Transportation Improvement Program

Federal Fiscal Years 2019-2023

Public Review Draft

Boston Region Metropolitan Planning Organization

Public Review Draft
To be endorsed by the Boston Region Metropolitan Planning Organization on May 24, 2018

TRANSPORTATION IMPROVEMENT PROGRAM AND AIR QUALITY CONFORMITY DETERMINATION: FEDERAL FISCAL YEARS 2019–23

Boston Region Metropolitan Planning Organization Staff

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

MassDOT Office of Planning and Programming

Massachusetts Bay Transportation Authority

Massachusetts Bay Transportation Authority Advisory Board

MassDOT Highway Division

Massachusetts Port Authority

Metropolitan Area Planning Council

Regional Transportation Advisory Council

City of Boston

City of Beverly (North Shore Task Force)

City of Everett (At-Large City)

City of Framingham (MetroWest Regional Collaborative)

City of Newton (At-Large City)

City of Somerville (Inner Core Committee)

City of Woburn (North Suburban Planning Council)

Town of Arlington (At-Large Town)

Town of Bedford
(Minuteman Advisory Group on Interlocal Coordination)

Town of Braintree (South Shore Coalition)

Town of Lexington (At-Large Town)

Town of Medway (South West Advisory Planning Committee

Town of Norwood (Three Rivers Interlocal Council)

Federal Highway Administration (nonvoting)

Federal Transit Administration (nonvoting)

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Please visit **www.ctps.org** to view the full TIP. To request a copy of the TIP in CD or accessible formats, please contact us by any of the following means:

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Federal Fiscal Years 2019-23 Transportation Improvement Program

INTRODUCTION

The Boston Region Metropolitan Planning Organization's (MPO) five-year transportation capital investment plan, the 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 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 requests, proposes programming of current and new projects based on anticipated funding levels, supports the MPO in developing a draft TIP document, and facilitates a public review of the draft before the MPO endorses the final document.

FEDERAL FISCAL YEARS 2019–23 TIP OVERVIEW

The federal fiscal years (FFYs) 2019–23 TIP consists of transportation investments programmed in the Highway Program and Transit Program with funding sources from the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), respectively.

These investments reflect the MPO's goal of targeting a majority of transportation resources toward preserving and modernizing the existing roadway and transit systems and maintaining them in a state of good repair. This TIP also devotes a portion of funding for expanding the rapid transit system and new shared-use paths.

In addition, a number of the infrastructure investments in this TIP address needs identified in the MPO's Long-Range Transportation Plan (LRTP), *Charting Progress to 2040*; or they implement

recommendations from past studies and reports that were funded through the MPO's Unified Planning Work Program (UPWP) (www.bostonmpo.org/upwp).

The TIP also supports the three strategic priorities of the Massachusetts Department of Transportation (MassDOT):

- **Reliability**: Maintain and improve the overall condition and reliability of the transportation system
- **Modernization**: Modernize the transportation system to make it safer and more accessible and to accommodate growth
- **Expansion**: Expand diverse transportation options for communities throughout the Commonwealth of Massachusetts

FFYs 2019–23 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 according to the transit program and the highway program.

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 2019–23 TIP includes $3.2 billion in transit investments 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.

Highway Program

The Highway Program of the TIP funds the priority transportation projects advanced by MassDOT and the cities and towns within the MPO 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 2019–23 TIP, roadway, bridge, and bicycle and pedestrian programs account for $1.3 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.

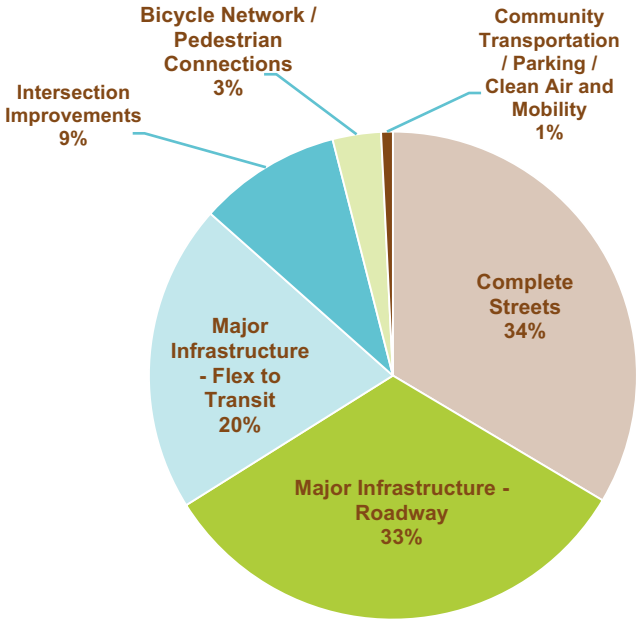
REGIONAL TARGET PROGRAM DETAILS

During FFYs 2019–23, the Boston Region MPO plans to fund 38 projects and programs with its Regional Target funding:

- 22 Complete Streets projects, such as the reconstruction of Route 139 in Holbrook
- Five Major Infrastructure projects, such as the reconstruction of Rutherford Avenue in Boston
- Eight Intersection Improvements projects, such as improvements to the intersection of Route 28 and Hopkins Street in Reading
- Two Bicycle Network and Pedestrian Connections projects, such as Phase 2D of the Bruce Freeman Rail Trail
- A Community Transportation Program, which will support projects that provide first-mile/last-mile connections in the region

Figure ES-1 shows how the Regional Target funding for FFYs 2019–23 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.

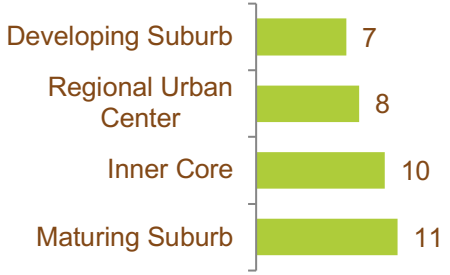
FIGURE ES-1
FFYs 2019-23 TIP REGIONAL TARGET FUNDING
BY INVESTMENT PROGRAM



Data Source: Boston Region MPO.

These investments will be implemented in 36 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 2019-23 TIP PROGRAM PROJECTS BY COMMUNITY TYPE



Data Source: Boston Region MPO.

- Developing suburb investments include roadway reconstruction and corridor improvements in Bellingham, Cohasset, Hopkinton, Ipswich, and Walpole; and intersection improvements in Littleton and Wrentham.
- Regional urban center investments include intersection improvements in Beverly and Norwood; 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 and Reading; bikeway extensions in Bedford and Sudbury; and corridor improvements in Ashland, Dedham, Holbrook, Hull, Natick, and Needham.

FINANCING THE FFYs 2019–23 TIP

Transit Program

The 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 Act (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

Highway Program

The TIP Highway Program was developed with the assumption that federal funding for the state would range between $661 million and $726 million annually over the next five years (these amounts include the funds that would be set aside 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. First, MassDOT reserves funding for GANs debt service payments for the Accelerated Bridge Program; annual GANs payments range between $66 million and $94 million annually over the five years of this TIP.

The remaining Federal-Aid Highway Program funds are budgeted to support state and regional (that is, MPO) priorities. In this planning cycle, $734 million to $782 million annually was available statewide for programming (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 suballocated 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 assumes that the Boston Region MPO will have between $98 million and $109 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 transit expansion projects. The TIP Highway Program details the projects that will receive Regional Target funding from the Boston Region MPO, as well as statewide infrastructure projects within the Boston region.

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 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/Clean 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:

- 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. See Chapter 4 for more information on PBPP.

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. 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 $521 million of Regional Target funding available to the Boston Region MPO for FFYs 2019–23. This year, the MPO discussed the staff recommendation and programming scenarios for the Regional Target Program for highway projects and selected a preferred program in March.

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 30-day public review period, during which the MPO invites members of the public, regional and local officials, and other stakeholders in the Boston region to review the proposed program. During the public review period, MPO staff hosts extended *Office Hours*, 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 FHWA and the 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 30-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:

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CHAPTER ONE

The 3C Process

INTRODUCTION TO THE 3C PROCESS

Decisions about how to spend transportation funds in a metropolitan area are guided by information and ideas from a broad group of people, including elected officials, municipal planners and engineers, transportation advocates, and other interested people. 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 has an MPO, which decides how to spend federal transportation funds for capital projects and planning studies.

In order to be eligible for federal funds, metropolitan areas are required to maintain a continuous, comprehensive, and cooperative (3C) multimodal, performance-based transportation planning process that results in plans and programs consistent with the objectives of the metropolitan area.[1] The 3C planning process in the Boston region is the responsibility of the Boston Region MPO, which has established the following objectives for the process:

- Identify transportation problems and develop possible solutions
- Balance short- and long-range considerations so that decisions that lead to beneficial, incremental actions adequately reflect an understanding of probable future consequences and possible future options
- Represent both regional and local considerations as well as both transportation and non-transportation objectives and impacts when analyzing project issues
- Assist agencies responsible for implementing projects in effecting timely policy and project decisions with adequate consideration of environmental, land use, social, fiscal, and economic impacts, and with adequate opportunity for participation by other agencies, local governments, and members of 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 Fixing America's Surface Transportation Act (FAST Act); Americans with Disabilities Act (ADA); Clean Air Act; Title VI of the Civil Rights Act of 1964; Executive Order 12898: *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*; Executive Order 13330: *Human Services Transportation Coordination*; and

[1] Section 134 of the Federal-Aid Highway Act and Section 5303 of the Federal Transit Act, as amended.

Executive Order 13166: *Improving Access to Services for Persons With Limited English Proficiency*

THE BOSTON REGION MPO

The Boston Region MPO is a 22-member board consisting of state agencies and regional and municipal organizations. Its jurisdiction extends from Boston north to Ipswich, south to Marshfield, and west to Interstate 495. There are 97 cities and towns that make up this area. Those municipalities are divided into eight subregional areas (as shown in Figure 1-1).

As part of its 3C planning process, the Boston Region MPO annually produces the Transportation Improvement Program (TIP) and the Unified Planning Work Program (UPWP). These documents, along with the Long-Range Transportation Plan (LRTP), are required for the MPO to be certified as meeting federal requirements, which in turn is a prerequisite for receiving federal transportation funds. These three plans and programs are often referred to as *certification documents*.

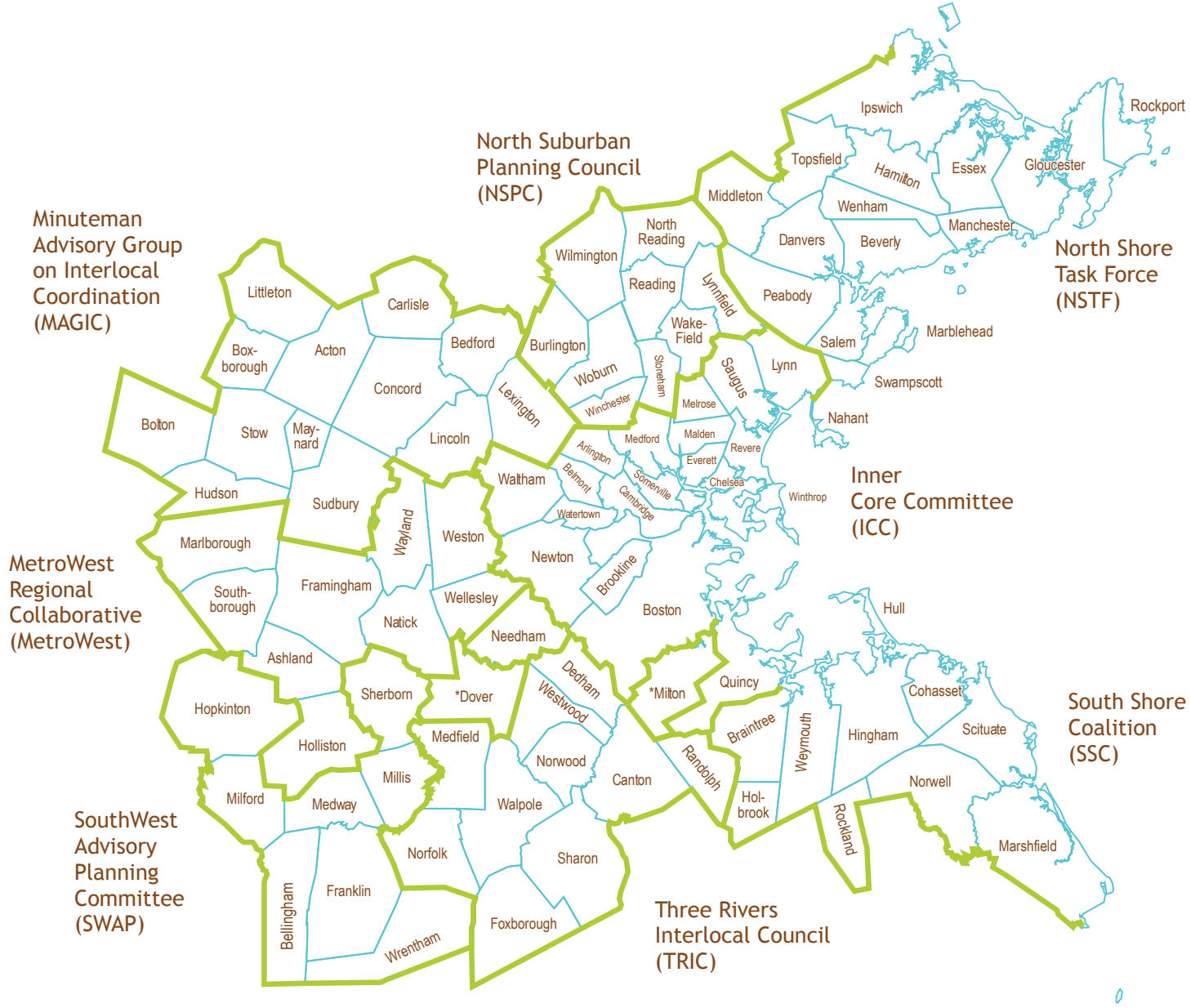
This TIP was developed and approved by the permanent and elected MPO voting members. The following are permanent voting members:

- Massachusetts Department of Transportation (MassDOT)
- Metropolitan Area Planning Council (MAPC)
- Massachusetts Bay Transportation Authority (MBTA)
- MBTA Advisory Board
- Massachusetts Port Authority (Massport)
- City of Boston
- Regional Transportation Advisory Council (Advisory Council)

Municipal MPO members are elected by chief elected officials of the municipalities in the MPO region to represent the interests of the entire region. There are seats designated for at-large cities and at-large towns—which, respectively, may be filled by any city and town in the region—as well as seats for cities and towns within specific subregions. The current elected municipal MPO voting members are listed below (with their subregional affiliations noted):

- Town of Arlington: At-Large Town
- Town of Bedford: Minuteman Advisory Group on Interlocal Coordination
- City of Beverly: North Shore Task Force
- Town of Braintree: South Shore Coalition
- City of Everett: At-Large City
- City of Framingham: MetroWest Regional Collaborative
- Town of Lexington: At-Large Town
- Town of Medway: SouthWest Advisory Planning Committee
- City of Newton: At-Large City
- Town of Norwood: Three Rivers Interlocal Council
- City of Somerville: Inner Core Committee
- City of Woburn: North Suburban Planning Council

FIGURE 1-1:
METROPOLITAN AREA PLANNING COUNCIL (MAPC) SUBREGIONAL GROUPS



*Several communities are represented by more than one subregional group. Dover is in TRIC and SWAP; Milton and Needham are in ICC and TRIC.

The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) participate in the MPO as advisory (nonvoting) members. Figure 1-2 is an organization chart of MPO membership and of the MPO's staff, the Central Transportation Planning Staff (CTPS).

More details about the MPO's members are cited below. All members—except for MassDOT and the City of Boston—hold one seat on the MPO board. MassDOT has three seats, including one for the Highway Division. The City of Boston has two seats.

MassDOT was established under Chapter 25 of the Acts of 2009, An Act Modernizing the Transportation Systems of the Commonwealth of Massachusetts. 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 all MassDOT operations, including the MBTA.

- The *MassDOT Highway Division* has jurisdiction over the roadways, bridges, and tunnels formerly overseen by the Massachusetts Highway Department and the Massachusetts Turnpike Authority. It also has jurisdiction over many bridges and parkways previously under the authority of the Department of Conservation and Recreation (DCR). 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' 15 regional transit authorities (RTAs), as well as intercity bus services, MBTA paratransit service (THE RIDE), and the Massachusetts Mobility Management Center, a resource that helps communities develop the capacity to better serve people with mobility challenges.

The *MBTA* has the statutory responsibility within its district, under the provisions of Chapter 161A of the Massachusetts General Laws (MGLs), for preparing the engineering and architectural designs for transit development projects, constructing and operating transit development projects, and operating the public transportation system. The MBTA district comprises 175 communities, including all of the cities and towns of the Boston Region MPO area. As a result of an action plan to improve the MBTA, a five-member Fiscal and Management Control Board (FMCB) was created in April 2015 to oversee the MBTA's finances and management and to increase accountability, initially over a three-to-five-year period. By statute, the 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 state legislature in 1964 through the same legislation that

created the MBTA. The Advisory Board consists of representatives from 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 providing public oversight of MBTA expenditures; reviewing and offering advice on the MBTA's long-range plan; evaluating the MBTA's annual budget; evaluating proposed fare changes and substantial changes in transit service; and consulting with the MBTA about service quality standards.

Massport has the statutory responsibility under Chapter 465 of the Acts of 1956, as amended, of 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's Logan International Airport, Conley Freight Terminal, Cruiseport Boston, Hanscom Field, Worcester Regional Airport, and various maritime and waterfront properties, including parks in East Boston, South Boston, and Charlestown.

The *Metropolitan Area Planning Council* is the regional planning agency for 101 cities and towns in the Boston region. MAPC is composed of the chief executive officer (or designee) of each city and town in the region, 21 gubernatorial appointees, and 12 ex-officio members. MAPC has statutory responsibility for comprehensive regional planning in the region under Chapter 40B of the MGLs. 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. MAPC's planning area also has been designated as 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 include providing technical assistance to communities, transportation planning, and the development of zoning, land use, and demographic and environmental studies.

This work is facilitated by municipal subregional groups that foster better communication and cooperation among member communities. These groups have played an important role in the MPO's participatory process, including by helping to prioritize transportation projects and studies. MAPC staff complements CTPS on supporting the MPO.

The City of Boston and twelve elected cities and towns (currently Arlington, Bedford, Beverly, Braintree, Everett, Framingham, Lexington, Medway, Newton, Norwood, Somerville, and Woburn) represent the region's municipalities in the Boston region. The City of Boston is a permanent MPO member (with two seats). There is one elected municipal seat for each of the eight MAPC subregions, and there are four at-large elected municipalities (two cities and two towns). The elected municipalities serve staggered three-year terms.

The *Regional Transportation Advisory Council*, the MPO's public advisory group, provides the opportunity for transportation-related organizations, agencies, and municipal representatives to become actively involved in the MPO's decision-making processes for planning and programming transportation projects in the region. The Advisory Council reviews, comments on,

and makes recommendations on the MPO's certification documents. The Advisory Council also provides information about transportation topics in the region, identifies issues, advocates for ways to address the region's transportation needs, and generates interest in the work of the MPO among members of the general public.

The *FHWA* and *FTA* participate in the Boston Region MPO in an advisory (nonvoting) capacity, reviewing the MPO's certification documents to ensure compliance with federal planning and programming requirements. The two federal agencies oversee the highway and transit programs of the US Department of Transportation under the pertinent legislation and the provisions of the FAST Act.

Staff at *CTPS* and *MAPC* assist the MPO board in carrying out the responsibilities of the MPO's 3C planning process through policy implementation, technical support, and public participation.

CERTIFICATION DOCUMENTS

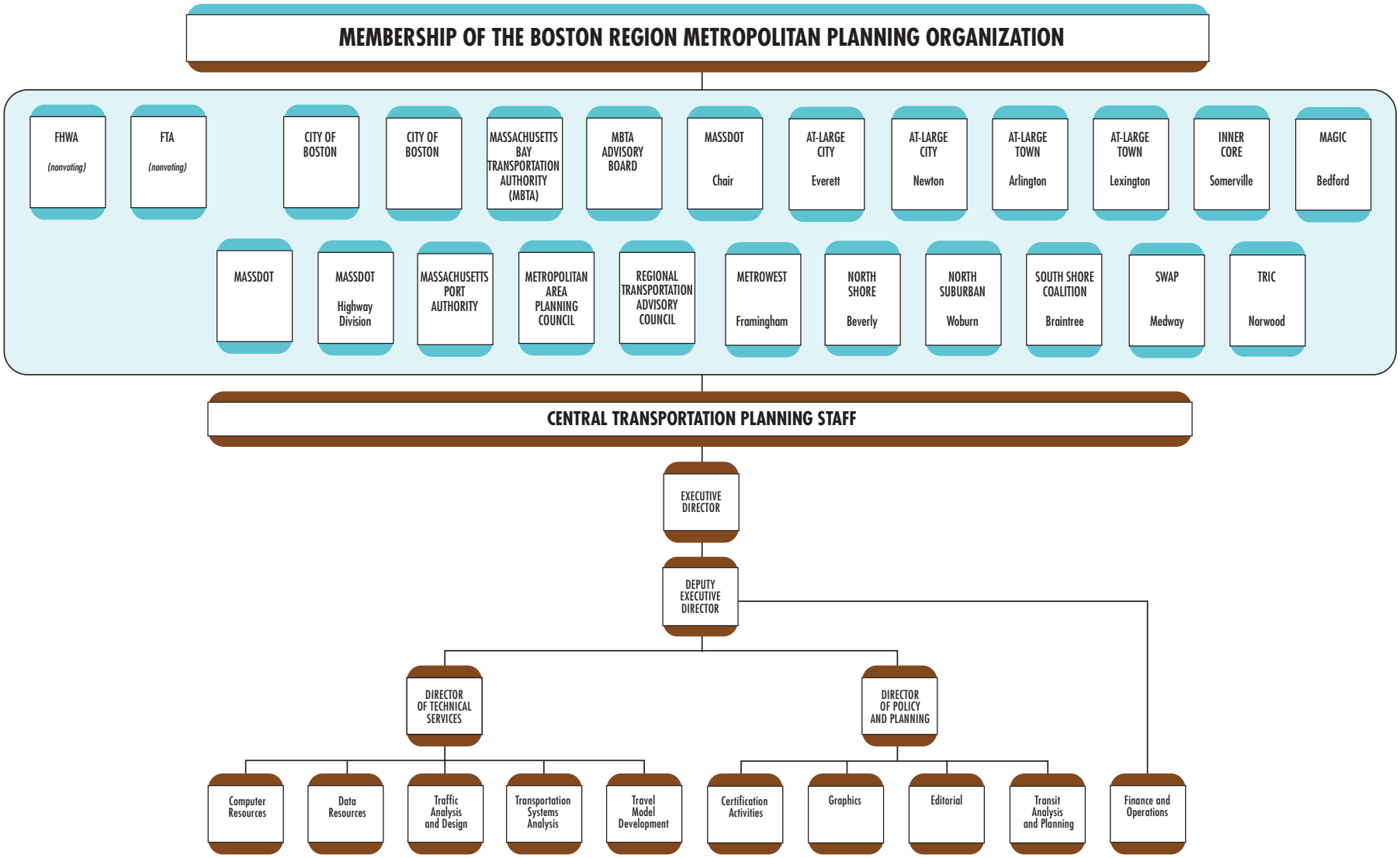
The following section briefly describes the three documents produced by the MPO as part of its federally required 3C planning process:

- The *Long-Range Transportation Plan and Air Quality Conformity Determination (LRTP)* guides investment in the transportation system of the Boston metropolitan region for the next 20 years. The LRTP defines an overarching vision of the future of transportation in the region, establishes goals and objectives that will lead to achievement of that vision, and allocates projected transportation funds to projects and programs consistent with established goals and objectives. The Boston Region MPO produces an LRTP every four years; *Charting Progress to 2040*, the current LRTP was endorsed by the MPO in 2015. The LRTP also guides the MPO's development of the TIP and UPWP.

- The *Transportation Improvement Program and Air Quality Conformity Determination (TIP)* is a multiyear program of intermodal transportation improvements consistent with the LRTP. The TIP describes and prioritizes transportation projects that are expected to be implemented during a five-year period. (The FHWA and the FTA consider the projects in the fifth year as illustrative only.) The types of projects funded include major highway reconstruction and maintenance, arterial and intersection improvements, public transit expansion and maintenance, bicycle paths and related facilities, and improvements to pedestrian infrastructure. 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 LRTP; the Boston Region MPO updates the TIP annually. An MPO-endorsed TIP is incorporated into the State Transportation Improvement Program, which in turn is submitted to FHWA, FTA, and the US Environmental Protection Agency for approval.

FIGURE 1-2
BOSTON REGION MPO ORGANIZATIONAL CHART



FEBRUARY 2018

- The *Unified Planning Work Program (UPWP)* describes all of the supportive planning activities undertaken by the MPO, including data resources management, preparation of the federally required certification documents, and ongoing transportation planning assistance. It contains information about surface transportation planning projects that will be conducted in the Boston metropolitan region. The UPWP has a one-year scope, and is produced annually.

  The studies and work products programmed for funding through the UPWP are integrally related to other planning initiatives conducted by the Boston Region MPO, as well as to initiatives by MassDOT, the MBTA, Massport, MAPC, and the region's municipalities. The UPWP efforts can be a means to study transportation projects and alternatives before they are advanced for further design, construction, and future programming through the TIP.

CONSISTENCY WITH FEDERAL PLANNING REGULATIONS

FAST Act Legislation

The FAST Act requires all MPOs to fulfill the 3C planning process. To meet this requirement, MPOs must perform the following activities:

- Produce the certification documents: the LRTP, TIP, and UPWP
- Establish and oversee the public-participation process in the development of those documents
- Maintain transportation models and data resources to support both air quality conformity determinations and long- and short-range planning work

The FAST Act also maintains national goals for federal highway programs, including 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, eliminating delays in the development and delivery process, lessening regulatory burdens, and improving the work practices of the agencies involved

In addition, the FAST Act maintains the federal planning factors established in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and adds two new planning factors. In accordance with the legislation, the MPO shall comply with the following factors:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, 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 the integration and connectivity of the transportation system, across and between modes, for people and freight
7. Promote efficient system management and operation
8. Emphasize the preservation of the existing transportation system
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation
10. Enhance travel and tourism

Federal guidance dictates that the 3C planning process should facilitate the safe and efficient management, operation, and development of surface transportation systems that will serve the mobility needs of people and freight. The surface transportation system should foster economic growth and development within and between states and urbanized areas, and take into consideration

resiliency needs while minimizing transportation-related fuel consumption and air pollution.

The FAST Act continues to emphasize performance-based planning as an integral part of the metropolitan planning process. States are to develop performance goals, guided by the national goals, and then MPOs will work with state departments of transportation (DOTs) and public transportation providers to develop MPO performance targets. The TIP will integrate the MPOs' performance measures and link transportation investment decisions to progress toward achieving performance goals.

CONSISTENCY WITH OTHER FEDERAL LEGISLATIVE REQUIREMENTS

The Clean Air Act of 1990

Air quality conformity determinations must be performed for LRTPs and TIPs in areas that are classified as in nonattainment for pollutants controlled by National Ambient Air Quality Standards. Capital improvement projects that receive federal funding and that are considered regionally significant must be analyzed for their effect on air quality. These determinations must show that, collectively, projects programmed in the LRTP and 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.

A determination must also be performed if there are transportation control measures (TCMs) identified in the Commonwealth's State Implementation Plan for the attainment of air quality standards in the region. TCMs are federally enforceable, and projects that address the identified air quality issues must be given first priority when using federal funds. Examples of TCMs that were programmed in previous TIPs include parking-freeze programs in Boston and Cambridge, statewide rideshare programs, rapid-transit and commuter-rail extension programs, park-and-ride facilities, residential parking-sticker programs, and the operation of high-occupancy-vehicle lanes.

Nondiscrimination Mandates

The Boston Region MPO complies with Title VI of the Civil Rights Act of 1964, the ADA, and other federal and state nondiscrimination statutes and regulations in all of its programs and activities. The MPO does not discriminate based on race, color, national origin (including limited English proficiency), income, religion, creed, ancestry, ethnicity, disability, age, sex, sexual orientation, gender identity or expression, veteran status (including Vietnam-era veterans), or background. 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, denied the benefits of, or 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 proficiency (LEP). Specifically, it calls for improved

access to programs and activities conducted or assisted by federal agencies, and it requires MPOs to develop and implement a system by which LEP persons can meaningfully participate in the transportation planning process.

Environmental Justice Executive Orders

Executive Order 12898, dated February 11, 1994, further expands upon Title VI, requiring each federal agency to achieve environmental justice by identifying and addressing any disproportionately high adverse human health or environmental effects on minority or low-income populations, including interrelated social and economic effects, resulting from its programs, policies, and activities.

On April 15, 1997, the US Department of Transportation issued its *Final Order to Address Environmental Justice in Minority Populations and Low-Income Populations*. Among other provisions, this order calls for programming and planning activities to meet the following requirements:

- 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 the race, color, national origin, and income level of the populations affected by transportation decisions
- Minimize or mitigate any adverse impact on minority or low-income populations

The Americans with Disabilities Act

Title III of the ADA requires all transportation projects, plans, and programs to be accessible to people with disabilities. In regard to MPOs, this means that public meetings must be held in accessible buildings and documents must be made available in accessible formats.

Executive Order 13330

Executive Order 13330, dated February 26, 2004, calls for the establishment of the Interagency Transportation Coordinating Council on Access and Mobility, under the aegis of the US Secretary of Transportation. This executive order reinforces both environmental justice and ADA requirements by charging the council with developing policies and methods for improving access for persons with disabilities, persons with low-income, and older adults.

COORDINATION WITH OTHER MPO PLANNING ACTIVITIES

Long-Range Transportation Plan

The MPO considers the degree to which a proposed TIP project would advance the goals and objectives of its LRTP. The MPO also reviews TIP projects within the context of the recommended projects already included in the LRTP.

Unified Planning Work Program Studies

The MPO aims to implement the findings and recommendations of past studies and reports conducted through the UPWP when developing the TIP.

Congestion Management Process

The purpose of the Congestion Management Process (CMP) is to monitor and analyze the performance of transportation facilities and services; develop strategies to alleviate congestion; and move these strategies into the implementation stage by providing decision-makers in the region with information and recommendations. The CMP monitors roadways and park-and-ride facilities in the MPO region for safety, congestion, and mobility, and identifies problematic locations. Projects that help address problems identified in the most recent CMP monitoring endeavor were considered for inclusion in this TIP.

CONSISTENCY WITH STATE REQUIREMENTS

Global Warming Solutions Act

The Global Warming Solutions Act (GWSA) makes Massachusetts a leader in setting aggressive and enforceable greenhouse gas (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 promulgated regulation 310 CMR 60.05, *Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation*. 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. In particular, MPOs must use GHG impact as a selection criterion when they review projects to be programmed in their TIPs. Appendix B of this document includes information about these requirements and how the Boston Region MPO has addressed them in developing the TIP.

GREENDOT POLICY

The transportation sector is the single largest contributor of GHGs—accounting for more than one-third of GHG emissions—and, therefore, is a major focus of the *Massachusetts Clean Energy and Climate Plan for 2020*. MassDOT's approach to fulfilling its part of the plan is presented in 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 helping MassDOT achieve its GreenDOT objectives and 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 the planned and programmed projects.

COORDINATION WITH OTHER PLANNING ACTIVITIES

The MBTA's Program for Mass Transportation

In 2009, the MBTA adopted its current Program for Mass Transportation (PMT). The PMT was developed with extensive public involvement and was approved by the MBTA Advisory Board.

The next PMT, *Focus40*, is under development (and expected to be released by mid-2018). *Focus40* is the 20-year investment plan to position the MBTA to meet the needs of the greater Boston region through 2040. The *Focus40* process will create a long-term investment vision that recognizes current infrastructure challenges and the shifting demographics, changing climate, and evolving technology that may alter the role that the MBTA will play in greater Boston in the future. *Focus40* will emphasize 1) improving system performance and reliability; 2) supporting economic growth; 3) supporting inclusive growth; 4) mitigating and adapting to climate change; and 5) providing a seamless multimodal experience.

In 2016, the *Focus40* team examined the existing conditions and future context for the transit system, developed goals, and collected feedback and ideas for improvements through an extensive public engagement process. During 2017, the team established the plan's framework and objectives and began to develop a recommended strategy. In 2018, MassDOT and the MBTA will propose programs and strategies that align with that framework and finalize

the plan. Recommendations from *Focus40* will support MassDOT's Capital Investment Plan.

The Boston MPO continues to monitor the development of *Focus40* to inform its decision making about transit capital investments in the TIP and LRTP.

MetroFuture

MetroFuture, the long-range plan for land use, housing, economic development, and environmental preservation in the Boston region, was developed by MAPC and adopted in 2008. It includes a vision for the region's future and a set of strategies for achieving that future. Its goals and objectives were used in developing the future land-use scenario for *Charting Progress to 2040*. *MetroFuture*'s goals, objectives, and strategies were considered in the development of this TIP. MAPC is working on an update to the plan.

youMove Massachusetts and weMove Massachusetts

A statewide initiative designed as a bottom-up approach to transportation planning, *youMove Massachusetts* (YMM) derived 10 core themes from a broad-based public participation process that articulated the expressed concerns, needs, and aspirations of Massachusetts residents related to their transportation network. Those themes have been considered in the development of this TIP.

In May 2014, MassDOT released *weMove Massachusetts: Planning for Performance* (WMM), the Commonwealth's LRTP for planning to 2040. WMM is a statewide strategic multimodal plan that is a product of the transportation reform legislation of 2009 and the YMM civic engagement process. It identifies high-level policy priorities that were considered in the development of this TIP. WMM also incorporates performance management into investment decision-making to calculate the differences in performance outcomes resulting from different funding levels available to MassDOT. In the future, MassDOT will use this scenario-based tool to update and refine investment priorities. The TIP builds on this data-driven method to prioritize transportation investments.

Healthy Transportation Compact

The Healthy Transportation Compact (HTC) is a major requirement of the Massachusetts landmark transportation reform legislation that took effect on November 1, 2009. The HTC is an interagency initiative that will help ensure that the transportation decisions made by the Commonwealth balance the needs of all transportation users, expand mobility, improve public health, support a cleaner environment, and create stronger communities.

The agencies work together to achieve positive health outcomes by coordinating land use, transportation, and public health policy. The HTC is led by the secretary of transportation (co-chair), secretary of health and human services (co-chair), secretary of energy and environmental affairs, secretary of housing and economic development, administrator of transportation for highways, administrator of transportation for mass transit, and the commissioner of public health (each of whom may select a representative to serve in his or her stead).

The HTC also promotes improved coordination among the public sector, private sector, and advocacy groups, as well as among transportation, land use, and public health stakeholders. As part of the framework for the HTC, MassDOT established an HTC Advisory Council comprised of advocates and leaders in the fields of land use, transportation, and public health policy.

MassDOT Mode Shift Goal

In the fall of 2012, MassDOT announced a statewide mode shift goal to triple the share of travel by bicycling, transit, and walking between 2010 and 2030. The mode shift goal aims to foster improved quality of life by protecting the environment and preserving the capacity of the highway network. In addition, positive public health outcomes will be achieved by providing more healthy transportation options.

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. These investment programs are reflected in this TIP. The MPO's TIP project selection criteria also reflect the MPO's support for the programming of Complete Streets and bicycle and pedestrian investments.

CONSISTENCY WITH MPO GOALS AND OBJECTIVES

In the development of *Charting Progress to 2040*, the Boston Region MPO updated its vision, goals, and objectives. These updated goals and objectives, listed on the following pages, guided the 2016 update of the TIP evaluation criteria. As such, the investments in the TIP aim to achieve the following:

- Provide safe transportation for all modes
- Maintain the transportation system
- Use existing facility capacity more efficiently
- Increase healthy transportation options
- Create an environmentally friendly transportation system
- Afford comparable access and service quality among communities, regardless of income level or minority population
- Ensure that our transportation network serves as a strong foundation for economic vitality

Chapter 4 demonstrates in detail how transportation investments over the next five years would advance the MPO's goals and objectives.

FIGURE 1-3:
CENTRAL VISION STATEMENT

The Boston Region Metropolitan Planning Organization envisions a modern transportation system that is safe, uses new technologies, provides equitable access, excellent mobility, and varied transportation options—in support of a sustainable, healthy, livable, and economically vibrant region.

GOALS	OBJECTIVES
SAFETY	
Transportation by all modes will be safe	• Reduce number and severity of crashes, all modes • Reduce serious injuries and fatalities from transportation • Protect transportation customers and employees from safety and security threats (Note: The MPO action will be to incorporate security investments into capital planning.)
SYSTEM PRESERVATION	
Maintain the transportation system	• Improve condition of on- and off-system bridges • Improve pavement conditions on MassDOT-monitored roadway system • Maintain and modernize capital assets, including transit assets, throughout the system • 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
CLEAN AIR/CLEAN COMMUNITIES	
Create an environmentally friendly transportation system	• Reduce greenhouse gases 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 • Support land use policies consistent with smart and healthy growth
TRANSPORTATION EQUITY	
Provide comparable transportation 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

FIGURE 1-3: (CONT.)
CENTRAL VISION STATEMENT

The Boston Region Metropolitan Planning Organization envisions a modern transportation system that is safe, uses new technologies, provides equitable access, excellent mobility, and varied transportation options—in support of a sustainable, healthy, livable, and economically vibrant region.

GOALS	OBJECTIVES
CAPACITY MANAGEMENT/MOBILITY	
CAPACITY MANAGEMENT/ Use existing facility capacity more efficiently and increase healthy transportation capacity	• 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 percentage of population and places of employment within one-quarter mile of transit stations and stops • Increase percentage of population and places of employment with access to bicycle facilities • Improve access to and accessibility of transit and active modes • Support community-based and private-initiative services and programs to meet last mile, reverse commute and other non-traditional transit/transportation needs, including those of the elderly and persons with disabilities • Eliminate bottlenecks on the freight network • Enhance intermodal connections • Emphasize capacity management through low-cost investments; give priority to projects that focus on lower-cost O&M-type improvements such as intersection improvements and Complete Streets solutions
ECONOMIC VITALITY	
Ensure our transportation network provides a strong foundation for economic vitality	• Respond to the mobility needs of the 25–34-year-old workforce • Minimize the burden of housing and transportation costs for residents in the region • Prioritize transportation investments that serve targeted development sites • Prioritize transportation investments consistent with the compact-growth strategies of MetroFuture

March 2018

CHAPTER TWO

The TIP Process

INTRODUCTION TO THE TIP PROCESS

When planning for its region's future, 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 to build 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.

Thus, the Boston Region MPO develops a long-range regional transportation plan and a Transportation Improvement Program (TIP) that prioritizes transportation investments and helps the MPO decide how to spend federal transportation funds for capital projects. The Central Transportation Planning Staff (CTPS), which is the staff to the Boston Region MPO, manages the annual development process for the TIP. MPO staff helps evaluate project funding requests from municipalities and state transportation agencies, propose programming for new and ongoing projects based on anticipated yearly funding levels, support the MPO by creating a draft TIP document, and facilitate a public involvement process that affords the public an opportunity to review the draft TIP before the MPO endorses the final document.

FINANCING THE PROGRAM

Federal 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.

Once the authorization level has been established, the United States Department of Transportation annually allocates funding among the states, based on 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.

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

Two of the most important distinctions between apportionment and obligation authority are as follows: 1) apportionment is allocated per funding program, while obligation authority is generally allocated as a lump sum; and 2) unused apportionment carries forward into successive FFYs, but unused obligation authority does not. Unused apportionment that is carried forward is referred to as an unobligated balance. Although a state's unobligated balance can be used to increase the amount of federal aid programmed within a particular funding category in a given FFY, it cannot be used to increase the total amount of the state's highway apportionment.

Federal Highway Program

Federal regulations require states to "provide MPOs with estimates of federal and state funds which the MPOs shall utilize in developing financial plans" for TIPs.[2]

The FFYs 2019–23 TIP's Highway Program was developed with the assumption that federal funding for the state would range between $661 million and $726 million annually over the next five years (these amounts include the funds that would be set aside 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 $66 million and $94 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 cycle, $734 million to $782 million annually was 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.

Next, MassDOT allocates the remaining federal funding into the following categories:

- **Reliability Programs:** These MassDOT Highway Division programs 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.
- **Modernization Programs:** These MassDOT Highway Division programs include the Americans with Disabilities Act (ADA) Retrofit Program, the Intersection Improvement Program, the Intelligent Transportation System (ITS) Program, and the Roadway Reconstruction Program.
- **Expansion Programs:** These Highway Division programs include the Bicycle and

[2] Title 23 Code of Federal Regulations (CFR) 450.324(e).

Pedestrian Program and the Capacity Program.

- **Regional Targets**: Projects funded with Regional Target dollars are prioritized by MPOs. *(See the next section for more details.)*
- **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.

Regional Targets

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 is a subset of the Highway Program, the Boston Region MPO typically programs the majority of its target funding on roadway projects; however, the MPO has flexed portions of its Highway Program funding to the Transit Program, as when the MPO gave its support to the Green Line Extension transit expansion project.

The MPO's discretionary funding typically is used for modernization programs (intersection improvements and roadway reconstruction) and expansion projects (roadway capacity and bicycle and pedestrian facilities), whereas statewide highway items primarily cover the reliability programs (for bridges, pavement, and safety, for example).

During the next five years, the Boston Region MPO's total Regional Target funding will be approximately $521 million, an average of $104 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 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.

Funding Programs

Metropolitan areas utilize many different federal-aid transportation programs, and each program has unique requirements. Federal programs in the FAST Act that fund projects in the FFYs 2019–23 TIP are listed in the following two tables.

TABLE 2-1
FEDERAL HIGHWAY ADMINISTRATION PROGRAMS APPLICABLE TO THE FFYs 2019-23 TIP

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

TABLE 2-2
FEDERAL TRANSIT ADMINISTRATION PROGRAMS APPLICABLE TO THE FFYs 2019-23 TIP

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

DEVELOPING THE TIP

Highway Discretionary (Regional Target) Funding Project Selection Process

Overview

The MPO's process for selecting projects to receive highway discretionary—or Regional Target—funding uses 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 its current Long-Range Transportation Plan (LRTP), *Charting Progress to 2040*. All projects are required to show consistency with the LRTP and other statewide and regional plans. Other factors considered 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 B.

Outreach and Data Collection (October–January)

The TIP development process begins early in the federal fiscal year when cities and towns in the region designate 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 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.

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 of 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 uses 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 the transportation system
- Use existing facility capacity more efficiently and increase healthy transportation capacity
- Create an environmentally friendly transportation system
- Provide comparable transportation access and service quality among communities, regardless of income level or minority population
- 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 (on the following pages) provides an overview of the goals, criteria, and scoring values.

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. 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 B.

TIP Readiness Day (February)

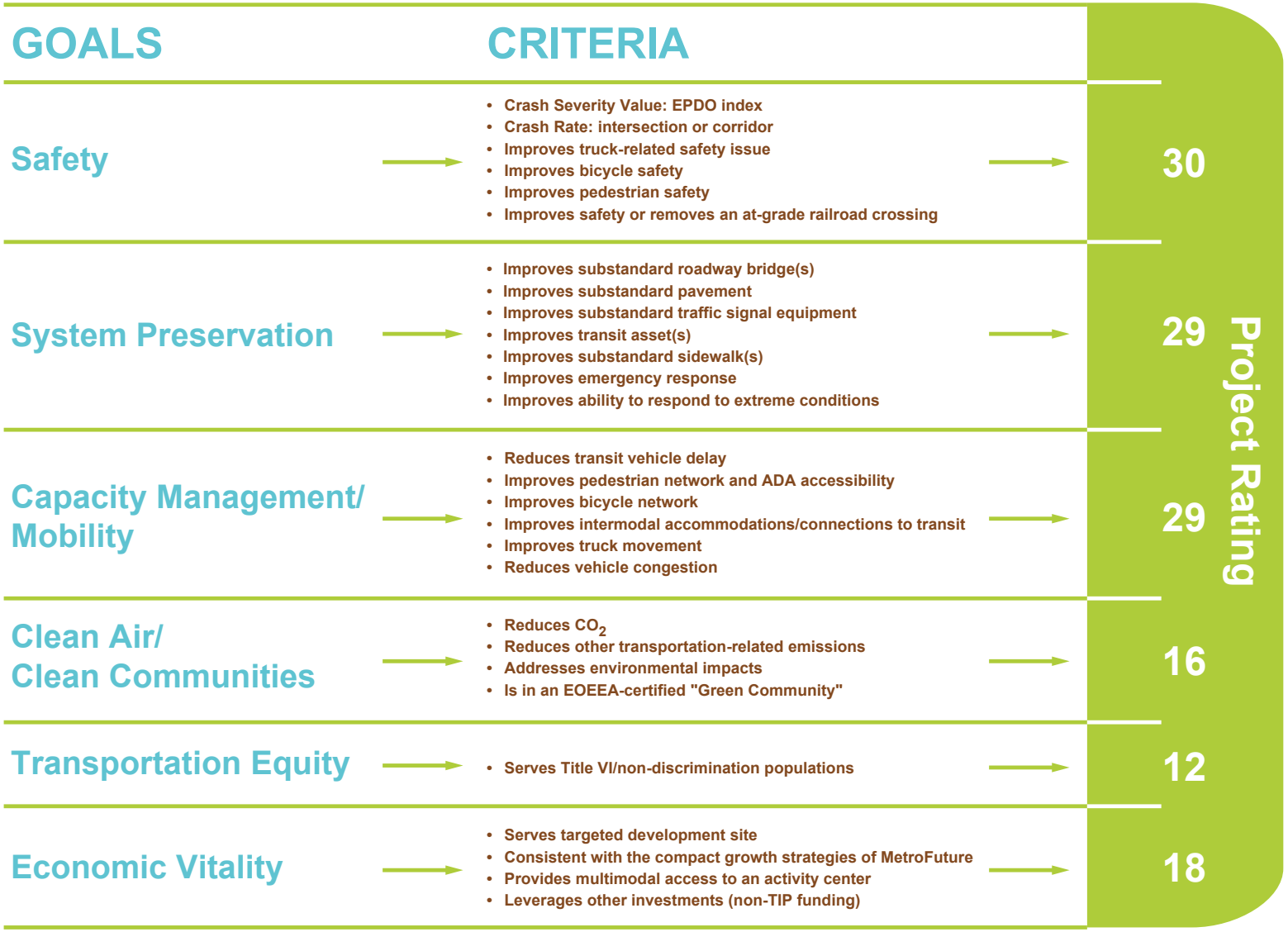
MPO staff meets with members of the MassDOT Highway Division and MassDOT District project managers to review cost and schedule changes related to currently programmed projects, which are undergoing design review, permitting, and right-of-way acquisition. The MPO board then considers these updated project 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 factors considered for project selection include whether a project was programmed in the LRTP, investment program funding targets, distribution of investments across the region, and whether sufficient funding is available for the proposed projects.

FIGURE 2-1
TIP EVALUATION CRITERIA



CO_2 = Carbon Dioxide, EOEEA = Executive Office of Energy and Envronmental Affairs,
EPDO = Equivalent Prprty Damage Only, VMT = Vehicle Miles Traveled

Selection Process for State Prioritized Projects

The selection of transit, bridge, and statewide infrastructure projects for programming in the TIP draws primarily from MassDOT's Capital Investment Plan (CIP), which is a fully integrated capital plan produced by all MassDOT divisions and the MBTA.

Projects in the CIP are selected from MassDOT's *Universe of Projects*. They are prioritized based on a process recommended by the independent Project Selection Advisory Council (PSAC) and on data from asset management systems maintained by MassDOT divisions.

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. The following criteria 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.

The transit element of the TIP also includes the federal-aid programs of the other two RTAs in the region, CATA and MWRTA. CATA and MWRTA coordinate with the MassDOT Rail and Transit Division to develop their capital programs.

APPROVING THE TIP

Approval of the Draft TIP for Public Review

The MPO 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 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 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. MPO staff hosts outreach events, including its *Office Hours* and similar open-house events, during the public comment period to elicit comments on the draft document (summarized in Appendix C).

Approval of the Draft TIP

After the public review period ends, the MPO reviews all municipal and public comments and may change the programming or the document as appropriate. Then the MPO endorses the TIP. MassDOT incorporates the MPO-endorsed TIP into the State Transportation Improvement Program (STIP) and submits it to the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) for approval. The FHWA, FTA, and US Environmental Protection Agency review the STIP for certification 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 revenues. 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 action for approval. Although a public review period is not required for administrative modifications or adjustments, one may be offered at the MPO's discretion.

Any 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 30-day comment 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. (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 on the MPO's website, bostonmpo.org/tip.

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

CHAPTER THREE

Highway and Transit Programming

This chapter contains the TIP tables, a listing of all the projects and programs funded with federal highway and transit funding in the Boston region during federal fiscal years (FFYs) 2019–23 (Tables 3-2 to 3-44). These tables are also included as part of the State Transportation Improvement Program (STIP). Section 1A in each annual element of the TIP table (Table 3-2) includes the regionally prioritized projects funded during a given federal fiscal year. The other sections of the table (sections 1B, 2A, 2B, 2C, 3, and 4) list the following:

- Projects funded with earmarks or discretionary grant funds
- State prioritized bridge, 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 MBTA, MetroWest Regional Transit Authority, and Cape Ann Transportation Authority plan to undertake. Tables 3-3 and 3-4 provide additional information related to the MBTA's programs and projects planned in the region.

The Boston Region MPO has the discretion to allocate its share of funds from the Federal-Aid Highway Program—the MPO's Regional Targets—to projects identified as regional priorities as it sees fit. However, the allocation of those funds is constrained by projections of available federal aid. As shown in Table 3-1 below, the MPO has programmed its discretionary funds within the limits of projected funding for highway funding programs. As such, the FFYs 2019–23 TIP Regional Target Program complies with financial constraint requirements.

TABLE 3-1
BOSTON REGION MPO REGIONAL TARGET PROGRAM
MPO DISCRETIONARY FUNDS SOURCED FROM THE FEDERAL-AID HIGHWAY PROGRAM
(INCLUDING STATE MATCHING FUNDS, BUT EXCLUDING EARMARKED FUNDS)

Regional Target Program	FFY 2019	FFY 2020	FFY 2021	FFY 2022	FFY 2023	Total
Regional Target Obligation Authority	**$98,794,261**	**$102,478,656**	**$104,552,877**	**$106,681,829**	**$109,011,849**	**$521,519,472**
Regional Target Programmed	***$97,126,008***	***$102,478,644***	***$104,439,292***	***$106,584,303***	***$104,915,914***	***$515,544,161***
Regional Target Funds Unprogrammed	***$1,668,253***	***$12***	***$113,585***	***$97,526***	***$4,095,935***	***$5,975,311***

The second part of the chapter includes detailed descriptions of projects, including evaluation ratings (for projects funded by the MPO's Regional Target Program), length of roadway to be improved, and funding details. The pages are organized alphabetically by municipality.

2019 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	$ 28,184,400	$ 22,547,520	$ 5,636,880	Construction; STP+CMAQ+Section 5309 (Transit) Total MPO Contribution = $190,000,000; AC Yr 4 of 6; funding flexed to FTA; match provided by local contributions
	Planning / Adjustments / Pass-throughs	1570	Boston Region	Multiple	GREEN LINE EXTENSION PROJECT- EXTENSION TO COLLEGE AVENUE WITH THE UNION SQUARE SPUR	6	STP	$ 28,184,400	$ 22,547,520	$ 5,636,880	Construction; STP+CMAQ+Section 5309 (Transit) Total MPO Contribution = $190,000,000; AC Yr 4 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 REOUT 9 (NEWTON)	6	CMAQ	$ 3,500,000	$ 2,800,000	$ 700,000	Construction; CMAQ+HSIP+TAP+STP Total Cost = $26,883,332; AC Yr 1 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 REOUT 9 (NEWTON)	6	HSIP	$ 2,875,199	$ 2,587,679	$ 287,520	Construction; CMAQ+HSIP+TAP+STP Total Cost = $26,883,332; AC Yr 1 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 REOUT 9 (NEWTON)	6	STP	$ 5,519,974	$ 4,415,979	$ 1,103,995	Construction; CMAQ+HSIP+TAP+STP Total Cost = $26,883,332; AC Yr 1 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 REOUT 9 (NEWTON)	6	TAP	$ 1,546,493	$ 1,237,194	$ 309,299	Construction; CMAQ+HSIP+TAP+STP Total Cost = $26,883,332; AC Yr 1 of 2; MPO Evaluation Score = 75; TAP Proponent = MassDOT
	Roadway Reconstruction	605034	Boston Region	Natick	NATICK- RECONSTRUCTION OF ROUTE 27 (NORTH MAIN STREET), FROM NORTH AVENUE TO THE WAYLAND T.L.	3	CMAQ	$ 2,415,334	$ 1,932,267	$ 483,067	Construction; CMAQ+TAP+STP Total Cost = $12,081,464; MPO Evaluation Score = 60
	Roadway Reconstruction	605034	Boston Region	Natick	NATICK- RECONSTRUCTION OF ROUTE 27 (NORTH MAIN STREET), FROM NORTH AVENUE TO THE WAYLAND T.L.	3	STP	$ 8,347,197	$ 6,677,758	$ 1,669,439	Construction; CMAQ+TAP+STP Total Cost = $12,081,464; MPO Evaluation Score = 60
	Roadway Reconstruction	605034	Boston Region	Natick	NATICK- RECONSTRUCTION OF ROUTE 27 (NORTH MAIN STREET), FROM NORTH AVENUE TO THE WAYLAND T.L.	3	TAP	$ 1,318,933	$ 1,055,146	$ 263,787	Construction; CMAQ+TAP+STP Total Cost = $12,081,464; MPO Evaluation Score = 60; TAP Proponent = MassDOT
	Roadway Reconstruction	607428	Boston Region	Multiple	HOPEDALE- MILFORD- RESURFACING & INTERSECTION IMPROVEMENTS ON ROUTE 16 (MAIN STREET), FROM WATER STREET WEST TO APPROXIMATELY 120 FEET WEST OF THE MILFORD/HOPEDALE T.L AND THE INTERSECTION OF ROUTE 140.	3	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; CMAQ+HSIP Total Cost = $2,967,944; MPO Evaluation Score = 54
	Roadway Reconstruction	607428	Boston Region	Multiple	HOPEDALE- MILFORD- RESURFACING & INTERSECTION IMPROVEMENTS ON ROUTE 16 (MAIN STREET), FROM WATER STREET WEST TO APPROXIMATELY 120 FEET WEST OF THE MILFORD/HOPEDALE T.L AND THE INTERSECTION OF ROUTE 140.	3	HSIP	$ 1,967,944	$ 1,771,150	$ 196,794	Construction; CMAQ+HSIP Total Cost = $2,967,944; MPO Evaluation Score = 54
	Roadway Reconstruction	605789	Boston Region	Boston	BOSTON- RECONSTRUCTION OF MELNEA CASS BOULEVARD	6	STP	$ 7,871,248	$ 6,296,998	$ 1,574,250	Construction; STP+Earmark Total Cost = $25,315,588 ; MPO Evaluation Score = 59

2019 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
	Planning / Adjustments / Pass-throughs	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; HSIP+CMAQ Total Cost = $4,394,886; MPO Evaluation Score = 63
	Planning / Adjustments / Pass-throughs	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; HSIP+CMAQ Total Cost = $4,394,886; MPO Evaluation Score = 63
							Regionally Prioritized Projects subtotal ►	**$ 97,126,008**	$ 78,472,582	$ 18,653,426	◄ 80% Federal + 20% Non-Federal

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 97,126,008**	**$ 98,794,261**	**◄Total Budget**	**$ 1,668,253** **Target Funds Available**
STP programmed ►	$ 49,922,819	$ 17,390,735	**◄ STP**	
HSIP programmed ►	$ 7,717,758	$ 6,945,982	**◄ HSIP**	
CMAQ programmed ►	$ 36,620,005	$ 29,296,004	**◄ CMAQ**	
TAP programmed ►	$ 2,865,426	$ 2,292,341	**◄ 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)** Non-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

	Earmark Discretionary	605789	Boston Region	Boston	BOSTON- RECONSTRUCTION OF MELNEA CASS BOULEVARD	6	HPP	$ 5,007,375	$ 4,005,900	$ 1,001,475	Construction; HPP 4284 (MA203); STP+Earmarks Total Cost = $24,792,845
	Earmark Discretionary	605789	Boston Region	Boston	BOSTON- RECONSTRUCTION OF MELNEA CASS BOULEVARD	6	HPP	$ 2,703,983	$ 2,163,186	$ 540,797	Construction; HPP 756 (MA126); STP+Earmarks Total Cost = $24,792,845
	Earmark Discretionary	605789	Boston Region	Boston	BOSTON- RECONSTRUCTION OF MELNEA CASS BOULEVARD	6	HPP	$ 6,259,219	$ 5,007,375	$ 1,251,844	Construction; (MA154); STP+Earmarks Total Cost = $24,792,845
	Earmark Discretionary	605789	Boston Region	Boston	BOSTON- RECONSTRUCTION OF MELNEA CASS BOULEVARD	6	HPP	$ 3,473,764	$ 2,779,011	$ 694,753	Construction; (MA194); STP+Earmarks Total Cost = $24,792,845
	Earmark Discretionary	607330	Boston Region	Milton	MILTON- DECK RECONSTRUCTION OVER SE EXPRESSWAY (EAST MILTON SQUARE), INCLUDES PARKING & NEW LANDSCAPED AREA	4	HPP	$ 1,502,213	$ 1,201,770	$ 300,443	Construction; (MA125)
	Earmark Discretionary	607330	Boston Region	Milton	MILTON- DECK RECONSTRUCTION OVER SE EXPRESSWAY (EAST MILTON SQUARE), INCLUDES PARKING & NEW LANDSCAPED AREA	4	HPP	$ 1,251,844	$ 1,001,475	$ 250,369	Construction; (MA134)
	Earmark Discretionary	606316	Boston Region	Brookline	BROOKLINE- PEDESTRIAN BRIDGE REHABILITATION, B-27-016, OVER MBTA OFF CARLTON STREET	6	HPP	$ 751,106	$ 600,885	$ 150,221	Demo ID: MA 149 Repurposed earmark, formerly design and construct signal crossing and other safety improvements to Emerald Necklace Greenway Bicycle Trail, Town of
			Boston Region		Other Federal Aid		HPP	$ -	$ -	$ -	
							Other Federal Aid subtotal ►	**$ 20,949,502**	$ 16,759,602	$ 4,189,900	◄ 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

2019 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 / Off-System											
	Bridge Program	608079	Boston Region	SHARON	SHARON- BRIDGE REPLACEMENT, S-09-003 (40N), MASKWONICUT STREET OVER AMTRAK/MBTA	5	STP-BR-OFF	$ 2,683,087	$ 2,146,469	$ 536,617	
	Bridge Program	608255	Boston Region	STOW	STOW- BRIDGE REPLACEMENT, S-29-011, BOX MILL ROAD OVER ELIZABETH BROOK	3	STP-BR-OFF	$ 3,612,223	$ 2,889,779	$ 722,445	
							Bridge Program / Off-System subtotal ►	**$ 6,295,310**	$ 5,036,248	$ 1,259,062	◄ 80% Federal + 20% Non-Federal
►Bridge Program / On-System (NHS)											
AMENDMENT:Move Project - (FROM 2018)	Bridge Program	604952	Boston Region	LYNN	LYNN- SAUGUS- BRIDGE REPLACEMENT, L-18-016=S-05-008, ROUTE 107 OVER THE SAUGUS RIVER (AKA - BELDEN G. BLY BRIDGE)	4	NHPP-On	$ 14,894,228	$ 11,915,382	$ 2,978,846	AC Year 1 of 5, Total Cost $74,471,140
	Bridge Program	604173	Boston Region	BOSTON	BOSTON- BRIDGE REPLACEMENT, B-16-016, NORTH WASHINGTON STREET OVER THE BOSTON INNER HARBOR	6	NHPP-On	$ 25,184,931	$ 20,147,945	$ 5,036,986	AC Year 3 of 6, Total Project Cost = $193,058,158.
	Bridge Program	605287	Boston Region	CHELSEA	CHELSEA- ROUTE 1 VIADUCT REHABILITATION (SB/NB) ON C-09-007 & C-09-011	6	NHPP-On	$ 71,677,130	$ 57,341,704	$ 14,335,426	AC Year 2 of 4, Total Cost $213,972,689
							Bridge Program / On-System (NHS) subtotal ►	**$ 111,756,289**	$ 89,405,031	$ 22,351,258	◄ 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	608234	Boston Region	RANDOLPH	RANDOLPH- BRIDGE PRESERVATION OF 2 BRIDGES: R-01-005 & R-01-007	6	NHPP-On	$ 4,984,738	$ 3,987,791	$ 996,948	
							Bridge Program / Systematic Maintenance subtotal ►	**$ 4,984,738**	$ 3,987,791	$ 996,948	◄ Funding Split Varies by Funding Source
►Interstate Pavement											
	Interstate Pavement	608219	Boston Region	Multiple	READING- WAKEFIELD- RESURFACING AND RLATED WORK ON I-95	4	NHPP	$ 4,123,392	$ 3,711,053	$ 412,339	
							Insterstate Pavement subtotal ►	**$ 4,123,392**	$ 3,711,053	$ 412,339	◄ 90% Federal + 10% Non-Federal
►Non-Interstate Pavement											
	Non-Interstate Pavement	608468	Boston Region	Multiple	PEABODY- DANVERS- RESURFACING AND RELATED WORK ON ROUTE 1	4	NHPP	$ 11,628,900	$ 9,303,120	$ 2,325,780	
	Non-Interstate Pavement	608493	Boston Region	Topsfield	TOPSFIELD- RESURFACING AND RELATED WORK ON ROUTE 1	4	NHPP	$ 9,086,000	$ 7,268,800	$ 1,817,200	
	Non-Interstate Pavement	608467	Boston Region	Marlborough	MARLBOROUGH- RESURFACING AND RELATED WORK ON ROUTE 20	3	NHPP	$ 14,358,240	$ 12,922,416	$ 1,435,824	
	Non-Interstate Pavement	608587	Boston Region	Dedham	DEDHAM- RESURFACING AND RELATED WORK ON ROUTE 109	6	NHPP	$ 5,525,503	$ 4,420,402	$ 1,105,101	
							Non-Interstate Pavement subtotal ►	**$ 40,598,643**	$ 33,914,738	$ 6,683,905	◄ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
							Roadway Improvements subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal

2019 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											
	Safety Improvements	608206	Boston Region	Multiple	CHELSEA TO DANVERS- GUIDE AND TRAFFIC SIGN REPLACEMENT ON A SECTION OF US ROUTE 1	4	NHPP	$ 7,195,084	$ 6,475,576	$ 719,508	
	Safety Improvements	608205	Boston Region	Multiple	READING TO LYNNFIELD- GUIDE AND TRAFFIC SIGN REPLACEMENT ON A SECTION OF I-95 (SR 128)	4	NHPP	$ 4,513,288	$ 4,061,959	$ 451,329	
	Safety Improvements	608608	Boston Region	Braintree	BRAINTREE- HIGHWAY LIGHTING IMPROVEMENTS AT I-93/ROUTE 3 INTERCHANGE	6	NHPP	$ 7,008,503	$ 6,307,653	$ 700,850	
							Safety Improvements subtotal ►	**$ 18,716,875**	$ 16,845,188	$ 1,871,688	◄ Funding Split Varies by Funding Source
►Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits		Boston Region		ADA Retrofits			$ -	$ -	$ -	
	ADA Retrofits		Boston Region		ADA Retrofits			$ -	$ -	$ -	
							ADA Retrofits subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Intersection Improvements											
	Intersection Improvements	608755	Boston Region	Boston	BOSTON- INTERSECTION IMPROVEMENTS AT MORTON STREET AND HARVARD STREET	6	HSIP	$ 1,500,000	$ 1,350,000	$ 150,000	
	Intersection Improvements	607249	Boston Region	Sudbury	SUDBURY- INTERSECTION IMPROVEMENTS @ ROUTE 20 & LANDHAM ROAD	3	HSIP	$ 2,152,521	$ 1,937,269	$ 215,252	
							Intersection Improvements subtotal ►	**$ 3,652,521**	$ 3,287,269	$ 365,252	◄ Funding Split Varies by Funding Source
►Intelligent Transportation Systems											
	Intelligent Transportation Systems		Boston Region		Intelligent Transportation Systems			$ -	$ -	$ -	
	Intelligent Transportation Systems		Boston Region		Intelligent Transportation Systems			$ -	$ -	$ -	
	Intelligent Transportation Systems		Boston Region		Intelligent Transportation Systems			$ -	$ -	$ -	
							Intelligent Transportation System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Roadway Reconstruction											
	Roadway Reconstruction		Boston Region		Roadway Reconstruction			$ -	$ -	$ -	
	Roadway Reconstruction		Boston Region		Roadway Reconstruction			$ -	$ -	$ -	
	Roadway Reconstruction		Boston Region		Roadway Reconstruction			$ -	$ -	$ -	
	Roadway Reconstruction		Boston Region		Roadway Reconstruction			$ -	$ -	$ -	
							Roadway Reconstruction subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

2019 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 2C / State Prioritized Expansion Projects											
►Bicycles and Pedestrians											
	Bicycles and Pedestrians	606223	Boston Region	Multiple	ACTON- CONCORD- BRUCE FREEMAN RAIL TRAIL CONSTRUCTION, INCLUDES REPLACING BRIDGE C-19-037, RAIL TRAIL OVER NASHOBA BROOK, NEW BRIDGE C-19-039, RAIL TRAIL OVER ROUTE 2 & NEW CULVERT C-19-040, ROUTE 2 OVER WILDLIFE CROSSING (PHASE II-B)	4	CMAQ	$ 9,196,638	$ 7,357,311	$ 1,839,328	Construction / PSAC score 31.5
	Bicycles and Pedestrians	606316	Boston Region	Multiple	BROOKLINE- PEDESTRIAN BRIDGE REHABILITATION, B-27-016, OVER MBTA OFF CARLTON STREET	6	CMAQ	$ 2,939,404	$ 2,351,523	$ 587,881	Construction / Total Project Cost $ $3,690,510 w/ additional funding from earmark at $751,106
	Bicycles and Pedestrians		Boston Region		Bicycles and Pedestrians			$ -	$ -	$ -	
							Bicycles and Pedestrians subtotal ►	**$ 12,136,042**	$ 9,708,834	$ 2,427,208	◄ 80% Federal + 20% Non-Federal
►Capacity											
	Capacity		Boston Region		Capacity			$ -	$ -	$ -	
	Capacity		Boston Region		Capacity			$ -	$ -	$ -	
							Capacity subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 3 / Planning / Adjustments / Pass-throughs											
►Planning / Adjustments / Pass-throughs											
	Earmark Discretionary	BN0008	Boston Region	Newburyport	Parker River National Wildlife Refuge - Replace Hellcat Trail Boardwalk	4	Other FA	$ 1,200,000	$ 960,000	$ 240,000	
			Boston Region		ABP GANS Repayment	Multiple		$ -	$ -	$ -	
			Boston Region		ABP GANS Repayment	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program I, (SPR I), Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program II, (SPR II), Research	Multiple		$ -	$ -	$ -	
			Boston Region		Railroad Crossings	Multiple		$ -	$ -	$ -	
			Boston Region		Railroad Crossings	Multiple		$ -	$ -	$ -	
			Boston Region		Recreational Trails	Multiple		$ -	$ -	$ -	
							Other Statewide Items subtotal ►	**$ 1,200,000**	$ 960,000	$ 240,000	◄ 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-Federally Aided Projects		Boston Region		Non-Federal Aid			$ -		$ -	
							Non-Federal Aid subtotal►	**$ -**		$ -	◄100% Non-Federal

2019 Summary

	TIP Section 1 - 3: ▼	TIP Section 4: ▼	Total of All Projects ▼	
Total ►	$ 321,539,321	$ -	$ 321,539,321	◄ Total Spending in Region
Federal Funds ►	$ 262,088,335		$ 262,088,335	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 59,450,986	$ -	$ 59,450,986	◄ 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 (FY2019)

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	RTD0006599	Cape Ann Transportation Authority	117A00	PREVENTIVE MAINTENANCE		$285,000	$0	$0	$71,250	$356,250
5307	RTD0006600	Cape Ann Transportation Authority	114206	ACQUIRE - SHOP EQ/COMPUTER/SFTWR		$55,000	$13,750	$0	$0	$68,750
5307	RTD0007086	MetroWest Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV		$1,300,000	$325,000	$0	$0	$1,625,000
5307	RTD0007087	MetroWest Regional Transit Authority	114200	ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES		$248,415	$62,104	$0	$0	$310,519
5307	RTD0007088	MetroWest Regional Transit Authority	440000	Mobility Management		$25,000	$6,250	$0	$0	$31,250
5307	RTD0003639	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT) - BLANDIN - Front Entrance		$150,000	$37,500	$0	$0	$187,500
5307	RTD0007057	Massachusetts Bay Transportation Authority (MBTA)	121200	Revenue Vehicle Program - 5307		$57,969,489	$0	$0	$14,492,372	$72,461,861
5307	RTD0007058	Massachusetts Bay Transportation Authority (MBTA)	123400	Stations and Facilities Program - 5307		$18,827,713	$0	$0	$4,706,928	$23,534,641
5307	RTD0007366	Massachusetts Bay Transportation Authority (MBTA)	123402	Elevator and Escalator Program - 5307		$2,644,350	$0	$0	$661,087	$3,305,437
5307	RTD0007367	Massachusetts Bay Transportation Authority (MBTA)	126301	Signals/Systems Upgrade Program - 5307		$64,280,000	$0	$0	$16,070,000	$80,350,000
					Subtotal	$145,784,967	$444,604	$0	$36,001,637	$182,231,208
5309										
5309	RTD0007082	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	RTD0007059	Massachusetts Bay Transportation Authority (MBTA)	123400	Stations and Facilities Program - 5337		$8,571,579	$0	$0	$2,142,895	$10,714,474
5337	RTD0007060	Massachusetts Bay Transportation Authority (MBTA)	124400	Signal/Systems Upgrades Program - 5337		$36,966,421	$0	$0	$9,241,605	$46,208,026
5337	RTD0007368	Massachusetts Bay Transportation Authority (MBTA)	122405	Bridge and Tunnel Program - 5337		$97,885,318	$0	$0	$24,471,329	$122,356,647
					Subtotal	$143,423,318	$0	$0	$35,855,829	$179,279,147
5339										
5339	RTD0007061	Massachusetts Bay Transportation Authority (MBTA)	111400	Bus Program - 5339		$5,562,970	$0	$0	$1,390,743	$6,953,713
					Subtotal	$5,562,970	$0	$0	$1,390,743	$6,953,713
5320										
					Subtotal	$0	$0	$0	$0	$0
Other Federal										
					Subtotal	$0	$0	$0	$0	$0
Other Non-Federal										
Other Non-Federal	RTD0007348	Cape Ann Transportation Authority	111202	BUY REPLACEMENT 35-FT BUS (2)		$0	$900,000	$0	$0	$900,000
Other Non-Federal	RTD0007151	MetroWest Regional Transit Authority	111215	BUY REPLACEMENT- CAPITOL BUS		$0	$120,000	$0	$0	$120,000
					Subtotal	$0	$1,020,000	$0	$0	$1,020,000
					Total	$444,771,255	$1,464,604	$0	$223,248,209	$669,484,068

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

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	$ 20,031,200	$ 16,024,960	$ 4,006,240	Construction; STP+CMAQ+Section 5309 (Transit) Total MPO Contribution = $190,000,000; 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 REOUT 9 (NEWTON)	6	HSIP	$ 3,044,110	$ 2,739,699	$ 304,411	Construction; CMAQ+HSIP+TAP+STP Total Cost = $26,883,332; AC Yr 1 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 REOUT 9 (NEWTON)	6	STP	$ 10,397,556	$ 8,318,045	$ 2,079,511	Construction; CMAQ+HSIP+TAP+STP Total Cost = $26,883,332; AC Yr 1 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+STP Total Cost = $8,264,619
	Roadway Reconstruction	606043	Boston Region	Hopkinton	HOPKINTON- SIGNAL & INTERSECTION IMPROVEMENTS ON ROUTE 135	3	STP	$ 5,899,194	$ 4,719,355	$ 1,179,839	Construction; CMAQ+STP Total Cost = $8,264,619
	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	Cosntruction; CMAQ+STP+HSIP+TAP Total Cost = $16,764,338; 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	Cosntruction; CMAQ+STP+HSIP+TAP Total Cost = $16,764,338; 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	STP	$ 13,105,360	$ 10,484,288	$ 2,621,072	Cosntruction; CMAQ+STP+HSIP+TAP Total Cost = $16,764,338; 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	Cosntruction; CMAQ+STP+HSIP+TAP Total Cost = $16,764,338; MPO Evaluation Score = 73; TAP Proponent = Everett
	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+STP Total Cost = $4,579,576; 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	STP	$ 3,579,576	$ 2,863,661	$ 715,915	Construction; CMAQ+STP Total Cost = $4,579,576; MPO Evaluation Score = 38
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	STP	$ 7,000,000	$ 5,600,000	$ 1,400,000	Construction; NHPP+STP+TAP Total Cost = $152,000,000; AC Yr 1 of 5; Total funding in this TIP = $116,626,515; MPO Evaluation Score = 59

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	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; STP+CMAQ+TAP Total Cost = $14,094,251; 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	STP	$ 10,987,770	$ 8,790,216	$ 2,197,554	Construction; STP+CMAQ+TAP Total Cost = $14,094,251; 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; STP+CMAQ+TAP Total Cost = $14,094,251; MPO Evaluation Score = 54; TAP Proponent = MassDOT
	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; STP+CMAQ+TAP Total Cost = $16,749,233; 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	STP	$ 13,890,796	$ 11,112,637	$ 2,778,159	Construction; STP+CMAQ+TAP Total Cost = $16,749,233; 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	TAP	$ 1,858,437	$ 1,486,750	$ 371,687	Construction; STP+CMAQ+TAP Total Cost = $16,749,233; MPO Evaluation Score = 51; TAP Proponent = MassDOT
	Roadway Reconstruction	608275	Boston Region	Malden	MALDEN - EXHANGE STREET DOWNTOWN IMPROVEMENT PROJECT	4	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; CMAQ+STP Total Cost = $1,553,760; MPO Evaluation Score = 59
	Roadway Reconstruction	608275	Boston Region	Malden	MALDEN - EXHANGE STREET DOWNTOWN IMPROVEMENT PROJECT	4	STP	$ 553,760	$ 443,008	$ 110,752	Construction; CMAQ+STP Total Cost = $1,553,760; MPO Evaluation Score = 59
							Regionally Prioritized Projects subtotal ►	**$ 102,478,643**	$ 82,392,355	$ 20,086,288	◄ 80% Federal + 20% Non-Federal

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 102,478,643**	**$ 102,478,656**	**◄Total Budget**
STP programmed ►	$ 65,414,012	$ 52,331,210	**◄ STP**
HSIP programmed ►	$ 4,094,406	$ 3,684,965	**◄ HSIP**
CMAQ programmed ►	$ 28,280,895	$ 22,624,716	**◄ CMAQ**
TAP programmed ►	$ 4,689,330	$ 3,751,464	**◄ TAP**

$ 13 Target Funds Available

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.

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 1B / Earmark or Discretionary Grant Funded Projects											
►Other Federal Aid											
			Boston Region		Other Federal Aid		HPP	$ -	$ -	$ -	
			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		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
							Bridge Program / Off-System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Bridge Program / On-System (NHS)											
	Bridge Program	605342	Boston Region	STOW	STOW- BRIDGE REPLACEMENT, S-29-001, (ST 62) GLEASONDALE ROAD OVER THE ASSABET RIVER	3	NHPP-On	$ 6,706,556	$ 5,365,245	$ 1,341,311	
	Bridge Program	604173	Boston Region	BOSTON	BOSTON- BRIDGE REPLACEMENT, B-16-016, NORTH WASHINGTON STREET OVER THE BOSTON INNER HARBOR	6	NHPP-On	$ 24,184,931	$ 19,347,945	$ 4,836,986	AC Year 4 of 6, Total Project Cost = $193,058,158.
	Bridge Program	605287	Boston Region	CHELSEA	CHELSEA- ROUTE 1 VIADUCT REHABILITATION (SB/NB) ON C-09-007 & C-09-011	6	NHPP-On	$ 40,952,933	$ 32,762,346	$ 8,190,587	AC Year 3 of 4, Total Cost $213,972,689
	Bridge Program	604952	Boston Region	LYNN	LYNN- SAUGUS- BRIDGE REPLACEMENT, L-18-016=S-05-008, ROUTE 107 OVER THE SAUGUS RIVER (AKA - BELDEN G. BLY BRIDGE)	4	NHPP-On	$ 14,894,228	$ 11,915,382	$ 2,978,846	AC Year 2 of 5, Total Cost $74,471,140
							Bridge Program / On-System (NHS) subtotal ►	**$ 86,738,648**	$ 69,390,919	$ 17,347,730	◄ Funding Split Varies by Funding Source
►Bridge Program / On-System (Non-NHS)											
	Bridge Program		Boston Region				NHPP-Off		$ -	$ -	
							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	608208	Boston Region	Multiple	QUINCY- MILTON- BOSTON INTERSTATE MAINTENANCE AND RELATED WORK ON I-93	6	NHPP	$ 24,264,576	$ 21,838,118	$ 2,426,458	
							Insterstate Pavement subtotal ►	**$ 24,264,576**	$ 21,838,118	$ 2,426,458	◄ 90% Federal + 10% Non-Federal

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
►Non-Interstate Pavement											
	Non-Interstate Pavement	609101	Boston Region	Peabody	PEABODY- PAVEMENT PRESERVATION AND RELATED WORK ON ROUTE 128	4	NHPP	$ 4,712,448	$ 3,769,958	$ 942,490	
	Non-Interstate Pavement	608480	Boston Region	Multiple	FOXBOROUGH- WALPOLE- RESURFACING AND RELATED WORK ON US ROUTE 1	5	NHPP	$ 8,036,933	$ 6,429,546	$ 1,607,387	
	Non-Interstate Pavement	608482	Boston Region	Multiple	CAMBRIDGE- SOMERVILLE- RESURFACING AND RELATED WORK ON ROUTE 28	6	NHPP	$ 8,541,312	$ 6,833,050	$ 1,708,262	
	Non-Interstate Pavement	608484	Boston Region	Multiple	CANTON- MILTON- RESURFACING AND RELATED WORK ON ROUTE 138	6	NHPP	$ 17,941,664	$ 14,353,331	$ 3,588,333	
							Non-Interstate Pavement subtotal ►	**$ 39,232,357**	$ 31,385,886	$ 7,846,471	◄ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
							Roadway Improvements subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements	608608	Boston Region	Braintree	BRAINTREE- HIGHWAY LIGHTING IMPROVEMENTS AT I-93/ROUTE 3 INTERCHANGE	6	NHPP	$ 2,688,726	$ 2,419,853	$ 268,873	
	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	$ 9,434,070	$ 8,490,663	$ 943,407	
	Safety Improvements		Boston Region				NHPP				
							Safety Improvements subtotal ►	**$ 12,122,796**	$ 10,910,516	$ 1,212,280	◄ Funding Split Varies by Funding Source
►Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits		Boston Region		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 IMPROVEMENT ON I-93 AT MYSTIC AVENUE AND MCGRATH HIGHWAY (TOP 200 CRASH LOCATION)	4	HSIP	$ 5,000,000	$ 4,500,000	$ 500,000	
	Intersection Improvements	607342	Boston Region	Milton	MILTON- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 28 (RANDOLPH AVENUE) & CHICKATAWBUT ROAD	6	HSIP	$ 1,531,200	$ 1,378,080	$ 153,120	
	Intersection Improvements	607759	Boston Region	Boston	BOSTON- INTERSECTION & SIGNAL IMPROVEMENTS AT THE VFW PARKWAY & SPRING STREET	6	HSIP	$ 974,815	$ 877,334	$ 97,482	
	Intersection Improvements		Boston Region				HSIP				
	Intersection Improvements		Boston Region				HSIP				
							Intersection Improvements subtotal ►	**$ 7,506,015**	$ 6,755,414	$ 750,602	◄ Funding Split Varies by Funding Source

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
►Intelligent Transportation Systems											
	Intelligent Transportation Systems		Boston Region		Intelligent Transportation Systems			$ -	$ -	$ -	
	Intelligent Transportation Systems		Boston Region		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	$ 1,200,000	$ 960,000	$ 240,000	
	Roadway Reconstruction	608743	Boston Region	Salem	SALEM- IMPROVEMENTS AT BATES ELEMENTARY SCHOOL (SRTS)	4	TAP	$ 937,500	$ 750,000	$ 187,500	
	Roadway Reconstruction	608791	Boston Region	Winchester	WINCHESTER- IMPROVEMENTS AT VINSON-OWEN ELEMENTARY SCHOOL (SRTS)	4	TAP	$ 1,666,200	$ 1,332,960	$ 333,240	
							Roadway Reconstruction subtotal ►	**$ 3,803,700**	$ 3,042,960	$ 760,740	◄ Funding Split Varies by Funding Source
►Section 2C / State Prioritized Expansion Projects											
►Bicycles and Pedestrians											
	Bicycles and Pedestrians	607888	Boston Region	Multiple	BOSTON- BROOKLINE- MULTI-USE PATH CONSTRUCTION ON NEW FENWAY	6	CMAQ	$ 1,770,722	$ 1,416,578	$ 354,144	Construction / PSAC score 41
							Bicycles and Pedestrians subtotal ►	**$ 1,770,722**	$ 1,416,578	$ 354,144	◄ 80% Federal + 20% Non-Federal
►Capacity											
	Capacity		Boston Region		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		ABP GANS Repayment	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program I, (SPR I), Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program II, (SPR II), Research	Multiple		$ -	$ -	$ -	
			Boston Region		Railroad Crossings	Multiple		$ -	$ -	$ -	
			Boston Region		Railroad Crossings	Multiple		$ -	$ -	$ -	
			Boston Region		Recreational Trails	Multiple		$ -	$ -	$ -	
							Other Statewide Items subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

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 4 / Non-Federally Aided Projects											
►Non-Federally Aided Projects											
	Non Federal Aid		Boston Region		Non-Federal Aid			$ -		$ -	
	Non-Federally Aided Projects		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 ►	$ 277,917,458	$ -	$ 277,917,458	◄ Total Spending in Region
Federal Funds ►	$ 227,132,745		$ 227,132,745	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 50,784,712	$ -	$ 50,784,712	◄ 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	RTD0006602	Cape Ann Transportation Authority	117A00		PREVENTIVE MAINTENANCE	2019 - $285,000	$285,000	$0	$0	$71,250	$356,250
5307	RTD0006603	Cape Ann Transportation Authority		114206	ACQUIRE - SHOP EQ/COMP/SFTWR	2019 - $55,000	$55,000	$13,750	$0	$0	$68,750
5307	RTD0007089	MetroWest Regional Transit Authority		114200	ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES	2019 - $248,415	$248,415	$62,104	$0	$0	$310,519
5307	RTD0007090	MetroWest Regional Transit Authority		440000	Mobility Management	2019 - $25,000	$25,000	$6,250	$0	$0	$31,250
5307	RTD0007091	MetroWest Regional Transit Authority	117C00		NON FIXED ROUTE ADA PARA SERV	2019 - $1,300,000	$1,300,000	$325,000	$0	$0	$1,625,000
5307	RTD0007092	MetroWest Regional Transit Authority		113403	TERMINAL, INTERMODAL (TRANSIT) -	2019 - $150,000	$150,000	$37,500	$0	$0	$187,500
5307	RTD0007062	Massachusetts Bay Transportation Authority (MBTA)		121200	Revenue Vehicle Program - 5307		$146,121,933	$0	$0	$36,530,483	$182,652,416
						Subtotal	$148,185,348	$444,604	$0	$36,601,733	$185,231,685
5309											
5309	RTD0007083	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	RTD0007066	Massachusetts Bay Transportation Authority (MBTA)		123402	Elevator and Escalator Program - 5337		$27,740,714	$0	$0	$6,935,178	$34,675,892
5337	RTD0007067	Massachusetts Bay Transportation Authority (MBTA)		123400	Stations and Facilities Program - 5337		$58,152,291	$0	$0	$14,538,073	$72,690,364
5337	RTD0007068	Massachusetts Bay Transportation Authority (MBTA)		124400	Signals/Systems Upgrade Program - 5337		$60,000,000	$0	$0	$15,000,000	$75,000,000
						Subtotal	$145,893,005	$0	$0	$36,473,251	$182,366,256
5339											
5339	RTD0007069	Massachusetts Bay Transportation Authority (MBTA)		111400	Bus Program - 5339		$5,683,653	$0	$0	$1,420,913	$7,104,566
						Subtotal	$5,683,653	$0	$0	$1,420,913	$7,104,566
5320											
						Subtotal	$0	$0	$0	$0	$0
Other Federal											
						Subtotal	$0	$0	$0	$0	$0
Other Non-Federal											
						Subtotal	$0	$0	$0	$0	$0
						Total	$449,762,006	$444,604	$0	$224,495,897	$674,702,507

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	$ 29,100,000	$ 23,280,000	$ 5,820,000	Construction; STP+CMAQ+Section 5309 (Transit) Total MPO Contribution = $190,000,000; AC Yr 6 of 6; funding flexed to FTA; match provided by local contributions
	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+STP Total Cost = $8,542,892; 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	STP	$ 812,432	$ 649,946	$ 162,486	Construction; CMAQ+TAP+STP Total Cost = $8,542,892; 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	$ 6,730,460	$ 5,384,368	$ 1,346,092	Construction; CMAQ+TAP+STP Total Cost = $8,542,892; MPO Evaluation Score = 58; TAP Proponent = Boston
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	NHPP	$ 11,207,439	$ 8,965,951	$ 2,241,488	Construction; NHPP+STP+TAP Total Cost = $152,000,000; AC Yr 2 of 5; Total funding in this TIP = $116,626,515; TAP Proponent = Boston; MPO Evaluation Score = 59
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	STP	$ 1,922,546	$ 1,538,037	$ 384,509	Construction; NHPP+STP+TAP Total Cost = $152,000,000; AC Yr 2 of 5; Total funding in this TIP = $116,626,515; TAP Proponent = Boston; MPO Evaluation Score = 59
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	TAP	$ 14,050,761	$ 11,240,609	$ 2,810,152	Construction; NHPP+STP+TAP Total Cost = $152,000,000; AC Yr 2 of 5; Total funding in this TIP = $116,626,515; TAP Proponent = Boston; MPO Evaluation Score = 59; TAP Proponent = Boston
	Bridge Program	604996	Boston Region	Woburn	WOBURN- BRIDGE REPLACEMENT, W-43-017, NEW BOSTON STREET OVER MBTA	4	STP	$ 16,418,347	$ 13,134,678	$ 3,283,669	Construction; Total Cost = $16,418,347; 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; STP+HSIP+TAP Total Cost = $9,124,364; MPO Evaluation Score = 58
	Roadway Reconstruction	608228	Boston Region	Framingham	FRAMINGHAM- RECONSTRUCTION OF UNION AVENUE, FROM PROCTOR STREET TO MAIN STREET	3	STP	$ 1,006,391	$ 805,113	$ 201,278	Construction; STP+HSIP+TAP Total Cost = $9,124,364; MPO Evaluation Score = 58
	Roadway Reconstruction	608228	Boston Region	Framingham	FRAMINGHAM- RECONSTRUCTION OF UNION AVENUE, FROM PROCTOR STREET TO MAIN STREET	3	TAP	$ 7,117,973	$ 5,694,378	$ 1,423,595	Construction; STP+HSIP+TAP Total Cost = $9,124,364; MPO Evaluation Score = 58; TAP Proponent = Framingham

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	606501	Boston Region	Holbrook	HOLBROOK- RECONSTRUCTION OF UNION STREET (ROUTE 139), FROM LINFIELD STREET TO CENTRE STREET/WATER STREET	5	STP	$ 468,830	$ 375,064	$ 93,766	Construction; TAP+STP+Earmark Total Cost = $757,918; 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+STP+Earmark Total Cost = $757,918; MPO Evaluation Score = 45; TAP Proponent = Holbrook
	Roadway Reconstruction	601607	Boston Region	Hull	HULL- RECONSTRUCTION OF ATLANTIC AVENUE AND RELATED WORK FROM NANTASKET AVENUE TO COHASSET TOWN LINE	5	STP	$ 6,651,674	$ 5,321,339	$ 1,330,335	Construction; Total Cost = $6,651,674; MPO Evaluation Score = 44
	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+STP Total Cost = $3,936,781; MPO Evaluation Score = 53
	Intersection Improvements	606130	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1A & UPLAND ROAD/WASHINGTON STREET & PROSPECT STREET/FULTON STREET	5	STP	$ 2,936,781	$ 2,349,425	$ 587,356	Construction; CMAQ+STP Total Cost = $3,936,781; MPO Evaluation Score = 53
	Roadway Reconstruction	608146	Boston Region	Marblehead	MARBLEHEAD- INTERSECTION IMPROVEMENTS AT PLEASANT STREET & VILLAGE, VINE AND CROSS STREETS	4	STP	$ 726,570	$ 581,256	$ 145,314	Construction; STP Total Cost = $726,570; MPO Evaluation Score = 40
	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 ►	**$ 104,439,292**	$ 83,651,434	$ 20,787,858	◄ 80% Federal + 20% Non-Federal

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 104,439,292**	**$ 104,552,877**	**◄Total Budget**	**$ 113,585 Target Funds Available**
STP programmed ►	$ 42,151,010	$ 33,720,808	**◄ STP**	
HSIP programmed ►	$ 1,000,000	$ 900,000	**◄ HSIP**	
CMAQ programmed ►	$ 33,100,000	$ 26,480,000	**◄ CMAQ**	
TAP programmed ►	$ 28,188,282	$ 22,550,626	**◄ 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.

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 1B / Earmark or Discretionary Grant Funded Projects											
►Other Federal Aid											
	Earmark Discretionary	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	HPP	$ 126,970	$ 101,576	$ 25,394	Demo ID MA183
	Earmark Discretionary	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	HPP	$ 8,451,960	$ 6,761,568	$ 1,690,392	Demo ID MA210
	Earmark Discretionary	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
			Boston Region		Other Federal Aid		HPP	$ -	$ -	$ -	
			Boston Region		Other Federal Aid		HPP	$ -	$ -	$ -	
							Other Federal Aid subtotal ►	**$ 10,106,180**	$ 8,084,944	$ 2,021,236	◄ Funding Split Varies by Funding
►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	608637	Boston Region	MAYNARD	MAYNARD- BRIDGE REPLACMENT, M-10-006, CARRYING FLORIDA ROAD OVER THE ASSABET RIVER	3	STP-BR-OFF	$ 1,646,400	$ 1,317,120	$ 329,280	
							Bridge Program / Off-System subtotal ►	**$ 6,295,310**	$ 5,036,248	$ 1,259,062	◄ 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	$ 24,184,931	$ 19,347,945	$ 4,836,986	AC Year 5 of 6, Total Cost $193,058,158
	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	LYNN	LYNN- SAUGUS- BRIDGE REPLACEMENT, L-18-016=S-05-008, ROUTE 107 OVER THE SAUGUS RIVER (AKA - BELDEN G. BLY BRIDGE)	4	NHPP-On	$ 17,028,354	$ 13,622,683	$ 3,405,671	AC Year 3 of 5, Total Cost $74,471,140
							Bridge Program / On-System (NHS) subtotal ►	**$ 71,206,275**	$ 56,965,020	$ 14,241,255	◄ 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				NHPP-Off		$ -	$ -	
							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 / Systematic Maintenance subtotal ►	**$ 2,304,000**	$ 1,843,200	$ 460,800	◄ Funding Split Varies by Funding Source

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
►Interstate Pavement											
	Interstate Pavement	608378	Boston Region	Multiple	DANVERS- TOPSFIELD- BOXFORD- ROWLEY- INTERSTATE MAINTENANCE AND RELATED WORK ON I-95	4	NHPP	$ 582,400	$ 524,160	$ 58,240	
							Insterstate Pavement subtotal ►	**$ 582,400**	$ 524,160	$ 58,240	◄ 90% Federal + 10% Non-Federal
►Non-Interstate Pavement											
	Non-Interstate Pavement	607477	Boston Region	Multiple	LYNNFIELD- PEABODY- RESURFACING AND RELATED WORK ON ROUTE 1	4	NHPP	$ 7,424,560	$ 5,939,648	$ 1,484,912	
							Non-Interstate Pavement subtotal ►	**$ 7,424,560**	$ 5,939,648	$ 1,484,912	◄ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
							Roadway Improvements subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements	609090	Boston Region	Multiple	BOSTON-MILTON-QUINCY- HIGHWAY LIGHTING SYSTEM REPLACEMENT ON I-93, FROM NEPONSET AVENUE TO THE BRAINTREE	6	NHPP	$ 3,000,000	$ 2,700,000	$ 300,000	
	Safety Improvements		Boston Region	Multiple			NHPP		$ -	$ -	
							Safety Improvements subtotal ►	**$ 3,000,000**	$ 2,700,000	$ 300,000	◄ Funding Split Varies by Funding
►Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits		Boston Region		ADA Retrofits			$ -	$ -	$ -	
	ADA Retrofits		Boston Region		ADA Retrofits			$ -	$ -	$ -	
							ADA Retrofits subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Intersection Improvements											
	Intersection Improvements	607761	Boston Region	Swampscott	SWAMPSCOTT- INTERSECTION & SIGNAL IMPROVEMENTS AT SR 1A (PARADISE ROAD) AT SWAMPSCOTT MALL	4	HSIP	$ 2,000,000	$ 1,800,000	$ 200,000	
	Intersection Improvements	607748	Boston Region	Acton	ACTON- INTERSECTION & SIGNAL IMPROVEMENTS ON SR 2 & SR 111 (MASSACHUSETTS AVENUE) AT PIPER ROAD & TAYLOR ROAD	3	HSIP	$ 5,000,000	$ 4,500,000	$ 500,000	
	Intersection Improvements		Boston Region		Intersection Improvements			$ -	$ -	$ -	
	Intersection Improvements		Boston Region		Intersection Improvements			$ -	$ -	$ -	
							Intersection Improvements subtotal ►	**$ 7,000,000**	$ 6,300,000	$ 700,000	◄ Funding Split Varies by Funding

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
►Intelligent Transportation Systems											
	Intelligent Transportation Systems		Boston Region		Intelligent Transportation Systems			$ -	$ -	$ -	
	Intelligent Transportation Systems		Boston Region		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	$ 1,243,750	$ 995,000	$ 248,750	
	Roadway Reconstruction	607901	Boston Region	Dedham	DEDHAM- PEDESTRIAN IMPROVEMENTS ALONG ELM STREET & RUSTCRAFT ROAD CORRIDORS	6	CMAQ	$ 3,230,597	$ 2,584,478	$ 646,119	
							Roadway Reconstruction subtotal ►	**$ 4,474,347**	$ 3,579,478	$ 894,869	◄ Funding Split Varies by Funding
►Section 2C / State Prioritized Expansion Projects											
►Bicycles and Pedestrians											
	Bicycles and Pedestrians	607329	Boston Region	Multiple	WAKEFIELD- LYNNFIELD- RAIL TRAIL EXTENSION, FROM THE GALVIN MIDDLE SCHOOL TO LYNNFIELD/PEABODY T.L.	4	CMAQ	$ 10,316,559	$ 8,253,247	$ 2,063,312	Construction / PSAC score 32.5
							Bicycles and Pedestrians subtotal ►	**$ 10,316,559**	$ 8,253,247	$ 2,063,312	◄ 80% Federal + 20% Non-Federal
►Capacity											
	Capacity		Boston Region		Capacity			$ -	$ -	$ -	
	Capacity		Boston Region		Capacity			$ -	$ -	$ -	
							Capacity subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding
►Section 3 / Planning / Adjustments / Pass-throughs											
►Planning / Adjustments / Pass-throughs											
			Boston Region		ABP GANS Repayment	Multiple		$ -	$ -	$ -	
			Boston Region		ABP GANS Repayment	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program I, (SPR I), Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program II, (SPR II), Research	Multiple		$ -	$ -	$ -	
			Boston Region		Railroad Crossings	Multiple		$ -	$ -	$ -	
			Boston Region		Railroad Crossings	Multiple		$ -	$ -	$ -	
			Boston Region		Recreational Trails	Multiple		$ -	$ -	$ -	
							Other Statewide Items subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding

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 4 / Non-Federally Aided Projects											
►Non-Federally Aided Projects											
	Non Federal Aid		Boston Region		Non-Federal Aid			$ -		$ -	
	Non-Federally Aided Projects		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 ►	$ 231,660,283	$ -	$ 231,660,283	◄ Total Spending in Region
Federal Funds ►	$ 186,486,466		$ 186,486,466	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 45,173,817	$ -	$ 45,173,817	◄ 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 (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	RTD0006605	Cape Ann Transportation Authority	117A00		PREVENTIVE MAINTENANCE	2020 - $285,000	$285,000	$0	$0	$71,250	$356,250
5307	RTD0006606	Cape Ann Transportation Authority		114206	ACQUIRE - SHOP EQ/COMP/SFTWR	2020 - $55,000	$55,000	$13,750	$0	$0	$68,750
5307	RTD0007093	MetroWest Regional Transit Authority	117C00		NON FIXED ROUTE ADA PARA SERV	2020 - $1,300,000	$1,300,000	$325,000	$0	$0	$1,625,000
5307	RTD0007094	MetroWest Regional Transit Authority		113403	TERMINAL, INTERMODAL (TRANSIT) -	2020 - $150,000	$150,000	$37,500	$0	$0	$187,500
5307	RTD0007095	MetroWest Regional Transit Authority		114200	ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES	2020 - $248,415	$248,415	$62,104	$0	$0	$310,519
5307	RTD0007096	MetroWest Regional Transit Authority		440000	Mobility Management	2020 - $25,000	$25,000	$6,250	$0	$0	$31,250
5307	RTD0007070	Massachusetts Bay Transportation Authority (MBTA)		121200	Revenue Vehicle Program - 5307		$81,761,933	$0	$0	$20,440,483	$102,202,416
5307	RTD0007371	Massachusetts Bay Transportation Authority (MBTA)		126301	Signals/Systems Upgrade Program - 5307		$64,360,000	$0	$0	$16,090,000	$80,450,000
						Subtotal	$148,185,348	$444,604	$0	$36,601,733	$185,231,685
5309											
5309	RTD0007084	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	RTD0007073	Massachusetts Bay Transportation Authority (MBTA)		123400	Stations and Facilities Program - 5337		$85,893,004	$0	$0	$21,473,251	$107,366,255
5337	RTD0007074	Massachusetts Bay Transportation Authority (MBTA)		124400	Signals/Systems Upgrade Program - 5337		$60,000,000	$0	$0	$15,000,000	$75,000,000
						Subtotal	$145,893,004	$0	$0	$36,473,251	$182,366,255
5339											
5339	RTD0007075	Massachusetts Bay Transportation Authority (MBTA)		111400	Bus Program - 5339		$5,683,653	$0	$0	$1,420,913	$7,104,566
						Subtotal	$5,683,653	$0	$0	$1,420,913	$7,104,566
5320											
						Subtotal	$0	$0	$0	$0	$0
Other Federal											
Other Federal	RTD0007376	Massachusetts Bay Transportation Authority (MBTA)		126301	PTC - RRIF/TIFIA Financing		$382,000,000	$0	$0	$95,500,000	$477,500,000
						Subtotal	$382,000,000	$0	$0	$95,500,000	$477,500,000
Other Non-Federal											
						Subtotal	$0	$0	$0	$0	$0
						Total	$781,762,005	$444,604	$0	$269,995,897	$1,052,202,506

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

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
►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+STP+TAP Total Cost = $152,000,000; AC Yr 3 of 5; Total funding in this TIP = $116,626,515; MPO Evaluation Score = 59
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	STP	$ 26,498,598	$ 21,198,878	$ 5,299,720	Construction; NHPP+STP+TAP Total Cost = $152,000,000; AC Yr 3 of 5; Total funding in this TIP = $116,626,515; 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+STP+TAP Total Cost = $152,000,000; AC Yr 3 of 5; Total funding in this TIP = $116,626,515; 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+STP+NHPP Total Cost = $9,166,410; 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+STP+NHPP Total Cost = $9,166,410; 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+STP+NHPP Total Cost = $9,166,410; MPO Evaluation Score = 55
	Intersection Improvements	605857	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1 & UNIVERSITY AVENUE/EVERETT STREET	5	STP	$ 2,661,657	$ 2,129,326	$ 532,331	Construction; HSIP+CMAQ+STP+NHPP Total Cost = $9,166,410; 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 = $6,839,964; 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	$ 350,000	$ 280,000	$ 70,000	Construction; CMAQ+TAP Total Cost = $6,839,964; MPO Evaluation Score = 47; TAP Proponent = Bedford
	Bicycles and Pedestrians	608164	Boston Region	Sudbury	SUDBURY- BIKE PATH CONSTRUCTION (BRUCE FREEMAN RAIL TRAIL)	3	CMAQ	$ 9,184,778	$ 7,347,822	$ 1,836,956	Construction; CMAQ+TAP Total Cost = $9,684,778; 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 = $9,684,778; 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+STP Total Cost = $13,701,100; 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+STP Total Cost = $13,701,100; MPO Evaluation Score = 75
	Roadway Reconstruction	607777	Boston Region	Watertown	WATERTOWN- REHABILITATION OF MOUNT AUBURN STREET (ROUTE 16)	6	STP	$ 10,701,100	$ 8,560,880	$ 2,140,220	Construction; HSIP+CMAQ+STP Total Cost = $13,701,100; MPO Evaluation Score = 75

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	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+STP Total Cost = $10,027,904; 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	STP	$ 9,027,904	$ 7,222,323	$ 1,805,581	Construction; CMAQ+STP Total Cost = $10,027,904; 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+STP Total Cost = $14,718,378; 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	STP	$ 11,518,378	$ 9,214,702	$ 2,303,676	Construction; CMAQ+TAP+STP Total Cost = $14,718,378; 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+STP Total Cost = $14,718,378; MPO Evaluation Score = 45; TAP project proponent = Acton
			Boston Region					$ -	$ -	$ -	
							Regionally Prioritized Projects subtotal ►	**$ 106,584,302**	$ 85,530,614	$ 21,053,688	◄ 80% Federal + 20% Non-Federal

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 106,584,302**	**$ 106,681,829**	**◄Total Budget**	**$ 97,527 Target Funds Available**
STP programmed ►	$ 77,944,846	$ 62,355,877	**◄ STP**	
HSIP programmed ►	$ 2,631,724	$ 2,368,552	**◄ HSIP**	
CMAQ programmed ►	$ 23,674,742	$ 18,939,794	**◄ CMAQ**	
TAP programmed ►	$ 2,332,990	$ 1,866,392	**◄ 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.

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
►Section 1B / Earmark or Discretionary Grant Funded Projects											
►Other Federal Aid											
			Boston Region		Other Federal Aid		HPP	$ -	$ -	$ -	
			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		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		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
	Bridge Program		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
	Bridge Program		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
	Bridge Program		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
	Bridge Program		Boston Region		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)											
AMENDMENT:Move Project - (FROM 2020)	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	$ 22,132,800	$ 17,706,240	$ 4,426,560	
	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	$ 22,621,004	$ 18,096,803	$ 4,524,201	AC Year 6 of 6, Total Cost $193,058,158
	Bridge Program	604952	Boston Region	LYNN	LYNN- SAUGUS- BRIDGE REPLACEMENT, L-18-016=S-05-008, ROUTE 107 OVER THE SAUGUS RIVER (AKA - BELDEN G. BLY BRIDGE)	4	NHPP-On	$ 21,746,735	$ 17,397,388	$ 4,349,347	AC Year 4 of 5, Total Cost $74,471,140
	Bridge Program		Boston Region		Bridge Program / On-System (NHS)			$ -	$ -	$ -	
						Bridge Program / On-System (NHS) subtotal ►		**$ 77,261,499**	$ 61,809,199	$ 15,452,300	◄ Funding Split Varies by Funding Source
►Bridge Program / On-System (Non-NHS)											
AMENDMENT:Add Project	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				NHPP-Off		$ -	$ -	
						Bridge Program / On-System (Non-NHS) subtotal ►		**$ 5,183,360**	$ 4,146,688	$ 1,036,672	◄ 80% Federal + 20% 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
►Bridge Program / Systematic Maintenance											
	Bridge Program	608866	Boston Region	NEWTON-WESTON	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	
							Bridge Program / Systematic Maintenance subtotal ►	**$ 2,349,900**	$ 1,879,920	$ 469,980	◄ Funding Split Varies by Funding Source
►Interstate Pavement											
	Interstate Pavement	608210	Boston Region	Multiple	FOXBOROUGH- PLAINVILLE- WRENTHAM- FRANKLIN I.M. RESURFACING WORK ON I-495	5	NHPP	$ 11,497,920	$ 10,348,128	$ 1,149,792	
							Insterstate Pavement subtotal ►	**$ 11,497,920**	$ 10,348,128	$ 1,149,792	◄ 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	$ 2,527,560	$ 2,022,048	$ 505,512	
	Non-Interstate Pavement	608498	Boston Region	Multiple	HINGHAM- WEYMOUTH- BRAINTREE- RESURFACING AND RELATED WORK ON ROUTE 53	6	NHPP	$ 7,929,600	$ 6,343,680	$ 1,585,920	
	Non-Interstate Pavement	608818	Boston Region	DANVERS	DANVERS- RESURFACING AND RELATED WORK ON ROUTE 114	4	NHPP	$ 1,850,240	$ 1,480,192	$ 370,048	
							Non-Interstate Pavement subtotal ►	**$ 12,307,400**	$ 9,845,920	$ 2,461,480	◄ 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	STP-TE	$ 526,235	$ 420,988	$ 105,247	
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
							Roadway Improvements subtotal ►	**$ 526,235**	$ 420,988	$ 105,247	◄ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements		Boston Region		Safety Improvements			$ -	$ -	$ -	
	Safety Improvements		Boston Region		Safety Improvements			$ -	$ -	$ -	
	Safety Improvements		Boston Region		Safety Improvements			$ -	$ -	$ -	
	Safety Improvements		Boston Region		Safety Improvements			$ -	$ -	$ -	
	Safety Improvements		Boston Region		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		Boston Region		ADA Retrofits			$ -	$ -	$ -	
							ADA Retrofits subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% 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
►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	$ 3,200,000	$ 2,880,000	$ 320,000	
	Intersection Improvements	608569	Boston Region	Quincy	QUINCY- INTERSECTION IMPROVEMENTS AT ROUTE 3A (SOUTHERN ARTERY) AND BROAD STREET	6	HSIP	$ 4,000,000	$ 3,600,000	$ 400,000	
							Intersection Improvements subtotal ►	**$ 7,200,000**	$ 6,480,000	$ 720,000	◄ Funding Split Varies by Funding Source
►Intelligent Transportation Systems											
	Intelligent Transportation Systems		Boston Region		Intelligent Transportation Systems			$ -	$ -	$ -	
	Intelligent Transportation Systems		Boston Region		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	
	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	
							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		Boston Region		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		Boston Region		Capacity			$ -	$ -	$ -	
							Capacity subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

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
►Section 3 / Planning / Adjustments / Pass-throughs											
►Planning / Adjustments / Pass-throughs											
			Boston Region		ABP GANS Repayment	Multiple		$ -	$ -	$ -	
			Boston Region		ABP GANS Repayment	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program I, (SPR I), Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program II, (SPR II), Research	Multiple		$ -	$ -	$ -	
			Boston Region		Railroad Crossings	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	
	Non-Federally Aided Projects		Boston Region		Non-Federal Aid			$ -		$ -	
							Non-Federal Aid subtotal►	**$ 18,112,483**		$ 18,112,483	◄100% Non-Federal

2022 Summary

	TIP Section 1 - 3: ▼	TIP Section 4: ▼	Total of All Projects ▼	
Total ►	$ 262,644,555	$ 18,112,483	$ 280,757,038	◄ Total Spending in Region
Federal Funds ►	$ 212,248,608		$ 212,248,608	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 50,395,947	$ 18,112,483	$ 68,508,430	◄ 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	RTD0006607	Cape Ann Transportation Authority	117A00	PREVENTIVE MAINTENANCE	2021 - $285,000	$285,000	$0	$0	$71,250	$356,250
5307	RTD0006608	Cape Ann Transportation Authority	114206	ACQUIRE - SHOP EQUIPMENT	2021 - $55,000	$55,000	$13,750	$0	$0	$68,750
5307	RTD0007097	MetroWest Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV	2021 - $1,300,000	$1,300,000	$325,000	$0	$0	$1,625,000
5307	RTD0007098	MetroWest Regional Transit Authority	114200	ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES	2021 - $248,415	$248,415	$62,104	$0	$0	$310,519
5307	RTD0007099	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT) -	2021 - $150,000	$150,000	$37,500	$0	$0	$187,500
5307	RTD0007100	MetroWest Regional Transit Authority	440000	Mobility Management	2021 - $25,000	$25,000	$6,250	$0	$0	$31,250
5307	RTD0007076	Massachusetts Bay Transportation Authority (MBTA)	121200	Revenue Vehicle Program - 5307		$146,121,933	$0	$0	$36,530,483	$182,652,416
					Subtotal	$148,185,348	$444,604	$0	$36,601,733	$185,231,685
5309										
5309	RTD0007339	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	RTD0007078	Massachusetts Bay Transportation Authority (MBTA)	122405	Bridge & Tunnel Program - 5337		$80,000,000	$0	$0	$20,000,000	$100,000,000
5337	RTD0007079	Massachusetts Bay Transportation Authority (MBTA)	123400	Stations and Facilities Program - 5337		$25,893,004	$0	$0	$6,473,251	$32,366,255
5337	RTD0007080	Massachusetts Bay Transportation Authority (MBTA)	126301	Signals/Systems Upgrade Program - 5337		$40,000,000	$0	$0	$10,000,000	$50,000,000
					Subtotal	$145,893,004	$0	$0	$36,473,251	$182,366,255
5339										
5339	RTD0007081	Massachusetts Bay Transportation Authority (MBTA)	111400	Bus Program - 5339		$5,683,653	$0	$0	$1,420,913	$7,104,566
					Subtotal	$5,683,653	$0	$0	$1,420,913	$7,104,566
5320										
					Subtotal	$0	$0	$0	$0	$0
Other Federal										
					Subtotal	$0	$0	$0	$0	$0
Other Non-Federal										
					Subtotal	$0	$0	$0	$0	$0
					Total	$345,883,005	$444,604	$0	$120,616,897	$466,944,506

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+STP+TAP Total Cost = $152,000,000; AC Yr 4 of 5; Total funding in this TIP = $116,626,515; MPO Evaluation Score = 59
	Roadway Reconstruction	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	STP	$ 26,000,000	$ 20,800,000	$ 5,200,000	Construction; NHPP+STP+TAP Total Cost = $152,000,000; AC Yr 4 of 5; Total funding in this TIP = $116,626,515; 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+STP+TAP Total Cost = $152,000,000; AC Yr 4 of 5; Total funding in this TIP = $116,626,515; 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+STP Total Cost = $6,124,800; MPO Evaluation Score = 66
	Roadway Reconstruction	608348	Boston Region	Beverly	BEVERLY - RECONSTRUCTION OF BRIDGE STREET	4	STP	$ 3,124,800	$ 2,499,840	$ 624,960	Construction; CMAQ+STP Total Cost = $6,124,800; 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+STP Total Cost = $11,205,600; 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+STP Total Cost = $11,205,600; MPO Evaluation Score = 61
	Roadway Reconstruction	608933	Boston Region	Peabody	PEABODY - REHABILITATION OF CENTRAL STREET	4	STP	$ 6,705,600	$ 5,364,480	$ 1,341,120	Construction; CMAQ+HSIP+STP Total Cost = $11,205,600; 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+STP+TAP Total Cost = $4,060,000; MPO Evaluation Score = 47
	Roadway Reconstruction	607244	Boston Region	Winthrop	WINTHROP - RECONSTRUCTION & RELATED WORK ALONG WINTHROP STREET & REVERE STREET CORRIDOR	6	STP	$ 1,500,000	$ 1,200,000	$ 300,000	Construction; CMAQ+STP+TAP Total Cost = $4,060,000; 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+STP+TAP Total Cost = $4,060,000; MPO Evaluation Score = 54; TAP Proponent = Winthrop
	Roadway Reconstruction	605743	Boston Region	Ipswich	IPSWICH - RESURFACING &RELATED WORK ON CENTRAL & SOUTH MAIN STREETS	4	STP	$ 2,500,000	$ 2,000,000	$ 500,000	Construction; STP+TAP Total Cost = $3,019,550; 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; STP+TAP Total Cost = $3,019,550; MPO Evaluation Score = 47; TAP Proponent = Ipswich
	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+STP+TAP Total Cost = $6,960,000; 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	STP	$ 4,000,000	$ 3,200,000	$ 800,000	Construction; CMAQ+STP+TAP Total Cost = $6,960,000; 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	$ 960,000	$ 768,000	$ 192,000	Construction; CMAQ+STP+TAP Total Cost = $6,960,000; MPO Evaluation Score = 45; TAP Proponent = Bellingham
	Roadway Reconstruction	608707	Boston Region	Quincy	QUINCY - RECONSTRUCTION OF SEA STREET	6	STP	$ 6,300,000	$ 5,040,000	$ 1,260,000	Construction; STP+TAP Total Cost = $6,526,254; MPO Evaluation Score = 40
	Roadway Reconstruction	608707	Boston Region	Quincy	QUINCY - RECONSTRUCTION OF SEA STREET	6	TAP	$ 226,254	$ 181,003	$ 45,251	Construction; STP+TAP Total Cost = $6,526,254; MPO Evaluation Score = 40; TAP Project Proponent = Quincy
	Roadway Reconstruction	608007	Boston Region	Multiple	COHASSET/SCITUATE - CORRIDOR IMPROVMENTS 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+STP+TAP Total Cost = $4,640,232; 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 IMPROVMENTS AND RELATED WORK ON JUSTICE CUSHING HIGHWAY (ROUTE 3A), FROM BEECHWOOD STREET TO HENRY TURNER BAILEY ROAD	5	STP	$ 3,000,000	$ 2,400,000	$ 600,000	Construction; HSIP+STP+TAP Total Cost = $4,640,232; MPO Evaluation Score = 37
	Roadway Reconstruction	608007	Boston Region	Multiple	COHASSET/SCITUATE - CORRIDOR IMPROVMENTS 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+STP+TAP Total Cost = $4,640,232; 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	STP	$ 4,000,000	$ 3,200,000	$ 800,000	Construction; STP+TAP Total Cost = $4,527,196; 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; STP+TAP Total Cost = $4,527,196; 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 ASSCOCIATED INTERSECTION IMPROVEMENTS ALONG ROUTE 1A	5	HSIP	$ 2,500,000	$ 2,250,000	$ 250,000	Construction; HSIP+STP+TAP Total Cost = $11,600,000; 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 ASSCOCIATED INTERSECTION IMPROVEMENTS ALONG ROUTE 1A	5	STP	$ 8,600,000	$ 6,880,000	$ 1,720,000	Construction; HSIP+STP+TAP Total Cost = $11,600,000; 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 ASSCOCIATED INTERSECTION IMPROVEMENTS ALONG ROUTE 1A	5	TAP	$ 500,000	$ 400,000	$ 100,000	Construction; HSIP+STP+TAP Total Cost = $11,600,000; MPO Evaluation Score = 55; TAP Proponent = MassDOT
	Intersection Improvements	607305	Boston Region	Reading	READING - INTERSECTION SIGNALIZATION @ ROUTE 28 & HOPKINS STREET	4	HSIP	$ 468,283	$ 421,455	$ 46,828	Construction; HSIP+STP Total Cost = $1,468,283; MPO Evaluation Score = 38
	Intersection Improvements	607305	Boston Region	Reading	READING - INTERSECTION SIGNALIZATION @ ROUTE 28 & HOPKINS STREET	4	STP	$ 1,000,000	$ 800,000	$ 200,000	Construction; HSIP+STP Total Cost = $1,468,283; MPO Evaluation Score = 38
	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+STP Total Cost = $2,784,000; MPO Evaluation Score = 36
	Intersection Improvements	608443	Boston Region	Multiple	LITTLETON- AYER - INTERSECTION IMPROVEMENTS ON ROUTE 2A AT WILLOW ROAD AND BRUCE STREET	3	STP	$ 1,784,000	$ 1,427,200	$ 356,800	Construction; HSIP+STP Total Cost = $2,784,000; MPO Evaluation Score = 36
	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 ►	**$ 104,915,915**	$ 84,629,560	$ 20,286,355	◄ 80% Federal + 20% Non-Federal

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 104,915,915**	**$ 109,011,849**	**◄Total Budget**	**$ 4,095,934 Target Funds Available**
STP programmed ►	$ 81,514,400	$ 65,211,520	**◄ STP**	
HSIP programmed ►	$ 6,968,283	$ 6,271,455	**◄ HSIP**	
CMAQ programmed ►	$ 12,000,000	$ 9,600,000	**◄ CMAQ**	
TAP programmed ►	$ 4,433,232	$ 3,546,586	**◄ 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.

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 1B / Earmark or Discretionary Grant Funded Projects											
►Other Federal Aid											
			Boston Region		Other Federal Aid		HPP	$ -	$ -	$ -	
			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		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		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
	Bridge Program		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
	Bridge Program		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
	Bridge Program		Boston Region		Bridge Program / Off-System			$ -	$ -	$ -	
	Bridge Program		Boston Region		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	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	
AMENDMENT:Move Project - (FROM 2022)	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	604952	Boston Region	LYNN	LYNN- SAUGUS- BRIDGE REPLACEMENT, L-18-016=S-05-008, ROUTE 107 OVER THE SAUGUS RIVER (AKA - BELDEN G. BLY BRIDGE)	4	NHPP-On	$ 5,907,595	$ 4,726,076	$ 1,181,519	AC Year 5 of 5, Total Cost $74,471,140
	Bridge Program		Boston Region				NHPP-On				
							Bridge Program / On-System (NHS) subtotal ►	**$ 36,817,295**	$ 29,453,836	$ 7,363,459	◄ Funding Split Varies by Funding Source
►Bridge Program / On-System (Non-NHS)											
	Bridge Program	TBA	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 / 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	NEWTON- WESTWOOD	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 / Systematic Maintenance subtotal ►	**$ 2,142,857**	$ 1,714,285	$ 428,571	◄ 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	608495	Boston Region	Multiple	CONCORD- LINCOLN- LEXINGTON RESURFACING AND RELATED WORK ON ROUTE 2A	4	NHPP	$ 3,480,000	$ 2,784,000	$ 696,000	
	Non-Interstate Pavement	609102	Boston Region	Multiple	WENHAM- MANCHESTER- ESSEX- GLOUCESTER- PAVEMENT PRESERVATION AND RELATED WORK ON ROUTE 128	4	NHPP	$ 13,731,802	$ 10,985,442	$ 2,746,360	
							Non-Interstate Pavement subtotal ►	**$ 17,211,802**	$ 13,769,442	$ 3,442,360	◄ 80% Federal + 20% Non-Federal

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 Improvements											
	Roadway Improvements		Boston Region		Roadway Improvements			$ -	$ -	$ -	
	Roadway Improvements		Boston Region		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 I93 & I95/128	6	NHPP	$ 4,000,000	$ 3,600,000	$ 400,000	
	Safety Improvements	609058	Boston Region	Multiple	PEABODY TO GLOUCESTER- GUIDE AND TRAFFIC SIGN REPLACEMENT ON ROUTE 128	4	HSIP	$ 1,960,848	$ 1,764,764	$ 196,085	
	Safety Improvements	609060	Boston Region	Multiple	LYNNFIELD- PEABODY- DANVERS- GUIDE AND TRAFFIC SIGN REPLACEMENT ON I-95/128 (TASK 'A' INTERCHANGE)	4	HSIP	$ 492,862	$ 443,576	$ 49,286	
	Safety Improvements		Boston Region				HSIP		$ -	$ -	
	Safety Improvements		Boston Region				HSIP		$ -	$ -	
							Safety Improvements subtotal ►	**$ 6,453,711**	$ 5,808,340	$ 645,371	◄ Funding Split Varies by Funding Source
►Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits		Boston Region		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	$ 974,815	$ 877,334	$ 97,482	
	Intersection Improvements	608564	Boston Region	Watertown	WATERTOWN- INTERSECTION IMPROVEMENTS AT ROUTE 16 AND GALEN STREET	6	HSIP	$ 2,630,000	$ 2,367,000	$ 263,000	
	Intersection Improvements	608566	Boston Region	Marlborough	MARLBOROUGH- IMPROVEMENTS AT ROUTE 20 (EAST MAIN STREET) AT CURTIS AVENUE	3	HSIP	$ 2,784,000	$ 2,505,600	$ 278,400	
	Intersection Improvements		Boston Region				HSIP				
							Intersection Improvements subtotal ►	**$ 6,388,815**	$ 5,749,934	$ 638,882	◄ Funding Split Varies by Funding Source
►Intelligent Transportation Systems											
	Intelligent Transportation Systems		Boston Region		Intelligent Transportation Systems			$ -	$ -	$ -	
	Intelligent Transportation Systems		Boston Region		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	
							Roadway Reconstruction subtotal ►	**$ 30,000,000**	$ 24,000,000	$ 6,000,000	◄ Funding Split Varies by Funding Source

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 2C / State Prioritized Expansion Projects											
►Bicycles and Pedestrians											
	Bicycles and Pedestrians		Boston Region		Bicycles and Pedestrians			$ -	$ -	$ -	
	Bicycles and Pedestrians		Boston Region		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		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		ABP GANS Repayment	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Award adjustments, change orders, etc.	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		Metropolitan Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program I, (SPR I), Planning	Multiple		$ -	$ -	$ -	
			Boston Region		State Planning and Research Work Program II, (SPR II), Research	Multiple		$ -	$ -	$ -	
			Boston Region		Railroad Crossings	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	
	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 ►	$ 208,608,674	$ 18,112,483	$ 226,721,157	◄ Total Spending in Region
Federal Funds ►	$ 168,868,020		$ 168,868,020	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 39,740,654	$ 18,112,483	$ 57,853,137	◄ 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	RTD0007184	Cape Ann Transportation Authority	117A00	PREVENTIVE MAINTENANCE	2022 - $285,000	$285,000	$0	$0	$71,250	$356,250
5307	RTD0007197	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	RTD0007186	Cape Ann Transportation Authority	114403	Rehab/Reno-repave parking lot (match in 24)		$80,000	$0	$0	$0	$80,000
5307	RTD0007152	MetroWest Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV	2022 - $1,300,000	$1,300,000	$325,000	$0	$0	$1,625,000
5307	RTD0007153	MetroWest Regional Transit Authority	114200	ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES	2022 - $248,415	$248,415	$62,104	$0	$0	$310,519
5307	RTD0007155	MetroWest Regional Transit Authority	440000	Mobility Management	2022 - $25,000	$25,000	$6,250	$0	$0	$31,250
5307	RTD0007154	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT) -	2022 - $150,000	$150,000	$37,500	$0	$0	$187,500
5307	RTD0007363	Massachusetts Bay Transportation Authority (MBTA)	121200	Revenue Vehicle Program - 5307		$146,121,933	$0	$0	$36,530,483	$182,652,416
					Subtotal	$148,910,348	$605,854	$0	$36,601,733	$186,117,935
5309										
					Subtotal	$0	$0	$0	$0	$0
5310										
					Subtotal	$0	$0	$0	$0	$0
5311										
					Subtotal	$0	$0	$0	$0	$0
5337										
5337	RTD0007373	Massachusetts Bay Transportation Authority (MBTA)	122405	Bridge and Tunnel Program - 5337		$83,270,751	$0	$0	$20,817,688	$104,088,439
5337	RTD0007374	Massachusetts Bay Transportation Authority (MBTA)	123402	Elevator and Escalator Program - 5337		$62,622,254	$0	$0	$15,655,563	$78,277,817
					Subtotal	$145,893,005	$0	$0	$36,473,251	$182,366,256
5339										
5339	RTD0007375	Massachusetts Bay Transportation Authority (MBTA)	111400	Bus Program - 5339		$5,683,653	$0	$0	$1,420,913	$7,104,566
					Subtotal	$5,683,653	$0	$0	$1,420,913	$7,104,566
5320										
					Subtotal	$0	$0	$0	$0	$0
Other Federal										
					Subtotal	$0	$0	$0	$0	$0
Other Non-Federal										
					Subtotal	$0	$0	$0	$0	$0
					Total	$300,487,006	$605,854	$0	$74,495,897	$375,588,757

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

TABLE 3-3
MBTA Federal Capital Program - FTA Formula Funds
FFY 2019-2023 TIP - Project-Level Backup for Informational Purposes
Presented to the Boston MPO on 3/15/2018

Section 5307 - Urbanized Formula Funds

5307 - Revenue Vehicle Program	Federal Share	MBTA Match	Total
DMA Bus Replacement	$78,690,003	$19,672,501	$98,362,504
Green Line Light Rail Fleet Replacement - Design	$4,000,000	$1,000,000	$5,000,000
Green Line Train Protection	$135,470,052	$33,867,513	$169,337,565
Locomotive Overhaul	$24,000,000	$6,000,000	$30,000,000
MBTA Catamaran Overhaul	$7,493,568	$1,873,392	$9,366,960
Midlife Overhaul of 25 New Flyer Allison Hybrid 60 ft Articulated Buses	$12,702,054	$3,175,514	$15,877,568
Overhaul of 33 Kawasaki 900 Series Bi-Level Coaches	$62,257,345	$15,564,336	$77,821,681
Procurement of Bi-Level Commuter Rail Coaches	$99,344,131	$24,836,033	$124,180,164
Procurement of 194 New Flyer Hybrid 40 ft Buses	$138,372,573	$34,593,143	$172,965,716
Procurement of Battery Electric 40 ft Buses and Related infrastructure (5307)	$8,596,955	$2,149,239	$10,746,194
Procurement of 40 ft Buses	$95,135,134	$23,783,784	$118,918,918
Red Line No. 3 Car - Targeted Reliability Improvements	$35,226,739	$8,806,685	$44,033,424
TIP Program Allowance	$8,605,346	$2,151,337	$10,756,683
	$709,893,901	$177,473,475	$887,367,377

5307 - Stations and Facilities Program	Federal Share	MBTA Match	Total
Bus Route Safety and Service Improvements	$6,589,422	$1,647,355	$8,236,777
Charlestown Bus - Seawall Rehab	$17,645,441	$4,411,360	$22,056,801
	$24,234,863	$6,058,716	$30,293,578

5307 - Signals/Systems Upgrade Program	Federal Share	MBTA Match	Total
Green Line - Central Tunnel Interlocking Signals	$64,360,000	$16,090,000	$80,450,000
Green Line Riverside to Reservoir - Signal & Track Work	$71,440,000	$17,860,000	$89,300,000
	$135,800,000	$33,950,000	$169,750,000

Section 5307 Totals	**$869,928,764**	**$217,482,191**	**$1,087,410,955**

Section 5337 - State of Good Repair

5337 - Bridge and Tunnel Program	Federal Share	MBTA Match	Total
Bridge Bundling Contract (6 Bridges)	$105,720,000	$26,430,000	$132,150,000
Bridge Design / Inspection & Rating Program	$25,391,729	$6,347,932	$31,739,661
Bridge Repair Program	$8,722,002	$2,180,501	$10,902,503
North Station Draw 1 Bridge Replacement	$108,800,000	$27,200,000	$136,000,000
Tunnel Rehabilitation Program	$12,522,337	$3,130,584	$15,652,922
TIP Program Allowance	$7,834,682	$1,958,671	$9,793,353
	$268,990,750	$67,247,688	$336,238,439

5337 - Stations and Facilities Program	Federal Share	MBTA Match	Total
Newton Commuter Rail Stations Study	$16,511,947	$4,127,987	$20,639,934
Commonwealth Ave Stations Access	$13,040,000	$3,260,000	$16,300,000
Downtown Crossing Vertical Transportation Improvements Phase 2	$24,326,390	$6,081,598	$30,407,988
Forest Hills Improvement Project	$18,089,763	$4,522,441	$22,612,204
Harvard Square Busway Repairs	$18,489,531	$4,622,383	$23,111,914
Hingham Ferry Dock Modification	$9,668,534	$2,417,134	$12,085,668
Iron Horse Operations Control Center	$32,000,000	$8,000,000	$40,000,000
Natick Center Station Accessibility Project	$1,760,506	$440,126	$2,200,632
Newton Highlands Green Line Station Accessibility Project	$10,636,354	$2,659,089	$13,295,443
Oak Grove Station Vertical Transportation Improvements	$10,340,603	$2,585,151	$12,925,754
Old South Meeting House Leak Repairs	$1,108,000	$277,000	$1,385,000
Park Street Station Wayfinding Improvements Construction	$9,013,235	$2,253,309	$11,266,544
Ruggles Station Upgrade - Accessibility (Design)	$1,600,000	$400,000	$2,000,000
Savin Hill Underpass	$2,787,200	$696,800	$3,484,000
South Attleboro Station Improvements	$2,100,654	$525,164	$2,625,818
Symphony Station Improvements	$30,615,840	$7,653,960	$38,269,801
Winchester Center Station	$27,697,425	$6,924,356	$34,621,781
TIP Program Allowance	$6,893,579	$1,723,395	$8,616,974
	$236,679,563	$59,169,891	$295,849,453

5337 - Elevator and Escalator Program	Federal Share	MBTA Match	Total
Elevator Program Multiple Location Design	$8,020,714	$2,005,178	$10,025,892
Priority Replacement and Redundant Elevator Program	$18,400,000	$4,600,000	$23,000,000
TIP Program Allowance	$792,621	$198,155	$990,777
	$27,213,335	$6,803,334	$34,016,669

5337 - Signals/Systems Upgrade Program	Federal Share	MBTA Match	Total
45 High Street Improvements	$6,095,130	$1,523,783	$7,618,913
Infrastructure Asset Management Program Phase 1	$16,335,993	$4,083,998	$20,419,991
North Station Terminal Signal Improvements	$28,480,000	$7,120,000	$35,600,000
Signal Program - Red/Orange Line	$274,072,211	$68,518,053	$342,590,264
TIP Program Allowance	$10,123,744	$2,530,936	$12,654,680
	$335,107,079	$83,776,770	$418,883,848

Section 5337 Totals	**$840,777,392**	**$210,194,348**	**$1,084,988,409**

Section 5339 - Bus & Bus Facilities

5339 - Bus Program	Federal Share	MBTA Match	Total
Procurement of Battery Electric 40 ft Buses and Related infrastructure (5339)	$33,742,282	$8,435,570	$42,177,852
	$33,742,282	$8,435,570	$42,177,852

Section 5339 Totals	**$33,742,282**	**$8,435,570**	**$42,177,852**

TABLE 3-4
MBTA Federal Capital Program - FTA Formula Funds
FFY 2019-2023 TIP - Project Descriptions Provided for Informational Purposes
Presented to the Boston MPO on 3/15/2018

TIP Project Name	Project Description
5307 - Revenue Vehicle Program	
DMA Bus Replacement	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.
Green Line Light Rail Fleet Replacement - Design	Development of technical specifications for the procurement of light rail vehicles to replace the existing fleet that is approaching the end of its service life.
Green Line Train Protection	Procurement and installation of on-board and wayside equipment for a train monitoring system to determine allowable train separation, based on speed and location, and to prevent vehicles from passing a red signal.
Locomotive Overhaul	Overhaul of locomotives in operation on commuter rail lines systemwide in order to improve reliability.
MBTA Catamaran Overhaul	Replacement of major systems and refurbishment of seating and other customer facing components on two catamarans (Lightning and Flying Cloud).
Midlife Overhaul of 25 New Flyer Allison Hybrid 60 ft Articulated Buses	Overhaul of 25 hybrid buses, brought into service in 2009 and 2010, to enable optimal reliability through the end of their service life.
Overhaul of 33 Kawasaki 900 Series Bi-Level Coaches	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.
Procurement of Bi-Level Commuter Rail Coaches	Procurement of bi-level commuter rail coaches to replace existing cars that have exceeded their service life.
Procurement of 194 New Flyer Hybrid 40 ft Buses	Procurement of 40-foot buses with hybrid propulsion to replace Emission Controlled Diesel (ECD) buses that have reached the end of their service life.
Procurement of Battery Electric 40 ft Buses and Related infrastructure (5307)	Procurement of up to 35 Battery Electric 40-ft. buses and supporting infrastructure to replace the existing electric trolley bus fleet and to serve as a pilot for determining bus propulsion technologies for future procurements. (Funded from both 5307 and 5339.)
Procurement of 40 ft Buses	Procurement of 40-foot electric and hybrid buses for replacement of diesel bus fleet.
Red Line No. 3 Car - Targeted Reliability Improvements	Overhaul and upgrade of selected systems on Red Line fleet vehicles to extend service life until planned replacement.

TIP Project Name	Project Description

5307 - Stations and Facilities Program

Bus Route Safety and Service Improvements	To address accessibility, safety and operational deficiencies at select bus stops systemwide.
Charlestown Bus - Seawall Rehab	Rehabilitation of existing seawall to protect bus maintenance facility from future storm and flooding events.

5307 - Signals/Systems Upgrade Program

Green Line - Central Tunnel Interlocking Signals	To provide for the removal and the replacement of the existing 25 cycle signal system and associated wayside equipment at Government Center, Copley and Park Street Interlockings.
Green Line Riverside to Reservoir - Signal & Track Work	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.

TIP Project Name	Project Description

5337 - Bridge and Tunnel Program

Bridge Bundling Contract (6 Bridges)	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).
Bridge Design / Inspection & Rating Program	Inspection of bridge assets systemwide for determination of asset condition ratings and subsequent prioritization and scoping for repairs to select bridges.
Bridge Repair Program	Repairs to bridges systemwide, based on asset condition as determined by systemwide inspections.
North Station Draw 1 Bridge Replacement	Replacement of the North Station commuter rail drawbridge (Draw 1). Funding source under review.
Tunnel Rehabilitation Program	Repair and rehabilitation of transit tunnels systemwide

5337 - Stations and Facilities Program

Newton Commuter Rail Stations Study	For a conceptual design and operational analysis study of the Newton commuter rail stations, with additional funding for various accessibility and infrastructure improvements
Commonwealth Ave Stations Access	Addressing accessibility issues along the B branch of the Green Line along Commonwealth Avenue
Downtown Crossing Vertical Transportation Improvements Phase 2	Construction of two new redundant elevators, in order to improve accessibility and to provide for future elevator maintenance without rendering the station temporarily inaccessible.
Forest Hills Improvement Project	Improvements at Forest Hills Station on the Orange Line and Needham Commuter Rail Line to comply with ADA and Massachusetts Architectural Access Board (MAAB) accessibility standards. Work will also include infrastructure and other improvements (e.g., wayfinding signage, installation of tactile platform edges).
Harvard Square Busway Repairs	Rehabilitation of roadway, drainage and catenary infrastructure at the Harvard Square Busway.

TIP Project Name	Project Description
Hingham Ferry Dock Modification	Construction of a new, full accessible ferry dock at the Hingham Ferry Terminal located at Hewitts Cove in the Weymouth Back River in Hingham, MA
Iron Horse Operations Control Center	Construction of Iron Horse Park Operations Control Center building to provide an updated dispatch facility for Commuter Rail North (CRN) and Pan Am freight and to house the back-up Positive Train Control (PTC) data center.
Natick Center Station Accessibility Project	Accessibility improvements at the Natick Center commuter rail station on the Framingham/Worcester Line.
Newton Highlands Green Line Station Accessibility Project	Improvements at Newton Highlands station on the D branch of the Green Line to comply with ADA and Massachusetts Architectural Access Board (MAAB) accessibility standards.
Oak Grove Station Vertical Transportation Improvements	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.
Old South Meeting House Leak Repairs	Remediation of leaks along the wall of the Old South Meeting House resulting from the construction of an entrance to State Street Station
Park Street Station Wayfinding Improvements Construction	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.
Ruggles Station Upgrade - Accessibility (Design)	Design for future accessibility improvements at Ruggles Station.
Savin Hill Underpass	Rehabilitation of underpass at the Savin Hill Red Line Station in Boston
South Attleboro Station Improvements	Needs assessment and design services associated with accessibility, structural, parking and multi-modal facility improvements for the South Attleboro commuter rail station.
Symphony Station Improvements	Upgrades to the existing Symphony Station on the Green Line in order to provide a modern, accessible, code-compliant facility
Winchester Center Station	Renovation and accessibility improvements to Winchester Center Station on the Lowell and Haverhill commuter rail lines.

TIP Project Name	Project Description

5337 - Elevator and Escalator Program

Elevator Program Multiple Location Design	Design for the installation of new redundant elevators and the replacement of existing elevators systemwide.
Priority Replacement and Redundant Elevator Program	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 accessbility during elevator maintenance.

5337 - Signals/Systems Upgrade Program

45 High Street Improvements	Infrastructure improvements and data center upgrades at the MBTA's 45 High Street facility.
Infrastructure Asset Management Program Phase 1	Collection of infrastructure based asset data in order to update the SGR Database and manage asset and life cycle/risk management practices.
North Station Terminal Signal Improvements	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 Draw 1 Bridge Replacement Project.
Signal Program - Red/Orange Line	Various signal upgrades and improvements along both the Red and Orange Lines

5339 - Bus Program

Procurement of Battery Electric 40 ft Buses and Related infrastructure (5339)	Procurement of up to 35 Battery Electric 40-ft. buses and supporting infrastructure to replace the existing electric trolley bus fleet and to serve as a pilot for determining bus propulsion technologies for future procurements. (Funded from both 5307 and 5339.)

Note: Project descriptions are preliminary only and are provided for informational purposes. In many cases, the scopes of work will become more fully developed as the design process proceeds and is completed.

DETAILED PROJECT DESCRIPTIONS

Field Definitions

ID Number: This number references the project's identification number in MassDOT's project-tracking system.

Municipality: This field lists the municipality (or municipalities) in which a project is located.

Project Name: This field provides the project name or descriptor of project location.

Evaluation Rating: This field shows the total number of points scored by the project based on the MPO's project evaluation criteria. MPO staff has not evaluated all projects in the TIP; staff mainly evaluates projects that can be considered for funding with the MPO's Regional Target funding. If no score is listed, that means MPO staff did not evaluate the project.

MPO/CTPS Study: This field indicates if a study was conducted in the project area by the MPO staff and the findings, at least in part, have been incorporated in the engineering design for the TIP project. These studies are funded through the MPO's 3C planning work and documented in the Unified Planning Work Program (UPWP). If no study name and year are listed, that means that MPO staff has not conducted a transportation study in the project area.

LRTP Status: This field shows the time band that the project is proposed for programming in the Long-Range Transportation Plan (LRTP). Projects are programmed in the LRTP if they are Major Infrastructure projects that add capacity to the transportation system. Projects that fall into the Operations and Maintenance investment programs established in the LRTP do not have to be programmed in the LRTP prior to being funded in the TIP; therefore, this field is blank for those projects.

Project Length: This field provides the length of the project in miles. This information is based on the best available data, and comes mainly from MassDOT's Project Information website and from communication with project proponents or MassDOT project managers. Project lengths are engineering design estimates and may change during project development and construction.

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.

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

- **Year:** This field provides the year(s) during which the project is programmed for funding.
- **Funding Program:** The federal funding program(s) by which the project is funded is provided in this field. See Chapter 2 for more details on funding programs.

- **Total Funding Programmed:** This field shows the total funding programmed for the project based on the year of expenditure.

The project description information on the following pages originates from MassDOT's Project Information database and, in some cases, has been modified to include additional project details.

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 Ali Kleyman, TIP Manager, at akleyman@ctps.org.

CHAPTER FOUR

TIP Performance Monitoring

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 performance 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) refers to transportation agencies' application of performance management in their planning and programming work to achieve desired outcomes for the 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.

For metropolitan planning organizations (MPOs), PBPP embraces a range of activities and products developed together with other agencies, stakeholders, and the public as part of the 3C metropolitan transportation planning process. This includes developing the following:

- long-range transportation plans (LRTPs)
- other plans and processes, including those that are federally required, such as Strategic Highway Safety Plans, Transportation Asset Management Plans, the Congestion Management Process (CMP), Transit Asset Management Plans, and Public Transportation Agency Safety Plans, as well as others that are not required
- programming documents, including state and metropolitan Transportation Improvement Programs (STIPs and TIPs)

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 LRTP, *Charting Progress to 2040*.

Federal Performance Management Requirements

The establishment of a performance- and outcome-based surface transportation program was a key component of the transportation authorization legislation, Moving Ahead for Progress in the 21st

Century Act (MAP-21).The PBPP provisions established under MAP-21 continued under the current legislation, Fixing America's Surface Transportation Act (FAST Act).

Under the performance management approach detailed in the FAST Act, states will invest resources that collectively will make progress toward national goals in the following areas:

- **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, expedite the movement of people and goods by accelerating project completion; and eliminate 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 are described in more detail in Chapter 1 of this document.)

TABLE 4-1
NATIONAL AND MPO GOAL AREAS

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

Source: Boston Region MPO.

This performance-based planning mandate is also designed to help the nation's public transportation systems provide high-quality service to all users, including people with disabilities, people age 75 or

older, 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. 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	Transit Performance Area or Asset Category	Performance Measure	Relevant MPO Goal Area
Safety	Fatalities[a]	Total number of reportable fatalities and rate per total vehicle revenue-miles by mode	Safety
Safety	Injuries[a]	Total number of reportable injuries and rate per total vehicle revenue-miles by mode	Safety
Safety	Safety Events[a]	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

Note: This table reflects federally required transit performance measures as of April 5, 2018.
[a] The Public Transportation Agency Safety Plan Rule, which requires public transportation operators and MPOs to develop targets for safety measures identified in the National Public Transportation Safety Plan, has not been finalized.
Sources: National Public Transportation Safety Plan (January 2017), the proposed Public Transportation Agency Safety Plan Rule (49 Code of Federal Regulations Part 673), and the final Transit Asset Management Rule (49 CFR Part 625).

TABLE 4-3
FEDERALLY REQUIRED HIGHWAY PERFORMANCE MEASURES

National Goal	Highway Performance Area	Performance Measure	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 person-miles traveled on the Interstate System that are *reliable* • Percent of person-miles traveled on the non-Interstate NHS that are *reliable*	Capacity Management/Mobility
Environmental Sustainability	Performance of the National Highway System	• Percent change in tailpipe carbon dioxide emissions on the NHS compared to the calendar year 2017 level[a]	Clean Air/Clean Communities
System Reliability, Freight Movement, and	Freight Movement on the Interstate System	• Truck Travel Time Reliability Index	Capacity Management/Mobility, Economic Vitality

National Goal	Highway Performance Area	Performance Measure	Relevant MPO Goal Area
Economic Vitality			
Congestion Reduction	Traffic Congestion	• Annual hours of peak hour excessive delay per capita (for travel on NHS roadways) • Percent of non-single-occupant vehicle travel	Capacity Management/Mobility
Environmental Sustainability	On-Road Mobile Source Emissions	• Total emissions reduction of on-road mobile source emissions (for applicable pollutants and precursors)[b]	Clean Air/Clean Communities

Note: This table reflects federally required highway performance measures as of April 5, 2018. Rules pertaining to these performance measures (except where noted) are now in effect.
[a] The provisions of the final rules for federally required highway performance measures that pertain to carbon dioxide emissions on the NHS went into effect on September 28, 2017. The Federal Highway Administration has since issued a notice of proposed rulemaking that would repeal this measure, though this rulemaking has not yet been finalized. For more information on the MPO's response to the Commonwealth's greenhouse gas monitoring requirements, see Chapters 1 and 2, and Appendix B.
[b] The Boston Region MPO includes an area designated as *in maintenance* for carbon monoxide, so the MPO is currently required to comply with this performance measure requirement. For more information on air quality conformity requirements that apply to the MPO, see Chapter 5.
NHS = National Highway System
Sources: Highway Safety Improvement Program Rule (23 CFR 924), National Performance Management Measures Rule (23 CFR 490).

States, public transit operators, and MPOs are required to set performance targets to address these measures and track progress toward attainment of desired outcomes for the transportation system. They also are required to coordinate with one another and to share information and data so that there is consistency across these agencies' target-setting processes.

The MPO's LRTP and TIP will become planning and programming mechanisms to help achieve performance targets that the MPO establishes, and they will serve as valuable reporting tools. States, public transit operators, and MPOs set targets according to federally defined schedules. As MPO targets are established, the measures and targets will be described in detail in the MPO's LRTPs and TIPs. (For most performance measures, MPOs must set targets no later than 180 days after their respective states or public transit operators have set their targets.) The LRTPs will describe the state of the transportation system with respect to the federally required measures and will report on progress toward meeting required targets. The TIPs will describe the links between short-term capital investment priorities and these measures and targets, and discuss, to the extent practicable, how these investments are anticipated to help the MPO achieve its targets.

Other MPO PBPP Activities

The MPO's PBPP process must respond to federal performance management requirements established under MAP-21 and the FAST Act. However, the MPO's approach to performance management addresses other areas that pertain to its 3C responsibilities and can encompass other activities that 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 Chapter 1.) 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 create 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. Future LRTPs and TIPs will provide information on these other performance measures and monitoring activities, as well as on federally required performance measures.

MPO Progress on Implementing PBPP Practices

To date, the MPO has made strides to integrate PBPP practices into its activities, help meet FAST Act performance management requirements, and improve the MPO's decision making. The steps the MPO has taken include the following:

- Established goals and objectives that align with national goals (indicated in Table 4-1)
- Explored performance measures through the CMP, studies funded through the Unified Planning Work Program (UPWP), and work supporting the MPO's LRTP
- Coordinated with MassDOT, other Massachusetts MPOs (through the Transportation Program Managers Group's subcommittee on performance measures), the

MBTA, and other stakeholders to ensure that FAST Act requirements are being met and to learn how to improve PBPP

- Established targets for the highway safety performance measures (listed in Table 4-3) and began work to set targets for transit asset condition performance measures (listed in Table 4-2)
- Continued to gather, manage, and analyze data to monitor performance and identify trends
- Continued to develop tools to support performance reporting, such as the MPO's web-based Performance Dashboard

For more information about next steps the MPO will take to advance its PBPP process, see the section titled *Next Steps for Advancing PBPP* at the end of this chapter.

PBPP ACTIVITIES AND THE TIP

MPO Investment Decisions

The MPO programs capital investments via the TIP to achieve federal and MPO goals for the transportation system. Several aspects of the TIP development process relate the MPO's investment decision-making to PBPP.

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. Each of these programs supports multiple MPO goal areas. These investment programs are as follows:

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

As described in *Charting Progress to 2040*, the MPO allocates its discretionary funds to these investment programs. These funds are assigned to projects that meet the investment programs' criteria. Details about these programs and their relationship to MPO goals are shown in Figure 4-1.

TIP Project Evaluation Criteria

The MPO's goals provide the foundation for the TIP evaluation criteria used in the process for selecting roadway projects to be funded with MPO discretionary—or Regional Target—dollars, as described in Chapter 2. These criteria are used to evaluate the way that individual projects can help the MPO advance its various goals. Over time, the performance improvement contributions made by TIP projects are expected to generate changes in the transportation system's performance. For more details about the MPO's evaluation criteria, see Appendix A.

FIGURE 4-1
MPO INVESTMENT PROGRAMS

Intersection Improvements	Complete Streets	Bicycle Network and Pedestrian Connections	Community Transportation/ Parking/ Clean Air and Mobility Program	Major Infrastructure
Funds projects to modernize existing traffic signals or add signals to improve safety and mobility. Improvements may include • Adding turning lanes • Shortening crossing distances for pedestrians • Improving sidewalks • Adding curb cuts • Updating signal operations	Funds projects that modernize roadways to improve safety and mobility for all users. Improvements may include • Providing continuous sidewalks and bicycle lanes, cycle tracks, and other bicycle facilities • Updating signals at intersections along a corridor • Improving other corridor infrastructure, such as bridges, drainage, pavement, and roadway geometry	Funds projects to expand bicycle and pedestrian networks to improve safe access to transit, school, employment centers, and shopping destinations. Improvements may include • Constructing new, off-road bicycle or multi-use paths • Improving bicycle and pedestrian crossings, or building new sidewalks • Providing traffic calming, sidewalk network expansion, and other Complete Streets type upgrades • Enhancing signage and lighting	Supports variety of project types: **Community Transportation:** Provides funding to launch locally developed transit services that support first-mile/last-mile connections to existing transit services and other destinations by purchasing shuttle buses and/or funding operating costs. **Park-and-Ride:** Targets funding to construct additional parking at transit stations that are at capacity, or at other viable locations. **Clean Air and Mobility Program:** Funds projects that improve mobility and air quality and promote mode shift (e.g. bike-share projects or shuttle-bus services).	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. May also support transit by flexing highway funds to transit and bridge projects.

KEY: MPO GOALS — Safety; System Preservation; Capacity Management/ Congestion Reduction; Clean Air/ Clean Communities; Transportation Equity; Economic Vitality

Performance Monitoring and Target Setting

Over the past several years, this chapter of the TIP document has focused on broad performance trends pertaining to several MPO goal areas and the anticipated performance of TIP projects funded with Regional Target dollars. During FFY 2018, the MPO began to set targets for the federally required performance measures listed in Tables 4-2 and 4-3. Targets for highway safety performance measures are discussed in the Safety Performance section of this chapter.

During FFY 2019 and subsequent years, the MPO will continue setting targets for these and other federally required measures. If desired, the MPO may set targets for additional measures that are not federally required. As targets are set, the MPO will update and enhance trend and project performance data, and this chapter of the TIP will include descriptions of how TIP investments will help the MPO make progress with respect to performance measures and targets.

MassDOT and Transit Agency Investment Decisions

As discussed in Chapter 2, MassDOT's Capital Investment Plan (CIP) update process identifies priority 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 that relate to these strategic goals. They prioritize individual projects for inclusion in these programs using a process recommended by the Project Selection Advisory Council (PSAC) and based on data from asset management systems maintained by MassDOT agencies. (More information about PSAC criteria is available in Chapter 2.) MassDOT and the MBTA continue to improve the project

selection process by incorporating performance-based plans and data.

The other 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 this document. The Rail and Transit Division also distributes FTA Section 5310 funds and other funds to transit providers in the region—these investments are reflected in the TIP as well.

MassDOT, the MBTA, CATA, and MWRTA continue to address federal performance management requirements and performance-based plans as these go into effect.

FFYs 2019–23 TIP INVESTMENTS SUMMARY

MPO Investment Summary

Table 4-4 shows the distribution of FFY 2019-23 Regional Target funds across the MPO's investment programs and the number of projects that will receive funds in each program.

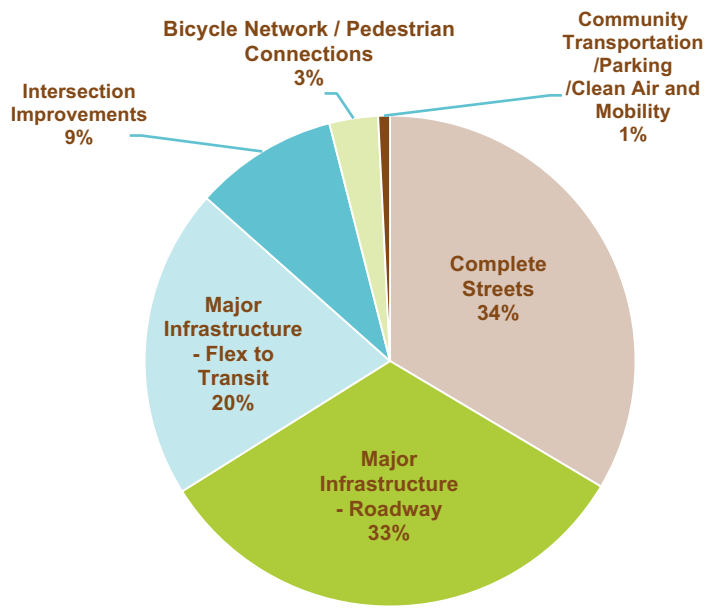
TABLE 4-4
REGIONAL TARGET FUNDING BY MPO INVESTMENT PROGRAM

Investment Program	Projects Receiving Regional Target Funds	Regional Target Funds
Bicycle Network and Pedestrian Connections	2	$16,524,742
Community Transportation/Parking/Clean Air and Mobility[a]	n/a	$4,000,000
Complete Streets	22	$172,924,669
Intersection Improvements	8	$48,795,309
Major Infrastructure—Roadway Projects	4	$167,799,442
Major Infrastructure—Flex to Transit[b]	1	$105,500,000
Total Projects	37	$515,544,161

a The Community Transportation / Parking / Clean Air and Mobility program is under development. Once the program is finalized, the MPO will program projects beginning in FFY 2021.
b The MPO has flexed federal highway improvement dollars to support the Green Line Extension Phase 1.
Source: Boston Region MPO.

Figure 4-2 shows the share of FFYs 2019−23 Regional Target funding in each MPO investment program.

FIGURE 4-2
REGIONAL TARGET FUNDING BY MPO INVESTMENT PROGRAM



Source: Boston Region MPO.

MassDOT and Transit Agency Investments

For more information about highway projects funded by MassDOT or other funding sources, such as earmarks, see Chapter 3. Also see Chapter 3 for more information about transit projects and programs funded by MassDOT or transit agencies.

FFYs 2019–23 TIP PERFORMANCE ANALYSIS

The following sections provide PBPP information for each MPO goal area in detail by discussing (1) relevant trends, initiatives, and planning activities; (2) applicable performance measures and targets; (3) ways that FFYs 2019–23 TIP investments address the MPO's goal areas and relevant performance measures, based on MPO estimates using available project data; and (4) relevant next steps to improve performance monitoring. These sections will be updated annually as the MPO integrates new performance measures, targets, and information into its PBPP practice.

Safety Performance

MPO Goal: Transportation by all modes will be safe

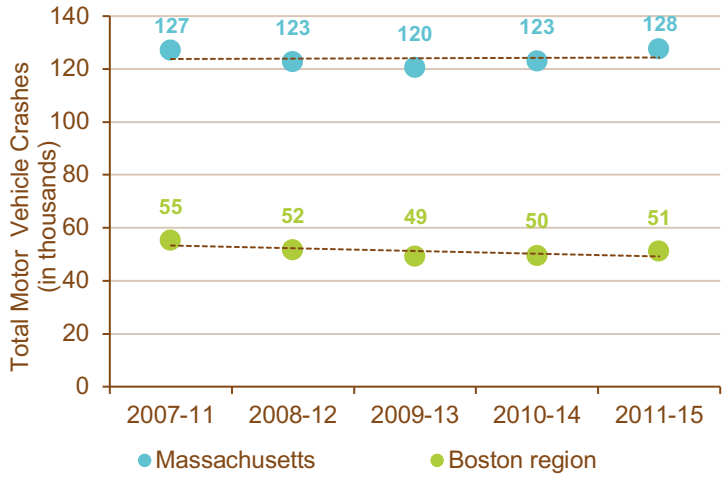
Safety for all transportation modes continues to be a top priority for the Boston Region MPO. The MPO has committed to investing in projects and programs that aim to reduce the number and severity of crashes for all modes, and to reducing serious injuries and fatalities occurring on the transportation system.

Highway Safety Trends

The Commonwealth of Massachusetts and the MPO track traffic incidents, fatalities, and serious 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). During 2017 and 2018, the MPO coordinated with the Commonwealth to analyze safety data and develop targets for federally required highway safety performance measures. This process provided opportunities to examine the Boston region's roadway safety performance in the context of roadway safety performance throughout Massachusetts.

Figure 4-3 shows the recent trend in motor vehicle crashes for both the Boston region and Massachusetts as a whole.[1] In this figure and the figures that follow, safety data is shown in rolling five-year annual averages. The data in Figure 4-3 show that, for the period of analysis, motor vehicle crashes initially decreased statewide and subsequently increased, resulting in a net increase in crashes of 0.5 percent for this period. During the same period, crashes in the Boston region decreased by 7.5 percent.

FIGURE 4-3
TOTAL MOTOR VEHICLE CRASHES



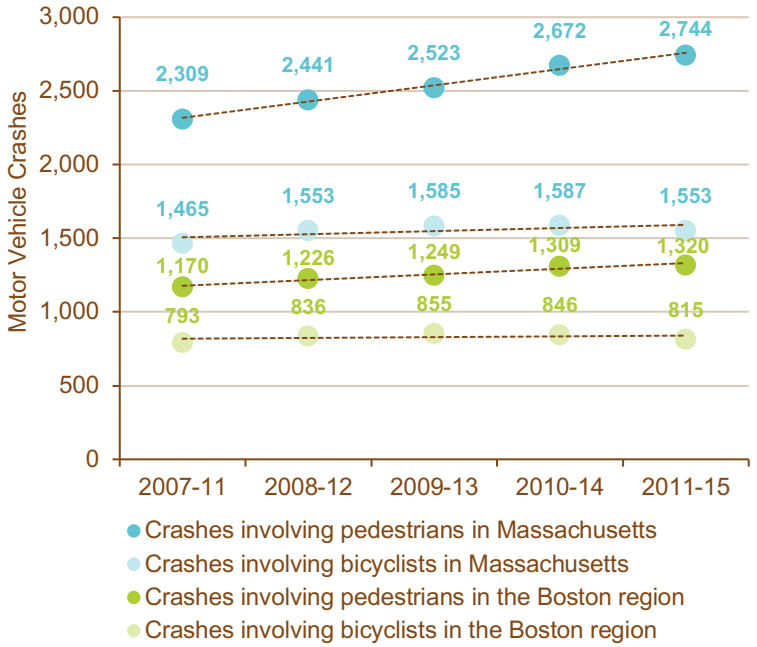
Note: The Boston Region MPO data reflect 101 municipalities.

Source: Massachusetts Crash Data System.

[1] The data for all figures in the Safety Performance section reflects 101 municipalities in the Boston region. In FFY 2018, the total number of municipalities represented by the Boston Region MPO was reduced to 97, with Duxbury, Hanover, Pembroke, and Stoughton transferring to other MPOs. Data analysis for this section began prior to this membership change, and safety data sections in future TIP documents will reflect the change to 97 municipalities.

Figure 4-4 shows the number of motor vehicle crashes in Massachusetts and the Boston region that involved bicyclists and pedestrians. These crashes increased during the analysis period both statewide and in the Boston region. Crashes involving pedestrians increased by higher percentages during this period (18.8 percent for Massachusetts and 12.9 percent for the Boston region) compared to the crashes that involved bicyclists (6 percent for Massachusetts and approximately 2.7 percent for the Boston region).

FIGURE 4-4
MOTOR VEHICLE CRASHES INVOLVING BICYCLISTS OR PEDESTRIANS



Note: The Boston Region MPO data reflect 101 municipalities.

Source: Massachusetts Crash Data System.

Highway Safety Performance Measures and Targets

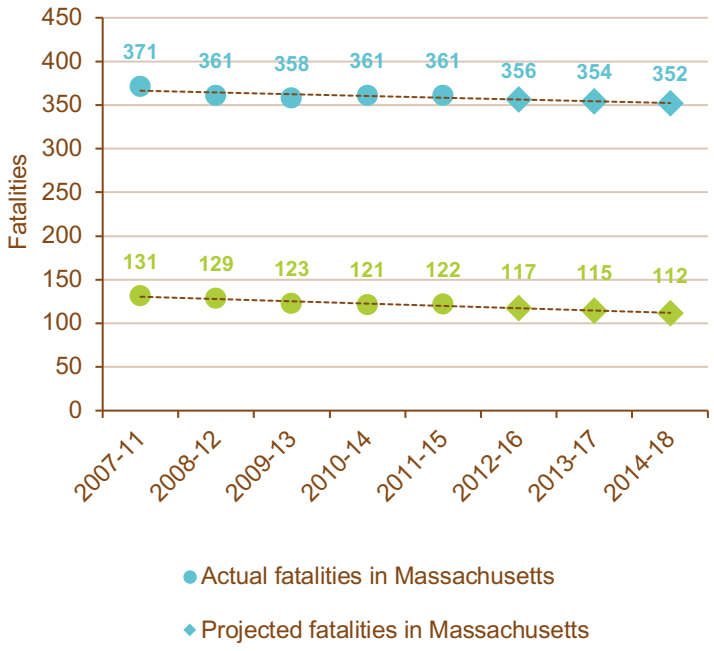
The Commonwealth and the Boston Region MPO also analyzed data for federally required roadway safety performance measures, which are included in Table 4-3. These measures pertain to fatalities and serious injuries from traffic incidents and apply to all public roads. Values for these measures are expressed as five-year rolling annual averages. These measures include the following:

- 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 non-motorized fatalities and non-motorized serious injuries

The Commonwealth and the Boston Region MPO projected values for these measures using linear trend lines based on five-year rolling averages for the years 2007–11, 2008–12, 2009–13, 2010–14, and 2011–15.

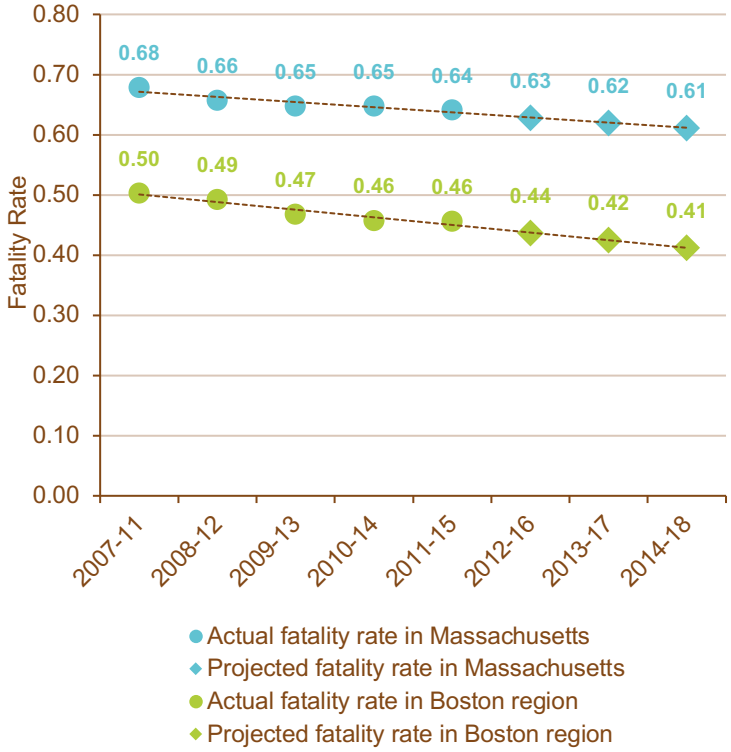
Figure 4-5 shows historic and projected values for fatalities resulting from motor vehicle crashes, while Figure 4-6 shows the fatality rate per 100 million VMT. Fatalities and fatality rates have been declining for both Massachusetts as a whole and for the Boston region. The historic data show that fatalities have declined by a larger percentage in the Boston region (7.2 percent) than in Massachusetts as a whole (2.8 percent). Similarly, the fatality rate in the Boston region declined by 9.2 percent, while the Massachusetts fatality rate declined by 5.5 percent.

FIGURE 4-5
FATALITIES FROM MOTOR VEHICLE CRASHES



Note: The Boston Region MPO data reflect 101 municipalities.
Sources: Federal Fatality Analysis Reporting System, and MassDOT.

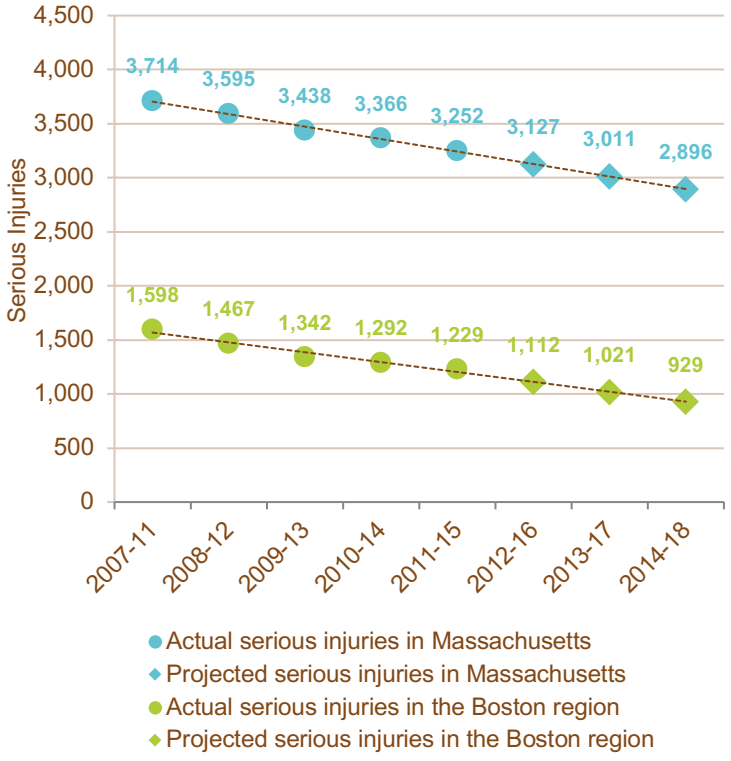
FIGURE 4-6
FATALITY RATE PER 100 MILLION VEHICLE-MILES TRAVELED



Note: The Boston Region MPO data reflect 101 municipalities.
Sources: Federal Fatality Analysis Reporting System, and MassDOT.

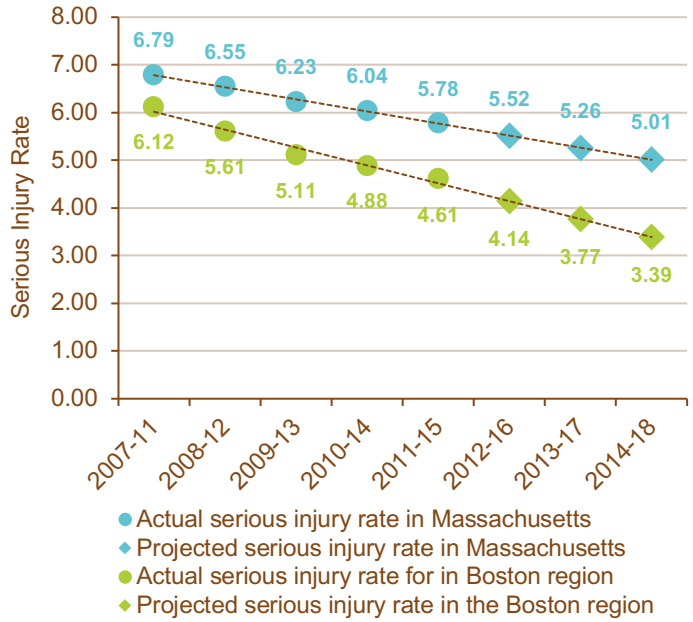
Figure 4-7 shows historic and projected values for people experiencing serious injuries resulting from motor vehicle crashes, and Figure 4-8 shows the serious injury rate per 100 million VMT. Serious injuries and serious injury rates per 100 million VMT are decreasing statewide and in the Boston region. Similar to the fatality trends, serious injuries have decreased by a larger percentage in the Boston region (23.1 percent) than in Massachusetts as a whole (12.4 percent), as has the serious injury rate (24.7 percent in the region as compared to 14.9 percent statewide).

FIGURE 4-7
SERIOUS INJURIES FROM MOTOR VEHICLE CRASHES



Note: The Boston Region MPO data reflect 101 municipalities.
Sources: Massachusetts Crash Data System and MassDOT.

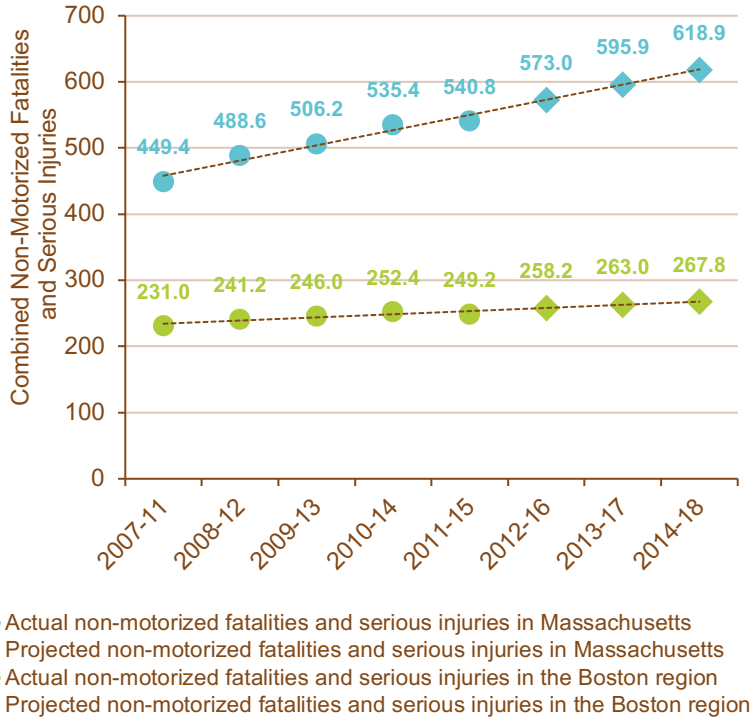
FIGURE 4-8
SERIOUS INJURY RATE PER 100 MILLION VEHICLE-MILES TRAVELED



Note: The Boston Region MPO data reflect 101 municipalities.
Sources: Massachusetts Crash Data System and MassDOT.

Figure 4-9 shows historic and projected values for combined non-motorized fatalities and serious injuries for the Boston region and Massachusetts as a whole. Non-motorized fatalities and serious injuries include those experienced by bicyclists, pedestrians, and others traveling by non-motorized modes (such as skateboards). Unlike the prior measures, values for this measure have been increasing over time for both the Boston region (7.9 percent) and Massachusetts overall (20.3 percent).

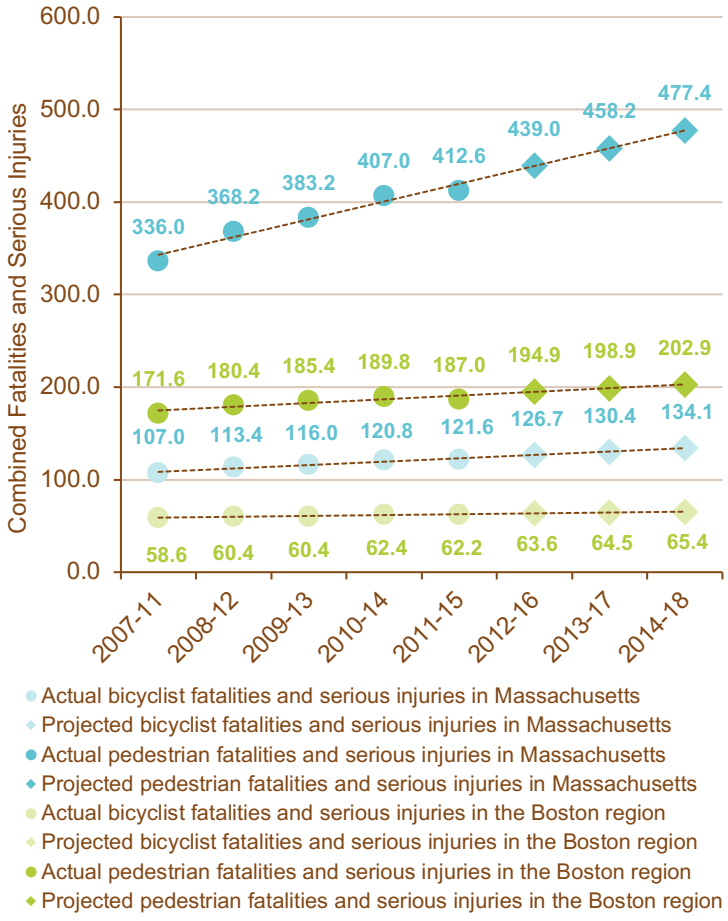
FIGURE 4-9
NON-MOTORIZED FATALITIES AND SERIOUS INJURIES



Note: The Boston Region MPO data reflect 101 municipalities.
Sources: Federal Fatality Analysis Reporting System, Massachusetts Crash Data System, and MassDOT.

Figure 4-10 provides insight about non-motorized fatalities and serious injuries by displaying a breakdown of the numbers of fatalities and serious injuries for pedestrians and bicyclists. The figure shows that for both the Boston region and Massachusetts overall, pedestrian fatalities and serious injuries comprise the bulk of total non-motorized fatalities and serious injuries.

FIGURE 4-10
PEDESTRIAN AND BICYCLIST FATALITIES AND SERIOUS INJURIES



Note: The Boston Region MPO data reflect 101 municipalities.
Sources: Federal Fatality Analysis Reporting System, Massachusetts Crash Data System, and MassDOT.

To meet federal requirements, states and MPOs are required to set targets for specified highway safety performance measures on an annual basis. MPOs can decide to adopt state highway safety targets or to set quantitative targets specific to the MPO's planning area. States and MPOs must coordinate with one another, to the extent practicable, during their respective target-setting processes.

For calendar year (CY) 2018, the Boston Region MPO has adopted the Commonwealth of Massachusetts' highway safety targets. These performance targets for CY 2018 will reflect 2014–18 rolling annual averages, as required by FHWA. Table 4-5 shows the 2011–15 five-year rolling averages and the Commonwealth's CY 2018 targets for each of the five measures.

TABLE 4-5
2018 MASSACHUSETTS STATEWIDE HIGHWAY SAFETY PERFORMANCE TRENDS AND TARGETS

Highway Safety Performance Measure	2015 Safety Measure Value (2011–15 Rolling Average)	2015 Safety Measure Target (Expected 2014–18 Rolling Average)
Number of fatalities	361.0	352.0
Rate of fatalities per 100 million VMT	0.641	0.610
Number of serious injuries	3,251.8	2,896.0
Rate of serious injuries per 100 million VMT	5.779	5.010
Number of non-motorized fatalities and serious injuries	540.8	540.8

VMT = vehicle-miles traveled.
Sources: Federal Fatality Analysis Reporting System, Massachusetts Crash Data System, MassDOT, and Massachusetts Executive Office of Public Safety and Security.

For all measures, except the non-motorized fatalities and serious injuries measure, the Commonwealth used the 2014–18 rolling average values projected by the downward trend lines as its CY 2018 targets. MassDOT recognizes that its initiatives to increase non-motorized travel throughout the Commonwealth have posed a challenge to concurrent activities to reduce non-motorized fatalities and injuries. Rather than adopt a target that reflects an increased amount of non-motorized fatalities and serious injuries, MassDOT has set a CY 2018 target that is equal to the 2011–15 rolling average value. Also, while the Commonwealth has set CY 2018 targets for these five measures to meet federal requirements, it also has a long-term goal to "Move toward Zero Deaths" and eliminate fatalities and serious injuries on Massachusetts roadways.[2]

By adopting MassDOT's highway safety targets, the MPO agrees to plan and program projects so that they contribute to accomplishing the Commonwealth's highway safety targets. This commitment continues the MPO and MassDOT's practice of investing in Complete Streets roadway reconstruction projects, bicycle and pedestrian infrastructure improvements and expansion, and intersection and safety improvement projects in the CIP and the TIP. These investments are designed to make travel safer for people who walk, bicycle, and use other non-motorized modes.

The Boston Region MPO will continue to work with MassDOT to examine how the Commonwealth's and the MPO's planning and programming can help reduce fatalities and serious injuries in the region. During CY 2018, the Commonwealth will be developing its next five-year Strategic Highway Safety Plan and the Boston Region MPO will be developing its next LRTP—both processes will inform future approaches for planning, programming, and monitoring performance to improve safety on Massachusetts roadways. MassDOT and the MPO will coordinate to improve the ways safety and travel data—including bicycle and pedestrian counts—are collected and analyzed. Both organizations will work together to explore other methods and factors to consider when setting future highway safety performance targets and making investments in the transportation system. In the future, TIP documents will continue to discuss MassDOT's and the MPO's targets, and how TIP investments may support improvements in highway safety outcomes. Other safety performance measures the MPO decides to monitor or targets that it chooses to set will be discussed also.

Transit System Safety Performance Measures and Targets

The federal Public Transportation Agency Safety Plan rule, which pertains to performance monitoring for transit system safety, has not yet been finalized; therefore, requirements for transit system safety performance measures have not yet gone into effect. Once this rule is in effect, future TIP documents will include information on relevant performance targets and their relationship to TIP investments. (Table 4-2 lists federally required performance measures for transit systems, including measures pertaining to

[2] Massachusetts Strategic Highway Safety Plan, 2013, p. 1. See also MassDOT's 2017 Tracker Annual Performance report, p. 22.

fatalities, serious injuries, safety events, and system reliability.)

MPO Highway Projects Supporting Safety Performance

When prioritizing its capital investments for the TIP, the MPO uses project-evaluation criteria to determine each project's relative ability to help reduce crash severity for all modes. These criteria assess the safety needs at locations where projects are proposed based on crash rates and crash severity. Crash severity is measured using the Equivalent Property Damage Only (EPDO) index, which weights crashes based on whether they resulted in property damage (weighted by one), injuries (weighted by five), or fatalities (weighted by 10). The MPO also assesses how well projects will address safety issues by considering proposed safety countermeasures that would be implemented. For more information on the MPO's safety-oriented TIP criteria, see Appendix A.

Table 4-6 describes the proximity of roadway projects programmed in FFYs 2019-23 that are funded with Regional Target dollars to MassDOT-identified crash cluster locations. MassDOT establishes these crash clusters using a procedure for processing, standardizing, matching, and aggregating crash data.[3] MassDOT's all-mode Highway Safety Improvement Program (HSIP) clusters are used to identify locations that are eligible for federal HSIP funding (for more information on this funding type, see Chapter 2). These all-mode HSIP clusters rank in the top five percent of crash clusters within each regional planning agency area, based on a ranking scheme that accounts for EPDO index values, among other factors. MassDOT also used a crash aggregation methodology for identifying bicycle crash clusters and pedestrian crash clusters.[4] When evaluating TIP projects, MPO staff notes whether a project would be located within the vicinity of these types of clusters. These indicators help the MPO identify whether projects are addressing locations that have relatively high crash incidences and/or high fatality and injury incidences. Table 4-6 also shows the number of areas with Regional Target projects where crashes involving fatalities, injuries, bicyclists, or pedestrians have occurred.

[3] For more information, see MassDOT's Top Crash Locations and Maps page at http://www.massdot.state.ma.us/highway/Departments/TrafficandSafetyEngineering/CrashData/TopCrashLocationsandMaps.aspx.

[4] For more information, see MassDOT's 2014 Top Crash Locations Report, http://www.massdot.state.ma.us/Portals/8/docs/traffic/CrashData/14TopCrashLocationsRpt.pdf, pp. 4-5.

TABLE 4-6
SAFETY METRICS

Metric	Total Value
All-mode HSIP cluster locations addressed by projects	22 clusters
HSIP pedestrian cluster locations addressed by projects	7 clusters
HSIP bicycle cluster locations addressed by projects	2 clusters
Project areas where fatal crashes have occurred	8 areas
Project areas where crashes involving injuries have occurred	33 areas
Project areas where crashes involving pedestrians have occurred	24 areas
Project areas where crashes involving bicyclists have occurred	15 areas

Note: All-mode HSIP clusters are based on crash data from 2013 to 2015. HSIP bicycle clusters and HSIP pedestrian clusters are based on data from 2006 to 2015. Analysis of crashes in Regional Target funded project locations is based on crash data from 2013 to 2015. The group of projects reflected in this table does not include the Green Line Extension.

Source: Massachusetts Crash Data System, MassDOT, and the Boston Region MPO.

Based on these metrics, the MPO expects that investments made at these locations are likely to address safety issues and help the MPO and the Commonwealth progress towards reducing fatalities and serious injuries on the roadway network. The MPO will work with MassDOT and other Commonwealth agencies to investigate other ways to anticipate the effects of TIP projects on highway safety outcomes.

System Preservation Performance

MPO Goal: Maintain the transportation system

System preservation is a priority for the Boston Region MPO because the region's transportation infrastructure is aging. The demands placed on highway and transit facilities have been taxing to the point that routine maintenance is insufficient to keep up with the need. As a result, there is a significant backlog of maintenance and state-of-good-repair work to be done on the highway and transit systems, including on bridges, roadway pavement, transit rolling stock, and other infrastructure. It is also important to improve the resiliency of the region's transportation system to prepare for existing or future extreme conditions, such as sea level rise and flooding.

Highway System Preservation Trends

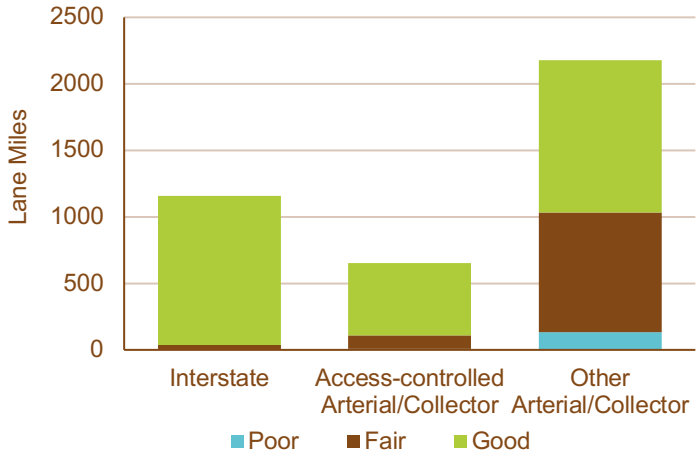
As of 2014, MassDOT's Pavement Management Program monitored approximately 3,990 lane miles of interstate, access-controlled arterial and collector roadways, and other arterial and collector roadways in the Boston region.[5] Roadway segments are assigned a pavement condition value based on the International Roughness Index (IRI), which can be converted to a *good, fair, or poor* rating.

Figure 4-11 shows the number of interstate, access-controlled arterial and collector, and other arterial and collector lane miles that are in *good*, *fair*, or *poor* condition, according to the 2014 year-end

[5] This monitoring accounts for approximately 46 percent of the interstate, arterial, and collector roadways (approximately 8,742 lane miles) and approximately 18 percent of all roadways (22,639 lane miles) in the Boston region, according to the Boston Region MPO lane miles listed in the MassDOT's 2014 Road Inventory Year-End Report.

Massachusetts Road Inventory file.[6] Approximately 70 percent of all monitored roadway lane miles are in *good* condition, 26 percent are in *fair* condition, and four percent are in *poor* condition. However, MassDOT-maintained arterial and collector roadways without access controls account for a disproportionate share of substandard roadway lane miles. This roadway type accounted for 55 percent of the monitored roadway lane miles in 2014, but about 88 percent of the roadway lane miles that were in substandard (*fair* or *poor*) condition.

FIGURE 4-11
PAVEMENT CONDITION IN THE BOSTON REGION BY ROADWAY CLASSIFICATION (2014)



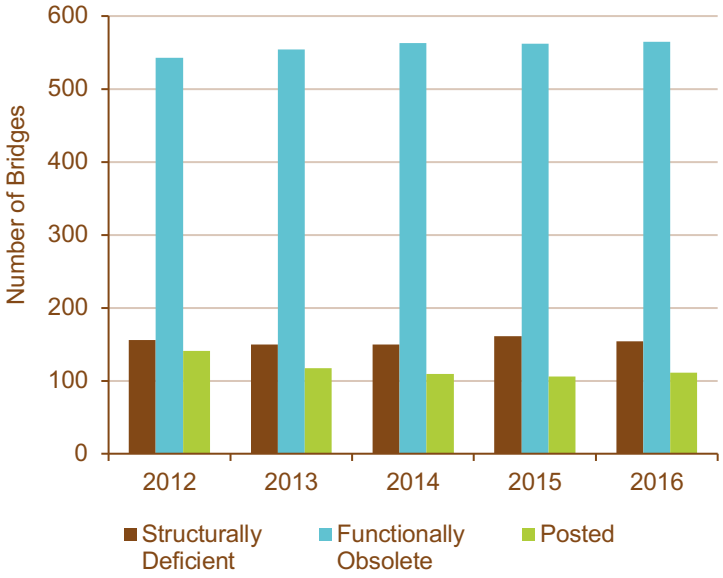
Note: This chart reflects data recorded in the 2014 year-end Massachusetts Road Inventory file, which includes pavement data collected primarily in 2013. *Good*, *fair*, and *poor* classifications are based on IRI ratings. This chart displays data for the 97 municipalities in the Boston region.
Source: MassDOT Pavement Management Program.

MassDOT also monitors the condition of its bridges across the state. As of calendar year 2016, there were 2,850 bridges located within the Boston region. Some are in substandard condition because they have been deemed by MassDOT bridge inspectors to be structurally deficient, functionally obsolete, or weight restricted (posted). *Structurally deficient* bridges are those that are not necessarily unsafe, but that have deteriorated in ways that reduce the load-carrying capacity of the bridge. *Functionally obsolete* bridges are not necessarily unsafe either, but they do not meet current traffic demands or are not built to current design standards. A bridge may be posted as weight restricted to ensure traveler safety.

Figure 4-12 displays the condition of substandard bridges in the Boston region between 2012 and 2016. During this period, the percentage of structurally deficient bridges ranged between five and six percent of all bridges in the region. The share of functionally obsolete bridges increased from 19 to 20 percent, and the share of posted bridges declined from five to four percent.

[6] For this analysis, pavement is considered 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.

FIGURE 4-12
CONDITION OF SUBSTANDARD BRIDGES IN THE BOSTON REGION



Note: This chart displays data for the 97 municipalities in the Boston region.
Source: MassDOT Bridge Inventory.

Highway System Preservation Performance Measures and Targets

Table 4-3, which lists federally required performance measures for highway systems, includes measures pertaining to the condition of bridges and pavement on the NHS. MassDOT and the Boston Region MPO are in the process of setting their initial targets for these measures. These target-setting processes will be informed by MassDOT's bridge and pavement management data. They also will be informed by MassDOT's upcoming Transportation Asset Management Plan, which will describe the condition of NHS bridges and pavement, and identify investment strategies and a financial plan for making improvements. Future TIP documents will include information on NHS bridge and pavement performance targets, relevant trend data, and a description of how projects included in the TIP may support progress on these performance measures. Information about other system preservation performance measures the MPO may choose to monitor or targets that it may set may be reflected in future TIPs.

Transit System Asset Condition Performance Measures and Targets

Table 4-2 lists a set of federally required infrastructure condition performance measures for transit systems. These transit asset management (TAM) measures, which focus on a specific subset of all transit assets, were established in the Federal Transit Administration's (FTA) TAM Rule and are detailed in Table 4-7.

TABLE 4-7
TAM PERFORMANCE MEASURES BY TRANSIT ASSET CATEGORY

Transit Asset Category	Relevant Assets	Measure	Measure Type
Equipment	Service support, maintenance, and other non-revenue vehicles	Percent of vehicles that have met or exceeded their ULB	Age-based
Rolling Stock	Buses, vans, and sedans; light and heavy rail cars; commuter rail cars and locomotives; and ferry boats	Percent of vehicles that have met or exceeded their ULB	Age-based
Infrastructure	Fixed guideway track	Percent of track segments with performance (speed) restrictions, by mode	Performance-based
Facilities	Passenger stations, parking facilities, administration and maintenance facilities	Percent of assets with condition rating lower than 3.0 on the FTA TERM Scale	Condition-based

FTA = Federal Transit Administration. TAM = Transit Asset Management. TERM = Transit Economic Requirements Model. ULB = Useful Life Benchmark.
Source: FTA, including the TAM Rule (49 CFR Part 625).

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.[7] FTA's Transit Economic Requirements Model (TERM) scale, which pertains to the facilities measure, is a rating system that describes asset condition. The scale values are 1 (*poor*), 2 (*marginal*), 3 (*adequate*), 4 (*good*), and 5 (*excellent*).[8] Because each measure is intended to represent the share of transit assets that are not in a state of good repair, the goal is to minimize the value for all four measures.

FTA grantees—including transit agencies and agency sponsors, such as MassDOT—are required to develop targets for these measures each fiscal year. MPOs, in turn, are required to set targets for their regions. The MPO has been increasing its coordination with MassDOT and RTAs—including the MBTA, MWRTA, and CATA, which report their federally funded investments in the Boston Region MPO's TIP—to better understand the condition of transit assets in the Boston region. The MPO is also working with the MBTA, CATA, MWRTA and MassDOT to establish an initial set of TAM targets for the Boston region.

The Boston Region MPO will continue to collaborate with the MBTA, CATA and MWRTA to bring the

[7] FTA. Default Useful Life Benchmark Cheat Sheet. October 26, 2016. www.transit.dot.gov/TAM/ULBcheatsheet.
[8] FTA. Performance Management. November 15, 2017. www.transit.dot.gov/PerformanceManagement.

region's transit assets into a state of good repair. During CY 2018, these transit agencies will address FTA TAM requirements by developing asset inventories and condition assessments. These agencies will also create TAM plans, which will provide frameworks for how these agencies will prioritize investments to improve transit asset condition. MassDOT's Rail and Transit Division will manage the development of a combined TAM Plan, asset inventories and condition assessments, and targets for other transit providers in the Boston region that receive FTA Section 5310 funding. All of these activities will inform future performance monitoring, target setting, and decision making by transit agencies, MassDOT, and the MPO. Future TIP documents will discuss transit agency and MassDOT TAM activities, MPO TAM targets, and how transit investments included in the TIP support improvements for transit state of good repair.

MPO Projects Supporting Highway System Preservation

In prioritizing capital investments for the TIP, the MPO uses project-evaluation criteria to assess how well each project funded with Regional Target dollars may advance the MPO's System Preservation goal by improving pavement, bridge, signal, and asset condition. While it has been the policy of the MPO not to fund resurfacing-only projects using Regional Target funds, the MPO funds roadway reconstruction projects that include resurfacing, usually full-depth reconstruction, in addition to other design elements. 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. While the MassDOT Bridge program remains the primary funding source for replacement or rehabilitation of substandard bridges, Regional Target investments contribute modestly to bridge preservation. Table 4-8 shows the MPO's estimates of how FFYs 2019–23 Regional Target investments are expected to improve the condition of the region's transportation facilities.

TABLE 4-8
SYSTEM PRESERVATION METRICS

Metric	Total Value
Substandard bridges improved	6 bridges currently used by 117,600 vehicles per day
Lane miles of substandard pavement improved	71 lane miles currently used by 645,700 vehicles per day
Miles of substandard sidewalks improved	44 miles
Projects that improve emergency response	24 projects
Projects that improve the ability to respond to extreme conditions	7 projects

Note: The group of projects reflected in this table does not include the Green Line Extension. Estimates of vehicles per day have been rounded to the nearest hundred.

Source: Boston Region MPO.

Capacity Management and Mobility Performance

MPO Goal: Use existing facility capacity more efficiently and increase healthy transportation capacity

Through its goal and objectives for capacity management and mobility, the MPO seeks to maximize the region's existing transportation system so that both people and goods can move reliably and connect to key destinations. Much of the Boston region is densely developed, which creates challenges to making major changes to its transportation infrastructure to address access, reliability, and congestion mitigation needs.

Capacity Management and Mobility Trends

In order to determine how well the region's roadways are performing with respect to mobility, the MPO applies performance measures that gauge the duration, extent, intensity, and reliability (or regularity) of the occurrence of congestion. MPO staff analyzes congestion in the region using the Congestion Management Process (CMP) Express Highway and Arterial Performance Dashboards, which can be viewed at bostonmpo.org/applications.

MPO staff established congestion thresholds for the region's express highways and arterial roadways based on travel time index (TTI), which is the average peak-period travel time divided by free-flow travel time. When the average peak-period travel time equals free-flow travel time, the index equals one (1); higher values indicate more congestion.

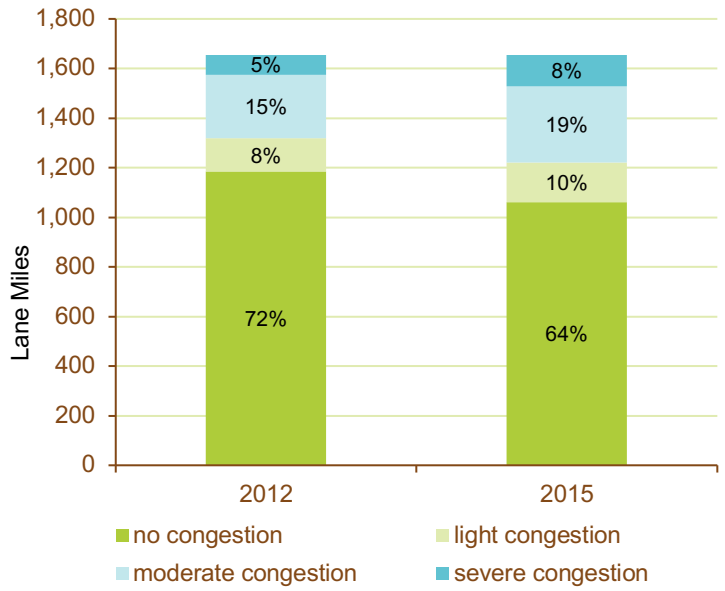
The MPO's TTI-based congestion thresholds are as follows:

- 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)

Speed and travel time data help the Boston Region MPO to understand how congestion is changing on the region's express highways and arterial roadways. Figures 4-13 through 4-16 compare congestion levels based on data from 2012 to congestion levels based on data from 2015. Each figure reflects a different combination of roadway type and time of day. These figures show both the total lane miles experiencing each level of congestion and the percent of CMP-monitored roadways experiencing each level of congestion.

Congestion is getting worse on the region's expressways. While 28 percent of CMP-monitored express highways experienced some congestion during the AM peak period in 2012, this share increased to 37 percent in 2015 (Figure 4-13). The number of lane miles experiencing moderate congestion increased by 53 lane miles (21 percent) between these two time periods, while the number of lane miles experiencing severe congestion increased by approximately 47 lane miles (60 percent).

FIGURE 4-13
LANE MILES OF CONGESTION ON CMP-MONITORED EXPRESSWAYS IN THE AM PEAK PERIOD, 2012 AND 2015

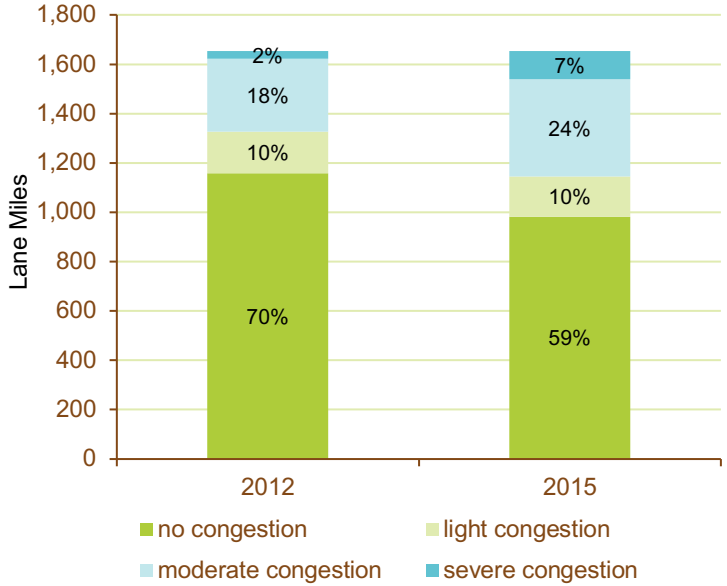


Note: This chart displays data for the 97 municipalities in the Boston Region. The AM peak period for expressways is from 6:00 AM to 10:00 AM.

Source: Boston Region MPO Congestion Management Process, 2012 and 2015 INRIX data.

During the PM peak period, 30 percent of monitored expressways experienced some level of congestion in 2012—by 2015, this increased to 41 percent (Figure 4-14). The number of lane miles experiencing moderate congestion increased by 97 lane miles (33 percent), while the number of lane miles experiencing severe congestion increased by 83 lane miles (258 percent).

FIGURE 4-14
LANE MILES OF CONGESTION ON CMP-MONITORED EXPRESSWAYS IN THE PM PEAK PERIOD, 2012 AND 2015



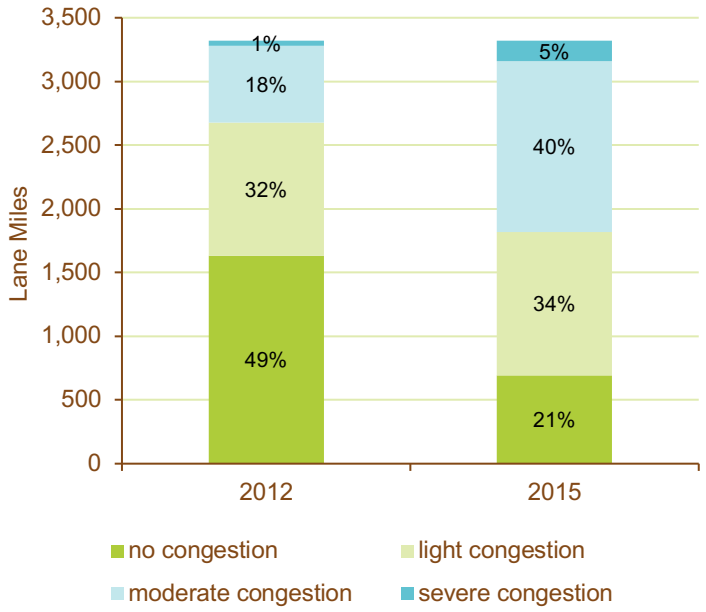
Note: This chart displays data for the 97 municipalities in the Boston Region. The PM peak period for expressways is from 3:00 PM to 7:00 PM.

Source: Boston Region MPO Congestion Management Process, 2012 and 2015 INRIX data.

Congestion was worse on arterial roadways than on expressways even in 2012, and arterial roadway congestion has become worse based on 2015 data. In the AM peak period, 51 percent of arterial roadways experienced congestion to some degree in 2012. In 2015, 79 percent experienced congestion (Figure 4-15). The number of lane miles experiencing moderate congestion increased by approximately 742 lane miles (124 percent) between these two time periods, while the number of lane miles experiencing

severe congestion increased by approximately 117 lane miles (287 percent).

FIGURE 4-15
LANE MILES OF CONGESTION ON CMP-MONITORED ARTERIAL ROADWAYS IN THE AM PEAK PERIOD, 2012 AND 2015

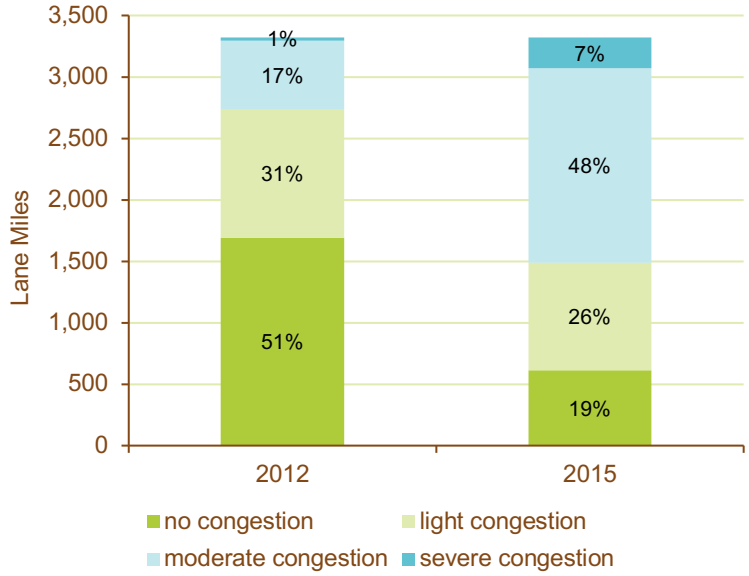


Note: This chart displays data for the 97 municipalities in the Boston Region. The AM peak period for arterial roadways is from 6:30 AM to 9:30 AM.
Source: Boston Region MPO Congestion Management Process, 2012 and 2015 INRIX data.

During the PM peak period, 49 percent of monitored expressways experienced some degree of congestion in 2012. By 2015, congestion increased to 81 percent (Figure 4-16). The number of lane miles experiencing moderate congestion increased by 1,016 lane miles (179 percent), while the number of lane miles

experiencing severe congestion increased by 224 lane miles (more than 1,000 percent).

FIGURE 4-16
LANE MILES OF CONGESTION ON CMP-MONITORED ARTERIAL ROADWAYS IN THE PM PEAK PERIOD, 2012 AND 2015



Note: This chart displays data for the 97 municipalities in the Boston region. The PM peak period for arterial roadways is from 3:30 PM to 6:30 PM.
Source: Boston Region MPO Congestion Management Process, and 2012 and 2015 INRIX data.

Overall, the trends presented here highlight the need to address growing congestion on the region's roadways. The MPO will work to gather and analyze data to capture capacity management and mobility trends for other modes, such as transit, bicycle, and

pedestrian travel, which can be incorporated into future TIPs.

Capacity Management and Mobility Measures and Targets

Table 4-3, which lists federally required performance measures for highway systems, includes measures pertaining to reliability of person-miles traveled on the Interstates and the non-Interstate National Highway System (NHS). FHWA also requires states and MPOs to monitor and set targets related to the following:

- truck travel time reliability on the interstate system
- the peak hours of excessive delay (PEHD) per capita experienced by those traveling on NHS roadways
- the non-single-occupant-vehicle (non-SOV) travel share of total travel

These target-setting processes will be informed by a variety of data sources, including FHWA's National Performance Management Research Data Set (NPMRDS). MassDOT and the Boston Region MPO are in the process of setting initial targets for these measures, and will coordinate with other states and MPOs in the Boston urbanized area—which extends into New Hampshire and Rhode Island— for the PEHD and non-SOV travel measures. Future TIP documents will include information on these targets, relevant trend data, and a description of how projects included in the TIP may help improve reliability, reduce delay, and enable more travel by non-SOV modes.

The MPO has not yet established other performance measures specific to capacity management and mobility, such as measures that could be used to track access to transit service or bicycle and pedestrian facilities. In future TIP documents, this chapter may also include information about other MPO capacity management and mobility measures and targets.

MPO 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-occupancy-vehicle (SOV) travel, such as by extending 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 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) or helps reduce congestion and delay. For more information on the MPO's capacity management and mobility-oriented TIP criteria, see Appendix A.

Table 4-9 shows the MPO's estimates of how FFYs 2019–23 Regional Target-funded highway investments address these areas.

TABLE 4-9
CAPACITY MANAGEMENT AND MOBILITY METRICS

Metric	Total Value
Net reduction in vehicle hours of delay per day[a]	13,900 hours per day
Miles of new sidewalks added	14 miles
Lane miles of new bicycle facilities and shared-use paths	63 lane miles
Projects that improve intermodal connections or access to transit	29 projects

Note: The group of projects reflected in this table does not include the Green Line Extension.

a Calculations for reduced daily vehicle delay were conducted for a set of projects that exclude several highway projects that were included in the air quality modeling results in *Charting Progress to 2040*. This aggregate estimate is based on projected future conditions for project locations and has been rounded to the nearest hundred.

Source: Boston Region MPO.

Clean Air/Clean Communities Performance

MPO Goal: Create an environmentally friendly transportation system

When making investments in the region's transportation system, the Boston Region MPO seeks to invest in projects and programs 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.

Clean Air/Clean Communities Measures and Targets

Table 4-3, which lists federally required performance measures for highway systems, includes a measure for percent changes in tailpipe carbon dioxide (CO_2) emissions on the NHS, as compared to calendar year 2017 levels. MassDOT and the Boston Region MPO are in the process of setting their initial targets for this measure. Future TIP documents will include information on this CO_2 measure and related targets, as well as a description of how projects included in the TIP may support progress on these performance measures.[9] The MPO also will continue to monitor and evaluate the GHG impacts of projects to meet GWSA requirements—for more information about these activities, see Chapters 1 and 2 and Appendix B. This chapter may also reflect information about other air quality or environmental performance

[9] FHWA has since issued a notice of proposed rulemaking that would repeal this measure, which has not yet been finalized. While a repeal of this measure may affect specific aspects of the MPO's GHG performance monitoring, MassDOT and the Boston Region MPO will continue to monitor and report on GHG emissions from transportation projects in accordance with the Global Warming Solutions Act.

measures the MPO may choose to monitor or targets that it has set.

MPO Projects Supporting Clean Air/Clean 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 and to advance the MPO's goal of promoting clean air and clean communities. Transportation projects can support reductions in CO_2, volatile organize compounds (VOCs), nitrogen oxides (NO_x) and carbon monoxide (CO) by improving traffic flow and bicycle and pedestrian travel.

Table 4-10 shows the MPO's estimates of how projects funding with FFYs 2019–23 Regional Target dollars are expected to reduce CO_2 and other emissions.

TABLE 4-10
CLEAN AIR/CLEAN COMMUNITIES METRICS

Metric	Total Value
Annual kilograms of CO_2 reduced	12,999,000 kilograms
Annual kilograms of VOCs, NOx, and CO reduced	21,200 kilograms

Note: The group of projects reflected in this table does not include the Green Line Extension. Calculations for reduced daily vehicle delay exclude results for several highway projects that were included in the air quality modeling results in *Charting Progress to 2040*. Estimates in this table 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 oxides; VOCs = volatile organic compounds.

Source: Boston Region MPO.

Transportation Equity Performance

MPO Goal: Provide comparable transportation access and service quality among communities, regardless of income level or minority population

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. To this end, the MPO systematically integrates the concerns of specific populations it has identified as *transportation equity populations* into its planning process and strives to address these concerns through its selection of transportation projects.

When making investment decisions, the MPO considers whether projects would serve and benefit several transportation equity populations: people who identify as minorities, have limited English proficiency (LEP), are 75 or older, or have a disability; or members of low-income households or zero-vehicle households.[10] 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 zero-vehicle households).

The analyses that follow apply only to projects that receive the MPO's Regional Target funding, the

[10] People who identify as minorities are those who identify as Hispanic or Latino/Latina/x and/or a race other than "white."

source of which is the FHWA Highway Program (see Chapter 2). Most of the MPO's FFYs 2019-23 Regional Target funds have been invested in highway projects, except for funds that have been flexed to the Transit Program to support the MBTA's Green Line Extension project. 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 received by transportation equity populations.

Table 4-11 shows the total number of people or households in each transportation equity population in the MPO region, as well as their share of the total population or households.

TABLE 4-11
TRANSPORTATION EQUITY POPULATIONS IN THE BOSTON REGION

Transportation Equity Category	Transportation Equity Population	Boston Region Total Population	Share of Boston Region Total Population
Minorities	870,459	3,087,796	28.2%
People with Limited English Proficiency [a]	308,770	2,915,559	10.6%
Elderly (age 75 or older)	206,578	3,087,796	6.7%
People with Disabilities[b]	306,776	3,056,697	10.0%
Low-Income Households[c]	393,192	1,216,550	32.3%
Zero-Vehicle Households	196,460	1,216,550	16.1%

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 zero-vehicle household categories, the amounts in these columns reflect numbers of households. The table reflects the change in the Boston Region MPO membership starting in FFY 2018, from 101 to 97 municipalities.

a Limited English proficiency is tabulated for the population aged five and older.

b Disability status is tabulated for the civilian noninstitutionalized population.

c The median household income in the Boston region was $75,654 according to 2010–14 American Community Survey data. The MPO's low-income threshold is 60 percent of this value, or $45,392.

Source: Data from 2010 US Census and 2010–14 American Community Survey.

During project evaluation, the MPO identifies projects that would benefit transportation equity populations by giving points to projects with the potential 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 4-11.The number of points awarded to each qualifying project is based on the total number of people or households in the transportation equity population. Appendix A shows the scores for projects evaluated during the FFYs 2019–23 development cycle.

While the TIP project criteria are designed to evaluate individual projects, MPO staff also analyzes the transportation equity population that is served by the full set of projects funded with Regional Target dollars. Table 4-12 shows the size of the transportation equity 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 transportation equity 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 4-12
TRANSPORTATION EQUITY POPULATIONS WITHIN ONE-HALF MILE OF PROJECTS FUNDED WITH REGIONAL TARGET FUNDS

Transportation Equity Category	Transportation Equity Population in Project Area	Total Population in Project Area	Share of Population in Project Area	Share of Boston Region Total Population
Minorities	153,593	445,108	34.5%	28.2%
People with Limited English Proficiency [a]	66,365	421,447	15.7%	10.6%
Elderly (age 75 or older)	30,656	445,108	6.9%	6.7%
People with Disabilities [b]	42,573	440,305	9.7%	10.0%
Low-Income Households [c]	71,100	180,130	39.5%	32.3%
Zero-Vehicle Households	44,080	180,130	24.5%	16.1%

Note: For the minority population, people with limited English proficiency, 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 zero-vehicle 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 2019-23 TIP with Regional Target dollars. The table reflects the change in the Boston Region MPO membership starting in FFY 2018, from 101 to 97 municipalities. The table does not include the Community Transportation/Parking/Clean Air and Mobility investment program because specific projects have not yet been identified for the program.

a Limited English proficiency is tabulated for the population aged five and older.

b Disability status is tabulated for the civilian noninstitutionalized population.

c The median household income in the Boston region was $75,654, according to in 2010–14 American Community Survey data. The low income threshold is 60 percent of this value, or $45,392.

Sources: 2010 U S Census, 2010–14 American Community Survey, and the Boston Region MPO.

Table 4-13 shows the number of households or people in each transportation equity 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, transportation equity populations are well-served by most MPO investment programs. In particular, the share of people or households served by the Complete Streets, Major Infrastructure—Roadway Projects, and Major Infrastructure—Flex to Transit investment programs far exceeds the regional share for nearly every transportation equity population. On the other hand, projects in the Bicycle Network and Pedestrian Connections investment program serve a smaller share of transportation equity populations compared to their 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 could affect the extent to which the overall program is able to serve transportation equity populations.

TABLE 4-13
MPO INVESTMENT PROGRAMS SERVING TRANSPORTATION EQUITY POPULATIONS

MPO Investment Program	Number of Projects Receiving Regional Target Funding	Minorities in Project Area		People with Limited English Proficiency in Project Area[a]		Elderly (age 75 or older) in Project Area		People with Disabilities in Project Area[b]		Low-Income Households in Project Area[c]		Zero-Vehicle Households in Project Area	
		Population	Share	Population	Share	Population	Share	Population	Share	Population	Share	Population	Share
Bicycle Network and Pedestrian Connections	2	849	12.6%	163	2.5%	483	7.1%	412	6.1%	328	13.5%	92	3.8%
Complete Streets	22	96,333	36.1%	45,429	18.1%	17,896	6.7%	26,610	10.0%	43,727	41.2%	24,231	22.8%
Intersection Improvements	8	2,665	10.8%	3,639	15.5%	2,478	10.0%	2363	6.7%	3,491	31.7%	1,039	9.4%
Major Infrastructure–Roadway Projects	4	31,114	42.7%	8,583	12.4%	6,296	8.6%	7,320	10.4%	13,241	45.3%	11,272	38.6%
Major Infrastructure–Flex to Transit[d]	1	22,632	30.6%	8,551	12.1%	3,503	4.7%	5,868	7.9%	10,313	32.9%	7,446	23.8%
Total	**37**	**153,593**	**34.5%**	**66,365**	**15.7%**	**30,656**	**6.9%**	**42,573**	**9.7%**	**71,100**	**39.5%**	**44,080**	**24.5%**
Share of Boston Region Total Population	**N/A**	**870,459**	**28.2%**	**308,770**	**10.6%**	**206,578**	**6.7%**	**306,776**	**10.0%**	**393,192**	**32.3%**	**196,460**	**16.1%**

Note: For the minority population, people with limited English proficiency, elderly population, and people with disabilities categories, the numbers in the "Population" columns for each transportation equity population reflect numbers of people. For the low-income and zero-vehicle 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 2019–23 TIP with Regional Target dollars. The table reflects the change in the Boston Region MPO municipalities starting in FFY 2018, from 101 to 97 municipalities. The table does not include the Community Transportation/Parking/Clean Air and Mobility investment program because specific projects have not yet been identified for the program.

a Limited English proficiency is tabulated for the population aged five and older.

b Disability status is tabulated for the civilian noninstitutionalized population.

c The median household income in the Boston region was $75,654, according to 2010–14 American Community Survey data. The low income threshold is 60 percent of this value, or $45,392.

d The MPO has flexed federal highway improvement dollars to support the Green Line Extension Phase 1.

Sources: 2010 U S Census, 2010–14 American Community Survey, and the Boston Region MPO.

Table 4-14 shows the total funding allocated to transportation equity populations 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 and Figure 4-2, the MPO has programmed approximately $516 million in Regional Target funding in the FFYs 2019–23 TIP. Equity populations receive slightly less funding when compared to non-equity populations. The MPO will continue to track these data and ensure that equity populations are considered when projects are evaluated for inclusion in the TIP. In future TIPs, the MPO may make appropriate programming adjustments to ensure the equitable distribution of funds.

TABLE 4-14
FUNDING PER PERSON OR HOUSEHOLD FOR EQUITY POPULATIONS WITHIN ONE-HALF MILE OF PROJECTS PROGRAMMED WITH REGIONAL TARGET FUNDS

Transportation Equity Category	Funding per Person or Household
Minorities	$825
Non-Minorities	$1,320
People with Limited English Proficiency[a]	$789
People fluent in English	$1,293
Elderly (age 75 or older)	$1,085
People under age 75	$1,154
People with Disabilities[b]	$1,050
People without Disabilities	$1,174
Low-Income Households[c]	$2,238
Non-Low-Income Households	$3,232
Zero-Vehicle Households	$2,131
Households With at Least One Vehicle	$3,070

Note: For the minority population, people with limited English proficiency, elderly population, and people with disabilities categories, the numbers in the "Funding per Person or Household" column for each equity population reflect funding per person. For the low-income and zero-vehicle 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 because specific projects have not yet been identified for the program.

a Limited English proficiency is tabulated for the population aged five and older.

b Disability status is tabulated for the civilian noninstitutionalized population.

c The median household income in the Boston region was $75,654, according to 2010–14 American Community Survey. The MPO's low-income threshold is 60 percent of this value, or $45,392.

Sources: 2010 U S Census, 2010–14 American Community Survey, Boston Region MPO.

These analyses are basic approaches to understanding whether transportation equity populations would benefit from projects programmed in the TIP. They assume that projects only provide

benefits to the people who live nearby, which is not always the case. They also do not identify burdens that a project may impose. Recognizing these limitations, the MPO is exploring more sophisticated methods for identifying the specific benefits and burdens of Regional Target projects on transportation equity populations. Key to this approach will be linking the analyses to existing project criteria and tracking the results over time. Staff anticipates enhancing these analyses each year.

Economic Vitality Performance

MPO Goal: Ensure our transportation network provides a strong foundation for economic vitality

The MPO's economic vitality goal supports the Boston region's land-use plan, *MetroFuture*, which was developed by the Metropolitan Area Planning Council (MAPC).

One of *MetroFuture's* strategies is to coordinate transportation investments to guide economic growth in the region. MAPC worked with its state 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, and for preserving open space in the future. These agencies identified the infrastructure improvements required to support the outcomes planned for these local, regional, and state-level priority development and preservation areas.

This process identified locations that are best suited to support the type of continued economic vitality and future growth that the market demands and communities desire. Identifying these key growth and preservation locations also helps MAPC, the Boston Region MPO, and state agencies to understand both the infrastructure and technical-assistance needs required to support MetroFuture's vision and to prioritize limited regional and state funding for development and land preservation.

When evaluating TIP projects, the MPO assesses how well each project considered for TIP funding advances *MetroFuture's* land-use planning. This means supporting investments in locations that have already been developed for residential, commercial, or industrial use; locations with adequate sewer and water infrastructure; areas identified for economic development by state, regional, and local planning; and areas with a relatively high density of existing development.

Economic Vitality Measures and Targets

Table 4-3, which lists federally required performance measures for highway systems, includes a measure pertaining to the reliability of freight movement on the interstate highway system. While this measure has the most direct implications for the MPO's Capacity Management/Mobility goal, reliable freight movement also supports economic vitality. MassDOT and the Boston Region MPO are in the process of setting their initial targets for this measure. Future TIP documents will include information on these targets, relevant trend data, and a description of how projects included in the TIP may support more reliable freight movement on interstate highways. The MPO has not yet established other performance measures specific

to economic vitality, such as measures that could be used to track the coordination of land-use development and transportation investments. Future TIP documents may include information about other economic vitality measures and targets set by the MPO.

MPO Projects Supporting Economic Vitality

The MPO's transportation investments advance economic vitality by prioritizing projects that provide access by multiple transportation modes to targeted development areas and to areas of concentrated development. Table 4-15 shows the MPO's estimates of how projects programmed in FFYs 2019–23 with Regional Target funds address economic vitality.

TABLE 4-15
ECONOMIC VITALITY METRICS

Metric	Total Value
Projects that improve access to targeted development sites	22 projects
Projects that serve areas of concentrated development	34 projects

Note: The group of projects reflected in this table does not include the Green Line Extension.

Source: Boston Region MPO.

Summary: MPO Projects Supporting MPO Goal Areas

Figure 4-17 describes how the projects programmed in FFYs 2019–23 with Regional Target dollars address various performance areas.

FFYs 2019-23 TIP Target Program: Highway Projects by the Numbers

Between FFY 2019 and 2023, the MPO plans to fund

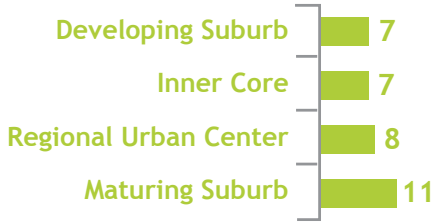
36 Regional Target Highway Projects

in these MPO investment programs:

These projects will happen in

33 MPO cities and towns

classified by MAPC community type:



These projects will address safety and help preserve the transportation system by improving

- **6** substandard bridges
- **44** miles of substandard sidewalk
- **71** lane miles of substandard roadways
- **26** 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

22 MassDOT-identified HSIP crash clusters

across the following investment programs:

These projects will also enhance the system by

Adding capacity and access:

- **14** new miles to sidewalk network
- **63** new lane miles to bike and shared-use path network,
- **29** projects improve intermodal connections or access to transit

Reducing Delay:

- **9,700** hours of delay reduced per day

Addressing the environment and economic vitality:

- **13** million kilograms of CO_2 reduced per year
- **22** projects improve access to targeted development areas

Source: MassDOT and the Boston Region MPO
HSIP: Highway Safety Improvement Program. MAPC: Metropolitan Area Planning Council

NEXT STEPS FOR ADVANCING PBPP

The MPO's performance-based planning and programming activities are ongoing and will continue to evolve as the MPO monitors and evaluates its planning and investments. The future of PBPP at the Boston Region MPO will be shaped by a number of processes and factors, including the following:

- Development of the next LRTP, *Destination 2040*, and its associated Needs Assessment
- Ongoing updates and improvements to the TIP and MassDOT's and the MBTA's CIP development processes
- New or updated plans, including the Commonwealth's next Strategic Highway Safety Plan; MassDOT's Transportation Asset Management Plan; and transit asset management plans produced by MassDOT, the MBTA, and the RTAs in the Boston region
- Increased availability of federal guidance to help states and MPOs meet federal performance management requirements

In this continually changing environment, the MPO expects to continue or undertake these PBPP activities over the next few years:

- Set targets for other federally required highway and transit measures (as listed in Tables 4-2 and 4-3 and discussed throughout this chapter)
- Consider whether to establish additional performance measures or set additional targets
- Continue to collect data and monitor system-level trends to guide investment decisions
- Explore methodologies to better understand the relationship between capital investments and potential improvements in performance outcomes, and track the contributions and impacts made by capital investments to the extent feasible
- Explore ways to analyze the transportation equity outcomes of capital investments
- Enhance TIP, LRTP, and other performance reports and monitoring tools
- Identify and examine opportunities to bring performance management information and practices into various stages of the TIP and LRTP development processes (including exploring potential updates to TIP project selection criteria)
- Continue scenario planning to explore how various transportation investments made through the LRTP would support various goals and performance areas
- Consider performance-based planning needs and issues when deciding what activities to fund through the UPWP

Going forward, the MPO will continue to monitor progress toward meeting targets and modify its investment strategies and policies, as necessary, to achieve the best possible outcomes across the MPO's goal areas.

CHAPTER FIVE

Determination of Air Quality Conformity

BACKGROUND

The Commonwealth of Massachusetts—with the exception of the islands of Dukes County—meets federal air quality standards for ground-level ozone. Therefore, the Boston Region Metropolitan Planning Organization (MPO) is not required to perform a conformity determination for ozone for its Long-Range Transportation Plan (LRTP) or Transportation Improvement Program (TIP) to prove that new transportation projects will not result in emissions levels that violate the National Ambient Air Quality Standards (NAAQS) for ozone.

In addition, the requirement to perform a conformity determination for carbon monoxide for several cities in the Boston region has expired. On April 1, 1996, the US Environmental Protection Agency (EPA) classified the cities of Boston, Cambridge, Chelsea, Everett, Malden, Medford, Quincy, Revere, and Somerville as in attainment (in compliance) for carbon monoxide emissions. Subsequently, a carbon monoxide maintenance plan was set up through the Massachusetts State Implementation Plan (SIP) to ensure that emissions levels did not increase. While the maintenance plan was in effect, past LRTPs included an air quality conformity analysis for these communities. As of April 1, 2016, however, the 20-year maintenance period for this carbon monoxide 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 re-designated as being in attainment for carbon monoxide 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 carbon monoxide.

While the MPO is not required to perform modeling analyses for a conformity determination for ozone or carbon monoxide, the MPO still is required to provide a status report on the timely implementation of projects and programs that will reduce emissions from transportation sources—so-called transportation

control measures—which are included in the Massachusetts SIP. This status report is provided below.

Timely Implementation of Transportation Control Measures

Transportation control measures (TCMs) were submitted to EPA as SIP revisions in 1979 and 1982, and also 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 following two projects:

- Fairmount Line Improvement Project
- Green Line Extension

MassDOT works with the Massachusetts Department of Environmental Protection (DEP) to implement TCMs documented in the SIP. The Boston Region MPO will continue to include relevant projects—including those implemented to provide equal or better emissions outcomes when the primary TCMs do not meet deadlines—in the LRTP and TIP 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 August 2017. Highlights from the report are presented below. For a detailed description of the status of these projects, please visit the MassDOT website:

www.massdot.state.ma.us/planning/Main/PlanningProcess/StateImplementationPlan/SIPTransitCommitmentSubmissions.aspx

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.

A station at Blue Hill Avenue has been the subject of significant community controversy during 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 is now advancing with the understanding that continued coordination with the community is paramount. Construction began in spring 2017, and the station is expected to open in spring 2019.

MassDOT and the 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 emissions 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 emissions 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 currently are 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 4.3 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 Federal Transit Administration (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 that ultimately concluded that the project was significantly over budget and that total project costs could reach $3 billion if the existing trends continued. As a result, the MBTA Fiscal and Management Control Board and the MassDOT Board of Directors suspended the project until costs could be brought back under control. Construction contracts and program management contracts were terminated. The boards created a multidisciplinary Interim Project Management Team (IPMT) tasked with redesigning all aspects of the project to reduce its costs while maintaining the core functionality, projected benefits, and environmental mitigation commitments.

During the redesign process, MassDOT and the MBTA conducted a public outreach process. The IPMT presented a revised plan and design for the project to the boards in May of 2016. The redesign

addressed revisions to the stations, vehicle maintenance facility, viaducts, bridges, power and signal systems, and the associated shared-use Somerville Community Path. The station locations, platform size, and functionality all remained unchanged in the redesign.

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 presented its review of the redesigned project in an August 25, 2016, letter to the MBTA. 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 FTA also found that the latest cost estimates are complete and well documented, and that the project schedule is sound, but possibly optimistic.

On August 8, 2016, the MBTA began the process of procuring a new construction team using the design-build procurement method.

Changes to the Green Line Extension 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 4.3 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 as a result 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, however.)

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.

Project cost reductions were realized through modification of project design elements, including the following:

- Station designs: Stations were redesigned from sizable, enclosed structures to open-air platforms akin to what has been in use for decades on the existing surface Green Line.
- Vehicle maintenance facility: The design of the vehicle maintenance facility was substantially reduced, allowing for its use as a light maintenance and storage facility.
- Bridges: A number of bridges along the project corridor would be preserved and reconstruction reduced on others.
- Community Path: An alternative version of the multiuse Community Path is described below.
- Lechmere Viaduct: An alternative version of the Lechmere viaduct structure was proposed.
- Retaining walls: Modifications to the design of retaining walls reduced the height of the walls and simplified construction.
- Power substations: Modifications were made to the designs of the Red Bridge Traction Power Substation, Gilman Traction Power Station, and Ball Square Traction Power Substation.
- Construction plans and schedules: An alternative construction plan and schedule will allow a construction contractor greater and more flexible access to the work area.
- Scope of construction: A reduced construction scope is intended to reduce the overall project schedule and risk profile.

Somerville Community Path:

The Somerville Community Path has been the subject of extensive discussion and planning throughout the development of the Green Line Extension project. 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 in the vicinity of 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.

This design for the Somerville Community Path has been identified as a major driver of the forecasted cost increases for the overall project. The cost of the previous design of the path was driven by two factors in particular:

- The extensive retaining walls between the Magoun Square and East Somerville Stations
- The viaduct section near Lechmere Station

To reduce the cost of constructing the Community Path, two options were evaluated:

- Total Elimination of the Path: A preliminary redesign of the Green Line Extension corridor without a Community Path was developed in order to assess feasibility. Based on this evaluation, the IPMT determined that the project could be built without the Community Path, with significant cost savings, and that nothing in the redesign would preclude the future construction of the Community Path as designed.
- Alternate Alignment: 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 IPMT redesigned the Community Path so that it will cost less while still maintaining its core functionality. The most important difference between the original design and the redesign is that the path would now end prior to Lechmere Station, eliminating the previous design's costly viaduct structure.

The strong public desire for the Community Path to be constructed in its entirety led the MBTA to include a series of "additive options" as part of the procurement of a construction team. The MBTA asked bidders to provide estimated costs for project elements (such as additional elevators, improved canopies, and improvements to the vehicle maintenance facility, etc.) that the MBTA would like to include, if they are affordable.

One of the potential add-ons was a complete Community Path to Lechmere Station. As part of the design-build procurement, the MBTA asked for costs for the base proposal as well as costs for these add-ons. 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 and Final Environmental Impact Reports (DEIR and 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 emissions reduction offset measures for the period of the delay (beginning January 1, 2015). These offset measures would have to bring about emissions 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 emissions 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 expands further 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, 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

APPENDIX A

Universe of Unprogrammed Projects

This appendix lists information about transportation projects that cities and towns in the region prioritized for the Boston Region MPO to consider funding through the Highway Discretionary ("Regional Target") Program (Table A-1). The evaluation results of those projects scored by MPO staff, using the MPO's evaluation criteria, also are included in this appendix (Tables A-2 and A-3).

Through an outreach process that seeks input from local officials (mainly via municipal TIP contacts) and MassDOT highway district program managers, the MPO staff compiles a list of projects that are active within MassDOT's design review process and that align with the investment programs established in the Long-Range Transportation Plan (LRTP). This list, known as the *Universe of Unprogrammed Projects*, includes projects in various stages of development, from conceptual to fully designed and ready to be advertised for construction (Table A-1). Typically, the MPO will only include projects in the *Universe* if they have been approved by MassDOT's Project Review Committee (PRC).

The MPO uses evaluation criteria to make the process of selecting projects for programming in the TIP both objective and transparent. The criteria are based on the MPO's goals and objectives, which were adopted for the current LRTP, *Charting Progress to 2040*. The MPO staff collects data on each project and evaluates those projects for which there are sufficient data. Table A-3 summarizes the evaluation results of projects considered for funding in this year's TIP.

The MPO staff prepares a *First-Tier List of Projects*—a list of the evaluated projects that received high scores and could be made ready for construction advertising in the five-year time frame of the TIP. The MPO staff then prepares a staff recommendation for a programming scenario for the Regional Target funds that considers the *First-Tier List* ratings, the construction readiness of the project, the estimated project cost, municipal priority, geographic equity (to ensure that needs are addressed throughout the region), and consistency with the MPO's LRTP.

The MPO reviews and discusses the *First-Tier List of Projects*, the staff recommendation, and other information before voting to release a draft TIP for a 30-day public review and comment period.

TABLE A-1:
FFYs 2019-23 TRANSPORTATION IMPROVEMENT PROGRAM (TIP)
UNIVERSE OF UNPROGRAMMED PROJECTS

Municipality	Proponent	Project Name	PROJIS or TIP ID	Design Status	Cost Estimate (if known at this time)	MAPC Subregion	Investment Category	MassDOT Highway District	Evaluation Score	First Tier List 2017	Evaluate in 2018	LRTP Status
Quincy	Quincy	Reconstruction of Sea St	608707	PRC approved (2016); no FDR on file	$5,626,081	ICC	Complete Streets	6	-	-	Yes	n/a
Winthrop	Winthrop	Reconstruction and related work along Winthrop St and Revere St Corridor	607244	PRC approved (2012); no FDR on file	-	ICC	Complete Streets	6	-	-	Yes	n/a
Boston, Brookline	Boston, Brookline	Mountfort Street and Commonwealth Ave Connection	608956	PRC approved (2017)	$916,883	ICC	Complete Streets	6	-	-	Yes	n/a
Boston	Boston	Improvements along Commonwealth Ave (Route 30), from Alcorn St to Warren/ Kelton Sts (Phase 3 and Phase 4)	608449	PRC approved (2016)	-	ICC	Major Infrastructure	6	66	Yes	-	not programmed in LRTP
Malden	Malden	Lighting and sidewalk improvements on Exchange St	608275	PRC approved (2016)	$1,290,586	ICC	Complete Streets	4	59	Yes	-	n/a
Newton	Newton	Reconstruction and signal improvements on Walnut St, from Homer St to Route 9	601704	25% design	$4,648,360	ICC	Complete Streets	6	43	Yes	-	n/a
Saugus	MassDOT	Saugus - Interchange reconstruction at Walnut St and Route 1 (Phase II)	601513	75% design	$19,581,122	ICC	Major Infrastructure	4	46	Yes	-	not programmed in LRTP
Somerville	Somerville	Mcgrath Boulevard Project	607981	PRC approved; no FDR on file	$82,500,000	ICC	Major Infrastructure	4	68	Yes	-	LRTP 2026-30
Boston	Boston	Reconstruction of Tremont St, from Court St to Boylston St	601274	25% design; no FDR on file	$2,681,260	ICC	Complete Streets	6	-	-	-	n/a
Boston	Boston	Reconstruction of Tremont St, from Stuart St to Marginal Rd (1,830 ft)	601507	PRC approved (1996); no FDR on file	$4,400,000	ICC	Complete Streets	6	-	-	-	n/a
Boston	Boston	Intersection improvements at Gallivan Blvd (Route 203) and Morton St	606318	100% design; no FDR on file	-	ICC	Intersection Improvements	6	-	-	-	n/a
Boston	Boston	Grade separated multi-use path construction along the Paul Dudley White Path at North Harvard St Bridge over Charles River (Anderson Memorial Bridge)	608055	PRC approved (2014); no FDR on file	-	ICC	Bicycle and Pedestrian	6	-	-	-	n/a
Boston	Boston	Replacement of Allston I-90 elevated viaduct, B-16-359, including interchange reconstruction Beacon Park Yard Layover and West Station	606475	PRC approved (2011); no FDR on file	$433,750,000	ICC	Major Infrastructure	6	-	-	-	not programmed in LRTP
Cambridge	Cambridge	Intersectio iImprovements at 7 intersections on Route 28 (Monsignor O'Brien Highway)	604911	25% design; no FDR on file	$13,185,790	ICC	Intersection Improvements	6	-	-	-	n/a

Municipality	Proponent	Project Name	PROJIS or TIP ID	Design Status	Cost Estimate (if known at this time)	MAPC Subregion	Investment Category	MassDOT Highway District	Evaluation Score	First Tier List 2017	Evaluate in 2018	LRTP Status
Cambridge	Cambridge	Innovation Boulevard streetscape and pedestrian improvements, between Main St and Binney St (Phase I)	604993	25% design; no FDR on file	$992,163	ICC	Complete Streets	6	-	-	-	n/a
Everett, Chelsea	Everett, Chelsea	Reconstruction of Beacham St	na	Pre-PRC	-	ICC	Complete Streets	4	-	-	-	n/a
Newton	Newton	Reconstruction on Route 30 (Commonwealth Avenue), from Weston town line to Auburn St	600932	PRC approved (1996); no FDR on file	$2,208,000	ICC	Complete Streets	6	-	-	-	n/a
Newton	Newton	Breakdown lane construction at various locations, from Route 128 to Exit 17	606472	PRC approved (2011); no FDR on file	-	ICC	Major Infrastructure	6	-	-	-	n/a
Newton	Newton	Improvements of Route 128/I-95 and Grove St	607940	PRC approved (2014); no FDR on file	$10,000,055	ICC	Complete Streets	6	-	-	-	n/a
Newton	Newton	Intersection improvements at Oak St, Christina St and Needham St	608137	100% design; no FDR on file	-	ICC	Intersection Improvements	6	-	-	-	n/a
Revere, Saugus	Revere, Saugus	Reconstruction and widening on Route 1, from Route 60 to Route 99	605012	PRC approved; no FDR on file	$172,500,000	ICC	Major Infrastructure	4	-	-	-	not programmed in LRTP
Woburn	Woburn	Intersection reconstruction at Route 3 (Cambridge Road) and Bedford Rd and South Bedford St	608067	PRC approved (2014); no FDR on file	$1,440,000	ICC	Intersection Improvements	4	-	-	-	n/a
Milton	Milton	Reconstruction on Granite Ave, from Neponset River to Squantum St	608406	PRC approved (2015); no FDR on file	$3,665,146	TRIC, ICC	Complete Streets	6	-	-	-	n/a
Needham	Needham	Intersection improvements at Highland Ave and First Ave	607889	Final design; no FDR on file	-	TRIC, ICC	Intersection Improvements	6	-	-	-	n/a
Quincy	Quincy	Intersection improvements at Sea St and Quincy Shore Dr	608013	25% design; FDR on file	$1,853,101	ICC	Intersection Improvements	6	-	-	-	
Boston	Boston	Improvements at Audubon Circle	606460	Constructed	-	ICC	Complete Streets	6	78	-	-	
Boston	Boston	Reconstruction of South Bank Park	608070	PRC approved (2014); no FDR	-	ICC	Bicycle and Pedestrian	6	-	-	-	
Chelsea	Chelsea	Reconstruction on Washington Avenue, from Revere Beach Parkway to Heard St	605974	PRC approved (2010); no FDR on file	-	ICC	Complete Streets	6	-	-	-	
Melrose	Melrose	Intersection and signal improvements at Main St and Essex St	601551	PRC approved (1995); no FDR on file	-	ICC	Intersection Improvements	4	-	-	-	
Milton	Milton	Rehabilitation of Central Avenue, from Brook Rd to Eliot St	604206	25% design; no FDR on file	-	TRIC, ICC	Complete Streets	6	-	-	-	
Littleton, Ayer	MassDOT	Intersection improvements on Route 2A at Willow Rd and Bruce St	608443	PRC approved (2016); no FDR on file	$2,200,000	MAGIC	Intersection Improvements	3	-	-	Yes	n/a

Municipality	Proponent	Project Name	PROJIS or TIP ID	Design Status	Cost Estimate (if known at this time)	MAPC Subregion	Investment Category	MassDOT Highway District	Evaluation Score	First Tier List 2017	Evaluate in 2018	LRTP Status
Sudbury	MassDOT	Intersection improvements at Route 20 and Landham Rd	607249	75% design	$1,655,050	MAGIC	Intersection Improvements	3	36	Yes	-	n/a
Concord	Concord	Improvements and upgrades to Concord Rotary (Routes 2/2A/119)	602091	25% design; no FDR on file	$103,931,250	MAGIC	Major Infrastructure	4	-	-	-	not programmed in LRTP
Concord	Concord	Reconstruction and widening on Route 2, from Sandy Pond Rd to Bridge over MBTA/B&M Railroad	608015	PRC approved (2014); no FDR on file	$8,000,000	MAGIC	Major Infrastructure	4	-	-	-	not programmed in LRTP
Hudson, Marlborough	Hudson, Marlborough	Reconstruction on Routes I-290 and 495 and bridge replacement	603345	PRC approved (2001); no FDR on file	-	MAGIC, MWRC	Major Infrastructure	3	-	-	-	not programmed in LRTP
Bolton	Bolton	Reconstruction of Route 110 (Still River Rd)	602252	PRC approved (1997); no FDR on file	-	MAGIC	Complete Streets	3	-	-	-	
Bolton	Bolton	Intersection improvements at I-495/Route 117 Interchange	606666	PRC approved (2011); no FDR on file	-	MAGIC	Intersection Improvements	3	-	-	-	
Hudson	Hudson	Bridge replacement, Cox St over the Assabet River	601906	PRC approved (1996); no FDR on file	-	MAGIC	Major Infrastructure	3	-	-	-	
Framingham	MassDOT	Pedestrian hybrid beacon installation at Route 9 and Maynard Rd	608006	25% design	$886,228	MWRC	Bicycle and Pedestrian	3	27	Yes	-	n/a
Marlborough	MassDOT	Intersection and signal improvements on Route 20 (East Main St/Boston Post Rd) at Concord Rd	604231	25% design; FDR on file	$1,706,600	MWRC	Intersection Improvements	3	34	Yes	-	n/a
Natick	MassDOT	Bridge replacement, Route 27 (North Main St) over Route 9 (Worcester St) and interchange improvements	605313	Partial scope programmed in FFYs 2021-22; 25% submitted (2015)	$26,000,000 ($11,800,000 programmed in FFYs 2021-22)	MWRC	Major Infrastructure	3	58	Yes	-	LRTP 2021-25
Ashland	Ashland	Rehabilitation and rail crossing improvements on Cherry St	608436	PRC approved; no FDR on file	$1,200,000	MWRC	Complete Streets	3	-	-	-	n/a
Framingham	Framingham	Intersection improvements at Route 126/135/MBTA and CSX Railroad	606109	PRC approved (2010); no FDR on file	$115,000,000	MWRC	Major Infrastructure	3	-	-	-	LRTP 2026-30
Framingham	Framingham	Traffic signal installation at Edgell Rd at Central St	608889	PRC approved	$1,440,000	MWRC	Intersection Improvements	3	-	-	-	n/a
Holliston	Holliston	Signal installation at Route 16/126 and Oak St	602462	25% submitted (1999)	-	MWRC	Intersection Improvements	3	-	-	-	n/a
Holliston	Holliston	Resurfacing and related work on Route 126 (Concord St)	602154	PRC approved	$600,000	MWRC	Complete Streets	3	-	-	-	n/a
Southborough, Westborough	Southborough, Westborough	Improvements at I-495 and Route 9	607701	PRC approved (2013); no FDR on file	$11,615,000	MWRC	Major Infrastructure	3	-	-	-	n/a

Municipality	Proponent	Project Name	PROJIS or TIP ID	Design Status	Cost Estimate (if known at this time)	MAPC Subregion	Investment Category	MassDOT Highway District	Evaluation Score	First Tier List 2017	Evaluate in 2018	LRTP Status
Weston	Weston	Boston Post Rd (Route 20) at Wellesley St intersection improvement project	na	PNF and PIF submitted August 2017	-	MWRC	Intersection Improvements	6	-	-	-	n/a
Framingham	Framingham	Edgell Rd corridor project	602038	PRC approved (1996); no FDR on file	-	MWRC	Complete Streets	3	-	-	-	
Framingham	Framingham	Signal and intersection improvements at Route 9 (Worcester Rd) and Temple St	603865	PRC approved (2003); no FDR on file	-	MWRC	Intersection Improvements	3	-	-	-	
Holliston	Holliston	Multi-use trail construction on a section of the upper Charles Rail (2 miles of proposed 27 miles - Phase I)	602929	75% design; no FDR on file	-	MWRC	Bicycle and Pedestrian	3	-	-	-	
Holliston	Holliston	Reconstruction of Norfolk St, from Sabina Dr to Holly Ln	602155	PRC approved (1997); no FDR on file	-	MWRC	Complete Streets	3	-	-	-	
Holliston	Holliston	Reconstruction on Route 16 (Washington Street), from Quail Run to the Sherborn T.L.	605745	PRC approved (2010); no FDR on file	-	MWRC	Complete Streets	3	-	-	-	
Marlborough	Marlborough	Reconstruction of Route 20 (East Main St), from Main St easterly to Lincoln St	604811	75% design; FDR on file	-	MWRC	Complete Streets	3	44	-	-	
Reading	Reading	Resurfacing and related work on Route 28 (Main St)	604804	PRC approved (2006); no FDR on file	$5,625,174	NSPC	Complete Streets	4	-	-	Yes	n/a
Reading	MassDOT	Intersection signalization at Route 28 and Hopkins St	607305	25% design	$843,976	NSPC	Intersection Improvements	4	38	Yes	-	n/a
Reading, Stoneham, Wakefield	Reading, Stoneham, Wakefield	Improvements along Route 128/95, from North of Interchange 37 to Interchange 40, including modifications to Interchange 38	608096	PRC approved (2014); no FDR on file	$10,521,261	NSPC	Complete Streets	4	-	-	-	n/a
Reading, Stoneham, Wakefield, Woburn	Reading, Stoneham, Wakefield, Woburn	Interchange Improvements to I-93/I-95	605605	PRC approved (2009); no FDR on file	$276,708,768	NSPC	Major Infrastructure	4	-	-	-	not programmed in LRTP
Wilmington	Wilmington	Reconstruction on Route 38 (Main St), from Route 62 to the Woburn C.L.	608051	25% design; no FDR on file	-	NSPC	Major Infrastructure	4	-	-	-	n/a
Woburn	Woburn	Middlesex Canal Park improvements, from Alfred St to School St (Phase II-Segment 5)	606304	PRC approved (2010); no FDR on file	-	NSPC	Bicycle and Pedestrian	4	-	-	-	n/a
Woburn	Woburn	Bridge replacement and related work, W-43-028, Washington St over I-95	608097	PRC approved (2014); no FDR on file	-	NSPC	Major Infrastructure	4	-	-	-	n/a
Peabody	Peabody	Rehabilitation of Central St	608933	PRC approved (2017)	-	NSTF	Complete Streets	4	-	-	Yes	n/a
Beverly	Beverly	Reconstruction of Bridge St	608348	25% design (2017)	$5,280,000	NSTF	Complete Streets	4	66	Yes	-	n/a
Danvers	Danvers	Reconstruction on Collins St, from Sylvan St to Centre and Holten Sts	602310	75% design	$5,183,121	NSTF	Complete Streets	4	46	Yes	-	n/a

Municipality	Proponent	Project Name	PROJIS or TIP ID	Design Status	Cost Estimate (if known at this time)	MAPC Subregion	Investment Category	MassDOT Highway District	Evaluation Score	First Tier List 2017	Evaluate in 2018	LRTP Status
Ipswich	Ipswich	Resurfacing and related work on Central and South Main Sts	605743	25% design resubmitted (2018)	$2,624,154	NSTF	Complete Streets	4	47	Yes	-	n/a
Peabody	MassDOT	Mainline improvements on Route 128 (Phase II)	604638	100% design	$24,031,419	NSTF	Major Infrastructure	4	36	Yes	-	not programmed in LRTP
Beverly	Beverly	Interchange reconstruction at Route 128/Exit 19 at Brimbal Ave (Phase II)	607727	PRC approved (2014); no FDR on file	over $20,000,000	NSTF	Major Infrastructure	4	-	-	-	not programmed in LRTP
Manchester By The Sea	Manchester By The Sea	Pine St - Central St (Route 127) to Rockwood Heights Rd	na	PNF submitted 12/27/16	-	NSTF	Complete Streets	4	-	-	-	n/a
Salem	Salem	Reconstruction of Bridge St, from Flint St to Washington St	5399	25% design; no FDR on file	$24,810,210	NSTF	Complete Streets	4	-	-	-	not programmed in LRTP
Gloucester	Gloucester	Washington St and Railroad Ave	604377	25% design; FDR on file	-	NSTF	Complete Streets	4	49	-	-	
Salem	Salem	Boston St	600986	PRC approved (1994); no FDR on file	-	NSTF	Complete Streets	4	-	-	-	
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); FDR on file	$7,500,001	SSC	Complete Streets	5	-	-	Yes	n/a
Cohasset	MassDOT	Corridor improvements and related work on Justice Cushing Highway (Route 3A), from Beechwood St to the Scituate town line	608007	25% design	-	SSC	Complete Streets	5	37	Yes	-	n/a
Hingham	Hingham	Intersection improvements on Route 3A at Kilby St	603137	PRC approved (2000); no FDR on file	$250,000	SSC	Intersection Improvements	5	-	-	-	n/a
Holbrook	Holbrook	Corridor improvements on South Franklin St (Route 37) from Snell St to King Rd	na	PNF submitted 6/30/16	-	SSC	Complete Streets	5	-	-	-	n/a
Hull	Hull	Corridor improvements along Nantasket Ave from Moutford Rd to A St	na	PNF submitted 6/30/16	-	SSC	Complete Streets	5	-	-	-	n/a
Weymouth	Weymouth	Reconstruction on Route 3A,including pedestrian and traffic signal improvements	608231	PRC approved	-	SSC	Complete Streets	6	-	-	-	n/a
Duxbury	Duxbury	Signal installation at Route 3 (NB and SB) ramps and Route 3A (Tremont St)	606002	PRC approved (2010); FDR on file	-	SSC	Intersection Improvements	5	33	-	-	
Holbrook	Holbrook	Intersection improvements and related work at Weymouth St, Pine St and Sycamore St	607255	25% design	$1,016,543	SSC	Intersection Improvements	5	-	-	-	
Weymouth	Weymouth	New roadway connection between Trotter Rd and East West Parkway	608092	Final design; no FDR on file	-	SSC	Complete Streets	6	-	-	-	

Municipality	Proponent	Project Name	PROJIS or TIP ID	Design Status	Cost Estimate (if known at this time)	MAPC Subregion	Investment Category	MassDOT Highway District	Evaluation Score	First Tier List 2017	Evaluate in 2018	LRTP Status
Bellingham	Bellingham	South Main St (Route 126) - Douglas Dr to Mechanic St reconstruction (Route 140)	608887	PIF submitted 6/26/17; draft FDR on file	$6,900,000	SWAP	Complete Streets	3	-	-	Yes	n/a
Milford	MassDOT	Rehabilitation on Route 16, from Route 109 to Beaver St	608045	PRC approved (2014); information to evaluate	$2,700,000	SWAP	Complete Streets	3	-	-	Yes	n/a
Wrentham	MassDOT	Construction of I-495/Route 1A ramps	603739	25% design	$3,056,093	SWAP	Intersection Improvements	5	55	Yes	-	n/a
Bellingham	Bellingham	South Main St (Route 126) - Elm St to Douglas Dr reconstruction	na	PNF submitted 3/13/17	-	SWAP	Complete Streets	3	-	-	-	n/a
Bellingham	Bellingham	Ramp construction and relocation, I-495 at Route 126 (Hartford Ave)	604862	PRC approved (2006); no FDR on file	$13,543,400	SWAP	Major Infrastructure	3	-	-	-	not programmed in LRTP
Bellingham	Bellingham	Improvements at 2 locations: Mechanic St/Mendon St (Route 140) and North Main St/South Main St (Route 126)	604453	PRC approved (2005)	-	SWAP	Intersection Improvements	3	-	-	-	
Franklin	Franklin	Reconstruction of Pleasant St, from Main St to Chestnut St	601359	75% design; FDR on file	-	SWAP	Complete Streets	3	32	-	-	
Millis	Millis	Reconstruction of Village Stt, from Main St (Route 109) to the Medway town line	602364	PRC approved (2006); no FDR on file	-	SWAP	Complete Streets	3	-	-	-	
Dedham	Dedham	Pedestrian improvements along Bussey St, including superstructure replacement, D-05-010, Bussey St over Mother Brook	607899	25% design	$3,902,755	TRIC	Complete Streets	6	35	Yes	-	n/a
Canton, Westwood	Canton, Westwood	Interchange improvements at I-95/I-93/University Ave/I-95 widening	87790	25% design; information to evaluate	$202,205,993	TRIC	Major Infrastructure	6	-	-	-	not programmed in LRTP
Westwood	Westwood	Route 109 traffic operational improvements	na	PNF submitted September 2017	-	TRIC	Complete Streets	6	-	-	-	n/a
Westwood	Westwood	Reconstruction of Canton St and Everett St	608158	PRC approved (2015); no FDR on file	-	TRIC	Complete Streets	6	-	-	-	n/a
Norwood, Westwood	Norwood, Westwood	Intersection improvements at University Ave and Canton St	607557	100% design; no FDR on file	-	TRIC	Intersection Improvements	6	-	-	-	n/a
Sharon	Sharon	Signal and intersection improvements on South Main St	605708	75% design; no FDR on file	-	TRIC	Intersection Improvements	5	-	-	-	n/a
Canton	Canton	Reconstruction on Route 138, from I-93 to Dan Rd	603883	PRC approved (2003); no FDR on file	-	TRIC	Complete Streets	6	-	-	-	
Medfield	Medfield	Reconstruction of North Street, from Frairy St to Pine St	604735	25% design	$2,210,050	TRIC	Complete Streets	3	30	Yes	-	
Stoughton	Stoughton	Reconstruction of Turnpike St	607214	PRC approved (2012); no FDR on file	-	TRIC	Complete Streets	5	-	-	-	

Municipality	Proponent	Project Name	PROJIS or TIP ID	Design Status	Cost Estimate (if known at this time)	MAPC Subregion	Investment Category	MassDOT Highway District	Evaluation Score	First Tier List 2017	Evaluate in 2018	LRTP Status
Stoughton	Stoughton	Intersection Improvements and related work at Central St, Canton St and Tosca Dr	608279	PRC approved (2016); no FDR on file	-	TRIC	Intersection Improvements	5	-	-	-	
Walpole	Walpole	Reconstruction of Route 1A, from Common St to the Norfolk town line	600671	25% design; no FDR on file	-	TRIC	Complete Streets	5	-	-	-	

NOTE:

Unprogrammed projects, grouped by MAPC municipal subregion

Legend (Highlighted Rows)

	Priority projects; planned for evaluation in FFY 2018 and consideration for funding in TIP.
	Priority projects; evaluated in previous years and will be reconsidered for funding in the TIP.
	Other active projects; no information has been provided in order to evaluate in FFY 2018.
	Projects no longer being considered for TIP funding; these are either deactivated, no longer proponent priorities, or have been accomplished with other funding sources.

n/a: Not Applicable; these projects are not programmed in the Long Range Transportation Plan (LRTP) and do not need to be prior to being considered for TIP funding
FDR = Functional Design Report; LRTP = Long-Range Transportation Plan; PCR = MassDOT Project Review Committee.
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 Committee; TRIC = Three Rivers Interlocal Council.

TABLE A-2
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** (up to 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): (up to 5 points)	Intersection: Evaluation Score / Signalized / Unsignalized +5 / ≥ 1.69 / ≥ 1.36 +4 / 1.31 - 1.69 / 1.03 - 1.36 +3 / 0.70 - 1.31 / 0.70 - 1.03 +2 / 0.55 - 0.93 / 0.37 - 0.70 +1 / 0.36 - 0.55 / 0.21 - 0.37 +0 / < 0.36 / < 0.21
		Corridor: Evaluation Score / Interstate Other Freeways Expressways / Principal Arterials-Other Minor Arterials Major-Minor Collectors +5 / ≥ 1.81 / ≥ 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 (up to 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
	Improves bicycle safety (up to 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

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
	Improves pedestrian safety (up to 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 (up to 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; VMT= vehicle-miles traveled.		
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)** (up to 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 (up to 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) (up to 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) (up to 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 (up to 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 (up to 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		

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** (up to 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 (up to 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 (up to 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 (up to 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 (up to 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 (up to 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		

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** (up to 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) (up to 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 (up to 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" (up to 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.

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** (up to 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** (up to 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 (up to 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
	Provides multimodal access to an activity center (up to 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

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
	Leverages other investments (non-TIP funding) (up to 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
PROJECT EVALUATION RESULTS

TIP ID	Municipality	Project Name	Initial Total Score (out of 134)	Revised Total Score (out of 134)	SAFETY (30 possible points)	Crash Rate (up to 5 points)	Crash Severity Value: EPDO index (up to 5 points)	Improves truck-related safety issue (up to 5 points)	Improves bicycle safety (up to 5 points)	Improves pedestrian safety (up to 5 points)	Improves safety or removes an at-grade railroad crossing (up to 5 points)	SYSTEM PRESERVATION (29 possible points)	Improves substandard roadway bridge(s) (up to 3 points)	Improves substandard pavement (up to 6 points)	Improves substandard traffic signal equipment (up to 6 points)	Improves transit asset(s) (up to 3 points)	Improves substandard sidewalk(s) (up to 3 points)	Improves emergency response (up to 2 points)	Improves ability to respond to extreme conditions (up to 6 points)	CAPACITY MANAGEMENT/MOBILITY (29 possible points)	Reduces transit vehicle delay (up to 4 points)	Improves pedestrian network and ADA accessibility (up to 5 points)	Improves bicycle network (up to 4 points)	Improves intermodal accommodations or connections to transit (up to 6 points)	Improves truck movement (up to 4 points)	Reduces vehicle congestion (up to 6 points)	CLEAN AIR/CLEAN COMMUNITIES (16 possible points)	Reduces CO2 (up to 5 points)	Reduces other transportation-related emissions (VOC, Nox, CO) (up to 5 points)	Addresses environmental impacts (up to 4 points)	Located in an EOEEA-certified "Green Community" (up to 2 points)	TRANSPORTATION EQUITY (12 possible points)	ECONOMIC VITALITY (18 possible points)	Serves targeted development site (up to 6 points)	Provides for development consistent with the compact growth strategies of MetroFuture (up to 5 points)
Bicycle/ Pedestrian																																			
608006	Framingham (MassDOT)	Pedestrian Hybrid Beacon Installation at Route 9 and Maynard Rd	27	**27**	**12**	4	2	0	0	5	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
Complete Streets																																			
608348	Beverly	Rehabilitation of Bridge St	59	**66**	**13**	2	3	2	3	3	0	**14**	0	6	4	0	3	1	0	**16**	1	3	2	4	0	6	**9**	3	3	1	2	**4**		**10**	4	3
608933	Peabody	Rehabilitation of Central St	58	**61**	**21**	5	5	3	3	5	0	**17**	0	5	6	0	3	1	2	**9**	1	2	1	0	1	4	**3**	2	1	0	0	**7**		**4**	0	3
608275	Malden	Exchange St Downtown Improvement Project	57	**59**	**10**	2	1	0	2	5	0	**10**	0	6	0	0	3	1	0	**12**	0	4	2	6	0	0	**5**	1	1	1	2	**10**		**12**	4	3
607244	Winthrop	Revere St Roadway Improvements	46	**54**	**11**	2	3	1	2	3	0	**14**	0	6	4	0	3	1	0	**12**	1	2	2	2	1	4	**8**	3	3	0	2	**4**		**5**	0	3
605168	Hingham	Summer St/Rockland St Roadway and Streetscape Improvements	51	**52**	**10**	1	3	0	3	3	0	**16**	0	4	4	0	3	1	4	**16**	2	4	3	1	0	6	**8**	3	2	3	0	**0**		**2**	0	0
608045	Milford (MassDOT)	Rehabilitation on Route 16 (East Main St) from Route 109 to Beaver St	49	**49**	**21**	5	5	4	3	4	0	**8**	0	0	4	0	3	1	0	**9**	1	4	2	0	2	0	**3**	1	1	1	0	**3**		**5**	3	1
605743	Ipswich	Resurfacing and related work on Central and South Main Sts	39	**47**	**11**	3	2	2	2	2	0	**10**	0	4	0	0	3	1	2	**10**	0	5	1	4	0	0	**6**	1	1	4	0	**2**		**8**	3	3

TIP ID	Municipality	Project Name	Initial Total Score (out of 134)	Revised Total Score (out of 134)	SAFETY (30 possible points)	Crash Rate (up to 5 points)	Crash Severity Value: EPDO index (up to 5 points)	Improves truck-related safety issue (up to 5 points)	Improves bicycle safety (up to 5 points)	Improves pedestrian safety (up to 5 points)	Improves safety or removes an at-grade railroad crossing (up to 5 points)	SYSTEM PRESERVATION (29 possible points)	Improves substandard roadway bridge(s) (up to 3 points)	Improves substandard pavement (up to 6 points)	Improves substandard traffic signal equipment (up to 6 points)	Improves transit asset(s) (up to 3 points)	Improves substandard sidewalk(s) (up to 3 points)	Improves emergency response (up to 2 points)	Improves ability to respond to extreme conditions (up to 6 points)	CAPACITY MANAGEMENT/MOBILITY (29 possible points)	Reduces transit vehicle delay (up to 4 points)	Improves pedestrian network and ADA accessibility (up to 5 points)	Improves bicycle network (up to 4 points)	Improves intermodal accommodations or connections to transit (up to 6 points)	Improves truck movement (up to 4 points)	Reduces vehicle congestion (up to 6 points)	CLEAN AIR/CLEAN COMMUNITIES (16 possible points)	Reduces CO2 (up to 5 points)	Reduces other transportation-related emissions (VOC, Nox, CO) (up to 5 points)	Addresses environmental impacts (up to 4 points)	Located in an EOEEA-certified "Green Community" (up to 2 points)	TRANSPORTATION EQUITY (12 possible points)		ECONOMIC VITALITY (18 possible points)	Serves targeted development site (up to 6 points)	Provides for development consistent with the compact growth strategies of MetroFuture (up to 5 points)
602310	Danvers	Reconstruction on Collins St	46	**46**	**6**	0	1	1	2	2	0	**12**	0	6	6	0	0	0	0	**12**	0	4	1	2	1	4	**7**	2	1	2	2	**2**		**7**	3	2
608887	Bellingham	South Main St (Route 126) - Douglas Dr to Mechanic St Reconstruction (Route 140)	37	**45**	**12**	3	3	1	2	3	0	**12**	0	4	4	0	3	1	0	**12**	1	5	1	2	1	2	**5**	1	1	3	0	**0**		**4**	0	1
601704	Newton	Reconstruction and signal improvements on Walnut St	43	**43**	**11**	2	4	1	2	2	0	**12**	0	6	4	0	2	0	0	**7**	0	0	1	6	0	0	**4**	-1	1	2	2	**0**		**9**	4	2
608707	Quincy	Reconstruction of Sea St	31	**40**	**10**	2	3	0	2	3	0	**16**	0	5	6	0	3	2	0	**7**	0	3	1	2	1	0	**4**	-1	1	2	2	**2**		**1**	0	1
608007	Cohasset (MassDOT)	Corridor improvements and related work on Justice Cushing Highway (Route 3A), from Beechwood St to Henry Turner Bailey Rd	37	**37**	**16**	3	3	3	3	4	0	**4**	0	0	4	0	0	0	0	**8**	0	5	1	1	1	0	**5**	1	1	1	2	**1**		**3**	0	1
607899	Dedham	Pedestrian improvements along Bussey St	23	**35**	**5**	1	1	0	1	2	0	**8**	1	0	2	0	3	1	1	**5**	0	2	2	0	1	0	**5**	1	1	1	2	**7**		**5**	0	3
Intersection Improvements																																				
603739	Wrentham (MassDOT)	Construction of I-495/Route 1A ramps	55	**55**	**23**	5	5	5	4	4	0	**11**	0	4	4	0	3	0	0	**12**	0	3	1	0	2	6	**9**	5	4	0	0	**0**		**0**	0	0
607305	Reading (MassDOT)	Intersection signalization at Route 28 and Hopkins St	38	**38**	**10**	5	1	0	0	4	0	**12**	0	4	4	0	2	1	1	**5**	0	2	0	0	1	2	**2**	1	1	0	0	**2**		**7**	2	3
607249	Sudbury (MassDOT)	Intersection improvements at Route 20 and Landham Rd	36	**36**	**14**	3	2	3	3	3	0	**7**	0	4	0	0	3	0	0	**4**	0	0	1	0	1	2	**5**	1	1	1	2	**1**		**5**	3	0
608443	Littleton, Ayer (MassDOT)	Intersection Improvements on Route 2A at Willow Rd and Bruce St	36	**36**	**17**	5	2	3	3	4	0	**4**	0	4	0	0	0	0	0	**9**	0	4	1	0	2	2	**4**	1	1	0	2	**1**		**1**	0	1

TIP ID	Municipality	Project Name	Initial Total Score (out of 134)	Revised Total Score (out of 134)	SAFETY (30 possible points)	Crash Rate (up to 5 points)	Crash Severity Value: EPDO index (up to 5 points)	Improves truck-related safety issue (up to 5 points)	Improves bicycle safety (up to 5 points)	Improves pedestrian safety (up to 5 points)	Improves safety or removes an at-grade railroad crossing (up to 5 points)	SYSTEM PRESERVATION (29 possible points)	Improves substandard roadway bridge(s) (up to 3 points)	Improves substandard pavement (up to 6 points)	Improves substandard traffic signal equipment (up to 6 points)	Improves transit asset(s) (up to 3 points)	Improves substandard sidewalk(s) (up to 3 points)	Improves emergency response (up to 2 points)	Improves ability to respond to extreme conditions (up to 6 points)	CAPACITY MANAGEMENT/MOBILITY (29 possible points)	Reduces transit vehicle delay (up to 4 points)	Improves pedestrian network and ADA accessibility (up to 5 points)	Improves bicycle network (up to 4 points)	Improves intermodal accommodations or connections to transit (up to 6 points)	Improves truck movement (up to 4 points)	Reduces vehicle congestion (up to 6 points)	CLEAN AIR/CLEAN COMMUNITIES (16 possible points)	Reduces CO2 (up to 5 points)	Reduces other transportation-related emissions (VOC, Nox, CO) (up to 5 points)	Addresses environmental impacts (up to 4 points)	Located in an EOEEA-certified "Green Community" (up to 2 points)	TRANSPORTATION EQUITY (12 possible points)	ECONOMIC VITALITY (18 possible points)	Serves targeted development site (up to 6 points)	Provides for development consistent with the compact growth strategies of MetroFuture (up to 5 points)
604231	Marlborough (MassDOT)	Intersection and signal improvements on Route 20 (East Main St/Boston Post Rd) at Concord Rd	34	**34**	7	4	1	0	0	2	0	6	0	4	0	0	2	0	0	6	1	0	0	0	1	4	7	2	2	1	2	3		5	3	1
Major Infrastructure																																				
605313	**Natick (MassDOT)**	**Bridge replacement, Route 27 (North Main St) over Route 9 (Worcester St)**	58	**58**	20	5	5	3	3	4	0	19	3	6	6	0	3	0	1	10	0	4	1	4	1	0	2	-1	-1	2	2	1		6	0	3
607981	**Somerville**	**McGrath Boulevard Project**	68	**68**	13	2	3	0	4	4	0	14	0	6	6	0	2	0	0	11	0	0	1	6	0	4	8	3	3	0	2	10		12	4	5
608449	Boston	Commonwealth Ave phases 3 and 4	66	**66**	16	1	3	0	5	4	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
87790	Canton, Westwood (MassDOT)	Interchange improvements at I-95/I-93/University Ave and I-95 widening	45	**45**	19	1	5	5	4	4	0	6	3	0	0	0	0	0	3	14	0	4	3	4	3	0	-1	-2	-5	4	2	0		7	3	1
601513	Saugus (MassDOT)	Interchange reconstruction at Walnut St and Route 1 (phase 2)	46	**46**	13	4	4		2	3	0	13	0	6	6	0	0	1	0	9	1	4	1	0	1	2	6	1	1	2	2	1		4	0	1
604638	Peabody (MassDOT)	Mainline improvements on Route 128, phase 2	36	**36**	12	3	5	4	0	0	0	10	3	6	0	0	0	1	0	5	1	0	0	0	2	2	3	1	1	1	0	3		3	1	1

Key: BLUE text = newly evaluated project; RED text = change in score from initial evaluation; **BOLD** text = project is in the LRTP.

ADA= Americans with Disabilities Act; CO = carbon monoxide; CO_2 = carbon dioxide; EOEEA = Executive Office of Energy and Environmental Affairs; EPDO = Equivalent Property Damage Only; LRTP = Long-Range Transportation Plan; NOx = nitogen oxides; VOC = volatile organic compounds.

TABLE A-4
FFYS 2019-23 TRANSPORTATION IMPROVEMENT PROGRAM (TIP), FINAL PROJECT EVALUATIONS AND PROGRAMMING INFORMATION

TIP ID	Municipality	Project Name	MAPC Subregion	MAPC Community Type	MassDOT Highway District	Estimated Construction Cost	Design Status	Year of PRC Approval	Earliest FFY of Advertising for Construction Contract	CTPS Study	Location-specific LRTP-identified need	Initial Total Score (out of 134)	Revised Total Score (out of 134)	SAFETY (30 possible points)	SYSTEM PRESERVATION (29 possible points)	CAPACITY MANAGEMENT/MOBILITY (29 possible points)	CLEAN AIR/CLEAN COMMUNITIES (16 possible points)	TRANSPORTATION EQUITY (12 possible points)	ECONOMIC VITALITY (18 possible points)
Bicycle/Pedestrian																			
608006	Framingham (MassDOT)	Pedestrian Hybrid Beacon Installation at Route 9 and Maynard Rd	MWRC	RUC	3	$886,228	25% submitted	2014	FFY 21			27	**27**	**12**	**6**	**2**	**2**	**1**	**4**
Complete Streets																			
608348	Beverly	Rehabilitation of Bridge St	NSTF	RUC	4	$5,280,000	25% submitted	2016	FFY 20			59	**66**	**13**	**14**	**16**	**9**	**4**	**10**
608933	Peabody	Rehabilitation of Central St	NSTF	RUC	4	$9,660,000	PRC approved	2017	FFY 23			58	**61**	**21**	**17**	**9**	**3**	**7**	**4**
608275	Malden	Exchange St Downtown Improvement Project	ICC	IC	4	$1,494,000	PRC approved	2016	FFY 22			57	**59**	**10**	**10**	**12**	**5**	**10**	**12**
607244	Winthrop	Revere St Roadway Improvements	ICC	IC	6	$3,500,000	PRC approved	2012	FFY 23			46	**54**	**11**	**14**	**12**	**8**	**4**	**5**
605168	Hingham	Summer St/Rockland St Roadway and Streetscape Improvements	SSC	MS	5	$7,500,000	PRC approved	2009	FFY 22	X	CMM	51	**52**	**10**	**16**	**16**	**8**	**0**	**2**
608045	Milford (MassDOT)	Rehabilitation on Route 16 (East Main St) from Route 109 to Beaver St	SWAP	RUC	3	$2,700,000	PRC approved	2014	FFY 23		Safety	49	**49**	**21**	**8**	**9**	**3**	**3**	**5**
605743	Ipswich	Resurfacing and related work on Central and South Main Sts	NSTF	DS	4	$2,624,154	25% submitted	2009	FFY 22			39	**47**	**11**	**10**	**10**	**6**	**2**	**8**
602310	Danvers	Reconstruction on Collins St	NSTF	MS	4	$5,183,121	75% approved	1997	FFY 19			46	**46**	**6**	**12**	**12**	**7**	**2**	**7**
608887	Bellingham	South Main St (Route 126) - Douglas Dr to Mechanic St Reconstruction (Route 140)	SWAP	DS	3	$6,000,000	25% submitted	2017	FFY 23	X		37	**45**	**12**	**12**	**12**	**5**	**0**	**4**
601704	Newton	Reconstruction and signal improvements on Walnut St	ICC	IC	6	$4,648,360	25% submitted	1996	FFY 20			43	**43**	**11**	**12**	**7**	**4**	**0**	**9**
606707	Quincy	Reconstruction of Sea St	ICC	RUC	6	$5,626,081	25% submitted	2016	FFY 23			31	**40**	**10**	**16**	**7**	**4**	**2**	**1**
608007	Cohasset (MassDOT)	Corridor improvements and related work on Justice Cushing Highway (Route 3A), from Beechwood St to Henry Turner Bailey Rd	SSC	DS	5	$4,000,200	25% submitted	2014	FFY 22	X	CMM	37	**37**	**16**	**4**	**8**	**5**	**1**	**3**

TIP ID	Municipality	Project Name	MAPC Subregion	MAPC Community Type	MassDOT Highway District	Estimated Construction Cost	Design Status	Year of PRC Approval	Earliest FFY of Advertising for Construction Contract	CTPS Study	Location-specific LRTP-identified need	Initial Total Score (out of 134)	Revised Total Score (out of 134)	SAFETY (30 possible points)	SYSTEM PRESERVATION (29 possible points)	CAPACITY MANAGEMENT/MOBILITY (29 possible points)	CLEAN AIR/CLEAN COMMUNITIES (16 possible points)	TRANSPORTATION EQUITY (12 possible points)	ECONOMIC VITALITY (18 possible points)
607899	Dedham	Pedestrian improvements along Bussey St	TRIC	MS	6	$3,902,755	25% submitted	2014	FFY 21			23	**35**	5	8	5	5	7	5
Intersection Improvements																			
603739	Wrentham (MassDOT)	Construction of I-495/Route 1A ramps	SWAP	DS	5	$7,554,557	PRC approved	2002	FFY 22	X	Safety	55	**55**	23	11	12	9	0	0
607305	Reading (MassDOT)	Intersection signalization at Route 28 and Hopkins St	NSPC	MS	4	$1,069,038	25% approved	2012	FFY 19	X		38	**38**	10	12	5	2	2	7
607249	Sudbury (MassDOT)	Intersection improvements at Route 20 and Landham Rd	MAGIC	MS	3	$2,100,000	100% submitted	2013	FFY 20	X		36	**36**	14	7	4	5	1	5
608443	Littleton, Ayer (MassDOT)	Intersection improvements on Route 2A at Willow Rd and Bruce St	MAGIC	DS	3	$2,200,000	PRC approved	2016	FFY 23			36	**36**	17	4	9	4	1	1
604231	Marlborough (MassDOT)	Intersection and signal improvements on Route 20 (East Main Street/Boston Post Rd) at Concord Rd	MWRC	RUC	3	$2,500,000	PRC approved	2007	FFY 21	X	Safety	34	**34**	7	6	6	7	3	5
Major Infrastructure																			
605313	**Natick (MassDOT)**	**Bridge replacement, Route 27 (North Main St) over Route 9 (Worcester St)**	**MWRC**	**MS**	**3**	**$25,793,370**	**25% submitted**	**2011**	**LRTP 2021-25**		**Safety, CMM**	58	**58**	20	19	10	2	1	6
607981	**Somerville**	**McGrath Boulevard Project**	**ICC**	**IC**	**4**	**$82,500,000**	**PRC approved**	**No Date**	**LRTP 2026-30**		**Safety**	68	**68**	13	14	11	8	10	12
608449	Boston	Commonwealth Avenue, phases 3 and 4	ICC	IC	6	$25,000,000	25% submitted	2016	Not Programmed			66	**66**	16	12	11	8	8	11
87790	Canton, Westwood (MassDOT)	Interchange improvements at I-95/I-93/ University Ave and I-95 widening	TRIC	MS	6	$189,750,000	25% submitted	2011	Not Programmed		CMM	45	**45**	19	6	14	-1	0	7
601513	Saugus (MassDOT)	Interchange reconstruction at Walnut St and Route 1 (phase 2)	ICC	MS	4	$19,581,123	75% submitted	1995	Not Programmed		Safety, CMM	46	**46**	13	13	9	6	1	4
604638	Peabody (MassDOT)	Mainline improvements on Route 128 (phase 2)	NSTF	RUC	4	$25,082,496	100% submitted	2005	Not Programmed			36	**36**	12	10	5	3	3	3

Key: BLUE text = newly evaluated project; **BOLD** text = project is in the LRTP.

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. **MAPC community types:** DS = developing suburb; IC = inner core; MS = maturing suburb; RUC = regional urban center. **LRTP-identified Need:** CMM = Capacity Management and Mobility need included in the list of priority bicycle gaps or priority congested locations; Safety = project is included in the list of top 25 Highway Crash Locations and/or list of locations with multiple safety needs. **Other:** CTPS = Central Transportation Planning Staff; FFY = federal fiscal year; LRTP = Long-Range Transportation Plan; PRC = MassDOT Project Review Committee.

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 (CECP), 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, and 2019–23. 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.

ANALYZING PROJECTS WITH QUANTIFIED IMPACTS

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 2019–23 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: 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 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 2018. Table B-4 summarizes the GHG impact analyses of transit projects completed in FFY 2018. 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
606223	Acton-Concord - Bruce Freeman Rail Construction (Phase II-B)	Quantified	10,315	Quantified decrease in emissions from bicycle and pedestrian infrastructure
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
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
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
607888	Boston-Brookline - Multi-use path construction on New Fenway	Quantified	54,724	Quantified decrease in emissions from bicycle and pedestrian infrastructure

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
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
605789	Boston - Reconstruction of Melnea Cass Boulevard	Quantified	2,872,641	Quantified decrease in emissions from Complete Streets project
606226	Boston - Reconstruction of Rutherford Ave, from City Square to Sullivan Square	Quantified		LRTP project included in the statewide model
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
608755	Boston - Intersection improvements at Morton St and Harvard St	Qualitative		Qualitative decrease in emissions
607759	Boston - Intersection improvements at the VFW Parkway and Spring St	Qualitative		Qualitative decrease in 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
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
606902	Boston - Bridge Reconstruction/Rehab, B-16-181, West Roxbury Parkway over MBTA	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
TBA	Boston - Superstructure replacement, B-16-107, Canterbury St over Amtrak/MBTA	Qualitative		No assumed impact/negligible impact on emissions
608608	Braintree - Highway lighting improvements at Interstate 93 and Route 3 interchange	Qualitative		No assumed impact/negligible impact on emissions
606316	Brookline - Pedestrian bridge rehabilitation, B-27-016, over MBTA off Carlton St	Qualitative		Qualitative decrease in emissions

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
608482	Cambridge-Somerville - Resurfacing and related work on Route 28	Qualitative		No assumed impact/negligible impact on emissions
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
608484	Canton-Milton - Resurfacing and related work on Route 138	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
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
608206	Chelsea to Danvers - Guide and traffic sign replacement on a section of US Route 1	Qualitative		No assumed impact/negligible impact on emissions
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

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
608378	Danvers-Topsfield-Boxford-Rowley - Interstate maintenance and related work on Interstate 95	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
607899	Dedham - Pedestrian improvements along Bussy St	Quantified	3,331	Quantified decrease in emissions from bicycle and pedestrian infrastructure
608587	Dedham - Reconstruction and related work on Bridge St (Route 109)	Qualitative		Qualitative decrease in emissions
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
608480	Foxborough-Walpole - Resurfacing and related work on Route 1	Qualitative		No assumed impact/negligible impact on emissions
608210	Foxborough-Plainville-Wrentham-Franklin – Interstate maintenance resurfacing work on Interstate 495	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
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

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
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
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
602077	Lynn - Reconstruction on Route 129 (Lynnfield Street), from Great Woods Road to Wyoma Square	Quantified	12,761	Quantified decrease in emissions from Complete Streets project
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
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
608275	Malden - Exchange St downtown improvement project	Quantified	13,519	Quantified decrease in emissions from Complete Streets project

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
608146	Marblehead - Intersection improvements at Pleasant St and Village, Vine, and Cross St	Quantified	531	Quantified decrease in emissions from traffic operational improvement
608467	Marlborough - Resurfacing and related work on Route 20	Qualitative		No assumed impact/negligible impact on emissions
608566	Marlborough - Improvements at Route 20 (East Main St) at Curtis Ave	Qualitative		Qualitative decrease in 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
607330	Milton - Deck reconstruction over Southeast Expressway (East Milton Square), includes parking and new landscaped area	Qualitative		No assumed impact/negligible impact on emissions
607342	Milton - Intersection and signal improvements at Route 28 (Randolph Ave and Chickatawbut Rd	Qualitative		Qualitative decrease in emissions
605034	Natick - Reconstruction of Route 27 (North Main St), from North Ave to the Wayland town line	Quantified	189,410	Quantified decrease in emissions from Complete Streets project
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
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
608610	Newton - Steel superstructure cleaning (full removal) and painting of N-12-055	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

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
605857	Norwood - Intersection improvements at Route 1 and University Avenue/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
608052	Norwood - Intersection and signal improvements at Route 1 (Providence Highway) and Morse St	Qualitative		Qualitative decrease in emissions
608933	Peabody - Rehabilitation of Central St	Quantified	150,913	Quantified decrease in emissions from Complete Streets project
609101	Peabody - Pavement preservation and related work on Route 128	Qualitative		No assumed impact/negligible impact on emissions
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
608468	Peabody-Danvers - Resurfacing and related work on Route 1	Qualitative		No assumed impact/negligible impact on emissions
609058	Peabody to Gloucester - Guide and traffic sign replacement on Route 128	Qualitative		No assumed impact/negligible impact on emissions
608707	Quincy - Reconstruction of Sea St	Quantified	-30,437	Quantified increase in emissions
608569	Quincy - Intersection improvements at Route 3A (Southern Artery) and Broad St	Qualitative		Qualitative decrease in emissions
608208	Quincy-Milton-Boston - Interstate maintenance and related work on Interstate 93	Qualitative		No assumed impact/negligible impact on emissions
608234	Randolph - Bridge preservation of 2 bridges: R-01-005 and R-01-007	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
608219	Reading-Wakefield - Interstate maintenance and related work on Interstate 95	Qualitative		No assumed impact/negligible impact on emissions

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
605205	Reading to Lynnfield - Guide and traffic sign replacement on a section of Interstate 95	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), Maskwonicut St over Amtrak/MBTA	Qualitative		No assumed impact/negligible impact on emissions
BN1570	Somerville-Medford - Green Line Extension Project - extension to College Ave with the Union Square spur	Quantified		LRTP project included in the statewide model
608562	Somerville - Signal and intersection improvement on Interstate 93 at Mystic Ave and McGrath Highway (top 200 crash location)	Qualitative		Qualitative decrease in emissions
608255	Stow - Bridge replacement, S-29-011, Box Mill Rd over Elizabeth Brook	Qualitative		No assumed impact/negligible impact on emissions
605342	Stow - Bridge replacement, Route 62 (Gleasondale Rd) over the Assabet River	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
607249	Sudbury - Intersection improvements at Route 20 and Landham Rd	Quantified	30,150	Quantified decrease in emissions from traffic operational improvement
607761	Swampscott - Intersection and signal improvements at Route 1A (Paradise Rd) at Swampscott Mall	Qualitative		Qualitative decrease in emissions
608493	Topsfield - Resurfacing and related work on Route 1	Qualitative		No assumed impact/negligible impact on 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

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
602261	Walpole - Reconstruction on Route 1A (Main Street), 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
607777	Watertown - Rehabilitation of Mount Auburn St (Route 16)	Quantified	536,769	Quantified decrease in emissions from Complete Streets project
608564	Watertown - Intersection improvements at Route 16 and Galen St	Qualitative		Qualitative decrease in emissions
609102	Wenham-Manchester-Essex-Gloucester - Pavement preservation and related work on Route 128	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
607327	Wilmington - Bridge replacement, W-38-002, Route 38 (Main St) over the B&M Railroad	Qualitative		No assumed impact/negligible impact on emissions
608791	Winchester - Improvements at Vinson-Owen Elementary School	Qualitative		Qualitative decrease in emissions
607244	Winthrop - Revere St Roadway Improvements	Quantified	252,816	Quantified decrease in emissions from Complete Streets project
603739	Wrentham - Construction of Interstate 495/Route 1A ramps	Quantified	1,233,486	Quantified decrease in emissions from traffic operational improvement
604996	Woburn - Bridge replacement, W-43-017, New Boston St over MBTA	Quantified		LRTP project included in the statewide model

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

Regional Transit Authority	Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
CATA	Rehab/renovate-repave parking lot	Qualitative		No assumed impact/negligible impact on emissions
CATA	Acquire - Shop equipment/software maintenance	Qualitative		No assumed impact/negligible impact on emissions
CATA	Buy replacement 35-foot buses (2)	Quantified	TBD	Quantified decrease in emissions from bus replacement
CATA	Replace 30-foot buses (2)	Quantified	TBD	No assumed impact/negligible impact on emissions
CATA	Preventative maintenance	Qualitative	0	No assumed impact/negligible impact on emissions
MBTA	Bridge and Tunnel Program	Qualitative		No assumed impact/negligible impact on emissions
MBTA	Green Line Extension Project - Extension to College Ave with the Union Square spur	Quantified	0	LRTP project included in the statewide model
MBTA	Stations and Facilities	Qualitative		No assumed impact/negligible impact on emissions
MBTA	Bus Overhaul	Qualitative	0	No assumed impact/negligible impact on emissions
MBTA	Bus Program	Qualitative		No assumed impact/negligible impact on emissions
MBTA	Elevator and Escalator Program	Qualitative		No assumed impact/negligible impact on emissions
MBTA	Revenue Vehicle Program	Qualitative	TBD	No assumed impact/negligible impact on emissions
MBTA	Positive Train Control	Qualitative		No assumed impact/negligible impact on emissions
MBTA	Systems/Signal Upgrade	Qualitative		No assumed impact/negligible impact on emissions
MWRTA	Acquisition of Bus Support Equipment/Facilities	Qualitative		No assumed impact/negligible impact on emissions
MWRTA	Buy Replacement Capitol Bus	Qualitative	TBD	No assumed impact/negligible impact on emissions
MWRTA	Mobility Management	Qualitative		No assumed impact/negligible impact on emissions

Regional Transit Authority	Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
MWRTA	Non-Fixed Route ADA Paratransit Services	Qualitative		No assumed impact/negligible impact on emissions
MWRTA	Terminal, Intermodal (Transit)	Qualitative		No assumed impact/negligible impact on emissions

ADA = Americans with Disabilities Act; CO_2 = carbon dioxide; GHG = greenhouse gas; kg = kilogram; LRTP = Long-Range Transportation Plan; TBD = to be determined; yr = year.

TABLE B-3
GREENHOUSE GAS REGIONAL HIGHWAY "COMPLETED" PROJECT TRACKING

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description	FFY of Contract Award
601579	Wayland - Signal and intersection improvements at Route 27 (Main St) and Route 30 (Commonwealth Rd)	Quantified	205,105	Quantified decrease in emissions from traffic operational improvement	2016
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
602165	Stoneham - Signal and intersection improvements at Route 28/North St	Quantified	139,709	Quantified decrease in emissions from traffic operational improvement	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
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	2018
600518	Hingham - Intersection improvements at Derby St, Whiting St, and Gardner St	Quantified	-145,683	Quantified increase in emissions	2018

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description	FFY of Contract Award
608352	Salem - Canal Street Rail Trail construction (Phase 2)	Quantified	6,651	Quantified decrease in emissions from bicycle and pedestrian infrastructure	2018
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	2018

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

Regional Transit Authority	Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description	FFY of Contract Award
CATA	Bus replacement 30-foot buses (4)	Quantified	1,660	Quantified decrease in emissions from bus replacement	2016
CATA	Bus replacement - less than 30-foot buses (3)	Quantified	10,151	Quantified decrease in emissions from bus replacement	2016
MBTA	Revenue Vehicle Program - bus replacement (369)	Quantified	1,264,520	Quantified decrease in emissions from bus replacement	2016
MWRTA	Bus replacement - less than 30-foot buses (5)	Quantified	20,107	Quantified decrease in emissions from bus replacement	2016
CATA	Buy replacement 30-foot buses (3)	Quantified	1,278	Quantified decrease in emissions from bus replacement	2017
MWRTA	Non-fixed route ADA paratransit vehicles (4)	Quantified	6,653	Quantified decrease in emissions from bus replacement	2017

ADA = Americans with Disabilities Act; CO_2 = carbon dioxide; GHG = greenhouse gas; kg = kilogram; yr = year.

APPENDIX C

Public Outreach and Comments

OVERVIEW OF CONTENTS

In the course of the developing the Transportation Improvement Program (TIP), the Boston Region MPO staff regularly engages with municipalities and the general public to provide information about the milestones, deadlines, and decision points in the development process. (Please see Chapter 2 for details.) 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 the draft TIP for the official public review period. This appendix documents the input received during the development of the FFYs 2019-23 TIP and comments received during the public review period.

SUMMARY OF COMMENTS RECEIVED DURING TIP DEVELOPMENT

MPO staff initiated outreach activities for the FFYs 2019–23 TIP in September 2017 and maintained communication with municipal, state agency, and public stakeholders throughout the TIP development process. The primary in-person/direct-engagement events at which staff received input were the subregional committee meetings held by the Metropolitan Area Planning Council (MAPC); the TIP How-To conference call "workshops" with municipal TIP contacts, MAPC subregional coordinators, and MassDOT district project engineers; and the monthly *Office Hours* with MPO Staff (dedicated times when members of the public may have one-on-one conversations with the MPO staff). 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 development work advanced through stages (project solicitation, project evaluation, and programming of funds). Staff informed the public at each stage via its standard communications channels (email, Twitter, and the 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 TIP DEVELOPMENT (PRE-DRAFT REVIEW)

PROJECT(S) /ISSUE(S)	SUPPORT OPPOSE REQUEST	COMMENTER(S)	COMMENT (SUMMARIZED)
Currently unprogrammed projects			
Intersection Improvements at Route 20 and Landham Road (Sudbury)	Request	**Municipal:** Sudbury Board of Selectman; Melissa Murphy-Rodrigues, Town Manager; Dan Carty, Sudbury Board of Selectmen; Pat Brown, Sudbury Board of Selectmen; Stephen Garvin, Planning Board Chair; Beth Suedmeyer, Sudbury Environmental Planner; Scott Nix, Sudbury Chief of Police; William L. Miles, Sudbury Fire Chief; Dan Nason, Sudbury DPW Director **Organization:** MAGIC **Sudbury residents:** Ann Bischoff, Renata Aylward, Christine Barrett, Lisa Silverman, Margaret Landry, Bill Schineller, Laura Fisher, Linda Daley, Frances Peters, Regina Letteri, Tricia Conboy, Jennifer O'Keefe, Ellen Gitelman, Margaret Chunias, Colette Reagan, Chris MacKinnon, Janie Dretler **Marlborough resident:** Barbara Nahoumi	Requests inclusion of the Intersection Improvements at Route 20 and Landham Road in the FFYs 2019-23 TIP. The intersection is the greatest transportation safety concern for the Town of Sudbury; there have been 170 reported accidents there in the past ten years, including one fatality, and near-collisions daily. The project will improve safety and traffic flow through widening the roadway, introducing turning lanes, and signalization. The project is at 100% design and is anticipated to be ready to advertise in 2019.

PROJECT(S) /ISSUE(S)	SUPPORT OPPOSE REQUEST	COMMENTER(S)	COMMENT (SUMMARIZED)
Exchange Street Downtown Improvement Project (Malden)	Request	**Legislative:** Senator Jason M. Lewis, Representative Steve Ultrino **Municipal:** Mayor Gary Christenson; Councillor Ryan O'Malley; Deborah Burke, Malden Redevelopment Authority **Organization:** ICC	Requests inclusion of the Exchange Street Downtown Improvement Project in the FFYs 2019-23 TIP. Exchange Street is a top location of pedestrian-involved crashes. New developments, the opening of the Everett casino, and the reopening of Pleasant Street will increase pedestrian volumes. Existing sidewalks are narrow and not in ADA compliance, and the road design encourage high vehicle speeds. The proposed improvements will provide safer bicycle and pedestrian access through the area and to the Malden Center MBTA station.
Interchange Improvements at I-95/I-93/University Avenue and I-95 Widening (Canton)	Request	**Municipal:** Michael Jaillet, Westwood Town Administrator; Charles Aspinwall, Canton Town Administrator **Organization:** TRIC	Requests that the MPO and the Commonwealth advance the Interchange Improvements at I-95/I-93/University Avenue and I-95 Widening. The current project area has constrained economic development in Westwood, Norwood, Canton, and other towns in the region. Notes that lost tax revenue has been a significant burden to Westwood.
Rehabilitation and Related Work on Route 126 (Bellingham)	Request	**Municipal:** Don DiMartino, Director, Bellingham Department of Public Works; Dennis Fraine, Bellingham Town Administrator; Michael Soter, Chair, Bellingham Board of Selectmen; Jim Kupfer, Bellingham Town Planner **Organization:** SWAP **Bellingham resident:** Larry Sposato	Requests inclusion of the Rehabilitation and Related Work on Route 126 in the FFYs 2019-23 TIP. In addition to needed pavement rehabilitation and drainage improvements, the project will improve pedestrian and bicycle connections to Bellingham Middle and High School and Bellingham Center. The project area has incomplete sidewalk facilities and is not safe for pedestrians and cyclists. The corridor serves residential and commercial development, in addition to several churches and the aforementioned schools
Construction of I-495/Route 1A Ramps (Wrentham)	Request	**Municipal:** Kevin A. Sweet, Wrentham Town Administrator **Organization:** SWAP **MassDOT:** Tim Cohan, Highway District 5	Requests inclusion of the Construction of I-495/Route 1A Ramps in the FFYs 2019-23 TIP. The interchange operates well beyond its intended capacity, and perennial congestion has hindered economic development in an area where prime commercial properties exist. The existing ramp intersections and the Wrentham Outlets entrance and exit pose ongoing traffic safety concerns.

PROJECT(S) /ISSUE(S)	SUPPORT OPPOSE REQUEST	COMMENTER(S)	COMMENT (SUMMARIZED)
Resurfacing and Related Work on Central and South Main Streets (Ipswich)	Request	**Municipal:** Frank Ventimiglia, Operations Manager, Ipswich Department of Public Works	Requests inclusion of the Resurfacing and Related Work on Central and South Main Streets in the FFYs 2019-23 TIP. Ipswich and Coneco Engineers are updating the 25% design to current standards and anticipate a resubmittal by the end of February 2018. The project is a priority for the Town of Ipswich.
Rehabilitation of Central Street (Peabody)	Request	**Municipal:** William Paulitz, Peabody City Engineer	Requests inclusion of the Rehabilitation of Central Street in the FFYs 2019-23 TIP. The project has the full support of Mayor Edward A. Bettencourt, Jr. and the Peabody City Council.
Rehabilitation of Bridge Street (Beverly)	Request	**Municipal:** Mayor Michael Cahill	Requests inclusion of the Rehabilitation of Bridge Street in the FFYs 2019-23 TIP. Bridge Street connects downtown Beverly to the Beverly Deport Commuter Rail Station and communities to the west. Regional housing needs and transit-orient developments planned along the Bass River waterfront underscore the importance of the proposed improvements.
Pedestrian Improvements along Bussey Street (Dedham)	Request	**Municipal:** Dedham Board of Selectmen **Organization:** TRIC	Requests inclusion of the Pedestrian Improvements along Bussey Street in the FFY 2023 element of the TIP. Bussey Street is a major corridor in East Dedham, heavily used by pedestrians, bicyclists, and motorists. The intersection of Bussey Street at Colburn Street is crossed by many children who walk to school. The proposed project will boost economic development and improve safety, accessibility, and connectivity to nearby amenities.
Reconstruction on Route 38 (Main Street) (Wilmington)	Request	**Municipal:** Jeffrey M. Hull, Wilmington Town Manager	Requests inclusion of the Reconstruction of Route 38 in the FFYs 2019-23 TIP. Route 38 is a regionally important urban arterial, connecting to I-95/Route 128 and Route 129. The corridor is a deteriorating and congested regional bottleneck. The project will improve safety, reduce congestion, and provide from regional economic and transportation benefits. Proposed improvements include accommodations for all roadway users.

PROJECT(S) /ISSUE(S)	SUPPORT OPPOSE REQUEST	COMMENTER(S)	COMMENT (SUMMARIZED)
Intersection Signalization at Route 28 and Hopkins Street (Reading)	Request	**Organization:** NSPC	Requests inclusion of the Intersection Signalization at Route 28 and Hopkins Street in the FFYs 2019-23 TIP. The project will improve traffic operations, vehicular and pedestrian safety, and pedestrian mobility.
Corridor Improvements and Related Work on Justice Cushing Highway (Route 3A) (Cohasset)	Request	**Organization:** SSC **MassDOT:** Tim Cohan, Highway District 5	Requests inclusion of the Corridor Improvements and Related Work on Justice Cushing Highway (Route 3A) in the FFYs 2019-23 TIP. The project will improve safety and provide bicycle and pedestrian accommodations. Route 3A is an important regional corridor which warrants more options for safe walking and biking.
Improvements along Commonwealth Avenue, from Alcorn Street to Warren/Kelton Streets (Phases 3 and 4) (Boston)	Request	**Organization:** ICC	Requests inclusion of the Improvements along Commonwealth Avenue in the FFYs 2019-23 TIP. The proposed improvements, including improved sidewalks and a separated bike lane, will improve safety and comfort for motorists, pedestrians, and bicyclists in a rapidly developing area.
Intersection Improvements at Route 3A/Summer Street Rotary (Hingham)	Request	**Municipal:** Roger Fernandes, Hingham Town Engineer **Organization:** SSC	Requests inclusion of the Intersection Improvements at Route 3A/Summer Street Rotary in the FFYs 2019-23 TIP. The corridor is heavily impacted by seasonal travel and has safety issues. The project will improve roadway operations, traffic control operations, bicycle and pedestrian safety, and ADA accessibility. The Town of Hingham will run a pilot program through the summer of 2018 which will temporarily change the lane configuration along the corridor prior to submitting the 25% design. Notes the project received a high evaluation score.
McGrath Boulevard Project (Somerville)	Request	**Organization:** ICC	Requests inclusion of the McGrath Boulevard Project in the FFYs 2019-23 TIP. The project will enhance access for multiple travel modes, improve connections along the corridor, and potentially facilitate development in the area.

PROJECT(S) /ISSUE(S)	SUPPORT OPPOSE REQUEST	COMMENTER(S)	COMMENT (SUMMARIZED)
Reconstruction and Signal Improvements on Walnut Street (Newton)	Request	**Organization:** ICC	Requests inclusion of the Reconstruction and Signal Improvements on Walnut Street in the FFYs 2019-23 TIP. The project will improve traffic flow and bicycle and pedestrian safety.
Rehabilitation and Related Work on Route 16, from Route 109 to Beaver Street (Milford)	Request	**Organization:** SWAP	Requests inclusion of the Rehabilitation and Related Work on Route 16 in the FFYs 2019-23 TIP. The project will enhance improvements already programmed for 2019 (607428) by reconstructing sidewalks, delineating preferred bicycle routes, and improving roadway safety.
Intersection Improvements, Squantum Street at Adams Street (Milton)	Request	**Organization:** ICC	Noting that the project has not been identified on the TIP, requests inclusion of the Intersection Improvements at Squantum Street and Adams Street in any of the upcoming TIP years should a funding gap be identified. The project will install a signal at a busy and dangerous unsignalized intersection. The Town of Milton submitted a PIF in 2016 and is currently appropriating design funds. The estimated preliminary construction cost is slightly under $1 million.
Revere Street Roadway Improvements (Winthrop)	Request	**Organization:** ICC	Requests inclusion of the Revere Street Roadway Improvements in the FFYs 2019-23 TIP. Revere Street handles the majority of traffic flowing into and out of Revere and is the major route by which most students from Winthrop travel to school.
Intersection Improvements on Route 2A at Willow Road and Bruce Street (Littleton)	Request	**Organization:** MAGIC	Requests inclusion of the Intersection Improvements on Route 2A at Willow Road and Bruce Street in the FFYs 2019-23 TIP. The project area is a high traffic, high speed intersection which has seen an increase in accidents and traffic over the past five years. The proposed improvements will improve traffic flow and safety, and facilitate commerce.

PROJECT(S) /ISSUE(S)	SUPPORT OPPOSE REQUEST	COMMENTER(S)	COMMENT (SUMMARIZED)
Reconstruction of Sea Street (Quincy)	Request	**Organization:** ICC	Requests inclusion of the Reconstruction of Sea Street in the FFYs 2019-23 TIP. The project will improve bus operations, truck access, bicyclist and pedestrian safety, air quality, and pedestrian access and MBTA access to and from Quincy Center businesses and the Germantown Community Center.
Currently programmed projects			
Reconstruction of Rutherford Avenue, from City Square to Sullivan Square (Boston)	Request	**Organizations:** Rutherford Corridor Improvement Coalition, WalkBoston	Requests that the Reconstruction of Rutherford Avenue (FFYs 2020-22) be deferred one year to allow for a more comprehensive examination of possible alternatives. The City of Boston's preferred design proposes to rebuild underpasses on Rutherford Avenue at Austin Street and Sullivan Square. In its most recent design process, the City of Boston did not provide the community with a surface design for its consideration. A viable surface design for Austin Street has been prepared by Professor Peter Furth of Northeastern University, which allows for better traffic movement than the underpass design and provides safer conditions for bicyclists and pedestrians. This design is potentially less costly and has not been analyzed and compared to the underpass design. The Rutherford Corridor Improvement Coalition has collected almost 560 signatures from area residents and businesspersons who seek a solution to the Rutherford corridor that provides the greatest community benefit.
Reconstruction of Rutherford Avenue, from City Square to Sullivan Square (Boston)	Support	**Charlestown residents:** Ryan Gavin, Jonathan Weiss	Supports continued inclusion of the Reconstruction of Rutherford Avenue in FFYs 2020-22 of the TIP. The new design provides most of the improvements provided by the surface option, including the buffered green space and linear park, and is supported by the majority of Charlestown residents. The corridor needs immediate improvements and the project should not be delayed.

PROJECT(S) /ISSUE(S)	SUPPORT OPPOSE REQUEST	COMMENTER(S)	COMMENT (SUMMARIZED)
Reconstruction of Ferry Street (Everett)	Request	**Municipal:** Jay Monty, Everett Transportation Planner	Requests that the Reconstruction of Ferry Street remain in the FFY 2019 TIP element. The project has been flagged by MassDOT as a candidate for moving into a later TIP element due to schedule concerns regarding right-of-way issues. Many of the construction easements can be obtained through right of entry, and the City and its consultant believe the project will be ready for advertisement in 2019.
Bridge Replacement, Route 111 over I-495 (Boxborough)	Request	**Municipal:** Adam Duchesneau, Boxborough Town Planner	Requests that when the Route 111 over I-495 bridge replacement begins (currently programmed in FFYs 2020-21), a new sidewalk be included on at least one side, if not both, of the new bridge. The Town of Boxborough is improving town-wide pedestrian access. Approximately 3,000 feet of sidewalk have been completed along Route 111, and a new grant will add another 2,500 feet; the Town's goal is having sidewalk along the entire length of Route 111.
Reconstruction on Route 1A (Main Street) (Walpole)	Request	**Legislative:** Senator Paul F. Feeney; Michael Gallant, Office of Senator Feeney; William Buckley, Office of Rep. John H. Rogers **Municipal:** Jim Johnson, Walpole Town Administrator **Organization:** TRIC	Requests continued inclusion of the Reconstruction of Route 1A in the FFY 2020 TIP element, rather than moving it to FFY 2021. The safety issues in the corridor are highly important to the region, and the Town of Walpole anticipates submitting the 100% design in April 2018. The right-of-way issues will still exist if the project is delayed, and the Town of Walpole believes it will address these issues in a timely manner.
Reconstruction of Main Street (Route 30) (Natick)	Request	**Municipal:** Jamie Errickson, Director of Natick Community & Economic Development **Organization:** MAGIC	Requests continued inclusion of the Reconstruction of Route 27 in the FFY 2019 TIP element, rather than moving it to FFY 2020. Right-of-way issues will be incorporated into the 75% design, which the Town of Natick plans to submit in July 2018. The Town will vote on the necessary easements in at the spring 2019 Town Meeting and has allocated the needed funds for the full design.

PROJECT(S) /ISSUE(S)	SUPPORT OPPOSE REQUEST	COMMENTER(S)	COMMENT (SUMMARIZED)
Reconstruction of Melnea Cass Boulevard (Boston)	Request	**Organization:** Ken Kruckemeyer, LivableStreets Alliance	Requests modification of the project design for the Reconstruction of Melnea Cass Boulevard (FFY 2019). The separated bicycle facilities included in the current design are difficult to maintain, especially with regard to snow removal. In addition, the facilities are next to the roadway, rather than behind the trees lining the corridor. Mr. Kruckemeyer provided alternative designs, stating they are affordable and more appropriate for the neighborhood.
Reconstruction of Melnea Cass Boulevard (Boston)	Oppose	**Organization:** Madeligne Tena, Mandela Residents Cooperative Association; Friends of Melnea Cass Boulevard	Opposes the project design for the Reconstruction of Melnea Cass Boulevard (FFY 2019), including the removal of sixty trees and the absence of bus rapid transit lanes. The Boston Transportation Department's public process has been insufficient; important abutters have not been consulted, and the BTD has not communicated with the Friends of Melnea Cass Boulevard since April 2017. Further analysis of the project, including environmental and public health impacts, is needed.
Reconstruction on Route 126 (Pond Street) (Ashland)	Support	**Municipal:** Sheila Page, Ashland Town Planner; Michael Herbert, Ashland Town Manager; Yolanda Greaves, Ashland Board of Selectmen; Holliston Board of Selectmen; David R. Williams, Sherborn Town Administrator **Organizations:** MWRC, 495/MetroWest Partnership, SVN, Ashland Business Association, 126 Self Storage, The Residence at Valley Farm	Supports continued inclusion of the Reconstruction on Route 126 in the FFY 2020 TIP element. The project area is a vital economic corridor to Ashland, Holliston, Sherborn, and Framingham. Approximately 20,000 vehicles travel the road each day, and residents in the region rely on the roadway for daily errands, professional services, and commuting. The current design discourages bicycle and pedestrian travel. The project is essential to the region's economic development, and the proposed improvements will enhance quality of life for all roadway users.

PROJECT(S) /ISSUE(S)	SUPPORT OPPOSE REQUEST	COMMENTER(S)	COMMENT (SUMMARIZED)
Intersection and Signal Improvements at Kelley's Corner, Route 111, and Route 27 (Acton)	Support	**Municipal:** Acton Board of Selectmen; Roland Bartl, Acton Town Planner **Organization:** MAGIC	Supports continued inclusion of the Intersection Improvements at Kelley's Corner in the FFY 2022 TIP element. The project has become more complex and the projected cost has increased significantly, yet the modified 25% design provides safety and capacity advantages over the preliminary plans. Capacity on the Route 111 and Route 27 intersection will improve in both the AM and PM peak hours, and the modified design is more effective in addressing significant safety and capacity problems at the adjacent intersections of Massachusetts Avenue with Charter Road and Community Lane.
Intersection and Signal Improvements at Kelley's Corner, Route 111, and Route 27 (Acton)	Oppose	**Acton resident:** Terra Friedrichs	Opposes inclusion of the Intersection Improvements at Kelley's Corner in the FFYs 2019-23 TIP. States the project is project is unnecessary, and the funds could be better spent in communities with higher priority projects. Adds that the project supports a large development and should be funded privately.
Intersection and Signal Improvements at Kelley's Corner, Route 111, and Route 27 (Acton)	Oppose	**Organization:** Kelley's Corner LLC **Acton residents:** Terra Friedrichs, Lee Ketelson, Eleanor Mathews, Allen Nitschelm	Opposes the project design of the Intersection Improvements at Kelley's Corner. The proposed design includes the removal of many old growth trees along Massachusetts Avenue, including historic large oak trees; planting new trees in their place will not provide the benefits (shade for pedestrians, CO2 reduction, aesthetic appeal) of the mature trees. The addition of left-turn lanes will negatively impact pedestrians, as there will be greater crossing distances and higher vehicle speeds. The proposed widening will also reduce on-street parking, adversely affecting local businesses. Other issues raised include lack of protection for the proposed bicycle lanes and the negative impact of additional signalization.

PROJECT(S) /ISSUE(S)	SUPPORT OPPOSE REQUEST	COMMENTER(S)	COMMENT (SUMMARIZED)
Intersection and Signal Improvements at Kelley's Corner, Route 111, and Route 27 (Acton)	Oppose	**Organization:** Kelley's Corner LLC **Acton resident:** Allen Nitschelm	Opposes inclusion of the Intersection Improvements at Kelley's Corner in the FFYs 2019-23 TIP until issues with the design are resolved.
Intersection and Signal Improvements at Kelley's Corner, Route 111, and Route 27 (Acton)	Request	**Acton resident:** Terra Friedrichs	Requests reprogramming the Intersection Improvements at Kelley's Corner (FFY 2022) into the FFY 2023 TIP element. States that funding urgency should not drive the design.
Intersection Improvements at Three Locations (Beverly)	Support	**Municipal:** Mayor Michael Cahill; Aaron Clausen, Director of Planning and Community Development **Organization:** Beverly Crossing	Supports continued inclusion of the Intersection Improvements at Three Locations in the FFY 2021 TIP element, if not sooner. Improved bicycle and pedestrian safety is important to the City; a new middle school will open in August 2018 and will be served by two of the three intersections. WorldTech Engineering believes the project will be ready for advertisement in June 2019.
Reconstruction of Union Street (Route 139), from Linfield Street to Centre Street / Water Street (Holbrook)	Request	**Legislative:** Senator John F. Keenan **Municipal:** Tim Gordon, Holbrook Town Administrator; Chris Pellitteri, Holbrook DPW Superintendent	Requests reprogramming the Reconstruction of Union Street (FFY 2021) to an earlier TIP element. The project area is a critical connection to the Holbrook/Randolph Commuter Rail Station yet lacks sidewalks. The Town of Holbrook will be ready to advertise the project in FFY 2020, and recently passed a town-wide rezoning bylaw that allows new forms of development along the corridor.
Reconstruction on Route 129 (Lynnfield Street) (Lynn)	Support	**Municipal:** Mayor Thomas M. McGee	Supports continued inclusion of the Reconstruction of Route 129 in the FFY 2020 TIP element. The project is important to the community, and the City is advancing the project design in anticipation of advertisement in 2020.

PROJECT(S) /ISSUE(S)	SUPPORT OPPOSE REQUEST	COMMENTER(S)	COMMENT (SUMMARIZED)
Signal and Intersection Improvements on Route 135 (Hopkinton)	Request	**Municipal:** David Daltorio, Hopkinton Town Engineer	Requests continued inclusion of the Signal and Intersection Improvements on Route 135 in the FFY 2019 TIP element, rather than reprogramming the project in FFY 2020. The Town of Hopkinton anticipates a 75% design submission in the summer 2018. The Town of Hopkinton understands the readiness concerns, but is proceeding with the hope of completing milestones for FFY 2019. There are two draft warrants for easements and utility undergrounding funding that will be taken up at the next town meeting.
Projects in the MetroWest Region	Support	**Organization:** MWRC	Supports continued inclusion of the following projects in the FFYs 2019-23 TIP: Cochituate Rail Trail, Phase 2 (Natick and Framingham) Reconstruction of Main Street (Route 30) (Southborough) Reconstruction of Route 27 (North Main Street) (Natick) Reconstruction of Union Avenue (Framingham) Reconstruction of Route 126 (Pond Street) (Ashland)
Projects in the SWAP Region	Support	**Organization:** SWAP	Supports continued inclusion of the following projects in the FFYs 2019-23 TIP: Resurfacing and Intersection Improvements on Route 16 (Main Street) (Milford) Signal and Intersection Improvements on Route 135 (Hopkinton)
Rehabilitation of Mount Auburn Street (Route 16) (Watertown)	Support	**Organization:** ICC	Supports continued inclusion of the Rehabilitation of Mount Auburn Street in the FFY 2022 TIP element.

PROJECT(S) /ISSUE(S)	SUPPORT OPPOSE REQUEST	COMMENTER(S)	COMMENT (SUMMARIZED)
Minuteman Bikeway Extension, from Loomis Street to the Concord Town Line (Bedford)	Support	**Organization:** MAGIC	Supports continued inclusion of the Minuteman Bikeway Extension in the FFY 2022 element of the TIP.
Intersection Improvements at Route 1A and Upland Road / Washington Street and Prospect Street / Fulton Street (Norwood)	Support	**Organization:** TRIC	Supports continued inclusion of the Intersection Improvements at Route 1A and Upland Road / Washington Street and Prospect Street / Fulton Street in the FFYs 2019-23 TIP, and requests programming the project in the earliest possible TIP element.
Intersection Improvements at Route 1 and University Ave. / Everett St. (Norwood)	Request	**Organization:** TRIC	Supports continued inclusion of the Intersection Improvements at Route 1A and University Avenue / Everett Street in the FFYs 2019-23 TIP, and requests programming the project in the earliest possible TIP element.
Bruce Freeman Rail Trail (Phase 2D)	Support	**Municipal:** Melissa Murphy-Rodrigues, Town Manager **Organization:** MAGIC	Supports continued inclusion of the Bruce Freeman Rail Trail (Phase 2D) in the FFY 2022 TIP element. The project will improve pedestrian facilities, provide bicycle accommodations, and offer healthy transportation options to reduce greenhouse gas emissions. The Town of Sudbury has substantially completed the 25% design for MassDOT's review.

PROJECT(S) /ISSUE(S)	SUPPORT OPPOSE REQUEST	COMMENTER(S)	COMMENT (SUMMARIZED)
Wakefield / Lynnfield Rail Trail (Wakefield and Lynnfield)	Support	**Organization:** Friends of the Lynnfield Rail Trail **Wakefield resident:** Anu Gerweck	Supports continued inclusion of the Wakefield/Lynnfield Rail Trail in FFY 2021 TIP element. In 2017, the Town of Lynnfield voted in favor of the Rail Trail warrant article, authorizing the Selectmen to take a lease with the MBTA and construct a path on the rail bed. The Friends of the Lynnfield Rail Trail are seeking Final Design funds from sources outside of the Town budget; if necessary, the balance of what is not raised will be sought via a town meeting vote.
Other comments			
MPO Assistance with Project Design	Request	**Organization:** NSPC	Requests that the MPO assess how it may help communities find the resources to start the design of priority local projects. Notes that communities put a significant amount of time and money into reaching 25% design, and would benefit greatly from any help and resources the MPO can provide.
Underground Utilities	Request	**Sudbury resident:** Bill Schineller	Requests that transportation projects include burying existing overhead utilities within the project area. States that the majority of long duration power outages are largely due to overhead lines.

SUMMARY OF COMMENTS RECEIVED DURING THE PUBLIC REVIEW PERIOD

[TEXT WILL BE REVISED FOR INCLUSION IN THE FINAL DOCUMENT, POST COMMENT PERIOD]

The MPO board voted to release a draft FFYs 2019-23 TIP document for public review at its April 12, 2018, meeting. This vote initiated an official 30-day public review period, which began on April 18, 2018, and closed on May 17, 2018. 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 (on Public Review Draft)]

[TO BE INCLUDED IN FINAL DOCUMENT, POST COMMENT PERIOD]

APPENDIX D

Glossary of Acronyms

Acronym	Definition
3C	continuous, comprehensive, cooperative [metropolitan transportation planning process]
A&F	Administration and Finance Committee
ADA	Americans with Disabilities Act of 1990
BRT	bus rapid transit
BTD	Boston Transportation Department
CA/T	Central Artery/Tunnel [project also known as “the Big Dig”]
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
CO_2	carbon dioxide
CTPS	Central Transportation Planning Staff
CY	calendar year
DEIR	draft environmental impact report
DEP	Department of Environmental Protection [Massachusetts]
ENF	environmental notification form
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]

Acronym	Definition
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
FMCB	MBTA Fiscal and Management Control Board
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]
HTC	Healthy Transportation Compact
ICC	Inner Core Committee [MAPC municipal subregion]
IPMT	Interim Project Management Team [Green Line Extension project]
IRI	International Roughness Index
ITS	intelligent transportation systems
LEP	limited English proficiency
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
MEPA	Massachusetts Environmental Policy Act

Acronym	Definition
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
NHFP	National Highway Freight Program
NHPP	National Highway Performance Program
NHS	National Highway System
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]
OTP	MassDOT Office of Transportation Planning
PBPP	performance-based planning and programming
PEHD	peak hours of excessive delay
PIF	project initiation form [MassDOT]
PL	metropolitan planning funds [FHWA] or public law funds
PMT	Program for Mass Transportation [MBTA]
PRC	Project Review Committee [MassDOT]
PSAC	Project Selection Advisory Council [MassDOT]
RMV	Registry of Motor Vehicles [MassDOT division]
RTA	regional transit authority
RTAC	Regional Transportation Advisory Council [of the Boston Region MPO]
SEIR	Single Environmental Impact Report [MEPA]
SFY	state fiscal year
SIP	State Implementation Plan
SOV	single-occupancy vehicle
SPR	State Planning and Research [FHWA]
SRTS	Safe Routes to School [federal program]

Acronym	Definition
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
TAP	Transportation Alternatives Program [federal funding program]
TCM	transportation control measure
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
ULB	Useful Life Benchmark
UPWP	Unified Planning Work Program [MPO certification document]
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

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) 2018 and 2022, including the distribution of the Boston Region MPO's Regional Target Program funding (the MPO's discretionary funding) and funding for projects and programs prioritized by the Massachusetts Department of Transportation. *(Following the MPO's endorsement of this FFYs 2019–23 TIP, this funding analysis will be updated to reflect the distribution of the MPO's Regional Target Program funding and all federal highway funding programmed from FFY 2019 through FFY 2023.)* Funding amounts shown include the state's matching funds that leverage the federal funds.

Table E-1 shows the breakdown of the MPO's Regional Target Program funding and all federal highway funding for each municipality in the Boston region. Figures E-1 through E-4 summarize this data by subregion and municipality type.

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
- For each FFY, calculated the amount of programmed funds associated with each municipality
- Recorded the total amount of programmed funds for each municipality for each FFY in the dataset
- For projects that spanned multiple municipalities, divided programmed funds equally by the number of municipalities located within the project area

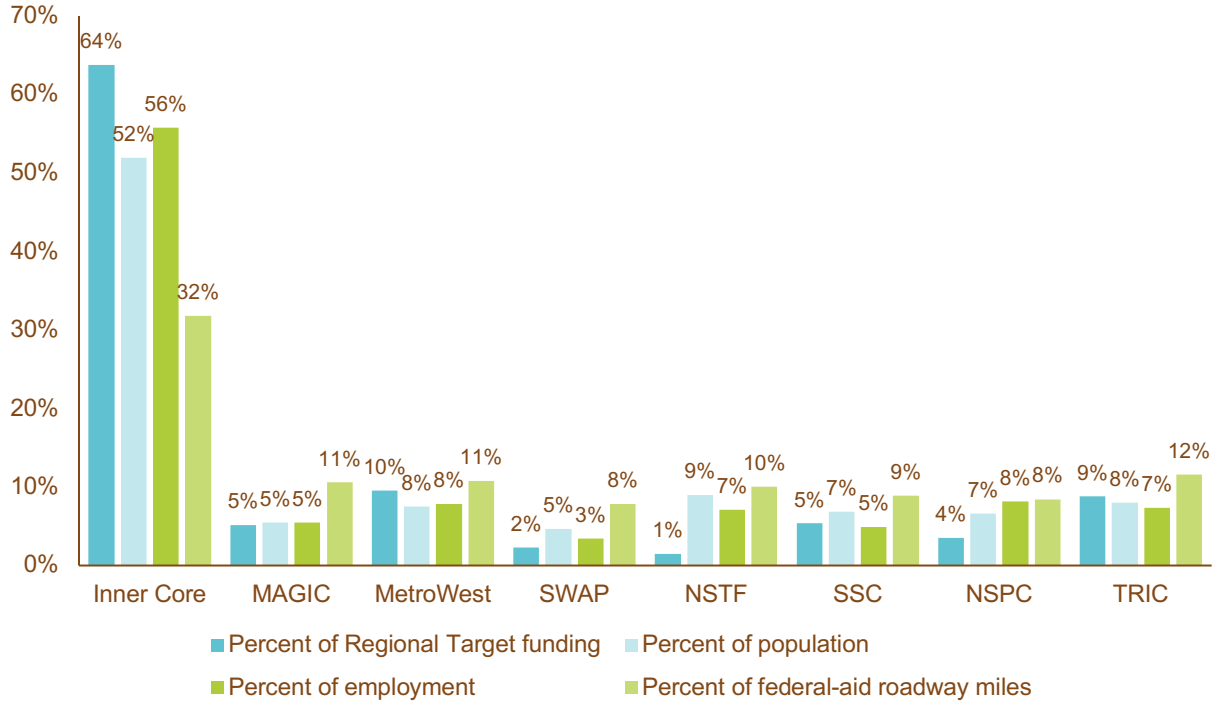
NEXT STEPS

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.

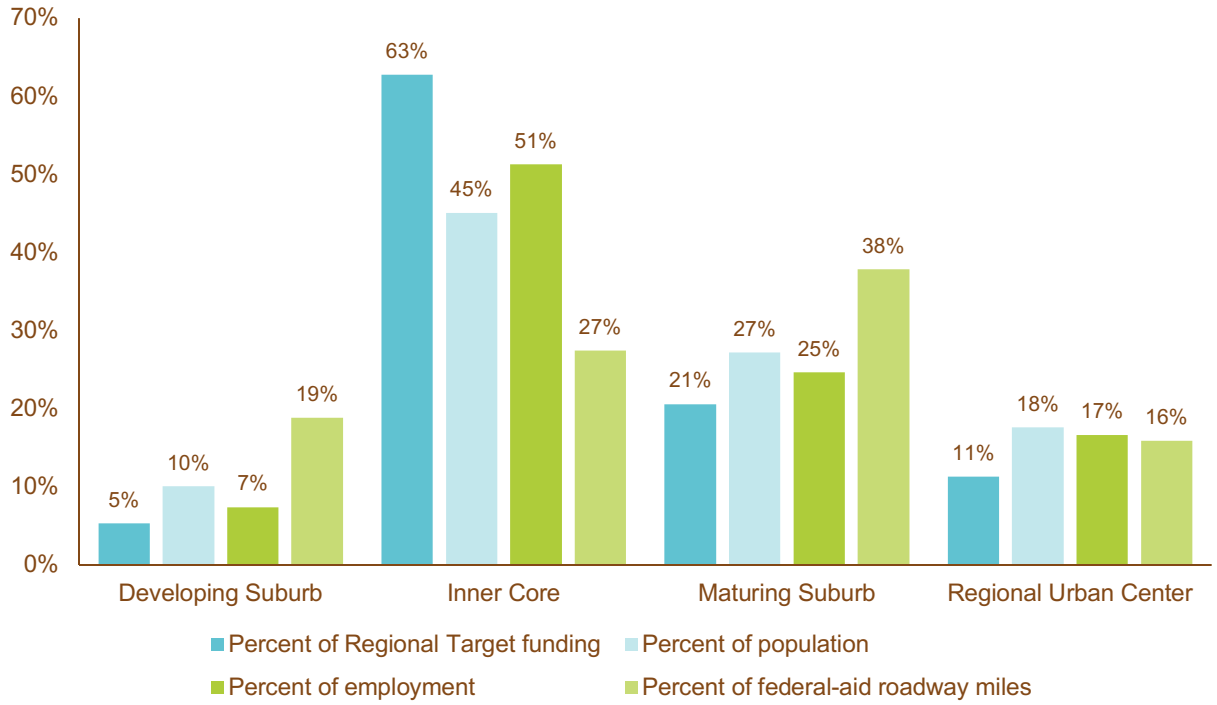
A database that tracks the geographic distribution of TIP funding can serve as an important input into the funding decisions made each year. Along with the data described above, this data on geographic distribution of highway funding can help guide the MPO's public outreach and decision-making to help ensure that, over time, the transportation needs of the region are met.

FIGURE E-1:
REGIONAL DISTRIBUTION OF TARGET FUNDING BY SUBREGION (FFYs 2018–22)



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 2018–22)



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-3:
ALL FEDERAL HIGHWAY FUNDING IN THE BOSTON REGION BY SUBREGION (FFYs 2018–22)

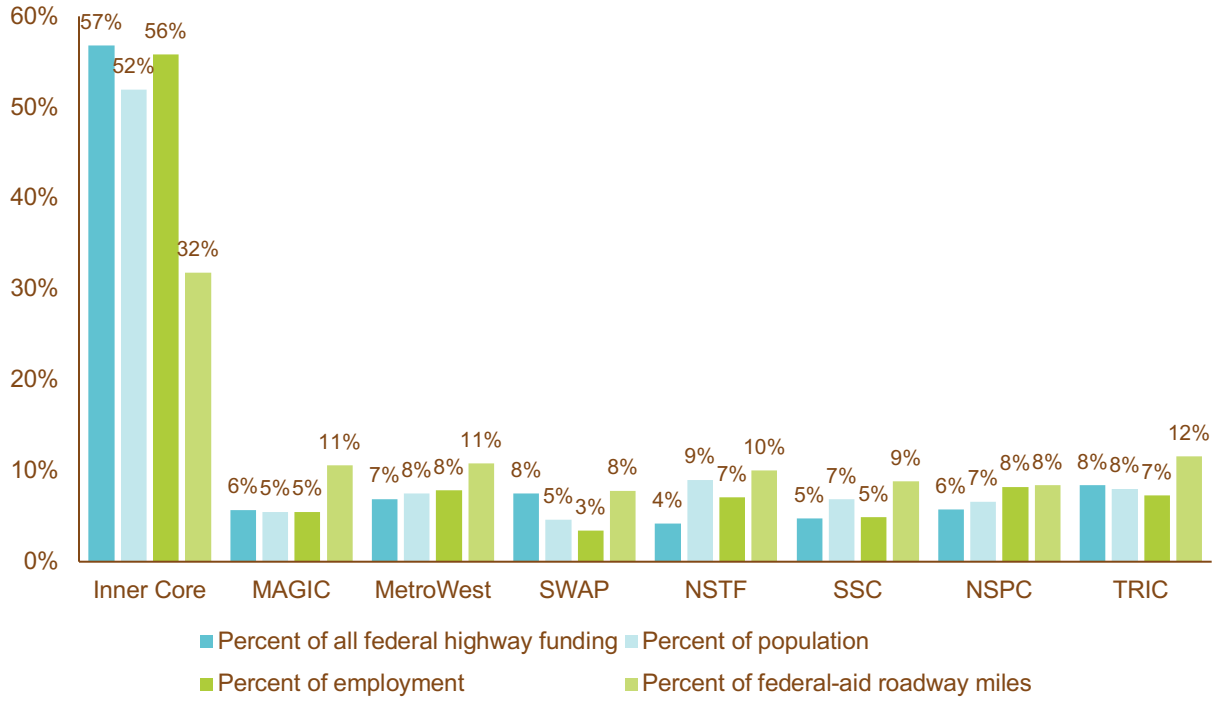


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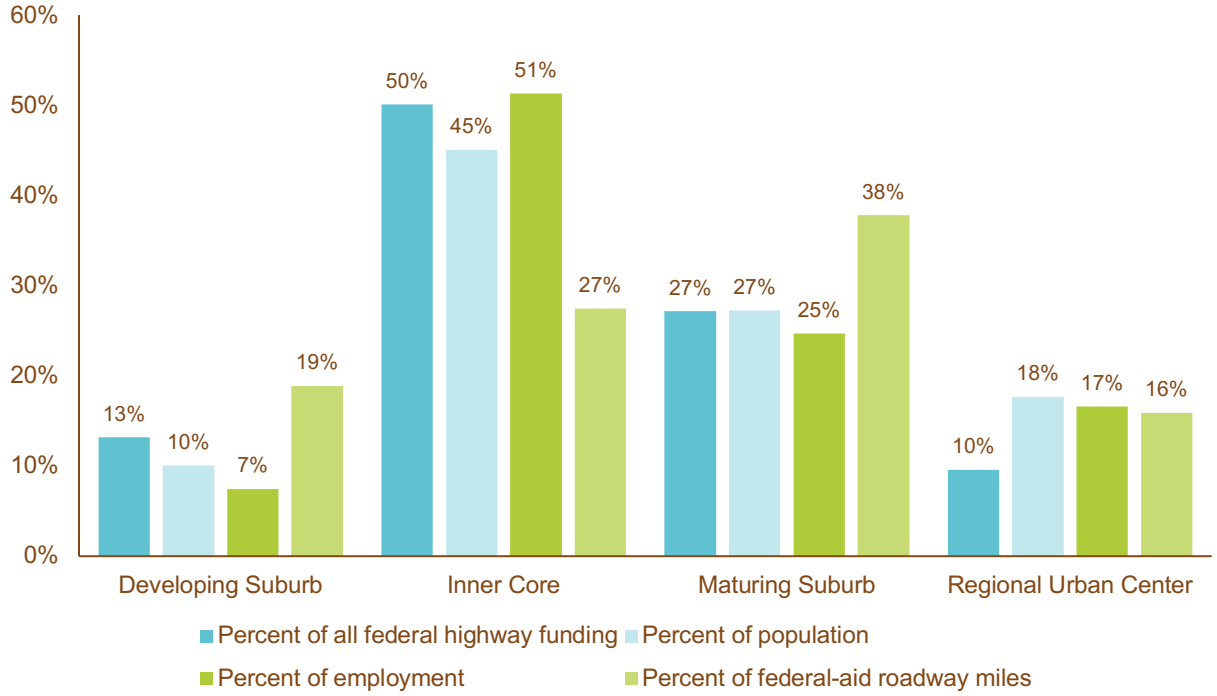
FIGURE E-4:
ALL FEDERAL HIGHWAY FUNDING IN THE BOSTON REGION BY MUNICIPALITY TYPE (FFYs 2018–22)



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

TABLE E-1:
FEDERAL HIGHWAY PROGRAMMING FOR MUNICIPALITIES IN THE BOSTON REGION (FFYs 2018–22)

Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Road 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%	$92,189,340	19.2%	$180,056,854	22.3%	$272,246,194	21.1%
Chelsea	Inner Core	Inner Core	1.1%	0.8%	0.6%	$9,028,628	1.9%	$111,027,869	13.7%	$120,056,497	9.3%
Hopkinton	SWAP	Developing Suburb	0.5%	0.5%	1.0%	$8,174,400	1.7%	$78,161,796	9.7%	$86,336,196	6.7%
Somerville	Inner Core	Inner Core	2.5%	1.2%	1.2%	$50,666,667	10.6%	$6,568,548	0.8%	$57,235,215	4.4%
Cambridge	Inner Core	Inner Core	3.4%	6.0%	1.8%	$50,666,667	10.6%	$5,989,798	0.7%	$56,656,465	4.4%
Medford	Inner Core	Inner Core	1.8%	1.0%	1.5%	$50,666,667	10.6%	$1,200,000	0.1%	$51,866,667	4.0%
Saugus	Inner Core	Maturing Suburb	0.9%	0.6%	0.8%	$0	0.0%	$36,604,445	4.5%	$36,604,445	2.8%
Natick	MetroWest	Maturing Suburb	1.1%	1.3%	1.2%	$12,688,000	2.6%	$20,673,777	2.6%	$33,361,777	2.6%
Lynn	Inner Core	Regional Urban Center	2.9%	1.3%	1.3%	$4,755,714	1.0%	$27,046,946	3.3%	$31,802,660	2.5%
Wilmington	NSPC	Maturing Suburb	0.7%	1.0%	1.3%	$0	0.0%	$27,898,800	3.5%	$27,898,800	2.2%
Milton	TRIC	Maturing Suburb	0.9%	0.3%	1.3%	$0	0.0%	$23,190,027	2.9%	$23,190,027	1.8%
Walpole	TRIC	Developing Suburb	0.8%	0.6%	1.2%	$17,390,216	3.6%	$2,792,957	0.3%	$20,183,173	1.6%
Quincy	Inner Core	Regional Urban Center	3.0%	2.6%	2.1%	$0	0.0%	$17,898,867	2.2%	$17,898,867	1.4%
Woburn	NSPC	Regional Urban Center	1.2%	2.2%	1.5%	$17,026,434	3.6%	$0	0.0%	$17,026,434	1.3%
Watertown	Inner Core	Inner Core	1.0%	1.1%	0.6%	$14,190,425	3.0%	$2,688,000	0.3%	$16,878,425	1.3%
Newton	Inner Core	Inner Core	2.8%	3.0%	2.6%	$10,717,200	2.2%	$5,936,531	0.7%	$16,653,731	1.3%
Everett	Inner Core	Inner Core	1.3%	0.7%	0.6%	$16,599,002	3.5%	$0	0.0%	$16,599,002	1.3%

Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Road 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)
Weymouth	SSC	Maturing Suburb	1.7%	1.0%	1.5%	$13,815,879	2.9%	$2,643,200	0.3%	$16,459,079	1.3%
Acton	MAGIC	Maturing Suburb	0.7%	0.5%	1.1%	$8,671,000	1.8%	$6,147,873	0.8%	$14,818,873	1.2%
Ashland	MetroWest	Maturing Suburb	0.5%	0.3%	0.5%	$14,636,338	3.1%	$0	0.0%	$14,636,338	1.1%
Boxborough	MAGIC	Developing Suburb	0.2%	0.2%	0.4%	$0	0.0%	$14,295,000	1.8%	$14,295,000	1.1%
Norwood	TRIC	Regional Urban Center	0.9%	1.3%	1.0%	$13,046,219	2.7%	$1,080,062	0.1%	$14,126,281	1.1%
Framingham	MetroWest	Regional Urban Center	2.2%	2.5%	2.5%	$10,304,881	2.2%	$3,462,166	0.4%	$13,767,047	1.1%
Hingham	SSC	Maturing Suburb	0.7%	0.7%	1.3%	$4,042,738	0.8%	$8,998,641	1.1%	$13,041,379	1.0%
Concord	MAGIC	Maturing Suburb	0.6%	0.7%	1.1%	$0	0.0%	$11,941,707	1.5%	$11,941,707	0.9%
Needham	TRIC	Maturing Suburb	0.9%	1.0%	1.2%	$11,711,384	2.4%	$0	0.0%	$11,711,384	0.9%
Reading	NSPC	Maturing Suburb	0.8%	0.4%	0.8%	$0	0.0%	$10,990,681	1.4%	$10,990,681	0.9%
Canton	TRIC	Maturing Suburb	0.7%	1.2%	1.1%	$0	0.0%	$10,921,825	1.4%	$10,921,825	0.8%
Braintree	SSC	Maturing Suburb	1.2%	1.5%	1.4%	$0	0.0%	$10,840,429	1.3%	$10,840,429	0.8%
Brookline	Inner Core	Inner Core	1.9%	0.9%	1.3%	$6,000,834	1.3%	$4,723,705	0.6%	$10,724,539	0.8%
Sudbury	MAGIC	Maturing Suburb	0.6%	0.5%	1.0%	$8,004,000	1.7%	$2,485,080	0.3%	$10,489,080	0.8%
Peabody	NSTF	Regional Urban Center	1.7%	1.3%	1.4%	$0	0.0%	$9,610,389	1.2%	$9,610,389	0.7%
Waltham	Inner Core	Inner Core	2.0%	3.0%	1.6%	$0	0.0%	$9,340,490	1.2%	$9,340,490	0.7%
Topsfield	NSTF	Developing Suburb	0.2%	0.1%	0.6%	$0	0.0%	$9,119,040	1.1%	$9,119,040	0.7%

Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Road 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)
Essex	NSTF	Developing Suburb	0.1%	0.1%	0.2%	$0	0.0%	$8,828,000	1.1%	$8,828,000	0.7%
Danvers	NSTF	Maturing Suburb	0.9%	1.4%	1.5%	$0	0.0%	$8,742,709	1.1%	$8,742,709	0.7%
Weston	MetroWest	Maturing Suburb	0.4%	0.2%	1.3%	$0	0.0%	$8,570,382	1.1%	$8,570,382	0.7%
Stow	MAGIC	Developing Suburb	0.2%	0.1%	0.6%	$0	0.0%	$8,188,560	1.0%	$8,188,560	0.6%
Sharon	TRIC	Maturing Suburb	0.6%	0.2%	1.1%	$0	0.0%	$8,012,857	1.0%	$8,012,857	0.6%
Dedham	TRIC	Maturing Suburb	0.8%	0.9%	1.1%	$0	0.0%	$8,005,830	1.0%	$8,005,830	0.6%
Belmont	Inner Core	Inner Core	0.8%	0.4%	0.6%	$0	0.0%	$7,903,253	1.0%	$7,903,253	0.6%
Bedford	MAGIC	Maturing Suburb	0.4%	1.1%	0.8%	$7,862,878	1.6%	$0	0.0%	$7,862,878	0.6%
Salem	NSTF	Regional Urban Center	1.3%	1.1%	0.7%	$2,787,456	0.6%	$5,037,530	0.6%	$7,824,986	0.6%
Southborough	MetroWest	Maturing Suburb	0.3%	0.4%	1.2%	$7,271,690	1.5%	$0	0.0%	$7,271,690	0.6%
Wakefield	NSPC	Maturing Suburb	0.8%	0.8%	0.9%	$0	0.0%	$7,108,125	0.9%	$7,108,125	0.6%
Hull	SSC	Maturing Suburb	0.3%	0.1%	0.4%	$6,693,980	1.4%	$0	0.0%	$6,693,980	0.5%
Arlington	Inner Core	Inner Core	1.4%	0.5%	0.8%	$0	0.0%	$6,659,503	0.8%	$6,659,503	0.5%
Foxborough	TRIC	Developing Suburb	0.5%	0.7%	1.3%	$0	0.0%	$6,625,597	0.8%	$6,625,597	0.5%
Marshfield	SSC	Maturing Suburb	0.8%	0.3%	1.0%	$0	0.0%	$6,502,559	0.8%	$6,502,559	0.5%
Lynnfield	NSPC	Maturing Suburb	0.4%	0.3%	0.6%	$0	0.0%	$6,074,298	0.8%	$6,074,298	0.5%
Marlborough	MetroWest	Regional Urban Center	1.2%	1.6%	2.0%	$0	0.0%	$5,269,080	0.7%	$5,269,080	0.4%
Randolph	TRIC	Maturing Suburb	1.0%	0.5%	1.0%	$0	0.0%	$4,296,476	0.5%	$4,296,476	0.3%

Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Road 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)
Middleton	NSTF	Developing Suburb	0.3%	0.3%	0.5%	$0	0.0%	$3,933,440	0.5%	$3,933,440	0.3%
Franklin	SWAP	Developing Suburb	1.0%	0.8%	1.2%	$0	0.0%	$3,832,640	0.5%	$3,832,640	0.3%
Wrentham	SWAP	Developing Suburb	0.4%	0.3%	1.0%	$0	0.0%	$3,832,640	0.5%	$3,832,640	0.3%
Wellesley	MetroWest	Maturing Suburb	0.9%	0.9%	0.9%	$994,184	0.2%	$2,557,102	0.3%	$3,551,286	0.3%
Beverly	NSTF	Regional Urban Center	1.3%	1.2%	1.2%	$3,360,000	0.7%	$0	0.0%	$3,360,000	0.3%
Lexington	MAGIC	Maturing Suburb	1.0%	1.1%	1.9%	$0	0.0%	$3,166,530	0.4%	$3,166,530	0.2%
Holbrook	SSC	Maturing Suburb	0.3%	0.1%	0.3%	$1,363,630	0.3%	$1,527,250	0.2%	$2,890,880	0.2%
Milford	SWAP	Regional Urban Center	0.9%	0.8%	1.2%	$2,727,881	0.6%	$0	0.0%	$2,727,881	0.2%
Stoneham	NSPC	Maturing Suburb	0.7%	0.4%	0.8%	$0	0.0%	$2,640,000	0.3%	$2,640,000	0.2%
Wayland	MetroWest	Maturing Suburb	0.4%	0.2%	0.7%	$0	0.0%	$2,485,080	0.3%	$2,485,080	0.2%
Norwell	SSC	Developing Suburb	0.3%	0.5%	0.8%	$0	0.0%	$2,312,703	0.3%	$2,312,703	0.2%
Rockland	SSC	Developing Suburb	0.6%	0.4%	0.6%	$0	0.0%	$2,312,703	0.3%	$2,312,703	0.2%
Swampscott	NSTF	Maturing Suburb	0.4%	0.2%	0.3%	$0	0.0%	$2,000,000	0.2%	$2,000,000	0.2%
Winchester	NSPC	Maturing Suburb	0.7%	0.5%	0.6%	$0	0.0%	$1,899,160	0.2%	$1,899,160	0.1%
Maynard	MAGIC	Maturing Suburb	0.3%	0.2%	0.3%	$0	0.0%	$1,589,840	0.2%	$1,589,840	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%
Lincoln	MAGIC	Maturing Suburb	0.2%	0.1%	0.6%	$0	0.0%	$1,057,280	0.1%	$1,057,280	0.1%

Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Road 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)
Malden	Inner Core	Inner Core	1.9%	0.8%	1.0%	$0	0.0%	$1,027,869	0.1%	$1,027,869	0.1%
Revere	Inner Core	Inner Core	1.7%	0.5%	1.3%	$0	0.0%	$1,027,869	0.1%	$1,027,869	0.1%
Marblehead	NSTF	Maturing Suburb	0.6%	0.3%	0.5%	$959,378	0.2%	$0	0.0%	$959,378	0.1%
Bellingham	SWAP	Developing Suburb	0.5%	0.3%	0.9%	$0	0.0%	$0	0.0%	$0	0.0%
Bolton	MAGIC	Developing Suburb	0.2%	0.1%	0.7%	$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%
Cohasset	SSC	Developing Suburb	0.2%	0.1%	0.5%	$0	0.0%	$0	0.0%	$0	0.0%
Dover	SWAP	Developing Suburb	0.2%	0.0%	0.5%	$0	0.0%	$0	0.0%	$0	0.0%
Gloucester	NSTF	Regional Urban Center	0.9%	0.6%	1.0%	$0	0.0%	$0	0.0%	$0	0.0%
Hamilton	NSTF	Developing Suburb	0.3%	0.1%	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%
Hudson	MAGIC	Developing Suburb	0.6%	0.5%	0.7%	$0	0.0%	$0	0.0%	$0	0.0%
Ipswich	NSTF	Developing Suburb	0.4%	0.3%	0.7%	$0	0.0%	$0	0.0%	$0	0.0%
Littleton	MAGIC	Developing Suburb	0.3%	0.3%	1.0%	$0	0.0%	$0	0.0%	$0	0.0%
Manchester	NSTF	Developing Suburb	0.2%	0.1%	0.4%	$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%

Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Road 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)
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%
Rockport	NSTF	Developing Suburb	0.2%	0.1%	0.2%	$0	0.0%	$0	0.0%	$0	0.0%
Scituate	SSC	Maturing Suburb	0.6%	0.2%	1.0%	$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%
Wenham	NSTF	Developing Suburb	0.2%	0.1%	0.4%	$0	0.0%	$0	0.0%	$0	0.0%
Winthrop	Inner Core	Inner Core	0.6%	0.1%	0.3%	$0	0.0%	$0	0.0%	$0	0.0%

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