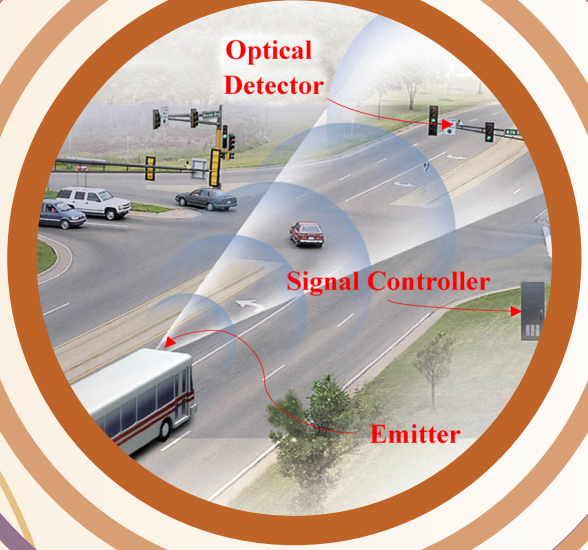
TRANSPORTATION IMPROVEMENT PROGRAM

FEDERAL FISCAL YEARS 2018-2022

MEMBER REVIEW DRAFT



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

MPO Member Review Draft
To be approved by the Boston Region Metropolitan Planning Organization on April 20, 2017

TRANSPORTATION IMPROVEMENT PROGRAM AND AIR QUALITY CONFORMITY DETERMINATION: FEDERAL FISCAL YEARS 2018–22

Boston Region Metropolitan Planning Organization Staff

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

MassDOT Office of Planning and Programming
Massachusetts Bay Transportation Authority
Massachusetts Bay Transportation Authority Advisory Board
MassDOT Highway Department
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 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 Framingham (MetroWest Regional Collaborative)
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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ES EXECUTIVE SUMMARY

Federal Fiscal Years 2018-22 Transportation Improvement Program

INTRODUCTION

The Boston Region Metropolitan Planning Organization's 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 and intersection improvements, maintenance and expansion of the public transit system, bicycle path construction, and improvements for pedestrians.

The Boston Region MPO is a 22-member board with representatives of state agencies, regional organizations, and municipalities; its jurisdiction extends from Boston north to Ipswich, south to Duxbury, and west to 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 coordinate the evaluation of project requests, propose programming of current and new projects based on anticipated funding levels, support the MPO in developing a draft TIP document, and facilitate a public review of the draft before the MPO endorses the final document.

FEDERAL FISCAL YEARS 2018–22 TIP OVERVIEW

The federal fiscal years (FFYs) 2018–22 TIP consists of transportation investments programmed in the Highway Program and Transit Program. These investments reflect the MPO's goal of targeting a majority of transportation resources to preserve and modernize the existing roadway and transit system and maintain them in a state-of-good repair.

This TIP also devotes a significant portion of funding for the targeted expansion of 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 implement recommendations from past studies and reports that were funded through the MPO's Unified Planning Work Program (UPWP).

The TIP also supports the 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 2018–22 TIP INVESTMENTS

Transit Program

The Transit Program of the TIP provides funding for projects and programs that address the capital needs prioritized by the three transit agencies 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.

Highway Program

The Highway Program of the TIP funds the priority transportation projects advanced by MassDOT and the cities and towns within the 101-municipality MPO region. The program is devoted primarily to preserve and modernize the existing roadway network by resurfacing highways, replacing bridges, and reconstructing arterial roadways.

In Massachusetts, Federal-Aid Highway Program funding is portioned out by MassDOT, which allocates funding to Grant Anticipation Notes (GANs) payments, various statewide programs, and the state's MPOs. The "Regional Target" funding provided to the MPOs can be programmed for projects at the discretion of each MPO.

REGIONAL TARGET PROGRAM DETAILS

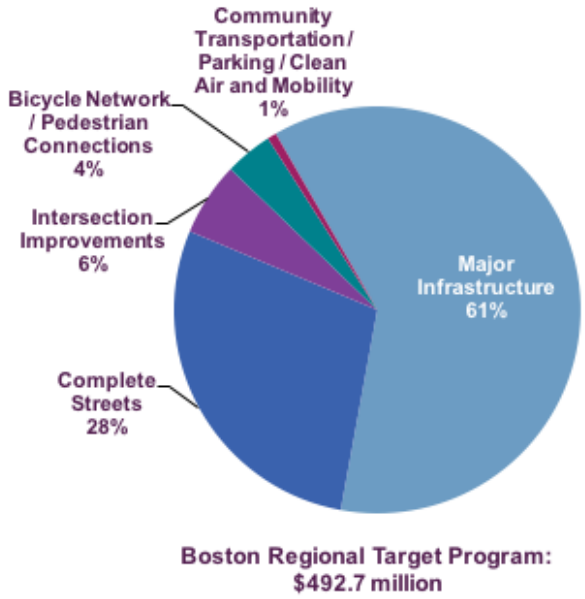
During FFYs 2018–22, the Boston Region MPO plans to fund 32 projects and programs with its Regional Target funding:

- 15 Complete Streets projects, including the reconstruction of Ferry Street in Everett
- Seven Major Infrastructure projects, including the reconstruction of Rutherford Avenue in Boston
- Six Intersection Improvements projects, including improvements to Derby, Whiting, and Gardner Streets in Hingham
- Three Bicycle Network and Pedestrian Connections projects, including the extension of the Canal Street Rail Trail in Salem

- One Community Transportation program, which will support first-mile/last-mile connections across the region

Figure ES-1 shows how the Regional Target funding for FFYs 2018–22 is distributed across the MPO's investment programs. As the chart shows, the Boston Region MPO's Target Program is devoted primarily to modernizing and expanding the transportation network through Major Infrastructure and Complete Streets investments.

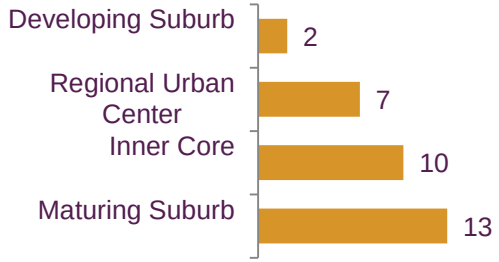
FIGURE ES-1
FFYS 2018-22 TIP REGIONAL TARGET FUNDING,
BY INVESTMENT PROGRAM TYPE



Data Source: CTPS

These investments will be implemented in 32 cities and towns throughout the MPO region, ranging from high-density, built-out Inner Core communities to Developing Suburbs with large expanses of vacant developable land. 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 2018–22 TIP
PROGRAM PROJECTS, BY MAPC COMMUNITY TYPE



Data Source: CTPS

- Developing Suburb investments consist of roadway reconstruction and corridor improvements in Hopkinton and Walpole
- Regional Urban Center investments include intersection improvements in Beverly and Norwood; roadway reconstruction and corridor improvements in Framingham, Lynn, Milford, and Woburn; and a rail trail extension in Salem

- Inner Core investments include corridor reconstructions in Boston, Brookline, Chelsea, Everett, Newton, and Watertown, and the Green Line Extension in Cambridge, Medford, and Somerville
- Maturing Suburb investments include intersection improvements in Acton, Hingham and Marblehead; rail trail extensions in Bedford and Sudbury; corridor reconstructions in Ashland, Holbrook, Hull, Natick, Needham, and Southborough; corridor widening in Weymouth; and interstate widening in Needham and Wellesley

FINANCING THE FFYS 2018–22 TIP

Transit Program

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

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

- **Section 5307 (Urbanized Area Formula Grants):** Provides grants to urbanized areas to support public transportation based on the 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 would range between $704 million and $745 million annually over the next five years. In Massachusetts, Federal-Aid Highway Program funding is allocated to several main funding categories.

First, MassDOT allocates federal funding to Grant Anticipation Notes (GANs) payments for the Accelerated Bridge Program. Annual GANs payments range between $62 million and $117 million over the five years of this TIP. MassDOT matches the remaining amount of federal funding, so that projects are funded with 80 percent federal dollars and 20

percent state dollars. In this planning cycle, $648 million to $708 million was available statewide for programming.

Next, MassDOT allocates funding across the following funding categories:

- **Bridge Program:** Supports inspections, maintenance, and replacement or rehabilitation of public bridges
- **Statewide Infrastructure Items:** Funds interstate highway maintenance, intelligent transportation systems, highway safety improvements, pavement rehabilitation, congestion mitigation, and other infrastructure needs
- **Other Statewide Items:** Pays for items such as change orders for existing contracts, award adjustments, recreational trail construction, improvements to railroad grade crossings, the MassRIDES program, and planning and research

After 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.

Each MPO may decide how to prioritize their Regional Target funding. Given that the Regional Target funding is a subset of the Highway Program, the MPO typically programs the majority of funding on 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 both the projects that will receive Regional Target funding from the Boston Region MPO and statewide infrastructure projects within the Boston region.

THE TIP DEVELOPMENT PROCESS

Overview

In order to determine 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's project selection process uses evaluation criteria to help identify and prioritize projects that advance the MPO's goals:

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

These goals also shape a series of MPO 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 will select to receive Regional Target funding through the TIP development process are included in one of the five programs listed above.

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. Each November, MPO staff ask the staff of cities and towns in the region to identify their priority projects.

MPO staff compile the project funding requests into a Universe of 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, as well as projects still in the conceptual or planning stage. MPO staff also collect data on each project in the Universe so that the projects can be evaluated.

Project Evaluation

MPO staff evaluate projects based on how well they address the MPO's goals. To fully evaluate a project, it must be at a basic level of design. The evaluation results are posted on the MPO's website, allowing project proponents, municipal officials, and members of the public to view them and provide feedback.

Staff Recommendation and Draft TIP

Using the evaluation results and information about project readiness (when a project likely would be fully designed and ready for construction), staff prepare 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 prepare 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 a distribution of transportation investments across the region.

The staff recommendation is always financially constrained, subject to available funding. There was approximately $493 million of Regional Target funding available to the Boston Region MPO for FFYs 2018–22. This year, the MPO discussed programming scenarios for the discretionary highway target program in March, and developed a final draft recommendation in April.

APPROVING THE TIP

The MPO considers the evaluation results, First-Tier List of Projects, and staff recommendation when prioritizing which projects should receive Regional Target funding. In addition to prioritizing the Regional Target funding, the MPO also reviews the Statewide

Infrastructure Items and Bridge Programs that are programmed by MassDOT, as well as the capital programs for the MBTA, CATA, and MWRTA before voting to release a draft TIP for public review.

In April 2017, the MPO voted to release the draft FFYs 2018–22 TIP for a 21-day public comment period, during which the MPO invited members of the public, regional and local officials, and other stakeholders in the Boston region to review the proposed program. During the public comment period, MPO staff hosted extended "Office Hours," an open-house style public meeting, to discuss the draft document and elicit additional comments on the draft TIP.

After the public comment period concluded, the MPO reviewed all municipal and public comments and made changes to the document as appropriate. The MPO then endorsed the TIP and submitted it to Federal Highway Administration (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 (EPA) 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 and amendments often must be introduced because of changes in project status, project cost, or available revenues. This may necessitate reprogramming a project to a later 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 holds a minimum 15-day public comment period before taking action on an amendment. Administrative modifications are generally minor adjustments that usually do not warrant a public comment 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 want to sign up for our email news updates and notices by contacting us at **publicinfo@ctps.org** or signing up at **www.ctps.org/subscribe**.

To request a copy of the TIP in CD or accessible formats, please contact us by any of the following means:

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

1 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 persons. 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 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 Duxbury, and west to Interstate 495. There are 101 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 are often referred to as certification documents.

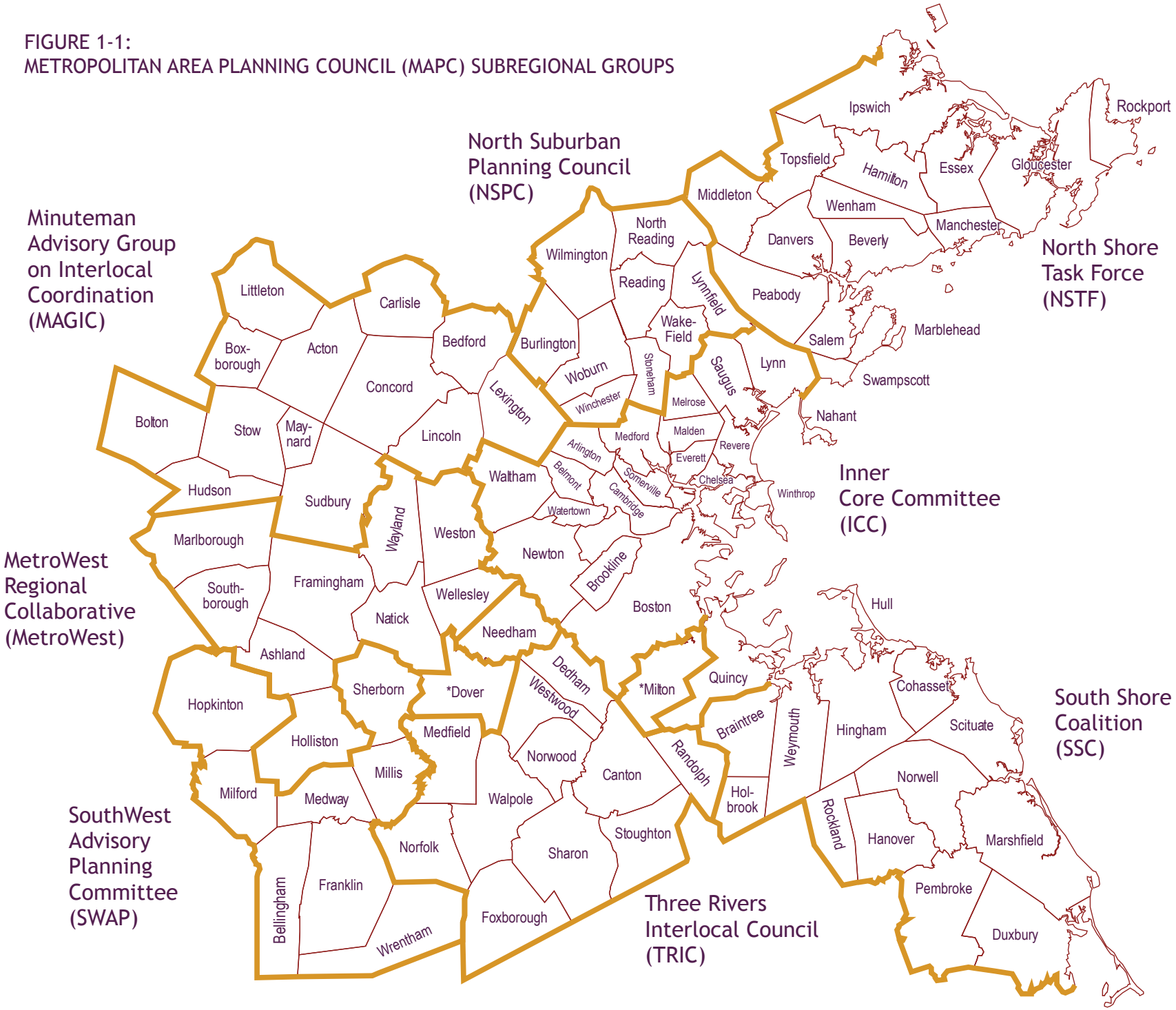
This TIP was developed and approved by the permanent and elected MPO voting members. The following are permanent voting members:

- 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 101 municipalities in the MPO region to represent 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 and their respective seats are as follows:

- 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
- Town 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.

In addition, 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 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 Massachusetts Bay Transportation Authority (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), of 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 101 cities and towns of the Boston Region MPO area. Starting in April 2015, as a result of an action plan to improve the MBTA, a five-member Fiscal and Management Control Board (FMCB) was created to oversee the MBTA's finances and management and to increase accountability 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, the Program for Mass Transportation (PMT); 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 the 101 cities and towns in the Boston region. It is composed of the chief executive officer (or their 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.

The *City of Boston, six elected cities (currently Beverly, Braintree, Everett, Newton, Somerville, and Woburn), and six elected towns (currently Arlington, Bedford, Framingham, Lexington, Medway, and Norwood)* represent the region's 101 municipalities in the Boston Region MPO. 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 at-large municipalities serve staggered three-year terms, as do the eight municipalities representing the MAPC subregions.

The *Regional Transportation Advisory Council*, the MPO's 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.

Two other members 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 *FHWA* and *FTA* oversee the highway and transit programs of the US Department of Transportation under the pertinent legislation and the provisions of FAST Act.

Two entities assist the MPO board in carrying out the responsibilities of the MPO's 3C planning process through policy implementation, technical support, and public participation:

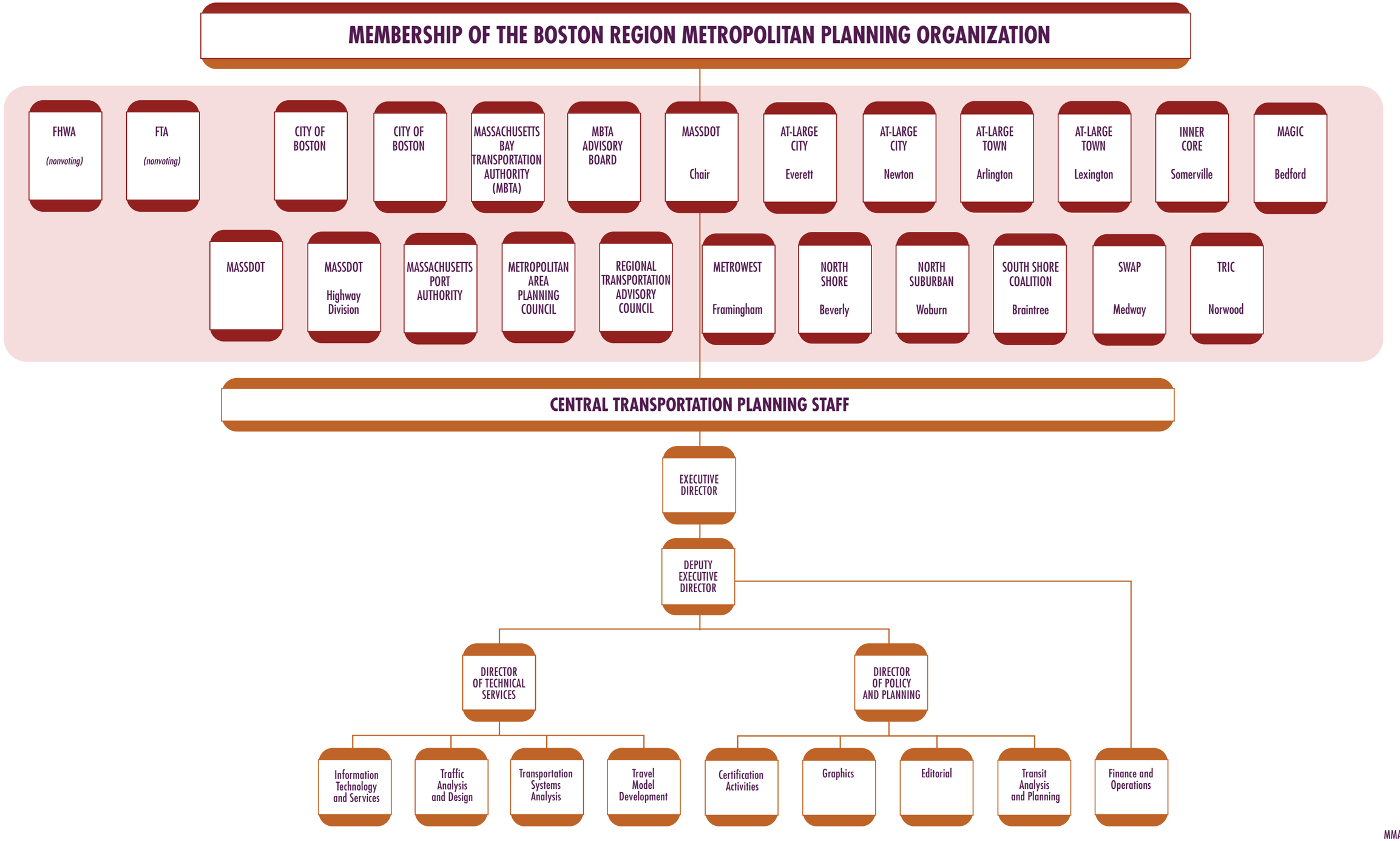
- *CTPS* was created by the MPO to fulfill general and 3C transportation-planning activities on behalf of the MPO, and to provide MPO member agencies with the analyses required for their decision-making.
- The *MAPC staff.* MAPC has promoted and supported the formation of subregional groups in order to foster better communication and cooperation among its member communities. These groups have played an important role in the MPO's participatory process, including helping to prioritize transportation projects and studies.

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 revenue to transportation projects and programs consistent with established goals and objectives. The Boston Region MPO produces an LRTP every four years. *Charting Progress to 2040*, the current LRTP was endorsed by the MPO in 2015 and guides the 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 types of projects funded include major highway reconstruction and maintenance, arterial and intersection improvements,

FIGURE 1-2:
BOSTON REGION MPO ORGANIZATIONAL CHART



MMARCH 2017

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.

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

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 LRTP, the TIP, and the 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 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 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 identified in the Commonwealth's State Implementation Plan for the attainment of air-quality standards in the region. Transportation control measures are federally enforceable and projects that address the identified air-quality issues must be given first priority when using federal funds. Such projects previously programmed in past 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 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, English proficiency, income, religious creed, ancestry, disability, age, gender, sexual orientation, gender identity or expression, or military service. The major federal requirements are discussed below.

Title VI of the Civil Rights Act of 1964

This statute 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-language 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. At the MPO level, this means that public meetings must be held in accessible buildings and documents must be made available in accessible formats.

Executive Order 13330

This executive order, 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 people with disabilities, low-income persons, 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

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 C of this document includes information about these requirements and how the Boston Region MPO has addressed them in developing the federal fiscal years (FFYs) 2018-22 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 prioritize and program a balance among 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 denser smart-growth development patterns—which help reduce GHG emissions—possible.

The Commonwealth's 13 MPOs 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. *Focus40* is the 25-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) climate change mitigation and adaptation; 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 will finalize the plan's framework and objectives, propose programs and strategies that align with that framework, develop a recommended strategy, 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.

MetroFuture

MetroFuture, which was developed by MAPC and adopted in 2008, is the long-range plan for land use, housing, economic development, and environmental preservation in the Boston region. 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.

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 of Massachusetts' 2040 LRTP. 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. It 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. HTC membership is made up of 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 their 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 a 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 our environment and preserving the capacity of our 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 serve all 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 support 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	
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

2 CHAPTER TWO
The TIP Process

INTRODUCTION TO THE TIP PROCESS

In 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. Transportation improvements form part of the solution to many critical regional, state, national, and even global problems, such as traffic congestion, air pollution, traffic fatalities and injuries, climate change, and environmental justice. Because there is not nearly enough funding available to build all of the necessary and worthy projects that would address these problems, MPO investment choices must be guided by policies that help identify the most viable solutions.

Thus, each year, the Boston Region MPO conducts a Transportation Improvement Program (TIP) development process that prioritizes transportation investments and helps the MPO decide how to spend federal transportation funds for capital projects. The Central Transportation Planning Staff (CTPS) to the Boston Region MPO manages the annual development process for the TIP. MPO staff help evaluate project funding requests, 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 review of the draft 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 multiyear act that establishes a maximum level of federal transportation funding per federal fiscal year. The establishment of this level of funding is referred to as an authorization. The most recent authorization act, Fixing America's Surface Transportation Act (FAST Act), was signed into law on December 4, 2015.

Once the authorization level has been established, the United States Department of Transportation allocates funding among the states annually, 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: this is 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.

Two of the most important distinctions between apportionment and obligation authority are 1) apportionment is allocated on a per-program basis, while obligation authority is generally allocated as a lump sum; and 2) unused apportionment carries forward into successive federal fiscal years (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.[1] The FFYs 2018–22 TIP was developed with the assumption that the federal funding available would range from $704 million to $745 million annually over the next five years. In Massachusetts, federal highway program funding is allocated to several major funding categories.

First, the Massachusetts Department of Transportation (MassDOT) allocates federal funding to repay Grant Anticipation Notes (GANs), used to fund the Accelerated Bridge Program (ABP). (GANS are bonds issued by the state that are secured by anticipated future federal highway funds.) Annual GANs payments range between $62 million and $117 million over the five years of this TIP. MassDOT matches the remaining amount of federal funding, so that projects are funded with 80 percent federal dollars and 20 percent state dollars; thus, in this planning cycle, $648 million to $708 million is available statewide for programming.

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

- **Bridge Program**: Supports inspections, maintenance, and replacement or rehabilitation of public bridges
- **Statewide Infrastructure Items**: Funds interstate highway maintenance, intelligent transportation systems, highway safety improvements, pavement rehabilitation, congestion mitigation, and other infrastructure needs
- **Other Statewide Items**: Pays for items such as change orders for existing contracts, award adjustments, recreational trail construction, improvements to railroad grade crossings, the MassRIDES program, and planning and research
- **Regional Targets**: Projects prioritized by MPOs

The Regional Targets are discretionary funding for MPOs, suballocated by formula. MassDOT develops these targets in consultation with the Massachusetts Association of Regional Planning Agencies (MARPA). Each MPO in the state can decide how to prioritize their Regional Target funding. Given that the Regional Target funding is a subset of the Highway Program, the MPO typically programs the majority of funding on roadway projects; however the Boston Region MPO

[1] From the 23 Code of Federal Regulations (CFR) 450.324(e).

has flexed portions of its Highway Program funding to the Transit Program for the Green Line Extension, a transit expansion project.

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

During the next five years, the Boston Region MPO's total Regional Target funding will be approximately $493 million, an average of $98 million per year. To decide how to spend its Regional Target funding, the Boston Region MPO engages its 101 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 require support from many different federal-aid transportation programs, and each program has unique requirements. Federal programs in the FAST Act that fund projects in the FFYs 2018–22 TIP are listed in the following two tables.

TABLE 2-1:
FEDERAL HIGHWAY ADMINISTRATION PROGRAMS APPLICABLE TO THE FFYS 2018-22 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	For facilities that contribute to an intermodal transportation system, including intercity bus, pedestrian, and bicycle facilities
National Highway Freight Program (NHFP)	For 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 2018-22 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**)	Provides grants for new and expanded rail, bus rapid transit, and ferry systems that reflect local priorities to improve transportation options in key corridors

Highway Discretionary (Regional Target) Funding Project Selection Process

Overview

The MPO's process for selecting projects to receive highway discretionary—or Regional Target—funding involves using 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.

The MPO staff evaluates each project that is considered for inclusion in the TIP based on a set of specific criteria that were developed by the MPO. 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 (November–February)

The process of reaching out to the public begins early in the FFY, when cities and towns designate TIP contacts and begin developing a list of priority projects to be considered for federal funding. Each November, MPO staff asks the staff of cities and towns in the region to identify their priority projects for consideration for federal funding. The MPO also 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. More information on the Project Funding Application Forms is presented in Appendix B.

MPO staff compiles the project funding requests into a Universe of 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 planned and programmed project in order to consider these impacts when prioritizing transportation investments. For more information on GHG emission monitoring and evaluation, see Appendix C.

Project Evaluation (February–March)

The MPO uses TIP project evaluation criteria to logically and transparently evaluate and select projects for programming in the TIP that advance the transportation future envisioned by the MPO. This process favors projects that support the following aims:

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

The project evaluation criteria consist of 28 questions that relate to six goals. A figure that illustrates the TIP evaluation criteria (on the following page) provides an overview of the goals, criteria, and their point values.

In order for MPO staff to conduct a complete project evaluation, the project must have a functional design report. See MassDOT's *Project Development and Design Guide* for information about what is included in 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 being considered for the FFYs 2018–22 TIP is available in Table A-1 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.

Staff Recommendation (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 which 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 include whether a project was included in the LRTP, investment program goals, equity of investments across the region, and whether sufficient funding is available for the proposed projects.

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

Selection Process for State Prioritized Projects

The process of selecting transit, bridge, and statewide infrastructure projects to be programmed 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 and on data from asset management systems maintained by MassDOT agencies.

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 transit authorities 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 evaluation results, First-Tier List of Projects, and staff recommendation in prioritizing projects for Regional Target funding. The body also considers public input, regional importance, and other factors in developing the draft TIP. 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 comment and invites members of the public, regional and local officials, and other stakeholders in the Boston region to review the proposed program. MPO staff hosts outreach events, including its *Office Hours with Staff* and similar Open House events, during the public comment period to elicit comments on the draft document; summaries of these public comments are listed in Appendix F.

Approval of the Draft TIP

After the comment period ends, the MPO reviews all municipal and public comments and makes changes to the document as appropriate. It then endorses the TIP and submits it to FHWA and 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 FFY end.

UPDATING THE TIP

The TIP is a dynamic program that may be amended and adjusted throughout the year. Administrative modifications and amendments often must be 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 comment and a demonstration of fiscal constraint.

Consistent with federal guidelines, if a project is valued at $5 million or less, the threshold for defining an amendment is a change of $500,000 or more. The threshold for projects valued at greater than $5 million is 10 percent or more of the project value. Changes that are less than these thresholds may be considered in the form of administrative modifications. The MPO acts on administrative modifications, and although a public review period is not required, one may be provided at the MPO's discretion.

Affected municipalities and constituencies and the public are notified of pending amendments at the start of an amendment's public review period. The proposed amendments are posted on the MPO's website, www.bostonmpo.org. Public notices are distributed through MPOinfo, the MPO's email contact list, which members of the public may join by signing up on the MPO's website, www.ctps.org/subscribe.

These notices provide 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 take a vote on that amendment. Also during the public review period, the MPO staff notifies and

briefs the Regional Transportation Advisory Council on the amendment and provides comments from the Council to the MPO. Municipal representatives and members of the public are also invited to submit written or oral testimony at the MPO meetings at which amendments are discussed or voted upon.

The MPO's website is the best place to find current information about the TIP.

All changes to the draft TIP that have been approved by the MPO, 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, www.bostonmpo.org/tip.

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

3 CHAPTER THREE

Summary of Highway and Transit Programming

This chapter begins with tables listing, by year, the projects and programs funded in FFYs 2018–22.

Following the tables, detail pages on each project and program funded in the TIP's Highway Program are presented. Projects and programs funded under the Highway Program are listed by municipality.

2018 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 program	600518	Boston Region	Hingham	HINGHAM- INTERSECTION IMPROVEMENTS AT DERBY STREET, WHITING STREET (ROUTE 53) AND GARDNER STREET	5	HSIP	$ 611,547	$ 550,392	$ 61,155	Construction; STP+HSIP Total Cost = $2,844,392; MPO Evaluation Score = 28
	Roadway reconstruction program	600518	Boston Region	Hingham	HINGHAM- INTERSECTION IMPROVEMENTS AT DERBY STREET, WHITING STREET (ROUTE 53) AND GARDNER STREET	5	STP	$ 2,232,845	$ 1,786,276	$ 446,569	Construction; STP+HSIP Total Cost = $2,844,392; MPO Evaluation Score = 28
	Planning / Adjustments / Pass-throughs	1570	Boston Region	Multiple	GREEN LINE EXTENSION PROJECT- EXTENSION TO COLLEGE AVENUE WITH THE UNION SQUARE SPUR	6	CMAQ	$ 13,427,220	$ 10,741,776	$ 2,685,444	Construction; STP+CMAQ+Section 5309 (Transit) Total MPO Contribution = $190,000,000; funding flexed to FTA; match provided by local contributions; AC Yr 3 of 6
	Planning / Adjustments / Pass-throughs	1570	Boston Region	Multiple	GREEN LINE EXTENSION PROJECT- EXTENSION TO COLLEGE AVENUE WITH THE UNION SQUARE SPUR	6	STP	$ 33,072,780	$ 26,458,224	$ 6,614,556	Construction; STP+CMAQ+Section 5309 (Transit) Total MPO Contribution = $190,000,000; funding flexed to FTA; match provided by local contributions; AC Yr 3 of 6
	Roadway reconstruction program	604989	Boston Region	Southborough	SOUTHBOROUGH- RECONSTRUCTION OF MAIN STREET (ROUTE 30), FROM SEARS ROAD TO PARK STREET	6	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; CMAQ+TAP+STP Total Cost = $7,271,690; MPO Evaluation Score = 42
	Roadway reconstruction program	604989	Boston Region	Southborough	SOUTHBOROUGH- RECONSTRUCTION OF MAIN STREET (ROUTE 30), FROM SEARS ROAD TO PARK STREET	3	TAP	$ 1,456,250	$ 1,165,000	$ 291,250	Construction; CMAQ+TAP+STP Total Cost = $7,271,690; MPO Evaluation Score = 42
	Roadway reconstruction program	604989	Boston Region	Southborough	SOUTHBOROUGH- RECONSTRUCTION OF MAIN STREET (ROUTE 30), FROM SEARS ROAD TO PARK STREET	3	STP	$ 4,815,440	$ 3,852,352	$ 963,088	Construction; CMAQ+TAP+STP Total Cost = $7,271,690; MPO Evaluation Score = 42
	Roadway reconstruction program	605110	Boston Region	Brookline	BROOKLINE- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 9 & VILLAGE SQUARE (GATEWAY EAST)	6	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; TAP+STP+CMAQ+Private Sector Constribution ($1,000,000) = $7,000,834; MPO Evaluation Score = 68
	Roadway reconstruction program	605110	Boston Region	Brookline	BROOKLINE- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 9 & VILLAGE SQUARE (GATEWAY EAST)	6	TAP	$ 1,255,000	$ 1,004,000	$ 251,000	Construction; TAP+STP+CMAQ+Private Sector Constribution ($1,000,000) = $7,000,834; MPO Evaluation Score = 68
	Roadway reconstruction program	605110	Boston Region	Brookline	BROOKLINE- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 9 & VILLAGE SQUARE (GATEWAY EAST)	6	STP	$ 3,745,834	$ 2,996,667	$ 749,167	Construction; TAP+STP+CMAQ+Private Sector Constribution ($1,000,000) = $7,000,834; MPO Evaluation Score = 68
	Capacity program	601630	Boston Region	Multiple	WEYMOUTH- ABINGTON- RECONSTRUCTION & WIDENING ON ROUTE 18 (MAIN STREET) FROM HIGHLAND PLACE TO ROUTE 139 (4.0 MILES) INCLUDES REPLACING W-32-013, ROUTE 18 OVER THE OLD COLONY RAILROAD (MBTA)	6	STP	$ 27,631,758	$ 22,105,406	$ 5,526,352	Construction; STP+NHPP+HSIP+TEA-21 Earmark+BR Total Cost = $81,812,268; AC Yr 3 of 3 (project originally funded into FFY 2019, but all remaining funding was transferred into FFY 2018)
	Capacity program	603711	Boston Region	Multiple	NEEDHAM- WELLESLEY- REHAB/REPLACEMENT OF 6 BRIDGES ON I-95/ROUTE 128: N-04-020, N-04-021, N-04-022, N-04-026, N-04-027, N-04-037 & W-13-023 (ADD-A-LANE - CONTRACT V)	6	NHPP	$ 1,988,367	$ 1,590,694	$ 397,673	Construction; NHPP+BR+Statewide Infrastructure Total Cost = $164,919,140 ($1,988,367 programmed within FFYs 2018-22 TIP)
	Bicycles and pedestrians program	608352	Boston Region	Salem	SALEM- CANAL STREET RAIL TRAIL CONSTRUCTION (PHASE 2)	4	TAP	$ 2,787,456	$ 2,229,965	$ 557,491	Construction; TAP Total Cost = $2,787,456; MPO Evaluation Score = 37
							Regionally Prioritized Projects subtotal ►	**$ 95,024,497**	$ 76,080,752	$ 18,943,745	◄ 80% Federal + 20% Non-Federal

2018 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 / Fiscal Constraint Analysis

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.

							Total Regional Federal Aid Funds Programmed ►	**$ 95,024,497**	**$ 95,038,936**	**◄Total Budget**	**$ 14,439** **Target Funds Available**
							STP programmed ►	$ 73,487,024	$ 77,071,365	◄ Max **STP**	**$ 3,584,341** STP available
							HSIP programmed ►	$ 611,547	$ 4,296,710	◄ Min. **HSIP**	**$ 3,685,163** HSIP recommended not met
							CMAQ programmed ►	$ 15,427,220	$ 10,741,776	◄ Min. **CMAQ**	**$ (4,685,444)** CMAQ recommended met
							TAP programmed ►	$ 5,498,706	$ 2,929,085	◄ Min. **TAP**	**$ (2,569,621)** TAP amount exceeded!
							Remaining HSIP, CMAQ, and TAP Funds	$ 14,439			

►Section 1B / Earmark or Discretionary Grant Funded Projects

►Other Federal Aid

	Earmark Discretionary	606134	Boston Region	Boston	BOSTON- TRAFFIC SIGNAL IMPROVEMENTS ON BLUE HILL AVENUE AND WARREN STREET	6	HPP	$ 2,501,046	$ 2,000,837	$ 500,209	Construction; HPP 2129 (MA155)
	Earmark Discretionary	Project #	Boston	Municipalities	Description	District	HPP	$ -	$ -	$ -	
							Other Federal Aid subtotal ►	**$ 2,501,046**	$ 2,000,837	$ 500,209	◄ Funding Split Varies by Funding Source

►Section 2A / State Prioritized Reliability Projects

►Bridge Program / Inspections

	Bridge Program	Project #	Statewide	N/A	Bridge Inspection	Multiple	NHPP	$ -	$ -	$ -	
							Bridge Program / Inspections subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

►Bridge Program / Off-System

	Bridge Program	606632	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- BRIDGE REPLACEMENT, H-23-006=W-24-016, FRUIT STREET OVER CSX & SUDBURY RIVER	3	STP-BR-OFF	$ 12,993,071	$ 10,394,457	$ 2,598,614	Construction
	Bridge Program	604655	Boston Region	Marshfield	MARSHFIELD- BRIDGE REPLACEMENT, M-07-007, BEACH STREET OVER THE CUT RIVER	5	STP-BR-OFF	$ 4,189,856	$ 3,351,884	$ 837,971	Construction
	Bridge Program	607533	Boston Region	Waltham	WALTHAM- BRIDGE REPLACEMENT, W-04-006, WOERD AVENUE OVER CHARLES RIVER	4	STP-BR-OFF	$ 2,197,943	$ 1,758,354	$ 439,589	Construction
							Bridge Program / Off-System subtotal ►	**$ 19,380,870**	$ 15,504,696	$ 3,876,174	◄ 80% Federal + 20% Non-Federal

►Bridge Program / On-System (NHS)

	Bridge Program	604952	Boston Region	Multiple	LYNN- SAUGUS- BRIDGE REPLACEMENT, L-18-016=S-05-008, ROUTE 107 OVER THE SAUGUS RIVER (AKA - BELDEN G. BLY BRIDGE)	4	NHPP-On	$ 51,527,391	$ 41,221,913	$ 10,305,478	Construction
	Bridge Program	604173	Boston Region	Boston	BOSTON- BRIDGE REHABILITATION, B-16-016, NORTH WASHINGTON STREET OVER THE BOSTON INNER HARBOR	6	NHPP-On	$ 42,000,000	$ 33,600,000	$ 8,400,000	Construction / AC Year 2 of 5, Total Cost $144,066,616
							Bridge Program / On-System (NHS) subtotal ►	**$ 93,527,391**	$ 74,821,913	$ 18,705,478	◄ Funding Split Varies by Funding Source

►Bridge Program / On-System (Non-NHS)

	Bridge Program	Project #	MPO	N/A	Description	District	NHPP-Off	$ -	$ -	$ -	
							Bridge Program / On-System (Non-NHS) subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal

►Bridge Program / Systematic Maintenance

	Bridge Program	607915	Boston Region	Multiple	NEWTON- WELLESLEY- WESTON- BRIDGE MAINTENANCE OF N-12-063, N-12-054, N-12-055 & N-12-056 ON I-95/ROUTE 128	6	NHPP-On	$ 1,596,667	$ 1,277,334	$ 319,333	Construction
	Bridge Program	608521	Boston Region	Salem	SALEM- BRIDGE MAINTENANCE, S-01-018 (32T), (ST 114) NORTH STREET OVER (ST 107) BRIDGE STREET & MBTA	4	NHPP-Off	$ 2,400,000	$ 1,920,000	$ 480,000	Construction
							Bridge Program / Systematic Maintenance subtotal ►	**$ 3,996,667**	$ 3,197,334	$ 799,333	◄ Funding Split Varies by Funding Source

2018 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	608823	Boston Region	Multiple	WELLESLEY- NEWTON- WESTON- PAVEMENT RESURFACING AND RELATED WORK ON I-95	6	NHPP	$ 6,074,640	$ 5,467,176	$ 607,464	Construction
							Insterstate Pavement subtotal ►	**$ 6,074,640**	$ 5,467,176	$ 607,464	◄ 90% Federal + 10% Non-Federal
►Non-Interstate Pavement											
	Non-Interstate Pavement	608008	Boston Region	Saugus	SAUGUS- RESURFACING AND RELATED WORK ON ROUTE 1	4	NHPP	$ 9,812,880	$ 7,850,304	$ 1,962,576	Construction
	Non-Interstate Pavement	608478	Boston Region	Concord	CONCORD- RESURFACING AND RELATED WORK ON ROUTE 2	4	NHPP	$ 4,248,000	$ 3,398,400	$ 849,600	Construction
	Non-Interstate Pavement	608379	Boston Region	Multiple	LEXINGTON- BELMONT- ARLINGTON- CAMBRIDGE- PAVEMENT PRESERVATION ON ROUTE 2	4	NHPP	$ 8,437,000	$ 6,749,600	$ 1,687,400	Construction / Includes $1,040,000 of stormwater improvements
	Non-Interstate Pavement	608069	Boston Region	Multiple	MARSHFIELD- PEMBROKE- NORWELL- HANOVER- ROCKLAND- HINGHAM- RESURFACING & RELATED WORK ON ROUTE 3	5	NHPP	$ 13,876,216	$ 11,100,973	$ 2,775,243	Construction / Includes $400,000 of stormwater improvements
							Non-Interstate Pavement subtotal ►	**$ 36,374,096**	$ 29,099,277	$ 7,274,819	◄ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements	Project #	MPO	Multiple	Description	District	STP	$ -	$ -	$ -	
							Roadway Improvements subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements	606381	Boston Region	Multiple	ARLINGTON- BELMONT- HIGHWAY LIGHTING REPAIR & MAINTENANCE ON ROUTE 2	4	STP	$ 9,100,506	$ 7,280,405	$ 1,820,101	Construction
							Safety Improvements subtotal ►	**$ 9,100,506**	$ 7,280,405	$ 1,820,101	◄ Funding Split Varies by Funding Source
►Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits	Project #	MPO	Municipalities	Description	District	STP	$ -	$ -	$ -	
							ADA Retrofits subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Intersection Improvements											
	Intersection Improvements	608651	Boston Region	Braintree	BRAINTREE- ADAPTIVE SIGNAL CONTROLS ON ROUTE 37 (GRANITE STREET)	6	CMAQ	$ 500,000	$ 400,000	$ 100,000	Construction
							Intersection Improvements subtotal ►	**$ 500,000**	$ 400,000	$ 100,000	◄ Funding Split Varies by Funding Source
►Intelligent Transportation Systems											
	Intelligent Transportation Systems	Project #	Statewide	Multiple	Description	Multiple	NHPP	$ -	$ -	$ -	
							Intelligent Transportation System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Roadway Reconstruction											
	Roadway Reconstruction	Project #	MPO	N/A	Description	District	CMAQ	$ -	$ -	$ -	
							Roadway Reconstruction subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Section 2C / State Prioritized Expansion Projects											
►Bicycles and Pedestrians											
	Bicycles and Pedestrians	607732	Boston Region	Multiple	FRAMINGHAM- NATICK- COCHITUATE RAIL TRAIL CONSTRUCTION INCLUDING PEDESTRIAN BRIDGE, N-03-014, OVER ROUTE 9 & F-07-033=N-03-029 OVER ROUTE 30	3	CMAQ	$ 9,770,863	$ 7,816,690	$ 1,954,173	Construction / PSAC score 35.5
							Bicycles and Pedestrians subtotal ►	**$ 9,770,863**	$ 7,816,690	$ 1,954,173	◄ 80% Federal + 20% Non-Federal

2018 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
►Capacity											
	Capacity	Project #	MPO	Municipalities	Description	District	CMAQ	$ -	$ -	$ -	
							Capacity subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 3 / Planning / Adjustments / Pass-throughs											
►Planning / Adjustments / Pass-throughs											
	Planning / Adjustments / Pass-throughs	Project #	Statewide	Multiple	Description	Multiple	NHPP	$ -	$ -	$ -	
							Other Statewide Items subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 4 / Non-Federally Aided Projects											
►Non-Federally Aided Projects											
	Non Federal Aid	Project #	MPO	Municipalities	Description	District	NFA	$ -		$ -	
							Non-Federal Aid subtotal►	**$ -**		$ -	◄100% Non-Federal

2018 Summary

	TIP Section 1 - 3: ▼	TIP Section 4: ▼	Total of All Projects ▼	
Total ►	$ 276,250,576	$ -	$ 276,250,576	◄ Total Spending in Region
Federal Funds ►	$ 221,669,080		$ 221,669,080	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 54,581,497	$ -	$ 54,581,497	◄ 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 (FY2018)

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 RTD0005465	Cape Ann Transportation Authority	117A00	PREVENTIVE MAINTENANCE		$350,000	$0	$0	$87,500	$437,500
	5307 RTD0005467	Cape Ann Transportation Authority	114206	ACQUIRE - SHOP EQ/SOFTWARE MAINT		$40,000	$10,000	$0	$0	$50,000
	5307 RTD0005469	Cape Ann Transportation Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT		$27,267	$6,817	$0	$0	$34,084
	5307 RTD0005473	Cape Ann Transportation Authority	114206	ACQUIRE - SHOP EQUIPMENT		$52,000	$13,000	$0	$0	$65,000
	5307 RTD0005474	Cape Ann Transportation Authority	113410	REHAB- SHELTERS Railroad, P&R, Emerson Ave		$33,600	$8,400	$0	$0	$42,000
	5307 RTD0005475	Cape Ann Transportation Authority	113310	CONSTRUCT - BUS SHELTER-CATA HUB/COA		$14,400	$3,600	$0	$0	$18,000
	5307 RTD0005476	Cape Ann Transportation Authority	113410	REHAB/RENOVATE - BUS PASSENGER SHELTERS		$9,600	$2,400	$0	$0	$12,000
	5307 RTD0005989	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT)		$150,000	$37,500	$0	$0	$187,500
	5307 RTD0005990	MetroWest Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV		$1,300,000	$325,000	$0	$0	$1,625,000
	5307 RTD0005991	MetroWest Regional Transit Authority	114200	ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES		$248,415	$62,104	$0	$0	$310,519
	5307 RTD0005992	MetroWest Regional Transit Authority	440000	Mobility Management		$25,000	$6,250	$0	$0	$31,250
	5307 RTD0006350	Massachusetts Bay Transportation Authority (MBTA)	121200	Revenue Vehicle Program		$76,000,000	$0	$0	$19,000,000	$95,000,000
	5307 RTD0006351	Massachusetts Bay Transportation Authority (MBTA)	126301	Systemwide Signals Program		$65,446,986	$0	$0	$16,361,747	$81,808,733
					Subtotal	$143,697,268	$475,071	$0	$35,449,247	$179,621,586
5309										
	5309 RTD0005980	Massachusetts Bay Transportation Authority (MBTA)	132303	Green Line Extension Project		$150,000,000	$0	$0	$147,878,038	$297,878,038
					Subtotal	$150,000,000	$0	$0	$147,878,038	$297,878,038
5310										
					Subtotal	$0	$0	$0	$0	$0
5311										
					Subtotal	$0	$0	$0	$0	$0
5337										
	5337 RTD0006352	Massachusetts Bay Transportation Authority (MBTA)	122405	Bridge & Tunnel Program		$72,000,000	$0	$0	$18,000,000	$90,000,000
	5337 RTD0006353	Massachusetts Bay Transportation Authority (MBTA)	123400	Stations and Facilities Program		$50,401,533	$0	$0	$12,600,383	$63,001,916
	5337 RTD0006354	Massachusetts Bay Transportation Authority (MBTA)	124400	System Upgrades Program		$20,000,000	$0	$0	$5,000,000	$25,000,000
					Subtotal	$142,401,533	$0	$0	$35,600,383	$178,001,916
5339										
	5339 RTD0006355	Massachusetts Bay Transportation Authority (MBTA)	111400	Bus Program		$5,318,786	$0	$0	$1,329,696	$6,648,482
					Subtotal	$5,318,786	$0	$0	$1,329,696	$6,648,482
5320										
					Subtotal	$0	$0	$0	$0	$0
Other Federal										
					Subtotal	$0	$0	$0	$0	$0
Other Non-Federal										
Other Non-Federal	RTD0006002	MetroWest Regional Transit Authority	115320	CONSTRUCT MISC ELEC/POWER EQUIP		$0	$750,000	$0	$0	$750,000
					Subtotal	$0	$750,000	$0	$0	$750,000
					Total	$441,417,587	$1,225,071	$0	$220,257,364	$662,900,022

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

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											
	Roadway reconstruction program	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	$ 1,940,476	$ 1,746,428	$ 194,048	Construction; CMAQ+HSIP Total Cost = $2,727,881; MPO Evaluation Score = 54
	Roadway reconstruction program	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	$ 787,405	$ 629,924	$ 157,481	Construction; CMAQ+HSIP Total Cost = $2,727,881; MPO Evaluation Score = 54
	Roadway reconstruction program	607652	Boston Region	Everett	EVERETT- RECONSTRUCTION OF FERRY STREET, SOUTH FERRY STREET AND A PORTION OF ELM STREET	4	HSIP	$ 1,448,825	$ 1,303,943	$ 144,883	Cosntruction; CMAQ+STP+HSIP+TAP Total Cost = $16,599,002; MPO Evaluation Score = 73
	Roadway reconstruction program	607652	Boston Region	Everett	EVERETT- RECONSTRUCTION OF FERRY STREET, SOUTH FERRY STREET AND A PORTION OF ELM STREET	4	CMAQ	$ 1,275,588	$ 1,020,470	$ 255,118	Cosntruction; CMAQ+STP+HSIP+TAP Total Cost = $16,599,002; MPO Evaluation Score = 73
	Roadway reconstruction program	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 = $16,599,002; MPO Evaluation Score = 73
	Roadway reconstruction program	607652	Boston Region	Everett	EVERETT- RECONSTRUCTION OF FERRY STREET, SOUTH FERRY STREET AND A PORTION OF ELM STREET	4	STP	$ 13,150,177	$ 10,520,142	$ 2,630,035	Cosntruction; CMAQ+STP+HSIP+TAP Total Cost = $16,599,002; MPO Evaluation Score = 73
	Roadway reconstruction program	606043	Boston Region	Hopkinton	HOPKINTON- SIGNAL & INTERSECTION IMPROVEMENTS ON ROUTE 135	3	HSIP	$ 1,275,206	$ 1,147,685	$ 127,521	Construction; CMAQ+HSIP+STP Total Cost = $8,174,400
	Roadway reconstruction program	606043	Boston Region	Hopkinton	HOPKINTON- SIGNAL & INTERSECTION IMPROVEMENTS ON ROUTE 135	3	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; CMAQ+HSIP+STP Total Cost = $8,174,400
	Roadway reconstruction program	606043	Boston Region	Hopkinton	HOPKINTON- SIGNAL & INTERSECTION IMPROVEMENTS ON ROUTE 135	3	TAP	$ 5,899,194	$ 4,719,355	$ 1,179,839	Construction; CMAQ+HSIP+STP Total Cost = $8,174,400
	Planning / Adjustments / Pass-throughs	1570	Boston Region	Multiple	GREEN LINE EXTENSION PROJECT- EXTENSION TO COLLEGE AVENUE WITH THE UNION SQUARE SPUR	6	CMAQ	$ 13,427,220	$ 10,741,776	$ 2,685,444	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	$ 27,072,780	$ 21,658,224	$ 5,414,556	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 program	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 = $12,688,000; MPO Evaluation Score = 60
	Roadway reconstruction program	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 = $12,688,000; MPO Evaluation Score = 60
	Roadway reconstruction program	605034	Boston Region	Natick	NATICK- RECONSTRUCTION OF ROUTE 27 (NORTH MAIN STREET), FROM NORTH AVENUE TO THE WAYLAND T.L.	3	STP	$ 8,953,733	$ 7,162,986	$ 1,790,747	Construction; CMAQ+TAP+STP Total Cost = $12,688,000; MPO Evaluation Score = 60
	Roadway reconstruction program	605789	Boston Region	Boston	BOSTON- RECONSTRUCTION OF MELNEA CASS BOULEVARD	6	STP	$ 7,348,506	$ 5,878,805	$ 1,469,701	Construction; STP+Earmark Total Cost = $24,792,845 ; 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
	Roadway reconstruction program	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	$ 2,319,644	$ 2,087,680	$ 231,964	Construction; CMAQ+HSIP+TAP+STP Total Cost = $21,434,400; AC Yr 1 of 2; MPO Evaluation Score = 75
	Roadway reconstruction program	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	$ 2,000,000	$ 1,600,000	$ 400,000	Construction; CMAQ+HSIP+TAP+STP Total Cost = $21,434,400; AC Yr 1 of 2; MPO Evaluation Score = 75
	Roadway reconstruction program	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	$ 1,546,492	$ 1,237,194	$ 309,298	Construction; CMAQ+HSIP+TAP+STP Total Cost = $21,434,400; AC Yr 1 of 2; MPO Evaluation Score = 75
	Roadway reconstruction program	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	$ 4,851,064	$ 3,880,851	$ 970,213	Construction; CMAQ+HSIP+TAP+STP Total Cost = $21,434,400; AC Yr 1 of 2; MPO Evaluation Score = 75
							Regionally Prioritized Projects subtotal ►	**$ 6,176,706**	$ 5,280,295	$ 896,411	◄ 80% Federal + 20% Non-Federal

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 98,754,989**	**$ 98,794,261**	**◄Total Budget**	**$ 39,272**	**Target Funds Available**
STP programmed ►	$ 61,376,260	$ 80,826,690	◄ Max **STP**	**$ 19,450,430**	STP available
HSIP programmed ►	$ 6,984,151	$ 4,296,710	◄ Min. **HSIP**	**$ (2,687,441)**	HSIP recommended met
CMAQ programmed ►	$ 20,905,547	$ 10,741,776	◄ Min. **CMAQ**	**$ (10,163,771)**	CMAQ recommended met
TAP programmed ►	$ 9,489,031	$ 2,929,085	◄ Min. **TAP**	**$ (6,559,946)**	TAP amount exceeded!
Remaining HSIP, CMAQ, and TAP Funds	$ 39,272				

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

►Section 1B / Earmark or Discretionary Grant Funded Projects

►Other Federal Aid

	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	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	4	HPP	$ 1,251,844	$ 1,001,475	$ 250,369	Construction; (MA134)
	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	Transfer to Eastern Federal Lands
							Other Federal Aid subtotal ►	**$ 21,398,396**	$ 17,118,717	$ 4,279,679	◄ Funding Split Varies by Funding Source

►Section 2A / State Prioritized Reliability Projects

►Bridge Program / Inspections

	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP	$ -	$ -	$ -	
							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	$ 5,219,900	$ 4,175,920	$ 1,043,980	Construction
	Bridge Program	608255	Boston Region	Stow	STOW- BRIDGE REPLACEMENT, S-29-011, BOX MILL ROAD OVER ELIZABETH BROOK	3	STP-BR-OFF	$ 1,482,000	$ 1,185,600	$ 296,400	Construction
							Bridge Program / Off-System subtotal ►	**$ 6,701,900**	$ 5,361,520	$ 1,340,380	◄ 80% Federal + 20% Non-Federal
►Bridge Program / On-System (NHS)											
	Bridge Program	604173	Boston Region	Boston	BOSTON- BRIDGE REHABILITATION, B-16-016, NORTH WASHINGTON STREET OVER THE BOSTON INNER HARBOR	6	NHPP-On	$ 42,000,000	$ 33,600,000	$ 8,400,000	AC Year 3 of 5, Total Cost $144,066,616
							Bridge Program / On-System (NHS) subtotal ►	**$ 42,000,000**	$ 33,600,000	$ 8,400,000	◄ Funding Split Varies by Funding Source
►Bridge Program / On-System (Non-NHS)											
	Bridge Program	Project #	MPO	N/A	Description	District	NHPP-Off	$ -	$ -	$ -	
							Bridge Program / On-System (Non-NHS) subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Bridge Program / Systematic Maintenance											
	Bridge Program	608234	Boston Region	Multiple	BOSTON- RANDOLPH- BRIDGE PRESERVATION OF 3 BRIDGES: B-16-165, R-01-005 & R-01-007	6	NHPP-On	$ 2,303,571	$ 1,842,857	$ 460,714	Construction
							Bridge Program / Systematic Maintenance subtotal ►	**$ 2,303,571**	$ 1,842,857	$ 460,714	◄ Funding Split Varies by Funding Source
►Interstate Pavement											
	Interstate Pavement	608219	Boston Region	Multiple	READING- WAKEFIELD- INTERSTATE MAINTENANCE AND RELATED WORK ON I-95	4	NHPP	$ 4,123,392	$ 3,711,053	$ 412,339	Construction
							Insterstate Pavement subtotal ►	**$ 4,123,392**	$ 3,711,053	$ 412,339	◄ 90% Federal + 10% Non-Federal
►Non-Interstate Pavement											
	Non-Interstate Pavement	608467	Boston Region	Marlborough	MARLBOROUGH- RESURFACING AND RELATED WORK ON ROUTE 20	3	NHPP	$ 9,940,320	$ 7,952,256	$ 1,988,064	Construction
	Non-Interstate Pavement	608468	Boston Region	Multiple	PEABODY- DANVERS- RESURFACING AND RELATED WORK ON ROUTE 1	4	NHPP	$ 11,597,040	$ 9,277,632	$ 2,319,408	Construction
	Non-Interstate Pavement	608528	Boston Region	Multiple	WESTON- WALTHAM- RESURFACING AND RELATED WORK ON ROUTE 20	4	NHPP	$ 12,026,560	$ 9,621,248	$ 2,405,312	Construction
	Non-Interstate Pavement	608587	Boston Region	Dedham	DEDHAM- RECONSTRUCTION & RELATED WORK OF BRIDGE STREET (ROUTE 109) AND AMES STREET	6	NHPP	$ 5,424,717	$ 4,339,774	$ 1,084,943	Construction
							Non-Interstate Pavement subtotal ►	**$ 38,988,637**	$ 31,190,910	$ 7,797,727	◄ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements	608214	Boston Region	Winchester	WINCHESTER- STORMWATER IMPROVEMENTS ALONG ROUTE 3	4	STP	$ 232,960	$ 186,368	$ 46,592	Construction
	Roadway Improvements	608599	Boston Region	Multiple	CANTON- SHARON- FOXBOROUGH- NORWOOD-WALPOLE- STORMWATER IMPROVEMENTS ALONG ROUTE 1, ROUTE 1A & INTERSTATE 95	5	STP	$ 526,235	$ 420,988	$ 105,247	Construction
							Roadway Improvements subtotal ►	**$ 759,195**	$ 607,356	$ 151,839	◄ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements	608608	Boston Region	Braintree	BRAINTREE- HIGHWAY LIGHTING IMPROVEMENTS AT I-93/ROUTE 3 INTERCHANGE	6	STP	$ 7,008,503	$ 5,606,802	$ 1,401,701	Construction / Total Project Cost $9,697,229 / AC YR 1 of 2
	Safety Improvements	608205	Boston Region	Multiple	READING TO LYNNFIELD- GUIDE AND TRAFFIC SIGN REPLACEMENT ON A SECTION OF I-95 (SR 128)	4	HSIP	$ 4,513,288	$ 4,061,959	$ 451,329	Construction
	Safety Improvements	608206	Boston Region	Multiple	CHELSEA TO DANVERS- GUIDE AND TRAFFIC SIGN REPLACEMENT ON A SECTION OF US ROUTE 1	4	HSIP	$ 7,195,084	$ 6,475,576	$ 719,508	Construction
							Safety Improvements subtotal ►	**$ 18,716,875**	$ 16,144,337	$ 2,572,538	◄ 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 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits	Project #	Statewide	Multiple	Description	1	STP	$ -	$ -	$ -	
							ADA Retrofits subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Intersection Improvements											
	Intersection Improvements	607759	Boston Region	Boston	BOSTON- INTERSECTION & SIGNAL IMPROVEMENTS AT THE VFW PARKWAY & SPRING STREET	6	HSIP	$ 974,815	$ 877,334	$ 97,482	Construction / PSAC score 39
	Intersection Improvements	607763	Boston Region	Milton	MILTON- INTERSECTION & SIGNAL IMPROVEMENTS AT 2 LOCATIONS: SR 138 (BLUE HILL AVENUE) AT ATHERTON STREET & BRADLEE ROAD AND SR 138 (BLUE HILL AVENUE) AT MILTON STREET & DOLLAR LANE	6	HSIP	$ 1,188,000	$ 1,069,200	$ 118,800	Construction / PSAC score 44
	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	Construction / PSAC score 50
	Intersection Improvements	607748	Boston Region	Acton	ACTON- INTERSECTION & SIGNAL IMPROVEMENTS ON SR 2 & SR 111 (MASSACHUSETTS AVENUE) AT PIPER ROAD & TAYLOR ROAD	3	HSIP	$ 1,400,000	$ 1,260,000	$ 140,000	Construction / PSAC score 58
	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	Construction
	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	Construction / PSAC score 50
							Intersection Improvements subtotal ►	**$ 8,037,630**	$ 7,233,867	$ 803,763	◄ Funding Split Varies by Funding Source
►Intelligent Transportation Systems											
	Intelligent Transportation Systems	Project #	Statewide	Multiple	Description	Multiple	NHPP	$ -	$ -	$ -	
							Intelligent Transportation System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Roadway Reconstruction											
	Roadway Reconstruction	Project #	MPO	N/A	Description	District	CMAQ	$ -	$ -	$ -	
							Roadway Reconstruction subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►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	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	$ 9,495,746	$ 7,596,597	$ 1,899,149	Construction / PSAC score 31.5
							Bicycles and Pedestrians subtotal ►	**$ 11,266,468**	$ 9,013,174	$ 2,253,294	◄ 80% Federal + 20% Non-Federal
►Capacity											
	Capacity	Project #	MPO	Municipalities	Description	District	CMAQ	$ -	$ -	$ -	
							Capacity 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 3 / Planning / Adjustments / Pass-throughs											
►Planning / Adjustments / Pass-throughs											
	Planning / Adjustments / Pass-throughs	Project #	Statewide	Multiple	ABP GANS Repayment	Multiple	NHPP	$ -	$ -	$ -	
							Other Statewide Items subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 4 / Non-Federally Aided Projects											
►Non-Federally Aided Projects											
	Non Federal Aid	Project #	MPO	Municipalities	Description	District	NFA	$ -		$ -	
							Non-Federal Aid subtotal►	**$ -**		$ -	◄100% Non-Federal

2019 Summary

	TIP Section 1 - 3: ▼	TIP Section 4: ▼	Total of All Projects ▼	
Total ►	$ 160,472,770	$ -	$ 160,472,770	◄ Total Spending in Region
Federal Funds ►	$ 131,104,086		$ 131,104,086	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 29,368,685	$ -	$ 29,368,685	◄ 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 RTD0005466	Cape Ann Transportation Authority	117A00	PREVENTIVE MAINTENANCE	2017 - $92,000; 2018 - $450,000	$542,000	$0	$0	$135,500	$677,500
	5307 RTD0005470	Cape Ann Transportation Authority	114206	ACQUIRE - SHOP EQ/COMPUTER/SFTWR	2018 - $44,000	$44,000	$11,000	$0	$0	$55,000
	5307 RTD0005471	Cape Ann Transportation Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT	2018 - $30,055	$30,055	$7,514	$0	$0	$37,569
	5307 RTD0005993	MetroWest Regional Transit Authority	113303	TERMINAL, INTERMODAL (TRANSIT): Facil. Improvements	2018 - $150,000	$150,000	$37,500	$0	$0	$187,500
	5307 RTD0005994	MetroWest Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV	2018 - $1,300,000	$1,300,000	$325,000	$0	$0	$1,625,000
	5307 RTD0005995	MetroWest Regional Transit Authority	114200	ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES	2018 - $248,415	$248,415	$62,104	$0	$0	$310,519
	5307 RTD0005996	MetroWest Regional Transit Authority	440000	Mobility Management	2018 - $25,000	$25,000	$6,250	$0	$0	$31,250
	5307 RTD0006356	Massachusetts Bay Transportation Authority (MBTA)	121200	Revenue Vehicle Program		$112,000,000	$0	$0	$28,000,000	$140,000,000
	5307 RTD0006357	Massachusetts Bay Transportation Authority (MBTA)	123400	Stations and Facilities Program		$31,445,210	$0	$0	$7,861,303	$39,306,513
					Subtotal	$145,784,680	$449,368	$0	$35,996,803	$182,230,851
5309										
	5309 RTD0005979	Massachusetts Bay Transportation Authority (MBTA)	132303	Green Line Extension Project		$150,000,000	$0	$0	$147,848,038	$297,848,038
					Subtotal	$150,000,000	$0	$0	$147,848,038	$297,848,038
5310										
					Subtotal	$0	$0	$0	$0	$0
5311										
					Subtotal	$0	$0	$0	$0	$0
5337										
	5337 RTD0006358	Massachusetts Bay Transportation Authority (MBTA)	123400	Stations and Facilities Program		$136,853,672	$0	$0	$34,213,418	$171,067,090
	5337 RTD0006359	Massachusetts Bay Transportation Authority (MBTA)	124400	System Upgrades Program	2018 - $8,000,000	$8,000,000	$0	$0	$2,000,000	$10,000,000
					Subtotal	$144,853,672	$0	$0	$36,213,418	$181,067,090
5339										
	5339 RTD0006360	Massachusetts Bay Transportation Authority (MBTA)	111400	Bus Program		$5,434,322	$0	$0	$1,358,581	$6,792,903
					Subtotal	$5,434,322	$0	$0	$1,358,581	$6,792,903
5320										
					Subtotal	$0	$0	$0	$0	$0
Other Federal										
					Subtotal	$0	$0	$0	$0	$0
Other Non-Federal										
Other Non-Federal	RTD0006089	Cape Ann Transportation Authority	111209	BUY REPLACEMENT TROLLEY BUS		$0	$900,000	$0	$0	$900,000
					Subtotal	$0	$900,000	$0	$0	$900,000
					Total	$446,072,674	$1,349,368	$0	$221,416,840	$668,838,882

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	$ 13,427,220	$ 10,741,776	$ 2,685,444	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
	Planning / Adjustments / Pass-throughs	1570	Boston Region	Multiple	GREEN LINE EXTENSION PROJECT- EXTENSION TO COLLEGE AVENUE WITH THE UNION SQUARE SPUR	6	STP	$ 21,872,780	$ 17,498,224	$ 4,374,556	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 program	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 = $14,636,338; MPO Evaluation Score = 54
	Roadway reconstruction program	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 = $14,636,338; MPO Evaluation Score = 54
	Roadway reconstruction program	604123	Boston Region	Ashland	ASHLAND- RECONSTRUCTION ON ROUTE 126 (POND STREET), FROM THE FRAMINGHAM T.L. TO THE HOLLISTON T.L.	3	STP	$ 11,529,857	$ 9,223,886	$ 2,305,971	Construction; STP+CMAQ+TAP Total Cost = $14,636,338; MPO Evaluation Score = 54
	Roadway reconstruction program	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 = $4,755,714; MPO Evaluation Score = 38
	Roadway reconstruction program	602077	Boston Region	Lynn	LYNN- RECONSTRUCTION ON ROUTE 129 (LYNNFIELD STREET), FROM GREAT WOODS ROAD TO WYOMA SQUARE	4	STP	$ 3,755,714	$ 3,004,571	$ 751,143	Construction; CMAQ+STP Total Cost = $4,755,714; MPO Evaluation Score = 38
	Roadway reconstruction program	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 = $17,390,216; MPO Evaluation Score = 51
	Roadway reconstruction program	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 = $17,390,216; MPO Evaluation Score = 51
	Roadway reconstruction program	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	$ 14,531,779	$ 11,625,423	$ 2,906,356	Construction; STP+CMAQ+TAP Total Cost = $17,390,216; MPO Evaluation Score = 51
	Roadway reconstruction program	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 = $8,214,319; MPO Evaluation Score = 58
	Roadway reconstruction program	606453	Boston Region	Boston	BOSTON- IMPROVEMENTS ON BOYLSTON STREET, FROM INTERSECTION OF BROOKLINE AVENUE & PARK DRIVE TO IPSWICH STREET	6	TAP	$ 812,432	$ 649,946	$ 162,486	Construction; CMAQ+TAP+STP Total Cost = $8,214,319; MPO Evaluation Score = 58
	Roadway reconstruction program	606453	Boston Region	Boston	BOSTON- IMPROVEMENTS ON BOYLSTON STREET, FROM INTERSECTION OF BROOKLINE AVENUE & PARK DRIVE TO IPSWICH STREET	6	STP	$ 6,401,887	$ 5,121,510	$ 1,280,377	Construction; CMAQ+TAP+STP Total Cost = $8,214,319; MPO Evaluation Score = 58

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 program	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; TAP+STP Total Cost = $152,000,000; AC Yr 1 of 5; Total funding in this TIP = $76,500,000
	Roadway reconstruction program	606635	Boston Region	Multiple	NEEDHAM- NEWTON- RECONSTRUCTION OF HIGHLAND AVENUE, NEEDHAM STREET & CHARLES RIVER BRIDGE, N-04-002, FROM WEBSTER STREET (NEEDHAM) TO ROUTE 9 (NEWTON)	6	HSIP	$ 2,319,644	$ 2,087,680	$ 231,964	Construction; CMAQ+HSIP+TAP+STP Total Cost = $21,434,400; AC Yr 2 of 2; MPO Evaluation Score = 75
	Roadway reconstruction program	606635	Boston Region	Multiple	NEEDHAM- NEWTON- RECONSTRUCTION OF HIGHLAND AVENUE, NEEDHAM STREET & CHARLES RIVER BRIDGE, N-04-002, FROM WEBSTER STREET (NEEDHAM) TO ROUTE 9 (NEWTON)	6	STP	$ 8,397,556	$ 6,718,045	$ 1,679,511	Construction; CMAQ+HSIP+TAP+STP Total Cost = $21,434,400; AC Yr 2 of 2; MPO Evaluation Score = 75
							Regionally Prioritized Projects subtotal ►	**$ 98,013,787**	$ 78,642,994	$ 19,370,793	◄ 80% Federal + 20% Non-Federal

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 98,013,787**	**$ 98,029,447**	**◄Total Budget**	**$ 15,660**	**Target Funds Available**
STP programmed ►	$ 73,489,573	$ 80,061,875	◄ Max **STP**	**$ 6,572,302**	STP available
HSIP programmed ►	$ 2,319,644	$ 4,296,710	◄ Min. **HSIP**	**$ 1,977,066**	HSIP recommended not met
CMAQ programmed ►	$ 17,427,220	$ 10,741,776	◄ Min. **CMAQ**	**$ (6,685,444)**	CMAQ recommended met
TAP programmed ►	$ 4,777,350	$ 2,929,085	◄ Min. **TAP**	**$ (1,848,265)**	TAP amount exceeded!
Remaining HSIP, CMAQ, and TAP Funds	$ 15,660				

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

►Section 1B / Earmark or Discretionary Grant Funded Projects

►Other Federal Aid

	Earmark Discretionary	Project #	Boston	Municipalities	Description	District	HPP	$ -	$ -	$ -	
	Earmark Discretionary	Project #	Boston	Municipalities	Description	District	HPP	$ -	$ -	$ -	
							Other Federal Aid subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

►Section 2A / State Prioritized Reliability Projects

►Bridge Program / Inspections

	Bridge Program	Project #	N/A	Multiple	Description	Multiple	NHPP	$ -	$ -	$ -	
							Bridge Program / Inspections subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

►Bridge Program / Off-System

	Bridge Program	Project #	MPO	N/A	Description	District	STP-BR-OFF	$ -	$ -	$ -	
							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	$ 6,706,560	$ 5,365,248	$ 1,341,312	Construction
	Bridge Program	608614	Boston Region	Boston	BOSTON- BRIDGE PRESERVATION, B-16-179, AUSTIN STREET OVER I-93 RAMPS, MBTA COMMUTER RAIL AND ORANGE LINE	6	NHPP-On	$ 20,606,400	$ 16,485,120	$ 4,121,280	Construction
	Bridge Program	604173	Boston Region	Boston	BOSTON- BRIDGE REHABILITATION, B-16-016, NORTH WASHINGTON STREET OVER THE BOSTON INNER HARBOR	6	NHPP-On	$ 35,000,000	$ 28,000,000	$ 7,000,000	Construction / AC Year 4 of 5, Total Cost $144,066,616
							Bridge Program / On-System (NHS) subtotal ►	**$ 62,312,960**	$ 49,850,368	$ 12,462,592	◄ 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
►Bridge Program / On-System (Non-NHS)											
	Bridge Program	608009	Boston Region	Boxborough	BOXBOROUGH- BRIDGE REPLACEMENT, B-18-002, ROUTE 111 OVER I-495	3	NHPP-Off	$ 9,147,500	$ 7,318,000	$ 1,829,500	AC Year 1 of 2, Total Cost $14,295,000
							Bridge Program / On-System (Non-NHS) subtotal ►	**$ 9,147,500**	$ 7,318,000	$ 1,829,500	◄ 80% Federal + 20% Non-Federal
►Bridge Program / Systematic Maintenance											
	Bridge Program	608596	Boston Region	Essex	ESSEX- SUPERSTRUCTURE REPLACEMENT, E-11-001 (2TV), ROUTE 133\MAIN STREET OVER ESSEX RIVER	4	NHPP-Off	$ 2,400,000	$ 1,920,000	$ 480,000	
							Bridge Program / Systematic Maintenance subtotal ►	**$ 2,400,000**	$ 1,920,000	$ 480,000	◄ Funding Split Varies by Funding Source
►Interstate Pavement											
	Interstate Pavement	608208	Boston Region	Multiple	QUINCY- MILTON- BOSTON- INTERSTATE MAINTENANCE & RELATED WORK ON I-93	6	NHPP	$ 24,264,576	$ 21,838,118	$ 2,426,458	Construction / Includes $540,000 of stormwater improvements
							Insterstate Pavement subtotal ►	**$ 24,264,576**	$ 21,838,118	$ 2,426,458	◄ 90% Federal + 10% Non-Federal
►Non-Interstate Pavement											
	Non-Interstate Pavement	608480	Boston Region	Multiple	FOXBOROUGH- WALPOLE- RESURFACING AND RELATED WORK ON ROUTE 1	5	NHPP	$ 8,063,129	$ 6,450,503	$ 1,612,626	Construction
	Non-Interstate Pavement	608484	Boston Region	Multiple	CANTON- MILTON- RESURFACING AND RELATED WORK ON ROUTE 138	6	NHPP	$ 15,343,776	$ 12,275,021	$ 3,068,755	Construction
	Non-Interstate Pavement	608482	Boston Region	Multiple	CAMBRIDGE- SOMERVILLE- RESURFACING AND RELATED WORK ON ROUTE 28	6	NHPP	$ 7,761,096	$ 6,208,877	$ 1,552,219	Construction
							Non-Interstate Pavement subtotal ►	**$ 31,168,001**	$ 24,934,401	$ 6,233,600	◄ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements	Project #	MPO	N/A	Description	District	STP	$ -	$ -	$ -	
							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	STP	$ 2,688,726	$ 2,150,981	$ 537,745	Construction / Total Project Cost $9,697,229 / AC YR 2 of 2
	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	HSIP	$ 9,434,070	$ 8,490,663	$ 943,407	Construction
							Safety Improvements subtotal ►	**$ 12,122,796**	$ 10,641,644	$ 1,481,152	◄ Funding Split Varies by Funding Source
►Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits	Project #	MPO	Municipalities	Description	District	STP	$ -	$ -	$ -	
							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	$ 2,688,000	$ 2,419,200	$ 268,800	Construction / PSAC score 68
	Intersection Improvements	608564	Boston Region	Watertown	WATERTOWN- INTERSECTION IMPROVEMENTS AT ROUTE 16 AND GALEN STREET	6	HSIP	$ 2,688,000	$ 2,419,200	$ 268,800	Construction / PSAC score 56
							Intersection Improvements subtotal ►	**$ 5,376,000**	$ 4,838,400	$ 537,600	◄ Funding Split Varies by Funding Source
►Intelligent Transportation Systems											
	Intelligent Transportation Systems	Project #	MPO	Municipalities	Description	District	NHPP	$ -	$ -	$ -	
							Intelligent Transportation System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% 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
►Roadway Reconstruction											
	Roadway Reconstruction	608835	Boston Region	Medford	MEDFORD- IMPROVEMENTS AT BROOKS ELEMENTARY SCHOOL (SRTS)	4	TAP	$ 1,200,000	$ 960,000	$ 240,000	Construction / TAP project proponent is Medford
	Roadway Reconstruction	608743	Boston Region	Salem	SALEM- IMPROVEMENTS AT BATES ELEMENTARY SCHOOL (SRTS)	4	TAP	$ 937,500	$ 750,000	$ 187,500	Construction / TAP project proponent is Salem
	Roadway Reconstruction	608829	Boston Region	Stoughton	STOUGHTON - IMPROVEMENTS AT WEST ELEMENTARY SCHOOL (SRTS)	5	TAP	$ 2,226,600	$ 1,781,280	$ 445,320	Construction / TAP project proponent is Stoughton
	Roadway Reconstruction	608791	Boston Region	Winchester	WINCHESTER- IMPROVEMENTS AT VINSON-OWEN ELEMENTARY SCHOOL (SRTS)	4	TAP	$ 1,666,200	$ 1,332,960	$ 333,240	Construction / TAP project proponent is Winchester
	Roadway Reconstruction	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NHPP	$ 1,000,000	$ 800,000	$ 200,000	Construction / Total Project Cost = $270,000,000 / AC YR 1 of 6 / PSAC score 49
							Roadway Reconstruction subtotal ►	**$ 7,030,300**	$ 5,624,240	$ 1,406,060	◄ 80% Federal + 20% Non-Federal
►Section 2C / State Prioritized Expansion Projects											
►Bicycles and Pedestrians											
	Bicycles and Pedestrians	Project #	MPO	N/A	Description	District	CMAQ	$ -	$ -	$ -	
							Bicycles and Pedestrians subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Capacity											
	Capacity	Project #	MPO	Municipalities	Description	District	NHPP	$ -	$ -	$ -	
							Capacity subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 3 / Planning / Adjustments / Pass-throughs											
►Planning / Adjustments / Pass-throughs											
	Planning / Adjustments / Pass-throughs	Project #	Statewide	Multiple	Description	Multiple	NHPP	$ -	$ -	$ -	
							Other Statewide Items subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 4 / Non-Federally Aided Projects											
►Non-Federally Aided Projects											
	Non Federal Aid	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NFA	$ 18,112,483		$ 18,112,483	Construction / Total Project Cost = $270,000,000 / AC YR 1 of 6 / PSAC score 49
							Non-Federal Aid subtotal►	**$ 18,112,483**		$ 18,112,483	◄100% Non-Federal

2020 Summary

	TIP Section 1 - 3: ▼	TIP Section 4: ▼	Total of All Projects ▼	
Total ►	$ 251,835,920	$ 18,112,483	$ 269,948,403	◄ Total Spending in Region
Federal Funds ►	$ 205,608,165		$ 205,608,165	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 46,227,755	$ 18,112,483	$ 64,340,238	◄ Total Non-Federal Spending in Region

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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 RTD0005472	Cape Ann Transportation Authority	117A00	PREVENTIVE MAINTENANCE	2019 - $350,000	$350,000	$0	$0	$87,500	$437,500
	5307 RTD0005477	Cape Ann Transportation Authority	114206	ACQUIRE - SHOP EQ/COMP/SFTWR	2019 - $40,000	$40,000	$10,000	$0	$0	$50,000
	5307 RTD0005478	Cape Ann Transportation Authority	114220	ACQUIRE - MISC SUPPORT EQUIPMENT	2019 - $11,296	$11,296	$2,824	$0	$0	$14,120
	5307 RTD0005997	MetroWest Regional Transit Authority	114200	ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES	2019 - $248,415	$248,415	$62,104	$0	$0	$310,519
	5307 RTD0005998	MetroWest Regional Transit Authority	440000	Mobility Management	2019 - $25,000	$25,000	$6,250	$0	$0	$31,250
	5307 RTD0005999	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 RTD0006000	MetroWest Regional Transit Authority	113303	TERMINAL, INTERMODAL (TRANSIT)	2019 - $150,000	$150,000	$37,500	$0	$0	$187,500
	5307 RTD0006361	Massachusetts Bay Transportation Authority (MBTA)	121200	Revenue Vehicle Program		$40,000,000	$0	$0	$10,000,000	$50,000,000
	5307 RTD0006362	Massachusetts Bay Transportation Authority (MBTA)	123400	Stations and Facilities Program		$44,000,000	$0	$0	$11,000,000	$55,000,000
	5307 RTD0006363	Massachusetts Bay Transportation Authority (MBTA)	126301	Systemwide Signals Program		$61,840,976	$0	$0	$15,460,244	$77,301,220
					Subtotal	$147,965,687	$443,678	$0	$36,547,744	$184,957,109
5309										
	5309 RTD0005987	Massachusetts Bay Transportation Authority (MBTA)	132303	Green Line Extension Project		$150,000,000	$0	$0	$147,848,038	$297,848,038
					Subtotal	$150,000,000	$0	$0	$147,848,038	$297,848,038
5310										
					Subtotal	$0	$0	$0	$0	$0
5311										
					Subtotal	$0	$0	$0	$0	$0
5337										
	5337 RTD0006364	Massachusetts Bay Transportation Authority (MBTA)	122405	Bridge & Tunnel Program		$24,000,000	$0	$0	$6,000,000	$30,000,000
	5337 RTD0006365	Massachusetts Bay Transportation Authority (MBTA)	123402	Elevator Program		$48,000,000	$0	$0	$12,000,000	$60,000,000
	5337 RTD0006366	Massachusetts Bay Transportation Authority (MBTA)	123400	Stations and Facilities Program		$47,347,989	$0	$0	$11,836,997	$59,184,986
	5337 RTD0006367	Massachusetts Bay Transportation Authority (MBTA)	124400	System Upgrades Program		$28,000,000	$0	$0	$7,000,000	$35,000,000
					Subtotal	$147,347,989	$0	$0	$36,836,997	$184,184,986
5339										
	5339 RTD0006368	Massachusetts Bay Transportation Authority (MBTA)	111400	Bus Program		$5,552,214	$0	$0	$1,388,053	$6,940,267
					Subtotal	$5,552,214	$0	$0	$1,388,053	$6,940,267
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	$450,865,890	$443,678	$0	$222,620,832	$673,930,400

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											
	Roadway reconstruction program	608228	Boston Region	Framingham	FRAMINGHAM- RECONSTRUCTION OF UNION AVENUE, FROM PROCTOR STREET TO MAIN STREET	3	HSIP	$ 1,509,587	$ 1,358,628	$ 150,959	Construction; STP+HSIP+TAP Total Cost = $10,304,881; MPO Evaluation Score = 58
	Roadway reconstruction program	608228	Boston Region	Framingham	FRAMINGHAM- RECONSTRUCTION OF UNION AVENUE, FROM PROCTOR STREET TO MAIN STREET	3	TAP	$ 1,006,391	$ 805,113	$ 201,278	Construction; STP+HSIP+TAP Total Cost = $10,304,881; MPO Evaluation Score = 58
	Roadway reconstruction program	608228	Boston Region	Framingham	FRAMINGHAM- RECONSTRUCTION OF UNION AVENUE, FROM PROCTOR STREET TO MAIN STREET	3	STP	$ 7,788,903	$ 6,231,122	$ 1,557,781	Construction; STP+HSIP+TAP Total Cost = $10,304,881; MPO Evaluation Score = 58
	Intersection improvements program	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 = $3,668,437; MPO Evaluation Score = 53
	Intersection improvements program	606130	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1A & UPLAND ROAD/WASHINGTON STREET & PROSPECT STREET/FULTON STREET	5	STP	$ 2,668,437	$ 2,134,750	$ 533,687	Construction; CMAQ+STP Total Cost = $3,668,437; MPO Evaluation Score = 53
	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	$ 2,339,729	$ 2,105,756	$ 233,973	Construction; HSIP+CMAQ Total Cost = $3,360,000; 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	CMAQ	$ 1,020,271	$ 816,217	$ 204,054	Construction; HSIP+CMAQ Total Cost = $3,360,000; MPO Evaluation Score = 63
	Planning / Adjustments / Pass-throughs	BN0009	Boston Region	Multiple	COMMUNITY TRANSPORTATION PROGRAM	NA	CMAQ	$ 1,750,000	$ 1,400,000	$ 350,000	Planning, Design, or Construction; Set Aside for LRTP Clean Air and Mobility Program
	Planning / Adjustments / Pass-throughs	1570	Boston Region	Multiple	GREEN LINE EXTENSION PROJECT- EXTENSION TO COLLEGE AVENUE WITH THE UNION SQUARE SPUR	6	CMAQ	$ 10,000,000	$ 8,000,000	$ 2,000,000	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
	Planning / Adjustments / Pass-throughs	1570	Boston Region	Multiple	GREEN LINE EXTENSION PROJECT- EXTENSION TO COLLEGE AVENUE WITH THE UNION SQUARE SPUR	6	STP	$ 19,700,000	$ 15,760,000	$ 3,940,000	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 program	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 = $2,890,880; MPO Evaluation Score = 45
	Roadway reconstruction program	606501	Boston Region	Holbrook	HOLBROOK- RECONSTRUCTION OF UNION STREET (ROUTE 139), FROM LINFIELD STREET TO CENTRE STREET/WATER STREET	5	STP	$ 1,074,542	$ 859,634	$ 214,908	Construction; TAP+STP+Earmark Total Cost = $2,890,880; MPO Evaluation Score = 45
	Roadway reconstruction program	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	TAP	$ 2,183,253	$ 1,746,602	$ 436,651	Construction; TAP+STP Total Cost = $152,000,000; AC Yr 2 of 5; Total funding in this TIP = $76,500,000
	Roadway reconstruction program	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	STP	$ 23,316,747	$ 18,653,398	$ 4,663,349	Construction; TAP+STP Total Cost = $152,000,000; AC Yr 2 of 5; Total funding in this TIP = $76,500,000

2021 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description ▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼ *Present information as follows, if applicable:* **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Bridge Program	604996	Boston Region	Woburn	WOBURN- BRIDGE REPLACEMENT, W-43-017, NEW BOSTON STREET OVER MBTA	4	STP	$ 17,026,434	$ 13,621,147	$ 3,405,287	Construction; Total Cost = $17,026,434; MPO Evaluation Score = 55
	Roadway reconstruction program	601607	Boston Region	Hull	HULL- RECONSTRUCTION OF ATLANTIC AVENUE AND RELATED WORK FROM NANTASKET AVENUE TO COHASSET TOWN LINE	5	STP	$ 6,693,980	$ 5,355,184	$ 1,338,796	Construction; Total Cost = $6,693,980; MPO Evaluation Score = 44
							Regionally Prioritized Projects subtotal ►	**$ 99,367,362**	$ 79,878,821	$ 19,488,541	◄ 80% Federal + 20% Non-Federal

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 99,367,362**	**$ 100,298,110**	**◄Total Budget**	**$ 930,748** **Target Funds Available**
STP programmed ►	$ 78,269,043	$ 82,330,538	◄ Max **STP**	**$ 4,061,495** STP available
HSIP programmed ►	$ 3,849,316	$ 4,296,710	◄ Min. **HSIP**	**$ 447,394** HSIP recommended not met
CMAQ programmed ►	$ 13,770,271	$ 10,741,776	◄ Min. **CMAQ**	**$ (3,028,495)** CMAQ recommended met
TAP programmed ►	$ 3,478,732	$ 2,929,085	◄ Min. **TAP**	**$ (549,647)** TAP amount exceeded!
Remaining HSIP, CMAQ, and TAP Funds	$ 930,748			

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

►Section 1B / Earmark or Discretionary Grant Funded Projects

►Other Federal Aid

	Earmark Discretionary	606226	Boston Region	Municipalities	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	Municipalities	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	Municipalities	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
							Other Federal Aid subtotal ►	**$ 10,106,180**	$ 8,084,944	$ 2,021,236	◄ Funding Split Varies by Funding Source

►Section 2A / State Prioritized Reliability Projects

►Bridge Program / Inspections

	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP	$ -	$ -	$ -	
							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	$ 1,589,840	$ 1,271,872	$ 317,968	Construction
							Bridge Program / Off-System subtotal ►	**$ 1,589,840**	$ 1,271,872	$ 317,968	◄ 80% Federal + 20% Non-Federal

►Bridge Program / On-System (NHS)

	Bridge Program	608703	Boston Region	Wilmington	WILMINGTON- BRIDGE REPLACEMENT, W-38-029 (2KV), ST 129 LOWELL STREET OVER I 93	4	NHPP-On	$ 16,546,880	$ 13,237,504	$ 3,309,376	Construction
	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	Construction
	Bridge Program	604173	Boston Region	Boston	BOSTON- BRIDGE REHABILITATION, B-16-016, NORTH WASHINGTON STREET OVER THE BOSTON INNER HARBOR	6	NHPP-On	$ 18,666,616	$ 14,933,293	$ 3,733,323	Construction / AC Year 5 of 5, Total Cost $144,066,616
							Bridge Program / On-System (NHS) subtotal ►	**$ 45,974,456**	$ 36,779,565	$ 9,194,891	◄ 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
►Bridge Program / On-System (Non-NHS)											
	Bridge Program	608522	Boston Region	Middleton	MIDDLETON- BRIDGE REPLACEMENT, M-20-003, ROUTE 62 (MAPLE STREET) OVER IPSWICH RIVER	4	NHPP-Off	$ 3,933,440	$ 3,146,752	$ 786,688	Construction
	Bridge Program	608596	Boston Region	Essex	ESSEX- SUPERSTRUCTURE REPLACEMENT, E-11-001 (2TV), ROUTE 133\MAIN STREET OVER ESSEX RIVER	4	NHPP-Off	$ 4,028,000	$ 3,222,400	$ 805,600	Construction
	Bridge Program	608009	Boston Region	Boxborough	BOXBOROUGH- BRIDGE REPLACEMENT, B-18-002, ROUTE 111 OVER I-495	3	NHPP-Off	$ 5,147,500	$ 4,118,000	$ 1,029,500	Construction / AC Year 2 of 2, Total Cost $14,295,000
							Bridge Program / On-System (Non-NHS) subtotal ►	**$ 13,108,940**	$ 10,487,152	$ 2,621,788	◄ 80% Federal + 20% Non-Federal
►Bridge Program / Systematic Maintenance											
	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-On	$ -	$ -	$ -	
							Bridge Program / Systematic Maintenance subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Interstate Pavement											
	Interstate Pavement	Project #	MPO	Multiple	Description	District	NHPP	$ -	$ -	$ -	
							Insterstate Pavement subtotal ►	**$ -**	$ -	$ -	◄ 90% Federal + 10% Non-Federal
►Non-Interstate Pavement											
	Non-Interstate Pavement	608493	Boston Region	Topsfield	TOPSFIELD- RESURFACING AND RELATED WORK ON ROUTE 1	4	NHPP	$ 9,119,040	$ 7,295,232	$ 1,823,808	Construction
	Non-Interstate Pavement	608495	Boston Region	Multiple	CONCORD- LEXINGTON- LINCOLN- RESURFACING AND RELATED WORK ON ROUTE 2A	4	NHPP	$ 3,171,840	$ 2,537,472	$ 634,368	Construction
	Non-Interstate Pavement	608498	Boston Region	Multiple	HINGHAM- WEMOUTH- BRAINTREE- RESURFACING AND RELATED WORK ON ROUTE 53	5	NHPP	$ 7,929,600	$ 6,343,680	$ 1,585,920	Construction
							Non-Interstate Pavement subtotal ►	**$ 20,220,480**	$ 16,176,384	$ 4,044,096	◄ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements	Project #	MPO	N/A	Description	District	STP	$ -	$ -	$ -	
							Roadway Improvements subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements	Project #	MPO	Multiple	Description	District	STP	$ -	$ -	$ -	
							Safety Improvements subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits	Project #	Statewide	Multiple	Description	4	STP	$ -	$ -	$ -	
							ADA Retrofits subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Intersection Improvements											
	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	Construction / PSAC score 51.5
	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	$ 2,784,000	$ 2,505,600	$ 278,400	Construction / PSAC score 61.5
	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	Construction / PSAC score 43
	Intersection Improvements	608569	Boston Region	Quincy	QUINCY- INTERSECTION IMPROVEMENTS AT ROUTE 3A (SOUTHERN ARTERY) AND BROAD STREET	6	HSIP	$ 2,784,000	$ 2,505,600	$ 278,400	Construction / PSAC score 55
							Intersection Improvements subtotal ►	**$ 9,883,200**	$ 8,894,880	$ 988,320	◄ 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
►Intelligent Transportation Systems											
	Intelligent Transportation Systems	Project #	MPO	Municipalities	Description	District	NHPP	$ -	$ -	$ -	
							Intelligent Transportation System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Roadway Reconstruction											
	Roadway Reconstruction	607901	Boston Region	Dedham	DEDHAM- PEDESTRIAN IMPROVEMENTS ALONG ELM STREET & RUSTCRAFT ROAD CORRIDORS	6	CMAQ	$ 2,581,113	$ 2,064,890	$ 516,223	Construction / PSAC score 51.25
	Roadway Reconstruction	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NHPP	$ 37,500,000	$ 30,000,000	$ 7,500,000	Construction / Total Project Cost = $270,000,000 / AC YR 2 of 6 / PSAC score 49
							Roadway Reconstruction subtotal ►	**$ 40,081,113**	$ 32,064,890	$ 8,016,223	◄ 80% Federal + 20% Non-Federal
►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	$ 7,084,000	$ 5,667,200	$ 1,416,800	Construction / PSAC score 32.5
							Bicycles and Pedestrians subtotal ►	**$ 7,084,000**	$ 5,667,200	$ 1,416,800	◄ 80% Federal + 20% Non-Federal
►Capacity											
	Capacity	Project #	MPO	Municipalities	Description	District	CMAQ	$ -	$ -	$ -	
							Capacity subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 3 / Planning / Adjustments / Pass-throughs											
►Planning / Adjustments / Pass-throughs											
	Planning / Adjustments / Pass-throughs	Project #	Statewide	Multiple	ABP GANS Repayment	Multiple	NHPP	$ -	$ -	$ -	
							Other Statewide Items subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 4 / Non-Federally Aided Projects											
►Non-Federally Aided Projects											
	Non Federal Aid	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NFA	$ 18,112,483		$ 18,112,483	Construction / Total Project Cost = $270,000,000 / AC YR 2 of 6 / PSAC score 49
							Non-Federal Aid subtotal►	**$ 18,112,483**		$ 18,112,483	◄100% Non-Federal

2021 Summary

	TIP Section 1 - 3: ▼	TIP Section 4: ▼	Total of All Projects ▼	
Total ►	$ 247,415,571	$ 18,112,483	$ 265,528,054	◄ Total Spending in Region
Federal Funds ►	$ 199,305,708		$ 199,305,708	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 48,109,863	$ 18,112,483	$ 66,222,346	◄ 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 RTD0005479	Cape Ann Transportation Authority	117A00	PREVENTIVE MAINTENANCE	2020 - $350,000	$350,000	$87,500	$0	$0	$437,500
	5307 RTD0005480	Cape Ann Transportation Authority	114206	ACQUIRE - SHOP EQ/COMP/SFTWR	2020 - $40,000	$40,000	$10,000	$0	$0	$50,000
	5307 RTD0005163	MetroWest Regional Transit Authority	440000	Mobility Management	2020 - $25,000	$25,000	$6,250	$0	$0	$31,250
	5307 RTD0006003	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 RTD0006004	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT)	2020 - $150,000	$150,000	$37,500	$0	$0	$187,500
	5307 RTD0006005	MetroWest Regional Transit Authority	114200	ACQUISITION OF BUS SUPPORT EQUIP/FACILITIES	2020 - $248,415	$248,415	$62,104	$0	$0	$310,519
	5307 RTD0006369	Massachusetts Bay Transportation Authority (MBTA)	121200	Revenue Vehicle Program		$120,000,000	$0	$0	$30,000,000	$150,000,000
	5307 RTD0006370	Massachusetts Bay Transportation Authority (MBTA)	126301	Systemwide Signals Program		$25,840,976	$0	$0	$6,460,244	$32,301,220
					Subtotal	$147,954,391	$528,354	$0	$36,460,244	$184,942,989
5309										
	5309 RTD0005988	Massachusetts Bay Transportation Authority (MBTA)	132303	Green Line Extension Project		$146,121,000	$0	$0	$147,848,038	$293,969,038
					Subtotal	$146,121,000	$0	$0	$147,848,038	$293,969,038
5310										
					Subtotal	$0	$0	$0	$0	$0
5311										
					Subtotal	$0	$0	$0	$0	$0
5337										
	5337 RTD0006371	Massachusetts Bay Transportation Authority (MBTA)	122405	Bridge & Tunnel Program		$96,000,000	$0	$0	$24,000,000	$120,000,000
	5337 RTD0006372	Massachusetts Bay Transportation Authority (MBTA)	123400	Stations and Facilities Program		$35,347,989	$0	$0	$8,836,997	$44,184,986
	5337 RTD0006373	Massachusetts Bay Transportation Authority (MBTA)	124400	System Upgrades Program		$16,000,000	$0	$0	$4,000,000	$20,000,000
					Subtotal	$147,347,989	$0	$0	$36,836,997	$184,184,986
5339										
	5339 RTD0006374	Massachusetts Bay Transportation Authority (MBTA)	111400	Bus Program		$5,552,214	$0	$0	$1,388,053	$6,940,267
					Subtotal	$5,552,214	$0	$0	$1,388,053	$6,940,267
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	$446,975,594	$528,354	$0	$222,533,332	$670,037,280

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 program	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	TAP	$ 2,000,000	$ 1,600,000	$ 400,000	Construction; TAP+STP Total Cost = $152,000,000; AC Yr 3 of 5; Total funding in this TIP = $76,500,000
	Roadway reconstruction program	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	STP	$ 42,000,000	$ 33,600,000	$ 8,400,000	Construction; TAP+STP Total Cost = $152,000,000; AC Yr 3 of 5; Total funding in this TIP = $76,500,000
	Intersection improvements program	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 Total Cost = $9,377,782; MPO Evaluation Score = 55
	Intersection improvements program	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 Total Cost = $9,377,782; MPO Evaluation Score = 55
	Intersection improvements program	605857	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1 & UNIVERSITY AVENUE/EVERETT STREET	5	STP	$ 5,746,058	$ 4,596,846	$ 1,149,212	Construction; HSIP+CMAQ+STP Total Cost = $9,377,782; MPO Evaluation Score = 55
	Planning / Adjustments / Pass-through	BN0009	Boston Region	Multiple	COMMUNITY TRANSPORTATION PROGRAM	NA	CMAQ	$ 1,750,000	$ 1,400,000	$ 350,000	Planning, Design, or Construction; Set Aside for LRTP Clean Air and Mobility Program
	Bicycles and pedestrians program	607738	Boston Region	Bedford	BEDFORD- MINUTEMAN BIKEWAY EXTENSION, FROM LOOMIS STREET TO THE CONCORD T.L.	4	CMAQ	$ 1,500,000	$ 1,200,000	$ 300,000	Construction; CMAQ+TAP+STP Total Cost = $4,647,192; MPO Evaluation Score = 47
	Bicycles and pedestrians program	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+STP Total Cost = $4,647,192; MPO Evaluation Score = 47
	Bicycles and pedestrians program	607738	Boston Region	Bedford	BEDFORD- MINUTEMAN BIKEWAY EXTENSION, FROM LOOMIS STREET TO THE CONCORD T.L.	4	STP	$ 6,012,878	$ 4,810,302	$ 1,202,576	Construction; CMAQ+TAP+STP Total Cost = $4,647,192; MPO Evaluation Score = 47
	Bicycles and pedestrians program	608164	Boston Region	Sudbury	SUDBURY- BIKE PATH CONSTRUCTION (BRUCE FREEMAN RAIL TRAIL)	3	CMAQ	$ 1,500,000	$ 1,200,000	$ 300,000	Construction; CMAQ+TAP+STP Total Cost = $8,004,000; MPO Evaluation Score = 40
	Bicycles and pedestrians program	608164	Boston Region	Sudbury	SUDBURY- BIKE PATH CONSTRUCTION (BRUCE FREEMAN RAIL TRAIL)	3	TAP	$ 500,000	$ 400,000	$ 100,000	Construction; CMAQ+TAP+STP Total Cost = $8,004,000; MPO Evaluation Score = 40
	Bicycles and pedestrians program	608164	Boston Region	Sudbury	SUDBURY- BIKE PATH CONSTRUCTION (BRUCE FREEMAN RAIL TRAIL)	3	STP	$ 6,004,000	$ 4,803,200	$ 1,200,800	Construction; CMAQ+TAP+STP Total Cost = $8,004,000; MPO Evaluation Score = 40
	Roadway reconstruction program	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 = $14,190,425; MPO Evaluation Score = 75
	Roadway reconstruction program	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 = $14,190,425; MPO Evaluation Score = 75
	Roadway reconstruction program	607777	Boston Region	Watertown	WATERTOWN- REHABILITATION OF MOUNT AUBURN STREET (ROUTE 16)	6	STP	$ 11,190,425	$ 8,952,340	$ 2,238,085	Construction; HSIP+CMAQ+STP Total Cost = $14,190,425; MPO Evaluation Score = 75
	Roadway reconstruction program	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 = $9,028,628; MPO Evaluation Score = 61
	Roadway reconstruction program	608078	Boston Region	Chelsea	CHELSEA- RECONSTRUCTION ON BROADWAY (ROUTE 107), FROM CITY HALL AVENUE TO THE REVERE C.L.	6	STP	$ 8,028,628	$ 6,422,902	$ 1,605,726	Construction; CMAQ+STP Total Cost = $9,028,628; MPO Evaluation Score = 61
	Roadway reconstruction program	608229	Boston Region	Acton	ACTON- INTERSECTION & SIGNAL IMPROVEMENTS AT KELLEY'S CORNER, ROUTE 111 (MASSACHUSETTS AVENUE) AND ROUTE 27 (MAIN STREET)	3	CMAQ	$ 1,000,000	$ 800,000	$ 200,000	Construction; CMAQ+TAP+STP Total Cost = $8,671,000; MPO Evaluation Score = 45
	Roadway reconstruction program	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 = $8,671,000; MPO Evaluation Score = 45

2022 Boston Region Transportation Improvement Program

Amendment / Adjustment Type ▼	STIP Program ▼	MassDOT Project ID ▼	Metropolitan Planning Organization ▼	Municipality Name ▼	MassDOT Project Description▼	MassDOT District ▼	Funding Source ▼	Total Programmed Funds ▼	Federal Funds ▼	Non-Federal Funds ▼	Additional Information ▼
											Present information as follows, if applicable: **a)** Planning / Design / or Construction; **b)** total project cost and funding sources used; **c)** advance construction status; **d)** MPO project score; **e)** name of entity receiving a transfer; **f)** name of entity paying the non-state non-federal match; **g)** earmark details; **h)** TAP project proponent; **i)** other information
	Roadway reconstruction program	608229	Boston Region	Acton	ACTON- INTERSECTION & SIGNAL IMPROVEMENTS AT KELLEY'S CORNER, ROUTE 111 (MASSACHUSETTS AVENUE) AND ROUTE 27 (MAIN STREET)	3	STP	$ 7,471,000	$ 5,976,800	$ 1,494,200	Construction; CMAQ+TAP+STP Total Cost = $8,671,000; MPO Evaluation Score = 45
	Roadway reconstruction program	608146	Boston Region	Marblehead	MARBLEHEAD- INTERSECTION IMPROVEMENTS AT PLEASANT STREET & VILLAGE, VINE AND CROSS STREETS	4	STP	$ 959,378	$ 767,502	$ 191,876	Construction; STP Total Cost = $959,378; MPO Evaluation Score = 40
							Regionally Prioritized Projects subtotal ►	**$ 50,466,309**	$ 40,573,047	$ 9,893,262	◄ 80% Federal + 20% Non-Federal

►Section 1A / Fiscal Constraint Analysis

Total Regional Federal Aid Funds Programmed ►	**$ 103,844,091**	**$ 101,539,859**	**◄Total**	**$ (2,304,232)**	**Funds Over Programmed**
STP programmed ►	$ 87,412,367	$ 83,572,288	◄ Max **STP**	**$ (3,840,079)**	STP exceeds recommendation
HSIP programmed ►	$ 2,631,724	$ 4,296,710	◄ Min. **HSIP**	**$ 1,664,986**	HSIP recommended not met
CMAQ programmed ►	$ 10,750,000	$ 10,741,776	◄ Min. **CMAQ**	**$ (8,224)**	CMAQ recommended met
TAP programmed ►	$ 3,050,000	$ 2,929,085	◄ Min. **TAP**	**$ (120,915)**	TAP amount exceeded!
HSIP, CMAQ, TAP Overprogrammed	$ (2,304,232)				

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	Project #	Boston	Municipalities	Description	District	HPP	$ -	$ -	$ -	
	Earmark Discretionary	Project #	Boston	Municipalities	Description	District	HPP	$ -	$ -	$ -	
							Other Federal Aid subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

►Section 2A / State Prioritized Reliability Projects

►Bridge Program / Inspections

	Bridge Program	Project #	Statewide	Multiple	Description	Multiple	NHPP	$ -	$ -	$ -	
							Bridge Program / Inspections subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

►Bridge Program / Off-System

	Bridge Program	Project #	MPO	N/A	Description	District	STP-BR-OFF	$ -	$ -	$ -	
							Bridge Program / Off-System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal

►Bridge Program / On-System (NHS)

	Bridge Program	606728	Boston Region	Boston	BOSTON- SUPERSTRUCTURE REPAIRS ON B-16-365, BOWKER OVERPASS OVER STORROW DRIVE (EB)	6	NHPP-On	$ 24,009,680	$ 19,207,744	$ 4,801,936	Construction
							Bridge Program / On-System (NHS) subtotal ►	**$ 24,009,680**	$ 19,207,744	$ 4,801,936	◄ Funding Split Varies by Funding Source

►Bridge Program / On-System (Non-NHS)

	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-Off	$ -	$ -	$ -	
							Bridge Program / On-System (Non-NHS) subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal

►Bridge Program / Systematic Maintenance

	Bridge Program	Project #	MPO	Municipalities	Description	District	NHPP-On	$ -	$ -	$ -	
							Bridge Program / Systematic Maintenance subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source

►Interstate Pavement

	Interstate Pavement	608210	Boston Region	Multiple	FOXBOROUGH- PLAINVILLE- WRENTHAM- FRANKLIN- INTERSTATE MAINTENANCE & RELATED WORK ON I-495	5	NHPP	$ 11,497,920	$ 10,348,128	$ 1,149,792	Construction
							Insterstate Pavement subtotal ►	**$ 11,497,920**	$ 10,348,128	$ 1,149,792	◄ 90% Federal + 10% 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
►Non-Interstate Pavement											
	Non-Interstate Pavement	608817	Boston Region	Multiple	SALEM- LYNN- RESURFACING AND RELATED WORK ON ROUTE 107	4	NHPP	$ 2,566,500	$ 2,053,200	$ 513,300	Construction
	Non-Interstate Pavement	608818	Boston Region	Danvers	DANVERS- RESURFACING AND RELATED WORK ON ROUTE 114	4	NHPP	$ 1,916,320	$ 1,533,056	$ 383,264	Construction
							Non-Interstate Pavement subtotal ►	**$ 4,482,820**	$ 3,586,256	$ 896,564	◄ 80% Federal + 20% Non-Federal
► Roadway Improvements											
	Roadway Improvements	Project #	MPO	N/A	Description	5	STP	$ -	$ -	$ -	
							Roadway Improvements subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
► Safety Improvements											
	Safety Improvements	Project #	MPO	N/A	Description	Multiple	HSIP	$ -	$ -	$ -	
							Safety Improvements subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 2B / State Prioritized Modernization Projects											
► ADA Retrofits											
	ADA Retrofits	Project #	MPO	Municipalities	Description	District	STP	$ -	$ -	$ -	
							ADA Retrofits subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Intersection Improvements											
	Intersection Improvements	Project #	MPO	Municipalities	Description	District	HSIP	$ -	$ -	$ -	
							Intersection Improvements subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Intelligent Transportation Systems											
	Intelligent Transportation Systems	Project #	MPO	Municipalities	Description	District	NHPP	$ -	$ -	$ -	
							Intelligent Transportation System subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Roadway Reconstruction											
	Roadway Reconstruction	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NHPP	$ 37,500,000	$ 30,000,000	$ 7,500,000	Construction / Total Project Cost = $270,000,000 / AC YR 3 of 6 / PSAC score 49
							Roadway Reconstruction subtotal ►	**$ 37,500,000**	$ 30,000,000	$ 7,500,000	◄ 80% Federal + 20% Non-Federal
►Section 2C / State Prioritized Expansion Projects											
►Bicycles and Pedestrians											
	Bicycles and Pedestrians	Project #	MPO	N/A	Description	District	CMAQ	$ -	$ -	$ -	
							Bicycles and Pedestrians subtotal ►	**$ -**	$ -	$ -	◄ 80% Federal + 20% Non-Federal
►Capacity											
	Capacity	Project #	MPO	Municipalities	Description	District	CMAQ	$ -	$ -	$ -	
							Capacity subtotal ►	**$ -**	$ -	$ -	◄ Funding Split Varies by Funding Source
►Section 3 / Planning / Adjustments / Pass-throughs											
►Planning / Adjustments / Pass-throughs											
	Planning / Adjustments / Pass-throughs	Project #	Statewide	Multiple	Description	Multiple	NHPP	$ -	$ -	$ -	
							Other Statewide Items 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 4 / Non-Federally Aided Projects											
►Non-Federally Aided Projects											
	Non Federal Aid	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NFA	$ 18,112,483		$ 18,112,483	Construction / Total Project Cost = $270,000,000 / AC YR 3 of 6 / PSAC score 49
							Non-Federal Aid subtotal►	**$ 18,112,483**		$ 18,112,483	◄100% Non-Federal

2022 Summary

	TIP Section 1 - 3: ▼	TIP Section 4: ▼	Total of All Projects ▼	
Total ►	$ 127,956,729	$ 18,112,483	###########	◄ Total Spending in Region
Federal Funds ►	$ 103,715,175		###########	◄ Total Federal Spending in Region
Non-Federal Funds ►	$ 24,241,554	$ 18,112,483	$ 42,354,037	◄ 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 RTD0006090	Cape Ann Transportation Authority	117A00	PREVENTIVE MAINTENANCE	2021 - $325,000	$325,000	$0	$0	$81,250	$406,250
	5307 RTD0006091	Cape Ann Transportation Authority	114206	ACQUIRE - SHOP EQUIPMENT	2021 - $40,000	$40,000	$10,000	$0	$0	$50,000
	5307 RTD0006299	MetroWest Regional Transit Authority	117C00	NON FIXED ROUTE ADA PARA SERV ACQUISITION OF BUS SUPPORT	2021 - $1,300,000	$1,300,000	$325,000	$0	$0	$1,625,000
	5307 RTD0006300	MetroWest Regional Transit Authority	114200	EQUIP/FACILITIES	2021 - $248,415	$248,415	$62,104	$0	$0	$310,519
	5307 RTD0006301	MetroWest Regional Transit Authority	113403	TERMINAL, INTERMODAL (TRANSIT)	2021 - $150,000	$150,000	$37,500	$0	$0	$187,500
	5307 RTD0006302	MetroWest Regional Transit Authority	440000	Mobility Management	2021 - $25,000	$25,000	$6,250	$0	$0	$31,250
	5307 RTD0006375	Massachusetts Bay Transportation Authority (MBTA)	121200	Revenue Vehicle Program		$80,000,000	$0	$0	$20,000,000	$100,000,000
	5307 RTD0006376	Massachusetts Bay Transportation Authority (MBTA)	126301	Systemwide Signals Program		$65,840,976	$0	$0	$16,460,244	$82,301,220
					Subtotal	$147,929,391	$440,854	$0	$36,541,494	$184,911,739
5309										
					Subtotal	$0	$0	$0	$0	$0
5310										
					Subtotal	$0	$0	$0	$0	$0
5311										
					Subtotal	$0	$0	$0	$0	$0
5337										
	5337 RTD0006377	Massachusetts Bay Transportation Authority (MBTA)	122405	Bridge & Tunnel Program		$72,000,000	$0	$0	$18,000,000	$90,000,000
	5337 RTD0006378	Massachusetts Bay Transportation Authority (MBTA)	123400	Stations and Facilities Program		$11,347,989	$0	$0	$2,836,997	$14,184,986
	5337 RTD0006379	Massachusetts Bay Transportation Authority (MBTA)	126301	Systemwide Signals Program		$64,000,000	$0	$0	$16,000,000	$80,000,000
					Subtotal	$147,347,989	$0	$0	$36,836,997	$184,184,986
5339										
	5339 RTD0006380	Massachusetts Bay Transportation Authority (MBTA)	111400	Bus Program		$5,552,214	$0	$0	$1,388,053	$6,940,267
					Subtotal	$5,552,214	$0	$0	$1,388,053	$6,940,267
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	$300,829,594	$440,854	$0	$74,766,544	$376,036,992

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

PROJECT INFORMATION KEY

ID Number: Projects in MassDOT's project-tracking system are given a number; those projects not in the Project-tracking system have no number.

Municipality(ies): The municipality (or municipalities) in which a project is located.

Project Name: The location or name of the project.

Project Type: The category of the project (e.g., Major Highway, Arterial and Intersection, or Bicycle and Pedestrian).

Air Quality Status: The air quality status of the project in the MPO's regional travel demand model.

CO_2 Impact: The quantified or assumed annual tons of carbon dioxide reduced by the project. See Appendix C for more details on greenhouse gas (GHG) emission monitoring and evaluation.

Evaluation Rating: The number of points scored by the project based on the evaluation criteria, if it has been evaluated.

MPO/CTPS Study: Past UPWP-funded studies or reports conducted within the project area.

LRTP Status: The time band that the project is listed in the Long-Range Transportation Plan, if applicable.

Project Length: The length of the project in miles.

Project Description: The description of the project, if available.

Year: The programming year(s) of the project.

Funding Program: The funding program(s) of the project. See Chapter 2 for more details on funding programs.

Total Funding Programmed: The total funding programmed for the project based on the year of expenditure

Information regarding TIP projects changes periodically. For more information on all projects please visit the Interactive TIP Database at www.bostonmpo.org.

The detailed project description pages are under development

4 CHAPTER FOUR

Using Performance Measures to Track and Demonstrate Progress

OVERVIEW OF PERFORMANCE-BASED PLANNING

Increasingly, over the past two decades, transportation agencies have been applying performance management—a strategic approach that uses performance data to help achieve desired outcomes—to support decision-making. 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. For metropolitan planning organizations (MPOs), this 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, 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 goal of PBPP is to ensure that transportation investment decisions—both for long-term planning and short-term funding—are oriented toward meeting established goals.

The cornerstone of the transportation authorization legislation, *Moving Ahead for Progress in the 21st Century's* (MAP-21), was the establishment of a performance- and outcome-based surface transportation program. The current legislation, the *Fixing America's Surface Transportation Act* (FAST Act), continues the PBPP provisions established under MAP-21.

States will invest resources in projects to achieve individual state targets that collectively will make

progress toward national goals, as detailed in the FAST Act:

- **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; 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 goals and the MPO's goals, which were established as part of the MPO's current LRTP, *Charting Progress to 2040.* These goals and related objectives are described in Chapter 1 of this document.

TABLE 4-1:

NATIONAL AND MPO PERFORMANCE GOALS

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

This performance-based planning mandate is also designed to help the nation's public transportation systems to provide high-quality service to all users, including people with disabilities, seniors, and individuals who depend on public transportation.

PERFORMANCE-BASED PLANNING AND PROGRAMMING REQUIREMENTS

The US Secretary of Transportation, 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 highway system and Table 4-3 lists federally required performance measures for the transit system.

TABLE 4-2:

FEDERALLY REQUIRED HIGHWAY PERFORMANCE MEASURES

National Goal	Highway Performance Area	Performance Measure
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
Infrastructure Condition	Pavement Condition	• Percentage of pavements on the Interstate System in *good* condition • Percentage of pavements on the Interstate System in *poor* condition • Percentage of pavements on the non-Interstate NHS in *good* condition • Percentage of pavements on the non-Interstate NHS in *poor* condition
Infrastructure Condition	Bridge Condition	• Percentage of NHS bridges classified as in *good* condition • Percentage of NHS bridges classified as in *poor* condition
System Reliability	Performance of the National Highway System	• Percentage of person miles traveled on the Interstate System that are reliable • Percent of person miles traveled on the non-Interstate NHS that are reliable • Percent change in tailpipe carbon dioxide emission levels on the NHS compared to the calendar year 2017 levels
Freight Movement and Economic Vitality	Freight Movement on the Interstate System	Truck Travel Time Reliability Index
Congestion Reduction	Traffic Congestion	• Annual hours of peak hour excessive delay per capita • Percent of non-single-occupant vehicle travel
Environmental Sustainability	On-Road Mobile Source Emissions	Total emissions reduction

Note: This table reflects federally required performance measures as of January 18, 2017.
NHS: National Highway System
Source: 23 CFR 490

TABLE 4-3:

FEDERALLY REQUIRED TRANSIT PERFORMANCE MEASURES

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

Note: The definition of reportable for fatalities, injuries, and events is defined in the National Transit Database *Safety and Security Reporting Manual.* This table reflects federally required performance measures as of January 18, 2017.
Source: National Public Transportation Safety Plan and 49 CFR 625 and 630.

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. MPOs must set targets no later than 180 days after their respective states or public transit providers have set their targets for highway or transit system performance. States, public transit operators, and MPOs are required to coordinate with one another and to share information and data so that there is consistency across these agencies' target setting processes.

Once the MPO has established targets for each performance measure, the MPO's LRTP and TIP will become planning and programming mechanisms to help achieve these targets. They will also become valuable reporting tools. Future LRTPs and TIPs will include descriptions of the MPO's performance measures and targets, including those that are federally required. 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 how these investments are anticipated to help the MPO achieve its targets.

STATUS OF PERFORMANCE-BASED PLANNING AND PROGRAMMING

MPO Performance-Based Planning and Programming Activities

The Boston Region MPO continues to integrate PBPP practices into its activities to meet FAST Act performance-measure requirements and improve MPO decision-making. The MPO has conducted the

following activities:

- established goals and objectives that align with national goals (indicated in Table 4-1)
- explored performance measures through its LRTP, Congestion Management Process (CMP), and studies funded through the Unified Planning Work Program (UPWP)
- coordinated with MassDOT, MPOs, the MBTA and other stakeholders to ensure that FAST Act requirements are being met and to learn how to improve PBPP
- continued to gather and manage data to monitor performance
- developed tools to support performance reporting
- analyzed some performance-measure trends over time to identify priorities and prioritize investments that advance goals and objectives
- There are two major next steps for the MPO:
- establish a set of performance measures to track on an ongoing basis, including federally required measures and other measures of interest
- set targets for federally required measures, and potentially other measures

Performance-Based Planning and Programming Activities in the TIP

The MPO's goals provide the foundation for the TIP evaluation criteria used in the project selection process, as described in Chapter 2. These criteria describe the ways that individual projects can help the MPO advance its various goals. Over time, the contributions made by TIP projects are expected to generate changes in the transportation system's performance.

In *Charting Progress to 2040*, the MPO strengthened the link between its spending and improvements to transportation performance by establishing a series of investment programs. These programs each support multiple MPO goals, and include the following:

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

As part of developing the LRTP, the MPO allocated a large portion of its discretionary funds to these investment programs over the two-decade span of the LRTP. These funds are assigned to TIP projects that meet the investment programs' criteria. Details about these programs and their relationship to MPO goals are shown in Figure 4-1. Table 4-4 and Figure 4-2 show how FFYs 2018–22 Regional Target funding is distributed across MPO investment programs.

TABLE 4-4:

PROJECTS AND FUNDING, BY MPO INVESTMENT PROGRAM

Investment Program	Number of Projects	Funding for Projects
Major Infrastructure	7	$301.6 million
Complete Streets	15	$140 million
Intersection Improvements	6	$28.9 million
Bicycle Network and Pedestrian Connections	3	$18.7 million
Community Transportation / Parking / Clean Air and Mobility	N/A	$3.5 million
Total Projects	31	$492.7 million

Note: No projects are currently programmed in the Community Transportation/Parking/Clean Air and Mobility Program.

Source: CTPS

FIGURE 4-1:
MPO INVESTMENT PROGRAMS

Intersection Improvements

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

Complete Streets

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

Bicycle Network and Pedestrian Connections

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

Community Transportation/ Parking/ Clean Air and Mobility Program

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).

Major Infrastructure

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

Improvements may include

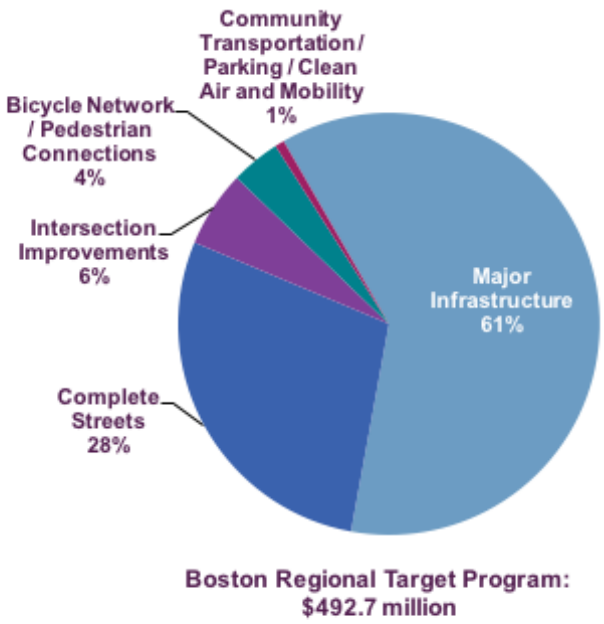
- Constructing expressway interchanges to eliminate weaving and reduce the likelihood of rollovers
- Adding travel lanes on expressways
- Adding/removing grade separations on major arterials.

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

FIGURE 4-2:

FFYS 2018–22 TIP REGIONAL TARGET FUNDING, BY INVESTMENT PROGRAM



Source: CTPS

The following sections of this chapter describe trends for several performance measures and demonstrate how transportation investments for the next five years would advance the MPO's goals and objectives. These sections will be updated over time as the MPO integrates methods for monitoring federally required performance measures into its PBPP practice.

TRACKING PERFORMANCE MEASURES AND DEMONSTRATING PROGRESS TOWARD GOALS AND OBJECTIVES

Safety—Using Performance Measures to Track Progress

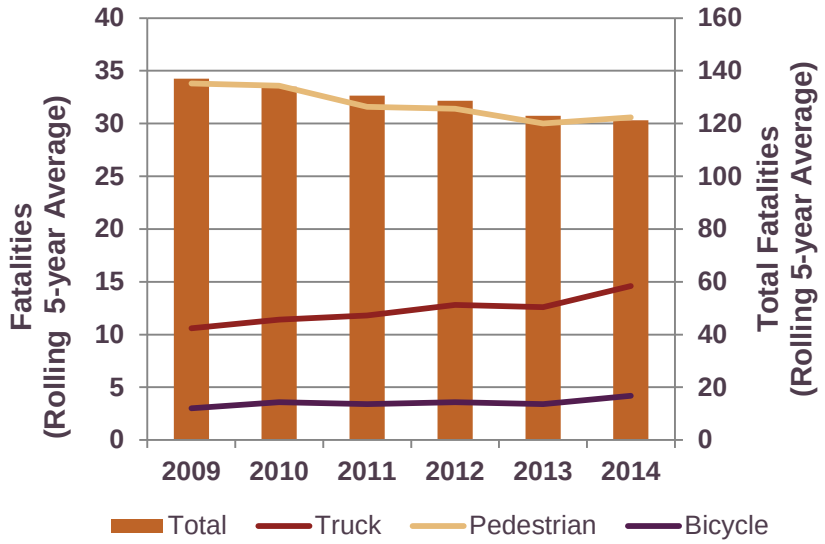
Safety for all transportation modes continues to be a top priority for the Boston Region MPO. The MPO's goals commit to investing in projects and programs that reduce the severity of crashes for all modes.

The MPO tracks traffic fatalities and serious injuries in the Boston region to examine past trends, identify regional safety issues, and set future targets for preferred performance. Tracking these measures helps to gauge the effectiveness of MPO transportation investments in helping to reduce fatalities and serious injuries.

Between 2009 and 2014, traffic fatalities (based on a rolling five-year average) decreased from 137 fatalities in 2009 to 121 in 2014, a decline of 12 percent. Figure 4-3 shows the change in traffic fatalities by mode during this period and indicates that the decline in fatalities represents fewer automobile, pedestrian, and bicycle fatalities. Similarly, total traffic crashes and injuries declined by 24 percent and 25 percent, respectively, between 2009 and 2014.

FIGURE 4-3:

TRAFFIC FATALITIES IN THE BOSTON REGION BY MODE, 2009–2014



Sources: MassDOT, National Highway Traffic Safety Administration Fatality Reporting System, and the MassDOT Crash Data System.

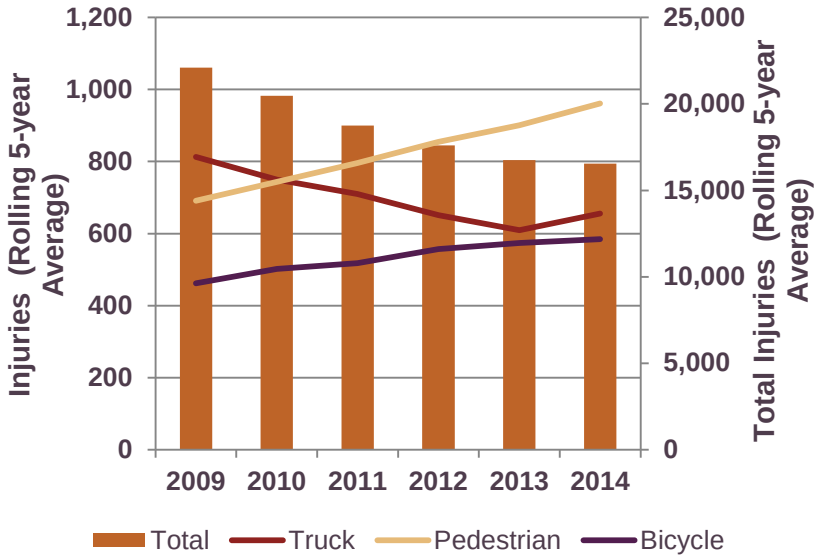
Despite these overall gains, crashes and injuries for pedestrians and bicyclists rose during this same period. Between 2009 and 2014, roughly two-thirds of pedestrian and bicycle crashes resulted in an injury. For pedestrian-involved crashes, the number of crashes increased by 22 percent and injuries by 39 percent. For bicyclist-involved crashes, the number of crashes increased by 17 percent and injuries by 27 percent.

In addition to pedestrian and bicycle safety issues, motor vehicle safety issues remain concerning.

Though the number of traffic crashes is decreasing, there are a number of high-crash locations throughout the Boston region, including 69 of the Top-200 Crash Locations statewide.

FIGURE 4-4:

TRAFFIC INJURIES IN THE BOSTON REGION BY MODE, 2009–2014



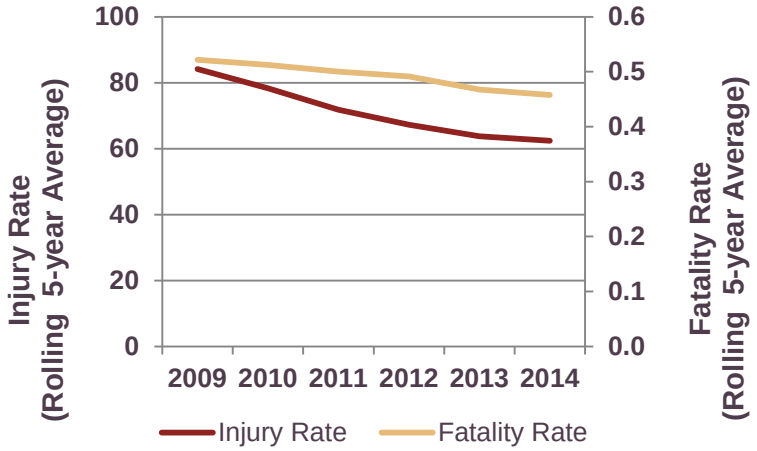
Sources: MassDOT, National Highway Traffic Safety Administration Fatality Reporting System, and the MassDOT Crash Data System.

Figure 4-5 shows the change in the traffic fatality rate and traffic injury rate in the Boston region between 2009 and 2014; these rates are based on 100 million vehicle-miles traveled (VMT) and rolling five-year averages for fatalities, injuries, and VMT. During this period, the traffic fatality rate steadily declined by 12 percent from 0.52 fatalities per 100 million VMT to 0.46 fatalities per 100 million VMT. The traffic injury

rate dropped by 26 percent, from 88 injuries per 100 million VMT to 63 injuries per 100 million VMT.

FIGURE 4-5:

TOTAL TRAFFIC INJURY RATE AND TRAFFIC FATALITY RATE (PER 100 MILLION VEHICLE-MILES TRAVELED) IN THE BOSTON REGION, 2009–2014



Sources: MassDOT, National Highway Traffic Safety Administration Fatality Reporting System, and the MassDOT Crash Data System.

In prioritizing its capital investments for the TIP, the MPO uses project-evaluation criteria to determine projects' ability to support the objective of reducing crash severity for all modes. These criteria assess the safety needs at locations where projects are proposed based on the equivalent property damage only (EPDO) method of assessing crash severity; this method applies weighting factors based on whether crashes at the location involved property damage, injuries, or fatalities. These criteria also assess how well projects will address safety issues by considering proposed safety countermeasures that would be implemented.

Safety—Using Performance Measures to Demonstrate Progress

Within the TIP's Regional Target Program, 12 proposed highway investments will improve safety at 25 high-crash locations to reduce crash severity for all modes.

Intersection Improvements

Three intersection improvement projects will enhance safety for automobiles, trucks, bicyclists, and pedestrians by implementing safety countermeasures at four high-crash locations: Derby Street, Whiting Street (Route 53) and Gardner Street in Hingham; Cabot Street at Dodge Street in Beverly; Cabot Street at Rantoul Street in Beverly; and Route 1 at University Avenue in Norwood.

Major Infrastructure

One example of a major infrastructure project that will improve safety is the Route 128 Add-a-Lane project, which will widen 3.25 miles of Interstate 95 in Needham and Wellesley to install an additional 12-foot travel lane and 10-foot shoulder in each direction to address serious safety issues. The addition of a fourth travel lane will eliminate use of the breakdown lane during peak periods; and adding collector roads between Highland Avenue and Kendrick Streets will provide safer weaving movements between the interchanges.

Complete Streets

The FFYs 2018–22 TIP Regional Target Program proposes 15 Complete Streets projects that will implement safety improvements at eight high-crash locations along corridors across the region. These corridor investments will provide safety improvements for automobiles, trucks, bicyclists, and pedestrians. In addition, improvements on these 15 corridors will provide safe and continuous accommodations for non-motorized users by adding 32 lane miles of new bicycle facilities and eight miles of new sidewalk.

For example, the reconstruction of Broadway in Chelsea will implement safety improvements that will address two high-crash locations along the one-mile corridor. In addition, reconstruction of Ferry Street in Everett will improve safe access for pedestrians to businesses, schools, and bus stops along the corridor by providing continuous sidewalks and improved crossings.

System Preservation—Tracking Performance Measures

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 traffic- and transit-control equipment.

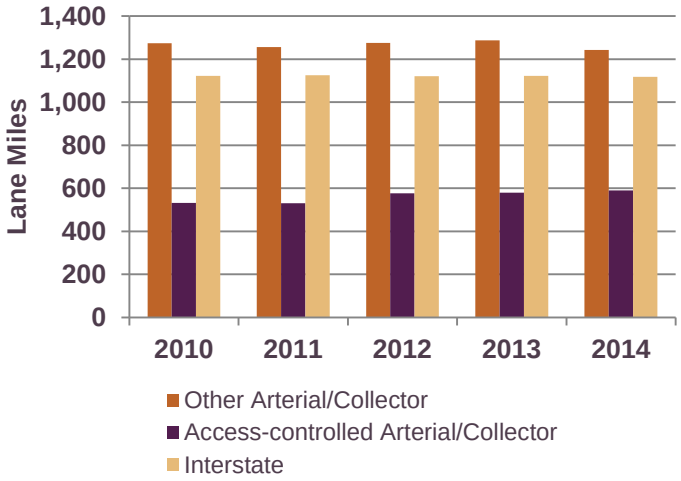
As of 2014, MassDOT's Pavement Management Program monitored approximately 4,150 lane miles of interstate, access-controlled arterial and collector roadways, and other arterial and collector roadways in the Boston region.[1] It has been the policy of the MPO not to fund resurfacing-only projects through the TIP. However, the MPO does make funding decisions for roadway reconstruction projects that include resurfacing, usually full-depth reconstruction, in addition to other design elements.

Figure 4-6 displays the number of lane miles in the Boston region—sorted by roadway classification—that were in *good* or *better* condition, based on International Roughness Index ratings, between 2010 and 2014. The figure indicates that, during this period, the number of lane miles in *good* or *better* condition on MassDOT-maintained roadways has remained relatively constant for 1) interstates, 2) access-controlled arterials and collectors, and 3) other arterial and collectors. Specifically, the total number of interstate miles in *good* condition has remained relatively consistent over this period, while the total number of access-controlled arterial and collector miles in *good* condition has increased by 11 percent, and the total number of other arterial and collector miles in *good* condition has declined by about two percent.

[1] This monitoring accounts for approximately 46 percent of the interstate, arterial, and collector roadways (approximately 9,100 lane miles) in the Commonwealth, according to the Boston Region MPO lane miles listed in the MassDOT's 2014 Road Inventory Year-End Report.

FIGURE 4-6:

LANE MILES OF PAVEMENT IN GOOD OR BETTER CONDITION IN THE BOSTON REGION BY ROADWAY CLASSIFICATION, 2010-2014



Note: This chart reflects data recorded in the year-end Massachusetts Road Inventory files for 2010 through 2014. The lane miles for each year in this chart were calculated using pavement condition data from the past five years to account for data collection cycles and data processing. *Good, fair, and poor* classifications are based on International Roughness Index (IRI) ratings.

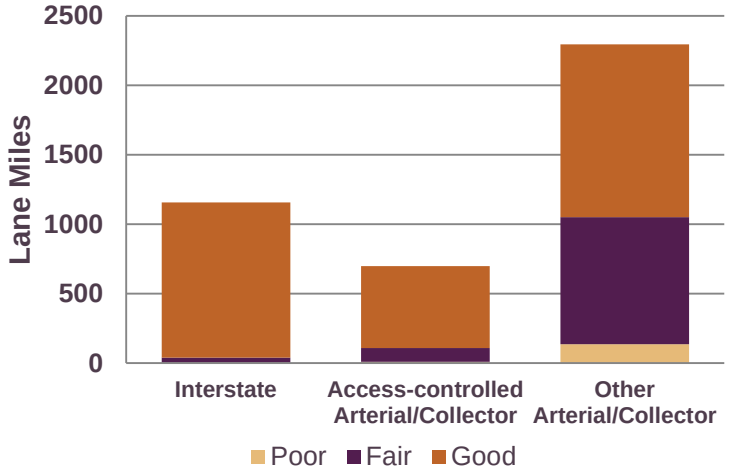
Source: MassDOT Pavement Management Program.

Figure 4-7 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 data on measured roadways from the 2014 year-end Massachusetts Road Inventory file, approximately 71 percent of roadway lane miles are in *good* condition, 25 percent are in *fair* condition, and four percent are in *poor* condition—which meets MassDOT's performance measure of at least 65 percent of the pavement in *good* condition.

However, MassDOT-maintained arterial and collector roadways (without access controls) continue to account for a disproportionate share of substandard roadway lane miles. This roadway type accounted for 55 percent of the monitored roadway lane miles, but about 88 percent of the roadway lane miles that are in substandard condition.

FIGURE 4-7:

PAVEMENT CONDITION IN THE BOSTON REGION BY ROADWAY CLASSIFICATION



Source: MassDOT Pavement Management Program.

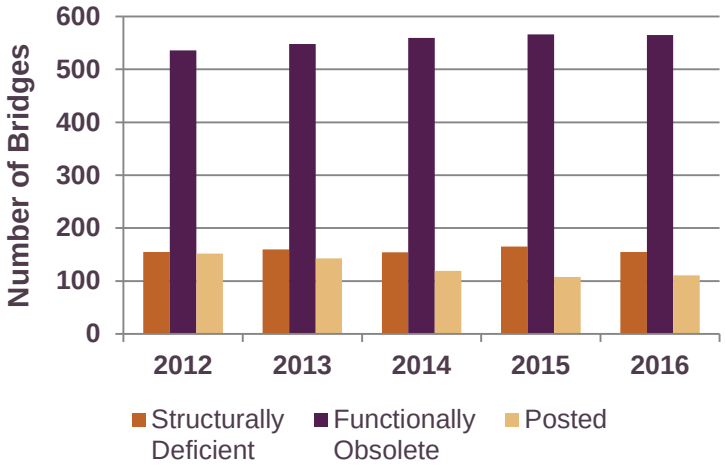
Note: This chart reflects data recorded in the year-end 2014 Massachusetts Road Inventory file, which includes pavement data collected primarily in 2013. *Good*, *fair*, and *poor* classifications are based on International Roughness Index (IRI) ratings.

MassDOT also monitors the condition of its bridges across the state. There are 2,866 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). Figure 4-8 displays the number of substandard bridges in the Boston region by condition between 2012 and 2016. During this period, the percentage of structurally deficient bridges remained relatively constant, varying 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.

FIGURE 4-8:

NUMBERS OF SUBSTANDARD BRIDGES IN THE BOSTON REGION BY CONDITION



Source: MassDOT Bridge Inventory.

In prioritizing its capital investments for the TIP, the MPO uses project-evaluation criteria to assess how well each project improves pavement, bridge, signal, and transit asset condition to advance the MPO's goal of maintaining a state-of-good repair on the region's transportation system.

System Preservation—Demonstrating Progress Using Performance Measures

Virtually all of the Regional Target Program investments in the TIP advance the MPO's system preservation goal to maintain the transportation system by improving pavement condition, traffic signal equipment, or sidewalk infrastructure, or by prioritizing projects that enable improved emergency response or improve the resiliency of the transportation system to extreme weather conditions. In addition, the Regional Target Program highway investments contribute modestly to bridge preservation. Yet, the MassDOT Bridge Program remains the primary funding source for replacement or rehabilitation of substandard bridges.

The FFYs 2018–22 TIP's Regional Target Program investments will improve 72 lane miles of substandard pavement traveled daily by nearly 573,000 vehicles; 51 miles of substandard sidewalk; and 10 substandard bridges traveled daily by approximately 327,000 vehicles. In addition, there are 19 projects that will improve emergency response or make the transportation system more resilient to extreme weather conditions, thus aiming to make significant progress toward maintaining the region's transportation system.

Intersection Improvements

The FFYs 2018–22 TIP's Regional Target Program will improve substandard pavement at seven locations

and will also improve emergency response or make the transportation system more resilient to extreme weather conditions.

Complete Streets

The FFYs 2018–22 TIP Regional Target Program will resurface or reconstruct more than 38 lane miles of substandard pavement; repair 27 miles of sidewalk infrastructure; and rehabilitate one substandard bridge on an arterial roadway. In addition, there are nine projects that will improve emergency response or make the transportation more resilient to extreme weather conditions, thus aiming to make significant progress toward maintaining the region's transportation system.

For example, the reconstruction of Ferry Street in Everett will resurface more than three lane miles of substandard pavement while bringing six traffic signals, substandard sidewalks, street lighting, signs, and pavement markings into a state-of-good repair.

The reconstruction of Route 1A in Walpole will resurface nearly lane miles of substandard pavement; repair five miles of substandard sidewalk; signalize four intersections; and improve one substandard bridge.

Major Infrastructure

The FFYs 2018–22 TIP's Regional Target Program will resurface or reconstruct 30 lane miles of substandard pavement, approximately 22 miles of sidewalk infrastructure, and nine substandard bridges. In addition, there are five projects that will improve emergency response or make the transportation more resilient to extreme weather conditions, thus aiming to make significant progress toward maintaining the region's transportation system.

For example, the reconstruction of Highland Avenue and Needham Street in Newton and Needham will resurface nine lane miles of substandard pavement, six miles of sidewalk infrastructure, and one substandard bridge, while bringing traffic signals, street lighting, signs, and pavement markings into a state-of-good repair.

The Route 128 Add-a-Lane project will replace one structurally deficient bridge and three functionally obsolete bridges as part of widening Interstate 95 in Needham and Wellesley.

Capacity Management/Mobility—Tracking Performance Measures

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. The Boston region is mature in development, which creates challenges to making major changes to its transportation infrastructure.

In order to determine how well the region's roadways are performing, the MPO applies performance measures that gauge the duration, extent, intensity, and reliability (or regularity) of the occurrence of congestion. MPO staff analyzed congestion in the region using the CMP Express Highway and Arterial Performance Dashboards to establish a baseline for future comparison. MPO staff established congestion thresholds based on travel time index (TTI), which is the average peak-period travel time divided by free-

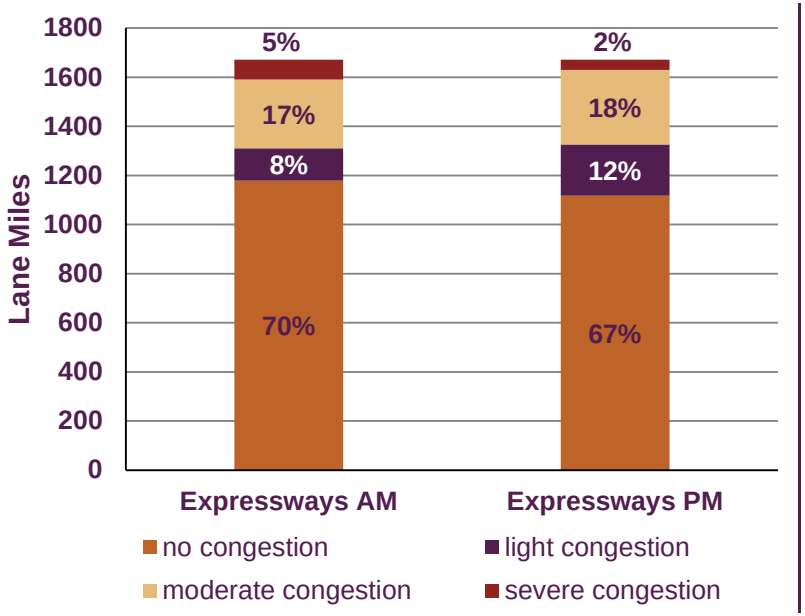
flow travel time. When the average peak-period travel time equals free-flow travel time, the index equals one (1); higher values indicate more congestion. MPO staff established the following congestion thresholds based on TTI:

- 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)

Figure 4-9 displays the percentage of lane miles of congestion based on TTI on the CMP expressway network. In the Boston region, 22 percent of all expressway lane miles in the AM peak period and 20 percent of all expressway lane miles in PM peak period experience moderate to severe congestion.

FIGURE 4-9:

LANE MILES OF CONGESTION IN THE BOSTON REGION: CMP-MONITORED EXPRESSWAYS

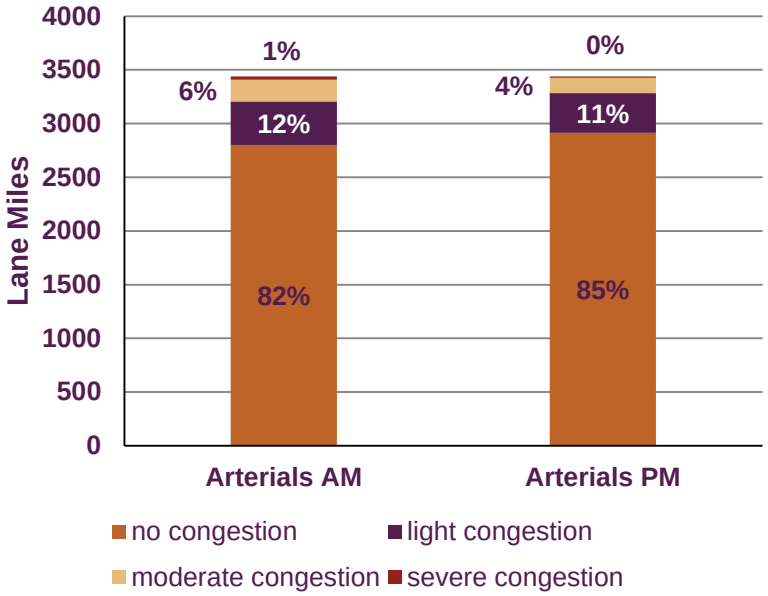


Source: Boston Region MPO Congestion Management Process (2012 INRIX data).

The measure of lane miles of congestion was significantly less for the arterial network. Figure 4-10 displays the percentage of lane miles of congestion based on TTI on the CMP arterial network. For the arterial network, only seven percent of arterials in the AM peak period and four percent of arterials in the PM peak period experience moderate to severe congestion.

FIGURE 4-10:

LANE MILES OF CONGESTION IN THE BOSTON REGION: CMP-MONITORED ARTERIALS



Source: Boston Region MPO Congestion Management Process (2012 INRIX data).

Moving forward, the MPO will continue to monitor roadway congestion data to track system performance. This annual analysis will depend on routinely updated data sources, which may require the purchase of INRIX data or other comparable data. As the MPO integrates methods for monitoring federally required system reliability, congestion reduction, and freight movement performance measures into its PBPP practice, it will report information specific to these measures.

In prioritizing its capital investments in the TIP, the MPO uses evaluation criteria to assess how well each project expands transportation options or helps reduce congestion and delay to advance the MPO's goal of managing capacity and improving mobility.

Capacity Management/Mobility—Demonstrating Progress Using Performance Measures

The MPO seeks to manage capacity on its transportation network and improve mobility for its users by extending transit service to provide alternatives to the single-occupancy vehicle (SOV) mode of travel, adding roadway capacity at bottleneck locations, and implementing traffic and operational improvements along congested corridors.

The FFYs 2018–22 TIP Regional Target Program highway investments will add 76 lane miles of bicycle facilities, add 12 miles of new sidewalk, and improve intermodal connections and/or access to transit at 24 locations. In addition, these investments would result in about 9,700 hours of reduced daily vehicle delay.[2]

Intersection Improvements

The FFYs 2018–22 TIP Regional Target Program will add five lane miles of bicycle lanes, three miles of sidewalk infrastructure, and improve access to transit along four corridors. Combined, these Intersection Improvements investments are expected to result in 1,980 hours of reduced daily vehicle delay.

[2] Calculations for reduced daily vehicle delay exclude several highway projects that were included in the air quality modeling results in *Charting Progress for 2040*.

Complete Streets

The FFYs 2018–22 TIP Regional Target Program will add 32 lane miles of bicycle facilities; eight miles of new sidewalk infrastructure; and improve intermodal connections and/or connections to transit along 13 corridors.

For example, the reconstruction of Route 126 (Pond Street) in Ashland will transform the corridor by adding sidewalks and bicycle lanes where no such facilities currently exist. These improvements for bicyclists and pedestrians will provide the necessary facilities to support access to existing MetroWest Regional Transit Authority (MWRTA) bus services in the corridor. In addition, the Gateway East project in Brookline will provide safe access for bicyclists by implementing bicycle lanes that physically separate the facility from the travel lane to reduce conflicts between motorists and bicyclists.

Major Infrastructure

The FFYs 2018–22 TIP Regional Target Program highway investments will add 24 miles of bicycle lanes, nearly a mile of sidewalk infrastructure, and improve access to transit along four corridors.

For example, the reconstruction of Route 18 (Main Street) in Weymouth will improve an arterial bottleneck location by widening a four-mile section of the corridor from two to four lanes. In addition, the project will expand transportation options by adding eight miles of bicycle lanes. The Route 128 Add-a-Lane project will improve an express highway bottleneck location by widening 3.25 miles of Interstate 95 in Needham and Wellesley.

Transportation Equity—Tracking Performance Measures

Historically, minority and economically disadvantaged communities have disproportionately borne the negative effects of the transportation system. Residents, for example, may be affected because the placement of infrastructure does not benefit them, because they lack access to necessary services, or because they have not been included in the transportation planning process. In addition, other populations face special challenges when using the transportation system, including the elderly, people with limited English proficiency (LEP), zero-vehicle households, and people with disabilities. These groups are hereafter referred to as transportation equity populations.

The MPO's goal for transportation equity aims to ensure that all of these populations share equitably in the benefits and burdens of the MPO's transportation investment decisions, have opportunities to participate in the transportation planning process, and have a voice in the selection of the transportation investments in their communities. These goals 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, and other US Department of Transportation orders pertaining to transportation equity populations. For more information on these laws and orders, see Chapter 1.

The MPO's project evaluation process analyzes the extent to which projects that are considered for

funding through the TIP would potentially serve transportation equity populations. Table 4-5 lists each transportation equity population group and the percentage of the Boston region's total population that falls into each category.

TABLE 4-5:

TRANSPORTATION EQUITY POPULATIONS IN THE BOSTON REGION

Transportation Equity Category	Equity Population[a]	Boston Region Total Population[a]	Share of Boston Region Total Population
Minority Population	878,118	3,161,712	27.8%
Limited English Proficiency Population[b]	312,343	2,985,344	10.5%
Elderly Population (75 years and older)	211,347	3,161,712	6.7%
Persons with Disabilities[c]	314,010	3,129,938	10.0%
Low-Income Households[d]	399,607	1,243,189	32.1%
Zero-Vehicle Households	196,718	1,243,189	15.8%

a: For the minority, LEP, elderly, and persons with disabilities categories, the amounts in the "Equity Population" and "Boston Region Total Populations" columns reflect numbers of people. For the low-income and zero-vehicle household categories, the amounts in these columns reflect numbers of households. b: Limited English proficiency is tabulated for the population aged five and older: c: Disability status is tabulated for the civilian noninstitutionalized population. d: The median household income in the Boston region was $76,040 in 2010-14. The MPO's low-income threshold is 60 percent of this value, or $45,624.

Sources: 2010 U S Census, 2010-14 American Community Survey.

Transportation Equity—Demonstrating Progress Using Performance Measures

The MPO's transportation investments advance transportation equity by prioritizing projects with the potential to serve transportation equity populations. When conducting evaluations of proposed TIP projects, the MPO examines whether each project has the potential to serve one or more of these populations by examining the share each equity population comprises of the total population within one-half mile of the project. This share is then compared to the share that each transportation equity population makes up of the total Boston region population. Appendix A lists the results for each evaluated project.

Table 4-6 provides a illustrative comparison of the transportation equity populations that may be served by the highway projects and the Green Line Extension project programmed in the FFYs 2018-22 TIP (funded by Regional Targets) to the total population that may be served by these investments (based on proximity to the project, as defined above).

The table shows that the share of each group that may be served by these Regional Target-funded projects (of the total population served by these projects) approaches or exceeds the share each group comprises of the total Boston region population (shown in Table 4-5).

TABLE 4-6:

TRANSPORTATION EQUITY POPULATIONS NEAR FFYS 2018-22 REGIONAL TARGET FUNDED TIP PROJECTS

Transportation Equity Category	Equity Population in Project Area[a,b]	Total Population in Project Area[a,b]	Share of Population in Project Area
Minority Population	145,386	413,470	35.2%
Limited English Proficiency Population[c]	56,828	391,374	14.5%
Elderly Population	21,730	413,470	5.3%
Persons with Disabilities[d]	38,991	408,711	9.5%
Low-Income Households[e]	63,707	166,809	38.2%
Zero-Vehicle Households	41,566	166,809	24.9%

a: For minority, LEP, elderly, and persons with disabilities populations, the numbers in the "Equity Population in a 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. b: This analysis examines populations located within a one-half mile buffer of FFYs 2018-22 TIP projects. c: Limited English proficiency is tabulated for the population aged five and older: d: Disability status is tabulated for the civilian noninstitutionalized population. e: The median household income in the Boston region was $76,040 in 2010-14. The low income threshold is 60 percent of this value, or $45,624.
Sources: 2010 U S Census, 2010-14 American Community Survey.

The results of this analysis indicate that the communities benefitting from these projects generally have a larger percentage of transportation equity populations than the Boston region as a whole. However, this analysis uses a very basic approach for understanding how various transportation equity populations may be affected by TIP projects, and it also only includes a subset of all projects described in the TIP (statewide roadway and transit projects are not included).

The MPO is continuing to evaluate more sophisticated methods for conducting equity analyses on Regional Target-funded projects to ensure the equitable distribution of benefits and burdens for these projects across all communities in the Boston region. As part of these activities, MPO staff are investigating data sources and analytical techniques to determine the most effective and appropriate ways to factor transportation equity populations in equity analyses. Future TIPs will describe new performance metrics and analyses as new methods are implemented.

Clean Air/Clean Communities— Tracking Performance Measures

The Boston Region MPO agrees that greenhouse gas (GHG) emissions contribute to climate change. If climate 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, which requires reductions of GHGs by 2020, and further reductions by 2050, relative to 1990 baseline conditions.

In prioritizing its capital investments for the TIP and to advance the MPO's goal of promoting clean air and clean communities, the MPO uses evaluation criteria to assess the projected transportation-related emissions of each project.

Clean Air/Clean Communities—Demonstrating Progress Using Performance Measures

The MPO's transportation investments advance its goal of creating an environmentally friendly transportation system by prioritizing projects that reduce GHGs and other transportation-related emissions as well as those that address environmental problems.

The FFYs 2018–22 TIP Regional Target Program highway investments are estimated to reduce more than 12,500 annual tons of carbon dioxide (CO_2) and more than 18,700 annual kilograms of volatile organic compounds (VOC), nitrogen oxides (NOx), and carbon monoxide (CO) because of traffic flow improvements and increased bicycle and pedestrian travel[3].

Intersection Improvements

The FFYs 2018–22 TIP Regional Target Program is estimated to reduce more than 2,280 annual tons of CO_2 and more than 2,590 annual kilograms of VOC, NOx, and CO because of traffic flow improvements and increased bicycle and pedestrian travel.

Complete Streets

The FFYs 2018–22 TIP Regional Target Program is estimated to reduce more than 5,680 annual tons of CO_2 and more than 8,900 annual kilograms of VOC, NOx, and CO because of traffic flow improvements and increased bicycle and pedestrian travel.

For example, the reconstruction of Boylston Street in Boston will provide significant reductions in vehicle delay through improvements at five intersections, and encourage increased bicycle and pedestrian trips through safer pedestrian crossings and new bicycle lanes.

Major Infrastructure

The FFYs 2018–22 TIP Regional Target Program highway investments are estimated to reduce more than 4,470 annual tons of CO_2 and nearly 6,680 annual kilograms of VOC, NOx, and CO because of traffic-flow improvements and increased bicycle and pedestrian travel.[4]

For example, the reconstruction of Highland Avenue and Needham Street in Newton and Needham will provide significant reductions in vehicle delay through improvements at five intersections, and encourage increased bicycle and pedestrian trips via safer pedestrian crossings and new bicycle lanes.

Economic Vitality—Tracking Performance Measures

The MPO seeks to ensure that the transportation network provides a strong foundation for an

[3] Calculations for carbon dioxide and other emission reductions exclude several highway projects that were included in the air quality modeling results in *Charting Progress for 2040*.

[4] Calculations for carbon dioxide and other emission reductions exclude several highway projects that were included in the air quality modeling results in *Charting Progress for 2040*.

economically vibrant region, and for that reason, the MPO has set a goal for enhancing economic vitality. This 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. They also 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 which 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.

The MPO has not yet established performance measures to track the coordination of land-use development and transportation investments. However, the MPO uses evaluation criteria to assess 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—Demonstrating Progress Using Performance Measures

The MPO's transportation investments advance economic vitality by prioritizing projects that provide access by multiple transportation modes to targeted development areas and that serve areas of concentrated development. The FFYs 2018–22 TIP Regional Target Program includes 21 highway investments that provide multimodal access to targeted development areas and 29 highway investments that serve areas of concentrated development.

Intersection Improvements

The FFYs 2018–22 TIP Regional Target Program includes four Intersection Improvements projects that provide multimodal access to targeted development areas that are well suited to support continued economic vitality and future growth.

Complete Streets

The FFYs 2018–22 TIP Regional Target Program includes 11 Complete Streets projects that provide multimodal access to targeted development areas.

For example, the reconstruction of Route 27 (North Main Street) will provide access to a 40R site located at the former Paperboard site at 182 North Main Street in Natick.

Major Infrastructure

The FFYs 2018–22 TIP Regional Target Program includes five Major Infrastructure projects that provide multimodal access to a targeted development areas well suited to support continued economic vitality and future growth.

For example, the reconstruction of Rutherford Avenue in Boston, Route 18 (Main Street) in Weymouth, and Highland Avenue and Needham Street in Newton and Needham will expand transportation options and enhance access to transit to support future growth and facilitate new development.

In addition, the reconstruction of Highland Avenue and Needham Street in Newton and Needham will leverage other investments in the form of an EOHED MassWorks award. This award will fund reconstruction of two intersections within the limits of the corridor reconstruction to address safety and congestion and support future development.

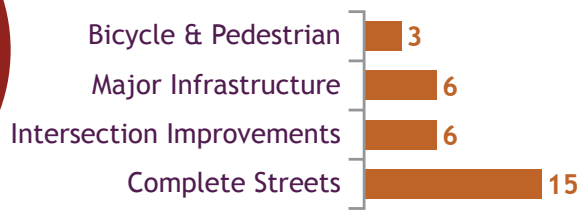
Figure 4-11 describes how the FFYs 2018–22 Regional Target-funded highway projects address various performance areas.

FFYs 2018-22 TIP Target Program: Highway Projects by the Numbers

Between FFY 2018 and 2022, the MPO plans to fund

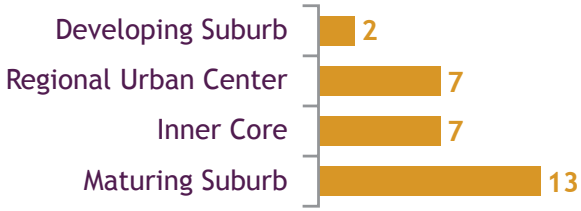
30 Regional Target Projects

in these investment programs:



These projects will happen in

29 MPO cities and towns



and will serve:

786,000 vehicles per day

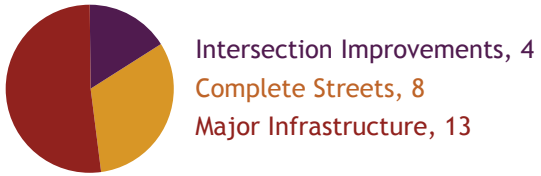
These projects will address safety and help preserve the transportation system by improving

- **10** substandard bridges
- **51** miles of substandard sidewalk
- **72** lane miles of substandard roadways
- **21** 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

25 MassDOT identified HSIP crash clusters

across the following investment programs:



These projects will also enhance the system by:

Adding capacity and access:

- **12** new miles to sidewalk network
- **76** new lane miles to bike network
- **24** projects improve intermodal connections or access to transit
- **21** projects improve access to targeted development areas

Reducing Delay:

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

Addressing equity and the environment:

- **12,500** tons of CO_2 reduced per year
- **25** projects addressing Title VI/ non-discrimination populations

Source: MPO Evaluations of FFYs 2018–22 TIP Target Program Highway Projects
HSIP: Highway Safety Improvement Program

NEXT STEPS IN ADVANCING PERFORMANCE MEASURES

As mentioned previously, two major next steps for the Boston Region MPO will be to

- establish a set of performance measures to track on an ongoing basis, including federally required measures and other measures of interest; and
- set targets for federally required measures, and potentially other measures.

Target Setting for Federally Required Measures

States and MPOs are required to establish targets for the highway performance measures listed in Table 4-2. States will establish targets according to schedules established in various rulemakings on performance measures. Once these state targets have been set, for each measure, MPOs will decide whether to

- agree to plan and program projects to contribute to the achievement of the state target; or
- set a separate target for the metropolitan planning area.

The Boston Region MPO participates in a committee made up of staff of MassDOT and MPOs across the Commonwealth, which focuses on performance measure and target coordination. This committee shares knowledge and information regarding target-setting and will continue to meet to determine how MPOs will work with MassDOT's targets as they decide whether to support a statewide target or set separate targets for their regions. During FFYs 2017 and 2018, the Boston Region MPO will set targets for highway performance measures.

Public transportation operators and MPOs are required to establish targets for the transit performance measures listed in Table 4-3. The MPO has and will continue to coordinate with the MBTA, the MWRTA, and the Cape Ann Transportation Authority (CATA) on their target-setting processes. Their input will inform how the Boston Region MPO sets transit-related targets.

As the MPO's targets for highway and transit performance measures are established, future TIPs will describe these targets, and how the MPO anticipates that TIP investments will help achieve them.

Other Performance Measure and Target Development

The FAST Act's requirements for performance management form the backbone of the Boston Region MPO's PBPP process. However, the MPO may choose to monitor other performance measures related to its goals in addition to those that are federally required. During FFYs 2017 and 2018, the MPO will review other potential performance measures to see whether there are others it wishes to track on an ongoing basis. As part of this process, the MPO may choose to establish targets for some of these measures.

Ongoing Performance-based Planning and Programming Activities

Performance-based planning is an ongoing process that will continue to evolve as the MPO monitors and evaluates its planning and investment programs using performance measures. In addition to establishing measures and setting targets, the MPO will advance performance-based planning through its core planning documents by

- continuing scenario planning to explore how various transportation investments made through the LRTP would support various goals and performance areas;
- tracking annual progress toward goals and objectives through TIP programming;
- considering performance-based planning needs and issues when deciding what activities to fund through the UPWP; and
- continuing to collect data and to monitor system level trends to guide investment decisions.
- In future years, if in its annual monitoring, the MPO sees that it is not making progress toward its targets, then the organization would need to consider modifying investment or policy priorities, and weigh the tradeoffs involved.

For example, allocating a greater share of funding to intersection improvements at high-crash locations may make significant progress toward reducing traffic fatalities and serious injuries; however, it also may affect the MPO's ability to meet system preservation targets for pavement or bridge conditions. By continuously monitoring and evaluating its progress, the MPO will be able to make these difficult decisions across competing goals and objectives in a more informed manner, resulting in greater outcomes for all concerned.

5 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 emission levels that violate the ozone National Ambient Air Quality Standard (NAAQS).

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 emission levels did not increase. As 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 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 carbon monoxide NAAQS.

Therefore, the MPO is not required to perform modeling analyses for a conformity determination for ozone or carbon monoxide; it is only required to provide the statement in the paragraph above

regarding the Waltham "attainment area" in the TIP. However, 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 or implementation of ongoing programs.

The TCMs submitted as part of the CA/T project mitigation have been documented in the LRTP as recommended or completed projects, except for the following three projects:

- Final design of the Red Line-Blue Line Connector, a connection between the Blue Line at Government Center and the Red Line at Charles Station in Boston; this commitment was removed from the SIP in December 2015
- Improvements to the Fairmount commuter rail line
- Green Line Extension, the extension of light rail from Lechmere Station in Cambridge to Medford Hillside and Union Square in Somerville

MassDOT works with the Massachusetts Department of Environmental Protection (DEP) to implement TCMs documented in the SIP, and continues to keep the Boston Region MPO informed of the status of these projects through monthly reports at the MPO's regularly scheduled meetings. The Boston Region MPO will continue to include relevant projects—including those implemented to provide equal or better emissions outcomes when the primary TMCs 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 TCM SIP projects has been updated using the *SIP Transit Commitments Status Report*, submitted to DEP by MassDOT in June 2016, with updates from staff through April 2017. Highlights of the report are presented below. For a detailed description of these projects' status, please visit the MassDOT website at:

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

Red Line-Blue Line Connector – Final Design – SIP Required Completion by December 2011

MassDOT initiated a process to amend the SIP to permanently and completely remove the obligation to prepare a final design of the Red Line-Blue Line

Connector. To that end, MassDOT officially sought approval from DEP to support a SIP amendment process. MassDOT did not propose to substitute any new projects in place of the Red Line-Blue Line Connector commitment, given the absence of any air-quality benefits associated with that project (final design only). Correspondence from MassDOT to DEP to formally initiate the amendment process was submitted on July 27, 2011. This letter is posted on MassDOT's website.

On September 13, 2012, DEP held two hearings to accept public comment on MassDOT's proposed amendments to regulation 310 CMR 7.36, *Transit System Improvements*. The proposed amendment would eliminate the requirement to complete the final design of the Red Line-Blue Line Connector. Sixteen people attended the hearings, ten of whom gave oral testimony. All who spoke at the hearings were in favor of DEP preserving the commitment. DEP accepted written testimony until September 24, 2012.

On August 23, 2013, EPA sent a letter to the Federal Highway Administration (FHWA) to provide an update on Massachusetts' air quality conformity. In that letter, EPA noted that the project to design the Red Line-Blue Line Connector had not met its completion date of December 2011, but that MassDOT was not obligated to implement interim emission-reduction projects because no emission reductions were associated with the design of the project.

On October 8, 2013, DEP approved a request made by MassDOT in July 2011 to revise 310 CMR 7.36 to remove the requirement that MassDOT complete the design of the Red Line-Blue Line Connector. This revision to the SIP needed to be approved by EPA. The text of the revision is available on the MassDOT website at:

www.massdot.state.ma.us/Portals/17/docs/sip/October13UpdatedSIPReg.pdf.

On December 8, 2015, EPA published a final rule in the *Federal Register* approving the SIP revision submitted by the Commonwealth of Massachusetts on November 6, 2013. The final rule removes from the SIP the commitment to design the Red Line-Blue Line Connector project. Because this commitment has been removed, the status of this project will no longer be reported as part of conformity in future TIPs.

Funding Source: This commitment has been nullified.

Fairmount Line Improvements 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, with plans 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 is scheduled to begin in spring 2017, and the station to open in spring 2019.

MassDOT and the MBTA prepared a Petition to Delay and an Interim Emission Offset Plan to beimplemented for the duration of the delay of the Fairmount Line Improvements project. MassDOT estimated the amount of emission reduction that would be expected from the implementation of the new Fairmount Line stations. With input from Fairmount Line stakeholders, MassDOT proposed offset measures that would meet 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

State-level environmental review, under the Massachusetts Environmental Policy Act (MEPA), was completed in July 2010. Documents from the federal-level environmental review, under the National Environmental Policy Act (NEPA), were submitted to the Federal Transit Administration (FTA) in September 2011. A public hearing was held on October 20, 2011. A Finding of No Significant Impact (FONSI) was issued by FTA on July 9, 2012.

On January 5, 2015, the US Secretary of Transportation and the MBTA signed the Full Funding Grant Agreement (FFGA) for the Green Line Extension (GLX) project, approving $996,121,000 of FTA New Starts funding to support design and construction of the project. Execution of the FFGA was the result of many years of planning, design and pre-construction efforts by MassDOT and the MBTA, in collaboration with the FTA and its project management oversight consultant. Federal funding is scheduled to be paid between federal fiscal years 2015 and 2022. As noted in the MassDOT Capital Investment Plan (CIP) for fiscal year 2016, MassDOT and the MBTA would use Commonwealth funds in addition to federal funding to support design and construction activities.

As the project proceeded, it was later found that the estimated cost to construct the GLX project had grown from the $1.992 billion project cost established in January 2015. The new total cost was projected between $2.7 billion and $3.0 billion. The Commonwealth's share of overall project costs would then be between $1.7 billion and $2.0 billion, rather than the initial budget of $996 million.

With the federal contribution capped at $996 million and the Commonwealth responsible for all project cost increases, MassDOT and the MBTA re-evaluated the GLX project in order to recommend to the Commonwealth if, and how, the project should proceed. Then MassDOT and the MBTA worked to identify opportunities to value engineer elements of the project in order to bring costs of the overall project closer to the original anticipated costs. The MBTA

Fiscal and Management Control Board (FMCB) and the MassDOT Board of Directors were briefed on August 24, 2015 and September 9, 2015, respectively, about these developments.

Before seeking additional state funding, MassDOT and the MBTA considered the following:

- All available options to reduce costs
- All available options to identify additional funding from sources other than the Commonwealth
- Whether or not to proceed with the GLX project

MassDOT and the MBTA actively sought stakeholder and public input on, as well as staff analysis of, several options.

Option 1 - Reduce the Project Scope and Project Costs

Downsize, delay, or eliminate the planned vehicle maintenance and storage facility.

Option 2 - Find Additional Sources of Funds, Other than State Bonds

Other sources could include the following:

- Reallocation of $158 million programmed by the Boston Region MPO for a future extension of the Green Line to Route 16 in Medford; the MPO subsequently endorsed this action in Amendment Four of the 2016−20 TIP
- Contributions from municipal partners; Cambridge and Somerville subsequently committed $75 million towards the project
- Institutional and private contributions
- Additional federal funding that could be obtained by the Massachusetts congressional delegation

Option 3 - Change Procurement Method

Halt the construction manager/general contractor (CM/GC) project-delivery process and rebid the project—in smaller contract packages—using a more traditional procurement method.

Option 4 - Mothball or Cancel the Project

On May 9, 2016, the MBTA FMCB and the MassDOT Board of Directors voted to advance a scaled-down version of the project by submitting a redesign to federal regulators and continuing with plans for financing the project.

The GLX project management team developed a new approach to the GLX project that focused on maintaining the same functionality and service plan of the former concept (so as to not diminish ridership, and air-quality and transportation benefits), but to do so in a manner that utilized different construction approaches and designs to reduce costs. In addition, the project management team developed station designs and a vehicle maintenance facility that could provide the same function as originally envisioned, but that were greatly reduced in scope and costs.

Based on this redesign, the project management team developed a new project, which had a total capital cost estimate of $2.28 billion. While this is an

increase of 15 percent over the prior costs, it is far more affordable for the MBTA and MassDOT.

The MBTA is now moving forward on the project utilizing a design-build (DB) project delivery method. The MBTA issued an invitation to bid in November 2016 and identified three qualified DB teams. A draft request for proposal (RFP) was issued in March 2017. A final RFP will be issued in May 2017 with proposals and bids due in September 2017. The award of the contract will occur in November 2017 with construction beginning in the spring of 2018.

Prior to the cost increase, the project had been moving forward, with MassDOT and MBTA implementing a four-phased project-delivery plan.

Under the new project-delivery method, the contractor will be required to bring one branch of the system into revenue service in June 2021 and the second branch into service in September 2021. The vehicle maintenance facility will be available for use at the time of the opening of the first branch of service.

New Green Line Vehicles: The MBTA vehicle procurement contract to purchase 24 Type 9 vehicles was awarded to CAF USA Inc. in an amount not to exceed $118,159,822 at the MassDOT Board meeting held on May 14, 2014. The notice to proceed for this contract was issued on September 4, 2014.

CAF is in the process of developing drawing packages for the preliminary design; and the MBTA project team and CAF continue to hold technical working sessions and project meetings. In addition, weekly project management meetings are held between MBTA and CAF to discuss project status, short-term schedules, and priorities. Monthly project status meetings are held to review and discuss all project issues, including schedules, deliverables, and milestones.

The first vehicle is to be delivered no later than 36 months from the notice to proceed. The pilot car delivery is scheduled between September and October 2017. The pilot car will receive comprehensive testing for six months followed by delivery of the remaining 22 vehicles, with the last car to be delivered by August 2018. All vehicles are expected to be in service in early 2019, well in advance of the opening of revenue service.

Somerville Community Path: The previous design included the construction of the Community Path from south of Lowell Street to the Inner Belt area of Somerville. As part of the redesign of the project, the MBTA found that the section of the Community Path from East Somerville Station (formerly known as Washington Street Station) to the Cambridge/North Point area was cost prohibitive. As a result, the new design includes the Community Path from its current terminal at Lowell Street to East Somerville Station. The Path Extension is not part of the SIP commitment and is currently under reconsideration.

SIP Requirement Status

By filing an Expanded Environmental Notification Form, procuring multiple design consultants, and publishing Draft and Final Environmental Impact Reports, MassDOT met the first four interim milestones associated with the GLX project. MassDOT—which has committed substantial

resources to the project, a top transportation priority of the Commonwealth and the largest expansion of the MBTA rapid transit system in decades—has transitioned the project from the planning and environmental review phases to design, engineering, and eventual construction, coupled with the tasks associated with applying for federal New Starts funding.

In the 2011 SIP Status Report, MassDOT reported that the GLX project would not meet the legal deadline of December 31, 2014.

The timeline for overall project completion listed above represents a substantial delay beyond the current SIP deadline of December 31, 2014; this triggered the need to provide interim emission reduction offset projects and measures for the period of the delay (beginning January 1, 2015). Working with the Central Transportation Planning Staff, MassDOT and the MBTA calculated the reductions of non-methane hydrocarbon, carbon monoxide, and nitrogen oxide—reductions equal to or greater than those projected for the GLX itself, as specified in the SIP regulation—that will be required for the period of 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 GLX.

This work resulted in a recommendation to implement the following three interim mitigation measures, which collectively would meet the emissions-reduction target for the project:

- Additional off-peak service along existing routes serving the GLX 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

The Petition to Delay was submitted 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 is necessary.

Funding Source: The Commonwealth

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. The new submission is due in May 2017. 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, which will consider ferry vessel clearance. The city received a grant in 2012 to purchase two ferry vessels for use in Boston's inner harbor, which could serve this 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. The business plan should be completed in summer 2017, at which time MCCA could take over the City of Boston's grant to help with future costs.

Funding Source: The Commonwealth

6 CHAPTER SIX

Financial Constraint

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 the table below, the MPO has programmed its discretionary funds within the limits of projected funding for highway funding programs. As such, the FFYs 2018–22 TIP Regional Target highway funding program complies with financial constraint requirements.

TABLE 6-1:

Boston Region MPO Regional Target Highway Funding Program
MPO Discretionary Funds Sourced from the Federal-Aid Highway Program
(including state matching funds, but excluding earmarked funds)

Regional Target Funding Program	FFY 2018	FFY 2019	FFY 2020	FFY 2021	FFY 2022	FFYs 2018–22
Regional Target Obligation Authority	**$95,038,936**	**$98,794,261**	**$98,029,447**	**$100,298,109**	**$101,539,859**	**$493,700,612**
Regional Target Programmed	***$95,024,497***	***$98,754,989***	***$98,013,787***	***$99,367,362***	***$100,628,405***	***$491,789,040***
STBGP Target	$77,071,365	$80,826,690	$80,061,876	$82,330,538	$83,572,288	$403,862,757
STBGP Programmed	*$73,487,024*	*$61,376,260*	*$73,489,573*	*$78,269,043*	*$84,196,681*	*$370,818,581*
*NHPP Programmed**	*$1,988,367*	*$0*	*$0*	*$0*	*$0*	*$1,988,367*
CMAQ Target	$10,741,776	$10,741,776	$10,741,776	$10,741,776	$10,741,776	$53,708,880
CMAQ Programmed	*$15,427,220*	*$20,905,547*	*$17,427,220*	*$13,770,271*	*$10,750,000*	*$78,280,258*
HSIP Target	$4,296,710	$4,296,710	$4,296,710	$4,296,710	$4,296,710	$21,483,550
HSIP Programmed	*$611,547*	*$6,984,151*	*$2,319,644*	*$3,849,316*	*$2,631,724*	*$16,396,382*
TAP Target	$2,929,085	$2,929,085	$2,929,085	$2,929,085	$2,929,085	$14,645,425
TAP Programmed	*$5,498,706*	*$9,489,031*	*$4,777,350*	*$3,478,732*	*$3,050,000*	*$26,293,819*

FFY: Federal Fiscal Year (October 1-September 30); STPBG: Surface Transportation Block Grant Program (formerly Surface Transportation Program or STP); CMAQ: Congestion Mitigation Air Quality Improvement Program; HSIP: Highway Safety Improvement Program; TAP: Transportation Alternatives Program

* National Highway Performance Program (NHPP) funds are from STPBG target amounts.

APPENDIX A

Universe of Projects for Highway Discretionary ("Regional Target") Funding and Evaluation Results

This appendix lists information about transportation projects that cities and towns in the region identified as their priority projects to be considered for funding through the Boston Region MPO's Highway Discretionary ("Regional Target") Program. It also contains the evaluation results of those projects scored by MPO staff based on the evaluation criteria.

Through an outreach process that seeks input from local officials and interested parties, the MPO staff compiles project requests and relevant information into a Universe of Projects list for the MPO. The Universe of Projects list includes projects in varied stages of development, from projects in the conceptual stage to those that are fully designed and ready to be advertised for construction. The MPO staff also collects data on each project to support the evaluation of projects. (Typically, at a minimum, a functional design report is required.)

The MPO's project selection process uses evaluation criteria to make the process of selecting projects for programming in the TIP both more logical and more transparent. 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*.

The MPO staff uses the project information and evaluations to prepare a First-Tier List of Projects that have high ratings in the evaluation process and could be made ready for advertising in the time frame of the TIP. The MPO staff then prepares a staff recommendation for the TIP taking into consideration the First-Tier list and factors such as the construction readiness of the project, the estimated project cost, community priority, geographic equity (to ensure that needs are addressed throughout the region), and consistency with the MPO's LRTP.

The MPO discusses the First-Tier List of Projects, the staff recommendation, and other information before voting on a draft TIP to release for a 21-day public review and comment period.

Table A-1 presents the Universe of Projects that MPO staff developed for the FFYs 2018-22 TIP. Table A-2 summarizes projects programmed with MPO Target funding in FFYs 2017-21, and Table A-3 summarizes the evaluation results for projects that MPO staff had enough data with which to evaluate and consider for funding in the FFYs 2018-22 TIP.

TABLE A-1
UNIVERSE OF PROJECTS TO CONSIDER FOR PROGRAMMING

TIP ID	Proponent	Project Description	MPO Investment Program
Evaluate and Consider for Programming			
607738	Bedford	Minuteman Bikeway Extension, from Loomis St to the Concord T.L.	Bicycle and Pedestrian
608006	MassDOT	Framingham - Pedestrian Hybrid Beacon Installation at Route 9 and Maynard Rd	Bicycle and Pedestrian
608164	Sudbury	Bruce Freeman Rail Trail, Phase 2D	Bicycle and Pedestrian
608007	Cohasset	Corridor Improvements and Related Work on Justice Cushing Highway (Route 3A), from Beechwood St to the Scituate Town Line	Complete Streets
608275	Malden	Lighting and sidewalk improvements on Exchange St	Complete Streets
607305	MassDOT	Reading - Intersection signalization at Route 28 and Hopkins St	Intersection Improvements
608229	Acton	Intersection and Signal Improvements at Kelley's Corner, Route 111 (Massachusetts Ave) and Route 27 (Main St)	Intersection Improvements
Evaluated in FFY 2016 and Consider for Programming (review for need to update evaluations)			
608348	Beverly	Rehabilitation of Bridge St	Complete Streets
606460	Boston	Improvements at Audobon Circle	Complete Streets
608449	Boston	Improvements along Commonwealth Ave (Route 30), from Alcorn St to Warren/Kelton Sts (Phase 3 and Phase 4)	Complete Streets
602310	Danvers	Reconstruction on Collins St, from Sylvan St to Centre and Holten Sts	Complete Streets
607899	Dedham	Dedham - Pedestrian Improvements along Bussey St, Including Superstructure Replacement, D-05-010, Bussey St over Mother Brook	Complete Streets
606002	Duxbury	Signal Installation at Route 3 (NB & SB) Ramps and Route 3A (Tremont St)	Complete Streets
601359	Franklin	Reconstruction of Pleasant St, from Main St to Chestnut St	Complete Streets
601607	Hull	Reconstruction of Atlantic Ave and Related Work, from Nantasket Ave to Cohasset Town Line	Complete Streets
605743	Ipswich	Resurfacing and Related Work on Central and South Main Sts	Complete Streets
604811	Marlborough	Reconstruction of Route 20 (East Main St), from Main St Easterly to Lincoln St	Complete Streets
604735	Medfield	Reconstruction of North St, from Frairy St to Pine St	Complete Streets
607777	Watertown	Rehabilitation of Mount Auburn St (Route 16)	Complete Streets
604745	Wrentham	Reconstruction of Taunton St (Route 152)	Complete Streets
601704	Newton	Reconstruction and Signal Improvements on Walnut St, from Homer St to Route 9	Complete Streets
608146	Marblehead	Intersection Improvements to Pleasant St at Village/Vine/Cross Sts	Intersection Improvements

TIP ID	Proponent	Project Description	MPO Investment Program
604231	Marlborough	Intersection and Signal Improvements on Route 20 (East Main St/Boston Post Rd) at Concord Rd	Intersection Improvements
607249	MassDOT	Sudbury - Intersection Improvements at Route 20 and Landham Rd	Intersection Improvements
606130	Norwood	Intersection Improvements at Route 1A and Upland Rd/Washington St and Prospect St/Fulton St	Intersection Improvements
603739	MassDOT	Wrentham - Construction of I-495/Route 1A Ramps	Major Infrastructure
604638	MassDOT	Danvers and Peabody - Mainline Improvements on Route 128 (Phase II)	Major Infrastructure
605313	**Natick**	**Bridge Replacement, Route 27 (North Main Street) over Route 9 (Worcester Street) and Interchange Improvements**	**Major Infrastructure**
601513	Saugus	Interchange Reconstruction at Walnut St and Route 1 (Phase II)	Major Infrastructure
607981	**Somerville**	**McGrath Boulevard Project**	**Major Infrastructure**
Priorities, Not Ready for Evaluation			
602038	Framingham	Edgell Road Corridor Project	Complete Streets
5399	Salem	Reconstruction of Bridge St, from Flint St to Washington St	Complete Streets
na	Salem	Boston St	Complete Streets
608051	Wilmington	Reconstruction on Route 38 (Main St), from Route 62 to the Woburn C.L.	Complete Streets
603865	MassDOT	Framingham - Signal and Intersection Improvements at Route 9 (Worcester Rd) and Temple St	Intersection Improvements
606109	**Framingham**	**Intersection Improvements at Route 126/135/MBTA and CSX Railroad**	**Intersection Improvements**
604862	MassDOT	Bellingham - Ramp Construction and Relocation, I-495 at Route 126 (Hartford Ave)	Major Infrastructure
87790	MassDOT	Canton, Dedham, Norwood and Westwood - Interchange Improvements at I-95/I-93/University Ave/I-95 Widening	Major Infrastructure
PRC-Approved, Not Planned for Evaluation in FFY 2017			
606304	Woburn	Middlesex Canal Park Improvements, from Alfred St to School St (Phase II - Segment 5)	Bicycle and Pedestrian
608070	Boston	Reconstruction of South Bank Park	Bicycle and Pedestrian
608658	Boston	Sidewalk, Wheelchair Ramp and crosswalk repairs at Various CA/T Locations (CRC 25) Contract 2	Bicycle and Pedestrian
608735	Boston	Sidewalk, Wheelchair Ramp and crosswalk repairs at Various CA/T Locations (CRC 25) Contract 3	Bicycle and Pedestrian
602929	Holliston	Multi-use Trail Construction on a Section of the Upper Charles Rail (2 Miles of Proposed 27 Miles - Phase I)	Bicycle and Pedestrian
608055	Boston	Grade Separated Multi-use Path Construction along the Paul Dudley White Path at North Harvard St Bridge over Charles River (Anderson Memorial Bridge)	Bicycle and Pedestrian
608741	Boston	Sidewalk, Wheelchair Ramp and crosswalk repairs at Various CA/T Locations (CRC 25) Contract 4	Bicycle and Pedestrian
604993	Cambridge	Innovation Boulevard Streetscape and Pedestrian Improvements, Between Main St and Binney St (Phase I)	Bicycle and Pedestrian
608097	Woburn	Bridge Replacement and Related Work, W-43-028, Washington Street over I-95	Bridge

TIP ID	Proponent	Project Description	MPO Investment Program
601906	MassDOT	Hudson - Bridge Replacement, Cox St over the Assabet River	Bridge
601507	Boston	Reconstruction of Tremont St, from Stuart St to Marginal Rd (1,830 Ft)	Complete Streets
601274	Boston	Reconstruction of Tremont St, from Court St to Boylston St	Complete Streets
603883	Canton	Reconstruction on Route 138, from I-93 to Dan Rd	Complete Streets
605974	Chelsea	Reconstruction on Washington Ave, from Revere Beach Parkway to Heard St	Complete Streets
608078	Chelsea	Reconstruction of Broadway, from City Hall Ave to the Revere City Line	Complete Streets
605745	Holliston	Reconstruction on Route 16 (Washington St), from Quail Run to the Sherborn T.L.	Complete Streets
605168	Hingham	Improvements on Route 3A from Otis St/Cole Rd Including Summer St and Rotary; Rockland St to George Washington Blvd	Complete Streets
602155	Holliston	Reconstruction of Norfolk St, from Sabina Dr to Holly La	Complete Streets
604697	Marlborough	Reconstruction of Farm Rd, from Cook La to Route 20 (Boston Post Rd)	Complete Streets
602252	Bolton	Reconstruction of Route 110 (Still River Rd)	Complete Streets
608045	Milford	Rehabilitation on Route 16, from Route 109 to Beaver St	Complete Streets
602364	Millis	Reconstruction of Village St, from Main St (Route 109) to the Medway Town Line	Complete Streets
604206	Milton	Rehabilitation of Central Ave, from Brook Rd to Eliot St	Complete Streets
608406	Milton	Reconstruction on Granite Ave, from Neponset River to Squantum St	Complete Streets
600932	Newton	Reconstruction on Route 30 (Commonwealth Ave), from Weston Town Line to Auburn St	Complete Streets
608707	Quincy	Reconstruction of Sea St	Complete Streets
608158	Westwood	Reconstruction of Canton St and Everett St	Complete Streets
607244	Winthrop	Reconstruction and Related Work along Winthrop St and Revere St Corridor	Complete Streets
607214	Stoughton	Reconstruction of Turnpike St	Complete Streets
608067	MassDOT	Woburn - Intersection Reconstruction at Route 3 (Cambridge Road) and Bedford Rd and South Bedford St	Intersection Improvements
604453	Bellingham	Improvements at 2 Locations: Mechanic St/Mendon St (Route 140) and North Main St/South Main St (Route 126)	Intersection Improvements
606666	Bolton	Intersection Improvements at I-495/Route 117 Interchange	Intersection Improvements
606318	Boston	Intersection Improvements at Gallivan Blvd (Route 203) and Morton St	Intersection Improvements
608755	Boston	Intersection Improvements at Morton St and Harvard St	Intersection Improvements
604911	Cambridge	Intersection Improvements at 7 Intersections on (Route 28 (Monsignor O'Brien Hwy)	Intersection Improvements
603137	Hingham	Intersection Improvements on Route 3A at Kilby St	Intersection Improvements

TIP ID	Proponent	Project Description	MPO Investment Program
602462	Holliston	Signal Installation at Route 16/126 and Oak St	Intersection Improvements
608443	Littleton, Ayer	Intersection Improvements on Route 2A at Willow Road and Bruce St	Intersection Improvements
607342	Milton	Intersection and Signal Improvements at Route 28 (Randolph Ave) and Chickatawbut Rd	Intersection Improvements
607889	Needham	Intersection Improvements at Highland Ave and First Ave	Intersection Improvements
608137	Newton	Intersection Improvements at Oak St, Christina St and Needham St	Intersection Improvements
608013	Quincy	Intersection Improvements at Sea St and Quincy Shore Dr	Intersection Improvements
605708	Sharon	Signal and Intersection Improvements on South Main St	Intersection Improvements
608279	Stoughton	Intersection Improvements and Related Work at Central St, Canton St and Tosca Dr	Intersection Improvements
607727	Beverly	Interchange Reconstruction at Route 128/Exit 19 at Brimbal Avenue (Phase II)	Major Infrastructure
606475	Boston	Replacement of Allston I-90 Elevated Viaduct, B-16-359, Including Interchange Reconstruction Beacon Park Yard Layover and West Station	Major Infrastructure
608730	Boston	Fort Point Channel Water Transportation Facility Construction	Major Infrastructure
602091	Concord	Improvements and Upgrades to Concord Rotary (Routes 2/2A/119)	Major Infrastructure
608015	Concord	Reconstruction and Widening on Route 2, from Sandy Pond Rd to Bridge Over MBTA/B&M Railroad	Major Infrastructure
608096	MassDOT	Reading, Stoneham, Wakefield - Improvements Along Route 128/95, From North of Interchange 37 to Interchange 40, Including Modifications to Interchange 38	Major Infrastructure
603345	MassDOT	Hudson and Marlborough - Reconstruction on Routes I-290 and 495 and Bridge Replacement	Major Infrastructure
605012	MassDOT	Malden, Revere and Saugus - Reconstruction & Widening on Route 1, from Route 60 to Route 99	Major Infrastructure
607701	MassDOT	Southborough and Westborough - Improvements at I-495 and Route 9	Major Infrastructure
605605	MassDOT	Reading, Stoneham, Wakefield and Woburn - Interchange Improvements to I-93/I-95	Major Infrastructure
606472	Newton	Breakdown Lane Construction at Various Locations, From Route 128 to Exit 17	Major Infrastructure
607940	Newton	Improvements of Route 128/I-95 and Grove St	Major Infrastructure
607935	Weston	New Parking Construction Near the M7 Maintenance Garage	Parking

NOTE: Orange cells indicate projects that Boston Region MPO Staff have received updates about either from municipalities or the Massachusetts Department of Transportation.
Projcts in **BOLD** are in the LRTP: project #605313 is in the 2021-25 LRTP and projects #607981 and #606109 are in the 2026-30 LRTP.
na = this is not an active MassDOT project, but is a priority of the city.

TABLE A-2
PROJECTS PROGRAMMED IN FFYS 2017-2021 WITH MPO TARGET FUNDS

TIP ID	Proponent	Project Description	Status (TIP/LRTP Year)	MPO Investment Program
607309	Hingham	Reconstruction and Related Work on Derby St from Pond Park Rd to Cushing St	2017	Complete Streets
604810	Marlborough	Reconstruction of Route 85 (Maple St)	2017	Complete Streets
604935	Woburn	Reconstruction of Montvale Ave, from I-93 Interchange to Central St	2017/2016-2020	Complete Streets
29492	Bedford, Billerica & Burlington	Middlesex Turnpike Improvements, from Crosby Drive North to Manning Rd (Phase III)	2017/2016-2020	Major Infrastructure
603711	MassDOT	Rehab/Replacement of 6 Bridges on I-95/Route 128 (Add-a-Lane Contract 5)	2017-2018/2016-2020	Major Infrastructure
601630	Weymouth	Reconstruction & Widening on Route 18 (Main St), from Highland Pl to Route 139	2017-2019/2016-2020	Major Infrastructure
1570	Multiple	Green Line Extension Project - Extension to College Ave with the Union Square Spur	2017-2021/ 2016-2020 and 2021-2025	Major Infrastructure
605110	Brookline	Intersection & Signal Improvements at Route 9 & Village Square (Gateway East)	2018	Intersection Improvements
600518	MassDOT	Hingham - Intersection Improvements at Derby St, Whiting St (Route 53) and Gardner St	2018	Intersection Improvements
606635	Newton & Needham	Reconstruction of Highland Ave, Needham St & Charles River Bridge, from Webster St to Route 9	2018	Complete Streets
604989	Southborough	Reconstruction of Main St (Route 30), from Sears Rd to Park St	2018	Complete Streets
605789	Boston	Reconstruction of Melnea Cass Blvd	2019	Complete Streets
607652	Everett	Reconstruction of Ferry St, South Ferry St and a Portion of Elm St	2019	Complete Streets
607428	Hopedale & Milford	Resurfacing & Intersection Improvements on Route 16 (Main St), from Water St to the Hopedale T.L. and the Intersection of Route 140	2019	Complete Streets
606043	Hopkinton	Signal & Intersection Improvements on Route 135	2019	Intersection Improvements
608352	Salem	Canal Street Rail Trail Construction (Phase 2)	2019	Bicycle and Pedestrian
605034	Natick	Reconstruction of Route 27 (North Main St), from North Ave to the Wayland Town Line	2019/2021-2025	Complete Streets
604123	Ashland	Reconstruction on Route 126 (Pond St), from the Framingham T.L. to the Holliston T.L.	2020	Complete Streets
606453	Boston	Improvements on Boylston St, from Intersection of Brookline Ave & Park Dr to Ipswich St	2020	Complete Streets
602077	Lynn	Reconstruction on Route 129 (Lynnfield St), from Great Woods Rd to Wyoma Square	2020	Complete Streets
602261	Walpole	Reconstruction on Route 1A (Main St), from the Norwood Town Line to Route 27	2020	Complete Streets
606226	Boston	Reconstruction of Rutherford Ave, from City Square to Sullivan Square	2020-2021	Complete Streets
606501	Holbrook	Reconstruction of Union St (Route 139), from Linfield St to Centre St/Water St	2021	Complete Streets
605857	Norwood	Intersection Improvements at Route 1 & University Avenue/Everett Street	2021	Intersection Improvements

TIP ID	Proponent	Project Description	Status (TIP/LRTP Year)	MPO Investment Program
608347	Beverly	Intersection Improvements at Three Locations: Cabot St (Route 1A/97) at Dodge St (Route 1A), County Way, Longmeadow Rd and Scott St, McKay St at Balch St and Veterans Memorial Bridge (Route 1A) at Rantoul, Cabot, Water and Front Sts	2121	Intersection Improvements
608228	Framingham	Reconstruction of Union Ave, from Proctor St to Main St	2121	Complete Streets
604996	Woburn	Bridge Replacement, New Boston St over MBTA	2121/2016-2020	Major Infrastructure

TABLE A-3
PROJECT EVALUATION RESULTS

TIP ID	Proponent(s)	Project Name	DRAFT TOTAL SCORE (out of 134)	FINAL TOTAL SCORE (out of 134)	SAFETY (30 possible points)	Crash Severity Value: Equivalent Property Damage Only (EPDO) index (up to 5 points)	Crash Severity Rate: Equivalent Property Damage Only (EPDO) index per VMT (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/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)	Is in an EOEEA-certified "Green Community" (up to 2 points)	TRANSPORTATION EQUITY (12 possible points)	Serves Title VI/non-discrimination populations (up to 12 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)	Provides multimodal access to an activity center (up to 4 points)	Leverages other investments (non-TIP funding) (up to 3 points)
Bicycle/Pedestrian																																						
607738	Bedford	Minuteman Bikeway Extension, from Loomis Street to the Concord T.L.	38	47	7	1	0	0	3	3	0	13	0	6	4	0	3	0	0	15	0	5	4	4	0	2	7	1	1	3	2	1	1	4	0	2	2	0
608164	Sudbury	Bruce Freeman Rail Trail, Phase 2D	38	40	**7**	1	0	0	3	3	0	**3**	0	0	0	0	3	0	0	**16**	0	5	4	4	1	2	**9**	1	2	4	2	**1**	1	**4**	0	2	2	0
608006	Framingham (MassDOT)	Pedestrian Hybrid Beacon Installation at Route 9 and Maynard Road	26	26	11	2	3	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	1	4	0	2	2	0
Complete Streets																																						
607777	Watertown	Rehabilitation of Mount Auburn St. (Route 16)	68	75	18	5	2	3	3	5	0	14	0	4	6	1	2	1	0	18	4	2	2	4	0	6	12	4	4	2	2	3	3	10	4	2	3	1

TIP ID	Proponent(s)	Project Name	DRAFT TOTAL SCORE (out of 134)	FINAL TOTAL SCORE (out of 134)	SAFETY (30 possible points)	Crash Severity Value: Equivalent Property Damage Only (EPDO) index (up to 5 points)	Crash Severity Rate: Equivalent Property Damage Only (EPDO) index per VMT (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/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)	Is in an EOEEA-certified "Green Community" (up to 2 points)	TRANSPORTATION EQUITY (12 possible points)	Serves Title VI/non-discrimination populations (up to 12 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)	Provides multimodal access to an activity center (up to 4 points)	Leverages other investments (non-TIP funding) (up to 3 points)
608078	Chelsea	Reconstruction of Broadway, from City Hall Ave to the Revere City Line	61	61	17	5	5	0	3	4	0	10	0	4	4	0	2	0	0	5	0	0	1	4	0	0	8	2	3	1	2	12	12	9	4	2	3	0
608348	Beverly	Rehabilitation of Bridge St.	59	59	12	3	2	2	3	2	0	13	0	6	4	0	3	0	0	13	1	0	2	4	0	6	9	3	3	1	2	4	4	8	4	1	3	0
608275	Malden	Lighting and Sidewalk Improvements on Exchange Street	47	54	9	1	1	0	2	5	0	8	0	4	0	0	3	1	0	12	0	4	2	6	0	0	5	1	1	1	2	10	10	10	2	3	2	3
602310	Danvers	Reconstruction on Collins St.	50	50	9	2	2	1	2	2	0	12	0	6	6	0	0	0	0	12	0	4	1	2	1	4	8	2	2	2	2	2	2	7	3	2	2	0
601607	Hull	Reconstruction of Atlantic Ave. and related work	44	44	11	1	1	1	4	4	0	13	0	6	0	0	3	2	2	8	0	4	1	2	1	0	6	1	1	4	0	2	2	4	0	2	2	0
601704	Newton	Reconstruction and signal improvements on Walnut St.	42	42	10	3	2	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	0	9	4	2	3	0

TIP ID	Proponent(s)	Project Name	DRAFT TOTAL SCORE (out of 134)	FINAL TOTAL SCORE (out of 134)	SAFETY (30 possible points)	Crash Severity Value: Equivalent Property Damage Only (EPDO) index (up to 5 points)	Crash Severity Rate: Equivalent Property Damage Only (EPDO) index per VMT (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/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)	Is in an EOEEA-certified "Green Community" (up to 2 points)	TRANSPORTATION EQUITY (12 possible points)	Serves Title VI/non-discrimination populations (up to 12 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)	Provides multimodal access to an activity center (up to 4 points)	Leverages other investments (non-TIP funding) (up to 3 points)
605743	Ipswich	Resurfacing and related work on Central and South Main Sts.	38	38	10	2	2	2	2	2	0	9	0	4	0	0	2	1	2	5	0	0	1	4	0	0	4	1	1	2	0	2	2	8	3	3	2	0
608007	Cohasset	Corridor Improvements and Related Work on Justice Cushing Highway (Route 3A), from Beechwood Street to the Scituate Town Line	36	36	15	4	2	3	3	3	0	7	0	0	4	0	3	0	0	6	0	4	1	0	1	0	5	1	1	1	2	0	0	3	0	1	2	0
604735	Medfield	Reconstruction of North St.	29	29	7	1	1	0	3	2	0	8	0	4	0	0	3	1	0	2	0	0	1	0	1	0	4	1	1	2	0	1	1	7	3	2	2	0
604745	Wrentham	Reconstruction of Taunton St. (Route 152)	29	29	8	1	1	1	2	3	0	7	0	6	0	0	0	1	0	5	0	4	1	0	0	0	4	1	1	2	0	1	1	4	0	2	2	0
607899	Dedham	Pedestrian improvements along Bussey St.	25	25	7	2	2	0	1	2	0	3	0	0	0	0	3	0	0	1	0	0	0	0	1	0	4	1	1	0	2	7	7	3	0	2	1	0
Intersection Improvements																																								

TIP ID	Proponent(s)	Project Name	DRAFT TOTAL SCORE (out of 134)	FINAL TOTAL SCORE (out of 134)	SAFETY (30 possible points)	Crash Severity Value: Equivalent Property Damage Only (EPDO) index (up to 5 points)	Crash Severity Rate: Equivalent Property Damage Only (EPDO) index per VMT (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/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)	Is in an EOEEA-certified "Green Community" (up to 2 points)	TRANSPORTATION EQUITY (12 possible points)	Serves Title VI/non-discrimination populations (up to 12 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)	Provides multimodal access to an activity center (up to 4 points)	Leverages other investments (non-TIP funding) (up to 3 points)
606130	Norwood	Intersection improvements at Route 1A and Upland Rd./Washington St. and Prospect St./Fulton St.	47	53	13	1	2	4	2	4	0	10	0	6	0	0	3	1	0	17	2	4	1	4	2	4	3	1	1	1	0	3	3	7	3	1	3	0
608229	Acton	Intersection Improvements at Massachusetts Avenue (Route 111) and Main Street (Route 27) (Kelly's Corner)	**45**	**45**	15	3	4	2	3	3	0	8	0	0	4	0	3	1	0	10	0	4	1	0	1	4	8	2	1	3	2	0	0	4	0	2	2	0
608146	Marblehead	Intersection improvements to Pleasant St. at Village/Vine/Cross Sts.	36	40	8	1	1	0	3	3	0	10	0	6	0	0	3	0	1	9	0	4	1	4	0	0	3	1	1	1	0	1	1	9	4	2	3	0
604231	Marlborough	Intersection and signal improvements on Route 20 (East Main St./Boston Post Rd.) at Concord Rd.	39	39	6	2	2	0	0	2	0	12	0	4	6	0	2	0	0	6	1	0	0	0	1	4	7	2	2	1	2	3	3	5	3	1	1	0
607249	Sudbury (MassDOT)	Intersection improvements at Route 20 and Landham Rd.	37	37	16	2	5	3	3	3	0	7	0	4	0	0	3	0	0	4	0	0	1	0	1	2	5	1	1	1	2	0	0	5	3	0	2	0

TIP ID	Proponent(s)	Project Name	DRAFT TOTAL SCORE (out of 134)	FINAL TOTAL SCORE (out of 134)	SAFETY (30 possible points)	Crash Severity Value: Equivalent Property Damage Only (EPDO) index (up to 5 points)	Crash Severity Rate: Equivalent Property Damage Only (EPDO) index per VMT (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/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)	Is in an EOEEA-certified "Green Community" (up to 2 points)	TRANSPORTATION EQUITY (12 possible points)	Serves Title VI/non-discrimination populations (up to 12 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)	Provides multimodal access to an activity center (up to 4 points)	Leverages other investments (non-TIP funding) (up to 3 points)
607305	Reading (MassDOT)	Intersection Signalization at Route 28 & Hopkins Street	**34**	**34**	6	1	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	2	7	2	3	2	0
606002	Duxbury	Signal installation at Route 3 (NB and SB) ramps and Route 3A (Tremont St.)	33	33	6	2	1	1	0	2	0	11	0	4	6	0	0	1	0	10	0	4	0	0	2	4	4	2	2	0	0	0	0	2	0	1	1	0
Major Infrastructure																																								
607981	**Somerville**	**McGrath Boulevard project**	**68**	**68**	**13**	**3**	**2**	**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**	**10**	**12**	**4**	**5**	**3**	**0**
608449	Boston	Commonwealth Avenue, phases 3 and 4	67	67	17	3	2	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	8	11	4	4	3	0
605313	**Natick (MassDOT)**	**Bridge replacement, Route 27 (North Main St.) over Route 9 (Worcester St.)**	**53**	**56**	**18**	**5**	**3**	**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**	**1**	**6**	**0**	**3**	**3**	**0**
601513	Saugus (MassDOT)	Interchange reconstruction at Walnut St. and Route 1 (phase II)	42	42	9	3	1	0	2	3	0	13	0	6	6	0	0	1	0	9	1	4	1	0	1	2	6	1	1	2	2	1	1	4	0	1	3	0

TIP ID	603739	604638
Proponent(s)	Wrentham	Peabody (MassDOT)
Project Name	Construction of I-495/Route 1A ramps	Mainline improvements on Route 128 (phase II)
DRAFT TOTAL SCORE (out of 134)	35	34
FINAL TOTAL SCORE (out of 134)	35	34
SAFETY (30 possible points)	9	10
Crash Severity Value: Equivalent Property Damage Only (EPDO) index (up to 5 points)	2	5
Crash Severity Rate: Equivalent Property Damage Only (EPDO) index per VMT (up to 5 points)	2	1
Improves truck-related safety issue (up to 5 points)	5	4
Improves bicycle safety (up to 5 points)	0	0
Improves pedestrian safety (up to 5 points)	0	0
Improves safety or removes an at-grade railroad crossing (up to 5 points)	0	0
SYSTEM PRESERVATION (29 possible points)	8	10
Improves substandard roadway bridge(s) (up to 3 points)	0	3
Improves substandard pavement (up to 6 points)	4	6
Improves substandard traffic signal equipment (up to 6 points)	4	0
Improves transit asset(s) (up to 3 points)	0	0
Improves substandard sidewalk(s) (up to 3 points)	0	0
Improves emergency response (up to 2 points)	0	1
Improves ability to respond to extreme conditions (up to 6 points)	0	0
CAPACITY MANAGEMENT/MOBILITY (29 possible points)	8	5
Reduces transit vehicle delay (up to 4 points)	0	1
Improves pedestrian network and ADA accessibility (up to 5 points)	0	0
Improves bicycle network (up to 4 points)	0	0
Improves intermodal accommodations/connections to transit (up to 6 points)	0	0
Improves truck movement (up to 4 points)	2	2
Reduces vehicle congestion (up to 6 points)	6	2
CLEAN AIR/CLEAN COMMUNITIES (16 possible points)	10	3
Reduces CO2 (up to 5 points)	5	1
Reduces other transportation-related emissions (VOC, Nox, CO) (up to 5 points)	5	1
Addresses environmental impacts (up to 4 points)	0	1
Is in an EOEEA-certified "Green Community" (up to 2 points)	0	0
TRANSPORTATION EQUITY (12 possible points)	0	3
Serves Title VI/non-discrimination populations (up to 12 points)	0	3
ECONOMIC VITALITY (18 possible points)	0	3
Serves targeted development site (up to 6 points)	0	1
Provides for development consistent with the compact growth strategies of MetroFuture (up to 5 points)	0	1
Provides multimodal access to an activity center (up to 4 points)	0	1
Leverages other investments (non-TIP funding) (up to 3 points)	0	0

B APPENDIX

Roadway Project Information Forms & Evaluation

This appendix provides an explanation of the project information form for roadway projects that is used to understand potential projects that the MPO may fund and to evaluate projects for possible programming. MPO staff and project proponents update these project information forms when new information becomes available. The forms are used to evaluate projects using criteria that reflect MPO visions and policies. Some information is provided specifically by the project proponent and other information is provided by MPO staff or by various state agencies.

Project information forms are available on the MPO website, http://www.ctps.org/. Proponents enter the project information on-line. Other information is input by MPO staff or automatically updated through links to other databases.

ROADWAY PROJECT INFORMATION FORMS

Overview Tab

Project Background Information

1 ID Number

The MassDOT Project Information System (PROJIS) number assigned to the project. If the project does not have a PROJIS number, an identification number will be assigned to the project by the MPO for internal tracking purposes.

2 Municipality(ies)

The municipality (or municipalities) in which the project is located.

3 Project Name

The name of the project. (Source: MassDOT)

4 Project Category

(determined by MPO staff):

- Arterial and Intersection – Arterial roadway and intersection projects
- Major Highway – Limited access roadway projects
- Bridge – Bridge projects
- Bicycle and Pedestrian – Projects dedicated solely to bicycle and pedestrian facilities such as walkways, paths, and trails
- Transit – Transit projects consisting of improvements to trains, buses, and ferries
- Enhancement – Streetscape improvements and enhancements to transportation facilities
- Regional Mobility – Transportation demand management (TDM) and Transportation Systems Management (TSM) programs or projects

5 MassDOT Highway District

The MassDOT Highway District in which the project is located.

6 MAPC Subregion

The MAPC subregion in which the project is located.

7 MAPC Community Type

The MAPC community type in which the project is located as defined by land use and housing patterns, recent growth trends, and projected development patterns.

8 Estimated Cost

The estimated total cost of the project. (Source: MassDOT)

9 Evaluation Rating

The number of points scored by the project, if it has been evaluated.

10 Description

A description of the project, including its primary purpose, major elements and geographic limits. (Source: MassDOT).

11 Project Length (Miles)

Total length of project in miles.

12 Project Lane Miles

Total lane miles of project.

Project Background Information

P1 Community Priority

The priority rank of the project as determined by the community. (Source: Proponent)

Additional Status

13 MPO/CTPS Study

Past UPWP-funded studies or reports conducted within the project area.

14 Air Quality Status

The air quality status of the project in the MPO's travel demand model. Projects with "exempt" status do not add capacity to the transportation system. Projects with "model" status add capacity to the transportation system and are included in the travel demand model.

Staff Comments

TIP Contact

The main municipal contact for TIP projects.

Project Design Status Tab

"Readiness" is a determination of the appropriate year of programming for a project. In order to make this determination, the MPO tracks project development milestones and coordinates with the MassDOT Highway Division to estimate when a project will be ready for advertising.

All **non-transit** projects programmed in the first year of the Transportation Improvement Program (TIP)

must be advertised before the end of the federal fiscal year (September 30). That funding authorization is not transferred to the next federal fiscal year, therefore any "leftover" funds are effectively "lost" to the region. If a project in the first year of the TIP is determined as "not ready to be advertised before September 30," it will be removed from the TIP and replaced with another project by amendment.

For projects in the first year of the TIP, it is important to communicate any perceived problems that may affect the schedule to the Boston Region MPO as soon as possible.

Project Background Information

15 Transportation Improvement Program (TIP) Status

Advertised, Programmed, Pre-TIP, or Conceptual (Source: MPO database):

- **Advertised –** projects have been advertised by the implementation agency for bids.
- **Programmed –** projects have been identified for funds in the current TIP.
- **Pre-TIP –** projects have received Project Review Committee (PRC) approval from MassDOT Highway Division and have an "active" PROJIS number, but do not have funds identified in the TIP.
- **Conceptual –** projects are project concepts or ideas that are not yet under design.

16 Functional Design Report (FDR) Status

The year that a functional design report was completed, if one has been conducted for the project.

17 Design Status

Current design status of the project in the MassDOT Highway Division Design Process. Dates are provided where available. (Source: MassDOT Project Info)

- Project Review Committee (PRC) Approved
- 25% Submitted
- 25% Approved
- 75% Submitted
- 75% Approved
- 100% Submitted
- 100% Approved
- PS&E Submitted

18 Right-of-Way (ROW) Requirement

(Source: MassDOT Project Info):

Required – ROW action is required for completion of the project

Not Required – No ROW action required for completion of the project

19 Right-of-Way (ROW) Responsibility

(Source: MassDOT Project Info):

MassDOT Responsibility – Providing the required right-of-way is the responsibility of MassDOT.

Municipal Responsibility – Providing the required right-of-way is the responsibility of the municipality.

Municipal Approval – Municipal approval has been given to the right-of-way plan (with date of approval):

20 Right-of-Way (ROW) Certification

(Source: MassDOT Project Info):

Expected – Expected date of ROW plan and order of taking

Recorded – Date the ROW plan and order of taking were recorded at the Registry of Deeds

Expires – Expiration date of the rights of entry, easements, or order of taking

21 Required Permits

Permits required by the Massachusetts Environmental Policy Act (MEPA). (Source: MassDOT Project Info.)

Possible required permits include:

- Environmental Impact Statement
- Construction Engineering Checklist
- Clean Water Act Section 404 Permit
- Rivers and Harbors Act of 1899 Section 10 Permit
- MEPA Environmental Notification Form
- MEPA Environmental Impact Report
- Massachusetts Historical Commission Approval
- M.G.L. Ch. 131 Wetlands Order of Conditions
- Conservation Commission Order of Conditions

Safety Tab

The evaluation criteria below serve as a way to guide investments that implement the following MPO safety objectives:

- Reduce the number and severity of crashes, all modes
- Reduce serious injuries and fatalities from transportation
- Protect transportation customers and employees from safety and security threats

Project Background Information

22 Top 200 Rank

Ranks of highest crash intersection clusters in the project area listed within MassDOT's top 200 high crash intersection locations. The crash rankings are weighted by crash severity as indicated by Equivalent Property Damage Only (EPDO) values. (Source: MassDOT Highway Division 2011-2013 Top Crash Locations Report)

23 EPDO/Injury Value

An estimated value of property damage. Fatal crashes are weighted by 10, injury crashes are weighted by 5 and property damage only or nonreported is weighted by 1. (Source: MassDOT Highway Division, 2011-2013)

24 Crash Rate/Crashes per Mile

Intersection projects list the crash rate as total crashes per million vehicles entering the intersection. Arterial projects list the crash rate as total crashes per mile. (Source: MassDOT Highway Division, 2011-2013)

25 Bicycle-Involved Crashes (Total EPDO)

Total EPDO value of bicycle-involved crashes in the project area. (Source: MassDOT Highway Division, 2011-2013)

26 Pedestrian-Involved Crashes (Total EPDO)

Total EPDO value of pedestrian-involved crashes in the project area. (Source: MassDOT Highway Division, 2011-2013)

27 Truck-Involved Crashes (Total EPDO)

Total EPDO value of truck-involved crashes in the project area. (Source: MassDOT Highway Division, 2011-2013)

Proponent Provided Information

P2 What is the primary safety need associated with this project and how does it address that need?

Describe the need for the project from a local and a regional perspective. What are the existing safety needs/improvements the project is designed to address? How will this design accomplish those needed improvements? Please be as specific as possible. When applicable, this information should be consistent with project need information provided in the MassDOT Highway Division Project Need Form. (Source: Proponent)

Evaluation

Safety Evaluation Scoring (30 total points possible):

Crash Severity Value: Equivalent Property Damage Only (EPDO) index (up to 5 points)

+5 EPDO value of 300 or more
+4 EPDO value between 200-299
+3 EPDO value between 100-199
+2 EPDO value between 50-99
+1 EPDO value less than 50
+0 No EPDO value

Crash Severity Rate: Equivalent Property Damage Only (EPDO) index per VMT (up to 5 points)

+5 Average annual EPDO per 1,000,000 VMT of 20 or more
+4 Average annual EPDO per 1,000,000 VMT between 15-20
+3 Average annual EPDO per 1,000,000 VMT between 10-15
+2 Average annual EPDO per 1,000,000 VMT between 5-10
+1 Average annual EPDO per 1,000,000 VMT less than 5
+0 No EPDO rate

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

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

System Preservation Tab

The evaluation criteria below serve as a way to guide investments that implement the following MPO system preservation objectives:

- 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

Project Background Information

28 *Existing Pavement Condition*

(Source: MassDOT Roadway Inventory File)

Pavement Roughness (IRI) – International Roughness Index (IRI) rating reflects the calibrated value in inches of roughness per mile. IRI ratings are classified as follows:

- Good – Ranges of 0 - 190
- Fair – Ranges of 191- 320
- Poor – Above 320

29 *Equipment Condition*

Existing signal equipment condition. (Source: CMP, Massachusetts permitted signal information, municipal signal information, submitted design).

30 *Natural Hazard Zones***

- Project lies within a flood zone
- Project lies within a hurricane surge zone
- Project lies within ¼ mile of an emergency support location
- Project lies within an area of liquefiable soils

**Please refer to the All-hazards Planning Application (hyperlink to http://www.ctps.org/map/www/apps/eehmApp/pub_eehm_index.html) for more information on natural hazard zones.

Proponent Provided Information

P3 *What are the infrastructure condition needs or issues of the project area?*

Please include additional pavement information from municipal pavement management programs. In addition, qualitative descriptions of existing problems or anticipated needs can be provided. When applicable, this information should be consistent with project need information provided in the MassDOT Project Need Form. (Source: Proponent)

P4 *How does this project address the infrastructure condition needs or issues in the project area?*

Please include detail regarding the pavement management system employed by the community or agency, and of how this system will maximize the useful life of any pavement repaired or replaced by the project. (Source: Proponent)

P5 *What is the primary security need associated with this project and how does it address that need?*

Describe the need for the project from a local and a regional perspective. What are the existing security needs/improvements the project is designed to address? How will this design accomplish those needed improvements? Please be as specific as possible. When applicable, this information should be consistent with project need information provided in the MassDOT Highway Division Project Need Form. (Source: Proponent)

Evaluation

System Preservation Evaluation Scoring (29 total points possible):

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 and pavement improvements are included in the project
+4 IRI rating between 320 and 191: Fair and pavement improvements are included in the project
0 IRI rating less than 190: Good or better

Improves substandard signal equipment condition (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

Capacity Management/Mobility Tab

The evaluation criteria below serve as a way to guide investments that implement the following MPO capacity management/mobility objectives:

- 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/ transportation needs, including those of the elderly and persons with disabilities
- Eliminate bottlenecks on the freight network

Project Background Information

31 *Bicycle and Pedestrian Facilities*

(Source: MassDOT Bicycle Facility Inventory and Roadway Inventory File and MPO bicycle GIS coverage)

Pedestrian Facilities:

- Sidewalks – Indicates if sidewalks are present on one side or on both sides of the roadway.
- Shared Use Path – Facilities with a stabilized firm surface and separated from motor vehicle traffic by an open space or barrier.
- Minimally Improved Path – Facilities with a rough surface and separated from motor vehicle traffic by an open space or barrier.

Bicycle Facilities:

- Cycle Track – Bikeways separated from parallel motor vehicle roadway by a line of parked cars, landscaping, or another form of physical barrier that motor vehicles cannot cross.
- Striped Bicycle Lane – A portion of a roadway (greater than or equal to 4 feet) which has been designated by striping, and pavement markings for preferential or exclusive use by bicyclists.
- Marked Shared Lane – Travel lanes with specific bicycle markings, often referred to as *sharrows*.
- Signed Route – Roadway is designated and signed as a bicycle route.
- Shared Use Path – Facilities with a stabilized firm surface and separated from motor vehicle traffic by an open space or barrier.
- Minimally Improved Path – Facilities with a rough surface and separated from motor vehicle traffic by an open space or barrier.

32 *Transit Vehicles Use of Roadway*

Identifies the fixed route transit vehicles using the roadway

33 Usage

- Average Daily Traffic Volumes
- Average Daily Truck Volumes
- Average Weekday Transit Rider Volumes
- AM Peak Hour Pedestrian Volumes
- AM Peak Hour Bicyclist Volumes
- PM Peak Hour Pedestrian Volumes
- PM Peak Hour Bicyclist Volumes

*34 A.M./P.M. Travel Time Index****

Travel Time Index directly compares peak-period travel time conditions with free-flow travel time conditions. Travel time Index indicates how much contingency time should be considered to ensure an on-time arrival during the peak period versus optimum travel times.

Travel time index = average peak-period travel time / free-flow travel time

Information provided is determined by the Boston Region MPO's CMP Arterial Performance Dashboard. If a Project Funding Application Form does not have any CMP data listed, this does not necessarily mean that the roadway or intersection does not experience congestion problems; this simply means that data from the CMP are not available.

*35 A.M./P.M. Speed Index****

Speed index is equal to the average speed divided by the posted speed limit of a Traffic Message Channel (TMC). Speed index indicates congestion more accurately than travel speeds alone because low travel speeds may be a result of low speed limits on certain facilities.

Speed Index = average speed / posted speed limit

Information provided is determined by the Boston Region MPO's CMP Arterial Performance Dashboard. If a Project Funding Application Form does not have any CMP data listed, this does not necessarily mean that the roadway or intersection does not experience congestion problems; this simply means that data from the CMP are not available.

***Please refer to the CMP Arterial Performance Dashboard (hyperlink to http://www.ctps.org/map/www/apps/arterialHighwayPerformanceDashboard/index.html) for data on roadway congestion in the MPO region.

Proponent Provided Information

P6 What is the primary mobility need for this project and how does it address that need?

Describe the need for the project from a local and a regional perspective. What are the existing or anticipated mobility needs the project is designed to address? Please include information on how the project improves level of service and reduces congestion, provides multimodal elements (for example, access to transit stations or parking, access to bicycle or pedestrian connections), enhances freight mobility, and closes gaps in the existing transportation system. For roadway projects, it is MPO and MassDOT policy that auto congestion reductions not occur at the expense of pedestrians, bicyclists, or transit users. Please explain the mobility benefits of the project for all modes. When applicable, this information should

be consistent with project need information provided in the MassDOT Project Need Form. (Source: Proponent)

P7 What intelligent transportation systems (ITS) elements does this project include?

Examples of ITS elements include new signal systems or emergency vehicle override applications. (Source: Proponent)

P8 How does the project improve access for pedestrians, bicyclists, and public transportation? How does the project support MassDOT's mode shift goal of tripling the share of walking, biking, and transit travel?

Describe what improvements are in the project for pedestrians, bicyclists, and public transportation, and what level of improvement will be achieved over existing conditions. (Source: Proponent)

Evaluation

Capacity Management/Mobility Evaluation Scoring (29 total points possible):

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

Project reduces 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

Clean Air/Clean Communities Tab

The evaluation criteria below serve as a way to guide investments that implement the following MPO clean air/clean communities objectives:

- 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

Project Background Information

36 CO_2 Impact

The quantified or assumed annual tons of carbon dioxide estimated to be reduced by the project. (Source: MPO Database)

37 Located in a Green Community

Project is in an Executive Office of Energy and Environmental Affairs (EOEEA) certified Green Community. (Source: EOEEA)

38 Located in an Area of Critical Environmental Concern

Areas designated as Areas of Critical Environmental Concern by the Massachusetts Secretary of Environmental Affairs. (Source: MassGIS)

39 Located adjacent to (within 200 feet of) a waterway

Hydrographic (water related) features, including surface water (lakes, ponds, reservoirs), flats, rivers, streams, and others from MassGIS. Two hundred feet from the hydrographic feature is the distance protected by the Massachusetts Rivers Protection Act. (Source: MassGIS)

Proponent Provided Information

P9 How does the project relate to community character?

Is the project located in an existing community or neighborhood center or other pedestrian-oriented area? Explain the community context (cultural, historical, other) in which the project will occur and indicate the positive or negative effect this project will have on community character. (Source: Proponent)

P10 What are the environmental impacts of the project?

How will this project improve air quality, improve water quality, or reduce noise levels in the project area and in the region? Air quality improvements can come from reductions in the number or length of vehicle trips or from reductions in vehicle cold

starts. Water quality improvements can result from reductions in runoff from impervious surfaces, water supply protection, and habitat protection. Noise barriers can reduce noise impacts. (Source: Proponent)

Evaluation

Clean Air/Clean Communities Evaluation Scoring (16 total points possible):

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 1,000-1999 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 1,000-1999 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/open space
+1 Addresses wetlands/resource areas
+1 Addresses wildlife preservation/protected habitats
0 Does not meet or address criteria

Project is in an Executive Office of Energy and Environmental Affairs (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"

Transportation Equity Tab

The evaluation criteria below serve as a way to guide investments that implement the following MPO transportation equity objectives:

- 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

Proponent Provided Information

P11 Are any other transportation equity issues addressed by this project?

This answer should only be addressed by those projects that serve Title VI/non-discrimination populations. Please be specific. (Source: Proponent)

Evaluation

Transportation Equity Evaluation Scoring (12 total points possible):

Serves Title VI/non-discrimination populations (up to 12 points)

+2 Serves minority (high concentration) population
+1 Serves minority (low concentration) population
+2 Serves low-income (high concentration) population
+1 Serves low-income (low concentration) population
+2 Serves limited-English proficiency (high concentration) population
+1 Serves limited-English proficiency (low concentration) population
+2 Serves elderly (high concentration) population
+1 Serves elderly (low concentration) population
+2 Serves zero vehicle households (high concentration) population
+1 Serves zero vehicle households (low concentration) population
+2 Serves persons with disabilities (high concentration) population
+1 Serves persons with disabilities (low concentration) population

+0 Does not serve Title VI or non-discrimination populations
-10 Creates a burden for Title VI/non -discrimination populations

Economic Vitality Tab

The evaluation criteria below serve as a way to guide investments that implement the following MPO economic vitality objectives:

- 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

Proponent Provided Information

P12 How is the project consistent with local land use policies? How does the project advance local efforts to improve design and access?

Explain how this project will support existing or proposed local land use policies. (Source: Proponent)

P13 How does the zoning of the area within ½ mile of this project support transit-oriented development and preserve any new roadway capacity?

Will the project have an impact on adjacent land uses? Please review the land use information if the project is expected to have an impact on land use. Is there a local project currently under development that would provide a better balance between housing and jobs in this corridor? If so, please provide details on the project status. (Source: Proponent)

P14 How is the project consistent with state, regional, and local economic development priorities?

Explain how this project will support economic development in the community or in the project area (Source: Proponent)

Evaluation

Economic Vitality Evaluation Scoring (18 total points possible):

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 for 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

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

Additional Project Background Information

Targeted Development Areas

A targeted development area is located within ½ mile of the project area. Eligible targeted development areas include 43D, 43E, and 40R sites, Regionally Significant Priority Development Areas, Growth District Initiatives, and MBTA transit station areas.

- **43D Priority Development Site**: The Chapter 43D Program offers communities expedited permitting to promote targeted economic and housing development. Sites approved under the program are guaranteed local permitting decisions on priority development sites within 180 days. (Source: Executive Office of Housing and Economic Development)
- **43E Priority Development Site:** The Chapter 43E Program promotes the expedited permitting of commercial, industrial, residential and mixed-use projects on sites with dual designation as a Priority Development Site and Growth District. Sites approved under the program are guaranteed state permitting decisions on priority development sites within 180 days. (Source: Executive Office of Housing and Economic Development)
- **40R Smart Growth Zoning Overlay District:** The program encourages communities to zone for compact residential and mixed-use development in "smart growth" locations by offering financial incentives and control over design. (Source: Department of Housing and Community Development)
- **Regionally Significant Priority Development Area:** A site or district that has been identified by the local municipality as an eligible and desirable site for housing and/or economic development, and which has been identified as a "regionally significant" site by MAPC through a subregional screening process that considers development potential, accessibility, environmental impacts, equity, and other factors.
- **Growth District Initiative**: The EOHED initiative focuses on expediting commercial and residential development at appropriate locations for significant new growth. (Source: Executive Office of Housing and Economic Development)
- **Eligible MBTA Transit Station Area**: Areas within ½ mile of existing or proposed subway, trolley, commuter rail, or ferry service, with the exception of "Undeveloped" station areas as defined by MAPC (www.mapc.org/TOD); or areas within ¼ mile of an MBTA "Key Bus Route."

Municipality Provides Financial or Regulatory Support for Targeted Development

The proposed project will improve access to or within a commercial district served by a Main Street organization, local business association, Business Improvement District, or comparable, geographically targeted organization (i.e., not a city/town-wide chamber of commerce).

Local Efforts to improve Design and Access:

- Form-based codes
- Official design guidelines for new development/redevelopment
- Official local plan for pedestrian/bike/handicap access, the recommendations of which are reflected in the proposal

Other Tab

Cost per Unit

These two measures of cost per unit are derived by dividing project cost by quantified data in the MPO database. These measures can be used to compare similar types of projects.

40 $ per User

Cost divided by ADT (ADT for roadway projects or other user estimate)

41 $ per Lane Mile

Cost divided by proposed total lane miles

APPENDIX C

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 greenhouse gas 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 would help to reduce GHG emission 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 emission-reduction goals by requiring the following:

- MassDOT to demonstrate that its GHG reduction commitments and targets are being achieved
- Each MPO to evaluate and track the GHG emissions and impacts of both its LRTP and TIP
- Each MPO, in consultation with MassDOT, to develop and utilize procedures to prioritize and select projects in 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 the LRTPs, and the mix of new transportation projects that are programmed and implemented through the TIP.

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 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 EVALUATION IN LONG-RANGE TRANSPORTATION PLANS

MassDOT coordinated with MPOs and regional planning agencies to implement GHG tracking and evaluation during the development of LRTPs, which were adopted in September 2011. This collaboration continued for the MPOs' 2016 LRTPs and amendments, federal fiscal years (FFYs) 2016–19 TIPs, FFYs 2017–21 TIPs, and FFYs 2018–22 TIPs. 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 resulting from the transportation sector. Using the Boston Region MPO's travel demand model and the statewide travel demand model, the MPOs have projected GHG emissions for 2018, 2019, and 2020 No-Build (base) and Build (action) conditions, and for 2040 No-Build (base) and Build (action) conditions.
- 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 EVALUATION IN 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 emission 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 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.

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 TIP calculations were done for these projects.

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, the MPO staff use data from projects' functional design reports, which are submitted at the 25-percent design phase, to conduct these calculations. These spreadsheets were used for calculating estimated projections of CO_2 for each project to comply with the GWSA regulations. These estimates are shown in Tables C-1 and C-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 this TIP, analyses were done for the types of projects described below. A summary of the steps in the analyses are provided.

Traffic Operational Improvement

An intersection reconstruction or signalization project that typically reduces delays and, therefore, idling

- 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 emission 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

A shared-use path that would enable more walking and biking trips and reduce automobile trips

- 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 emission 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

A program that replaces old buses with new buses that reduce emissions or run on cleaner fuel

- Step 1: Input the MOVES emission 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)

Calculations may be performed on the following project types; 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 through carpooling or transit

Alternative Fuel Vehicles

A new vehicle procurement that replaces traditional gas or diesel vehicles with alternative fuel or advanced technology vehicles

Anti-Idling Strategies

Anti-idling strategies 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

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

Considers new or reduced automobile trips associated with a roadway capacity change

Speed Reduction Projects

Considers emission reductions associated with a reduction in roadway speeds of not less than 55 miles per hour

Transit Signal Priority Projects

Technology at a signalized intersection or along a corridor that impacts bus travel times

Truck Stop Electrification

Provides truck drivers the necessary services, such as heating, air conditioning, or appliances, without requiring them to idle their engine

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.

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 on 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 C-1) and Transit Program (Table C-2). Table C-3 summarizes the GHG impact analyses of highway projects completed in FFY 2017. Table C-4 summarizes the GHG impact analyses of transit projects completed in FFY 2017. A project is considered completed when the construction contract has been awarded or the transit vehicles have been purchased.

TABLE C-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		TBD
607748	Acton - Intersection and Signal Improvements on SR 2 and SR 111 (Massachusetts Ave) at Piper Rd and Taylor Rd	Quantified		TBD
606381	Arlington - Belmont - Highway Lighting Repair and Maintenance on Route 2	Qualitative		No assumed impact/negligible impact on emissions
604123	Ashland - Reconstruction on Route 126 (Pond St) from Framingham Town Line to Holliston Town Line	Quantified	148,097	Quantified Decrease in Emissions from Complete Streets Project
607738	Bedford - Minuteman Bikeway Extension from Loomis St to the Concord Town Line	Quantified	21,098	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure
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
608614	Boston - Superstructure Replacement, B-16-179, Austin St over I-93 Ramps, MBTA Commuter Rail and Orange Line	Qualitative		No assumed impact/negligible impact on emissions
604173	Boston - Bridge Rehabilitation, B-16-016, North Washington St over the Boston Inner Harbor	Qualitative		Qualitative Decrease in Emissions
607888	Boston - Brookline - Multi-Use Path Construction on New Fenway	Quantified	96,163	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure
608755	Boston - Intersection Improvements at Morton St and Harvard St	Quantified		TBD
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

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
607759	Boston - Intersection and Signal Improvements at the VFW Pkwy and Spring St	Quantified		TBD
606728	Boston - Superstructure Repairs on B-16-365, Bowker Overpass over Storrow Dr (EB)	Qualitative		No assumed impact/negligible impact on emissions
608234	Boston - Randolph - Bridge Preservation of 3 Bridges: B-16-165, R-01-005 and R-01-007	Qualitative		No assumed impact/negligible impact on emissions
605789	Boston - Reconstruction of Melnea Cass Blvd	Quantified	2,872,641	TBD
606226	Boston - Reconstruction of Rutherford Ave, from City Square to Sullivan Square	Quantified		LRTP project included in the statewide model
606134	Boston - Traffic Signal Improvements on Blue Hill Ave and Warren St	Quantified		TBD
608009	Boxborough - Bridge Replacement, B-18-002, Route 111 over I-495	Qualitative		No assumed impact/negligible impact on emissions
608651	Braintree - Adaptive Signal Controls on Route 37 (Granite St)	Qualitative		Qualitative Decrease in Emissions
608608	Braintree - Highway Lighting Improvements at I-93/Route 3 Interchange	Qualitative		No assumed impact/negligible impact on emissions
605110	Brookline - Intersection and Signal Improvements at Route 9 and Village Square (Gateway East)	Quantified	6,056	Quantified Decrease in Emissions from Complete Streets Project
608482	Cambridge - Somerville - Resurfacing and Related Work on Route 28	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
608599	Canton – Foxborough – Norwood - Walpole - Stormwater Improvements along Route 1, Route 1A, and Interstate 95	Qualitative		No assumed impact/negligible impact on emissions
608611	Canton – Milton - Randolph - Replacement and Rehabilitation of the Highway Lighting System at the Route 24/Route 1/I-93 Interchange	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
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
BN1800	Community Transportation Program	Quantified		TBD
608495	Concord – Lexington - Lincoln - Resurfacing and Related Work on Route 2A	Qualitative		No assumed impact/negligible impact on emissions
608478	Concord - Resurfacing and Related Work on Route 2	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
607901	Dedham - Pedestrian Improvements along Elm St and Rustcraft Rd Corridors	Quantified	13,608	Quantified Decrease in Emissions from Complete Streets Project
608587	Dedham - Reconstruction and Related Work on Bridge St (Route 109) and Ames St	Qualitative		Qualitative Decrease in Emissions
608596	Essex - Bridge Preservation, E-11-001, 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
608210	Foxborough – Plainville - Wrentham -Franklin - Interstate Maintenance and Related Work on I-495	Qualitative		No assumed impact/negligible impact on emissions
608480	Foxborough - Walpole - Resurfacing and Related Work on Route 1	Qualitative		No assumed impact/negligible impact on emissions
607732	Framingham - Natick - Cochituate Rail Trail Construction including Pedestrian Bridge, N-03-014, over Route 9 and F-07-033=N-03-029 over Route 30	Quantified	78,019	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
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
600518	Hingham - Intersection Improvements at Derby St, Whiting St, and Gardner St	Quantified	168,013	Quantified Decrease in Emissions from Complete Streets Project
606501	Holbrook - Reconstruction of Union Street (Route 139), from Linfield St to Centre St and Water St	Quantified	4,097	Quantified Decrease in Emissions from Complete Streets Project
607428	Hopedale - Milford - Resurfacing and Intersection Improvements on Route 16 (Main St), from Water St west to approximately 120 feet west of the Milford/Hopedale town line and the intersection of Route 140	Quantified	201,148	Quantified Decrease in Emissions from Complete Streets Project
606043	Hopkinton - Signal and Intersection Improvements on Route 135	Quantified	1,298,625	Quantified Decrease in Emissions from Complete Streets Project
606632	Hopkinton - Westborough - Bridge Replacement, H-23-006=W-24-016, Fruit St over CSX and Sudbury River	Qualitative		No assumed impact/negligible impact on emissions
607977	Hopkinton - Westborough - Reconstruction of I-90/I-495 Interchange	Quantified		LRTP project included in the statewide model
601607	Hull - Reconstruction of Atlantic Avenue and Related Work	Quantified	6,586	Quantified Decrease in Emissions from Complete Streets Project
608379	Lexington - Belmont - Arlington - Cambridge - Pavement Preservation on Route 2	Qualitative		No assumed impact/negligible impact on emissions
602077	Lynn - Reconstruction on Route 129 (Lynnfield St), from Great Woods Rd to Wyoma Square	Quantified	12,761	Quantified Decrease in Emissions from Complete Streets Project
604952	Lynn-Saugus - Bridge Replacement, L-18-016=S-05-008, Route 107 over the Saugus River (AKA - Belden G. Bly Bridge)	Qualitative		Qualitative Decrease in Emissions
608146	Marblehead - Intersection Improvements at Pleasant St and Village, Vine and Cross St	Quantified	531	Quantified Decrease in Emissions from Intersection Project
608566	Marlborough - Improvements at Route 20 (East Main St) at Curtis Ave	Quantified		TBD

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
608467	Marlborough - Sudbury - Resurfacing and Related Work on Route 20	Qualitative		No assumed impact/negligible impact on emissions
604655	Marshfield - Bridge Replacement, M-07-007, Beach St over the Cut River	Qualitative		Qualitative Decrease in Emissions
608069	Marshfield - Pembroke - Norwell - Hanover - Rockland - Hingham - Resurfacing and Related Work on Route 3	Qualitative		No assumed impact/negligible impact on emissions
608637	Maynard - Bridge Replacement, M-10-006, Florida Rd over Assabet River	Qualitative		No assumed impact/negligible impact on emissions
608835	Medford - Improvements at Brook Elementary School	Qualitative		Qualitative Decrease in Emissions
608522	Middleton - Bridge Replacement - M-20-003, RT 62/Maple St over Ipswich River	Qualitative		No assumed impact/negligible impact on emissions
607342	Milton - Intersection and Signal Improvements at Route 28 (Randolph Ave) and Chickatawbut Rd	Quantified		TBD
607763	Milton - Intersection and Signal Improvements at 2 Locations: SR 138 (Blue Hill Ave) at Atherton St and Bradlee Rd and SR 138 (Blue Hill Ave) at Milton St and Dollar Ln	Quantified		TBD
607330	Milton - Deck Reconstruction Over SE Expressway (East Milton Square)	Qualitative		No assumed impact/negligible impact on 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
603711	Needham - Wellesley - Rehab/Replacement of 6 Bridges on I-95/Route 128: N-04-020, N-04-021, N-04-022, N-04-026, N-04-027, N-04-037 and W-13-023 (Add-a-Lane- Contract V)	Quantified		LRTP project included in the statewide model

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO_2 Impact (kg/yr)	GHG Impact Description
607915	Newton - Wellesley - Weston - Bridge Maintenance of N-12-063, N-12-054, N-12-055 and N-12-056 on I-95/Route 128	Qualitative		No assumed impact/negligible impact on emissions
608052	Norwood - Intersection and Signal Improvements at US 1 (Providence Highway) and Morse St	Quantified		TBD
605857	Norwood - Intersection Improvements at Route 1 and University Ave/Everett St	Quantified	1,092,131	Quantified Decrease in Emissions from Traffic Operational Improvement
606130	Norwood - Intersection Improvements at Route 1A and Upland Rd	Quantified	72,964	Quantified Decrease in Emissions from Traffic Operational Improvement
608468	Peabody - Danvers - Resurfacing and Related Work on Route 1	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	Quantified		TBD
608208	Quincy - Milton - Boston - Interstate Maintenance & Related Work on I-93	Qualitative		No assumed impact/negligible impact on emissions
608569	Quincy - Intersection Improvements at Route 3A (Southern Artery) and Broad St	Quantified		TBD
608205	Reading to Lynnfield - Guide and Traffic Sign Replacement on a Section of I-95 (SR 128)	Qualitative		No assumed impact/negligible impact on emissions
608219	Reading - Wakefield - Interstate Maintenance and Related Work on I-95	Qualitative		No assumed impact/negligible impact on emissions
608743	Salem - Improvements at Bates Elementary School	Qualitative		Qualitative Decrease in Emissions
608521	Salem - Structural Steel Repairs, Bridge No. S-01-018	Qualitative		No assumed impact/negligible impact on emissions
608352	Salem - Canal St Rail Trail Construction (Phase 2)	Quantified	6,651	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
608817	Salem - Lynn - Resurfacing and Related Work on Route 107	Qualitative		No assumed impact/negligible impact on emissions
608008	Saugus - Resurfacing and Related Work on Route 1	Qualitative		No assumed impact/negligible impact on emissions
608079	Sharon - Bridge Replacement, S-09-003 (40N), Maskwonicut St over Amtrak/MBTA	Qualitative		Qualitative Decrease in 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 I-93 at Mystic Ave and McGrath Highway	Quantified		TBD
604989	Southborough - Reconstruction of Main Street (Route 30), from Sears Rd to Park St	Quantified	231,813	Quantified Decrease in Emissions from Complete Streets Project
608829	Stoughton - Improvements at West Elementary School	Qualitative		Qualitative Decrease in Emissions
605342	Stow - Bridge Replacement, S-29-001, (ST 62) Gleasondale Rd over the Assabet River	Qualitative		No assumed impact/negligible impact on emissions
608255	Stow - Bridge Replacement, S-29-011, Box Mill Rd over Elizabeth Brook	Qualitative		No assumed impact/negligible impact on emissions
608164	Sudbury - Bike Path Construction (Bruce Freeman Rail Trail)	Quantified	49,903	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure
607761	Swampscott - Intersection and Signal Improvements at SR 1A (Paradise Road) at Swampscott Mall	Quantified		TBD
608493	Topsfield - Resurfacing and Related Work on Route 1	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
607329	Wakefield-Lynnfield - Rail Trail Extension, from the Galvin Middle School to Lynnfield/Peabody Town Line	Quantified	158,032	Quantified Decrease in Emissions from Bicycle and Pedestrian Infrastructure
602261	Walpole - Reconstruction on Route 1A (Main St), from the Norwood Town Line to Route 27, includes W-03-024 over the Neponset River	Quantified	230,473	Quantified Decrease in Emissions from Complete Streets Project
607533	Waltham - Bridge Replacement, W-04-006, Woerd Ave over Charles River	Qualitative		No assumed impact/negligible impact on emissions
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 Street	Quantified		TBD
608823	Wellesley-Newton-Weston - Pavement Resurfacing and Related Work on I-95	Qualitative		No assumed impact/negligible impact on emissions
608528	Weston - Waltham - Resurfacing and Related Work on Route 20	Qualitative		No assumed impact/negligible impact on emissions
601630	Weymouth - Abington - Reconstruction and Widening on Route 18 (Main St) from Highland Place to Route 139 (4.0 Miles) includes replacing W-32-013, Route 18 over the Old Colony Railroad (MBTA)	Quantified		LRTP project included in the statewide model
608703	Wilmington - Bridge Replacement W-38-029 (2KV) Route 129 Lowell St Over I-93	Qualitative		No assumed impact/negligible impact on emissions
607327	Wilmington - Bridge Replacement W-38-002 (2KV) 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
608214	Winchester - Stormwater Improvements along Route 3	Qualitative		No assumed impact/negligible impact on emissions
604996	Woburn - Bridge Replacement, W-43-017, New Boston St over MBTA	Quantified		LRTP project included in the statewide model

TABLE C-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	Acquire - Miscellaneous Support Equipment	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 Trolley Buses (2)	Quantified	530	Quantified Decrease in Emissions from Bus Replacement
CATA	Construct - Bus Shelter-CATA HUB/COA	Qualitative		No assumed impact/negligible impact on emissions
CATA	Preventative Maintenance	Qualitative		No assumed impact/negligible impact on emissions
CATA	Rehab - Shelters Railroad, Park and Ride, Emerson Ave	Qualitative		No assumed impact/negligible impact on emissions
CATA	Rehab/Renovate - Bus Passenger Shelters	Qualitative		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 Avenue with the Union Square Spur	Quantified		LRTP project included in the statewide model
MBTA	Stations and Facilities	Qualitative		No assumed impact/negligible impact on emissions
MBTA	Bus Overhaul	Qualitative		No assumed impact/negligible impact on emissions
MBTA	Bus Program	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
MBTA	Bus Procurement (60 Hybrid Buses)	Quantified	2,398,879	Quantified Decrease in Emissions from Bus Replacement
MBTA	Elevator Program	Qualitative		No assumed impact/negligible impact on emissions
MBTA	Revenue Vehicle Program	Qualitative		No assumed impact/negligible impact on emissions
MBTA	Positive Train Control	Qualitative		No assumed impact/negligible impact on emissions
MBTA	Systems Upgrade	Qualitative		No assumed impact/negligible impact on emissions
MBTA	Signal Program	Qualitative		No assumed impact/negligible impact on emissions
MWRTA	Acquisition of Bus Support Equipment/Facilities	Qualitative		No assumed impact/negligible impact on emissions
MWRTA	Construct Miscellaneous Electric/Power Equipment	Qualitative		No assumed impact/negligible impact on emissions
MWRTA	Mobility Management	Qualitative		No assumed impact/negligible impact on emissions
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

TABLE C-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
29492	Bedford-Billerica - Middlesex Turnpike Improvements, from Crosby Drive north to Manning Road, 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
600518	Hingham - Intersection Improvements at Derby Street, Whiting Street (Route 53) and Gardner Street	Quantified	-113,400	Quantified Increase in Emissions	2017
604810	Marlborough - Reconstruction of Route 85 (Maple Street)	Quantified	589,680	Quantified Decrease in Emissions from Complete Streets Project	2017
607754	Milton - Intersection and Signal Improvements at Granite Avenue and Squantum Street	Quantified		TBD	2017
602165	Stoneham - Signal and Intersection Improvements at Route 28/North Street	Quantified	139,709	Quantified Decrease in Emissions from Traffic Operational Improvement	2017
604935	Woburn - Reconstruction of Montvale Avenue, from I-93 Interchange to Central Street (approximately 1,850 feet)	Quantified	98,885	Quantified Decrease in Emissions from Complete Streets Project	2017

TABLE C-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	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

APPENDIX D

FFY 2017 Highway Projects Status

This appendix is under development. It will list information about the status of roadway projects in the federal fiscal year 2017 element of the FFYs 2017–21 TIP.

APPENDIX E

Transit Projects Status

This appendix is under development. It will list information about the status of transit projects programmed on previous elements of the TIP.

APPENDIX

Public Comments on the Draft FFYs 2018–22 TIP

This appendix will contain a table of summarized public comments on the draft FFYs 2018–22 TIP received during the public comment period.

APPENDIX G

MPO Glossary of Acronyms

Acronym	Definition
3C	continuous, comprehensive, cooperative [metropolitan transportation planning process]
A&F	Administration and Finance Committee
AACT	Access Advisory Committee to the MBTA
ABP	Accelerated Bridge Program [MassDOT]
ADA	Americans with Disabilities Act of 1990
ADT	average daily traffic
AADT	annual average daily traffic
AFC	automated fare collection [system]
AMPO	Association of Metropolitan Planning Organizations
APC	automatic passenger counter
APTA	American Public Transportation Association
ARAN	automatic road analyzer
ARRA	The American Recovery and Reinvestment Act of 2009
ASL	American sign language
ATR	automatic traffic recorder
AVL	automatic vehicle location
AWDT	average weekday daily traffic
BCIL	Boston Center for Independent Living
BPDA	Boston Planning and Development Agency, formerly known as the Boston Redevelopment Authority (BRA) [City of Boston]
BRA	Boston Redevelopment Authority [City of Boston]
BRT	bus rapid transit
BTD	Boston Transportation Department

Acronym	Definition
CA/T	Central Artery/Tunnel [project] (also known as “the Big Dig”)
CAA	Clean Air Act of 1970
CAAA	Clean Air Act Amendments of 1990
CATA	Cape Ann Transportation Authority
CBD	central business district
CFR	Code of Federal Regulation
CHSTP	Coordinated Public Transit Human Services Transportation Plan
CIC	Community Innovation Challenge
CIP	Capital Investment Plan [MassDOT]
CMAQ	Congestion Mitigation and Air Quality [federal funding program]
CMP	Congestion Management Process
CNG	compressed natural gas
CO	carbon monoxide
CO_2	carbon dioxide
CTPS	Central Transportation Planning Staff
CTTAP	Community Transportation Technical Assistance Program
DBMS	Database Management System
DCAMM	Division of Capital Asset Management and Maintenance [Massachusetts]
DCR	Department of Conservation and Recreation
DEIR	draft environmental impact report
DEP	Department of Environmental Protection [Massachusetts]
DMU	diesel multiple unit [transit vehicle]
DTA	dynamic traffic assignment [travel demand modeling]
EERPAT	Energy and Emissions Reduction Policy Analysis Tool
EIR	environmental impact report
EIS	environmental impact statement
EJ	environmental justice
EOEEA	Massachusetts Executive Office of Energy and Environmental Affairs
EOHED	Massachusetts Executive Office of Housing and Economic Development

Acronym	Definition
EOHHS	Massachusetts Executive Office of Health and Human Services
EPA	Environmental Protection Agency [federal]
EPDO	equivalent property damage only [a traffic-related index]
ETC	electronic toll collection
FAST Act	Fixing America's Surface Transportation Act
FDR	functional design report
FEIR	final environmental impact report
FFGA	full funding grant agreement
FFY, FFYs	federal fiscal year, federal fiscal years
FHEA	Fair Housing Equity Assessment
FHWA	Federal Highway Administration
FMCB	Fiscal and Management Control Board of the MBTA
FONSI	finding of no significant impact
FTA	Federal Transit Administration
GANS	grant anticipation notes [municipal bond financing]
GHG	greenhouse gas [as in greenhouse gas emissions]
GIS	geographic information system
GLX	Green Line Extension [Green Line Extension project]
GPS	global positioning system
GTFS	General Transit Feed Specification [data standard]
GWI	global warming index
GWSA	Global Warming Solutions Act of 2008 [Massachusetts]
HOV	high-occupancy vehicle
HPP	high-priority projects
HSIP	Highway Safety Improvement Program [federal funding program]
HTC	Healthy Transportation Compact
ICC	Inner Core Committee [MAPC municipal subregion]
IMS	intermodal management system
INVEST	Infrastructure Voluntary Evaluation Sustainability Tool [FHWA]

Acronym	Definition
IPCC	Intergovernmental Panel on Climate Change
IT&S	Information Technology and Systems [CTPS group]
ITDP	Institute for Transportation and Development Policy
ITE	Institute of Transportation Engineers
ITS	intelligent transportation systems
JARC	Job Access and Reverse Commute [program]
LAP	language access plan
LCW	Livable Community Workshop
LEP	limited English proficiency
LNG	liquefied natural gas
LOS	level of service
LRTA	Lowell Regional Transit Authority
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
MassGIS	[Commonwealth's] Office of Geographic Information Systems
Massport	Massachusetts Port Authority
MassRIDES	MassDOT's statewide travel options program
MBCR	Massachusetts Bay Commuter Railroad
MBTA	Massachusetts Bay Transportation Authority (also known as "the T")
MCAD	Massachusetts Commission Against Discrimination
MEMA	Massachusetts Emergency Management Agency
MEPA	Massachusetts Environmental Policy Act
MGL	Massachusetts general laws
MHS	metropolitan highway system
MOU	memorandum of understanding
MOVES	Motor Vehicle Emissions Simulator [EPA air quality model]

Acronym	Definition
MPO	metropolitan planning organization [Boston Region MPO]
MPOinfo	Boston Region MPO's email contact list
MWGMC	MetroWest Growth Management Committee [MAPC municipal subregion]
MWRC	MetroWest Regional Collaborative [MAPC municipal subregion]
MWRTA	MetroWest Regional Transit Authority
NAAQS	National Ambient Air Quality Standards
NBPD	National Bicycle and Pedestrian Documentation Project
NEPA	National Environmental Policy Act
NHPP	National Highway Performance Program
NHS	National Highway System
NMHC	non-methane hydrocarbons
NOx	nitrogen oxides
NTD	National Transit Database
NTP	notice to proceed
O&M	operations and management
ODCR	Office of Diversity and Civil Rights [MassDOT]
OE	operating expenses
OTA	Office for Transportation Access [MBTA]
OTP	Office of Transportation Planning [MassDOT]
P3	Public Participation Plan [MPO document]
PBPP	performance-based planning and programming
PDM	Pre-Disaster Mitigation Program [federal]
PEV	pedestrian environmental variable
PL	metropolitan planning funds [FHWA] or public law funds
PM	particulate matter [category of air pollution]
PMT	Program for Mass Transportation [MBTA]
ppm	parts per million
PRC	Project Review Committee [MassDOT]
PSAC	Project Selection Advisory Council [MassDOT]

Acronym	Definition
RCCs	Regional Coordinating Councils
RIF	roadway inventory file
RMV	Registry of Motor Vehicles [MassDOT division]
ROC	Rider Oversight Committee [MBTA]
ROW	right-of-way
RPA	regional planning agency
RSA	Roadway Safety Audit [FHWA]
RSS	rich site summary [Web, feed]
RTA	regional transit authority
RTAC	Regional Transportation Advisory Council [of the Boston Region MPO]
RTC	Regional Transportation Center
SAFE	service and fare equity [Title VI]
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act−A Legacy for Users
SCCCT	Statewide Coordinating Council on Community Transportation
SCI	sustainable communities initiative
SDO	supplier diversity office
SFY	state fiscal year
SGR	state-of-good repair
SHRP	Strategic Highway Research Program
SHSP	Strategic Highway Safety Plan
SIP	State Implementation Plan
SNAC	special needs advisory committee
SNLA	Small Necessities Leave Act
SORE	statement of revenue and expenses
SOV	single-occupancy vehicle
SPR	Statewide Planning and Research
SRTS	Safe Routes to School [federal program]
STB	State Transportation Building [Boston]
STBGP	Surface Transportation Block Grant Program [federal funding program; replaced STP]
STIP	State Transportation Improvement Program

Acronym	Definition
STP	Surface Transportation Program [federal funding program; replaced by STBGP]
TAM	transit asset management
TAP	Transportation Alternatives Program [federal funding program]
TAZ	transportation analysis zone [travel demand modeling term]
TCMs	transportation control measures
TCRP	Transit Cooperative Research Program
TDM	travel-demand management, or transportation-demand management
TE	transportation equity
TEAMS	Travel Efficiency Assessment Method
TIGER	Transportation Investment Generating Economic Recovery [TIGER Discretionary Grant program, federal]
TIP	Transportation Improvement Program [MPO certification document]
Title VI	Title VI of the Civil Rights Act of 1964
TMA [1]	transportation management area [FTA, FHWA]
TMA [2]	Transportation Management Association
TMC	turning movement counts
TOD	transit-oriented development
TRB	Transportation Research Board
TREDIS	Transportation Economic Development Impact System [software]
TSIMS	Transportation Safety Information Management System
TSM	transportation systems management [FHWA]
UFP	ultrafine particles
UPWP	Unified Planning Work Program [MPO certification document]
USDOT	United States Department of Transportation [agency oversees FHWA and FTA]
USGS	United States Geological Survey
UZA	urbanized area
V/C	volume-to-capacity ratio
VHT	vehicle-hours traveled
VMS	variable message signs

Acronym	Definition
VMT	vehicle-miles traveled
VOCs	volatile organic compounds [pollutants]
VRH	vehicle revenue-hours
VRM	vehicle revenue-miles
WalkBoston	pedestrian advocacy group [Boston area]
WAT	walk-access transit
WMM	weMove Massachusetts [MassDOT planning initiative]
WTS	Women in Transportation Seminar
YMM	youMove Massachusetts [MassDOT planning initiative]

APPENDIX H

FFYs 2008–2022 TIP Funding by Municipality

PURPOSE AND METHODOLOGY

Purpose

Appendix H summarizes the geographic distribution of Target Program funding within the MPO region between federal fiscal years (FFYs) 2008 and 2022. This data was first compiled for FFYs 2008 through 2013 as part of a response to the MPO's 2014 Certification Review by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). For this FFYs' 2018–22 TIP, the data was updated to reflect the distribution of Target Program funding, as currently planned, through FFY 2022.

NOTE: The data in Table H-1 currently reflects MPO Target programming through FFY 2021. This will be updated once the MPO votes to endorse the FFYs 2018 –22 TIP. Updated data and analysis will be included in the final FFYs 2018 –22 TIP.

The purpose of this data collection and analysis is to understand the geographic spread of the TIP Target Program funding throughout the region. In other words, this exercise serves to illuminate which communities and areas of our metropolitan region have received Target Program funding for transportation construction projects.

Methodology

MPO staff took the following steps to develop the dataset:

- Recorded information about TIP projects and the amount of funding programmed in each federal fiscal year.
- For projects that spanned multiple municipalities, divided programmed funds equally by the number of municipalities located within the project area.
- For each federal fiscal year, calculated the amount of programmed funds associated with each municipality. Funding from FFYs 2008 to 2017 is displayed in a single column, while funding information is displayed for each FFY in the current TIP cycle.
- Recorded the total amount of programmed funds for each municipality for each fiscal year in the dataset.

- To focus this compilation of data on transportation projects programmed for individual municipalities or groups of municipalities more directly, this dataset excluded several projects that have a regionwide scope. Examples of regionwide projects include traffic-management center operations and systemwide transit capital upgrades.

NEXT STEPS

The data summarized in this appendix (and future TIP funding data that is added to it) could be used in various ways to help guide spending decisions made in future TIPs. Some analyses that the MPO could perform in the future include:

- Add to this analysis TIP projects that are funded through statewide funding programs.
- Examine in more detail the geographic distribution of TIP funding per subregion, or MAPC community type.
- Examine TIP funding by community and compare that data to the number of road miles, the Chapter 90 apportionment, and the distribution of needs—as identified in the Long-Range Transportation Plan (LRTP), *Charting Progress to 2040,* Needs Assessment—for each community.

Maintaining a database to track the geographic distribution of TIP funding can serve as one important input into the funding decisions made each FFY. When considered in combination with other data, as described above, this data on geographic distribution of Target Program funding can help guide the MPO's public outreach and decision making to help ensure that, over time, we are meeting the transportation needs of the region.

TABLE H-1
TIP TARGET PROGRAMMING BY MUNICIPALITY, FFYS 2008-2016

Municipality	FFYs 2008-16 TIP	FFY 2017 TIP	FFY 2018 TIP	FFY 2019 TIP	FFY 2020 TIP	FFY 2021 TIP	FFYs 2017-21 TIP	FFYs 2008-21 TIP	Additional Information
Acton	$275,507							$275,507	
Arlington	$5,125,719							$5,125,719	
Ashland					$15,532,405		$15,532,405	$15,532,405	
Bedford	$17,353,183	$3,302,453					$3,302,453	$20,655,636	$13,014,923 split with Burlington (29491); $28,296,348 split with Burlington (29492)
Bellingham									
Belmont	$17,229,071							$17,229,071	$5,200,000 split with Somerville and Cambridge (600811)
Beverly	$21,982,712					$3,509,576	$3,509,576	$25,492,288	
Bolton									
Boston	$29,525,377			$7,853,499	$15,214,319	$21,832,529	$44,900,347	$74,425,724	$4,842,540 split with Everett (602382)
Boxborough									
Braintree									
Brookline	$213,702		$5,273,202				$5,273,202	$5,486,904	blank
Burlington	$17,353,183	$3,302,453					$3,302,453	$20,655,636	$13,014,923 split with Bedford (29491); $28,296,348 split with Bedford (29492)
Cambridge	$4,766,654							$4,766,654	$5,200,000 split with Somerville and Belmont (600811)
Canton	$10,688,605							$10,688,605	$26,959,389 split with Dedham, Randolph, and Westwood (87800)
Carlisle									
Chelsea									
Cohasset									
Concord	$26,093,441							$26,093,441	$39,584,874 split with Lincoln (602984)
Danvers	$32,716,174							$32,716,174	
Dedham	$21,129,280							$21,129,280	$46,956,250 split with Needham (603206); $26,959,389 split with Canton, Randolph, and Westwood (87800)
Dover									
Duxbury	$247,076							$247,076	GATRA funding split with Marshfield; submit TIP funding

Municipality	FFYs 2008-16 TIP	FFY 2017 TIP	FFY 2018 TIP	FFY 2019 TIP	FFY 2020 TIP	FFY 2021 TIP	FFYs 2017-21 TIP	FFYs 2008-21 TIP	Additional Information
									requests through OCPC
Essex	$6,166,644							$6,166,644	
Everett	$2,421,270			$7,244,124			$7,244,124	$9,665,394	$4,842,540 split with Boston (602382)
Foxborough	$2,711,153							$2,711,153	$8,133,460 split with Norfolk and Wrentham (602496)
Framingham	$550,814					$10,063,912	$10,063,912	$10,614,726	MWRTA Route 7 service funding; MWRTA Route 1 service funding
Franklin	$4,991,116							$4,991,116	
Gloucester									
Hamilton									
Hanover	$1,993,926							$1,993,926	
Hingham		$4,927,769	$3,057,735	blank	blank	blank	$7,985,504	$7,985,504	
Holbrook						$1,363,630	$1,363,630	$1,363,630	
Holliston									
Hopkinton				$8,501,376			$8,501,376	$8,501,376	
Hudson	$11,114,480							$11,114,480	$300,000 split with Route 128 Business Council
Hull	$1,885,976							$1,885,976	
Ipswich	$3,250,305							$3,250,305	
Lexington	$7,438,080							$7,438,080	
Lincoln	$22,492,311							$22,492,311	$39,584,874 split with Concord (602984)
Littleton	$4,200,000							$4,200,000	
Lynn	$5,531,280				$4,953,270		$4,953,270	$10,484,550	
Lynnfield									
Malden									
Manchester									
Marblehead									
Marlborough		$5,613,636					$5,613,636	$5,613,636	
Marshfield	$5,929,736							$5,929,736	GATRA funding split with Duxbury
Maynard									
Medfield									
Medford									
Medway	$12,062,567							$12,062,567	
Melrose	$4,405,030							$4,405,030	

Municipality	FFYs 2008-16 TIP	FFY 2017 TIP	FFY 2018 TIP	FFY 2019 TIP	FFY 2020 TIP	FFY 2021 TIP	FFYs 2017-21 TIP	FFYs 2008-21 TIP	Additional Information
Middleton									
Milford	$7,600,000			$3,149,619			$3,149,619	$10,749,619	
Millis									
Milton									
Nahant									
Natick	$4,450,987			$15,459,553			$15,459,553	$19,910,540	
Needham	$74,110,472	$12,269,908	$8,726,330				$20,996,238	$95,106,710	$46,956,250 split with Dedham (603206); $28,613,160 split with Wellesley (603711); $15,464,292 split with Newton (606635)
Newton	$10,988,203		$7,732,146				$7,732,146	$18,720,349	$7,197,384 split with Watertown (601686); $15,464,292 split with Needham (606635)
Norfolk	$2,711,153							$2,711,153	$8,133,460 split with Foxborough and Wrentham (602496)
North Reading									
Norwell									
Norwood						$6,317,236	$6,317,236	$6,317,236	
Peabody									
Pembroke									Submit TIP funding requests through OCPC
Quincy	$3,575,278							$3,575,278	blank
Randolph	$10,529,796							$10,529,796	$26,959,389 split with Canton, Dedham, and Westwood (87800)
Reading	$8,072,234							$8,072,234	
Revere									
Rockland	$7,500,000							$7,500,000	$15,000,000 split with Weymouth (604510)
Rockport									
Salem	$10,126,263			$2,595,840			$2,595,840	$12,722,103	
Saugus									
Scituate									
Sharon									
Sherborn									
Somerville	$23,420,945	$29,900,000	$40,000,000	$40,000,000	$40,000,000	$32,000,000	$181,900,000	$205,320,945	$5,200,000 split with Belmont and Cambridge (600811)
Southborough	$71,521		$7,281,248				$7,281,248	$7,352,769	

Municipality	FFYs 2008-16 TIP	FFY 2017 TIP	FFY 2018 TIP	FFY 2019 TIP	FFY 2020 TIP	FFY 2021 TIP	FFYs 2017-21 TIP	FFYs 2008-21 TIP	Additional Information
Stoneham	$1,809,703							$1,809,703	$5,429,110 split with Winchester and Woburn (604652)
Stoughton									Submit TIP funding requests through OCPC
Stow									
Sudbury									
Swampscott									
Topsfield	$3,936,780							$3,936,780	
Wakefield	$2,254,636							$2,254,636	
Walpole					$18,584,373		$18,584,373	$18,584,373	
Waltham									
Watertown	$5,387,812							$5,387,812	$7,197,384 split with Newton (601686)
Wayland									
Wellesley	$60,001,722	$12,269,908	$994,184				$13,264,092	$73,265,814	$28,613,160 split with Needham (603711)
Wenham									
Weston									
Westwood	$24,638,546							$24,638,546	$26,959,389 split with Canton, Dedham, and Randolph (87800)
Weymouth	$14,883,300	$12,850,000	$19,591,490	$8,040,268			$40,481,758	$55,365,058	$15,000,000 split with Rockland (604510)
Wilmington									
Winchester	$1,809,703							$1,809,703	$5,429,110 split with Stoneham and Woburn (604652)
Winthrop									
Woburn	$1,809,703	$4,752,838				$17,784,392	$22,537,230	$24,346,933	$5,429,110 split with Stoneham and Winchester (604652)
Wrentham	$2,711,153							$2,711,153	$8,133,460 split with Foxborough and Norfolk (602496)

GATRA = Greater Attleboro-Taunton Regional Transit Authority. MWRTA = MetroWest Regional Transit Authority. OCPC = Old Colony Planning Council. TIP = Transportation Improvement Program.