	---	---	$1,330,964
Non-Federal Funds	---	$147,885	---	---	---	$147,885
Total Funds	**---**	**$1,478,849**	**---**	**---**	**---**	**$1,478,849**

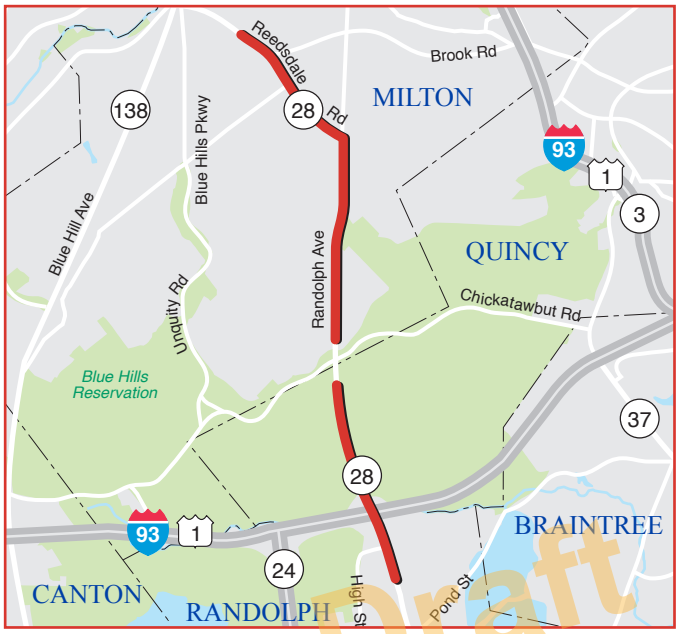
Milton and Quincy: Randolph - Milton - Resurfacing and Related Work on Route 28

Proponent: MassDOT

ID Number: 609396

Project Type: Non-Interstate Pavement

Cost: $7,407,946



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Resurfacing and related work on Route 28

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$5,926,357	$5,926,357
Non-Federal Funds	---	---	---	---	$1,481,589	$1,481,589
Total Funds	**---**	**---**	**---**	**---**	**$7,407,946**	**$7,407,946**

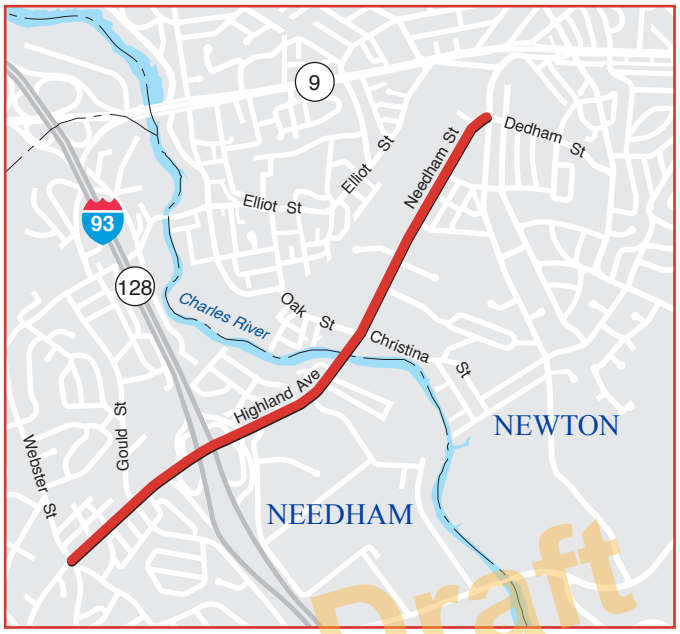
Needham and Newton: Reconstruction of Highland Avenue, Needham Street and Charles River Bridge, from Webster Street to Route 9

Proponent: Needham and Newton

ID Number: 606635

Project Type: Major Infrastructure

Cost: $17,405,937



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	18 out of 30	16 out of 29	14 out of 29	13 out of 16	3 out of 12	13 out of 18	77 out of 134

Project Description

This project replaces project numbers 601827 and 604344. The project will reconstruct Highland Avenue, from Webster Street in Needham to Needham Street in Newton. The project also includes the rehabilitation of the Charles River Bridge (N-04-002 replacing project numbers 601827 and 604344). Work will consist of reconstruction on Highland Avenue starting at Webster Street in Needham and continue onto Needham Street and in Newton. This project also includes the rehabilitation of the bridge, N-04-002.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$14,374,750	---	---	---	---	$14,374,750
Non-Federal Funds	$3,031,187	---	---	---	---	$3,031,187
Total Funds	**$17,405,937**	**---**	**---**	**---**	**---**	**$17,405,937**

Newton: Bridge Maintenance, N-12-055, Clean and Paint Structural Steel

Proponent: MassDOT

ID Number: 608610

Project Type: Bridge

Cost: $2,304,000

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The work consists of cleaning and painting of structural steel on bridge N-12-055 in Newton.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$1,843,200	---	---	---	$1,843,200
Non-Federal Funds	---	$460,800	---	---	---	$460,800
Total Funds	**---**	**$2,304,000**	**---**	**---**	**---**	**$2,304,000**

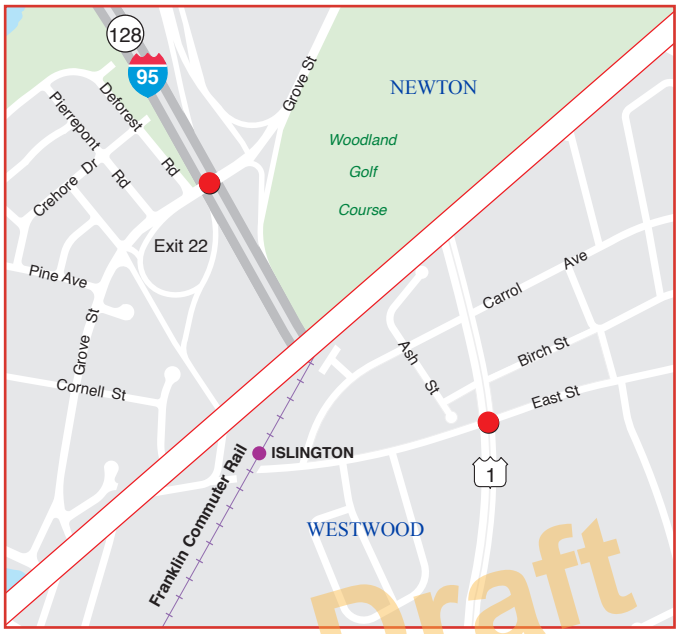
Newton and Westwood: Bridge Maintenance, N-12-0056 and W-31-006, Clean and Paint Structural Steel

Proponent: MassDOT

ID Number: 608609

Project Type: Bridge

Cost: $2,142,857



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The work consists of cleaning and painting of structural steel on bridges N-12-0056 and W-31-006 in Newton and Westwood.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$1,714,285	---	$1,714,285
Non-Federal Funds	---	---	---	$428,571	---	$428,571
Total Funds	**---**	**---**	**---**	**$2,142,857**	**---**	**$2,142,857**

Newton and Westwood: Steel Superstructure Cleaning (Full Removal) and Painting of Two Bridges: N-12-056 and W-31-006

Proponent: MassDOT

ID Number: 608866

Project Type: Bridge

Cost: $2,349,900

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Steel superstructure cleaning (full removal) and painting of two bridges: N-12-056 and W-31-006

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$1,879,920	---	---	$1,879,920
Non-Federal Funds	---	---	$469,980	---	---	$469,980
Total Funds	**---**	**---**	**$2,349,900**	**---**	**---**	**$2,349,900**

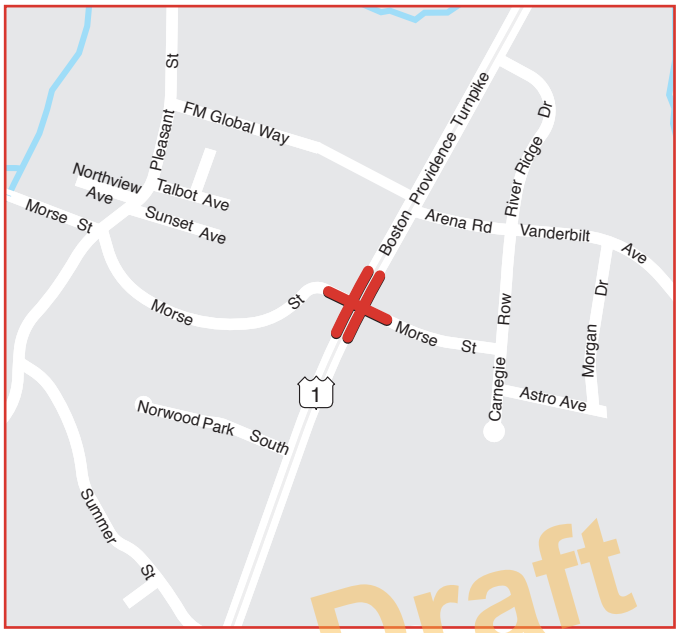
Norwood: Intersection and Traffic Signal Improvements at Providence Highway (Route 1) and Morse Street

Proponent: Norwood

ID Number: 608052

Project Type: Intersection Improvements

Cost: $1,668,001



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project will improve the intersection and signals at US Route 1 (Providence Highway) and Morse Street.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$1,501,201	---	$1,501,201
Non-Federal Funds	---	---	---	$166,800	---	$166,800
Total Funds	**---**	**---**	**---**	**$1,668,001**	**---**	**$1,668,001**

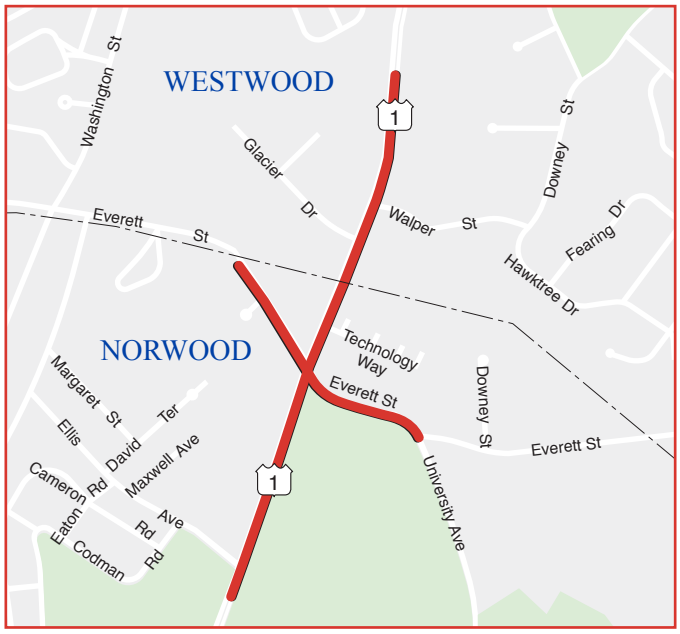
Norwood: Intersection Improvements at Route 1 and University Avenue/Everett Street

Proponent: Norwood

ID Number: 605857

Project Type: Intersection Improvements

Cost: $10,166,526



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	11 out of 30	12 out of 29	15 out of 29	11 out of 16	2 out of 12	4 out of 18	55 out of 134

Project Description

This project includes traffic signal upgrades and associated geometric improvements at the intersection of Route 1 with University Avenue and Everett Street. Related improvements include constructing an additional travel lane in each direction on Route 1, upgrading of traffic signals, lengthening of left-turn lanes on Route 1, upgrading of pedestrian crossings at each leg of the intersection, and upgrading of bicycle amenities (loop detectors) at the intersection. Rehabilitation of sidewalks, curbing, median structures, lighting, and guard rails are also proposed.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$8,196,393	---	---	$8,196,393
Non-Federal Funds	---	---	$1,970,133	---	---	$1,970,133
Total Funds	**---**	**---**	**$10,166,526**	**---**	**---**	**$10,166,526**

Norwood: Intersection Improvements at Route 1A and Upland Road/Washington Street and Prospect Street/Fulton Street

Proponent: Norwood

ID Number: 606130

Project Type: Intersection Improvements

Cost: $4,028,045

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	13 out of 30	7 out of 29	14 out of 29	3 out of 16	3 out of 12	7 out of 18	47 out of 134

Project Description

This project involves intersection improvements at two locations on Route 1A through the installation of traffic and pedestrian signals to support vehicle flow and roadway safety. In addition, Washington Street and Upland Road will be widened to accommodate turning lanes and existing sidewalks will be reconstructed to meet ADA/AAB standards with upgraded pavement markings.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$3,222,436	---	---	---	$3,222,436
Non-Federal Funds	---	$805,609	---	---	---	$805,609
Total Funds	**---**	**$4,028,045**	**---**	**---**	**---**	**$4,028,045**

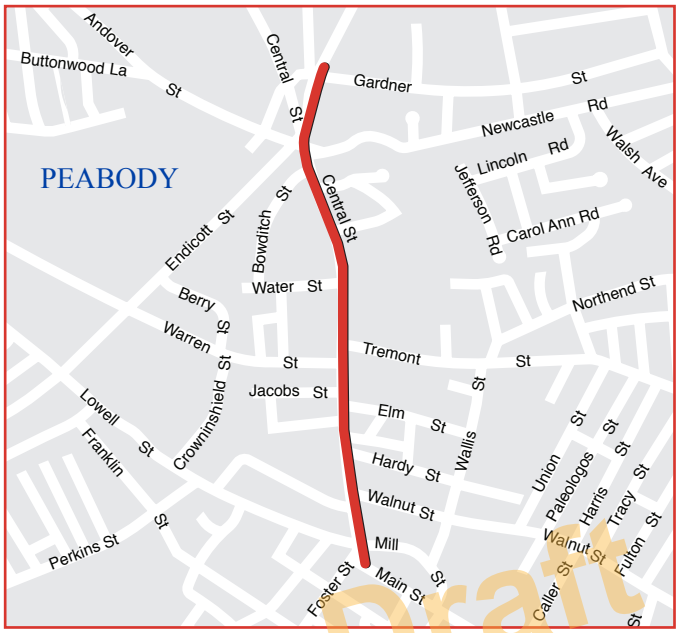
Peabody: Central Street Corridor and Intersection Improvements

Proponent: Peabody

ID Number: 608933

Project Type: Complete Streets

Cost: $10,819,200



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	21 out of 30	17 out of 29	9 out of 29	3 out of 16	7 out of 12	4 out of 18	61 out of 134

Project Description

Given the condition of the existing pavement based on a visual inspection, as well as the number of utility trenches that have exhibited signs of differential settlement, the project is currently proposed to reconstruct the pavement via full depth pavement reclamation. The project will also include the reconstruction of cement concrete sidewalks and crossings with curb extensions and new granite curbing, addition of dedicated bicycle accommodations (bike lane and/or sharrows), installation of new signage and pavement markings, streetscape enhancements and amenities, and drainage system improvements corridor-wide. For the reconstructed intersections noted, new signal equipment will be provided at all locations. All signal equipment proposed will be NEMA TS2 Type 1, with countdown pedestrian heads, vibrotactile pedestrian push buttons with audible speech messages, optical emergency vehicles preemption, and video vehicle detection.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$8,805,360	---	$8,805,360
Non-Federal Funds	---	---	---	$2,013,840	---	$2,013,840
Total Funds	**---**	**---**	**---**	**$10,819,200**	**---**	**$10,819,200**

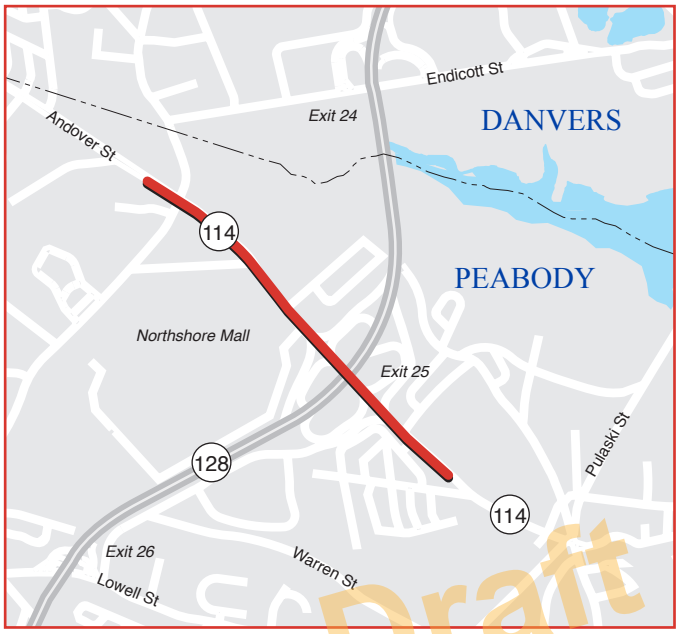
Peabody: Improvements at Route 114 at Sylvan Street, Cross Street, Northshore Mall, Loris Road, Route 128 Interchange, and Esquire Drive

Proponent: MassDOT

ID Number: 608567

Project Type: Intersection Improvements

Cost: $1,815,480



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Improvements at Route 114 at Sylvan Street, Cross Street, Northshore Mall, Loris Road, Route 128 Interchange, and Esquire Drive.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$1,633,932	---	---	$1,633,932
Non-Federal Funds	---	---	$181,548	---	---	$181,548
Total Funds	---	---	**$1,815,480**	---	---	**$1,815,480**

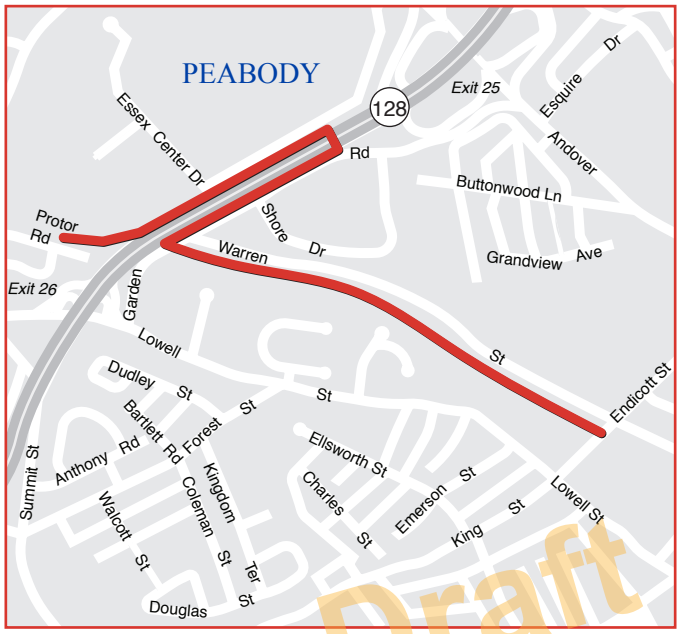
Peabody: Independence Greenway Extension

Proponent: MassDOT

ID Number: 609211

Project Type: Bicycle and Pedestrian

Cost: $2,228,447



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	9 out of 30	4 out of 29	9 out of 29	4 out of 16	4 out of 12	4 out of 18	34 out of 134

Project Description

This project will extend the Independence Greenway 1.3 miles east from its present terminus at the North Shore Mall to the intersection of the Warren Street Extension and Endicott Street in central Peabody. When complete, the project will bring the greenway's total length to 8 miles. This project makes use of an existing rail corridor as it runs parallel to Lowell Street.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$1,782,758	$1,782,758
Non-Federal Funds	---	---	---	---	$445,689	$445,689
Total Funds	**---**	**---**	**---**	**---**	**$2,228,447**	**$2,228,447**

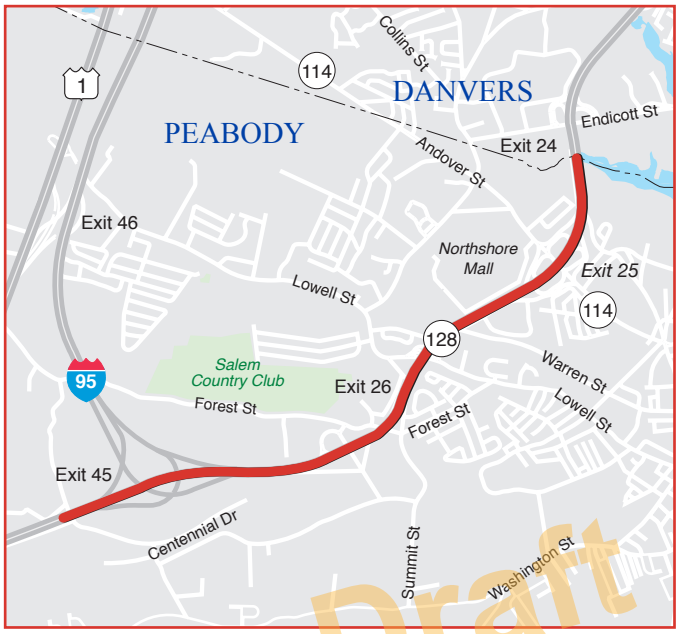
Peabody: Pavement Preservation and Related Work on Route 128

Proponent: MassDOT

ID Number: 609101

Project Type: Non-Interstate Pavement

Cost: $5,025,000



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Pavement preservation and related work on Route 128

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$4,020,000	---	---	---	---	$4,020,000
Non-Federal Funds	$1,005,000	---	---	---	---	$1,005,000
Total Funds	**$5,025,000**	**---**	**---**	**---**	**---**	**$5,025,000**

Quincy: Intersection Improvements at Route 3A (Southern Artery) and Broad Street

Proponent: MassDOT

ID Number: 608569

Project Type: Intersection Improvements

Cost: $3,132,000

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Intersection improvements at Route 3A (Southern Artery) and Broad Street

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$2,818,800	---	---	$2,818,800
Non-Federal Funds	---	---	$313,200	---	---	$313,200
Total Funds	**---**	**---**	**$3,132,000**	**---**	**---**	**$3,132,000**

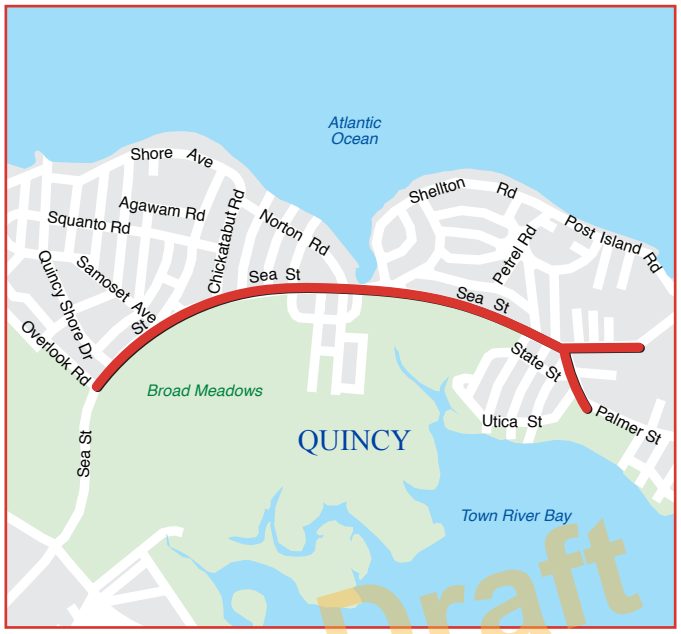
Quincy: Reconstruction of Sea Street

Proponent: MassDOT

ID Number: 608707

Project Type: Complete Streets

Cost: $6,292,937



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	10 out of 30	16 out of 29	7 out of 29	4 out of 16	2 out of 12	1 out of 18	40 out of 134

Project Description

This project involves traffic and safety improvements for all users along Sea Street through the reconstruction of sidewalks with ADA-compliant ramps, the provision of bicycle accommodations, and the construction of median islands. Geometric modifications of the roadway and upgraded traffic signal systems will also be established to enhance safety.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$5,034,350	---	$5,034,350
Non-Federal Funds	---	---	---	$1,258,587	---	$1,258,587
Total Funds	**---**	**---**	**---**	**$6,292,937**	**---**	**$6,292,937**

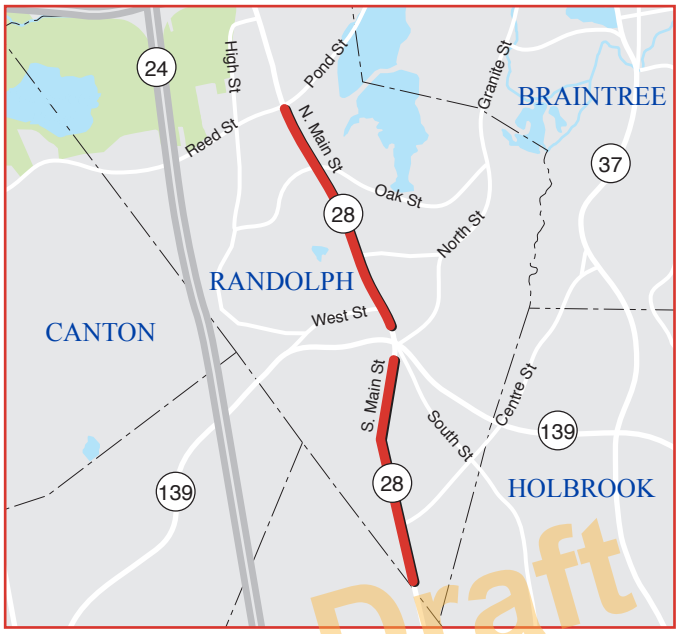
Randolph: Resurfacing and Related Work on Route 28

Proponent: MassDOT

ID Number: 609399

Project Type: Non-Interstate Pavement

Cost: $7,407,946



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

This project involves the resurfacing of 13.2 lane miles of Route 28 in Randolph. The project includes two sections of Route 28, from mile marker 105.8 to 107.4 and from mile marker 107.6 to 109.3.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$5,926,357	$5,926,357
Non-Federal Funds	---	---	---	---	$1,481,589	$1,481,589
Total Funds	---	---	---	---	**$7,407,946**	**$7,407,946**

Randolph and Milton: Resurfacing and Related Work on Route 28

Proponent: MassDOT

ID Number: 609396

Project Type: Non-Interstate Pavement

Cost: $7,407,946

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

This project involves the resurfacing of 13.2 lane miles of Route 28 in Randolph and Milton. The project includes two sections of Route 28, from mile marker 110.0 to 111.6 and from mile marker 111.7 to 114.0.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$5,926,357	$5,926,357
Non-Federal Funds	---	---	---	---	$1,481,589	$1,481,589
Total Funds	**---**	**---**	**---**	**---**	**$7,407,946**	**$7,407,946**

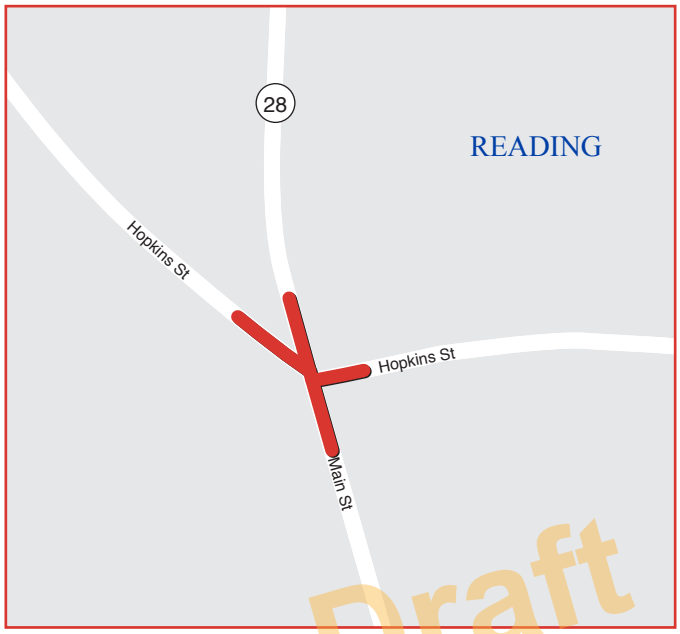
Reading: Intersection Signalization at Route 28 and Hopkins Street

Proponent: Reading

ID Number: 607305

Project Type: Intersection Improvements

Cost: $1,750,419



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	10 out of 30	12 out of 29	5 out of 29	2 out of 16	2 out of 12	7 out of 18	55 out of 13438

Project Description

The project will install traffic control signals at this high crash location and interconnect the new signals with the existing signals at Main Street and Summer Street and at Main Street and South Street. The project will also include construction of AAB/ADA compliant sidewalks and wheelchair ramps and geometric improvements.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$1,475,377	---	---	---	$1,475,377
Non-Federal Funds	---	$275,042	---	---	---	$275,042
Total Funds	**---**	**$1,750,419**	**---**	**---**	**---**	**$1,750,419**

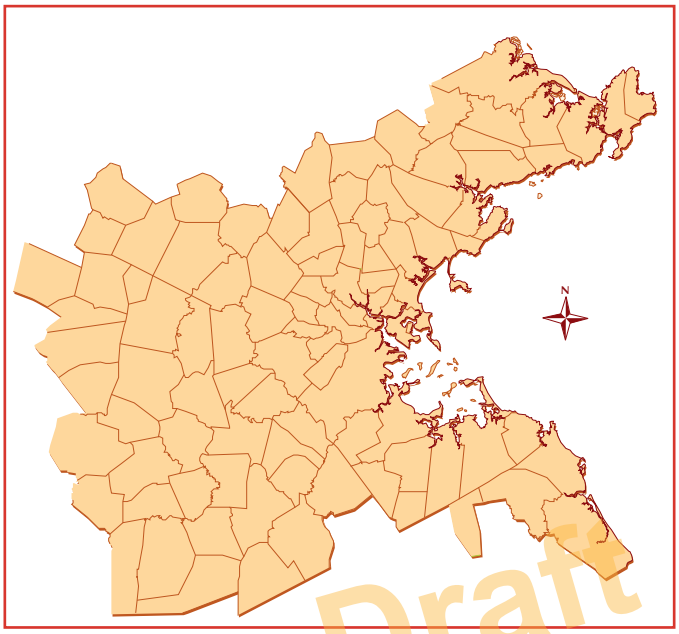
Regional: Community Transportation Program

Proponent: Regional

ID Number: BN0009

Project Type: Community Transportation

Cost: $8,000,000



Scoring Summary

This program is being funded using Regional Target funds, but was not evaluated with the MPO's TIP scoring criteria because specific projects will be evaluated for funding at a later date.

Project Description

Community Transportation Program projects will be identified by the MPO through a competitive process.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$1,600,000	$1,600,000	$1,600,000	$1,600,000	$6,400,000
Non-Federal Funds	---	$400,000	$400,000	$400,000	$400,000	$1,600,000
Total Funds	**---**	**$2,000,000**	**$2,000,000**	**$2,000,000**	**$2,000,000**	**$8,000,000**

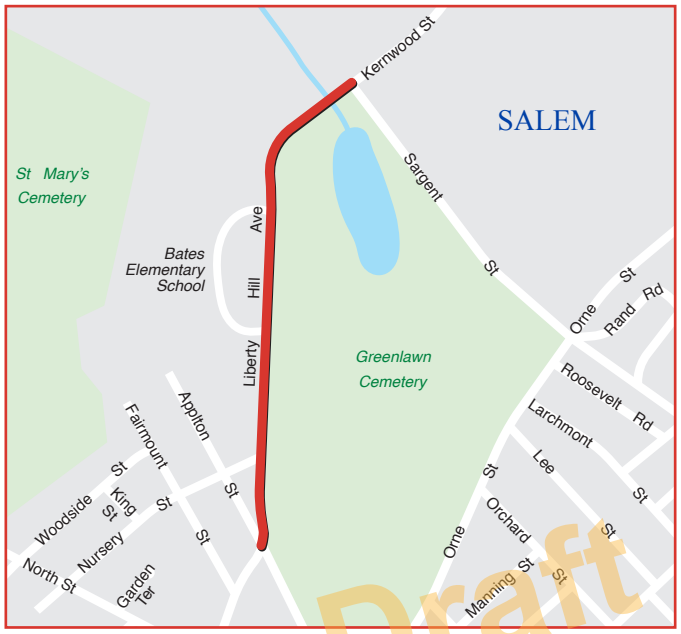
Salem: Safe Routes to School Improvements at Bates Elementary School

Proponent: MassDOT

ID Number: 608743

Project Type: Roadway Reconstruction

Cost: $384,658



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Safe Routes to School improvements at Bates Elementary School

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$307,726	---	---	---	---	$307,726
Non-Federal Funds	$76,932	---	---	---	---	$76,932
Total Funds	**$384,658**	**---**	**---**	**---**	**---**	**$384,658**

Sharon: Bridge Replacement, Maskwonicut Street over Amtrak/MBTA

Proponent: Sharon

ID Number: 608079

Project Type: Bridge

Cost: $5,755,240

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

This project will replace the bridge that carrries Maskwonicut Street over the Amtrak and MBTA tracks. The bridge is currently closed due to deterioration.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$4,604,192	---	---	---	$4,604,192
Non-Federal Funds	---	$1,151,048	---	---	---	$1,151,048
Total Funds	**---**	**$5,755,240**	**---**	**---**	**---**	**$5,755,240**

Somerville: Signal and Intersection Improvements on Interstate 93 at Mystic Avenue and McGrath Highway (Top 200 Crash Location)

Proponent: MassDOT

ID Number: 608562

Project Type: Intersection Improvements

Cost: $5,181,613

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project includes traffic signal upgrades and safety improvements at the following locations: Mystic Avenue northbound and Route 28 (Fellsway); Route 38 (Mystic Avenue) southbound and Route 28 (McGrath Highway) southbound; Route 38 (Mystic Avenue) southbound and Route 28 (McGrath Highway) northbound; and Route 38 (Mystic Avenue) southbound at Wheatland Street.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$4,663,452	---	---	---	$4,663,452
Non-Federal Funds	---	$518,161	---	---	---	$518,161
Total Funds	**---**	**$5,181,613**	**---**	**---**	**---**	**$5,181,613**

Stow: Bridge Replacement, S-29-001, Route 62 (Gleasondale Road) over the Assabet River

Proponent: MassDOT

ID Number: 605342

Project Type: Bridge

Cost: $6,706,560

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project will replace bridge S-29-001, which carries Route 62 (Gleasondale Road) over the Assabet River.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$5,365,248	---	---	---	---	$5,365,248
Non-Federal Funds	$1,341,312	---	---	---	---	$1,341,312
Total Funds	**$6,706,560**	**---**	**---**	**---**	**---**	**$6,706,560**

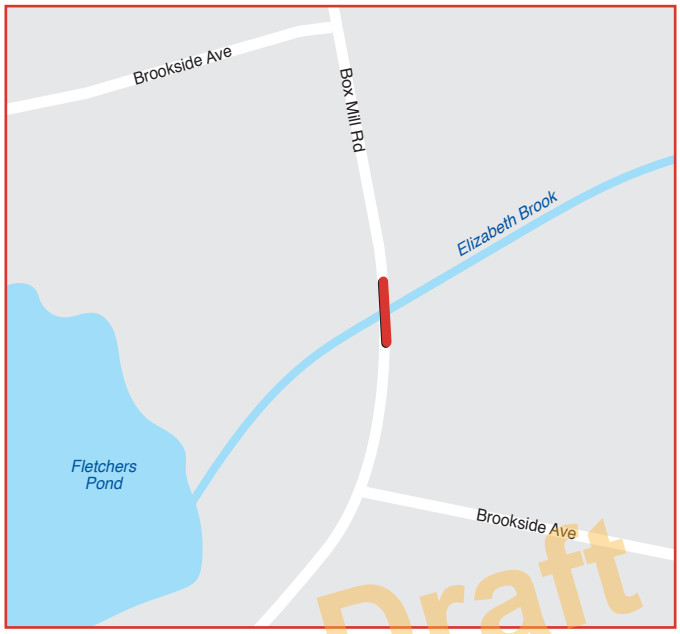
Stow: Bridge Replacement, S-29-11, Box Mill Road Over Elizabeth Brook

Proponent: MassDOT

ID Number: 608255

Project Type: Bridge

Cost: $3,612,223



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Bridge S-29-11, which carries Box Mill Road over Elizabeth Brook, is a structurally deficient bridge. The full replacement will include new substructure, steel beams, and concrete deck. One sidewalk will be added to the structure.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$2,889,779	---	---	$2,889,779
Non-Federal Funds	---	---	$722,445	---	---	$722,445
Total Funds	**---**	**---**	**$3,612,223**	**---**	**---**	**$3,612,223**

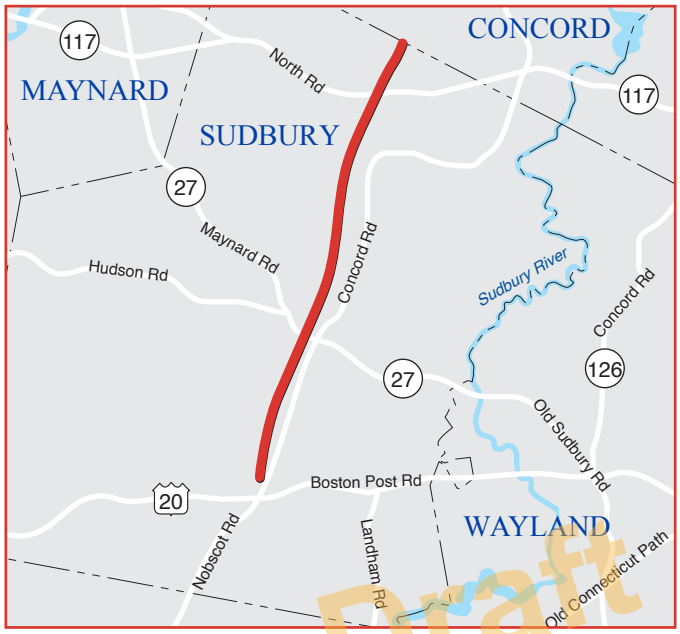
Sudbury: Bruce Freeman Rail Trail, Phase 2D

Proponent: Sudbury

ID Number: 608164

Project Type: Bicycle and Pedestrian

Cost: $9,334,137



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	7 out of 30	3 out of 29	16 out of 29	9 out of 16	1 out of 12	4 out of 18	40 out of 134

Project Description

The proposed project involves construction of a 4.6 mile trail in Sudbury, from the Concord town line to Station Road. The proposed work includes improvements to two structures and upgrades to several at-grade crossings, including Route 117 (North Road), Pantry Road, and Route 27 (Hudson Road). Related work includes pavement markings, installation of guardrails, and landscaping.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$7,467,310	---	---	$7,467,310
Non-Federal Funds	---	---	$1,866,827	---	---	$1,866,827
Total Funds	**---**	**---**	**$9,334,137**	**---**	**---**	**$9,334,137**

Swampscott: Intersection and Signal Improvements at Route 1A (Paradise Road) at Swampscott Mall

Proponent: Swampscott

ID Number: 607761

Project Type: Intersection Improvements

Cost: $1,157,036

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

The project will make safety upgrades to the intersection of Route 1A (Paradise Road) at Swampscott Mall. The upgrades will include signs, pavement markings, and traffic signals as identified through a Road Safety Audit process.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$1,041,333	---	---	---	$1,041,333
Non-Federal Funds	---	$115,704	---	---	---	$115,704
Total Funds	**---**	**$1,157,036**	**---**	**---**	**---**	**$1,157,036**

Walpole: Reconstruction on Route 1A (Main Street), from the Norwood Town Line to Route 27

Proponent: Walpole

ID Number: 602261

Project Type: Complete Streets

Cost: $19,906,002

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	13 out of 30	11 out of 29	10 out of 29	6 out of 16	3 out of 12	9 out of 18	52 out of 134

Project Description

The proposed project consists of reconstructing 8,000 feet of Route 1A and includes improvements to the intersection and approaches at Fisher, Gould, North, Bullard/Willet Streets, and the Stop and Shop Plaza. The Route 1A bridge over the Neponset River, near the intersection with North Street, will be analyzed to determine if it can be rehabilitated or if it requires replacement. The limits of work are from approximately 2,000 feet north of Route 27 north to the Norwood town line.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	$15,924,802	---	---	---	---	$15,924,802
Non-Federal Funds	$3,981,200	---	---	---	---	$3,981,200
Total Funds	**$19,906,002**	**---**	**---**	**---**	**---**	**$19,906,002**

Watertown: Intersection Improvements at Route 16 and Galen Street

Proponent: MassDOT

ID Number: 608564

Project Type: Intersection Improvements

Cost: $2,688,000

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Intersection improvements at Route 16 and Galen Street

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$2,419,200	---	$2,419,200
Non-Federal Funds	---	---	---	$268,800	---	$268,800
Total Funds	**---**	**---**	**---**	**$2,688,000**	**---**	**$2,688,000**

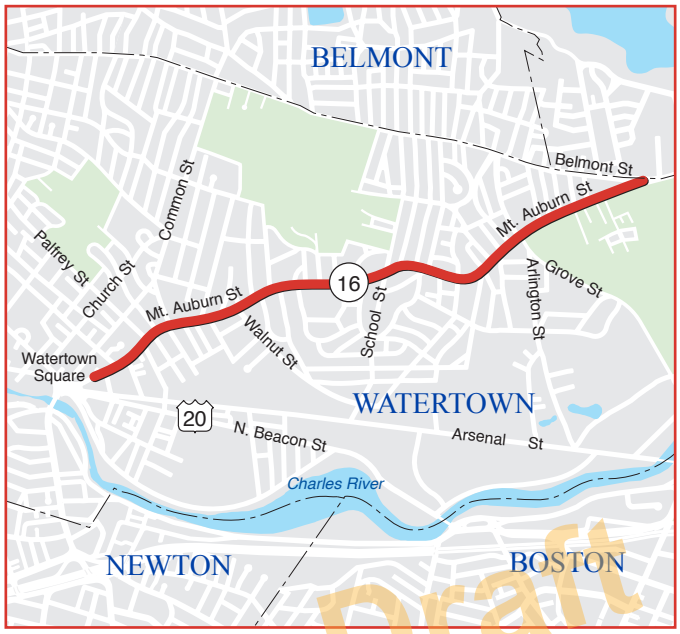
Watertown: Rehabilitation of Mount Auburn Street (Route 16)

Proponent: Watertown

ID Number: 607777

Project Type: Complete Streets

Cost: $15,120,000



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	18 out of 30	14 out of 29	18 out of 29	12 out of 16	3 out of 12	10 out of 18	75 out of 134

Project Description

The project will reconstruct approximately 9,300 feet of Mount Auburn Street, from the Cambridge city line to the intersection with Summer Street, just east of Watertown Square. The project involves revisions to the roadway geometry, including a roadway diet to reduce the number of lanes; safety improvements; multi-modal accommodations, including shared or exclusive bike lanes; improvements to the existing traffic signal equipment; and improved ADA amenities at intersections.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$12,296,000	---	---	$12,296,000
Non-Federal Funds	---	---	$2,824,000	---	---	$2,824,000
Total Funds	**---**	**---**	**$15,120,000**	**---**	**---**	**$15,120,000**

Weston: Multi-Use Trail Connection, from Recreation Road to Upper Charles River Greenway including Reconstruction of Pedestrian Bridge N-12-078=W-29-062

Proponent: MassDOT

ID Number: 609066

Project Type: Bicycle and Pedestrian

Cost: $2,767,958

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	6 out of 30	3 out of 29	9 out of 29	4 out of 16	2 out of 12	0 out of 18	24 out of 134

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Project Description

This project would create a multi-use trail connection, from Recreation Road to Upper Charles River Greenway including reconstruction of pedestrian bridge N-12-078=W-29-062. This project was evaluated using the MPO's scoring criteria because it was considered for funding using Regional Target funds. MassDOT funded the project, however.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$2,214,367	---	---	---	$2,214,367
Non-Federal Funds	---	$553,592	---	---	---	$553,592
Total Funds	**---**	**$2,767,958**	**---**	**---**	**---**	**$2,767,958**

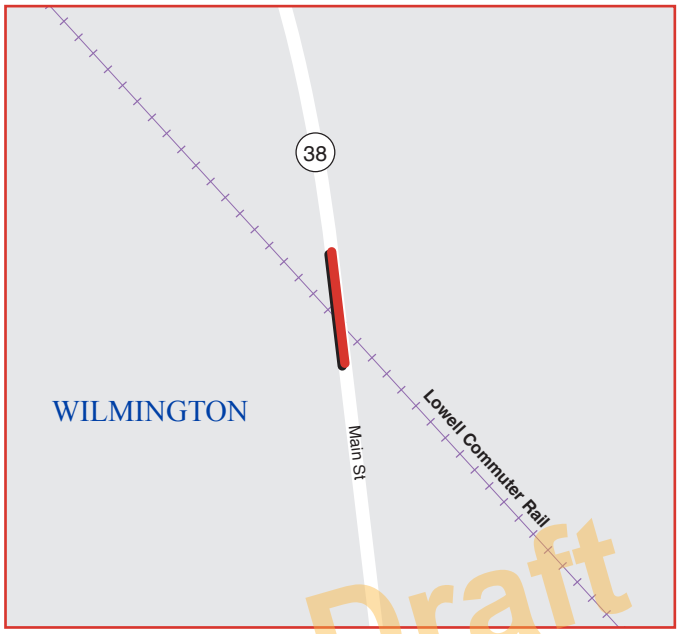
Wilmington: Bridge Replacement, Route 38 (Main Street) over the B&M Railroad

Proponent: MassDOT

ID Number: 607327

Project Type: Bridge

Cost: $10,760,960



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

A three-day weekend closure is recommended for this project since this route is used by school bus and emergency vehicles.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$8,608,768	---	---	$8,608,768
Non-Federal Funds	---	---	$2,152,192	---	---	$2,152,192
Total Funds	**---**	**---**	**$10,760,960**	**---**	**---**	**$10,760,960**

Wilmington: Bridge Replacement, W-38-029 (2KV), Route 129 Lowell Street over Interstate 93

Proponent: MassDOT

ID Number: 608703

Project Type: Bridge

Cost: $17,137,875

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Bridge replacement, W-38-029 (2KV), Route 129 (Lowell Street) over Interstate 93.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$13,710,300	$13,710,300
Non-Federal Funds	---	---	---	---	$3,427,575	$3,427,575
Total Funds	---	---	---	---	**$17,137,875**	**$17,137,875**

Wilmington: Bridge Replacement, W-38-003, Butters Row over MBTA

Proponent: MassDOT

ID Number: 608929

Project Type: Bridge

Cost: $5,183,360

Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Bridge replacement, W-38-003, Butters Row over MBTA

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	$4,146,688	---	---	$4,146,688
Non-Federal Funds	---	---	$1,036,672	---	---	$1,036,672
Total Funds	**---**	**---**	**$5,183,360**	**---**	**---**	**$5,183,360**

Wilmington: Lowell Street (Route 129) at Woburn Street Safety and Operations Analyses

Proponent: Wilmington

ID Number: 609253

Project Type: Intersection Improvements

Cost: $3,944,000

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	13 out of 30	12 out of 29	16 out of 29	9 out of 16	1 out of 12	2 out of 18	53 out of 134

Project Description

This project involves traffic safety and efficiency improvements at the intersection of Lowell Street (Route 129) and Woburn Street. The improvements include geometric modification of the roadway along the eastbound approach of Lowell Street to improve intersection visibility. The construction of new pedestrian signals and crosswalks for all approaches will address current pedestrian safety issues in the intersection. In addition, bicycle lanes will be constructed on both roadways within the project limits.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	---	$3,209,600	$3,209,600
Non-Federal Funds	---	---	---	---	$734,400	$734,400
Total Funds	**---**	**---**	**---**	**---**	**$3,944,000**	**$3,944,000**

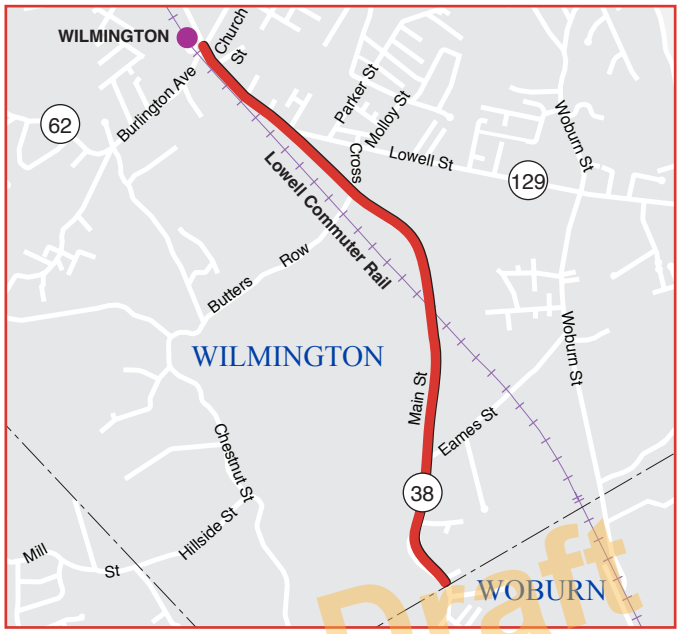
Wilmington: Reconstruction on Route 38 (Main Street), from Route 62 to the Woburn City Line

Proponent: Wilmington

ID Number: 608051

Project Type: Complete Streets

Cost: $12,098,594



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	15 out of 30	12 out of 29	13 out of 29	10 out of 16	1 out of 12	8 out of 18	59 out of 134

Project Description

This project includes the addition of 5-foot bicycle lanes along both sides of the roadway along the Route 38 corridor. Sidewalks will also be provided along both sides of the roadway between Route 62 and Route 129. In addition, improved traffic signals and the reconstruction of turn lanes will enhance pedestrian safety and improve vehicular flow.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$9,778,875	---	$9,778,875
Non-Federal Funds	---	---	---	$2,319,719	---	$2,319,719
Total Funds	---	---	---	**$12,098,594**	---	**$12,098,594**

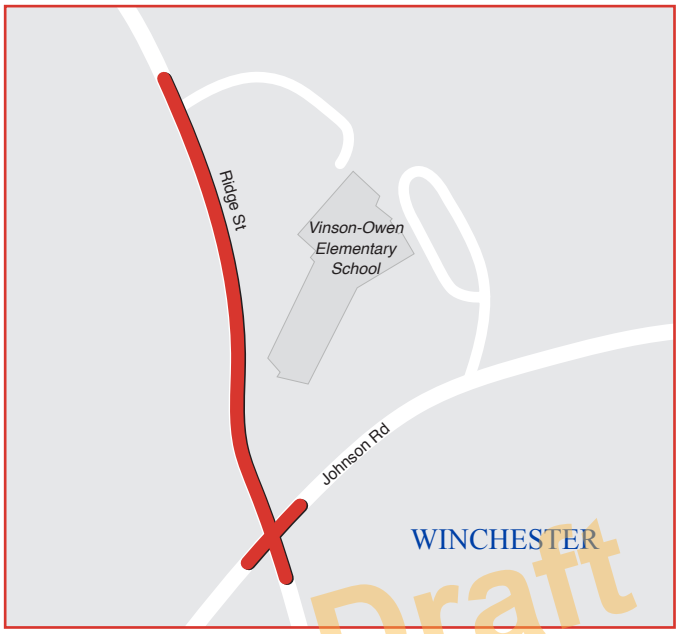
Winchester: Safe Routes to School Improvements at Vinson-Owen Elementary

Proponent: Winchester

ID Number: 608791

Project Type: Roadway Reconstruction

Cost: $1,671,716



Scoring Summary

This is a MassDOT-prioritized project and is therefore not directly evaluated using the MPO's TIP scoring criteria.

Project Description

Safe Routes to School Improvements at Vinson-Owen Elementary

Source	2020	2021	2022	2023	2024	Total
Federal Funds	$1,337,373	---	---	---	---	$1,337,373
Non-Federal Funds	$334,343	---	---	---	---	$334,343
Total Funds	**$1,671,716**	**---**	**---**	**---**	**---**	**$1,671,716**

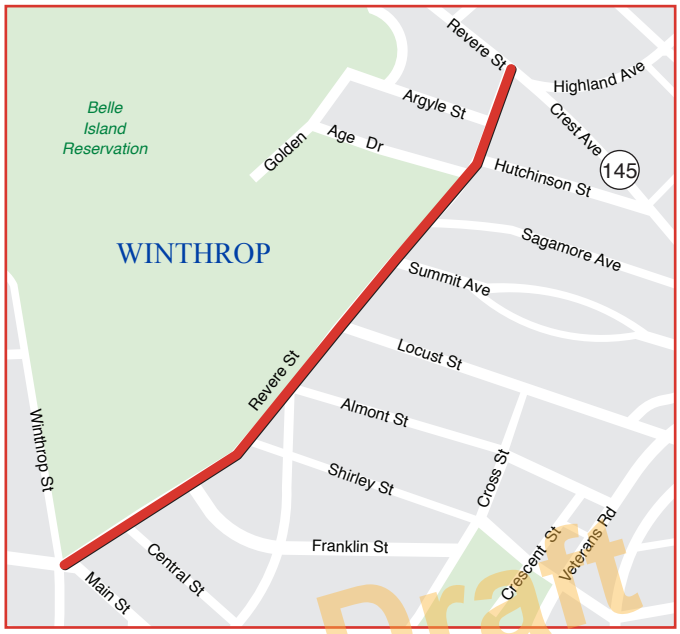
Winthrop: Reconstruction and Related Work along Winthrop Street and Revere Street Corridor

Proponent: Winthrop

ID Number: 607244

Project Type: Complete Streets

Cost: $5,644,800



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	11 out of 30	14 out of 29	12 out of 29	8 out of 16	4 out of 12	5 out of 18	54 out of 134

Project Description

This project will include pavement reconstruction and reclamation, sidewalk reconstruction and intersection improvements at key locations along the corridor. Improvements to the bicycle and pedestrian conditions will be implemented.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$4,515,840	---	$4,515,840
Non-Federal Funds	---	---	---	$1,128,960	---	$1,128,960
Total Funds	**---**	**---**	**---**	**$5,644,800**	**---**	**$5,644,800**

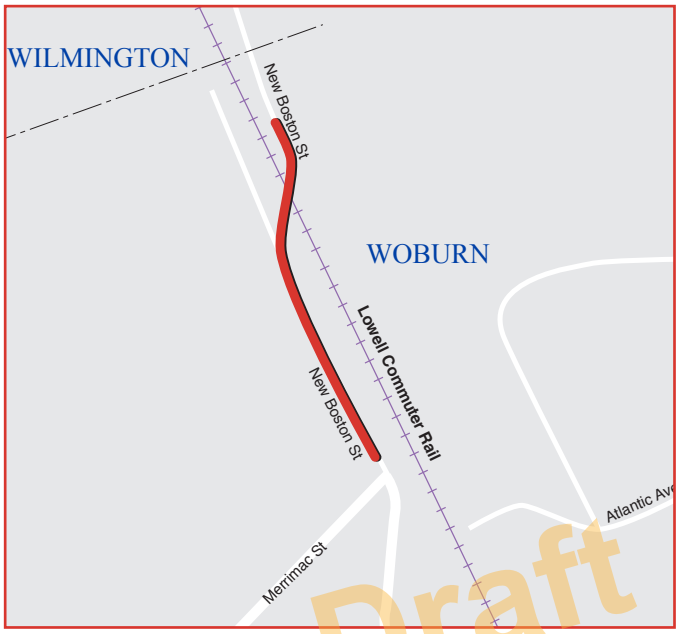
Woburn: Bridge Replacement, New Boston Street over MBTA

Proponent: Woburn

ID Number: 604996

Project Type: Major Infrastructure

Cost: $15,482,660



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	9 out of 30	1 out of 29	21 out of 29	12 out of 16	0 out of 12	12 out of 18	55 out of 134

Project Description

This project involves operational and roadway improvements for New Boston Street over the MBTA commuter rail line. The improvements include the reconstruction of approximately 1,850 feet (0.35 miles) of New Boston Street, the construction of a new 3-span bridge crossing the New Hampshire Main Line, pavement reconstruction, and drainage upgrades.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	$12,386,128	---	---	---	$12,386,128
Non-Federal Funds	---	$3,096,532	---	---	---	$3,096,532
Total Funds	**---**	**$15,482,660**	**---**	**---**	**---**	**$15,482,660**

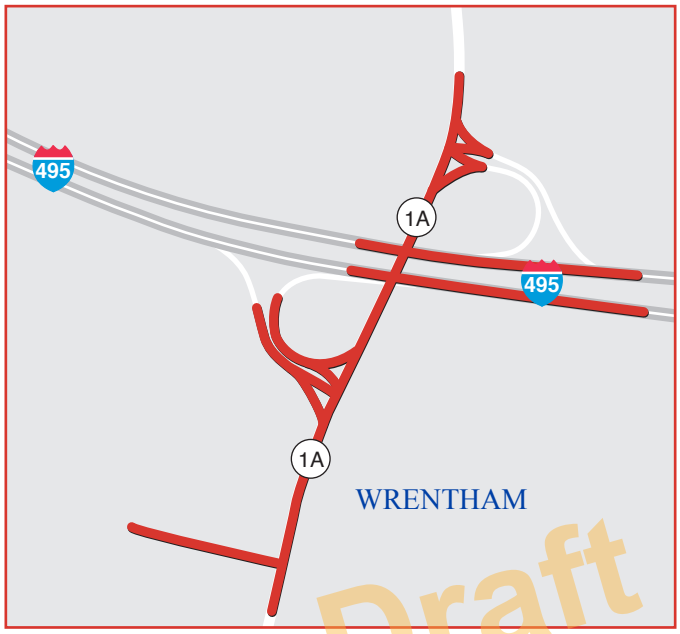
Wrentham: Construction of I-495/Route 1A Ramps

Proponent: MassDOT

ID Number: 603739

Project Type: Intersection Improvements

Cost: $13,103,505



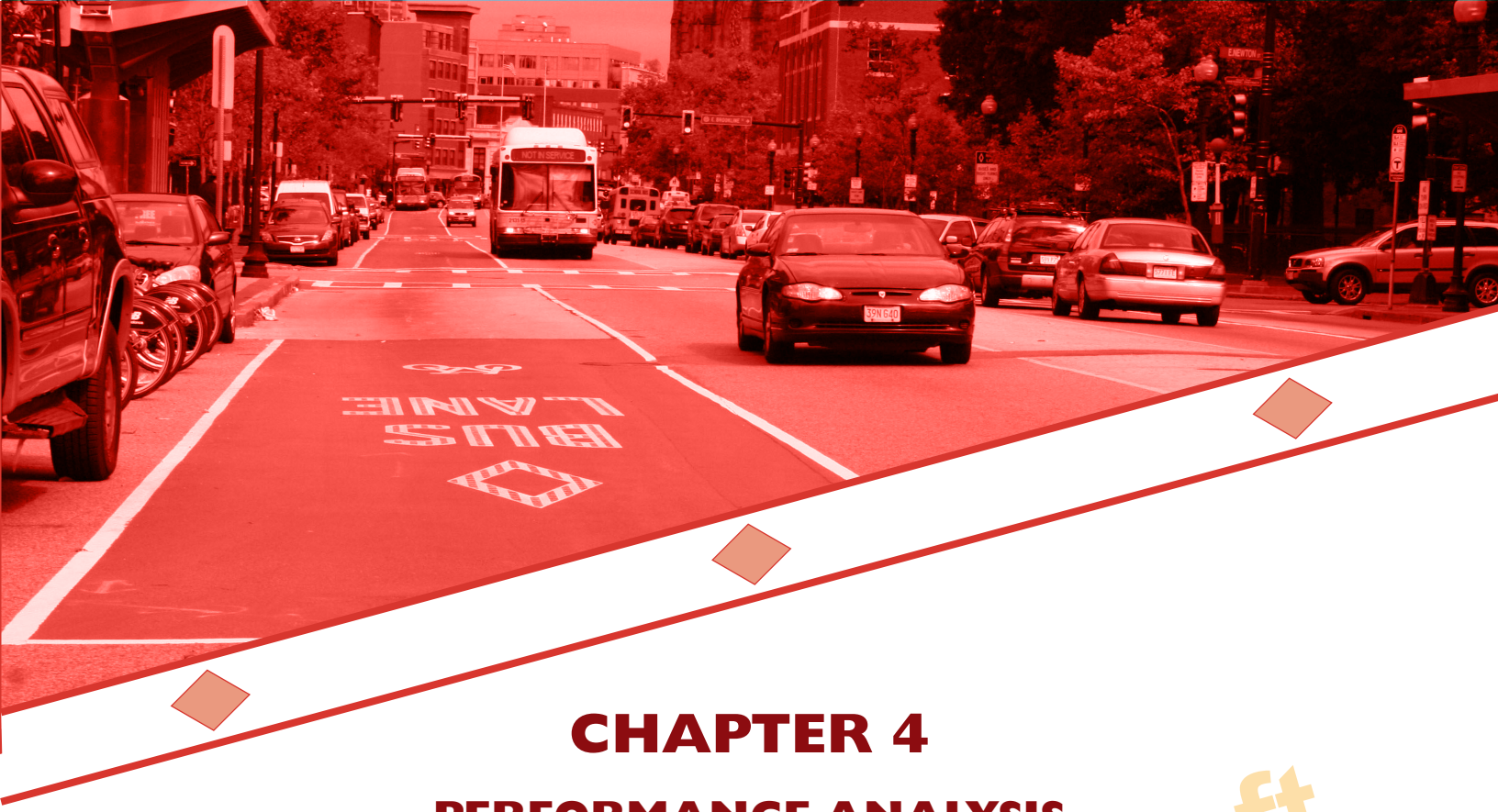
Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	23 out of 30	11 out of 29	12 out of 29	9 out of 16	0 out of 12	0 out of 18	55 out of 134

Project Description

This project consists of the construction of ramps at the interchange of Route 1A and I-495 to accommodate increased volumes resulting from development at the interchange. The design may proceed by developers and, depending on cost and scale of development proposals, MassDOT may incorporate ramp construction into a highway project. Future mitigation packages for developers may involve a median island to meet MassDOT's and the Town of Wrentham's long-range plan for interchange.

Source	(FFY) 2020	2021	2022	2023	2024	Total
Federal Funds	---	---	---	$10,732,804	---	$10,732,804
Non-Federal Funds	---	---	---	$2,370,701	---	$2,370,701
Total Funds	**---**	**---**	**---**	**$13,103,505**	**---**	**$13,103,505**



CHAPTER 4

PERFORMANCE ANALYSIS

OVERVIEW OF PERFORMANCE-BASED PLANNING AND PROGRAMMING

Over the past few decades, transportation agencies have been expanding the role of performance management—a strategic approach that uses data to help achieve desired outcomes—in their decision-making processes. Performance management is credited with improving project and program delivery, informing investment decision-making, focusing staff on leadership priorities, and providing greater transparency and accountability to the public.

Performance-based planning and programming (PBPP) applies data and performance management principles to inform decision-making. For the Boston Region Metropolitan Planning Organization (MPO), these decisions focus on achieving desired outcomes for the Boston region's multimodal transportation system. The purpose of PBPP is to ensure that transportation investment decisions—both for long-term planning and short-term funding—are oriented toward meeting established goals. Performance-based planning and programming activities include the following:

- Setting goals and objectives for the transportation system
- Selecting performance measures and setting performance targets
- Gathering data and information to monitor and analyze trends
- Using performance measures and data to make investment decisions
- Monitoring, analyzing, and reporting decision outputs and performance outcomes

The MPO's PBPP process is shaped by both federal transportation performance management requirements and the MPO's goals and objectives, which were established as part of the MPO's current Long-Range Transportation Plan (LRTP), *Charting Progress to 2040*. This chapter discusses how these two frameworks shape the MPO's PBPP process; describes the MPO's current set of performance measures and targets; and explains how the MPO anticipates the projects included in this TIP will help achieve performance targets.

Federal Performance Management Requirements

The Moving Ahead for Progress in the 21st Century Act (MAP-21) directed states, MPOs, and public transportation providers to carry out a performance and outcome-based surface transportation program, and these requirements have been continued under the current federal transportation funding law, the Fixing America's Surface Transportation Act (FAST Act). MAP-21 identified seven national goals for the nation's highway system:

- **Safety**—Achieve a significant reduction in traffic fatalities and serious injuries on all public roads
- **Infrastructure condition**—Maintain the highway infrastructure asset system in a state of good repair
- **Congestion reduction**—Achieve a significant reduction in congestion on the National Highway System (NHS)
- **System reliability**—Improve the efficiency of the surface transportation system
- **Freight movement and economic vitality**—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**—Enhance the performance of the transportation system while protecting and enhancing the natural environment
- **Reduced project delivery delays**—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

Table 4-1 shows the relationship between these national goal areas and the MPO's goal areas. The MPO's goals and related objectives, as approved by the MPO during the planning process for the next LRTP, *Destination 2040*, are described in more detail in Chapter 1 of this document.

Table 4-1
National and Boston Region MPO Goal Areas

National Goal Area	Boston Region MPO Goal Area
Safety	Safety
Infrastructure Condition	System Preservation and Modernization
System Reliability	Capacity Management/Mobility
Congestion Reduction	Capacity Management/Mobility
Environmental Sustainability	Clean Air/Clean Communities
Freight Movement/Economic Vitality	Capacity Management/Mobility and Economic Vitality
Environmental Sustainability	Clean Air/Sustainable Communities
Reduced Project Delivery Delays	Not applicable
Not applicable	Transportation Equity

Source: Boston Region MPO.

MAP-21 and the FAST Act's federal PBPP mandate is also designed to help the nation's public transportation systems provide high-quality service to all users, including people with disabilities, seniors, and individuals who depend on public transportation.

The US Department of Transportation (USDOT), in consultation with states, MPOs, and other stakeholders, has established measures in performance areas relevant to the aforementioned national goals through a series of federal rulemakings. Table 4-2 lists federally required performance measures for the transit system and Table 4-3 lists federally required performance measures for the highway system.

Table 4-2
Federally Required Transit Performance Measures

National Goal Area	Transit Performance Area or Asset Category	Performance Measures	Relevant MPO Goal Area
Safety	Fatalities	Total number of reportable fatalities and rate per total vehicle revenue-miles by mode	Safety
Safety	Injuries	Total number of reportable injuries and rate per total vehicle revenue-miles by mode	Safety
Safety	Safety Events	Total number of reportable events and rate per total vehicle revenue-miles by mode	Safety
Safety	System Reliability	Mean distance between major mechanical failures by mode	Safety
Infrastructure Condition	Equipment	Percent of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	System Preservation
Infrastructure Condition	Rolling Stock	Percent of revenue vehicles within a particular asset class that have met or exceeded their ULB	System Preservation
Infrastructure Condition	Infrastructure	Percent of track segments with performance restrictions	System Preservation
Infrastructure Condition	Facilities	Percent of facilities within an asset class rated below 3.0 on the Federal Transit Administration's Transit Economic Requirements Model scale	System Preservation

Sources: National Public Transportation Safety Plan (January 2017), the proposed Public Transportation Agency Safety Plan Rule (Title 49 Code of Federal Regulations [CFR] Part 673), and the final Transit Asset Management Rule (49 CFR Part 625).

Table 4-3
Federally Required Roadway Performance Measures

National Goal Area	Highway Performance Area	Performance Measures	Relevant MPO Goal Area
Safety	Injuries and Fatalities	• Number of fatalities • Fatality rate per 100 million vehicle-miles traveled • Number of serious injuries • Serious injury rate per 100 million vehicle-miles traveled • Number of non-motorized fatalities and non-motorized serious injuries	Safety
Infrastructure Condition	Pavement Condition	• Percent of pavements on the Interstate System in good condition • Percent of pavements on the Interstate System in poor condition • Percent of pavements on the non-Interstate NHS in good condition • Percent of pavements on the non-Interstate NHS in poor condition	System Preservation
Infrastructure Condition	Bridge Condition	• Percent of NHS bridges by deck area classified as in good condition • Percent of NHS bridges by deck area classified as in poor condition	System Preservation
System Reliability	Performance of the National Highway System	• Percent of the person-miles traveled on the Interstate System that are reliable • Percent of the person-miles traveled on the non-Interstate NHS that are reliable	Capacity Management/ Mobility
System Reliability, Freight Movement and Economic Vitality	Freight Movement on the Interstate System	• Truck Travel Time Reliability Index (for truck travel on Interstate highways)	Capacity Management/ Mobility, Economic Vitality
Congestion Reduction	Congestion Mitigation and Air Quality (CMAQ)	• Annual hours of peak hour excessive delay per capita (for travel on NHS roadways) • Percentage of non-single-occupant vehicle travel	Capacity Management/ Mobility
Environmental Sustainability	Congestion Mitigation and Air Quality	• Total emissions reduction for applicable pollutants and precursors for CMAQ-funded projects in designated nonattainment and maintenance areas[1]	Clean Air/ Clean Communities

[1] As of the Federal Highway Administration's 2017 Congestion Mitigation and Air Quality Improvement (CMAQ) Program performance requirements applicability determination, the Boston Region MPO area contains an area designated as in maintenance for carbon monoxide, so the MPO is currently required to comply with this performance measure requirement.

NHS = National Highway System.

Sources: Highway Safety Improvement Program Rule (23 CFR 924), National Performance Management Measures Rule (23 CFR 490).

These performance measures and relevant performance targets are discussed in more detail later in this chapter.

These applicable federal rulemakings also identify key activities that agencies receiving federal transportation dollars must complete in order to integrate these federally required performance measures into their planning processes:

- The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) require states, MPOs, and public transportation providers to establish targets for relevant performance measures and to coordinate with each other when setting these targets.
- States are required to create performance-based plans, such as the Strategic Highway Safety Plan (SHSP) or the Transportation Asset Management Plan (TAMP) for the state's National Highway System bridges and pavements. Public transportation providers similarly must produce Transit Asset Management Plans (TAM Plans) and Public Transportation Agency Safety Plans (PTASP). MPOs are required to integrate these performance-based plans into their planning processes and to create other performance-based plans—such as Congestion Mitigation and Air Quality Improvement (CMAQ) Program Performance Plans—as necessary.
- States must report performance targets and progress to FHWA, while public transit providers report this information to FTA, including through the National Transit Database (NTD). MPOs incorporate information on measures, targets, and the impacts investments have had on system performance into their LRTPs. MPOs must describe in TIP documents how they expect TIP investments will help achieve performance targets; states must provide similar information in their State Transportation Improvement Programs (STIPs).

Other PBPP Activities

The MPO's PBPP process must respond to the federal performance management requirements established under MAP-21 and the FAST Act, but it can also address other areas that pertain to its 3C responsibilities or relate to the MPO's goals and objectives. For example, MAP-21 and the FAST Act do not specify transportation equity performance measures for states and MPOs to monitor. However, the MPO has established a transportation equity goal to provide comparable transportation access and service quality among communities, regardless of their income level or minority population.

This goal and its associated objectives are rooted in several federal regulations and presidential executive orders, including Title VI of the Civil Rights Act of 1964, Executive Order 12898 (addressing environmental justice), the Americans with Disabilities Act (ADA), and other USDOT orders. (For more information on these laws and orders, see Appendix F.) To comply

with these regulations, the MPO systematically addresses the concerns of populations that these regulations protect—referred to here as *transportation equity populations*—throughout the MPO planning process, including when selecting projects through the TIP. Regular equity performance monitoring enables the MPO to better understand how transportation equity populations in the region may be affected by transportation investment decisions, so that it can decide whether and how to adjust its investment approach.

To build a comprehensive PBPP practice, the MPO can also choose to monitor or set targets for additional performance measures, which are not federally required, that apply to its goal areas. For example, while the federally required reliability measures discussed in Table 4-3 apply to the MPO's Capacity Management and Mobility goal, the MPO may wish to examine measures that account for non-NHS roadways or other travel modes. Over the coming years, the MPO will examine whether and how to incorporate other performance measures and practices into its PBPP process.

PERFORMANCE-BASED PLANNING AND PROGRAMMING ACTIVITIES

States, MPOs, and public transportation providers integrate federally required performance measures—and other measures, as desired—into their respective PBPP processes, which involve three key phases focused on 1) planning, 2) investing, and 3) monitoring and evaluating.

Planning Phase

In the planning phase, agencies set goals and objectives for the transportation system, identify performance measures, and set performance targets that will guide their decision-making. They identify and acquire data and conduct analyses necessary to support these processes. They also outline the frameworks they will use in key planning documents.

Meanwhile, the Commonwealth creates performance-based plans for Massachusetts, such as the SHSP and TAMP. Similarly, transit agencies—including the Massachusetts Bay Transportation Authority (MBTA), MetroWest Regional Transit Authority (MWRTA), and Cape Ann Transportation Authority (CATA)—create TAM plans and PSTAPs that describe the data and processes these agencies will use to address transit state of good repair and safety needs. The Commonwealth is responsible for setting performance targets for the federally required roadway performance measures described in Table 4-3, while transit agencies must set targets for the measures described in Table 4-2.

Boston Region MPO activities in the planning phase include creating a goals-and-objectives framework in its LRTP and establishing targets for federally required performance measures according to defined cycles. To establish these targets, the MPO may elect to support performance targets set by the Commonwealth or public transit providers (depending on the measure), or it may set separate targets for the MPO area.

Investing Phase

In the investing phase, agencies use the PBPP framework established in the planning phase to create strategies for investing transportation funding. The MPO selects programs and projects that it will fund using its Regional Target funds and documents those decisions in the LRTP and/or TIP. Similarly, MassDOT, the MBTA, CATA, and MWRTA follow their processes to select projects and programs for inclusion in the MassDOT Capital Investment Program (CIP). The federally funded investments they include in the CIP are also documented in the STIP.

Monitoring and Evaluating Phase

After making plans and investments, agencies take stock of their progress by reviewing and reporting on their outputs and performance outcomes. Activities in the monitoring and evaluating phase include tracking trends, collecting data to understand the results of investment decisions, and comparing targets to actual performance. At the statewide level, MassDOT reports performance to USDOT through the STIP and other required reports, and on the MassDOT Performance Management Tracker website. Transit agencies report progress on TAM measures to the National Transit Database each year. The MPO reports on performance in the LRTP and through its Congestion Management Process (CMP), as well as through other tools, such as the MPO's Performance Dashboards.

Coordination

To support the activities discussed above, states, public transit operators, and MPOs must coordinate with one another and share information and data to ensure consistency across processes. In Massachusetts, these coordination responsibilities will be outlined in the 2019 Performance-Based Planning and Programming Agreement between MassDOT, Massachusetts MPOs, transportation planning organizations, the MBTA, and regional transit authorities (RTAs) operating in Massachusetts.

Staff from Massachusetts MPOs, MassDOT staff, and other stakeholders coordinate on PBPP implementation through the Transportation Program Managers Group's subcommittee on performance measures. For performance measures that states and MPOs track at the Boston Urbanized Area level, coordination responsibilities are documented in the 2018 Boston Urbanized Area Memorandum of Understanding.[1]

THE TIP'S ROLE IN PBPP

MAP-21 and the FAST Act direct MPOs to develop LRTPs and TIPs "through a performance-driven, outcome-based approach to planning."[2] The LRTP sets the MPO's PBPP framework,

1 Urbanized Areas (UZAs) are defined by the US Census Bureau to represent the urban cores of metropolitan areas. The Boston Urbanized Area includes the 97 municipalities in the Boston Region MPO and includes portions of neighboring MPOs in eastern Massachusetts, New Hampshire, and Rhode Island.

2 Title 23 Code of Federal Regulations, Part 450.306.

which is made up of the MPO's goals and objectives; performance measures and targets; and investment programs, policies, and guidelines. Each year, the MPO puts that framework into action when it creates the TIP. Several aspects of TIP development support performance-based planning and programming:

- **TIP Project Evaluation Criteria:** Project evaluations using the MPOs TIP criteria, which are described in detail in Chapter 2 and Appendix A, help the MPO understand the potential benefits and performance impacts of projects that are candidates for funding. This information helps the MPO direct its Regional Target dollars toward investments that will help achieve its goals. A number of the MPO's criteria pertaining to its Safety, System Preservation and Modernization, Capacity Management and Mobility, and Clean Air/Sustainable Communities goals also relate to federally required performance measures. Information that the MPO gathers to support its project evaluations can be used to anticipate the impacts that its investments may have on performance in these areas.
- **MPO Investment Programs and Funding Guidelines:** The MPO's investment programs and funding guidelines help the MPO direct its Regional Target funds to priority performance areas. These investment programs are described in more detail in Chapter 2.
- **Supporting Performance Information:** The MPO considers other information in concert with project evaluation results and investment program guidelines when it selects projects. This supplementary information may include data about how the MPO has distributed Regional Target funds across MPO municipalities in the past or information about how projects address location-specific issues identified in the MPO's LRTP Needs Assessment. The MPO is working towards including more information on federally required performance measures into this part of the TIP development process. For example, MPO staff provided some information about whether FFYs 2020–24 First Tier list projects are located on the NHS, and noted whether these projects overlap NHS segments considered unreliable with respect to travel time.

Once the MPO board allocates its Regional Target dollars to specific investments and considers capital programs submitted by MassDOT, MBTA, and the region's RTAs, it documents the full set of investments for the Boston region in the TIP. The TIP describes links between these short-term capital investment priorities and performances measures and targets, and discusses, to the extent practicable, how the MPO anticipates these investments will help the MPO achieve its targets. The LRTP complements this analysis by describing performance outcomes and changes in performance in key areas over time and evaluating how current performance compares to baselines or past targets. The MPO board can use both sets of information to determine if its investments are making progress towards its goals, objectives, and performance targets and to make necessary trade-offs or adjustments.

FFYS 2020-24 PERFORMANCE ANALYSIS

This section discusses investments in the FFYs 2020–24 TIP and how they may relate to elements of the MPO's PBPP framework, including the MPO's goals and performance measures and targets. For each goal area, existing performance targets are identified and information on relevant trends, performance measures, TIP investments, and related planning activities are provided. These descriptions generally focus on investments of the MPO's Regional Target funds, although they may also make reference to MassDOT or transit agency-funded investments, where applicable.

Investment Summary

This section summarizes Boston Region MPO, MassDOT, MBTA, CATA, and MWRTA investments in the FFYs 2020–24 TIP to provide context for the discussions about the MPO's goal areas that follow. Chapter 3 describes these investments in more detail.

Table 4-4 shows the Boston Region MPO's investments with its Regional Target funding—including both the number of projects and the dollar amount—by investment program.

Table 4-4
Boston Region MPO Regional Target Investment Summary

MPO Investment Program	Number of Projects	Regional Target Dollars Programmed
Bicycle Network and Pedestrian Connections	4	$20,825,554
Community Transportation / Parking / Clean Air and Mobility[a]	TBD	$8,000,000
Complete Streets[b]	26	$229,652,049
Intersection Improvements	11	$58,867,483
Major Infrastructure—Flex to Transit[c]	1	$49,131,200
Major Infrastructure—Roadway[d]	4	$144,573,875
Total	**46**	**$533,165,848**

Note: Funding amounts in this table include both federal and non-federal funds, including matching funds

[a] The Regional Target dollars shown in this table include both federal funds and state matching funds.

[a] The MPO has allocated $8 million for Community Transportation/Parking/Clean Air and Mobility Program in the FFYs 2020–24 TIP, but has not yet allocated it to specific projects.

[b] Project 606501, Reconstruction of Union Street (Route 139) in Holbrook, is also supported by $1,527,250 in earmark funds, which are not shown in this table.

[c] The MPO will flex federal highway improvement dollars to support the Green Line Extension, Phase 1.

[d] In FFY 2021, the MPO will contribute $22,115,687 to Project 606476–Sumner Tunnel Improvements, with other funds contributed by MassDOT. This project is included in the total number of projects in this category.

TBD = to be determined.

Source: Boston Region MPO.

Table 4-5 shows MassDOT's FFYs 2020–24 TIP investments —including both the number of projects or programs and the dollar amount—by MassDOT program. MassDOT's investments are distributed across a variety of programs and will support bridge and pavement improvements, roadway improvements and reconstruction, new bicycle and pedestrian infrastructure, and safety improvements.

Table 4-5
MassDOT Investment Summary

MassDOT Program	Number of Projects	MassDOT Dollars Programmed
Bicycles and Pedestrians	6	$33,133,083
Bridge Program	21	$336,226,404
Intersection Improvements	11	$33,352,024
Interstate Pavement	1	$27,371,469
Non-Interstate Pavement	14	$128,511,135
Roadway Improvements	2	$1,476,235
Roadway Reconstruction[a]	7	$154,926,370
Safety Improvements	7	$33,323,556
Total	**69**	**$748,320,276**

Note: Funding amounts in this table include both federal and non-federal funds, including matching funds.

[a] This program includes $27,512,813 for Project 606476–Sumner Tunnel Improvements. This project is included in the total number of projects in this category, and is also being funded with $76,916,431 in other federal-aid funding (not shown in this table)

MassDOT = Massachusetts Department of Transportation. MPO = Metropolitan Panning Organization

Sources: MassDOT and the Boston Region MPO

Table 4-6 shows the MBTA's programs and associated TIP funding amounts.

Table 4-6
MBTA Investment Summary

FTA Program	MBTA Program	MBTA Dollars Programmed
Section 5307: Urbanized Area Formula Grants	Revenue Vehicle Program	$783,678,542
Section 5307: Urbanized Area Formula Grants	Signals/Systems Upgrade Program	$167,645,914
Section 5307: Urbanized Area Formula Grants	Stations and Facilities Program	$15,535,478
Section 5337: Fixed Guideway/Bus Funds	Bridge and Tunnel Program	$173,480,957
Section 5337: Fixed Guideway/Bus Funds	Signals/Systems Upgrade Program	$493,008,105
Section 5337: Fixed Guideway/Bus Funds	Stations and Facilities Program	$372,381,033
Section 5339: Bus and Bus Facilities Funds	Bus Program	$42,761,657
Section 5309: Fixed Guideway Capital Investment Grants	Green Line Extension–New Starts (FFGA)	$592,242,000
Other Federal Funds	Positive Train Control[a]	$443,064,581
Total	**n/a**	**$3,083,798,267**

Note: FTA formula funds (Sections 5307, 5337 and 5339) are based on estimated apportionments. TIP programs and projects are based on a preliminary draft Capital Investment Program as of March 27, 2019. Adjustments will be made to federal projects and budgets as the CIP process is finalized. Funding amounts in this table include both federal and non-federal funds, including matching funds.

[a] Positive Train Control investments are funded with Railroad Rehabilitation and Improvement Financing and Transportation Infrastructure Financing and Innovation Act funds.

FFGA = Full Funding Grant Agreement. FTA = Federal Transit Administration. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. n/a = not applicable.

Sources: MBTA and the Boston Region MPO.

Table 4-7 summarizes MWRTA and CATA investments included in the FFYs 2020-24 TIP.

Table 4-7
CATA and MWRTA Investment Summary

Transit Agency	Program	RTA Dollars Programmed
CATA	Section 5307: Urbanized Area Formula Funding	$1,873,750
CATA	Regional Transit Authority Capital Assistance Program	$595,000
MWRTA	Section 5307: Urbanized Area Formula Funding	$5,788,310
Total	**n/a**	**$8,257,060**

Note:. Funding amounts in this table include both federal and non-federal funds, including matching funds.

CATA = Cape Ann Transportation Authority. MWRTA = MetroWest Regional Transit Authority. Metropolitan Planning Organization.

n/a = not applicable. RTA = regional transit authority.

Sources: CATA, MWRTA, and the Boston Region MPO.

Safety Performance

Relevant Goals, Policies, and Plans

One of the MPO's goals is that *transportation by all modes will be safe*. The MPO has committed to investing in projects and programs that aim to reduce the number and severity of crashes for all modes, and to reducing serious injuries and fatalities occurring on the transportation system. Similarly, the Massachusetts SHSP includes a long-term goal to move "towards zero deaths" by eliminating fatalities and serious injuries on the Commonwealth's roadways.[3] In future years the MPO will work more closely with the MBTA, CATA, and MWRTA to make safety-oriented investments and implement related initiatives as identified in their PTASPs.

Roadway Safety Measures and Targets

The Commonwealth of Massachusetts and the MPO track traffic incidents, fatalities, and injuries involving motor vehicles using information from the Massachusetts Crash Data System and the Federal Highway Administration's (FHWA) Fatality Analysis and Reporting System (FARS). These

3 Massachusetts Strategic Highway Safety Plan, 2018, pg. I, available at https://www.mass.gov/files/documents/2019/01/18/dot_SHSP_2018.pdf

data inform the targets the Commonwealth and the MPO must set each calendar year (CY) for five federally required roadway safety performance measures, which are also listed in Table 4-3:

- Number of fatalities
- Fatality rate per 100 million vehicle-miles traveled (VMT)
- Number of serious injuries
- Serious injury rate per 100 million VMT
- Number of nonmotorized fatalities and nonmotorized serious injuries

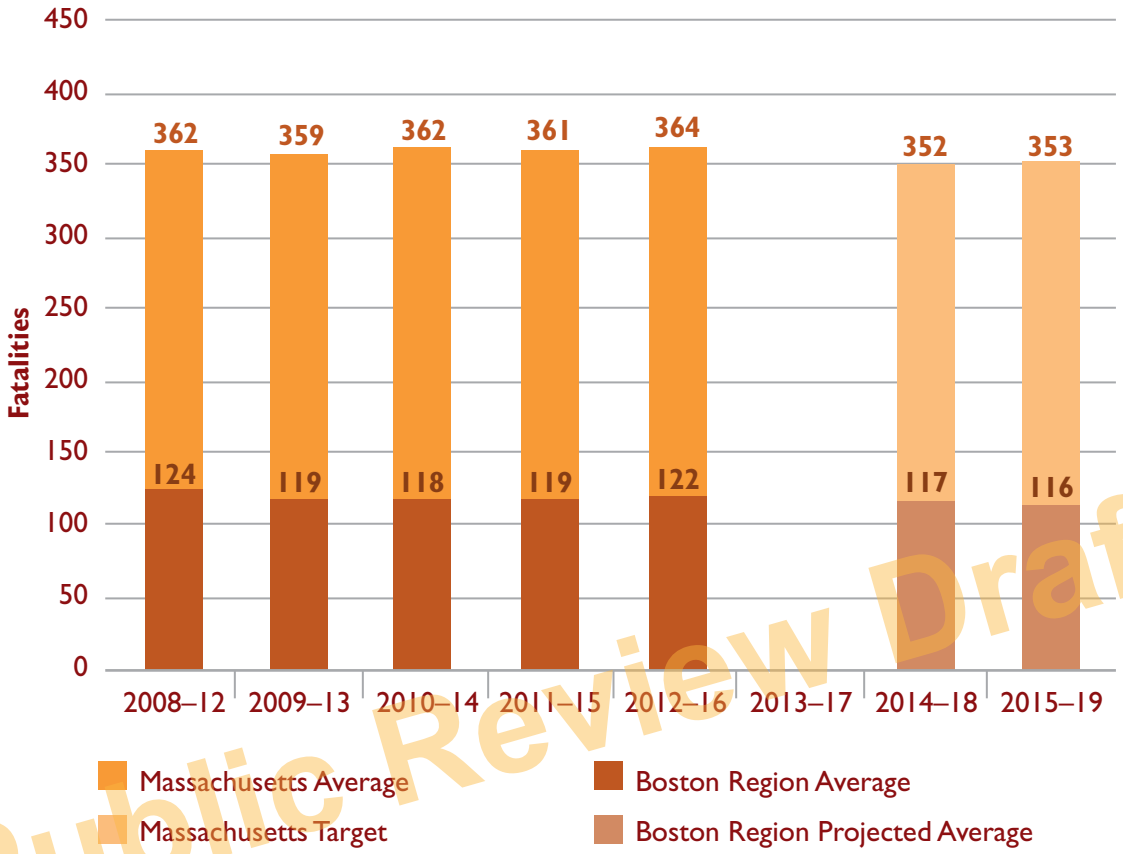
These measures pertain to fatalities and serious injuries from traffic incidents and apply to all public roads. Values for these measures are expressed as five-year rolling annual averages. When establishing targets for these measures, the MPO can elect to support statewide targets set by the Commonwealth or set separate targets for the MPO region. The Commonwealth set its current set of roadway safety performance targets to reflect a 2015–19 rolling annual average, as required by FHWA. When setting these targets, the Commonwealth considered the following:

- Historic trend lines for these measures and their component metrics (such as annual VMT)
- An anomalous increase in total fatalities from motor vehicle crashes during CY 2016
- Planned implementation of safety countermeasures, including engineering, enforcement, education, awareness, and emergency response strategies

Figures 4-1 to 4-5 show statewide level trends for each performance measure along with the Commonwealth's prior year (CY 2018) and current (CY 2019) performance targets. In February 2019, the MPO elected to support the Commonwealth's CY 2019 roadway safety performance targets. For context, the figures also show Boston region-specific values for each measure, including projected values for future years.

Figure 4-1 shows historic and projected values for the number of fatalities resulting from motor vehicle crashes, while Figure 4-2 shows the fatality rate per 100 million VMT. Actual fatalities and fatality rates have declined slightly for Massachusetts and for the Boston region specifically, based on recent five-year rolling annual averages, and while CY 2016 fatality data showed an increase at both geographic scales, draft data for CY 2017 shows values closer to the lower CY 2015 values. The Commonwealth considered this information when setting targets for lowering the number of fatalities. Meanwhile, VMT has been gradually increasing for both the Boston region and Massachusetts as a whole, which also supports historic and projected decreases in the fatality rate.

Figure 4-1
Fatalities from Motor Vehicle Crashes



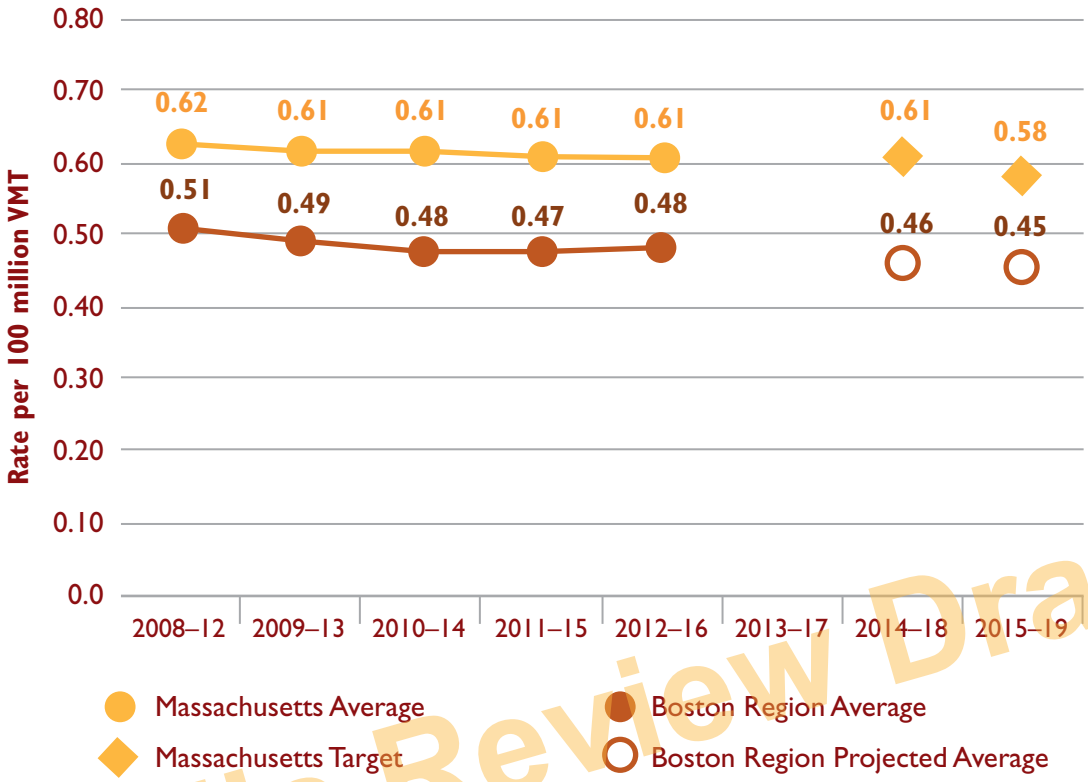
Notes: Values reflect five-year rolling annual averages and have been rounded to the nearest integer.

MPO staff developed projections for the Boston region using a linear trend line and a draft estimate of 103 fatalities for CY 2017.

CY = calendar year. MPO = Metropolitan Planning Organization.

Sources: National Highway Traffic Safety Administration Fatality Analysis and Reporting System, Massachusetts Department of Transportation, and the Boston Region MPO.

Figure 4-2
Fatality Rate per 100 Million Vehicle-Miles Traveled



Values reflect five-year rolling annual averages and have been rounded to the hundredth decimal place. MPO staff developed projections for the Boston region using a linear trend line, a draft estimate of 103 fatalities for CY 2017, and an estimate of CY 2017 VMT from MassDOT (approximately 25.5 billion VMT).

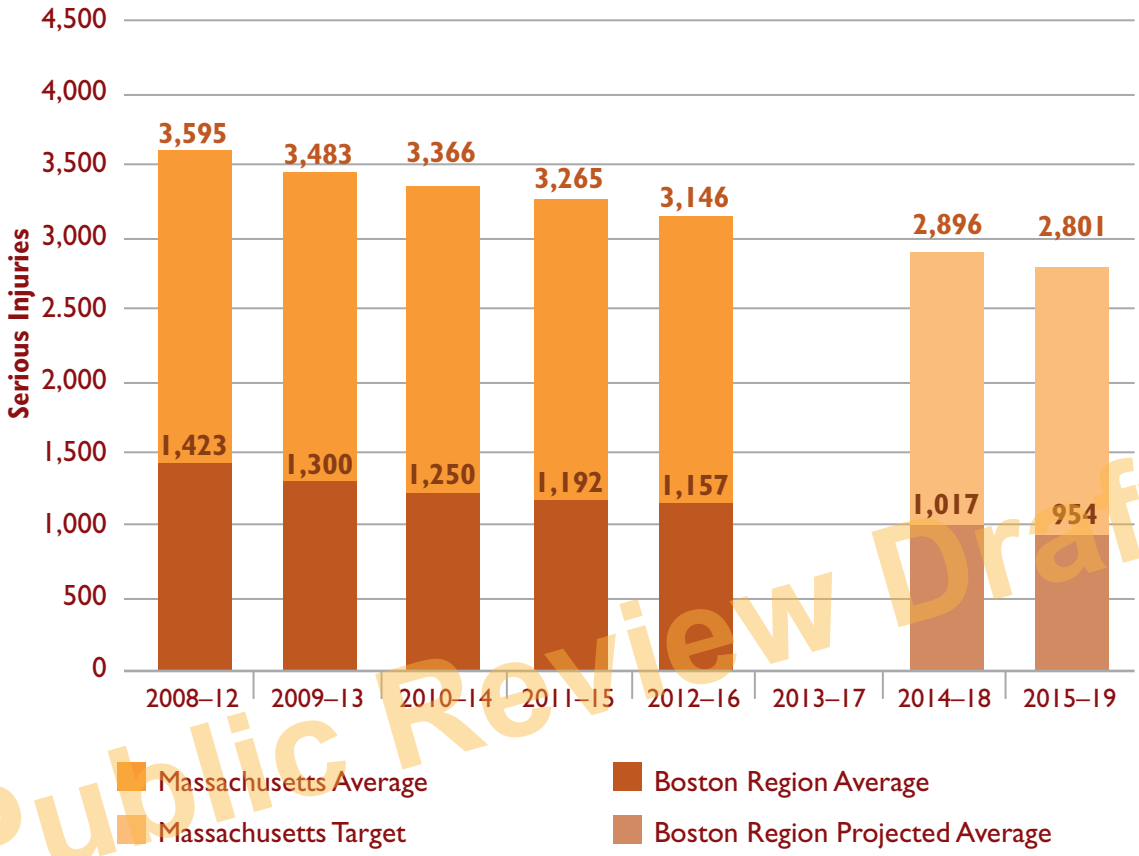
CY = calendar year. MassDOT = Massachusetts Department of Transportation. MPO = Metropolitan Planning Organization. VMT = vehicle-miles traveled.

Sources: National Highway Traffic Safety Administration Fatality Analysis and Reporting System, Massachusetts Department of Transportation, and the Boston Region MPO.

Figure 4-3 shows historic and projected values for the number of serious injuries resulting from motor vehicle crashes, and Figure 4-4 shows the serious injury rate per 100 million VMT.[4] For both the Boston region and Massachusetts as a whole, serious injuries and serious injury rates have been decreasing over time and are projected to continue to decrease.

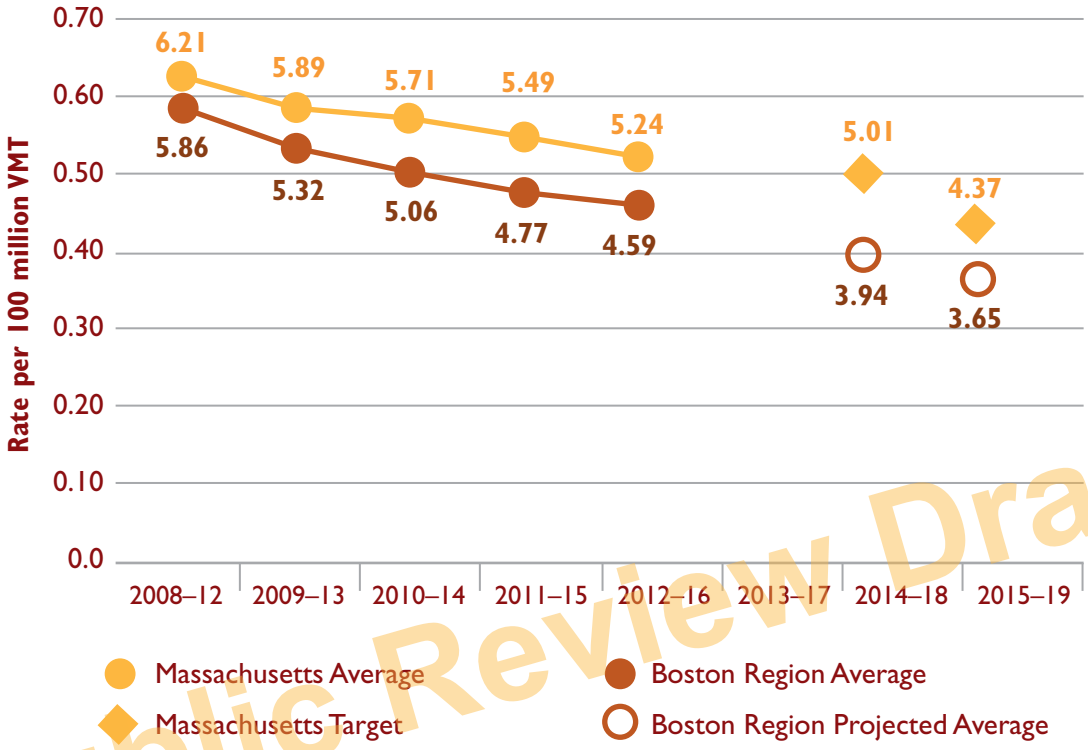
4 MassDOT defines serious injuries as incapacitating injuries, which it identifies through incident reporting by police and vehicle operators using the Commonwealth of Massachusetts Motor Vehicle Crash Operator Report.

Figure 4-3
Serious Injuries from Motor Vehicle Crashes



Notes: Values reflect five-year rolling annual averages and have been rounded to the nearest integer. MPO staff developed projections for the Boston region using a linear trend line and a draft estimate of 938 serious injuries for CY 2017.
CY = calendar year. MPO = Metropolitan Planning Organization.
Sources: Massachusetts Crash Data System, Massachusetts Department of Transportation, and the Boston Region MPO.

Figure 4-4
Serious Injury Rate per 100 Million Vehicle-Miles Traveled



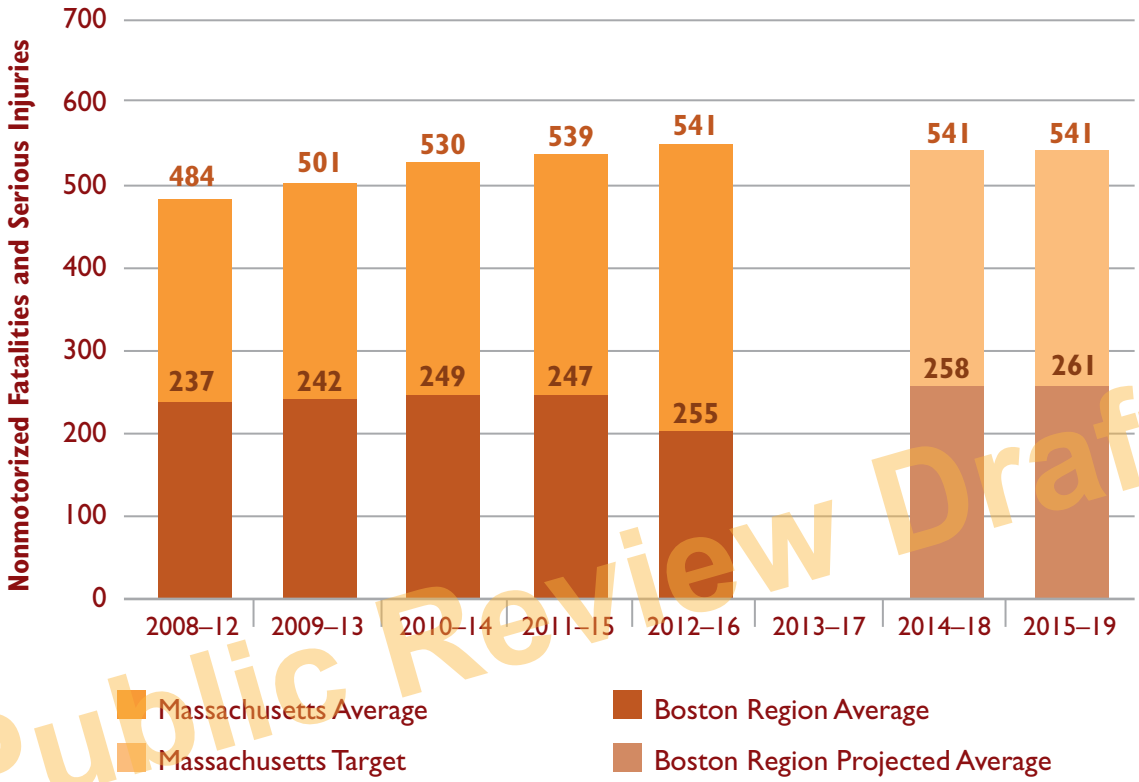
Notes: Values reflect five-year rolling annual averages and have been rounded to the hundredth decimal place. MPO staff developed projections for the Boston region using a linear trend line, a draft estimate of 938 serious injuries for CY 2017, and an estimate of CY 2017 VMT from MassDOT (approximately 25.5 billion VMT).

CY = calendar year. MassDOT = Massachusetts Department of Transportation. MPO = Metropolitan Planning Organization. VMT = vehicle-miles traveled.

Sources: Massachusetts Crash Data System, Massachusetts Department of Transportation, and the Boston Region MPO.

Figure 4-5 shows historic and projected values for the number of fatalities and serious injuries experienced by people traveling by nonmotorized means for the Boston region and Massachusetts as a whole. This category reflects bicyclist and pedestrian fatalities and serious injuries, as well as those experienced by others traveling by nonmotorized modes (such as skateboarders). Unlike the prior measures, values for this measure have been increasing over time for both the Boston region and Massachusetts overall.

Figure 4-5
Nonmotorized Fatalities and Serious Injuries



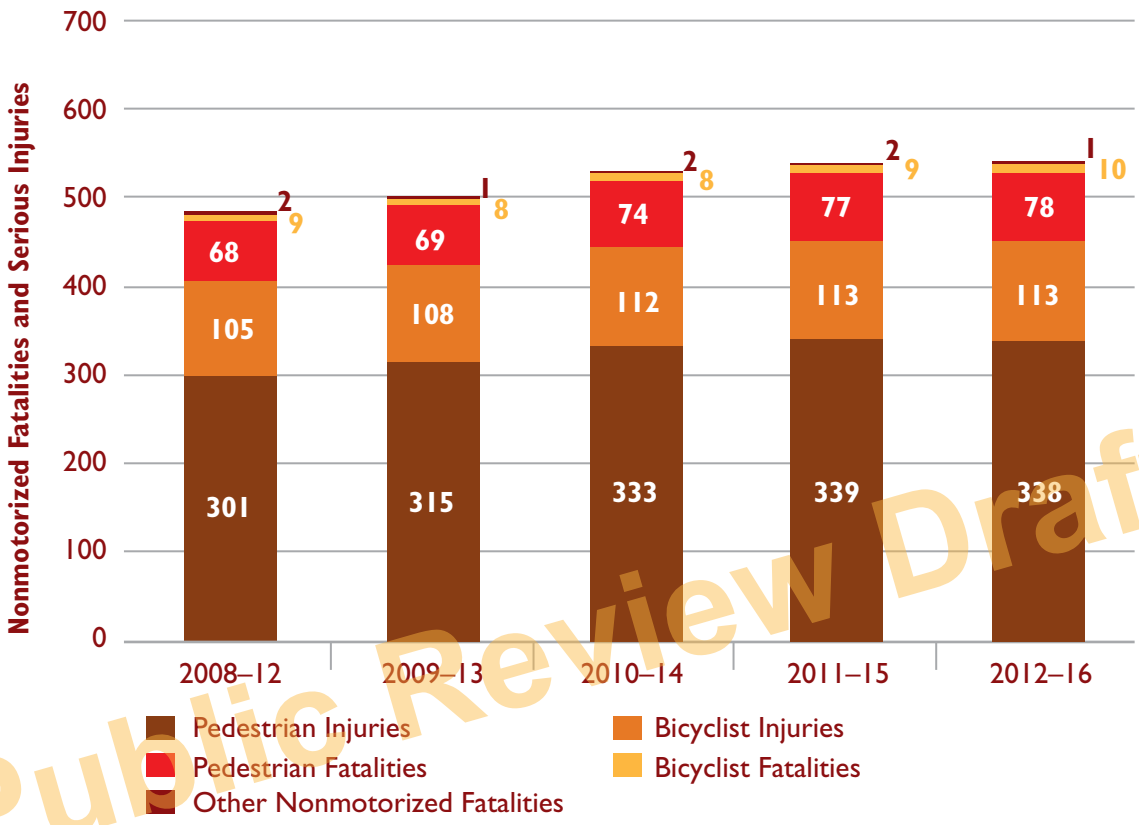
Notes: Values reflect five-year rolling annual averages and have been rounded to the nearest integer. MPO staff developed projections for the Boston region using a linear trend line, a draft estimate of 32 nonmotorized fatalities for CY 2017, and a draft estimate of 220 nonmotorized serious injuries for CY 2017.

CY = calendar year. MPO = Metropolitan Planning Organization.

Sources: National Highway Traffic Safety Administration Fatality Analysis and Reporting System, Massachusetts Crash Data System, Massachusetts Department of Transportation, and the Boston Region MPO.

Figures 4-6 and 4-7 provide insight about motorized bicyclist, pedestrian, and other nonmotorized traveler fatalities and serious injuries. For both the Boston region and Massachusetts overall, pedestrian fatalities and serious injuries comprise most nonmotorized fatalities and serious injuries.

Figure 4-6
Nonmotorized Fatalities and Serious Injuries in Massachusetts by Mode

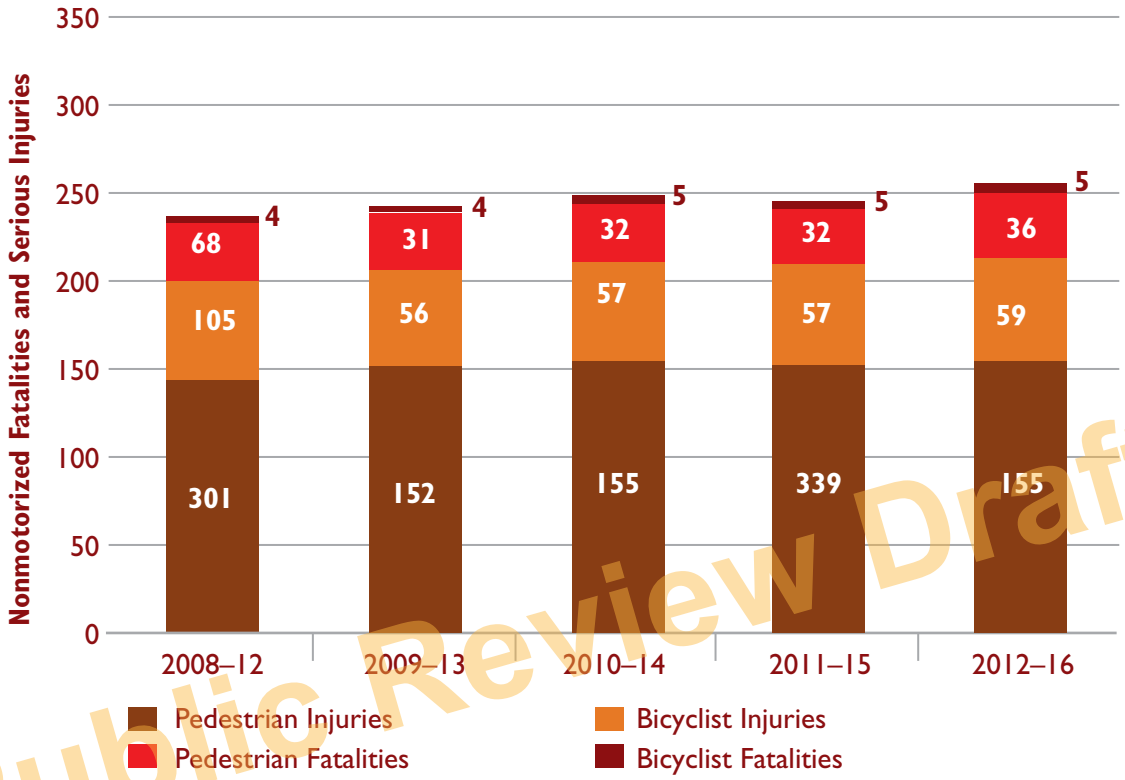


Note: All values have been rounded to nearest integer.

MassDOT = Massachusetts Department of Transportation. MPO = Metropolitan Planning Organization.

Sources: National Highway Traffic Safety Administration Fatality Analysis Reporting System, Massachusetts Crash Data System, Massachusetts Department of Transportation, and the Boston Region MPO.

Figure 4-7
Nonmotorized Fatalities and Serious Injuries in the Boston Region by Mode



Note: All values have been rounded to nearest integer.

MassDOT = Massachusetts Department of Transportation. MPO = Metropolitan Planning Organization.

Sources: National Highway Traffic Safety Administration Fatality Analysis Reporting System, Massachusetts Crash Data System, Massachusetts Department of Transportation, and the Boston Region MPO.

MassDOT recognizes that its initiatives to increase nonmotorized travel throughout the Commonwealth have posed a challenge to concurrent activities to reduce nonmotorized fatalities and injuries. Rather than adopt a target that reflects an increased amount of nonmotorized fatalities and serious injuries, MassDOT has kept its nonmotorized performance targets to date approximately level with recent baselines. It plans to counter increasing trends in nonmotorized fatalities and serious injuries through investments and other initiatives that address safety for pedestrians, bicyclists, and others who travel by nonmotorized means.

Table 4-8 lists the Commonwealths' 2012–16 rolling average values for the fatality and serious injury performance measures and summarizes CY 2019 targets for the federally required roadway safety performance measures. As previously mentioned, the MPO elected to support the Commonwealth's CY 2019 roadway safety performance targets in February 2019.

Table 4-8
Massachusetts Statewide Highway Safety Performance Baselines and CY 2019 Targets

Highway Safety Performance Measure	2016 Safety Measure Value (2012–16 Rolling Average)	2019 Safety Measure Target (Expected 2015–19 Rolling Average)
Number of fatalities	363.80	353.00
Rate of fatalities per 100 million vehicle-miles traveled	0.61	0.58
Number of serious injuries	3145.80	2801.00
Rate of serious injuries per 100 million vehicle-miles traveled	5.24	4.37
Number of non-motorized fatalities and non-motorized serious injuries	540.80	541.00

Note: All values have been rounded to the hundredth place.
CY = calendar year. MassDOT = Massachusetts Department of Transportation.
Sources: National Highway Traffic Safety Administration Fatality Analysis Reporting System, Massachusetts Crash Data System, MassDOT, and the Boston Region MPO

TIP Investments Supporting Roadway Safety Performance

By electing to support the Commonwealth's roadway safety targets, the MPO agreed to plan
By electing to support the Commonwealth's roadway safety targets, the MPO agreed to plan
and program projects so that they contribute to achieving those targets. Anticipating the ability of transportation projects to reduce fatalities and serious injuries from motor vehicle crashes is a challenge, as these crashes may be a consequence of many factors other than infrastructure condition, such as driver behavior—including seatbelt use and driver distraction or intoxication—and weather conditions.

When investing its Regional Target funds, the MPO aims to identify projects likely to have maximum safety benefits by using its TIP project selection criteria, which account for crash

activity within the project area and the types of safety countermeasures included in the proposed project. (For more detail on these criteria, see Appendix A). When conducting project evaluations, the MPO considers crash rates within the vicinity of projects and the Equivalent Property Damage Only (EPDO) value associated with those crashes. The EPDO index is used to assess the severity of crashes by assigning weighted values to crashes involving fatalities or injuries higher than those that only involve property damage.

All of the roadway projects included in the MPO's Regional Target Program include safety countermeasures or features that the MPO expects will improve safety for motorists, bicyclists, and pedestrians. The MPO's roadway investments in its Intersection Improvement, Complete Streets, and Major Infrastructure programs are expected to support safety improvements on roadways supporting multiple travel modes, while its Bicycle Network and Pedestrian Connections projects will support safety for those traveling by nonmotorized means by providing pedestrian signals and separated facilities for bicyclists and pedestrians.

The MPO also examines whether projects would improve safety at MassDOT-identified Highway Safety Improvement Program (HSIP) crash cluster locations. MassDOT identifies crash clusters using a procedure for processing, standardizing, matching, and aggregating crash locations and data.[5] MassDOT's HSIP clusters are those that rank in the top five percent of crash clusters within each regional planning agency area based on their EPDO value. MassDOT creates a set of HSIP clusters that include all motor vehicle crashes involving motor vehicles, as well as sets of clusters that reflect motor vehicle crashes that involved bicyclists or pedestrians. Locations with HSIP clusters are eligible for funding through MassDOT's HSIP program.

Table 4-9 shows that many of these roadway projects are located in areas that overlap with HSIP clusters, and several are located in places that overlap HSIP Bicycle or Pedestrian clusters or where fatal or serious injury crashes have occurred between CY 2014 and 2016. The MPO expects that this combination of safety countermeasures and improvements focused in priority locations will help the MPO and the Commonwealth progress towards reducing fatalities and serious injuries on the roadway network.

5 For more information, see MassDOT, 2015 Top Crash Location Report, March 2018, **https://www.mass.gov/files/documents/2018/05/31/15TopCrashLocationsRpt.pdf**, pg. 4-5.

Table 4-9
Regional Target Roadway Project Metrics Related to Safety Performance

Metric	Value
Regional Target projects that address all-mode HSIP clusters[a]	20 projects
All-mode HSIP cluster locations addressed by Regional Target projects[a]	35 locations
Regional Target projects that address HSIP Pedestrian clusters[b]	4 projects
HSIP pedestrian cluster locations addressed by Regional Target projects[b]	8 locations
Regional Target projects that address HSIP bicycle clusters[b]	3 projects
HSIP bicycle cluster locations addressed by Regional Target projects[b]	3 locations
Project areas where fatal crashes have occurred[c]	4 areas
Project areas where crashes involving injuries have occurred[c]	42 areas
Project areas where crashes involving pedestrians have occurred[c]	18 areas
Project areas where crashes involving bicyclists have occurred[c]	19 areas

Note: The group of projects reflected in this table does not include the Green Line Extension or Community Transportation/ Parking/Clean Air and Mobility investments.

[a] All-mode HSIP clusters are based on crash data from 2013 to 2015.

[b] HSIP bicycle clusters and HSIP pedestrian clusters are based on data from 2006 to 2015.

[c] Analyses of crashes in locations with projects funded by Regional Targets are based on crash data from 2014 to 2016.

HSIP = Highway Safety Improvement Program. MPO = Metropolitan Planning Organization.

Sources: Massachusetts Crash Data System, the Massachusetts Department of Transportation, and the Boston Region MPO.

The FFYs 2020–24 TIP projects programmed by MassDOT, described in Table 4-5, will also support safety and are expected to reduce fatalities and serious injuries on the region's roadways. The Reliability and Modernization programs included in MassDOT's CIP are geared toward maintaining and upgrading infrastructure, which will help make travel safer on the region's roadways. MassDOT's Intersection Improvements, Roadway Improvements, Roadway Reconstruction, and Safety Improvements programs most directly address safety considerations, although its Bridge and Pavement Improvement programs may also support safety by supporting asset maintenance and state of good repair. Moreover, MassDOT's Bicycle and Pedestrian projects may reduce nonmotorized fatalities and injuries by proving separated facilities for bicyclists and pedestrians.

While they do not specifically address the roadway safety targets listed in Table 4-8, the MBTA, CATA, and MWRTA reliability and modernization investments are likely to help improve safety

by bringing vehicles, facilities, and track systems into a state of good repair, which in turn enhances safety for transit customers and employees and members of the public. The System Preservation and Modernization Performance section discusses these transit state-of-good-repair investments in more detail.

Transit System Safety Measures and Targets

Under FTA's Public Transportation Agency Safety Plan Rule—which goes into effect in July 2019—transit agencies will be responsible for developing PTASPs, which they must review and update annually. These plans will include targets for transit safety performance measures that are defined in the National Public Transportation Safety Plan. These measures, also listed in Table 4-2, include the following:

- Total number of reportable fatalities and rate per total vehicle revenue-miles by mode
- Total number of reportable injuries and rate per total vehicle revenue-miles by mode
- Total number of reportable events and rate per total vehicle revenue-miles by mode
- Mean distance between major mechanical failures by mode

Once transit agencies develop their safety plans and performance targets, they must share them with state DOTs and MPOs, which will set targets for their states and MPO regions, respectively. Future MPO TIP documents will include information on transit safety performance targets and their relationship to TIP investments.

Future Activities to Improve and Monitor Safety Performance

Going forward, the MPO will work with its planning partners and other stakeholders to better understand and measure safety performance and to invest in projects that will reduce roadway fatalities and serious injuries as much as possible. Future activities include, but are not limited to, the following:

- Working with MassDOT, transit agencies, and the region's municipalities to improve the availability and quality of safety data and other supporting data, such as bicycle and pedestrian counts.
- Improving methods for analyzing and estimating the impacts of TIP investments on reductions in crashes, fatalities, and injuries.
- Enhancing methods for establishing targets for federally required roadway safety performance measures.
- Coordinating with transit agencies to develop targets for federally required transit safety performance measures
- Identifying other, non-federally required safety performance measures that the MPO could track.

System Preservation and Modernization Performance

Relevant Goals, Policies, and Plans

The MPO's goal for this area is to *maintain and modernize the transportation system and plan for its resiliency.* System preservation policies for the region must encompass bridges, pavement, sidewalks, and transit system assets. They must address existing maintenance and state-of-good-repair needs, necessary updates to infrastructure to meet customer needs, and prepare for existing or future extreme conditions, such as sea level rise and flooding. The MPO's Regional Target projects support asset condition improvements, which complement MassDOT and transit agencies' more extensive state-of-good-repair and modernization projects. MassDOT uses information from its internal asset management systems to guide decisions about asset maintenance and modernization and considers investment priorities from its Transportation Asset Management Plan (TAMP).[6] The TAMP is a federally required risk-based asset management plan that includes asset inventories, condition assessments, and investment strategies to improve the condition and performance of the National Highway System, particularly its bridges and pavements. Similarly, transit agencies that receive FTA funding must produce Transit Asset Management (TAM) plans that describe transit system assets and condition and the tools and investment strategies these agencies will use to improve them.

Roadway Asset Condition Performance and Targets

Bridge Condition Performance and Targets

As of 2018, Massachusetts includes approximately 5,218 bridge structures, of which 1,613 (31 percent) are located within the Boston region.[7] MassDOT bridge inspectors regularly review bridge condition and deem some bridges to be in substandard condition. These include *structurally deficient* bridges, which are those that are not necessarily unsafe, but that have deteriorated in ways that reduce the load-carrying capacity of the bridge, and bridges that are posted as weight restricted ensure traveler safety. As of 2018, the Boston region included 151 bridge structures deemed structurally deficient (about nine percent of all bridge structures in the Boston region). Eighty-two bridge structures were posted as weight restricted (about five percent of all bridge structures in the Boston region). By comparison, Massachusetts had 470 bridge structures deemed structurally deficient and 438 bridge structures posted as weight restricted (nine percent and eight percent of the state's bridge structures, respectively).

To meet federal performance monitoring requirements, states and MPOs must track and set performance targets for the condition of bridges on the National Highway System (NHS), a network that includes the Interstate Highway System and other roadways of importance to the nation's economy, defense, and mobility. As noted in Table 4-3, FHWA bridge condition performance measures include

6 MassDOT's TAMP is scheduled to be finalized in July 2019.

7 These 2018 values are based on bridge inventory data provided by MassDOT on December 31, 2018. Multiple bridge structures may serve a particular crossing.

- Percent of NHS bridges by deck area classified as in *good* condition
- Percent of NHS bridges by deck area classified as in *poor* condition

These performance measures classify NHS bridge condition as *good, fair*, or *poor* based on the condition ratings of three bridge components: the deck, the superstructure, and the substructure.[8] The lowest rating of the three components determines the overall bridge condition.[9] The measures express the share of NHS bridges in a certain condition by deck area, divided by the total deck area of NHS bridges in the applicable geographic area (state or MPO).

Table 4-10 shows performance baselines for Massachusetts NHS bridge condition and Boston Region NHS bridge condition. As of 2017, Massachusetts had 2,246 NHS bridges, which MassDOT analyzed to understand their current condition with respect to the federal bridge condition performance measures. The Boston Region MPO performed a similar analysis on its 859 NHS bridges in 2018. According to these baseline values, the Boston region has a larger share of NHS bridge deck area considered to be in good condition, and a slightly smaller share of NHS bridge deck area considered to be in poor condition, compared to Massachusetts overall.

Table 4-10
Massachusetts and Boston Region NHS Bridge Condition Baselines

Geographic Area	Federally Required Bridge Condition Performance Measure	Total NHS Bridges	Total NHS Bridge Deck Area (square feet)	Percent of NHS Bridges in *Good* Condition	Percent of NHS Bridges in *Poor* Condition
Massachusetts[a]	Percent of NHS Bridges [by deck area] that are in *good* condition	2,246	29,457,351	15.2%	12.4%
Boston Region[b]	Percent of NHS Bridges [by deck area] that are in *poor* condition	859	14,131,094	19.2%	11.8%

[a] Massachusetts baseline data is based on a MassDOT analysis conducted in 2018.

[b] Boston region comparison data is based on a Boston Region MPO analysis conducted in 2018.

MassDOT = Massachusetts Department of Transportation. MPO = Metropolitan Planning Organization. NHS = National Highway System.

Sources: MassDOT and Boston Region MPO.

8 National Bridge Inventory data is used to rate these components on a scale of zero (worst) to nine (best). The FHWA has classified these bridge ratings into *good* (seven, eight, or nine on the scale), *fair* (five or six), or *poor* (four or less).

9 Culverts are assigned an overall condition rating.

Federal regulation has established 10 percent as a threshold for bridges in poor condition, above which states must obligate a minimum amount of National Highway Performance Program (NHPP) funds to on-system bridges. USDOT has established 10 percent as a threshold for NHS bridge deck area that is in poor condition, and departments of transportation for states that exceed that threshold must direct a defined minimum amount of NHPP funding toward improving NHS bridges. Because more than 10 percent of Massachusetts NHS bridge deck area is in poor condition, MassDOT programs this minimum amount.

States must set performance targets for these measures at two-year and four-year intervals. Table 4-11 shows MassDOT's NHS bridge performance targets, which it established in 2018. The two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021. These targets reflect MassDOT's anticipated NHS bridge condition based on historic trends, as well as planned bridge investments. As shown in the table, MassDOT expects there will be a small increase in the share of NHS bridge deck area in good condition by the end of CY 2021, while it expects that the share of NHS bridge deck area in poor condition in CY 2021 will be slightly lower than the baseline.

Table 4-11
MassDOT NHS Bridge Condition Targets

Federally Required Bridge Condition Performance Measure	2018 Measure Value (Baseline)	Two-Year Target (CY 2019)	Four-Year Target (CY 2021)
Percent of NHS Bridges [by deck area] that are in *good* condition	15.2%	15.0%	16.0%
Percent of NHS Bridges [by deck area] that are in *poor* condition	12.4%	13.0%	12.0%

CY = calendar year. MassDOT = Massachusetts Department of Transportation. NHS = National Highway System.
Source: MassDOT.

MPOs are required to set four-year bridge performance targets by either electing to support state targets or setting separate quantitative targets for the MPO area. The Boston Region MPO elected to support MassDOT's four-year targets for these measures in November 2018. The MPO will work with MassDOT to meet these targets through its Regional Target investments.

Pavement Condition Performance and Targets

As with NHS Bridges, USDOT's performance management framework requires states and MPOs to monitor and set targets for the condition of pavement on NHS roadways. Massachusetts has 3,202 lane miles of Interstate roadways, 1,152 lane miles (or 36 percent) of which are in the Boston region.[10] The state's non-Interstate NHS network is made up of 7,319 lane-miles of roadways, and the Boston region contains 2,252 (or 35 percent) of those lane miles. Applicable federal performance measures, which are also listed in Table 4-3, include the following:

- Percent of pavements on the Interstate System in good condition
- Percent of pavements on the Interstate System in poor condition
- Percent of pavements on the non-Interstate NHS in good condition
- Percent of pavements on the non-Interstate NHS in poor condition

The Interstate performance measures classify Interstate pavements as in good, fair, or poor condition based on the pavements' International Roughness Index (IRI) value and one or more pavement distress metrics (cracking and/or rutting and faulting) depending on the pavement type (asphalt, jointed concrete, or continuous concrete). FHWA sets thresholds for each metric that determine whether the metric value is good, fair, or poor, along with thresholds that determine whether the pavement segment as a whole is considered to be in good, fair, or poor condition. Non-Interstate NHS pavements are subject to the same thresholds for IRI values. States will be required to collect data for the complementary distress metrics starting in 2020, which will be incorporated into future performance monitoring.

MassDOT tracks the condition of Massachusetts' roadways, including all of the Commonwealth's NHS network, through its Pavement Management Program. In 2018, MassDOT established performance targets for these NHS pavement condition performance measures, which are shown along with baseline data in Table 4-12. As with the NHS bridge condition performance targets, the two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021. While MassDOT has collected IRI data in past years, these federally required performance measures also require other types of distress data that have not previously been required as part of pavement monitoring programs.[11] MassDOT notes that setting targets for these pavement condition measures is challenging given the lack of complete historic data. MassDOT's approach when setting target was to use past pavement indicators to identify trends and to set conservative targets, and to revisit its four-year target in in 2020, when more data is available.

10 This data is based on city-or-town-accepted lane mileage as reflected in the 2017 MassDOT Roadway Inventory file.

11 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 is a different index than IRI.

Table 4-12
Massachusetts NHS Pavement Condition Baselines and Performance Targets

Federally Required Pavement Condition Performance Measure	2017 Measure Value (Baseline)	Two-Year Target (CY 2019)	Four-Year Target (CY 2021)
Percent of Interstate Highway System pavements that are in *good* condition[a]	74.2%	70.0%	70.0%
Percent of Interstate Highway System pavements that are in *poor* condition[a]	0.1%	4.0%	4.0%
Percent of non-Interstate NHS pavements that are in *good* condition	32.9%	30.0%	30.0%
Percent of non-Interstate NHS pavements that are in *poor* condition	31.4%	30.0%	30.0%

[a] For the first federal performance monitoring period (2018–21), the Federal Highway Administration has only required states to report four-year targets for pavement condition on the Interstate Highway System. MassDOT has developed both two-year and four-year targets for internal consistency.

CY = calendar year. MassDOT = Massachusetts Department of Transportation. NHS = National Highway System.

Source: MassDOT.

As with NHS bridge condition performance measures, MPOs are required to set four-year Interstate pavement condition and non-Interstate NHS pavement condition performance targets by either supporting state targets or setting separate quantitative targets the MPO area. The Boston Region MPO elected to support MassDOT's four-year targets for these NHS pavement condition measures in November 2018. The MPO will work with MassDOT to meet these targets through its Regional Target investments.

TIP Investments Supporting Roadway Asset Condition

When prioritizing capital investments for the TIP, the MPO uses its project evaluation criteria to assess how well each project funded with Regional Target dollars may help maintain or modernize the MPO's roadway infrastructure. The MPO's policy has been to not use Regional Target funds for projects that only resurface pavement. However, the MPO does fund roadway reconstruction projects that include pavement improvements in addition to other design elements. The MPO uses IRI information and data provided by project proponents to identify substandard pavement and awards points to projects that will improve these pavements.[12]

12 According to the MPO's TIP criteria, pavement is considered to be in good condition if its IRI rating is 190 or less, in fair condition if its IRI rating is 190 to 320, and in poor condition if its IRI rating is greater than 320. These thresholds differ from the IRI thresholds that FHWA has set for National Highway System pavement performance monitoring (good if IRI is 95 or less, fair if IRI is 95 to 170, and poor if IRI is greater than 170).

Similarly, the MassDOT Bridge Program remains the primary funding source for replacement or rehabilitation of substandard bridges, but the MPO's Regional Target investments also contribute modestly to bridge improvements. The MPO awards points to candidate TIP projects that include improvements for substandard bridges that are structurally deficient or functionally obsolete. Projects funded with Regional Target dollars also improve traffic signal equipment or sidewalk infrastructure; enable improved emergency response; or improve the resiliency of the transportation system to extreme weather conditions.

Table 4-13 displays metrics that describe the MPO's FFYs 2020–24 Regional Target projects are expected to improve infrastructure on the region's roadways. MPO staff developed estimated values for these metrics using available data from MassDOT's Bridge Inventory and Road Inventory files; project proponent information such as functional design reports (FDRs); the MPO's All-Hazards Planning Application; results from MPO TIP project evaluations; and other sources. Materials supporting the MPO's project selection process included information on projects that address parts of the NHS system, and Table 4-13 includes measures specific to NHS pavement and bridges. The MPO expects that these FFYs 2020–24 investments will help make progress towards statewide NHS bridge and pavement condition targets and will also help improve the overall condition of the region's roadways and bridges.

Table 4-13
Regional Target Project Metrics Related to Roadway System Preservation and Modernization Performance

Metric	Value
Bridge structures improved	8 structures
NHS bridge structures improved	4 structures
New bridge structures to be constructed	4 structures
Lane miles of substandard pavement improved[a]	84 lane miles
Lane miles of substandard NHS pavement improved[a]	48 lane miles
Miles of substandard sidewalk improved	47 miles
Projects that improve emergency response	29 projects
Projects that improve the ability to respond to extreme conditions	11 projects

Note: The group of projects reflected in this table does not include the Green Line Extension or Community Transportation/Parking/Clean Air and Mobility investments.

[a] Substandard pavement designations are based on data provided by MassDOT and project proponents and on MPO assessments conducted for TIP evaluations. The estimated lane miles of substandard NHS improved is based on the pavement condition assessment for the project and the MPO's assessment of the portion of the project on the NHS.

NHS = National Highway System.

Source: MassDOT and Boston Region MPO.

Many of MassDOT's FFYs 2020–24 TIP investments address bridge and pavement condition. MassDOT's Bridge programs include 21 projects that will improve or replace 40 structures, 30 of which are NHS bridge structures. Its Interstate Pavement program will improve pavements on Interstate 93 in Boston, Milton, and Quincy, while its non-Interstate pavement program includes 14 projects that will improve pavements on MassDOT-owned NHS roadways in 24 Boston region municipalities. These projects are expected to help MassDOT make progress toward its NHS bridge and pavement performance targets. Projects in MassDOT's other Reliability and Modernization programs—including its Intersection Improvements, Roadway Improvements, Roadway Reconstruction, and Safety Improvements programs—include elements that will improve pavement and roadway infrastructure condition in the Boston region.

Transit System Asset Condition Performance Measures and Targets

The Boston region includes three transit agencies that regularly receive FTA funds to provide service—the MBTA, CATA and MWRTA. These agencies are responsible for meeting planning and performance-monitoring requirements under FTA's TAM rule, which is focuses on achieving and maintaining a state of good repair for the nation's transit systems. Each year, they must submit progress reports and updated performance targets for TAM performance measures, which relate to transit rolling stock, nonrevenue service vehicles, facilities, and rail fixed guideway infrastructure. Transit agencies develop these performance targets based on their most recent asset inventories and condition assessments, along with their capital investment and procurement expectations, which are informed by their TAM Plans. MBTA, MWRTA, and CATA share their asset inventory and condition data and their performance targets with the Boston Region MPO, so that the MPO can monitor and set TAM targets for the Boston region.

The following subsections discuss the MPO's current performance targets (adopted in March 2019) for each of the TAM performance measures, which are listed in Table 4-2. These performance targets reflect MBTA, CATA, and MWRTA state fiscal year (SFY) 2019 TAM performance targets (for July 2018 through June 2019). MPO staff has aggregated some information for asset subgroups. These tables highlight whether transit agencies expect to see performance for specific asset subgroups get better or worse compared to the SFY 2018 baseline (June 30, 2018).

Rolling Stock and Equipment Vehicles

FTA's TAM performance measure for the state of good repair for rolling stock and equipment vehicles (service support, maintenance, and other nonrevenue vehicles) is the percent of vehicles that meet or exceed their useful life benchmark (ULB). This performance measure uses vehicle age as a proxy for state of good repair (which may not necessarily reflect condition or performance), with the goal being to bring this value as close to zero as possible. FTA defines ULB as "the expected lifecycle of a capital asset for a particular transit provider's operating environment, or the acceptable period of use in service for a particular transit provider's operating environment." For example, FTA's default ULB value for a bus is 14 years. When setting targets, each agency has discretion to use FTA-identified default ULBs for vehicles or to adjust ULBs with approval from FTA. The MBTA has used FTA default ULBs for its rolling stock targets and uses MBTA-defined ULBs, which are based on agency-specific usage and experience, for its equipment targets. CATA and MWRTA have selected ULBs from other sources.[13]

Table 4-14 describes SFY 2018 baselines and the MPO's SFY 2019 targets for rolling stock, which refers to vehicles that carry passengers. As shown below, the MBTA, CATA, and MWRTA are improving performance for a number of rolling stock vehicle classes. Transit agencies can make improvements on this measure by expanding their rolling stock fleets or replacing vehicles within those fleets.

13 CATA used useful life criteria as defined in FTA Circular 5010.1E (Award Management Requirements) for ULB values. MWRTA used useful life criteria as defined in MassDOT's Fully Accessible Vehicle Guide and in FTA Circular 5010.1E for ULB values.

Table 4-14
SFY 2018 Measures and SFY 2019 Targets for Transit Rolling Stock

Agency	Asset Type	SFY 2018 Baseline (as of June 30, 2018)		SFY 2019 Targets (as of June 30, 2019)	
		Number of Vehicles	Percent of Vehicles ≥ ULB	Number of Vehicles	Percent of Vehicles ≥ ULB
MBTA	Buses	1,022	25%	1,028	25%
MBTA	Light Rail Vehicles	205	46%	229	41%
MBTA	Heavy Rail Vehicles	432	58%	450	56%
MBTA	Commuter Rail Locomotives	94	27%	104	24%
MBTA	Commuter Rail Coaches	426	0%	429	0%
MBTA	Ferry Boats	4	0%	4	0%
MBTA	THE RIDE Paratransit Vehicles[a]	763	35%	763	9%
CATA	Buses	9	11%	8	0%
CATA	Cutaway Vehicles[b]	23	13%	23	0%
CATA	Trolleys (simulated)[c]	2	100%	2	100%
MWRTA	Cutaway Vehicles[b,d]	89	6%	93	0%
MWRTA	Automobiles[d]	9	0%	9	0%

[a] The MBTA's THE RIDE paratransit vehicles data and targets reflect automobiles, vans, and minivans.

[b] The National Transit Database defines a cutaway vehicle as a vehicle in which a bus body is mounted on a van or light-duty truck chassis, which may be reinforced or extended. CATA uses nine of these vehicles to provide fixed-route services, and 14 of these vehicles to provide demand-response service.

[c] Simulated trolleys, also known as trolley-replica buses, have rubber tires and internal combustion engines, as opposed to steel-wheeled trolley vehicles or rubber-tire trolley buses that draw power from overhead wires.

[d] MWRTA uses cutaway vehicles to provide fixed-route and demand-response service, and uses autos to provide demand response service.

CATA = Cape Ann Transportation Authority. MBTA = Massachusetts Bay Transportation Authority.
MWRTA = MetroWest Regional Transit Authority. SFY = State Fiscal Year. ULB = Useful Life Benchmark.
Sources: CATA, MBTA, MWRTA and the Boston Region MPO.

The MBTA's planned SFY 2019 investments in revenue vehicles include incorporating new Orange Line (heavy rail) cars, Green Line (light rail) cars, and loNo (low emissions) pilot buses into its vehicle fleets, overhauling commuter rail vehicles and catamarans, and continuing to

purchase for replacement vehicles for its paratransit fleet. During FFY 2019, MWRTA will receive FTA Section 5310 funds, which are administered by MassDOT, to purchase replacement vehicles, and CATA will receive two fixed-route replacement vehicles.

Table 4-15 shows SFY 2018 baselines and the MPO's SFY 2019 targets for transit equipment vehicles. MPO staff has aggregated targets for nonrevenue vehicle subtypes for each of the three transit agencies. Similar to transit rolling stock, transit agencies can make improvements on these measures by expanding their fleets or replacing vehicles within those fleets.

Table 4-15
SFY 2018 Measures and SFY 2019 Targets for Transit Equipment Vehicles

	SFY 2018 Baseline (as of June 30, 2018)		SFY 2019 Targets (as of June 30, 2019)	
Agency	Number of Vehicles	Percent of Vehicles ≥ ULB	Number of Vehicles	Percent of Vehicles ≥ ULB
MBTA[a]	1,676	20%	1,676	22%
CATA	4	25%	3	0%
MWRTA	12	50%	12	50%

[a] MBTA equipment includes both commuter rail and transit system nonrevenue service vehicles.

CATA = Cape Ann Transportation Authority. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. MWRTA = MetroWest Regional Transit Authority. SFY = State Fiscal Year. ULB = Useful Life Benchmark.

Sources: CATA, MBTA, MWRTA and the Boston Region MPO.

The MBTA's planned investments in SFY 2019 include those that support nonrevenue vehicles—such as replacements for transit police vehicles—to improve asset state of good repair.

Facilities

FTA assesses the state-of-good-repair condition for passenger stations, parking facilities, and administrative and maintenance facilities using the FTA Transit Economic Requirements Model (TERM) scale, which generates a composite score based on assessments of facility components. Facilities with scores below three are considered to be in marginal or poor condition (though this score is not a measure of facility safety or performance). The goal is to bring the share of facilities that meet this criterion to zero. Infrastructure projects focused on individual systems may improve performance gradually, while more extensive facility improvement projects may have a more dramatic effect on a facility's TERM scale score.

Table 4-16 shows SFY 2018 measures and the MPO's SFY 2019 targets for MBTA, CATA, and MWRTA facilities. The MBTA measures and targets only reflect those facilities that have

undergone a recent on-site condition assessment. The number of facilities that the MBTA has not yet assessed is shown to provide a more comprehensive count of the MBTA's assets.

Table 4-16
SFY 2018 Measures and SFY 2019 Targets for Transit Facilities

Agency	Facility Type	SFY 2018 Baseline (as of June 30, 2018)		SFY 2019 Targets (as of June 30, 2019)	
		Number of Facilities	Percent of Facilities < 3	Number of Facilities	Percent of Facilities < 3
MBTA	Passenger–Assessed[a]	96	13%	96	11%
MBTA	Passenger– Not Assessed[a]	285	In progress	286	TBD
MBTA	Administrative/Maintenance–Assessed	156	68%	156	63%
MBTA	Administrative/Maintenance–Not Assessed	38	In progress	38	TBD
CATA	Administrative/ Maintenance	1	0%	1	0%
MWRTA	Administrative/ Maintenance	1	0%	1	0%

[a] Passenger facilities include stations and parking facilities.

CATA = Cape Ann Transportation Authority. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. MWRTA = MetroWest Regional Transit Authority. TBD = To be determined

Sources: CATA, MBTA, MWRTA and the Boston Region MPO.

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The MBTA's SFY 2019 facility improvement activities include opening the Blue Hill Avenue Station on the Fairmount commuter rail line, improving elevators at Oak Grove Station, and making roof replacements on maintenance facilities, among other activities.

Fixed Guideway Infrastructure

Table 4-17 describes SFY 2018 baselines and SFY 2019 targets for infrastructure condition, specifically rail fixed guideway condition. The MBTA is the only transit agency in the Boston region with this asset type. The performance measure that applies to these assets is the percentage of track that is subject to performance, or speed, restrictions. The MBTA samples the share of track segments with speed restrictions throughout the year. These performance restrictions may reflect not only the condition of track, signal, and other supporting systems, which the MBTA can improve through maintenance, upgrade, and replacement and renewal projects. Again, the goal is to bring the share of MBTA track systems subject to performance restrictions to zero.

Table 4-17
SFY 2018 Measures and SFY 2019 Targets for MBTA Transit Fixed Guideway Infrastructure

Agency	Track Type	SFY 2018 Baseline (as of June 30, 2018)		SFY 2018 Targets (as of June 30, 2019)	
		Directional Route Miles	Percent of Miles with Speed Restrictions	Directional Route Miles	Percent of Miles with Speed Restrictions
MBTA	Transit Fixed Guideway[a]	130.23	11%	130.23	10%
MBTA	Commuter Rail Fixed Guideway	663.84	1%	663.84	1%

Note: The term "directional track miles" represents the miles managed and maintained by the MBTA with respect to each direction of travel (for example, northbound and southbound), and excludes nonrevenue tracks such as yards, turnarounds, and storage tracks. The baseline and target percentages represent the annual average number of miles meeting this criterion over the 12-month reporting period.

[a] The MBTA's Transit Fixed Guideway information reflects light rail and heavy rail fixed guideway networks.

MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. SFY = State Fiscal Year.

Sources: MBTA and the Boston Region MPO.

The MBTA's SFY 2019 investments in this area include, but are not limited to, continuing the Green Line D Branch Track and Signal Program, making red and Orange Line signal improvements, Orange Line Direct Fixation track improvements, and improvements to commuter rail track, ties, and switches. These track system-oriented improvements are expected to ultimately help reduce performance restrictions on MBTA fixed guideways.

TIP Investments Supporting Transit System Asset Condition

Many different types of transit investments may affect the TAM vehicles, facilities, or fixed guideway performance measures described in the previous section, because these investments may either improve or replace assets already included in transit agency inventories, or because they may expand those inventories. These investments may improve assets gradually over time by upgrading specific asset subsystems, or they may generate more dramatic changes in performance by overhauling or replacing assets.

The FFYs 2020–24 TIP includes a variety of transit infrastructure improvement initiatives, funded both by MPO's Regional Targets and dollars that the MBTA, MWRTA, and CATA program in coordination with MassDOT. Because of the timing of these investments, they are not expected to affect the MPO's current (SFY 2019) TAM performance targets; however, they are expected to help improve TAM performance on the measures in general.

Vehicles

As part of the FFYs 2020–24 TIP, the MBTA will be investing in vehicles to replace or expand its fleets through its Revenue Vehicles and Bus Programs. Procurements will include the following:

- Hybrid and electric buses to replace diesel bus fleets or vehicles that have reached the end of their service life or to employ as pilot vehicles to help the MBTA explore bus propulsion technologies
- Dual mode articulated and electric articulated buses to replace and expand the Silver Line fleet
- Bi-level commuter rail coaches
- Type 10 Green Line light-rail vehicles to replace existing Type 7 and Type 8 fleets

Also, the Green Line Extension project, which the MPO will help support with its Regional Target funds, will include investments in vehicles to support the new service. Additional details about these investments are included in Chapter 3. Meanwhile, CATA will be purchasing two buses and two simulated trolleys to replace vehicles that have reached the end of their useful life. Collectively, these investments will help improve the state-of-good-repair condition of the fleets and make progress with respect to the TAM rolling stock and equipment performance measures.

Facilities

As part of the FFYs 2020-24 TIP, the MBTA will invest in a number of its transit stations and parking facilities through its Stations and Facilities Program. These investments will improve specific subsystems or components or make more extensive repairs or upgrades to address state of good repair, ADA accessibility, or other needs. Chapter 3 describes these investments in more detail. This set of investments includes the construction of a new Chelsea commuter rail station (and the decommissioning of the existing station), and design work to address accessibility needs at Green Line stations and at commuter rail stations in Newton. The MBTA will also be making modifications to the Hingham Ferry Dock and making infrastructure improvements at its Codman Yard facility, in part to accommodate new Red Line vehicles. In addition, the Green Line Extension project will include investment in new stations as part of the expansion of service. Over time, these investments will improve the state of good repair of MBTA facilities and also enhance accessibility and customer experience.

While MWRTA and CATA's facilities are currently in a state of good repair, these agencies will continue to maintain and upgrade them. As part of the FFYs 2020–24 TIP, CATA will be repaving its parking lot. MWRTA plans to improve its Blandin Hub facility by replacing its roof and generator; upgrading heating, ventilation, and air conditioning systems; completing path improvements and solar photovoltaic projects; and improving customer amenities, including by making ADA enhancements. MWRTA will also be funding elevator improvements at the Framingham commuter rail station, which it manages and maintains under contract with the MBTA.

Fixed Guideway Infrastructure

The MBTA's FFYs 2020–24 TIP investments in track signals and systems through its Signals and System Upgrade Program will, over time, help reduce the need for performance restrictions on fixed guideways. These investments include Green Line track upgrades, upgrades and improvements to Red Line, Orange Line, and Green Line signals, and specific signal upgrades at Alewife Station. Chapter 3 describes these investments in more detail.

The MBTA will be funding other improvements that will enhance the performance of fixed guideway systems, including the implementation of Automatic Train Control systems for the commuter rail network and power infrastructure upgrades at various locations. The installation of new track and systems as part of the Green Line Extension project will also affect fixed guideway infrastructure performance measures in the future.

Other Assets

Other MBTA investments in the FFYs 2020–24 TIP include those in its Bridge and Tunnel Program, which include bridge and tunnel repair and rehabilitation and replacement of several bridges, including eight that support the commuter rail network. The MBTA will also be rehabilitating the seawall that protects the Charlestown bus maintenance facility and replacing its radio system to support MBTA police communication. Chapter 3 provides more information on these projects. Meanwhile, CATA will invest in shop equipment, software, and other capital maintenance items, and MWRTA will invest in bus support equipment and IT infrastructure. In particular, the MBTA's Infrastructure Asset Management Program–Phase 1 will support the collection of asset data to support asset, life-cycle, and risk management practices.

Additional refinements may be made to MBTA, CATA, and MWRTA programming after MassDOT's CIP is finalized in summer 2019. Also, CATA and MWRTA coordinate with MassDOT's Rail and Transit Division to maintain vehicle state of good repair through competitive grant applications, including to the Commonwealth's Community Transit Grant Program. The Rail and Transit Division awards funding, including FTA 5310 funds, through this program on an annual basis, with award announcements typically made in the third quarter of the calendar year. Vehicle purchases and other investments supported by this program may support transit state of good repair in the Boston region.

Future Activities to Improve and Monitor System Preservation and Modernization Performance

The MPO will continue to work with MassDOT, the MBTA, MWRTA, and CATA, on the following activities to improve the links between transportation investments and system preservation and modernization:

- Consider updates to TIP criteria that more directly relate to federally required infrastructure condition performance measures.
- Work with MassDOT, and the region's transit agencies to better estimate the impacts of TIP investments on federally required and other performance measures and targets.

Capacity Management and Mobility Performance

Relevant Goals, Policies, and Plans

The MPO's capacity management and mobility goal focuses on *using existing facility capacity more efficiently and increasing transportation options*. The MPO's objectives in this area encompass a variety of modes and aspects of mobility, including access to and the accessibility of different transportation modes, connectivity between modes and systems, and support for reliable travel and congestion mitigation. Much of the Boston region is densely developed, which creates challenges to addressing these types access, reliability, and congestion mitigation needs.

A number of different planning processes come together to address capacity management and mobility performance, issues, and needs. Through its Congestion Management Process, the MPO does extensive analysis of congestion and mobility constraints in the region, and it also produces periodic Congestion Mitigation and Air Quality Improvement (CMAQ) Program performance plans that describe other congestion-oriented measures and targets. The MPO combines this work with ongoing system-level analyses that support its long-range planning, which are documented in its Long-Range Transportation Plan Needs Assessment.

MassDOT conducts its own analyses of mobility performance and needs, which it documents in modal plans such as its Freight Plan, Bicycle Plan, and Pedestrian Plan, its own CMAQ Performance Plan, and its MassDOT Performance Management Tracker tool. Meanwhile, the MBTA tracks and analyzes mobility metrics and uses these to support planning processes, such as *Focus40*, its current long-term investment plan. The exchange and integration of these plans help agencies in the Boston region coordinate to improve mobility across modes.

Capacity Management and Mobility Trends and Targets

The MPO examines a number of different metrics to understand congestion and mobility issues, several of which are discussed below.

Travel Time Index

As part of its CMP, the MPO examines congestion patterns on the Boston region's express highways (a 1,654 lane-mile system) and arterial roadways (a 3,320 lane-mile system). One of the measures the MPO uses is the Travel Time Index, which compares the average peak period travel time to free flow travel time on a roadway segment. When the average peak-period travel time equals free flow travel time, the TTI value equals one (1), and higher TTI values indicate more congestion. The MPO uses the following TTI-based thresholds to measure congestion:

- No congestion (TTI less than 1.15)
- Light congestion (TTI between 1.15 and 1.29)
- Moderate congestion (TTI between 1.3 and 2.0)
- Severe congestion (TTI greater than 2.0)

MPO staff compared TTI-based congestion levels on express highways and arterial roadways using INRIX travel time data for 2012 and 2015, and found that congestion worsened on the region's roadways over that time period. Table 4-18 displays highlights of this analysis. More information is available on the MPO's CMP Express Highway and Arterial Performance Dashboards, which can be viewed at bostonmpo.org/applications.

Table 4-18
Travel Time Index Analysis for the Boston Region: 2012 to 2015

		2012			2015		
Network	Time Period	Share of Roadways With Some Congestion	Number of Lane Miles With Moderate Congestion	Number of Lane Miles With Severe Congestion	Share of Roadways With Some Congestion	Number of Lane Miles With Moderate Congestion	Number of Lane Miles With Severe Congestion
Boston Region CMP Express Highways	AM Peak (6:00 AM to 10:00 AM)	28%	255	79	37%	308	126
Boston Region CMP Express Highways	PM Peak (3:00 PM to 7:00 PM)	30%	296	32	41%	393	115
Boston Region CMP Arterial Roadways	AM Peak (6:30 AM to 9:30 AM)	51%	601	41	79%	1,342	158
Boston Region CMP Arterial Roadways	PM Peak (3:30 PM to 6:30 PM)	49%	567	22	81%	1,583	246

CMP = Congestion Management Process. MPO = Metropolitan Planning Organization

Source: Boston Region MPO.

Travel Time Reliability

Table 4-3 highlights several federally required performance measures pertaining to the NHS system, including not only infrastructure condition but also travel reliability. FHWA requires

states and MPOs to monitor and set targets for two performance measures that pertain to all travelers on NHS roadways:

- Percent of the person-miles traveled on the Interstate System that are *reliable*
- Percent of the person-miles traveled on the non-Interstate NHS that are *reliable*

These measure captures (1) whether travel times on an NHS segment are consistent (reliability); and (2) the extent to which NHS users' travel may be affected by those conditions (percent of person miles). Several component metrics make up this measure:

- *Level of Travel Time Ratio (LOTTR).* This ratio compares longer (80th percentile) travel times to average (50th percentile) travel times on an NHS segment. FHWA has determined that LOTTR values less than 1.5 indicate reliable travel on the NHS for a particular time period. An NHS segment must have LOTTR values of less than 1.5 for four designated day-and-time periods to be considered reliable.[14] Larger LOTTR values indicate greater differences between the 80th and 50th percentiles and, thus, less reliable travel times.

- *Annual Number of Travelers.* States and MPOs calculate this figure using vehicle volumes and average vehicle occupancy factors.

- *NHS segment length.* States and MPOs use this value and data on the annual number of travelers to estimate person-miles traveled on the NHS.

States or MPOs identify the person-miles of travel for each NHS segment and divide the total person-miles on the relevant NHS network that are reliable by the total person-miles on the relevant NHS network. To support this analysis, FHWA provides travel-time and traffic-volume data as part of the National Performance Management Research Data Set (NPMRDS), in which travel time data is reported by traffic messaging channel (TMC) segments.

States are required to set two-year and four-year targets for these measures. In 2018, MassDOT calculated baselines and established targets for these measures for the Massachusetts Interstate and non-Interstate NHS networks. When establishing baseline values, MassDOT only examined NPMRDS travel-time data from CY 2017 because the NPMRDS from prior years was assembled using different data collection methods and has some different features. Because historic data was limited, MassDOT considered FHWA guidance and recommendations for establishing initial targets with this limited historic data, and set its initial targets equal to CY 2017 baseline values.[15]

Table 4-19 shows MassDOT's CY 2017 baselines and two-year and four-year targets for these measures. The Boston Region MPO, like all MPOs, was required to establish four-year targets

14 States and MPOs must calculate LOTTR values for four time periods: weekdays from 6:00 AM to 10:00 AM, weekdays from 10:00 AM to 4:00 PM, weekdays from 4:00 PM to 8:00 PM, and weekend days from 6:00 AM to 8:00 PM.

15 FHWA, "Frequently Asked Questions: Target Setting," https://www.fhwa.dot.gov/tpm/faq.cfm#targ, accessed September 14, 2018.

for these measures by either supporting state targets or setting its own quantitative targets for the Boston region. In 2018, the MPO board voted to support the state's four-year targets. Table 4-19 also shows CY 2017 baselines for the Boston region's Interstate and non-Interstate NHS networks as a basis for comparison. As the table shows, the Boston region's share of reliable person-miles traveled on its Interstate and non-Interstate NHS networks is lower than those values for Massachusetts as a whole.

Table 4-19
Travel Time Reliability Performance Baselines and Performance Targets

Network	Measure	Cumulative Traffic Message Channel Length (Miles)	2017 Measure Value (Baseline)	Two-Year Target (CY 2019)[a]	Four-Year Target (CY 2021)[a]
Massachusetts—Interstate Highway System	Percent of person-miles on the Interstate Highway System that are reliable	1,150	68.0%	68.0%	68.0%
Massachusetts—Non-Interstate NHS System	Percent of person-miles on the non-Interstate NHS that are reliable	5,257	80.0%	80.0%	80.0%
Boston Region—Interstate Highway System	Percent of person-miles on the Interstate Highway System that are reliable	354	47.2%	n/a	n/a
Boston Region—Non-Interstate NHS System	Percent of person-miles on the non-Interstate NHS that are reliable	1,799	69.0%	n/a	n/a

[a]The two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021.

CY = calendar year. NHS = National Highway System.

Sources: National Performance Management Research Data Set, Cambridge Systematics, MassDOT, and the Boston Region MPO.

Truck Travel Time Reliability

FHWA requires states and MPOs to track truck travel reliability on the Interstate system to better understand performance of the nation's freight system. The applicable measure in this case is the Truck Travel Time Reliability Index (TTTR). Like the LOTTR, this measure compares longer (95th percentile) truck travel times to average (50th percentile) truck travel times. The greater the difference between these two travel times is on an Interstate segment the less reliable truck travel on that segment is considered to be. For each Interstate segment, states and

MPOs calculate TTTR values for different day-and-time periods and weight the segment length by the maximum applicable TTTR value.[16] They then sum these weighted segment lengths for all Interstate segments and divide that total value by length of the full Interstate network for the applicable geographic area. Like segment-specific TTTR values, the greater this aggregate value is, the more unreliable the network is with respect to truck travel.

In 2018, MassDOT has calculated baseline TTTR Index values and established performance targets using CY 2017 truck travel time data included in the NPMRDS. As with the all-passenger travel time reliability targets, MassDOT set its two-year and four-year targets equal to the CY 2017 baseline. Table 4-20 displays these values. The MPO board voted to support MassDOT's four-year TTTR Index target in 2018. Table 4-20 also includes the Boston region's CY 2017 baseline index value. As the table shows, the Boston region's TTTR baseline value is higher than the one for Massachusetts, indicating that truck travel on the region's Interstate network is generally less reliable than on Massachusetts's Interstates as a whole.

Table 4-20
Truck Travel Time Reliability Performance Baselines and Performance Targets

Network	Measure	Cumulative Traffic Message Channel Length (Miles)	2017 Measure Value (Baseline)	Two-Year Target (CY 2019)[a]	Four-Year Target (CY 2021)[a]
Massachusetts—Interstate Highway System	Truck Travel Time Reliability Index	1,150	1.85	1.85	1.85
Boston Region—Interstate Highway System	Truck Travel Time Reliability Index	354	2.55	n/a	n/a

[a]The two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021.

CY = calendar year. MPO = Metropolitan Planning Organization. n/a = not applicable. NHS = National Highway System.

Sources: National Performance Management Research Data Set, Cambridge Systematics, MassDOT, and the Boston Region MPO.

16 States and MPOs must calculate TTTR Index Values for five time periods: weekdays from 6:00 AM to 10:00 AM, weekdays from 10:00 AM to 4:00 PM, weekdays from 4:00 PM to 8:00 PM, and weekend days from 6:00 AM to 8:00 PM, and all days from 8:00 PM to 6:00 AM.

Peak Hours of Excessive Delay per Capita

MassDOT and the Boston Region MPO examine mobility using measures they must monitor to meet Congestion Mitigation and Air Quality Improvement (CMAQ) program requirements. These measures are designed to help FHWA, states, and MPOs better understand the impacts of CMAQ investments, which are intended to contribute to air quality improvements and provide congestion relief. CMAQ traffic-congestion-related performance measures apply to urbanized areas (UZAs) that contain geographic areas designated as not attaining US Environmental Protection Agency (EPA) standards for criteria air pollutants and precursors from mobile sources (also known as nonattainment areas). The measures also apply to geographic areas that have a history of being in nonattainment and are thus required to maintain air quality monitoring and standard conformity processes (also known as maintenance areas).[17]

States must be involved in setting targets for CMAQ traffic performance measures if (1) they have mainline highways on the NHS that cross part of a UZA with a population of more than one million; and (2) that UZA contains part of a nonattainment or maintenance area for relevant criteria pollutants. Similarly, MPOs must participate in target setting for the traffic congestion measures if (1) the region contains mainline highways on the NHS that cross part of a UZA with a population of more than one million; and (2) the part of the MPO area that overlaps the UZA contains part of a nonattainment or maintenance area for relevant criteria pollutants. Massachusetts and the Boston Region MPO each meet these respective criteria and, therefore, must be involved in monitoring and setting targets for traffic congestion performance measures for the Boston UZA, which encompasses several MPO areas in eastern Massachusetts, New Hampshire, and Rhode Island.

The first of these CMAQ traffic congestion measures is *annual hours of peak hour excessive delay (PHED) per capita*, which estimates the excessive delay experienced by a UZA's population from travel on the NHS during peak periods. States and MPOs calculate this measure using several component metrics:

17 A precursor is a chemical compound that reacts with other chemical compounds in the presence of solar radiation to form pollutants.

- *Hours of excessive delay during peak periods*. For each NHS segment, states and MPOs determine a threshold speed and use this value and the segment length to establish an *excessive delay threshold travel time (EDTTT)*.[18] They determine the amount of travel time for all vehicles that exceeded the EDTTT during weekday peak periods.[19] This remainder is the excessive delay for that NHS segment. Travel-time data for NHS segments are required to make this calculation; these data are provided by the NPMRDS. This excessive delay value is calculated for peak periods for all NHS segments for a full year.
- *Number of travelers during peak periods*. To calculate this figure, states and MPOs use *average annual daily traffic (AADT)* estimates for NHS segments and then apply factors to adjust these estimates to reflect weekday peak hours and average vehicle occupancies.
- *UZA Population.* Population figures are provided by the US Census Bureau.

The PHED per capita measure is calculated at the Boston UZA level by multiplying the *hours of excessive delay during peak periods* by the n*umber of travelers during peak periods,* and then dividing that total by the *UZA population*.

To understand baseline performance and set targets for this measure, MassDOT and NH DOT worked with analysts at Cambridge Systematics and, using 2017 NPMRDS data, calculated annual hours of PHED per capita for travel on the NHS in their respective portions of the Boston UZA.[20] In 2018, the agencies in the Boston UZA that are subject to CMAQ performance monitoring requirements—MassDOT, the New Hampshire Department of Transportation (NH DOT), the Boston Region MPO, and the Northern Middlesex Council of Governments (NMCOG)—established two-year and four-year targets that maintain this 2017 baseline value for the annual hours of PHED per capita measure, as shown in Table 4-21.

18 FHWA requires state DOTs and MPOs to use 60 percent of the posted speed limit for the segment or 20 miles per hour, whichever is greater.

19 FHWA requires states and MPOs to use the period from 6:00 AM to 10:00 AM to represent the morning peak period, but allows these agencies to choose either 3:00 PM to 7:00 PM or 4:00 PM to 8:00 PM to represent the evening peak period. MassDOT and NH DOT selected the period from 3:00 PM to 7:00 PM to represent the evening peak period for the Boston UZA.

20 Rhode Island was not included in the calculation of this measure because it does not include any portion of the Boston UZA's NHS network. See *FHWA's Applicability Determination: CMAQ Traffic Congestion and CMAQ On-Road Mobile Source Emissions Measures* (23 CFR 490.707 and 490.807), and *Change Log: Applicability Determination for CMAQ Measures*," May 22, 2018.

Table 4-21
Boston UZA Baseline and Performance Targets for Annual Hours of Peak Hour Excessive Delay Per Capita

Geographic Area	Massachusetts and New Hampshire Annual PHED	Boston UZA Population (MA and NH only)[a]	2017 Measure Value (Baseline)	Two-Year Target (CY 2018-19)[b]	Four-Year Target (CY 2020-21)[b]
Boston Urbanized Area	80,053,183	4,371,476	18.30	18.30	18.30

[a] Cambridge Systematics aggregated 2012-16 American Community Survey population estimates from the US Census Bureau at the block group level to estimate the population for the portion of the UZA in Massachusetts and New Hampshire, and then inflated this estimate for 2017 by applying information on expected population growth in the Boston Metropolitan Statistical area between 2016 and 2017.

[b] The two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021.

CY =calendar year. MA = Massachusetts. NH = New Hampshire. PHED = peak hours of excessive delay. UZA = urbanized area.

Sources: National Performance Management Research Data Set, US Census Bureau, Federal Highway Administration, MassDOT, the New Hampshire Department of Transportation, and Cambridge Systematics.

Percent of Non-Single-Occupant-Vehicle Travel

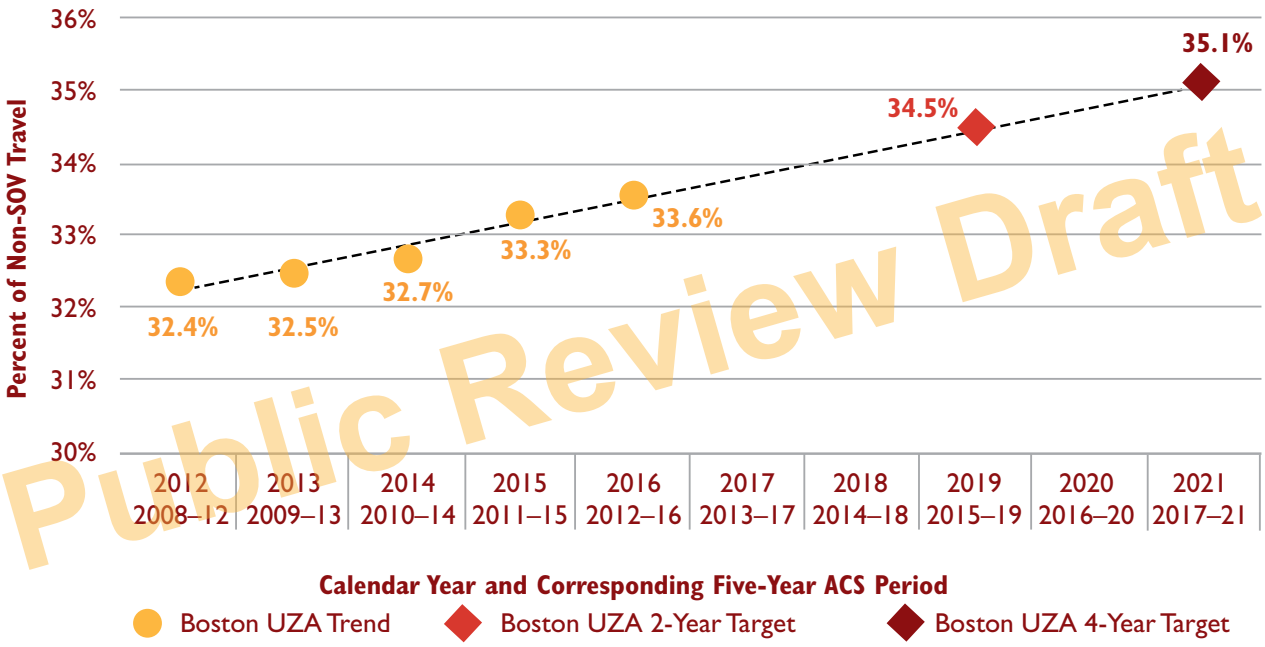
States and MPOs that meet applicability criteria for CMAQ performance requirements must also monitor and set targets for the share of non-single-occupant-vehicle (non-SOV) travel in their respective states or regions. This measure is calculated at the UZA level. The *percent of non-SOV travel* performance measure describes the extent to which people are using alternatives to single-occupancy vehicles to travel and, thus, helping to reduce traffic congestion and air pollution from mobile sources.

Collectively, MassDOT, NH DOT, the Boston Region MPO, and NMCOG used American Community Survey (ACS) data from the US Census Bureau to estimate the percent of workers age 16 and older who commuted to work using an option other than driving alone.[21] These ACS five-year period estimates are rolling annual averages. Figure 4-8 shows how the percentage of workers using non-SOV commuting options in the Boston UZA has increased between 2012 (2008–12 ACS estimate) and 2016 (2012-16 ACS estimate). MassDOT calculated a linear trend

21 US American Community Survey, "Commuting Characteristics by Sex," American Community Survey Five-Year Estimates, https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_S0801&prodType=table, accessed September 2, 2018.
FHWA allows States and MPOs to measure non-SOV travel using US Census American Community Survey (ACS) estimates of the percentage of workers who commute to work using modes other than driving alone (such as taking a carpool, vanpool, or public transit; bicycling; walking; or telecommuting); travel surveys that reveal mode choices; or sample or continuous counts of travelers using different modes.

line using these values for the Boston UZA and used that trend line to project expected values as of the end of CY 2019 (the expected 2015–19 ACS estimate) and CY 2021 (the expected 2017–21 ACS estimate). The agencies established these projected values as the Boston UZA targets for the percent of non-SOV travel. As Figure 4-8 shows, the share of non-SOV travel in the Boston region has been increasing steadily over time.

Figure 4-8
Historic Values and Performance Targets for the Percent of Non-SOV Travel in the Boston UZA



Note: The two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021.

ACS = US American Community Survey. SOV = single-occupant vehicle. UZA = urbanized area.

Sources: US Census Bureau, 2012-16 American Community Survey Five-Year Estimates; MassDOT; and NH DOT.

Table 4-22 lists the recent baseline and performance target for this measure. It also includes a baseline value for non-SOV travel that is specific to the Boston region, which is a larger percentage than for the Boston UZA.

Table 4-22
Boston UZA Baseline and Performance Targets for Percent of Non-SOV Travel

Geographic Area	2012-16 Measure Value (Baseline)	Two-Year Target (CY 2018-19)[a]	Four-Year Target (CY 2020-21)[a]
Boston UZA	33.6%	34.5%	35.1%
Boston region (97 municipalities)	38.4%	n/a	n/a

[a]The two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021.

CY = calendar year. n/a = not applicable. SOV = single-occupancy vehicle. UZA = urbanized area.

Sources: MassDOT, NH DOT, and the US Census American Community Survey.

TIP Projects Supporting Capacity Management and Mobility Performance

The MPO seeks to make investments that help manage capacity on the transportation network and improve mobility for travelers in a variety of ways, including the following:

- Providing alternatives to single-occupant-vehicle (SOV) travel, such as by expanding transit service or adding new bicycle and pedestrian facilities
- Improving roadway design or adding capacity at bottleneck locations
- Implementing traffic and operational improvements along congested or unreliable corridors

When prioritizing projects funded with Regional Target dollars, the MPO uses evaluation criteria to assess how well each project expands transportation options (and mode choice) by enhancing bicycle and pedestrian accommodations and connections to transit, and how well each project helps reduce congestion and delay for passenger vehicles (including transit vehicles) and trucks. For more information on the MPO's capacity management and mobility-oriented TIP criteria, see Appendix A. During the FFYs 2020–24 TIP development process, MPO staff also gathered information about the relationship between TIP projects and the NHS, including unreliable segments on the NHS, based on 2017 NPMRDS data and federal travel time reliability performance thresholds.

By electing to support the Commonwealth's targets for federally required reliability measures and agreeing to the UZA targets for the federally required annual hours of PHED per capita and non-SOV travel, the MPO agrees to plan and program projects so that they contribute to achieving those targets. It can be challenging to anticipate how transportation projects may affect these performance measures, as they track outcomes that are not only affected by transportation investments but also traveler choices and demand, among other factors. The MPO developed estimates for project-related metrics to see how its Regional Target roadway

projects could improve the transportation system in ways that contribute to more reliable, less congested travel on the NHS or encourage more non-SOV travel:

- Projects that improve roadway geometry or signalization on the NHS, particularly on segments considered to be unreliable, might improve overall travel time reliability on that system.
- Projects that reduce vehicle hours of delay, particularly on the NHS, may also reduce annual hours of PHED per capita.
- Projects that add to the region's sidewalk or bicycle and pedestrian facility networks, or that support access to transit, might encourage use of non-SOV modes.

Table 4-23 summarizes these estimates for Regional Target Roadway projects. MPO staff developed estimated values for these metrics using available data from functional design reports and other materials provided by project proponents; results from MPO TIP evaluations; 2017 NPMRDS data; and other sources. Staff estimates aggregate changes in vehicle hours of delay using project-level information on vehicle volumes and changes in delay times at intersections from project improvements.

Table 4-23
Regional Target-Funded Roadway Project Metrics Related to Capacity Management and Mobility Performance

Metric	Value
Projects that overlap unreliable NHS segments and that will improve roadway signalization or geometry[a]	9 projects
Projects that overlap any NHS segments and that will improve roadway signalization or geometry[a]	20 projects
Net reduction in vehicle hours of delay per day[b]	11,900 hours reduced per day
Net reduction in vehicle hours of delay per day for projects that overlap the NHS[b]	10,400 hours reduced per day
Miles of new sidewalks added	20 miles
Lane miles of new bicycle accommodations and shared-use paths	70 lane miles
Projects that improve intermodal connections or access to transit	31 projects

Note: The group of projects reflected in this table does not include the Green Line Extension, Community Transportation/Parking/Clean Air and Mobility investments, or MBTA modernization investments.

[a] The MPO identified reliable and unreliable segments on the NHS using the 2017 NPMRDS federal travel time reliability performance thresholds.

[b] This aggregate estimate for reduced daily vehicle delay also excludes two Major Infrastructure roadway projects that were included in the air quality modeling results in Charting Progress to 2040: Project 604996–Bridge Replacement on New Boston Street in Woburn and Project 606226–Reconstruction of Rutherford Avenue in Boston. This aggregate estimate is based on projected future conditions for project locations and has been rounded to the nearest hundred.

NHS = National Highway System.

Source: Boston Region MPO.

Other Regional Target investments not mentioned in Table 4-23 will also support the availability of non-SOV options. By contributing to the Green Line Extension project, the MPO supports the expansion of light-rail service to more areas within the Boston region. Also, through its Community Transportation Program, the MPO expects to support projects that will enhance first- and last-mile connections to transit or address needs not covered by existing transit service. If these investments encourage people to take transit or non-motorized alternatives instead of traveling alone in their cars, those on the region's roadways may in turn experience less congestion and better reliability.

MassDOT, MBTA, and RTA projects, described in Chapter 3, also address capacity management and mobility in the Boston region and may also support improvements on federally required reliability, congestion, and non-SOV travel performance measures. In particular, MassDOT's Bicycle and Pedestrian projects expand the region's bicycle and pedestrian networks, which support non-SOV travel. Its Intersection Improvements program includes nine projects on the NHS, which may address delay and congestion. One of its Roadway Reconstruction projects addresses a freight bottleneck identified in the state's Freight Plan: the Interstate 90/Interstate 495 interchange in Hopkinton and Westborough—which will likely improve truck travel time reliability. Meanwhile, MBTA and RTA investments enhance the region's transit system and make it an attractive alternative to SOV travel.

Future Activities to Improve and Monitor Capacity Management and Mobility Performance

The MPO will continue to work with MassDOT, the MBTA, the region's RTAs and other transit service providers, and other stakeholders in the region to improve capacity management and mobility performance. These activities may include the following:

- Continue to seek out and improve data to help the MPO better analyze capacity management and mobility issues for all modes.
- Strengthen the relationship between the MPO's TIP criteria and federally required reliability and congestion performance measures.
- Improve methods for understanding the impacts of projects on reliability, congestion, and non-SOV travel performance measures.
- Explore ways to integrate the monitoring of federally required performance measures more fully into the MPO's CMP.
- Explore other mobility performance measures, including measures specific for transit or bicycle and pedestrian travel or that consider multiple modes (including transit)

Clean Air/Sustainable Communities Performance

Relevant Goals, Policies, and Plans

The MPO aims to support clean air and sustainable communities in the Boston region by *creating an environmentally friendly transportation system,* which it pursues by investing in projects that reduce greenhouse gases (GHGs) and other transportation-related pollutants, and otherwise minimize negative environmental impacts.

The MPO agrees that GHG emissions contribute to climate change. If climate change trends continue as projected, the conditions in the Boston region will include a rise in sea level coupled with storm-induced flooding, and warmer temperatures that would affect the region's infrastructure, economy, human health, and natural resources. Massachusetts is responding to this challenge by taking action to reduce the GHGs produced in the state, including those generated by the transportation sector. To that end, Massachusetts passed its Global Warming Solutions Act (GWSA), which requires reductions of GHGs by 2020, and further reductions by 2050, relative to 1990 baseline conditions. To meet GWSA requirements, the MPO works with MassDOT and other stakeholders to anticipate the GHG impacts of projects included in the TIP, specifically by examining additions or reductions in carbon dioxide (CO_2). More details on the MPO's GHG tracking and evaluation processes are included in Appendix B.

Transportation projects may also help reduce other air quality pollutants and precursors and can support reductions in CO_2, volatile organic compounds (VOCs), nitrogen oxides (NO_x) and carbon monoxide (CO) by improving traffic flow and bicycle and pedestrian travel. The Boston Region MPO contains a maintenance area for CO in Waltham, and also is required to track VOCs and NOx to meet EPA requirements. (More detailed information about the MPO's air quality status and related requirements is available in Chapter 5). The MPO tracks the air quality benefits of transportation projects to identify projects that may be eligible for CMAQ funds. FHWA also requires the Boston Region MPO to produce a CMAQ Performance Plan, which includes performance targets for both the annual PHED per capita and share of non-SOV travel measures described in the previous section. This plan includes targets for the amount of emissions the MPO expects will be reduced because of CMAQ-funded projects in the region. As part of its CMAQ Performance Plans, the MPO must note how it expects its CMAQ-funded projects to support improvements in these performance measures, which reinforces the connection between planning, investments, and expected performance outcomes.

Emission Reduction Measure and Targets

The federally required CMAQ emissions reduction measure, identified in Table 4-3, is the total emissions reduction for applicable pollutants and precursors for CMAQ-funded projects in designated nonattainment and maintenance areas. FHWA requires states and MPOs subject to these CMAQ performance management requirements to establish a baseline for this measure by identifying emissions reductions associated with any CMAQ-funded projects programmed in air quality nonattainment or maintenance areas between FFY 2014 and FFY

2017. These states and MPOs were also required to set two-year and four-year targets for the emissions reductions expected from CMAQ-funded projects programmed in nonattainment or maintenance areas.

In the Boston Region MPO's case, this CMAQ emissions performance measure would capture the anticipated carbon monoxide emissions reductions from any CMAQ-funded projects that the MPO has programmed specifically in the carbon monoxide maintenance area in Waltham.[22] Table 4-24 shows the Boston Region MPO's baseline and target values for this measure. Neither the MPO nor MassDOT programmed any CMAQ-funded projects in Waltham during FFYs 2014 to 2017, and at the time of target setting the MPO's TIP did not reflect any CMAQ-funded projects programmed in Waltham from FFY 2018 to 2021. The FFYs 2020–24 TIP does not include any CMAQ-funded projects in Waltham.

Table 4-24
Boston Region MPO CMAQ Emissions Reduction Baseline and Performance Targets

Performance Measure	FFYs 2014–17 Measure Value (Baseline)	Two-Year Target (FFYs 2018–19)	Four-Year Target (FFYs 2018–21)[a]
Daily kilograms of CO emissions reduction from CMAQ projects in Boston region nonattainment or maintenance areas	0	0	0

CMAQ = Congestion Mitigation and Air Quality. CO = carbon monoxide. FFY = federal fiscal year.

Source: Boston Region MPO.

TIP Projects Supporting Clean Air/Sustainable Communities Performance

The MPO uses evaluation criteria to assess the projected transportation-related emissions of each project that is a candidate for Regional Target funding, both for CO_2 and other air quality pollutants and precursors, among other environmental considerations. Transportation projects can support reductions in CO_2, volatile organic compounds (VOCs), nitrogen oxides (NOx) and carbon monoxide (CO) by improving traffic flow and bicycle and pedestrian travel. Table 4-25 displays the CO_2 and other emissions reductions the MPO expects from projects

22 FHWA assesses the CMAQ performance management requirements that apply to states and MPOs every two years. FHWA conducted its most recent assessment in August 2017, at which time the MPO was only subject to emissions performance management requirements for its carbon monoxide maintenance area in Waltham. FHWA will conduct its next assessment by October 1, 2019, after which the MPO may be subject to requirements for other pollutants or precursors.

it has programmed using its Regional Target funds. MPO staff estimates emissions for projects using MassDOT's air quality analysis worksheets for each project type and the Environmental Protection Agency's MOtor Vehicle Emission Simulator (MOVES) emission factors.

Table 4-25
Regional Target-Funded Roadway Project Metrics
Related to Clean Air and Sustainable Communities Performance

Metric	Value
Annual kilograms of CO_2 reduced	11,820,100 kilograms
Annual kilograms of other emissions (VOCs, NOx, and CO) reduced	20,100 kilograms

Note: The group of projects reflected in this table does not include the Green Line Extension or Community Transportation/Parking/Clean Air and Mobility investments. These aggregate emissions estimates exclude two Major Infrastructure roadway projects that were included in the air quality modeling results for Charting Progress to 2040: 604996–Bridge Replacement on New Boston St in Woburn and Project606226–Reconstruction of Rutherford Avenue in Boston. These aggregate estimates are based on projected future conditions for project locations and have been rounded to the nearest hundred.

CO = carbon monoxide. CO_2 = carbon dioxide. NOx = nitrogen oxide. VOCs = Volatile organic compounds.
Source: Boston Region MPO.

MassDOT, MBTA, and RTA projects and programs also support improvements to air quality and the environment. Appendix B provides more detailed information and assessments of the GHG impacts of MassDOT, MBTA, CATA, and MWRTA projects and programs. MassDOT maintains an independent statewide CMAQ Performance Plan and tracks the relationship between its projects and its CMAQ emissions reduction performance targets.

Future Activities to Improve and Monitor Clean Air and Sustainable Communities Performance

The GWSA and FHWA's CMAQ performance management requirements create frameworks that reinforce coordination between the MPO, MassDOT, and the region's transit providers as they make investments to support clean air and sustainable communities. Future performance activities in this area may include the following:

- Improve methods for understanding how transportation projects may improve air quality outcomes.
- Identify an effective approach for tracking GHG impacts from MPO investments over time.
- Explore other performance measures related to air quality and the environment.

Economic Vitality Performance

Relevant Goals, Policies, and Plans

The MPO's seeks to ensure that the Boston region's transportation network *provides a strong foundation for economic vitality*. Transportation investments can support economic vitality in a variety of ways, such as by supporting freight movement, improving connections to key freight and economic development sites, and supporting compact development. The MPO's approach to addressing freight needs is guided in large part by MassDOT's Freight Plan, which identifies key freight facilities and needs, strategies to improve freight movement, and priority projects.

The Metropolitan Area Planning Council's (MAPC) regional land-use plan also identifies economic vitality goals and strategies that influence MPO investments. For example, a strategy in MAPC's current regional land-use plan, *MetroFuture*, is to coordinate transportation investments to guide economic growth in the region. MAPC worked with its state-level partners at the Executive Office of Housing and Economic Development (EOHED) and the Executive Office of Energy and Environmental Affairs (EOEEA), as well as municipalities, to identify locations throughout the region appropriate for building housing stock and siting employers. These agencies identified the infrastructure improvements required to support the outcomes planned for these local, regional, and state-level priority development areas, which help MAPC, the MPO, and state agencies to respond with their investments and technical assistance.

Economic Vitality Measure

States and MPOs track the federally required truck travel time reliability measure for the Interstate Highway System, listed in Table 4-3, by using the Truck Travel Time Reliability Index. This measure has the most direct implications for the MPO's Capacity Management and Mobility goal; however, this measure is also relevant to the Boston region's economic vitality. The MPO has not yet established other performance measures specific to freight or economic vitality, such as measures that could be used to track the coordination of land-use development and transportation investments.

TIP Projects Supporting Economic Vitality Performance

When evaluating TIP projects using its TIP criteria, the MPO assesses how well each project may advance *MetroFuture's* land-use planning objectives. This includes but is not limited to supporting areas identified for economic development by state, regional, and local planning and areas with a relatively high density of existing development. These assessments are based on MAPC-provided information on targeted development sites and project relationships to areas of concentrated development, along with project data from functional design reports and other sources. Table 4-26 provides some highlights of how Regional Target-funded projects in this TIP address economic vitality.

Table 4-26
Regional Target-Funded Roadway Project Metrics Related to Economic Vitality Performance

Metric	Value
Projects that improve access to targeted development sites	23 projects
Projects that serve areas of concentrated development	40 projects

Note: The group of projects reflected in this table does not include the Green Line Extension, Community Transportation/Parking/Clean Air and Mobility investments or Project 606476–Sumner Tunnel Improvements in Boston.
Source: Boston Region MPO.

Future Activities to Improve and Monitor Economic Vitality Performance

MAPC's regional land-use plan and economic vitality initiatives, USDOT's freight directives, and MassDOT's freight planning will all influence strategies that the MPO uses to monitor economic vitality performance going forward. The MPO's ongoing freight planning work will also play an important role in this process. Future activities may include the following:

- Explore other performance measures related to freight
- Improve methods for understanding how transportation projects may improve economic vitality performance.

Summary: Regional Target-Funded Projects Supporting MPO Goal Areas

Figure 4-9 highlights some of the ways that the MPO's FFYs 2020–24 Regional Target-funded projects support improved performance in the MPO's various goal areas.

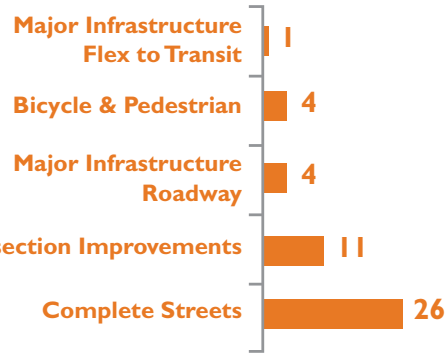
Figure 4-9
FFYs 2020–24 TIP Target Program: Projects by the Numbers

FFYS 2020–24 TIP TARGET PROGRAM: PROJECTS BY THE NUMBERS

Between FFY 2020 and 2024, the MPO plans to fund

46 Regional Target Highway Projects

in these MPO investment programs:



These projects will happen in

39 MPO cities and towns

classified by MAPC community type:

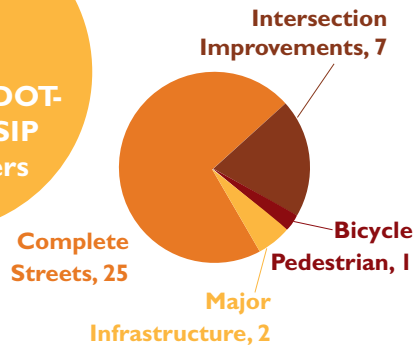
These projects will address safety and help preserve the transportation system by improving

- **8** bridge structures
- **47** miles of substandard sidewalk
- **84** lane miles of substandard pavement
- **33** locations to allow for better emergency response or make the transportation system more resilient to extreme weather conditions

These projects will improve safety by addressing

35 2013-15 MassDOT-identified HSIP crash clusters

across the following investment programs:



These projects will also enhance the system by

Adding capacity and access:

- **20** new miles to sidewalk network
- **70** new lane miles to bike and shared-use path network
- **31** projects improve intermodal connections or access to transit

Reducing Delay:

- **11,900** hours of delay reduced per day*

Addressing the environment and economic vitality:

- **11.7** million kilograms of CO_2 reduced per year*
- **23** projects improve access to targeted development areas

Sources: MassDOT and the Boston Region MPO
HSIP: Highway Safety Improvement Program. MAPC: Metropolitan Area Planning Council
*These estimates exclude the Green Line Extension project in Cambridge, Somerville and Medford, the New Boston Street Bridge project in Woburn, and the Rutherford Avenue project in Boston.
Note: Projects have not yet been selected for the MPOs Community Transportation/Parking/Clean Air and Mobility Program.

Transportation Equity Performance

Relevant Goals and Policies

The MPO's goal with respect to transportation equity is to ensure that all people receive comparable benefits from, and are not disproportionately burdened by, MPO investments, regardless of race, color, national origin, age, income, ability, or sex. The MPO aims to ensure that all residents fairly share in the benefits and burdens of its transportation planning investments, have opportunities to participate in the transportation planning process, and have a voice in the selection of transportation investments in their communities. The MPO's practices in this area are shaped by various federal nondiscrimination and environmental justice (EJ) laws, regulations, and directives, including Title VI of the Civil Rights Act of 1964; the Americans with Disabilities Act; Executive Order 13166—Improving Access to Services for Persons with Limited English Proficiency (LEP); and Executive Order 12898—Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations. More information on these mandates can be found in Appendix F.

To this end, the MPO systematically integrates the transportation needs and interests of specific traditionally underserved populations—which are identified as *transportation equity (TE) populations*—into its planning process and strives to address their concerns through the selection of transportation projects. TE populations include people who identify as minorities, have limited English proficiency (LEP), are 75 years of age or older, or have a disability; or who are members of low-income households or transit-dependent households.[23] These populations include those protected by federal laws and regulations—such as minorities and people with disabilities—as well as those not protected by federal laws or regulations but of interest to the MPO from an equity standpoint because they have specific transportation needs (such as members of transit-dependent households).[24]

Transportation Equity Assessment

As noted in Table 4-1, FHWA and FTA do not require states, MPOs, or transit agencies to monitor specific performance measures related to transportation equity. However, as part of complying with federal nondiscrimination and EJ mandates, they require that these agencies monitor how their investments—which are funded with federal transportation dollars—are distributed relative to TE populations. This monitoring helps ensure that these populations equitably benefit from MPO investments and are not unduly burdened by any potential adverse effects. This section provides such an analysis for projects in the FFYs 2020–24 TIP.
The analyses that follow apply only to projects that the MPO has programmed with its Regional Target funds. Most of the MPO's FFYs 2020–24 Regional Target funds have been invested in

23 People who identify as minorities are those who identify as Hispanic or Latino/a/x and/or a race other than "white."

24 MPO staff identifies transportation equity populations using US Census and American Community Survey data. Staff tabulates LEP status for the population age five and older, and tabulates disability status for the noninstitutionalized population. The low-income threshold for the Boston region is set using the region's median household income, which is $75,654 according to the 2010–14 American Community Survey data. The Boston region's low-income threshold is 60 percent of this value, which is $45,392.

highway projects, except for funds that have been flexed to the Transit Program to support the MBTA's Green Line Extension project, modernization of MBTA transit infrastructure, and the MPO's Community Transportation/Parking/Clean Air and Mobility investment program. Because the specific projects have not yet been identified for funding for the modernization of MBTA transit infrastructure, and the MPO's Community Transportation/Parking/ Clean Air and Mobility investment program, these investments are not reflected in most of the following analyses. This analysis will be updated once this information becomes available.

Additionally, these analyses do not reflect other highway projects in the region that are funded by MassDOT or transit projects funded by public transit agencies, including the MBTA, MWRTA, and CATA. As a result, these analyses only partially reflect the distribution of funds in the Boston region, and may not fully capture the number of people served or the shares of funding directed to transportation equity populations. The MPO completes a full analysis of all federally funded transit investments in the MPO's region in a given federal fiscal year once that information is available in the following federal fiscal year. The MPO documents these analyses in the MPO's Triennial Title VI Report.

Table 4-27 shows the total number of people or households in each TE population in the Boston region, as well as their share of the Boston region's total population or households.

Table 4-27
Transportation Equity Populations in the Boston Region

Transportation Equity Category	Transportation Equity Population	Boston Region Total Population	Share of Boston Region Total Population
Minority	870,459	3,087,796	28.20%
People with LEP[a]	308,770	2,915,559	10.60%
Elderly (age 75 or older)	206,578	3,087,796	6.70%
People with disabilities[a]	306,776	3,056,697	10.00%
Low-income households[a]	393,192	1,216,550	32.30%
Transit-dependent households	196,460	1,216,550	16.10%

Note: For the minority population, people with limited English proficiency, elderly population, and people with disabilities categories, the amounts in the "Transportation Equity Population" and "Boston Region Total Population" columns reflect numbers of people. For the low-income and transit-dependent household categories, the amounts in these columns reflect numbers of households.

[a] Footnote 24 in this chapter describes the methods MPO staff uses to tabulate these transportation equity populations.

Source: Data from 2010 US Census and 2010–14 American Community Survey.

During project evaluation, the MPO identifies projects that would benefit TE populations by giving points to projects that are likely to serve those populations. A project is considered to serve people who live within one-half mile of the project's limits. A project receives points if the share of the transportation equity population served meets or exceeds the population's share of the region's total population, or threshold, as shown in Table 4-30. The number of points awarded to each qualifying project is based on the total number of people or households in the TE population. Appendix A shows the scores for projects evaluated during the FFYs 2020–24 development cycle.

While the TIP project criteria are designed to evaluate individual projects, MPO staff also analyzes the TE population that is served by the full set of projects funded with Regional Target dollars. Table 4-28 shows the size of the TE populations that are served by these projects and the share of the total number of people or households that would be served by them (based on proximity to the project, as defined above). The results show that the share of each TE population that would be served by the Regional Target projects approaches or exceeds the share that each group comprises of the total Boston region population.

Table 4-28
Transportation Equity Populations within One-Half Mile of Regional Target-Funded Projects

Transportation Equity Category	Transportation Equity Population in Project Area	Total Population in Project Area	Share of Transportation Equity Population in Project Area	Share of Boston Region Total Population
Minority	167,729	488,173	34.4%	28.2%
People with LEP[a]	76,043	461,237	16.5%	10.6%
Elderly (age 75 or older)	34,368	488,173	7.0%	6.7%
People with disabilities[a]	49,089	483,977	10.1%	10.0%
Low-income households[a]	76,772	199,646	38.6%	32.2%
Transit-dependent households	48,547	199,646	24.3%	16.1%

Note: For the minority population, people with LEP, elderly population, and people with disabilities categories, the numbers in the "Transportation Equity Population in Project Area" and "Share of Population in Project Area" columns reflect numbers of people. For the low-income and transit-dependent household categories, the numbers in these columns reflect the number of households. This analysis examines populations located within a one-half mile buffer of projects programmed in the FFYs 2020–24 TIP with Regional Target dollars. The table does not include the Community Transportation/Parking/Clean Air and Mobility investment program because specific projects have not yet been identified.

[a] Footnote 24 in this chapter describes the methods MPO staff uses to tabulate these transportation equity populations.

Sources: 2010 U S Census, 2010–14 American Community Survey, and the Boston Region MPO.

Table 4-29 shows the number of households or people in each TE population served by the projects funded with Regional Target dollars, sorted by MPO investment program. The share of people or households served varies across investment programs. Overall, TE populations are well-served by most MPO investment programs. In particular, the share of people or households served by the Complete Streets investment program exceeds the regional share for every TE population. The share of TE populations served by the other investment programs is generally close to their respective regional shares.

As noted in the table, the number of projects within each MPO investment program varies. The number of projects in an investment program affects the extent to which the overall program is able to serve TE populations. For example, there are only four projects each in the Bicycle Network and Pedestrian Connections and Major Infrastructure investment programs, which is in part a product of the number of projects in these investment programs that municipalities and other entities submitted to the MPO for funding.

Table 4-29
MPO Investment Programs Serving Transportation Equity Populations

MPO Investment Program	Number of Projects Receiving Regional Target Funding	Minority Population in Project Area		People with Limited English Proficiency in Project Area[a]		Elderly (age 75 or older) Population in Project Area		People with Disabilities in Project Area[a]		Low-Income Households in Project Area[a]		Transit-dependent Households in Project Area	
		Population	Share	Population	Share	Population	Share	Population	Share	Population	Share	Population	Share
Bicycle Network and Pedestrian Connections	4	3,070	15.5%	1,064	5.6%	1,738	8.8%	2,104	10.7%	2,421	31.6%	570	7.4%
Complete Streets	26	114,013	38.8%	52,027	18.8%	21,486	7.3%	31,148	10.7%	49,539	42.8%	27,479	23.7%
Intersection Improvements	11	3,669	12.0%	745	2.6%	3,632	11.9%	2,858	9.6%	4,110	31.4%	1,250	9.6%
Major Infrastructure[b]	5	46,977	32.6%	22,207	16.2%	7,312	5.1%	12,979	9.1%	20,702	32.8%	19,248	30.5%
Total	46	167,729	34.4%	76,043	16.5%	34,168	7.0%	49,089	10.1%	76,772	38.5%	48,547	24.3%
Share of Total Transportation Equity Population			19.3%		24.6%		16.5%		16.0%		19.5%		24.7%

Note: For the minority population, people with LEP, elderly population, and people with disabilities, the numbers in the "Population" columns for each transportation equity population reflect numbers of people. For low-income and transit-dependent households the numbers in these columns reflect the number of households. This analysis examines populations located within a one-half mile buffer of projects programmed in the FFYs 2020–24 TIP with Regional Target dollars. The table does not include the Community Transportation/Parking/Clean Air and Mobility investment program and funds flexed to transit modernization because specific projects have not yet been identified.

[a] Footnote 24 in this chapter describes the methods MPO staff uses to tabulate these transportation equity populations.

[b] Includes federal highway improvement dollars flexed to transit to support the Green Line Extension. .

Sources: 2010 U S Census; 2010–14 American Community Survey; Boston Region MPO.

Table 4-30 shows the total funding allocated to TE populations, by MPO investment program, based on the number of people or households the MPO estimates would be served by the set of Regional Target projects. As shown in Table 4-4, the MPO has programmed approximately $533 million in Regional Target funding in the FFYs 2020–24 TIP. Some TE populations will receive slightly less funding when compared to non-TE populations, including people who identify as minority, people with LEP, people with disabilities, and low-income and transit-dependent households. The elderly population receives slightly more funding. These differences do not necessarily indicate differences in service or access to these transportation improvements. Further analysis will be necessary to identify specific benefits and burdens that may result from the TIP program of projects. In future TIPs, the MPO may make appropriate programming adjustments to ensure the equitable distribution of funds.

Table 4-30
Funding per Person or Household for Transportation Equity Populations within One-Half Mile of Regional Target-Funded Projects

Transportation Equity Population	Funding per Person or Household
Minority Population	$140
Nonminority Population	$172
People with LEP[a]	$169
People Fluent in English	$173
Elderly Population (age 75 or older)	$175
People under the age of 75	$162
People with disabilities	$151
People without disabilities	$166
Low-income households	$400
Non-low-income households	$420
Transit-dependent households	$436
Non-transit-dependent households	$409

Note: For the minority population, people with LEP, elderly population, and people with disabilities the numbers in the "Funding per Person or Household" column for each equity population reflect funding per person. For the low-income and transit-dependent household categories, the numbers in this column reflect the funding per household.

The table does not include the Community Transportation/Parking/Clean Air and Mobility investment program and funds flexed to transit modernization because specific projects have not yet been identified.

[a] Footnote 24 in this chapter describes the methods MPO staff uses to tabulate these transportation equity populations.

Sources: 2010 U S Census; 2010–14 American Community Survey; Boston Region MPO.

Future Activities to Improve and Monitor Transportation Equity Performance

The analyses in this section are basic approaches to understanding whether TE populations would benefit from projects programmed in the TIP. The assumption is that projects only provide benefits to the people who live nearby, which is not always the case. Also, burdens that a project may impose are not explicitly identified. Recognizing these limitations, the MPO will revise the equity-related TIP project selection criteria in FFY 2020 to allow for better identification of the potential benefits and burdens each project may confer. The MPO will also continue to explore more sophisticated methods of identifying the specific benefits and burdens of the entire collection of Regional Target projects on transportation equity populations. By conducting this work in tandem, MPO staff hopes to link these analyses with the new equity-related TIP project selection criteria in order to achieve a better understanding of whether the MPO's project selection process is enabling the MPO to meet its equity goals. Staff anticipates tracking the results over time and enhancing these analyses each year.

PERFORMANCE MONITORING, REPORTING, AND EVALUATION

The three key phases in the MPO's PBPP process—planning, investing, and monitoring and evaluating—were discussed earlier in this chapter. Within this framework, the MPO's TIP relates primarily to the first two phases, focusing on the relationship between the goals and objectives and performance requirements in the MPO's planning framework and ways the MPO will invest its capital dollars in upcoming federal fiscal years. Other MPO activities relate more directly to the monitoring and evaluation phase of PBPP:

- The MPO's LRTP will contain a systems performance report that describes the MPO's performance measures and targets. This report will also include an assessment of the Boston region's current performance with respect to baseline data or, if feasible, past performance targets. The MPO's next LRTP, *Destination 2040*, will include this document. Over time, the MPO will expand this report to include information about progress the MPO has made with respect to its performance measures and targets.
- The MPO will also report on its progress through federally required performance plans and reports, such as its CMAQ performance plan and Title VI reports.
- The MPO also describes progress on its PBPP web page (ctps.org/performance). This web page provides ongoing updates about the MPO's target-setting activities, including trend analysis. It also provides a link to the MPO's Performance Dashboard, which provides visualizations of the performance of the Boston region's transportation system on a variety of transportation-related metrics.
- The MPO supplements these monitoring and reporting activities with specific evaluation studies—such as TIP Before-and-After Studies—that it conducts through its Unified Planning Work Program to better understand the outcomes of MPO investments.

The Commonwealth and the region's transit agencies also have reporting and evaluation

responsibilities. MassDOT and the Commonwealth's Executive Office of Public Safety and Security reports roadway safety target information annually to FHWA and the National Highway Traffic Safety Administration. MassDOT reports other statewide performance targets and related information to FHWA on a biennial basis via FHWA's Performance Management Form. The MBTA, MWRTA and CATA must report their TAM targets to the National Transit Database, and in future years these agencies will need to create and regularly submit PTASPs that discuss their targets for transit safety performance measures. These reports generally include information about the progress that has been made with respect to performance measures and targets as compared to previous reports.

Going forward, the MPO will need to put the results of these reports and evaluations to use in its future planning and investment activities. This may include identifying new ways to bring information about performance into the MPO's LRTP and TIP development processes, such as by updating project selection criteria or providing information through other means. This would support the MPO in developing scenarios to explore how various transportation investments made through the LRTP would support various goals and performance areas. Over time, the MPO expects that these actions will help it ensure that its investments are helping to meet its vision and goals for the region's transportation system.

CHAPTER 5
DETERMINATION OF AIR QUALITY CONFORMITY

BACKGROUND

This chapter documents the Transportation Improvement Program (TIP) air quality conformity determination for the 1997 Ozone National Ambient Air Quality Standards (NAAQS) and carbon monoxide (CO) NAAQS in the Boston Region Metropolitan Planning Organization (MPO). It covers the applicable conformity requirements according to the latest regulations, regional designation status, legal considerations, and federal guidance.

Introduction

The 1990 Clean Air Act Amendments (CAAA) require MPOs within nonattainment and maintenance areas to perform air quality conformity determinations prior to the approval of Long-Range Transportation Plans (LRTPs) and TIPs, and at such other times as required by regulation. CAAA Section 176(c) (Title 42, United States Code [USC], Section 7506 [c]) requires that federally funded or approved highway and transit activities are consistent with ("conform to") the purpose of the State Implementation Plan (SIP). Conformity to the purpose of the SIP means that Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) funding and approvals are awarded to highway and transit activities that

- will not cause or contribute to new air quality violations;
- worsen existing violations; or
- delay the timely attainment of the relevant NAAQS or any interim milestones (42 USC 7506[c][1]).

The United States Environmental Protection Agency's (EPA) transportation conformity rules establish the criteria and procedures for determining whether metropolitan transportation plans, TIPs, and federally supported highway and transit projects conform to the SIP (Title 40 Code of Federal Regulations [CFR] Parts 51.390 and 93).

A *nonattainment area* is one that the EPA has designated as not meeting certain air quality standards. A *maintenance area* is a nonattainment area that now meets the standards and has been redesignated as maintaining the standard. A *conformity determination* is a demonstration that plans, programs, and projects are consistent with the SIP for attaining the air quality standards. The CAAA requirement to perform a conformity determination ensures that federal approval and funding go to transportation activities that are consistent with air quality goals.

Legislative and Regulatory Background

The Commonwealth of Massachusetts was previously classified as a nonattainment area for ozone, and was divided into two nonattainment areas. The Eastern Massachusetts ozone nonattainment area included Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk, and Worcester counties. The Western Massachusetts ozone nonattainment area included Berkshire, Franklin, Hampden, and Hampshire counties. With these classifications, the 1990 CAAA required the Commonwealth to reduce its emissions of volatile organic compounds (VOCs) and nitrogen oxides (NOx), the two major precursors to ozone formation, to achieve attainment of the ozone standard.

The 1970 Clean Air Act defined a one-hour NAAQS for ground-level ozone. The 1990 CAAA further classified degrees of nonattainment of the one-hour standard based on the severity of the monitored levels of the pollutant. The Commonwealth of Massachusetts was classified as being in serious nonattainment for the one-hour ozone standard, with a required attainment date of 1999. The attainment date was later extended, first to 2003 and a second time to 2007.

In 1997, the EPA proposed a new, eight-hour ozone standard that replaced the one-hour standard, effective June 15, 2005. Scientific research had shown that ozone could affect human health at lower levels and over longer exposure times than one hour. The new standard was challenged in court, and after a lengthy legal battle, the courts upheld it. The new standard was finalized in June 2004. The new eight-hour standard is 0.08 parts per million (ppm), averaged over eight hours, and not to be exceeded more than once per year. Nonattainment areas were again further classified based on the severity of the eight-hour values. Massachusetts was classified as being in moderate nonattainment for the eight-hour standard, and was separated into two nonattainment areas—Eastern Massachusetts and Western Massachusetts.

In March 2008, the EPA published revisions to the eight-hour ozone NAAQS establishing a level of 0.075 ppm, (Volume 73, Federal Register [FR], page 16438; March 27, 2008). In 2009, EPA announced it would reconsider this standard because it fell outside of the range recommended by the Clean Air Scientific Advisory Committee. However, EPA did not take final action on the reconsideration, keeping the standard at 0.075 ppm.

After reviewing data from Massachusetts monitoring stations, EPA sent a letter on December 16, 2011, proposing that *only* Dukes County be designated as nonattainment for the new proposed 0.075 ozone standard. Massachusetts concurred with these findings.

On May 21, 2012, the final rule (77 FR 30088) was published in the *Federal Register*, defining the 2008 NAAQS at 0.075 ppm, the standard that was promulgated in March 2008. A second rule (77 FR 30160) published on May 21, 2012, revoked the 1997 ozone NAAQS to occur one year after the July 20, 2012, effective date of the 2008 NAAQS.

Also on May 21, 2012, the *Federal Register* published the air quality designation areas for the 2008 NAAQS. In this *Federal Register*, Dukes County was the only area in Massachusetts designated as nonattainment. All other Massachusetts counties were designated as attainment/unclassified for the 2008 standard. On March 6, 2015, EPA published the Final Rulemaking, "Implementation of the 2008 National Ambient Air Quality Standards (NAAQS) for Ozone: State Implementation Plan Requirements; Final Rule" (80 FR 12264, effective April 6, 2015). This rulemaking confirmed the removal of transportation conformity to the 1997 Ozone NAAQS.

However, on February 16, 2018, the United States Court of Appeals for the District of Columbia Circuit in *South Coast Air Quality Mgmt. District v. EPA* ("*South Coast II*," 882 F.3d 1138) held that transportation conformity determinations must be made in areas that were either nonattainment or maintenance for the 1997 ozone NAAQS and attainment for the 2008 ozone NAAQS when the 1997 ozone NAAQS was revoked.

On November 29, 2018, EPA issued *Transportation Conformity Guidance for the South Coast II Court Decision* (EPA-420-B-18-050, November 2018) that addresses how transportation conformity determinations can be made in these areas. According to the guidance, both Eastern and Western Massachusetts, along with several other areas across the country, are now defined as orphan nonattainment areas—areas that were designated as nonattainment for the 1997 ozone NAAQS at the time of its revocation (80 FR 12264, March 6, 2015) and were designated attainment for the 2008 ozone NAAQS in EPA's original designations rule for this NAAQS (77 FR 30160, May 21, 2012). Conformity determinations are now required in these areas after February 16, 2019.

CONFORMITY DETERMINATION

Ozone

As a result of the court ruling and the subsequent federal guidance, transportation conformity for the 1997 NAAQS is required after February 16, 2019, for both Massachusetts' orphan areas. This is intended as an "anti-backsliding" measure to ensure that areas do not revert to nonattainment. Therefore, this conformity determination is being made for the 1997 ozone NAAQS on the Boston Region MPO's FFY 2020–24 TIP.

The transportation conformity regulation in 40 CFR 93.109 sets forth the criteria and procedures for determining conformity. The conformity criteria for TIPs and LRTPs include fiscal constraint (93.108), latest planning assumptions (93.110), latest emissions model (93.111), consultation (93.112), transportation control measures (93.113[b] and [c]), and emissions budget and/or interim emissions (93.118 and/or 93.119).

Transportation conformity for TIPs and LRTPs for the 1997 ozone NAAQS can be demonstrated without a regional emissions analysis, per 40 CFR 93.109(c). This provision states that the regional emissions analysis requirement applies one year after the effective date of EPA's nonattainment designation for a NAAQS and until the effective date of revocation of such NAAQS for an area. The 1997 ozone NAAQS revocation was effective on April 6, 2015, and the court for *South Coast II* upheld the revocation. As no regional emission analysis is required for this conformity determination, there is no requirement to use the latest emissions model, budget, or interim emissions tests.

Therefore, transportation conformity for the 1997 ozone NAAQS for the Boston Region MPO's FFY 2020–24 TIP can be demonstrated by showing that the remaining requirements in 40 CFR 93.109 have been met. The following requirements are laid out in Section 2.4 of EPA's guidance and are addressed below:

- Latest planning assumptions
- Consultation
- Timely implementation of transportation control measures (TMCs)
- Fiscal Constraint

Latest Planning Assumptions

The use of latest planning assumptions in 40 CFR 93.110 of the conformity rule generally applies to regional emissions analysis. In the 1997 ozone NAAQS areas, the use of the latest planning assumptions requirement applies to assumptions about transportation control measures (TCM) in an approved SIP (see Timely Implementation of TCMs below).

Consultation

The consultation requirements in 40 CFR 93.112 were addressed for interagency consultation and public consultation. Interagency consultation was conducted with FHWA, FTA, US EPA Region 1, the Massachusetts Department of Environmental Protection (DEP), and the other Massachusetts MPOs, with the most recent conformity consultation meeting held on March 6, 2019, which focused on understanding the latest conformity-related court rulings and resulting federal guidance. This ongoing consultation is conducted in accordance with the following items:

- Massachusetts' Air Pollution Control Regulations 310 CMR 60.03 "Conformity to the State Implementation Plan of Transportation Plans, Programs, and Projects Developed, Funded, or Approved Under Title 23 USC or the Federal Transit Act"
- The Commonwealth of Massachusetts Memorandum of Understanding (MOU) by and between DEP, Massachusetts Executive Office of Transportation and Construction, and Massachusetts MPOs concerning "the conduct of transportation-air quality planning in the development and implementation of the state implementation plan" (the current MOU is being updated at time of publication)

Public consultation was conducted consistent with planning rule requirements in 23 CFR 450. Title 23 CFR Section 450.324 and 310 CMR 60.03(6)(h) requires that the development of the TIP, LRTP, and related certification documents provide an adequate opportunity for public review and comment. Section 450.316(b) also establishes the outline for MPOs' public participation programs. The Boston Region MPO's Public Participation Plan was formally adopted in October 2014 and is available at https://www.ctps.org/public_involvement. The Public Participation Plan ensures that the public will have access to the TIP and LRTP and all supporting documentation, provides for public notification of the availability of the TIP and LRTP and the public's right to review the document and comment thereon, and provides a 21-day public review and comment period prior to the adoption of the TIP and LRTP and related certification documents.

The public comment period for this conformity determination commenced on April 30, 2019. During the 21-day public comment period, any comments received were incorporated into this TIP. This allowed sufficient opportunity for public comment and the MPO board's review of the draft document. The public comment period will close on May ? 2019 and the Boston Region MPO is expected to endorse this air quality conformity determination before June 1, 2019. These procedures comply with the associated federal requirements.

Timely Implementation of Transportation Control Measures

TCMs were submitted to EPA as SIP revisions in 1979 and 1982, and as part of the Central Artery/Tunnel (CA/T) project. The TCMs in the 1979 and 1982 submissions were accomplished through construction of ongoing projects or implementation of ongoing programs.

The TCMs submitted as part of the mitigation for the CA/T project have been documented in the LRTP as recommended or completed projects, except for the Fairmount Line Improvement Project and the Green Line Extension.

The Massachusetts Department of Transportation (MassDOT) works with the DEP to implement TCMs documented in the SIP. The Boston Region MPO will continue to include relevant projects in the LRTP and TIP, including those projects implemented to provide equal or

better emissions outcomes when the primary TCMs do not meet deadlines, until the process for completing all active TCMs has concluded. When the process has been completed, the MPO will amend the LRTP and future TIPs and their conformity determinations to document any changes (including any interim projects or programs).

A Status Report of Uncompleted SIP Projects

The status of the TCMs has been updated in the *SIP Transit Commitments Status Report*, which was submitted to DEP by MassDOT in July 2018. Highlights from the report are presented below. For a detailed description of the status of these projects, please visit the MassDOT website at https://www.mass.gov/files/documents/2018/08/02/SIP18ComStatReport.pdf

Fairmount Line Improvement Project—SIP Required Completion by December 2011

The Four Corners and Newmarket Stations on the Fairmount commuter rail line opened for service on July 1, 2013. All change orders have been paid and the project is officially closed out. The Talbot Avenue Station opened in November 2012.

The station at Blue Hill Avenue had been the subject of significant community controversy over the past seven years. Redesign of the station reached the 100 percent design phase, and those plans were submitted to MassDOT in March 2016. In October 2016, MassDOT updated the public on the design plans and the next steps toward implementing the project. The project team advanced the project with the understanding that continued coordination with the community was paramount. Construction began in spring 2017, and the station opened in March 2019.

MassDOT and the Massachusetts Bay Transportation Authority (MBTA) prepared a Petition to Delay and an Interim Emission Offset Plan to be implemented for the duration of the delay of the Fairmount Line Improvement Project. MassDOT estimated the amount of emission reduction that would be expected from the implementation of the new Fairmount Line stations. With input from Fairmount Line stakeholders, MassDOT proposed offset measures that would meet emission reduction targets while the project remains under construction. The measures include providing shuttle bus service in Boston connecting Andrew Square to Boston Medical Center and increasing service on MBTA bus Route 31, which serves the Boston neighborhoods of Dorchester and Mattapan. These measures were implemented on January 2, 2012, and are currently in place.

Funding Source: The Commonwealth

Green Line Extension to Somerville and Medford Project—SIP Required Completion by December 2014

The Green Line Extension project is a top transportation priority of the Commonwealth and the largest expansion of the MBTA rapid transit system in decades. This project will extend the MBTA Green Line from a relocated Lechmere Station in East Cambridge to College Avenue in Medford, with a branch to Union Square in Somerville. The project is a collaborative effort of MassDOT and the MBTA, with the MBTA taking the lead in design, engineering, construction, and project management.

The project includes the relocation of the existing commuter rail tracks, the construction of 4.7 miles of new Green Line tracks and systems, one relocated station (Lechmere) and six new stations (Union Square, College Avenue, Ball Square, Magoun Square, Gilman Square, and East Somerville), and a new vehicle maintenance facility.

Construction of the project has been phased. Initial construction started in 2013. The first phase was funded entirely by the Commonwealth of Massachusetts. The FTA then approved funding for the project through the New Starts Program of its Capital Investment Grants Program; a Full Funding Grant Agreement (FFGA), which committed nearly $1 billion in federal funds to the project, was announced in January 2015.

Late in 2015, MassDOT launched a review and decided that the project should be redesigned. The revised total program cost was estimated at nearly $2.3 billion. (This total value includes monies that have already been spent.) There was a difference of approximately $300 million between the last official program cost of $1.992 billion, as stated in the FFGA, and the revised estimate of $2.289 billion. To make up the difference, the Boston Region MPO committed $157 million in federal highway funding to the project, the Cities of Cambridge and Somerville committed a total of $75 million ($50 million from Somerville and $25 million from Cambridge), and MassDOT committed approximately $64 million. In June 2017, the MassDOT Board of Directors voted to transfer the latter funds to the MBTA for the project. The FTA found that the redesigned project is consistent with the FFGA and this determination allows MassDOT and the MBTA to use federal monies to fund the project.

The 2016 redesign of the Green Line Extension project modified many design elements and proposed changes to the project implementation methods, but the redesign maintains the core functionality of the project and provides the same benefits. As with the original project design, the revised design consists of a 4.7-mile extension of the existing Green Line light rail service to College Avenue in Medford and Union Square in Somerville. It includes the relocation of existing commuter/freight rail track, construction of light rail track and systems, construction or rehabilitation of viaduct structures, and implementation of new power systems, signals, and communications equipment. The revised design includes the same stations in the same locations as originally planned.

Factors that affect the potential number of transit trips that would be generated and the air

quality benefits that would be achieved because of this new light rail extension are the same for the redesign concept as originally proposed. These factors include the number and location of stations, platform size, hours of service, and frequency of service. (The Community Path was not considered in determining the number of transit trips the new rail line would generate.)

The Green Line Extension, as redesigned, will still provide trains travelling on six-minute headways in the weekday peak period, eight to 11 minutes in the weekday off-peak period, 13-14 minutes on weekday evenings, and eight to 10 minutes on weekends.

Somerville Community Path

The project, as described in its environmental documents, included planning, design, and engineering for the proposed extension of the Somerville Community Path between Lowell Street and Inner Belt Road near East Somerville Station; however, there was no commitment to construct the path. After the completion of the state and federal environmental review processes, the MBTA decided to incorporate the construction of the path into the Green Line Extension project. However, the MBTA did not commit to build the Community Path as part of its mitigation for delays in the construction time line for the extension.

While the elimination of the Community Path would result in the greatest savings, MassDOT and the MBTA believe the path is an important element of the project and a commitment to the communities along the Green Line corridor. Therefore, the Community Path was redesigned so that it will cost less while still maintaining its core functionality. In December 2017, the MBTA issued a notice to proceed to the selected contractor to build the Green Line Extension project, including the Community Path to Lechmere Station. That element is now part of the project under contract.

SIP Requirement Status

MassDOT has committed substantial resources to the Green Line Extension project and has transitioned the project from the planning and environmental review phases to design, engineering, and eventual construction, while completing the tasks associated with applying for federal New Starts funding.

By filing an Expanded Environmental Notification Form, procuring multiple design consultants, and publishing Draft Environmental Impact Reports and Final Environmental Impact Reports (FEIR), MassDOT met the first four interim milestones established by the Massachusetts SIP for the Green Line Extension project.

By completing the design, securing all permits and approvals, executing the FFGA, and acquiring the necessary property for the project, MassDOT met the fifth interim milestone, which states, "On or before 18 months after MEPA's issuance of a certificate on an FEIR or an SEIR, MassDOT must complete final design, apply for all necessary permits, funds and grants, file any required legislation, and initiate all public and private land acquisition."

Milestones for project completion have been established and made part of the design-build contract. The milestones will be incorporated into that contract. By establishing these milestones, MassDOT has met the sixth and final interim milestone found in the SIP regulation, which states, "Upon completion of all of the above milestones, DEP and MassDOT shall establish a schedule for project construction and deadlines for project completion."

In the 2011 SIP Status Report, MassDOT reported that the Green Line Extension project would not be completed by the legal deadline of December 31, 2014.

The time line for overall project completion represents a substantial delay beyond the current SIP deadline of December 31, 2014. This delay triggered the need to provide interim emission reduction offset measures for the period of the delay (beginning January 1, 2015). These offset measures would have to bring about emission reductions equal to or greater than those projected for the Green Line Extension, as specified in the SIP regulation, for the period of the delay.

Working with the Central Transportation Planning Staff, MassDOT and the MBTA calculated the reductions of non-methane hydrocarbon, carbon monoxide, and nitrogen oxide required as mitigation for the delay.

In June 2012, MassDOT released a list of potential mitigation ideas received from the public that could be used as offset measures. In the summer and fall of 2012, MassDOT elicited public comments on these potential measures. The MBTA created an internal working group to determine a final portfolio of interim mitigation measures to implement by December 31, 2014, the legal deadline for implementation of the Green Line Extension.

This work resulted in a recommendation to implement the following three interim mitigation measures, which collectively would meet the emission reduction targets for the project:

- Additional off-peak service along existing routes serving the Green Line Extension corridor, including the Green Line, and MBTA bus Routes 80, 88, 91, 94, and 96
- Purchase of 142 new hybrid-electric vehicles for the MBTA's paratransit service, THE RIDE
- Additional park-and-ride spaces at the Salem and Beverly intermodal facilities

MassDOT submitted a Petition to Delay to DEP on July 22, 2014. The petition further expands on the analysis and determination of the interim offset measures. DEP conditionally approved MassDOT's request to delay the project and the implementation of the above mitigation measures. Both the Petition to Delay and the Conditional Approval are available on MassDOT's website. These measures went into effect at the beginning of 2015 and will remain in place for as long as necessary.

Funding Source: The Commonwealth, Federal Transit Administration via the FFGA, the Boston Region MPO, the City of Cambridge, and the City of Somerville

Russia Wharf Ferry Terminal

Former MassDOT Secretary Richard Davey approved construction of the permitted Russia Wharf Ferry Terminal in South Boston and a $460,000 ferry-service startup subsidy in October 2012. The 2005 facility plans and specifications were revised to meet the latest MassDOT Highway Division standards. The bid package was issued in the fall of 2013. A contractor was selected and the notice to proceed was issued in April 2014. Pre-construction activities progressed, but contractual issues associated with the project design led MassDOT to decide to rebid the contract.

There is no regularly scheduled passenger water transportation service in this area, nor are there any plans to provide such a service. The City of Boston, however, is undertaking design and engineering work to address the Old Northern Avenue Bridge and will consider ferry vessel clearance. The city received a grant in 2012 to purchase two ferry vessels for use in Boston's inner harbor, and these vessels could serve the Russia Wharf Ferry Terminal. The Massachusetts Convention Center Authority (MCCA) is working with the City of Boston, MassDOT, and other agencies to develop a business plan for potential ferry service from Lovejoy Wharf to the South Boston waterfront, as recommended in the 2015 *South Boston Waterfront Sustainable Transportation Plan*. This business plan will include current and future demand projections for ferry ridership, the number and size of ferries needed to satisfy the demand, and the cost for this service. Once the business plan is completed, the MCCA could take over the City of Boston's grant to help with future costs.

Funding Source: The Commonwealth

Fiscal Constraint

Transportation conformity requirements in 40 CFR 93.108 state that TIPs and transportation plans must be fiscally constrained consistent with United States Department of Transportation's metropolitan planning regulations in 23 CFR part 450. The Boston Region MPO 2020–24 TIP is consistent with the required fiscal constraints, as demonstrated in Chapter 3.

Carbon Monoxide

In addition to ozone, the requirement to perform a conformity determination for CO for several cities in the Boston region has expired. On April 1, 1996, the EPA classified the cities of Boston, Cambridge, Chelsea, Everett, Malden, Medford, Quincy, Revere, and Somerville as in attainment (in compliance) for CO emissions. Subsequently, a CO maintenance plan was set up through the Massachusetts SIP to ensure that emission levels did not increase. While the maintenance plan was in effect, past TIPs and LRTPs included an air quality conformity analysis for these communities. As of April 1, 2016, however, the 20-year maintenance period for this CO maintenance area expired and transportation conformity is no longer required for this pollutant in these communities. This ruling is documented in a letter from the EPA dated May 12, 2016.

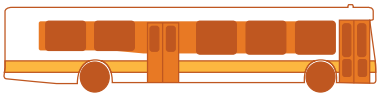
On April 22, 2002, the City of Waltham was redesignated as being in attainment for CO emissions with an EPA-approved limited-maintenance plan. In areas that have approved limited-maintenance plans, federal actions requiring conformity determinations under the EPA's transportation conformity rule are considered to satisfy the budget test (as budgets are not treated as being constraining in these areas for the length of the initial maintenance period). Any requirements for future project-level conformity determinations for projects located within this community will continue to use a hot-spot analysis to ensure that any new transportation projects in this area do not cause or contribute to violations of the NAAQS for CO.

CONCLUSION

In summary and based on the entire process described above, the Boston Region MPO has prepared this conformity determination for the 1997 Ozone NAAQS in accordance with EPA's and Massachusetts' latest conformity regulations and guidance. This conformity determination process demonstrates that the FFY 2020–24 TIP meets the Clean Air Act and Transportation Conformity Rule requirements for the 1997 Ozone NAAQS, and has been prepared following all the guidelines and requirements of these rules during this period.

Therefore, the implementation of the Boston Region MPO's FFY 2020–24 TIP is consistent with the air quality goals of, and in conformity with, the Massachusetts SIP.

APPENDIX A



APPENDIX A

PROJECT PRIORITIZATION AND SCORING

INTRODUCTION

As described in Chapter 2, the Transportation Improvement Program (TIP) development and project prioritization and funding process consists of numerous phases and is supported by several different funding sources. This appendix includes information about transportation construction projects that the Boston Region Metropolitan Planning Organization (MPO) considered for funding through the Highway Discretionary ("Regional Target") Program in the federal fiscal years (FFYs) 2020-24 TIP. In order to be considered for funding by the MPO, a project must fulfill certain basic criteria:

- The Massachusetts Department of Transportation's Project Review Committee must have approved the project or have plans to review it.
- The project should fall into one of the investment categories established in the Boston Region MPO's Long-Range Transportation Plan (LRTP): Complete Streets, Intersection Improvements, Bicycle Network and Pedestrian Connections, Major Infrastructure, or Community Transportation/Parking/Clean Air and Mobility.[1]

If a project meets the above criteria, it is presented to the MPO board in the Universe of Unprogrammed Projects (Table A-1) to be considered for funding.

Once a project in that list nears the 25 percent design stage, the required information is available for evaluation and scoring by MPO staff. The evaluation criteria used to score projects are based on the MPO's goals and objectives (Table A-2). After the projects are scored, the scores are shared with project proponents, posted on the MPO's website, and presented to the MPO board for review and discussion. The scores for projects evaluated during development of the FFYs 2020-24 TIP are summarized in Table A-3.

The next step in project prioritization is development of the First-Tier List of Projects (Table A-4). In addition to summarizing the project scores, the First-Tier List of Projects presents geographic, cost, readiness, and other information about each project that the MPO board can use to inform decisions about how to prioritize projects for funding in the TIP.

1 These are the investment categories established in the LRTP, *Charting Progress to 2040*. An updated LRTP, *Destination 2040*, will be adopted in July 2019 and may have updated or new investment categories.

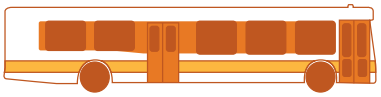


Table A-1
Universe of Unprogrammed Projects
(as presented to the Boston Region MPO board on February 7, 2019)

Municipality	Project Proponent	Project Name	PROJIS/ TIP ID	Design Status	Cost Estimate	MAPC Subregion	MassDOT Highway District	Evaluate in 2018/2019	MPO Investment Program
Inner Core									
Newton	Newton	Reconstruction and Signal Improvements on Walnut St, from Homer St to Route 9	601704	25% design	$ 4,648,360	ICC	6		Complete Streets
Boston	Boston	Neponset River Greenway (Phase 3)	608943	PRC-approved	$ 4,972,500	ICC	6	X	Bicycle and Pedestrian
Everett	Everett	Reconstruction of Beacham St from Broadway to the Chelsea City Line	609257	Pre-PRC; PRC-approval expected Dec. 2018	$ 9,180,000	ICC	4	X	Complete Streets
Lynn	Lynn	Traffic and Safety Improvements at Two Locations on Broadway	609254	Pre-PRC; PRC-approval expected Dec. 2018	$ 5,870,300	ICC	4	X	Intersection Improvements
Lynn	Lynn	Rehabilitation of Essex St	609252	Pre-PRC; PRC-approval expected Dec. 2018	$ 16,925,000	ICC	4	X	Complete Streets
Belmont	Belmont	Community Path, Belmont Component of the MCRT (Phase 1)	609204	PRC approved	$ 16,703,600	ICC	4		Bicycle and Pedestrian
Boston	Boston	Reconstruction of Tremont St, from Court St to Boylston St	601274	25% design	$ 2,681,260	ICC	6		Complete Streets
Boston, Brookline	Boston, Brookline	Mountfort St and Commonwealth Ave Connection	608956	PRC approved (2017)	$ 916,883	ICC	6		Intersection Improvements
Boston	Boston	Reconstruction of Tremont St, from Stuart St to Marginal Rd (1,830 ft.)	601507	PRC approved (1996)	$ 4,400,000	ICC	6		Complete Streets
Boston	Boston	Traffic Signal Improvements at Eight Locations	606556	PRC approved	$ 3,603,960	ICC	6		Intersection Improvements
Boston	MassDOT	Leverett Circle Pedestrian Bridge over Route 28, I-93 Ramps and Storrow Dr	606703	PRC approved	$ 11,040,000	ICC	6		Bicycle and Pedestrian
Boston	Boston	Reconstruction on (Route 203) Gallivan Boulevard, from Neponset Cir to East of Morton St Intersection	606896	PRC approved	$ 11,500,000	ICC	6		Complete Streets
Boston	Boston	Improvements on (Route 203) Morton St, from West of Gallivan Blvd to Shea Cir	606897	PRC approved	$ 11,500,000	ICC	6		Complete Streets
Cambridge	Cambridge	Innovation Boulevard Streetscape and Pedestrian Improvements, between Main St and Binney St (Phase I)	604993	25% design	$ 992,163	ICC	6		Complete Streets
Chelsea	Chelsea	Beacham and Williams St Reconstruction	609083	PRC approved	$ 8,281,525	ICC	6		Complete Streets
Chelsea	Chelsea	Reconstruction of Beacham St, from Spruce St to the Everett City Line	na	Pre-PRC	-	ICC	6		Complete Streets
Newton	Newton	Reconstruction on Route 30 (Commonwealth Ave), from Weston Town Line to Auburn St	600932	PRC approved (1996)	$ 2,208,000	ICC	6		Complete Streets
Newton	Newton	Improvements of Route 128/I-95 and Grove St	607940	PRC approved (2014)	$ 10,000,055	ICC	6		Complete Streets
Newton, Brookline	MassDOT	Resurfacing and Related Work on Route 9, from Dearborn St to Natick Town Line	608821	PRC approved	$ 7,337,000	ICC	6		Complete Streets

Table A-1
Universe of Unprogrammed Projects
(as presented to the Boston Region MPO board on February 7, 2019) (cont. 2)

Municipality	Project Proponent	Project Name	PROJIS/ TIP ID	Design Status	Cost Estimate	MAPC Subregion	MassDOT Highway District	Evaluate in 2018/2019	MPO Investment Program
Minuteman Advisory Group on Interlocal Coordination									
Littleton	Littleton	Reconstruction of Foster St	609054	PRC approved	$ 3,600,000	MAGIC	3	X	Complete Streets
MetroWest Regional Collaborative									
Framingham	MassDOT	Pedestrian Hybrid Beacon Installation at Route 9 and Maynard Rd	608006	25% design	$ 886,228	MWRC	3		Bicycle and Pedestrian
Marlborough	MassDOT	Intersection and Signal Improvements on Route 20 (East Main St/ Boston Post Rd) at Concord Rd	604231	25% design	$ 1,706,600	MWRC	3		Intersection Improvements
Ashland	Ashland	Rehabilitation and Rail Crossing Improvements on Cherry St	608436	PRC approved	$ 990,000	MWRC	3	X	Bicycle and Pedestrian
Framingham	Framingham	Traffic Signal Installation at Edgell Rd at Central St	608889	PRC approved	$ 1,680,000	MWRC	3	X	Intersection Improvements
Wellesley	MassDOT	Resurfacing and Related Work on Route 9, from Dearborn St to Natick Town Line	607340	PRC approved	$ 16,462,400	MWRC	6		Complete Streets
Weston	Weston	Intersection Improvements - Boston Post Rd (Route 20) at Wellesley St	608940	PRC approved	$ 1,219,250	MWRC	6		Intersection Improvements
Weston	MassDOT	Reconstruction on Route 30	608954	PRC approved	$ 8,117,562	MWRC	6		Complete Streets
North Suburban Planning Council									
Wilmington	Wilmington	Reconstruction on Route 38 (Main St), from Route 62 to the Woburn City Line	608051	25% design	$ 10,802,316	NSPC	4	X	Complete Streets
Wilmington	Wilmington	Intersection Improvements at Lowell St and Woburn St	609253	Pre-PRC; PRC-approval expected Dec. 2018	$ 3,400,000	NSPC	4	X	Intersection Improvements
Woburn	Woburn	Middlesex Canal Park Improvements, from Alfred St to School St (Phase II - Segment 5)	606304	PRC approved (2010)	$ 799,820	NSPC	4		Bicycle and Pedestrian
Woburn	MassDOT	Intersection Reconstruction at Route 3 (Cambridge Rd) and Bedford Rd and South Bedford St	608067	PRC approved (2014)	$ 1,440,000	NSPC	4		Intersection Improvements
North Shore Task Force									
Danvers	Danvers	Reconstruction on Collins St, from Sylvan St to Centre and Holten Sts	602310	75% design	$ 5,183,121	NSTF	4		Complete Streets
Peabody	MassDOT	Independence Greenway Extension	609211	PRC approved	$ 1,921,075	NSTF	4	X	Bicycle and Pedestrian
Beverly, Manchester-by-the-Sea	MassDOT	Resurfacing and Related Work on Route 127	607707	PRC approved	$ 2,300,000	NSTF	4		Complete Streets
Manchester-by-the-Sea	Manchester-by-the-Sea	Pine Street - Central St (Route 127) to Rockwood Heights Rd	na	Pre-PRC; PNF submitted 12/27/16	-	NSTF	4		Complete Streets

Table A-1
Universe of Unprogrammed Projects
(as presented to the Boston Region MPO board on February 7, 2019) (cont. 3)

Municipality	Project Proponent	Project Name	PROJIS/ TIP ID	Design Status	Cost Estimate	MAPC Subregion	MassDOT Highway District	Evaluate in 2018/2019	MPO Investment Program
South Shore Coalition									
Hingham	Hingham	Improvements on Route 3A from Otis St/Cole Rd, including Summer St and Rotary; Rockland St to George Washington Blvd	605168	PRC approved (2009)	$ 7,500,001	SSC	5		Complete Streets
Holbrook	Holbrook	Corridor Improvements and Related Work on South Franklin St (Route 37) from Snell St to King Rd	608543	PRC approved	$ 4,000,200	SSC	5		Complete Streets
Hull	Hull	Corridor Improvements along Nantasket Ave from Moutford Rd to A St	na	Pre-PRC; PNF submitted 6/30/16		SSC	5		Complete Streets
Weymouth	Weymouth	Reconstruction on Route 3A, including Pedestrian and Traffic Signal Improvements	608231	PRC approved	$ 10,780,100	SSC	6		Complete Streets
Weymouth	MassDOT	Resurfacing and Related Work on Route 3A	608483	PRC approved	$ 2,400,000	SCC	6		Complete Streets
South West Advisory Planning Committee									
Milford	MassDOT	Rehabilitation on Route 16, from Route 109 to Beaver St	608045	PRC approved (2014)	$ 2,700,000	SWAP	3		Complete Streets
Bellingham	Bellingham	South Main St (Route 126) - Elm St to Douglas Dr Reconstruction	na	Pre-PRC; PNF submitted 3/13/17	-	SWAP	3		Complete Streets
Franklin	MassDOT	Resurfacing and Intersection Improvements on Route 140, from Beaver St to I-495 Ramps	607774	PRC approved	$ 4,025,000	SWAP	3		Complete Streets
Three Rivers Interlocal Council									
Westwood	Westwood	Reconstruction of Canton St and Everett St	608158	PRC approved (2015)	$ 2,880,000	TRIC	6		Complete Streets
Westwood	MassDOT	Traffic Signal Improvements on Route 109	608947	PRC approved	$ 453,600	TRIC	6		Intersection Improvements
Multiple Subregions									
Newton, Weston	MassDOT	Multi-use Trail Connection, from Recreation Road to Upper Charles River Greenway including Reconstruction of Pedestrian Bridge N-12-078=W-29-062	609066	PRC approved	$ 2,661,498	ICC, MWRC	6	X	Bicycle and Pedestrian
Milton	Milton	Intersection Improvements - Squantum St at Adams St	608955	PRC approved (2017)	$ 979,763	ICC, TRIC	6		Intersection Improvements
Milton	MassDOT	Reconstruction on Granite Ave, from Neponset River to Squantum St	608406	25% design	$ 3,665,146	ICC, TRIC	6		Complete Streets

Already evaluated; reconsider for programming

Evaluate for the first time this year

Not evaluated; no data for evaluation

MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. PNF = Project Need Form. PRC = MassDOT Project Review Committee. PROJIS=MassDOT project information system.

MAPC subregions: ICC = Inner Core Committee. MAGIC = Minuteman Advisory Group on Interlocal Coordination. MWRC = MetroWest Regional Collaborative. NSPC = North Suburban Planning Council. NSTF = North Shore Task Force. SSC = South Shore Coalition. SWAP = South West Advisory Planning Committee. TRIC = Three Rivers Interlocal Council.

Table A-2
TIP Project Evaluation Criteria

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
SAFETY: Transportation by all modes will be safe.		
Reduce the number and severity of crashes, for all modes Reduce serious injuries and fatalities from transportation Protect transportation customers and employees from safety and security threats	Crash Severity Value: EPDO index (0–5 points)	+5 EPDO value of 300 or more +4 EPDO value between 200 and 299 +3 EPDO value between 100 and 199 +2 EPDO value between 50 and 99 +1 EPDO value less than 50 +0 No EPDO value
	Crash Rate (either intersection or corridor): (0–5 points)	Intersection: Evaluation Score: +5 Signalized ≥ 1.69, Unsignalized ≥ 1.36 +4 Signalized 1.31 - 1.69, Unsignalized 1.03 - 1.36 +3 Signalized 0.93 - 1.31, Unsignalized 0.70 - 1.03 +2 Signalized 0.55 - 0.93, Unsignalized 0.37 - 0.70 +1 Signalized 0.36 - 0.55, Unsignalized 0.21 - 0.37 +0 Signalized < 0.36, Unsignalized < 0.21
		Corridor: Evaluation Score: +5 Interstate Other Freeways Expressways ≥ 1.81, Principal Arterials-Other Minor Arterials Major-Minor Collectors ≥ 6.45 +4 1.40 - 1.81, 5.35 - 6.45 +3 1.00 - 1.40, 4.25 - 5.35 +2 0.59 - 1.00, 3.15 - 4.25 +1 0.40 - 0.59, 2.05 - 3.15 +0 < 0.40, < 2.05
	Improves truck-related safety issue (0–5 points)	+3 High total effectiveness of truck safety countermeasures +2 Medium total effectiveness of truck safety countermeasures +1 Low total effectiveness of truck safety countermeasures +0 Does not implement truck safety countermeasures
		If project scores points above, then it is eligible for additional points below: +2 Improves truck safety at HSIP Cluster

Table A-2
TIP Project Evaluation Criteria (cont. 2)

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
	Improves bicycle safety (0–5 points)	+3 High total effectiveness of bicycle safety countermeasures +2 Medium total effectiveness of bicycle safety countermeasures +1 Low total effectiveness of bicycle safety countermeasures +0 Does not implement bicycle safety countermeasures
		If project scores points above, then it is eligible for additional points below: +2 Improves bicycle safety at HSIP Bicycle Cluster +1 Improves bicycle safety at HSIP Cluster
	Improves pedestrian safety (0–5 points)	+3 High total effectiveness of pedestrian safety countermeasures +2 Medium total effectiveness of pedestrian safety countermeasures +1 Low total effectiveness of pedestrian safety countermeasures +0 Does not implement pedestrian safety countermeasures
		If project scores points above, then it is eligible for additional points below: +2 Improves pedestrian safety at HSIP Pedestrian Cluster +1 Improves pedestrian safety at HSIP Cluster
	Improves safety or removes an at-grade railroad crossing (0–5 points)	+5 Removes an at-grade railroad crossing +3 Significantly improves safety at an at-grade railroad crossing +1 Improves safety at an at-grade railroad crossing +0 Does not include a railroad crossing
SAFETY (30 possible points)		

EPDO = Equivalent Property Damage Only; HSIP = Highway Safety Improvement Program

Table A-2
TIP Project Evaluation Criteria (cont. 3)

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
SYSTEM PRESERVATION: Maintain the transportation system.		
Improve the condition of on- and off-system bridges Improve pavement condition on the MassDOT-monitored roadway system Maintain and modernize capital assets throughout the system Maintain and modernize capital assets throughout the system (surface condition of sidewalks) Prioritize projects that support planned response capability to existing or future extreme conditions (sea level rise, flooding, and other natural and security-related man-made hazards) Protect freight network elements, such as port facilities, that are vulnerable to climate-change impacts	Improves substandard roadway bridge(s) (0–3 points)	+3 Condition is structurally deficient and improvements are included in the project +1 Condition is functionally obsolete and improvements are included in the project +0 Does not improve substandard bridge or does not include a bridge
	Improves substandard pavement (up to 6 points)	+6 IRI rating greater than 320: Poor condition and pavement improvements are included in the project +4 IRI rating between 320 and 191: Fair condition and pavement improvements are included in the project +0 IRI rating less than 190: Good or better condition
	Improves substandard traffic signal equipment (0–6 points)	+6 Poor condition — improvements are included in the project +4 Fair condition — improvements are included in the project +0 Does not meet or address criteria
	Improves transit asset(s) (0–3 points)	+2 Brings transit asset into state of good repair +1 Meets an identified need in an Asset Management Plan +0 Does not meet or address criteria
	Improves substandard sidewalk(s) (0–3 points)	+3 Poor condition and sidewalk improvements are included in the project +2 Fair condition and sidewalk improvements are included in the project +0 Sidewalk condition is good or better
	Improves emergency response (0–2 points)	+1 Project improves an evacuation route, diversion route, or alternate diversion route +1 Project improves an access route to or in proximity to an emergency support location
	Improves ability to respond to extreme conditions (0–6 points)	+2 Addresses flooding problem and/or sea level rise and enables facility to function in such a condition +1 Brings facility up to current seismic design standards +1 Addresses critical transportation infrastructure +1 Protects freight network elements +1 Implements hazard mitigation or climate adaptation plans
SYSTEM PRESERVATION (29 possible points)		

IRI = International Roughness Index

Table A-2
TIP Project Evaluation Criteria (cont. 4)

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
CAPACITY MANAGEMENT/MOBILITY: Use existing facility capacity more efficiently and increase healthy transportation options.		
Improve reliability of transit Implement roadway management and operations strategies, constructing improvements to the bicycle and pedestrian network, and supporting community-based transportation Create connected network of bicycle and accessible sidewalk facilities (at both regional and neighborhood scale) by expanding existing facilities and closing gaps Increase automobile and bicycle parking capacity and usage at transit stations Increase the percentage of population and places of employment within one-quarter mile of transit stations and stops Increase the percentage of population and employment with access to bicycle facilities Improve access to and accessibility of transit and active modes Enhance intermodal connections Support community-based and private-initiative services and programs to meet last-mile, reverse-commute and other non-traditional transit and transportation needs, including those of the elderly and persons with disabilities Eliminate bottlenecks on the freight network	Reduces transit vehicle delay (0–4 points)	+3 5 hours or more of daily transit vehicle delay reduced +2 1-5 hours of daily transit vehicle delay reduced +1 Less than one hour of daily transit vehicle delay reduced +0 Does not reduce transit delay
		If project scores points above, then it is eligible for additional points below: +1 Improves one or more key bus route(s)
	Improves pedestrian network and ADA accessibility (0–5 points)	+2 Adds new sidewalk(s) (including shared-use paths)
		+2 Improves ADA accessibility
		+1 Closes a gap in the pedestrian network
		+0 Does not improve pedestrian network
	Improves bicycle network (0–4 points)	+3 Adds new physically separated bicycle facility (including shared-use paths) +2 Adds new buffered bicycle facility +1 Adds new standard bicycle facility
		+1 Closes a gap in the bicycle network +0 Does not improve bicycle network
	Improves intermodal accommodations/connections to transit (0–6 points)	+6 Meets or addresses criteria to a high degree +4 Meets or addresses criteria to a medium degree +2 Meets or addresses criteria to a low degree +0 Does not meet or address criteria
	Improves truck movement (0–4 points)	+3 Meets or addresses criteria to a high degree +2 Meets or addresses criteria to a medium degree +1 Meets or addresses criteria to a low degree +0 Does not meet or address criteria
		If project scores points above, then it is eligible for additional points below: +1 Addresses MPO-identified bottleneck location
	Reduces vehicle congestion (0–6 points)	+6 400 hours or more of daily vehicle delay reduced +4 100-400 hours of daily vehicle delay reduced +2 Less than 100 hours of daily vehicle delay reduced +0 Does not meet or address criteria
CAPACITY MANAGEMENT/MOBILITY (29 possible points)		
ADA = Americans with Disabilities Act		

Table A-2
TIP Project Evaluation Criteria (cont. 5)

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
CLEAN AIR/CLEAN COMMUNITIES: Create an environmentally friendly transportation system.		
Reduce GHGs generated in the Boston region by all transportation modes as outlined in the Global Warming Solutions Act Reduce other transportation-related pollutants Minimize negative environmental impacts of the transportation system, when possible Support land-use policies consistent with smart and healthy growth	Reduces CO_2 (-5–5 points)	+5 1,000 or more annual tons of CO_2 reduced +4 500-999 annual tons of CO_2 reduced +3 250-499 annual tons of CO_2 reduced +2 100-249 annual tons of CO_2 reduced +1 Less than 100 annual tons of CO_2 reduced 0 No impact -1 Less than 100 annual tons of CO_2 increased -2 100-249 annual tons of CO_2 increased -3 250-499 annual tons of CO_2 increased -4 500-999 annual tons of CO_2 increased -5 1,000 or more annual tons of CO_2 increased
	Reduces other transportation-related emissions (VOC, NOx, CO) (-5–5 points)	+5 2,000 or more total kilograms of VOC, NOx, CO reduced +4 1,000-1,999 total kilograms of VOC, NOx, CO reduced +3 500-999 total kilograms of VOC, NOx, CO reduced +2 250-499 total kilograms of VOC, NOx, CO reduced +1 Less than 250 total kilograms of VOC, NOx, CO reduced 0 No impact -1 Less than 250 total kilograms of VOC, NOx, CO increased -2 250-499 total kilograms of VOC, NOx, CO increased -3 500-999 total kilograms of VOC, NOx, CO increased -4 1,000-1,999 total kilograms of VOC, NOx, CO increased -5 2,000 or more total kilograms of VOC, NOx, CO increased
	Addresses environmental impacts (0–4 points)	+1 Addresses water quality +1 Addresses cultural resources or open space +1 Addresses wetlands or resource areas +1 Addresses wildlife preservation or protected habitats +0 Does not meet or address criteria
	Is in an EOEEA-certified "Green Community" (0–2 points)	+2 Project is located in a "Green Community" +0 Project is not located in a "Green Community"
CLEAN AIR/CLEAN COMMUNITIES (16 possible points)		

CO = carbon monoxide; CO_2 = carbon dioxide; EOEEA = Executive Office of Energy and Environmental Affairs; GHG = greenhouse gas; NOx = nitrogen oxides; VOCs = volatile organic compounds.

Table A-2
TIP Project Evaluation Criteria (cont. 6)

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
TRANSPORTATION EQUITY: Provide comparable access and service quality among communities, regardless of income level or minority population.		
Target investments to areas that benefit a high percentage of low-income and minority populations Minimize any burdens associated with MPO-funded projects in low income and minority areas Break down barriers to participation in MPO-decision making	Serves Title VI/non-discrimination populations (-10–12 points) Regional Thresholds: - Elderly: 6.7% - Minority: 28.2% - People with a disability: 10.0% - Limited-English proficiency population: 10.6% - Low-income households: 32.2% - Zero-vehicle households: 16.1%	+2 Serves minority (high concentration) population (> 2,000 people) +1 Serves minority (low concentration) population (≤ 2,000 people)
		+2 Serves low-income (high concentration) population (> 2,000 people) +1 Serves low-income (low concentration) population (≤ 2,000 people)
		+2 Serves limited-English proficiency (high concentration) population (> 1,000 people) +1 Serves limited-English proficiency (low concentration) population (≤ 1,000 people)
		+2 Serves elderly (high concentration) population (> 2,000 people) +1 Serves elderly (low concentration) population (≤ 2,000 people)
		+2 Serves zero-vehicle households (high concentration) population (> 1,000 people) +1 Serves zero-vehicle households (low concentration) population (≤ 1,000 people)
		+2 Serves persons with disabilities (high concentration) population (> 1,000 people) +1 Serves persons with disabilities (low concentration) population (≤ 1,000 people)
		+0 Does not serve Title VI or non-discrimination populations -10 Creates a burden for Title VI or non-discrimination populations
TRANSPORTATION EQUITY (12 possible points)		
ECONOMIC VITALITY: Ensure our transportation network provides a strong foundation for economic vitality.		
Prioritize transportation investments that serve targeted development sites Prioritize transportation investments that support development consistent with the compact growth strategies of MetroFuture Minimize the burden of housing and transportation costs for residents in the region	Serves targeted development site (0–6 points)	+2 Provides new transit access to or within site +1 Improves transit access to or within site +1 Provides for bicycle access to or within site +1 Provides for pedestrian access to or within site +1 Provides for improved road access to or within site +0 Does not provide any of the above measures
	Provides for development consistent with the compact growth strategies of MetroFuture (0–5 points)	+2 Mostly serves an existing area of concentrated development +1 Partly serves an existing area of concentrated development +1 Supports local zoning or other regulations that are supportive of smart growth development +2 Complements other local financial or regulatory support that fosters economic revitalization in a manner consistent with smart growth development principles +0 Does not provide any of the above measures

Table A-2
TIP Project Evaluation Criteria (cont. 7)

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
	Provides multimodal access to an activity center (0–4 points)	+1 Provides transit access (within a quarter mile) to an activity center
		+1 Provides truck access to an activity center
		+1 Provides bicycle access to an activity center
		+1 Provides pedestrian access to an activity center
		+0 Does not provide multimodal access
	Leverages other investments (non-TIP funding) (0–3 points)	+3 Meets or addresses criteria to a high degree (>30% of the project cost) +2 Meets or addresses criteria to a medium degree (10-30% of the project cost) +1 Meets or addresses criteria to a low degree (<10% of the project cost) +0 Does not meet or address criteria
ECONOMIC VITALITY (18 possible points)		
TOTAL SCORE (134 possible points)		

Table A-3
TIP Project Evaluation Results

TIP ID	Municipality	Proponent	Project Name	Project Cost	Initial Total Score (134 possible points)	Revised Total Score (134 possible points)	Safety Score (30 possible points)	Crash Severity Value: EPDO Index (0–5 points)	Crash Rate (0–5 points)	Improves truck safety (0–5 points)	Improves bicycle safety (0–5 points)	Improves pedestrian safety (0–5 points)	Improves railroad crossing safety (0–5 points)	System Preservation Score (29 possible points)	Improves substandard roadway bridge(s) (0–3 points)	Improves substandard pavement (0–6 points)	Improves substandard traffic signals (0–6 points)	Improves transit asset(s) (0–3 points)	Improves substandard sidewalk(s) (0–3 points)	Improves emergency response (0–2 points)	Improves ability to respond to extreme conditions (0–6 points)	Capacity Management/Mobility Score (29 possible points)	Reduces transit vehicle delay (0–4 points)	Improves pedestrian network and ADA accessibility (0–5 points)	Improves bicycle network (0–4 points)	Improves intermodal connections to transit (0–6 points)	Improves truck movement (0–4 points)	Reduces vehicle congestion (0–6 points)	Clean Air/Sustainable Communities Score (16 possible points)	Reduces CO_2 emissions (-5–5 points)	Reduces other transportation-related emissions (-5–5 points)	Addresses environmental impacts (0–4 points)	Located in an EOEEA-certified "Green Community" (0–2 points)	Transportation Equity Score (12 possible points)	Economic Vitality Score (18 possible points)	Serves targeted development site (0–6 points)	Provides for development consistent with the compact growth strategies of MetroFuture (0–5 points)	Provides intermodal access to activity center (0–4 points)	Leverages other investments (non-TIP funding) (0–3 points)
(Projects grouped by MPO Investment Category)																																								
Bicycle/Pedestrian																																								
608943*	Boston	DCR	Neponset River Greenway (Phase 3)	$4,972,500	42	42	11	3	0	0	4	4	0	4	0	0	0	0	3	1	0	9	0	5	4	0	0	0	10	3	4	1	2	7	1	0	1	0	0
609211*	Peabody	Peabody	Independence Greenway Extension	$1,921,075	31	34	9	1	2	0	3	3	0	4	0	0	0	0	3	1	0	9	0	5	4	0	0	0	4	1	1	2	0	4	4	0	2	2	0
608006	Framingham	MassDOT	Pedestrian Hybrid Beacon Installation at Route 9 and Maynard Rd	$886,228	26	26	11	2	4	0	0	4	1	6	0	0	4	0	0	1	1	2	0	2	0	0	0	0	2	0	0	0	2	1	4	0	2	2	0
609066*	Weston	MassDOT	Multi-Use Trail Connection (Recreation Rod to Upper Charles River Greenway, including Reconstruction of Pedestrian Bridge)	$2,661,498	24	24	6	0	0	0	3	3	0	3	0	0	0	0	3	0	0	9	0	5	4	0	0	0	4	1	1	0	2	2	0	0	0	0	0
Complete Streets																																								
609252*	Lynn	Lynn	Rehabilitation of Essex St	$16,952,000	61	66	19	5	5	0	4	5	0	17	0	6	6	1	3	1	0	9	2	2	1	2	0	2	8	3	4	1	0	10	3	0	3	0	0

Table A-3
TIP Project Evaluation Results (cont. 2)

TIP ID	Municipality	Proponent	Project Name	Project Cost	Initial Total Score (134 possible points)	Revised Total Score (134 possible points)	Safety Score (30 possible points)	Crash Severity Value: EPDO Index (0–5 points)	Crash Rate (0–5 points)	Improves truck safety (0–5 points)	Improves bicycle safety (0–5 points)	Improves pedestrian safety (0–5 points)	Improves railroad crossing safety (0–5 points)	System Preservation Score (29 possible points)	Improves substandard roadway bridge(s) (0–3 points)	Improves substandard pavement (0–6 points)	Improves substandard traffic signals (0–6 points)	Improves transit asset(s) (0–3 points)	Improves substandard sidewalk(s) (0–3 points)	Improves emergency response (0–2 points)	Improves ability to respond to extreme conditions (0–6 points)	Capacity Management/Mobility Score (29 possible points)	Reduces transit vehicle delay (0–4 points)	Improves pedestrian network and ADA accessibility (0–5 points)	Improves bicycle network (0–4 points)	Improves intermodal connections to transit (0–6 points)	Improves truck movement (0–4 points)	Reduces vehicle congestion (0–6 points)	Clean Air/Sustainable Communities Score (16 possible points)	Reduces CO_2 emissions (-5–5 points)	Reduces other transportation-related emissions (-5–5 points)	Addresses environmental impacts (0–4 points)	Located in an EOEEA-certified "Green Community" (0–2 points)	Transportation Equity Score (12 possible points)	Economic Vitality Score (18 possible points)	Serves targeted development site (0–6 points)	Provides for development consistent with the compact growth strategies of MetroFuture (0–5 points)	Provides intermodal access to activity center (0–4 points)	Leverages other investments (non-TIP funding) (0–3 points)
608051*	Wilmington	Wilmington	Reconstruction of Route 38 (Main St), from Route 62 to the Woburn City Line	$10,802,316	51	59	15	4	2	3	2	4	0	12	0	2	4	0	3	1	2	13	0	5	2	4	0	2	10	4	3	3	0	1	8	3	1	2	2
605168	Hingham	Hingham	Intersection Improvements at Route 3A/Summer St Rotary	$7,500,001	55	55	10	3	1	0	3	3	0	16	0	4	4	0	3	1	4	17	2	4	4	1	0	6	10	3	2	3	2	0	2	0	0	2	0
609257*	Everett	Everett	Rehabilitation of Beacham St, from Route 99 to Chelsea City Line	$9,180,000	54	54	19	1	5	4	4	4	1	10	0	6	0	0	3	1	0	13	0	5	4	0	4	0	4	1	1	0	2	7	1	0	1	0	0
601704	Newton	Newton	Reconstruction and Signal Improvements on Walnut St, from Homer St to Route 9	$4,648,360	45	45	14	4	3	3	2	2	0	12	0	6	4	0	2	0	0	7	0	0	1	6	0	0	4	-1	1	2	2	0	8	3	2	3	0
602310	Danvers	Danvers	Reconstruction of Collins St, from Sylvan St to Centre and Holten Sts	$5,183,121	44	44	8	1	2	1	2	2	0	12	0	6	6	0	0	0	0	12	0	4	1	2	1	4	5	2	1	2	0	2	5	1	2	2	0
608045	Milford	MassDOT	Rehabilitation on Route 16, from Route 109 to Beaver St	$2,700,000	43	43	20	5	5	4	2	4	0	7	0	0	4	0	2	1	0	9	1	5	1	0	2	0	-1	-1	-1	-1	1	0	3	5	3	1	1	0
609054*	Littleton	Littleton	Reconstruction of Foster St	$3,522,546	37	38	12	1	2	0	3	3	3	3	0	0	0	0	3	0	0	11	0	5	4	2	0	0	5	1	1	1	2	1	6	4	2	0	0

Table A-3
TIP Project Evaluation Results (cont. 3)

TIP ID	Municipality	Proponent	Project Name	Project Cost	Initial Total Score (134 possible points)	Revised Total Score (134 possible points)	Safety Score (30 possible points)	Crash Severity Value: EPDO Index (0–5 points)	Crash Rate (0–5 points)	Improves truck safety (0–5 points)	Improves bicycle safety (0–5 points)	Improves pedestrian safety (0–5 points)	Improves railroad crossing safety (0–5 points)	System Preservation Score (29 possible points)	Improves substandard roadway bridge(s) (0–3 points)	Improves substandard pavement (0–6 points)	Improves substandard traffic signals (0–6 points)	Improves transit asset(s) (0–3 points)	Improves substandard sidewalk(s) (0–3 points)	Improves emergency response (0–2 points)	Improves ability to respond to extreme conditions (0–6 points)	Capacity Management/Mobility Score (29 possible points)	Reduces transit vehicle delay (0–4 points)	Improves pedestrian network and ADA accessibility (0–5 points)	Improves bicycle network (0–4 points)	Improves intermodal connections to transit (0–6 points)	Improves truck movement (0–4 points)	Reduces vehicle congestion (0–6 points)	Clean Air/Sustainable Communities Score (16 possible points)	Reduces CO_2 emissions (-5–5 points)	Reduces other transportation-related emissions (-5–5 points)	Addresses environmental impacts (0–4 points)	Located in an EOEEA-certified "Green Community" (0–2 points)	Transportation Equity Score (12 possible points)	Economic Vitality Score (18 possible points)	Serves targeted development site (0–6 points)	Provides for development consistent with the compact growth strategies of MetroFuture (0–5 points)	Provides intermodal access to activity center (0–4 points)	Leverages other investments (non-TIP funding) (0–3 points)
Intersection Improvements																																								
609253*	Wilmington	Wilmington	Intersection Improvements at Lowell St (Route 129) and Woburn St	$3,400,000	49	53	13	2	3	1	3	4	0	12	0	2	6	0	3	0	1	16	0	5	2	0	3	6	9	4	3	2	0	1	2	0	2	0	0
608889*	Framingham	Framingham	Traffic Signal Installation at Edgell Rd and Central St	$1,680,000	26	41	9	1	2	1	2	3	0	10	0	4	0	0	3	0	3	7	0	3	1	0	1	2	9	3	2	2	2	2	4	0	1	0	3
609254*	Lynn	Lynn	Traffic and Safety Improvements at Two Locations on Broadway	$5,870,300	34	39	13	3	4	0	2	4	0	13	0	4	6	0	3	0	0	7	0	2	1	2	0	2	2	1	1	0	0	1	3	0	3	0	0
608436*	Ashland	Ashland	Rehabilitation and Rail Crossing Improvements on Cherry St	$990,000	38	38	12	1	4	0	1	3	3	10	0	6	0	0	3	1	0	5	0	5	0	0	0	0	2	0	0	0	2	1	8	2	3	0	3
604231	Marlborough	MassDOT	Intersection and Signal Improvements on Route 20 (East Main St/Boston Post Rd) at Concord Rd	$1,706,600	35	35	5	1	2	0	0	2	0	6	0	4	0	0	2	0	0	8	1	2	0	0	1	4	6	2	1	1	2	3	7	3	3	1	0
Major Infrastructure																																								
607981	Somerville	Somerville	McGrath Blvd Project	$82,500,000	74	74	15	3	4	0	4	4	0	12	0	4	6	0	2	0	0	19	0	5	4	6	0	4	6	1	3	0	2	10	12	4	5	3	0

Table A-3
TIP Project Evaluation Results (cont. 4)

TIP ID	Municipality	Proponent	Project Name	Project Cost	Initial Total Score (134 possible points)	Revised Total Score (134 possible points)	Safety Score (30 possible points)	Crash Severity Value: EPDO Index (0–5 points)	Crash Rate (0–5 points)	Improves truck safety (0–5 points)	Improves bicycle safety (0–5 points)	Improves pedestrian safety (0–5 points)	Improves railroad crossing safety (0–5 points)	System Preservation Score (29 possible points)	Improves substandard roadway bridge(s) (0–3 points)	Improves substandard pavement (0–6 points)	Improves substandard traffic signals (0–6 points)	Improves transit asset(s) (0–3 points)	Improves substandard sidewalk(s) (0–3 points)	Improves emergency response (0–2 points)	Improves ability to respond to extreme conditions (0–6 points)	Capacity Management/Mobility Score (29 possible points)	Reduces transit vehicle delay (0–4 points)	Improves pedestrian network and ADA accessibility (0–5 points)	Improves bicycle network (0–4 points)	Improves intermodal connections to transit (0–6 points)	Improves truck movement (0–4 points)	Reduces vehicle congestion (0–6 points)	Clean Air/Sustainable Communities Score (16 possible points)	Reduces CO_2 emissions (-5–5 points)	Reduces other transportation-related emissions (-5–5 points)	Addresses environmental impacts (0–4 points)	Located in an EOEEA-certified "Green Community" (0–2 points)	Transportation Equity Score (12 possible points)	Economic Vitality Score (18 possible points)	Serves targeted development site (0–6 points)	Provides for development consistent with the compact growth strategies of MetroFuture (0–5 points)	Provides intermodal access to activity center (0–4 points)	Leverages other investments (non-TIP funding) (0–3 points)
609246*	Lynn	Lynn	Reconstruction of Western Ave (Route 107)	$36,205,000	64	70	17	5	5	0	2	5	0	16	0	4	6	1	3	2	0	14	2	2	1	2	1	6	9	4	5	0	0	10	4	0	3	1	0
608449	Boston	Boston	Improvements along Commonwealth Ave (Route 30), from Alcorn St to Warren/ Kelton Sts (Phases 3 and 4)	$31,036,006	64	64	14	2	1	0	5	3	3	12	0	4	4	0	2	2	0	11	0	0	4	6	1	0	8	2	3	1	2	8	11	4	4	3	0
605313	Natick	Natick	Bridge Replacement, Route 27 (North Main St) over Route 9 (Worcester St) and Interchange Improvements	$25,897,370	60	60	20	5	5	3	3	4	0	19	3	6	6	0	3	0	1	10	0	4	1	4	1	0	4	-1	1	2	2	1	6	0	3	3	0
87790	Canton, Westwood	MassDOT	Interchange Improvements at I-95 / I-93 / University Ave / I-95 Widening	###########	48	48	18	5	0	5	4	4	0	6	3	0	0	0	0	0	3	17	0	5	4	4	4	0	-1	-2	-5	4	2	1	7	3	1	3	0
601513	Saugus	Saugus	Interchange Reconstruction at Walnut St and Route 1 (Phase II)	$19,581,123	43	43	11	3	3	0	2	3	0	11	0	4	6	0	0	1	0	9	1	4	1	0	1	2	6	1	1	2	2	2	4	0	1	3	0
604638	Danvers, Peabody	MassDOT	Mainline Improvements on Route 128 (Phase II)	$24,031,419	36	36	14	5	4	5	0	0	0	8	3	4	0	0	0	1	0	5	1	0	0	0	2	2	3	1	1	1	0	3	3	1	1	1	0

* Projects evaluated for the first time in FFY 2019. All other projects were re-evaluated in FFY 2019 with updated data and project information, where available.

Abbreviations: ADA = Americans with Disabilities Act. DCR = Department of Conservation and Recreation. EOEEA = Executive Office of Energy and Environmental Affairs. EPDO = Equivalent Property Damage Only. MassDOT = Massachusetts Department of Transportation.

Table A-4
Final Project Evaluation Results and First-Tier List

TIP ID	Municipality	Proponent	Project Name[a]	Project Cost	Design Status	Year of PRC Approval	Earliest FFY of Advertising for Construction Contract[a]	MAPC Subregion[b]	MAPC Community Type[c]	MassDOT Highway District	CTPS Study	Location-Specific LRTP-Identified Need[d]	Relationship to National Highway System	Initial Total Score (134 possible points)	Revised Total Score (134 possible points)	Safety Score (30 possible points)	System Preservation Score (29 possible points)	Capacity Management/Mobility Score (29 possible points)	Clean Air/Sustainable Communities Score (16 possible points)	Transportation Equity Score (12 possible points)	Economic Vitality Score (18 possible points)
(Projects grouped by MPO Investment Category)																					
Bicycle/Pedestrian																					
608943*	Boston	DCR	Neponset River Greenway (Phase 3)	$4,972,500	PRC Approved	2017	2024	ICC	IC	6				42	42	11	4	9	10	7	1
609211*	Peabody	Peabody	Independence Greenway Extension	$1,921,075	PRC Approved	2018	2024	NSTF	RUC	4				31	34	9	4	9	4	4	4
608006	Framingham	MassDOT	Pedestrian Hybrid Beacon Installation at Route 9 and Maynard Rd	$886,228	25% Submitted	2014	2024	MWRC	RUC	3			On NHS	**26**	**26**	11	6	2	2	1	4
609066*	Weston	MassDOT	Multi-Use Trail Connection (Recreation Rd to Upper Charles River Greenway, including Reconstruction of Pedestrian Bridge)	$2,661,498	25% Submitted	2018	2024	MWRC	MS	6				24	24	6	3	9	4	2	0
Complete Streets																					
609252*	Lynn	Lynn	Rehabilitation of Essex Street	$16,952,000	PRC Approved	2018	2024	ICC	RUC	4		Safety	Partially on NHS	**61**	**66**	19	17	9	8	10	3
608051*	Wilmington	Wilmington	Reconstruction of Route 38 (Main St), from Route 62 to the Woburn City Line	$10,802,316	25% Submitted	2014	2023	NSPC	MS	4		CMM	On NHS	**51**	**59**	15	12	13	10	1	8
605168	Hingham	Hingham	Intersection Improvements at Route 3A/Summer St Rotary	$7,500,001	PRC Approved	2009	2024	SSC	MS	5	X		Partially on NHS	**55**	**55**	10	16	17	10	0	2
609257*	Everett	Everett	Rehabilitation of Beacham Street, from Route 99 to Chelsea City Line	$9,180,000	PRC Approved	2018	2024	ICC	IC	4				54	54	19	10	13	4	7	1
601704	Newton	Newton	Reconstruction and Signal Improvements on Walnut St, from Homer St to Route 9	$4,648,360	25% Submitted	1996	2024	ICC	IC	6				45	45	14	12	7	4	0	8

Table A-4
Final Project Evaluation Results and First-Tier List (cont. 2)

TIP ID	Municipality	Proponent	Project Name[a]	Project Cost	Design Status	Year of PRC Approval	Earliest FFY of Advertising for Construction Contract[a]	MAPC Subregion[b]	MAPC Community Type[c]	MassDOT Highway District	CTPS Study	Location-Specific LRTP-Identified Need[d]	Relationship to National Highway System	Initial Total Score (134 possible points)	Revised Total Score (134 possible points)	Safety Score (30 possible points)	System Preservation Score (29 possible points)	Capacity Management/Mobility Score (29 possible points)	Clean Air/Sustainable Communities Score (16 possible points)	Transportation Equity Score (12 possible points)	Economic Vitality Score (18 possible points)
602310	Danvers	Danvers	Reconstruction of Collins St, from Sylvan St to Centre and Holten Sts	$5,183,121	75% Approved	1997	2024	NSTF	MS	4				44	44	8	12	12	5	2	5
608045	Milford	MassDOT	Rehabilitation on Route 16, from Route 109 to Beaver St	$2,700,000	PRC Approved	2014	2024	SWAP	RUC	3			Partially on NHS	**43**	**43**	**20**	**7**	**9**	**-1**	**3**	**5**
609054*	Littleton	Littleton	Reconstruction of Foster St	$3,522,546	PRC Approved		2024	MAGIC	DS	3				37	38	12	3	11	5	1	6
Intersection Improvements																					
609253*	Wilmington	Wilmington	Intersection Improvements at Lowell St (Route 129) and Woburn St	$3,400,000	PRC Approved	2018	2024	NSPC	MS	4	X	CMM	On NHS	**49**	**53**	**13**	**12**	**16**	**9**	1	2
608889*	Framingham	Framingham	Traffic Signal Installation at Edgell Road and Central St	$1,680,000	25% Submitted	2017	2022	MWRC	RUC	3				26	41	9	10	7	9	2	4
609254*	Lynn	Lynn	Traffic and Safety Improvements at Two Locations on Broadway	$5,870,300	PRC Approved	2018	2024	ICC	RUC	4				34	39	13	13	7	2	1	3
608436*	Ashland	Ashland	Rehabilitation and Rail Crossing Improvements on Cherry St	$990,000	PRC Approved	2017	2024	MWRC	MS	3				38	38	12	10	5	2	1	8
604231	Marlborough	MassDOT	Intersection and Signal Improvements on Route 20 (East Main St/Boston Post Rd) at Concord Rd	$1,706,600	25% Submitted	2007	2024	MWRC	RUC	3	X		Partially on NHS	**35**	**35**	**5**	**6**	8	6	3	7
Major Infrastructure																					
607981	Somerville	Somerville	**McGrath Boulevard Project**	$82,500,000	PRC Approved	No Date	2026-30	ICC	IC	4			On NHS	**74**	74	15	12	19	6	10	12
609246*	Lynn	Lynn	Reconstruction of Western Ave (Route 107)	$36,205,000	PRC Approved	2018	n/a	ICC	RUC	4		Safety	On NHS	**64**	**70**	**17**	**16**	**14**	**9**	**10**	**4**

Table A-4
Final Project Evaluation Results and First-Tier List (cont. 3)

TIP ID	Municipality	Proponent	Project Name[a]	Project Cost	Design Status	Year of PRC Approval	Earliest FFY of Advertising for Construction Contract[a]	MAPC Subregion[b]	MAPC Community Type[c]	MassDOT Highway District	CTPS Study	Location-Specific LRTP-Identified Need[d]	Relationship to National Highway System	Initial Total Score (134 possible points)	Revised Total Score (134 possible points)	Safety Score (30 possible points)	System Preservation Score (29 possible points)	Capacity Management/Mobility Score (29 possible points)	Clean Air/Sustainable Communities Score (16 possible points)	Transportation Equity Score (12 possible points)	Economic Vitality Score (18 possible points)
608449	Boston	Boston	Improvements along Commonwealth Ave (Route 30), from Alcorn St to Warren/Kelton Sts (Phases 3 and 4)	$31,036,006	25% Submitted	2016	n/a	ICC	IC	6			On NHS	64	64	14	12	11	8	8	11
605313	Natick	Natick	**Bridge Replacement, Route 27 (North Main St) over Route 9 (Worcester St) and Interchange Improvements**	$25,897,370	25% Submitted	2011	2024	MWRC	MS	3			On NHS	60	60	20	19	10	4	1	6
87790	Canton, Westwood	MassDOT	Interchange Improvements at I-95 / I-93 / University Ave / I-95 Widening	$202,205,994	25% Submitted	2011	n/a	TRIC	MS	6		CMM	On NHS	48	48	18	6	17	-1	1	7
601513	Saugus	Saugus	Interchange Reconstruction at Walnut St and Route 1 (Phase II)	$19,581,123	75% Submitted	1995	n/a	ICC	MS	4			On NHS	43	43	11	11	9	6	2	4
604638	Danvers, Peabody	MassDOT	Mainline Improvements on Route 128 (Phase II)	$24,031,419	100% Submitted	2005	n/a	NSTF	RUC	4			On NHS	36	36	14	8	5	3	3	3

* Projects evaluated for the first time in FFY 2019. All other projects were re-evaluated in FFY 2019 with updated data and project information, where available.

[a] The major infrastructure projects in bold are programmed in the Long-Range Transportation Plan, *Charting Progress to 2040*. The other major infrastructure projects would have to be programmed in the LRTP before being programmed in the TIP.

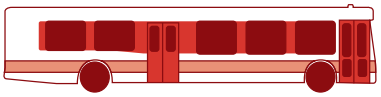
[b] MAPC subregions: ICC = Inner Core Committee. MAGIC = Minuteman Advisory Group on Interlocal Coordination. MWRC = MetroWest Regional Collaborative. NSPC = North Suburban Planning Council. NSTF = North Shore Task Force. SSC = South Shore Coalition. SWAP = South West Advisory Planning Committee. TRIC = Three Rivers Interlocal Council.

[c] MAPC community types: DS = developing suburb. IC = inner core; MS = maturing suburb. RUC = regional urban center.

[d] MPO staff noted whether a project may address an identified LRTP capacity management and/or mobility (CMM) need by comparing project locations to top priority bottleneck locations analyzed for the draft *Destination 2040* Needs Assessment. Staff noted whether a project may address an identified LRTP safety need by comparing project locations to top all-mode, bicycle, pedestrian, or truck crash cluster locations analyzed for the draft Destination 2040 Needs Assessment

Other abbreviations: CTPS = Central Transportation Planning Staff. DCR = Department of Conservation and Recreation. LRTP = Long-Range Transportation Plan. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. PRC = MassDOT Project Review Committee.

APPENDIX B



APPENDIX B
GREENHOUSE GAS MONITORING AND EVALUATION

BACKGROUND

The Global Warming Solutions Act of 2008 (GWSA) requires statewide reductions in greenhouse gas (GHG) emissions of 25 percent below 1990 levels by the year 2020, and 80 percent below 1990 levels by 2050. As part of the GWSA, the Executive Office of Energy and Environmental Affairs developed the Massachusetts Clean Energy and Climate Plan, which outlines programs to attain the 25 percent reduction by 2020—including a 7.6 percent reduction to be attributed to the transportation sector.

The Commonwealth's 13 metropolitan planning organizations (MPOs) are integrally involved in helping to achieve GHG emissions reductions mandated under the GWSA. The MPOs work closely with the Massachusetts Department of Transportation (MassDOT) and other involved agencies to develop common transportation goals, policies, and projects that will help to reduce GHG emissions levels statewide, and meet the specific requirements of the GWSA regulation, *Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation* (310 CMR 60.05). The purpose of this regulation is to assist the Commonwealth in achieving its adopted GHG emissions reduction goals by requiring the following:

- MassDOT to demonstrate that its GHG emissions reduction commitments and targets are being achieved
- Each MPO to evaluate and track the GHG emissions and impacts of both its Long-Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP)
- Each MPO, in consultation with MassDOT, to develop and use procedures to prioritize and select projects for its LRTP and TIP based on factors that include GHG emissions and impacts

The Commonwealth's MPOs are meeting the requirements of this regulation through the transportation goals and policies contained in their 2016 LRTPs, the major projects planned in their LRTPs, and the mix of new transportation projects that are programmed and implemented through their TIPs.

The GHG tracking and evaluation processes enable the MPOs and MassDOT to identify the anticipated GHG impacts of the planned and programmed projects, and to use GHG impacts as criteria to prioritize transportation projects. This approach is consistent with the GHG emissions reduction policies that promote healthy transportation modes through prioritizing and programming an appropriate balance of roadway, transit, bicycle, and pedestrian investments, as well as policies that support smart growth development patterns by creating a balanced multi-modal transportation system.

REGIONAL TRACKING AND EVALUATING LONG-RANGE TRANSPORTATION PLANS

MassDOT coordinated with MPOs and regional planning agencies to implement GHG tracking and to evaluate projects during the development of the LRTPs that were adopted in September 2011. This collaboration continued during the development of the LRTPs and amendments adopted in 2016, and for the TIPs produced for federal fiscal years (FFYs) 2016–19, 2017–21, 2018–22, 2019–23, and 2020–24. Working together, MassDOT and the MPOs have attained the following milestones:

- As a supplement to the 2016 LRTPs and Amendment One to the Boston Region MPO's LRTP, *Charting Progress to 2040*, the MPOs have completed modeling and developed long-range statewide projections for GHG emissions produced by the transportation sector. The Boston Region MPO's travel demand model and the statewide travel demand model were used to project GHG emissions levels for 2018, 2019, and 2020 No-Build (base conditions). These projections were developed as part of amendments to 310 CMR 60.05 (adopted in August 2017 by the Massachusetts Department of Environmental Protection) to demonstrate that aggregate transportation GHG emissions reported by MassDOT will meet established annual GHG emissions targets.
- All of the MPOs have discussed climate change, addressed GHG emissions reduction projections in their LRTPs, and prepared statements affirming their support for reducing GHG emissions as a regional goal.

TRACKING AND EVALUATING THE TRANSPORTATION IMPROVEMENT PROGRAM

In addition to monitoring the GHG impacts of projects in the LRTP that will add capacity to the transportation system, it also is important to monitor and evaluate the GHG impacts of all transportation projects that are programmed in the TIP. The TIP includes both the larger, capacity-adding projects from the LRTP and smaller projects, which are not included in the LRTP but that may affect GHG emissions. The principal objective of this tracking is to enable the MPOs to evaluate the expected GHG impacts of different projects and to use this information as criteria to prioritize and program projects in future TIPs.

In order to monitor and evaluate the GHG impacts of TIP projects, MassDOT and the MPOs have developed approaches for identifying anticipated GHG emissions impacts of different types of projects. Since carbon dioxide (CO_2) is the largest component of GHG emissions overall and is the focus of regulation 310 CMR 60.05, CO_2 has been used to measure the GHG emissions impacts of transportation projects in the TIP and LRTP.

All TIP projects have been sorted into two categories for analysis: 1) projects with quantified CO_2 impacts, and 2) projects with assumed CO_2 impacts. Projects with quantified impacts consist of capacity-adding projects from the LRTP and projects from the TIP that underwent a Congestion Mitigation and Air Quality Improvement (CMAQ) program spreadsheet analysis.

Projects with assumed impacts are those that would be expected to produce a minor decrease or increase in emissions, and those that would be assumed to have no CO_2 impact.

TRACKING AND EVALUATING THE TRANSPORTATION IMPROVEMENT PROGRAM

Travel Demand Model

Projects with quantified impacts include capacity-adding projects in the LRTP that were analyzed using the Boston Region MPO's travel demand model set. No independent calculations were done for these projects during the development of the TIP.

Off-Model Methods

MassDOT's Office of Transportation Planning provided spreadsheets that are used to determine projects' eligibility for funding through the CMAQ program. Typically, MPO staff uses data from projects' functional design reports, which are prepared at the 25-percent design phase, to conduct these calculations. Staff used these spreadsheets to calculate estimated projections of CO_2 for each project, in compliance with GWSA regulations. These estimates are shown in Tables B-1 and B-2. A note of "to be determined" is shown for those projects for which a functional design report was not yet available.

As part of the development of the FFYs 2020–24 TIP, analyses were done for the types of projects described below. A summary of steps performed in the analyses is provided.

Traffic Operational Improvement

For an intersection reconstruction or signalization project that typically reduces delay and, therefore, idling, the following steps are taken:

- Step 1: Calculate the AM peak hour total intersection delay (seconds)
- Step 2: Calculate the PM peak hour total intersection delay (seconds)
- Step 3: Select the peak hour with the longer intersection delay
- Step 4: Calculate the selected peak hour total intersection delay with improvements
- Step 5: Calculate the vehicle delay in hours per day (assumes peak hour delay is 10 percent of daily delay)
- Step 6: Input the emissions factors for arterial idling speed from the US Environmental Protection Agency's Motor Vehicle Emission Simulator (MOVES)
- Step 7: Calculate the net emissions change in kilograms per day
- Step 8: Calculate the net emissions change in kilograms per year (seasonally adjusted)
- Step 9: Calculate the cost effectiveness (first year cost per kilogram of emissions reduced)

Pedestrian and Bicycle Infrastructure

For a shared-use path that would enable more walking and biking trips and reduce automobile trips, the following steps are taken:

- Step 1: Calculate the estimated number of one-way trips based on the percentage of workers residing in the communities served by the facility and the communities' bicycle and pedestrian commuter mode share
- Step 2: Calculate the reduction in vehicle-miles traveled per day and per year (assumes each trip is the length of the facility and that the facility operates 200 days per year)
- Step 3: Input the MOVES emissions factors for the average commuter travel speed (assumes 35 miles per hour)
- Step 4: Calculate the net emissions change in kilograms per year (seasonally adjusted)
- Step 5: Calculate the cost effectiveness (first year cost per kilogram of emissions reduced)

Bus Replacement

For a program that replaces old buses with new buses that reduce emissions or run on cleaner fuel, the following steps are taken:

- Step 1: Input the MOVES emissions factors for the average bus travel speed (assumes 18 miles per hour) for both the old model year bus and the new model year bus
- Step 2: Calculate the fleet vehicle-miles per day based on the vehicle revenue-miles and operating days per year
- Step 3: Calculate the net emissions change in kilograms per year (seasonally adjusted)
- Step 4: Calculate the cost effectiveness (first-year cost per kilogram of emissions reduced)

Other Types of Projects

Calculations may be performed on the project types listed below; however, there are no projects of these types in this TIP:

- New and Additional Transit Service: A new bus or shuttle service that reduces automobile trips
- Park-and-Ride Lot: A facility that reduces automobile trips by encouraging high-occupancy vehicle (HOV) travel via carpooling or transit
- Alternative Fuel Vehicles: New vehicle purchases that replace traditional gas or diesel vehicles with alternative fuel or advanced technology vehicles
- Anti-Idling Strategies: Strategies that include incorporating anti-idling technology into fleets and using light-emitting diode (LED) lights on trucks for the purpose of illuminating worksites

- Bike-share Projects: Programs in which bicycles are made available for shared use to individuals on a short-term basis, allowing each bicycle to serve several users per day
- Induced Travel: Projects associated with a roadway capacity change that gives rise to new automobile trips
- Speed Reduction Projects: Projects that result in slower vehicle travel speeds and, therefore, reduced emissions
- Transit Signal Priority Projects: Technology at signalized intersections or along corridors that affect bus travel times
- Truck Stop Electrification: Technology that provides truck drivers with necessary services, such as heating, air conditioning, or appliances, without requiring them to idle their engines

ANALYZING PROJECTS WITH ASSUMED IMPACTS

Qualitative Decrease or Increase in CO_2 Emissions

Projects with assumed CO_2 impacts are those that could produce a minor decrease or increase in emissions, but the change in emissions cannot be calculated with any precision. Examples include a bicycle rack installation, Safe Routes to School project, or transit marketing or customer service improvement. These projects are categorized as producing an assumed nominal increase or decrease in emissions.

No CO_2 Impact

Projects that do not change the capacity or use of a facility—for example, a resurfacing project that restores a roadway to its previous condition, or a bridge rehabilitation or replacement that restores the bridge to its previous condition—are assumed to have no CO_2 impact.
More details about these projects, including a description of each project's anticipated CO_2 impacts, are discussed in Chapter 3. The following tables display the GHG impact analyses of projects funded in the FFYs 2020–24 Highway Program (Table B-1) and Transit Program (Table B-2). Table B-3 summarizes the GHG impact analyses of highway projects completed in FFY 2019. Table B-4 summarizes the GHG impact analyses of transit projects completed in FFY 2019. A project is considered completed when the construction contract has been awarded or the transit vehicles have been purchased.

Table B-1
Greenhouse Gas Regional Highway Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
608229	Acton - Intersection and signal improvements at Kelley's Corner	Quantified	111,958	Quantified decrease in emissions from Complete Streets project
607748	Acton - Intersection and signal improvements on Route 2 and Route 111 (Massachusetts Ave) at Piper Rd and Taylor Rd	Qualitative		Qualitative decrease in emissions
609222	Arlington – Spy Pond Sediment Removal	Qualitative		No assumed impact/ negligible impact on emissions
604123	Ashland - Reconstruction on Route 126 (Pond St) from Framingham town line to Holliston town line	Quantified	148,097	Quantified decrease in emissions from Complete Streets project
607738	Bedford - Minuteman Bikeway extension from Loomis St to the Concord town line	Quantified	21,098	Quantified decrease in emissions from bicycle and pedestrian infrastructure
608948	Bellingham - Franklin – Southern New England Trunk Trail (SNETT) Construction	Quantified	TBD	TBD
608887	Bellingham - South Main St (Route 126) - Douglas Dr to Mechanic St reconstruction (Route 140)	Quantified	24,363	Quantified decrease in emissions from Complete Streets project
608911	Belmont - Improvements at Wellington Elementary School (SRTS)	Qualitative		Qualitative decrease in emissions
608347	Beverly - Intersection improvements at 3 locations: Cabot St (Route 1A/97) at Dodge St (Route 1A), County Way, Longmeadow Rd and Scott St, McKay St at Balch St and Veterans Memorial Bridge (Route 1A) at Rantoul, Cabot, Water, and Front Sts	Quantified	582,422	Quantified decrease in emissions from traffic operational improvement
608348	Beverly - Rehabilitation of Bridge St	Quantified	387,153	Quantified decrease in emissions from Complete Streets project
606902	Boston - Bridge Reconstruction/Rehab, B-16-181, West Roxbury Parkway over MBTA	Qualitative		No assumed impact/ negligible impact on emissions
604173	Boston - Bridge replacement, B-16-016, North Washington St Bridge over the Boston Inner Harbor	Qualitative		No assumed impact/ negligible impact on emissions
606728	Boston - Bridge replacement, B-16-365, Bowker Overpass over Storrow Drive (eastbound)	Qualitative		No assumed impact/ negligible impact on emissions

Table B-1
Greenhouse Gas Regional Highway Project Tracking (cont. 2)

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
606476	Roadway, Ceiling & Wall Reconstruction, New Jet Fans, and other Control Systems in Sumner Tunnel	Qualitative		No assumed impact/ negligible impact on emissions
608614	Boston - Bridge substructure repairs, B-16-179, Austin St over I-93 ramps, MBTA commuter rail and Orange Line	Qualitative		No assumed impact/ negligible impact on emissions
606453	Boston - Improvements on Boylston St, from Intersection of Brookline Ave and Park Dr to Ipswich St	Quantified	1,920,790	Quantified decrease in emissions from Complete Streets project
607759	Boston - Intersection improvements at the VFW Parkway and Spring St	Qualitative		Qualitative decrease in emissions
608943	Boston - Neponset River Greenway (Phase 3)	Quantified	239,055	Quantified decrease in emissions from bicycle and pedestrian infrastructure
606226	Boston - Reconstruction of Rutherford Ave, from City Square to Sullivan Square	Quantified		LRTP project included in the statewide model
608197	Boston - Superstructure replacement, B-16-107, Canterbury St over Amtrak/ MBTA	Qualitative		No assumed impact/ negligible impact on emissions
607888	Boston-Brookline - Multi-use path construction on New Fenway	Quantified	54,724	Quantified decrease in emissions from bicycle and pedestrian infrastructure
609090	Boston-Milton-Quincy - Highway lighting system replacement on Interstate 93, from Neponset Ave to the Braintree split	Qualitative		No assumed impact/ negligible impact on emissions
608608	Braintree - Highway Lighting Improvements at I-93/Route 3 Interchange	Qualitative		No assumed impact/ negligible impact on emissions
608482	Cambridge-Somerville - Resurfacing and related work on Route 28	Qualitative		No assumed impact/ negligible impact on emissions
TBD	Canton - Bridge Replacement, C-02-042, Revere Court over East Branch Neponset River	Qualitative		No assumed impact/ negligible impact on emissions
609053	Canton-Dedham-Norwood - Highway lighting improvements at Interstate 93 and Interstate 95/Route 128	Qualitative		No assumed impact/ negligible impact on emissions
608484	Canton-Milton - Resurfacing and related work on Route 138	Qualitative		No assumed impact/ negligible impact on emissions

Table B-1
Greenhouse Gas Regional Highway Project Tracking (cont. 3)

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
608611	Canton-Milton-Randolph - Replacement and rehabilitation of the highway lighting system at the Route 24 and Interstate 93 interchange	Qualitative		No assumed impact/ negligible impact on emissions
608599	Canton-Sharon-Foxborough-Norwood-Walpole – Storm water improvements along Route 1, Route 1A, and Interstate 95	Qualitative		No assumed impact/ negligible impact on emissions
608078	Chelsea - Reconstruction on Broadway (Route 107) from City Hall to Revere city line	Quantified	93,278	Quantified decrease in emissions from Complete Streets project
605287	Chelsea - Route 1 Viaduct rehabilitation (southbound/northbound) on C-09-007 and C-09-011	Qualitative		No assumed impact/ negligible impact on emissions
608007	Cohasset - Corridor improvements and related work on Justice Cushing Highway (Route 3A) from Beechwood St to Henry Turner Bailey Rd	Quantified	5,849	Quantified decrease in emissions from Complete Streets project
BN1800	Community Transportation Program	Quantified	TBD	TBD
608495	Concord-Lexington-Lincoln - Resurfacing and related work on Route 2A	Qualitative		No assumed impact/ negligible impact on emissions
608818	Danvers - Resurfacing and related work on Route 114	Qualitative		No assumed impact/ negligible impact on emissions
608378	Danvers-Topsfield-Boxford-Rowley - Interstate maintenance and related work on Interstate 95	Qualitative		No assumed impact/ negligible impact on emissions
607899	Dedham - Pedestrian improvements along Bussy St	Quantified	3,331	Quantified decrease in emissions from bicycle and pedestrian infrastructure
607901	Dedham - Pedestrian improvements along Elm St and Rustcraft Rd corridors	Quantified	14,046	Quantified decrease in emissions from bicycle and pedestrian infrastructure
608596	Essex - Superstructure replacement, E-11-001 (2TV), Route 133\Main St over Essex River	Qualitative		No assumed impact/ negligible impact on emissions
607652	Everett - Reconstruction of Ferry St, South Ferry St and a portion of Elm St	Quantified	435,976	Quantified decrease in emissions from Complete Streets project
609257	Everett - Rehabilitation of Beacham St, from Route 99 to Chelsea city line	Quantified	4,038	Quantified decrease in emissions from Complete Streets project

Table B-1
Greenhouse Gas Regional Highway Project Tracking (cont. 4)

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
608210	Foxborough-Plainville-Wrentham-Franklin – Interstate maintenance resurfacing work on Interstate 495	Qualitative		No assumed impact/ negligible impact on emissions
608480	Foxborough-Walpole - Resurfacing and related work on Route 1	Qualitative		No assumed impact/ negligible impact on emissions
608228	Framingham - Reconstruction of Union Ave, from Proctor St to Main St	Quantified	-217,978	Quantified increase in emissions
608889	Framingham - Traffic Signal Installation at Edgell Rd and Central St	Quantified	233,257	Quantified decrease in emissions from Complete Streets project
609402	Framingham-Natick - Resurfacing and Related Work on Route 9	Qualitative		No assumed impact/ negligible impact on emissions
TBD	Hamilton - Bridge Replacement, Winthrop Street over Ipswich River	Qualitative		No assumed impact/ negligible impact on emissions
605168	Hingham - Intersection Improvements at Route 3A/Summer Street Rotary	Quantified	284,736	Quantified decrease in emissions from Complete Streets project
608498	Hingham-Weymouth-Braintree - Resurfacing and related work on Route 53	Qualitative		No assumed impact/ negligible impact on emissions
606501	Holbrook - Reconstruction of Union St (Route 139), from Linfield St to Centre St and Water St	Quantified	4,097	Quantified decrease in emissions from Complete Streets project
607428	Hopedale-Milford - Resurfacing and intersection improvements on Route 16 (Main St), from Water St west to approximately 120 feet west of the Milford/Hopedale town line and the intersection of Route 140	Quantified	201,148	Quantified decrease in emissions from Complete Streets project
606043	Hopkinton - Signal and intersection improvements on Route 135	Quantified	1,298,625	Quantified decrease in emissions from Complete Streets project
607977	Hopkinton-Westborough - Reconstruction of Interstate 90/ Interstate 495 interchange	Quantified		LRTP project included in the statewide model
601607	Hull - Reconstruction of Atlantic Ave and related work	Quantified	6,586	Quantified decrease in emissions from Complete Streets project
605743	Ipswich - Resurfacing and related work on Central and South Main Sts	Quantified	4,356	Quantified decrease in emissions from Complete Streets project

Table B-1
Greenhouse Gas Regional Highway Project Tracking (cont. 5)

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
609054	Littleton - Reconstruction of Foster St	Quantified	1,140	Quantified decrease in emissions from Complete Streets project
608443	Littleton/Ayer - Intersection improvements on Route 2A at Willow Rd and Bruce St	Quantified	52,102	Quantified decrease in emissions from traffic operational improvement
609254	Lynn - Intersection Improvements at Two Intersections on Broadway	Quantified	73,291	Quantified decrease in emissions from traffic operational improvement
602077	Lynn - Reconstruction on Route 129 (Lynnfield St), from Great Woods Rd to Wyoma Square	Quantified	12,761	Quantified decrease in emissions from Complete Streets project
609252	Lynn - Rehabilitation of Essex St	Quantified	411,394	Quantified decrease in emissions from Complete Streets project
607477	Lynnfield- Peabody - Resurfacing and related work on Route 1	Qualitative		No assumed impact/ negligible impact on emissions
609060	Lynnfield-Peabody-Danvers - Guide and traffic sign replacement on Interstate 95/Route 128 (Task 'A' interchange)	Qualitative		No assumed impact/ negligible impact on emissions
604952	Lynn-Saugus - Bridge replacement, L-18-016=S-05-008, Route 107 over the Saugus River (AKA – Belden G. Bly Bridge)	Qualitative		No assumed impact/ negligible impact on emissions
608275	Malden - Exchange St Downtown Improvement Project	Quantified	13,519	Quantified decrease in emissions from Complete Streets project
608146	Marblehead - Intersection improvements at Pleasant St and Village, Vine, and Cross St	Quantified	531	Quantified decrease in emissions from traffic operational improvement
608566	Marlborough - Improvements at Route 20 (East Main St) at Curtis Ave	Qualitative		Qualitative decrease in emissions
608467	Marlborough - Resurfacing and related work on Route 20	Qualitative		No assumed impact/ negligible impact on emissions
608637	Maynard - Bridge replacement, M-10-006, carrying Florida Rd over the Assabet River	Qualitative		No assumed impact/ negligible impact on emissions
608835	Medford - Improvements at Brook Elementary School	Qualitative		Qualitative decrease in emissions
608522	Middleton - Bridge Replacement, M-20-003, Route 62 (Maple Street) over Ipswich River	Qualitative		No assumed impact/ negligible impact on emissions

Table B-1
Greenhouse Gas Regional Highway Project Tracking (cont. 6)

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
608045	Milford - Rehabilitation on Route 16, from Route 109 to Beaver St	Quantified	-38,500	Quantified increase in emissions
607342	Milton - Intersection and signal improvements at Route 28 (Randolph Ave and Chickatawbut Rd	Qualitative		Qualitative decrease in emissions
606635	Needham-Newton - Reconstruction of Highland Ave, Needham St and Charles River Bridge, N-04-002, from Webster St (Needham) to Route 9 (Newton)	Quantified	1,186,210	Quantified decrease in emissions from Complete Streets project
608610	Newton - Steel superstructure cleaning (full removal) and painting of N-12-055	Qualitative		No assumed impact/ negligible impact on emissions
609066	Newton - Weston - Multi-Use Trail Connection, from Recreation Road to Upper Charles River Greenway including Reconstruction of Ped Bridge N-12-078=W-29-062	Quantified	TBD	TBD
608866	Newton-Weston - Steel superstructure cleaning (full removal) and painting of 3 bridges: N-12-051, W-29-011, and W-29-028	Qualitative		No assumed impact/ negligible impact on emissions
608609	Newton-Westwood - Steel superstructure cleaning (full removal) and painting of 2 bridges: N-12-056 and W-31-006	Qualitative		No assumed impact/ negligible impact on emissions
608052	Norwood - Intersection and signal improvements at Route 1 (Providence Highway) and Morse St	Qualitative		Qualitative decrease in emissions
605857	Norwood - Intersection improvements at Route 1 and University Ave/ Everett St	Quantified	1,092,131	Quantified decrease in emissions from traffic operational improvement
606130	Norwood - Intersection improvements at Route 1A and Upland Rd	Quantified	72,964	Quantified decrease in emissions from traffic operational improvement
608567	Peabody - Improvements at Route 114 at Sylvan St, Cross St, Northshore Mall, Loris Rd, Route 128 interchange, and Esquire Dr	Qualitative		Qualitative decrease in emissions
609211	Peabody - Independence Greenway Extension	Quantified	36,651	Quantified decrease in emissions from bicycle and pedestrian infrastructure
609101	Peabody - Pavement preservation and related work on Route 128	Qualitative		No assumed impact/ negligible impact on emissions

Table B-1
Greenhouse Gas Regional Highway Project Tracking (cont. 7)

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
608933	Peabody - Rehabilitation of Central St	Quantified	150,913	Quantified decrease in emissions from Complete Streets project
609058	Peabody to Gloucester - Guide and traffic sign replacement on Route 128	Qualitative		No assumed impact/ negligible impact on emissions
608569	Quincy - Intersection improvements at Route 3A (Southern Artery) and Broad St	Qualitative		Qualitative decrease in emissions
608707	Quincy - Reconstruction of Sea St	Quantified	-30,437	Quantified increase in emissions
608208	Quincy-Milton-Boston - Interstate maintenance and related work on Interstate 93	Qualitative		No assumed impact/ negligible impact on emissions
609396	Randolph - Milton - Resurfacing and related work on Route 28	Qualitative		No assumed impact/ negligible impact on emissions
609399	Randolph - Resurfacing and related work on Route 28	Qualitative		No assumed impact/ negligible impact on emissions
607305	Reading - Intersection signalization at Route 28 and Hopkins St	Quantified	7,088	Quantified decrease in emissions from traffic operational improvement
608205	Reading to Lynnfield - Guide and Traffic Sign Replacement on a Section of I-95 (SR 128)	Qualitative		No assumed impact/ negligible impact on emissions
608743	Salem - Improvements at Bates Elementary School	Qualitative		Qualitative decrease in emissions
608817	Salem-Lynn - Resurfacing and related work on Route 107	Qualitative		No assumed impact/ negligible impact on emissions
608079	Sharon - Bridge Replacement, S-09-003 (40N), Moskwonikut St over Amtrak/ MBTA	Qualitative		No assumed impact/ negligible impact on emissions
608562	Somerville - Signal and Intersection Improvements on I-93 at Mystic Ave and McGrath Highway	Quantified	TBD	TBD
BN1570	Somerville-Medford - Green Line Extension Project - extension to College Ave with the Union Square spur	Quantified		LRTP project included in the statewide model
605342	Stow - Bridge replacement, Route 62 (Gleasondale Rd) over the Assabet River	Qualitative		No assumed impact/ negligible impact on emissions

Table B-1
Greenhouse Gas Regional Highway Project Tracking (cont. 8)

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
608255	Stow - Bridge Replacement, S-29-011, Box Mill Road over Elizabeth Brook	Qualitative		No assumed impact/ negligible impact on emissions
608164	Sudbury - Bike path construction (Bruce Freeman Rail Trail)	Quantified	49,903	Quantified decrease in emissions from bicycle and pedestrian infrastructure
608895	Sudbury - Stow - Hudson – Mass Central Rail Trail Wayside	Quantified	TBD	TBD
607761	Swampscott - Intersection and signal improvements at Route 1A (Paradise Rd) at Swampscott Mall	Qualitative		Qualitative decrease in emissions
607329	Wakefield-Lynnfield - Rail Trail Extension, from the Galvin Middle School to Lynnfield/Peabody town line	Quantified	158,032	Quantified decrease in emissions from bicycle and pedestrian infrastructure
602261	Walpole - Reconstruction on Route 1A (Main St), from the Norwood town line to Route 27, includes W-03-024 over the Neponset River	Quantified	230,473	Quantified decrease in emissions from Complete Streets project
608564	Watertown - Intersection improvements at Route 16 and Galen St	Qualitative		Qualitative decrease in emissions
607777	Watertown - Rehabilitation of Mount Auburn St (Route 16)	Quantified	536,769	Quantified decrease in emissions from Complete Streets project
609102	Wenham-Manchester-Essex-Gloucester - Pavement preservation and related work on Route 128	Qualitative		No assumed impact/ negligible impact on emissions
607327	Wilmington - Bridge replacement, W-38-002, Route 38 (Main St) over the B&M Railroad	Qualitative		No assumed impact/ negligible impact on emissions
608929	Wilmington - Bridge replacement, W-38-003, Butters Row over MBTA	Qualitative		No assumed impact/ negligible impact on emissions
608703	Wilmington - Bridge Replacement, W-38-029 (2KV), ST 129 Lowell St over I-93	Qualitative		No assumed impact/ negligible impact on emissions
609253	Wilmington - Intersection Improvements at Lowell St (Route 128) and Woburn St	Quantified	494,197	Quantified decrease in emissions from Complete Streets project
608051	Wilmington - Reconstruction of Route 38 (Main St), from Route 62 to the Woburn City Line	Quantified	492,160	Quantified decrease in emissions from Complete Streets project
608791	Winchester - Improvements at Vinson-Owen Elementary School	Qualitative		Qualitative decrease in emissions

Table B-1
Greenhouse Gas Regional Highway Project Tracking (cont. 9)

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
607244	Winthrop - Revere St Roadway Improvements	Quantified	252,816	Quantified decrease in emissions from Complete Streets project
604996	Woburn - Bridge replacement, W-43-017, New Boston St over MBTA	Quantified		LRTP project included in the statewide model
603739	Wrentham - Construction of Interstate 495/Route 1A ramps	Quantified	1,233,486	Quantified decrease in emissions from traffic operational improvement

Greenhouse Gas Regional Highway Project Tracking

CO_2 = carbon dioxide; GHG = greenhouse gas; kg = kilogram; LRTP = Long-Range Transportation Plan; TBD = to be determined; yr = year.

Table B-2
Greenhouse Gas Regional Transit Project Tracking

This table is under development. It will contain the GHG impact analyses of projects funded in the Transit Program.

Table B-3
Greenhouse Gas Regional Highway "Completed" Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description	FFY of Contract Award
29492	Bedford-Billerica - Middlesex Turnpike improvements, from Crosby Dr north to Manning Rd, includes reconstruction of B-04-006 (Phase III)	Quantified	LRTP	LRTP project included in the statewide model	2017
604761	Boston - Multi-Use Trail Construction (South Bay Harbor), from Ruggles Station to Fort Point Channel	Quantified	767,491	Quantified decrease in emissions from bicycle and pedestrian infrastructure	2017
607309	Hingham- Reconstruction and related work on Derby St, from Pond Park Rd to Cushing St	Quantified	-113,400	Quantified decrease in emissions from Complete Streets project	2017
604810	Marlborough - Reconstruction of Route 85 (Maple St)	Quantified	589,680	Quantified decrease in emissions from Complete Streets project	2017
607754	Milton - Intersection and Signal Improvements at Granite Ave and Squantum St	Quantified		TBD	2017
602165	Stoneham - Signal and intersection improvements at Route 28/North St	Quantified	139,709	Quantified decrease in emissions from traffic operational improvement	2017
607999	Revere – Improvements at Garfield Elementary and Middle School (SRTS)	Qualitative		Qualitative Decrease in Emissions	2017
608004	Watertown - Safe Routes to School (Hosmer Elementary)	Qualitative		Qualitative Decrease in Emissions	2017
608003	Weymouth - Safe Routes to School (Pingree Elementary)	Qualitative		Qualitative Decrease in Emissions	2017
601630	Weymouth- Abington - Reconstruction and Widening on Route 18 (Main St), from Highland Pl to Route 139	Quantified	LRTP	LRTP project included in the statewide model	2017
604935	Woburn - Reconstruction of Montvale Ave, from Interstate 93 interchange to Central St (approximately 1,850 feet)	Quantified	98,885	Quantified decrease in emissions from Complete Streets project	2017
607732	Cochituate Rail Trail, Phase Two, Including Pedestrian Bridge, N-30-014, Over Route 9 and F-07-033=N-03-029 over Route 30	Quantified	62,441	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure	2018

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description	FFY of Contract Award
608013	Quincy - Intersection Improvements at Sea St and Quincy Shore	Quantified	701,528	Quantified decrease in emissions from traffic operational improvement	2018
608352	Salem - Canal Street Rail Trail construction (Phase 2)	Quantified	6,651	Quantified decrease in emissions from bicycle and pedestrian infrastructure	2018
607507	Wakefield - Bridge Deck Replacement, W-01-021 (2MF) Hopkins Street over I-95 / ST 128	Qualitative		Qualitative Decrease in Emissions	2018
606134	Boston- Traffic Signal Improvements on Blue Hill Ave and Warren St	Qualitative		Qualitative Decrease in Emissions	2019
608651	Braintree- Adaptive Signal Controls on Route 37 (Granite St)	Qualitative		Qualitative Decrease in Emissions	2019
605110	Brookline- Intersection and signal improvements at Route 9 and Village Square (Gateway East)	Quantified	67,056	Quantified decrease in emissions from Complete Streets project	2019
600518	Hingham - Intersection improvements at Derby St, Whiting St, and Gardner St	Quantified	-145,683	Quantified increase in emissions	2019
607133	Quincy - Superstructure Replacement, Q-01-039, Robertson St over I-93/US 1/SR 3	Qualified		No assumed impact/ negligible impact on emissions	2019
604989	Southborough - Reconstruction of Main St (Route 30), from Sears Rd to Park St	Quantified	231,813	Quantified decrease in emissions from Complete Streets project	2019
608823	Wellesley- Newton- Weston - Pavement Resurfacing and Related Work on I-95	Qualitative		No assumed impact/ negligible impact on emissions	2019

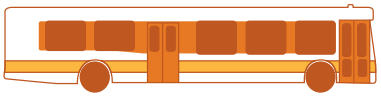
Greenhouse Gas Regional Highway "Completed" Project Tracking

CO_2 = carbon dioxide; GHG = greenhouse gas; kg = kilogram; LRTP = Long-Range Transportation Plan; yr = year

Table B-4
Greenhouse Gas Regional Transit "Completed" Project Tracking

This table is under development. It will summarize the GHG impact analyses of transit projects completed in FFY 2019.

APPENDIX C



APPENDIX C
PUBLIC OUTREACH AND COMMENTS

OVERVIEW OF CONTENTS

In the course of the developing the Transportation Improvement Program (TIP), the staff of the Boston Region Metropolitan Planning Organization (MPO) regularly engages with municipalities and the general public to provide information about the milestones, deadlines, and decision points in the development process. Staff publicly shares materials and information used by the MPO board for decision-making via the TIP development web page: **www.bostonmpo.org/tip-dev**. This process affords the public ongoing opportunities to give input to the MPO board prior to the release of the draft TIP for the official public review period. This appendix documents the input received during the development of the FFYs 2020-24 TIP as well as comments received during the public review period.

SUMMARY OF COMMENTS RECEIVED DURING TIP DEVELOPMENT

MPO staff initiated outreach activities for the FFYs 2020–24 TIP in September 2018 and maintained communication with municipal, state agency, and public stakeholders throughout the TIP development process. The primary in-person and direct-engagement events at which staff received input were the subregional committee meetings held by the Metropolitan Area Planning Council (MAPC) and the TIP How-To conference call workshops with municipal TIP contacts, MAPC subregional coordinators, and MassDOT district project engineers. These events offered individuals the opportunity to directly engage with staff to ask questions, voice concerns, provide suggestions, and propose projects.

The MPO board held a series of discussions at its regular meetings as the TIP was developed in stages that focused on project solicitation, project evaluation, and programming of funds. Staff informed the public at each stage via its standard communication channels (email, Twitter, and the MPO website). As a result, the MPO received oral and written comments while developing the draft TIP. The comments directed to the MPO board are summarized below in Table C-1.

Table C-1
Public Comments Received during Development of the FFYs 2020-24 Transportation Improvement Program

Project	Name	Support/ Oppose/ Request	Comment
Projects being considered for programming in the FFYs 2020-24 TIP			
Rehabilitation and Rail Crossing Improvements on Cherry Street (Ashland)	Legislative: Senate President Karen E. Spilka Municipal: Yolanda Greaves, Board of Selectmen; Doug Small, Ashland DPW Director; Sara Hines, Pond Street Working Group Organization: Paul Milewski, Green International Affiliates; Alan Cloutier, Stantec Inc.	Support	Supports inclusion of the Rehabilitation and Rail Crossing Improvements on Cherry Street in the FFYs 2020-24 TIP. The project will improve noise issues in the area and provide sidewalks where none currently exist.
Rehabilitation of Beacham Street, from Route 99 to Chelsea C.L. (Everett)	Legislative: Sen. Sal DiDomenico; Rep. Joseph W. McGonagle, Jr. Municipal: Mayor Carlo DeMaria, City of Everett; Jay Monty, Everett Transportation Planner Organization: Mystic River Watershed Association, LivableStreets Alliance, Boston Cyclists Union	Support	Supports inclusion of the Rehabilitation of Beacham Street in the FFYs 2020-24 TIP. Beacham Street is critically important to regional commerce, providing freight access as well as connections to businesses and jobs in the Island End section of Everett. Existing sidewalks are discontinuous and do not extend throughout the length of the corridor; in addition, the heavy truck usage of the roadway poses safety risks to cyclists. The proposed improvements are essential to the retention of industrial businesses and jobs in the area and the future redevelopment of the Lower Broadway district.
Intersection Improvements at Route 3A/ Summer Street Rotary (Hingham)	Municipal: Roger Fernandes, Hingham Town Engineer	Support	Supports inclusion of the Intersection Improvements at Route 3A/Summer Street Rotary in the FFYs 2020-24 TIP. Safety is a major concern at the project location. Due to narrow lanes and a lack of a median, motorists have a forty percent chance of injury if a crash occurs. The project design is fully funded and there are no ROW or utility relocation concerns. In addition, the Town of Hingham conducted a successful test pilot using temporary measures to gauge public reaction and improved safety.

Project	Name	Support/ Oppose/ Request	Comment
Reconstruction of Foster Street (Littleton)	Municipal: Anthony M. Ansaldi, Jr., Interim Town Administrator, Town of Littleton; Keith Bergman, Former Littleton Town Administrator	Support	Supports inclusion of the Reconstruction of Foster Street in the FFYs 2020-24 TIP. The project is vital to the continued development of the Littleton commuter rail station area and the continued efforts to expand the Town's Complete Streets program.
Reconstruction of Essex Street, from Eastern Ave. to Rockaway/Joyce St. (Lynn)	Legislative: Rep. Peter L. Capano Municipal: Mayor Thomas M. McGee, City of Lynn; Meaghen Hamill, Chief of Staff, Lynn Mayor's Office Organization: Rich Benevento, WorldTech Engineering	Support	Supports inclusion of the Reconstruction of Essex Street in the FFYs 2020-24 TIP. Essex Street provides connections to the Lynn commuter rail station, and the project area includes two Top 200 crash locations. The project will improve traffic operations and enhance safety for all modes of transportation.
Reconstruction of Western Avenue, from Market Square to Eastern Ave. (Lynn)	Legislative: Rep. Peter L. Capano Municipal: Mayor Thomas M. McGee, City of Lynn; Meaghen Hamill, Chief of Staff, Lynn Mayor's Office Organization: Rich Benevento, WorldTech Engineering	Request	Requests inclusion of the Reconstruction of Western Avenue in the FFYs 2020-24 TIP. Western Avenue is an important regional corridor, connecting Salem to Boston, and the project area includes four Top 200 statewide crash locations. The project will improve traffic operations and enhance safety for all modes of transportation.
Traffic & Safety Improvements at Broadway, Euclid Ave., and Jenness St. (Lynn)	Legislative: Rep. Peter L. Capano Municipal: Mayor Thomas M. McGee, City of Lynn; Meaghen Hamill, Chief of Staff, Lynn Mayor's Office Organization: Rich Benevento, WorldTech Engineering	Support	Supports inclusion of the Traffic and Safety Improvements at Broadway, Euclid Avenue, and Jenness Street in the FFYs 2020-24 TIP. The project will improve traffic operations and enhance safety for all modes of transportation.
Independence Greenway Extension (Peabody)	Municipal: Mayor Edward A. Bettencourt, Jr., City of Peabody; Brendan Callahan, Peabody Assistant Director of Planning Organization: East Coast Greenway Alliance	Support	Supports inclusion of the Independence Greenway Extension in the FFYs 2020-24 TIP. The project will close a key gap in the East Coast Greenway, and further the vision of extending the existing Independence Greenway to Downtown Peabody. The proposed portion of the Greenway will provide a viable multi-modal transportation alternative for Downtown Peabody residents to the North Shore Mall, providing an economic benefit for the Peabody business community.

Project	Name	Support/ Oppose/ Request	Comment
Intersection Improvements at Lowell Street and Woburn Street (Wilmington)	Legislative: Sen. Bruce Tarr, Rep. David Robertson, Rep. Kenneth Gordon Municipal: Kevin A. Caira, Chair, Wilmington Board of Selectmen; Jeffrey Hull, Wilmington Town Manager; Paul Alunni, Wilmington Town Engineer; Valerie Gingrich, Wilmington Director of Planning	Support	Supports inclusion of the Intersection Improvements at Lowell Street and Woburn Street in the FFYs 2020-24 TIP. The intersection provides connections between commercial, industrial, and residential districts as well as commuter access to I-93, Route 38, and the Wilmington commuter rail station. The project will improve safety for all modes of transportation and reduce the number of angled crashes occurring at the intersection.
Reconstruction of Route 38 (Main Street) (Wilmington)	Legislative: Sen. Bruce Tarr, Rep. David Robertson, Rep. Kenneth Gordon Municipal: Kevin A. Caira, Chair, Wilmington Board of Selectmen; Jeffrey Hull, Wilmington Town Manager; Paul Alunni, Wilmington Town Engineer; Valerie Gingrich, Wilmington Director of Planning	Support	Supports inclusion of the Reconstruction of Route 38 in the FFYs 2020-24 TIP. The corridor serves as a conduit to the commercial center of the Town, with various retail, restaurant, commercial, and recreation land uses along its length. The proposed project will reduce traffic congestion, improve safety for all modes of transportation, and improve bike/ped connectivity.
Currently programmed projects			
Intersection and Signal Improvements at Kelley's Corner, Route 111, and Route 27 (Acton)	Municipal: Kristen Guichard, Acton Senior Planner; John Mangiaratti, Acton Town Manager; Matt Selby, Acton Director of Land Use and Economic Development; Paul Campbell, Acton Town Engineer	Support	Supports continued inclusion of the Intersection Improvements at Kelley's Corner in the FFY 2022 TIP element. The April 1, 2019 Acton Town Meeting saw an 89% vote in favor of supplemental funding for engineering, design, and appraisal services for the project. 75% design plans are underway and the Town expects to meeting the schedule for advertisement in FFY 2022.
Intersection and Signal Improvements at Kelley's Corner, Route 111, and Route 27 (Acton)	Acton resident: Kathy Adams	Request	Requests that plans for the Intersection and Signal Improvements at Kelley's Corner (FFY 2022) do not call for the removal of old trees in the project area. Newly planted trees will not provided the benefits of older trees.

Project	Name	Support/ Oppose/ Request	Comment
Reconstruction of Route 126 (Pond Street) (Ashland)	Legislative: Senate President Karen E. Spilka Municipal: Yolanda Greaves, Board of Selectmen; Doug Small, Ashland DPW Director; Sara Hines, Pond Street Working Group Organization: Paul Milewski, Green International Affiliates; Alan Cloutier, Stantec Inc.	Support	Supports continued inclusion of the Reconstruction of Route 126 in the FFY 2020 TIP element. The proposed improvements are essential to supporting economic growth and community stability. The Town is committed to working with MassDOT to ensure the project stays on track for FFY 2020; and plans to submit the 100% design in May 2019.
Rehabilitation and Related Work on Route 126, from Douglas Drive to Route 140 (Mechanic Street) (Bellingham)	Legislative: Rep. Ryan C. Fattman, Rep. Michael J. Soter Municipal: Daniel Spencer, Chair, Bellingham Board of Selectmen; Donald F. DiMartino, Bellingham DPW Director; Jim Kupfer, Bellingham Planner Organization: John Morgan, CHA Consulting, Inc.	Request	Requests programming the Rehabilitation and Related Work on Route 126 (FFY 2023) in an earlier TIP element. The project area currently lacks sidewalks and bicycle facilities, and the conditions of the corridor have deteriorated since the project was first proposed. The engineering for the project is fully funded, and CHA believes that the design could be at 100% by November 2020.
Reconstruction of Broadway, from City Hall to the Revere C.L. (Chelsea)	Municipal: Alex Train, Chelsea Assistant Director of Planning and Development	Support	Supports continued inclusion of the Reconstruction of Broadway in the FFY 2022 TIP element. The corridor includes numerous new developments and connects to the City of Chelsea's bus rapid transit service. However, the corridor is in a state of significant deterioration, lacks sidewalks and appropriate crossings, and includes several high crash locations. The City plans to precede the project with a series of utility improvements beginning in 2020.
Pedestrian Improvements along Bussey Street (Dedham)	Organization: TRIC	Support	Supports continued inclusion of the Pedestrian Improvements along Bussey Street in the FFY 2023 TIP element.

Project	Name	Support/ Oppose/ Request	Comment
Reconstruction of Union Avenue (Framingham)	Legislative: Senate President Karen E. Spilka Municipal: Eric Johnson, Framingham City Engineer; Peter Sellers, Framingham DPW Executive Director	Request	Requests continued inclusion of the Reconstruction of Union Avenue in the FFY 2021 TIP element, rather than reprogramming it in FFY 2022. The City of Framingham decided to remove a section of the project that would require legislative approval under Article 97 of the Amendments to the Massachusetts Constitution, in order to keep the project on track for advertisement in FFY 2021. The project area is crucial to the Framingham community, passing through the center of the city and connecting to Framingham State University. The project would ensure that Union Avenue meets MassDOT's Healthy Transportation Policy.
Reconstruction of Union Street (Route 139), from Linfield St. to Centre St./Water St. (Holbrook)	Legislative: Sen. John Keenan Municipal: Timothy Gordon, Holbrook Town Administrator; Chris Pellitteri, Holbrook Superintendent of Public Works Organization: Tony Lionetta, BETA Engineering Group	Request	Requests continued inclusion of the Reconstruction of Union Street in the FFY 2021 TIP element, rather than reprogramming it in FFY 2022. The 100% design will be submitted by July 2019 and work has begun on securing the ROW and appraisals. The project is a top priority for the Town of Holbrook and will improve drainage, ADA accessibility, and pedestrian safety.
Signal and Intersection Improvements on Route 135 (Hopkinton)	Municipal: David Daltorio, Hopkinton Town Engineer Organization: Matt Chase, VHB, Inc.	Support	Supports continued inclusion of the Signal and Intersection Improvements on Route 135 in the FFY 2020 TIP element. The community, Board of Selectmen, and Chamber of Commerce support the project despite the complexity of realigning this intersection and undergrounding power lines. The Town of Hopkinton is committed to working with MassDOT to advance the project.
Reconstruction of Atlantic Avenue (Hull)	Municipal: Phil Lemnios, Hull Town Manager Organization: John Morgan, CHA Consulting, Inc.	Request	Requests continued inclusion of the Reconstruction of Atlantic Avenue in the FFY 2021 TIP element, rather than reprogramming it in FFY 2022. The Town submitted the 100% design to MassDOT in March 2019 and is working to secure all easements in time for advertisement in FFY 2021.

Project	Name	Support/ Oppose/ Request	Comment
Intersection Improvements on Route 2A at Willow Road (Littleton & Ayer)	Municipal: Keith Bergman, Former Littleton Town Administrator	Support	Supports inclusion of the Intersection Improvements on Route 2A at Willow Road in the FFYs 2020-24 TIP. The project will improve traffic operations and safety.
Exchange Street Downtown Improvement Project (Malden)	Municipal: Mayor Gary Christenson, City of Malden; Deborah A. Burke, Executive Director, Malden Redevelopment Authority; Ryan O'Malley, Malden City Councilor	Support	Supports continued inclusion of the Exchange Street Downtown Improvement Project in the FFY 2020 TIP element. The project will support the City's continued efforts in reinvigorating Malden Center. The proposed improvements will enhance safety for all modes of transportation, in addition to providing better connections from the Malden Center MBTA station to the rest of Downtown Malden.
Intersection Improvements at Route 1 and University Avenue/Everett Street (Norwood)	Municipal: Mark Ryan, Norwood DPW Director Organization: TRIC	Support	Supports continued inclusion of the Intersection Improvements at Route 1 and University Avenue/ Everett Street in the FFY 2022 TIP element.
Intersection Improvements at Route 1A and Upland Rd/ Washington St and Prospect St/ Fulton St (Norwood)	Municipal: Mark Ryan, Norwood DPW Director Organization: TRIC	Support	Supports continued inclusion of the Intersection Improvements at Route 1A and Upload Road/ Washington Street in the FFY 2021 TIP element. The project is on schedule and has the total support of the Town of Norwood.
Bruce Freeman Rail Trail, Phase 2D (Sudbury)	Municipal: Beth Suedmeyer, Sudbury Environmental Planner; Len Simon, Sudbury Board of Selectmen Organization: Christine Corr, Friends of the Bruce Freeman Rail Trail	Support	Supports continued inclusion of the Bruce Freeman Rail Trail (Phase 2D) in the FFY 2022 TIP element. The Bruce Freeman Rail Trail is a regional project, connecting Lowell and Framingham through completed phases in Chelmsford, Westford, Carlisle, Acton, and Concord. The project is on schedule for advertisement in FY 2022.

Project	Name	Support/ Oppose/ Request	Comment
Reconstruction on Route 1A (Main Street) (Walpole)	Legislative: Sen. Paul R. Feeney; Rep. John H. Rogers; Rep. Louis L. Kafka; Rep. Paul McMurtry; Rep. Shawn Dooley; Tino Capobianco, Office of Sen. Paul R. Feeney; Bill Buckley, Office of Rep. John H. Rogers Municipal: Jim Johnson, Walpole Town Administrator Organization: TRIC	Support	Supports continued inclusion of the Reconstruction on Route 1A in the FFY 2020 TIP element. Route 1A is one of the Town's main commercial corridors, and the project area includes several residential areas and two public schools. The current condition of the corridor has caused traffic congestion and safety issues for vehicles and pedestrians. TRIC identified the project as their top priority.
Bridge Replacement, New Boston Street over MBTA (Woburn)	Legislative: Rep. Michelle Ciccolo; Rep. Richard M. Haggerty; Mason Heilman, Office of Rep. Ciccolo Municipal: Mayor Scott D. Galvin, City of Woburn	Support	Supports continued inclusion of the New Boston Street Bridge Replacement in the FFY 2021 TIP element. The New Boston Street Bridge is a key element to the success and vitality of the region. The proposed project will improve access to the Anderson Regional Transportation Center, create a north-south alternate route to I-93 and I-95, improve bike/ped access, and support commercial and industrial development in Woburn and Wilmington.
Currently unprogrammed			
Interchange Improvements at I-95/I-93/ University avenue and I-95 Widening (Canton & Westwood)	Legislative: Tino Capobianco, Office of Sen. Paul R. Feeney Municipal: Michael Jaillet, Westwood Town Administrator; Charles Aspinwall, Canton Town Administrator; Canton Board of Selectmen Organization: TRIC	Request	Requests inclusion of the Interchange Improvements at I-95/I-93/University Avenue and I-95 Widening in the FFYs 2020-24 TIP. The project is one of the top priorities for economic development in the region. Securing funding for the project is long overdue, and the full benefit of supplemental work on the I-95 northbound slip-ramp and the Add-a-Lane project will only be realized when the interchange is reconstructed. This project would fulfill the contractual commitment the Commonwealth made when the region was asked to support the construction of the Route 128 / University Park rail station and garage.

SUMMARY OF COMMENTS RECEIVED DURING TIP PUBLIC REVIEW PERIOD

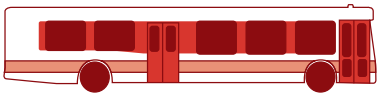
[TEXT INCLUDES TENTATIVE DATES AND WILL BE REVISED FOR INCLUSION IN THE FINAL DOCUMENT, POST COMMENT PERIOD]

The MPO board voted to release a draft FFYs 2020-24 TIP document for public review at its April 25, 2019, meeting. This vote initiated an official 21-day public review period, which began on May 2, 2019, and closed on May 23, 2019. The comments received during this public review period and responses from the MPO to the commenters are summarized in Table C-2.

Table C-2
Public Comments Received during the Public Review Period for the Draft FFYs 2020-24 Transportation Improvement Program

[TO BE INCLUDED IN FINAL DOCUMENT, POST COMMENT PERIOD]

APPENDIX D



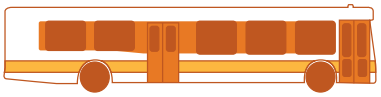
APPENDIX D
GLOSSARY OF ACRONYMS

Acronym	Definition
3C	continuous, comprehensive, cooperative [metropolitan transportation planning process]
A&F	Administration and Finance Committee
AAB	Architectural Access Board
AADT	average annual daily traffic
ACS	American Community Survey [US Census Bureau data]
ADA	Americans with Disabilities Act of 1990
AFC	automated fare collection
BRT	bus rapid transit
BTD	Boston Transportation Department
CA/T	Central Artery/Tunnel [project also known as "the Big Dig"]
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CATA	Cape Ann Transportation Authority
CECP	Massachusetts Clean Energy and Climate Plan
CFR	Code of Federal Regulations
CIP	Capital Investment Plan [MassDOT]
CMAQ	Congestion Mitigation and Air Quality [federal funding program]
CMP	Congestion Management Process
CO	carbon monoxide
CO2	carbon dioxide
CTPS	Central Transportation Planning Staff
CY	calendar year
DCR	Department of Conservation and Recreation
DEIR	draft environmental impact report
DEP	Department of Environmental Protection [Massachusetts]
DOT	department of transportation
EDTTT	excessive delay threshold travel time
EJ	environmental justice
ENF	environmental notification form
EO	executive order
EOEEA	Massachusetts Executive Office of Energy and Environmental Affairs
EOHED	Massachusetts Executive Office of Housing and Economic Development
EPA	Environmental Protection Agency [federal]
EPDO	equivalent property damage only [a traffic-related index]
FARS	Fatality Analysis and Reporting System [FHWA]
FAST Act	Fixing America's Surface Transportation Act
FDR	functional design report
FEIR	final environmental impact report
FFGA	full funding grant agreement
FFY	federal fiscal year
FHWA	Federal Highway Administration

Acronym	Definition
FMCB	MBTA Fiscal and Management Control Board
FR	Federal Register
FTA	Federal Transit Administration
GANS	grant anticipation notes [municipal bond financing]
GHG	greenhouse gas
GWSA	Global Warming Solutions Act of 2008 [Massachusetts]
HOV	high-occupancy vehicle
HSIP	Highway Safety Improvement Program [federal funding program]
ICC	Inner Core Committee [MAPC municipal subregion]
IPMT	Interim Project Management Team [Green Line Extension project]
IRI	International Roughness Index
ITS	intelligent transportation systems
LED	light-emitting diode
LEP	limited English proficiency
LOTTR	level of travel time ratio
LRTP	Long-Range Transportation Plan [MPO certification document]
MAGIC	Minuteman Advisory Group on Interlocal Coordination [MAPC municipal subregion]
MAP-21	Moving Ahead for Progress in the 21st Century Act
MAPC	Metropolitan Area Planning Council
MARPA	Massachusetts Association of Regional Planning Agencies
MassDOT	Massachusetts Department of Transportation
Massport	Massachusetts Port Authority
MBTA	Massachusetts Bay Transportation Authority
MCCA	Massachusetts Convention Center Authority
MEPA	Massachusetts Environmental Policy Act
MGL	Massachusetts General Laws
MOVES	Motor Vehicle Emissions Simulator [EPA air quality model]
MPO	metropolitan planning organization [Boston Region MPO]
MWRC	MetroWest Regional Collaborative [MAPC municipal subregion]
MWRTA	MetroWest Regional Transit Authority
NAAQS	National Ambient Air Quality Standards
NH DOT	New Hampshire Department of Transportation
NHFP	National Highway Freight Program
NHPP	National Highway Performance Program
NHS	National Highway System
NMCOG	Northern Middlesex Council of Governments
NOx	nitrogen oxides
NPMRDS	National Performance Measure Research Data Set [FHWA]
NSPC	North Suburban Planning Council [MAPC municipal subregion]
NSTF	North Shore Task Force [MAPC municipal subregion]
NTD	National Transit Database
OTP	MassDOT Office of Transportation Planning
PBPP	performance-based planning and programming
PEHD	peak hours of excessive delay
PfP	Planning for Performance
PL	metropolitan planning funds [FHWA] or public law funds

Acronym	Definition
PMT	Program for Mass Transportation [MBTA]
ppm	parts per million
PRC	Project Review Committee [MassDOT]
PSAC	Project Selection Advisory Council [MassDOT]
PSI	Pavement Serviceability Index
PTASP	Public Transportation Agency Safety Plans
RMV	Registry of Motor Vehicles [MassDOT division]
RTA	regional transit authority
RTAC	Regional Transportation Advisory Council [of the Boston Region MPO]
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SEIR	Single Environmental Impact Report [MEPA]
SFY	state fiscal year
SHSP	Strategic Highway Safety Plan
SIP	State Implementation Plan
SOV	single-occupant vehicle
SPR	Statewide Planning and Research
SRTS	Safe Routes to School [federal program]
SSC	South Shore Coalition [MAPC municipal subregion]
STBGP	Surface Transportation Block Grant Program [federal funding program; replaced STP]
STIP	State Transportation Improvement Program
STP	Surface Transportation Program [federal funding program; replaced by STBGP]
SWAP	South West Advisory Planning Committee [MAPC municipal subregion]
TAM	transit asset management
TAMP	Transportation Asset Management Plan
TAP	Transportation Alternatives Program [federal funding program]
TCM	transportation control measure
TE	transportation equity
TERM	Transit Economic Requirements Model [FTA]
TIP	Transportation Improvement Program [MPO certification document]
TRIC	Three Rivers Interlocal Council [MAPC municipal subregion]
TTI	travel time index
TTTR	Truck Travel Time Reliability Index
ULB	Useful Life Benchmark
UPWP	Unified Planning Work Program [MPO certification document]
USC	United States Code
USDOT	United States Department of Transportation [oversees FHWA and FTA]
UZA	urbanized area
VMT	vehicle-miles traveled
VOCs	volatile organic compounds [pollutants]
VRM	vehicle revenue-miles
WMM	weMove Massachusetts [MassDOT planning initiative]
YMM	youMove Massachusetts [MassDOT planning initiative]

APPENDIX E



APPENDIX E

GEOGRAPHIC DISTRIBUTION OF TIP FUNDING

OVERVIEW OF CONTENTS

Appendix E provides information about the geographic distribution of federal highway funding in the Boston region between federal fiscal years (FFYs) 2020 and 2024, including the distribution of the Boston Region Metropolitan Planning Organization's (MPO) Regional Target Program funding (the MPO's discretionary funding) and funding for projects and programs prioritized by the Massachusetts Department of Transportation. Funding amounts shown include the state's matching funds that leverage the available federal funds.

Figures E-1 through E-4 show the breakdown of the MPO's Regional Target Program funding and all federal highway funding in the Boston region by subregion and municipality type. The complete dataset showing funding for each individual municipality in the region is provided in Table E-1.

PURPOSE

The analysis presented here provides details about how the MPO has allocated its federal transportation highway dollars across its geographic region by showing which municipalities and areas of the Boston region have received highway funding for the construction of transportation projects. This data was first compiled for FFYs 2008-13 in response to the Boston Region MPO's 2014 Certification Review by the Federal Highway Administration and Federal Transit Administration.

METHODOLOGY

MPO staff took the following steps to develop the dataset:

- Recorded information about TIP projects and the amount of funding programmed in each FFY
- Calculated the amount of programmed funds associated with each municipality for each FFY
- Recorded the total amount of programmed funds for each municipality for each FFY
- Divided programmed funds equally by the number of municipalities located within the project area for projects that spanned multiple municipalities

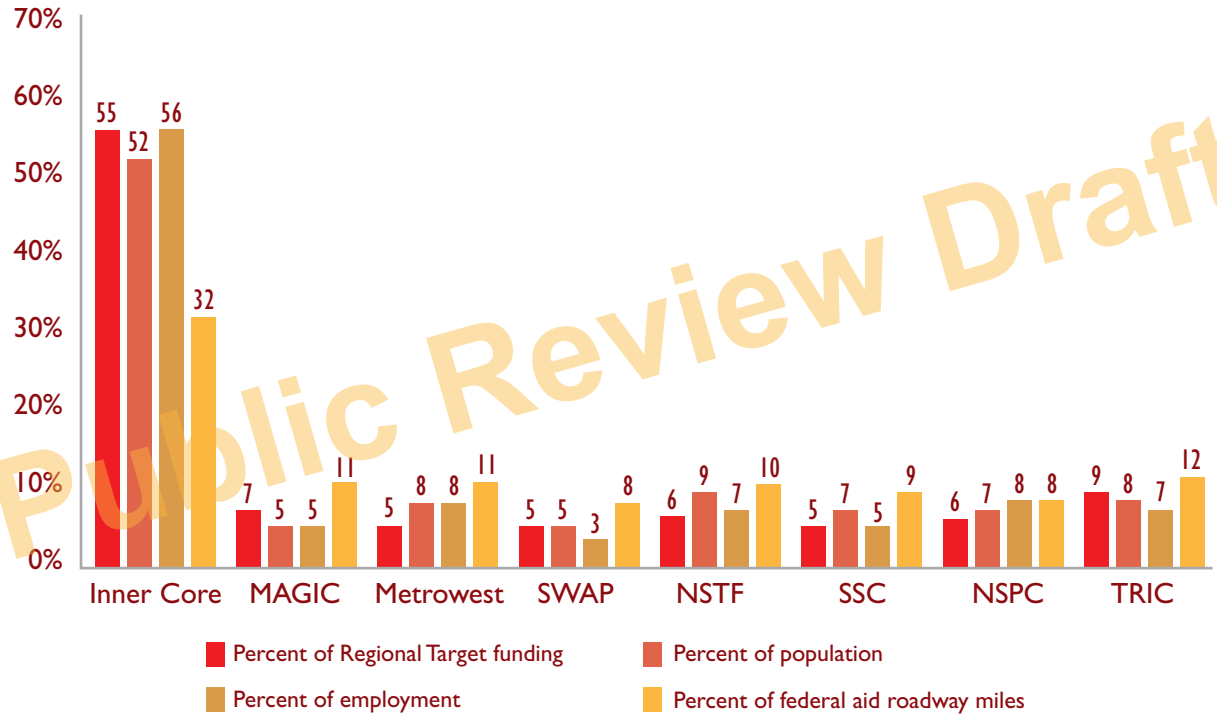
NEXT STEPS

The data summarized in this appendix could be used in various ways to help guide programming decisions for future TIPs. Some analyses that the MPO could perform in the future include

examining TIP funding by municipality and comparing that data to the number of road miles, the Chapter 90 apportionment, and the distribution of needs—as identified in the Needs Assessment of the Long-Range Transportation Plan—for each community.

A database that tracks the geographic distribution of TIP funding can serve as an important input into the funding decisions made each year. Along with the data described above, this data on geographic distribution of highway funding can help guide the MPO's public outreach and decision-making to help ensure that, over time, the transportation needs of the region are met equitably.

Figure E-1
Regional Distribution of Target Funding by Subregion FFYs 2020–24



Inner Core = Inner Core Committee. MAGIC = Minuteman Advisory Group on Interlocal Coordination. MetroWest = MetroWest Regional Collaborative. NSPC = North Shore Planning Council. NSTF = North Shore Task Force. SSC = South Shore Coalition. SWAP = South West Advisory Planning Committee. TRIC = Three Rivers Interlocal Council.

Figure E-2
Regional Distribution of Target Funding by Municipality Type FFYs 2020–24

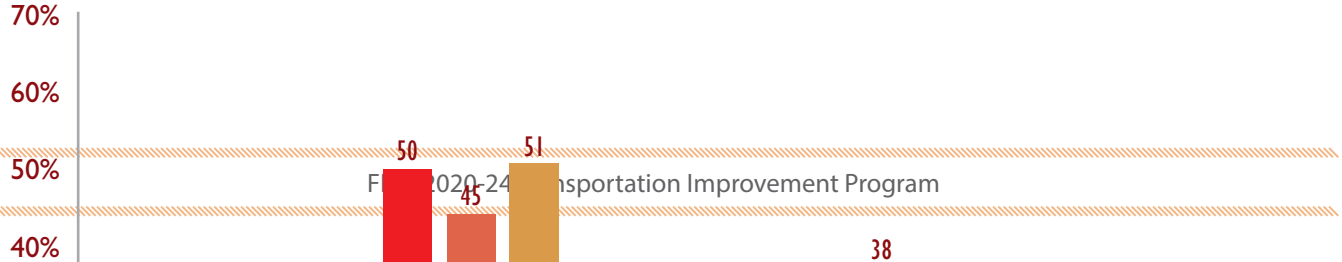
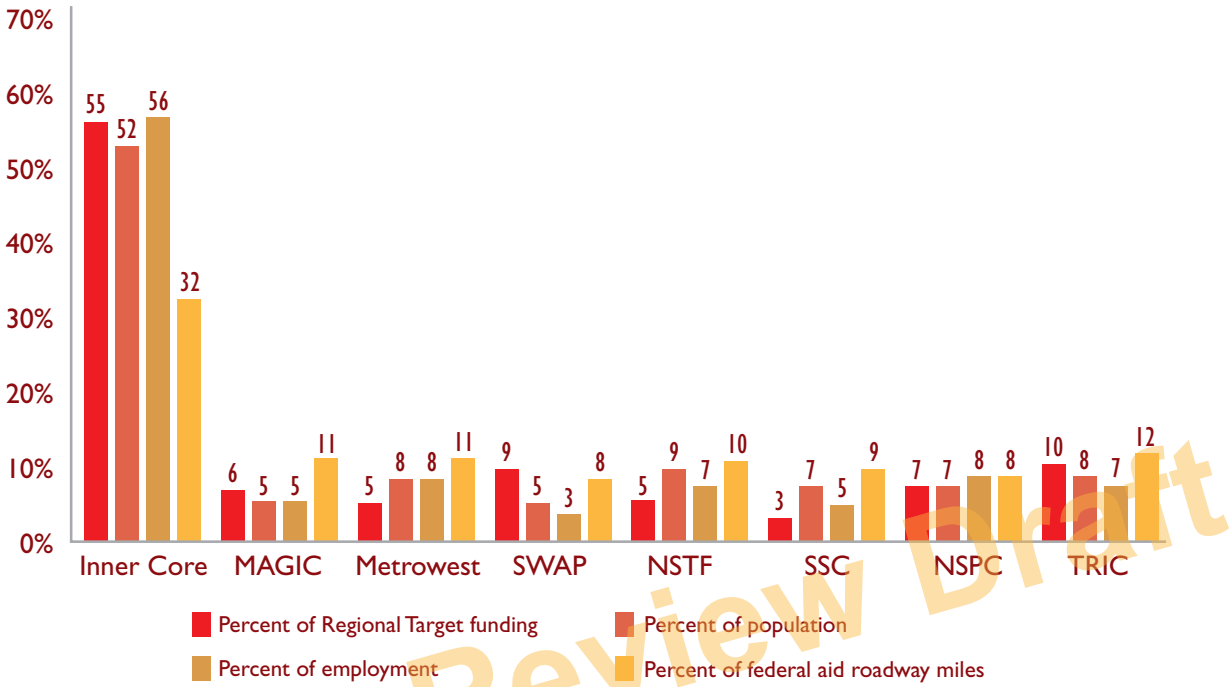


Figure E-3
All Federal Highway Funding in the Boston Region by Subregion FFYs 2020–24



Inner Core = Inner Core Committee. MAGIC = Minuteman Advisory Group on Interlocal Coordination. MetroWest = MetroWest Regional Collaborative. NSPC = North Shore Planning Council. NSTF = North Shore Task Force. SSC = South Shore Coalition. SWAP = South West Advisory Planning Committee. TRIC = Three Rivers Interlocal Council.

Figure E-4
All Federal Highway Funding in the Boston Region by Municipality Type FFYs 2020–24

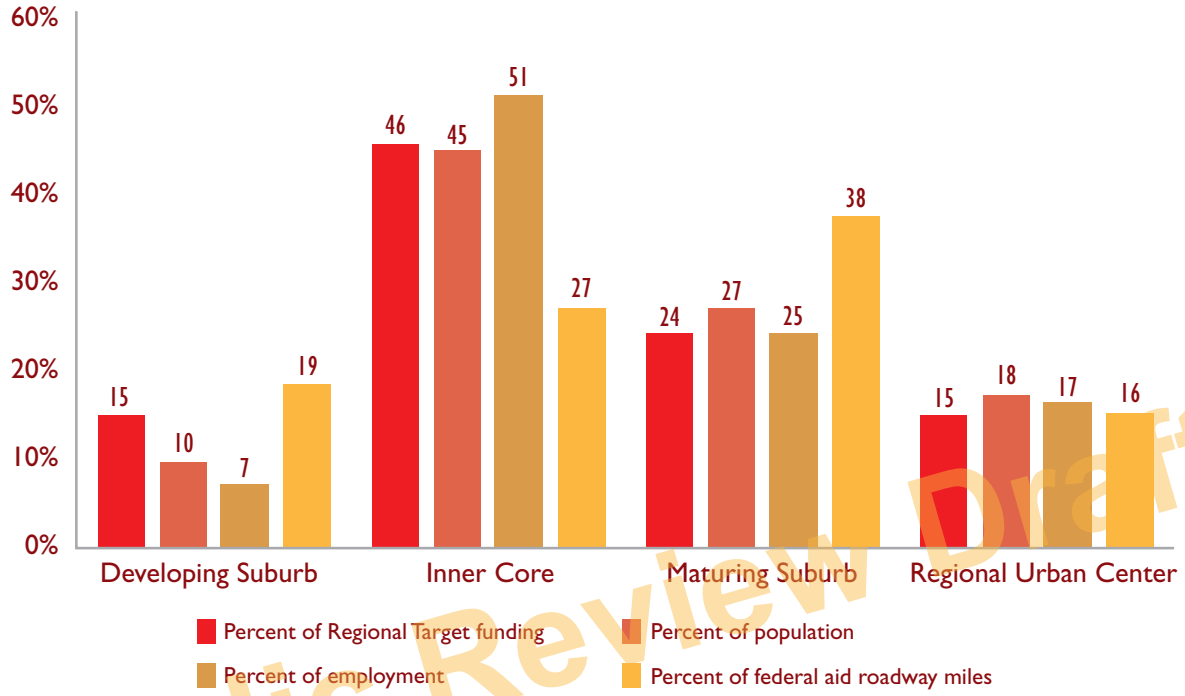


Table E-1
Federal Highway Programming for Municipalities in the Boston Region FFYs 2020–24

Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Roadway Miles (2016)	Regionally Prioritized Target Funding	Percent Regionally Prioritized Target Funding	State Prioritized Funding	Percent State Prioritized Funding	Total Funding (Regionally Prioritized and State Prioritized)	Percent Total Funding (Regionally Prioritized and State Prioritized)
Boston	Inner Core	Inner Core	20.0%	31.2%	11.1%	$142,653,482	27.2%	$251,653,579	31.7%	$394,307,061	29.9%
Hopkinton	SWAP	Developing Suburb	0.5%	0.5%	1.0%	$7,946,749	1.5%	$87,035,694	10.9%	$94,982,443	7.2%
Chelsea	Inner Core	Inner Core	1.1%	0.8%	0.6%	$9,669,765	1.8%	$69,145,821	8.7%	$78,815,586	6.0%
Lynn	Inner Core	Regional Urban Center	2.9%	1.3%	1.3%	$24,644,712	4.7%	$42,138,964	5.3%	$66,783,676	5.1%
Wilmington	NSPC	Maturing Suburb	0.7%	1.0%	1.3%	$16,042,594	3.1%	$33,082,195	4.2%	$49,124,789	3.7%
Saugus	Inner Core	Maturing Suburb	0.9%	0.6%	0.8%	$0	0.0%	$34,190,354	4.3%	$34,190,354	2.6%
Milton	TRIC	Maturing Suburb	0.9%	0.3%	1.3%	$0	0.0%	$27,554,878	3.5%	$27,554,878	2.1%
Everett	Inner Core	Inner Core	1.3%	0.7%	0.6%	$26,768,357	5.1%	$0	0.0%	$26,768,357	2.0%
Walpole	TRIC	Developing Suburb	0.8%	0.6%	1.2%	$19,906,002	3.8%	$6,329,417	0.8%	$26,235,419	2.0%
Somerville	Inner Core	Inner Core	2.5%	1.2%	1.2%	$16,377,067	3.1%	$8,721,613	1.1%	$25,098,680	1.9%
Framingham	MetroWest	Regional Urban Center	2.2%	2.5%	2.5%	$11,347,228	2.2%	$12,855,700	1.6%	$24,202,928	1.8%
Peabody	NSTF	Regional Urban Center	1.7%	1.3%	1.4%	$13,047,647	2.5%	$11,138,490	1.4%	$24,186,137	1.8%
Quincy	Inner Core	Regional Urban Center	3.0%	2.6%	2.1%	$6,292,937	1.2%	$15,445,156	1.9%	$21,738,093	1.6%
Acton	MAGIC	Maturing Suburb	0.7%	0.5%	1.1%	$15,141,463	2.9%	$5,657,725	0.7%	$20,799,188	1.6%
Cambridge	Inner Core	Inner Core	3.4%	6.0%	1.8%	$16,377,067	3.1%	$3,540,000	0.4%	$19,917,067	1.5%
Sudbury	MAGIC	Maturing Suburb	0.6%	0.5%	1.0%	$9,334,137	1.8%	$9,402,453	1.2%	$18,736,590	1.4%
Watertown	Inner Core	Inner Core	1.0%	1.1%	0.6%	$15,120,000	2.9%	$2,688,000	0.3%	$17,808,000	1.4%
Norwood	TRIC	Regional Urban Center	0.9%	1.3%	1.0%	$14,194,571	2.7%	$ 3,583,933	0.5%	$17,778,504	1.3%
Ashland	MetroWest	Maturing Suburb	0.5%	0.3%	0.5%	$17,453,325	3.3%	$0	0.0%	$17,453,325	1.3%
Medford	Inner Core	Inner Core	1.8%	1.0%	1.5%	$16,377,067	3.1%	$989,895	0.1%	$17,366,962	1.3%
Canton	TRIC	Maturing Suburb	0.7%	1.2%	1.1%	$0	0.0%	$16,868,965	2.1%	$16,868,965	1.3%
Woburn	NSPC	Regional Urban Center	1.2%	2.2%	1.5%	$15,482,660	3.0%	$0	0.0%	$15,482,660	1.2%
Newton	Inner Core	Inner Core	2.8%	3.0%	2.6%	$8,702,969	1.7%	$5,934,358	0.7%	$14,637,326	1.1%
Beverly	NSTF	Regional Urban Center	1.3%	1.2%	1.2%	$12,899,809	2.5%	$271,952	0.0%	$13,171,761	1.0%
Wrentham	SWAP	Developing Suburb	0.4%	0.3%	1.0%	$13,103,505	2.5%	$0	0.0%	$13,103,505	1.0%
Natick	MetroWest	Maturing Suburb	1.1%	1.3%	1.2%	$0	0.0%	$12,855,700	1.6%	$12,855,700	1.0%
Stow	MAGIC	Developing Suburb	0.2%	0.1%	0.6%	$0	0.0%	$12,542,112	1.6%	$12,542,112	1.0%
Hingham	SSC	Maturing Suburb	0.7%	0.7%	1.3%	$8,700,001	1.7%	$2,819,413	0.4%	$11,519,414	0.9%
Lynnfield	NSPC	Maturing Suburb	0.4%	0.3%	0.6%	$0	0.0%	$11,066,432	1.4%	$11,066,432	0.8%
Randolph	TRIC	Maturing Suburb	1.0%	0.5%	1.0%	$0	0.0%	$10,319,696	1.3%	$10,319,696	0.8%
Marlborough	MetroWest	Regional Urban Center	1.2%	1.6%	2.0%	$0	0.0%	$9,867,120	1.2%	$9,867,120	0.7%

Table E-1
Federal Highway Programming for Municipalities in the Boston Region FFYs 2020–24 (cont. 2)

Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Roadway Miles (2016)	Regionally Prioritized Target Funding	Percent Regionally Prioritized Target Funding	State Prioritized Funding	Percent State Prioritized Funding	Total Funding (Regionally Prioritized and State Prioritized)	Percent Total Funding (Regionally Prioritized and State Prioritized)
Braintree	SSC	Maturing Suburb	1.2%	1.5%	1.4%	$0	0.0%	$9,552,235	1.2%	$9,552,235	0.7%
Dedham	TRIC	Maturing Suburb	0.8%	0.9%	1.1%	$4,368,780	0.8%	$4,829,746	0.6%	$9,198,526	0.7%
Needham	TRIC	Maturing Suburb	0.9%	1.0%	1.2%	$8,702,969	1.7%	$0	0.0%	$8,702,969	0.7%
Bedford	MAGIC	Maturing Suburb	0.4%	1.1%	0.8%	$8,234,946	1.6%	$0	0.0%	$8,234,946	0.6%
Cohasset	SSC	Developing Suburb	0.2%	0.1%	0.5%	$8,074,472	1.5%	$0	0.0%	$8,074,472	0.6%
Essex	NSTF	Developing Suburb	0.1%	0.1%	0.2%	$0	0.0%	$8,054,272	1.0%	$8,054,272	0.6%
Hull	SSC	Maturing Suburb	0.3%	0.1%	0.4%	$7,263,401	1.4%	$0	0.0%	$7,263,401	0.6%
Wakefield	NSPC	Maturing Suburb	0.8%	0.8%	0.9%	$0	0.0%	$7,040,375	0.9%	$7,040,375	0.5%
Bellingham	SWAP	Developing Suburb	0.5%	0.3%	0.9%	$4,380,828	0.8%	$1,600,800	0.2%	$5,981,628	0.5%
Sharon	TRIC	Maturing Suburb	0.6%	0.2%	1.1%	$0	0.0%	$5,860,487	0.7%	$5,860,487	0.4%
Winthrop	Inner Core	Inner Core	0.6%	0.1%	0.3%	$5,644,800	1.1%	$0	0.0%	$5,644,800	0.4%
Littleton	MAGIC	Developing Suburb	0.3%	0.3%	1.0%	$5,380,789	1.0%	$0	0.0%	$5,380,789	0.4%
Holbrook	SSC	Maturing Suburb	0.3%	0.1%	0.3%	$2,743,381	0.5%	$1,527,250	0.2%	$4,270,631	0.3%
Middleton	NSTF	Developing Suburb	0.3%	0.3%	0.5%	$0	0.0%	$4,073,920	0.5%	$4,073,920	0.3%
Hamilton	NSTF	Developing Suburb	0.3%	0.1%	0.4%	$0	0.0%	$3,698,544	0.5%	$3,698,544	0.3%
Foxborough	TRIC	Developing Suburb	0.5%	0.7%	1.3%	$0	0.0%	$3,641,707	0.5%	$3,641,707	0.3%
Gloucester	NSTF	Regional Urban Center	0.9%	0.6%	1.0%	$0	0.0%	$3,542,912	0.4%	$3,542,912	0.3%
Manchester	NSTF	Developing Suburb	0.2%	0.1%	0.4%	$0	0.0%	$3,542,912	0.4%	$3,542,912	0.3%
Wenham	NSTF	Developing Suburb	0.2%	0.1%	0.4%	$0	0.0%	$3,542,912	0.4%	$3,542,912	0.3%
Reading	NSPC	Maturing Suburb	0.8%	0.4%	0.8%	$1,750,419	0.3%	$1,500,000	0.2%	$3,250,419	0.2%
Milford	SWAP	Regional Urban Center	0.9%	0.8%	1.2%	$3,132,000	0.6%	$0	0.0%	$3,132,000	0.2%
Ipswich	NSTF	Developing Suburb	0.4%	0.3%	0.7%	$2,939,052	0.6%	$0	0.0%	$2,939,052	0.2%
Weymouth	SSC	Maturing Suburb	1.7%	1.0%	1.5%	$0	0.0%	$2,819,413	0.4%	$2,819,413	0.2%
Weston	MetroWest	Maturing Suburb	0.4%	0.2%	1.3%	$0	0.0%	$2,558,929	0.3%	$2,558,929	0.2%
Hudson	MAGIC	Developing Suburb	0.6%	0.5%	0.7%	$0	0.0%	$2,223,333	0.3%	$2,223,333	0.2%
Malden	Inner Core	Inner Core	1.9%	0.8%	1.0%	$1,988,532	0.4%	$0	0.0%	$1,988,532	0.2%
Brookline	Inner Core	Inner Core	1.9%	0.9%	1.3%	$0	0.0%	$1,672,686	0.2%	$1,672,686	0.1%
Winchester	NSPC	Maturing Suburb	0.7%	0.5%	0.6%	$0	0.0%	$1,671,716	0.2%	$1,671,716	0.1%
Maynard	MAGIC	Maturing Suburb	0.3%	0.2%	0.3%	$0	0.0%	$1,646,400	0.2%	$1,646,400	0.1%
Belmont	Inner Core	Inner Core	0.8%	0.4%	0.6%	$0	0.0%	$1,614,288	0.2%	$1,614,288	0.1%

Table E-1
Federal Highway Programming for Municipalities in the Boston Region FFYs 2020–24 (cont. 3)

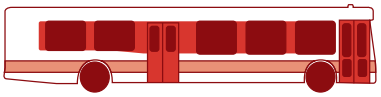
Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Roadway Miles (2016)	Regionally Prioritized Target Funding	Percent Regionally Prioritized Target Funding	State Prioritized Funding	Percent State Prioritized Funding	Total Funding (Regionally Prioritized and State Prioritized)	Percent Total Funding (Regionally Prioritized and State Prioritized)
Franklin	SWAP	Developing Suburb	1.0%	0.8%	1.2%	$0	0.0%	$1,600,800	0.2%	$1,600,800	0.1%
Salem	NSTF	Regional Urban Center	1.3%	1.1%	0.7%	$0	0.0%	$1,523,721	0.2%	$1,523,721	0.1%
Danvers	NSTF	Maturing Suburb	0.9%	1.4%	1.5%	$0	0.0%	$1,168,877	0.1%	$1,168,877	0.1%
Swampscott	NSTF	Maturing Suburb	0.4%	0.2%	0.3%	$0	0.0%	$1,157,036	0.1%	$1,157,036	0.1%
Concord	MAGIC	Maturing Suburb	0.6%	0.7%	1.1%	$0	0.0%	$1,087,500	0.1%	$1,087,500	0.1%
Lexington	MAGIC	Maturing Suburb	1.0%	1.1%	1.9%	$0	0.0%	$1,087,500	0.1%	$1,087,500	0.1%
Lincoln	MAGIC	Maturing Suburb	0.2%	0.1%	0.6%	$0	0.0%	$1,087,500	0.1%	$1,087,500	0.1%
Westwood	TRIC	Maturing Suburb	0.5%	0.5%	0.7%	$0	0.0%	$1,071,429	0.1%	$1,071,429	0.1%
Arlington	Inner Core	Inner Core	1.4%	0.5%	0.8%	$0	0.0%	$950,000	0.1%	$950,000	0.1%
Scituate	SSC	Maturing Suburb	0.6%	0.2%	1.0%	$897,164	0.2%	$0	0.0%	$897,164	0.1%
Marblehead	NSTF	Maturing Suburb	0.6%	0.3%	0.5%	$786,568	0.2%	$0	0.0%	$786,568	0.1%
Dover	SWAP	Developing Suburb	0.2%	0.0%	0.5%	$0	0.0%	$271,952	0.0%	$271,952	0.0%
Bolton	MAGIC	Developing Suburb	0.2%	0.1%	0.7%	$0	0.0%	$0	0.0%	$0	0.0%
Boxborough	MAGIC	Developing Suburb	0.2%	0.2%	0.4%	$0	0.0%	$0	0.0%	$0	0.0%
Burlington	NSPC	Maturing Suburb	0.8%	2.2%	1.3%	$0	0.0%	$0	0.0%	$0	0.0%
Carlisle	MAGIC	Developing Suburb	0.2%	0.0%	0.4%	$0	0.0%	$0	0.0%	$0	0.0%
Holliston	MetroWest	Developing Suburb	0.4%	0.3%	0.5%	$0	0.0%	$0	0.0%	$0	0.0%
Marshfield	SSC	Maturing Suburb	0.8%	0.3%	1.0%	$0	0.0%	$0	0.0%	$0	0.0%
Medfield	TRIC	Maturing Suburb	0.4%	0.2%	0.5%	$0	0.0%	$0	0.0%	$0	0.0%
Medway	SWAP	Developing Suburb	0.4%	0.2%	0.6%	$0	0.0%	$0	0.0%	$0	0.0%
Melrose	Inner Core	Inner Core	0.9%	0.3%	0.4%	$0	0.0%	$0	0.0%	$0	0.0%
Millis	SWAP	Developing Suburb	0.3%	0.1%	0.4%	$0	0.0%	$0	0.0%	$0	0.0%
Nahant	Inner Core	Maturing Suburb	0.1%	0.0%	0.2%	$0	0.0%	$0	0.0%	$0	0.0%
Norfolk	SWAP	Developing Suburb	0.4%	0.2%	0.5%	$0	0.0%	$0	0.0%	$0	0.0%
North Reading	NSPC	Maturing Suburb	0.5%	0.4%	0.6%	$0	0.0%	$0	0.0%	$0	0.0%
Norwell	SSC	Developing Suburb	0.3%	0.5%	0.8%	$0	0.0%	$0	0.0%	$0	0.0%
Revere	Inner Core	Inner Core	1.7%	0.5%	1.3%	$0	0.0%	$0	0.0%	$0	0.0%
Rockland	SSC	Developing Suburb	0.6%	0.4%	0.6%	$0	0.0%	$0	0.0%	$0	0.0%
Rockport	NSTF	Developing Suburb	0.2%	0.1%	0.2%	$0	0.0%	$0	0.0%	$0	0.0%
Sherborn	SWAP	Developing Suburb	0.1%	0.0%	0.4%	$0	0.0%	$0	0.0%	$0	0.0%
Southborough	MetroWest	Maturing Suburb	0.3%	0.4%	1.2%	$0	0.0%	$0	0.0%	$0	0.0%

Table E-1
Federal Highway Programming for Municipalities in the Boston Region FFYs 2020–24 (cont. 4)

Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Roadway Miles (2016)	Regionally Prioritized Target Funding	Percent Regionally Prioritized Target Funding	State Prioritized Funding	Percent State Prioritized Funding	Total Funding (Regionally Prioritized and State Prioritized)	Percent Total Funding (Regionally Prioritized and State Prioritized)
Stoneham	NSPC	Maturing Suburb	0.7%	0.4%	0.8%	$0	0.0%	$0	0.0%	$0	0.0%
Topsfield	NSTF	Developing Suburb	0.2%	0.1%	0.6%	$0	0.0%	$0	0.0%	$0	0.0%
Waltham	Inner Core	Inner Core	2.0%	3.0%	1.6%	$0	0.0%	$0	0.0%	$0	0.0%
Wayland	MetroWest	Maturing Suburb	0.4%	0.2%	0.7%	$0	0.0%	$0	0.0%	$0	0.0%
Wellesley	MetroWest	Maturing Suburb	0.9%	0.9%	0.9%	$0	0.0%	$0	0.0%	$0	0.0%

Inner Core = Inner Core Committee, MAGIC = Minuteman Advisory Group on Interlocal Coordination, MetroWest = MetroWest Regional Collaborative, NSPC = North Shore Planning Council, NSTF = North Shore Task Force, SSC = South Shore Coalition, SWAP = South West Advisory Planning Committee, TRIC = Three Rivers Interlocal Council

APPENDIX F



APPENDIX F
REGULATORY FRAMEWORK AND MPO MEMBERSHIP

This appendix contains two elements: detailed background on the regulatory documents, legislation, and guidance that shape the Boston Region Metropolitan Planning Organization's (MPO) transportation planning process, and information on the permanent voting members of the MPO.

REGULATORY FRAMEWORK

The Boston Region MPO plays a critical role in helping the region move closer to achieving federal, state, and regional transportation goals. Therefore, an important part of the MPO's core work is to ensure that the MPO's planning activities align with federal and state regulatory guidance. This appendix describes all of the regulations, policies, and guidance taken into consideration by the MPO during development of the certification documents and other core work undertaken during federal fiscal year (FFY) 2020.

Federal Regulations and Guidance

Fixing America's Surface Transportation (FAST) Act: National Goals

The purpose of the national transportation goals (outlined in Title 23, United States Code [USC], Section 150) is to increase the accountability and transparency of the Federal-Aid Highway Program and to improve decision-making through performance-based planning and programming. The national transportation goals include the following:

1. **Safety**: Achieve significant reduction in traffic fatalities and serious injuries on all public roads
2. **Infrastructure condition**: Maintain the highway infrastructure asset system in a state of good repair
3. **Congestion reduction**: Achieve significant reduction in congestion on the National Highway System
4. **System reliability**: Improve efficiency of the surface transportation system
5. **Freight movement and economic vitality**: Improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
6. **Environmental sustainability**: Enhance performance of the transportation system while protecting and enhancing the natural environment
7. **Reduced project delivery delays**: Reduce project costs, promote jobs and the economy, and expedite movement of people and goods by accelerating project

completion by eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices

The Boston Region MPO has incorporated these national goals, where practicable, into its vision, goals, and objectives, which provide a framework for the MPO's planning processes.

FAST Act: Planning Factors

The MPO gives specific consideration to the federal planning factors (described in 23 USC 134) when developing all documents that program federal transportation funds. The FAST Act added two new planning factors to the eight factors established in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) transportation legislation. In accordance with the legislation, studies and strategies undertaken by the MPO shall

1. Support the economic vitality of the metropolitan area, especially by enabling global competition, productivity, and efficiency
2. Increase the safety of the transportation system for all motorized and nonmotorized users
3. Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and nonmotorized users
4. Increase accessibility and mobility of people and freight
5. Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns
6. Enhance integration and connectivity of the transportation system, across and between modes, for people and freight
7. Promote efficient system management and operation
8. Emphasize preservation of the existing transportation system
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate storm-water impacts of surface transportation
10. Enhance travel and tourism

FAST Act: Performance-based Planning and Programming

The US Department of Transportation (USDOT), in consultation with states, MPOs, and other stakeholders, has established performance measures relevant to these national goals. These performance topic areas include roadway safety, transit system safety, National Highway System (NHS) bridge and pavement condition, transit asset condition, NHS reliability for both passenger and freight travel, traffic congestion, and on-road mobile source emissions. The FAST Act and related federal rulemakings require states, MPOs, and public transportation operators to follow performance-based planning and programming practices—such as setting targets—to ensure that transportation investments support progress towards these goals.

1990 Clean Air Act Amendments

The Clean Air Act, most recently amended in 1990, forms the basis of the US air pollution control policy. The act identifies air quality standards, and the US Environmental Protection Agency (EPA) may designate geographic areas as attainment or nonattainment areas with respect to these standards. If air quality in a nonattainment area improves such that it meets EPA standards, the EPA may redesignate that area as being in maintenance for a 20-year period to ensure that the standard is maintained in that area.

The conformity provisions of the Clean Air Act "require that those areas that have poor air quality, or had it in the past, should examine the long-term air quality impacts of their transportation system and ensure its compatibility with the area's clean air goals." Agencies responsible for Clean Air Act requirements for nonattainment and maintenance areas must conduct air quality conformity determinations, which are demonstrations that transportation plans, programs, and projects addressing that area are consistent with a State Implementation Plan (SIP) for attaining air quality standards.

Air quality conformity determinations must be performed for capital improvement projects that receive federal funding and for those that are considered regionally significant, regardless of the funding source. These determinations must show that projects in the MPO's Long-Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP) will not cause or contribute to any new air quality violations; will not increase the frequency or severity of any existing air quality violations in any area; and will not delay the timely attainment of air quality standards in any area. The policy, criteria, and procedures for demonstrating air quality conformity in the MPO region were established in Title 40 of the Code of Federal Regulations (CFR), Parts 51 and 93.

As of April 1, 2016, the Boston Region MPO has been classified as being in attainment for carbon monoxide (CO), but a conformity determination must still be completed as there is a carbon monoxide maintenance plan in place and approved as part of the SIP. In the most recent LRTP, *Charting Progress to 2040*, the air quality conformity determination concluded that the emissions levels from the Boston area CO maintenance area, including emissions resulting from implementing the LRTP, are in conformance with the SIP according to state and federal conformity criteria. Specifically, the CO emissions that would be produced under the build scenarios that were modeled during the development of the LRTP were less than the projections for the years 2020 through 2040 for the nine cities in the Boston CO maintenance area. In accordance with Section 176(c) (4) of the Clean Air Act as amended in 1990, the Boston Region MPO has completed this review and hereby certifies that the LRTP and its latest conformity determination conditionally conform with federal (40 CFR Part 93) and Massachusetts regulations (310 CMR 60.03) and are consistent with the air quality goals in the Massachusetts SIP.

The MPO must also perform conformity determinations if transportation control measures (TCMs) are in effect in the region. TCMs are strategies that reduce transportation-related air pollution and fuel use by reducing vehicle-miles traveled and improving roadway operations. The Massachusetts SIP supports the attainment of air quality standards and identifies TCMs. SIP-identified TCMs are federally enforceable and projects that address the identified air quality issues must be given first priority when federal transportation dollars are spent. Examples of TCMs that were programmed in previous TIPs include rapid-transit and commuter-rail extension programs (such as the Green Line Extension in Cambridge, Medford, and Somerville, and the Fairmount Line improvements in Boston), parking-freeze programs in Boston and Cambridge, statewide rideshare programs, park-and-ride facilities, residential parking-sticker programs, and the operation of high-occupancy-vehicle lanes.

On February 16, 2018, the US Court of Appeals for the DC Circuit issued a decision in *South Coast Air Quality Management District v. EPA*, which struck down portions of the 2008 Ozone National Ambient Air Quality Standards (NAAQS) SIP Requirements Rule concerning the ozone NAAQS. Those portions of the SIP Requirements Rule included transportation conformity requirements associated with EPA's revocation of the 1997 ozone NAAQS. Massachusetts was designated as an attainment area for 2008 Ozone NAAQS, but as a nonattainment or maintenance area for 1997 Ozone NAAQS. As a result, MPOs in Massachusetts must demonstrate conformity for ozone when developing LRTPs and TIPs. The MPOs in Massachusetts are also required to report on the TCMs as part of air quality conformity determinations in these documents. In addition, the MPOs are still required to perform air quality analyses for carbon dioxide as part of the state's Global Warming Solutions Act.

Nondiscrimination Mandates

The Boston Region MPO complies with Title VI of the Civil Rights Act of 1964, the American with Disabilities Act of 1990 (ADA), the Environmental Justice Executive Order (EJ EO), and other federal and state nondiscrimination statutes and regulations in all programs and activities it conducts. Per federal law, the MPO does not discriminate on the basis of race, color, national origin (including limited English proficiency), religion, creed, gender, ancestry, ethnicity, disability, age, sex, sexual orientation, gender identity or expression, veteran's status, or background. The MPO takes steps in its communication practices and planning processes to provide for and facilitate participation of all persons in the region, including those protected by Title VI, ADA, the EJ EO, and other nondiscrimination mandates. The MPO also considers distribution of the potential beneficial and adverse effects to populations covered by these mandates when making decisions about the programming of federal funding, including funding for MPO-supported studies. The MPO conducts activities as part of its Transportation Equity Program to ensure that the MPO meets these requirements. The MPO staff also conducts the Massachusetts Department of Transportation (MassDOT) Title VI Program, and the Massachusetts Bay Transportation Authority (MBTA) Title VI Program monitoring. The major federal requirements are discussed below.

Title VI of the Civil Rights Act of 1964

Title VI of the Civil Rights Act of 1964 requires that no person be excluded from participation in, be denied the benefits of, or be subjected to discrimination on the basis of race, color, or national origin, under any program or activity provided by an agency receiving federal financial assistance. Executive Order 13166, dated August 11, 2000, extends Title VI protections to persons who, as a result of national origin, have limited English-language proficiency (LEP). Specifically, it calls for improved access to federally assisted programs and activities, and requires MPOs to develop and implement a system through which people with LEP can meaningfully participate in the transportation planning process. This requirement includes the development of a Language Assistance Plan that documents the organization's process for providing meaningful language access to people with LEP that access their services and programs.

Environmental Justice Executive Order

Executive Order 12898, dated February 11, 1994, requires each federal agency to achieve environmental justice by identifying and addressing any disproportionately great adverse human health or environmental effects, including interrelated social and economic effects, of its programs, policies, and activities on minority and low-income populations.

On April 15, 1997, the USDOT issued its *Final Order to Address Environmental Justice in Minority Populations and Low-Income Populations*. Among other provisions, this order requires programming and planning activities to

- explicitly consider the effects of transportation decisions on minority and low-income populations;
- provide meaningful opportunities for public involvement by members of minority and low-income populations;
- gather (where relevant, appropriate, and practical) demographic information such as race, color, national origin, and income level of populations affected by transportation decisions; and
- minimize or mitigate any adverse impact on minority or low-income populations.

The 1997 Final Order was updated in 2012 with USDOT Order 5610.2(a), which provided clarification while maintaining the original framework and procedures.

Americans with Disabilities Act

Title III of the Americans with Disabilities Act (ADA) "prohibits states, MPOs, and other public entities from discriminating on the basis of disability in the entities' services, programs, or activities," and requires all transportation projects, plans, and programs to be accessible to people with disabilities. It means that the MPO must consider the mobility needs of people with disabilities when programming federal funding for studies and capital projects.

Title III of the ADA also requires all transportation projects, plans, and programs to be accessible to people with disabilities. For the MPO, this means MPO-sponsored meetings must be held in accessible buildings and be conducted in a manner that provides for accessibility. MPO materials must also be made available in accessible formats.

State Guidance and Priorities

Much of the MPO's work focuses on encouraging mode shift and diminishing greenhouse gas (GHG) emissions through improving transit service, enhancing bicycle and pedestrian networks, and studying emerging transportation technologies. All of this work helps the Boston region contribute to statewide progress towards the priorities discussed in this section.

We Move Massachusetts and Planning for Performance

We Move Massachusetts (WMM) is MassDOT's statewide strategic multimodal plan. The initiative is a product of the transportation reform legislation of 2009, the You Move Massachusetts civic engagement process, wider outreach to environmental justice and Title VI communities, and other outreach activities. In May 2014, MassDOT released *We Move Massachusetts: Planning for Performance, the Commonwealth of Massachusetts' 2040 LRTP*. WMM also incorporates performance management in investment decision-making to calculate the differences in performance outcomes resulting from different funding levels available to MassDOT.

MassDOT has expanded upon the incorporation of performance management in WMM by developing a Planning for Performance (PfP) tool to influence investments. The PfP tool is a scenario-planning tool, custom built for MassDOT, which forecasts asset conditions and allows capital planners within the divisions to consider the tradeoffs between investment strategies. The tool reports future conditions in comparison to the desired performance targets.

Massachusetts Strategic Highway Safety Plan (SHSP)

The *Massachusetts 2018 SHSP* identifies the state's key safety needs and guides investment decisions to achieve significant reductions in highway fatalities and serious injuries on all public roads. The SHSP establishes statewide safety goals and objectives and key safety emphasis areas, and it draws on the strengths of all highway safety partners in the Commonwealth to align and leverage resources to address the state's safety challenges collectively. The MPO considers SHSP goals, emphasis areas, and strategies when developing its plans, programs, and activities.

MassDOT Modal Plans

In 2017, MassDOT finalized the *Massachusetts Freight Plan*, which defines the short- and long-term vision for the Commonwealth's freight transportation system. In 2018, MassDOT released the related *Commonwealth of Massachusetts State Rail Plan*, which outlines short- and long-term investment strategies for Massachusetts' freight and passenger rail systems (excluding the MBTA's commuter rail system). In 2018, MassDOT also released drafts of the *Statewide*

Bicycle Transportation Plan and the *Massachusetts Pedestrian Transportation Plan*, both of which define roadmaps, initiatives, and action plans to improve bicycle and pedestrian transportation in the Commonwealth. The MPO considers the findings and strategies of MassDOT's modal plans when conducting its planning, including through its Freight Planning Support and Bicycle/Pedestrian Support Activities programs.

Global Warming Solutions Act and GreenDOT Policy

The Global Warming Solutions Act (GWSA) makes Massachusetts a leader in setting aggressive and enforceable GHG reduction targets and implementing policies and initiatives to achieve these targets. In keeping with this law, the Massachusetts Executive Office of Energy and Environmental Affairs, in consultation with other state agencies and the public, developed the *Massachusetts Clean Energy and Climate Plan for 2020*. This implementation plan, released on December 29, 2010 (and updated in 2015), establishes the following targets for overall statewide GHG emission reductions:

- 25 percent reduction below statewide 1990 GHG emission levels by 2020
- 80 percent reduction below statewide 1990 GHG emission levels by 2050

In January 2015, the Massachusetts Department of Environmental Protection amended regulation 310 CMR 60.05, *Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation,* which was subsequently amended in August 2017. This regulation places a range of obligations on MassDOT and MPOs to support achievement of the Commonwealth's climate change goals through the programming of transportation funds. For example, MPOs must use GHG impact as a selection criterion when they review projects to be programmed in their TIPs, and they must evaluate and report the GHG emissions impacts of transportation projects in LRTPs and TIPs.

MassDOT's also fulfills its responsibilities, defined in the *Massachusetts Clean Energy and Climate Plan for 2020,* through its GreenDOT Policy Directive, a comprehensive sustainability initiative that sets three principal objectives:

- **Reduce GHG emissions from the transportation sector.** MassDOT will achieve this objective by taking GHG emissions into account in all of its responsibilities, including strategic planning, project design and construction, and system operations.
- **Promote the healthy transportation modes of walking, bicycling, and taking public transit.** MassDOT will achieve this objective by pursuing multimodal Complete Streets design standards, providing choices in transportation services, and working with MPOs and other partners to balance funding for projects that serve drivers, pedestrians, bicyclists, and public transit riders.
- **Support smart growth development.** MassDOT will achieve this objective by working with MPOs and other partners to invest in transportation projects that make possible denser smart growth development patterns, which help reduce GHG emissions.

The Commonwealth's 10 MPOs (and three non-metropolitan planning regions) are integrally involved in supporting the GHG reductions mandated under the GWSA. The MPOs seek

to realize these objectives by prioritizing projects in the LRTP and TIP that will help reduce emissions from the transportation sector. The Boston Region MPO uses its TIP project evaluation criteria to score projects based on their GHG emissions impacts, multimodal Complete Streets accommodations, and ability to support smart-growth development. Tracking and evaluating GHG emissions by project will enable the MPOs to anticipate GHG impacts of planned and programmed projects.

Healthy Transportation Policy Initiatives

On September 9, 2013, MassDOT passed the Healthy Transportation Policy Directive to formalize its commitment to implementing and maintaining transportation networks that allow for various mode choices. This directive will ensure that all MassDOT projects are designed and implemented in ways that provide all customers with access to safe and comfortable walking, bicycling, and transit options.

In November 2015, MassDOT released the *Separated Bike Lane Planning & Design Guide*. This guide represents the next—but not the last—step in MassDOT's continuing commitment to Complete Streets, sustainable transportation, and the creation of more safe and convenient transportation options for Massachusetts' residents. This guide may be used by project planners and designers as a resource for considering, evaluating, and designing separated bike lanes as part of a Complete Streets approach.

In *Charting Progress to 2040*, the Boston Region MPO has established investment programs—particularly its Complete Streets and Bicycle and Pedestrian programs—that support the implementation of Complete Streets projects. The UPWP programs support for these projects, such as the MPO's Bicycle and Pedestrian Support Activities program, corridor studies undertaken by MPO staff to make conceptual recommendations for Complete Streets treatments, and various discrete studies aimed at improving pedestrian and bicycle accommodations.

Regional Guidance and Priorities

Focus40, The MBTA's Program for Mass Transportation

Focus40 is the 25-year investment plan that aims to position the MBTA to meet the needs of the Greater Boston region through 2040. It is known officially as the Program for Mass Transportation (PMT). On July 30, 2018, the Massachusetts Department of Transportation (MassDOT) and the MBTA released a draft of the *Focus40* plan. The *Focus40* plan, which is guided by the MBTA's Strategic Plan and other internal and external policy and planning initiatives, will serve as a comprehensive playbook guiding all capital planning initiatives at the MBTA. This includes the *RailVision* plan, which will inform the vision for the future of the MBTA's commuter rail system; the Better Bus Project, the plan to improve the MBTA's bus network; and other plans. The Boston Region MPO continues to monitor the development of *Focus40* and

related MBTA modal plans to inform its decision making about transit capital investments, which are incorporated to the TIP and LRTP.

MetroFuture

MetroFuture, which was developed by the Metropolitan Area Planning Council (MAPC) and adopted in 2008, is the long-range plan for land use, housing, economic development, and environmental preservation for the Boston region. It includes a vision for the region's future and a set of strategies for achieving that vision, and is the foundation for land-use projections used in the MPO's LRTP, *Charting Progress to 2040*. MAPC is now developing *MetroCommon,* the next regional plan, which will build off of *MetroFuture* and include an updated set of strategies for achieving sustainable growth and equitable prosperity. The MPO will continue to consider *MetroFuture's* goals, objectives, and strategies in its planning and activities, and will monitor *MetroCommon* as it develops.

The MPO's Congestion Management Process

The purpose of the Congestion Management Process (CMP) is to monitor and analyze performance of facilities and services, develop strategies for managing congestion based on the results of monitoring, and move those strategies into the implementation stage by providing decision makers in the region with information and recommendations for improving the transportation system's performance. The CMP monitors roadways and park-and-ride facilities in the Boston region for safety, congestion, and mobility, and identifies problem locations. The CMP is described in more detail in the UPWP, and studies undertaken through the CMP are often the inspiration for discrete studies funded through the UPWP.

VOTING MEMBERS OF THE BOSTON REGION MPO

The Boston Region MPO includes both permanent members and municipal members who are elected for three-year terms. Details about the MPO's members are listed below.

MassDOT was established under Chapter 25 (*An Act Modernizing the Transportation Systems of the Commonwealth of Massachusetts*) of the Acts of 2009. MassDOT has four divisions: Highway, Rail and Transit, Aeronautics, and the Registry of Motor Vehicles. The MassDOT Board of Directors, comprised of 11 members appointed by the Governor, oversees all four divisions and MassDOT operations, including the MBTA. The board was expanded to 11 members by the legislature in 2015 based on a recommendation by Governor Baker's Special Panel, a group of transportation leaders assembled to review structural problems with the MBTA and deliver recommendations for improvements. MassDOT has three seats on the MPO board, including seats for the Highway Division and the Rail and Transit Division.

- The **MassDOT Highway Division** has jurisdiction over the roadways, bridges, and tunnels formerly overseen by the Massachusetts Highway Department and the Massachusetts Turnpike Authority. The Highway Division also has jurisdiction over

many bridges and parkways that previously were under authority of the Department of Conservation and Recreation. The Highway Division is responsible for the design, construction, and maintenance of the Commonwealth's state highways and bridges. It is also responsible for overseeing traffic safety and engineering activities for the state highway system. These activities include operating the Highway Operations Control Center to ensure safe road and travel conditions.

- The **Rail and Transit Division** oversees MassDOT's freight and passenger rail program, and provides oversight of Massachusetts's 15 regional transit authorities (RTAs), as well as intercity bus service, the MBTA's paratransit service (THE RIDE), and a statewide mobility-management effort.

The **MBTA**, created in 1964, is a body politic and corporate, and a political subdivision of the Commonwealth. Under the provisions of Chapter 161A of the Massachusetts General Laws (MGL), it has the statutory responsibility within its district of operating the public transportation system, preparing the engineering and architectural designs for transit development projects, and constructing and operating transit development projects. The MBTA district comprises 175 communities, including all of the 97 cities and towns of the Boston Region MPO area. In April 2015, as a result of a plan of action to improve the MBTA, a five-member Fiscal and Management Control Board (FMCB) was created. The FMCB was created to oversee and improve the finances, management, and operations of the MBTA. The FMCB's authorizing statute called for an initial three-year term, with the option for the board to request that the Governor approve a single two-year extension. In 2017, the FMCB's initial mandate, which would have expired in June 2018, was extended for two years, through June 30, 2020. The FMCB's goals target governance, finance, and agency structure and operations through recommended executive and legislative actions that embrace transparency and develop stability in order to earn public trust. By statute, the MBTA FMCB consists of five members, one with experience in transportation finance, one with experience in mass transit operations, and three who are also members of the MassDOT Board of Directors.

The **MBTA Advisory Board** was created by the Massachusetts Legislature in 1964 through the same legislation that created the MBTA. The Advisory Board consists of representatives of the 175 cities and towns that compose the MBTA district. Cities are represented by either the city manager or mayor, and towns are represented by the chairperson of the board of selectmen. Specific responsibilities of the Advisory Board include review of and comment on the MBTA's long-range plan, the PMT, proposed fare increases, and the annual MBTA Capital Investment Program; review of the MBTA's documentation of net operating investment per passenger; and review of the MBTA's operating budget. The MBTA Advisory Board advocates for the transit needs of its member communities and the riding public.

The **Massachusetts Port Authority (Massport)** has the statutory responsibility under Chapter 465 of the Acts of 1956, as amended, for planning, constructing, owning, and operating such transportation and related facilities as may be necessary for developing and improving

commerce in Boston and the surrounding metropolitan area. Massport owns and operates Boston Logan International Airport, the Port of Boston's Conley Terminal, Cruiseport Boston, Hanscom Field, Worcester Regional Airport, and various maritime and waterfront properties, including parks in East Boston, South Boston, and Charlestown.

MAPC is the regional planning agency for the Boston region. It is composed of the chief executive officer (or her/his designee) of each of the cities and towns in the MAPC region, 21 gubernatorial appointees, and 12 ex-officio members. It has statutory responsibility for comprehensive regional planning in its region under Chapter 40B of the MGL. It is the Boston Metropolitan Clearinghouse under Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966 and Title VI of the Intergovernmental Cooperation Act of 1968. Also, its region has been designated an economic development district under Title IV of the Public Works and Economic Development Act of 1965, as amended. MAPC's responsibilities for comprehensive planning encompass the areas of technical assistance to communities, transportation planning, and development of zoning, land use, demographic, and environmental studies. MAPC activities that are funded with federal metropolitan transportation planning dollars are included in the UPWP.

The **City of Boston**, seven elected cities (currently **Beverly, Braintree, Everett, Framingham, Newton, Somerville, and Woburn**), and five elected towns (currently **Arlington, Bedford, Lexington, Medway, and Norwood**) represent the 97 municipalities in the Boston Region MPO area. The City of Boston is a permanent MPO member and has two seats. There is one elected municipal seat for each of the eight MAPC subregions and four seats for at-large elected municipalities (two cities and two towns). The elected at-large municipalities serve staggered three-year terms, as do the eight municipalities representing the MAPC subregions.

The **Regional Transportation Advisory Council**, the MPO's citizen advisory group, provides the opportunity for transportation-related organizations, non-MPO member agencies, and municipal representatives to become actively involved in the decision-making processes of the MPO as it develops plans and prioritizes the implementation of transportation projects in the region. The Advisory Council reviews, comments on, and makes recommendations regarding certification documents. It also serves as a forum for providing information on transportation topics in the region, identifying issues, advocating for ways to address the region's transportation needs, and generating interest among members of the general public in the work of the MPO.

The **Federal Highway Administration (FHWA)** and **Federal Transit Administration (FTA)** participate in the Boston Region MPO in an advisory (nonvoting) capacity, reviewing the LRTP, TIP, UPWP, and other facets of the MPO's planning process to ensure compliance with federal planning and programming requirements. These two agencies oversee the highway and transit programs, respectively, of the US Department of Transportation under pertinent legislation and the provisions of the FAST Act.