TRANSPORTATION IMPROVEMENT PROGRAM

TRANSPORTATION IMPROVEMENT PROGRAM

FFYs 2021–25

Transportation Improvement Program and Air Quality Conformity Determination

Federal Fiscal Years 2021–25

DRAFT

Boston Region MPO

Draft for Public Review, April 23, 2020

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

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

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Regional Transportation Advisory Council
City of Boston
City of Beverly
City of Everett
City of Framingham
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TITLE VI SPECIALIST

Boston Region MPO
10 Park Plaza, Suite 2150
Boston, MA 02116

civilrights@ctps.org

857.702.3700 (voice)
617.570.9193 (TTY)

CONTACT MPO STAFF:

BY MAIL:

Boston Region MPO
Certification Activities Group, Central Transportation Planning Staff
10 Park Plaza, Suite 2150
Boston, MA 02116

BY TELEPHONE:

857.702.3702 (voice)
617.570.9193 (TTY)

BY FAX:

617.570.9192

BY EMAIL:

mgenova@ctps.org

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CERTIFICATION OF THE BOSTON REGION MPO TRANSPORTATION PLANNING PROCESS

SIGNATURE PAGE

CERTIFICATION OF THE BOSTON REGION MPO TRANSPORTATION PLANNING PROCESS

SIGNATURE PAGE

ABBREVIATIONS

Abbreviation	Term
3C	continuous, comprehensive, cooperative [metropolitan transportation planning process]
A&F	Administration and Finance Committee
AADT	average annual daily traffic
ACS	American Community Survey [US Census Bureau data]
ADA	Americans with Disabilities Act of 1990
AFC	automated fare collection
BRT	bus rapid transit
BTD	Boston Transportation Department
CA/T	Central Artery/Tunnel [project also known as "the Big Dig"]
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CATA	Cape Ann Transportation Authority
CECP	Massachusetts Clean Energy and Climate Plan
CFR	Code of Federal Regulations
CIP	Capital Investment Plan [MassDOT]
CMAQ	Congestion Mitigation and Air Quality [federal funding program]
CMR	Code of Massachusetts Regulations
CMP	Congestion Management Process
CO	carbon monoxide
CO_2	carbon dioxide
CTPS	Central Transportation Planning Staff
CY	calendar year
DCR	Department of Conservation and Recreation
DEIR	draft environmental impact report
DEP	Department of Environmental Protection [Massachusetts]
DOT	department of transportation
EDTTT	excessive delay threshold travel time
EJ	environmental justice
ENF	environmental notification form
EO	executive order
EOEEA	Massachusetts Executive Office of Energy and Environmental Affairs
EOHED	Massachusetts Executive Office of Housing and Economic Development
EPA	Environmental Protection Agency [federal]
EPDO	equivalent property damage only [a traffic-related index]
FARS	Fatality Analysis and Reporting System [FHWA]
FAST Act	Fixing America's Surface Transportation Act
FDR	functional design report
FEIR	final environmental impact report
FFGA	full funding grant agreement

Abbreviation	Term
FFY	federal fiscal year
FHWA	Federal Highway Administration
FMCB	MBTA Fiscal and Management Control Board
FR	Federal Register
FTA	Federal Transit Administration
GANS	grant anticipation notes [municipal bond financing]
GHG	greenhouse gas
GWSA	Global Warming Solutions Act of 2008 [Massachusetts]
HOV	high-occupancy vehicle
HSIP	Highway Safety Improvement Program [federal funding program]
ICC	Inner Core Committee [MAPC municipal subregion]
IRI	International Roughness Index
ITS	intelligent transportation systems
LED	light-emitting diode
LEP	limited English proficiency
LOTTR	level of travel time ratio
LRTP	Long-Range Transportation Plan [MPO certification document]
MAGIC	Minuteman Advisory Group on Interlocal Coordination [MAPC municipal subregion]
MAP-21	Moving Ahead for Progress in the 21st Century Act
MAPC	Metropolitan Area Planning Council
MARPA	Massachusetts Association of Regional Planning Agencies
MassDOT	Massachusetts Department of Transportation
Massport	Massachusetts Port Authority
MBTA	Massachusetts Bay Transportation Authority
MCCA	Massachusetts Convention Center Authority
MEPA	Massachusetts Environmental Policy Act
MGL	Massachusetts General Laws
MOVES	Motor Vehicle Emissions Simulator [EPA air quality model]
MPO	metropolitan planning organization [Boston Region MPO]
MOU	memorandum of understanding
MWRC	MetroWest Regional Collaborative [MAPC municipal subregion]
MWRTA	MetroWest Regional Transit Authority
NAAQS	National Ambient Air Quality Standards
NH DOT	New Hampshire Department of Transportation
NHFP	National Highway Freight Program
NHPP	National Highway Performance Program
NHS	National Highway System
NHTSA	National Highway Traffic Safety Administration
NMCOG	Northern Middlesex Council of Governments
NOx	nitrogen oxides
NPMRDS	National Performance Measure Research Data Set [FHWA]
NSPC	North Suburban Planning Council [MAPC municipal subregion]

Abbreviation	Term
NSTF	North Shore Task Force [MAPC municipal subregion]
NTD	National Transit Database
OTP	MassDOT Office of Transportation Planning
PBPP	performance-based planning and programming
PHED	peak hours of excessive delay
PfP	Planning for Performance
PL	metropolitan planning funds [FHWA] or public law funds
PMT	Program for Mass Transportation [MBTA]
ppm	parts per million
PRC	Project Review Committee [MassDOT]
PSAC	Project Selection Advisory Council [MassDOT]
PSI	Pavement Serviceability Index
PTASP	Public Transportation Agency Safety Plan
RMV	Registry of Motor Vehicles [MassDOT division]
RTA	regional transit authority
RTAC	Regional Transportation Advisory Council [of the Boston Region MPO]
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SEIR	Single Environmental Impact Report [MEPA]
SFY	state fiscal year
SHSP	Strategic Highway Safety Plan
SIP	State Implementation Plan
SOV	single-occupant vehicle
SPR	Statewide Planning and Research
SRTS	Safe Routes to School [federal program]
SSC	South Shore Coalition [MAPC municipal subregion]
STBGP	Surface Transportation Block Grant Program [federal funding program; replaced STP]
STIP	State Transportation Improvement Program
STP	Surface Transportation Program [federal funding program; replaced by STBGP]
SWAP	South West Advisory Planning Committee [MAPC municipal subregion]
TAM	Transit Asset Management Plan
TAMP	Transportation Asset Management Plan
TAP	Transportation Alternatives Program [federal funding program]
TCM	transportation control measure
TE	transportation equity
TERM	Transit Economic Requirements Model [FTA]
TIP	Transportation Improvement Program [MPO certification document]
TRIC	Three Rivers Interlocal Council [MAPC municipal subregion]
TTI	travel time index
TTTR	Truck Travel Time Reliability Index
ULB	Useful Life Benchmark
UPWP	Unified Planning Work Program [MPO certification document]
USC	United States Code

Abbreviation	Term
USDOT	United States Department of Transportation [oversees FHWA and FTA]
UZA	urbanized area
VMT	vehicle-miles traveled
VOCs	volatile organic compounds [pollutants]
VRM	vehicle revenue-miles
WMM	weMove Massachusetts [MassDOT planning initiative]
YMM	youMove Massachusetts [MassDOT planning initiative]

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EXECUTIVE SUMMARY

INTRODUCTION

The Boston Region Metropolitan Planning Organization's (MPO) five-year transportation capital investment plan, the federal fiscal years (FFYs) 2021–25 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, promote equity and sustainability, and improve mobility throughout the region. These investments fund major highway reconstruction, arterial roadway and intersection improvements, maintenance and expansion of the public transit system, bicycle path construction, and infrastructure improvements for pedestrians.

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

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

FFYS 2021–25 TIP INVESTMENTS

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

HIGHWAY PROGRAM

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

In Massachusetts, Federal-Aid Highway Program funding is apportioned by MassDOT, which allocates funding to Grant Anticipation Notes (GANs) payments, various statewide programs, and Regional Targets for the state's MPOs. In the FFYs 2021–25 TIP, roadway, bridge, and bicycle and pedestrian programs account for more than $1.3 billion in funding to the Boston region. The Regional Target funding provided to the MPOs may be programmed for projects at the discretion of each MPO, whereas MassDOT has discretion to propose its recommended projects for statewide programs, such as those related to bridge repairs and interstate highway maintenance.

TRANSIT PROGRAM

The Transit Program of the TIP provides funding for projects and programs that address the capital needs prioritized by the three transit authorities in the region: the Massachusetts Bay Transportation Authority (MBTA), the Cape Ann Transportation Authority (CATA), and the MetroWest Regional Transit Authority (MWRTA). The Transit Program is predominantly dedicated to achieving and maintaining a state of good repair for all assets throughout the transit system. The FFYs 2021–25 TIP includes $3.1 billion in transit investments by the transit authorities that will support state of good repair, modernize transit systems, and increase access to transit. The Green Line Extension project is a major project programmed in this TIP that will expand transit service. Additionally, beginning in FFY 2025, the MPO is allocating five percent of its annual Regional Target funds to its new Transit Modernization investment program. This program aims to build on the investments made through the Transit Program by using a portion of Highway Program funding to fulfill unmet transit project needs in the region.

REGIONAL TARGET PROGRAM DETAILS

During FFYs 2021–25, the Boston Region MPO plans to fund 47 projects with its Regional Target funding. In total, eight new projects were added to the MPO's Regional Target program during this TIP cycle. These projects include:

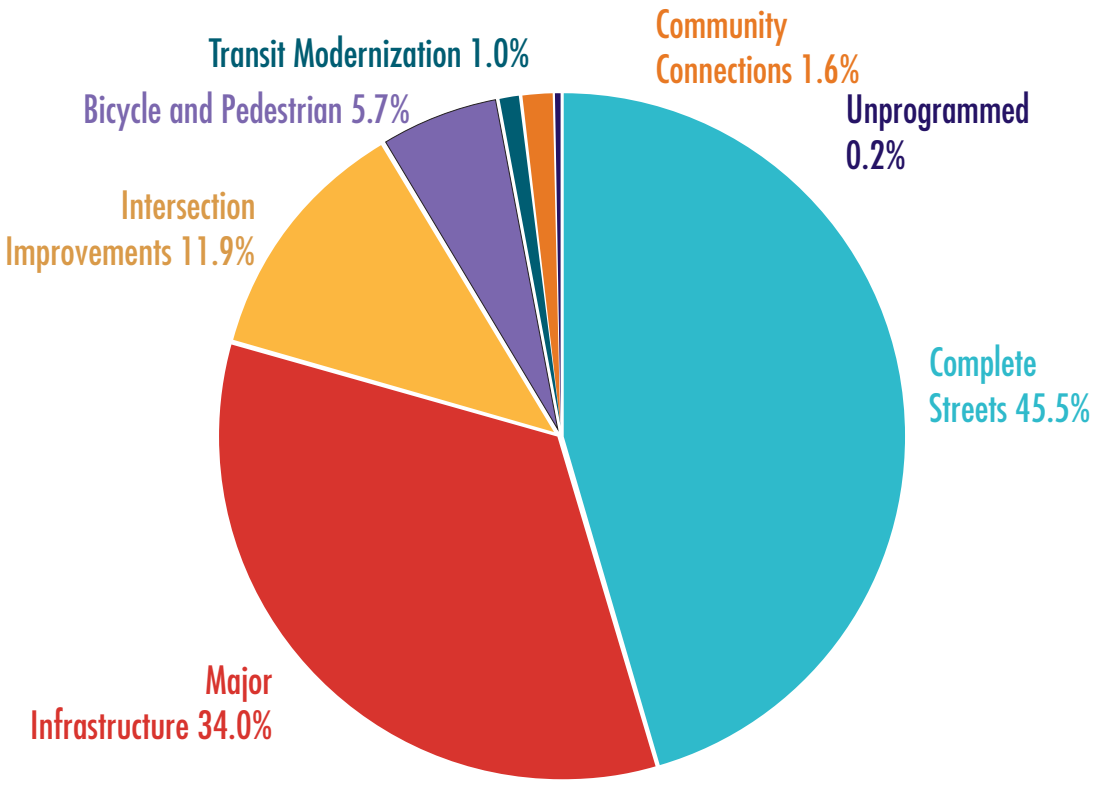
- **Complete Streets:**
  - Woburn: Roadway and Intersection Improvements at Woburn Common, Route 38 (Main Street), Winn Street, Pleasant Street, and Montvale Avenue
- **Intersection Improvements:**
  - Woburn and Burlington: Intersection Reconstruction at Route 3 (Cambridge Road) and Bedford Road and South Bedford Street
- **Bicycle Network and Pedestrian Connections:**
  - Peabody: Multi-Use Path Construction of Independence Greenway at I-95 and Route 1
- **Community Connections:**
  - Newton: Newton Microtransit Service
  - Cambridge: Concord Avenue Transit Signal Priority
  - Somerville: Davis Square Signal Improvements
  - Concord: Bruce Freeman Rail Trail Bike Shelters
  - Sharon: Carpool Marketing Program

Other investment decisions made this year include the allocation of significant new funding in FFY 2025 to the Reconstruction of Rutherford Avenue in Boston. FFY 2025 is the fourth year of a five-year funding commitment made by the MPO to this project, which is expected to be completed in FFY 2026. The MPO also set aside continued funding for its Community Connections Program (in FFYs 2022–25) and began allocating funding to its Transit Modernization Program (in FFY 2025) for the first time during this TIP cycle. The funding set aside through both of these programs will be allocated to specific projects during future TIP programming cycles.

During the development of the FFYs 2021–25 TIP, the MPO was very limited in its financial capacity to fund new projects. In addition to the inherently constrained nature of transportation infrastructure funding, the need for which greatly exceeds available resources in any given year, significant cost increases for many projects already programmed in FFYs 2020–24 consumed funding for prospective new projects in FFY 2025. Although this challenge inevitably arises during every TIP cycle, this year saw an especially severe level of cost increases, with additional money needed for already programmed projects comprising 14 percent of the Boston Region MPO's five-year funding capacity. This dynamic drove decision-making during this fiscal year and led to a relatively low number of new projects being selected for programming in FFY 2025.

Figure ES-1 shows how the Regional Target funding for FFYs 2021–25 is distributed across the MPO's investment programs. As the chart shows, the Boston Region MPO's Regional Target Program is devoted primarily to enhancing mobility and safety for all travel modes through significant investments in Complete Streets projects. A large portion of the MPO's funding also supports the modernization of key regional roadways and expansion of transit infrastructure through investments in Major Infrastructure projects.

Figure ES-1: FFYs 2021–25 TIP Regional Target Funding by MPO Investment Program



Source: Boston Region MPO.

In addition to the distribution of funding across the MPO's investment programs listed above, Table ES-1 details the number of projects and the allocation of funds across each program in the FFYs 2021–25 TIP. As noted in the table, the MPO has programmed more than 99.7 percent of its available funding over five years, leaving just $1,257,656 to be programmed in future TIP cycles. More details about every project funded through the MPO's Regional Target program are available in Chapter 3.

Table ES-1: FFYs 2021–25 Boston Region MPO Regional Target Investment Summary

MPO Investment Program	Number of Projects	Regional Target Dollars Programmed
Bicycle Network and Pedestrian Connections	4	$30,905,263
Community Connections (Allocated to Projects)	5	$822,000
Community Connections (Not Yet Allocated to Projects)	N/A	$8,000,000
Complete Streets[a]	23	$244,774,339
Intersection Improvements	11	$64,157,136
Major Infrastructure—Flex to Transit[b]	1	$27,096,238
Major Infrastructure—Roadway[c]	3	$156,036,944
Transit Modernization (Not Yet Allocated to Projects)	N/A	$5,500,000
Unprogrammed	N/A	$1,257,656
Total	**47**	**$538,549,576**

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

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

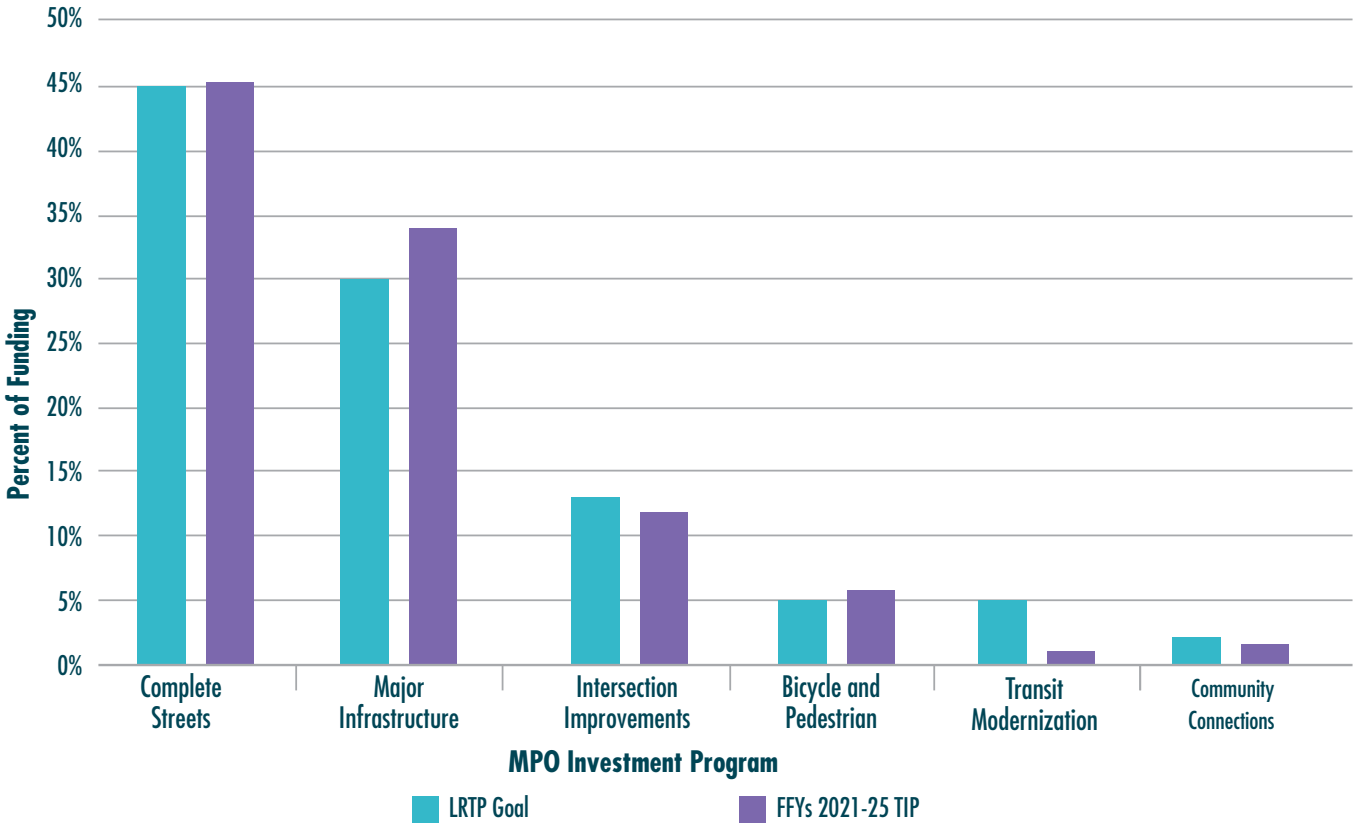
[b] The MPO will flex federal highway improvement dollars to support the Green Line Extension.

[c] In FFYs 2021 and 2022, the MPO will contribute $22,115,687 to Project 606476—Summer Tunnel Improvements, with other funds contributed by MassDOT. This project is included in the total number of projects in this category.

Source: Boston Region MPO.

In making decisions about which projects to fund, the MPO considers not only the relative distribution of funds across projects and investment programs, but also how the allocation of funds to each investment program compares to the funding goals outlined in the MPO's Long-Range Transportation Plan (LRTP), *Destination 2040*. The investment program sizes set forth in the LRTP reflect the types of projects the MPO seeks to fund to achieve its goals and objectives for the region, from enhancing safety for all users to promoting mobility and accessibility across the region. More information on the MPO's goals and objectives are available in Chapter 1, and a comparison between LRTP investment program sizes and program funding levels in the FFYs 2021–25 TIP is shown in Figure ES-2 below.

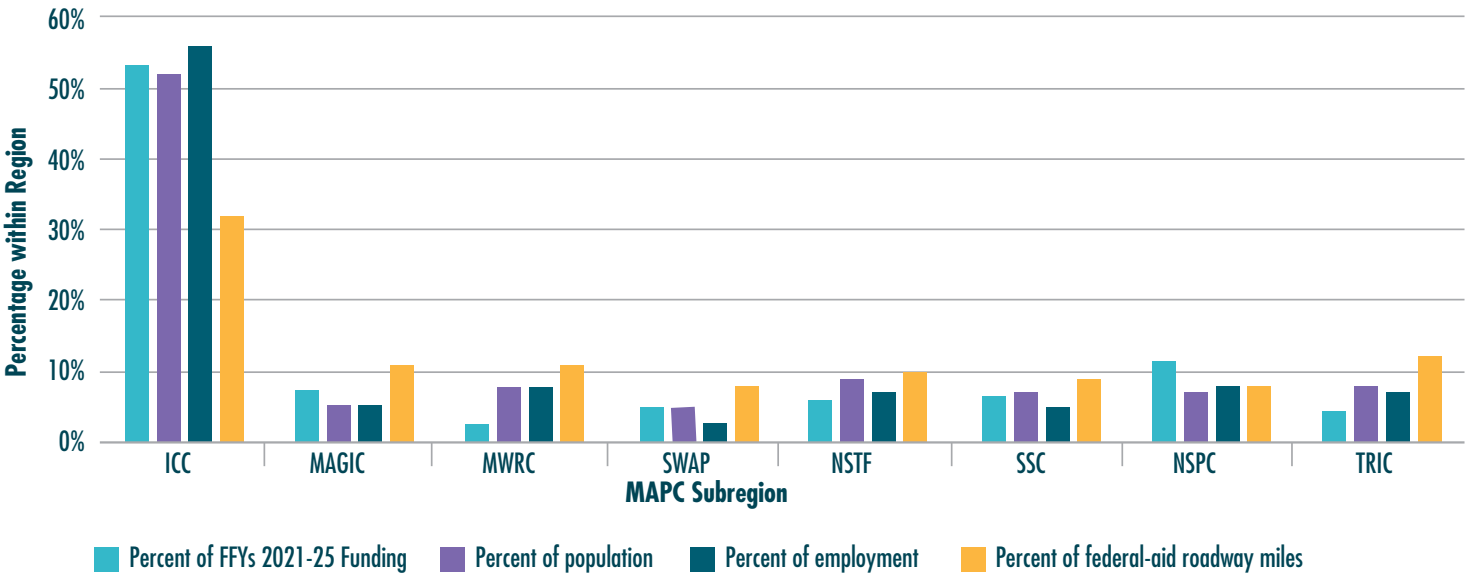
Figure ES-2: FFYs 2021–25 TIP: Regional Target Funding Levels Relative to Key Indicators, by MAPC Subregion



Source: Boston Region MPO.

The investments made in the FFYs 2021–25 TIP will be implemented in 38 cities and towns throughout the MPO region, ranging from dense inner core communities to developing suburbs further from the urban center. Figure ES-3 illustrates the distribution of Regional Target funding across the eight subregions within the Boston Region MPO's jurisdiction, as defined by the Metropolitan Area Planning Council (MAPC). This figure also includes information on how the distribution of funds compares to key metrics for measuring the need for funding by subregion, including the percent of regional population, employment, and Federal-Aid roadway miles within each subregion.

Figure ES-3: FFYs 2021–25 TIP: Regional Target Funding Levels Relative to Key Indicators, by MAPC Subregion



Source: Boston Region MPO.

Additional information on the geographic distribution of Regional Target funding across the region, including a breakdown of historical funding by municipality, is included in Appendix D.

FINANCING THE FFYS 2021–25 TIP

HIGHWAY PROGRAM

The TIP Highway Program was developed with the assumption that federal funding for the state would range between $671 million and $725 million annually over the next five years. These amounts include the funds that would be set aside initially by MassDOT as payments for the Accelerated Bridge Program, and exclude required matching funds.

The process of deciding how to use this federal funding in the Boston region follows several steps. First, MassDOT reserves funding for GANs debt service payments for the Accelerated Bridge Program; annual GANs payments range between $82 million and $122 million annually over the five years of this TIP.

The remaining Federal-Aid Highway Program funds are budgeted to support state and regional (i.e., MPO) priorities. In this planning cycle, $728 million to $763 million annually was available for programming statewide, including both federal dollars and the local match. MassDOT customarily provides the local match (which can also be provided by other entities); thus, projects are typically funded with 80 percent federal dollars and 20 percent state dollars, depending on the funding program.

Next, MassDOT allocates funding across the following funding categories:

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

Finally, once these needs have been satisfied, MassDOT allocates the remaining funding among the state's 13 MPOs for programming. This discretionary funding for MPOs is suballocated by formula to determine the Regional Target amounts. The Boston Region MPO receives the largest portion of MPO funding in the state, with approximately 43 percent of Massachusetts' Regional Target funds allocated to the region. MassDOT develops these targets in consultation with the Massachusetts Association of Regional Planning Agencies (or MARPA). This TIP was programmed with the assumption that the Boston Region MPO will have between $105 million and $110 million annually for Regional Target amounts, which consist of federal funding and state funding for the local match.

Each MPO may decide how to prioritize its Regional Target funding. Given that the Regional Target funding is a subset of the Highway Program, the MPO typically programs the majority of funding for roadway projects; however, the MPO has flexed portions of its highway funding to the Transit Program for both transit expansion and transit modernization projects. The TIP Highway Program details the projects that will receive Regional Target funding from the Boston Region MPO and statewide infrastructure projects within the Boston region. Details on these investments are outlined in Chapter 3.

TRANSIT PROGRAM

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

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

- **Section 5307 (Urbanized Area Formula Grants):** Provides grants to urbanized areas to support public transportation based on levels of transit service, population, and other factors
- **Section 5337 (Fixed Guideway/Bus):** Seeks to maintain public transportation systems in a state of good repair through replacement and rehabilitation capital projects

- **Section 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 5339 (Bus and Bus Facilities):** Provides funding to replace, rehabilitate, and purchase buses and related equipment, and to construct bus-related facilities
- **Section 5310 (Enhanced Mobility of Seniors and Individuals with Disabilities):** Provides funding to support transportation to meet the special needs of older adults and persons with disabilities

THE TIP DEVELOPMENT PROCESS

OVERVIEW

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

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

Additionally, the MPO has established investment programs that are designed to direct Regional Target funding towards MPO priority areas over the next 20 years to help meet these goals. The investment programs are as follows:

- Intersection Improvements
- Complete Streets
- Major Infrastructure
- Bicycle Network and Pedestrian Connections
- Community Connections
- Transit Modernization

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

In recent years, the MPO has been incorporating performance-based planning and programming (PBPP) practices into its TIP development and other processes. These practices are designed to help

direct MPO funds towards achieving specific outcomes for the transportation system. The MPO's goals and investment programs are key components of its PBPP framework. In FFY 2018, the MPO began to set targets for specific performance measures. Over time, the MPO will more closely link its performance targets, investment decisions, and monitoring and evaluation activities.

OUTREACH AND DATA COLLECTION

The outreach process begins early in the FFY when cities and towns designate TIP contacts and begin developing a list of priority projects to be considered for federal funding, and the MPO staff reaches out to the cities and towns in the region to identify their priority projects. MPO staff compiles the project funding requests into a *Universe of Unprogrammed Projects*, a list of all Bicycle Network and Pedestrian Connections, Complete Streets, Intersection Improvements, and Major Infrastructure projects identified as potential candidates to receive funding through the TIP. This year, a second *Universe* was compiled containing all of the projects under consideration for funding through the pilot round of the MPO's Community Connections Program. These lists include projects at varying levels of readiness, from those with significant engineering and design work complete to those still early in the conceptual or planning stage. MPO staff also collects data on each project in both *Universes* so that the projects may be evaluated.

PROJECT EVALUATION

MPO staff evaluates projects based on how well they address the MPO's goals. In order for MPO staff to conduct a complete project evaluation, Bicycle Network and Pedestrian Connections, Complete Streets, Intersection Improvements, and Major Infrastructure projects must have a functional design report or its plans must include the level of detail defined in a functional design report, a threshold typically reached when a project nears the 25 percent design stage. To complete an evaluation for projects under consideration through the MPO's Community Connections Program, project proponents must submit a completed application to MPO staff. The evaluation results for all projects are presented to the MPO board for their consideration for programming in the TIP. These scores are also posted on the MPO's website where project proponents, municipal officials, and members of the public may review them and provide feedback.

TIP READINESS DAY

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

STAFF RECOMMENDATION AND DRAFT TIP

Using the evaluation results and information about project readiness (that is, the extent to which a project is fully designed and ready for construction), MPO staff prepares a recommendation or a series of programming scenarios for how to program the Regional Target funding in the TIP. Other considerations, such as whether a project was included in the LRTP, addresses an identified transportation need, or promotes distribution of transportation investments across the region, are also incorporated into these programming scenarios. The staff recommendation is always financially constrained—meaning, subject to available funding. There was approximately $538 million of Regional Target funding available to the Boston Region MPO for FFYs 2021–25. In this TIP cycle, the MPO discussed several scenarios for the Regional Target Program for highway projects and selected a preferred program in March 2020.

In addition to prioritizing the Regional Target funding, the MPO also reviews and endorses the statewide highway program that MassDOT recommends for programming. The MPO also reviews and endorses the programming of funds for the MBTA's, CATA's, and MWRTA's transit capital programs.

APPROVING THE TIP

After selecting a preferred programming scenario, usually in late March, the MPO votes to release the draft TIP for a 21-day public review period. The comment period typically begins in late April or early May. During this time, the MPO invites members of the public, municipal officials, and other stakeholders in the Boston region to review the proposed program and submit feedback. During the public review period, MPO staff hosts public meetings to discuss the draft TIP document and elicit additional comments.

After the public review period ends, the MPO reviews all municipal and public comments and may change elements of the document or its programming. The MPO then endorses the TIP and submits it to the Federal Highway Administration (FHWA) and the FTA for approval. MassDOT incorporates the MPO-endorsed TIP into the State Transportation Improvement Program (STIP). The FHWA, FTA, and United States Environmental Protection Agency (EPA) review the STIP for certification by September 30, the close of the FFY.

UPDATES TO THE TIP

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

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

STAY INVOLVED WITH THE TIP

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

Mail: Boston Region MPO c/o CTPS Certification Activities Group
10 Park Plaza, Suite 2150 Boston, MA 02116-3968

Telephone: 857.702.3700

TTY: 617.973.7089

Fax: 617.570.9192

Email: publicinfo@ctps.org

CHAPTER 1

3C TRANSPORTATION PLANNING AND THE BOSTON REGION MPO

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

THE TRANSPORTATION PLANNING PROCESS

The federal government regulates the funding, planning, and operation of the surface transportation system through the federal transportation program, which was enacted into law through Titles 23 and 49 of the United States Code. Section 134 of Title 23 of the Federal Aid Highway Act of 1956 and Section 5303 of the Federal Transit Act, as amended, require that urbanized areas conduct a transportation planning process, resulting in plans and programs consistent with the planning objectives of the metropolitan area, in order to be eligible for federal funds.

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

3C TRANSPORTATION PLANNING

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

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

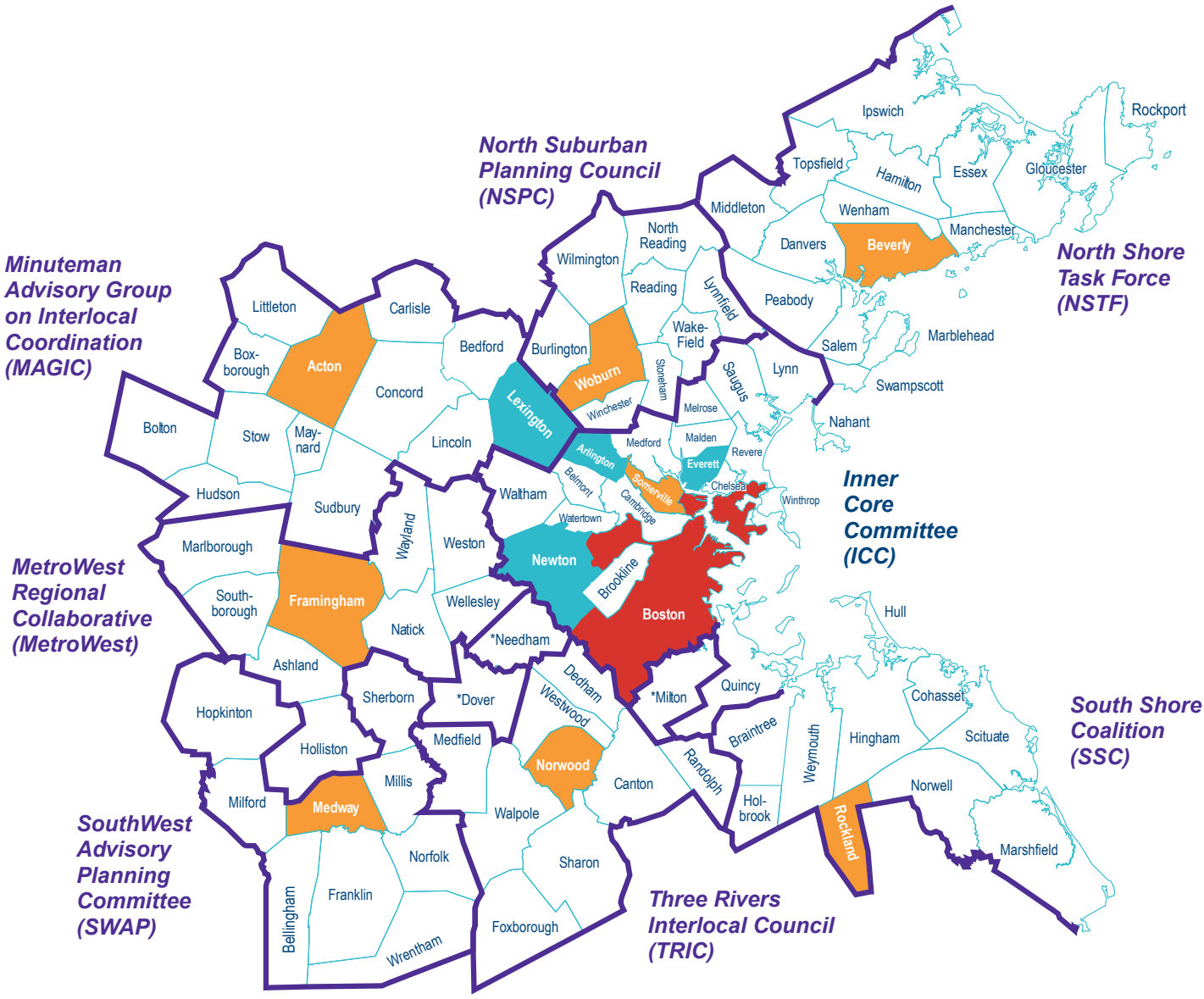
More information about the federal, state, and regional guidance governing the transportation planning process, and about the regulatory framework in which the MPO operates can be found in Appendix F.

THE BOSTON REGION MPO

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

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

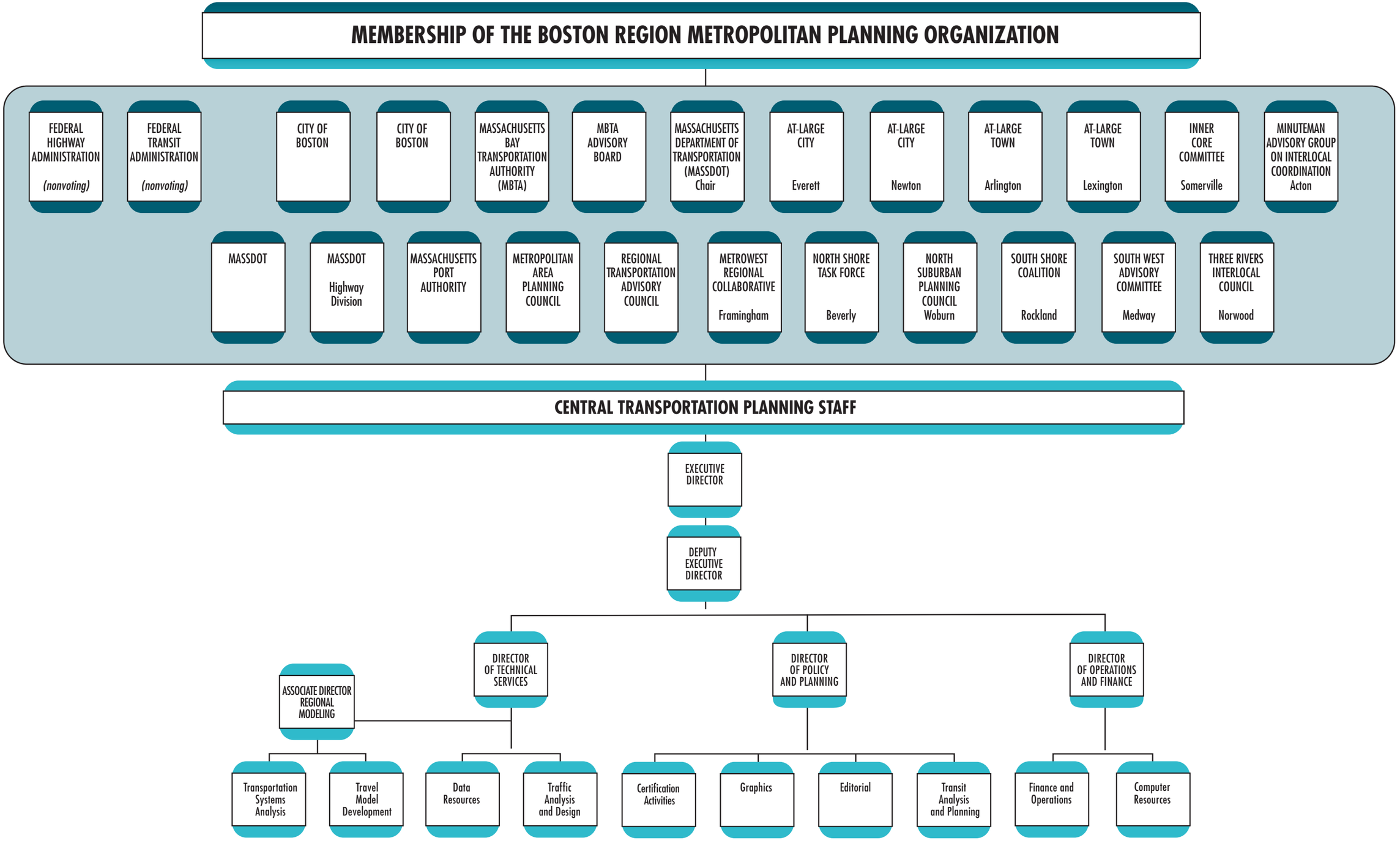
Figure 1-1: Municipalities in the Boston Region



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

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

Figure 1-2: Boston Region MPO Organizational Chart



Source: Boston Region MPO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MPO CENTRAL VISION STATEMENT

The following paragraph is the MPO's central vision statement, as adopted in *Destination 2040*, the MPO's current Long-Range Transportation Plan (LRTP).

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

This vision statement takes into consideration the significant public input received during the drafting of the Needs Assessment for *Destination 2040*. This statement also reflects the MPO's desire to add emphasis to the maintenance and resilience of the transportation system while supporting its six core goals: Safety, System Preservation and Modernization, Capacity Management and Mobility, Clean Air and Sustainable Communities, Transportation Equity, and Economic Vitality. More information on the MPO's vision, goals, and objectives for the transportation system is available in Figure 1-3 below.

CERTIFICATION DOCUMENTS

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

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

- The LRTP guides decision-making on investments that will be made in the Boston region's transportation system over the next two decades. It defines an overarching vision of the future of transportation in the region, establishes goals and objectives that will lead to achieving that vision, and allocates projected revenue to transportation projects and programs consistent with established goals and objectives. The Boston Region MPO produces an LRTP every four years. *Destination 2040*, the current LRTP, was endorsed by the MPO board in August 2019 and went into effect on October 1, 2019. Figure 1-3 shows the MPO's goals and objectives as adopted by the MPO board in *Destination 2040*.

- The TIP is a multiyear, multimodal program of transportation improvements that is consistent with the LRTP. It describes and prioritizes transportation projects that are expected to be implemented during a five-year period. The types of transportation projects funded include major highway reconstruction and maintenance, arterial and intersection improvements, public transit expansion and maintenance, bicycle paths and facilities, and improvements for pedestrians. The TIP contains a financial plan that shows the revenue sources, current or proposed, for each project. The TIP serves as the implementation arm of the MPO's LRTP, and the Boston Region MPO updates the TIP annually. An MPO-endorsed TIP is incorporated into the State Transportation Improvement Program for submission to the FHWA, FTA, and United States Environmental Protection Agency for approval.
- The UPWP contains information about transportation planning studies that will be conducted by MPO staff during the course of a federal fiscal year, which runs from October 1 through September 30. The UPWP describes all of the supportive planning activities undertaken by the MPO staff, including data resources management, preparation of the federally required certification documents, and ongoing regional transportation planning assistance. The UPWP, produced annually, is often a means to study transportation projects and alternatives before advancing to further design, construction, and possible future programming through the TIP. The studies and work products programmed for funding through the UPWP are integrally related to other planning initiatives conducted by the Boston Region MPO, the Massachusetts Department of Transportation, the Massachusetts Bay Transportation Authority, the Massachusetts Port Authority, the Metropolitan Area Planning Council, and municipalities in the Boston region.

Figure 1-3: LRTP Goals and Objectives

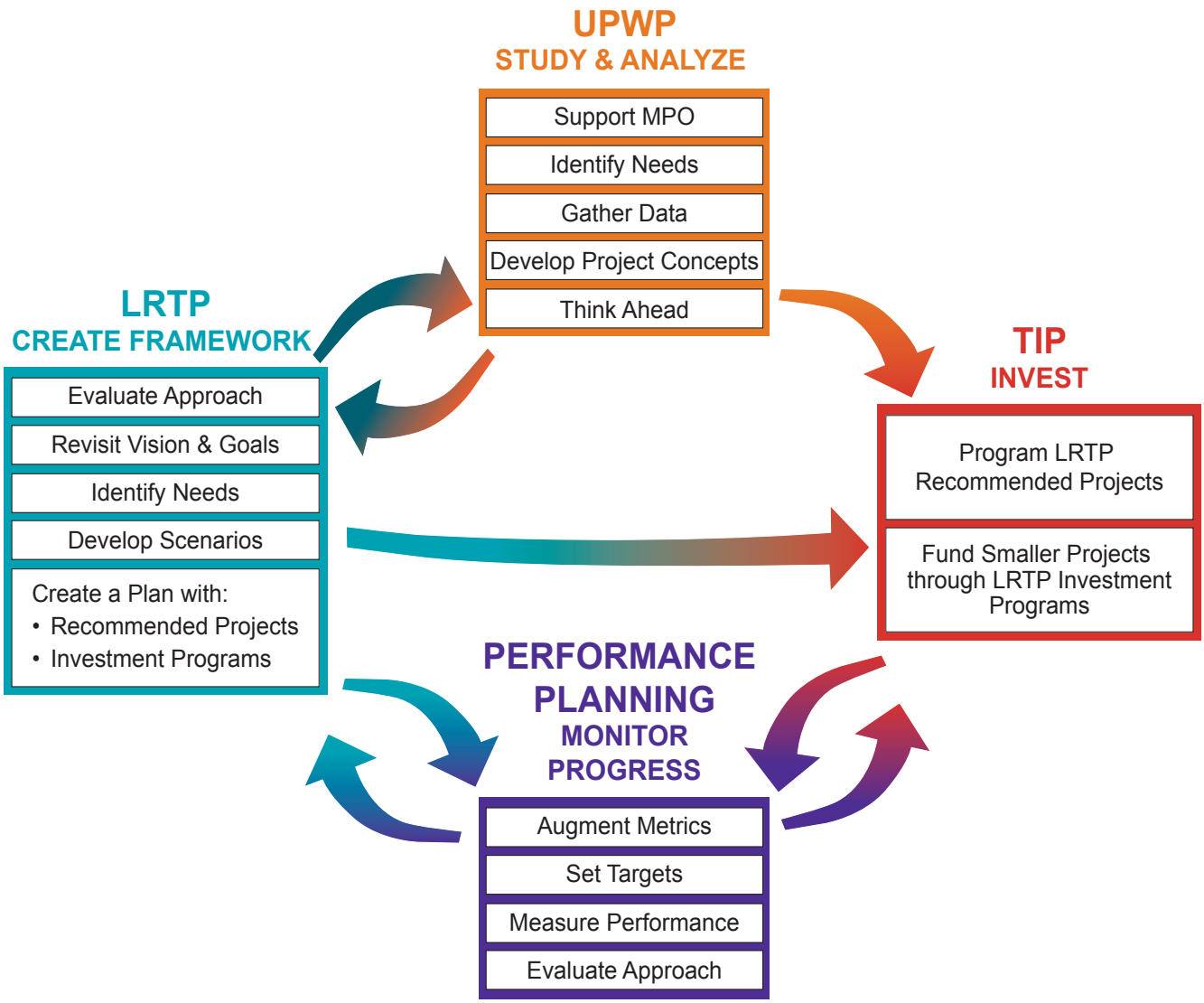
CENTRAL VISION STATEMENT

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

GOALS	OBJECTIVES
SAFETY	
Transportation by all modes will be safe	• Reduce the number and severity of crashes and safety incidents for all modes • Reduce serious injuries and fatalities from transportation • Make investments and support initiatives that help protect transportation customers, employees, and the public from safety and security threats
SYSTEM PRESERVATION AND MODERNIZATION	
Maintain and modernize the transportation system and plan for its resiliency	• Maintain the transportation system, including roadway, transit, and active transportation infrastructure, in a state of good repair • Modernize transportation infrastructure across all modes • Prioritize projects that support planned response capability to existing or future extreme conditions (sea level rise, flooding, and other natural and security-related man-made impacts)
CAPACITY MANAGEMENT AND MOBILITY	
Use existing facility capacity more efficiently and increase transportation options	• Improve access to and accessibility of all modes, especially transit and active transportation • Support implementation of roadway management and operations strategies to improve travel reliability, mitigate congestion, and support non-single-occupant vehicle travel options • Emphasize capacity management through low-cost investments; prioritize projects that focus on lower-cost operations/management-type improvements such as intersection improvements, transit priority, and Complete Streets solutions • Improve reliability of transit • Increase percentage of population and employment within one-quarter mile of transit stations and stops • Support community-based and private-initiative services and programs to meet first-/last-mile, reverse commute, and other non-traditional transit/transportation needs, including those of people 75 years old or older and people with disabilities • Support strategies to better manage automobile and bicycle parking capacity and usage at transit stations • Fund improvements to bicycle/pedestrian networks aimed at creating a connected network of bicycle and accessible sidewalk facilities (both regionally and in neighborhoods) by expanding existing facilities and closing gaps • Increase percentage of population and places of employment with access to facilities on the bicycle network • Eliminate bottlenecks on freight network/improve freight reliability • Enhance freight intermodal connections
TRANSPORTATION EQUITY	
Ensure that all people receive comparable benefits from, and are not disproportionately burdened by, MPO investments, regardless of race, color, national origin, age, income, ability, or sex	• Prioritize MPO investments that benefit equity populations* • Minimize potential harmful environmental, health, and safety effects of MPO funded projects for all equity populations* • Promote investments that support transportation for all ages (age-friendly communities) • Promote investments that are accessible to all people regardless of ability *Equity populations include people who identify as minority, have limited English proficiency, are 75 years old or older or 17 years old or younger, or have a disability; or are members of low-income households.
CLEAN AIR/SUSTAINABLE COMMUNITIES	
Create an environmentally friendly transportation system	• Reduce greenhouse gases generated in Boston region by all transportation modes • Reduce other transportation-related pollutants • Minimize negative environmental impacts of the transportation system • Support land use policies consistent with smart, healthy, and resilient growth
ECONOMIC VITALITY	
Ensure our transportation network provides a strong foundation for economic vitality	• Respond to mobility needs of the workforce population • Minimize burden of housing/transportation costs for residents in the region • Prioritize transportation investments that serve residential, commercial, and logistics targeted development sites and "Priority Places" identified in MBTA's *Focus 40* plan • Prioritize transportation investments consistent with compact-growth strategies of the regional land use plan

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

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



CHAPTER 2
THE TIP PROCESS

INTRODUCTION TO THE TIP PROCESS

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

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

FUNDING THE TIP

FEDERAL FUNDING FRAMEWORK

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

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

FEDERAL HIGHWAY PROGRAM

The FFYs 2021–25 TIP's Highway Program was developed with the assumption that funding from the Federal-Aid Highway Program for the Commonwealth of Massachusetts would range between approximately $671 million and $725 million annually over the next five years. These amounts include the funds that would be set aside initially by the Massachusetts Department of Transportation (MassDOT) as payments for the Accelerated Bridge Program and exclude required matching funds.

The process of deciding how to use this federal funding in the Boston region follows several steps. MassDOT first reserves funding for Grant Anticipation Notes (GANs) debt service payments for the Accelerated Bridge Program. Annual GANs payments range between approximately $82 million and $122 million annually over the five years of this TIP.

The remaining Federal-Aid Highway Program funds are budgeted to support state and regional (i.e., MPO) priorities. In the FFYs 2021–25 TIP, there is a total of approximately $728 million to $763 million assumed to be annually available statewide for programming (these amounts include both federal dollars and the state-provided local match). MassDOT customarily provides the local match (which can also be provided by other entities); thus, the capital costs of projects are typically funded with 80 percent federal dollars and 20 percent state dollars, depending on the funding program. The proponent of the project is required to bear the costs for project design.

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

Regional Targets

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

Each MPO in the state can decide how to prioritize its Regional Target funding. Given that the Regional Target funding originates from the Federal-Aid Highway Program, the Boston Region MPO board typically programs the majority of its target funding on roadway projects; however, the MPO board has flexed portions of its TIP Highway Program funding to the TIP's Transit Program, most notably when the MPO board gave its support to the Green Line Extension transit expansion project. Additionally, the FFYs 2021–25 TIP includes an annual allotment of funding to the MPO's Transit Modernization program beginning in FFY 2025. This represents the MPO's first formalized effort to flex Federal-Aid Highway funds to transit projects on a yearly basis, an affirmation of the region's goals to support multimodal transportation options in a meaningful way. More information on the MPO's investment strategy is included in Section 2.3 below.

During the next five years, the Boston Region MPO's total Regional Target funding will be approximately $538 million, an average of $107.6 million per year. To decide how to spend its Regional Target funding, the MPO engages its 97 cities and towns in an annual TIP development process.

Federal Highway Administration Programs

The Federal-Aid Highway Program dollars discussed in this section come through several Federal Highway Administration (FHWA) funding programs, each of which has unique requirements. Table 2-1 shows these programs, which come from the Fixing America's Surface Transportation (FAST) Act and fund projects in the FFYs 2021–25 TIP.

Table 2-1: Federal Highway Administration Programs Applicable to the FFYs 2021–25 Transportation Improvement Program

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

Source: Federal Highway Administration

2.2.3 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, receives the majority of federal transit funds in the region.

The Federal Transit Administration (FTA) distributes funding to transit agencies through several different programs. Table 2-2 shows FTA programs that come from the FAST Act and support transit investments in the FFYs 2021–25 TIP.

Table 2-2: Federal Transit Administration Programs Applicable to the FFYs 2021–25 Transportation Improvement Program

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

Source: Federal Transit Administration

INVESTMENT FRAMEWORKS

MPO INVESTMENT FRAMEWORK

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

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

MPO Goals and Objectives

The MPO's goals and objectives provide the foundation for the evaluation criteria the MPO board uses when selecting transportation projects to be funded with Regional Target dollars. MPO staff compares candidate projects' characteristics to these criteria to evaluate whether individual projects can help the MPO advance its various goals. The criteria used to select projects for this TIP are based on the MPO's goals and objectives, adopted as part of *Destination 2040*, which is the LRTP the MPO endorsed in August 2019. These goals and objectives are listed in Chapter 1.

MPO Investment Programs

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

- Complete Streets
- Intersection Improvements
- Bicycle Network and Pedestrian Connections
- Major Infrastructure (including highway funds flexed to major transit infrastructure)
- Community Connections
- Transit Modernization

Figure 2-1 provides details about the *Destination 2040* investment programs and their relationship to the MPO's goals. When developing the FFYs 2021–25 TIP, the MPO allocated its Regional Target dollars to these investment programs by assigning them to projects that meet the investment programs' criteria.

Figure 2-1: *Destination 2040* Investment Programs

Intersection Improvements

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

- Modernizing existing signals, adding signals or implementing transit signal priority
- Adding turning lanes
- Shortening crossing distances for pedestrians
- Adding or improving sidewalks, ramps or curb cuts
- Adding or improving bicycle lanes

Complete Streets

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

- Providing continuous sidewalks or shared-use paths
- Providing continuous bicycle lanes, cycle tracks or other bicycle facilities
- Updating signals at intersections along a corridor
- Improving other corridor infrastructure, such as bridges, pavement and roadway geometry
- Adding dedicated bus lanes and other associated roadway, signal and stop improvements
- Implementing climate resiliency improvements, including stormwater management measures

Transit Modernization Program

Funds projects that modernize transit infrastructure and promote the enhanced ridership, accessibility or resiliency of transit services.
Improvements may include:

- Enhancing customer amenities or increasing capacity at transit stations
- Enhancing the accessibility of transit stations, including installing high-level platforms or replacing or installing elevators
- Investing in climate resiliency to support the future security of transit infrastructure
- Making state-of-good-repair improvements to transit assets, including to tracks, signals and power systems
- Modernizing transit fleets through the purchase of vehicles
- Upgrading or expanding parking at transit stations
- Upgrading bus maintenance facilities

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

Figure 2-1: *Destination 2040* Investment Programs (cont., 2)

Community Connections Program

Funds a variety of project types, including first- and last-mile solutions and other small, nontraditional transportation projects to enhance mobility and improve air quality.
Improvements may include:

- Closing gaps in the transit network through first- and last-mile solutions and needs not covered by existing fixed-route transit or paratransit services, including shuttle operations, partnerships with transportation network companies, or transit enhancements
- Coordinating transit service or small capital improvements with existing or future fixed-route service
- Adopting innovative parking management strategies or constructing additional parking for automobiles or bicycles
- Making minor bicycle and pedestrian infrastructure improvements near transit stations
- Promoting education and wayfinding, including travel instruction, training on new technologies, signage, and pilot or demonstration projects

Major Infrastructure Program

Funds projects that enhance major arterials for all users and modernize or expand transit systems to increase capacity. Projects in this program cost more than $20 million and/or add capacity to the transportation system.
Improvements may include

- Expanding or modernizing transit infrastructure, including extending rail lines or making large-scale facility or station improvements
- Implementing large-scale Complete Streets projects
- Reconstructing bridges or other critical infrastructure

Bicycle Network and Pedestrian Connections

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

- Constructing new, off-road bicycle or shared-use paths
- Improving bicycle and pedestrian crossings
- Building new sidewalks
- Providing traffic calming improvements or other Complete Street upgrades
- Enhancing signage, lighting, or signals for bicycles and pedestrians

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

Newly created in *Destination 2040*, the Transit Modernization program represents a significant shift in the MPO's investment strategy, as funding is allocated to transit projects on an annual basis beginning in FFY 2025. In prior years, the MPO has only funded transit projects on a one-off basis when funding was requested for specific projects in the region. By creating the programming infrastructure to flex Regional Target highway funds to transit projects annually, the Boston Region MPO has established itself as a leader among MPOs nationally in crafting an investment strategy that is truly multimodal and has taken a clear stance that investing in transit is central to improving the region's broader transportation system. The MPO's five other investment programs were created during the development of prior Long-Range Transportation Plans.[2]

While the MPO did not fund any specific Transit Modernization projects in this TIP cycle, funding was reserved in FFY 2025 for future allocation. In the meantime, the MPO will continue to work with municipalities and transit providers in the region to identify transit needs and determine the most effective use of this funding to address those needs.

Destination 2040 also reflects an updated set of priorities for the MPO's Complete Streets investment program, adding dedicated bus lanes and climate resiliency measures to the types of projects targeted for funding through this program. As with the Transit Modernization program, the MPO will continue to work with municipalities in future TIP cycles to develop and fund projects in these new areas of emphasis.

Finally, while the MPO's Community Connections investment program was created through the 2015 LRTP, *Charting Progress to 2040*, the FFYs 2021–25 TIP represents the first TIP cycle that allocates this funding to specific projects. In prior TIP cycles, the $2 million in annual funding for this program was reserved for future use but not allocated, as the development timeline for the first- and last-mile projects funded through this program is much shorter than for other TIP projects. In the FFYs 2021–25 TIP, Community Connections funding in FFY 2021 was allocated to five projects, while funding in FFYs 2022–25 remains reserved for allocation in future TIP cycles. More information on the projects selected for funding in each of the MPO's investment programs can be found in Chapter 3.

Other Funding Guidelines

When creating investment program guidelines for *Destination 2040,* the MPO elected to decrease the amount of funding allocated to large-scale projects that would be included in its Major Infrastructure program in order to focus a larger percentage of funding on lower cost, operations and management-type projects. (For the development of the FFYs 2021–25 TIP, the MPO defined Major Infrastructure projects as those that cost more than $20 million or that add capacity to the transportation network). Such a funding mix will help the MPO address its goals and provide more opportunities for the MPO to distribute federal transportation dollars to projects throughout the region, as opposed to concentrating it on a few large-scale projects. *Destination 2040* focused on investing federal transportation dollars over a 20-year period, but several guidelines are relevant to shorter-term TIP programming, including the following:

2 The Community Connections Program was formerly referred to as the Community Transportation/Parking/Clean Air and Mobility Program when it was originally created in the MPO's 2015 LRTP, *Charting Progress to 2040*.

- No more than 30 percent of available funding in each LRTP five-year time band should be allocated to Major Infrastructure projects.
- If one Major Infrastructure project requires more than 30 percent of funding in a particular time band, it should not be programmed.

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

MASSDOT AND TRANSIT AGENCY INVESTMENT FRAMEWORKS

MassDOT, in coordination with the MBTA, updates its rolling five-year Capital Investment Plan (CIP) on an annual basis. This planning document identifies priority roadway, transit, bridge, and statewide infrastructure projects for the five MassDOT divisions and the MBTA. The CIP process uses a framework that prioritizes funding according to MassDOT's strategic goals. Reliability is the top priority for MassDOT, followed by Modernization and then Expansion. MassDOT and the MBTA have created investment programs for the CIP that relate to these strategic goals, and allocate funding to these goals and programs in ways that emphasize their priority. These goals and investment programs are as follows:

- **Reliability:** These investments are oriented toward maintaining and improving the overall condition and reliability of the transportation system. They include capital maintenance projects, state-of-good-repair projects, and other asset management and system preservation projects. MassDOT Highway Division programs in this area include the Bridge Program, including inspections, systematic maintenance, and National Highway System (NHS) and non-NHS improvements; the Pavement Program; the Roadway Improvements Program; and the Safety Improvements Program. MBTA Reliability programs include its Revenue Vehicles Program; Track, Signals, and Power Program; Bridge and Tunnel Program; Stations Program; Facilities Program; and Systems Upgrade/Other investments.

- **Modernization:** These investments enhance the transportation system to make it safer and more accessible and to accommodate growth. These projects address compliance with federal mandates or other statutory requirements for safety and/or accessibility improvements, exceed state-of-good-repair thresholds to substantially modernize existing assets, and provide expanded capacity to accommodate current or anticipated demand on transportation systems. MassDOT Highway Division programs in this area include the Americans with Disabilities Act (ADA) Retrofit Program, the Intersection Improvement Program, the Intelligent Transportation System (ITS) Program, and the Roadway Reconstruction Program. MBTA programs in this area include the Red and Orange Line Improvements Program, the Commuter Rail Safety and Resiliency Program, the Accessibility Program, the Risk Management and Mitigation Program, the Automated Fare Collection (AFC) Program, and the Customer Experience and Technology Improvements Program.

- **Expansion:** These investments provide more diverse transportation options for communities throughout the Commonwealth. The investments expand highway, transit, and rail networks and/or services, or they expand bicycle and pedestrian networks to provide more transportation options and address health and sustainability objectives. MassDOT Highway Division programs in this area include the Bicycle and Pedestrian Program and the Capacity Program. The MBTA's major expansion program is for the Green Line Extension.

DEVELOPING THE TIP

PROJECT SELECTION PROCESS

Overview

The MPO applies its investment framework when developing the TIP. The MPO board's process for selecting projects to receive highway discretionary—or Regional Target—funding relies on evaluation criteria to help identify and prioritize projects that advance the MPO's goals. The criteria are based on the MPO's goals and objectives outlined in the LRTP. All projects are required to show consistency with the LRTP and other statewide and regional plans. Other considerations include the readiness of a project for construction and municipal support for the project. Background information about the TIP project evaluation process is presented in Appendix A.

In the wake of the adoption of *Destination 2040* in August 2019, the MPO began the process of revising the TIP evaluation criteria to enhance alignment with the MPO's updated goals, objectives, and investment programs. These new criteria will be adopted by the MPO by October 1, 2020, and will be employed during the project selection process for the FFYs 2022–26 TIP. The MPO developed project selection criteria to evaluate and fund projects through the Community Connections program during the FFYs 2021–25 TIP cycle. These criteria will also be revised based on feedback received on the pilot round of this program, and the updated criteria will be used to select the next round of projects through this funding program in the FFYs 2022–26 TIP.

Outreach and Data Collection (October-November)

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

All new Bicycle Network and Pedestrian Connections, Complete Streets, Intersection Improvements, and Major Infrastructure projects must be initiated by the MassDOT Highway Division before they can be considered for programming in the TIP. MassDOT details this process on its project initiation webpage, https://www.mass.gov/info-details/massdot-highway-initiating-a-project. To be considered for programming, Community Connections projects must submit an application for funding directly to MPO staff, as these projects do not need to be initiated by MassDOT.

During the fall, municipal TIP Contacts and MPO staff coordinate to update the information for currently programmed projects in the MPO's Interactive TIP Database, https://www.ctps.org/maploc/www/apps/tipApp/index.html, which summarizes information on each project's background, infrastructure condition and needs, development status, evaluation scores, and ability to help the region attain the MPO's goals and objectives.

The MPO staff compiles project funding requests for projects into a *Universe of Unprogrammed Projects* list, which consists of all identified projects being advanced for possible funding in the Bicycle Network and Pedestrian Connections, Complete Streets, Intersection Improvements, and Major Infrastructure investment programs. 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. Projects that are active municipal priorities and that are feasibly ready to be programmed in the current TIP cycle continue forward into the MPO's project evaluation process. Projects that are not ready for programming remain in the *Universe* for consideration in future TIP cycles.

The TIP development process also features a *Universe of Unprogrammed Projects* for the Community Connections Program. This list was compiled by MPO staff in December 2018 after significant outreach to municipalities and transportation service providers. Like the project list mentioned above, this list includes projects at various stages of design. To conduct the pilot round of the Community Connections Program, project proponents from this list were contacted during the fall TIP outreach period and encouraged to submit applications for their projects.

Project Evaluation (December-February)

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

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

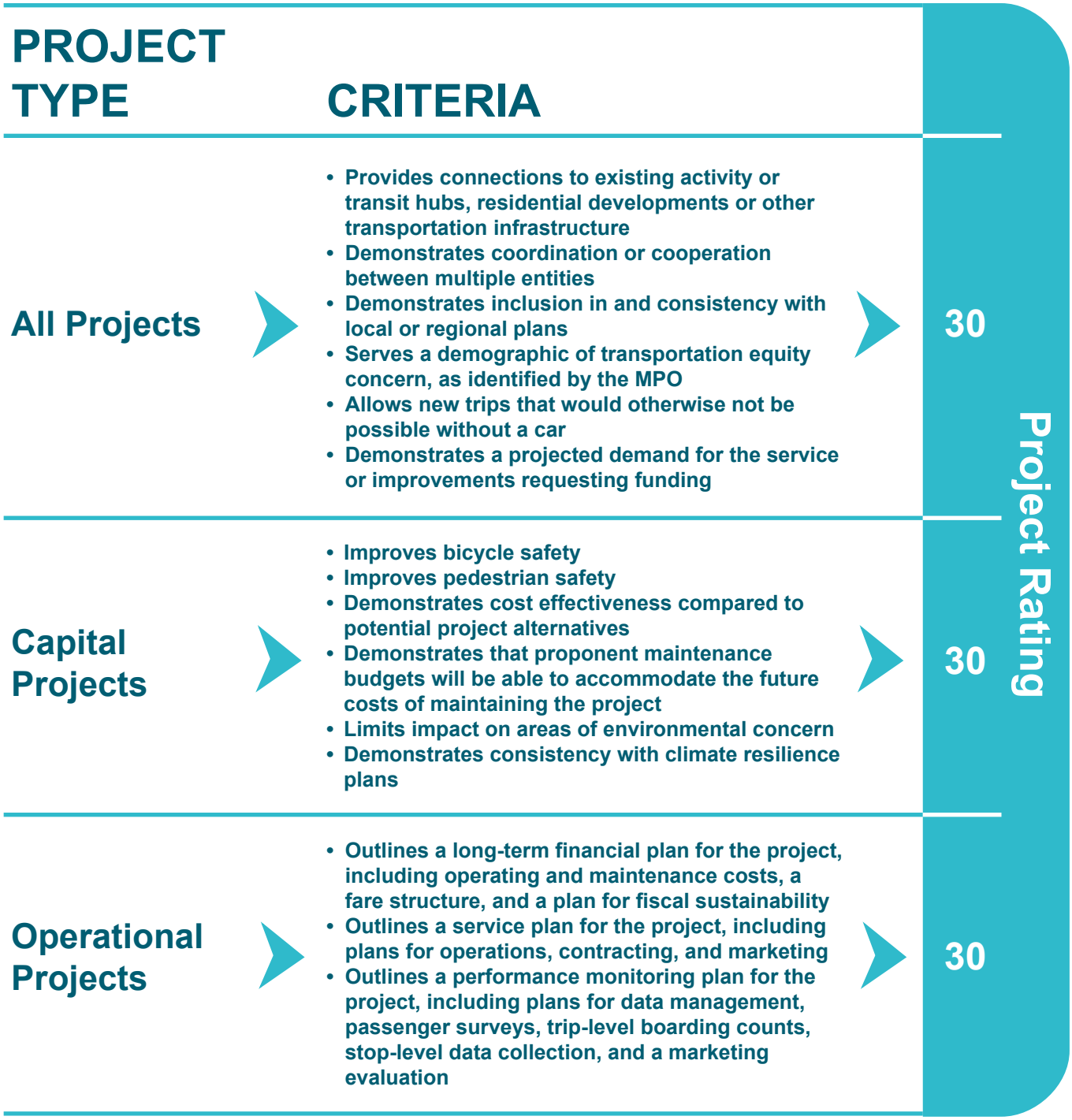
MPO staff used two sets of evaluation criteria to score projects for the FFYs 2021–25 TIP. For the Bicycle Network and Pedestrian Connections, Complete Streets, Intersection Improvements, and Major Infrastructure investment programs, projects were scored on 28 criteria, each of which measure aspects of these projects that support the MPO's goals and objectives, as outlined in *Destination 2040*. Figure 2-2 provides an overview of these goals, criteria, and scoring values. Given the distinct nature of the smaller-scale, first- and last-mile projects considered for funding through the Community Connections Program, a unique set of evaluation criteria were applied to these

projects. The full list of these criteria are available in Figure 2-3. As noted earlier in this chapter, Transit Modernization projects were not evaluated for funding during this TIP cycle, as this new investment program remains under development.

Figure 2-2: Transportation Improvement Program Evaluation Criteria (Bicycle Network and Pedestrian Connections, Complete Streets, Intersection Improvements, and Major Infrastructure Projects)

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

Figure 2-3: Community Connections Project Evaluation Criteria



In order for the MPO staff to conduct a complete project evaluation, each project proponent must provide enough information to meaningfully apply the criteria listed above. Bicycle Network and Pedestrian Connections, Complete Streets, Intersection Improvements, and Major Infrastructure projects must have a functional design report or its plans must include the level of detail defined in a functional design report, a threshold typically reached when a project nears the 25 percent design

stage. (See MassDOT's *Project Development and Design Guide* for information about the contents of a functional design report.) This guide is available at https://www.mass.gov/lists/design-guides-and-manuals. For Community Connections projects, proponents must submit a complete application to the MPO, including any required supporting documentation.

For more details about the criteria used to score projects, as well as project evaluation results for projects considered for programming in this TIP, see Appendix A.

TIP Readiness Day (February)

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

Staff Recommendation and Project Selection (March–April)

Using the evaluation scores and information gathered about project readiness (when a project is expected to be fully designed and ready for advertisement) and cost, staff prepares possible TIP project programming scenarios for the MPO's consideration. In developing these scenarios, MPO staff also considers whether a project was programmed in the LRTP, LRTP-based guidelines for allocating funds to different programs or project types, the distribution of investments across the region, and the availability of sufficient funding. MPO staff then gather feedback from board members, project proponents, and the public to inform a final staff recommendation, which is presented to the MPO for approval before it is included in the draft TIP for public review.

SELECTION PROCESS FOR STATE AND TRANSIT AGENCY PRIORITIZED PROJECTS

As discussed above, the selection of transit, bridge, and statewide infrastructure projects for programming in the TIP draws primarily from MassDOT's CIP. MassDOT and the MBTA evaluate projects for inclusion in CIP programs using criteria established by the independent Project Selection Advisory Council (PSAC). The following criteria from the PSAC process guide project evaluation:

- **System Preservation:** Projects should contribute to a state of good repair on the system.
- **Mobility:** Projects should provide efficient and effective modal options.
- **Cost Effectiveness:** Projects should result in benefits commensurate with costs and should be aimed at maximizing the return on the public's investment.
- **Economic Impact:** Projects should support strategic economic growth in the Commonwealth.
- **Safety:** Projects should contribute to the safety and security of people and goods in transit.
- **Social Equity and Fairness:** Projects should equitably distribute both the benefits and the burdens of investments among all communities.

- **Environment and Health Impacts:** Projects should maximize the potential positive health and environmental aspects of the transportation system.
- **Policy Support:** Projects should get credit if they support local or regional policies or plans or state policies not addressed through the other criteria.

Projects that receive the highest priority are those that meet MassDOT's goals for maintaining and improving the overall condition and reliability of the system; modernizing the system to make it safer and more accessible and to accommodate growth; and expanding and diversifying transportation options for communities. These project prioritization processes may also reflect other planning initiatives, such as *Focus40*, the MBTA's 25-year investment plan. Once project prioritization is complete, programming decisions are made based on these evaluations and information regarding project readiness, program sizing, and existing asset management plans.

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

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

APPROVING THE TIP

APPROVAL OF THE DRAFT TIP FOR PUBLIC REVIEW

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

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

APPROVAL OF THE DRAFT TIP

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

UPDATING THE TIP

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

Consistent with federal guidelines, the Boston Region MPO must release an amendment if there is (1) a change in project cost of $500,000 or more for projects valued at $5 million or less, or (2) a change of 10 percent or more of the project cost for projects valued greater than $5 million. TIP amendments are also released if a project is proposed to be added or removed from the TIP or if the programming year of a project is changed. Cost changes that are less than the above threshold amounts may be considered in the form of administrative modifications or adjustments, which must still undergo MPO board action for approval. Administrative modifications or adjustments are also undertaken in the event that a project's funding source changes. Although a public review period is not required for administrative modifications or adjustments, one may be offered at the MPO board's discretion.

All proposed amendments are presented in a public setting at an MPO meeting, and details are posted on the MPO's website, bostonmpo.org. Public notices are distributed through the MPO's email contact list, which members of the public may join by signing up on the MPO's website. TIP contacts at the affected municipalities and the public are notified of pending amendments at the start of an amendment's public review period.

PUBLIC NOTICE

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

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

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

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

CHAPTER 3
SUMMARY OF HIGHWAY AND TRANSIT PROGRAMMING

The Transportation Improvement Program (TIP) tables included in this chapter present a listing of all the projects and programs funded with federal highway and transit aid in the Boston region during federal fiscal years (FFYs) 2021–25. These funding tables are also included as part of the State Transportation Improvement Program (STIP).

Table 3-1 presents a summary of the Boston Region Metropolitan Planning Organization's (MPO) share of Regional Target funds from the Federal-Aid Highway Program. The allocation of these funds is constrained by projections of available federal aid. As shown in Table 3-1, the MPO has programmed nearly all available discretionary funds within the limits of projected funding for highway funding programs. As such, the FFYs 2021–25 TIP Regional Target Program complies with financial constraint requirements. The details of this funding and the specific projects programmed with Regional Target funding are shown in Section 1A of each annual element of the TIP tables (Table 3-6). Section 1A includes the regionally prioritized projects funded during a given federal fiscal year. The other sections in Table 3-6 (Sections 1B, 2A, 2B, and 2C) list the following:

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

Tables 3-7, 3-8, and 3-9 list the federally funded transit projects and programs in the Boston region that the Massachusetts Bay Transportation Authority (MBTA), MetroWest Regional Transit Authority (MWRTA), and Cape Ann Transportation Authority (CATA) plan to undertake.

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

Table 3-1: Boston Region MPO Regional Target Program Funding Summary

	FFY 2021	FFY 2022	FFY 2023	FFY 2024	FFY 2025	Total
Regional Target Obligation Authority	$104,552,877	$106,681,829	$109,011,849	$110,440,638	$107,862,383	**$538,549,576**
Regional Target Funds Programmed	$104,373,589	$106,681,829	$109,011,849	$110,440,638	$106,784,015	**$537,291,920**
Regional Target Funds Unprogrammed	$179,288	$0	$0	$0	$1,078,368	**$1,257,656**

INVESTMENT SUMMARY

This section summarizes the investments made by the Boston Region MPO, Massachusetts Department of Transportation (MassDOT), MBTA, CATA, and MWRTA in the FFYs 2021–25 TIP. Table 3-2 shows the Boston Region MPO's investments of Regional Target funding— including both the number of projects and the dollar amount—by investment program. These investments are aimed at making progress towards the MPO's goals for the region, including enhancing safety for all users, preserving and modernizing the transportation system, promoting mobility and reducing congestion, supporting clean air and sustainability, ensuring all have equitable access to the transportation system, and fostering economic vitality in the region through investments in transportation.

Table 3-2: FFYs 2021–25 Boston Region MPO Regional Target Investment Summary

MPO Investment Program	Number of Projects	Regional Target Dollars Programmed
Bicycle Network and Pedestrian Connections	4	$30,905,263
Community Connections (allocated to projects)	5	$822,000
Community Connections (not yet allocated to projects)	N/A	$8,000,000
Complete Streets*	23	$244,774,339
Intersection Improvements	11	$64,157,136
Major Infrastructure—Flex to Transit†	1	$27,096,238
Major Infrastructure—Roadway‡	3	$156,036,944
Transit Modernization (not yet allocated to projects)	N/A	$5,500,000
Unprogrammed	N/A	$1,257,656
Total	**47**	**$538,549,576**

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

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

† The MPO will flex federal highway improvement dollars to support the Green Line Extension.

‡ In FFYs 2021 and 2022, the MPO will contribute $22,115,687 to Project 606476—Sumner Tunnel Improvements—and MassDOT will contribute other funds. This project is included in the total number of projects in this category.

Source: Boston Region MPO.

Table 3-3 shows MassDOT's FFYs 2021–25 TIP investments—including both the number of projects or programs and the dollar amount—by MassDOT program. MassDOT's investments are distributed across a variety of programs and will support bridge and pavement improvements, roadway improvements and reconstruction, new bicycle and pedestrian infrastructure, and safety improvements.

Table 3-3: MassDOT Highway Program Investment Summary

MassDOT Program	Number of Projects	MassDOT Dollars Programmed
Bicycles and Pedestrians	5	$25,199,868
Bridge Program	21	$290,941,713
Earmark or Discretionary Grant-funded Projects*†‡	3	$118,443,681
Intersection Improvements§	6	$21,704,768
Interstate Pavement	3	$45,021,228
Non-Interstate Pavement	13	$110,136,012
Non-Federal Aid	1	$72,449,932
Roadway Improvements	2	$1,022,095
Roadway Reconstruction	7	$136,919,214
Safety Improvements	7	$30,614,567
Total	**64**	**$852,453,078**

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

* Funding has been earmarked for three projects. Two of these projects are also receiving funding through MassDOT's Roadway Reconstruction Program (606476—Summer Tunnel Improvements, and 607977—Interstates 90/495 Interchange Reconstruction). Each project is counted in the tally for the Earmark Projects and Roadway Reconstruction categories, but is only counted once in the total number of projects funded.

† Project 606476—Sumner Tunnel Improvements—is also funded with $22,115,687 in Regional Target funds, which are not shown in this table.

‡ Project 606501—Reconstruction of Union Street (Route 139) in Holbrook—is also supported by $2,287,523 in Regional Target funds, which are not shown in this table.

§ Two projects are funded through this program while also receiving funding through MassDOT's Safety Improvements Program (607748—Intersection and Signal Improvements in Acton, and 607759—Intersection and Signal Improvements in Boston). Each project is counted in the tally for the Intersection Improvements and Safety Improvements categories, but is only counted once in the total number of projects funded.

Sources: MassDOT and the Boston Region MPO.

Table 3-4 shows the MBTA's programs and associated TIP funding amounts.

Table 3-4: MBTA Transit Program Investment Summary

Federal Transit Administration Program	MBTA Program	MBTA Dollars Programmed
Section 5307: Urbanized Area Formula Grants	Revenue Vehicle Program	TBD
Section 5307: Urbanized Area Formula Grants	Signals/Systems Upgrade Program	TBD
Section 5307: Urbanized Area Formula Grants	Stations and Facilities Program	TBD
Section 5337: Fixed Guideway/Bus Funds	Bridge and Tunnel Program	TBD
Section 5337: Fixed Guideway/Bus Funds	Signals/Systems Upgrade Program	TBD
Section 5337: Fixed Guideway/Bus Funds	Stations and Facilities Program	TBD
Section 5339: Bus and Bus Facilities Funds	Bus Program	TBD
Section 5309: Fixed Guideway Capital Investment Grants	Green Line Extension—New Starts (Full Funding Grant Agreement)	TBD
Other Federal Funds	Positive Train Control*	TBD
Total	**n/a**	**TBD**

Note: FTA formula funds (Sections 5307, 5337 and 5339) are based on estimated apportionments. TIP programs and projects are based on a preliminary draft Capital Investment Plan (CIP) as of April 20, 2020. Adjustments will be made to federal projects and budgets as the CIP process is finalized. Funding amounts in this table include both federal and non-federal funds, including matching funds.

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

Sources: MBTA and the Boston Region MPO.

Table 3-5 summarizes CATA and MWRTA investments included in the FFYs 2021–25 TIP.

Table 3-5: CATA and MWRTA Transit Program Investment Summary

Regional Transit Authority	Federal Transit Administration Program	RTA Dollars Programmed
CATA	Section 5307: Urbanized Area Formula Funding	$3,916,250
CATA	Regional Transit Authority Capital Assistance Program	$356,250
MWRTA	Section 5307: Urbanized Area Formula Funding	$21,609,600
MWRTA	Section 5339: Bus and Bus Facilities	$2,237,250
Total	**N/A**	**$28,119,350**

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

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

Tables 3-6 through 3-9 build on the summary tables listed above by detailing investments made through both the Highway and Transit Programs by project, program, and funding year.

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
Federal Fiscal Year 2021								**$349,110,885**	**$280,734,488**	**$68,376,397**		
Section 1A / Regionally Prioritized Projects								**$104,373,589**	**$83,878,943**	**$20,494,646**		
Roadway Reconstruction								**$54,203,842**	**$43,568,103**	**$10,635,739**		
2021	601607	Boston Region	Hull	HULL- RECONSTRUCTION OF ATLANTIC AVENUE AND RELATED WORK FROM NANTASKET AVENUE TO COHASSET TOWN LINE	5	STBG	$7,984,486	$7,984,486	$6,387,589	$1,596,897	44	Construction; Total Cost = $7,984,486; MPO Evaluation Score = 44
2021	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	STBG	$121,677,818	$15,801,912	$12,641,530	$3,160,382	N/A	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC schedule over 3 years (2021-2023). MPO funding now has 2-year AC schedule.
2021	606501	Boston Region	Holbrook	HOLBROOK- RECONSTRUCTION OF UNION STREET (ROUTE 139), FROM LINFIELD STREET TO CENTRE STREET/WATER STREET	5	STBG	$4,563,878	$2,747,540	$2,198,032	$549,508	45	Construction; TAP+STBG+Earmark Total Cost = $4,563,878; MPO Evaluation Score = 45; TAP Proponent = Holbrook
2021	606501	Boston Region	Holbrook	HOLBROOK- RECONSTRUCTION OF UNION STREET (ROUTE 139), FROM LINFIELD STREET TO CENTRE STREET/WATER STREET	5	TAP	$4,563,878	$289,088	$231,270	$57,818	45	Construction; TAP+STBG+Earmark Total Cost = $4,563,878; MPO Evaluation Score = 45; TAP Proponent = Holbrook
2021	607652	Boston Region	Everett	EVERETT- RECONSTRUCTION OF FERRY STREET, SOUTH FERRY STREET AND A PORTION OF ELM STREET	4	CMAQ	$31,830,657	$1,884,270	$1,507,416	$376,854	73	Construction; CMAQ+STBG+HSIP+TAP Total Cost = $25,000,000; 2-year AC schedule (2021-2022); MPO Evaluation Score = 73; TAP Proponent = Everett.
2021	607652	Boston Region	Everett	EVERETT- RECONSTRUCTION OF FERRY STREET, SOUTH FERRY STREET AND A PORTION OF ELM STREET	4	HSIP	$31,830,657	$1,050,296	$945,266	$105,030	73	Construction; CMAQ+STBG+HSIP+TAP Total Cost = $25,000,000; 2-year AC schedule (2021-2022); MPO Evaluation Score = 73; TAP Proponent = Everett.
2021	607652	Boston Region	Everett	EVERETT- RECONSTRUCTION OF FERRY STREET, SOUTH FERRY STREET AND A PORTION OF ELM STREET	4	STBG	$31,830,657	$12,937,429	$10,349,943	$2,587,486	73	Construction; CMAQ+STBG+HSIP+TAP Total Cost = $25,000,000; 2-year AC schedule (2021-2022); MPO Evaluation Score = 73; TAP Proponent = Everett.
2021	607652	Boston Region	Everett	EVERETT- RECONSTRUCTION OF FERRY STREET, SOUTH FERRY STREET AND A PORTION OF ELM STREET	4	TAP	$31,830,657	$724,412	$579,530	$144,882	73	Construction; CMAQ+STBG+HSIP+TAP Total Cost = $25,000,000; 2-year AC schedule (2021-2022); MPO Evaluation Score = 73; TAP Proponent = Everett.
2021	608146	Boston Region	Marblehead	MARBLEHEAD- INTERSECTION IMPROVEMENTS AT PLEASANT STREET & VILLAGE, VINE AND CROSS STREETS	4	STBG	$565,486	$565,486	$452,389	$113,097	40	Construction; STBG Total Cost = $565,486; MPO Evaluation Score = 40
2021	608228	Boston Region	Framingham	FRAMINGHAM- RECONSTRUCTION OF UNION AVENUE, FROM PROCTOR STREET TO MAIN STREET	3	HSIP	$10,218,923	$1,000,000	$900,000	$100,000	58	Construction; STBG+HSIP+TAP Total Cost = $10,218,923; MPO Evaluation Score = 58; TAP Proponent = Framingham
2021	608228	Boston Region	Framingham	FRAMINGHAM- RECONSTRUCTION OF UNION AVENUE, FROM PROCTOR STREET TO MAIN STREET	3	STBG	$10,218,923	$8,212,532	$6,570,026	$1,642,506	58	Construction; STBG+HSIP+TAP Total Cost = $10,218,923; MPO Evaluation Score = 58; TAP Proponent = Framingham
2021	608228	Boston Region	Framingham	FRAMINGHAM- RECONSTRUCTION OF UNION AVENUE, FROM PROCTOR STREET TO MAIN STREET	3	TAP	$10,218,923	$1,006,391	$805,113	$201,278	58	Construction; STBG+HSIP+TAP Total Cost = $10,218,923; MPO Evaluation Score = 58; TAP Proponent = Framingham
Capacity								**$18,280,891**	**$14,624,713**	**$3,656,178**		
2021	604996	Boston Region	Woburn	WOBURN- BRIDGE REPLACEMENT, W-43-017, NEW BOSTON STREET OVER MBTA	4	STBG	$18,280,891	$18,280,891	$14,624,713	$3,656,178	55	Construction; Total Cost = $18,280,891; MPO Evaluation Score = 55
Intersection Improvements								**$3,970,618**	**$3,351,536**	**$619,082**		
2021	607305	Boston Region	Reading	READING- INTERSECTION SIGNALIZATION @ ROUTE 28 & HOPKINS STREET	4	HSIP	$1,683,095	$750,419	$675,377	$75,042	38	Construction; HSIP+STBG Total Cost = $1,683,495; MPO Evaluation Score = 38
2021	607305	Boston Region	Reading	READING- INTERSECTION SIGNALIZATION @ ROUTE 28 & HOPKINS STREET	4	STBG	$1,683,095	$932,676	$746,141	$186,535	38	Construction; HSIP+STBG Total Cost = $1,683,495; MPO Evaluation Score = 38
2021	608443	Boston Region	Multiple	LITTLETON- AYER- INTERSECTION IMPROVEMENTS ON ROUTE 2A AT WILLOW ROAD AND BRUCE STREET	3	HSIP	$2,287,523	$1,000,000	$900,000	$100,000	36	Construction; HSIP+STBG Total Cost = $2,287,523; MPO Evaluation Score = 36
2021	608443	Boston Region	Multiple	LITTLETON- AYER- INTERSECTION IMPROVEMENTS ON ROUTE 2A AT WILLOW ROAD AND BRUCE STREET	3	STBG	$2,287,523	$1,287,523	$1,030,018	$257,505	36	Construction; HSIP+STBG Total Cost = $2,287,523; MPO Evaluation Score = 36

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont., 2)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
Flex to FTA								**$27,096,238**	**$21,676,990**	**$5,419,248**		
2021	Table 3-2:	Boston Region	Multiple	GREEN LINE EXTENSION PROJECT- EXTENSION TO COLLEGE AVENUE WITH THE UNION SQUARE SPUR		CMAQ	$27,096,238	$27,096,238	$21,676,990	$5,419,248	N/A	Construction; STBG+CMAQ+Section 5309 (Transit) Total MPO Contribution = $190,000,000; Total funding in this TIP = $27,096,238; AC Yr 6 of 6; Funding flexed to FTA; Match provided by local contributions
Transit Grant Program								**$822,000**	**$657,600**	**$164,400**		
2021	S10784	Boston Region	Newton	NEWTON MICROTRANSIT SERVICE		CMAQ	$300,000	$300,000	$240,000	$60,000	53	Operations; CMAQ Total Cost = $300,000; MPO Evaluation Score = 53; Project funded through MPO's Community Connections Program. MPO
2021	S10785	Boston Region	Somerville	DAVIS SQUARE SIGNAL IMPROVEMENTS		CMAQ	$220,000	$220,000	$176,000	$44,000	24	Construction; CMAQ Total Cost = $220,000; MPO Evaluation Score = 24; Project funded through MPO's Community Connections Program. MPO
2021	S10786	Boston Region	Cambridge	CONCORD AVENUE TRANSIT SIGNAL PRIORITY		CMAQ	$160,000	$160,000	$128,000	$32,000	22	Construction; CMAQ Total Cost = $160,000; MPO Evaluation Score = 22; Project funded through MPO's Community Connections Program. MPO
2021	S10787	Boston Region	Sharon	SHARON CARPOOL MARKETING		CMAQ	$42,000	$42,000	$33,600	$8,400	14	Operations; CMAQ Total Cost = $42,000; MPO Evaluation Score = 14; Project funded through MPO's Community Connections Program. MPO
2021	S10788	Boston Region	Concord	BRUCE FREEMAN RAIL TRAIL BIKE SHELTERS		CMAQ	$100,000	$100,000	$80,000	$20,000	20	Construction; CMAQ Total Cost = $100,000; MPO Evaluation Score = 20; Project funded through MPO's Community Connections Program. MPO
Section 1B / Earmark or Discretionary Grant Funded Projects								**$32,012,449**	**$25,609,959**	**$6,402,490**		
Earmark Discretionary								**$32,012,449**	**$25,609,959**	**$6,402,490**		
2021	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	HIP	$121,677,818	$30,485,199	$24,388,159	$6,097,040	N/A	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC schedule over 3 years (2021-2023). MPO funding now has 2-year AC schedule.
2021	606501	Boston Region	Holbrook	HOLBROOK- RECONSTRUCTION OF UNION STREET (ROUTE 139), FROM LINFIELD STREET TO CENTRE STREET/WATER STREET	5	HPP	$4,563,878	$1,527,250	$1,221,800	$305,450	45	Construction; TAP+STBG+Earmark Total Cost = $4,563,878; MPO Evaluation Score = 45; TAP Proponent = Holbrook
Section 2A / State Prioritized Reliability Projects								**$188,810,373**	**$151,480,300**	**$37,330,074**		
Bridge On-system NHS								**$120,612,032**	**$96,489,626**	**$24,122,406**		
2021	604173	Boston Region	Boston	BOSTON- BRIDGE REPLACEMENT, B-16-016, NORTH WASHINGTON STREET OVER THE BOSTON INNER HARBOR	6	NHPP	$176,318,433	$30,389,654	$24,311,723	$6,077,931	N/A	Project ACd over 2017-2022.
2021	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	$98,962,749	$22,969,788	$18,375,830	$4,593,958	N/A	Project ACd over 2019-2023.
2021	605287	Boston Region	Chelsea	CHELSEA- ROUTE 1 VIADUCT REHABILITATION (SB/NB) ON C-09-007 & C-09-011	6	NHPP	$210,617,533	$29,992,990	$23,994,392	$5,998,598	N/A	Project ACd over 2018-2021.
2021	606528	Boston Region	Somerville	SOMERVILLE- BRIDGE REHABILITATION/ RECONSTRUCTION, S-17-031, I-93 NB AND SB FROM ROUTE 28 TO TEMPLE STREET	4	NHPP	$37,259,600	$37,259,600	$29,807,680	$7,451,920	N/A	
Non-Interstate Pavement								**$46,477,553**	**$37,182,042**	**$9,295,511**		
2021	607477	Boston Region	Multiple	LYNNFIELD- PEABODY- RESURFACING & RELATED WORK ON ROUTE 1	4	NHPP	$9,004,937	$9,004,937	$7,203,950	$1,800,987	N/A	
2021	608467	Boston Region	Marlborough	MARLBOROUGH- RESURFACING AND RELATED WORK ON ROUTE 20	3	NHPP	$11,744,328	$11,744,328	$9,395,462	$2,348,866	N/A	
2021	608482	Boston Region	Multiple	CAMBRIDGE- SOMERVILLE- RESURFACING AND RELATED WORK ON ROUTE 28	4	NHPP	$8,585,362	$8,585,362	$6,868,290	$1,717,072	N/A	

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont., 3)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
2021	608817	Boston Region	Multiple	SALEM- LYNN- RESURFACING AND RELATED WORK ON ROUTE 107	4	NHPP	$2,250,000	$2,250,000	$1,800,000	$450,000	N/A	
2021	609102	Boston Region	Multiple	GLOUCESTER- ESSEX- MANCHESTER-BY-THE-SEA-WENHAM- PAVEMENT PRESERVATION AND RELATED WORK ON ROUTE 128	4	NHPP	$14,892,926	$14,892,926	$11,914,341	$2,978,585	N/A	
Bridge Off-system								**$9,397,615**	**$7,518,092**	**$1,879,523**		
2021	608079	Boston Region	Sharon	SHARON- BRIDGE REPLACEMENT, S-09-003 (40N), MASKWONICUT STREET OVER AMTRAK/MBTA	5	STBG-BR-Off	$6,736,333	$6,736,333	$5,389,066	$1,347,267	N/A	
2021	608637	Boston Region	Maynard	MAYNARD- BRIDGE REPLACMENT, M-10-006, CARRYING FLORIDA ROAD OVER THE ASSABET RIVER	3	STBG-BR-Off	$2,661,282	$2,661,282	$2,129,026	$532,256	N/A	
Bridge On-system Non-NHS								**$5,695,162**	**$4,556,130**	**$1,139,032**		
2021	608596	Boston Region	Essex	ESSEX- SUPERSTRUCTURE REPLACEMENT, E-11-001 (2TV), ROUTE 133\MAIN STREET OVER ESSEX RIVER	4	NHPP	$5,695,162	$5,695,162	$4,556,130	$1,139,032	N/A	
Bridge Systematic Maintenance								**$2,308,000**	**$1,846,400**	**$461,600**		
2021	608610	Boston Region	Newton	NEWTON- STEEL SUPERSTRUCTURE CLEANING (FULL REMOVAL) AND PAINTING OF N-12-055	6	NHPP	$2,308,000	$2,308,000	$1,846,400	$461,600	N/A	
Interstate Pavement								**$4,320,011**	**$3,888,010**	**$432,001**		
2021	610724	Boston Region	Multiple	DISTRICT 4 - INTERSTATE PAVEMENT PRESERVATION	4	NHPP-I	$4,320,011	$4,320,011	$3,888,010	$432,001	N/A	
Section 2B / State Prioritized Modernization Projects								**$22,956,965**	**$18,999,279**	**$3,957,686**		
Roadway Reconstruction								**$21,619,891**	**$17,795,913**	**$3,823,978**		
2021	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	HSIP	$121,677,818	$5,000,000	$4,500,000	$500,000	N/A	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC schedule over 3 years (2021-2023). MPO funding now has 2-year AC schedule.
2021	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	NHPP	$121,677,818	$12,383,707	$9,906,966	$2,476,741	N/A	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC schedule over 3 years (2021-2023). MPO funding now has 2-year AC schedule.
2021	607901	Boston Region	Dedham	DEDHAM- PEDESTRIAN IMPROVEMENTS ALONG ELM STREET & RUSTCRAFT ROAD CORRIDORS	6	CMAQ	$2,706,712	$2,706,712	$2,165,370	$541,342	N/A	
2021	608911	Boston Region	Belmont	BELMONT- IMPROVEMENTS AT WELLINGTON ELEMENTARY SCHOOL (SRTS)	4	TAP	$1,529,472	$1,529,472	$1,223,578	$305,894	N/A	
Intersection Improvements								**$1,337,074**	**$1,203,367**	**$133,707**		
2021	607761	Boston Region	Swampscott	SWAMPSCOTT- INTERSECTION & SIGNAL IMPROVEMENTS AT SR 1A (PARADISE ROAD) AT SWAMPSCOTT MALL	4	HSIP	$1,337,074	$1,337,074	$1,203,367	$133,707	N/A	
Section 2C / State Prioritized Expansion Projects								**$957,509**	**$766,007**	**$191,502**		
Bicycle and Pedestrian								**$957,509**	**$766,007**	**$191,502**		
2021	607888	Boston Region	Boston	BOSTON- MULTI-USE PATH CONSTRUCTION ON NEW FENWAY (PHASE I)	6	CMAQ	$957,509	$957,509	$766,007	$191,502	N/A	

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont., 4)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
Federal Fiscal Year 2022								**$303,022,982**	**$248,557,268**	**$54,465,714**		
Section 1A / Regionally Prioritized Projects								**$106,681,829**	**$85,608,636**	**$21,073,193**		
Roadway Reconstruction								**$73,219,327**	**$58,775,462**	**$14,443,865**		
2022	602077	Boston Region	Lynn	LYNN- RECONSTRUCTION ON ROUTE 129 (LYNNFIELD STREET), FROM GREAT WOODS ROAD TO WYOMA SQUARE	4	CMAQ	$6,484,734	$1,000,000	$800,000	$200,000	38	Construction; CMAQ+STBG Total Cost = $6,484,734; MPO Evaluation Score = 38
2022	602077	Boston Region	Lynn	LYNN- RECONSTRUCTION ON ROUTE 129 (LYNNFIELD STREET), FROM GREAT WOODS ROAD TO WYOMA SQUARE	4	STBG	$6,484,734	$5,484,734	$4,387,787	$1,096,947	38	Construction; CMAQ+STBG Total Cost = $6,484,734; MPO Evaluation Score = 38
2022	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	NHPP	$146,377,974	$1,477,542	$1,182,034	$295,508	59	Construction; NHPP+STBG+TAP Total Cost = $146,377,974; AC schedule over 5 years (2022-2026); Total funding in this TIP = $111,685,278 $71,592,970; MPO Evaluation Score = 59; TAP Proponent = Boston
2022	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	STBG	$146,377,974	$7,609,193	$6,087,354	$1,521,839	59	Construction; NHPP+STBG+TAP Total Cost = $146,377,974; AC schedule over 5 years (2022-2026); Total funding in this TIP = $111,685,278 $71,592,970; MPO Evaluation Score = 59; TAP Proponent = Boston
2022	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	TAP	$146,377,974	$1,282,990	$1,026,392	$256,598	59	Construction; NHPP+STBG+TAP Total Cost = $146,377,974; AC schedule over 5 years (2022-2026); Total funding in this TIP = $111,685,278 $71,592,970; MPO Evaluation Score = 59; TAP Proponent = Boston
2022	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	STBG	$121,677,818	$6,313,775	$5,051,020	$1,262,755	N/A	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC schedule over 3 years (2021-2023). MPO funding now has 2-year AC schedule.
2022	607652	Boston Region	Everett	EVERETT- RECONSTRUCTION OF FERRY STREET, SOUTH FERRY STREET AND A PORTION OF ELM STREET	4	STBG	$31,830,657	$8,403,593	$6,722,874	$1,680,719	73	Construction; CMAQ+STBG+HSIP+TAP Total Cost = $25,000,000; 2-year AC schedule (2021-2022); MPO Evaluation Score = 73; TAP Proponent = Everett.
2022	607777	Boston Region	Watertown	WATERTOWN- REHABILITATION OF MOUNT AUBURN STREET (ROUTE 16)	6	CMAQ	$28,340,090	$1,000,000	$800,000	$200,000	75	Construction; HSIP+CMAQ+STBG Total Cost = $28,340,090; 2-year AC schedule (2021-2022); MPO Evaluation Score = 75
2022	607777	Boston Region	Watertown	WATERTOWN- REHABILITATION OF MOUNT AUBURN STREET (ROUTE 16)	6	HSIP	$28,340,090	$2,000,000	$1,800,000	$200,000	75	Construction; HSIP+CMAQ+STBG Total Cost = $28,340,090; 2-year AC schedule (2021-2022); MPO Evaluation Score = 75
2022	607777	Boston Region	Watertown	WATERTOWN- REHABILITATION OF MOUNT AUBURN STREET (ROUTE 16)	6	STBG	$28,340,090	$7,548,548	$6,038,838	$1,509,710	75	Construction; HSIP+CMAQ+STBG Total Cost = $28,340,090; 2-year AC schedule (2021-2022); MPO Evaluation Score = 75
2022	608078	Boston Region	Chelsea	CHELSEA- RECONSTRUCTION ON BROADWAY (ROUTE 107), FROM CITY HALL AVENUE TO THE REVERE C.L.	6	CMAQ	$10,278,940	$1,000,000	$800,000	$200,000	61	Construction; CMAQ+STBG Total Cost = $10,278,940; MPO Evaluation Score = 61
2022	608078	Boston Region	Chelsea	CHELSEA- RECONSTRUCTION ON BROADWAY (ROUTE 107), FROM CITY HALL AVENUE TO THE REVERE C.L.	6	STBG	$10,278,940	$9,278,940	$7,423,152	$1,855,788	61	Construction; CMAQ+STBG Total Cost = $10,278,940; MPO Evaluation Score = 61
2022	608229	Boston Region	Acton	ACTON- INTERSECTION & SIGNAL IMPROVEMENTS AT KELLEY'S CORNER, ROUTE 111 (MASSACHUSETTS AVENUE) AND ROUTE 27 (MAIN STREET)	3	CMAQ	$14,687,418	$3,000,000	$2,400,000	$600,000	45	Construction; CMAQ+TAP+STBG Total Cost = $14,687,418; MPO Evaluation Score = 45; TAP Proponent = Acton
2022	608229	Boston Region	Acton	ACTON- INTERSECTION & SIGNAL IMPROVEMENTS AT KELLEY'S CORNER, ROUTE 111 (MASSACHUSETTS AVENUE) AND ROUTE 27 (MAIN STREET)	3	STBG	$14,687,418	$11,487,418	$9,189,934	$2,297,484	45	Construction; CMAQ+TAP+STBG Total Cost = $14,687,418; MPO Evaluation Score = 45; TAP Proponent = Acton
2022	608229	Boston Region	Acton	ACTON- INTERSECTION & SIGNAL IMPROVEMENTS AT KELLEY'S CORNER, ROUTE 111 (MASSACHUSETTS AVENUE) AND ROUTE 27 (MAIN STREET)	3	TAP	$14,687,418	$200,000	$160,000	$40,000	45	Construction; CMAQ+TAP+STBG Total Cost = $14,687,418; MPO Evaluation Score = 45; TAP Proponent = Acton
2022	608887	Boston Region	Bellingham	BELLINGHAM- REHABILITATION AND RELATED WORK ON ROUTE 126, FROM DOUGLAS DRIVE TO ROUTE 140	3	CMAQ	$6,132,594	$2,000,000	$1,600,000	$400,000	45	Construction; CMAQ+STBG+TAP Total Cost = $6,132,594; MPO Evaluation Score = 45; TAP Proponent = Bellingham

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont., 5)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
2022	608887	Boston Region	Bellingham	BELLINGHAM- REHABILITATION AND RELATED WORK ON ROUTE 126, FROM DOUGLAS DRIVE TO ROUTE 140	3	STBG	$6,132,594	$3,251,766	$2,601,413	$650,353	45	Construction; CMAQ+STBG+TAP Total Cost = $6,132,594; MPO Evaluation Score = 45; TAP Proponent = Bellingham
2022	608887	Boston Region	Bellingham	BELLINGHAM- REHABILITATION AND RELATED WORK ON ROUTE 126, FROM DOUGLAS DRIVE TO ROUTE 140	3	TAP	$6,132,594	$880,828	$704,662	$176,166	45	Construction; CMAQ+STBG+TAP Total Cost = $6,132,594; MPO Evaluation Score = 45; TAP Proponent = Bellingham
Intersection Improvements								**$18,060,359**	**$14,511,460**	**$3,548,899**		
2022	605857	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1 & UNIVERSITY AVENUE/EVERETT STREET	5	CMAQ	$9,789,988	$3,000,000	$2,400,000	$600,000	55	Construction; HSIP+CMAQ+STBG+NHPP Total Cost = $9,789,988; MPO Evaluation Score = 55
2022	605857	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1 & UNIVERSITY AVENUE/EVERETT STREET	5	HSIP	$9,789,988	$631,724	$568,552	$63,172	55	Construction; HSIP+CMAQ+STBG+NHPP Total Cost = $9,789,988; MPO Evaluation Score = 55
2022	605857	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1 & UNIVERSITY AVENUE/EVERETT STREET	5	NHPP	$9,789,988	$2,873,029	$2,298,423	$574,606	55	Construction; HSIP+CMAQ+STBG+NHPP Total Cost = $9,789,988; MPO Evaluation Score = 55
2022	605857	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1 & UNIVERSITY AVENUE/EVERETT STREET	5	STBG	$9,789,988	$3,285,235	$2,628,188	$657,047	55	Construction; HSIP+CMAQ+STBG+NHPP Total Cost = $9,789,988; MPO Evaluation Score = 55
2022	606130	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1A & UPLAND ROAD/WASHINGTON STREET & PROSPECT STREET/FULTON STREET	5	CMAQ	$8,270,371	$1,000,000	$800,000	$200,000	53	Construction; CMAQ+STBG Total Cost = $8,270,371; MPO Evaluation Score = 53
2022	606130	Boston Region	Norwood	NORWOOD- INTERSECTION IMPROVEMENTS @ ROUTE 1A & UPLAND ROAD/WASHINGTON STREET & PROSPECT STREET/FULTON STREET	5	STBG	$8,270,371	$7,270,371	$5,816,297	$1,454,074	53	Construction; CMAQ+STBG Total Cost = $8,270,371; MPO Evaluation Score = 53
Bicycle and Pedestrian								**$13,402,143**	**$10,721,714**	**$2,680,429**		
2022	608164	Boston Region	Sudbury	SUDBURY- BIKE PATH CONSTRUCTION (BRUCE FREEMAN RAIL TRAIL)	3	CMAQ	$13,402,143	$8,834,137	$7,067,310	$1,766,827	40	Construction; CMAQ+TAP Total Cost = $13,402,143; MPO Evaluation Score = 40; TAP Proponent = Sudbury
2022	608164	Boston Region	Sudbury	SUDBURY- BIKE PATH CONSTRUCTION (BRUCE FREEMAN RAIL TRAIL)	3	STBG	$13,402,143	$4,068,006	$3,254,405	$813,601	40	Construction; CMAQ+TAP Total Cost = $13,402,143; MPO Evaluation Score = 40; TAP Proponent = Sudbury
2022	608164	Boston Region	Sudbury	SUDBURY- BIKE PATH CONSTRUCTION (BRUCE FREEMAN RAIL TRAIL)	3	TAP	$13,402,143	$500,000	$400,000	$100,000	40	Construction; CMAQ+TAP Total Cost = $13,402,143; MPO Evaluation Score = 40; TAP Proponent = Sudbury
Transit Grant Program								**$2,000,000**	**$1,600,000**	**$400,000**		
2022	S10782	Boston Region		COMMUNITY CONNECTIONS PROGRAM		CMAQ	$8,320,000	$2,000,000	$1,600,000	$400,000	N/A	Planning, Design, or Construction; Set Aside for LRTP Clean Air and Mobility Program
Section 1B / Earmark or Discretionary Grant Funded Projects								**$34,823,424**	**$27,858,739**	**$6,964,685**		
Earmark Discretionary								**$34,823,424**	**$27,858,739**	**$6,964,685**		
2022	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	NHPP-E	$121,677,818	$34,823,424	$27,858,739	$6,964,685	N/A	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC schedule over 3 years (2021-2023). MPO funding now has 2-year AC schedule.
Section 2A / State Prioritized Reliability Projects								**$117,865,622**	**$96,876,932**	**$20,988,690**		
Bridge On-system NHS								**$61,892,794**	**$49,514,235**	**$12,378,559**		
2022	604173	Boston Region	Boston	BOSTON- BRIDGE REPLACEMENT, B-16-016, NORTH WASHINGTON STREET OVER THE BOSTON INNER HARBOR	6	NHPP	$176,318,433	$28,825,727	$23,060,582	$5,765,145	N/A	Project ACd over 2017-2022.
2022	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	$98,962,749	$22,307,071	$17,845,657	$4,461,414	N/A	Project ACd over 2019-2023.
2022	607327	Boston Region	Wilmington	WILMINGTON- BRIDGE REPLACEMENT, W-38-002, ROUTE 38 (MAIN STREET) OVER THE B&M RAILROAD	4	NHPP	$10,759,996	$10,759,996	$8,607,997	$2,151,999	N/A	
Safety Improvements								**$11,519,539**	**$9,410,785**	**$2,108,754**		
2022	607759	Boston Region	Boston	BOSTON- INTERSECTION & SIGNAL IMPROVEMENTS AT THE VFW PARKWAY & SPRING STREET	6	HSIP	$3,788,711	$1,496,330	$1,346,697	$149,633	N/A	
2022	609060	Boston Region	Multiple	LYNNFIELD- PEABODY- DANVERS- GUIDE AND TRAFFIC SIGN REPLACEMENT ON I-95/128 (TASK 'A' INTERCHANGE)	4	HSIP	$455,208	$455,208	$409,687	$45,521	N/A	

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont., 6)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
2022	609090	Boston Region	Multiple	BOSTON- MILTON- QUINCY- HIGHWAY LIGHTING SYSTEM REPLACEMENT ON I-93, FROM NEPONSET AVENUE TO THE BRAINTREE SPLIT	6	NHPP	$9,568,001	$9,568,001	$7,654,401	$1,913,600	N/A	
Interstate Pavement								**$23,892,804**	**$21,503,524**	**$2,389,280**		
2022	608208	Boston Region	Multiple	QUINCY- MILTON- BOSTON- INTERSTATE MAINTENANCE & RELATED WORK ON I-93	6	NHPP-I	$23,892,804	$23,892,804	$21,503,524	$2,389,280	N/A	
Non-Interstate Pavement								**$12,426,222**	**$9,940,978**	**$2,485,244**		
2022	608480	Boston Region	Multiple	FOXBOROUGH- WALPOLE- RESURFACING AND RELATED WORK ON ROUTE 1	5	NHPP	$8,016,840	$8,016,840	$6,413,472	$1,603,368	N/A	
2022	608495	Boston Region	Multiple	CONCORD- LEXINGTON- LINCOLN- RESURFACING AND RELATED WORK ON ROUTE 2A	4	NHPP	$3,276,000	$3,276,000	$2,620,800	$655,200	N/A	
2022	608818	Boston Region	Danvers	DANVERS- RESURFACING AND RELATED WORK ON ROUTE 114	4	NHPP	$1,133,382	$1,133,382	$906,706	$226,676	N/A	
Roadway Improvements								**$508,879**	**$407,103**	**$101,776**		
2022	608599	Boston Region	Multiple	CANTON- SHARON- FOXBOROUGH- NORWOOD- WALPOLE- STORMWATER IMPROVEMENTS ALONG ROUTE 1, ROUTE 1A & INTERSTATE 95	5	STBG	$508,879	$508,879	$407,103	$101,776	N/A	
Bridge Systematic Maintenance								**$2,443,896**	**$1,955,117**	**$488,779**		
2022	608866	Boston Region	Multiple	NEWTON- WESTON- STEEL SUPERSTRUCTURE CLEANING (FULL REMOVAL) AND PAINTING OF 3 BRIDGES: N-12-051, W-29-011 & W-29-028	6	NHPP	$2,443,896	$2,443,896	$1,955,117	$488,779	N/A	
Bridge On-system Non-NHS								**$5,181,488**	**$4,145,190**	**$1,036,298**		
2022	608929	Boston Region	Wilmington	WILMINGTON- BRIDGE REPLACEMENT, W-38-003, BUTTERS ROW OVER MBTA	4	NHPP	$5,181,488	$5,181,488	$4,145,190	$1,036,298	N/A	
Section 2B / State Prioritized Modernization Projects								**$35,205,136**	**$31,455,384**	**$3,749,752**		
Intersection Improvements								**$7,676,441**	**$6,679,559**	**$996,882**		
2022	607342	Boston Region	Milton	MILTON- INTERSECTION & SIGNAL IMPROVEMENTS @ ROUTE 28 (RANDOLPH AVENUE) & CHICKATAWBUT ROAD	6	HSIP	$5,384,060	$5,384,060	$4,845,654	$538,406	N/A	
2022	607759	Boston Region	Boston	BOSTON- INTERSECTION & SIGNAL IMPROVEMENTS AT THE VFW PARKWAY & SPRING STREET	6	STBG	$3,788,711	$2,292,381	$1,833,905	$458,476	N/A	
Roadway Reconstruction								**$27,528,695**	**$24,775,826**	**$2,752,870**		
2022	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NHPP-I	$281,640,202	$12,233,939	$11,010,545	$1,223,394	N/A	Project ACd over 2022-2027. TFPC = $270,807,887. Total Construction Cost = $395M. HIP-BR = $40M, NHPP-I = $135,908,436. NFP-I = $105,731,365. NFA = $113,157,232.
2022	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NFP-I	$281,640,202	$15,294,756	$13,765,280	$1,529,476	N/A	Project ACd over 2022-2027. TFPC = $270,807,887. Total Construction Cost = $395M. HIP-BR = $40M, NHPP-I = $135,908,436. NFP-I = $105,731,365. NFA = $113,157,232.
Section 2C / State Prioritized Expansion Projects								**$8,446,971**	**$6,757,577**	**$1,689,394**		
Bicycle and Pedestrian								**$8,446,971**	**$6,757,577**	**$1,689,394**		
2022	608943	Boston Region	Boston	BOSTON- NEPONSET RIVER GREENWAY (PHASE 3)	6	CMAQ	$5,571,629	$5,571,629	$4,457,303	$1,114,326	42	
2022	609066	Boston Region	Multiple	NEWTON- WESTON- MULTI-USE TRAIL CONNECTION, FROM RECREATION ROAD TO UPPER CHARLES RIVER GREENWAY INCLUDING RECONSTRUCTION OF PED BRIDGE N-12-078=W-29-062	6	CMAQ	$2,875,342	$2,875,342	$2,300,274	$575,068	24	

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont., 7)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
Federal Fiscal Year 2023								**$231,120,907**	**$186,897,460**	**$44,223,447**		
Section 1A / Regionally Prioritized Projects								**$109,011,849**	**$87,359,479**	**$21,652,370**		
Roadway Reconstruction								**$97,644,637**	**$78,265,710**	**$19,378,927**		
2023	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	NHPP	$146,377,974	$13,000,000	$10,400,000	$2,600,000	59	Construction; NHPP+STBG+TAP Total Cost = $146,377,974; AC schedule over 5 years (2022-2026); Total funding in this TIP = $111,685,278 $71,592,970; MPO Evaluation Score = 59; TAP Proponent = Boston
2023	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	STBG	$146,377,974	$20,231,698	$16,185,358	$4,046,340	59	Construction; NHPP+STBG+TAP Total Cost = $146,377,974; AC schedule over 5 years (2022-2026); Total funding in this TIP = $111,685,278 $71,592,970; MPO Evaluation Score = 59; TAP Proponent = Boston
2023	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	TAP	$146,377,974	$1,000,000	$800,000	$200,000	59	Construction; NHPP+STBG+TAP Total Cost = $146,377,974; AC schedule over 5 years (2022-2026); Total funding in this TIP = $111,685,278 $71,592,970; MPO Evaluation Score = 59; TAP Proponent = Boston
2023	606453	Boston Region	Boston	BOSTON- IMPROVEMENTS ON BOYLSTON STREET, FROM INTERSECTION OF BROOKLINE AVENUE & PARK DRIVE TO IPSWICH STREET	6	CMAQ	$9,192,999	$1,000,000	$800,000	$200,000	58	Construction; CMAQ+TAP+STBG Total Cost = $9,192,998; MPO Evaluation Score = 58; TAP Proponent = Boston
2023	606453	Boston Region	Boston	BOSTON- IMPROVEMENTS ON BOYLSTON STREET, FROM INTERSECTION OF BROOKLINE AVENUE & PARK DRIVE TO IPSWICH STREET	6	STBG	$9,192,999	$7,380,566	$5,904,453	$1,476,113	58	Construction; CMAQ+TAP+STBG Total Cost = $9,192,998; MPO Evaluation Score = 58; TAP Proponent = Boston
2023	606453	Boston Region	Boston	BOSTON- IMPROVEMENTS ON BOYLSTON STREET, FROM INTERSECTION OF BROOKLINE AVENUE & PARK DRIVE TO IPSWICH STREET	6	TAP	$9,192,999	$812,432	$649,946	$162,486	58	Construction; CMAQ+TAP+STBG Total Cost = $9,192,998; MPO Evaluation Score = 58; TAP Proponent = Boston
2023	607244	Boston Region	Winthrop	WINTHROP- RECONSTRUCTION & RELATED WORK ALONG WINTHROP STREET & REVERE STREET CORRIDOR	6	CMAQ	$6,323,116	$2,000,000	$1,600,000	$400,000	54	Construction; CMAQ+STBG+TAP Total Cost = $6,323,116; MPO Evaluation Score = 54; TAP Proponent = Winthrop
2023	607244	Boston Region	Winthrop	WINTHROP- RECONSTRUCTION & RELATED WORK ALONG WINTHROP STREET & REVERE STREET CORRIDOR	6	STBG	$6,323,116	$3,763,116	$3,010,493	$752,623	54	Construction; CMAQ+STBG+TAP Total Cost = $6,323,116; MPO Evaluation Score = 54; TAP Proponent = Winthrop
2023	607244	Boston Region	Winthrop	WINTHROP- RECONSTRUCTION & RELATED WORK ALONG WINTHROP STREET & REVERE STREET CORRIDOR	6	TAP	$6,323,116	$560,000	$448,000	$112,000	54	Construction; CMAQ+STBG+TAP Total Cost = $6,323,116; MPO Evaluation Score = 54; TAP Proponent = Winthrop
2023	607777	Boston Region	Watertown	WATERTOWN- REHABILITATION OF MOUNT AUBURN STREET (ROUTE 16)	6	STBG	$28,340,090	$17,791,542	$14,233,234	$3,558,308	75	Construction; HSIP+CMAQ+STBG Total Cost = $28,340,090; 2-year AC schedule (2021-2022); MPO Evaluation Score = 75
2023	607899	Boston Region	Dedham	DEDHAM- PEDESTRIAN IMPROVEMENTS ALONG BUSSEY STREET, INCLUDING SUPERSTRUCTURE REPLACEMENT, D-05-010, BUSSEY STREET OVER MOTHER BROOK	6	STBG	$5,355,932	$4,828,736	$3,862,989	$965,747	35	Construction; STBG+TAP Total Cost = $5,355,932; MPO Evaluation Score = 35; TAP Proponent = Dedham
2023	607899	Boston Region	Dedham	DEDHAM- PEDESTRIAN IMPROVEMENTS ALONG BUSSEY STREET, INCLUDING SUPERSTRUCTURE REPLACEMENT, D-05-010, BUSSEY STREET OVER MOTHER BROOK	6	TAP	$5,355,932	$527,196	$421,757	$105,439	35	Construction; STBG+TAP Total Cost = $5,355,932; MPO Evaluation Score = 35; TAP Proponent = Dedham
2023	608348	Boston Region	Beverly	BEVERLY- RECONSTRUCTION OF BRIDGE STREET	4	CMAQ	$8,248,361	$3,000,000	$2,400,000	$600,000	66	Construction; CMAQ+STBG Total Cost = $8,248,361; MPO Evaluation Score = 66
2023	608348	Boston Region	Beverly	BEVERLY- RECONSTRUCTION OF BRIDGE STREET	4	STBG	$8,248,361	$5,248,361	$4,198,689	$1,049,672	66	Construction; CMAQ+STBG Total Cost = $8,248,361; MPO Evaluation Score = 66
2023	608707	Boston Region	Quincy	QUINCY- RECONSTRUCTION OF SEA STREET	6	STBG	$6,068,190	$5,841,936	$4,673,549	$1,168,387	40	Construction; STBG+TAP Total Cost = $6,069,190; MPO Evaluation Score = 40; TAP Project Proponent = Quincy
2023	608707	Boston Region	Quincy	QUINCY- RECONSTRUCTION OF SEA STREET	6	TAP	$6,068,190	$226,254	$181,003	$45,251	40	Construction; STBG+TAP Total Cost = $6,069,190; MPO Evaluation Score = 40; TAP Project Proponent = Quincy

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont., 8)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
2023	608933	Boston Region	Peabody	PEABODY- REHABILITATION OF CENTRAL STREET	4	CMAQ	$10,432,800	$3,000,000	$2,400,000	$600,000	61	Construction; CMAQ+HSIP+STBG Total Cost = $10,432,800; MPO Evaluation Score = 61
2023	608933	Boston Region	Peabody	PEABODY- REHABILITATION OF CENTRAL STREET	4	HSIP	$10,432,800	$1,500,000	$1,350,000	$150,000	61	Construction; CMAQ+HSIP+STBG Total Cost = $10,432,800; MPO Evaluation Score = 61
2023	608933	Boston Region	Peabody	PEABODY- REHABILITATION OF CENTRAL STREET	4	STBG	$10,432,800	$5,932,800	$4,746,240	$1,186,560	61	Construction; CMAQ+HSIP+STBG Total Cost = $10,432,800; MPO Evaluation Score = 61
Bicycle and Pedestrian								**$7,331,040**	**$5,864,832**	**$1,466,208**		
2023	607738	Boston Region	Bedford	BEDFORD- MINUTEMAN BIKEWAY EXTENSION, FROM LOOMIS STREET TO THE CONCORD T.L.	4	CMAQ	$7,331,040	$6,489,964	$5,191,971	$1,297,993	47	Construction; CMAQ+TAP Total Cost = $7,331,040; MPO Evaluation Score = 47; TAP Proponent = Bedford
2023	607738	Boston Region	Bedford	BEDFORD- MINUTEMAN BIKEWAY EXTENSION, FROM LOOMIS STREET TO THE CONCORD T.L.	4	TAP	$7,331,040	$841,076	$672,861	$168,215	47	Construction; CMAQ+TAP Total Cost = $7,331,040; MPO Evaluation Score = 47; TAP Proponent = Bedford
Intersection Improvements								**$2,036,172**	**$1,628,938**	**$407,234**		
2023	608889	Boston Region	Framingham	FRAMINGHAM- TRAFFIC SIGNAL INSTALLATION AT EDGELL ROAD AT CENTRAL STREET	3	CMAQ	$2,036,172	$1,680,000	$1,344,000	$336,000	41	Construction; CMAQ+STBG Total Cost = $2,036,172; MPO Evaluation Score = 41
2023	608889	Boston Region	Framingham	FRAMINGHAM- TRAFFIC SIGNAL INSTALLATION AT EDGELL ROAD AT CENTRAL STREET	3	STBG	$2,036,172	$356,172	$284,938	$71,234	41	Construction; CMAQ+STBG Total Cost = $2,036,172; MPO Evaluation Score = 41
Transit Grant Program								**$2,000,000**	**$1,600,000**	**$400,000**		
2023	S10782	Boston Region		COMMUNITY CONNECTIONS PROGRAM		CMAQ	$8,320,000	$2,000,000	$1,600,000	$400,000	N/A	Planning, Design, or Construction; Set Aside for LRTP Clean Air and Mobility Program
Section 1B / Earmark or Discretionary Grant Funded Projects								**$51,607,808**	**$41,286,246**	**$10,321,562**		
Earmark Discretionary								**$51,607,808**	**$41,286,246**	**$10,321,562**		
2023	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	NHPP-E	$121,677,818	$11,607,808	$9,286,246	$2,321,562	N/A	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC schedule over 3 years (2021-2023). MPO funding now has 2-year AC schedule.
2023	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	HIP-BR	$292,472,518	$40,000,000	$32,000,000	$8,000,000	N/A	Project ACd over 2022-2027. TFPC = $270,807,887. Total Construction Cost = $395M. HIP-BR = $40M, NHPP-I = $135,908,436. NFP-I = $105,731,365. NFA = $113,157,232.
Section 2A / State Prioritized Reliability Projects								**$45,577,095**	**$36,461,676**	**$9,115,419**		
Bridge On-system NHS								**$25,381,346**	**$20,305,077**	**$5,076,269**		
2023	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	$98,962,749	$18,481,507	$14,785,206	$3,696,301	N/A	Project ACd over 2019-2023.
2023	606902	Boston Region	Boston	BOSTON- BRIDGE RECONSTRUCTION/REHAB, B-16-181, WEST ROXBURY PARKWAY OVER MBTA	6	NHPP	$6,899,839	$6,899,839	$5,519,871	$1,379,968	N/A	
Bridge On-system Non-NHS								**$4,678,193**	**$3,742,554**	**$935,639**		
2023	608197	Boston Region	Boston	BOSTON- BRIDGE REHABILITATION, B-16-107, CANTERBURY STREET OVER AMTRAK RAILROAD	6	NHPP	$4,678,193	$4,678,193	$3,742,554	$935,639	N/A	
Non-Interstate Pavement								**$7,452,000**	**$5,961,600**	**$1,490,400**		
2023	608498	Boston Region	Multiple	HINGHAM- WEYMOUTH- BRAINTREE- RESURFACING AND RELATED WORK ON ROUTE 53	6	NHPP	$7,452,000	$7,452,000	$5,961,600	$1,490,400	N/A	
Bridge Systematic Maintenance								**$2,314,286**	**$1,851,429**	**$462,857**		
2023	608609	Boston Region	Multiple	NEWTON- WESTWOOD- STEEL SUPERSTRUCTURE CLEANING (FULL REMOVAL) AND PAINTING OF 2 BRIDGES: N-12-056 & W-31-006	6	NHPP	$2,314,286	$2,314,286	$1,851,429	$462,857	N/A	
Safety Improvements								**$5,238,054**	**$4,190,443**	**$1,047,611**		
2023	609053	Boston Region	Multiple	CANTON- DEDHAM- NORWOOD- HIGHWAY LIGHTING IMPROVEMENTS AT I-93 & I-95/128	6	NHPP	$5,238,054	$5,238,054	$4,190,443	$1,047,611	N/A	

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont., 9)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
Roadway Improvements								**$513,216**	**$410,573**	**$102,643**		
2023	610806	Boston Region		BOSTON - INNER HARBOR STORMWATER IMPROVEMENTS		STBG	$513,216	$513,216	$410,573	$102,643	N/A	
Section 2B / State Prioritized Modernization Projects								**$24,924,155**	**$21,790,059**	**$3,134,097**		
Roadway Reconstruction								**$19,858,836**	**$17,231,271**	**$2,627,565**		
2023	606476	Boston Region	Boston	BOSTON- ROADWAY, CEILING & WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL	6	NHPP	$121,677,818	$5,261,993	$4,209,594	$1,052,399	N/A	Construction; NHPP+HSIP+Other Federal Aid Total Cost = $126,544,931; Total MPO Contribution = $22,115,687; AC schedule over 3 years (2021-2023). MPO funding now has 2-year AC schedule.
2023	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NFP-I	$281,640,202	$13,442,026	$12,097,823	$1,344,203	N/A	Project ACd over 2022-2027. TFPC = $270,807,887. Total Construction Cost = $395M. HIP-BR = $40M, NHPP-I = $135,908,436. NFP-I = $105,731,365. NFA = $113,157,232.
2023	609530	Boston Region	Medway	MEDWAY- HOLLISTON STREET AND CASSIDY LANE IMPROVEMENTS (SRTS)	3	TAP	$1,154,817	$1,154,817	$923,854	$230,963	N/A	
Intersection Improvements								**$5,065,319**	**$4,558,787**	**$506,532**		
2023	608562	Boston Region	Somerville	SOMERVILLE- SIGNAL AND INTERSECTION IMPROVEMENT ON I-93 AT MYSTIC AVENUE AND MCGRATH HIGHWAY (TOP 200 CRASH LOCATION)	4	HSIP	$5,065,319	$5,065,319	$4,558,787	$506,532	N/A	

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont., 10)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
Federal Fiscal Year 2024								**$191,332,529**	**$157,531,924**	**$33,800,605**		
Section 1A / Regionally Prioritized Projects								**$110,440,638**	**$89,418,850**	**$21,021,788**		
Intersection Improvements								**$23,166,683**	**$18,949,686**	**$4,216,997**		
2024	603739	Boston Region	Wrentham	WRENTHAM- CONSTRUCTION OF ROUTE I-495/ROUTE 1A RAMPS	5	HSIP	$16,786,952	$2,500,000	$2,250,000	$250,000	55	Construction; HSIP+STBG+TAP Total Cost = $16,786,952; MPO Evaluation Score = 55; TAP Proponent = MassDOT
2024	603739	Boston Region	Wrentham	WRENTHAM- CONSTRUCTION OF ROUTE I-495/ROUTE 1A RAMPS	5	STBG	$16,786,952	$13,786,952	$11,029,562	$2,757,390	55	Construction; HSIP+STBG+TAP Total Cost = $16,786,952; MPO Evaluation Score = 55; TAP Proponent = MassDOT
2024	603739	Boston Region	Wrentham	WRENTHAM- CONSTRUCTION OF ROUTE I-495/ROUTE 1A RAMPS	5	TAP	$16,786,952	$500,000	$400,000	$100,000	55	Construction; HSIP+STBG+TAP Total Cost = $16,786,952; MPO Evaluation Score = 55; TAP Proponent = MassDOT
2024	608436	Boston Region		ASHLAND- REHABILITATION AND RAIL CROSSING IMPROVEMENTS ON CHERRY STREET	3	STBG	$1,316,339	$1,316,339	$1,053,071	$263,268	38	Construction; STBG Total Cost = $1,316,339; MPO Evaluation Score = 38
2024	609253	Boston Region	Wilmington	WILMINGTON- INTERSECTION IMPROVEMENTS AT LOWELL STREET (ROUTE 129) AND WOBURN STREET	4	CMAQ	$5,063,392	$3,400,000	$2,720,000	$680,000	53	Construction; CMAQ+HSIP Total Cost = $5,063,392; MPO Evaluation Score = 53
2024	609253	Boston Region	Wilmington	WILMINGTON- INTERSECTION IMPROVEMENTS AT LOWELL STREET (ROUTE 129) AND WOBURN STREET	4	HSIP	$5,063,392	$1,663,392	$1,497,053	$166,339	53	Construction; CMAQ+HSIP Total Cost = $5,063,392; MPO Evaluation Score = 53
Roadway Reconstruction								**$81,905,275**	**$66,174,220**	**$15,731,055**		
2024	605743	Boston Region	Ipswich	IPSWICH- RESURFACING & RELATED WORK ON CENTRAL & SOUTH MAIN STREETS	4	STBG	$3,104,609	$2,585,059	$2,068,047	$517,012	47	Construction; STBG+TAP Total Cost = $3,104,609; MPO Evaluation Score = 47; TAP Proponent = Ipswich
2024	605743	Boston Region	Ipswich	IPSWICH- RESURFACING & RELATED WORK ON CENTRAL & SOUTH MAIN STREETS	4	TAP	$3,104,609	$519,550	$415,640	$103,910	47	Construction; STBG+TAP Total Cost = $3,104,609; MPO Evaluation Score = 47; TAP Proponent = Ipswich
2024	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	NHPP	$146,377,974	$8,500,000	$6,800,000	$1,700,000	59	Construction; NHPP+STBG+TAP Total Cost = $146,377,974; AC schedule over 5 years (2022-2026); Total funding in this TIP = $111,685,278 $71,592,970; MPO Evaluation Score = 59; TAP Proponent = Boston
2024	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	STBG	$146,377,974	$17,491,547	$13,993,238	$3,498,309	59	Construction; NHPP+STBG+TAP Total Cost = $146,377,974; AC schedule over 5 years (2022-2026); Total funding in this TIP = $111,685,278 $71,592,970; MPO Evaluation Score = 59; TAP Proponent = Boston
2024	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	TAP	$146,377,974	$1,000,000	$800,000	$200,000	59	Construction; NHPP+STBG+TAP Total Cost = $146,377,974; AC schedule over 5 years (2022-2026); Total funding in this TIP = $111,685,278 $71,592,970; MPO Evaluation Score = 59; TAP Proponent = Boston
2024	608007	Boston Region	Multiple	COHASSET- SCITUATE- CORRIDOR IMPROVEMENTS AND RELATED WORK ON JUSTICE CUSHING HIGHWAY (ROUTE 3A), FROM BEECHWOOD STREET TO HENRY TURNER BAILEY ROAD	5	HSIP	$8,971,635	$1,500,000	$1,350,000	$150,000	37	Construction; HSIP+STBG+TAP Total Cost = $8,971,636; MPO Evaluation Score = 37; TAP Proponent = MassDOT
2024	608007	Boston Region	Multiple	COHASSET- SCITUATE- CORRIDOR IMPROVEMENTS AND RELATED WORK ON JUSTICE CUSHING HIGHWAY (ROUTE 3A), FROM BEECHWOOD STREET TO HENRY TURNER BAILEY ROAD	5	STBG	$8,971,635	$7,331,403	$5,865,122	$1,466,281	37	Construction; HSIP+STBG+TAP Total Cost = $8,971,636; MPO Evaluation Score = 37; TAP Proponent = MassDOT
2024	608007	Boston Region	Multiple	COHASSET- SCITUATE- CORRIDOR IMPROVEMENTS AND RELATED WORK ON JUSTICE CUSHING HIGHWAY (ROUTE 3A), FROM BEECHWOOD STREET TO HENRY TURNER BAILEY ROAD	5	TAP	$8,971,635	$140,232	$112,186	$28,046	37	Construction; HSIP+STBG+TAP Total Cost = $8,971,636; MPO Evaluation Score = 37; TAP Proponent = MassDOT

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont.,11)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
2024	608051	Boston Region	Wilmington	WILMINGTON- RECONSTRUCTION ON ROUTE 38 (MAIN STREET), FROM ROUTE 62 TO THE WOBURN C.L.	4	CMAQ	$19,599,506	$6,000,000	$4,800,000	$1,200,000	59	Construction; CMAQ+HSIP+STBG Total Cost = $19,599,506; MPO Evaluation Score = 59
2024	608051	Boston Region	Wilmington	WILMINGTON- RECONSTRUCTION ON ROUTE 38 (MAIN STREET), FROM ROUTE 62 TO THE WOBURN C.L.	4	HSIP	$19,599,506	$1,000,000	$900,000	$100,000	59	Construction; CMAQ+HSIP+STBG Total Cost = $19,599,506; MPO Evaluation Score = 59
2024	608051	Boston Region	Wilmington	WILMINGTON- RECONSTRUCTION ON ROUTE 38 (MAIN STREET), FROM ROUTE 62 TO THE WOBURN C.L.	4	STBG	$19,599,506	$12,599,506	$10,079,605	$2,519,901	59	Construction; CMAQ+HSIP+STBG Total Cost = $19,599,506; MPO Evaluation Score = 59
2024	609054	Boston Region	Littleton	LITTLETON- RECONSTRUCTION OF FOSTER STREET	3	CMAQ	$4,281,978	$1,000,000	$800,000	$200,000	38	Construction; CMAQ+TAP+STBG Total Cost = $4,281,978; MPO Evaluation Score = 38; TAP Proponent = Littleton
2024	609054	Boston Region	Littleton	LITTLETON- RECONSTRUCTION OF FOSTER STREET	3	STBG	$4,281,978	$2,781,978	$2,225,582	$556,396	38	Construction; CMAQ+TAP+STBG Total Cost = $4,281,978; MPO Evaluation Score = 38; TAP Proponent = Littleton
2024	609054	Boston Region	Littleton	LITTLETON- RECONSTRUCTION OF FOSTER STREET	3	TAP	$4,281,978	$500,000	$400,000	$100,000	38	Construction; CMAQ+TAP+STBG Total Cost = $4,281,978; MPO Evaluation Score = 38; TAP Proponent = Littleton
2024	609252	Boston Region	Lynn	LYNN- REHABILITATION OF ESSEX STREET	4	CMAQ	$18,956,000	$6,000,000	$4,800,000	$1,200,000	66	Construction; CMAQ+HSIP+STBG Total Cost = $18,956,000; MPO Evaluation Score = 66
2024	609252	Boston Region	Lynn	LYNN- REHABILITATION OF ESSEX STREET	4	HSIP	$18,956,000	$4,000,000	$3,600,000	$400,000	66	Construction; CMAQ+HSIP+STBG Total Cost = $18,956,000; MPO Evaluation Score = 66
2024	609252	Boston Region	Lynn	LYNN- REHABILITATION OF ESSEX STREET	4	STBG	$18,956,000	$8,956,000	$7,164,800	$1,791,200	66	Construction; CMAQ+HSIP+STBG Total Cost = $18,956,000; MPO Evaluation Score = 66
Bicycle and Pedestrian								**$3,368,680**	**$2,694,944**	**$673,736**		
2024	609211	Boston Region	Peabody	PEABODY- INDEPENDENCE GREENWAY EXTENSION	4	CMAQ	$3,368,680	$1,972,500	$1,578,000	$394,500	34	Construction; CMAQ+TAP Total Cost = $3,368,680; MPO Evaluation Score = 34; TAP Proponent = Peabody
2024	609211	Boston Region	Peabody	PEABODY- INDEPENDENCE GREENWAY EXTENSION	4	TAP	$3,368,680	$1,396,180	$1,116,944	$279,236	34	Construction; CMAQ+TAP Total Cost = $3,368,680; MPO Evaluation Score = 34; TAP Proponent = Peabody
Transit Grant Program								**$2,000,000**	**$1,600,000**	**$400,000**		
2024	S10782	Boston Region		COMMUNITY CONNECTIONS PROGRAM		CMAQ	$8,320,000	$2,000,000	$1,600,000	$400,000	N/A	Planning, Design, or Construction; Set Aside for LRTP Clean Air and Mobility Program
Section 2A / State Prioritized Reliability Projects								**$39,651,558**	**$32,343,804**	**$7,307,754**		
Bridge Off-system								**$9,722,794**	**$7,778,235**	**$1,944,559**		
2024	608255	Boston Region	Stow	STOW- BRIDGE REPLACEMENT, S-29-011, BOX MILL ROAD OVER ELIZABETH BROOK	3	STBG-BR-Off	$3,630,898	$3,630,898	$2,904,718	$726,180	N/A	
2024	609438	Boston Region	Canton	CANTON- BRIDGE REPLACEMENT, C-02-042, REVERE COURT OVER WEST BRANCH OF THE NEPONSET RIVER	6	STBG-BR-Off	$2,714,892	$2,714,892	$2,171,914	$542,978	N/A	
2024	609467	Boston Region	Multiple	HAMILTON- BRIDGE REPLACEMENT, H-03-002, WINTHROP STREET OVER IPSWICH RIVER	4	STBG-BR-Off	$3,377,004	$3,377,004	$2,701,603	$675,401	N/A	
Bridge On-system Non-NHS								**$4,072,275**	**$3,257,820**	**$814,455**		
2024	608522	Boston Region	Middleton	MIDDLETON- BRIDGE REPLACEMENT, M-20-003, ROUTE 62 (MAPLE STREET) OVER IPSWICH RIVER	4	NHPP	$4,072,275	$4,072,275	$3,257,820	$814,455	N/A	
Safety Improvements								**$6,225,577**	**$5,603,019**	**$622,558**		
2024	609254	Boston Region	Lynn	LYNN- INTERSECTION IMPROVEMENTS AT TWO INTERSECTIONS ON BROADWAY	4	HSIP	$6,225,577	$6,225,577	$5,603,019	$622,558	39	
Non-Interstate Pavement								**$13,941,312**	**$11,153,050**	**$2,788,262**		
2024	609396	Boston Region	Multiple	RANDOLPH- MILTON- RESURFACING AND RELATED WORK ON ROUTE 28	6	NHPP	$6,970,656	$6,970,656	$5,576,525	$1,394,131	N/A	

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont., 12)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
2024	609399	Boston Region	Randolph	RANDOLPH- RESURFACING AND RELATED WORK ON ROUTE 28	6	NHPP	$6,970,656	$6,970,656	$5,576,525	$1,394,131	N/A	
Bridge On-system NHS								**$5,689,600**	**$4,551,680**	**$1,137,920**		
2024	610782	Boston Region		DANVERS- ANDOVER STREET (D-03-009) OVER IPSWICH RIVER		NHPP	$5,689,600	$5,689,600	$4,551,680	$1,137,920	N/A	
Section 2B / State Prioritized Modernization Projects								**$29,968,946**	**$26,752,161**	**$3,216,785**		
Roadway Reconstruction								**$29,968,946**	**$26,752,161**	**$3,216,785**		
2024	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NFP-I	$281,640,202	$27,770,041	$24,993,037	$2,777,004	N/A	Project ACd over 2022-2027. TFPC = $270,807,887. Total Construction Cost = $395M. HIP-BR = $40M, NHPP-I = $135,908,436. NFP-I = $105,731,365. NFA = $113,157,232.
2024	609531	Boston Region	Arlington	ARLINGTON- STRATTON SCHOOL IMPROVEMENTS (SRTS)	4	TAP	$1,112,484	$1,112,484	$889,987	$222,497	N/A	
2024	610537	Boston Region	Boston	BOSTON- ELLIS ELEMENTARY TRAFFIC CALMING (SRTS)	6	TAP	$1,086,421	$1,086,421	$869,137	$217,284	N/A	
Section 2C / State Prioritized Expansion Projects								**$11,271,387**	**$9,017,110**	**$2,254,277**		
Bicycle and Pedestrian								**$11,271,387**	**$9,017,110**	**$2,254,277**		
2024	607329	Boston Region	Multiple	WAKEFIELD- LYNNFIELD- RAIL TRAIL EXTENSION, FROM THE GALVIN MIDDLE SCHOOL TO LYNNFIELD/PEABODY T.L.	4	CMAQ	$11,271,387	$11,271,387	$9,017,110	$2,254,277	N/A	

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont., 13)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
Federal Fiscal Year 2025								**$242,707,763**	**$201,667,069**	**$41,040,694**		
Section 1A / Regionally Prioritized Projects								**$106,784,015**	**$85,927,212**	**$20,856,803**		
Roadway Reconstruction								**$92,480,615**	**$74,484,492**	**$17,996,123**		
2025	605168	Boston Region	Hingham	HINGHAM- IMPROVEMENTS ON ROUTE 3A FROM OTIS STREET/COLE ROAD INCLUDING SUMMER STREET AND ROTARY; ROCKLAND STREET TO GEORGE WASHINGTON BOULEVARD	5	STBG	$15,272,850	$13,772,850	$11,018,280	$2,754,570	55	Construction; TAP+STBG Total Cost = $15,272,850; MPO Evaluation Score = 55; TAP Proponent = Hingham
2025	605168	Boston Region	Hingham	HINGHAM- IMPROVEMENTS ON ROUTE 3A FROM OTIS STREET/COLE ROAD INCLUDING SUMMER STREET AND ROTARY; ROCKLAND STREET TO GEORGE WASHINGTON BOULEVARD	5	TAP	$15,272,850	$1,500,000	$1,200,000	$300,000	55	Construction; TAP+STBG Total Cost = $15,272,850; MPO Evaluation Score = 55; TAP Proponent = Hingham
2025	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	NHPP	$146,377,974	$12,000,000	$9,600,000	$2,400,000	59	Construction; NHPP+STBG+TAP Total Cost = $146,377,974; AC schedule over 5 years (2022-2026); Total funding in this TIP = $111,685,278 $71,592,970; MPO Evaluation Score = 59; TAP Proponent = Boston
2025	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	STBG	$146,377,974	$30,047,396	$24,037,917	$6,009,479	59	Construction; NHPP+STBG+TAP Total Cost = $146,377,974; AC schedule over 5 years (2022-2026); Total funding in this TIP = $111,685,278 $71,592,970; MPO Evaluation Score = 59; TAP Proponent = Boston
2025	606226	Boston Region	Boston	BOSTON- RECONSTRUCTION OF RUTHERFORD AVENUE, FROM CITY SQUARE TO SULLIVAN SQUARE	6	TAP	$146,377,974	$2,000,000	$1,600,000	$400,000	59	Construction; NHPP+STBG+TAP Total Cost = $146,377,974; AC schedule over 5 years (2022-2026); Total funding in this TIP = $111,685,278 $71,592,970; MPO Evaluation Score = 59; TAP Proponent = Boston
2025	608045	Boston Region	Milford	MILFORD- REHABILITATION ON ROUTE 16, FROM ROUTE 109 TO BEAVER STREET	3	HSIP	$3,887,537	$1,000,000	$900,000	$100,000	43	Construction; HSIP+STBG Total Cost = $3,887,537; MPO Evaluation Score = 43
2025	608045	Boston Region	Milford	MILFORD- REHABILITATION ON ROUTE 16, FROM ROUTE 109 TO BEAVER STREET	3	STBG	$3,887,537	$2,887,537	$2,310,030	$577,507	43	Construction; HSIP+STBG Total Cost = $3,887,537; MPO Evaluation Score = 43
2025	608067	Boston Region	Woburn	WOBURN- INTERSECTION RECONSTRUCTION AT ROUTE 3 (CAMBRIDGE ROAD) & BEDFORD ROAD AND SOUTH BEDFORD STREET	4	CMAQ	$1,670,400	$1,670,400	$1,336,320	$334,080	52	Construction; CMAQ Total Cost = $1,670,400; MPO Evaluation Score = 52
2025	609257	Boston Region	Everett	EVERETT- RECONSTRUCTION OF BEACHAM STREET	4	HSIP	$10,921,632	$1,000,000	$900,000	$100,000	54	Construction; HSIP+TAP+STBG Total Cost = $10,921,632; MPO Evaluation Score = 54; TAP Proponent = Everett
2025	609257	Boston Region	Everett	EVERETT- RECONSTRUCTION OF BEACHAM STREET	4	STBG	$10,921,632	$8,421,632	$6,737,306	$1,684,326	54	Construction; HSIP+TAP+STBG Total Cost = $10,921,632; MPO Evaluation Score = 54; TAP Proponent = Everett
2025	609257	Boston Region	Everett	EVERETT- RECONSTRUCTION OF BEACHAM STREET	4	TAP	$10,921,632	$1,500,000	$1,200,000	$300,000	54	Construction; HSIP+TAP+STBG Total Cost = $10,921,632; MPO Evaluation Score = 54; TAP Proponent = Everett
2025	610662	Boston Region	Woburn	WOBURN- ROADWAY AND INTERSECTION IMPROVEMENTS AT WOBURN COMMON, ROUTE 38 (MAIN STREET), WINN STREET, PLEASANT STREET AND MONTVALE AVENUE	4	HSIP	$16,680,800	$3,000,000	$2,700,000	$300,000	75	Construction; HSIP+STBG Total Cost = $16,680,800; MPO Evaluation Score = 75
2025	610662	Boston Region	Woburn	WOBURN- ROADWAY AND INTERSECTION IMPROVEMENTS AT WOBURN COMMON, ROUTE 38 (MAIN STREET), WINN STREET, PLEASANT STREET AND MONTVALE AVENUE	4	STBG	$16,680,800	$13,680,800	$10,944,640	$2,736,160	75	Construction; HSIP+STBG Total Cost = $16,680,800; MPO Evaluation Score = 75

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont., 14)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
Bicycle and Pedestrian								**$6,803,400**	**$5,442,720**	**$1,360,680**		
2025	610544	Boston Region	Peabody	PEABODY- MULTI-USE PATH CONSTRUCTION OF INDEPENDENCE GREENWAY AT I-95 AND ROUTE 1	4	CMAQ	$6,803,400	$4,000,000	$3,200,000	$800,000	53	Construction; CMAQ+TAP Total Cost = $6,803,400; MPO Evaluation Score = 53; TAP Proponent = Peabody
2025	610544	Boston Region	Peabody	PEABODY- MULTI-USE PATH CONSTRUCTION OF INDEPENDENCE GREENWAY AT I-95 AND ROUTE 1	4	TAP	$6,803,400	$2,803,400	$2,242,720	$560,680	53	Construction; CMAQ+TAP Total Cost = $6,803,400; MPO Evaluation Score = 53; TAP Proponent = Peabody
Transit Grant Program								**$2,000,000**	**$1,600,000**	**$400,000**		
2025	S10782	Boston Region		COMMUNITY CONNECTIONS PROGRAM		CMAQ	$8,320,000	$2,000,000	$1,600,000	$400,000	N/A	Planning, Design, or Construction; Set Aside for LRTP Clean Air and Mobility Program
Flex to FTA								**$5,500,000**	**$4,400,000**	**$1,100,000**		
2025	S10783	Boston Region		TRANSIT MODERNIZATION PROGRAM		CMAQ	$6,380,000	$5,500,000	$4,400,000	$1,100,000	N/A	Construction; Flex to FTA; Set Aside for LRTP Transit Modernization Program
Section 2A / State Prioritized Reliability Projects								**$85,830,967**	**$71,108,755**	**$14,722,212**		
Safety Improvements								**$7,631,397**	**$6,868,257**	**$763,140**		
2025	607748	Boston Region	Acton	ACTON- INTERSECTION & SIGNAL IMPROVEMENTS ON SR 2 & SR 111 (MASSACHUSETTS AVENUE) AT PIPER ROAD & TAYLOR ROAD	3	HSIP	$4,382,329	$961,396	$865,256	$96,140	N/A	
2025	609532	Boston Region	Chelsea	CHELSEA- TARGETED SAFETY IMPROVEMENTS AND RELATED WORK ON BROADWAY, FROM WILLIAMS STREET TO CITY HALL AVENUE	6	HSIP	$6,670,001	$6,670,001	$6,003,001	$667,000	83	
Bridge On-system NHS								**$31,552,232**	**$25,241,786**	**$6,310,446**		
2025	608703	Boston Region	Wilmington	WILMINGTON- BRIDGE REPLACEMENT, W-38-029 (2KV), ST 129 LOWELL STREET OVER I 93	4	NHPP	$17,133,432	$17,133,432	$13,706,746	$3,426,686	N/A	
2025	610776	Boston Region		CAMBRIDGE- US RTE 3 OVER RTE 2 & RTE 16 OVER ALEWIFE		NHPP	$14,418,800	$14,418,800	$11,535,040	$2,883,760	N/A	
Non-Interstate Pavement								**$29,838,925**	**$23,871,140**	**$5,967,785**		
2025	609402	Boston Region	Multiple	FRAMINGHAM- NATICK- RESURFACING AND RELATED WORK ON ROUTE 9	3	NHPP	$21,714,852	$21,714,852	$17,371,882	$4,342,970	N/A	
2025	610722	Boston Region	Multiple	ACTON- BOXBOROUGH- LITTLETON- PAVEMENT PRESERVATION ROUTE 2	3	NHPP	$8,124,073	$8,124,073	$6,499,258	$1,624,815	N/A	
Interstate Pavement								**$16,808,413**	**$15,127,572**	**$1,680,841**		
2025	610726	Boston Region	Multiple	MEDFORD- WINCHESTER- STONEHAM- INTERSTATE PAVEMENT PRESERVATION ON I93	4	NHPP-I	$16,808,413	$16,808,413	$15,127,572	$1,680,841	N/A	
Section 2B / State Prioritized Modernization Projects								**$45,568,780**	**$41,011,902**	**$4,556,878**		
Intersection Improvements								**$7,625,934**	**$6,863,341**	**$762,593**		
2025	607748	Boston Region	Acton	ACTON- INTERSECTION & SIGNAL IMPROVEMENTS ON SR 2 & SR 111 (MASSACHUSETTS AVENUE) AT PIPER ROAD & TAYLOR ROAD	3	HSIP	$4,382,329	$3,420,933	$3,078,840	$342,093	N/A	
2025	610665	Boston Region	Stoneham	STONEHAM- INTERSECTION IMPROVEMENTS AT ROUTE 28 (MAIN STREET), NORTH BORDER ROAD AND POND STREET	4	HSIP	$4,205,001	$4,205,001	$3,784,501	$420,500	N/A	

Table 3-6: Federal Fiscal Years 2021–25 Transportation Improvement Program Highway Table (cont., 15)

Year	MassDOT Project ID	MPO	Municipality	MassDOT Project Description	District	Funding Source	Adjusted TFPC	Total Programmed Funds	Federal Funds	Non-Federal Funds	MPO Project Score	Other Information
Roadway Reconstruction								**$37,942,846**	**$34,148,561**	**$3,794,285**		
2025	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NHPP-I	$281,640,202	$15,000,000	$13,500,000	$1,500,000	N/A	Project ACd over 2022-2027. TFPC = $270,807,887. Total Construction Cost = $395M. HIP-BR = $40M, NHPP-I = $135,908,436. NFP-I = $105,731,365. NFA = $113,157,232.
2025	607977	Boston Region	Multiple	HOPKINTON- WESTBOROUGH- RECONSTRUCTION OF I-90/I-495 INTERCHANGE	3	NFP-I	$281,640,202	$22,942,846	$20,648,561	$2,294,285	N/A	Project ACd over 2022-2027. TFPC = $270,807,887. Total Construction Cost = $395M. HIP-BR = $40M, NHPP-I = $135,908,436. NFP-I = $105,731,365. NFA = $113,157,232.
Section 2C / State Prioritized Expansion Projects								**$4,524,001**	**$3,619,201**	**$904,800**		
Bicycle and Pedestrian								**$4,524,001**	**$3,619,201**	**$904,800**		
2025	610660	Boston Region	Multiple	SUDBURY- WAYLAND- MASS CENTRAL RAIL TRAIL (MCRT)	3	CMAQ	$4,524,001	$4,524,001	$3,619,201	$904,800	N/A	

Table 3-7: Federal Fiscal Years 2021–25 Transportation Improvement Program Transit Table (MBTA)

This table will be added when programming information is received from the MBTA.

Table 3-8: Federal Fiscal Years 2021–25 Transportation Improvement Program Transit Table (MWRTA)

FTA Program	Project Number	Project Title	Notes	Bond Cap | State | 100% State	Federal | FTA | Section 5307	Federal | FTA | Other Federal Transit	Operating | Additional State Assistance | State Contract Assistance	Federal | FHWA | Transportation Development Credits	Total
FFY 2021									
RTA Facility and Vehicle Maintenance	RTD0008907	Terminal, Intermodal (Transit) - Framingham Commuter Rail Station (FCRS)	Framingham Intermodal Enhancements/Improvements; MWRTA applies for competitive funding for this line item as well and will reduce the RTACAP request upon award of additional federal funds.	$34,000	$34,000	$0	$0	$0	$68,000
RTA Facility and Vehicle Maintenance	RTD0008889	Terminal, Intermodal (Transit) - Blandin	"12/3/2015 update CIP Project: State of Good Repair /Notes: Blandin Avenue Call Center Technology Updates "	$350,000	$350,000	$0	$0	$0	$700,000
RTA Facility and System Modernization	RTD0008891	Technology Support/Capital Outreach	Mobility Management; IT; Call Center; Travel Training Enhancements/ Improvements; MWRTA applies for competitive funding for this line item as well and will reduce the RTACAP request upon award of additional federal funds.	$100,000	$100,000	$0	$0	$0	$200,000
	RTD0008888	Non-Fixed Route ADA Paratransit Service		$0	$1,600,000	$0	$400,000	$0	$2,000,000
RTA Replacement Facilities	RTD0008993	Front Entrance Blandin (FEB) Project	** Removed 5339 Statewide and moved to RTACAP - MWRTA Front Entrance Blandin (FEB) Renovation Project - $1,875,000 of Section 5339 Statewide funding request with $625k TDC - Toll Credit Match	$975,000	$0	$0	$0	$625,000	$975,000
RTA Vehicle Replacement	RTD0009174	Buy Replacement Van	FY20 5339 Statewide Funds (previously supported by 5310 MAP) Replacement Vehicles Combination of Compressed Natural Gas (CNG) Vehicles to include Types: 8 x Ds (w/CNG Option), 6 x Es in order to maintain State of Good Repair (SOGR) at the MWRTA. MassDOT supported 2 x Es via the FY20 5310 MAP Program in FY20.	$0	$0	$2,237,250	$0	$559,250	$2,237,250

Table 3-8: Federal Fiscal Years 2021–25 Transportation Improvement Program Transit Table (MWRTA)(cont., 2)

FTA Program	Project Number	Project Title	Notes	Bond Cap | State | 100% State	Federal | FTA | Section 5307	Federal | FTA | Other Federal Transit	Operating | Additional State Assistance | State Contract Assistance	Federal | FHWA | Transportation Development Credits	Total
RTA Facility and System Modernization	TBD	AFC Transition		$92,500	$0	$0	$0	$0	$92,500
RTA Facility and Vehicle Maintenance	RTD0008997	Terminal, Intermodal (Transit) - Framingham Commuter Rail Station (FCRS)	Framingham Intermodal Enhancements/Improvements; MWRTA applies for competitive funding for this line item as well and will reduce the RTACAP request upon award of additional federal funds.	$12,500	$12,500	$0	$0	$0	$25,000
RTA Facility and System Modernization	TBD	MWRTA Modernization - Fleet Electrification	Electrification costs; Change to 1 pilot vehicle + charger. Defer all facility improvements and additional deployments.	$130,000	$0	$0	$0	$0	$130,000
FFY 2022									
RTA Replacement Facilities	RTD0008906	Terminal, Intermodal (Transit) - Framingham Commuter Rail Station (FCRS)	Framingham Intermodal Enhancements/Improvements; MWRTA applies for competitive funding for this line item as well and will reduce the RTACAP request upon award of additional federal funds.	$34,000	$34,000	$0	$0	$0	$68,000
RTA Facility and System Modernization	RTD0008894	Terminal, Intermodal (Transit) - Blandin	Facility and System Modernization	$250,000	$250,000	$0	$0	$0	$500,000
RTA Facility and System Modernization	RTD0008895	Technology Support/Capital Outreach	Mobility Management; IT; Call Center; Travel Training Enhancements/ Improvements; MWRTA applies for competitive funding for this line item as well and will reduce the RTACAP request upon award of additional federal funds.	$150,000	$150,000	$0	$0	$0	$300,000
RTA Vehicle Replacement	TBD	Buy Replacement Van	FY20 5339 Statewide Funds (previously supported by 5310 MAP) Replacement Vehicles Combination of Compressed Natural Gas (CNG) Vehicles to include Types: 7 x Ds (w/CNG Option), 3 x Es	$493,000	$493,000	$0	$0	$0	$985,000
	RTD0008892	Non-Fixed Route ADA Paratransit Service		$0	$1,600,000	$0	$400,000	$0	$2,000,000
RTA Replacement Facilities	TBD	Front Entrance Blandin (FEB) Project		$721,100	$0	$0	$0	$0	$721,100
RTA Facility and System Modernization	TBD	AFC Transition		$250,000	$0	$0	$0	$0	$250,000
FFY 2023									
RTA Facility and Vehicle Maintenance	RTD0008905	Terminal, Intermodal (Transit) - Framingham Commuter Rail Station (FCRS)	Framingham Intermodal Enhancements/Improvements; MWRTA applies for competitive funding for this line item as well and will reduce the RTACAP request upon award of additional federal funds.	$34,000	$34,000	$0	$0	$0	$68,000
RTA Facility and Vehicle Maintenance	RTD0008897	Acquisition of Bus Support Equipment/Facilities		$225,000	$225,000	$0	$0	$0	$450,000
RTA Facility and System Modernization	RTD0008898	Technology Support/Capital Outreach	Mobility Management; IT; Call Center; Travel Training Enhancements/ Improvements; MWRTA applies for competitive funding for this line item as well and will reduce the RTACAP request upon award of additional federal funds.	$150,000	$150,000	$0	$0	$0	$300,000
RTA Facility and Vehicle Maintenance	RTD0008899	Terminal, Intermodal (Transit) - Blandin	Blandin Hub Enhancements/Improvements	$250,000	$250,000	$0	$0	$0	$500,000
RTA Vehicle Replacement	TBD	Buy Replacement Van	FY20 5339 Statewide Funds (previously supported by 5310 MAP) Replacement Vehicles Combination of Compressed Natural Gas (CNG) Vehicles to include Types: 6 x Ds (w/CNG Option), 4 x Es	$591,000	$591,000	$0	$0	$295,500	$1,182,000
	RTD0008896	Non-Fixed Route ADA Paratransit Service		$0	$1,600,000	$0	$400,000	$0	$2,000,000

Table 3-8: Federal Fiscal Years 2021–25 Transportation Improvement Program Transit Table (MWRTA)(cont., 3)

FTA Program	Project Number	Project Title	Notes	Bond Cap | State | 100% State	Federal | FTA | Section 5307	Federal | FTA | Other Federal Transit	Operating | Additional State Assistance | State Contract Assistance	Federal | FHWA | Transportation Development Credits	Total
RTA Facility and System Modernization	TBD	AFC Transition		$250,000	$0	$0	$0	$0	$250,000
FFY 2024									
RTA Facility and Vehicle Maintenance	RTD0008901	Acquisition of Bus Support Equipment/Facilities		$225,000	$225,000	$0	$0	$0	$450,000
RTA Facility and System Modernization	RTD0008902	Technology Support/Capital Outreach	Mobility Management; IT; Call Center; Travel Training Enhancements/ Improvements; MWRTA applies for competitive funding for this line item as well and will reduce the RTACAP request upon award of additional federal funds.	$150,000	$150,000	$0	$0	$0	$300,000
RTA Replacement Facilities	RTD0008903	Terminal, Intermodal (Transit) - Blandin	Blandin Hub Enhancements/Improvements	$250,000	$250,000	$0	$0	$0	$500,000
RTA Facility and Vehicle Maintenance	RTD0008904	Terminal, Intermodal (Transit) - Framingham Commuter Rail Station (FCRS)	Intermodal at the Framingham Commuter Rail Station (FCRS) Enhancements/Improvements;MWRTA applies for competitive funding for this line item as well and will reduce the RTACAP request upon award of additional federal funds.	$34,000	$34,000	$0	$0	$0	$68,000
	RTD0008900	Non-Fixed Route ADA Paratransit Service		$0	$1,600,000	$0	$400,000	$0	$2,000,000
FFY 2025									
RTA Facility and Vehicle Maintenance	RTD0008994	Acquisition of Bus Support Equipment/Facilities	Acquisition of Bus Support Equip/Facilities; Additional Bus Accessories; MWRTA applies for competitive funding for this line item as well and will reduce the RTACAP request upon award of additional federal funds.	$225,000	$225,000	$0	$0	$0	$450,000
RTA Facility and Vehicle Maintenance	RTD0008995	Technology Support/Capital Outreach	Mobility Management; IT; Call Center; Travel Training Enhancements/ Improvements; Fare Collection Transition; MWRTA applies for competitive funding for this line item as well and will reduce the RTACAP request upon award of additional federal funds. 12/3/2015 update CIP Project: State of Good Repair / Notes: Blandin Avenue Call Center Technology Updates	$172,000	$172,000	$0	$0	$0	$345,200
RTA Facility and Vehicle Maintenance	RTD0008996	Terminal, Intermodal (Transit) - Blandin	Blandin Hub Enhancements/Improvements; MWRTA applies for competitive funding for this line item as well and will reduce the RTACAP request upon award of additional federal funds. 12/3/2015 CIP Project: State of Good Repair; Miscellaneous improvements to existing property (landscape, fence, lights, asphalt, cameras, security devices, benches, passenger amenities.	$250,000	$250,000	$0	$0	$0	$500,000
	RTD0008998	Non-Fixed Route ADA Paratransit Service		$0	$1,600,000	$0	$400,000	$0	$2,000,000
RTA Vehicle Replacement	TBD	Buy Replacement Van	FY20 5339 Statewide Funds (previously supported by 5310 MAP) Replacement Vehicles Combination of Compressed Natural Gas (CNG) Vehicles to include Types: 8 x Ds (w/CNG Option), 6 x Es	$616,000	$616,000	$0	$0	$308,000	$1,232,000

Table 3-9: Federal Fiscal Years 2021–25 Transportation Improvement Program Transit Table (CATA)

FTA Program	Project Number	Project Title	Notes	Bond Cap | State | 100% State	Federal | FTA | Section 5307	Other | Municipal and Local | Transit	Total
FFY 2021							
RTA Facility and System Modernization	RTD0008436	Acquire - Shop Equipment/Computers/Software		$13,750	$55,000	$0	$68,750
RTA Vehicle Replacement	RTD0008438	Replace 30' Buses/Trolleys	Replacement of one 2001 and one 2003 rubber-tire trolley bus	$500,000	$0	$0	$500,000
RTA Facility and Vehicle Maintenance	RTD0008441	Buy Assoc. Capital Maintenance Items	Miscellaneous small capital items	$15,000	$0	$0	$15,000
	RTD0008431	Preventive Maintenance		$0	$285,000	$71,250	$356,250
FFY 2022							
RTA Facility and System Modernization	RTD0008433	Acquire - Shop Equipment/Computers/Software		$13,750	$55,000	$0	$68,750
	RTD0008432	Preventive Maintenance		$0	$285,000	$71,250	$356,250
FFY 2023							
RTA Vehicle Replacement	RTD0008435	Replace Two 30-FT Buses	Replacement of two 30-ft low floor buses that will have reached the end of their useful life	$175,000	$700,000	$0	$875,000
RTA Facility and Vehicle Maintenance	RTD0008443	Buy Assoc. Capital Maintenance Items	Miscellaneous small capital items	$15,000	$0	$0	$15,000
	RTD0008434	Preventive Maintenance		$0	$285,000	$71,250	$356,250
FFY 2024							
RTA Facility and Vehicle Maintenance	RTD0008440	Repave Parking Lot	State match to repave parking area	$20,000	$80,000	$0	$100,000
RTA Facility and Vehicle Maintenance	RTD0008444	Buy Assoc. Capital Maintenance Items	Miscellaneous small capital items	$15,000	$0	$0	$15,000
RTA Facility and System Modernization	RTD0008952	AFC 2.0	AFC 2.0 for RTAs	$300,000	$0	$0	$300,000
	RTD0008439	Preventive Maintenance		$0	$285,000	$71,250	$356,250
FFY 2025							
RTA Facility and Vehicle Maintenance	RTD0008951	Acquire Small Capital		$28,750	$55,000	$0	$83,750
RTA Vehicle Replacement	RTD0008953	Replace 1 30' bus	Replace one 30' bus (2012)	$225,000	$225,000	$0	$450,000
	RTD0008950	Preventive Maintenance		$0	$285,000	$71,250	$356,250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DETAILED PROJECT DESCRIPTIONS

FIELD DEFINITIONS

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

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

Project Type: This field provides the type of project programmed. For those projects programmed with Regional Target funds (projects listed in Section 1A of the TIP tables), the projects are categorized according to the MPO's six investment categories (Bicycle and Pedestrian, Complete Streets, Intersection Improvements, Major Infrastructure, Community Connections, and Transit Modernization). For those projects programmed directly by MassDOT (projects listed in Sections 1B, 2A, 2B, and 2C), MassDOT's STIP Program categories are applied.

Cost: This is the total project cost as programmed in the TIP across all fiscal years, including years outside of FFYs 2021–25.

Funding Source: This identifies whether a project is funded using the MPO's Regional Target funds or MassDOT's statewide highway funds.

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

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

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

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

- **Year:** This field provides the federal fiscal year(s) during which the project is programmed for funding.
- **Federal and Non-Federal Funds:** These fields show a breakdown of project funding from federal and non-federal sources. Typically, these fields will show an 80/20 split, with federal funds accounting for 80 percent of project funding and a 20 percent state match accounting for the remaining funds.
- **Total Funds Programmed:** This field shows the total funding programmed for the project in the FFYs 2021–25 TIP by the year of expenditure. Information regarding TIP projects changes periodically, so funding amounts for all projects are subject to adjustment throughout the fiscal year.

For more information on all projects please visit MassDOT's Project Information website, https://hwy.massdot.state.ma.us/projectinfo/projectinfo.asp, the Boston Region MPO's website, www.bostonmpo.org, or contact Matt Genova, TIP Manager, at mgenova@ctps.org.

ACTON: INTERSECTION IMPROVEMENTS AT MASSACHUSETTS AVENUE (ROUTE 111) AND MAIN STREET (ROUTE 27) (KELLEY'S CORNER)

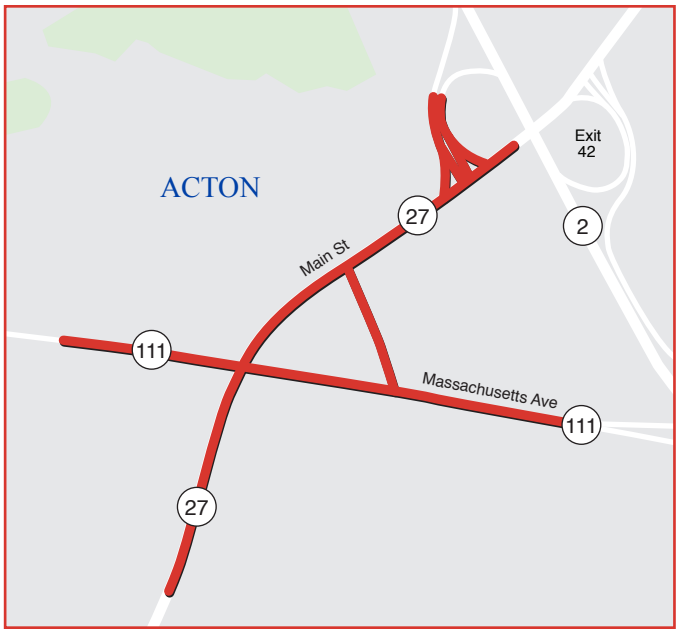
Proponent: Acton

ID Number: 608229

Project Type: Intersection Improvements

Cost: $14,687,418

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$11,749,934	---	---	---	$11,749,934
Non-Federal Funds	---	$2,937,484	---	---	---	$2,937,484
Total Funds	**---**	**$14,687,418**	**---**	**---**	**---**	**$14,687,418**

ACTON: INTERSECTION AND SIGNAL IMPROVEMENTS ON ROUTES 2 AND 111 (MASSACHUSETTS AVENUE) AT PIPER ROAD AND TAYLOR ROAD

Proponent: Acton

ID Number: 607748

Project Type: Intersection Improvements

Cost: $4,382,329

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$3,944,096	---	---	---	---	$3,944,096
Non-Federal Funds	$438,233	---	---	---	---	$438,233
Total Funds	**$4,382,329**	**---**	**---**	**---**	**---**	**$4,382,329**

ACTON, BOXBOROUGH, AND LITTLETON: PAVEMENT PRESERVATION ON ROUTE 2

Proponent: MassDOT

ID Number: 610722

Project Type: Non-Interstate Pavement

Cost: $ 8,124,073

Funding Source: Statewide Highway Funds

Project map to be added when information is received

Scoring Summary

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

Project Description

This project includes pavement preservation work on Route 2 in Acton, Boxborough, and Littleton.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$6,499,258	$6,499,258
Non-Federal Funds	---	---	---	---	$1,624,815	$1,624,815
Total Funds	**---**	**---**	**---**	**---**	**$8,124,073**	**$8,124,073**

ARLINGTON: STRATTON SCHOOL IMPROVEMENTS (SRTS)

Proponent: MassDOT

ID Number: 609531

Project Type: Roadway Reconstruction

Cost: $1,112,484

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

This project will make upgrades to promote safety along the roadways surrounding Stratton Elementary School in Arlington through the Safe Routes to Schools program.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$889,987	---	$889,987
Non-Federal Funds	---	---	---	$222,497	---	$222,497
Total Funds	**---**	**---**	**---**	**$1,112,484**	**---**	**$1,112,484**

ASHLAND: REHABILITATION AND RAIL CROSSING IMPROVEMENTS ON CHERRY STREET

Proponent: Ashland

ID Number: 608436

Project Type: Intersection Improvements

Cost: $1,316,339

Funding Source: Regional Target Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$1,053,071	---	$1,053,071
Non-Federal Funds	---	---	---	$263,268	---	$263,268
Total Funds	---	---	---	**$1,316,339**	---	**$1,316,339**

AYER AND LITTLETON: INTERSECTION IMPROVEMENTS ON ROUTE 2A AT WILLOW ROAD AND BRUCE STREET

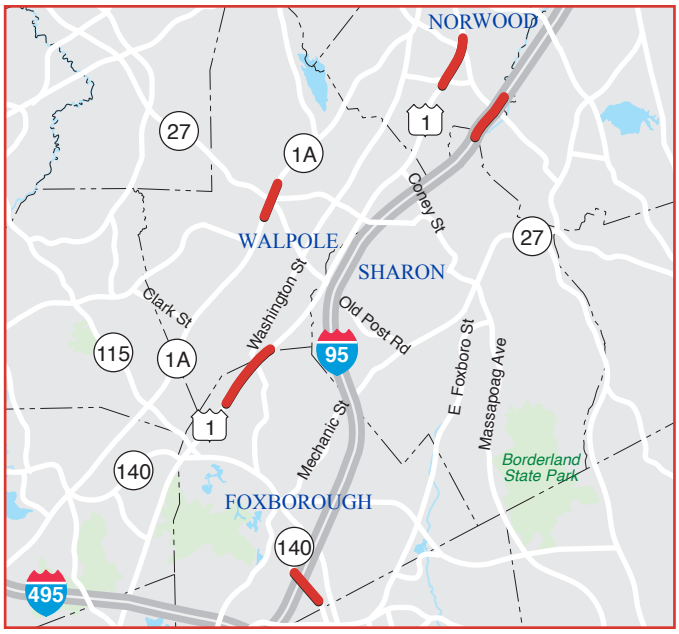
Proponent: MassDOT

ID Number: 608443

Project Type: Intersection Improvements

Cost: $2,287,523

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$1,930,018	---	---	---	---	$1,930,018
Non-Federal Funds	$357,505	---	---	---	---	$357,505
Total Funds	**$2,287,523**	**---**	**---**	**---**	**---**	**$2,287,523**

BEDFORD: MINUTEMAN BIKEWAY EXTENSION, FROM LOOMIS STREET TO THE CONCORD TOWN LINE

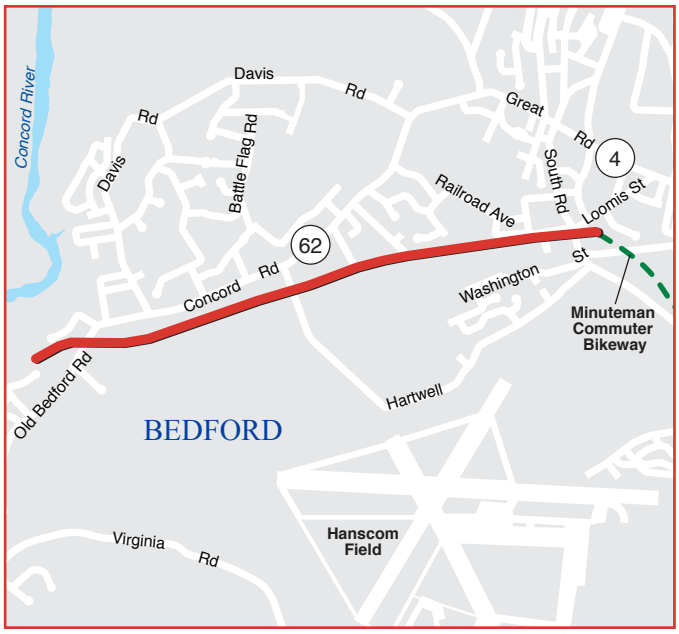
Proponent: Bedford

ID Number: 607738

Project Type: Bicycle and Pedestrian

Cost: $7,331,040

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$5,864,382	---	---	$5,864,382
Non-Federal Funds	---	---	$1,466,208	---	---	$1,466,208
Total Funds	**---**	**---**	**$7,331,040**	**---**	**---**	**$7,331,040**

BELLINGHAM: SOUTH MAIN STREET (ROUTE 126), FROM MECHANIC STREET (ROUTE 140) TO DOUGLAS DRIVE

Proponent: Bellingham

ID Number: 608887

Project Type: Complete Streets

Cost: $6,132,594

Funding Source: Regional Target Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$4,906,075	---	---	---	$4,906,075
Non-Federal Funds	---	$1,226,519	---	---	---	$1,226,519
Total Funds	**---**	**$6,132,594**	**---**	**---**	**---**	**$6,132,594**

BELMONT: SAFE ROUTES TO SCHOOL IMPROVEMENTS AT WELLINGTON ELEMENTARY SCHOOL

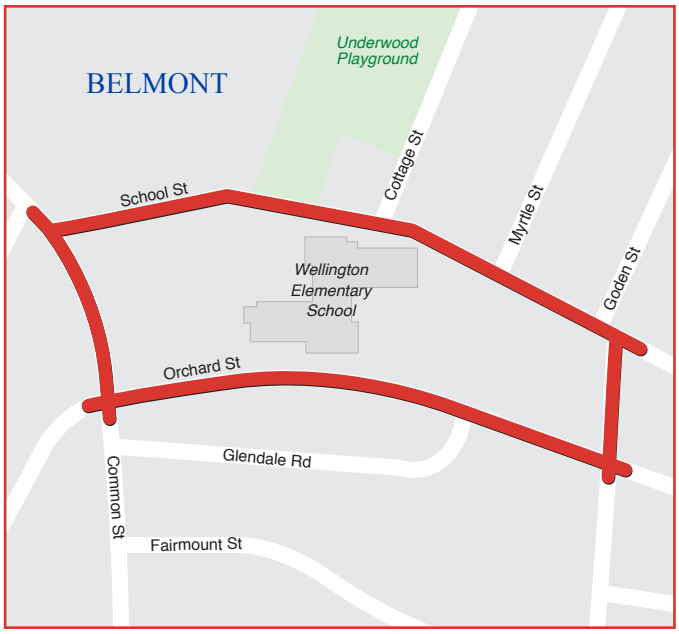
Proponent: MassDOT

ID Number: 608911

Project Type: Bicycle and Pedestrian

Cost: $1,529,472

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

Safe Routes to School improvements at Wellington Elementary School

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$1,223,578	---	---	---	---	$1,223,578
Non-Federal Funds	$305,894	---	---	---	---	$305,894
Total Funds	**$1,529,472**	**---**	**---**	**---**	**---**	**$1,529,472**

BEVERLY: REHABILITATION OF BRIDGE STREET

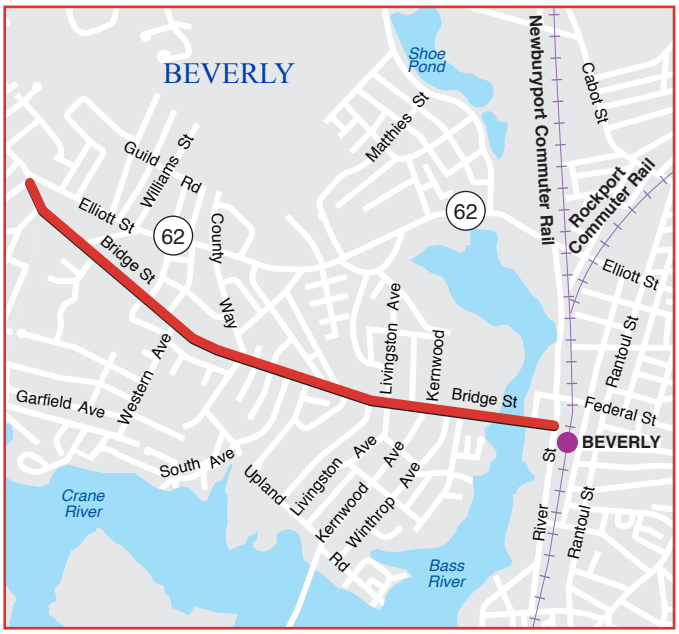
Proponent: Beverly

ID Number: 608348

Project Type: Complete Streets

Cost: $8,248,361

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$6,598,689	---	---	$6,598,689
Non-Federal Funds	---	---	$1,649,672	---	---	$1,649,672
Total Funds	**---**	**---**	**$8,248,361**	**---**	**---**	**$8,248,361**

BOSTON: BRIDGE RECONSTRUCTION/REHABILITATION, B-16-181, WEST ROXBURY PARKWAY OVER MBTA

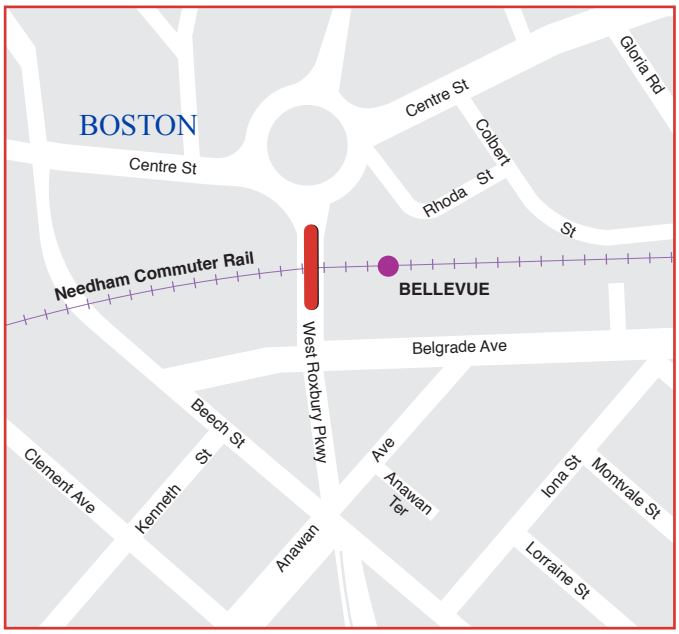
Proponent: MassDOT

ID Number: 606902

Project Type: Bridge

Cost: $6,899,839

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$5,519,871	---	---	$5,519,871
Non-Federal Funds	---	---	1,379,968	---	---	1,379,968
Total Funds	**---**	**---**	**$6,899,839**	**---**	**---**	**$6,899,839**

BOSTON: BRIDGE REHABILITATION, B-16-107, CANTERBURY STREET OVER AMTRAK RAILROAD

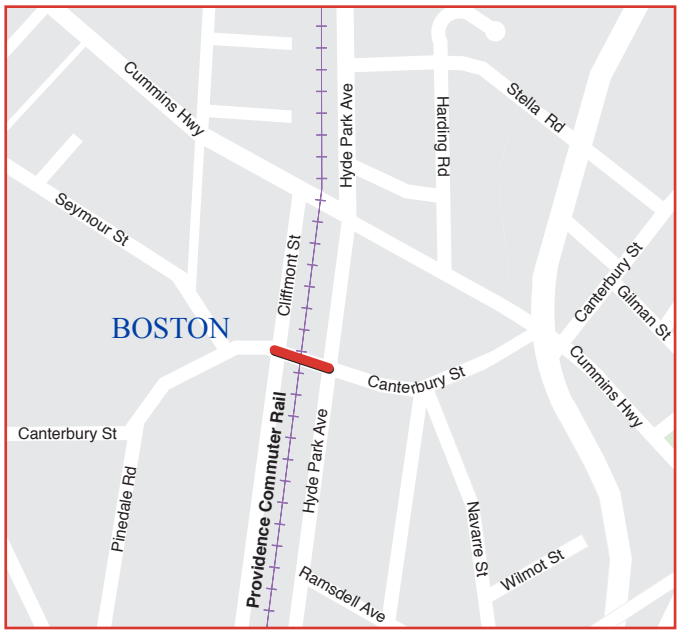
Proponent: MassDOT

ID Number: 608197

Project Type: Bridge

Cost: $4,678,193

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2032	2024	2025	Total
Federal Funds	---	---	$3,742,554	---	---	$3,742,554
Non-Federal Funds	---	---	$935,639	---	---	$935,639
Total Funds	---	---	**$4,678,193**	---	---	**$4,678,193**

BOSTON: BRIDGE REPLACEMENT, NORTH WASHINGTON STREET OVER THE BOSTON INNER HARBOR

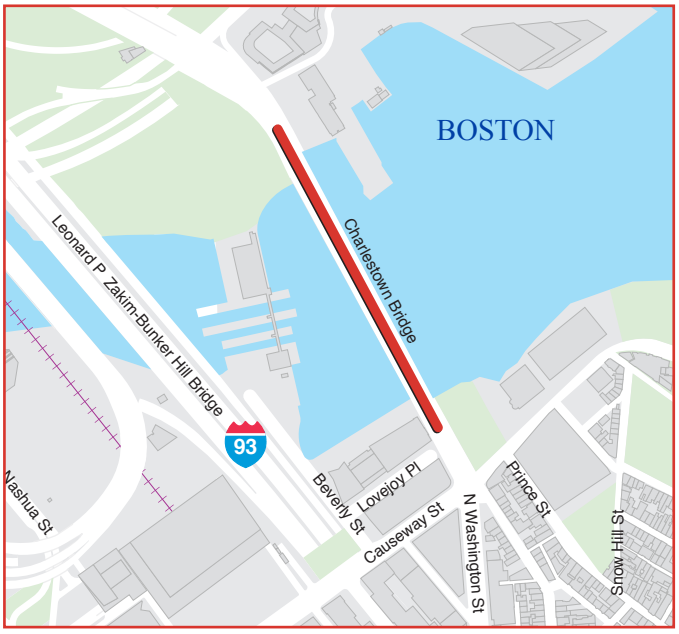
Proponent: MassDOT

ID Number: 604173

Project Type: Bridge

Cost: $176,318,433

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

The North Washington Street Bridge is a historic structure constructed in 1898. The bridge consists of 10 approach spans and a swing span, which is not operational. The bridge is structurally deficient and is posted as weight restricted. There have been extensive emergency repairs done to the bridge in the past few years. Currently the two center lanes on the swing span are closed due to steel deterioration. The City of Boston proposes to replace the bridge. The existing granite/concrete bridge piers on the approach spans will be replaced with reinforced concrete V piers and continuous trapezoidal steel box girders. The proposed deck will provide for increased bicycle and pedestrian accommodations between Kearney Square and Rutherford Avenue. This project is funded over five federal fiscal years (FFYs 2017–21). The total estimated cost of the project is $144,066,616. Of that amount, $6,400,000 was funded in FFY 2017 and the remaining $137,666,616 is funded in FFYs 2018–21.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$24,311,723	$23,060,582	---	---	---	$47,372,305
Non-Federal Funds	$6,077,931	$5,765,145	---	---	---	$11,843,076
Total Funds	**$30,389,654**	**$28,825,727**	**---**	**---**	**---**	**$59,215,381**

BOSTON: ELLIS ELEMENTARY TRAFFIC CALMING (SRTS)

Proponent: MassDOT

ID Number: 610537

Project Type: Roadway Reconstruction

Cost: $1,086,421

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

This project will make upgrades to promote safety along the roadways surrounding Ellis Elementary School in Boston through the Safe Routes to Schools program.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$869,137	---	$869,137
Non-Federal Funds	---	---	---	$217,284	---	$217,284
Total Funds	**---**	**---**	**---**	**$1,086,421**	**---**	**$1,086,421**

BOSTON: IMPROVEMENTS ON BOYLSTON STREET, FROM INTERSECTION OF BROOKLINE AVENUE AND PARK DRIVE TO IPSWICH STREET

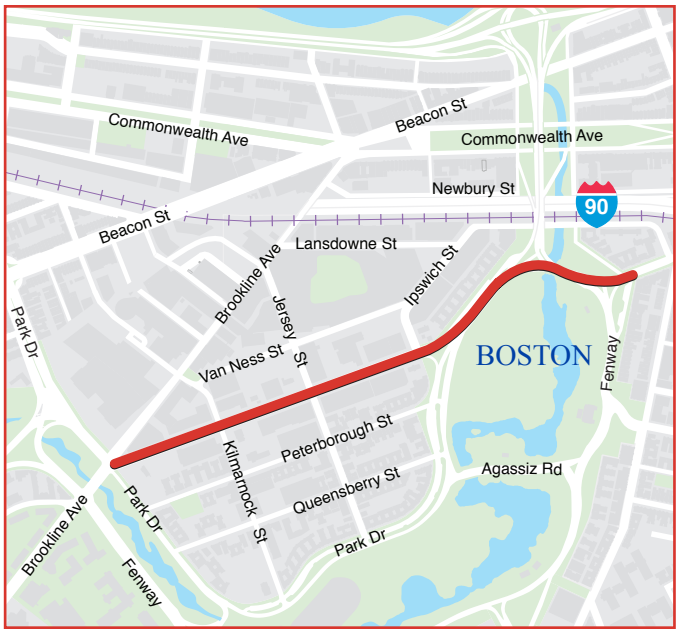
Proponent: Boston

ID Number: 606453

Project Type: Complete Streets

Cost: $9,192,999

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$7,354,399	---	---	$7,354,399
Non-Federal Funds	---	---	$1,775,600	---	---	$1,775,600
Total Funds	**---**	**---**	**$9,129,999**	**---**	**---**	**$9,129,999**

BOSTON: INNER HARBOR STORMWATER IMPROVEMENTS

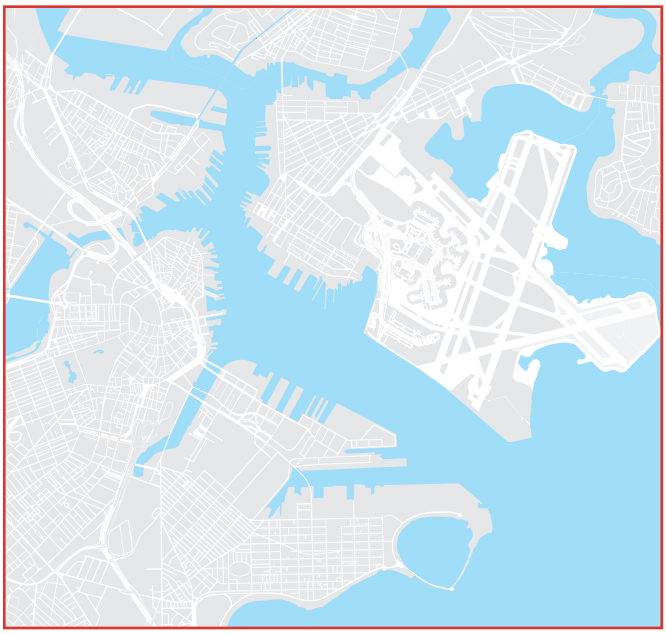
Proponent: MassDOT

ID Number: 610806

Project Type: Roadway Improvements

Cost: $513,216

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

This project will make drainage and stormwater upgrades along Boston's Inner Harbor.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$410,573	---	---	$410,573
Non-Federal Funds	---	---	$102,643	---	---	$102,643
Total Funds	---	---	**$513,216**	---	---	**$513,216**

BOSTON: INTERSECTION AND SIGNAL IMPROVEMENTS AT THE VFW PARKWAY AND SPRING STREET

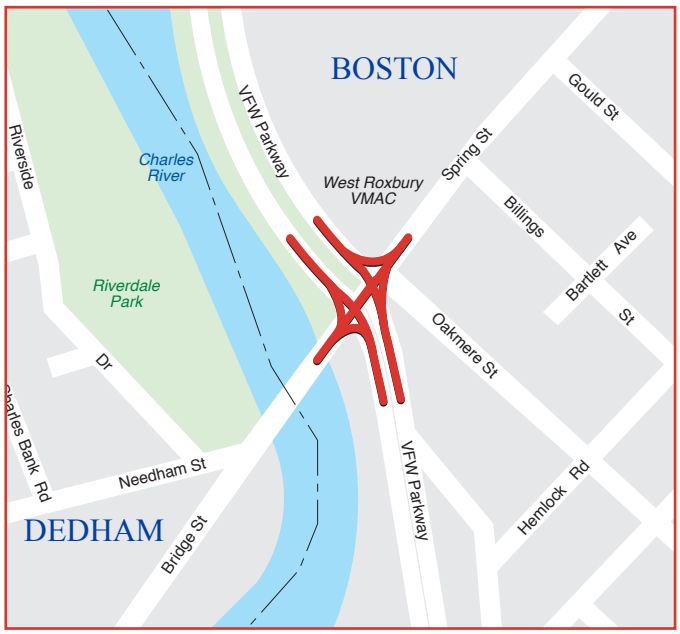
Proponent: MassDOT

ID Number: 607759

Project Type: Intersection Improvements

Cost: $3,788,711

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$3,180,602	---	---	---	$3,180,602
Non-Federal Funds	---	$608,109	---	---	---	$608,109
Total Funds	---	**$3,788,711**	---	---	---	**$3,788,711**

BOSTON: NEPONSET RIVER GREENWAY (PHASE 3)

Proponent: Boston

ID Number: 608943

Project Type: Bicycle and Pedestrian

Cost: $5,571,629

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

This project will provide the final northern link of the Neponset River Greenway with the addition of approximately 0.77 miles of 10-foot paved, shared-use path between Tenean Beach and Morrissey Boulevard. The extension of the greenway will improve accessibility for pedestrian and bicycle transportation to Boston from Readville, Hyde Park, Milton, Mattapan, and Dorchester and will provide ADA-accessible connections to MBTA bus Routes 201 and 202 and the Savin Hill and Fields Corner MBTA stations. This project was evaluated using the MPO's scoring criteria because it was considered for funding using Regional Target funds. MassDOT funded the project, however.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$4,457,303	---	---	---	$4,457,303
Non-Federal Funds	---	$1,114,326	---	---	---	$1,114,326
Total Funds	---	**$5,571,629**	---	---	---	**$5,571,629**

BOSTON: RECONSTRUCTION OF RUTHERFORD AVENUE, FROM SULLIVAN SQUARE TO NORTH WASHINGTON STREET BRIDGE

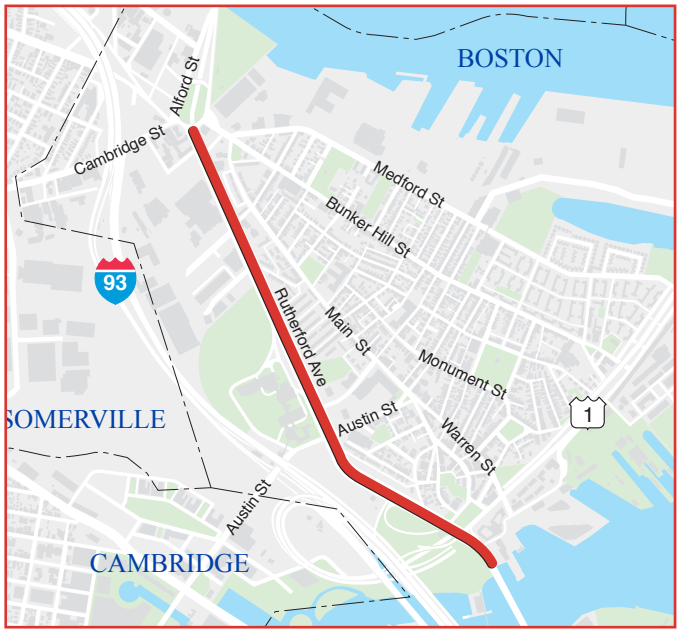
Proponent: Boston

ID Number: 606226

Project Type: Major Infrastructure

Cost: $146,377,974

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

The reconstruction of Rutherford Avenue from Sullivan Square to the North Washington Street Bridge will make the road a multimodal urban boulevard corridor. This project will be funded over five years, starting in FFY 2022. The total project cost is estimated to be $146,377,974, and the total funding in the FFYs 2021–25 TIP is $115,640,366. Earmark discretionary funding of $8,578,930 is intended to be used for design of the project. Funding in FFY 2026, to be allocated in the FFYs 2022-26 TIP, will be approximately $30,737,608 in order to make up the entire estimated construction cost.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$8,295,780	$27,385,358	$21,593,238	$35,237,917	$92,512,293
Non-Federal Funds	---	$2,073,945	$6,846,340	$5,398,309	$8,809,479	$23,128,073
Total Funds	**---**	**$10,369,725**	**$34,231,698**	**$26,991,547**	**$44,047,396**	**$115,640,366**

BOSTON: ROADWAY, CEILING AND WALL RECONSTRUCTION, NEW JET FANS, AND OTHER CONTROL SYSTEMS IN SUMNER TUNNEL

Proponent: MassDOT

ID Number: 606476

Project Type: Major Infrastructure

Cost: $121,677,818

Funding Source: Regional Target and Statewide Highway Funds

Scoring Summary

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

Project Description

This project aims to repair the existing deterioration in Sumner Tunnel by reconstructing the roadway pavement, replacing existing jet fans with modern enhancements, and repairing cracking and corrosion on the tunnel's walls and ceiling. The total cost of this project is $121,677,818, with $22,115,687 in Regional Target funding allocated to the project. The rest of the project is funded using statewide funds.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$51,463,655	$32,909,759	$13,495,840	---	---	$97,842,254
Non-Federal Funds	$12,234,163	$8,227,440	$3,373,961	---	---	$23,835,564
Total Funds	**$63,670,818**	**$41,137,199**	**$16,869,801**	**---**	**---**	**$121,677,818**

BOSTON, BRAINTREE, MILTON, QUINCY, RANDOLPH, AND SOMERVILLE: INTERSTATE MAINTENANCE RESURFACING AND RELATED WORK ON INTERSTATE 93

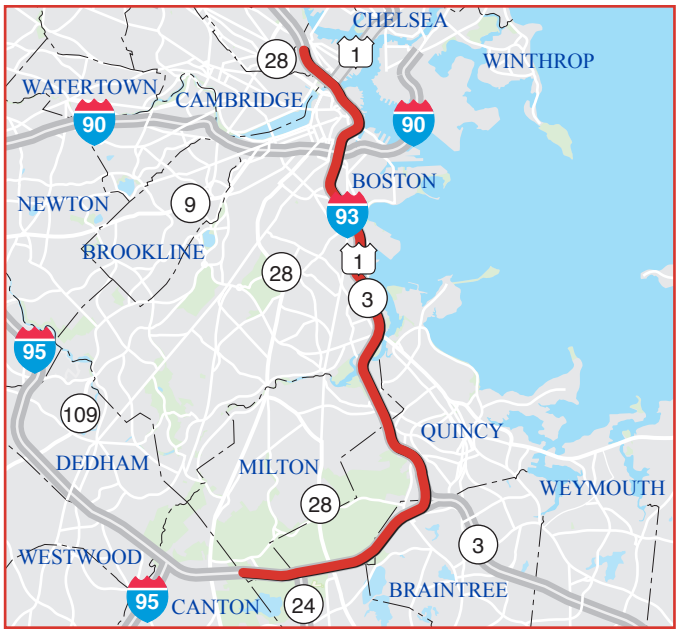
Proponent: MassDOT

ID Number: 608208

Project Type: Interstate Pavement

Cost: $ 23,892,804

Funding Source: Statewide Highway Fund



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$21,503,524	---	---	---	$21,503,524
Non-Federal Funds	---	$2,389,280	---	---	---	$2,389,280
Total Funds	**---**	**$23,892,804**	**---**	**---**	**---**	**$23,892,804**

BOSTON AND BROOKLINE: MULTIUSE PATH CONSTRUCTION ON NEW FENWAY, PHASE 1

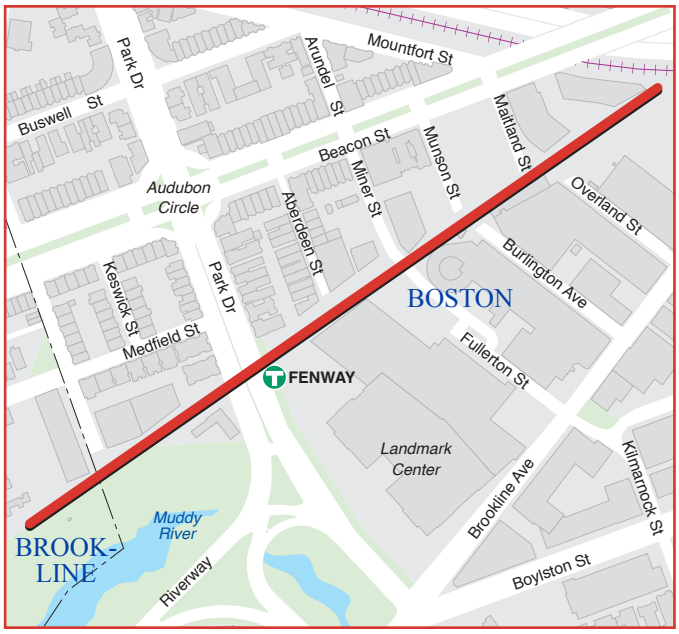
Proponent: Boston, Brookline

ID Number: 607888

Project Type: Bicycle and Pedestrian

Cost: $957,509

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$766,007	---	---	---	---	$766,007
Non-Federal Funds	$191,502	---	---	---	---	$191,502
Total Funds	**$957,509**	**---**	**---**	**---**	**---**	**$957,509**

BOSTON, MILTON AND QUINCY: HIGHWAY LIGHTING SYSTEM REPLACEMENT ON INTERSTATE 93, FROM NEPONSET AVENUE TO THE BRAINTREE SPLIT

Proponent: MassDOT

ID Number: 609090

Project Type: Safety Improvements

Cost: $9,568,001

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$7,654,401	---	---	---	$7,654,401
Non-Federal Funds	---	$1,913,600	---	---	---	$1,913,600
Total Funds	---	**$9,568,001**	---	---	---	**$9,568,001**

BRAINTREE, HINGHAM, AND WEYMOUTH: RESURFACING AND RELATED WORK ON ROUTE 53

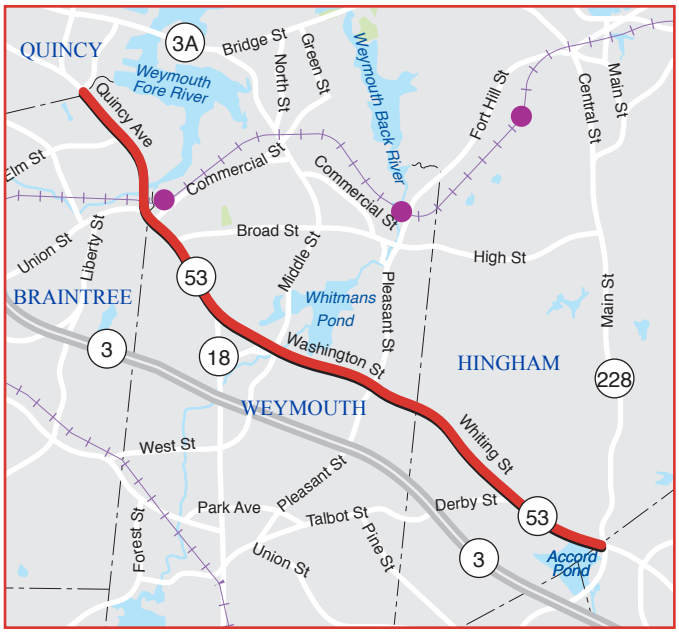
Proponent: MassDOT

ID Number: 608498

Project Type: Non-Interstate Pavement

Cost: $7,452,000

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

Resurfacing and related work on Route 53

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$5,961,600	---	---	$5,961,600
Non-Federal Funds	---	---	$1,490,400	---	---	$1,490,400
Total Funds	**---**	**---**	**$7,452,000**	**---**	**---**	**$7,452,000**

CAMBRIDGE: CONCORD AVENUE TRANSIT SIGNAL PRIORITY

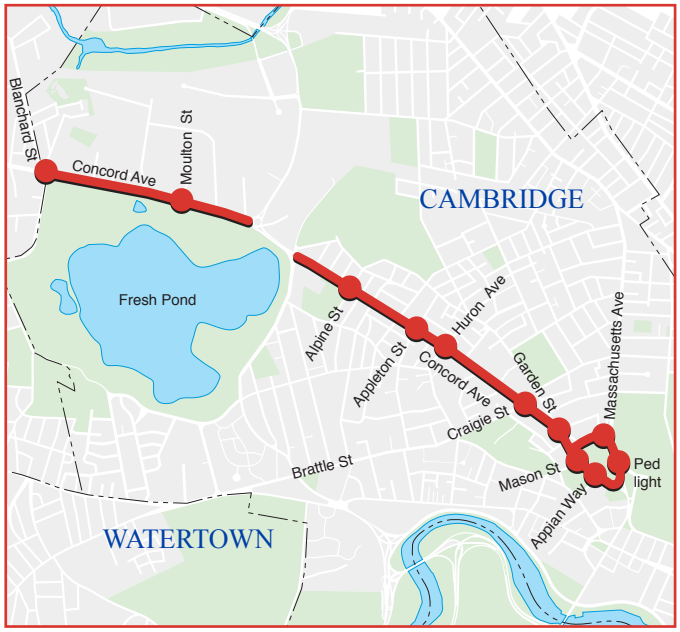
Proponent: Cambridge

ID Number: S10786

Project Type: Community Connections

Cost: $160,000

Funding Source: Regional Target Funds



Scoring Summary

This project received a total score of 22 points when evaluated using the MPO's Community Connections Program criteria. These criteria are listed in Table A-5.

Project Description

This project includes the addition of transit signal priority equipment along the Concord Avenue corridor in Cambridge. The goal of the project is to reduce travel times for passengers on MBTA bus routes 72, 74, 75, and 78. This project is funded through the pilot round of the MPO's Community Connections Program.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$128,000	---	---	---	---	$128,000
Non-Federal Funds	$32,000	---	---	---	---	$32,000
Total Funds	**$160,000**	**---**	**---**	**---**	**---**	**$160,000**

CAMBRIDGE: US ROUTE 3 OVER ROUTE 2 AND ROUTE 16 OVER ALEWIFE

Proponent: MassDOT

ID Number: 610776

Project Type: Bridge

Cost: $14,418,800

Funding Source: Statewide Highway Funds

Project map to be added when information is received

Scoring Summary

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

Project Description

This project includes the rehabilitation of the bridges carrying Route 3 and Route 16 in Cambridge.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$11,535,040	$11,535,040
Non-Federal Funds	---	---	---	---	$2,883,760	$2,883,760
Total Funds	**---**	**---**	**---**	**---**	**$14,418,800**	**$14,418,800**

CAMBRIDGE AND SOMERVILLE: GREEN LINE EXTENSION PROJECT - EXTENSION TO COLLEGE AVENUE WITH THE UNION SQUARE SPUR

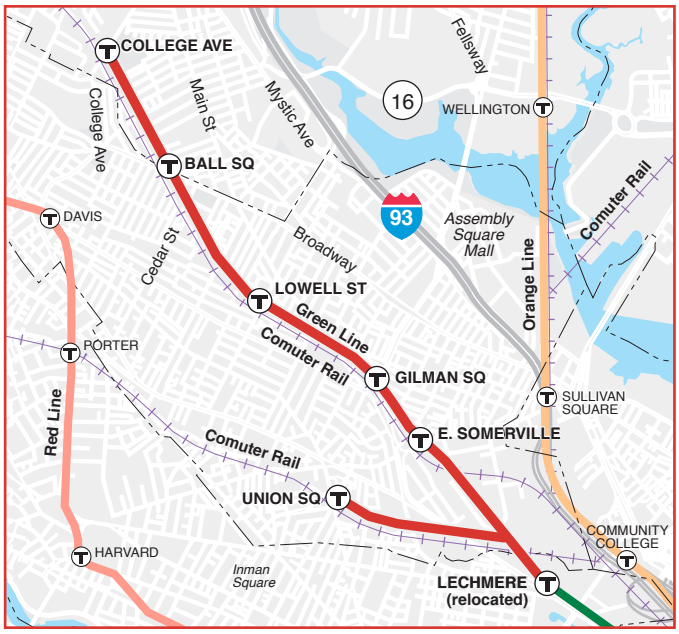
Proponent: MBTA

ID Number: 1570

Project Type: Major Infrastructure

Cost: $ 190,000,000

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

The purpose of this project is to improve corridor mobility, boost transit ridership, improve regional air quality, ensure equitable distribution of transit services, and support opportunities for sustainable development. The project will extend the MBTA Green Line from a relocated Lechmere Station in East Cambridge to College Avenue in Medford, with a branch to Union Square in Somerville. FFY 2021 is the sixth and final year of the Boston Region MPO's funding obligation to the Green Line Extension. The project is expected to be complete by late 2021.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$21,676,990	---	---	---	---	$21,676,990
Non-Federal Funds	$5,419,248	---	---	---	---	$5,419,248
Total Funds	**$27,096,238**	**---**	**---**	**---**	**---**	**$27,096,238**

CAMBRIDGE AND SOMERVILLE: RESURFACING AND RELATED WORK ON ROUTE 28

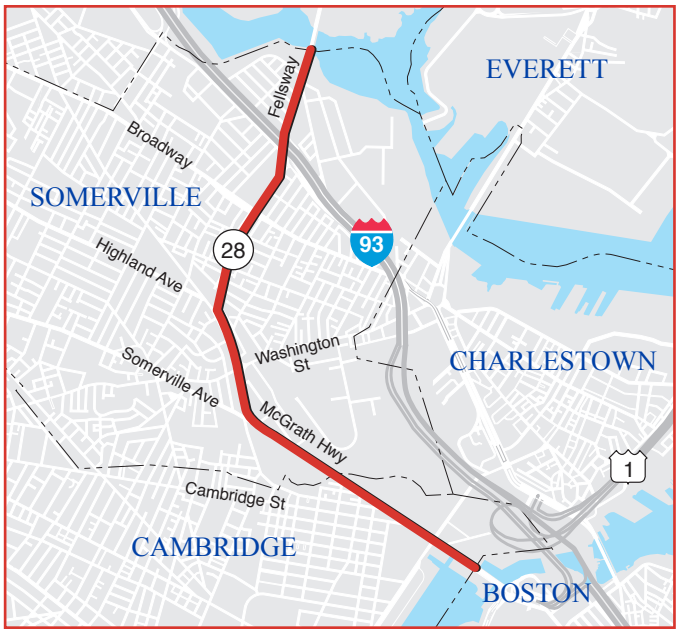
Proponent: MassDOT

ID Number: 608482

Project Type: Non-Interstate Pavement

Cost: $8,585,362

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$6,868,290	---	---	---	---	$6,868,290
Non-Federal Funds	$1,717,072	---	---	---	---	$1,717,072
Total Funds	**$8,585,362**	**---**	**---**	**---**	**---**	**$8,585,362**

CANTON: BRIDGE REPLACEMENT, C-02-042 (33V) REVERE COURT OVER EAST BRANCH OF THE NEPONSET RIVER

Proponent: MassDOT

ID Number: 609438

Project Type: Bridge

Cost: $2,714,892

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$2,171,914	---	$2,171,914
Non-Federal Funds	---	---	---	$542,978	---	$542,978
Total Funds	**---**	**---**	**---**	**$2,714,892**	**---**	**$2,714,892**

CANTON, DEDHAM, NORWOOD, SHARON, AND WESTWOOD: HIGHWAY LIGHTING IMPROVEMENTS AT INTERSTATE 93 AND INTERSTATE 95/ROUTE 128

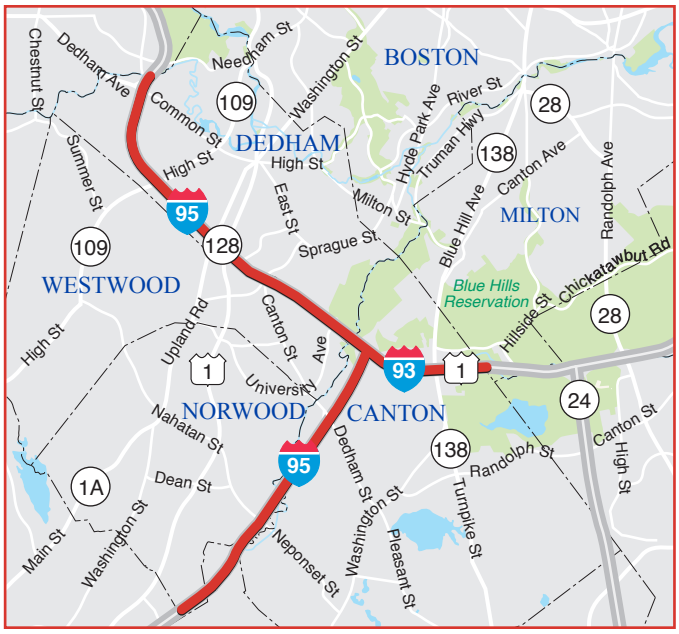
Proponent: MassDOT

ID Number: 609053

Project Type: Safety Improvements

Cost: $5,238,054

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$4,190,443	---	---	$4,190,443
Non-Federal Funds	---	---	$1,047,611	---	---	$1,047,611
Total Funds	---	---	**$5,238,054**	---	---	**$5,238,054**

CANTON, FOXBOROUGH, NORWOOD, SHARON, AND WALPOLE: STORMWATER IMPROVEMENTS ALONG ROUTE 1, ROUTE 1A, AND INTERSTATE 95

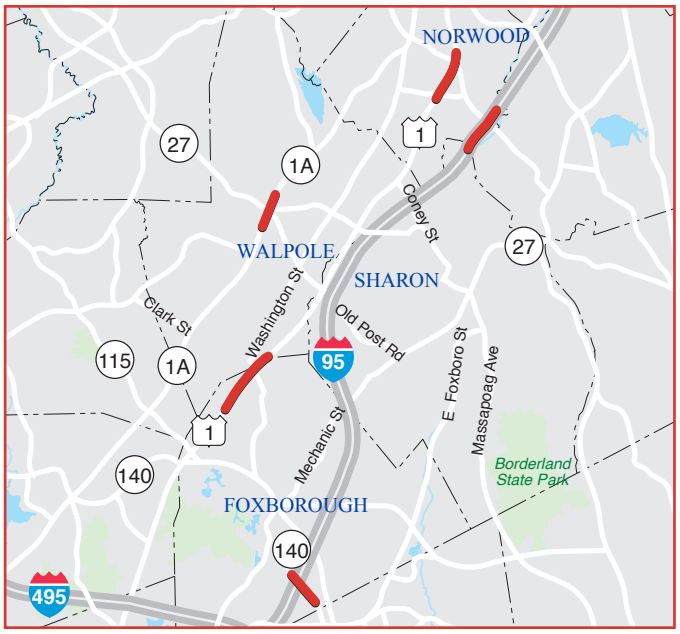
Proponent: MassDOT

ID Number: 608599

Project Type: Roadway Improvements

Cost: $508,879

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$407,103	---	---	---	$407,103
Non-Federal Funds	---	$101,776	---	---	---	$101,776
Total Funds	---	**$508,879**	---	---	---	**$508,879**

CHELSEA: BRIDGE BETTERMENT, ROUTE 1 OVER ARLINGTON AND 5TH STREET/MBTA RAILROAD/ SPRUCE STREET

Proponent: MassDOT

ID Number: 605287

Project Type: Bridge

Cost: $210,617,533

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$23,994,392	---	---	---	---	$23,994,392
Non-Federal Funds	$5,998,598	---	---	---	---	$5,998,598
Total Funds	**$29,992,990**	**---**	**---**	**---**	**---**	**$29,992,990**

CHELSEA: RECONSTRUCTION OF BROADWAY, FROM CITY HALL AVENUE TO THE REVERE CITY LINE

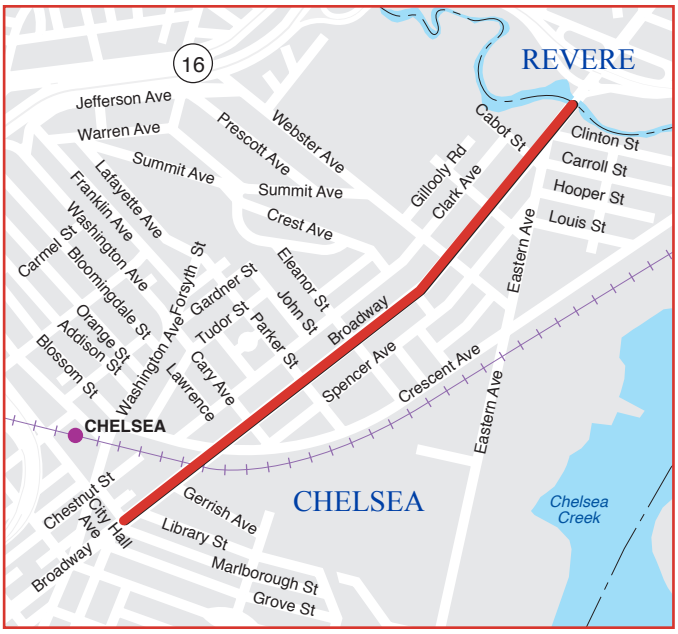
Proponent: Chelsea

ID Number: 608078

Project Type: Complete Streets

Cost: $10,278,940

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$8,223,152	---	---	---	$8,223,152
Non-Federal Funds	---	$2,055,788	---	---	---	$2,055,788
Total Funds	---	**$10,278,940**	---	---	---	**$10,278,940**

CHELSEA: TARGETED SAFETY IMPROVEMENTS AND RELATED WORK ON BROADWAY, FROM WILLIAMS STREET TO CITY HALL AVENUE

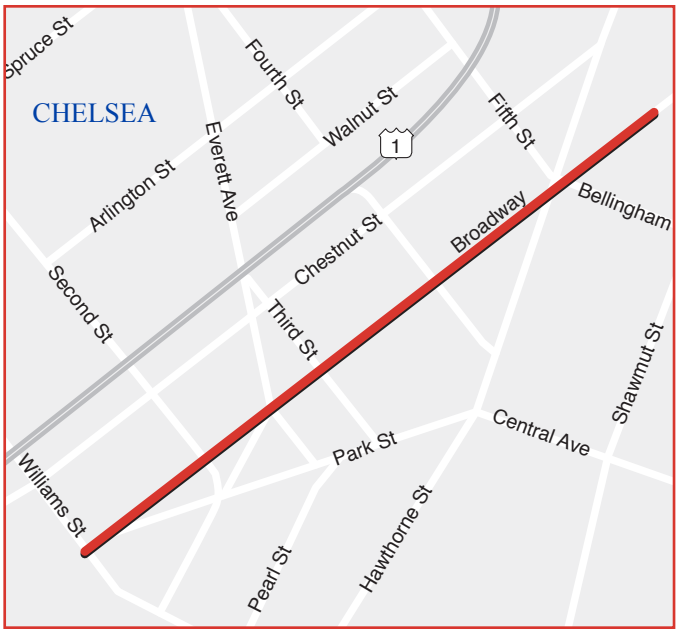
Proponent: Chelsea

ID Number: 609532

Project Type: Safety Improvements

Cost: $6,670,001

Funding Source: Statewide Highway Funds



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	23 out of 30	18 out of 29	14 out of 29	4 out of 16	10 out of 12	14 out of 18	83 out of 134

Project Description

This project aims to enhance the safety of all users of Broadway in Chelsea while promoting economic activity along the corridor. Improvements to pedestrian and bicycle infrastructure include the widening of sidewalks, installation of tree boxes, and the implementation of dedicated bike or combined bus and bike lanes with protective barrier options. In addition, the upgrading of signals and pavement markings at each intersection along the corridor will increase safety of pedestrians through higher levels of visual indication while allowing the implementation of transit signal priority for buses and emergency vehicles. This project will upgrade the entire corridor to ADA compliance and allow for more efficient on-boarding and off-boarding of MBTA bus patrons.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$6,003,001	$6,003,001
Non-Federal Funds	---	---	---	---	$667,000	$667,000
Total Funds	**---**	**---**	**---**	**---**	**$6,670,001**	**$6,670,001**

COHASSET AND SCITUATE: CORRIDOR IMPROVEMENTS AND RELATED WORK ON JUSTICE CUSHING HIGHWAY (ROUTE 3A), FROM BEECHWOOD STREET TO THE SCITUATE TOWN LINE

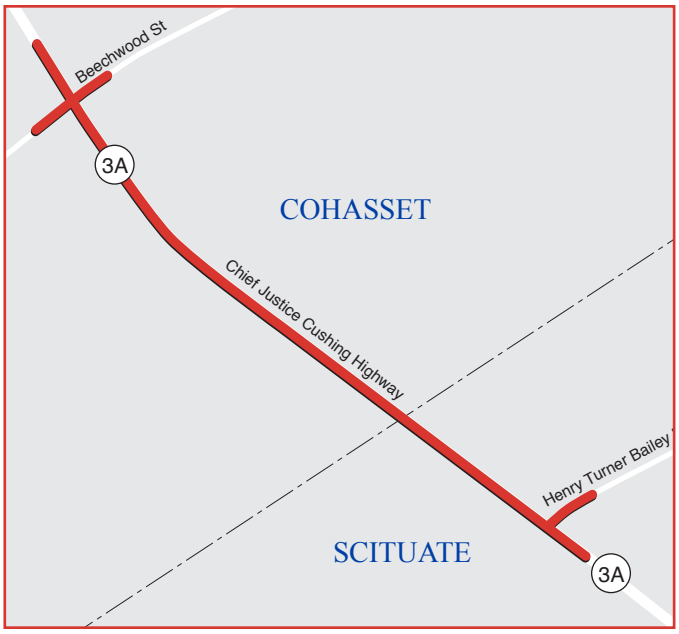
Proponent: Cohasset

ID Number: 608007

Project Type: Complete Streets

Cost: $8,971,635

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$7,327,308	---	$7,327,308
Non-Federal Funds	---	---	---	$1,644,327	---	$1,644,327
Total Funds	**---**	**---**	**---**	**$8,971,635**	**---**	**$8,971,635**

CONCORD: BRUCE FREEMAN RAIL TRAIL BIKE SHELTERS

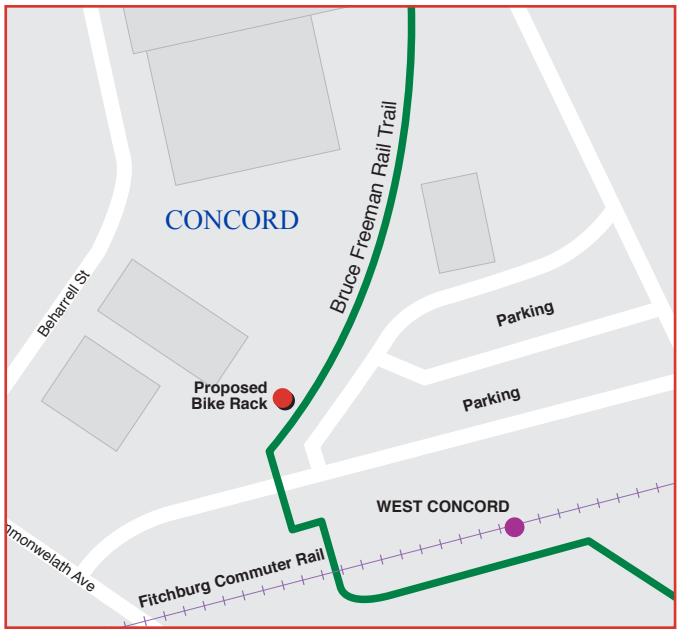
Proponent: Concord

ID Number: S10788

Project Type: Community Connections

Cost: $100,000

Funding Source: Regional Target Funds



Scoring Summary

This project received a total score of 20 points when evaluated using the MPO's Community Connections Program criteria. These criteria are listed in Table A-5.

Project Description

This project includes the construction of several protected bike racks near the West Concord MBTA commuter rail station. These bike shelters will support commuters who ride the Bruce Freeman Rail Trail to the train station. This project is funded through the pilot round of the MPO's Community Connections Program.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$80,000	---	---	---	---	$80,000
Non-Federal Funds	$20,000	---	---	---	---	$20,000
Total Funds	**$100,000**	---	---	---	---	**$100,000**

CONCORD, LEXINGTON, AND LINCOLN: RESURFACING AND RELATED WORK ON ROUTE 2A

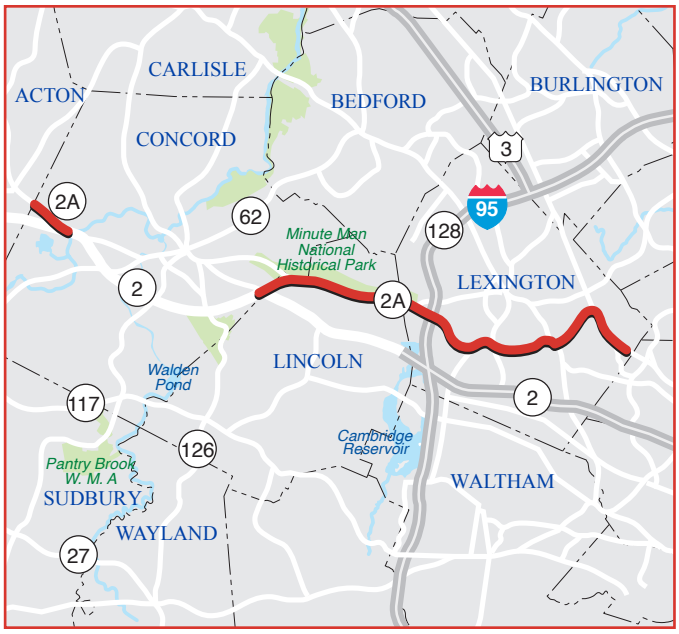
Proponent: MassDOT

ID Number: 608495

Project Type: Non-Interstate Pavement

Cost: $3,276,000

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$2,620,800	---	---	---	$2,620,800
Non-Federal Funds	---	$655,200	---	---	---	$655,200
Total Funds	---	**$3,276,000**	---	---	---	**$3,276,000**

DANVERS: RESURFACING AND RELATED WORK ON ROUTE 114

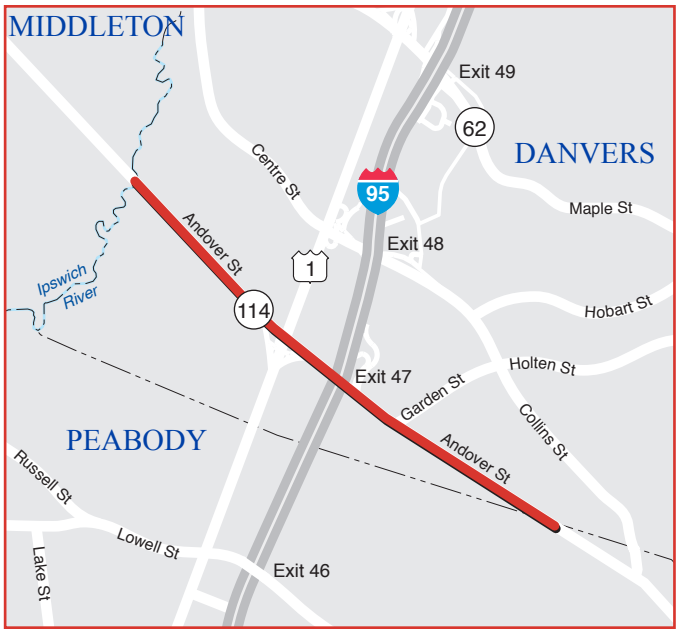
Proponent: MassDOT

ID Number: 608818

Project Type: Non-Intersection Pavement

Cost: $1,133,382

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$906,706	---	---	---	$906,706
Non-Federal Funds	---	$226,676	---	---	---	$226,676
Total Funds	---	**$1,133,382**	---	---	---	**$1,133,382**

DANVERS, LYNNFIELD, AND PEABODY: GUIDE AND TRAFFIC SIGN REPLACEMENT ON INTERSTATE 95/ ROUTE 128 (TASK 'A' INTERCHANGE)

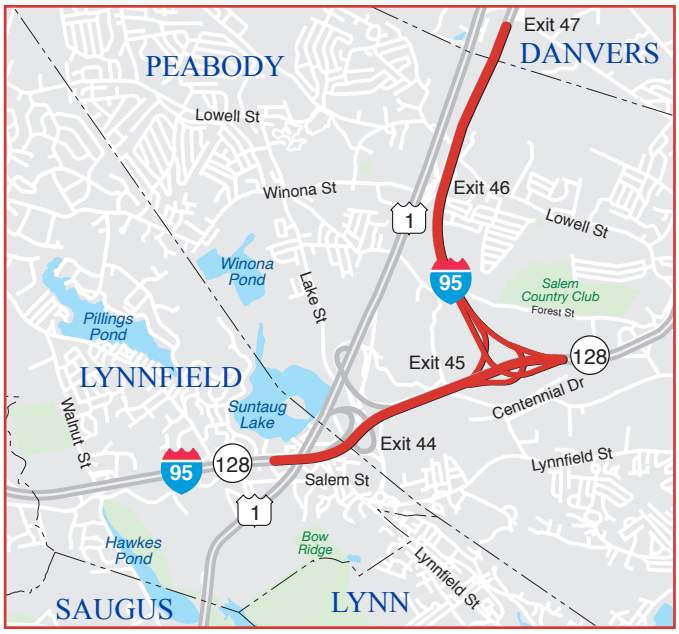
Proponent: MassDOT

ID Number: 609060

Project Type: Intersection Improvements

Cost: $455,208

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$409,687	---	---	---	$409,687
Non-Federal Funds	---	$45,521	---	---	---	$45,521
Total Funds	---	**$455,208**	---	---	---	**$455,208**

DANVERS, AND MIDDLETON: BRIDGE MAINTENANCE, ANDOVER STREET (D-03-009) OVER IPSWICH RIVER

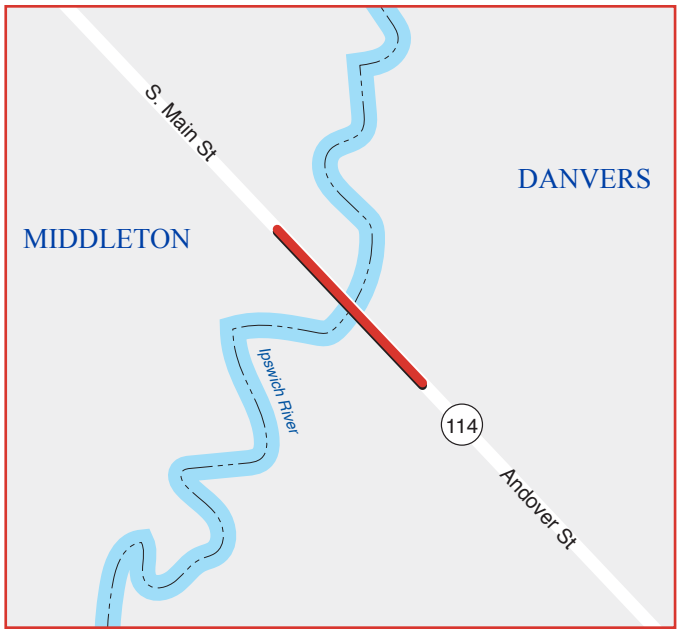
Proponent: MassDOT

ID Number: 610782

Project Type: Bridge

Cost: $5,689,600

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

This project will fund maintenance of bridge D-03-009, which carries Andover Street over the Ipswich River between Danvers and Middleton.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$4,551,680	---	$4,551,680
Non-Federal Funds	---	---	---	$1,137,920	---	$1,137,920
Total Funds	**---**	**---**	**---**	**$5,689,600**	**---**	**$5,689,600**

DEDHAM: PEDESTRIAN IMPROVEMENTS ALONG BUSSEY STREET

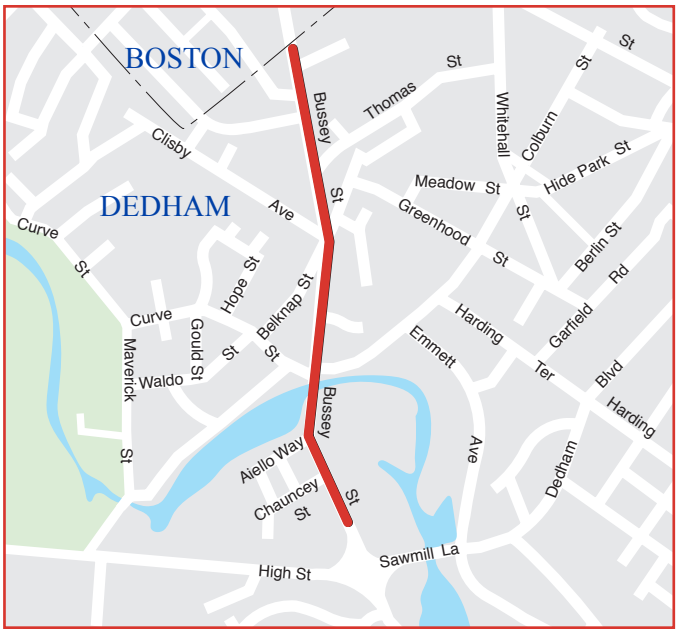
Proponent: Dedham

ID Number: 607899

Project Type: Complete Streets

Cost: $5,355,932

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$4,284,746	---	---	$4,284,746
Non-Federal Funds	---	---	$1,071,186	---	---	$1,071,186
Total Funds	**---**	**---**	**$5,355,932**	**---**	**---**	**$5,355,932**

DEDHAM: PEDESTRIAN IMPROVEMENTS ALONG ELM STREET AND RUSTCRAFT ROAD CORRIDORS

Proponent: Dedham

ID Number: 607901

Project Type: Roadway Reconstruction

Cost: $2,706,712

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$2,165,370	---	---	---	---	$2,165,370
Non-Federal Funds	$541,342	---	---	---	---	$541,342
Total Funds	**$2,706,712**	---	---	---	---	**$2,706,712**

ESSEX: SUPERSTRUCTURE REPLACEMENT, E-11-001 (2TV), ROUTE 133 (MAIN STREET) OVER ESSEX RIVER

Proponent: MassDOT

ID Number: 608596

Project Type: Intersection Improvements

Cost: $5,695,162

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$4,556,130	---	---	---	---	$4,556,130
Non-Federal Funds	$1,139,032	---	---	---	---	$1,139,032
Total Funds	**$5,695,162**	**---**	**---**	**---**	**---**	**$5,695,162**

ESSEX, GLOUCESTER, MANCHESTER-BY-THE-SEA, AND WENHAM: PAVEMENT PRESERVATION AND RELATED WORK ON ROUTE 128

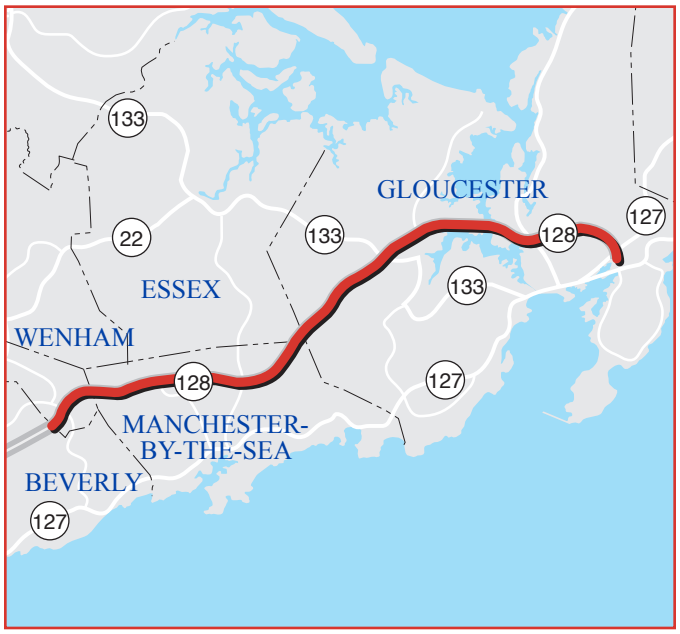
Proponent: MassDOT

ID Number: 609102

Project Type: Non-Interstate Pavement

Cost: $14,892,926

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

Pavement preservation and related work on Route 128

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$11,914,341	---	---	---	---	$11,914,341
Non-Federal Funds	$2,978,585	---	---	---	---	$2,978,585
Total Funds	**$14,892,926**	---	---	---	---	**$14,892,926**

EVERETT: RECONSTRUCTION OF FERRY STREET, SOUTH FERRY STREET, AND A PORTION OF ELM STREET

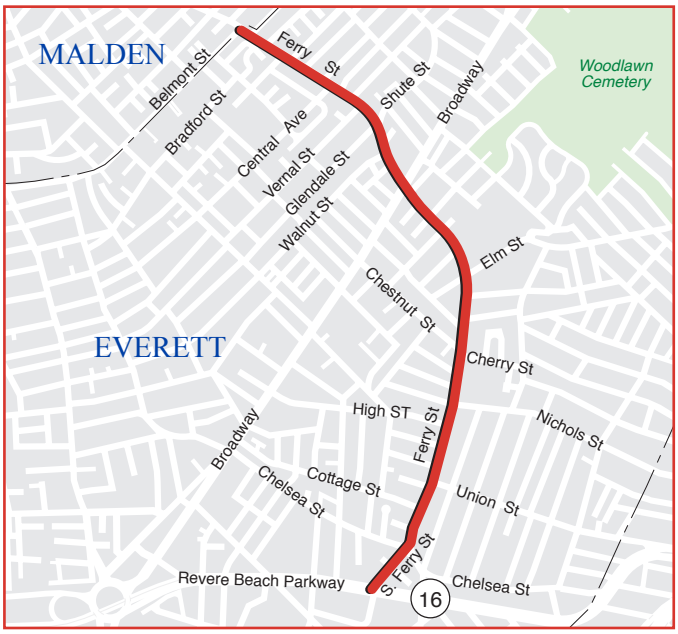
Proponent: Everett

ID Number: 607652

Project Type: Complete Streets

Cost: $25,000,000

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$13,382,155	$6,722,874	---	---	---	$20,105,029
Non-Federal Funds	$3,214,252	$1,680,719	---	---	---	$4,894,971
Total Funds	**$16,596,407**	**$8,403,953**	**---**	**---**	**---**	**$25,000,000**

EVERETT: REHABILITATION OF BEACHAM STREET, FROM ROUTE 99 TO CHELSEA CITY LINE

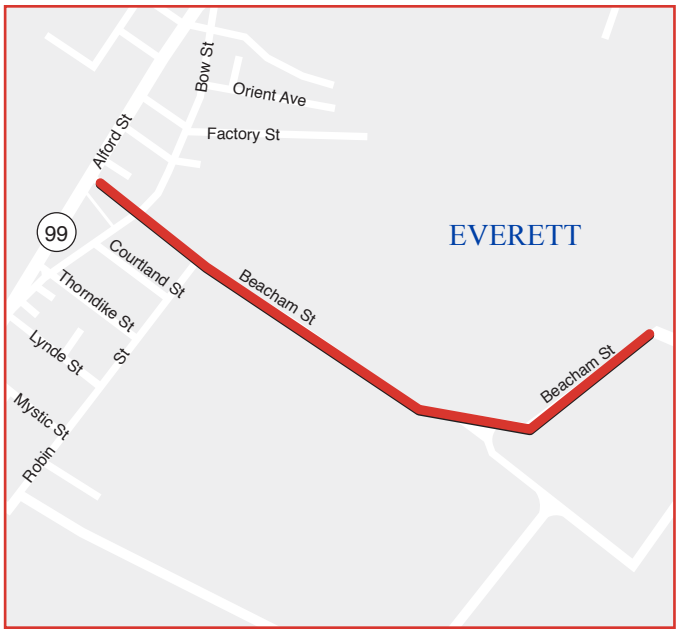
Proponent: Everett

ID Number: 609257

Project Type: Complete Streets

Cost: $10,921,632

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$8,837,306	$8,837,306
Non-Federal Funds	---	---	---	---	$2,084,326	$2,084,326
Total Funds	---	---	---	---	**$10,921,632**	**$10,921,632**

FOXBOROUGH, SHARON, AND WALPOLE: RESURFACING AND RELATED WORK ON ROUTE 1

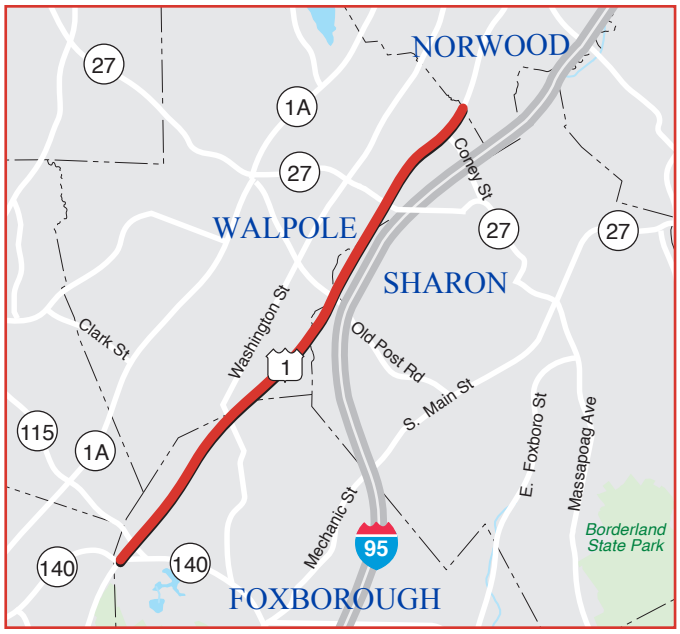
Proponent: MassDOT

ID Number: 608480

Project Type: Non-Interstate Pavement

Cost: $8,016,840

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$6,413,472	---	---	---	$6,413,472
Non-Federal Funds	---	$1,603,368	---	---	---	$1,603,368
Total Funds	---	**$8,016,840**	---	---	---	**$8,016,840**

FRAMINGHAM: RECONSTRUCTION OF UNION AVENUE, FROM PROCTOR STREET TO MAIN STREET

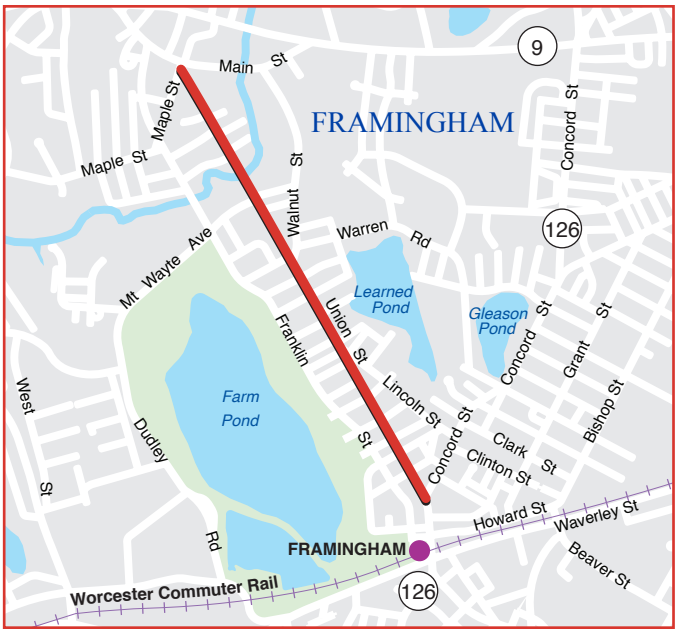
Proponent: Framingham

ID Number: 608228

Project Type: Complete Streets

Cost: $10,218,923

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$8,275,139	---	---	---	---	$8,275,139
Non-Federal Funds	$1,943,784	---	---	---	---	$1,943,784
Total Funds	**$10,218,923**	---	---	---	---	**$10,218,923**

FRAMINGHAM: TRAFFIC SIGNAL INSTALLATION AT EDGELL ROAD AT CENTRAL STREET

Proponent: Framingham

ID Number: 608889

Project Type: Intersection Improvements

Cost: $2,036,172

Funding Source: Regional Target Funding

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$1,628,938	---	---	$1,628,938
Non-Federal Funds	---	---	$407,234	---	---	$407,234
Total Funds	**---**	**---**	**$2,036,172**	**---**	**---**	**$2,036,172**

FRAMINGHAM AND NATICK: RESURFACING AND RELATED WORK ON ROUTE 9

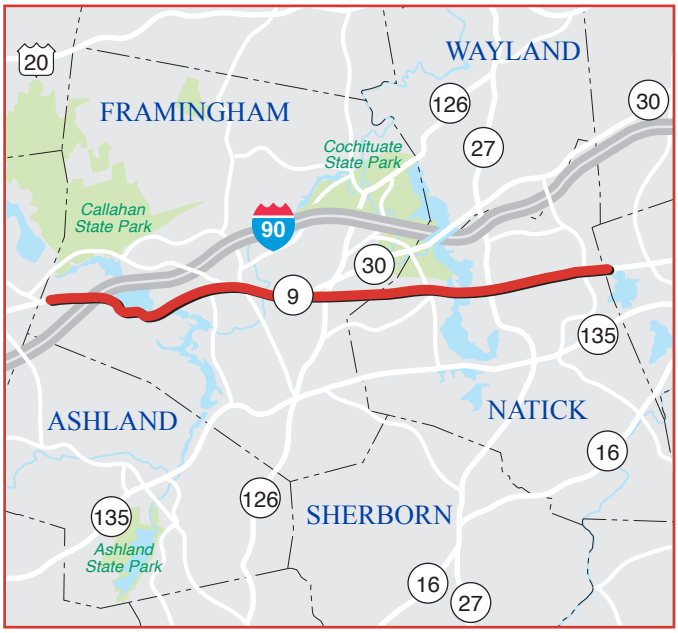
Proponent: MassDOT

ID Number: 609402

Project Type: Non-Interstate Pavement

Cost: $21,714,852

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

Resurfacing and related work on Route 9

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$17,371,882	$17,371,882
Non-Federal Funds	---	---	---	---	$4,342,970	$4,342,970
Total Funds	**---**	**---**	**---**	**---**	**$21,714,852**	**$21,714,852**

HAMILTON: BRIDGE REPLACEMENT, WINTHROP STREET OVER IPSWICH RIVER, H-03-002 (2R5)

Proponent: MassDOT

ID Number: 609467

Project Type: Bridge

Cost: $3,377,004

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$2,701,603	---	$2,701,603
Non-Federal Funds	---	---	---	$675,401	---	$675,401
Total Funds	---	---	---	**3,377,004**	---	**3,377,004**

HINGHAM: INTERSECTION IMPROVEMENTS AT ROUTE 3A/SUMMER STREET ROTARY

Proponent: Hingham

ID Number: 605168

Project Type: Complete Streets

Cost: $15,272,850

Funding Source: Regional Target Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$12,218,280	$12,218,280
Non-Federal Funds	---	---	---	---	$3,054,570	$3,054,570
Total Funds	**---**	**---**	**---**	**---**	**$15,272,850**	**$15,272,850**

HOLBROOK: RECONSTRUCTION OF UNION STREET (ROUTE 139), FROM LINFIELD STREET TO CENTRE STREET/WATER STREET

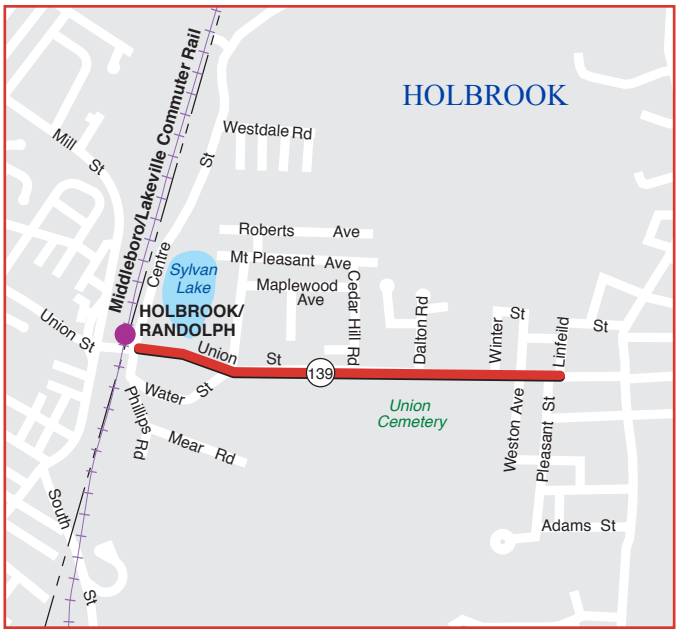
Proponent: Holbrook

ID Number: 606501

Project Type: Complete Streets

Cost: $4,563,878

Funding Source: Regional Target and Statewide Highway Funds



Scoring Summary

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

Project Description

The purpose of this project is to rehabilitate a segment of Union Street from Linfield Street to Centre Street and Water Street. The proposed improvements will address poor roadway pavement conditions, deteriorating sidewalks, a lack of curbing, and needed drainage improvements. The project will also address the need for upgraded pavement markings, signage, and guard rails. This project is funded using a combination of MPO Regional Target funds ($3,036,628) and Federal High-Priority Project (HPP) funds ($1,527,250).

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$3,651,102	---	---	---	---	$3,651,102
Non-Federal Funds	$912,776	---	---	---	---	$912,776
Total Funds	**$4,563,878**	**---**	**---**	**---**	**---**	**$4,563,878**

HOPKINTON AND WESTBOROUGH: RECONSTRUCTION OF INTERSTATE 90/INTERSTATE 495 INTERCHANGE

Proponent: MassDOT

ID Number: 607977

Project Type: Roadway Reconstruction

Cost: $281,640,202

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

The project would improve the interchange of Interstate 90 and Interstate 495. A number of alternatives are being developed and evaluated in a feasibility study. This project is funded over five federal fiscal years (FFYs 2022–26) for a total cost of $281,640,202. This project is also being funded with $72,449,932 in non-federal aid.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$24,775,825	$44,097,823	$24,993,037	$34,148,561	$128,015,246
Non-Federal Funds	---	2,752,870	$9,344,203	$2,777,004	$3,794,285	$18,668,362
Total Funds	**---**	**$27,528,695**	**$53,442,026**	**27,777,041**	**$37,942,846**	**$146,683,608**

HULL: RECONSTRUCTION OF ATLANTIC AVENUE AND RELATED WORK, FROM NANTASKET AVENUE TO COHASSET TOWN LINE

Proponent: Hull

ID Number: 601607

Project Type: Complete Streets

Cost: $7,984,486

Funding Source: Regional Target Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$6,387,589	---	---	---	---	$6,387,589
Non-Federal Funds	$1,596,897	---	---	---	---	$1,596,897
Total Funds	**$7,984,486**	---	---	---	---	**$7,984,486**

IPSWICH: RESURFACING AND RELATED WORK ON CENTRAL AND SOUTH MAIN STREETS

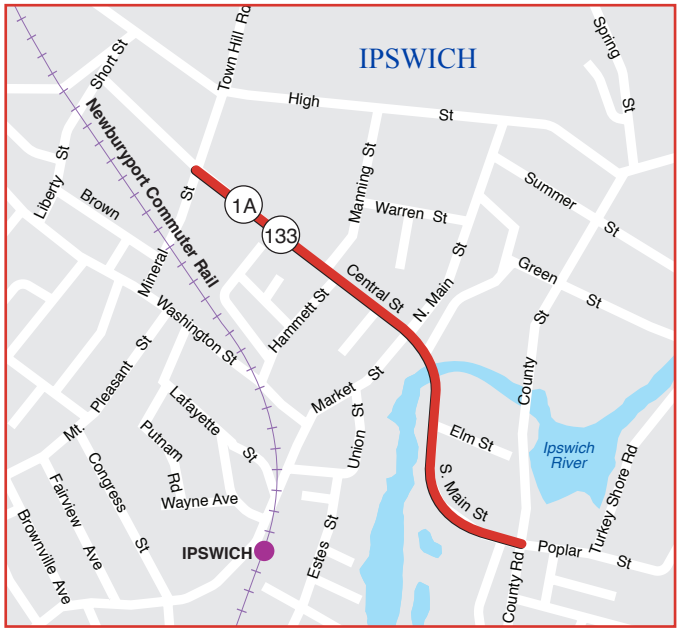
Proponent: Ipswich

ID Number: 605743

Project Type: Complete Streets

Cost: $3,104,609

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$2,483,687	---	$2,483,687
Non-Federal Funds	---	---	---	$620,922	---	$620,922
Total Funds	**---**	**---**	**---**	**$3,104,609**	**---**	**$3,104,609**

LITTLETON: RECONSTRUCTION OF FOSTER STREET

Proponent: Littleton

ID Number: 609054

Project Type: Complete Streets

Cost: $4,281,978

Funding Source: Regional Target Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$3,425,582	---	$3,425,582
Non-Federal Funds	---	---	---	$856,396	---	$856,396
Total Funds	---	---	---	**$4,281,978**	---	**$4,281,978**

LYNN: RECONSTRUCTION ON ROUTE 129 (LYNNFIELD STREET), FROM GREAT WOODS ROAD TO WYOMA SQUARE

Proponent: Lynn

ID Number: 602077

Project Type: Complete Streets

Cost: $6,484,734

Funding Source: Regional Target Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$5,187,787	---	---	---	$5,187,787
Non-Federal Funds	---	$1,296,947	---	---	---	$1,296,947
Total Funds	**---**	**$6,484,734**	**---**	**---**	**---**	**$6,484,734**

LYNN: REHABILITATION OF ESSEX STREET

Proponent: Lynn

ID Number: 609252

Project Type: Complete Streets

Cost: $18,956,000

Funding Source: Regional Target Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$15,564,800	---	$15,564,800
Non-Federal Funds	---	---	---	$3,391,200	---	$3,391,200
Total Funds	---	---	---	**$18,956,000**	---	**$18,956,000**

LYNN: TRAFFIC AND SAFETY IMPROVEMENTS AT TWO LOCATIONS ON BROADWAY

Proponent: Lynn

ID Number: 609254

Project Type: Intersection Improvements

Cost: $6,225,577

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

This project involves multimodal safety and operational improvements at two locations on Broadway. Existing sidewalks will be reconstructed with the addition of on-street bicycle facilities close to connections to adjacent facilities. Operational improvements include traffic signal updates at Broadway's intersections with Euclid Avenue and Jenness and Warwick Streets. Drainage improvements and pavement reconstruction will also be incorporated to improve access to businesses and schools. This project was evaluated using the MPO's scoring criteria because it was considered for funding using Regional Target funds. MassDOT funded the project, however.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$5,603,019	---	$5,603,019
Non-Federal Funds	---	---	---	$622,558	---	$622,558
Total Funds	---	---	---	**$6,225,577**	---	**$6,225,577**

LYNN AND SALEM: RESURFACING AND RELATED WORK ON ROUTE 107

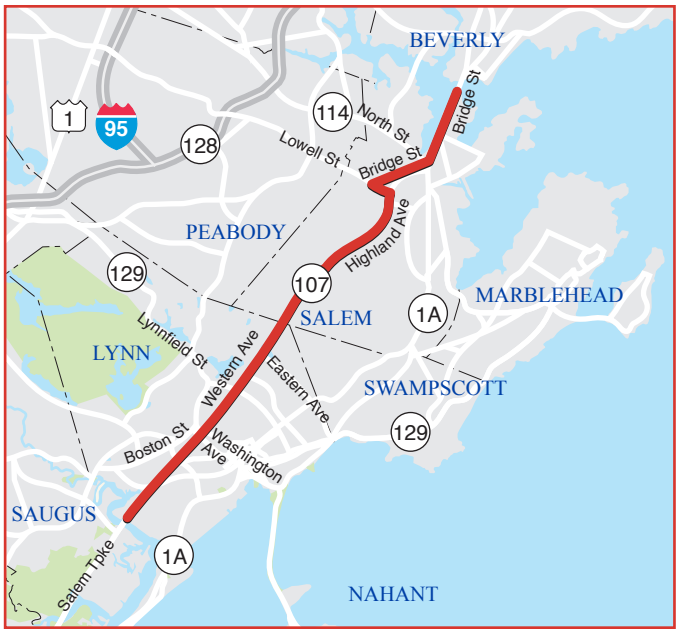
Proponent: MassDOT

ID Number: 608817

Project Type: Non-Interstate Pavement

Cost: $2,250,000

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

Resurfacing and related work on Route 107

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$1,800,000	---	---	---	---	$1,800,000
Non-Federal Funds	$450,000	---	---	---	---	$450,000
Total Funds	**$2,250,000**	**---**	**---**	**---**	**---**	**$2,250,000**

LYNN AND SAUGUS: BRIDGE REPLACEMENT, ROUTE 107 OVER THE SAUGUS RIVER (AKA BELDEN G. BLY BRIDGE)

Proponent: MassDOT

ID Number: 604952

Project Type: Bridge

Cost: $98,962,749

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

This project consists of the construction of the Route 107 (Fox Hill Bridge), which spans the Saugus River. The new bridge will serve as the permanent replacement for the proposed temporary drawbridge. The new bridge (aka Belden G. Bly Bridge) will be a single leaf bascule drawbridge. This project is funded over five years (FFYs 2019–23) for a total cost of $98,962,749.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$18,375,830	$17,845,657	$14,785,206	---	---	$51,006,693
Non-Federal Funds	$4,593,958	$4,461,414	$3,696,301	---	---	$12,751,673
Total Funds	**$22,969,788**	**$22,307,071**	**$18,481,507**	---	---	**$63,758,366**

LYNNFIELD AND PEABODY: RESURFACING AND RELATED WORK ON ROUTE 1

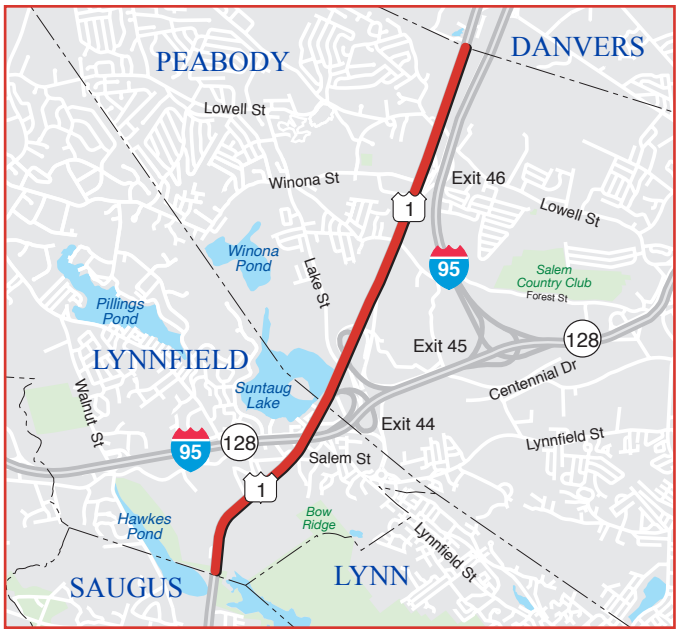
Proponent: MassDOT

ID Number: 607477

Project Type: Non-Interstate Pavement

Cost: $9,004,937

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$7,203,950	---	---	---	---	$7,203,950
Non-Federal Funds	$1,800,987	---	---	---	---	$1,800,987
Total Funds	**$9,004,937**	---	---	---	---	**$9,004,937**

LYNNFIELD AND WAKEFIELD: RAIL TRAIL EXTENSION, FROM THE GALVIN MIDDLE SCHOOL TO LYNNFIELD/PEABODY TOWN LINE

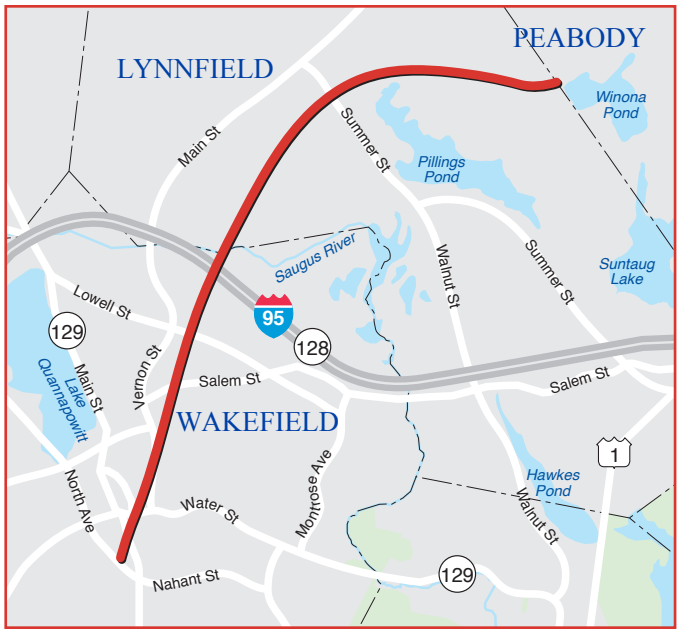
Proponent: Lynnfield, Wakefield

ID Number: 607329

Project Type: Bicycle and Pedestrian

Cost: $11,271,387

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$9,017,110	---	$9,017,110
Non-Federal Funds	---	---	---	$2,254,277	---	$2,254,277
Total Funds	**---**	**---**	**---**	**$11,271,387**	**---**	**$11,271,387**

MARBLEHEAD: INTERSECTION IMPROVEMENTS TO PLEASANT STREET AT VILLAGE, VINE, AND CROSS STREETS

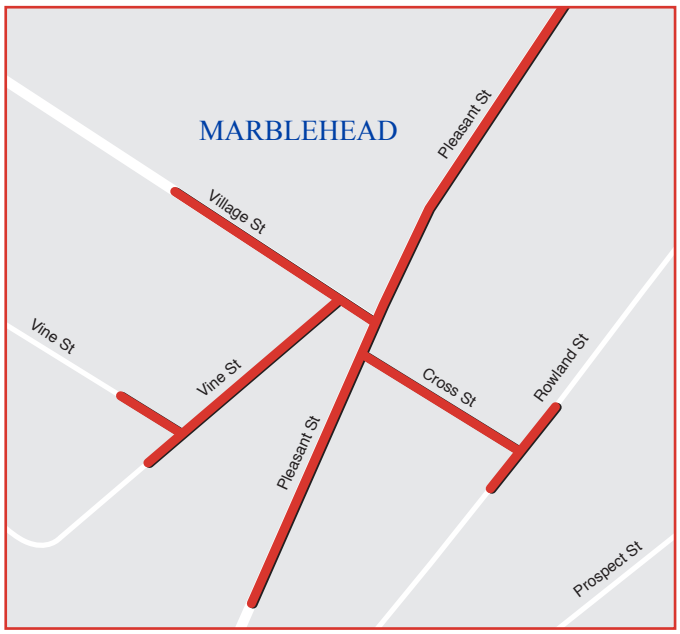
Proponent: Marblehead

ID Number: 608146

Project Type: Intersection Improvements

Cost: $565,486

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$452,389	---	---	---	---	$452,389
Non-Federal Funds	$113,097	---	---	---	---	$113,097
Total Funds	**$565,486**	**---**	**---**	**---**	**---**	**$565,486**

MARLBOROUGH AND SUDBURY: RESURFACING ON ROUTE 20 IN SUDBURY AND MARLBOROUGH

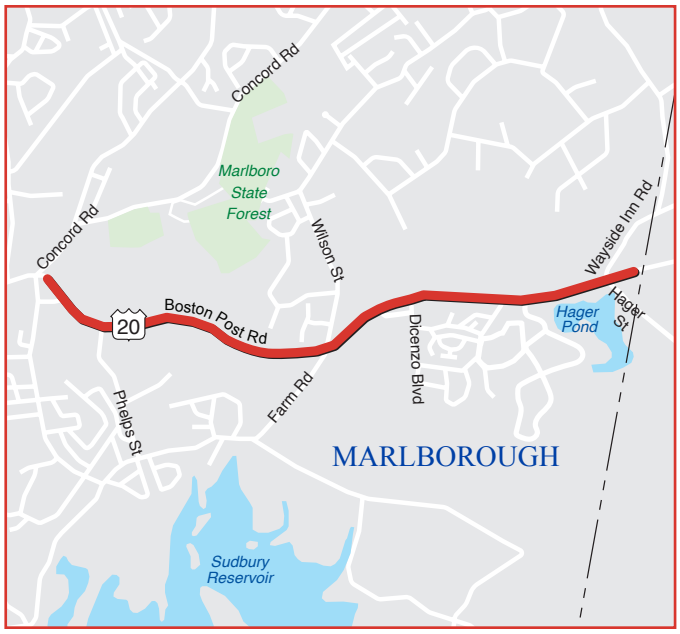
Proponent: MassDOT

ID Number: 608467

Project Type: Non-Interstate Pavement

Cost: $11,744,328

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$9,395,462	---	---	---	---	$9,395,462
Non-Federal Funds	$2,348,866	---	---	---	---	$2,348,866
Total Funds	**$11,744,328**	---	---	---	---	**$11,744,328**

MASSDOT HIGHWAY DISTRICT 4: INTERSTATE PAVEMENT PRESERVATION

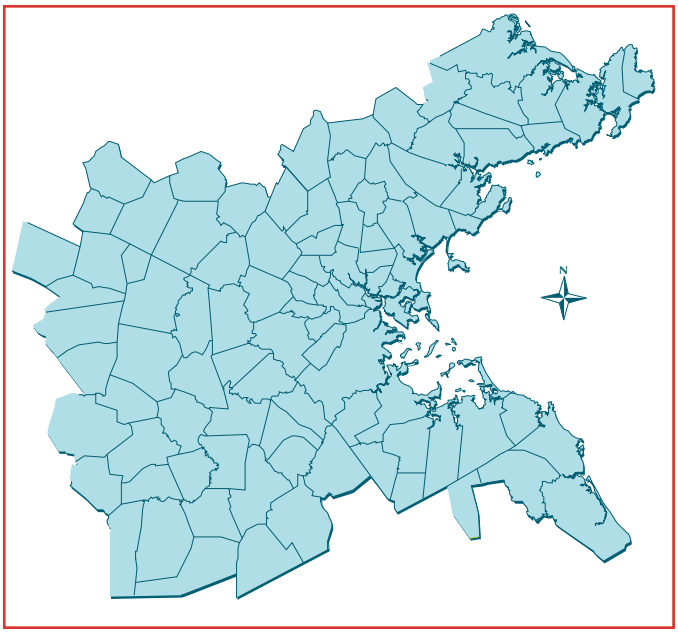
Proponent: MassDOT

ID Number: 610724

Project Type: Interstate Pavement

Cost: $4,320,011

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

This project will support Interstate pavement preservation work in MassDOT Highway District 4.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$3,888,010	---	---	---	---	$3,888,010
Non-Federal Funds	$432,001	---	---	---	---	$432,001
Total Funds	**$4,320,011**	**---**	**---**	**---**	**---**	**$4,320,011**

MAYNARD: BRIDGE REPLACEMENT, M-10-006, FLORIDA ROAD OVER ASSABET RIVER

Proponent: MassDOT

ID Number: 608637

Project Type: Bridge

Cost: $2,661,282

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$2,129,026	---	---	---	---	$2,129,026
Non-Federal Funds	$532,256	---	---	---	---	$532,256
Total Funds	**$2,661,282**	**---**	**---**	**---**	**---**	**$2,661,282**

MEDFORD, STONEHAM, AND WINCHESTER: INTERSTATE PAVEMENT PRESERVATION ON I-93

Proponent: MassDOT

ID Number: 610726

Project Type: Interstate Pavement

Cost: $16,808,413

Funding Source: Statewide Highway Funds

Project map to be added when information is received

Scoring Summary

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

Project Description

This project includes pavement preservation work on Interstate 93 between Medford, Winchester, and Stoneham.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$15,127,572	$15,127,572
Non-Federal Funds	---	---	---	---	$1,680,841	$1,680,841
Total Funds	**---**	**---**	**---**	**---**	**$16,808,413**	**$16,808,413**

MEDWAY: HOLLISTON STREET AND CASSIDY LANE IMPROVEMENTS (SRTS)

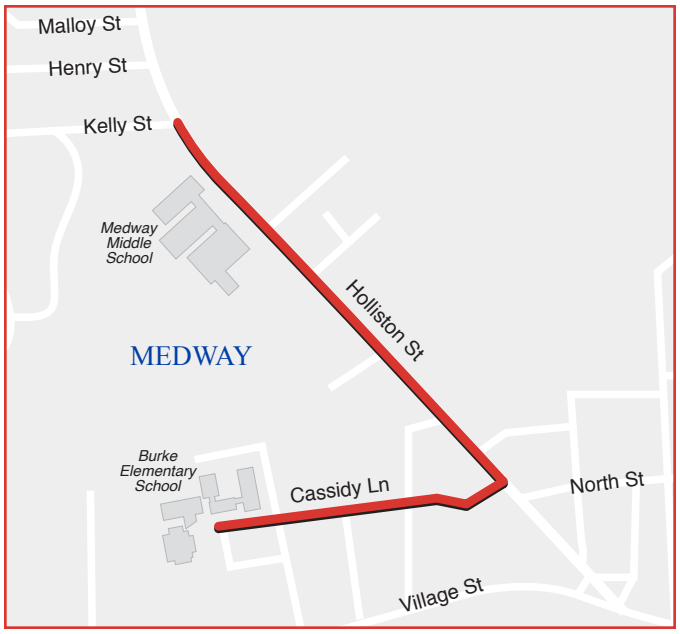
Proponent: MassDOT

ID Number: 609530

Project Type: Roadway Reconstruction

Cost: $1,154,817

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

This project will make upgrades to promote safety along Holliston Street and Cassidy Lane in Medway through the Safe Routes to Schools program. These roadways are adjacent to Francis J. Burke Memorial Elementary School and Medway Middle School.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$923,854	---	---	$923,854
Non-Federal Funds	---	---	$230,963	---	---	$230,963
Total Funds	---	---	**$1,154,817**	---	---	**$1,154,817**

MIDDLETON: BRIDGE REPLACEMENT, M-20-003, ROUTE 62 (MAPLE STREET) OVER IPSWICH RIVER

Proponent: MassDOT

ID Number: 608522

Project Type: Bridge

Cost: $4,072,275

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$3,257,820	---	$3,257,820
Non-Federal Funds	---	---	---	$814,455	---	$814,455
Total Funds	**---**	**---**	**---**	**$4,072,275**	**---**	**$4,072,275**

MILFORD: REHABILITATION ON ROUTE 16, FROM ROUTE 109 TO BEAVER STREET

Proponent: Milford

ID Number: 608045

Project Type: Complete Streets

Cost: $3,887,537

Funding Source: Regional Target Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$3,210,030	$3,210,030
Non-Federal Funds	---	---	---	---	$677,507	$677,507
Total Funds	**---**	**---**	**---**	**---**	**$3,887,537**	**$3,887,537**

MILTON: INTERSECTION AND SIGNAL IMPROVEMENTS AT ROUTE 28 (RANDOLPH AVENUE) AND CHICKATAWBUT ROAD

Proponent: MassDOT

ID Number: 607342

Project Type: Intersection Improvements

Cost: $5,384,060

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2022	2024	2025	Total
Federal Funds	---	$4,845,654	---	---	---	$4,845,654
Non-Federal Funds	---	$538,406	---	---	---	$538,406
Total Funds	---	**$5,384,060**	---	---	---	**$5,384,060**

MILTON, QUINCY, AND RANDOLPH: RANDOLPH - MILTON - RESURFACING AND RELATED WORK ON ROUTE 28

Proponent: MassDOT

ID Number: 609396

Project Type: Non-Interstate Pavement

Cost: $6,970,656

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

Resurfacing and related work on Route 28

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$5,576,525	---	$5,576,525
Non-Federal Funds	---	---	---	$1,394,131	---	$1,394,131
Total Funds	---	---	---	**$6,970,656**	---	**$6,970,656**

NEWTON: BRIDGE MAINTENANCE, N-12-055, CLEAN AND PAINT STRUCTURAL STEEL

Proponent: MassDOT

ID Number: 608610

Project Type: Bridge

Cost: $2,308,000

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$1,846,400	---	---	---	---	$1,846,400
Non-Federal Funds	$461,600	---	---	---	---	$461,600
Total Funds	**$2,308,000**	**---**	**---**	**---**	**---**	**$2,308,000**

NEWTON: NEWTON MICROTRANSIT SERVICE

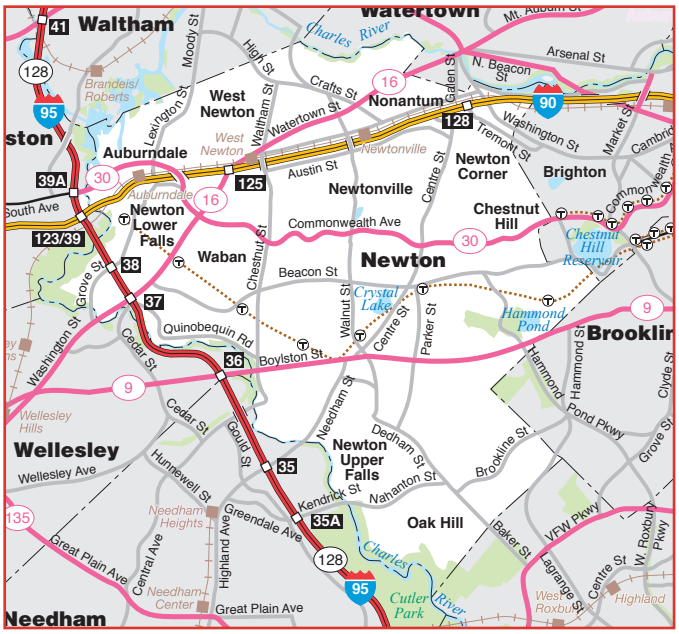
Proponent: Newton

ID Number: S10784

Project Type: Community Connections

Cost: $300,000

Funding Source: Regional Target Funds



Scoring Summary

This project received a total score of 53 points when evaluated using the MPO's Community Connections Program criteria. These criteria are listed in Table A-5.

Project Description

This project funds a new technology-enabled transportation service that will serve all residents, students and employees in Newton. The system will provide shared, first- and last-mile rides between three MBTA rail lines and the Wells Avenue Business District before expanding citywide. The City will deliver the service using on-demand, dynamically routed microtransit technology. This system will build on Newton's NewMo microtransit system, operated by Via, which will provide 25,000 rides to Newton seniors in its first year. This project is funded through the pilot round of the MPO's Community Connections Program.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$240,000	---	---	---	---	$240,000
Non-Federal Funds	$60,000	---	---	---	---	$60,000
Total Funds	**$300,000**	---	---	---	---	**$300,000**

NEWTON AND WESTWOOD: STEEL SUPERSTRUCTURE CLEANING (FULL REMOVAL) AND PAINTING OF 2 BRIDGES: N-12-056 AND W-31-006

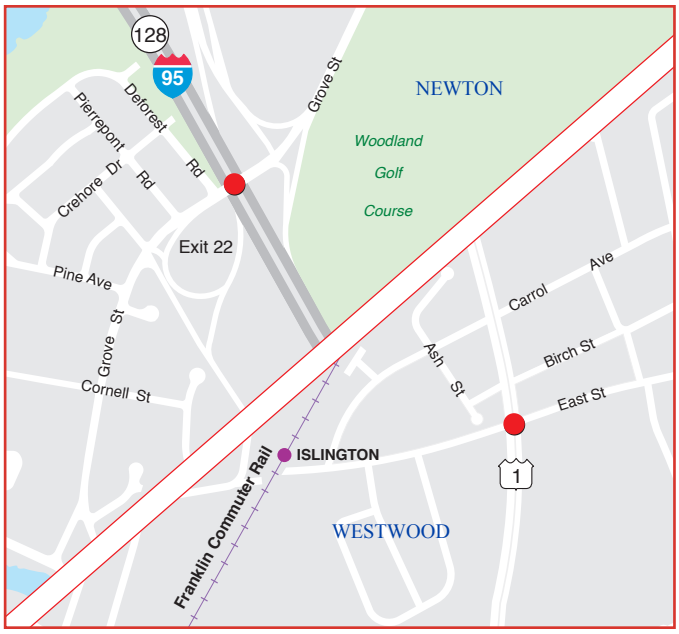
Proponent: MassDOT

ID Number: 608609

Project Type: Bridge

Cost: $2,314,286

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$1,851,429	---	---	$1,851,429
Non-Federal Funds	---	---	$462,857	---	---	$462,857
Total Funds	**---**	**---**	**$2,314,286**	**---**	**---**	**$2,314,286**

NEWTON AND WESTON: STEEL SUPERSTRUCTURE CLEANING (FULL REMOVAL) AND PAINTING OF TWO BRIDGES: N-12-056 AND W-31-006

Proponent: MassDOT

ID Number: 608866

Project Type: Bridge

Cost: $2,443,896

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$1,955,117	---	---	---	$1,955,117
Non-Federal Funds	---	$488,779	---	---	---	$488,779
Total Funds	---	**$2,443,896**	---	---	---	**$2,443,896**

NORWOOD AND WESTWOOD: INTERSECTION IMPROVEMENTS AT ROUTE 1 AND UNIVERSITY AVENUE/EVERETT STREET

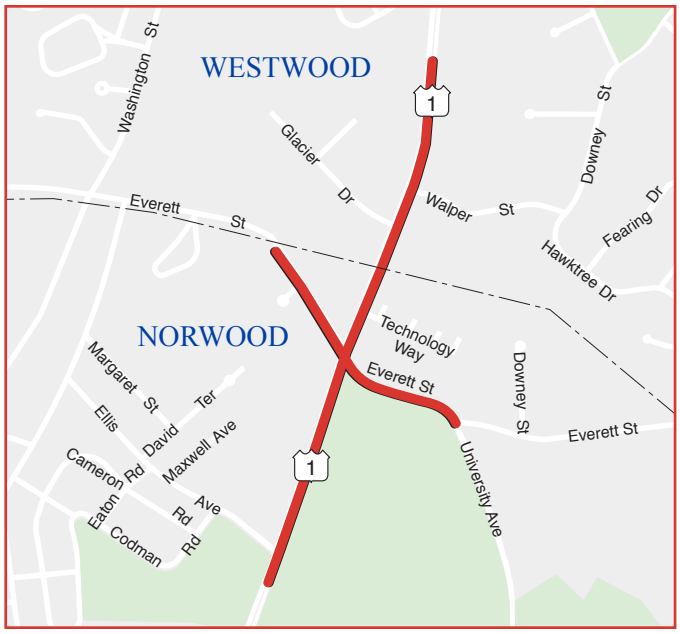
Proponent: Norwood

ID Number: 605857

Project Type: Intersection Improvements

Cost: $9,789,988

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$7,895,163	---	---	---	$7,895,163
Non-Federal Funds	---	$1,894,825	---	---	---	$1,894,825
Total Funds	---	**$9,789,988**	---	---	---	**$9,789,988**

NORWOOD: INTERSECTION IMPROVEMENTS AT ROUTE 1A AND UPLAND ROAD/WASHINGTON STREET AND PROSPECT STREET/FULTON STREET

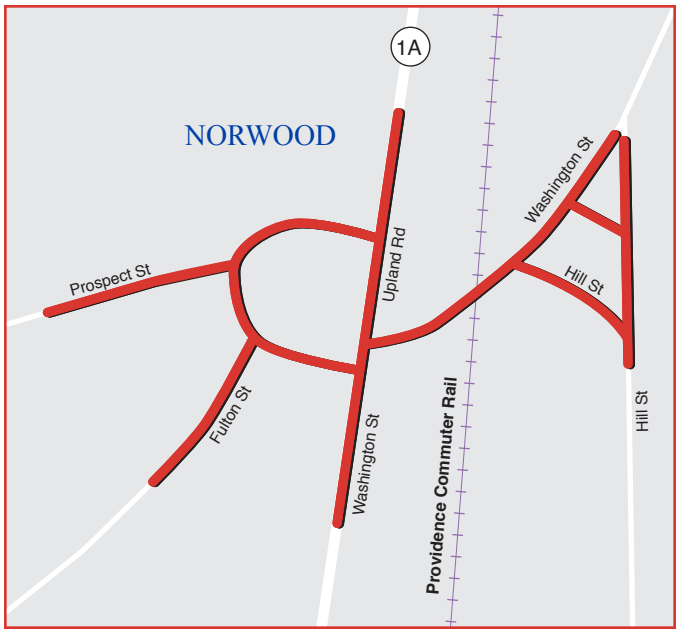
Proponent: Norwood

ID Number: 606130

Project Type: Intersection Improvements

Cost: $8,270,371

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$6,616,297	---	---	---	$6,616,297
Non-Federal Funds	---	$1,654,074	---	---	---	$1,654,074
Total Funds	---	**$8,270,371**	---	---	---	**$8,270,371**

PEABODY: CENTRAL STREET CORRIDOR AND INTERSECTION IMPROVEMENTS

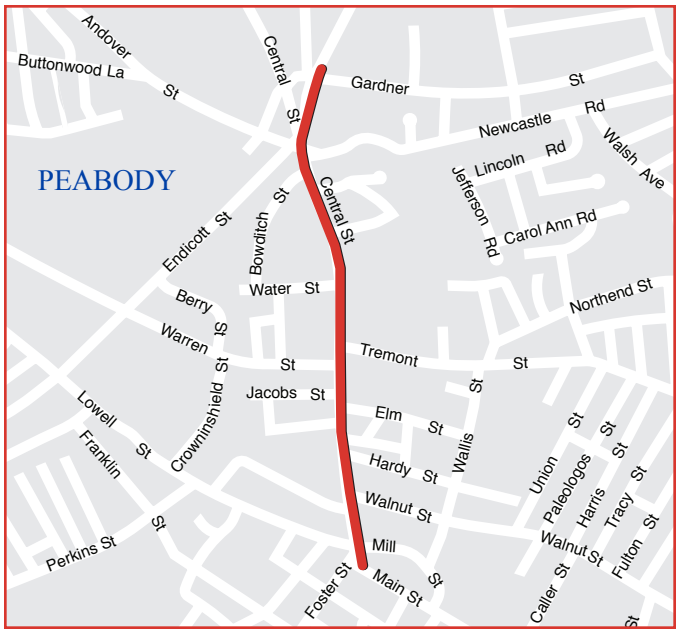
Proponent: Peabody

ID Number: 608933

Project Type: Complete Streets

Cost: $10,432,800

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$8,496,240	---	---	$8,496,240
Non-Federal Funds	---	---	$1,936,560	---	---	$1,936,560
Total Funds	**---**	**---**	**$10,432,800**	**---**	**---**	**$10,432,800**

PEABODY: INDEPENDENCE GREENWAY EXTENSION

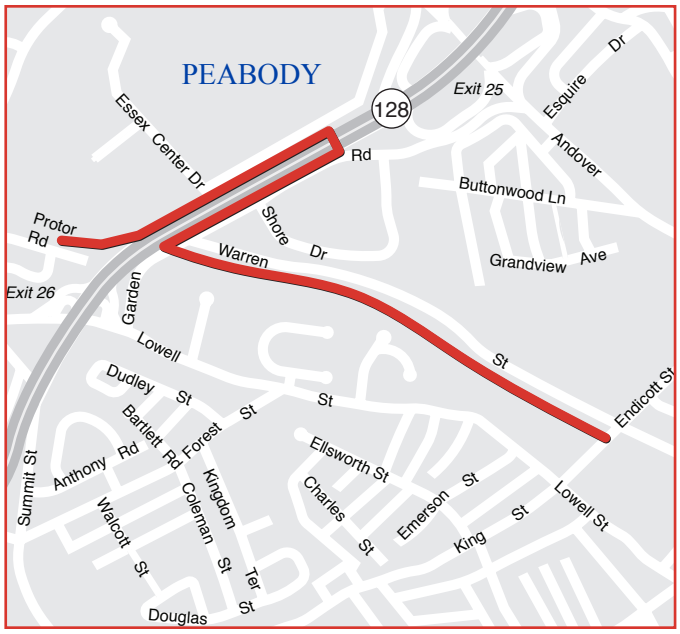
Proponent: MassDOT

ID Number: 609211

Project Type: Bicycle and Pedestrian

Cost: $3,368,680

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$2,694,944	---	$2,694,944
Non-Federal Funds	---	---	---	$673,736	---	$673,736
Total Funds	---	---	---	**$3,368,680**	---	**$3,368,680**

PEABODY: MULTIUSE PATH CONSTRUCTION OF INDEPENDENCE GREENWAY AT I-95 AND ROUTE 1

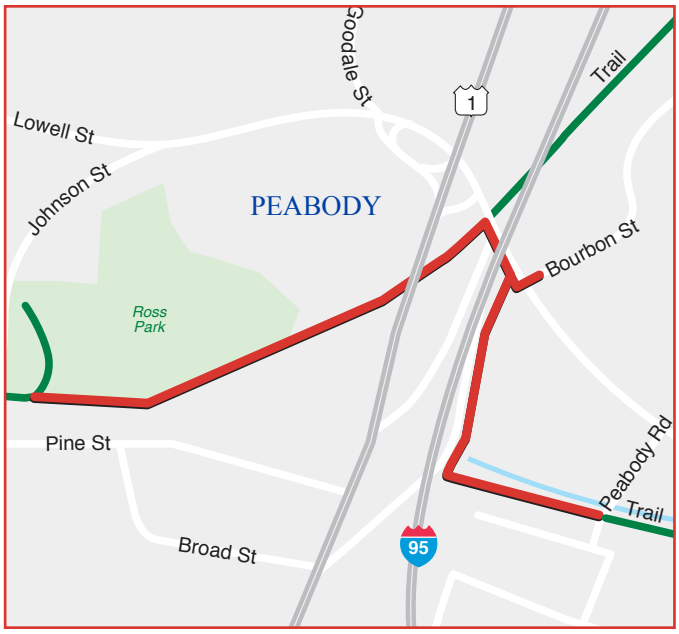
Proponent: Peabody

ID Number: 610544

Project Type: Bicycle and Pedestrian

Cost: $6,803,400

Funding Source: Statewide Highway Funds



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	15 out of 30	13 out of 29	11 out of 29	4 out of 16	4 out of 12	6 out of 18	53 out of 134

Project Description

The project includes construction of a new 12-foot wide multi-use paved path along the abandoned railbed between two existing segments of the Independence Greenway in Peabody. The project also includes a connection to the existing Border to Boston trailhead at Lowell Street. The work includes full-depth pavement construction, minor drainage improvements, vegetative privacy screening, new and reset granite curb, new cement concrete sidewalk and hot mix asphalt, signal upgrades at Lowell/ Bourbon Street and Route 1 NB/Lowell Street intersection, a new two-span steel pedestrian bridge, and various curb, walking, and parking improvements to the existing parking lot at 215 Newbury Street.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$5,442,720	$5,442,720
Non-Federal Funds	---	---	---	---	$1,360,680	$1,360,680
Total Funds	**---**	**---**	**---**	**---**	**$6,803,400**	**$6,803,400**

QUINCY: RECONSTRUCTION OF SEA STREET

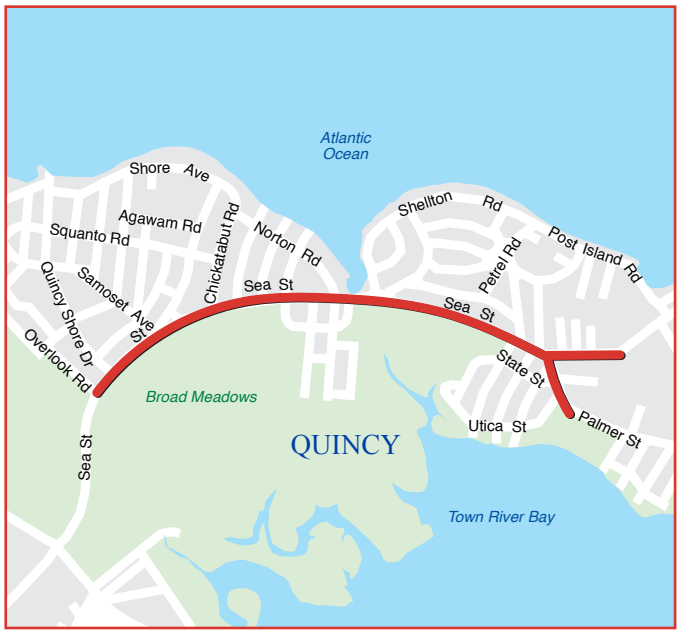
Proponent: MassDOT

ID Number: 608707

Project Type: Complete Streets

Cost: $6,068,190

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$4,854,552	---	---	$4,854,552
Non-Federal Funds	---	---	$1,213,638	---	---	$1,213,638
Total Funds	---	---	**$6,068,190**	---	---	**$6,068,190**

RANDOLPH: RESURFACING AND RELATED WORK ON ROUTE 28

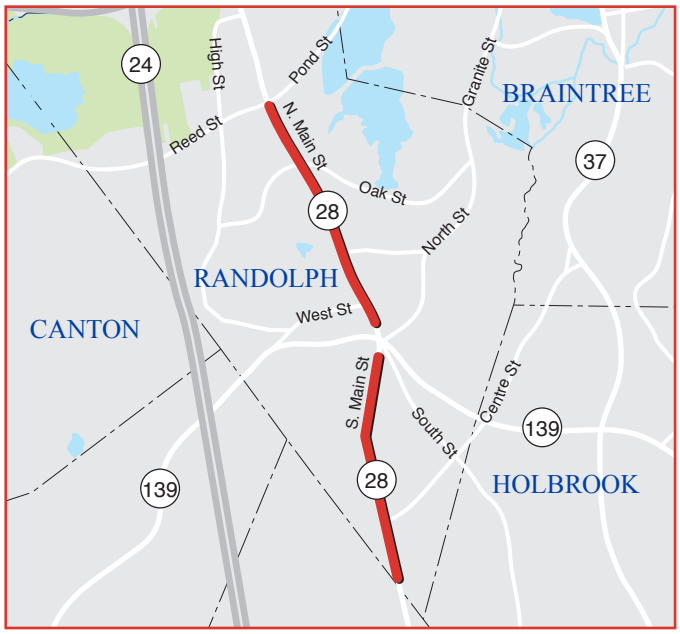
Proponent: MassDOT

ID Number: 609399

Project Type: Non-Interstate Pavement

Cost: $6,970,656

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$5,576,525	---	$5,576,525
Non-Federal Funds	---	---	---	$1,394,131	---	$1,394,131
Total Funds	**---**	**---**	**---**	**$6,970,656**	**---**	**$6,970,656**

RANDOLPH AND MILTON: RESURFACING AND RELATED WORK ON ROUTE 28

Proponent: MassDOT

ID Number: 609396

Project Type: Non-Interstate Pavement

Cost: $6,970,656

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$5,576,525	---	$5,576,525
Non-Federal Funds	---	---	---	$1,394,131	---	$1,394,131
Total Funds	---	---	---	**$6,970,656**	---	**$6,970,656**

READING: INTERSECTION SIGNALIZATION AT ROUTE 28 AND HOPKINS STREET

Proponent: Reading

ID Number: 607305

Project Type: Intersection Improvements

Cost: $1,683,095

Funding Source: Regional Target Funds

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	10 out of 30	12 out of 29	5 out of 29	2 out of 16	2 out of 12	7 out of 18	38 out of 134

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$1,421,518	---	---	---	---	$1,421,518
Non-Federal Funds	$261,577	---	---	---	---	$261,577
Total Funds	**$1,683,095**	---	---	---	---	**$1,683,095**

REGIONAL: COMMUNITY CONNECTIONS PROGRAM

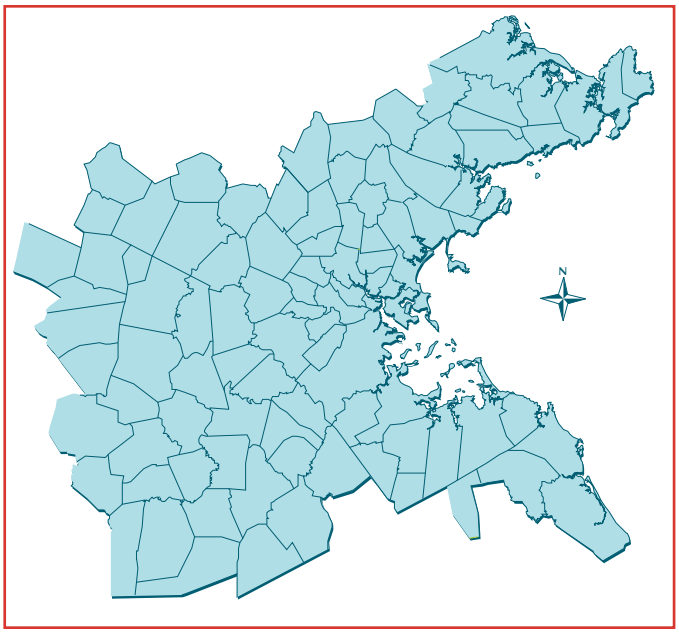
Proponent: Regional

ID Number: BN0009

Project Type: Community Connections

Cost: $8,000,000

Funding Source: Regional Target Funds



Scoring Summary

Projects funded through this program are evaluated by the MPO using a set of criteria that differs from that used for other TIP projects. These criteria are listed in Appendix A in Table A-5. Scores for projects funded in FFY 2021 through the Community Connections program are available on those projects' pages within this chapter.

Project Description

The Community Connections (CC) Program is the MPO's funding program for first- and last-mile solutions, community transportation, and other small, nontraditional transportation projects such as updating transit technology and improving bicycle and pedestrian facilities. The CC program is one of the investment programs included in the MPO's current Long-Range Transportation Plan (LRTP), *Destination 2040*, and is funded at a level of $2 million per year in Regional Target funds beginning in FFY 2021. Five projects were funded in FFY 2021 through the MPO's pilot round of this program, the details of which are available in this chapter. Funding in FFYs 2022 through 2025 will be allocated during future TIP cycles.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$1,600,000	$1,600,000	$1,600,000	$1,600,000	$6,400,000
Non-Federal Funds	---	$400,000	$400,000	$400,000	$400,000	$1,600,000
Total Funds	**---**	**$2,000,000**	**$2,000,000**	**$2,000,000**	**$2,000,000**	**$8,000,000**

REGIONAL: TRANSIT MODERNIZATION PROGRAM

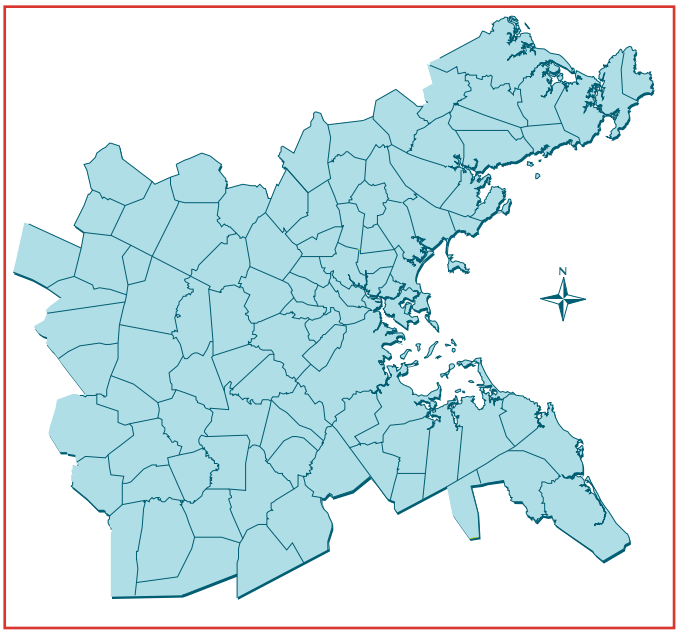
Proponent: Regional

ID Number: S10783

Project Type: Community Connections

Cost: $5,500,000

Funding Source: Regional Target Funds



Scoring Summary

Scoring criteria for this program have not yet been developed. Projects will be evaluated by the MPO in future TIP cycles for funding within this investment program.

Project Description

The MPO's Transit Modernization Program was established in *Destination 2040*, the MPO's current Long-Range Transportation Plan. This program will allocate a portion of the MPO's Regional Target Highway funds to transit projects that advance the MPO's goals in the region, including upgrades to stations and facilities and the purchase of vehicles for transit providers. Scoring criteria are being developed for this program during FFY 2020 and specific projects will be funded through this program during a future TIP cycle. The MPO anticipates allocating five percent of its funding, or approximately $5,500,000 annually, to this program beginning in FFY 2025.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$4,400,000	$4,400,000
Non-Federal Funds	---	---	---	---	$1,100,000	$1,100,000
Total Funds	---	---	---	---	**$5,500,000**	**$5,500,000**

SHARON: BRIDGE REPLACEMENT, MASKWONICUT STREET OVER AMTRAK/MBTA

Proponent: Sharon

ID Number: 608079

Project Type: Bridge

Cost: $6,736,333

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$5,389,066	---	---	---	---	$5,389,066
Non-Federal Funds	$1,347,267	---	---	---	---	$1,347,267
Total Funds	**$6,736,333**	**---**	**---**	**---**	**---**	**$6,736,333**

SHARON: CARPOOL MARKETING

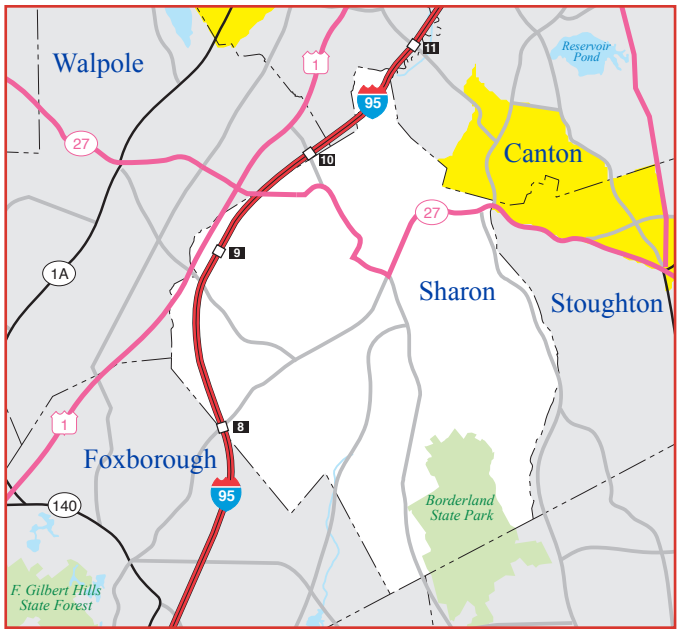
Proponent: Sharon

ID Number: S10787

Project Type: Community Connections

Cost: $42,000

Funding Source: Regional Target Funds



Scoring Summary

This project received a total score of 14 points when evaluated using the MPO's Community Connections Program criteria. These criteria are listed in Table A-5.

Project Description

This project includes funding for the Town of Sharon to develop a partnership with a carpool marketing firm to promote shared rides to Sharon's MBTA commuter rail station. This project is funded through the pilot round of the MPO's Community Connections Program.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$33,600	---	---	---	---	$33,600
Non-Federal Funds	$8,400	---	---	---	---	$8,400
Total Funds	**$42,000**	**---**	**---**	**---**	**---**	**$42,000**

SOMERVILLE: BRIDGE REHABILITATION/RECONSTRUCTION, S-17-031, I-93 NORTHBOUND AND SOUTHBOUND FROM ROUTE 28 TO TEMPLE STREET

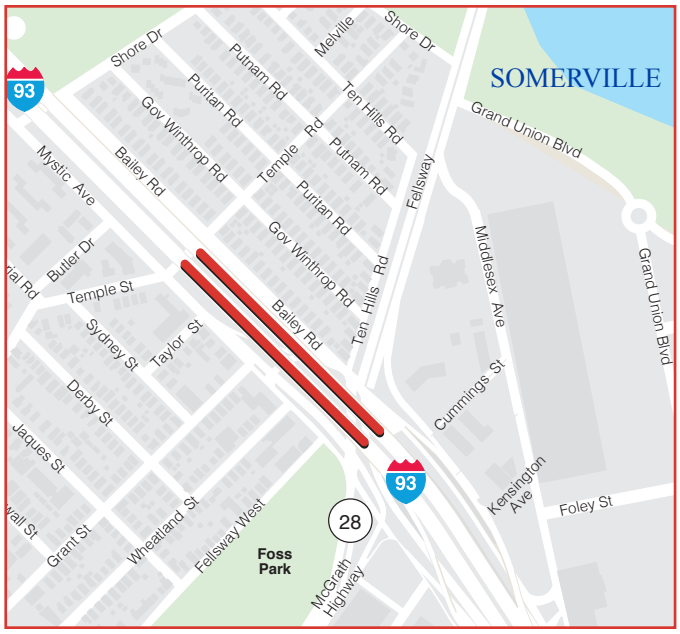
Proponent: MassDOT

ID Number: 606528

Project Type: Bridge

Cost: $37,259,600

Funding Source: Statewide Highway Funds



Scoring Summary

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

Project Description

This project will rehabilitate the bridge carrying Interstate 93 between Route 28 and Temple Road in Somerville.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$29,807,680	---	---	---	---	$29,807,680
Non-Federal Funds	$7,451,920	---	---	---	---	$7,451,920
Total Funds	**$37,259,600**	**---**	**---**	**---**	**---**	**$37,259,600**

SOMERVILLE: DAVIS SQUARE SIGNAL IMPROVEMENTS

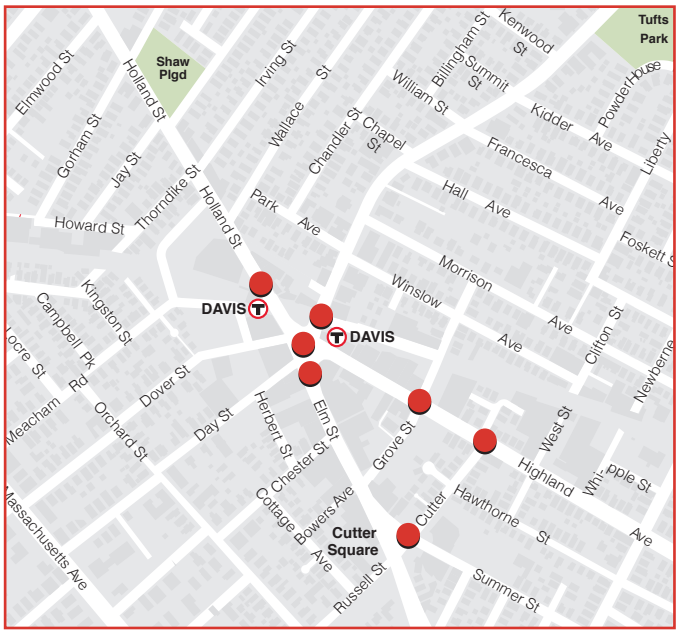
Proponent: Somerville

ID Number: S10785

Project Type: Community Connections

Cost: $220,000

Funding Source: Regional Target Funds



Scoring Summary

This project received a total score of 24 points when evaluated using the MPO's Community Connections Program criteria. These criteria are listed in Table A-5.

Project Description

This project includes funding for the Town of Sharon to develop a partnership with a carpool marketing firm to promote shared rides to Sharon's MBTA commuter rail station. This project is funded through the pilot round of the MPO's Community Connections Program.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$176,000	---	---	---	---	$176,000
Non-Federal Funds	$44,000	---	---	---	---	$44,000
Total Funds	**$220,000**	**---**	**---**	**---**	**---**	**$220,000**

SOMERVILLE: SIGNAL AND INTERSECTION IMPROVEMENTS ON INTERSTATE 93 AT MYSTIC AVENUE AND MCGRATH HIGHWAY (TOP 200 CRASH LOCATION)

Proponent: MassDOT

ID Number: 608562

Project Type: Intersection Improvements

Cost: $5,065,319

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$4,558,787	---	---	$4,558,787
Non-Federal Funds	---	---	$506,352	---	---	$506,352
Total Funds	---	---	**$5,065,319**	---	---	**$5,065,319**

STONEHAM: INTERSECTION IMPROVEMENTS AT ROUTE 28 (MAIN STREET), NORTH BORDER ROAD, AND POND STREET

Proponent: MassDOT

ID Number: 610665

Project Type: Intersection Improvements

Cost: $4,205,001

Funding Source: Statewide Highway Funds

Project map to be added when information is received

Scoring Summary

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

Project Description

This project will make intersection improvements at Route 28 (Main Street), North Border Road, and Pond Street in Stoneham.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$3,784,501	$3,784,501
Non-Federal Funds	---	---	---	---	$420,500	$420,500
Total Funds	**---**	**---**	**---**	**---**	**$4,205,001**	**$4,205,001**

STOW: BRIDGE REPLACEMENT, S-29-11, BOX MILL ROAD OVER ELIZABETH BROOK

Proponent: MassDOT

ID Number: 608255

Project Type: Bridge

Cost: $3,630,898

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$2,904,718	---	$2,904,718
Non-Federal Funds	---	---	---	$726,180	---	$726,180
Total Funds	**---**	**---**	**---**	**$3,630,898**	**---**	**$3,630,898**

SUDBURY: BRUCE FREEMAN RAIL TRAIL, PHASE 2D

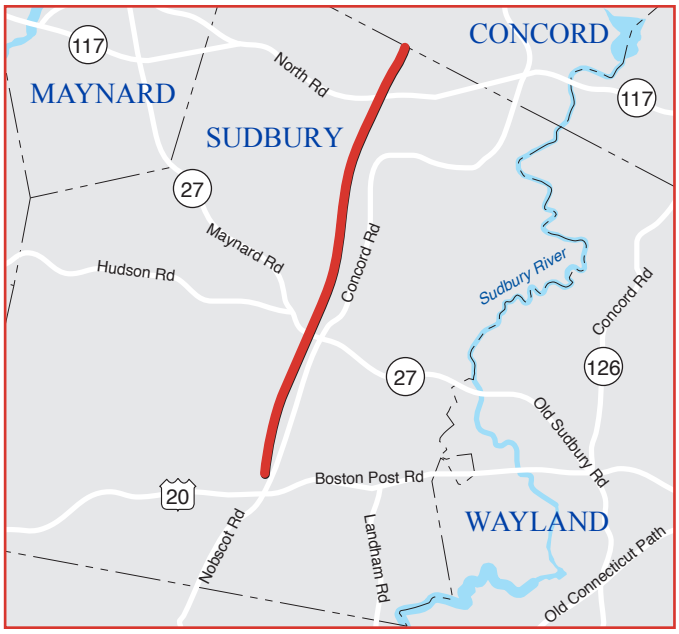
Proponent: Sudbury

ID Number: 608164

Project Type: Bicycle and Pedestrian

Cost: $ 13,402,143

Funding Source: Regional Target Fund



Scoring Summary

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

Project Description

The proposed project involves construction of a 4.6 mile trail in Sudbury, from the Concord town line to Station Road. The proposed work includes improvements to two structures and upgrades to several at-grade crossings, including Route 117 (North Road), Pantry Road, and Route 27 (Hudson Road). Related work includes pavement markings, installation of guardrails, and landscaping. Construction of this phase will accompany the completion of Phase 2C of the trail, closing the gap between Powder Mill Road in Concord and the Sudbury town line to create one contiguous path.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$10,721,715	---	---	---	$10,721,715
Non-Federal Funds	---	$2,680,428	---	---	---	$2,680,428
Total Funds	---	**$13,402,143**	---	---	---	**$13,402,143**

SUDBURY AND WAYLAND: MASS CENTRAL RAIL TRAIL (MCRT)

Proponent: MassDOT

ID Number: 610660

Project Type: Bicycle and Pedestrian

Cost: $4,524,001

Funding Source: Statewide Highway Funds

Project map to be added when information is received

Scoring Summary

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

Project Description

This project includes the construction of the Mass Central Rail Trail segment connecting Sudbury and Wayland.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$3,619,201	$3,619,201
Non-Federal Funds	---	---	---	---	$904,800	$904,800
Total Funds	**---**	**---**	**---**	**---**	**$4,524,001**	**$4,524,001**

SWAMPSCOTT: INTERSECTION AND SIGNAL IMPROVEMENTS AT ROUTE 1A (PARADISE ROAD) AT SWAMPSCOTT MALL

Proponent: Swampscott

ID Number: 607761

Project Type: Intersection Improvements

Cost: $1,337,074

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$1,203,367	---	---	---	---	$1,203,367
Non-Federal Funds	$133,707	---	---	---	---	$133,707
Total Funds	**$1,337,074**	**---**	**---**	**---**	**---**	**$1,337,074**

WATERTOWN: REHABILITATION OF MOUNT AUBURN STREET (ROUTE 16)

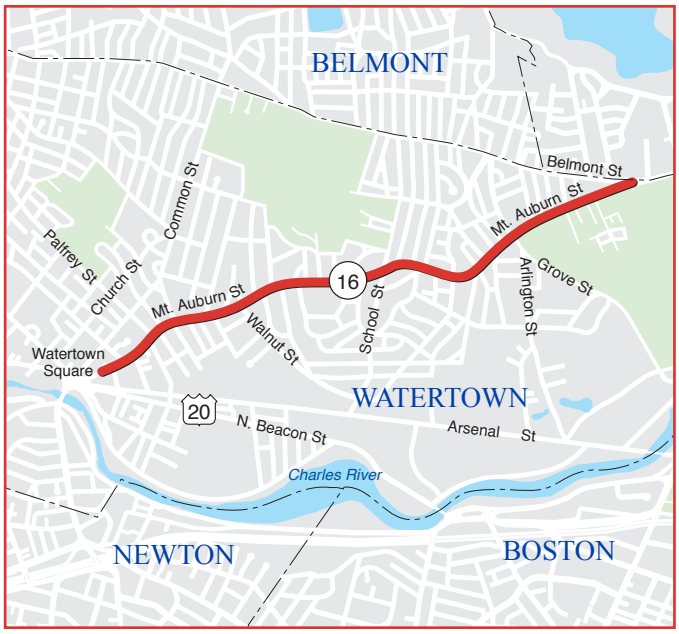
Proponent: Watertown

ID Number: 607777

Project Type: Complete Streets

Cost: $28,340,090

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$8,638,838	$14,233,234	---	---	$22,872,072
Non-Federal Funds	---	$1,909,710	$3,558,308	---	---	$5,468,018
Total Funds	---	**$10,548,548**	**$17,791,542**	---	---	**$28,340,090**

WESTON: MULTIUSE TRAIL CONNECTION, FROM RECREATION ROAD TO UPPER CHARLES RIVER GREENWAY INCLUDING RECONSTRUCTION OF PEDESTRIAN BRIDGE N-12-078=W-29-062

Proponent: MassDOT

ID Number: 609066

Project Type: Bicycle and Pedestrian

Cost: $2,875,342

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$2,300,274	---	---	---	$2,300,274
Non-Federal Funds	---	$575,068	---	---	---	$575,068
Total Funds	---	**$2,875,342**	---	---	---	**$2,875,342**

WILMINGTON: BRIDGE REPLACEMENT, ROUTE 38 (MAIN STREET) OVER THE B&M RAILROAD

Proponent: MassDOT

ID Number: 607327

Project Type: Bridge

Cost: $10,759,996

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

This project will replace the bridge that carries Route 38 (Main Street) over the B&M Railroad in Wilmington.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$8,607,997	---	---	---	$8,607,997
Non-Federal Funds	---	$2,151,999	---	---	---	$2,151,999
Total Funds	**---**	**$10,759,996**	**---**	**---**	**---**	**$10,759,996**

WILMINGTON: BRIDGE REPLACEMENT, W-38-029 (2KV), ROUTE 129 LOWELL STREET OVER INTERSTATE 93

Proponent: MassDOT

ID Number: 608703

Project Type: Bridge

Cost: $17,133,432

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$13,706,746	$13,706,746
Non-Federal Funds	---	---	---	---	$3,426,686	$3,426,686
Total Funds	---	---	---	---	**$17,133,432**	**$17,133,432**

WILMINGTON: BRIDGE REPLACEMENT, W-38-003, BUTTERS ROW OVER MBTA

Proponent: MassDOT

ID Number: 608929

Project Type: Bridge

Cost: $5,181,488

Funding Source: Statewide Highway Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	$4,145,190	---	---	---	$4,145,190
Non-Federal Funds	---	$1,036,298	---	---	---	$1,036,298
Total Funds	---	**$5,181,488**	---	---	---	**$5,181,488**

WILMINGTON: LOWELL STREET (ROUTE 129) AT WOBURN STREET SAFETY AND OPERATIONS ANALYSES

Proponent: Wilmington

ID Number: 609253

Project Type: Intersection Improvements

Cost: $5,063,392

Funding Source: Regional Target Funds

Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$4,217,053	---	$4,217,053
Non-Federal Funds	---	---	---	$846,339	---	$846,339
Total Funds	---	---	---	**$5,063,392**	---	**$5,063,392**

WILMINGTON: RECONSTRUCTION ON ROUTE 38 (MAIN STREET), FROM ROUTE 62 TO THE WOBURN CITY LINE

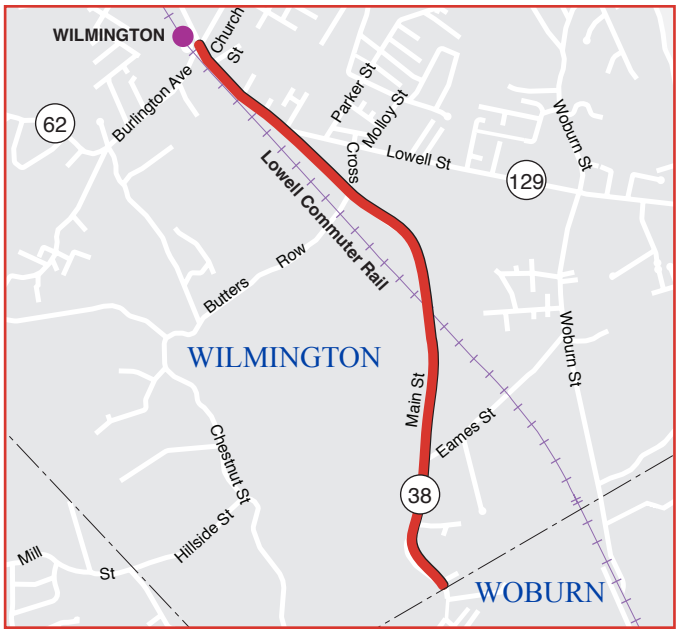
Proponent: Wilmington

ID Number: 608051

Project Type: Complete Streets

Cost: $19,599,506

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$15,779,605	---	$15,779,605
Non-Federal Funds	---	---	---	$3,819,901	---	$3,819,901
Total Funds	---	---	---	**$19,599,506**	---	**$19,599,506**

WINTHROP: RECONSTRUCTION AND RELATED WORK ALONG WINTHROP STREET AND REVERE STREET CORRIDOR

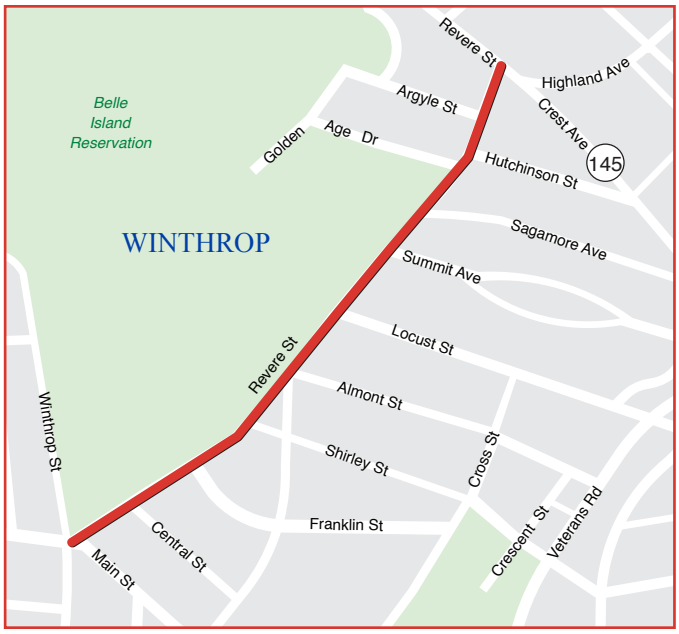
Proponent: Winthrop

ID Number: 607244

Project Type: Complete Streets

Cost: $6,323,116

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	$5,058,493	---	---	$5,058,493
Non-Federal Funds	---	---	$1,264,623	---	---	$1,264,623
Total Funds	**---**	**---**	**$6,323,116**	**---**	**---**	**$6,323,116**

WOBURN: BRIDGE REPLACEMENT, NEW BOSTON STREET OVER MBTA

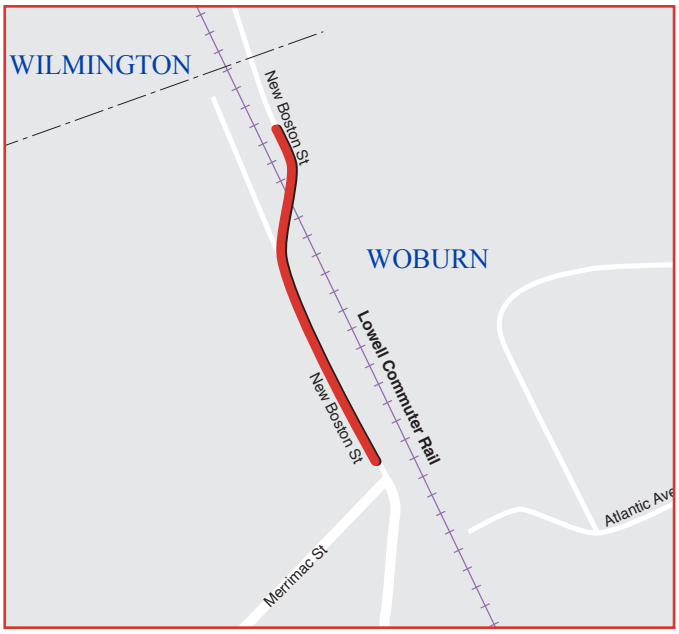
Proponent: Woburn

ID Number: 604996

Project Type: Major Infrastructure

Cost: $18,280,891

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	$14,624,713	---	---	---	---	$14,624,713
Non-Federal Funds	$3,656,178	---	---	---	---	$3,656,178
Total Funds	**$18,280,891**	---	---	---	---	**$18,280,891**

WOBURN: ROADWAY AND INTERSECTION IMPROVEMENTS AT WOBURN COMMON, ROUTE 38 (MAIN STREET), WINN STREET, PLEASANT STREET, AND MONTVALE AVENUE

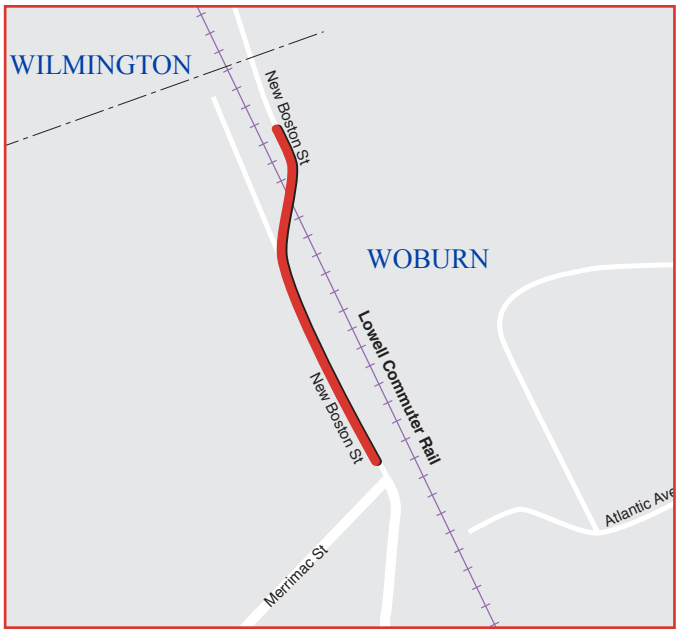
Proponent: Woburn

ID Number: 610622

Project Type: Complete Streets

Cost: $16,680,800

Funding Source: Regional Target Funds



Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	22 out of 30	15 out of 29	16 out of 29	10 out of 16	4 out of 12	8 out of 18	75 out of 134

Project Description

The primary goals for this project are to improve safety for drivers, pedestrians, and bicyclists while improving congestion within the Woburn Common area. The project consists of safety and operational improvements and includes the reconfiguration of the Woburn Common rotary to a more traditional configuration. The project will include roadway reconstruction, roadway realignment, sidewalk reconstruction, and the addition of bicycle lanes. One new signal will be added and two existing signals will be replaced. The project will be consistent with Woburn's adopted Complete Streets policy.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$13,644,640	$13,644,640
Non-Federal Funds	---	---	---	---	$3,036,160	$3,036,160
Total Funds	---	---	---	---	**$16,680,800**	**$16,680,800**

WOBURN AND BURLINGTON: INTERSECTION RECONSTRUCTION AT ROUTE 3 (CAMBRIDGE ROAD) AND BEDFORD ROAD AND SOUTH BEDFORD STREET

Proponent: Woburn

ID Number: 608067

Project Type: Intersection Improvements

Cost: $1,670,400

Funding Source: Statewide Highway Funds

Scoring Summary

Category	Safety	Sys Pres	CM/M	CA/SC	TE	EV	Total
Score	9 out of 30	11 out of 29	19 out of 29	7 out of 16	2 out of 12	4 out of 18	52 out of 134

Project Description

The intersection of U.S. Route 3 (Cambridge Street) at South Bedford Street and Bedford Road has been identified as a high-crash location in the Boston region. The existing geometry and traffic operations can often present challenges for motorists, pedestrians, and cyclists. This project will reconstruct the intersection and all traffic signal equipment. Geometry enhancements will be made to accommodate exclusive turn lanes for all approaches to the intersection. The project will include reconstruction of the sidewalk along the east side of Cambridge Street and both sides of the Bedford Road westbound approach, and new sidewalk will be constructed on the south side of South Bedford Street. Bicycle accommodations consisting of five-foot wide bicycle lanes (with two-foot wide buffers where feasible) will be provided, as will ADA-compliant MBTA bus stops on Cambridge Street.

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	---	$1,336,320	$1,336,320
Non-Federal Funds	---	---	---	---	$334,080	$334,080
Total Funds	---	---	---	---	**$1,670,400**	**$1,670,400**

WRENTHAM: CONSTRUCTION OF I-495/ROUTE 1A RAMPS

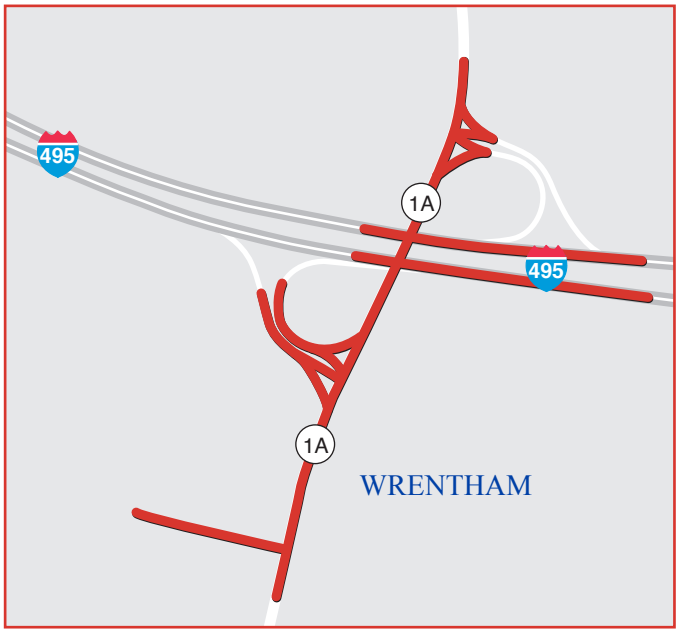
Proponent: MassDOT

ID Number: 603739

Project Type: Intersection Improvements

Cost: $16,786,952

Funding Source: Regional Target Funds



Scoring Summary

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

Project Description

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

Source	(FFY) 2021	2022	2023	2024	2025	Total
Federal Funds	---	---	---	$13,679,562	---	$13,679,562
Non-Federal Funds	---	---	---	$3,107,390	---	$3,107,390
Total Funds	---	---	---	**$16,786,952**	---	**$16,786,952**

CHAPTER 4
PERFORMANCE ANALYSIS

OVERVIEW

Performance-based planning and programming (PBPP) applies data and performance management principles to inform decision-making. For the Boston Region Metropolitan Planning Organization (MPO), these decisions focus on achieving desired outcomes for the Boston region's multimodal transportation system. The purpose of PBPP is to ensure that transportation investment decisions—both for long-term planning and short-term funding—are oriented toward meeting established goals. PBPP principles are credited with improving project and program delivery and providing greater transparency and accountability to the public, among other benefits.

Performance-based planning and programming activities include the following:

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

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

FEDERAL PERFORMANCE MANAGEMENT REQUIREMENTS

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

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

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

Table 4-1: National and Boston Region MPO Goal Areas

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

Source: Boston Region MPO.

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

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

Table 4-2: Federally Required Transit Performance Measures

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

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

Table 4-3: Federally Required Roadway Performance Measures

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

1 As of the Federal Highway Administration's 2019 CMAQ Program performance requirements applicability determination, the Boston Region MPO area contains an area designated as in maintenance for carbon monoxide, so the MPO is currently required to comply with this performance measure requirement.

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

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

OTHER PERFORMANCE-BASED PLANNING AND PROGRAMMING ACTIVITIES

The MPO's PBPP process must respond to the federal performance management requirements established in MAP-21 and the FAST Act, but it can also address other areas that pertain to its 3C responsibilities or relate to the MPO's goals and objectives. For example, MAP-21 and the FAST Act do not specify transportation equity performance measures for states and MPOs to monitor. However, the MPO has established a transportation equity goal to ensure that all people receive comparable benefits from, and are not disproportionately burdened by, MPO investments, regardless of race, color, national origin, age, income, ability, or sex.

The MPO's transportation equity goal and its associated objectives are rooted in several federal regulations and presidential executive orders, including Title VI of the Civil Rights Act of 1964, Executive Order 12898 (addressing environmental justice), the Americans with Disabilities Act (ADA), and other USDOT orders. (For more information on these laws and orders, see Appendix E.) To comply with these regulations, the MPO systematically addresses the concerns of populations that these regulations protect—referred to here as *transportation equity populations*—throughout the planning process, including when selecting projects through the TIP process. Regular equity performance monitoring enables the MPO to better understand how transportation equity populations in the region may be affected by transportation investment decisions, so that it can decide whether and how to adjust its investment approach. More details about transportation equity monitoring for projects in the FFYs 2021–25 TIP are included in Chapter 6.

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

PERFORMANCE-BASED PLANNING AND PROGRAMMING PHASES

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

PLANNING PHASE

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

The Commonwealth of Massachusetts creates performance-based plans, such as the Strategic Highway Safety Plan (SHSP) for improving roadway safety and the Transportation Asset Management Plan (TAMP) for improving infrastructure condition, particularly for NHS roads and bridges. Similarly, regional transit authorities (RTAs)—including the Massachusetts Bay Transportation Authority (MBTA), MetroWest Regional Transit Authority (MWRTA), and Cape Ann Transportation Authority (CATA)—create Transit Asset Management (TAM) plans and Public Transportation Agency Safety Plans (PTASPs) that describe the data and processes these agencies will use to address transit state of good repair and safety needs. MassDOT is responsible for setting performance targets for the federally required roadway performance measures described in Table 4-3, while transit agencies must set targets for the measures described in Table 4-2.

Boston Region MPO's activities in the planning phase include creating a goals-and-objectives framework in its LRTP and other performance-based plans—such as Congestion Mitigation and Air Quality Improvement (CMAQ) Program Performance Plans—as necessary. MPOs integrate elements of state and transit agency performance plans into MPO planning processes. MPOs also establish targets for federally required performance measures. To establish these targets, the Boston Region MPO may elect to support performance targets set by MassDOT or public transit providers (depending on the measure), or it may set separate targets for the MPO's planning area. MassDOT and the transit agencies will update their performance targets based on defined cycles, which vary for each measure. More information about the update cycles for these measures is included in Section 4.3 of this chapter.

INVESTING PHASE

In the investing phase, agencies use the PBPP framework established in the planning phase to create strategies for investing transportation funding. When updating the LRTP, the MPO establishes investment programs and funding guidelines to help direct Regional Target funds to priority performance areas (see Chapter 2 for details). When updating the TIP, the MPO selects projects that it will fund through these programs. MPO members rely on several sets of information when making these decisions:

- **TIP Project Evaluation Criteria:** Project evaluations based on the MPO's TIP criteria, which are described in detail in Chapter 2 and Appendix A, help the MPO understand the potential benefits and performance impacts of projects that are candidates for funding. This information helps the MPO direct its Regional Target dollars toward investments that will help achieve its goals. A number of the MPO's criteria pertaining to its Safety, System Preservation and Modernization, Capacity Management and Mobility, and Clean Air/Sustainable Communities goals also relate to federally required performance measures. Information that the MPO gathers to support its project evaluations can be used to anticipate the impacts that its investments may have on performance in these areas.
- **Supporting Performance Information:** The MPO considers other information in concert with project evaluation results and investment program guidelines when it selects projects. This supplementary information may include data about how projects relate to federally required performance measures, details about how the MPO has distributed Regional Target funds across MPO municipalities in the past, or notes about how projects address location-specific issues identified in the MPO's LRTP Needs Assessment.

Meanwhile, MassDOT, the MBTA, CATA, and MWRTA follow their processes to select projects and programs for inclusion in the MassDOT Capital Investment Plan (CIP). The federally funded investments they include in the CIP are also documented in the MPO's TIP and in the State Transportation Improvement Program (STIP).

Once the MPO board allocates its Regional Target dollars to specific investments and considers capital programs submitted by MassDOT, MBTA, and the region's RTAs, it documents the full set of investments for the Boston region in the TIP. The TIP describes links between these short-term capital investment priorities and performance measures and targets, and discusses, to the extent practicable, how the MPO anticipates these investments will help the MPO achieve its targets. States must provide similar information in their STIPs.

MONITORING AND EVALUATING PHASE

After making plans and investments, agencies take stock of their progress by reviewing and reporting on their outputs and performance outcomes. Activities in the monitoring and evaluating phase include tracking trends, collecting data to understand the results of investment decisions, and comparing targets to actual performance. For example, the MPO can use information from the TIP about expected performance outcomes of its investments and information about past and current performance, which is collected for the LRTP, to determine if its investments are making progress towards its goals, objectives, and performance targets. The MPO may also conduct TIP Before-and-After studies to learn more about the actual outcomes of TIP projects. These evaluation methods allow the MPO to make necessary trade-offs or adjustments in the future.

MPOs report on information on measures, targets, and performance progress in their respective regions in their LRTPs. The Boston Region MPO also describes performance on transportation metrics through its Congestion Management Process (CMP) and tools such as the MPO's Performance Dashboard. MassDOT reports performance targets and progress to the Federal Highway Administration (FHWA) through an online reporting tool, through the STIP and other required reports, and on the MassDOT Performance Management Tracker website. Public transit providers report their targets and performance progress information to the Federal Transit Administration (FTA), including through the National Transit Database.

COORDINATION

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

Staff from Massachusetts MPOs, MassDOT staff, and other stakeholders coordinate on PBPP implementation through the Transportation Program Managers Group, including through its subcommittee on performance measures. For performance measures that states and MPOs track at

the Boston Urbanized Area level, coordination responsibilities are documented in the 2018 Boston Urbanized Area Memorandum of Understanding.[1]

FFYs 2021-25 PERFORMANCE ANALYSIS

This section discusses investments in the federal fiscal years (FFYs) 2021–25 TIP and how they may relate to elements of the MPO's PBPP framework, including the MPO's goals and performance measures and targets. For each goal area, existing performance targets are identified and information on relevant trends, performance measures, TIP investments, and related planning activities are provided. These descriptions generally focus on investments of the MPO's Regional Target funds, although they may also describe MassDOT or transit agency-funded investments, where applicable. Please note that information on the Transportation Equity goal area is included in Chapter 6 and a summary of the MPO investments is included in Chapter 3.

SAFETY PERFORMANCE

Relevant Goals, Policies, and Plans

One of the MPO's goals is that transportation by all modes will be safe. The MPO has committed to investing in projects and programs that aim to reduce the number and severity of crashes for all modes, and to reducing serious injuries and fatalities occurring on the transportation system. Similarly, the Massachusetts SHSP includes a long-term goal to move "towards zero deaths" by eliminating fatalities and serious injuries on the Commonwealth's roadways.[2] In future years, the MPO will work more closely with the MBTA, CATA, and MWRTA to make safety-oriented investments and implement related initiatives as identified in their PTASPs.

Roadway Safety Performance Measures and Targets

The Commonwealth of Massachusetts and the Boston Region MPO track traffic incidents, fatalities, and injuries involving motor vehicles using information from the Massachusetts Crash Data System and the National Highway Traffic Safety Administration's (NHTSA's) Fatality Analysis and Reporting System (FARS). These data inform the targets MassDOT and the MPO must set each calendar year (CY) for five federally required roadway safety performance measures, which are also listed in Table 4-3:

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

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

2 Massachusetts Strategic Highway Safety Plan, 2018, pg. I, available at https://www.mass.gov/files/documents/2019/01/18/ dot_ SHSP_2018.pdf

These measures pertain to fatalities and serious injuries from traffic incidents and apply to all public roads. Values for these measures are expressed as five-year rolling annual averages. States and MPOs update targets for these measures annually. When establishing targets for these measures, all of the MPOs in Massachusetts can elect to support statewide targets set by MassDOT for the Commonwealth or set separate targets for the MPO region. MassDOT set its current set of roadway safety performance targets to reflect a 2016–20 rolling annual average, as required by FHWA. When setting these targets, the following was considered:

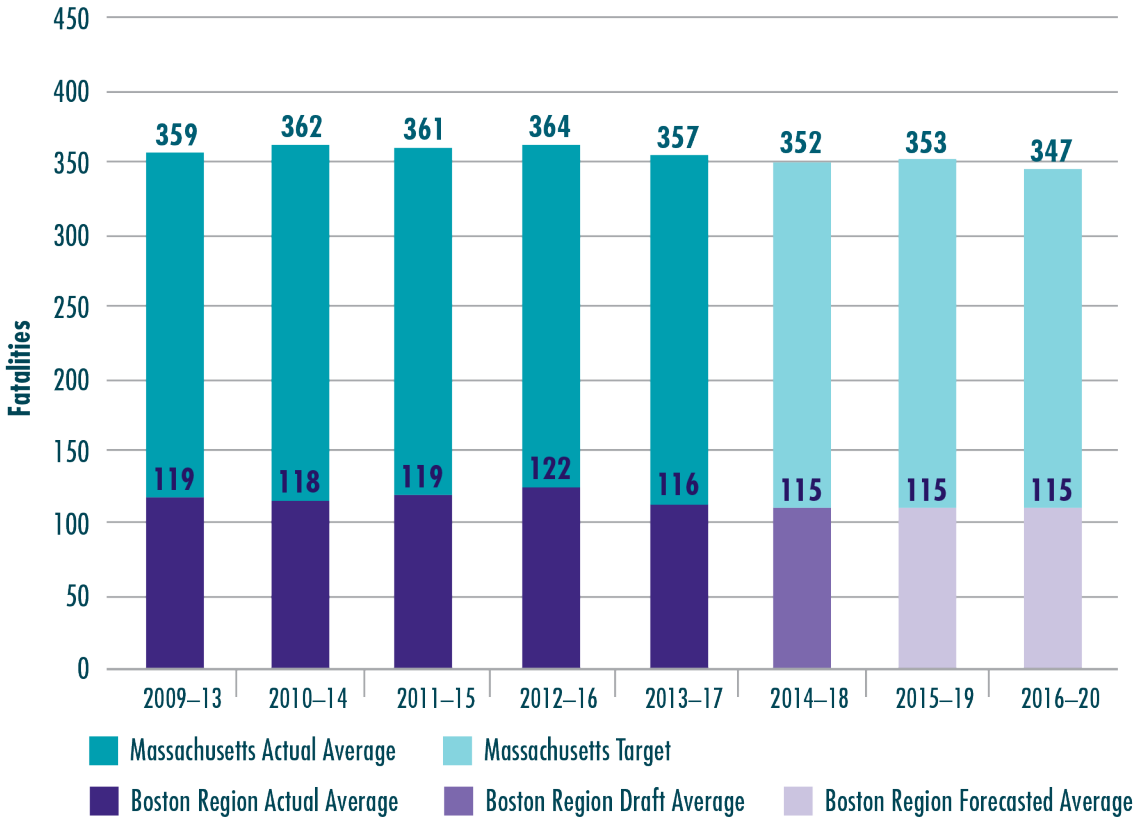
- Historic trends for these measures and their component metrics (such as annual VMT), which include an anomalous increase in total fatalities from motor vehicle crashes during CY 2016
- Draft CY 2018 values for these measures and their component metrics
- Changes in data reporting requirements, particularly those that would help law enforcement agencies report injury severity more easily and in a more objective manner[3]
- Continued implementation of education and enforcement programs and transportation construction projects designed to improve safety
- Proposed policies and legislation included in the Commonwealth's 2018 SHSP, such as a primary seat belt law and a law requiring hands-free only use of electronic devices while driving
- Planned implementation of safety improvement strategies, including engineering, enforcement, education, awareness, data collection, and emergency response strategies

Figures 4-1 to 4-5 show statewide level trends for each performance measure along with the Commonwealth's prior year (CY 2018, CY 2019) and current (CY 2020) performance targets. In January 2020, the Boston Region MPO elected to support the Commonwealth's CY 2020 roadway safety performance targets. For context, the figures also show Boston region-specific values for each measure, including projected values for future years.

Figure 4-1 shows historic and projected values for the number of fatalities resulting from motor vehicle crashes, while Figure 4-2 shows the fatality rate per 100 million VMT. Though there was an anomalous increase in fatalities in CY 2016, overall, actual fatalities and fatality rates have declined slightly for Massachusetts and for the Boston region specifically, based on recent five-year rolling annual averages. Meanwhile, VMT has been gradually increasing for both the Boston region and Massachusetts as a whole, which also supports historic and projected decreases in the fatality rate.

3 As of April 15, 2019, states are required to define serious injuries using the definition of "Suspected Serious Injury (A)," as detailed in the Model Minimum Uniform Crash Criteria 4th Edition. MassDOT implemented this change in its statewide crash data system as of January 1, 2019.

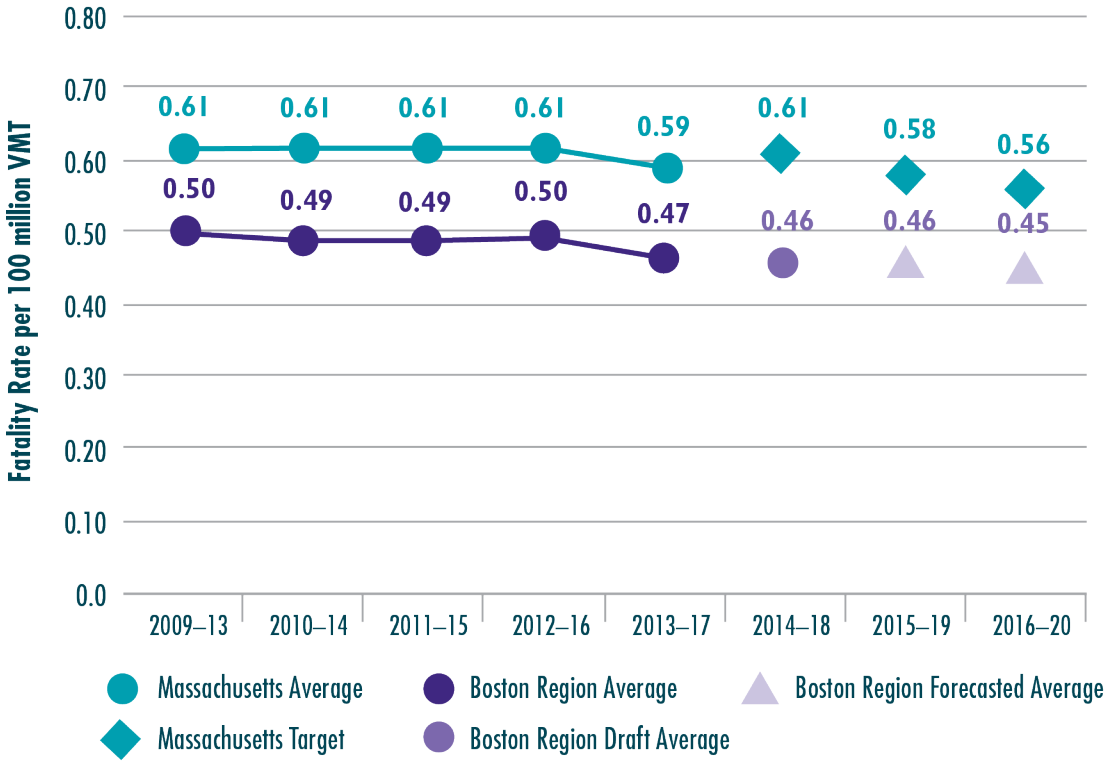
Figure 4-1: Fatalities from Motor Vehicle Crashes



Notes: Values reflect five-year rolling annual averages and have been rounded to the nearest integer. MPO staff developed projections for the Boston region using a linear trend line based on actual fatality values for CYs 2009 through 2017 and a draft estimate of 98 fatalities for CY 2018. The draft 2014–18 and the forecasted 2015–19 and 2016–20 average numbers of fatalities in the Boston region are smaller than the historic averages shown in the chart; however, some of these differences do not appear at the integer level.

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

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

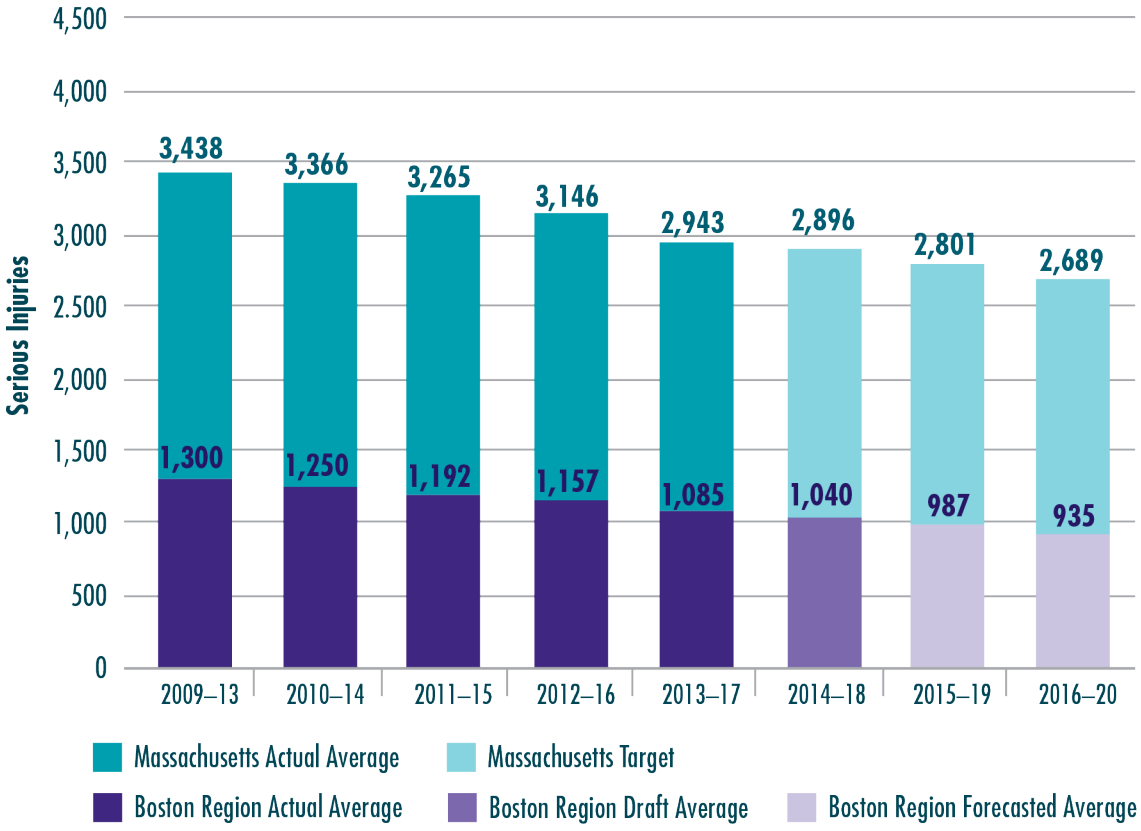


Notes: Values reflect five-year rolling annual averages and have been rounded to the hundredths decimal place. MPO staff developed projections for the Boston region using a linear trend line based on actual fatality values and VMT values for CYs 2009 through 2017, a draft estimate of 98 fatalities for CY 2018, and an estimate of CY 2018 VMT from MassDOT (approximately 24.9 billion VMT).

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

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

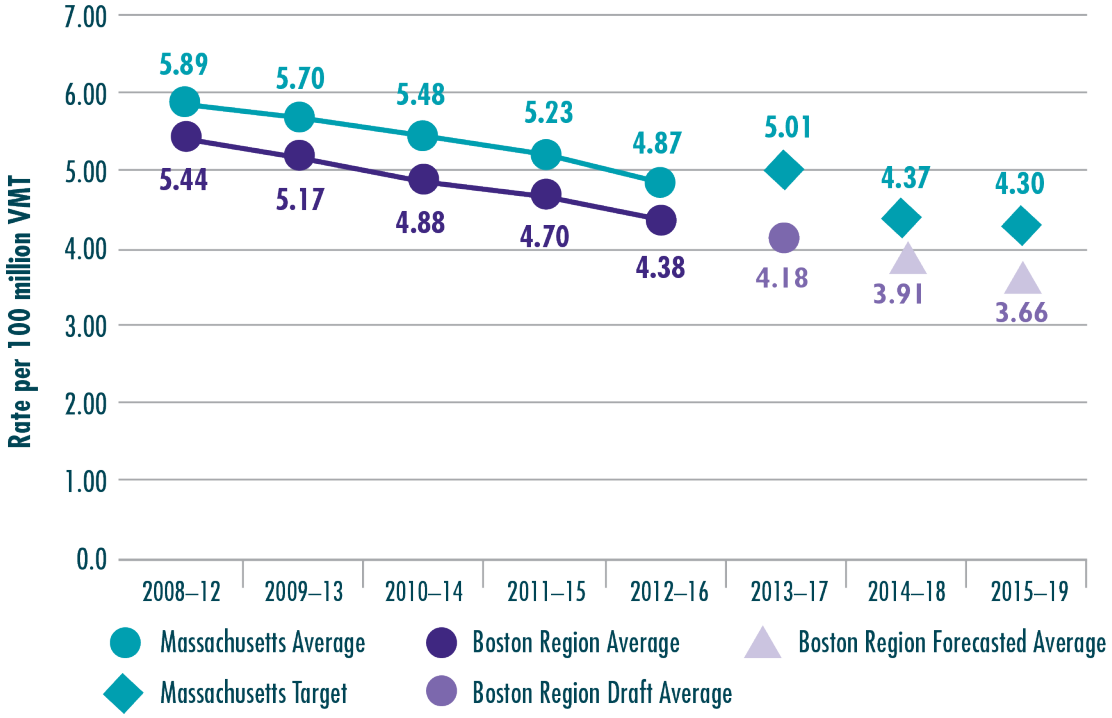
Figure 4-3: Serious Injuries from Motor Vehicle Crashes



Notes: Values reflect five-year rolling annual averages and have been rounded to the nearest integer. MPO staff developed projections for the Boston region using a linear trend line based on actual serious injury values for CYs 2009 through 2017 and a draft estimate of 938 serious injuries for CY 2018.

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

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

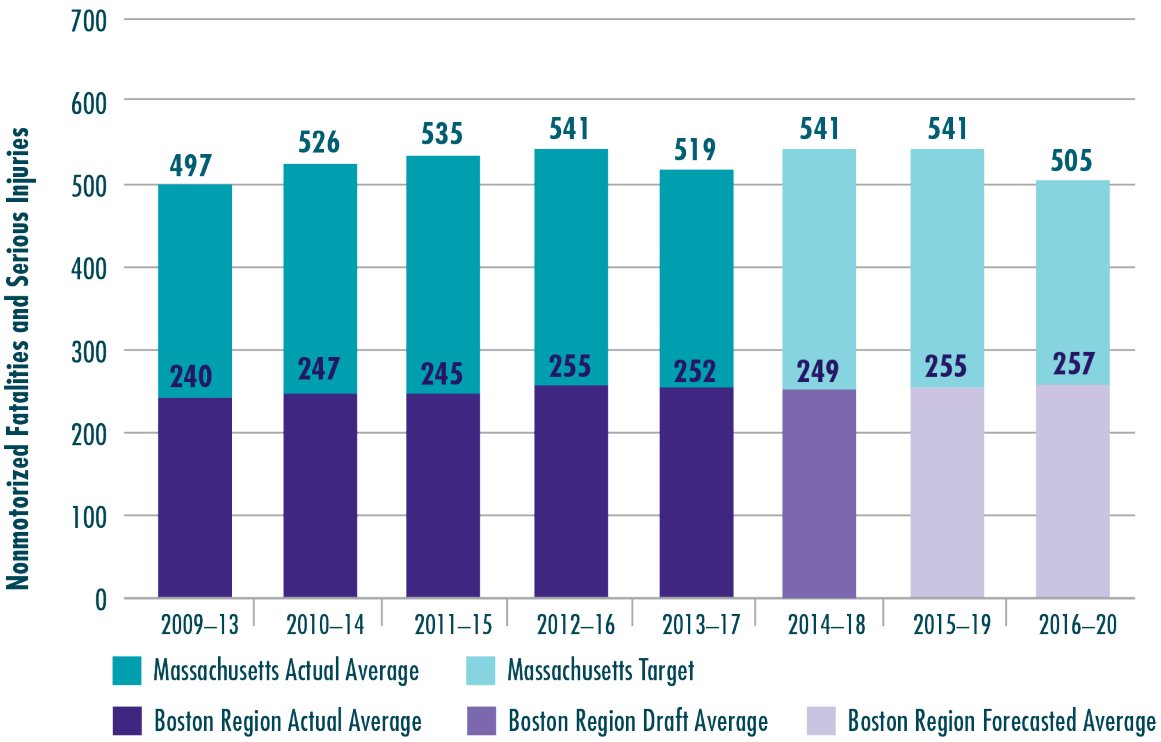


Notes: Values reflect five-year rolling annual averages and have been rounded to the hundredths decimal place. MPO staff developed projections for the Boston region using a linear trend line based on actual serious injury values and VMT values for CYs 2009 through 2017, a draft estimate of 938 serious injuries for CY 2018, and an estimate of CY 2018 VMT from MassDOT (approximately 24.9 billion VMT).

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

Figure 4-5 shows historic and projected values for the number of fatalities and serious injuries experienced by people traveling by nonmotorized means for the Boston region and Massachusetts as a whole. This category reflects bicyclist and pedestrian fatalities and serious injuries, as well as those experienced by others traveling by nonmotorized modes (such as skateboarders). Massachusetts has recently experienced a drop in nonmotorized fatalities and serious injuries, which MassDOT accounted for when developing a CY 2020 target for this measure. However, historic trends suggest that nonmotorized fatalities and serious injuries may increase somewhat in the Boston region in future years; this possibility will need to be addressed through coordinated planning, investment, and strategy implementation between the Massachusetts Department of Transportation (MassDOT), the Boston Region MPO, the region's municipalities, and other stakeholders.

Figure 4-5: Nonmotorized Fatalities and Serious Injuries



Notes: Values reflect five-year rolling annual averages and have been rounded to the nearest integer. MPO staff developed projections for the Boston region using a linear trend line based on actual nonmotorized fatality and serious injury values for CYs 2009 through 2017, and draft estimates of 38 nonmotorized fatalities and 191 nonmotorized serious injuries for CY 2018.

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

Table 4-4 lists the Commonwealth's 2013–17 rolling average values for the fatality and serious injury performance measures and summarizes CY 2018, CY 2019, and CY 2020 targets for the federally required roadway safety performance measures. As previously mentioned, the Boston Region MPO elected to support the Commonwealth's CY 2020 roadway safety performance targets in January 2020.

Table 4-4: Massachusetts Roadway Safety Performance Trends and Targets

Highway Safety Performance Measure	2017 Safety Measure Value (2013–17 Rolling Average)	2018 Safety Target (Expected 2014–18 Rolling Average)	2019 Safety Target (Expected 2015–19 Rolling Average)	2020 Safety Target (Expected 2016–20 Rolling Average)
Number of fatalities	356.80	352.00	353.00	347.00
Rate of fatalities per 100 million vehicle-miles traveled	0.59	0.61	0.58	0.56
Number of serious injuries	2,943.00	2,896.00	2801.00	2,689.00
Rate of serious injuries per 100 million vehicle-miles traveled	4.87	5.01	4.37	4.30
Number of nonmotorized fatalities and nonmotorized serious injuries	518.16	540.80	541.00	505.40

Note: MassDOT defines serious injuries as suspected serious injuries, which are defined in the Model Minimum Uniform Crash Criteria 4th Edition and identified through incident reporting by police and vehicle operators using the Commonwealth of Massachusetts Motor Vehicle Crash Operator Report. The Commonwealth set its 2018 targets in 2017, its 2019 targets in 2018, and its 2020 targets in 2019. All values have been rounded to the hundredths place.

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

TIP Investments Supporting Roadway Safety Performance

By electing to support the Commonwealth's roadway safety targets, the MPO agreed to plan and program projects so that they contribute to achieving those targets. Anticipating the ability of transportation projects to reduce fatalities and serious injuries from motor vehicle crashes is a challenge, as crashes may be a consequence of many factors other than infrastructure condition, such as driver behavior—including seatbelt use and driver distraction or intoxication—and weather conditions. When investing its Regional Target funds, the MPO aims to identify projects likely to have maximum safety benefits by using its TIP project selection criteria, which account for crash activity within the project area and the types of safety countermeasures included in the proposed project. (For more detail on these criteria, see Appendix A). When conducting project evaluations, the MPO considers crash rates within the vicinity of projects and the Equivalent

Property Damage Only (EPDO) value associated with those crashes. The EPDO index assesses the severity of crashes by assigning weighted values to crashes involving fatalities, injuries, and property damage.

All the roadway projects included in the MPO's Regional Target Program include safety countermeasures or features that the MPO expects will improve safety for motorists, bicyclists, and pedestrians. The MPO's roadway investments in its Intersection Improvement, Complete Streets,

and Major Infrastructure programs are expected to support safety improvements on roadways supporting multiple travel modes, while its Bicycle Network and Pedestrian Connections projects will support safety for those traveling by nonmotorized means by providing pedestrian signals and separated facilities for bicyclists and pedestrians.

The MPO also examines whether projects would improve safety at MassDOT-identified Highway Safety Improvement Program (HSIP) crash cluster locations. MassDOT identified crash clusters using a procedure for processing, standardizing, matching, and aggregating crash locations and data.[4] MassDOT's HSIP clusters are those that ranked in the top five percent of crash clusters within each regional planning agency area based on EPDO values. MassDOT created a set of HSIP clusters that include all crashes involving motor vehicles, as well as sets of clusters that reflect motor vehicle crashes that involved bicyclists or pedestrians. Projects in locations with HSIP clusters are eligible for funding through MassDOT's HSIP program.

Table 4-5 shows values for MPO staff-identified metrics that relate to how FFYs 2021 Regional Target-funded roadway projects may address safety performance; similar tables for other MPO goal areas appear throughout this chapter.

Table 4-5 shows that many of these roadway projects are located in areas that overlap with HSIP clusters and several are located in places that overlap HSIP bicycle or pedestrian clusters or where fatal or serious injury crashes have occurred between CY 2014 and 2016. The MPO expects that this combination of safety countermeasures and improvements focused in priority locations will help the MPO and the Commonwealth progress towards reducing fatalities and serious injuries on the roadway network.

4 For more information, see MassDOT's 2016 Top Crash Location Report, December 2018, https://www.mass.gov/files/documents/2019/03/01/dot-2016TopCrashLocationsRpt.pdf, pg. 4-6.

Table 4-5: Regional Target Projects: Roadway Safety Performance Metrics

Metric	Value
Regional Target projects that address all-mode HSIP clusters*	13 projects
All-mode HSIP cluster locations addressed by Regional Target projects*	20 locations
Regional Target projects that address HSIP Pedestrian clusters†	5 projects
HSIP pedestrian cluster locations addressed by Regional Target projects†	10 locations
Regional Target projects that address HSIP bicycle clusters†	2 projects
HSIP bicycle cluster locations addressed by Regional Target projects†	2 locations
Project areas where fatal crashes have occurred‡	3 areas
Project areas where crashes involving injuries have occurred‡	39 areas
Project areas where crashes involving pedestrians have occurred‡	23 areas
Project areas where crashes involving bicyclists have occurred‡	15 areas

Note: The group of projects reflected in this table does not include the Green Line Extension, Community Connections investments, or Transit Modernization investments.

* All-mode HSIP clusters are based on crash data from 2014 to 2016.

† HSIP bicycle clusters and HSIP pedestrian clusters are based on data from 2007 to 2016.

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

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

Projects selected under the Community Connections Program did not address safety issues. Projects in the MPO's Transit Modernization Program have not been selected. Funding for this program will be available in FFY 2025.

The projects in the FFYs 2021–25 TIP programmed by MassDOT, summarized in Chapter 3, will also support safety and are expected to reduce fatalities and serious injuries on the region's roadways. The Reliability and Modernization programs included in MassDOT's CIP are geared toward maintaining and upgrading infrastructure, which will help make travel safer on the region's roadways. MassDOT's Intersection Improvements, Roadway Improvements, Roadway Reconstruction, and Safety Improvements programs most directly address safety considerations, although its Bridge and Pavement Improvement programs may also support safety by supporting asset maintenance and state of good repair. Moreover, MassDOT's Bicycle and Pedestrian projects may reduce nonmotorized fatalities and injuries by improving separated facilities for bicyclists and pedestrians.

Transit System Safety Performance Measures and Targets

Under FTA's Public Transportation Agency Safety Plan Rule, transit agencies are responsible for developing PTASPs by July 2020, after which they must review and update the plans annually. These

plans will include targets for transit safety performance measures that are defined in the National Public Transportation Safety Plan. These measures, also listed in Table 4-2, include the following:

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

Once transit agencies develop their safety plans and performance targets, they must share them with state departments of transportation (DOTs) and MPOs, which will set targets for their states and MPO regions, respectively. Future TIPs prepared by the Boston Region MPO will include information on transit safety performance targets and their relationship to TIP investments. In the near-term future, the MBTA, CATA, and MWRTA's FFYs 2021–25 reliability and modernization investments are likely to help improve safety by bringing vehicles, facilities, and track systems into a state of good repair, which in turn will enhance safety for transit customers and employees and members of the public. The *System Preservation and Modernization Performance* section discusses these transit state-of-good-repair investments in more detail.

Future Activities to Improve and Monitor Safety Performance

Going forward, the MPO will work with its planning partners and other stakeholders to better understand and measure safety performance and to invest in projects that will reduce roadway fatalities and serious injuries as much as possible. Future activities include the following:

- Working with MassDOT, transit agencies, and the region's municipalities to improve the availability and quality of safety data and other supporting data, such as bicycle and pedestrian counts
- Improving methods for analyzing and estimating the impacts of TIP investments on reductions in crashes, fatalities, and injuries
- Enhancing methods for establishing targets for federally required roadway safety performance measures
- Continuing to refine the MPO's Transit Modernization and Community Connections Programs and to identify links between these programs and the region's roadway and transit safety performance
- Coordinating with transit agencies to develop targets for federally required transit safety performance measures
- Identifying other safety performance measures, which are not federally required, for the MPO to track

SYSTEM PRESERVATION AND MODERNIZATION PERFORMANCE

Relevant Goals, Policies, and Plans

One of the MPO's goals is to maintain and modernize the transportation system and plan for its resiliency. System preservation and modernization policies for the Boston region apply to bridges, pavement, sidewalks, and transit system assets. They address existing maintenance and state-of-good-repair needs, necessary updates to infrastructure to meet customer needs, and preparations for existing or future extreme conditions such as sea level rise and flooding.

The MPO's Regional Target projects support asset condition improvements, which complement MassDOT's and transit agencies' more extensive state-of-good-repair and modernization projects. MassDOT uses information from its internal asset management systems to guide decisions about asset maintenance and modernization and considers investment priorities from its TAMP.[5] The TAMP is a federally required risk-based asset management plan that includes asset inventories, condition assessments, and investment strategies to improve the condition and performance of the NHS, particularly its bridges and pavements. Similarly, transit agencies that receive FTA funding must produce Transit Asset Management (TAM) plans that describe transit system assets and condition and the tools and investment strategies these agencies will use to improve them.[6]

Roadway Asset Condition Performance Measures and Targets

Bridge Condition Measures and Targets

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

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

These performance measures classify NHS bridge condition as good or poor based on the condition ratings of three bridge components: the deck, the superstructure, and the substructure.[7] The lowest rating of the three components determines the overall bridge condition.[8] The measures express the share of NHS bridges in a certain condition by deck area, divided by the total deck area of NHS bridges in the applicable geographic area (calculated for state or MPO region).

5 See MassDOT's Transportation Asset Management Plan published September 2019 and available at https://www.mass.gov/doc/2019-transportation-asset-management-plan/download.

6 The MBTA's, CATA's, and MWRTA's 2018 TAM Plans are available on the March 21, 2019, page of the MPO meeting calendar (https://www.ctps.org/calendar/day/2019-03-21).

7 National Bridge Inventory data is used to rate these components on a scale of zero (worst) to nine (best). The FHWA has classified these bridge ratings into good (seven, eight, or nine on the scale), fair (five or six), or poor (four or less).

8 Culverts are assigned an overall condition rating.

Table 4-6 shows performance baselines for NHS bridge condition in Massachusetts and the Boston region. As of 2017, Massachusetts had 2,246 NHS bridges, which MassDOT analyzed to understand their current condition with respect to the federal bridge condition performance measures. In 2018, the Boston Region MPO performed a similar analysis on the 859 NHS bridges in the region. According to these baseline values, the Boston region has a larger share of NHS bridge deck area considered to be in good condition and a slightly smaller share of NHS bridge deck area considered to be in poor condition, compared to Massachusetts overall.

Table 4-6: National Highway System Bridge Condition Baselines

Geographic Area	Total NHS Bridges	Total NHS Bridge Deck Area (square feet)	Percent of NHS Bridges in Good Condition	Percent of NHS Bridges in Poor Condition
Massachusetts*	2,246	29,457,351	15.2%	12.4%
Boston Region†	859	14,131,094	19.2%	11.8%

* Massachusetts baseline data is based on a MassDOT analysis conducted in 2018.

† Boston region comparison data is based on a Boston Region MPO analysis conducted in 2018.

Sources: MassDOT and Boston Region MPO.

USDOT has established 10 percent as a threshold for NHS bridge deck area that is in poor condition, and DOTs for states that exceed that threshold must direct a defined minimum amount of National Highway Performance Program (NHPP) funding toward improving NHS bridges. Because more than 10 percent of Massachusetts NHS bridge deck area is in poor condition, MassDOT programs this minimum amount.

States must set performance targets for these NHS bridge and pavement condition measures at two-year and four-year intervals. Table 4-7 shows MassDOT's current NHS bridge performance targets, which it established in 2018. The two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021. These targets reflect MassDOT's anticipated NHS bridge condition based on historic trends, as well as planned bridge investments. As shown in the table, MassDOT expects there will be a small increase in the share of NHS bridge deck area in good condition by the end of CY 2021, while it expects that the share of NHS bridge deck area in poor condition in CY 2021 will be slightly lower than the baseline.

Table 4-7: National Highway System Bridge Condition Targets for Massachusetts

Federally Required Bridge Condition Performance Measure	2018 Measure Value (Baseline)	Two-Year Target (CY 2019)	Four-Year Target (CY 2021)
Percent of NHS Bridges [by deck area] that are in good condition	15.2%	15.0%	16.0%
Percent of NHS Bridges [by deck area] that are in poor condition	12.4%	13.0%	12.0%

Source: MassDOT.

MPOs are required to set four-year bridge performance targets by either electing to support state targets or setting separate quantitative targets for the region. The Boston Region MPO elected to support MassDOT's four-year targets for these measures in November 2018. The MPO will work with MassDOT to meet these targets through its Regional Target investments.

Pavement Condition Performance and Targets

As with NHS bridges, USDOT's performance management framework requires states and MPOs to monitor and set targets for the condition of pavement on NHS roadways. Applicable federal performance measures, which are also listed in Table 4-3, include the following:

- Percent of pavements on the Interstate System in *good* condition
- Percent of pavements on the Interstate System in *poor* condition
- Percent of pavements on the non-Interstate NHS in *good* condition
- Percent of pavements on the non-Interstate NHS in *poor* condition

The Interstate performance measures classify Interstate pavements as in good or poor condition based on the pavements' International Roughness Index (IRI) value and one or more pavement distress metrics (cracking and/or rutting and faulting) depending on the pavement type (asphalt, jointed concrete, or continuous concrete). FHWA sets thresholds for each metric that determine whether the metric value is good, fair, or poor, along with thresholds that determine whether the pavement segment as a whole is considered to be in good or poor condition. Non-Interstate NHS pavements are subject to the same thresholds for IRI values. As of 2020, states are required to collect both IRI data and values for complementary distress metrics for non-Interstate NHS pavements, which will be incorporated into future performance monitoring.

MassDOT tracks the condition of roadways in Massachusetts, including NHS network, through its Pavement Management Program. In 2018, MassDOT established performance targets for these NHS pavement condition performance measures, which are shown along with baseline data in Table 4-8. As with the NHS bridge condition performance targets, the two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021. While MassDOT has collected IRI data in past years, these federally required performance measures also require other types of distress data that have not previously been required as part of pavement

monitoring programs.[9] MassDOT notes that setting targets for these pavement condition measures is challenging given the lack of complete historic data. MassDOT's approach when setting targets was to use past pavement indicators to identify trends and to set conservative targets.

Table 4-8: National Highway System Pavement Condition Targets for Massachusetts

Federally Required Pavement Condition Performance Measure	2017 Measure Value (Baseline)	Two-Year Target (CY 2019)	Four-Year Target (CY 2021)
Percent of Interstate Highway System pavements that are in good condition*	74.2%	70.0%	70.0%
Percent of Interstate Highway System pavements that are in poor condition*	0.1%	4.0%	4.0%
Percent of non-Interstate NHS pavements that are in good condition	32.9%	30.0%	30.0%
Percent of non-Interstate NHS pavements that are in poor condition	31.4%	30.0%	30.0%

* For the first federal performance monitoring period (CY 2018–21), the Federal Highway Administration has only required states to report four-year targets for pavement condition on the Interstate Highway System. MassDOT has developed both two-year and four-year targets for internal consistency.

Source: MassDOT.

As with NHS bridge condition performance measures, MPOs are required to set four-year Interstate pavement condition and non-Interstate NHS pavement condition performance targets by either supporting state targets or setting separate quantitative targets for the region. The Boston Region MPO elected to support MassDOT's four-year targets for these NHS pavement condition measures in November 2018. The MPO will work with MassDOT to meet these targets through its Regional Target investments.

TIP Investments Supporting Roadway Asset Condition

When prioritizing capital investments for the TIP, the MPO uses its project evaluation criteria to assess how well each project funded with Regional Target dollars may help maintain or modernize the MPO's roadway infrastructure. The MPO's policy has been to not use Regional Target funds for projects that only resurface pavement. However, the MPO does fund roadway reconstruction projects that include pavement improvements in addition to other design elements. The MPO uses IRI information and data provided by project proponents to identify substandard pavement and awards points to projects that will improve these pavements.[10]

9 MassDOT continues to measure pavement quality and to set statewide short-term and long-term targets in the MassDOT Performance Management Tracker using the Pavement Serviceability Index (PSI), which is a different index than IRI.

10 According to the MPO's TIP criteria, pavement is considered to be in good condition if its IRI rating is 190 or less, in fair condition if its IRI rating is 190 to 320, and in poor condition if its IRI rating is greater than 320. These thresholds differ from the IRI thresholds that FHWA has set for NHS pavement performance monitoring (good if IRI is 95 or less, fair if IRI is 95 to 170, and poor if IRI is greater than 170).

Similarly, the MassDOT Bridge Program remains the region's primary funding source for replacement or rehabilitation of substandard bridges, but the MPO's Regional Target investments also contribute modestly to bridge improvements. The MPO awards points to candidate TIP projects that include improvements for substandard bridges. Projects funded with Regional Target dollars also improve traffic signal equipment or sidewalk infrastructure; enable improved emergency response; or improve the resiliency of the transportation system to extreme weather conditions. Projects that improve emergency response are identified using the MPO's TIP project selection criteria; MPO staff awards points to projects that improve evacuation or diversion routes or that improve access routes to or near emergency support locations. Similarly, MPO staff uses TIP project selection criteria to identify projects that improve the ability to respond to extreme conditions. Staff awards points in this category to projects that improve a facility's ability to function in instances of flooding; protect a facility from sea level rise; strengthen infrastructure against seismic activity; address critical transportation infrastructure; protect freight network elements; or implement hazard mitigation or climate adaptation plans.

Table 4-9 displays metrics that describe how the MPO's FFYs 2021–25 Regional Target projects are expected to improve infrastructure on the region's roadways. MPO staff developed estimated values for these metrics using available data from MassDOT's Bridge Inventory and Road Inventory files; project proponent information such as functional design reports; the MPO's All-Hazards Planning Application; results from TIP project evaluations; and other sources. The MPO expects that these FFYs 2021–25 investments will help make progress towards statewide NHS bridge and pavement condition targets and will also help improve the overall condition of the region's roadways and bridges and address resiliency needs.

Table 4-9: Regional Target Projects: Roadway System Preservation and Modernization Performance Metrics

Metric	Value
Bridge structures improved	7 structures
NHS bridge structures improved	4 structures
New bridge structures to be constructed	4 structures
Lane miles of substandard pavement improved*	70 lane miles
Lane miles of substandard NHS pavement improved*	43 lane miles
Miles of substandard sidewalk improved	39 miles
Projects that improve emergency response	25 projects
Projects that improve the ability to respond to extreme conditions	10 projects

Note: The group of projects reflected in this table does not include the Green Line Extension or Transit Modernization investments. No Community Connections projects include system preservation elements.

* Substandard pavement designations are based on data provided by MassDOT and project proponents and on MPO assessments conducted for TIP evaluations. The estimated lane miles of substandard NHS pavement improved is based on the pavement condition assessment for the project and the MPO's assessment of the portion of the project on the NHS.

Source: MassDOT and Boston Region MPO.

Many of MassDOT's FFYs 2021–25 TIP investments address bridge and pavement condition. MassDOT's Bridge programs include 18 projects that will improve or replace bridge structures, nine of which are NHS bridge structures. MassDOT's Interstate Pavement program will improve pavement on Interstate 93 in Boston, Milton, Quincy, Medford, Winchester, and Stoneham while its non-Interstate pavement program includes 13 projects that will improve pavements on MassDOT-owned NHS roadways in 27 Boston region municipalities. These projects are expected to help MassDOT make progress toward its NHS bridge and pavement performance targets. Projects in MassDOT's other Reliability and Modernization programs—including its Intersection Improvements, Roadway Improvements, Roadway Reconstruction, and Safety Improvements programs—include elements that will improve pavement and roadway infrastructure condition in the Boston region.

Transit System Asset Condition Performance Measures and Targets

The Boston region includes three transit agencies that regularly receive FTA funds to provide service—the MBTA, CATA and MWRTA. These agencies are responsible for meeting planning and performance-monitoring requirements under FTA's TAM rule, which is focused on achieving and maintaining a state of good repair for the nation's transit systems. Each year, they must submit progress reports and updated performance targets for federally required TAM performance measures, which relate to transit rolling stock, nonrevenue service vehicles, facilities, and rail fixed guideway infrastructure. Transit agencies develop these performance targets based on their most recent asset inventories and condition assessments, along with their capital investment and procurement expectations, which are informed by their TAM plans. MBTA, MWRTA, and CATA share their asset inventory and condition data and their performance targets with the Boston Region MPO, so that the MPO can monitor and set TAM targets for the Boston region. The MPO revisits its targets in these performance areas each year when updating its TIP.

The following subsections discuss the MPO's current performance targets (adopted in February 2020) for each of the TAM performance measures, which are listed in Table 4-2. These performance targets reflect MBTA, CATA, and MWRTA state fiscal year (SFY) 2020 TAM performance targets (for July 2019 through June 2020). MPO staff has aggregated some information for asset subgroups. These tables highlight whether transit agencies expect to see performance for specific asset subgroups get better or worse compared to the SFY 2019 baseline (June 30, 2019).

Rolling Stock and Equipment Vehicles

FTA's TAM performance measure for evaluating whether rolling stock (vehicles that carry passengers) and equipment vehicles (service support, maintenance, and other nonrevenue vehicles) are in a state of good repair is the percent of vehicles that meet or exceed their useful life benchmark (ULB). This performance measure uses vehicle age as a proxy for state of good repair (which may not necessarily reflect condition or performance), with the goal being to bring this value as close to zero as possible. FTA defines ULB as "the expected lifecycle of a capital asset for a particular transit provider's operating environment, or the acceptable period of use in service for a particular transit provider's

operating environment."[11] For example, FTA's default ULB value for a bus is 14 years.[12] The MBTA has used FTA default ULBs for heavy and light rail vehicles, vintage trolleys, commuter rail coaches and locomotives, and ferry boats, while it uses MBTA-defined ULBs, which are based on agency-specific usage and experience, for its equipment vehicles, buses, and paratransit automobiles, minivans, and vans. CATA and MWRTA have selected ULBs from other sources.[13]

Table 4-10 describes SFY 2019 baselines and the MPO's SFY 2020 targets for rolling stock. As shown below, the MBTA, CATA, and MWRTA are improving performance for a variety of rolling stock vehicle classes. Transit agencies can make improvements on this measure by expanding their rolling stock fleets or replacing vehicles within those fleets.

11 FTA. Performance Management. January 8, 2020. Available at www.transit.dot.gov/PerformanceManagement.

12 FTA. Default Useful Life Benchmark Cheat Sheet. October 26, 2016. www.transit.dot.gov/TAM/ULBcheatsheet.

13 CATA used useful life criteria as defined in FTA Circular 5010.1E (Award Management Requirements) for ULB values. MWRTA used useful life criteria as defined in MassDOT's Fully Accessible Vehicle Guide and in FTA Circular 5010.1E for ULB values.

Table 4-10: Targets for the Useful Life of Transit Rolling Stock

		SFY 2019 Baseline (as of June 30, 2019)			SFY 2020 Targets (as of June 30, 2020)		
Agency	Asset Type	Number of Vehicles	Number of Vehicles ≥ ULB	Percent of Vehicles ≥ ULB	Expected Number of Vehicles	Expected Number of Vehicles ≥ ULB	Target Percent of Vehicles ≥ ULB
MBTA	Buses	1,023	407	40%	1,053	312	30%
MBTA	Light Rail Vehicles	196	86	44%	220	86	39%
MBTA	Vintage Trolleys*	6	6	100%	6	6	100%
MBTA	Heavy Rail Vehicles	416	240	58%	458	240	52%
MBTA	Commuter Rail Locomotives	94	25	27%	94	25	27%
MBTA	Commuter Rail Coaches	428	55	13%	428	55	13%
MBTA	Ferry Boats	4	0	0%	4	0	0%
MBTA	Paratransit Vehicles†	785	241	31%	785	15	2%
CATA	Buses	8	0	0%	8	2	25%
CATA	Cutaway Vehicles‡	23	0	0%	23	0	0%
CATA	Trolleys (simulated)§	2	2	100%	2	2	100%
MWRTA	Automobiles**	8	8	100%	8	8	100%
MWRTA	Cutaway vehicles‡ **	95	25	26%	95	24	25%

Note: The information provided indicates the number and percentage of vehicles that are, or are expected to, equal or exceed the useful life benchmark.

* MBTA vintage trolleys are used on the Ashmont–Mattapan High Speed Line.

† The MBTA THE RIDE paratransit vehicles data and targets reflect automobiles, vans, and minivans.

‡ The National Transit Database defines a cutaway vehicle as a vehicle in which a bus body is mounted on a van or light-duty truck chassis, which may be reinforced or extended. CATA uses nine of these vehicles to provide fixed route services, and 14 of these vehicles to provide demand response service.

Source: MBTA.

§ Simulated trolleys, also known as trolley-replica buses, have rubber tires and internal combustion engines, as opposed to steel-wheeled trolley vehicles or rubber-tire trolley buses that draw power from overhead wires.

** MWRTA uses cutaway vehicles to provide fixed route and demand response service and uses autos to provide demand response service.

The MBTA's planned SFY 2020 investments in revenue vehicles include incorporating new Orange Line cars (heavy rail), Red Line cars (heavy rail), and hybrid buses into its vehicle fleets, overhauling commuter rail vehicles and catamarans, and continuing to purchase replacement vehicles for its paratransit fleet. CATA will receive FTA Section 5310 funds, which are administered by MassDOT, in FFY 2020, to purchase two fixed-route replacement vehicles.

Table 4-11 shows SFY 2019 baselines and the MPO's SFY 2020 targets for transit equipment vehicles. MPO staff has aggregated targets for nonrevenue vehicle subtypes for each of the three transit agencies, although MBTA commuter rail and transit system vehicle fleets are listed separately. Similar to transit rolling stock, transit agencies can make improvements on these measures by expanding their fleets or replacing vehicles within those fleets.

Table 4-11 : Targets for the Useful Life of Transit Equipment

		SFY 2019 Baseline (as of June 30, 2019)			SFY 2020 Targets (as of June 30, 2020)		
Agency	Asset Type	Number of Vehicles	Number of Vehicles ≥ ULB	Percent of Vehicles ≥ ULB	Expected Number of Vehicles	Expected Number of Vehicles ≥ ULB	Target Percent of Vehicles ≥ ULB
MBTA	Transit Equipment	961	264	27%	931	278	30%
MBTA	Commuter Rail Equipment*	303	59	19%	303	63	21%
CATA	All Equipment	3	0	0%	3	0	0%
MWRTA	All Equipment†	12	8	67%	12	7	58%

Note: The information provided indicates the number and percentage of vehicles that are, or are expected to, equal or exceed the useful life benchmark.

* MBTA Commuter Rail equipment only includes assets owned by the MBTA.

† MWRTA nonrevenue, or equipment, vehicles include both trucks and autos.

Source: MBTA.

The MBTA's planned investments in SFY 2020 include those that support nonrevenue vehicles—such as replacements for transit police vehicles—to keep assets in a state of good repair.

Facilities

FTA assesses the condition for passenger stations, parking facilities, and administrative and maintenance facilities to determine if they are in a state of good repair by using the FTA Transit Economic Requirements Model (TERM) scale, which generates a composite score based on assessments of facility components. Facilities with scores below three are considered to be in marginal or poor condition (though this score is not a measure of facility safety or operational performance). The goal is to bring the share of facilities that meet this criterion to zero. Infrastructure projects focused on individual systems may improve performance gradually, while more extensive facility improvement projects may have a more dramatic effect on a facility's TERM scale score.

Table 4-12 shows SFY 2019 measures and the MPO's SFY 2020 targets for MBTA, CATA, and MWRTA facilities.

Table 4-12 : Targets for Transit Facility Condition

Agency	Asset Type	SFY 2019 Baseline (as of June 30, 2019)			SFY 2020 Targets (as of June 30, 2020)		
		Number of Facilities	Number of Facilities in Marginal or Poor Condition	Percent of Facilities Less than 3	Expected Number of Facilities	Expected Number of Facilities Less than 3	Target Percent of Facilities Less than 3
MBTA	Transit: Passenger/ Parking Facilities	162	22	14%	162	18	11%
MBTA	Transit: Administrative/ Maintenance Facilities	156	106	68%	156	105	67%
MBTA	Commuter Rail: Passenger/ Parking Facilities	224	8	4%	224	6	3%
MBTA	Commuter Rail: Administrative/ Maintenance Facilities	162	36	22%	162	35	22%
CATA	Administrative/ Maintenance Facilities	1	0	0%	1	0	0%
MWRTA	Administrative/ Maintenance Facilities	1	0	0%	1	0	0%

Note: The information provided indicates the number and percentage of facilities that are, and are expected to be, in marginal or poor condition based on assessments using FTA's TERM scale.

Source: MBTA.

The MBTA's SFY 2020 facility improvement activities include wayfinding and station brightening at State, Haymarket, North, and Park Street Stations, ongoing upgrades at Wellington and Cabot Yards, and ongoing commuter rail station transformation and revitalization, among other activities.

Fixed Guideway Infrastructure

Table 4-13 describes SFY 2019 baselines and SFY 2020 targets for infrastructure condition, specifically rail fixed guideway condition. The MBTA is the only transit agency in the Boston region with this asset type. The performance measure that applies to these assets is the percentage of track that is subject to performance or speed restrictions. The MBTA samples the share of track segments with speed restrictions throughout the year. These performance restrictions reflect the condition of track, signal, and other supporting systems, which the MBTA can improve through maintenance, upgrades, and replacement and renewal projects. Again, the goal is to bring the share of MBTA track systems subject to performance restrictions to zero.

Table 4-13: Targets for MBTA Fixed Guideway Infrastructure Condition

Asset Type	SFY 2019 Baseline (as of June 30, 2019)			SFY 2020 Targets (as of June 30, 2020)		
	Number of Miles	Number of Miles with Performance Restrictions	Percent of Miles with Performance Restrictions	Expected Number of Miles	Expected Number of Miles with Performance Restrictions	Target Percent of Miles with Performance Restrictions
MBTA Transit Fixed Guideway*	130.23	10.23	8%	130.23	8.23	6%
MBTA Commuter Rail Fixed Guideway	663.84	5.19	1%	663.84	5.00	1%

Note: For this performance measure, the term "miles" refers to "directional route miles," which represents the miles managed and maintained by the MBTA with respect to each direction of travel (for example, northbound and southbound) and excludes nonrevenue tracks such as yards, turnarounds, and storage tracks. The baseline and target percentages represent the annual average number of miles meeting this criterion over the 12-month reporting period.

* The MBTA's Transit Fixed Guideway information reflects light rail and heavy rail fixed guideway networks.

Source: MBTA.

The MBTA's SFY 2020 investments in this area include, Green Line track and intersection upgrades, and commuter rail positive train control upgrades.

TIP Investments Supporting Transit System Asset Condition

Many different types of transit investments may affect the TAM vehicle, facility, or fixed guideway performance measures described in the previous section, because these investments may either improve or replace assets already included in transit agency inventories, or because they may expand those inventories. These investments may improve assets gradually over time by upgrading specific asset subsystems, or they may generate more dramatic changes in performance by overhauling or replacing assets.

The FFYs 2021–25 TIP includes a variety of transit infrastructure improvement initiatives, funded both by the MPO's Regional Targets and dollars that the MBTA, MWRTA, and CATA program in coordination with MassDOT. Because of the timing of these investments, they are not expected to affect the MPO's current (SFY 2020) TAM performance targets; however, they are expected to help improve performance on the TAM measures in general.

Vehicles

During FFYs 2021 to 2025, the MBTA will be investing in vehicles to replace or expand its fleets through its Revenue Vehicles and Bus Programs. Procurements will include the following:

- Hybrid and electric buses to replace diesel bus fleets or vehicles that have reached the end of their service life or to employ as pilot vehicles to help the MBTA explore bus propulsion technologies
- Dual mode articulated and electric articulated buses to replace and expand the Silver Line fleet
- Bi-level commuter rail coaches
- Type 10 Green Line light-rail vehicles to replace existing Type 7 and Type 8 fleets

Also, the Green Line Extension project, which the MPO helped support with its Regional Target funds, includes investments in vehicles to support the new service. Additional details about these investments are included in Chapter 3.

Meanwhile, CATA plans to purchase buses and simulated trolleys and MWRTA plans to purchase vans to replace vehicles that have reached the end of their useful life. Collectively, these investments will help improve the condition of the fleets and make progress with respect to the TAM rolling stock and equipment performance measures.

Facilities

During FFYs 2021 to 2025, the MBTA will invest in several of its transit stations and parking facilities through its Stations and Facilities Program. These investments will improve specific subsystems or components or make more extensive repairs or upgrades to bring the facilities into a state of good repair and address ADA accessibility and other needs. Chapter 3 describes these investments in more detail. This set of investments includes the construction of a new commuter rail station in Chelsea (and the decommissioning of the existing station) and design work to address accessibility needs at Green Line stations and at commuter rail stations in Newton. The MBTA will also be making modifications to the Hingham Ferry Dock and making infrastructure improvements at the MBTA's Codman Yard facility, in part to accommodate new Red Line vehicles. In addition, the Green Line Extension project will include investment in new stations as part of the expansion of service. Over time, these investments will improve the condition of MBTA facilities and also enhance accessibility and the customer experience.

While MWRTA and CATA's facilities are currently in a state of good repair, these agencies will continue to maintain and upgrade them during FFYs 2021 to 2025. CATA plans to repave its parking lot. MWRTA plans to improve its Blandin Hub facility and enhance the facility's ability to maintain and manage vehicles. MWRTA will also fund improvements and enhancements for the operations center at the commuter rail station in Framingham, which it manages and maintains under contract with the MBTA.

Fixed Guideway Infrastructure

The MBTA's investments in track signals and systems through its Signals and System Upgrade Program during FFYs 2021 to 2025 will, over time, help reduce the need for performance restrictions on fixed guideways. These investments include Green Line track upgrades, upgrades and improvements to Red Line, Orange Line, and Green Line signals, and specific signal upgrades at Alewife Station. Chapter 3 describes these investments in more detail.

The MBTA will be funding other improvements that will enhance the performance of fixed guideway systems, including the implementation of automatic train control systems for the commuter rail network and power infrastructure upgrades at various locations. The installation of new track and systems as part of the Green Line Extension project will also affect fixed guideway infrastructure performance measures in the future.

Other Assets

Other planned MBTA investments during FFYs 2021 to 2025 include those in its Bridge and Tunnel Program, which include bridge and tunnel repair and rehabilitation and replacement of several bridges, including six that support the commuter rail network. The MBTA will also be rehabilitating the seawall that protects the Charlestown bus maintenance facility and replacing its radio system to support MBTA police communication. Chapter 3 provides more information on these projects. Meanwhile, CATA will invest in shop equipment, software, and other capital maintenance items, and MWRTA will invest in bus support equipment and information technology infrastructure. In particular, the MBTA's Infrastructure Asset Management Program–Phase 1 will support the collection of asset data to support asset, life-cycle, and risk management practices.

Additional refinements may be made to MBTA, CATA, and MWRTA programming after MassDOT's CIP is finalized in summer 2020. Also, CATA and MWRTA coordinate with MassDOT's Rail and Transit Division to maintain vehicle condition in a state of good repair through competitive grant applications, including to the Commonwealth's Community Transit Grant Program. The Rail and Transit Division awards funding, including FTA 5310 funds, through this program on an annual basis; award announcements are typically made in the third quarter of the calendar year. Vehicle purchases and other investments supported by this program may improve transit condition in the Boston region.

Future Activities to Improve and Monitor System Preservation and Modernization Performance

The MPO will continue to work with MassDOT, the MBTA, MWRTA, and CATA, on the following activities to improve the links between transportation investments and system preservation and modernization:

- Consider updates to TIP criteria that more directly relate to federally required infrastructure condition performance measures.
- Continue to refine the MPO's Transit Modernization Program and to identify links between this program and the region's transit asset management performance.
- Work with MassDOT and the region's transit agencies to better estimate the impacts of TIP investments on federally required and other performance measures and targets.

CAPACITY MANAGEMENT AND MOBILITY PERFORMANCE

Relevant Goals, Policies, and Plans

The MPO's capacity management and mobility goal focuses on using existing facility capacity more efficiently and increasing transportation options. The MPO's objectives in this area encompass a variety of modes and aspects of mobility, including access to and the accessibility of different transportation modes, connectivity between modes and systems, and support for reliable travel and congestion mitigation. Much of the Boston region is densely developed, which creates challenges to addressing these access, reliability, and congestion mitigation needs.

Several different planning processes come together to address capacity management and mobility performance, issues, and needs. Through its CMP, the MPO does extensive analysis of congestion and mobility constraints in the region, and it also produces periodic CMAQ Performance Plans that describe other congestion-oriented measures and targets. The MPO combines this work with ongoing system-level analyses that support its long-range planning, which are documented in its Long-Range Transportation Plan Needs Assessment. MassDOT conducts its own analyses of mobility performance and needs, which it documents in modal plans such as its Freight Plan, Bicycle Plan, and Pedestrian Plan, its own CMAQ Performance Plan, and its MassDOT Performance Management Tracker tool. Meanwhile, the MBTA tracks and analyzes mobility metrics and uses these to support planning processes, such as *Focus40*, its current long-term investment plan. The exchange and integration of these plans help agencies in the Boston region coordinate to improve mobility across modes.

Capacity Management and Mobility Performance Measures and Targets

The MPO examines a variety of different metrics to understand congestion and mobility issues, several of which are discussed below.

Travel Time Reliability

Table 4-3 highlights several federally required performance measures pertaining to the NHS system, including infrastructure condition and travel reliability. FHWA requires states and MPOs to monitor and set targets for two performance measures that pertain to all travelers on NHS roadways:

- Percent of the person-miles traveled on the Interstate System that are reliable
- Percent of the person-miles traveled on the non-Interstate NHS that are reliable

These measures capture (1) whether travel times on an NHS segment are consistent (reliability); and (2) the extent to which NHS users' travel may be affected by those conditions (percent of person miles). Several component metrics make up this measure:

- *Level of Travel Time Ratio (LOTTR)*. This ratio compares longer (80th percentile) travel times to average (50th percentile) travel times on an NHS segment. FHWA has determined that LOTTR values less than 1.5 indicate reliable travel on the NHS for a particular time period. Larger LOTTR values indicate greater differences between the 80th and 50th percentiles and, thus, less reliable travel times. An NHS segment must have LOTTR values of less than 1.5 for four designated day-and-time periods to be considered reliable.[14]
- *Annual Number of Travelers.* States and MPOs calculate this figure using vehicle volumes and average vehicle occupancy factors.
- *NHS segment length.* States and MPOs use this value and data on the annual number of travelers to estimate person-miles traveled on the NHS.

States or MPOs identify the person-miles of travel for each NHS segment and divide the total person-miles on the relevant NHS network that are reliable by the total person-miles on the relevant NHS network. To support this analysis, FHWA provides travel-time and traffic-volume data as part of the National Performance Management Research Data Set (NPMRDS), in which travel-time data are reported by traffic messaging channel (TMC) segments.

States are required to set two-year and four-year targets for these measures. In 2018, MassDOT calculated baselines and established targets for these measures for the Massachusetts Interstate and non-Interstate NHS networks. When establishing baseline values, MassDOT only examined NPMRDS travel-time data from CY 2017 because the NPMRDS from prior years was assembled using different data collection methods and has some different features. Because historic data were limited, MassDOT considered FHWA guidance and recommendations for establishing initial targets with this limited historic data, and set its initial targets equal to CY 2017 baseline values.[15]

Table 4-14 shows MassDOT's CY 2017 baselines and two-year and four-year targets for these measures. The Boston Region MPO, like all MPOs, was required to establish four-year targets for these measures by either supporting state targets or setting its own quantitative targets for the Boston region. In 2018, the MPO board voted to support the state's four-year targets. Table 4-14 also shows CY 2017 baselines for the Boston region's Interstate and non-Interstate NHS networks as a basis for comparison. As the table shows, the Boston region's share of reliable person-miles traveled on its Interstate and non-Interstate NHS networks is lower than those values for Massachusetts as a whole.

14 States and MPOs must calculate LOTTR values for four time periods: weekdays from 6:00 AM to 10:00 AM, weekdays from 10:00 AM to 4:00 PM, weekdays from 4:00 PM to 8:00 PM, and weekend days from 6:00 AM to 8:00 PM.

15 FHWA, "Frequently Asked Questions: Target Setting," https://www.fhwa.dot.gov/tpm/faq.cfm#targ, accessed September 14, 2018.

Table 4-14: Targets for Travel Time Reliability

Network	Measure	Cumulative Traffic Message Channel Length (Miles)	2017 Measure Value (Baseline)	Two-Year Target (CY 2019)	Four-Year Target (CY 2021)
Massachusetts—Interstate Highway System	Percent of person-miles on the Interstate Highway System that are reliable	1,150	68.0%	68.0%	68.0%
Massachusetts—Non-Interstate NHS System	Percent of person-miles on the non-Interstate NHS that are reliable	5,257	80.0%	80.0%	80.0%
Boston Region—Interstate Highway System	Percent of person-miles on the Interstate Highway System that are reliable	354	47.2%	n/a	n/a
Boston Region—Non-Interstate NHS System	Percent of person-miles on the non-Interstate NHS that are reliable	1,799	69.0%	n/a	n/a

Note: The two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021.

Sources: National Performance Management Research Data Set, Cambridge Systematics, MassDOT, and the Boston Region MPO.

Truck Travel Time Reliability

FHWA requires states and MPOs to track truck travel reliability on the Interstate system to better understand the performance of the nation's freight system. The applicable measure in this case is the Truck Travel Time Reliability Index (TTTR). Like the LOTTR, this measure compares longer (95th percentile) truck travel times to average (50th percentile) truck travel times. The greater the difference between these two travel times on an Interstate segment, the less reliable truck travel on that segment is considered to be. For each Interstate segment, states and MPOs calculate TTTR values for different day-and-time periods and weight the segment length by the maximum applicable TTTR value.[16] They then sum these weighted segment lengths for all Interstate segments and divide that total value by the length of the full Interstate network for the applicable geographic area. Like segment-specific TTTR values, the greater this aggregate value is, the more unreliable the network is with respect to truck travel.

In 2018, MassDOT calculated baseline TTTR Index values and established performance targets using CY 2017 truck travel-time data included in the NPMRDS. As with the all-vehicle travel time reliability targets, MassDOT set its two-year and four-year targets equal to the CY 2017 baseline. Table 4-15 displays these values. MPOs are required to set four-year targets for this measure, and the Boston Region MPO board voted to support MassDOT's four-year TTTR Index target in 2018. Table 4-15 also includes the Boston region's CY 2017 baseline index value. As the table shows, the Boston region's TTTR baseline value is higher than the one for Massachusetts, indicating that truck travel on the region's Interstate network is generally less reliable than on Massachusetts's Interstates as a whole.

16 States and MPOs must calculate TTTR Index Values for five time periods: weekdays from 6:00 AM to 10:00 AM, weekdays from 10:00 AM to 4:00 PM, weekdays from 4:00 PM to 8:00 PM, weekend days from 6:00 AM to 8:00 PM, and all days from 8:00 PM to 6:00 AM.

Table 4-15: Targets for Truck Travel Time Reliability

Network	Measure	Cumulative Traffic Message Channel Length (Miles)	2017 Measure Value (Baseline)	Two-Year Target (CY 2019)	Four-Year Target (CY 2021)
Massachusetts—Interstate Highway System	Truck Travel Time Reliability Index	1,150	1.85	1.85	1.85
Boston Region—Interstate Highway System	Truck Travel Time Reliability Index	354	2.55	n/a	n/a

Note: The two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021.

Sources: National Performance Management Research Data Set, Cambridge Systematics, MassDOT, and the Boston Region MPO.

Peak Hours of Excessive Delay Per Capita

MassDOT and the Boston Region MPO also examine mobility using measures they must monitor to meet CMAQ requirements. These measures are designed to help FHWA, states, and MPOs better understand the impacts of CMAQ investments, which are intended to contribute to air quality improvements and provide congestion relief. CMAQ performance measures related to traffic congestion apply to UZAs that contain geographic areas designated as *nonattainment areas* because they do not meet US Environmental Protection Agency (EPA) standards for criteria air pollutants and precursors from mobile sources.[17] The measures also apply to geographic areas, designated as *maintenance areas*, that have a history of being in nonattainment and are thus required to maintain air quality monitoring and standard conformity processes.

States must be involved in setting targets for CMAQ traffic performance measures if (1) they have mainline highways on the NHS that cross part of a UZA with a population of more than one million; and (2) that UZA contains part of a nonattainment or maintenance area for relevant criteria pollutants. Similarly, MPOs must participate in target setting for the traffic congestion measures if (1) the region contains mainline highways on the NHS that cross part of a UZA with a population of more than one million; and (2) the part of the MPO area that overlaps the UZA contains part of a nonattainment or maintenance area for relevant criteria pollutants. Massachusetts and the Boston Region MPO each meet these respective criteria and, therefore, must be involved in monitoring and setting targets for traffic congestion performance measures for the Boston UZA, which encompasses several MPO areas in eastern Massachusetts, New Hampshire, and Rhode Island. Agencies in each UZA that are responsible for these traffic congestion measures set two-year and four-year targets.

17 A precursor is a chemical compound that reacts with other chemical compounds in the presence of solar radiation to form pollutants.

The first of these CMAQ traffic congestion measures is *annual hours of peak hour excessive delay (PHED) per capita*, which estimates the excessive delay experienced by a UZA's population from travel on the NHS during peak periods. States and MPOs calculate this measure using several component metrics:

- *Hours of excessive delay during peak periods*. For each NHS segment, states and MPOs determine a threshold speed and use this value and the segment length to establish an *excessive delay threshold travel time* (EDTTT).[18] They determine the amount of travel time for all vehicles that exceeded the EDTTT during weekday peak periods.[19] This remainder is the excessive delay for that NHS segment. Travel-time data for NHS segments must be derived by this calculation; these data are provided by the NPMRDS. This excessive delay value is calculated for peak periods for all NHS segments for a full year.
- *Number of travelers during peak periods.* To calculate this figure, states and MPOs use *average annual daily traffic* (AADT) estimates for NHS segments and then apply factors to adjust these estimates to reflect weekday peak hours and average vehicle occupancies.
- *UZA Population*. Population figures are provided by the US Census Bureau.

The PHED per capita measure is calculated at the Boston UZA level by multiplying the *hours of excessive delay during peak periods* by the *number of travelers during peak periods*, and then dividing that total by the *UZA population*.

To understand baseline performance and set targets for this measure, MassDOT and the New Hampshire Department of Transportation (NH DOT) worked with analysts at Cambridge Systematics and, using 2017 NPMRDS data, calculated annual hours of PHED per capita for travel on the NHS in their respective portions of the Boston UZA.[20] In 2018, the agencies in the Boston UZA that are subject to CMAQ performance monitoring requirements—MassDOT, NH DOT, the Boston Region MPO, and the Northern Middlesex Council of Governments (NMCOG)—established two-year and four-year targets that maintain this 2017 baseline value for the annual hours of PHED per capita measure, as shown in Table 4-16.

18 FHWA requires state DOTs and MPOs to use 60 percent of the posted speed limit for the segment or 20 miles per hour, whichever is greater.

19 FHWA requires states and MPOs to use the period from 6:00 AM to 10:00 AM to represent the morning peak period, but it allows these agencies to choose either 3:00 PM to 7:00 PM or 4:00 PM to 8:00 PM to represent the evening peak period. MassDOT and NH DOT selected the period from 3:00 PM to 7:00 PM to represent the evening peak period for the Boston UZA.

20 Rhode Island was not included in the calculation of this measure because it does not include any portion of the Boston UZA's NHS network. See FHWA's Applicability Determination: CMAQ Traffic Congestion and CMAQ On-Road Mobile Source Emissions Measures (23 CFR 490.707 and 490.807), and Change Log: Applicability Determination for CMAQ Measures," May 22, 2018.

Table 4-16: Targets for Annual Hours of Peak Hour Excessive Delay Per Capita in the Boston Urbanized Area

Geographic Area	Massachusetts and New Hampshire Annual PHED	Boston UZA Population (MA and NH only)*	2017 Measure Value (Baseline)	Two-Year Target (CY 2018-19)†	Four-Year Target (CY 2020-21)†
Boston Urbanized Area	80,053,183	4,371,476	18.30	18.30	18.30

* Cambridge Systematics aggregated 2012-16 American Community Survey population estimates from the US Census Bureau at the block group level to estimate the population for the portion of the UZA in Massachusetts and New Hampshire, and then inflated this estimate for 2017 by applying information on expected population growth in the Boston Metropolitan Statistical Area between 2016 and 2017.

† The two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021.

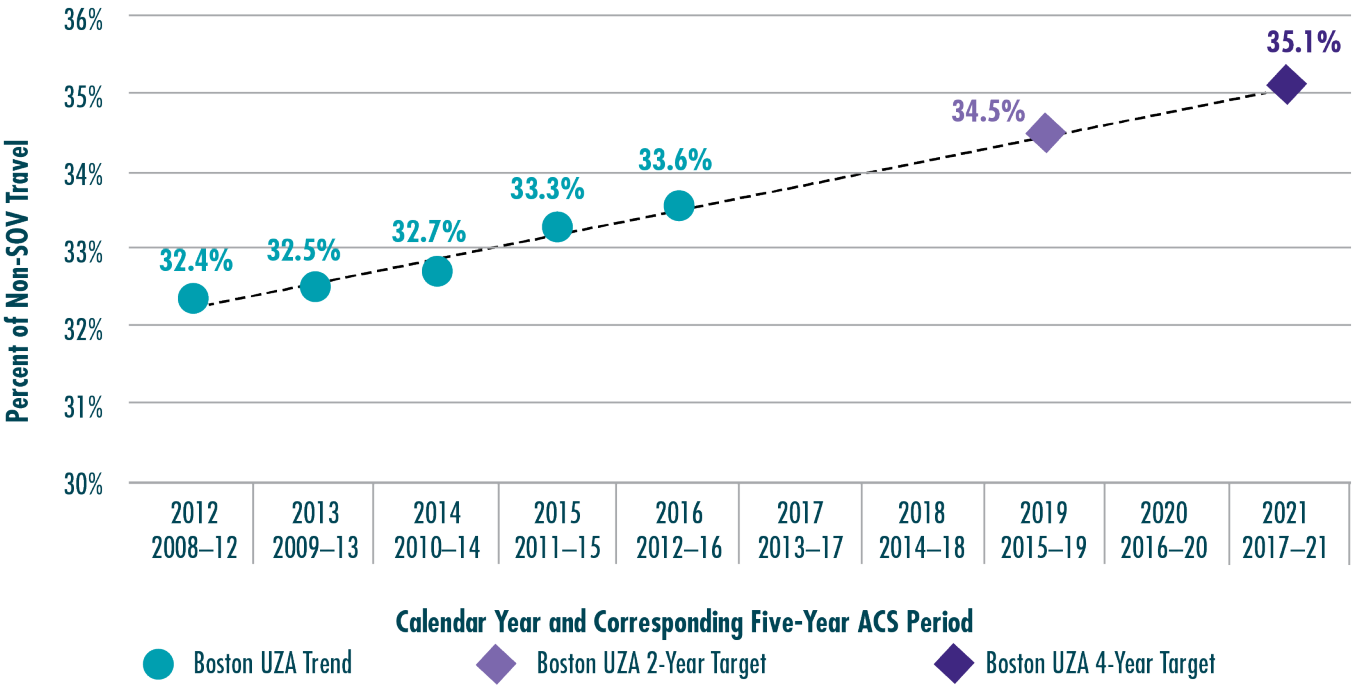
Sources: National Performance Management Research Data Set, US Census Bureau, FHWA, MassDOT, NH DOT, and Cambridge Systematics.

Percent of Non-Single-Occupant-Vehicle Travel

States and MPOs that meet applicability criteria for CMAQ performance requirements must also monitor and set targets for the share of non-single-occupant-vehicle (non-SOV) travel in their respective states or regions. This measure is calculated at the UZA level. The percent of non-SOV travel performance measure describes the extent to which people are using alternatives to single-occupancy vehicles to travel and, thus, helping to reduce traffic congestion and air pollution from mobile sources.

Collectively, MassDOT, NH DOT, the Boston Region MPO, and NMCOG used American Community Survey (ACS) data from the US Census Bureau to estimate the percent of workers age 16 and older who commuted to work using an option other than driving alone. These ACS five-year period estimates are rolling annual averages. Figure 4-6 shows how the percentage of workers using non-SOV commuting options in the Boston UZA has increased between 2012 (2008–12 ACS estimate) and 2016 (2012-16 ACS estimate). MassDOT calculated a linear trend line using these values for the Boston UZA and used that trend line to project expected values as of the end of CY 2019 (the expected 2015–19 ACS estimate) and CY 2021 (the expected 2017–21 ACS estimate). The agencies established these projected values as the Boston UZA targets for the percent of non-SOV travel. As Figure 4-6 shows, the share of non-SOV travel in the Boston region has been increasing steadily over time.

Figure 4-6: Historic Values and Performance Targets for the Percent of Non-SOV Travel in the Boston Urbanized Area



Note: The two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021.

Sources: US Census Bureau, 2012-16 American Community Survey Five-Year Estimates; the Massachusetts Department of Transportation; and the New Hampshire Department of Transportation.

Table 4-17 lists the recent baseline and performance target for this measure. It also includes a baseline value for non-SOV travel that is specific to the Boston region, which is a larger percentage than for the Boston UZA.

Table 4-17: Targets for Percent of Non-SOV Travel in the Boston Urbanized Area

Geographic Area	2012-16 Measure Value (Baseline)	Two-Year Target (CY 2018-19)	Four-Year Target (CY 2020-21)
Boston UZA	33.6%	34.5%	35.1%
Boston region (97 municipalities)	38.4%	n/a	n/a

Note: The two-year target reflects conditions as of the end of CY 2019, and the four-year target reflects conditions as of the end of CY 2021.

Sources: MassDOT, NH DOT, and the US Census American Community Survey.

TIP Projects Supporting Capacity Management and Mobility Performance

The MPO seeks to make investments that help manage capacity on the transportation network and improve mobility for travelers in a variety of ways, including the following:

- Providing alternatives to SOV travel, such as by expanding transit service or adding new bicycle and pedestrian facilities
- Improving roadway design or adding capacity at bottleneck locations
- Implementing traffic and operational improvements along congested or unreliable corridors

When prioritizing projects for funding with Regional Target dollars, the MPO uses evaluation criteria to assess how well each project expands transportation options (and mode choice) by enhancing bicycle and pedestrian accommodations and connections to transit, and how well each project helps reduce congestion and delay for passenger vehicles (including transit vehicles) and trucks. For more information on the MPO's capacity management and mobility-oriented TIP criteria, see Appendix A. During the FFYs 2021–25 TIP development process, MPO staff also gathered information about the relationship between TIP projects and the NHS, including unreliable segments on the NHS, based on 2017 NPMRDS data and federal travel-time-reliability performance thresholds.

By electing to support the Commonwealth's targets for federally required reliability measures and agreeing to the UZA targets for the federally required annual hours of PHED per capita and non-SOV travel measures, the MPO agrees to plan and program projects so that they contribute to achieving those targets. It can be challenging to anticipate how transportation projects may affect these performance measures, as they track outcomes that are not only affected by transportation investments but also traveler choices and demand, among other factors. The MPO developed estimates for MPO staff-identified project-related metrics to see how its Regional Target roadway projects could improve the transportation system in ways that contribute to more reliable, less congested travel on the NHS or that encourage more non-SOV travel:

- Projects that improve roadway geometry or signalization on the NHS, particularly on segments considered to be unreliable, might improve overall travel time reliability on that system.
- Projects that reduce vehicle hours of delay, particularly on the NHS, may also reduce annual hours of PHED per capita.
- Projects that add to the region's sidewalk or bicycle and pedestrian facility networks, or that support access to transit, might encourage use of non-SOV modes.

Table 4-18 summarizes these estimates for Regional Target roadway and Community Connections projects. MPO staff developed estimated values for these metrics using available data from functional design reports and other materials provided by project proponents; results from MPO TIP evaluations; 2017 NPMRDS data; and other sources. These estimates aggregate changes in vehicle hours of delay using project-level information on vehicle volumes and changes in delay times at intersections from project improvements.

Table 4-18: Regional Target Projects: Roadway Capacity Management and Mobility Performance Metrics

Metric	Value
Projects that overlap unreliable NHS segments and that will improve oadway signalization or geometry*	7 projects
Projects that overlap any NHS segments and that will improve roadway signalization or geometry*	16 projects
Net reduction in vehicle hours of delay per day†	9,700 hours reduced per day
Net reduction in vehicle hours of delay per day for projects that overlap the NHS†	6,100 hours reduced per day
Miles of new sidewalks added	16 miles
Lane miles of new bicycle accommodations and shared-use paths	58 lane miles
Projects that improve intermodal connections or access to transit	29 projects

Note: The group of projects reflected in this table does not include the Green Line Extension or Transit Modernization.
* The MPO identified reliable and unreliable segments on the NHS using the 2017 National Performance Management Research Data Set federal travel time reliability performance thresholds.
† This aggregate estimate for reduced daily vehicle delay also excludes two Major Infrastructure roadway projects that were included in the air quality modeling results in *Destination 2040:* Project 604996–Bridge Replacement on New Boston Street in Woburn and Project 606226–Reconstruction of Rutherford Avenue in Boston. This aggregate estimate is based on projected future conditions for project locations and has been rounded to the nearest hundred.

Source: Boston Region MPO.

In addition to contributing to several metrics mentioned above, FFYs 2021–25 projects in the MPO's Community Connections Program will expand or enhance non-SOV options, such as by providing new shuttles, expanding amenities, or addressing transit signal operations.

Other Regional Target investments not mentioned in Table 4-18 will also support the availability of non-SOV options. By contributing to the Green Line Extension project, the MPO supports the expansion of light-rail service to more areas within the Boston region. Funding is also available for the MPO's new Transit Modernization Program beginning in FFY 2025. These projects have not yet been selected but could enhance transit service and encourage people to take transit instead of traveling alone in their cars, which may in turn make roadways less congested and more reliable.

MassDOT, MBTA, and RTA projects, described in Chapter 3, also address capacity management and mobility in the Boston region and may also support improvements on federally required reliability, congestion, and non-SOV travel performance measures. In particular, MassDOT's Bicycle and Pedestrian projects expand the region's bicycle and pedestrian networks, which support non-SOV travel. Its Intersection Improvements program includes six projects, which may address delay and congestion. One of its Roadway Reconstruction projects addresses a freight bottleneck identified in the MassDOT's Freight Plan, the Interstate 90/Interstate 495 interchange in Hopkinton

and Westborough, which will likely improve truck travel time reliability. Meanwhile, MBTA and RTA investments enhance the region's transit system and make it an attractive alternative to SOV travel.

Future Activities to Improve and Monitor Capacity Management and Mobility Performance

The MPO will continue to work with MassDOT, the MBTA, the region's RTAs and other transit service providers, and other stakeholders in the region to improve capacity management and mobility performance. These activities may include the following:

- Continue to seek out and improve data to help the MPO better analyze capacity management and mobility issues for all modes.
- Continue to refine the MPO's Community Connections and Transit Modernization Programs and to identify links between these programs and the region's performance in various capacity management and mobility areas.
- Strengthen the relationship between the MPO's TIP criteria and federally required reliability and congestion performance measures.
- Improve methods for understanding the impacts of projects on reliability, congestion, and non-SOV travel performance measures.
- Explore ways to integrate the monitoring of federally required performance measures more fully into the MPO's CMP.
- Explore other mobility performance measures, including measures specific to transit or bicycle and pedestrian travel or that consider multiple modes (including transit).

CLEAN AIR AND SUSTAINABLE COMMUNITIES PERFORMANCE

Relevant Goals, Policies, and Plans

The MPO aims to support clean air and sustainable communities in the Boston region by creating an environmentally friendly transportation system, which it pursues by investing in projects that reduce greenhouse gases (GHGs) and other pollutants generated by the transportation sector, and minimize negative environmental impacts from the system.

The MPO recognizes that GHG emissions contribute to climate change. If climate change trends continue as projected, the conditions in the Boston region will include a rise in sea level coupled with storm-induced flooding, and warmer temperatures that would affect the region's infrastructure, economy, human health, and natural resources. The Commonwealth of Massachusetts is responding to this challenge by taking action to reduce the GHGs produced in the state, including those generated by the transportation sector. To that end, Massachusetts passed its Global Warming Solutions Act (GWSA), which requires reductions of GHGs by 2020, and further reductions by 2050, relative to 1990 baseline conditions. To meet GWSA requirements, the MPO works with MassDOT and other stakeholders to anticipate the GHG impacts of projects included in the TIP, specifically by examining additions or reductions in carbon dioxide (CO_2). More details on the MPO's GHG tracking and evaluation processes are included in Appendix B.

Transportation projects may also help reduce other air pollutants and precursors and support reductions in CO_2, volatile organic compounds (VOCs), nitrogen oxides (NO_x) and carbon monoxide (CO) by improving traffic flow and bicycle and pedestrian travel. The Boston Region MPO contains a maintenance area for CO in Waltham and also is required to track VOCs and NO_x to meet EPA requirements. (More detailed information about the MPO's air quality status and related requirements is available in Chapter 5). The MPO tracks the air quality benefits of transportation projects to identify projects that may be eligible for CMAQ funds. FHWA also requires the Boston Region MPO to produce a CMAQ Performance Plan. This plan includes performance targets for the annual PHED per capita and share of non-SOV travel measures described in the previous section and targets for the amount of applicable emissions the MPO expects will be reduced because of CMAQ-funded projects in the region. As part of its CMAQ Performance Plan, the MPO must note how it expects its CMAQ-funded projects to support improvements in these performance measures, which reinforces the connection between planning, investments, and expected performance outcomes.

Emissions Reduction Performance Measure and Targets

The federally required CMAQ emissions reduction measure, identified in Table 4-3, is the total emissions reduction for applicable pollutants and precursors for CMAQ-funded projects in designated nonattainment and maintenance areas. FHWA requires states and MPOs subject to these CMAQ performance management requirements to establish a baseline for this measure by identifying emissions reductions associated with any CMAQ-funded projects programmed in air quality nonattainment or maintenance areas between FFY 2014 and FFY 2017. These states and MPOs were also required to set two-year and four-year targets for the emissions reductions expected from CMAQ-funded projects programmed in nonattainment or maintenance areas.

In the Boston Region MPO's case, this CMAQ emissions performance measure would capture the anticipated carbon monoxide emissions reductions from any CMAQ-funded projects that the MPO has programmed specifically in the carbon monoxide maintenance area in Waltham.[21] Table 4-19 shows the Boston Region MPO's baseline and target values for this measure. Neither the MPO nor MassDOT programmed any CMAQ-funded projects in Waltham during FFYs 2014 to 2017, and at the time of target setting the MPO's TIP did not reflect any CMAQ-funded projects programmed in Waltham from FFY 2018 to 2021. The FFYs 2021–25 TIP does not include any CMAQ-funded projects in Waltham.

Table 4-19: Targets for Emissions Reduction from CMAQ Projects in the Boston Region

Performance Measure	FFYs 2014–17 Measure Value (Baseline)	Two-Year Target (FFYs 2018–19)	Four-Year Target (FFYs 2018–21)
Daily kilograms of carbon monoxide emissions reduction from CMAQ projects in Boston region nonattainment or maintenance areas	0	0	0

Source: Boston Region MPO.

21 FHWA regularly assesses the CMAQ performance management requirements that apply to states and MPOs. FHWA conducted its most recent assessment in August 2017, at which time the MPO was only subject to emissions performance management requirements for its carbon monoxide maintenance area in Waltham.

TIP Projects Supporting Clean Air and Sustainable Communities Performance

The MPO uses evaluation criteria to assess the projected transportation-related emissions of each project that is a candidate for Regional Target funding, both for CO_2 and other air quality pollutants and precursors, among other environmental considerations. Transportation projects can support reductions in CO_2, VOCs, NO_x, and CO by improving traffic flow and bicycle and pedestrian travel.

Table 4-20 displays the CO_2 and other emissions reductions the MPO expects from projects it has programmed using its Regional Target funds. MPO staff estimates emissions for projects using MassDOT's air quality analysis worksheets for each project type and the Environmental Protection Agency's MOtor Vehicle Emission Simulator (MOVES) emission factors.

Table 4-20: Regional Target Projects: Clean Air and Sustainable Communities Performance Metrics

Metric	Value
Annual kilograms of CO_2 reduced	9,078,800 kilograms
Annual kilograms of other emissions (VOCs, NO_x, and CO) reduced	15,900 kilograms

Note: The group of projects reflected in this table does not include the Green Line Extension or Transit Modernization investments. These aggregate emissions estimates exclude two Major Infrastructure roadway projects that were included in the air quality modeling results for *Destination 2040*: Project 604996–Bridge Replacement on New Boston Street in Woburn and Project 606226–Reconstruction of Rutherford Avenue in Boston. These aggregate estimates are based on projected future conditions for project locations and have been rounded to the nearest hundred.

Source: Boston Region MPO

While not reflected in Table 4-20, the Green Line Extension will provide a non-SOV travel alternative, which can help reduce CO_2 and other transportation related emissions. This TIP also includes funding for the MPO's Transit Modernization Program beginning in FFY 2025. While projects have not been selected for this program yet, in general, modern transit assets may help reduce emissions by encouraging non-SOV travel or by changing the amount or type of energy these assets use.

MassDOT, MBTA, and RTA projects and programs also support improvements to air quality and the environment. Appendix B provides more detailed information and assessments of the GHG impacts of MassDOT, MBTA, CATA, and MWRTA projects and programs. MassDOT maintains an independent statewide CMAQ Performance Plan and tracks the relationship between its projects and its CMAQ emissions reduction performance targets.

Future Activities to Improve and Monitor Clean Air and Sustainable Communities Performance

The GWSA and FHWA's CMAQ performance management requirements create frameworks that reinforce coordination between the MPO, MassDOT, and the region's transit providers as they make

investments to support clean air and sustainable communities. Future performance activities in this area may include the following:

- Improve methods for understanding how transportation projects may improve air quality outcomes.
- Continue to refine the MPO's Community Connections and Transit Modernization Programs and to identify links between these programs and the region's performance in various clean air and sustainable communities-related areas.
- Identify an effective approach for tracking GHG impacts from MPO investments over time.
- Explore other performance measures related to air quality and the environment.

ECONOMIC VITALITY PERFORMANCE

Relevant Goals, Policies, and Plans

The MPO seeks to ensure that the Boston region's transportation network provides a strong foundation for economic vitality. Transportation investments can support economic vitality in a variety of ways, such as by supporting freight movement, improving connections to key freight and economic development sites, and supporting compact development. The MPO's approach to addressing freight needs is guided in large part by MassDOT's Freight Plan, which identifies key freight facilities and needs, strategies to improve freight movement, and priority projects.

The Metropolitan Area Planning Council's (MAPC) regional land use plan also identifies economic vitality goals and strategies that influence MPO investments. For example, a strategy in MAPC's current regional land use plan, *MetroFuture*, is to coordinate transportation investments to guide economic growth in the region.[22] MAPC worked with its state-level partners at the Executive Office of Housing and Economic Development (EOHED) and the Executive Office of Energy and Environmental Affairs (EOEEA), as well as municipalities, to identify locations throughout the region appropriate for building housing stock and siting employers. These agencies identified the infrastructure improvements required to support the outcomes planned for these local, regional, and state-level priority development areas, and this work helps MAPC, the MPO, and state agencies to respond with their investments and technical assistance.

Economic Vitality Performance Measure

States and MPOs track the federally required truck travel time reliability measure for the Interstate Highway System, listed in Table 4-3, by using the Truck Travel Time Reliability Index. This measure has the most direct implications for the MPO's Capacity Management and Mobility goal; however, this measure is also relevant to the Boston region's economic vitality. For more details about this measure and associated targets, see the Capacity Management and Mobility Performance section

22 For more information about *MetroFuture*, visit www.mapc.org/get-involved/metrofuture-our-regional-plan/. MAPC is currently working on an update to this plan, *MetroCommon 2050*.

of this chapter. The MPO has not yet established other performance measures specific to freight or economic vitality, such as measures that could be used to track the coordination of land use development and transportation investments.

TIP Projects Supporting Economic Vitality

When evaluating TIP projects using its TIP criteria, the MPO assesses how well each project may advance *MetroFuture's* land use planning objectives. This evaluation takes into account how a project serves areas identified for economic development by state, regional, and local planning as well as areas with a relatively high density of existing development. These assessments are based on MAPC-provided information on targeted development sites and project relationships to areas of concentrated development, along with project data from functional design reports and other sources. Table 4-21 provides some highlights of how Regional Target-funded projects in this TIP address economic vitality.

Table 4-21: Regional Target Projects: Economic Vitality Performance Metrics

Metric	Value
Projects that improve access to targeted development sites	19 projects
Projects that serve areas of concentrated development	36 projects

Note: The group of projects reflected in this table does not include the Green Line Extension or Transit Modernization investments, or Project 606476–Sumner Tunnel Improvements in Boston.

Source: Boston Region MPO.

Future Activities to Improve and Monitor Economic Vitality Performance

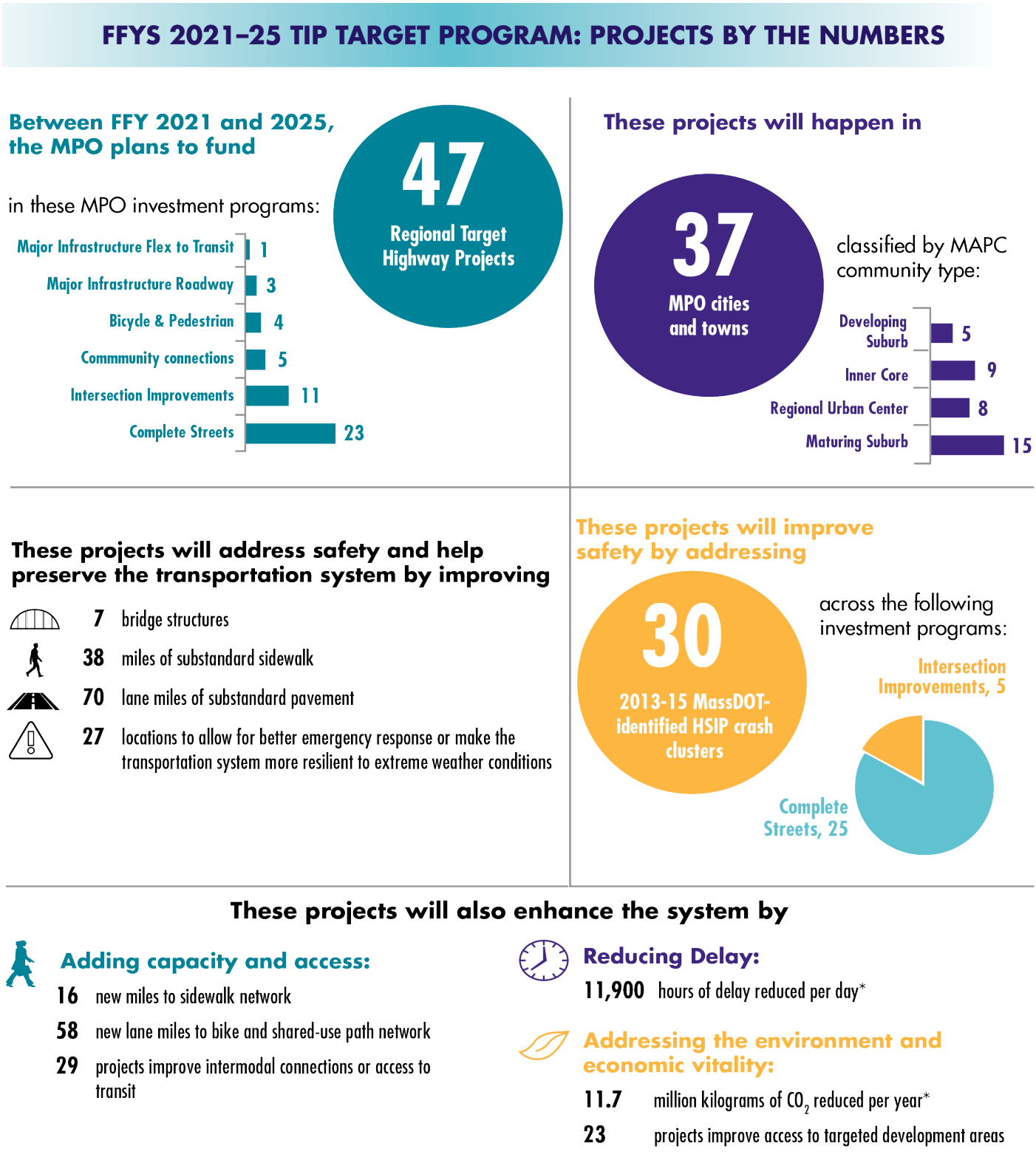
MAPC's regional land use plan and economic vitality initiatives, USDOT's freight directives, and MassDOT's freight planning will all influence strategies that the MPO uses to monitor economic vitality performance going forward. The MPO's ongoing freight planning work will also play an important role in this process. Future activities may include the following:

- Explore other performance measures related to freight.
- Continue to refine the MPO's Community Connections and Transit Modernization Programs and to identify links between these programs and the region's economic vitality performance.
- Improve methods for understanding how transportation projects may improve economic vitality performance.

SUMMARY: REGIONAL TARGET-FUNDED PROJECTS SUPPORTING MPO GOAL AREAS

Figure 4-7 highlights some of the ways that the MPO's FFYs 2021–25 Regional Target-funded projects support improved performance in the MPO's various goal areas.

Figure 4-7: FFYs 2021–25 TIP Target Program: Projects by the Numbers



Sources: MassDOT and the Boston Region MPO
HSIP: Highway Safety Improvement Program. MAPC: Metropolitan Area Planning Council
* These estimates exclude the Green Line Extension project in Cambridge, Somerville and Medford, the New Boston Street Bridge project in Woburn, and the Rutherford Avenue project in Boston.
Note: Projects have not yet been selected for the MPOs Community Transportation/Parking/Clean Air and Mobility Program.

PERFORMANCE MONITORING, REPORTING, AND EVALUATION

The three key phases in the MPO's PBPP process—planning, investing, and monitoring and evaluating—were discussed earlier in this chapter. Within this framework, the MPO's TIP relates primarily to the first two phases, focusing on the relationship between the goals and objectives and performance requirements in the MPO's planning framework and ways the MPO will invest its capital dollars in upcoming federal fiscal years. Other MPO activities relate more directly to the monitoring and evaluation phase of PBPP:

- The MPO's LRTP, *Destination 2040*, contains a systems performance report that describes the MPO's performance measures and targets as of August 2019. This report includes an assessment of the Boston region's current performance with respect to baseline data or, if feasible, past performance targets. Over time, the MPO will expand this report in its LRTPs to include information about progress the MPO has made with respect to its performance measures and targets.
- The MPO will also report on its progress through federally required performance plans and reports, such as its CMAQ Performance Plan and Title VI reports.
  The MPO also describes progress on its PBPP web page (ctps.org/performance). This web page provides ongoing updates about the MPO's target-setting activities and a link to the MPO's Performance Dashboard, which provides visualizations of the performance of the Boston region's transportation system on a variety of transportation-related metrics.
- The MPO supplements these monitoring and reporting activities with specific evaluation studies—such as TIP Before-and-After studies—that it conducts through its Unified Planning Work Program to better understand the outcomes of MPO investments.

The Commonwealth and the region's transit agencies also have reporting and evaluation responsibilities. MassDOT and the Commonwealth's Executive Office of Public Safety and Security reports roadway safety target information annually to FHWA and NHTSA. MassDOT reports other statewide performance targets and related information to FHWA on a biennial basis via FHWA's Performance Management Form. The MBTA, MWRTA, and CATA must report their TAM targets to the National Transit Database, and in future years these agencies will need to create and regularly submit PTASPs that discuss their targets for transit safety performance measures. These reports generally include information about the progress that has been made with respect to performance measures and targets as compared to previous reports.

Going forward, the MPO will put the results of these reports and evaluations to use in its future planning and investment activities. These activities may include identifying new ways to bring information about performance into the MPO's LRTP and TIP development processes, such as by updating project selection criteria or providing information through other means. This work would help the MPO develop scenarios to explore how various transportation investments made through the LRTP would support various goals and performance areas. Over time, the MPO expects that these actions will help ensure that the MPO's investments are helping to meet its vision and goals for the region's transportation system.

CHAPTER 5
DETERMINATION OF AIR QUALITY CONFORMITY

BACKGROUND

This chapter documents the Transportation Improvement Program (TIP) air quality conformity determination for the 1997 Ozone National Ambient Air Quality Standards (NAAQS) and carbon monoxide (CO) NAAQS in the Boston Region Metropolitan Planning Organization (MPO) area. It covers the applicable conformity requirements according to the latest regulations, regional designation status, legal considerations, and federal guidance.

INTRODUCTION

The 1990 Clean Air Act Amendments (CAAA) require MPOs within nonattainment and maintenance areas to perform air quality conformity determinations prior to the approval of Long-Range Transportation Plans (LRTPs) and TIPs, and at such other times as required by regulation. CAAA Section 176(c) (Title 42, United States Code [USC], Section 7506 [c]) requires that federally funded or approved highway and transit activities are consistent with ("conform to") the purpose of the State Implementation Plan (SIP). Conformity to the purpose of the SIP means that Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) funding and approvals are awarded to highway and transit activities that

- will not cause or contribute to new air quality violations;
- worsen existing violations; or
- delay the timely attainment of the relevant NAAQS or any interim milestones (42 USC 7506[c][1]).

The United States Environmental Protection Agency's (EPA) transportation conformity rules establish the criteria and procedures for determining whether metropolitan transportation plans, TIPs, and federally supported highway and transit projects conform to the SIP (Title 40 Code of Federal Regulations [CFR] Parts 51.390 and 93).

A nonattainment area is one that the EPA has designated as not meeting certain air quality standards. A maintenance area is a nonattainment area that now meets the standards and has been redesignated as maintaining the standard. A conformity determination is a demonstration that plans, programs, and projects are consistent with the SIP for attaining the air quality standards. The CAAA requirement to perform a conformity determination ensures that federal approval and funding go to transportation activities that are consistent with air quality goals.

LEGISLATIVE AND REGULATORY BACKGROUND

The Commonwealth of Massachusetts was previously classified as a nonattainment area for ozone and was divided into two nonattainment areas. The Eastern Massachusetts ozone nonattainment area included Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk, and Worcester counties. The Western Massachusetts ozone nonattainment area included Berkshire, Franklin, Hampden, and Hampshire counties. With these classifications, the 1990 CAAA required the Commonwealth to reduce its emissions of volatile organic compounds (VOCs) and nitrogen oxides (NOx), the two major precursors to ozone formation, to achieve attainment of the ozone standard.

The 1970 Clean Air Act defined a one-hour NAAQS for ground-level ozone. The 1990 CAAA further classified degrees of nonattainment of the one-hour standard based on the severity of the monitored levels of the pollutant. The Commonwealth of Massachusetts was classified as being in serious nonattainment of the one-hour ozone standard and was required to achieve attainment by 1999. The attainment date was later extended, first to 2003 and a second time to 2007.

In 1997, the EPA proposed a new eight-hour ozone standard that replaced the one-hour standard, effective June 15, 2005. Scientific research had shown that ozone could affect human health at lower levels and over longer exposure times than one hour. The new standard was challenged in court and, after a lengthy legal battle, the courts upheld it. The new standard was finalized in June 2004. The new eight-hour standard is 0.08 parts per million (ppm) averaged over eight hours, and this level is not to be exceeded more than once per year. With this new standard, nonattainment areas were again further classified based on the severity of the eight-hour values. Massachusetts was classified as being in moderate nonattainment for the eight-hour standard and again was separated into two nonattainment areas—Eastern Massachusetts and Western Massachusetts.

In March 2008, the EPA published revisions to the eight-hour ozone NAAQS, establishing a level of 0.075 ppm (Volume 73, Federal Register [FR], page 16438; March 27, 2008). In 2009, EPA announced it would reconsider this standard because it fell outside of the range recommended by the Clean Air Scientific Advisory Committee. However, EPA did not take final action on the reconsideration, keeping the standard as 0.075 ppm.

After reviewing data from Massachusetts monitoring stations, EPA sent a letter on December 16, 2011, proposing that *only* Dukes County be designated as nonattainment for the new proposed 0.075 ppm ozone standard. The Commonwealth of Massachusetts concurred with these findings.

On May 21, 2012, the final rule (77 FR 30088) was published in the Federal Register. This rule defined the 2008 NAAQS as 0.075 ppm, the standard that was promulgated in March 2008. A second rule (77 FR 30160) published on May 21, 2012, revoked the 1997 ozone NAAQS effective one year after the July 20, 2012, effective date of the 2008 NAAQS.

Also, on May 21, 2012, the Federal Register published the air quality designation areas for the 2008 NAAQS. Dukes County was the only area in Massachusetts designated as a nonattainment area. All other Massachusetts counties were designated as *attainment/unclassified* for the 2008 standard.

On March 6, 2015, EPA published the final rulemaking, "Implementation of the 2008 National Ambient Air Quality Standards (NAAQS) for Ozone: State Implementation Plan Requirements; Final Rule" (80 FR 12264), effective April 6, 2015. This rulemaking confirmed the removal of transportation conformity to the 1997 Ozone NAAQS.

However, on February 16, 2018, the United States Court of Appeals for the District of Columbia Circuit in *South Coast Air Quality Mgmt. District v. EPA* ("*South Coast II*," 882 F.3d 1138) held that transportation conformity determinations must be made in areas that were designated either as nonattainment or maintenance areas for the 1997 ozone NAAQS and attainment for the 2008 ozone NAAQS when the 1997 ozone NAAQS was revoked.

On November 29, 2018, EPA issued *Transportation Conformity Guidance for the South Coast II Court Decision* (EPA-420-B-18-050, November 2018), which addressed how transportation conformity determinations could be made in these areas. According to the guidance, both Eastern and Western Massachusetts, along with several other areas across the country, were defined as orphan nonattainment areas—areas that were designated as nonattainment areas for the 1997 ozone NAAQS at the time of its revocation (80 FR 12264, March 6, 2015) and as attainment areas for the 2008 ozone NAAQS in EPA's original designation rule for this NAAQS (77 FR 30160, May 21, 2012). As of February 16, 2019, conformity determinations are required in these areas.

CONFORMITY DETERMINATION

OZONE

The federal guidance in effect since February 2019 applies to the entire state of Massachusetts. As such, a transportation conformity determination was required for the Boston Region MPO's FFY 2021–25 TIP to prove adherence to the 1997 ozone NAAQS.

The transportation conformity regulation in 40 CFR § 93.109 sets forth the criteria and procedures for determining conformity. The conformity criteria for TIPs and LRTPs include a demonstration of fiscal constraint (§ 93.108), a basis on the latest planning assumptions (§ 93.110), use of the latest emissions model (§ 93.111), consultation (§ 93.112), provision for the timely implementation of transportation control measures (TCMs) (§ 93.113[b] and [c]), and consistency with an emissions budget and/or interim emissions tests (§ 93.118 and/or § 93.119).

Transportation conformity for TIPs and LRTPs for the 1997 ozone NAAQS can be demonstrated without a regional emissions analysis, per 40 CFR § 93.109(c). This provision states that the regional

emissions analysis requirement applies one year after the effective date of EPA's nonattainment designation for a NAAQS and until the effective date of revocation of such NAAQS for an area. The 1997 ozone NAAQS revocation was effective on April 6, 2015, and the court for *South Coast II* upheld the revocation. As no regional emission analysis is required for this conformity determination, there is no requirement to use the latest emissions model, budget, or interim emissions tests.

Therefore, transportation conformity for the 1997 ozone NAAQS for the Boston Region MPO's FFY 2021–25 TIP can be demonstrated by showing that the remaining requirements in 40 CFR § 93.109 have been met. The following requirements regarding the use of the latest planning assumptions, consultation, timely implementation of TCMs, and fiscal constraint are defined in Section 2.4 of that guidance and are addressed in the following sections.

Latest Planning Assumptions

The requirement to use the latest planning assumptions in 40 CFR § 93.110 generally applies to regional emissions analyses. In the areas subject to the 1997 ozone NAAQS, the use of latest planning assumptions requirement applies to assumptions about TCMs in an approved SIP. (See the section titled *Timely Implementation of Transportation Control Measures* below).

Consultation

The consultation requirements in 40 CFR § 93.112 for interagency consultation and public consultation were addressed. Interagency consultation was conducted with FHWA, FTA, EPA Region 1, the Massachusetts Department of Environmental Protection (DEP), and the other Massachusetts MPOs. The most recent conformity consultation meeting, held on March 4, 2020, focused on understanding the latest conformity-related court rulings and resulting federal guidance. Ongoing consultation is conducted in accordance with the following items:

- The Commonwealth of Massachusetts' Air Pollution Control Regulations 310 CMR 60.03, "Conformity to the State Implementation Plan of Transportation Plans, Programs, and Projects Developed, Funded, or Approved Under Title 23 USC or the Federal Transit Act"
- The Commonwealth of Massachusetts' Memorandum of Understanding (MOU) between DEP, the Massachusetts Department of Transportation, and Massachusetts MPOs concerning "the conduct of transportation-air quality planning in the development and implementation of the State Implementation Plan"

Public consultation was conducted consistent with planning rule requirements in 23 CFR § 450. Title 23 CFR § 450.324 and 310 CMR 60.03(6)(h) requires that the development of the TIP, LRTP, and related certification documents provide an adequate opportunity for public review and comment. Section 450.316(b) also establishes the outline for MPO public participation programs. The Boston Region MPO's Public Participation Plan was formally adopted in October 2014 and is available at https://www.ctps.org/public_involvement. The Public Participation Plan ensures that the public will have access to the TIP and LRTP and all supporting documentation, provides for public notification of the availability of the TIP and LRTP and the public's right to review the document and comment thereon,

and provides a 21-day public review and comment period prior to the adoption of the TIP and LRTP and related certification documents.

The public comment period for this conformity determination commenced on May 1, 2020. During the 21-day public comment period, any comments received will be incorporated into this TIP. This process will allow sufficient opportunity for public comment and for the MPO board to review the draft document. The public comment period will close on May 21, 2020, and the Boston Region MPO is expected to endorse this air quality conformity determination on May 28, 2020. These procedures comply with the associated federal requirements.

Timely Implementation of Transportation Control Measures

TCMs were submitted to EPA as SIP revisions in 1979 and 1982, and as part of the Central Artery/Tunnel (CA/T) project. The TCMs in the 1979 and 1982 submissions were accomplished through construction of ongoing projects or implementation of ongoing programs.

The TCMs submitted as part of the mitigation for the CA/T project have been documented in the LRTP as recommended or completed projects, except for the Fairmount Line Improvement Project and the Green Line Extension.

The Massachusetts Department of Transportation (MassDOT) works with the DEP to implement TCMs documented in the SIP. The Boston Region MPO will continue to include relevant projects in the LRTP and TIP, including those projects implemented to provide equal or better emissions outcomes when the primary TCMs do not meet deadlines, until the process for completing all active TCMs has concluded. When the process has been completed, the MPO will amend the LRTP and future TIPs and their conformity determinations to document any changes (including any interim projects or programs).

A Status Report of Uncompleted SIP Projects

The status of the TCMs has been updated in the *SIP Transit Commitments Status Report*, which MassDOT submitted to DEP in August 2019. Highlights from the report are presented below. For a detailed description of the status of these projects, please visit the MassDOT website at https://www.mass.gov/files/documents/2018/08/02/SIP18ComStatReport.pdf

Fairmount Line Improvement Project—SIP Required Completion by December 2011

The Four Corners and Newmarket Stations on the Fairmount commuter rail line opened for service on July 1, 2013. All change orders have been paid and the project is officially closed out. The Talbot Avenue Station opened in November 2012.

The Blue Hill Avenue Station was redesigned and the 100 percent design plans were submitted to MassDOT in March 2016. In October 2016, MassDOT updated the public on the design plans and the next steps toward implementing the project. The project team advanced the project with the understanding that continued coordination with the community was paramount. Construction began in spring 2017, and the station opened in February 2019.

Given the delays in final completion of the project, MassDOT and the Massachusetts Bay Transportation Authority (MBTA) prepared a Petition to Delay and an Interim Emission Offset Plan to be implemented for the duration of the delay of the Fairmount Line Improvement Project. Both the petition and the offset plan were submitted to DEP in July 2011. MassDOT estimated the amount of emission reduction that would be expected from the implementation of the new Fairmount Line stations. With input from Fairmount Line stakeholders, MassDOT proposed offset measures that would meet emission reduction targets while the project remained under construction. The measures include providing shuttle bus service in Boston connecting Andrew Square to Boston Medical Center and increasing service on MBTA bus Route 31, which serves the Boston neighborhoods of Dorchester and Mattapan. These measures were implemented on January 2, 2012, and are currently in place.

Funding Source: The Commonwealth

Green Line Extension to Somerville and Medford Project—SIP Required Completion by December 2014

The Green Line Extension project is a 4.7 mile light rail line, which will extend the current Green Line service from a relocated Lechmere Station in East Cambridge to a terminus at College Avenue in Medford, with a spur to Union Square in Somerville. This project is moving forward with a new cost estimate of $2.289 billion. Funding is in place, including a combined $1.99 billion in federal and state funds and pledged contributions totaling approximately $296 million from the Cities of Cambridge and Somerville ($75 million), the Boston Region MPO ($157.1 million), and MassDOT ($64.3 million through Special Obligation Bonds).

In early 2017, the MBTA initiated a procurement process for a design-build entity to design and construct the project. In November 2017, approval was received to execute a design-build contract with Green Line Extension contractors. The notice to proceed under the contract was issued in December 2017. The FTA obligated an initial portion ($100 million) of the Capital Investment Grant funds for the project in December 2017, under the 2015 Full Funding Grant Agreement. Additional funds have since followed. The contract with Green Line Extension contractors is in the amount of $954 million.

The primary goals of the project are to improve corridor mobility, boost transit ridership, improve regional air quality, ensure equitable distribution of transit services, and support opportunities for sustainable development in Cambridge, Somerville, and Medford. In addition to the light rail service on two new branches extending from Lechmere Station to Union Square Station and College Avenue Station, the project includes the construction of a vehicle maintenance facility and a multiuse path.

SIP Requirement Status

By filing an Expanded Environmental Notification Form, procuring multiple design consultants, and publishing both Draft and Final Environmental Impact Reports, MassDOT met the first four interim milestones associated with the Green Line Extension project. Since those filings, MassDOT has committed substantial resources to the Green Line Extension project, a top transportation priority of the Commonwealth and the largest expansion of the MBTA rapid transit system in decades. The project then transitioned from the planning and environmental review phases to the design, engineering, and construction phases, and the tasks associated with programming federal funding began.

The timeline for overall project completion, however, has been substantially delayed. In the 2011 SIP Status Report, MassDOT reported that the Green Line Extension project would not meet the legal deadline for completion by December 31, 2014. The delay triggered the requirement 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 value for reductions of non-methane hydrocarbons, CO, and NOx that would be equal to or greater than the reductions projected to result from the operation of the Green Line Extension during the period of the delay, as specified in the SIP regulation.

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. Then 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 the implementation of the Green Line Extension.

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

- Additional off-peak service along existing routes serving the 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 the DEP on July 22, 2014, and expanded further on the analysis and determination of the interim offset measures. In a letter dated July 16, 2015, the DEP conditionally approved MassDOT's request to delay the Green Line Extension project and the implementation of the above interim mitigation measures. Both the 2014 Petition to Delay and the July 2015 Conditional Approval are available on MassDOT's website. Interim offset measures will remain in place for as long as is necessary.

Funding Source: The Commonwealth, FTA via the Full Funding Grant Agreement, the Boston Region MPO, the City of Cambridge, and the City of Somerville

Russia Wharf Ferry Terminal

Former MassDOT Secretary Richard Davey approved construction of the permitted Russia Wharf Ferry Terminal in South Boston and a $460,000 ferry-service startup subsidy in October 2012. The 2005 facility plans and specifications were revised to meet the latest MassDOT Highway Division standards. The bid package was issued in the fall of 2013. A contractor was selected and the notice to proceed was issued in April 2014. Pre-construction activities progressed, but contractual issues associated with the project design led MassDOT to decide to rebid the contract.

There is no regularly scheduled passenger water transportation service in this area, nor are there any plans to provide such a service. The City of Boston, however, is undertaking design and engineering work to address the Old Northern Avenue Bridge and will consider ferry vessel clearance. The City received a grant in 2012 to purchase two ferry vessels for use in Boston's inner harbor, and these

vessels could serve the Russia Wharf Ferry Terminal. The Massachusetts Convention Center Authority (MCCA) is working with the City of Boston, MassDOT, and other agencies to develop a business plan for potential ferry service from Lovejoy Wharf to the South Boston waterfront, as recommended in the 2015 *South Boston Waterfront Sustainable Transportation Plan*. This business plan will include current and future demand projections for ferry ridership, the number and size of ferries needed to satisfy the demand, and the cost for this service. Once the business plan is completed, the MCCA could take over the City of Boston's grant to help with future costs.

Funding Source: The Commonwealth

Fiscal Constraint

Transportation conformity requirements in 40 CFR § 93.108 state that TIPs and LRTPs must be fiscally constrained so as to be consistent with the United States Department of Transportation's metropolitan planning regulations (23 CFR part 450). The Boston Region MPO's FFYs 2021–25 TIP is consistent with the required fiscal constraints, as demonstrated in Chapter 3.

CARBON MONOXIDE

In addition to ozone, the requirement to perform a conformity determination for CO for several cities in the Boston region has expired. On April 1, 1996, the EPA classified the cities of Boston, Cambridge, Chelsea, Everett, Malden, Medford, Quincy, Revere, and Somerville as in attainment (in compliance) for CO emissions. Subsequently, a CO maintenance plan was set up through the Massachusetts SIP to ensure that emission levels did not increase. While the maintenance plan was in effect, past TIPs and LRTPs included an air quality conformity analysis for these communities. As of April 1, 2016, however, the 20-year maintenance period for this CO maintenance area expired and transportation conformity is no longer required for this pollutant in these communities. This ruling is documented in a letter from the EPA dated May 12, 2016.

On April 22, 2002, the City of Waltham was redesignated as being in attainment for CO emissions with an EPA-approved limited-maintenance plan. In areas that have approved limited-maintenance plans, federal actions requiring conformity determinations under the EPA's transportation conformity rule are considered to satisfy the budget test (as budgets are not treated as being constraining in these areas for the length of the initial maintenance period). Any requirements for future project-level conformity determinations for projects located within this community will continue to use a hot-spot analysis to ensure that any new transportation projects in this area do not cause or contribute to violations of the NAAQS for CO.

CONCLUSION

In summary and based on the entire process described above, the Boston Region MPO has prepared this conformity determination for the 1997 Ozone NAAQS in accordance with EPA's and the Commonwealth of Massachusetts' latest conformity regulations and guidance. This conformity determination process demonstrates that the FFY 2021–25 TIP meets the Clean Air Act and

Transportation Conformity Rule requirements for the 1997 Ozone NAAQS, and has been prepared following all the guidelines and requirements of these rules during this period.

Therefore, the implementation of the Boston Region MPO's FFY 2021–25 TIP is consistent with the air quality goals of, and in conformity with, the Massachusetts SIP.


Owned and Operated By:
M&L Transit Systems Inc.
Woburn, MA 01801
USDOT# 00569035 ICC/MC#277331

CHAPTER 6
TRANSPORTATION EQUITY PERFORMANCE

To comply with federal nondiscrimination and environmental justice mandates, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) require that metropolitan planning organizations (MPOs) monitor how their federally funded investments, in the aggregate, may affect populations protected by those mandates. This monitoring helps ensure that these populations are not disproportionately burdened by or receive disproportionately fewer benefits from MPO investments than the population as a whole. This chapter provides the results of analyses conducted for projects programmed in the federal fiscal years (FFYs) 2021–25 Transportation Improvement Program (TIP).

FEDERAL REQUIREMENTS

The Boston Region MPO's transportation equity (TE) goal is to ensure that all people receive comparable benefits from, and are not disproportionately burdened by, MPO investments, regardless of race, color, national origin, age, income, ability, or sex. The MPO aims to ensure that all residents fairly share in the benefits and burdens of its transportation planning investments, have opportunities to participate in the transportation planning process, and have a voice in the selection of transportation investments in their communities. The MPO's practices to achieve this goal are shaped by various federal nondiscrimination and environmental justice laws, regulations, and directives, including Title VI of the Civil Rights Act of 1964; the Americans with Disabilities Act of 1990; Executive Order 13166—*Improving Access to Services for Persons with Limited English Proficiency*; and Executive Order 12898—*Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*. More information on these mandates can be found in Appendix E.

The MPO systematically integrates the transportation needs and interests of specific traditionally underserved populations—which for planning purposes are identified as *TE populations*—into its planning process and strives to address their concerns through the selection of transportation projects and other efforts. TE populations include people who identify as minority, have limited English proficiency (LEP), are 75 years of age or older, or have a disability; or who are members of low-income or transit-dependent households.[1] These populations include those protected by federal laws and regulations—such as the minority population and people with disabilities—as well as those not protected by federal laws or regulations but of interest to the MPO from an equity standpoint because they have specific transportation needs (such as members of transit-dependent households).[2]

TRANSPORTATION EQUITY ASSESSMENT

The results of analyses reported in this section assess the impacts of Regional Target-funded projects programmed in the FFYs 2021–25 TIP, in the aggregate, on TE populations.[3] New to this TIP are analyses based on new metrics for evaluating transportation emissions and trends for several metrics that were assessed in past TIPs.

Most of the MPO's FFYs 2021–25 Regional Target funds have been invested in highway projects, except for funds that have been flexed to the Transit Program to support the Massachusetts Bay Transit Authority's (MBTA) Green Line Extension project and most of the funds allocated to the MPO's Community Connections investment program. In addition, the MPO established a new investment program, Transit Modernization, in the 2019 Long-Range Transportation Plan (LRTP), *Destination 2040*. This program will fund transit maintenance and modernization projects identified through coordination with the Massachusetts Department of Transportation (MassDOT), the MBTA, the MetroWest Regional Transit Authority (MWRTA), and the Cape Ann Transit Authority (CATA). While funds have been allocated in the TIP for this program, projects have not yet been identified. This is also the case for the funding allocated in the outer four years of the Community Connections Program (FFYs 2022–25).

These analyses do not reflect the impacts of other highway projects in the region that are funded by MassDOT or transit projects funded by public transit agencies, including the MBTA, MWRTA, and CATA. As a result, these analyses do not fully capture the number of people served, the shares of funding directed to TE populations, or the impacts of investments on TE populations in the region. As required by FTA Title VI guidance, the MPO completes a full analysis of all federally funded transit

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

2 MPO staff identifies transportation equity populations using US Census and American Community Survey (ACS) data. Staff tabulates LEP status for the population age five and older, and tabulates disability status for the noninstitutionalized population. The low-income threshold for the Boston region that was in place during the development of the FFYs 2021–25 TIP was set using the region's median household income, which is $75,654 according to the 2010–14 ACS data. The Boston region's low-income threshold is 60 percent of this value, which is $45,392. (When the TIP project selection criteria revisions are complete in FFY 2020, this threshold will be revised to 200 percent of the poverty level based on family size.)

3 Regional Target funds are those funds provided to MPOs that may be programmed for projects at the discretion of each MPO. The Boston Region MPO typically has about $100 million each year in Regional Target funds.

investments in the Boston region in a given federal fiscal year once that information is available in the following federal fiscal year. The MPO documents these analyses in its Triennial Title VI Report.

Table 6-1 shows the total number of people or households that each TE population in the Boston region represents, as well as their share of the Boston region's total population or households.

Table 6-1: Transportation Equity Populations in the Boston Region

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

Note: For the minority population, people with LEP, elderly population, and people with disabilities categories, the amounts in the "Transportation Equity Population" and "Boston Region Total Population" columns reflect numbers of people. For the low-income and transit-dependent household categories, the amounts in these columns reflect numbers of households.

[a] Footnote 2 in this chapter describes the methods MPO staff uses to tabulate transportation equity populations.

Sources: The 2010 US Census and the 2010–14 American Community Survey.

TRANSPORTATION EQUITY POPULATIONS SERVED BY REGIONAL TARGET-FUNDED PROJECTS

During project evaluations, the MPO identifies projects that would benefit TE populations and gives points to projects that are likely to serve those populations. A project is considered to serve people who live within one-half mile of the project's limits. A project receives points if the share of the TE population served meets or exceeds the population's share of the region's total population, or threshold, as shown in Table 6-1. The number of points awarded to each qualifying project is based on the total number of people or households in the TE population. Appendix A shows the scores for projects evaluated during the FFYs 2021–25 TIP development cycle.

While the TIP project criteria are designed to evaluate individual projects, the MPO also analyzes how the TE populations are served by all Regional Target-funded projects in the aggregate. Table 6-2 shows the size of the TE populations that would be served by these projects and the share of the total number of people or households that would be served by them (based on proximity to the project, as defined above). The results show that the share of each TE population that would be served by the Regional Target projects approaches or exceeds the share that each group comprises of the total population of the Boston region. This preliminary metric suggests that the MPO is likely not underserving the TE populations in the region, although this analysis does not assess impacts on TE populations.

Table 6-2: Transportation Equity Populations within One-Half Mile of Regional Target-Funded Projects

TE Category[a]	TE Population in Project Area	Total Population in Project Area	Share of TE Population in Project Area	Share of Boston Region Total Population
Minority Population	189,261	602,961	31.4%	28.2%
People with Limited English Proficiency	79,471	571,240	13.9%	10.6%
Elderly (age 75 or older)	42,590	602,963	7.1%	6.7%
People with Disabilities	56,668	598,214	9.5%	10.0%
Low-income Households	84,835	242,221	35.0%	32.2%
Transit-dependent Households	56,636	242,222	23.4%	16.1%

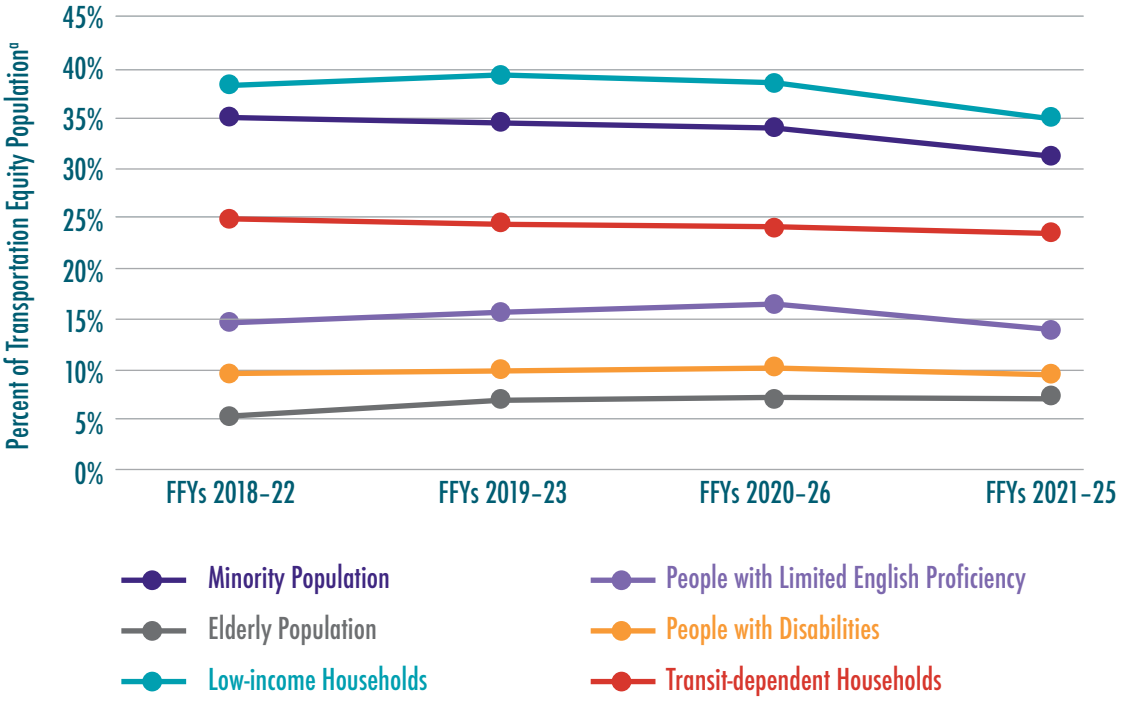
Note: For the minority population, people with LEP, elderly population, and people with disabilities categories, the numbers in the "TE Population in Project Area" and "Share of TE Population in Project Area" columns reflect numbers of people. For the low-income and transit-dependent household categories, the numbers in these columns reflect the number of households. This information does not include figures for the Transit Modernization Program, as those projects have not yet been identified, or those projects that have not yet been identified in the four outer years of the Community Connections Program.

[a] Footnote 2 in this chapter describes the methods MPO staff uses to tabulate TE populations.

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

Figure 6-1 shows the percent of TE populations served (out of the entire population served) by Regional Target projects in the FFYs 2018–22, 2019–23, 2020–24, and 2021–25 TIPs. Since FFYs 2018–22, there has not been a significant change in numbers served for most of the TE populations. The percent of the elderly population in the project areas has increased by a couple of percentage points, while the percent of the other TE populations in the project areas have decreased slightly. In light of this trend, the MPO could consider opportunities for ensuring the Regional Target program serves a greater share of these populations. (See Section 6.3 for further discussion about the MPO's next steps.)

Figure 6-1: Transportation Equity Populations within One-Half Mile of the Regional Target Projects: FFYs 2018–22, 2019–23, 2020–24, and 2021–25 TIPs



Note: For the minority population, people with LEP, elderly population, and people with disabilities categories, the numbers reflect numbers of people. For the low-income and transit-dependent household categories, the amounts reflect the number of households. This analysis examines populations located within one-half mile of Regional Target projects programmed in the FFYs 2018–22, 2019–23, 2020–24, and 2021–25 TIPs. For the FFYs 2021–25 TIP, it does not include figures for the Transit Modernization Program, as those projects have not yet been identified, or those projects that have not yet been identified in the outer years of the Community Connections Program. For information about the data for the FFYs 2018–22, 2019–23, and 2020–24 TIPs, see the respective documents.

[a] Footnote 2 in this chapter describes the methods MPO staff uses to tabulate TE populations.

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

Table 6-3 shows the number of households or people in each TE population served by the projects funded with Regional Target dollars for each MPO investment program. The share of people or households served varies across investment programs. The share of people or households served by the Complete Streets investment program exceeds the regional share for every TE population. The Bicycle Network and Pedestrian Connections Program does not serve the region's minority population, people with LEP, and transit dependent households as well, but it serves a higher share of the elderly population and people with disabilities than the regional averages. The same is the case for the Intersection Improvements Program except that the percent of people with disabilities served is below the regional average. The Major Infrastructure Program serves all TE populations well except the elderly population. Finally, the Community Connections Program serves the same share of the elderly population as the regional average but a lower share for all of the other TE populations.

As noted in the table, the number of projects within each MPO investment program varies. The number of projects in an investment program affects the extent to which the overall program is able to serve TE populations. For example, there are only five projects each in the Bicycle Network and Pedestrian Connections Program and the Major Infrastructure Program, which is in part due to the number of projects in these investment categories that municipalities and other entities submitted to the MPO for funding.

Table 6-3: Transportation Equity Populations Served by Regional Target Projects, by Investment Program

MPO Investment Program	Number of Projects	Minority Population		People with Limited English Proficiency		Elderly (age 75 or older) Population		People with Disabilities		Low-income Households		Transit-dependent Households	
		Population	Share	Population	Share	Population	Share	Population	Share	Population	Share	Population	Share
Bicycle Network and Pedestrian Connections	5	2,803	11.1%	1,029	4.3%	3,168	12.56%	3,065	12.3%	3,418	31.5%	932	8.6%
Complete Streets	24	102,601	37.9%	45,621	17.9%	20,667	7.64%	28,913	10.8%	46,216	43.6%	28,255	26.6%
Intersection Improvements	9	2,357	14.7%	686	4.5%	1895	11.81%	1,453	9.4%	1,826	28.0%	457	7.0%
Major Infrastructure[a]	4	44,573	33.6%	21,393	17.0%	6,249	4.71%	12,090	9.2%	19,856	33.8%	19,013	32.4%
Community Connections	5	36,927	23.3%	10,742	7.1%	10,611	6.7%	11,147	7.1%	13,519	22.5%	7,979	13.3%
Total	**47**	**189,261**	**31.4%**	**79,471**	**13.91%**	**42,590**	**7.06%**	**56,668**	**9.5%**	**84,835**	**35.02%**	**56,636**	**23.4%**
Regionwide Average[b]		**28.2%**		**10.6%**		**6.7%**		**10.0%**		**32.3%**		**16.1%**	

Note: For the minority population, people with LEP, elderly population, and people with disabilities, the numbers in the "Population" columns for each transportation equity population reflect numbers of people. For low-income and transit-dependent households the numbers in these columns reflect the number of households. This analysis examined populations located within one-half mile of Regional Target-funded projects in the FFYs 2021–25 TIP. It does not include figures for the Transit Modernization Program, as those projects have not yet been identified, or those projects that have not yet been identified in the outer years of the Community Connections Program.

[a] These figures include federal highway improvement dollars flexed to transit to support the Green Line Extension.

[b] Footnote 2 in this chapter describes the methods MPO staff uses to tabulate transportation equity populations.

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

EMISSION IMPACTS ON TRANSPORTATION EQUITY POPULATIONS

Table 6-4 shows projected emission reductions of carbon monoxide, volatile organic compounds, and nitrogen oxides that would result from the implementation of Regional Target-funded projects for TE populations and their respective general populations. Reductions are reported in kilograms per person or household and are aggregate figures. The reductions benefiting the elderly population and the low-income and transit-dependent households are greater than their respective general populations. This indicates that those TE populations are projected to receive a proportionate share of the emission reduction benefits. The minority population, people with LEP, and people with disabilities are projected to experience less emission reduction benefits per person than their respective general populations. This indicates that they would benefit disproportionately less from the implementation of Regional Target-funded projects. This is the first year that the MPO has conducted this analysis; in future TIPs the analysis will include an examination of the change in emission reductions over time in order to develop a more complete picture of the air quality impacts of the MPO's Regional Target program.

Table 6-4: Reduction in Carbon Monoxide, Volatile Organic Compounds, and Nitrogen Oxide Emissions per 1,000 People or Households

Population Categories[a]	Emissions Reduction per 1,000 People or Households (kilograms)
Minority Population	-22.8
Nonminority Population	-28.5
People with Limited English Proficiency	-18.0
People Fluent in English	-29.7
Elderly Population (age 75 or older)	-36.0
People under the age of 75	-26.0
People with Disabilities	-25.5
People without Disabilities	-27.1
Low-income Households	-68.6
Non-low-income Households	-65.9
Transit-dependent Households	-76.6
Non-transit-dependent Households	-64.1

Note: This analysis examines populations located within one-half mile of Regional Target-funded projects in the FFYs 2021–25 TIP. It does not include the following projects or investment programs:

- Transit Modernization Program investments are excluded because specific projects in this program have not yet been identified.
- Projects that are programmed in the outer four years in the TIP for the Community Connections Program are excluded as these projects have not yet been identified.
- The New Boston Street Bridge project is excluded because its air quality impact was modeled as part of the air quality analysis for the Long-Range Transportation Plan.
- The Sharon Carpool Marketing project was excluded because it is an education project and therefore could not be assessed for air quality impacts.

[a] Footnote 2 in this chapter describes the methods MPO staff uses to tabulate transportation equity populations.

Source: Boston Region MPO's Congestion Mitigation and Air Quality (CMAQ) analyses.

FUNDING FOR TRANSPORTATION EQUITY POPULATIONS

The results of the analyses reported in this section show how Regional Target funds were distributed to TE populations based on the share of those populations served by the set of Regional Target projects in the aggregate. (The population expected to be served are those that live within one-half mile of the projects.)

The MPO has programmed approximately $537 million in Regional Target funding in the FFYs 2021–25 TIP. Table 6-5 shows how this funding is allocated to TE populations and their respective general populations. Some TE populations would receive less funding when compared to general populations, including the minority population, people with LEP, and low-income and transit-dependent households. The elderly population and people with disabilities would receive more funding than their respective general populations. These differences do not necessarily indicate differences in service or access to these transportation improvements. Further analysis would be necessary to identify specific benefits and burdens that may result from the Regional Target program.

Table 6-5: Funding Per Person or Household for Transportation Equity Populations

Population Categories[a]	Funding Per Capita or Household
Minority Population	$695
Nonminority Population	$981
People with Limited English Proficiency	$770
People Fluent in English	$968
Elderly Population (age 75 or older)	$955
People under the age of 75	$887
People with Disabilities	$911
People without Disabilities	$894
Low-income Households	$2,033
Non-low-income Households	$2,319
Transit-dependent Households	$1,872
Non-transit-dependent Households	$2,325

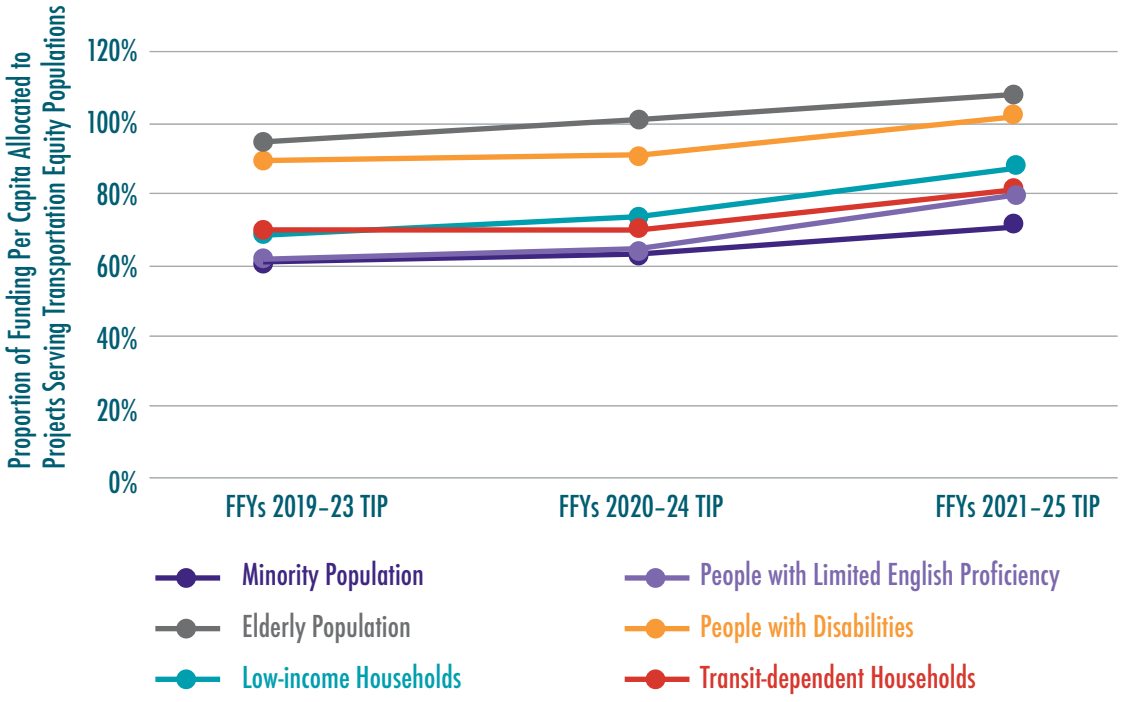
Note: For the minority population, people with LEP, elderly population, and people with disabilities, and their respective general populations, the numbers in the "Funding Per Capita or Household" column reflect funding per person. For the low-income and transit-dependent household categories, the numbers in this column reflect the funding per household. This analysis examines populations located within one-half mile of Regional Target projects in the FFYs 2021–25 TIP. Because individual projects have not been identified under the Transit Modernization Program and for the outer four years of the Community Connections Program, the funding for these programs has been assigned to the entire population in the Boston region.

[a] Footnote 2 in this chapter describes the methods MPO staff uses to tabulate TE populations.

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

Figure 6-2 shows the data in Table 6-5 for the FFYs 2019–23, 2020–24, and 2021–25 TIPs. It shows the per capita or per household funding for TE populations as a percent of the funding for their respective general populations. (For example, a result of 90 percent would indicate that for every $100 that goes toward investments that serve the general population, $90 would go toward investments that serve the TE population. This calculation is based on the share of the population living within a half-mile of each project, assuming that that population would be served by the project.) Between the FFYs 2019–23 and 2021–25 TIPs, this percentage has increased for all of the TE populations. In the FFYs 2021–25 TIP, the funding for the elderly population and people with disabilities exceeds 100 percent. This indicates that these two populations would receive more funding per capita than their respective general populations. With regards to the distribution of MPO Regional Target funds overall, TE populations have been receiving more funding over the past three years, though four out of the six TE populations will receive disproportionately less funding. The MPO could consider increasing funding for projects that serve these TE populations in order to provide a more proportionate distribution of funding.

Figure 6-2: Proportion of Funding Per Capita Allocated to Projects Serving Transportation Equity Populations: FFYs 2019–23, 2020–24, and 2021–25 TIPs



Note: This analysis examined populations located within one-half mile of Regional Target projects in the FFYs 2019–23, 2020–24, 2021–25 TIPs. For the FFYs 2021–25 TIP, because individual projects have not been identified under the Transit Modernization Program and the outer four years of the Community Connections Program, the funding for these programs has been assigned to the entire population in the Boston region. For information about the data for the FFYs 2019–23 and 2020–24 TIPs, see the respective documents.

[a] Footnote 2 in this chapter describes the methods MPO staff uses to tabulate TE populations.

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

FUTURE ACTIVITIES TO IMPROVE AND MONITOR TRANSPORTATION EQUITY PERFORMANCE

The analyses discussed in this chapter are basic approaches to understanding whether TE populations might benefit from projects programmed in the TIP, based on the assumption that projects provide benefits to the people who live nearby the improvements. This is not always the case, however. Recognizing these limitations, the MPO introduced a new air quality analysis that attempts to assess projected air quality impacts to TE populations that are likely to result from the MPO's Regional Target projects. The MPO will continue to build on this approach in future TIPs. In addition, MPO staff is revising the equity-related TIP project selection criteria to allow for better identification of the potential benefits and burdens each project may confer. These criteria will be applied in the FFYs 2022–26 TIP.

The MPO will also continue to explore more sophisticated methods of identifying the specific benefits and burdens of the entire Regional Target program on TE populations. MPO staff has developed a similar analysis for the MPO's LRTP; continued refinement of the analysis will be ongoing in FFY 2020. Staff has also developed a draft Disparate Impact and Disproportionate Burden Policy that allows the MPO to identify potential future disparate impacts and disproportionate burdens that may result from the LRTP program of projects on minority populations and low-income populations. This work will inform the development of the MPO's benefits and burdens analysis for the TIP. MPO staff hopes to link the TIP benefits and burdens analysis with the LRTP's analysis and the new equity-related TIP project selection criteria in order to achieve a better understanding of whether the MPO's project selection process is enabling the MPO to meet its equity goals. Staff anticipates continuing to track the results of these analyses over time and enhancing them each year.

APPENDIX A

PROJECT PRIORITIZATION AND SCORING

1.1 INTRODUCTION

As described in Chapter 2, the Transportation Improvement Program (TIP) development and project prioritization and funding process consists of numerous phases and is supported by several different funding sources. This appendix includes information about transportation projects that the Boston Region Metropolitan Planning Organization (MPO) considered for funding through the Highway Discretionary (Regional Target) Program in the federal fiscal years (FFYs) 2021–25 TIP.

To be considered for funding by the MPO, a project must fulfill certain basic criteria. For projects evaluated through the MPO's Bicycle Network and Pedestrian Connections, Complete Streets, Intersection Improvements, and Major Infrastructure investment programs

- the Massachusetts Department of Transportation's Project Review Committee must have approved the project or must plan to review it;
- the project proponent must be a municipality or state agency; and
- the project must be at 25 percent design or demonstrate the level of detail of a project near this threshold. Documentation illustrating this level of design, such as Functional Design Reports, project locus maps and designs, operations analyses, and Highway Capacity Manual data sheets showing future build and no-build scenarios must be submitted.

For projects evaluated through the MPO's Community Connections Program

- the project must submit a complete application for funding to MPO staff, along with supporting documentation such as geographic files depicting the project area and budgeting worksheets (for operational projects);

- the project proponent must be a municipality, transportation management association (TMA), or regional transit authority (RTA). Other entities, such as nonprofit organizations, may apply in partnership with a municipality, TMA, or RTA that has agreed to serve as a project proponent and fiscal manager;
- the project must demonstrate that it will not have a negative impact on air quality, as this program is funded using federal Congestion Mitigation and Air Quality funds; and
- the project proponent must demonstrate its readiness and institutional capacity to manage the project sustainably.

If a project meets the above criteria, it is presented to the MPO board in the Universe of Unprogrammed Projects (Tables A-1 and A-4) to be considered for funding. Both project lists are presented to the MPO in November and provide a snapshot of information available on projects at that stage in TIP development. For these reasons, some projects that get evaluated for funding may not appear in either Universe, as more project information may become available after this time. In addition, some projects that appear on the Universe lists may not be scored in a given year if these projects are not actively being advanced by municipal or state planners.

Once a project in either Universe provides sufficient design documentation and is an active municipal or state priority for funding, it can be evaluated by MPO staff. The evaluation criteria used to score projects are based on the MPO's goals and objectives and are outlined in Tables A-2 and A-5. After the projects are scored, the scores are shared with project proponents, posted on the MPO's website, and presented to the MPO board for review and discussion. The scores for projects evaluated during development of the FFYs 2021–25 TIP for programming in the MPO's Bicycle Network and Pedestrian Connections, Complete Streets, Intersection Improvements, and Major Infrastructure investment programs are summarized in Table A-3. Scoring summaries for those projects programmed through the pilot round of the MPO's Community Connections Program are detailed on those projects' respective summary pages in Chapter 3.

Table A-1: Draft FFYs 2021-25 Transportation Improvement Program (TIP) Universe of Projects

Subregion | MPO Investment Program | New project in TIP universe for FFYs 2021-25 cycle | Project evaluated for FFYs 2020-24 TIP, but not funded | Project listed in FFYs 2020-24 universe, but not evaluated

Municipality	Project Proponent	Project Name	PROJIS	MassDOT Design Status	Cost Estimate	MAPC Subregion	Highway District	MPO Investment Program	Notes	Previous Evaluation Score
Inner Core										
Complete Streets										
Boston	Boston	Reconstruction of Tremont Street, from Court Street to Boylston Street	601274	25% design (2/13/2006)	$2,681,260	ICC	6	Complete Streets		
Boston	Boston	Reconstruction of Tremont Street, from Stuart Street to Marginal Road (1,830 feet)	601507	PRC approved (1996)	$4,400,000	ICC	6	Complete Streets		
Boston	MassDOT	Gallivan Boulevard (Route 203) Safety Improvements, from Washington Street to Granite Avenue	610560	Pre-PRC	$5,750,000	ICC	6	Complete Streets	Seeking PRC approval 12/19/19. New for FFYs 2021–25 TIP evaluation cycle.	
Boston	MassDOT	Improvements on (Route 203) Morton Street, from West of Gallivan Boulevard to Shea Circle	606897	PRC approved (2012)	$11,500,000	ICC	6	Complete Streets		
Boston	MassDOT	Reconstruction on (Route 203) Gallivan Boulevard, from Neponset Circle to East of Morton Street Intersection	606896	PRC approved (2012)	$11,500,000	ICC	6	Complete Streets		
Chelsea	Chelsea	Beacham and Williams Street Reconstruction	609083	PRC approved (2018)	$8,281,525	ICC	6	Complete Streets		
Chelsea	Chelsea	Reconstruction of Marginal Street	N/A	Pre-PRC		ICC	6	Complete Streets	New for FFYs 2021–25 TIP evaluation cycle	
Chelsea	Chelsea	Reconstruction of Pearl Street	N/A	Pre-PRC		ICC	6	Complete Streets	New for FFYs 2021–25 TIP evaluation cycle	
Chelsea	Chelsea	Reconstruction of Spruce Street	N/A	Pre-PRC		ICC	6	Complete Streets	New for FFYs 2021–25 TIP evaluation cycle	
Chelsea	MassDOT	Targeted Safety Improvements and Related Work on Broadway, from Williams Street to City Hall Avenue	609532	PRC approved (2019)	$5,750,000	ICC	6	Complete Streets	New for FFYs 2021–25 TIP evaluation cycle.	
Newton	Newton	Improvements of Route 128/I-95 and Grove Street	607940	PRC approved (2014)	$10,000,055	ICC	6	Complete Streets		
Newton	Newton	Reconstruction and Signal Improvements on Walnut Street, from Homer Street to Route 9	601704	25% design (12/23/2013)	$4,648,360	ICC	6	Complete Streets		41
Newton	Newton	Reconstruction on Route 30 (Commonwealth Avenue), from Weston Town Line to Auburn Street	600932	PRC approved (1996)	$2,208,000	ICC	6	Complete Streets		

Table A-1: Draft FFYs 2021-25 Transportation Improvement Program (TIP) Universe of Projects (cont., p. 2)

Subregion | MPO Investment Program | New project in TIP universe for FFYs 2021-25 cycle | Project evaluated for FFYs 2020-24 TIP, but not funded | Project listed in FFYs 2020-24 universe, but not evaluated

Municipality	Project Proponent	Project Name	PROJIS	MassDOT Design Status	Cost Estimate	MAPC Subregion	Highway District	MPO Investment Program	Notes	Previous Evaluation Score
Newton, Brookline	MassDOT	Resurfacing and Related Work on Route 9	608821	PRC approved (2017)	$7,337,000	ICC	6	Complete Streets		
Saugus	MassDOT	Pedestrian Improvements on Main Street/Route 1	610534	PRC approved (2019)	$1,319,288	ICC	4	Complete Streets		
Winthrop	Winthrop	Reconstruction and Improvements on Route 145	609446	PRC approved (2019)	$7,565,512	ICC	6	Complete Streets	New for FFYs 2021–25 TIP evaluation cycle	
Intersection Improvements										
Boston	Boston	Traffic Signal Improvements at Eight Locations	606556	PRC approved	$3,603,960	ICC	6	Intersection Improvements		
Boston, Brookline	Boston, Brookline	Mountfort Street and Commonwealth Avenue Connection	608956	PRC approved (2017)	$916,883	ICC	6	Intersection Improvements		
Cambridge	DCR	Intersection Improvements at Fresh Pond Parkway/Gerry's Landing Road, from Brattle Street to Memorial Drive	609290	PRC approved (2019)	$7,000,000	ICC	6	Intersection Improvements	New for FFYs 2021–25 TIP evaluation cycle	
Medford	Medford	Intersection Improvements at South Street and Main Street	N/A	Pre-PRC	$6,000,000	ICC	4	Intersection Improvements	New for FFYs 2021–25 TIP evaluation cycle. Project location studied by CTPS.	
Newton	MassDOT	Traffic Signal and Safety Improvements at Interchange 17 (Newton Corner)	609288	PRC approved (2019)	$14,000,000	ICC	6	Intersection Improvements	New for FFYs 2021–25 TIP evaluation cycle	
Bicycle and Pedestrian										
Belmont	Belmont	Community Path, Belmont Component of the Mass Central Rail Trail (Phase 1)	609204	PRC approved (2018)	$16,703,600	ICC	4	Bicycle and Pedestrian		
Boston	Boston	South Bay Harbor Trail, from Albany Street to Melnea Cass Boulevard	N/A	Pre-PRC		ICC	6	Bicycle and Pedestrian	New for FFYs 2021–25 TIP evaluation cycle.	
Boston	MassDOT	Leverett Circle Pedestrian Bridge over Route 28, I-93 Ramps and Storrow Drive	606703	PRC approved (2012)	$11,040,000	ICC	6	Bicycle and Pedestrian		
Major Infrastructure										
Boston	Boston	Roadway Improvements along Commonwealth Avenue (Route 30), from Alcorn Street to Warren/ Kelton Streets (Phase 3 and Phase 4)	608449	25% design (2017)	$31,036,006	ICC	4	Major Infrastructure	Project not programmed in LRTP.	56

Table A-1: Draft FFYs 2021-25 Transportation Improvement Program (TIP) Universe of Projects (cont., p. 3)

Subregion | MPO Investment Program | New project in TIP universe for FFYs 2021-25 cycle | Project evaluated for FFYs 2020-24 TIP, but not funded | Project listed in FFYs 2020-24 universe, but not evaluated

Municipality	Project Proponent	Project Name	PROJIS	MassDOT Design Status	Cost Estimate	MAPC Subregion	Highway District	MPO Investment Program	Notes	Previous Evaluation Score
Lynn	Lynn	Reconstruction of Western Avenue (Route 107)	609246	PRC approved (2018)	$36,205,000	ICC	4	Major Infrastructure	LRTP project (FFYs 2025–29)	64
Revere, Malden	MassDOT	Improvements on Route 1 (NB) Add-A-Lane	610543	PRC approved (2019)	$7,210,000	ICC	4	Major Infrastructure	New for FFYs 2021–25 TIP evaluation cycle. Project not programmed in LRTP.	
Saugus	Saugus	Interchange Reconstruction at Walnut Street and Route 1 (Phase II)	601513	75% design (3/8/2016)	$19,581,123	ICC	4	Major Infrastructure	Project not programmed in LRTP.	43
Somerville	Somerville	McGrath Boulevard Project	607981	PRC approved	$88,250,000	ICC	4	Major Infrastructure	LRTP project (FFYs 2025–29)	76
Minuteman Advisory Group on Interlocal Coordination										
Major Infrastructure										
Concord	Concord	Reconstruction and Widening on Route 2, from Sandy Pond Road to Bridge over MBTA/B&M Railroad	608015	PRC approved (2014)	$8,000,000	MAGIC	4	Major Infrastructure	New for FFYs 2021–25 TIP evaluation cycle. Project not programmed in LRTP.	
Lexington	Lexington	Route 4/225 (Bedford Street) and Hartwell Avenue	N/A	Pre-PRC	$30,557,000	MAGIC	4	Major Infrastructure	LRTP project (FFYs 2030–34). New for FFYs 2021–25 TIP evaluation cycle.	
MetroWest Regional Collaborative										
Complete Streets										
Wellesley	MassDOT	Resurfacing and Related Work on Route 9, from Dearborn Street to Natick Town Line	607340	PRC approved (2012)	$16,462,400	MWRC	6	Complete Streets		
Weston	Weston	Reconstruction on Route 30	608954	PRC approved (2017)	$8,117,562	MWRC	6	Complete Streets		
Intersection Improvements										
Framingham	MassDOT	Roundabout Construction at Salem End Road, Badger Road and Gates Street	609280	PRC approved (2018)	$2,520,000	MWRC	3	Intersection Improvements	New for FFYs 2021–25 TIP evaluation cycle	
Weston	Weston	Intersection Improvements—Boston Post Road (Route 20) at Wellesley Street	608940	PRC approved (2017)	$1,219,250	MWRC	6	Intersection Improvements		

Table A-1: Draft FFYs 2021-25 Transportation Improvement Program (TIP) Universe of Projects (cont., p. 4)

Subregion | MPO Investment Program | New project in TIP universe for FFYs 2021-25 cycle | Project evaluated for FFYs 2020-24 TIP, but not funded | Project listed in FFYs 2020-24 universe, but not evaluated

Municipality	Project Proponent	Project Name	PROJIS	MassDOT Design Status	Cost Estimate	MAPC Subregion	Highway District	MPO Investment Program	Notes	Previous Evaluation Score
Major Infrastructure										
Framingham	Framingham	Intersection Improvements at Route 126 and Route 135/MBTA and CSX Railroad	606109	PRC approved (5/13/2010)	$115,000,000	MWRC	3	Major Infrastructure	LRTP project (FFYs 2030–34). New for FFYs 2021–25 TIP evaluation cycle.	
Natick	Natick	Bridge Replacement, Route 27 (North Main Street) over Route 9 (Worcester Street) and Interchange Improvements	605313	25% design (1/12/2015)	$25,897,370	MWRC	3	Major Infrastructure	LRTP project (FFYs 2025–29)	57
Wellesley	Wellesley	Roundabout Construction at Wellesley Avenue/ Great Plains Avenue (Route 135) and Seaver Street	N/A	Pre-PRC		MWRC	6	Major Infrastructure	New for FFYs 2021–25 TIP evaluation cycle. Project not programmed in LRTP.	
North Suburban Planning Council										
Complete Streets										
Lynnfield	Lynnfield	Reconstruction of Summer Street	609381	PRC approved (2019)	$21,521,921	NSPC	4	Complete Streets	New for FFYs 2021–25 TIP evaluation cycle	
Intersection Improvements										
Burlington	MassDOT	Improvements at I-95 (Route 128)/Route 3 Interchange	609516	PRC approved (2019)	$3,001,500	NSPC	4	Intersection Improvements	New for FFYs 2021–25 TIP evaluation cycle	
Woburn	MassDOT	Intersection Reconstruction at Route 3 (Cambridge Road) and Bedford Road and South Bedford Street	608067	PRC approved (2014)	$1,440,000	NSPC	4	Intersection Improvements		
Bicycle and Pedestrian										
Woburn	Woburn	Middlesex Canal Park Improvements, from Alfred Street to School Street (Phase II–Segment 5)	606304	PRC approved (2010)	$799,820	NSPC	4	Bicycle and Pedestrian		
Major Infrastructure										
Reading	MassDOT	Improvements on I-95	609527	PRC approved (2019)	$14,980,000	NSPC	4	Major Infrastructure	New for FFYs 2021–25 TIP evaluation cycle. Project not programmed in LRTP.	
North Shore Task Force										
Complete Streets										
Beverly, Manchester-by-the-Sea	MassDOT	Resurfacing and Related Work on Route 127	607707	PRC approved (2013)	$2,300,000	NSTF	4	Complete Streets		

Table A-1: Draft FFYs 2021-25 Transportation Improvement Program (TIP) Universe of Projects
(cont., p. 5)

Subregion | MPO Investment Program | New project in TIP universe for FFYs 2021-25 cycle | Project evaluated for FFYs 2020-24 TIP, but not funded | Project listed in FFYs 2020-24 universe, but not evaluated

Municipality	Project Proponent	Project Name	PROJIS	MassDOT Design Status	Cost Estimate	MAPC Subregion	Highway District	MPO Investment Program	Notes	Previous Evaluation Score
Danvers	Danvers	Reconstruction on Collins Street, from Sylvan Street to Centre and Holten Streets	602310	75% design (3/5/2010)	$5,183,121	NSTF	4	Complete Streets		46
Manchester-by-the-Sea	Manchester-by-the-Sea	Pine Street—Central Street (Route 127) to Rockwood Heights Road	N/A	Pre-PRC; PNF submitted 12/27/16		NSTF	4	Complete Streets		
Manchester-by-the-Sea	Manchester-by-the-Sea	Route 127 (Bridge Street) Roadway Reconstruction (including flood gate and culvert repairs)	N/A	Pre-PRC	$3,500,000-$4,000,000	NSTF	4	Complete Streets	Seeking PRC approval 12/19/19. New for FFYs 2021–25 TIP evaluation cycle	
Salem, Peabody	Salem, Peabody	Boston Street Improvements	609437	PRC approved (2019)	$12,480,000	NSTF	4	Complete Streets	New for FFYs 2021–25 TIP evaluation cycle	
Wenham	Wenham	Roadway Reconstruction on Larch Row and Dodges Row	N/A	Pre-PRC	$800,000	NSTF	4	Complete Streets	New for FFYs 2021–25 TIP evaluation cycle	
Wenham	Wenham	Safety Improvements on Route 1A	609388	PRC approved (2019)	$5,075,000	NSTF	4	Complete Streets	New for FFYs 2021–25 TIP evaluation cycle	
Intersection Improvements										
Essex	Essex	Targeted Safety Improvements on Route 133 (John Wise Avenue)	609315	PRC approved (2019)	$2,135,440	NSTF	4	Intersection Improvements	New for FFYs 2021–25 TIP evaluation cycle	
Bicycle and Pedestrian										
Peabody	Peabody	Route 1 Bikeway Connector	N/A	Pre-PRC		NSTF	4	Bicycle and Pedestrian	Seeking PRC approval 12/19/19. New for FFYs 2021–25 TIP evaluation cycle.	
Swampscott	Swampscott	Swampscott Rail Trail, from Stetson Avenue to Marblehead Rail Trail	N/A	Pre-PRC		NSTF	4	Bicycle and Pedestrian	Seeking PRC approval 12/19/19. New for FFYs 2021–25 TIP evaluation cycle	
Major Infrastructure										
Danvers, Peabody	MassDOT	Mainline Improvements on Route 128 (Phase II)	604638	100% design (12/30/2010)	$24,031,419	NSTF	4	Major Infrastructure	Project not programmed in LRTP.	32
Marblehead	Marblehead	Bridge Replacement, M-04-001, Village Street over Marblehead Rail Trail (Harold B. Breare Bridge)	N/A	Pre-PRC		NSTF	4	Major Infrastructure	Seeking PRC approval 12/19/19. New for FFYs 2021–25 TIP evaluation cycle. Project not programmed in LRTP.	

Table A-1: Draft FFYs 2021-25 Transportation Improvement Program (TIP) Universe of Projects
(cont., p. 6)

Subregion | MPO Investment Program | New project in TIP universe for FFYs 2021-25 cycle | Project evaluated for FFYs 2020-24 TIP, but not funded | Project listed in FFYs 2020-24 universe, but not evaluated

Municipality	Project Proponent	Project Name	PROJIS	MassDOT Design Status	Cost Estimate	MAPC Subregion	Highway District	MPO Investment Program	Notes	Previous Evaluation Score
South Shore Coalition										
Complete Streets										
Holbrook	Holbrook	Corridor Improvements and Related Work on South Franklin Street (Route 37) from Snell Street to King Road	608543	PRC approved (2017)	$4,000,200	SSC	5	Complete Streets		
Hull	Hull	Corridor Improvements along Nantasket Avenue from Mountford Road to A Street	N/A	Pre-PRC; PNF submitted 6/30/16		SSC	5	Complete Streets		
Rockland	MassDOT	Pedestrian and Bicycle Improvements on Market Street (Route 123)	609533	PRC approved (2019)	$1,407,600	SSC	5	Complete Streets	New for FFYs 2021–25 TIP evaluation cycle	
Weymouth	MassDOT	Reconstruction on Route 3A, including Pedestrian and Traffic Signal Improvements	608231	PRC approved (2016)	$10,780,100	SSC	6	Complete Streets		
Weymouth	MassDOT	Resurfacing and Related Work on Route 3A	608483	PRC approved (2016)	$2,400,000	SCC	6	Complete Streets		
South West Advisory Planning Committee										
Complete Streets										
Bellingham	Bellingham	South Main Street (Route 126)—Elm Street to Douglas Drive Reconstruction	N/A	Pre-PRC; PNF submitted 3/13/17		SWAP	3	Complete Streets		
Franklin	MassDOT	Resurfacing and Intersection Improvements on Route 140, from Beaver Street to I-495 Ramps	607774	PRC approved (2014)	$4,025,000	SWAP	3	Complete Streets		
Major Infrastructure										
Bellingham	MassDOT	Ramp Construction and Relocation, I-495 at Route 127 (Hartford Avenue)	604862	PRC approved (2006)	$13,543,400	SWAP	3	Major Infrastructure		
Three Rivers Interlocal Council										
Complete Streets										
Milton	MassDOT	Reconstruction on Granite Avenue, from Neponset River to Squantum Street	608406	25% design (2/10/17)	$3,665,146	TRIC	6	Complete Streets		

Table A-1: Draft FFYs 2021-25 Transportation Improvement Program (TIP) Universe of Projects
(cont., p. 7)

Subregion | MPO Investment Program | New project in TIP universe for FFYs 2021-25 cycle | Project evaluated for FFYs 2020-24 TIP, but not funded | Project listed in FFYs 2020-24 universe, but not evaluated

Municipality	Project Proponent	Project Name	PROJIS	MassDOT Design Status	Cost Estimate	MAPC Subregion	Highway District	MPO Investment Program	Notes	Previous Evaluation Score
Westwood	Westwood	Reconstruction of Canton Street and Everett Street	608158	PRC approved (2015)	$2,880,000	TRIC	6	Complete Streets		
Intersection Improvements										
Milton	Milton	Intersection Improvements—Squantum Street at Adams Street	608955	PRC approved (2017)	$979,763	TRIC	6	Intersection Improvements		
Westwood	Westwood	Traffic Signal Improvements on Route 109	608947	25% design (6/5/19)	$929,280	TRIC	6	Intersection Improvements		
Major Infrastructure										
Canton, Westwood	MassDOT	Interchange Improvements at I-95/I-93/ University Avenue and I-95 Widening	87790	25% design (7/25/2014)	$202,205,994	TRIC	6	Major Infrastructure	Project not programmed in LRTP.	47

Table A-2: Evaluation Criteria for FFYs 2021-25 TIP Development

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
SAFETY: Transportation by all modes will be safe.		
Reduce the number and severity of crashes, for all modes Reduce serious injuries and fatalities from transportation Make investments and support initiatives that help protect transportation customers, employees, and the public from safety and security threats	**Crash Severity Value: EPDO index** (0–5 points)	+5 EPDO value of 300 or more +4 EPDO value between 200 and 299 +3 EPDO value between 100 and 199 +2 EPDO value between 50 and 99 +1 EPDO value less than 50 +0 No EPDO value
	Crash Rate (intersections and corridors) (0–5 points)	Intersection: Evaluation Score / Signalized / Unsignalized +5 / ≥ 1.69 / ≥ 1.36 +4 / 1.31 - 1.69 / 1.03 - 1.36 +3 / 0.93 - 1.31 / 0.70 - 1.03 +2 / 0.55 - 0.93 / 0.37 - 0.70 +1 / 0.36 - 0.55 / 0.21 - 0.37 +0 / < 0.36 / < 0.21 Corridor: Evaluation Score / Interstate Other Freeways Expressways / Principal Arterials-Other Minor Arterials Major-Minor Collectors +5 / ≥ 1.81 / ≥ 6.45 +4 / 1.40 - 1.81 / 5.35 - 6.45 +3 / 1.00 - 1.40 / 4.25 - 5.35 +2 / 0.59 - 1.00 / 3.15 - 4.25 +1 / 0.40 - 0.59 / 2.05 - 3.15 +0 / < 0.40 / < 2.05
	Improves truck-related safety issue (0–5 points)	+3 High total effectiveness of truck safety countermeasures +2 Medium total effectiveness of truck safety countermeasures +1 Low total effectiveness of truck safety countermeasures +0 Does not implement truck safety countermeasures If project scores points above, then it is eligible for additional points below: +2 Improves truck safety at HSIP Cluster

Table A-2: Evaluation Criteria for FFYs 2021-25 TIP Development (cont., 2)

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
	Improves bicycle safety (0–5 points)	+3 High total effectiveness of bicycle safety countermeasures +2 Medium total effectiveness of bicycle safety countermeasures +1 Low total effectiveness of bicycle safety countermeasures +0 Does not implement bicycle safety countermeasures If project scores points above, then it is eligible for additional points below: +2 Improves bicycle safety at HSIP Bicycle Cluster +1 Improves bicycle safety at HSIP Cluster
	Improves pedestrian safety (0–5 points)	+3 High total effectiveness of pedestrian safety countermeasures +2 Medium total effectiveness of pedestrian safety countermeasures +1 Low total effectiveness of pedestrian safety countermeasures +0 Does not implement pedestrian safety countermeasures If project scores points above, then it is eligible for additional points below: +2 Improves pedestrian safety at HSIP Pedestrian Cluster +1 Improves pedestrian safety at HSIP Cluster
	Improves safety or removes an at-grade railroad crossing (0–5 points)	+5 Removes an at-grade railroad crossing +3 Significantly improves safety at an at-grade railroad crossing +1 Improves safety at an at-grade railroad crossing +0 Does not include a railroad crossing
SAFETY (30 possible points)		

Table A-2: Evaluation Criteria for FFYs 2021-25 TIP Development (cont., 3)

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
SYSTEM PRESERVATION: Maintain and modernize the transportation system and plan for its resiliency.		
Maintain the transportation system, including roadway, transit, and active transportation infrastructure, in a state of good repair Modernize transportation infrastructure across all modes Prioritize projects that support planned response capability to existing or future extreme conditions (sea level rise, flooding, and other natural and security-related man-made impacts)	**Improves substandard roadway bridge(s)** (0–3 points)	+3 Condition is structurally deficient and improvements are included in the project +1 Condition is functionally obsolete and improvements are included in the project +0 Does not improve substandard bridge or does not include a bridge
	Improves substandard pavement (up to 6 points)	+6 IRI rating greater than 320: Poor condition and pavement improvements are included in the project +4 IRI rating between 320 and 191: Fair condition and pavement improvements are included in the project +0 IRI rating less than 190: Good or better condition
	Improves substandard traffic signal equipment (0–6 points)	+6 Poor condition and improvements are included in the project +4 Fair condition and improvements are included in the project +0 Does not meet or address criteria
	Improves transit asset(s) (0–3 points)	+2 Brings transit asset into state of good repair +1 Meets an identified-need in an asset management plan +0 Does not meet or address criteria
	Improves substandard sidewalk(s) (0–3 points)	+3 Poor condition and sidewalk improvements are included in the project +2 Fair condition and sidewalk improvements are included in the project +0 Sidewalk condition is good or better
	Improves emergency response (0–2 points)	+1 Project improves an evacuation route, diversion route, or alternate diversion route +1 Project improves an access route to or in proximity to an emergency support location
	Improves ability to respond to extreme conditions (0–6 points)	+2 Addresses flooding problem and/or sea level rise and enables facility to function in such a condition +1 Brings facility up to current seismic design standards +1 Addresses critical transportation infrastructure +1 Protects freight network elements +1 Implements hazard mitigation or climate adaptation plans
SYSTEM PRESERVATION (29 possible points)		

Table A-2: Evaluation Criteria for FFYs 2021-25 TIP Development (cont., 4)

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
CAPACITY MANAGEMENT/MOBILITY: Use existing facility capacity more efficiently and increase healthy transportation options.		
Improve access to and accessibility of all modes, especially transit and active transportation Support roadway management and operations strategies to improve travel reliability, mitigate congestion, and support non-single-occupant-vehicle travel Emphasize capacity management through low-cost investments; prioritize projects that focus on lower-cost operations/ management-type improvements such as intersection improvements, transit priority, and Complete Streets solutions Improve reliability of transit Increase percentage of population and employment within one-quarter mile of transit stations and stops Support community-based and private-initiative services to meet first- and last-mile, reverse commute, and other non-traditional transportation needs, including those of people 75 years old or older and people with disabilities Support strategies to better manage automobile and bicycle parking capacity and usage at transit stations Fund improvements to bicycle and pedestrian networks aimed at creating a connected network of bicycle and accessible sidewalk facilities by expanding existing facilities and closing gaps Increase percentage of population and places of employment with access to facilities on the bicycle network Eliminate bottlenecks on the freight network, improve freight reliability, and enhance freight intermodal connections	**Reduces transit vehicle delay** (0–4 points)	+3 5 hours or more of daily transit vehicle delay reduced +2 1-5 hours of daily transit vehicle delay reduced +1 Less than one hour of daily transit vehicle delay reduced +0 Does not reduce transit delay If project scores points above, then it is eligible for additional points below: +1 Improves one or more key bus route(s)
	Improves pedestrian network and ADA accessibility (0–5 points)	+2 Adds new sidewalk(s) (including shared-use paths) +2 Improves ADA accessibility +1 Closes a gap in the pedestrian network +0 Does not improve pedestrian network
	Improves bicycle network (0–4 points)	+3 Adds new physically separated bicycle facility (including shared-use paths) +2 Adds new buffered bicycle facility +1 Adds new standard bicycle facility +1 Closes a gap in the bicycle network +0 Does not improve bicycle network
	Improves intermodal accommodations/ connections to transit (0–6 points)	+6 Meets or addresses criteria to a high degree +4 Meets or addresses criteria to a medium degree +2 Meets or addresses criteria to a low degree +0 Does not meet or address criteria
	Improves truck movement (0–4 points)	+3 Meets or addresses criteria to a high degree +2 Meets or addresses criteria to a medium degree +1 Meets or addresses criteria to a low degree +0 Does not meet or address criteria If project scores points above, then it is eligible for additional points below: +1 Addresses MPO-identified bottleneck location
	Reduces vehicle congestion (0–6 points)	+6 400 hours or more of daily vehicle delay reduced +4 100-400 hours of daily vehicle delay reduced +2 Less than 100 hours of daily vehicle delay reduced +0 Does not meet or address criteria
CAPACITY MANAGEMENT/MOBILITY (29 possible points)		

Table A-2: Evaluation Criteria for FFYs 2021-25 TIP Development (cont., 5)

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
CLEAN AIR/SUSTAINABLE COMMUNITIES: Create an environmentally friendly transportation system.		
Reduce GHGs generated in the Boston region by all transportation modes as outlined in the Global Warming Solutions Act Reduce other transportation-related pollutants Minimize negative environmental impacts of the transportation system, when possible Support land-use policies consistent with smart and healthy growth	**Reduces CO_2** (-5–5 points)	+5 1,000 or more annual tons of CO_2 reduced +4 500-999 annual tons of CO_2 reduced +3 250-499 annual tons of CO_2 reduced +2 100-249 annual tons of CO_2 reduced +1 Less than 100 annual tons of CO_2 reduced 0 No impact -1 Less than 100 annual tons of CO_2 increased -2 100-249 annual tons of CO_2 increased -3 250-499 annual tons of CO_2 increased -4 500-999 annual tons of CO_2 increased -5 1,000 or more annual tons of CO_2 increased
	Reduces other transportation-related emissions (VOC, NOx, CO) (-5–5 points)	+5 2,000 or more total kilograms of VOC, NOx, CO reduced +4 1,000-1,999 total kilograms of VOC, NOx, CO reduced +3 500-999 total kilograms of VOC, NOx, CO reduced +2 250-499 total kilograms of VOC, NOx, CO reduced +1 Less than 250 total kilograms of VOC, NOx, CO reduced 0 No impact -1 Less than 250 total kilograms of VOC, NOx, CO increased -2 250-499 total kilograms of VOC, NOx, CO increased -3 500-999 total kilograms of VOC, NOx, CO increased -4 1,000-1,999 total kilograms of VOC, NOx, CO increased -5 2,000 or more total kilograms of VOC, NOx, CO increased
	Addresses environmental impacts (0–4 points)	+1 Addresses water quality +1 Addresses cultural resources/open space +1 Addresses wetlands/resource areas +1 Addresses wildlife preservation/protected habitats +0 Does not meet or address criteria
	Is in an EOEEA-certified "Green Community" (0–2 points)	+2 Project is located in a “Green Community” +0 Project is not located in a "Green Community"
CLEAN AIR/SUSTAINABLE COMMUNITIES (16 possible points)		

Table A-2: Evaluation Criteria for FFYs 2021-25 TIP Development (cont., 6)

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
TRANSPORTATION EQUITY: Ensure that all people receive comparable benefits from, and are not disproportionately burdened by, MPO investments, regardless of race, color, national origin, age, income, ability, or sex.		
Prioritize MPO investments that benefit equity populations Minimize potential harmful environmental, health, and safety effects of MPO funded projects for all equity populations Promote investments that support transportation for all ages (age-friendly communities) Promote investments that are accessible to all people regardless of ability	**Serves Title VI/non-discrimination populations** (-10–12 points)	+2 Serves minority (high concentration) population (> 2,000 people) +1 Serves minority (low concentration) population (≤ 2,000 people) +2 Serves low-income (high concentration) population (> 2,000 people) +1 Serves low-income (low concentration) population (≤ 2,000 people) +2 Serves limited-English proficiency (high concentration) population (> 1,000 people) +1 Serves limited-English proficiency (low concentration) population (≤ 1,000 people) +2 Serves elderly (high concentration) population (> 2,000 people) +1 Serves elderly (low concentration) population (≤ 2,000 people) +2 Serves zero-vehicle households (high concentration) population (> 1,000 people) +1 Serves zero-vehicle households (low concentration) population (≤ 1,000 people) +2 Serves persons with disabilities (high concentration) population (> 1,000 people) +1 Serves persons with disabilities (low concentration) population (≤ 1,000 people) +0 Does not serve Title VI or non-discrimination populations -10 Creates a burden for Title VI or non-discrimination populations
TRANSPORTATION EQUITY (12 possible points)		

Table A-2: Evaluation Criteria for FFYs 2021-25 TIP Development (cont., 7)

OBJECTIVE	CRITERIA	SUBCRITERIA/SCORING
ECONOMIC VITALITY: Ensure our transportation network provides a strong foundation for economic vitality.		
Respond to mobility needs of the workforce population Minimize the burden of housing and transportation costs for residents in the region Prioritize transportation investments that serve residential, commercial, and logistics targeted development sites and "Priority Places" identified in the MBTA's Focus 40 plan Prioritize transportation investments consistent with compact-growth strategies of the regional transportation plan	**Serves targeted development site** (0–6 points)	+2 Provides new transit access to or within site +1 Improves transit access to or within site +1 Provides for bicycle access to or within site +1 Provides for pedestrian access to or within site +1 Provides for improved road access to or within site +0 Does not provide any of the above measures
	Provides for development consistent with the compact growth strategies of MetroFuture (0–5 points)	+2 Mostly serves an existing area of concentrated development +1 Partly serves an existing area of concentrated development +1 Supports local zoning or other regulations that are supportive of smart growth development +2 Complements other local financial or regulatory support that fosters economic revitalization in a manner consistent with smart growth development principles +0 Does not provide any of the above measures
	Provides multimodal access to an activity center (0–4 points)	+1 Provides transit access (within a quarter mile) to an activity center +1 Provides truck access to an activity center +1 Provides bicycle access to an activity center +1 Provides pedestrian access to an activity center +0 Does not provide multimodal access
	Leverages other investments (non-TIP funding) (0–3 points)	+3 Meets or addresses criteria to a high degree (>30% of the project cost) +2 Meets or addresses criteria to a medium degree (10-30% of the project cost) +1 Meets or addresses criteria to a low degree (<10% of the project cost) +0 Does not meet or address criteria
ECONOMIC VITALITY (18 possible points)		
TOTAL SCORE (134 possible points)		

Table A-3: FFYs 2021-25 TIP Scoring Summary

TIP ID	Municipality	Proponent	Project Name	Project Cost	TOTAL SCORE (134 Possible Points)	Safety Score (30 Possible Points)	Crash Severity Value: Equivalent Property Damage Only (EPDO) Index (Up to 5 Points)	Crash Rate (Up to 5 Points)	Improves Truck Safety (Up to 5 Points)	Improves Bike Safety (Up to 5 Points)	Improves Pedestrian Safety (Up to 5 Points)	Improves Railroad Crossing Safety (Up to 5 Points)	System Preservation Score (29 Possible Points)	Improves Substandard Roadway Bridge(s) (Up to 3 Points)	Improves Substandard Pavement (Up to 6 Points)	Improves Substandard Traffic Signals (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 Score (29 Possible Points)	Reduces Transit Vehicle Delay (Up to 4 Points)	Improves Pedestrian Network and ADA Accessibility (Up to 5 Points)	Improves Bike Network (Up to 4 Points)	Improves Intermodal Connections to Transit (Up to 6 Points)	Improves Truck Movement (Up to 4 Points)	Reduces Vehicle Congestion (Up to 6 Points)	Clean Air/Sustainable Communities Score (16 Possible Points)	Reduces CO2 Emissions (Up to 5 Points)	Reduces Other Transportation-Related Emissions (Up to 5 Points)	Addresses Environmental Impacts (Up to 4 Points)	Is Located in an EOEEA-Certified Green Community (Up to 2 Points)	Transportation Equity Score (12 Possible Points)	Economic Vitality Score (18 Possible Points)	Serves Targeted Development Site (Up to 6 Points)	Provides for Development that is Consistent with MetroFuture (Up to 5 Points)	Provides Intermodal Access to Activity Center (Up to 4 Points)	Leverages Other Investments (Non-TIP Funding) (Up to 3 Points)
(Projects grouped by MPO Investment Category)																																						
Bicycle/Pedestrian																																						
610544	Peabody	Peabody	Multi-Use Path Construction of Independence Greenway at I-95 and Route 1	$5,865,000	53	15	3	5	1	3	3	0	13	0	4	6	0	3	0	0	11	0	5	4	0	0	2	4	1	2	1	0	4	6	0	4	2	0
609204	Belmont	Belmont	Community Path, Belmont Component of the MCRT (Phase I)	$16,703,600	42	12	1	0	0	3	3	5	2	0	0	0	0	0	1	1	15	0	5	4	6	0	0	4	1	1	0	2	1	8	4	2	2	0
610666	Swampscott	Swampscott	Rail Trail Construction	$7,700,000	34	6	0	0	0	3	3	0	0	0	0	0	0	0	0	0	13	0	5	4	4	0	0	8	2	3	1	2	1	6	0	3	2	1
Complete Streets																																						
609532	Chelsea	Chelsea	Targeted Safety Improvements and Related Work on Broadway, from Williams Street to City Hall Avenue	$5,750,000	83	23	5	5	3	5	5	0	18	0	4	6	1	2	2	3	14	4	2	4	4	0	0	4	-1	1	2	2	10	14	4	3	4	3
610662	Woburn	Woburn	Roadway and Intersection Improvements at Woburn Common, Route 38 (Main Street), Winn Street, Pleasant Street, and Montvale Avenue	$14,380,000	75	22	4	5	5	3	5	0	15	0	4	6	2	2	1	0	16	1	2	2	2	3	6	10	4	3	1	2	4	8	2	3	3	0
609437	Salem	Salem	Boston Street Improvements	$12,480,000	69	18	3	4	3	4	4	0	17	0	6	6	1	2	2	0	15	1	2	4	2	0	6	1	-2	-1	2	2	6	12	3	5	3	1
608954	Weston	Weston	Reconstruction on Route 30	$8,117,562	57	16	3	0	5	4	4	0	13	0	2	4	0	3	1	3	17	0	5	4	0	2	6	10	3	3	2	2	1	0	0	0	0	0
610674	Newton	Newton	Reconstruction of Commonwealth Avenue (Route 30), from East of Auburn Street to Ash Street	$5,098,755	51	7	1	0	0	3	3	0	16	0	4	6	3	3	0	0	13	0	5	4	4	0	0	6	1	1	2	2	1	8	3	2	3	0
610671	Manchester-by-the-Sea	Manchester-by-the-Sea	Bridge Replacement, M-02-001 (8AM), Central Street (Route 127) Over Saw Mill Brook	$4,350,000	46	11	1	5	1	1	3	0	16	3	4	0	0	2	2	5	5	0	2	0	2	1	0	5	0	0	3	2	1	8	2	3	1	2
Intersection Improvements																																						
608067	Burlington, Woburn	Burlington, Woburn	Intersection Reconstruction at Route 3 (Cambridge Road) & Bedford Road and South Bedford Street	$1,440,000	52	9	1	3	0	2	3	0	11	0	2	6	1	2	0	0	19	2	5	3	2	1	6	7	2	1	2	2	2	4	0	2	2	0
608940	Weston	Weston	Intersection Improvements Boston Post Road (Route 20) at Wellesley Street	$1,219,250	40	17	2	5	3	3	4	0	5	0	2	0	0	3	0	0	11	0	5	2	0	2	2	5	2	1	0	2	1	1	0	0	1	0

Table A-3: FFYs 2021-25 TIP Scoring Summary (cont., 2)

TIP ID	Municipality	Proponent	Project Name	Project Cost	TOTAL SCORE (134 Possible Points)	Safety Score (30 Possible Points)	Crash Severity Value: Equivalent Property Damage Only (EPDO) Index (Up to 5 Points)	Crash Rate (Up to 5 Points)	Improves Truck Safety (Up to 5 Points)	Improves Bike Safety (Up to 5 Points)	Improves Pedestrian Safety (Up to 5 Points)	Improves Railroad Crossing Safety (Up to 5 Points)	System Preservation Score (29 Possible Points)	Improves Substandard Roadway Bridge(s) (Up to 3 Points)	Improves Substandard Pavement (Up to 6 Points)	Improves Substandard Traffic Signals (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 Score (29 Possible Points)	Reduces Transit Vehicle Delay (Up to 4 Points)	Improves Pedestrian Network and ADA Accessibility (Up to 5 Points)	Improves Bike Network (Up to 4 Points)	Improves Intermodal Connections to Transit (Up to 6 Points)	Improves Truck Movement (Up to 4 Points)	Reduces Vehicle Congestion (Up to 6 Points)	Clean Air/Sustainable Communities Score (16 Possible Points)	Reduces CO2 Emissions (Up to 5 Points)	Reduces Other Transportation-Related Emissions (Up to 5 Points)	Addresses Environmental Impacts (Up to 4 Points)	Is Located in an EOEEA-Certified Green Community (Up to 2 Points)	Transportation Equity Score (12 Possible Points)	Economic Vitality Score (18 Possible Points)	Serves Targeted Development Site (Up to 6 Points)	Provides for Development that is Consistent with MetroFuture (Up to 5 Points)	Provides Intermodal Access to Activity Center (Up to 4 Points)	Leverages Other Investments (Non-TIP Funding) (Up to 3 Points)
608955	Milton	Milton	Intersection Improvements Squantum Street at Adams Street	$979,762	33	8	1	1	0	3	3	0	8	0	4	0	1	2	1	0	7	0	2	3	2	0	0	5	2	1	0	2	2	3	0	3	0	0
608947	Westwood	Westwood	Traffic Signal Improvements on Route 109	$929,280	31	10	3	3	0	1	3	0	7	0	0	6	0	0	1	0	6	0	0	0	0	2	4	4	1	1	0	2	1	3	0	2	1	0
Major Infrastructure																																							
609246	Lynn	Lynn	Reconstruction of Western Avenue (Route 107)*	$36,205,000	76	20	5	5	3	2	5	0	15	0	4	6	0	3	2	0	15	2	2	2	2	1	6	11	4	5	0	2	10	5	0	3	2	0
607981	Somerville	MassDOT	McGrath Boulevard Project*	$88,250,000	74	15	3	2	0	5	5	0	15	0	4	6	0	2	2	1	15	0	5	4	6	0	0	8	2	3	1	2	10	11	3	5	3	0
605313	Natick	MassDOT	Bridge Replacement, Route 27 (North Main Street) over Route 9 (Worcester Street) and Interchange Improvements*	$25,897,370	66	17	5	5	1	3	3	0	13	3	2	4	0	3	0	1	20	2	5	4	4	1	4	9	4	3	0	2	1	6	0	3	3	0
610545	Wakefield	Wakefield	Main Street Reconstruction	$26,382,000	59	22	5	5	3	4	5	0	11	0	4	4	1	0	1	1	12	1	3	4	2	0	2	1	-1	-1	3	0	1	12	4	5	2	1

Projects highlighted in BLUE were evaluated for the first time in FFY 2020

All other projects were re-evaluated in FFY 2020 with updated data and project information, where available.

*Programmed in LRTP 2025-2029

Table A-4: FFY 2021 Community Connections Program Universe of Projects

Municipality	Project Type	Project Concept	Potential Project Sponsor/Proponent*
ICC			
Boston	Bicycle and Pedestrian Improvements	Implement some of the recommendations contained in the Fairmount Line Station Access Analysis, http://www.ctps.org/fairmount-station-access	City of Boston
Boston	Transit Operations and Improvements; Education and Wayfinding	Implement signage for commuter and intercity buses stopping curbside in downtown Boston, in accordance with recommendations in Chapter 4 of the Massachusetts Regional Bus Study, http://www.ctps.org/2013_mass_bus_study	City of Boston, MassDOT, bus carriers
Boston	Transit Operations and Improvements	Improve the waiting area for EZRide shuttle buses on Nashua Street outside of North Station with weather-resistant shelters and seating	City of Boston, **Charles River TMA**
Cambridge	Transit Operations and Improvements; Bicycle and Pedestrian Improvements	1) Pilot or permanent implementation of two bus lanes on access roads connecting the Alewife T with Route 2, to benefit MBTA, TMA, and shuttle buses. 2) Safer crossing of Alewife Brook Parkway near Rindge Towers (public housing project), better access between Rindge Ave. housing, Fresh Pond Mall, and Alewife train station 3) Pedestrian bridge from Alewife to Fresh Pond	City of Cambridge, Route 128 BC, Alewife TMA
Cambridge, Somerville	Bicycle and Pedestrian Improvements	1) Linking the Community Path Extension with the partially built Grand Junction Path (and the People's Pike near the I-90 project), the proposed Mystic to Charles Connector Friends of the Mystic to Charles Connector, and the GLX Project. 2) Link the Rose Kennedy Greenway with the Charles River Paths. Fix the Charles River path near the Museum of Science, including a dedicated bike lane in both directions.	City of Cambridge, City of Somerville, DCR
Everett, Somerville	Bicycle and Pedestrian Improvements	Extension of Northern Strand Community Trail from Everett to Assembly Square.	City of Everett, City of Somerville, MBTA
Everett, Chelsea	Bicycle and Pedestrian Improvements	Improve sidewalks, crosswalks, and other routes to transit along the route of the 112 and other local buses.	City of Everett, City of Chelsea
Malden	Transit Operations and Improvements; Bicycle and Pedestrian Improvements	Implement more dedicated space for bicyclists, pedestrians, buses, and pickup/drop-off near Malden Center Station.	City of Malden
Melrose	Bicycle and Pedestrian Improvements	Improving bike and pedestrian access between neighborhoods, transit stations, commercial districts, and schools and parks.	Town of Melrose
Waltham, Newton	Transit Operations and Improvements	Shuttle from Riverside MBTA station to Brandeis campus	Route 128 Business Council, Brandeis University
Watertown	Transit Operations and Improvements	The Pleasant Street corridor, which has five new residential rental developments and an existing redeveloped office park, is completely unserved by public transportation. The WTMA is currently studying establishing shuttle service along the Pleasant Street corridor, to connect residents and employees to Watertown Square, where they can access buses to the Red Line and downtown. (More details available in documentation from Laura Wiener.)	**Town of Watertown**, Watertown TMA
MWRC			
Ashland	Transit Operations and Improvements; Bicycle and Pedestrian Improvements	1) First-mile/last-mile connections to commuter rail 2) Improve transit access to Ashland Commuter Rail station (shuttle to downtown/MWRTA Route 5)	Town of Ashland, MWRTA

Table A-4: FFY 2021 Community Connections Program Universe of Projects (cont.)

Municipality	Project Type	Project Concept	Potential Project Sponsor/Proponent*
Framingham	Transit Operations and Improvements	1) Shuttle connection from Golden Triangle to downtown 2) Shuttle to Dennison Facilities	City of Framingham
Framingham	Parking Management	Expand park-and-ride in downtown Framingham	City of Framingham
Natick	Parking Management	Parking expansion at Natick Center commuter rail station	Town of Natick
Natick	Bicycle and Pedestrian Improvements	Connect Cochituate Rail Trail to Natick Center commuter rail station	Town of Natick
Wellesley	Parking Management	Expanded parking at all three Wellesley commuter rail stations	Town of Wellesley
Weston, Wayland	Parking Management; Transit Operations and Improvements	Shuttle from downtown Wayland to Weston commuter rail stations	**Town of Weston, Town of Wayland**
MAGIC			
Concord	Bicycle and Pedestrian Improvements; Transit Operations and Improvements; Education and Wayfinding	1) Improve pedestrian, bicycle, and transit connections to West Concord station 2) Implement wayfinding strategies and signage along the Bruce Freeman Rail Trail 3) Recommendations pursuant to 2016 CTPS technical assistance memos	Town of Concord
Lexington	Transit Operations and Improvements	Consolidate multiple shuttles operating on Hayden Ave. in Lexington	Town of Lexington, Route 128 Business Council
NSTF			
Beverly	Transit Operations and Improvements	1) Make Beverly Depot a mobility hub. Connect to bikeshare, uber, car-sharing in an organized way. 2) Connections for Cherry Hill manufacturing employees from Lynn, Beverly Depot	**City of Beverly**
NSPC			
Reading	Transit Operations and Improvements; Bicycle and Pedestrian Improvements	1) Better connectivity from Walkers Brook to downtown, including possibly establishing a multimodal path next to the MBTA tracks to accommodate the many people who already walk along the tracks because it's the shortest way to get from the Walker's Brook area to downtown. 2) Creation of remote parking with a shuttle service to open up prime parking spaces by the commuter rail, which are currently occupied all day by commuters and thus aren't available to patrons of downtown businesses 3) More bike lanes and sidewalks. Road diet on South Main (Rte. 28) as a start.	**Town of Reading**
Winchester	Parking Management	Parking will be lost at Winchester Center during (and after?) reconstruction. Provide a shuttle from off-site parking to compensate.	Town of Winchester
SSC			
Cohasset	Bicycle and Pedestrian Improvements	Bicycle and pedestrian approaches to station are dangerous, especially on Sohier St.	Town of Cohasset
Hingham	Bicycle and Pedestrian Improvements	Bicycle and pedestrian approaches to station are dangerous, especially intersection of Kilby St./Route 3A	Town of Hingham
Hull	Transit Operations and Improvements	Better (shuttle?) connections from town to Hull commuter rail station	Town of Hull

Table A-4: FFY 2021 Community Connections Program Universe of Projects

Municipality	Project Type	Project Concept	Potential Project Sponsor/Proponent*
TRIC			
Canton	Transit Operations and Improvements; Bicycle and Pedestrian Improvements	"1) Improve pedestrian, cyclist, or transit accommodations for the many senior living and low-income multifamily developments along Rte. 138 in Canton. 2) The 716 bus doesn't run frequently enough and has no sheltered bus stop locations along the Washington Street corridor. 3) Implement the recommendations made in the Boston MPO study of the Route 138 corridor 4) Reestablish first and last mile connections for Royall St. Once served by the RaiLink Shuttle (NVTMA) to the Route 128 Commuter Rail, Quincy Adam, Mattapan, and Ashmont Red Line Stations. Originally, two shuttles were funded with CMAQ funds and contributions from several employer partners. Once funding ended many businesses dropped out. One shuttle remained in service, which was privately funded by Reebok and Computershare. Reebok added an Express shuttle to the commuter rail from March 2016–October 2017. Due to Reebok's move to the Seaport and a significant workforce reduction at Computershare, service was suspended in April 2018. "	Town of Canton, **Neponset Valley TMA**
Dedham, Norwood, Foxborough, Walpole	Transit Operations and Improvements; Bicycle and Pedestrian Improvements	1) Legacy Place fixed-route and shuttle improvements 2) Patriot Place shuttles 3) Employee access to Route 1 from MBTA 34E and other transit stops, especially safe pedestrian/bicycle environment 4) Shuttle from Norwood commuter rail stations to Moderna and/or new 40B developments in the same area	Towns of Dedham, Norwood, Foxborough, Walpole; **Neponset Valley TMA**
Sharon	Parking Management	Shuttle or innovative carpooling/ridesharing arrangement from off-site parking to Sharon train station. Town is considering building a parking structure.	**Town of Sharon, Neponset Valley TMA**

*Bold red text indicates a project proponent or sponsor with whom MPO staff have had advanced conversations about the relevant project

Table A-5: Evaluation Criteria for FFY 2021 Community Connections Program

Key

Blue = Criteria that apply to all projects

Green = Criteria for capital projects

Red/Pink = Criteria for operating projects

OBJECTIVE	CRITERIA	FACTORS
PROJECT ELIGIBILITY VERIFICATION		
Each project funded through this program must show an air quality benefit when analyzed through the MPO's air quality analysis process. Projects must be ready to begin construction or operation by October 2020. Project sponsors or proponents must demonstrate that they have gained support from stakeholders and have the institutional capacity to carry out the project within the MPO timeframe.	Air Quality Analysis	Projects must pass a spreadsheet-based air quality benefit test based on a variety of data inputs customized to the type of project.
	Proponent's Project Management Capacity	Names, experience, and time commitment of project management staff, as provided by the proponent.
GENERAL SCORING CRITERIA (30 possible points)		
Network or connectivity value (6 points)		
The primary purpose of the Community Connections Program is to close gaps in the transportation network, especially those in the first or last mile between transit and a destination. Projects will be awarded points based on how effectively a proposed project closes different types of gaps and makes travel easier or more efficient.	Connection to existing activity hubs and residential developments (2 points)	Proximity of the project or service to employment, residential, and civic activity hubs, such as dense areas of employment or housing.
	Connection to existing transit hubs (2 points)	Proximity of the project to transit service, with added incentive for connecting to frequent or high-quality service.
	Connection to other transportation infrastructure (2 points)	Proximity of the project to sidewalk or protected or off-road bicycle infrastructure.

Table A-5: Evaluation Criteria for FFY 2021 Community Connections Program (cont.)

OBJECTIVE	CRITERIA	FACTORS
Coordination or cooperation between multiple entities (5 points)		
The MPO prioritizes collaboration among different entities in the transportation planning process. Cooperative project planning and execution is particularly important for first-mile and last-mile connections of the type that the Community Connections Program is intended to facilitate. The cooperation can involve actors from both the public and private sectors.	Number of collaborating entities (5 points)	Number and variety (judged by sector of origin) of entities collaborating to support the project.
Inclusion in and consistency with local and regional plans (5 points)		
A comprehensive planning process is important to ensure that projects occur in an environment of collaboration and careful consideration rather than independently. This criterion proposes to award points based on the extent to which a proposed project has been included in prior plans at both the local and regional levels, and whether it meets the goals of those plans.	Inclusion in local plans (2 points)	Whether the project is included as a need or priority in a local comprehensive plan.
	Inclusion in MPO plans (2 points)	Whether the project is identified as a need in the LRTP Needs Assessment or recommended in an MPO or MAPC study.
	Inclusion in statewide plans (1 point)	Whether the project is included as a need or priority in a MassDOT or other statewide study.
Transportation equity (5 points)		
The MPO seeks to 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; and break down barriers to participation in MPO-decision making.	Serves a demographic of transportation equity concern, as identified by the MPO (5 points)	The extent to which the project serves equity populations.
Generation of mode shift (4 points)		
Another primary purpose of the Community Connection Program is to enable modal shift from SOV to transit or other modes. This criterion would award points based on the project's effectiveness at creating mode shift and/or enabling trips that were previously impossible by non-SOV modes.	Allow new trips that would not be otherwise possible without a car (4 points)	Whether the project adds to overall non-automotive mobility by creating new connections or making trips possible that were not previously, without detracting from or competing with existing transit options.
Demand projection (4 points)		
Gaining an understanding of how many transportation network users a project will reach is crucial for understanding its cost-effectiveness.	Overall demand estimate (2 points)	Presence of demand/usage estimates and quality of analysis used to support them in the application materials.
	Staff evaluation of demand estimate (2 points)	Whether staff judge the demand/usage projections realistic.

Table A-5: Evaluation Criteria for FFY 2021 Community Connections Program (cont.)

OBJECTIVE	CRITERIA	FACTORS
TYPE-SPECIFIC EVALUATION CRITERIA: CAPITAL PROJECTS (30 points)		
SAFETY BENEFITS (12 points)		
Bicycle safety (6 points)		
Improving safety on the regional transportation network is one of the MPO's key goals. This criterion would award points to projects that improve safety for the most vulnerable users of the network – people walking and people riding bicycles. An overall score of the effectiveness of bicycle safety countermeasures will be made through professional judgement comparing existing facilities, safety issues, use, and desired/anticipated use to the proposed bicycle safety countermeasures planned to be implemented as part of the project.	Total effectiveness of bicycle safety countermeasures (6 points)	Existing and potential bicyclist usage of the infrastructure and effectiveness of the expected safety improvements.
Pedestrian safety (6 points)		
An overall score of the effectiveness of pedestrian safety countermeasures will be made through professional judgement comparing existing facilities, safety issues, use, and desired/anticipated use to the proposed pedestrian safety countermeasures planned to be implemented as part of the project.	Total effectiveness of pedestrian safety countermeasures (6 points)	Existing and potential pedestrian usage of the infrastructure and effectiveness of the expected safety improvements.
Lifecycle cost-effectiveness (10 points)		
In addition to the initial construction costs, the MPO is concerned that projects funded through the Community Connection Program remain fiscally sustainable after MPO-awarded funding runs out. Projects proposed to the program should be cost-effective compared to potential alternatives, and proponents should demonstrate that local maintenance budgets will be able to accommodate the increased costs of maintaining the project.	Lifecycle Alternatives Analysis (5 Points)	Presence of a cost-effectiveness analysis in the application and whether the analysis is qualitative or quantitative.
	Maintenance budget and plan (5 Points)	Identification of a maintenance plan for the project, including the entity responsible for it and a source of funds.
Resilience to weather and environmental hazards (8 points)		
Resilience in the face of increasingly destructive storms and weather hazards is a growing concern in the Boston region, and is codified in the MPO's System Preservation goal. Project proponents should demonstrate that their project will not cause damage to a sensitive ecosystem and that it will be able to resist damage from extreme weather events.	Impact on areas of environmental concern (6 points)	Magnitude of the project's environmental impact, positive or negative.
	Relationship to resilience plans (2 points)	Whether the project is included in local resilience plans.
TYPE-SPECIFIC CRITERIA: OPERATIONAL PROJECTS		
Long-Term Financial Plan (12 points)		
	Annual operating costs (2 points)	Whether the estimate of operating costs is present and realistic.
	Annual maintenance costs (1 point)	Whether the estimate of maintenance costs is present and realistic.
	All other costs (1 point)	Whether the estimate of other costs is present and realistic.
	Fare structure (2 points)	Presence of a detailed description of the proposed fare structure and explanation thereof.
	Plan for fiscal sustainability (6 points)	Whether the application identifies full funding for the project (reflecting a local match to MPO funds) for 0, 1, 2, 3 or more years.

Table A-5: Evaluation Criteria for FFY 2021 Community Connections Program (cont.)

OBJECTIVE	CRITERIA	FACTORS
Service Plan (10 points)		
	Service Plan (4 points)	Presence of details on: • Plans for ADA compliance • Frequency and routing of service • How the service plans meet the need of projected riders
	Operational/contracting plan (4 points)	Presence of details on administrative and/or contracting plans and the background of the operator.
	Marketing plan (2 points)	Presence of a detailed description of a marketing plan.
Performance Monitoring Plan (8 points)		
	Data management plan (3 points)	Inclusion of plans for data collection, analysis for monitoring service, and sharing the data with the MPO.
	Passenger survey (2 points)	Whether the application describes plans for a ridership survey and the frequency with which it will be administered.
	Trip-level boarding counts (1 point)	Presence of plans for trip-level data collection.
	Stop-level data collection (1 point)	Presence of plans for stop-level data collection.
	Marketing evaluation (1 point)	Presence of plans for an evaluation of the marketing effort.

APPENDIX B

GREENHOUSE GAS MONITORING AND EVALUATION

BACKGROUND

The Global Warming Solutions Act of 2008 (GWSA) requires statewide reductions in greenhouse gas (GHG) emissions of 25 percent below 1990 levels by the year 2020, and 80 percent below 1990 levels by 2050. As part of the GWSA, the Executive Office of Energy and Environmental Affairs developed the Massachusetts Clean Energy and Climate Plan (CECP), which outlines programs to attain the 25 percent reduction by 2020—including a 7.6 percent reduction to be attributed to the transportation sector.

The Commonwealth's 13 metropolitan planning organizations (MPOs) are integrally involved in helping to achieve GHG emissions reductions mandated under the GWSA. The MPOs work closely with the Massachusetts Department of Transportation (MassDOT) and other involved agencies to develop common transportation goals, policies, and projects that will help to reduce GHG emissions levels statewide and meet the specific requirements of the GWSA regulation, *Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation (310 CMR 60.05)*. The purpose of this regulation is to assist the Commonwealth in achieving its adopted GHG emissions reduction goals by requiring the following:

- MassDOT to demonstrate that its GHG emissions reduction commitments and targets are being achieved
- Each MPO to evaluate and track the GHG emissions and impacts of both its Long-Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP)
- Each MPO, in consultation with MassDOT, to develop and use procedures to prioritize and select projects for its LRTP and TIP based on factors that account for GHG emissions and impacts

The Commonwealth's MPOs are meeting the requirements of this regulation through the transportation goals and policies contained in their 2020 LRTPs, the major projects planned in their LRTPs, and the mix of new transportation projects that are programmed and implemented through their TIPs.

The GHG tracking and evaluation processes enable the MPOs and MassDOT to identify the anticipated GHG impacts of the planned and programmed projects, and to use information about GHG impacts as criteria to prioritize transportation projects. This approach is consistent with the GHG emissions reduction policies that promote healthy transportation modes through prioritizing and programming an appropriate balance of roadway, transit, bicycle, and pedestrian investments, as well as policies that support smart growth development patterns by creating a balanced multimodal transportation system.

REGIONAL TRACKING AND EVALUATING LONG-RANGE TRANSPORTATION PLANS

MassDOT coordinated with MPOs and regional planning agencies to implement GHG tracking and to evaluate projects during the development of the LRTPs that were adopted in September 2011. This collaboration continued during the development of the LRTPs and amendments adopted in 2016, 2019, and 2020, and for the TIPs produced for federal fiscal years (FFYs) 2016–19, 2017–21, 2018–22, 2019–23, 2020–24, and 2021–25. Working together, MassDOT and the MPOs have attained the following milestones:

- As a supplement to the 2020 LRTPs, the MPOs have completed modeling and developed long-range statewide projections for GHG emissions produced by the transportation sector. The Boston Region MPO's travel demand model and the statewide travel demand model were used to project GHG emissions levels for 2018, 2019, and 2020 No-Build (base conditions). These projections were developed as part of amendments to 310 CMR 60.05 (adopted in August 2017 by the Massachusetts Department of Environmental Protection) to demonstrate that aggregate transportation GHG emissions reported by MassDOT will meet established annual GHG emissions targets.
- All of the MPOs have discussed climate change, addressed GHG emissions reduction projections in their LRTPs, and prepared statements affirming their support for reducing GHG emissions as a regional goal.

TRACKING AND EVALUATING THE TRANSPORTATION IMPROVEMENT PROGRAM

In addition to monitoring the GHG impacts of projects in the LRTP that will add capacity to the transportation system, it also is important to monitor and evaluate the GHG impacts of all transportation projects that are programmed in the TIP. The TIP includes both the larger, capacity-adding projects from the LRTP and smaller projects, which are not included in the LRTP but that may affect GHG emissions. The principal objective of this tracking is to enable the MPOs to evaluate the expected GHG impacts of different projects and to use this information as criteria to prioritize and program projects in future TIPs.

In order to monitor and evaluate the GHG impacts of TIP projects, MassDOT and the MPOs have developed approaches for identifying anticipated GHG emissions impacts of different types of

projects. Since carbon dioxide (CO_2) is the largest component of GHG emissions overall and is the focus of regulation 310 CMR 60.05, CO_2 has been used as a measure of the GHG emissions impacts of transportation projects in the TIP and LRTP.

All TIP projects have been sorted into two categories for analysis: 1) projects with quantified CO_2 impacts, and 2) projects with assumed CO_2 impacts. Projects with quantified impacts consist of capacity-adding projects from the LRTP and projects from the TIP that underwent a Congestion Mitigation and Air Quality Improvement (CMAQ) program spreadsheet analysis. Projects with assumed impacts are those that would be expected to produce a minor decrease or increase in emissions, and those that would be assumed to have no CO_2 impact.

TRAVEL DEMAND MODEL

Projects with quantified impacts include capacity-adding projects in the LRTP that were analyzed using the statewide travel demand model. No independent calculations were done for these projects during the development of the TIP.

OFF-MODEL METHODS

MassDOT's Office of Transportation Planning provided spreadsheets that are used to determine projects' eligibility for funding through the CMAQ program. Typically, MPO staff uses data from projects' functional design reports, which are prepared when projects are at the 25 percent design phase, to conduct these calculations. Staff used these spreadsheets to calculate estimated projections of CO_2 for each project, in compliance with GWSA regulations. These estimates are shown in Tables B-1 and B-2. A note of "to be determined" is shown for those projects for which a functional design report was not yet available.

As part of the development of the FFYs 2021–25 TIP, analyses were done for the types of projects described below. A summary of steps performed in the analyses is provided.

Traffic Operational Improvement

For an intersection reconstruction or signalization project that typically reduces delay and, therefore, idling, the following steps are taken:

- Step 1: Calculate the AM peak hour total intersection delay (seconds)
- Step 2: Calculate the PM peak hour total intersection delay (seconds)
- Step 3: Select the peak hour with the longer intersection delay
- Step 4: Calculate the selected peak hour total intersection delay with improvements
- Step 5: Calculate the vehicle delay in hours per day (assumes peak hour delay is 10 percent of daily delay)
- Step 6: Input the emissions factors for arterial idling speed from the US Environmental Protection Agency's Motor Vehicle Emission Simulator (MOVES)

- Step 7: Calculate the net emissions change in kilograms per day
- Step 8: Calculate the net emissions change in kilograms per year (seasonally adjusted)
- Step 9: Calculate the cost effectiveness (first year cost per kilogram of emissions reduced)

Pedestrian and Bicycle Infrastructure

For a shared-use path that would enable more walking and biking trips and reduce automobile trips, the following steps are taken:

- Step 1: Calculate the estimated number of one-way trips based on the percentage of workers residing in the communities served by the facility and the communities' bicycle and pedestrian commuter mode share
- Step 2: Calculate the reduction in vehicle-miles traveled per day and per year (assumes each trip is the length of the facility and that the facility operates 200 days per year)
- Step 3: Input the MOVES emissions factors for the average commuter travel speed (assumes 35 miles per hour)
- Step 4: Calculate the net emissions change in kilograms per year (seasonally adjusted)
- Step 5: Calculate the cost effectiveness (first year cost per kilogram of emissions reduced)

Bus Replacement

For a program that replaces old buses with new buses that reduce emissions or run on cleaner fuel, the following steps are taken:

- Step 1: Input the MOVES emissions factors for the average bus travel speed (assumes 18 miles per hour) for both the old model year bus and the new model year bus
- Step 2: Calculate the fleet vehicle-miles per day based on the vehicle revenue-miles and operating days per year
- Step 3: Calculate the net emissions change in kilograms per year (seasonally adjusted)
- Step 4: Calculate the cost effectiveness (first-year cost per kilogram of emissions reduced)

Other Types of Projects

Calculations may be performed on the project types listed below:

- New and Additional Transit Service: A new bus or shuttle service that reduces automobile trips
- Park-and-Ride Lot: A facility that reduces automobile trips by encouraging high-occupancy vehicle (HOV) travel via carpooling or transit
- Alternative Fuel Vehicles: New vehicle purchases that replace traditional gas or diesel vehicles with alternative fuel or advanced technology vehicles
- Anti-Idling Strategies: Strategies that include incorporating anti-idling technology into fleets and using light-emitting diode (LED) lights on trucks for the purpose of illuminating worksites
- Bike-Share Projects: Programs in which bicycles are made available for shared use to individuals on a short-term basis, allowing each bicycle to serve several users per day

- Induced Travel: Projects associated with a roadway capacity change that gives rise to new automobile trips
- Speed Reduction Projects: Projects that result in slower vehicle travel speeds and, therefore, reduced emissions
- Transit Signal Priority Projects: Technology at signalized intersections or along corridors that affect bus travel times
- Truck Stop Electrification: Technology that provides truck drivers with necessary services, such as heating, air conditioning, or appliances, without requiring them to idle their engines

ANALYZING PROJECTS WITH ASSUMED IMPACTS

Projects that cannot be analyzed using the travel demand model or the spreadsheets described above are categorized either as projects with assumed decreases or increases in CO_2 emissions or as projects assumed to have no CO_2 emissions at all. These types of projects are described below.

QUALITATIVE DECREASE OR INCREASE IN CO_2 EMISSIONS

Projects with assumed CO_2 impacts are those that could produce a minor decrease or increase in emissions, but the change in emissions cannot be calculated with any precision. Examples include a bicycle rack installation, Safe Routes to School project, or transit marketing or customer service improvement. These projects are categorized as producing an assumed nominal increase or decrease in emissions.

NO CO_2 IMPACT

Projects that do not change the capacity or use of a facility—for example, a resurfacing project that restores a roadway to its previous condition, or a bridge rehabilitation or replacement that restores the bridge to its previous condition—are assumed to have no CO_2 impact.

SUMMARY OF CO_2 EMISSIONS FROM PROJECTS IN THE TRANSPORTATION IMPROVEMENT PROGRAM

Tables B-1 through B-4 display the CO_2 impact analyses of projects funded in the FFYs 2021–25 Highway Program (Table B-1) and Transit Program (Table B-2). Table B-3 summarizes the GHG impact analyses of highway projects completed in FFY 2020. Table B-4 summarizes the GHG impact analyses of transit projects completed in FFY 2020. A project is considered completed when the construction contract has been awarded or the transit vehicles have been purchased. More details about these projects are discussed in Chapter 3.

Table B-1: Greenhouse Gas Regional Highway Project Tracking

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description
608229	Acton - Intersection and signal improvements at Kelley's Corner	Quantified	111,958	Quantified decrease in emissions from Complete Streets project
607748	Acton - Intersection and signal improvements on Route 2 and Route 111 (Massachusetts Ave) at Piper Rd and Taylor Rd	Qualitative		Qualitative decrease in emissions
610722	Acton, Boxborough, Littleton - Pavement Preservation Route 2	Qualitative		No assumed impact/negligible impact on emissions
609222	Arlington - Spy Pond Sediment Removal	Qualitative		No assumed impact/negligible impact on emissions
609531	Arlington - Stratton School Improvements (SRTS)	Qualitative		Qualitative decrease in emissions
604123	Ashland - Reconstruction on Route 126 (Pond St) from Framingham town line to Holliston town line	Quantified	148,097	Quantified decrease in emissions from Complete Streets project
607738	Bedford - Minuteman Bikeway extension from Loomis St to the Concord town line	Quantified	21,098	Quantified decrease in emissions from bicycle and pedestrian infrastructure
608948	Bellingham-Franklin – Southern New England Trunk Trail (SNETT) Construction	Quantified	TBD	TBD
608887	Bellingham - South Main St (Route 126) - Douglas Dr to Mechanic St reconstruction (Route 140)	Quantified	24,363	Quantified decrease in emissions from Complete Streets project
608911	Belmont - Improvements at Wellington Elementary School (SRTS)	Qualitative		Qualitative decrease in emissions
608347	Beverly - Intersection improvements at 3 locations: Cabot St (Route 1A/97) at Dodge St (Route 1A), County Way, Longmeadow Rd and Scott St, McKay St at Balch St and Veterans Memorial Bridge (Route 1A) at Rantoul, Cabot, Water, and Front Sts	Quantified	582,422	Quantified decrease in emissions from traffic operational improvement
608348	Beverly - Rehabilitation of Bridge St	Quantified	387,153	Quantified decrease in emissions from Complete Streets project
606902	Boston - Bridge Reconstruction/Rehab, B-16-181, West Roxbury Parkway over MBTA	Qualitative		No assumed impact/negligible impact on emissions
606728	Boston - Bridge Replacement, B-16-365, Bowker Overpass over Storrow Drive (eastbound)	Qualitative		No assumed impact/negligible impact on emissions
608614	Boston - Bridge Substructure repairs, B-16-179, Austin St over I-93 ramps, MBTA commuter rail and Orange Line	Qualitative		No assumed impact/negligible impact on emissions
610537	Boston - Ellis Elementary Traffic Calming (SRTS)	Qualitative		Qualitative decrease in emissions
606453	Boston - Improvements on Boylston St, from Intersection of Brookline Ave and Park Dr to Ipswich St	Quantified	1,920,790	Quantified decrease in emissions from Complete Streets project
S10682	Boston - Inner Harbor Stormwater Improvements	Qualitative		No assumed impact/negligible impact on emissions

Table B-1: Greenhouse Gas Regional Highway Project Tracking (cont., 2

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description
607759	Boston - Intersection Improvements at the VFW Parkway and Spring St	Qualitative		Qualitative decrease in emissions
608943	Boston - Neponset River Greenway (Phase 3)	Quantified	239,055	Quantified decrease in emissions from bicycle and pedestrian infrastructure
606226	Boston - Reconstruction of Rutherford Ave, from City Square to Sullivan Square	Quantified		LRTP project included in the statewide model
608197	Boston - Superstructure Replacement, B-16-107, Canterbury St over Amtrak/MBTA	Qualitative		No assumed impact/negligible impact on emissions
607888	Boston-Brookline - Multi-use path construction on New Fenway	Quantified	54,724	Quantified decrease in emissions from bicycle and pedestrian infrastructure
609090	Boston-Milton-Quincy - Highway lighting system replacement on Interstate 93, from Neponset Ave to the Braintree split	Qualitative		No assumed impact/negligible impact on emissions
608067	Burlington, Woburn - Intersection Reconstruction at Route 3 (Cambridge Road) and Bedford Road and South Bedford Street	Quantified		Quantified decrease in emissions from traffic operational improvement
BN1800	Cambridge - Concord Avenue Transit Signal Priority (Community Connections Program)	Quantified	645,520	Quantified decrease in emissions from traffic operational improvement
S10767	Cambridge - US Rte 3 Over Rte 2 & Rte 16 over Alewife	Qualitative		No assumed impact/negligible impact on emissions
608482	Cambridge-Somerville - Resurfacing and related work on Route 28	Qualitative		No assumed impact/negligible impact on emissions
609438	Canton - Bridge Replacement, C-02-042, Revere Court over West Branch Neponset River	Qualitative		No assumed impact/negligible impact on emissions
609053	Canton-Dedham-Norwood - Highway lighting improvements at Interstate 93 and Interstate 95/ Route 128	Qualitative		No assumed impact/negligible impact on emissions
608484	Canton-Milton - Resurfacing and related work on Route 138	Qualitative		No assumed impact/negligible impact on emissions
608611	Canton-Milton-Randolph - Replacement and rehabilitation of the highway lighting system at the Route 24 and Interstate 93 interchange	Qualitative		No assumed impact/negligible impact on emissions
608599	Canton-Sharon-Foxborough-Norwood-Walpole – Storm water improvements along Route 1, Route 1A, and Interstate 95	Qualitative		No assumed impact/negligible impact on emissions
608078	Chelsea - Reconstruction on Broadway (Route 107) from City Hall to Revere city line	Quantified	93,278	Quantified decrease in emissions from Complete Streets project
609532	Chelsea - Targeted Safety Improvements and Related Work on Broadway, from Williams Street to City Hall Avenue	Quantified	-25,503	Quantified increase in emissions

Table B-1: Greenhouse Gas Regional Highway Project Tracking (cont., 3

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description
608007	Cohasset - Corridor improvements and related work on Justice Cushing Highway (Route 3A) from Beechwood St to Henry Turner Bailey Rd	Quantified	5,849	Quantified decrease in emissions from Complete Streets project
BN1800	Concord - Bruce Freeman Rail Trail Bike Shelters (Community Connections Program)	Quantified	2,707	Quantified decrease in emissions from bicycle and pedestrian infrastructure
608495	Concord-Lexington-Lincoln - Resurfacing and related work on Route 2A	Qualitative		No assumed impact/negligible impact on emissions
S10766	Danvers - Andover Street (D-03-009) over Ipswich River	Qualitative		No assumed impact/negligible impact on emissions
608818	Danvers - Resurfacing and related work on Route 114	Qualitative		No assumed impact/negligible impact on emissions
608378	Danvers-Topsfield-Boxford-Rowley - Interstate maintenance and related work on Interstate 95	Qualitative		No assumed impact/negligible impact on emissions
607899	Dedham - Pedestrian improvements along Bussey St	Quantified	3,331	Quantified decrease in emissions from bicycle and pedestrian infrastructure
607901	Dedham - Pedestrian improvements along Elm St and Rustcraft Rd corridors	Quantified	14,046	Quantified decrease in emissions from bicycle and pedestrian infrastructure
608596	Essex - Superstructure replacement, E-11-001 (2TV), Route 133\Main St over Essex River	Qualitative		No assumed impact/negligible impact on emissions
607652	Everett - Reconstruction of Ferry St, South Ferry St and a portion of Elm St	Quantified	435,976	Quantified decrease in emissions from Complete Streets project
609257	Everett - Rehabilitation of Beacham Street, from Route 99 to Chelsea City Line	Quantified	4,038	Quantified decrease in emissions from Complete Streets project
608210	Foxborough-Plainville-Wrentham-Franklin – Interstate maintenance resurfacing work on Interstate 495	Qualitative		No assumed impact/negligible impact on emissions
608480	Foxborough-Walpole - Resurfacing and related work on Route 1	Qualitative		No assumed impact/negligible impact on emissions
608228	Framingham - Reconstruction of Union Ave, from Proctor St to Main St	Quantified	-217,978	Quantified increase in emissions
608889	Framingham - Traffic Signal Installation at Edgell Rd and Central St	Quantified	233,257	Quantified decrease in emissions from Complete Streets project
609402	Framingham-Natick - Resurfacing and Related Work on Route 9	Qualitative		No assumed impact/negligible impact on emissions
609467	Hamilton - Bridge Replacement, Winthrop St over Ipswich River	Qualitative		No assumed impact/negligible impact on emissions
605168	Hingham - Intersection Improvements at Route 3A/ Summer St Rotary	Quantified	284,736	Quantified decrease in emissions from Complete Streets project
608498	Hingham-Weymouth-Braintree - Resurfacing and related work on Route 53	Qualitative		No assumed impact/negligible impact on emissions
606501	Holbrook - Reconstruction of Union St (Route 139), from Linfield St to Centre St and Water St	Quantified	4,097	Quantified decrease in emissions from Complete Streets project

Table B-1: Greenhouse Gas Regional Highway Project Tracking (cont., 4

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description
606043	Hopkinton - Signal and intersection improvements on Route 135	Quantified	1,298,625	Quantified decrease in emissions from Complete Streets project
607977	Hopkinton-Westborough - Reconstruction of Interstate 90/Interstate 495 interchange	Quantified		LRTP project included in the statewide model
601607	Hull - Reconstruction of Atlantic Ave and related work	Quantified	6,586	Quantified decrease in emissions from Complete Streets project
605743	Ipswich - Resurfacing and related work on Central and South Main Sts	Quantified	4,356	Quantified decrease in emissions from Complete Streets project
609054	Littleton - Reconstruction of Foster Street	Quantified	1,140	Quantified decrease in emissions from Complete Streets project
608443	Littleton/Ayer - Intersection improvements on Route 2A at Willow Rd and Bruce St	Quantified	52,102	Quantified decrease in emissions from traffic operational improvement
609254	Lynn - Intersection Improvements at Two Intersections on Broadway	Quantified	73,291	Quantified decrease in emissions from traffic operational improvement
602077	Lynn - Reconstruction on Route 129 (Lynnfield Street), from Great Woods Rd to Wyoma Square	Quantified	12,761	Quantified decrease in emissions from Complete Streets project
609252	Lynn - Rehabilitation of Essex St	Quantified	411,394	Quantified decrease in emissions from Complete Streets project
607477	Lynnfield-Peabody - Resurfacing and related work on Route 1	Qualitative		No assumed impact/negligible impact on emissions
609060	Lynnfield-Peabody-Danvers - Guide and traffic sign replacement on Interstate 95/Route 128 (Task 'A' interchange)	Qualitative		No assumed impact/negligible impact on emissions
608275	Malden - Exchange St Downtown Improvement Project	Quantified	13,519	Quantified decrease in emissions from Complete Streets project
608146	Marblehead - Intersection improvements at Pleasant St and Village, Vine, and Cross St	Quantified	531	Quantified decrease in emissions from traffic operational improvement
608566	Marlborough - Improvements at Route 20 (East Main St) at Curtis Ave	Qualitative		Qualitative decrease in emissions
608467	Marlborough - Resurfacing and related work on Route 20	Qualitative		No assumed impact/negligible impact on emissions
608637	Maynard - Bridge replacement, M-10-006, carrying Florida Rd over the Assabet River	Qualitative		No assumed impact/negligible impact on emissions
608835	Medford - Improvements at Brook Elementary School	Qualitative		Qualitative decrease in emissions
610724	Medford-Somerville-Stoneham - Interstate Pavement Preservation	Qualitative		No assumed impact/negligible impact on emissions
610726	Medford-Winchester-Stoneham - Interstate Pavement Preservation on I-93	Qualitative		No assumed impact/negligible impact on emissions
609530	Medway - Holliston Street and Cassidy Lane Improvements (SRTS)	Qualitative		Qualitative decrease in emissions

Table B-1: Greenhouse Gas Regional Highway Project Tracking (cont., 5

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description
608522	Middleton - Bridge Replacement, M-20-003, Route 62 (Maple St) over Ipswich River	Qualitative		No assumed impact/negligible impact on emissions
608045	Milford - Rehabilitation on Route 16, from Route 109 to Beaver St	Quantified	-38,500	Quantified increase in emissions
607342	Milton - Intersection and signal improvements at Route 28 (Randolph Ave and Chickatawbut Rd)	Qualitative		Qualitative decrease in emissions
606635	Needham-Newton - Reconstruction of Highland Ave, Needham St and Charles River Bridge, N-04-002, from Webster St (Needham) to Route 9 (Newton)	Quantified	1,186,210	Quantified decrease in emissions from Complete Streets project
BN1800	Newton - Newton Intra-city Microtransit	Quantified	24,809	Quantified decrease in emissions from new/additional transit service
608610	Newton - Steel superstructure cleaning (full removal) and painting of N-12-055	Qualitative		No assumed impact/negligible impact on emissions
609066	Newton-Weston - Multi-Use Trail Connection, from Recreation Rd to Upper Charles River Greenway including Reconstruction of Ped Bridge N-12-078=W-29-062	Quantified	378	Quantified decrease in emissions from bicycle and pedestrian infrastructure
608866	Newton-Weston - Steel superstructure cleaning (full removal) and painting of 3 bridges: N-12-051, W-29-011, and W-29-028	Qualitative		No assumed impact/negligible impact on emissions
608609	Newton-Westwood - Steel superstructure cleaning (full removal) and painting of 2 bridges: N-12-056 and W-31-006	Qualitative		No assumed impact/negligible impact on emissions
608052	Norwood - Intersection and signal improvements at Route 1 (Providence Highway) and Morse St	Qualitative		Qualitative decrease in emissions
605857	Norwood - Intersection improvements at Route 1 and University Ave/Everett St	Quantified	1,092,131	Quantified decrease in emissions from traffic operational improvement
606130	Norwood - Intersection improvements at Route 1A and Upland Rd	Quantified	72,964	Quantified decrease in emissions from traffic operational improvement
608567	Peabody - Improvements at Route 114 at Sylvan St, Cross St, Northshore Mall, Loris Rd, Route 128 interchange, and Esquire Dr	Qualitative		Qualitative decrease in emissions
609211	Peabody - Independence Greenway Extension	Quantified	36,651	Quantified decrease in emissions from bicycle and pedestrian infrastructure
610544	Peabody - Multi-Use Path Construction of Independence Greenway at I-95 and Route 1	Quantified		Quantified decrease in emissions from bicycle and pedestrian infrastructure
608933	Peabody - Rehabilitation of Central St	Quantified	150,913	Quantified decrease in emissions from Complete Streets project

Table B-1: Greenhouse Gas Regional Highway Project Tracking (cont., 6

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description
609058	Peabody to Gloucester - Guide and traffic sign replacement on Route 128	Qualitative		No assumed impact/negligible impact on emissions
608569	Quincy - Intersection improvements at Route 3A (Southern Artery) and Broad St	Qualitative		Qualitative decrease in emissions
608707	Quincy - Reconstruction of Sea St	Quantified	-30,437	Quantified increase in emissions
608208	Quincy-Milton-Boston - Interstate maintenance and related work on Interstate 93	Qualitative		No assumed impact/negligible impact on emissions
609396	Randolph-Milton - Resurfacing and Related Work on Route 28	Qualitative		No assumed impact/negligible impact on emissions
609399	Randolph - Resurfacing and Related Work on Route 28	Qualitative		No assumed impact/negligible impact on emissions
607305	Reading - Intersection signalization at Route 28 and Hopkins St	Quantified	7,088	Quantified decrease in emissions from traffic operational improvement
N/A	Regionwide - Transit Modernization Program	Quantified	TBD	TBD
610662	Roadway and Intersection Improvements at Woburn Common, Route 38 (Main St), Winn St, Pleasant St, and Montvale Ave	Quantified		Quantified decrease in emissions from traffic operational improvement
608743	Salem - Improvements at Bates Elementary School	Qualitative		Qualitative decrease in emissions
608817	Salem-Lynn - Resurfacing and related work on Route 107	Qualitative		No assumed impact/negligible impact on emissions
608079	Sharon - Bridge Replacement, S-09-003 (40N), Moskwonikut St over Amtrak/MBTA	Qualitative		No assumed impact/negligible impact on emissions
BN1800	Sharon - Carpool Marketing (Community Connections Program)	Qualitative		Qualitative reduction in emissions
BN1800	Somerville - Davis Square Signal Improvements (Community Connections Program)	Quantified	4,214	Quantified decrease in emissions from Complete Streets project
608562	Somerville - Signal and Intersection Improvements on I-93 at Mystic Ave and McGrath Highway	Quantified	TBD	TBD
BN1570	Somerville-Medford - Green Line Extension Project - extension to College Ave with the Union Square spur	Quantified		LRTP project included in the statewide model
610665	Stoneham - Intersection Improvements at Route 28, North Border Rd and Pond St	Quantified	TBD	TBD
605342	Stow - Bridge replacement, Route 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

Table B-1: Greenhouse Gas Regional Highway Project Tracking (cont., 8

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description
608895	Sudbury-Stow-Hudson – Mass Central Rail Trail Wayside	Quantified	TBD	TBD
610660	Sudbury-Wayland - Mass Central Rail Trail (MCRT)	Quantified	TBD	TBD
607761	Swampscott - Intersection and signal improvements at Route 1A (Paradise Rd) at Swampscott Mall	Qualitative		Qualitative decrease in emissions
607329	Wakefield-Lynnfield - Rail Trail Extension, from the Galvin Middle School to Lynnfield/Peabody Town Line	Quantified	158,032	Quantified decrease in emissions from bicycle and pedestrian infrastructure
602261	Walpole - Reconstruction on Route 1A (Main Street), from the Norwood town line to Route 27, includes W-03-024 over the Neponset River	Quantified	230,473	Quantified decrease in emissions from Complete Streets project
608564	Watertown - Intersection improvements at Route 16 and Galen St	Qualitative		Qualitative decrease in emissions
607777	Watertown - Rehabilitation of Mount Auburn St (Route 16)	Quantified	536,769	Quantified decrease in emissions from Complete Streets project
609102	Wenham-Manchester-Essex-Gloucester - Pavement preservation and related work on Route 128	Qualitative		No assumed impact/negligible impact on emissions
607327	Wilmington - Bridge replacement, W-38-002, Route 38 (Main St) over the B&M Railroad	Qualitative		No assumed impact/negligible impact on emissions
608929	Wilmington - Bridge replacement, W-38-003, Butters Row over MBTA	Qualitative		No assumed impact/negligible impact on emissions
608703	Wilmington - Bridge Replacement, W-38-029 (2KV), ST 129 Lowell St over I-93	Qualitative		No assumed impact/negligible impact on emissions
609253	Wilmington - Intersection Improvements at Lowell St (Route 128) and Woburn St	Quantified	494,197	Quantified decrease in emissions from Complete Streets project
608051	Wilmington - Reconstruction of Route 38 (Main Street), from Route 62 to the Woburn City Line	Quantified	492,160	Quantified decrease in emissions from Complete Streets project
608791	Winchester - Improvements at Vinson-Owen Elementary School	Qualitative		Qualitative decrease in emissions
607244	Winthrop - Revere St Roadway Improvements	Quantified	252,816	Quantified decrease in emissions from Complete Streets project
604996	Woburn - Bridge replacement, W-43-017, New Boston St over MBTA	Quantified		LRTP project included in the statewide model
603739	Wrentham - Construction of Interstate 495/Route 1A ramps	Quantified	1,233,486	Quantified decrease in emissions from traffic operational improvement

Table B-2: Greenhouse Gas Regional Transit Project Tracking

This table is under development. It will contain the GHG impact analyses of projects funded in the Transit Program.

Table B-3: Greenhouse Gas Regional Highway Project Tracking—Completed Projects

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description	FFY of Contract Award
604173	Boston - Bridge replacement, B-16-016, North Washington St Bridge over the Boston Inner Harbor	Qualitative		No assumed impact/ negligible impact on emissions	2018
607732	Cochituate Rail Trail, Phase Two, Including Pedestrian Bridge, N-30-014, Over Route 9 and F-07-033=N-03-029 over Route 30	Quantified	62,441	Quantified decrease in emissions from bicycle and pedestrian infrastructure	2018
608013	Quincy - Intersection Improvements @ Sea St & Quincy Shore	Quantified	701,528	Quantified decrease in emissions from traffic operational improvement	2018
608352	Salem - Canal St Rail Trail construction (Phase 2)	Quantified	6,651	Quantified decrease in emissions from bicycle and pedestrian infrastructure	2018
607507	Wakefield - Bridge Deck Replacement, W-01-021 (2MF) Hopkins St over I-95 / ST 128	Qualitative		Qualitative decrease in emissions	2018
606134	Boston - Traffic Signal Improvements on Blue Hill Ave and Warren St	Qualitative		Qualitative decrease in emissions	2019
608651	Braintree - Adaptive Signal Controls on Route 37 (Granite Street)	Qualitative		Qualitative decrease in emissions	2019
605110	Brookline - Intersection and signal improvements at Route 9 and Village Square (Gateway East)	Quantified	67,056	Quantified decrease in emissions from Complete Streets project	2019
605287	Chelsea - Route 1 Viaduct rehabilitation (southbound/ northbound) on C-09-007 and C-09-011	Qualitative		No assumed impact/ negligible impact on emissions	2019
600518	Hingham - Intersection improvements at Derby St, Whiting St, and Gardner St	Quantified	-145,683	Quantified increase in emissions	2019
604952	Lynn-Saugus - Bridge replacement, L-18-016=S-05-008, Route 107 over the Saugus River (AKA – Belden G. Bly Bridge)	Qualitative		No assumed impact/ negligible impact on emissions	2019
607133	Quincy - Superstructure Replacement, Q-01-039, Robertson Street over I-93/ US 1/SR 3	Qualified		No assumed impact/ negligible impact on emissions	2019
604989	Southborough - Reconstruction of Main St (Route 30), from Sears Rd to Park St	Quantified	231,813	Quantified decrease in emissions from Complete Streets project	2019

Table B-3: Greenhouse Gas Regional Highway Project Tracking—Completed Projects (cont., 2

MassDOT Project ID	MassDOT Project Description	GHG Analysis Type	GHG CO2 Impact (kg/yr)	GHG Impact Description	FFY of Contract Award
608823	Wellesley-Newton-Weston - Pavement Resurfacing and Related Work on I-95	Qualitative		No assumed impact/ negligible impact on emissions	2019
608608	Braintree - Highway Lighting Improvements at I-93/Route 3 Interchange	Qualitative		No assumed impact/ negligible impact on emissions	2020
607954	Danvers - Bridge Replacement, D-03-018, ST 128 over Waters River	Qualitative		No assumed impact/ negligible impact on emissions	2020
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	2020
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	2020

Table B-4: Greenhouse Gas Regional Transit Project Tracking—Completed Projects

This table is under development. It will summarize the GHG impact analyses of transit projects completed in FFY 2020.

APPENDIX C

PUBLIC OUTREACH AND COMMENTS

OVERVIEW

In the course of developing the Transportation Improvement Program (TIP), the staff of the Boston Region Metropolitan Planning Organization (MPO) regularly engages with municipalities and the general public to provide information about the milestones, deadlines, and key decision points in the development process. Staff publicly shares materials and information used by the MPO board for decision-making via the TIP development web page: www.bostonmpo.org/tip-dev. This process affords the public ongoing opportunities to provide input to the MPO board during the development of the TIP and prior to the release of the draft TIP for the official public review period. This appendix documents the input received during the development of the Federal Fiscal Years (FFYs) 2021–25 TIP and comments received during the public review period.

In addition to the outreach process for developing the annual TIP document, the results of which are included in this appendix, MPO staff engaged the public, agency partners, and other regional stakeholders in a parallel feedback process to support revisions to the MPO's TIP project selection criteria. This process occurs approximately once every four years in the wake of the release of the MPO's Long-Range Transportation Plan and this process has occurred throughout FFY 2020. A summary of the public input received through this process will be shared via alternative channels as revisions to the criteria are finalized at the end of FFY 2020.

SUMMARY OF COMMENTS RECEIVED DURING TIP DEVELOPMENT

MPO staff initiated outreach activities for the FFYs 2021–25 TIP in September 2019 and maintained communication with municipal, state agency, and public stakeholders throughout the TIP development process. The primary in-person and direct-engagement events at which staff received input were the subregional committee meetings held by the Metropolitan Area Planning Council (MAPC) and the TIP How-To conference call workshops with municipal TIP contacts and Massachusetts Department of Transportation (MassDOT) district project engineers. These events offered individuals the opportunity to directly engage with staff to ask questions, voice concerns, provide suggestions, and propose new projects for funding.

The MPO board held a series of discussions at its regularly scheduled meetings as the TIP was developed in stages that focused on project solicitation, project evaluation, and programming of funds. Staff informed the public at each stage via its standard communication channels (email, Twitter, and the MPO website). As a result, the MPO received oral and written comments while developing the draft TIP. The comments directed to the MPO board are summarized below in Table C-1.

Table C-1: Public Comments Received during Development of the FFYs 2021–25 Transportation Improvement Program

Project	Name	Support/Oppose/Request/Concern	Comment
Projects Under Consideration for TIP Funding (FFYs 2021–25)			
Intersection Reconstruction at Route 3 and Bedford Road and South Bedford Street (Burlington and Woburn)	Municipal: Mayor Scott Galvin, City of Woburn	Request	Requests inclusion of the Intersection Reconstruction at Route 3 and Bedford Road in the FFYs 2021–25 TIP. The intersection was ranked as a high crash location in a MassDOT RSA performed in 2014, and the proposed improvements would reduce vehicular crashes, in addition to reducing traffic congestion associated with substandard traffic signal equipment and inadequate geometry.
Targeted Safety Improvements and Related Work on Broadway (Chelsea)	Municipal: Tom Ambrosino, Chelsea City Manager; Alex Train, Assistant Director, Chelsea Planning and Development; Ben Cares, Chelsea Planner/ Project Manager; Mayor Joe Curtatone, City of Somerville; Brad Rawson, Somerville Director of Mobility	Request	Requests inclusion of the Targeted Safety Improvements and Related Work on Broadway in the FFYs 2021–25 TIP. Safety improvements are the highest priority for the project, and the project area includes a MassDOT top 200 crash location. Proposed improvements include resignalization of all intersections within the project area and the construction of a combined bus and bicycle lane, reducing congestion and allowing for preferential movement of MBTA bus routes on Broadway. The project would provide safety and economic vitality improvements in a largely low- and moderate-income community that has not seen any investment since the 1970s.
Bluebike Expansion (Chelsea, Arlington, Watertown, Newton)	Municipal: Ben Cares, Chelsea Planner/Project Manager	Request	Requests allocation of funding from the Community Connections program toward the expansion of the Bluebike system to Arlington, Watertown, Newton, and Chelsea. The project is a regional effort to address first- and last-mile gaps in the bike network.
Rehabilitation of Western Avenue (Route 107) (Lynn)	Municipal: Mayor Joe Curtatone, City of Somerville; Brad Rawson, Somerville Director of Mobility	Request	Requests inclusion of the Rehabilitation of Western Avenue in the FFYs 2021–25 TIP.
Bridge Replacement, M-02-001 (8AM), Central Street (Route 127) over Saw Mill Brook (Manchester)	Municipal: Gregory Federspiel, Manchester Town Administrator; Nathan Desrosiers, Manchester Town Engineer; Chuck Dam, Manchester Director of Public Works	Request	Requests inclusion of the Central Street over Saw Mill Brook Bridge Replacement in the FFYs 2021–25 TIP. A 2015 inspection showed an immediate need for emergency repairs; a 2016 inspection showed that the bridge is in overall poor condition despite the repairs. Loss of the bridge would require a two-mile detour for emergency response to half of the Town and lengthen the commute of pedestrians accessing the Manchester commuter rail station. As part of the bridge replacement, the tide gate, which contributed to damage from the 2006 Mother's Day storm, would be removed. Removal of the tide gate would make the area more resilient to 20 to 50 year storms.
Intersection Improvements at Squantum Street and Adams Street (Milton)	Municipal: Chase Berkeley, Milton Director of Public Works; John Thompson, Milton Town Engineer; Mayor Joe Curtatone, City of Somerville; Brad Rawson, Somerville Director of Mobility	Request	Requests inclusion of the Intersection Improvements at Squantum Street and Adams Street in the FFYs 2021–25 TIP. The project will provide bicycle and pedestrian accommodations and address congestion at the intersection.
Bridge Replacement, Route 27 (North Main Street) over Route 9 (Worcester Street) (Natick)	Municipal: James Freas, Natick Director of Community and Economic Development	Request	Requests inclusion of the Route 27 over Route 9 Bridge Replacement in the FFYs 2021–25 TIP. Due to its structural deficiencies and the potential impacts of closing the bridge, reconstructing the interchange is critical for the Town and surrounding communities. The project would improve safety for all roadway users, improving bicycle and pedestrian facilities and addressing a high crash location.

Project	Name	Support/Oppose/Request/Concern	Comment
Reconstruction of Commonwealth Avenue (Route 30) (Newton)	Municipal: Mayor Ruthanne Fuller, City of Newton; Nicole Freedman, Newton Director of Transportation Planning; Mayor Joe Curtatone, City of Somerville; Brad Rawson. Somerville Director of Mobility	Request	Requests inclusion of the Reconstruction of Commonwealth Avenue in the FFYs 2021–25 TIP. The segment of the Carriageway within the project area lacks bicycle facilities, and existing sidewalks are in poor condition. The proposed improvements would address a large disruption in the Carriageway, which generally features pedestrian and bicycle activity year-round in Boston, Brookline, and Newton. This project could be coordinated with the Reconstruction on Route 30 in Weston, allowing for additional extension of the Carriageway.
Multiuse Path Construction of Independence Greenway at I-95 and Route 1 (Peabody)	Municipal: Brendan Callahan, Assistant Director of Planning; Andrew Levin, Peabody City Planner	Request	Requests inclusion of the Multiuse Path Construction of Independence Greenway at I-95 and Route 1 in the FFYs 2021–25 TIP. The project is a critical link for the region's trail network, serving as a key connection for the northern and southern segments of the Boston to Border Trail, the East Coast Greenway, and the Danvers Rail Trail. The construction of a two-span bridge over Route 1 will significantly transform the region's trail network, linking communities from Salisbury to Boston.
Boston Street Improvements (Salem)	Municipal: Mayor Kimberly Driscoll, Mayor, City of Salem	Request	Requests inclusion of the Boston Street Improvements in the FFYs 2021–25 TIP. The project is the top priority for the City of Salem, as it is regionally significant serving the Cities of Salem and Peabody. Boston Street serves as an evacuation and emergency route, providing access to Route 128, I-95, Route 114, and Route 107 and containing five fire houses within the project limits. Three bus routes operate in the corridor, and the proposed improvements to bicycle and pedestrian access will expand multimodal connections to transit.
McGrath Boulevard Project (Somerville)	Municipal: Mayor Joe Curtatone, City of Somerville; Brad Rawson, Somerville Director of Mobility	Request	Requests inclusion of the McGrath Boulevard Project in the FFY 2025 TIP element, stating that the project is of regional importance for a range of stakeholders. The project is programmed in the 2025 to 2029 time band of the LRTP and received an exceptionally high score during TIP evaluations. Mayor Curtatone notes that City staff and community-based stakeholders are eager to reconvene the project working group to meet the design schedule required by the next TIP cycle.
Swampscott Rail Trail	Municipal: Sean Fitzgerald, Town Administrator; Peter Spellios, Chair, Swampscott Select Board; Marzie Galazka, Swampscott Director of Community and Economic Development; Suzanne Wright, Member, Swampscott School Committee	Request	Requests inclusion of the Swampscott Rail Trail in the FFYs 2021–25 TIP. Swampscott is the fifth most densely settled town in the Commonwealth, and congestion on local roads poses safety concerns. The trail would span the entirety of the Town, connecting to several elementary schools, Swampscott High School, and the Marblehead Rail Trail. The project will address a lack of safe pedestrian accommodations in the Town of Swampscott and provide multimodal connections to an increasingly socioeconomically diverse community.
Main Street Reconstruction (Wakefield)	Municipal: Bill Renault, Wakefield Town Engineer	Request	States that the Town of Wakefield is committed to reviewing Main Street Reconstruction project scope to reduce the cost to a level that would not require an LRTP amendment, and requests consideration for programming in a future FFYs 2021–25 TIP amendment or during FFYs 2022–26 TIP development.
Intersection Improvements, Boston Post Road (Route 20) at Wellesley Street (Weston)	Municipal: Leon Gaumond, Weston Town Manager Organization: Timothy McIntosh, VHB	Request	Requests inclusion of the Intersection Improvements at Boston Post Road and Wellesley Street in the FFY 2022 TIP element. The project is the top priority for the Town of Weston, and the proposed improvements will address significant safety and crash related incidents. The project will have minor impacts to existing private properties such that only temporary construction easements will be required, and the Town and its consultant have discussed the easements with residents on multiple occasions.

Project	Name	Support/Oppose/Request/Concern	Comment
Traffic Signal Improvements on Route 109 (Westwood)	Municipal: Todd Korchin, Westwood Director of Public Works Organization: Jaklyn Centracchio and Greg Lucas, BETA Group, on behalf of the Town of Westwood	Request	Requests inclusion of the Traffic Signal Improvements on Route 109 in the FFYs TIP. The project would provide a full adaptative signal control system at seven intersections along Route 109. The Town of Westwood, as well as the Towns of Medfield, Dover, Walpole, and Mills, contribute to and experience congestion on the corridor as traffic travel toward Route 128. As such, the proposed improvements would have a regional benefit.
Currently Programmed Projects (FFYs 2020–24)			
Intersection Improvements at Massachusetts Avenue (Route 111) and Main Street (Route 27) (Kelley's Corner) (Acton)	Municipal: Austin Cyganiewicz, Acton Town Manager	Support	Supports continued inclusion of the Intersection Improvements at Kelley's Corner in the FFY 2022 TIP element. The Town of Acton will vote at an upcoming Town Meeting to authorize the Board of Selectmen to acquire the necessary right-of-way for the project, and to fund just compensation payments to property owners.
Minuteman Bikeway Extension (Bedford)	Municipal: Alyssa Sandoval, representing the Bedford Town Manager's Office; David Manugian, Bedford Director of Public Works Organization: Great Meadows Wildlife Refuge Volunteers	Support	Supports continued inclusion of the Minuteman Bikeway Extension FFY 2022 TIP element. When completed, the trail will provide uninterrupted travel from the Town of Concord to Alewife Station and strengthen connections to Concord Center and the Great Meadows National Wildlife Refuge. The proposed improvements included in the project will enhance accessibility and improve safety for pedestrians and cyclists. The Town of Bedford hopes to create a new cultural district around the extension. The project is a vital recreational, tourism, and transportation asset for the region. The Town has extended the current consent article to authorize the Select Board to approve easement acquisitions without Town Meeting approval and has contracted a MassDOT prequalified appraiser to ensure the appraisals move forward promptly. These measures will ensure that the right-of-way is secured in advance of the scheduled advertisement date.
Rehabilitation and Related Work on Route 126 (Bellingham)	Legislative: Representative Michael J. Soter Municipal: James Kupfer, Bellingham Town Planner; Dan Spencer, Chair, Bellingham Board of Selectmen	Support	Supports continued inclusion of the Rehabilitation and Related Work on Route 126 in the FFY 2022 TIP element. The corridor, which is adjacent to the Bellingham Memorial Middle School, has seen numerous accidents and lacks sidewalks. The project is currently on schedule to reach 100 percent design by the summer of 2020, and the project would be able to move into the FFY 2021 TIP element if the opportunity arises.
Reconstruction of Broadway, from City Hall to the Revere City Line (Chelsea)	Municipal: Tom Ambrosino, Chelsea City Manager; Alex Train, Assistant Director, Chelsea Planning and Development	Support	Supports continued inclusion of the Reconstruction of Broadway in the FFY 2022 TIP element. The proposed improvements will address safety issues along the corridor, improve transit reliability, and increase accessibility for all roadway users. The project represents an important step forward for transportation equity in a densely populated environmental justice community.
Corridor Improvements and Related Work on Justice Cushing Highway (Route 3A) (Cohasset and Scituate)	Legislative: Representative Paul McMurtry, Representative Joan Meschino Municipal: Leon Goodwin, Dedham Town Manager; Jason Mammone, Dedham Director of Engineering Organization: Darshan Jhaveri, BETA Group	Support	Supports continued inclusion of the Pedestrian Improvements along Bussey Street in the FFY 2023 TIP element. The proposed safety improvements are imperative in a corridor that sees heavy pedestrian traffic, including children walking to Avery Elementary School, Dedham Middle School, and Dedham High School, all of which are within one-half mile of the project area. The project would improve sidewalk accessibility, add bicycle facilities, and enhance ongoing revitalization in the neighborhood.

Project	Name	Support/Oppose/Request/Concern	Comment
Pedestrian Hybrid Beacon Installation at Route 9 and Maynard Road (Framingham)	Framingham resident: Grace O'Donnell	Support	Supports continued inclusion of the Pedestrian Hybrid Beacon Installation at Route 9 and Maynard Road in the FFY 2024 TIP element.
Traffic Signal Installation at Edgell Road at Central Street (Framingham)	Municipal: Mayor Yvonne Spicer, City of Framingham Framingham resident: Grace O'Donnell	Support	Supports continued inclusion of the Traffic Signal Installation at Edgell Road at Central Street in the FFY 2022 TIP element.
Reconstruction of Union Avenue, from Proctor Street to Main Street (Framingham)	Municipal: Mayor Yvonne Spicer, City of Framingham; Eric Johnson, Framingham City Engineer Framingham resident: Grace O'Donnell	Support	Supports continued inclusion of the Reconstruction of Union Avenue in the FFY 2021 TIP element. The City indicated that the project is ahead of schedule and continues to work with the legislative delegation to address Article 97 concerns.
Intersection Improvements at Route 3A and Summer Street Rotary (Hingham)	Legislative: Representative Joan Meschino Municipal: Tom Mayo, Hingham Town Administrator Organization: David Giangrande, DCI	Request	Requests continued inclusion of the Intersection Improvements at Route 3A and Summer Street Rotary in the FFY 2024 TIP element. The proposed improvements are critically important at an intersection with chronic accidents and multiple fatalities. The project is part of a larger public safety initiative for the Town of Hingham.
Reconstruction of Atlantic Avenue (Hull)	Municipal: Philip Lemnios, Town Manager	Support	Supports continued inclusion of the Reconstruction of Atlantic Avenue in the FFY 2022 TIP element. The Town of Hull completed the 100 percent design submission to MassDOT and is currently working to resolve the comments received. The proposed improvements will improve substandard conditions, modernize the roadway, and enhance access and mobility along the corridor. The project is essential to maintaining the safety of local residents by providing one of the Town's few points of access for emergency response and evacuation.
Rail Trail Extension, from the Galvin Middle School to Lynnfield/Peabody Town Line (Lynnfield and Wakefield)	Lynnfield resident: Alan K. Dresios	Oppose	Opposes inclusion of the Rail Trail Extension from Galvin Middle School to the Lynnfield/Peabody town line. States that the project will not connect to the Border to Boston Trail, and the proposed terminus in Wakefield would not connect to the Wakefield commuter rail station. The project does not align with the goals of the MPO, in that it does not improve transportation equity or close gaps in the bicycle network. The project would also negatively affect Reedy Meadow, a National Natural Landmark, and the planned construction on Rabbit Island will disrupt previously discovered historical artifacts.
Intersection Improvements at Route 1A and Upland Road/Washington Street and Prospect Street. (Norwood)	Municipal: Mark Ryan, Norwood Director of Public Works and Town Engineer	Support	Supports continued inclusion of the Intersection Improvements at Route 1A and Upload Road/ Washington Street and Prospect Street in the FFY 2022 TIP element, rather than moving to the FFY 2023 TIP element. The project will benefit all commuters who use the corridor as they travel to and from the Greater Boston area. The Town of Norwood has advocated for this project since a 1996 CTPS study identified intersection deficiencies, and further delays in construction will continue to negatively affect the Town and commuters in the region.

Project	Name	Support/Oppose/Request/Concern	Comment
Independence Greenway Extension (Peabody)	Municipal: Brendan Callahan, Assistant Director of Planning; Andrew Levin, Peabody City Planner	Support	Supports continued inclusion of the Independence Greenway Extension in the FFY 2021. The project, along with the Multiuse Path Construction of Independence Greenway at I-95 and Route 1, will extend the Independence Greenway to 10 miles.
Bruce Freeman Rail Trail (Phase 2D) (Sudbury)	Municipal: Maryanne Bilodeau, Interim Sudbury Town Manager; Janie Dretler, Member, Sudbury Board of Selectmen; Jennifer Roberts, Member, Sudbury Board of Selectmen; Ron Brumback, Member, Sudbury Finance Committee; Charles Russo, Member, Sudbury Conservation Committee; Kay Bell, Member, Sudbury Commission on Disabilities Framingham residents: Grace O'Donnell; Jonathan Zarkower Sudbury residents: Len Simon, Peg Espinola Organization: Tom Michelman, President, Friends of the Bruce Freeman Rail Trail; Emily Teller, Secretary, Friends of the Bruce Freeman Rail Trail; Nancy Brumback, Member, League of Women Voters of Sudbury	Support	Supports continued inclusion of the Bruce Freeman Rail Trail (Phase 2D) in the FFY 2022 TIP element, rather than moving the project to the FFY 2023 TIP element. The project has significant support from residents of Sudbury and surrounding communities, and would provide safe transportation for cyclists and pedestrians, as well as provide opportunities for healthy activity and recreation.
Intersection Improvements at Lowell Street (Route 129) and Woburn Street (Wilmington)	Municipal: Jeffrey Hull, Wilmington Town Manager; Valerie Gingrich, Wilmington Director of Planning and Conservation	Support	Supports continued inclusion of the Intersection Improvements at Lowell Street and Woburn Street in the FFYs 2021–25 TIP, and requests that the project move to an earlier TIP element. The intersection is currently overburdened and unsafe. Moving the project to an earlier TIP element would better accommodate increased traffic resulting from the New Boston Street Bridge Replacement in Woburn (FFY 2021) Reconstruction on Main Street in Wilmington (FFY 2023). Project design will be finalized by April 2021.
Bridge Replacement, New Boston Street over MBTA (Woburn)	Municipal: Mayor Scott Galvin, City of Woburn Organization: Bob Penfield, VHB	Support	Supports continued inclusion of the New Boston Street Bridge Replacement in the FFY 2021 TIP element, stating that the project will bolster economic development in the area. Notes the project is on schedule to reach 100 percent design. Changes to the design, including additional retaining walls and soil excavation from an area potentially contaminated by an adjacent former superfund site, have resulted in an increased cost.

SUMMARY OF COMMENTS RECEIVED DURING PUBLIC REVIEW PERIOD

The MPO board will vote to release a draft FFYs 2021–25 TIP document for public review at its April 30, 2020, meeting. This vote will initiate an official 21-day public review period, which will begin on or around May 1, 2020, and close on or around May 22, 2020. The comments received during this public review period will be summarized in Table C-2. Draft responses from the MPO board to the commenters will be presented at the May 28, 2020, MPO meeting and will be included in this section when the final version of the document is posted to the MPO's website following a vote for endorsement.

Table C-2: Public Comments Received during the Public Review Period for the Draft FFYs 2021–25 Transportation Improvement Program

This table will be included in the final version of the document when it is posted to the MPO's website following a vote for endorsement.

APPENDIX D

GEOGRAPHIC DISTRIBUTION OF TIP FUNDING

OVERVIEW

Appendix D provides information about the geographic distribution of federal highway funding in the Boston region between federal fiscal years (FFYs) 2020 and 2024, including the distribution of the Boston Region MPO's Regional Target Program funding (the MPO's discretionary funding) and funding for projects and programs prioritized by the Massachusetts Department of Transportation. *(Following the MPO's endorsement of this FFYs 2021–25 TIP, this funding analysis will be updated to reflect the distribution of the MPO's Regional Target Program funding, and all federal highway funding programmed from FFY 2021 through FFY 2025.)* Funding amounts shown include the state's matching funds that leverage the available federal funds.

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

PURPOSE

The analysis presented here provides details about how the MPO has allocated its federal transportation highway dollars across its geographic region by showing which municipalities and areas of the Boston region have received highway funding for the construction of transportation projects. This data was first compiled for FFYs 2008-13 in response to the Boston Region MPO's 2014 Certification Review by the Federal Highway Administration and Federal Transit Administration.

METHODOLOGY

MPO staff took the following steps to develop the dataset:

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

NEXT STEPS

The data summarized in this appendix could be used in various ways to help guide programming decisions for future TIPs. Some analyses that the MPO could perform in the future include examining TIP funding by municipality and comparing that data to the number of road miles, the Chapter 90 apportionment, and the distribution of needs—as identified in the Needs Assessment of the Long-Range Transportation Plan—for each community.

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

Figure D-1: Regional Distribution of Target Funding by Subregion: FFYs 2020–24

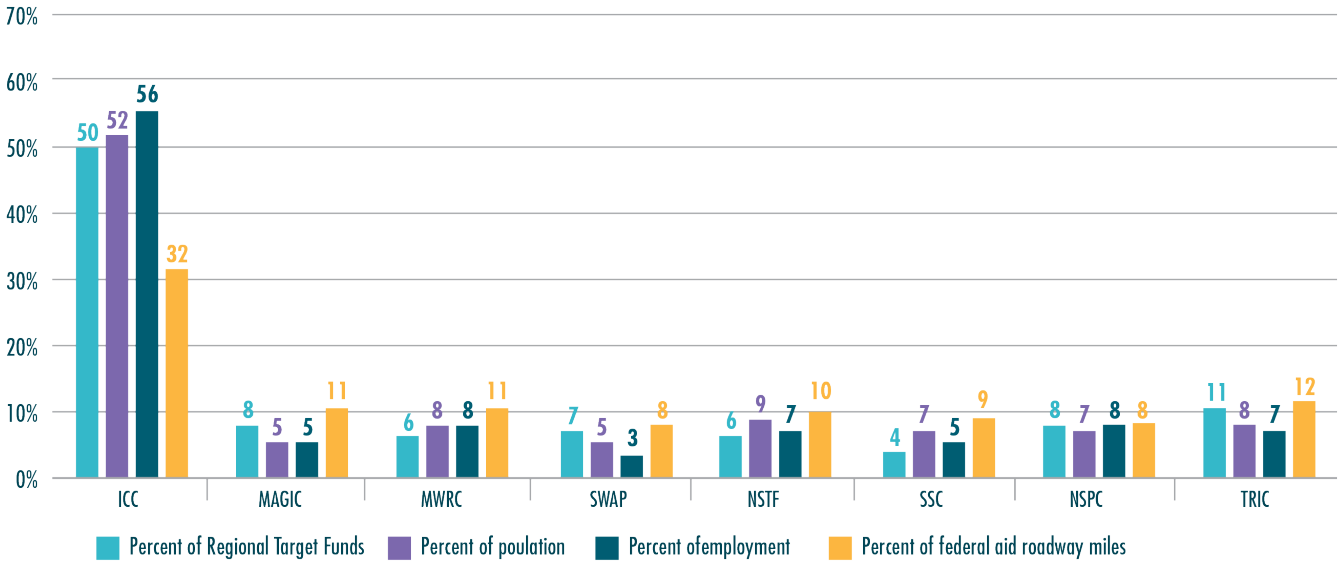


Figure D-2 : Regional Distribution of Target Funding by Municipality Type: FFYs 2020–24

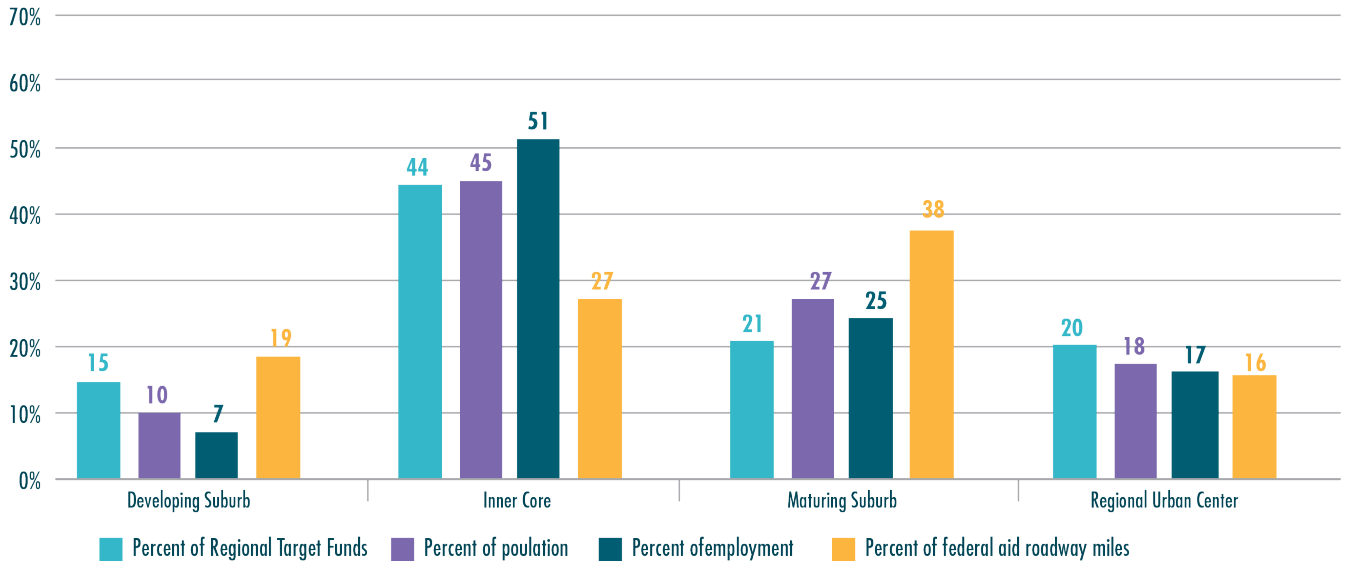


Figure D-3 : All Federal Highway Funding in the Boston Region by Subregion: FFYs 2020–24

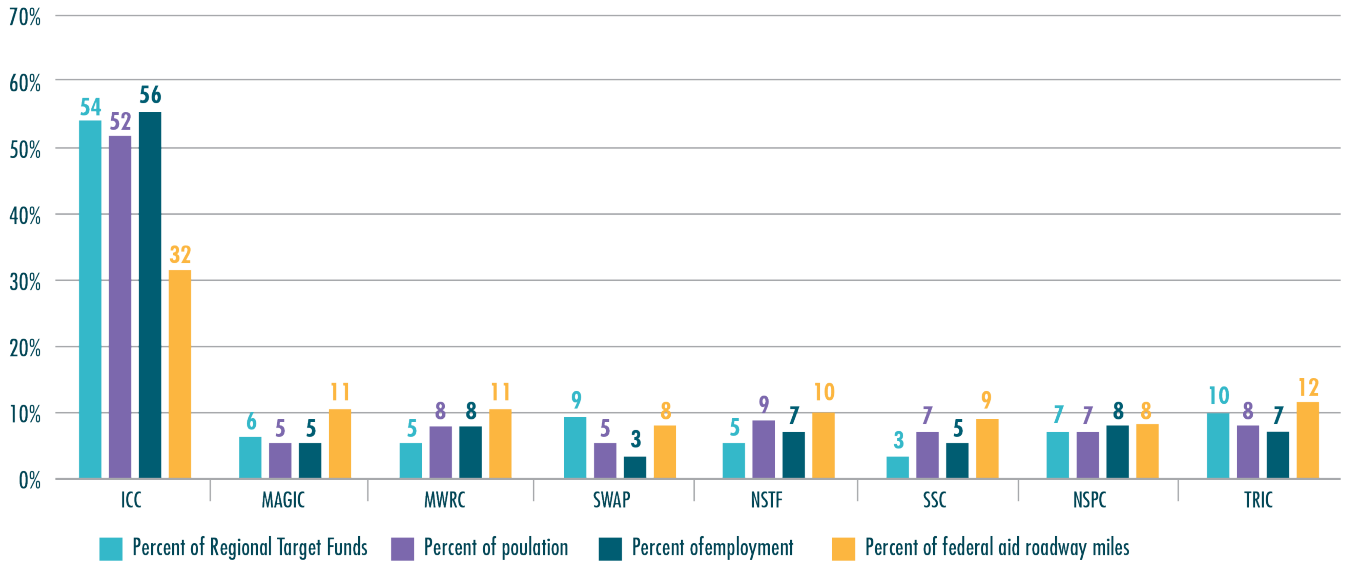


Figure D-4 : All Federal Highway Funding in the Boston Region by Municipality Type: FFYs 2020–24

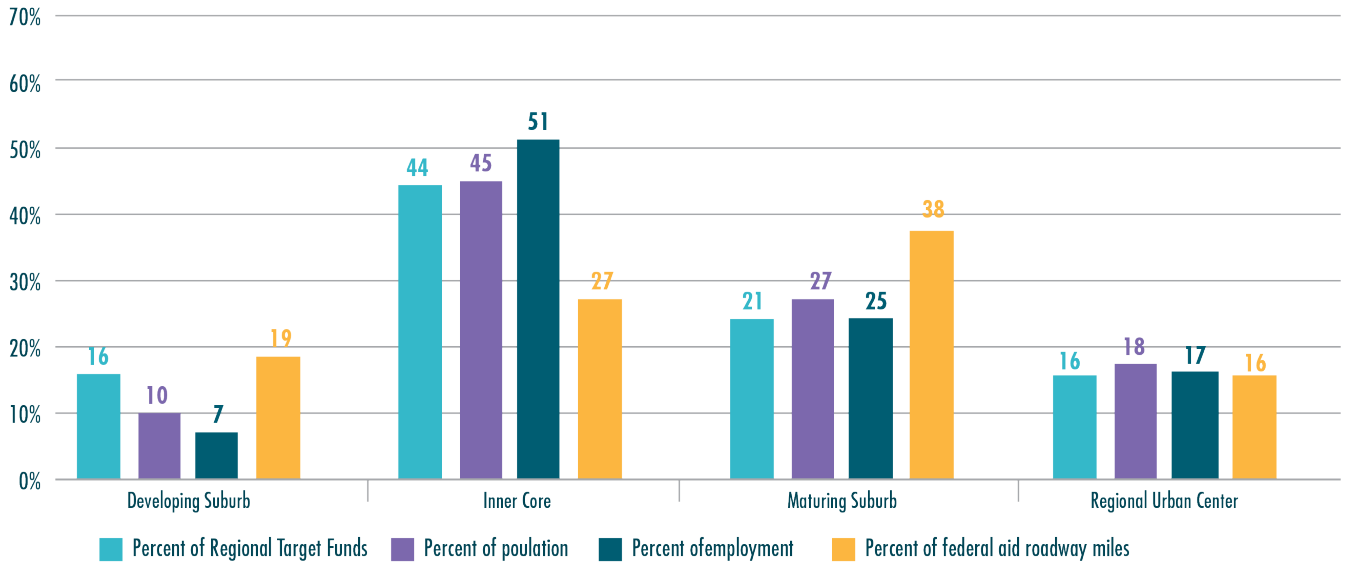


Table D-1: Federal Highway Programming for Municipalities in the Boston Region: FFYs 2020–24

Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Roadway Miles (2016)	Regionally Prioritized Target Funding	Percent Regionally Prioritized Target Funding	State Prioritized Funding	Percent State Prioritized Funding	Total Funding (Regionally Prioritized and State Prioritized)	Percent Total Funding (Regionally Prioritized and State Prioritized)
Boston	ICC	Inner Core	20.0%	31.2%	11.1%	$102,901,655	19.6%	$251,653,579	30.5%	$354,555,234	26.2%
Hopkinton	SWAP	Developing Suburb	0.5%	0.5%	1.0%	$11,346,584	2.2%	$87,035,694	10.5%	$98,382,278	7.3%
Chelsea	ICC	Inner Core	1.1%	0.8%	0.6%	$10,278,940	2.0%	$69,145,821	8.4%	$79,424,761	5.9%
Lynn	ICC	Regional Urban Center	2.9%	1.3%	1.3%	$25,440,734	4.8%	$49,507,625	6.0%	$74,948,359	5.5%
Wilmington	NSPC	Maturing Suburb	0.7%	1.0%	1.3%	$24,662,898	4.7%	$33,082,195	4.0%	$57,745,093	4.3%
Saugus	ICC	Maturing Suburb	0.9%	0.6%	0.8%	$0	0.0%	$41,559,015	5.0%	$41,559,015	3.1%
Everett	ICC	Inner Core	1.3%	0.7%	0.6%	$24,973,000	4.7%	$8,403,593	1.0%	$33,376,593	2.5%
Walpole	TRIC	Developing Suburb	0.8%	0.6%	1.2%	$25,653,571	4.9%	$6,329,417	0.8%	$31,982,988	2.4%
Watertown	ICC	Inner Core	1.0%	1.1%	0.6%	$28,340,090	5.4%	$2,688,000	0.3%	$31,028,090	2.3%
Milton	TRIC	Maturing Suburb	0.9%	0.3%	1.3%	$0	0.0%	$26,528,551	3.2%	$26,528,551	2.0%
Somerville	ICC	Inner Core	2.5%	1.2%	1.2%	$16,623,555	3.2%	$9,474,294	1.1%	$26,097,849	1.9%
Framingham	MWRC	Regional Urban Center	2.2%	2.5%	2.5%	$12,255,095	2.3%	$12,855,700	1.6%	$25,110,795	1.9%
Peabody	NSTF	Regional Urban Center	1.7%	1.3%	1.4%	$13,801,480	2.6%	$11,138,490	1.3%	$24,939,970	1.8%
Sudbury	MAGIC	Maturing Suburb	0.6%	0.5%	1.0%	$13,402,143	2.5%	$9,402,453	1.1%	$22,804,596	1.7%
Quincy	ICC	Regional Urban Center	3.0%	2.6%	2.1%	$6,068,190	1.2%	$15,445,156	1.9%	$21,513,346	1.6%
Norwood	TRIC	Regional Urban Center	0.9%	1.3%	1.0%	$17,742,268	3.4%	$3,583,933	0.4%	$21,326,201	1.6%
Ashland	MWRC	Maturing Suburb	0.5%	0.3%	0.5%	$20,905,893	4.0%	$0	0.0%	$20,905,893	1.5%
Cambridge	ICC	Inner Core	3.4%	6.0%	1.8%	$16,563,555	3.1%	$4,292,681	0.5%	$20,856,236	1.5%
Acton	MAGIC	Maturing Suburb	0.7%	0.5%	1.1%	$14,687,418	2.8%	$5,657,725	0.7%	$20,345,143	1.5%
Woburn	NSPC	Regional Urban Center	1.2%	2.2%	1.5%	$18,280,891	3.5%	$0	0.0%	$18,280,891	1.4%
Medford	ICC	Inner Core	1.8%	1.0%	1.5%	$16,403,555	3.1%	$989,895	0.1%	$17,393,450	1.3%
Wrentham	SWAP	Developing Suburb	0.4%	0.3%	1.0%	$16,786,952	3.2%	$0	0.0%	$16,786,952	1.2%
Canton	TRIC	Maturing Suburb	0.7%	1.2%	1.1%	$0	0.0%	$15,842,638	1.9%	$15,842,638	1.2%
Newton	ICC	Inner Core	2.8%	3.0%	2.6%	$9,002,969	1.7%	$5,934,358	0.7%	$14,937,326	1.1%
Bedford	MAGIC	Maturing Suburb	0.4%	1.1%	0.8%	$7,331,040	1.4%	$7,331,040	0.9%	$14,662,080	1.1%
Beverly	NSTF	Regional Urban Center	1.3%	1.2%	1.2%	$12,643,247	2.4%	$271,952	0.0%	$12,915,199	1.0%
Natick	MWRC	Maturing Suburb	1.1%	1.3%	1.2%	$0	0.0%	$12,855,700	1.6%	$12,855,700	1.0%
Stow	MAGIC	Developing Suburb	0.2%	0.1%	0.6%	$0	0.0%	$12,542,112	1.5%	$12,542,112	0.9%

Table D-1: Federal Highway Programming for Municipalities in the Boston Region: FFYs 2020–24 (cont., 2)

Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Roadway Miles (2016)	Regionally Prioritized Target Funding	Percent Regionally Prioritized Target Funding	State Prioritized Funding	Percent State Prioritized Funding	Total Funding (Regionally Prioritized and State Prioritized)	Percent Total Funding (Regionally Prioritized and State Prioritized)
Lynnfield	NSPC	Maturing Suburb	0.4%	0.3%	0.6%	$0	0.0%	$11,066,432	1.3%	$11,066,432	0.8%
Dedham	TRIC	Maturing Suburb	0.8%	0.9%	1.1%	$5,355,932	1.0%	$4,829,746	0.6%	$10,185,678	0.8%
Marlborough	MWRC	Regional Urban Center	1.2%	1.6%	2.0%	$0	0.0%	$9,867,120	1.2%	$9,867,120	0.7%
Braintree	SSC	Maturing Suburb	1.2%	1.5%	1.4%	$0	0.0%	$9,552,235	1.2%	$9,552,235	0.7%
Randolph	TRIC	Maturing Suburb	1.0%	0.5%	1.0%	$0	0.0%	$9,293,369	1.1%	$9,293,369	0.7%
Needham	TRIC	Maturing Suburb	0.9%	1.0%	1.2%	$8,702,969	1.7%	$0	0.0%	$8,702,969	0.6%
Essex	NSTF	Developing Suburb	0.1%	0.1%	0.2%	$0	0.0%	$8,506,543	1.0%	$8,506,543	0.6%
Hull	SSC	Maturing Suburb	0.3%	0.1%	0.4%	$8,303,865	1.6%	$0	0.0%	$8,303,865	0.6%
Cohasset	SSC	Developing Suburb	0.2%	0.1%	0.5%	$8,074,472	1.5%	$0	0.0%	$8,074,472	0.6%
Bellingham	SWAP	Developing Suburb	0.5%	0.3%	0.9%	$6,132,594	1.2%	$1,600,800	0.2%	$7,733,394	0.6%
Wakefield	NSPC	Maturing Suburb	0.8%	0.8%	0.9%	$0	0.0%	$7,040,375	0.9%	$7,040,375	0.5%
Winthrop	ICC	Inner Core	0.6%	0.1%	0.3%	$6,323,116	1.2%	$0	0.0%	$6,323,116	0.5%
Sharon	TRIC	Maturing Suburb	0.6%	0.2%	1.1%	$42,000	0.0%	$5,860,487	0.7%	$5,902,487	0.4%
Littleton	MAGIC	Developing Suburb	0.3%	0.3%	1.0%	$5,425,739	1.0%	$0	0.0%	$5,425,739	0.4%
Holbrook	SSC	Maturing Suburb	0.3%	0.1%	0.3%	$3,036,628	0.6%	$1,527,250	0.2%	$4,563,878	0.3%
Middleton	NSTF	Developing Suburb	0.3%	0.3%	0.5%	$0	0.0%	$4,073,920	0.5%	$4,073,920	0.3%
Gloucester	NSTF	Regional Urban Center	0.9%	0.6%	1.0%	$0	0.0%	$3,995,183	0.5%	$3,995,183	0.3%
Manchester	NSTF	Developing Suburb	0.2%	0.1%	0.4%	$0	0.0%	$3,995,183	0.5%	$3,995,183	0.3%
Wenham	NSTF	Developing Suburb	0.2%	0.1%	0.4%	$0	0.0%	$3,995,183	0.5%	$3,995,183	0.3%
Hamilton	NSTF	Developing Suburb	0.3%	0.1%	0.4%	$0	0.0%	$3,698,544	0.4%	$3,698,544	0.3%
Foxborough	TRIC	Developing Suburb	0.5%	0.7%	1.3%	$0	0.0%	$3,641,707	0.4%	$3,641,707	0.3%
Reading	NSPC	Maturing Suburb	0.8%	0.4%	0.8%	$1,683,095	0.3%	$1,500,000	0.2%	$3,183,095	0.2%
Ipswich	NSTF	Developing Suburb	0.4%	0.3%	0.7%	$3,104,609	0.6%	$0	0.0%	$3,104,609	0.2%
Hingham	SSC	Maturing Suburb	0.7%	0.7%	1.3%	$0	0.0%	$2,819,413	0.3%	$2,819,413	0.2%
Weymouth	SSC	Maturing Suburb	1.7%	1.0%	1.5%	$0	0.0%	$2,819,413	0.3%	$2,819,413	0.2%
Weston	MWRC	Maturing Suburb	0.4%	0.2%	1.3%	$0	0.0%	$2,558,929	0.3%	$2,558,929	0.2%
Hudson	MAGIC	Developing Suburb	0.6%	0.5%	0.7%	$0	0.0%	$2,223,333	0.3%	$2,223,333	0.2%

Table D-1: Federal Highway Programming for Municipalities in the Boston Region: FFYs 2020–24 (cont., 3)

Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Roadway Miles (2016)	Regionally Prioritized Target Funding	Percent Regionally Prioritized Target Funding	State Prioritized Funding	Percent State Prioritized Funding	Total Funding (Regionally Prioritized and State Prioritized)	Percent Total Funding (Regionally Prioritized and State Prioritized)
Malden	ICC	Inner Core	1.9%	0.8%	1.0%	$1,993,717	0.4%	$0	0.0%	$1,993,717	0.1%
Arlington	ICC	Inner Core	1.4%	0.5%	0.8%	$0	0.0%	$1,700,470	0.2%	$1,700,470	0.1%
Brookline	ICC	Inner Core	1.9%	0.9%	1.3%	$0	0.0%	$1,672,686	0.2%	$1,672,686	0.1%
Winchester	NSPC	Maturing Suburb	0.7%	0.5%	0.6%	$0	0.0%	$1,671,716	0.2%	$1,671,716	0.1%
Maynard	MAGIC	Maturing Suburb	0.3%	0.2%	0.3%	$0	0.0%	$1,646,400	0.2%	$1,646,400	0.1%
Belmont	ICC	Inner Core	0.8%	0.4%	0.6%	$0	0.0%	$1,614,288	0.2%	$1,614,288	0.1%
Franklin	SWAP	Developing Suburb	1.0%	0.8%	1.2%	$0	0.0%	$1,600,800	0.2%	$1,600,800	0.1%
Salem	NSTF	Regional Urban Center	1.3%	1.1%	0.7%	$0	0.0%	$1,523,721	0.2%	$1,523,721	0.1%
Concord	MAGIC	Maturing Suburb	0.6%	0.7%	1.1%	$100,000	0.0%	$1,087,500	0.1%	$1,187,500	0.1%
Danvers	NSTF	Maturing Suburb	0.9%	1.4%	1.5%	$0	0.0%	$1,168,877	0.1%	$1,168,877	0.1%
Swampscott	NSTF	Maturing Suburb	0.4%	0.2%	0.3%	$0	0.0%	$1,157,036	0.1%	$1,157,036	0.1%
Lexington	MAGIC	Maturing Suburb	1.0%	1.1%	1.9%	$0	0.0%	$1,087,500	0.1%	$1,087,500	0.1%
Lincoln	MAGIC	Maturing Suburb	0.2%	0.1%	0.6%	$0	0.0%	$1,087,500	0.1%	$1,087,500	0.1%
Westwood	TRIC	Maturing Suburb	0.5%	0.5%	0.7%	$0	0.0%	$1,071,429	0.1%	$1,071,429	0.1%
Scituate	SSC	Maturing Suburb	0.6%	0.2%	1.0%	$897,164	0.2%	$0	0.0%	$897,164	0.1%
Marblehead	NSTF	Maturing Suburb	0.6%	0.3%	0.5%	$565,486	0.1%	$0	0.0%	$565,486	0.0%
Dover	SWAP	Developing Suburb	0.2%	0.0%	0.5%	$0	0.0%	$271,952	0.0%	$271,952	0.0%
Bolton	MAGIC	Developing Suburb	0.2%	0.1%	0.7%	$0	0.0%	$0	0.0%	$0	0.0%
Boxborough	MAGIC	Developing Suburb	0.2%	0.2%	0.4%	$0	0.0%	$0	0.0%	$0	0.0%
Burlington	NSPC	Maturing Suburb	0.8%	2.2%	1.3%	$0	0.0%	$0	0.0%	$0	0.0%
Carlisle	MAGIC	Developing Suburb	0.2%	0.0%	0.4%	$0	0.0%	$0	0.0%	$0	0.0%
Holliston	MWRC	Developing Suburb	0.4%	0.3%	0.5%	$0	0.0%	$0	0.0%	$0	0.0%
Marshfield	SSC	Maturing Suburb	0.8%	0.3%	1.0%	$0	0.0%	$0	0.0%	$0	0.0%
Medfield	TRIC	Maturing Suburb	0.4%	0.2%	0.5%	$0	0.0%	$0	0.0%	$0	0.0%
Medway	SWAP	Developing Suburb	0.4%	0.2%	0.6%	$0	0.0%	$0	0.0%	$0	0.0%
Melrose	ICC	Inner Core	0.9%	0.3%	0.4%	$0	0.0%	$0	0.0%	$0	0.0%
Milford	SWAP	Regional Urban Center	0.9%	0.8%	1.2%	$0	0.0%	$0	0.0%	$0	0.0%

Table D-1: Federal Highway Programming for Municipalities in the Boston Region: FFYs 2020–24 (cont., 4)

Municipality	Subregion	Community Type	Percent of Population	Percent of Employment	Percent Federal-Aid Roadway Miles (2016)	Regionally Prioritized Target Funding	Percent Regionally Prioritized Target Funding	State Prioritized Funding	Percent State Prioritized Funding	Total Funding (Regionally Prioritized and State Prioritized)	Percent Total Funding (Regionally Prioritized and State Prioritized)
Millis	SWAP	Developing Suburb	0.3%	0.1%	0.4%	$0	0.0%	$0	0.0%	$0	0.0%
Nahant	ICC	Maturing Suburb	0.1%	0.0%	0.2%	$0	0.0%	$0	0.0%	$0	0.0%
Norfolk	SWAP	Developing Suburb	0.4%	0.2%	0.5%	$0	0.0%	$0	0.0%	$0	0.0%
North Reading	NSPC	Maturing Suburb	0.5%	0.4%	0.6%	$0	0.0%	$0	0.0%	$0	0.0%
Norwell	SSC	Developing Suburb	0.3%	0.5%	0.8%	$0	0.0%	$0	0.0%	$0	0.0%
Revere	ICC	Inner Core	1.7%	0.5%	1.3%	$0	0.0%	$0	0.0%	$0	0.0%
Rockland	SSC	Developing Suburb	0.6%	0.4%	0.6%	$0	0.0%	$0	0.0%	$0	0.0%
Rockport	NSTF	Developing Suburb	0.2%	0.1%	0.2%	$0	0.0%	$0	0.0%	$0	0.0%
Sherborn	SWAP	Developing Suburb	0.1%	0.0%	0.4%	$0	0.0%	$0	0.0%	$0	0.0%
Southborough	MWRC	Maturing Suburb	0.3%	0.4%	1.2%	$0	0.0%	$0	0.0%	$0	0.0%
Stoneham	NSPC	Maturing Suburb	0.7%	0.4%	0.8%	$0	0.0%	$0	0.0%	$0	0.0%
Topsfield	NSTF	Developing Suburb	0.2%	0.1%	0.6%	$0	0.0%	$0	0.0%	$0	0.0%
Waltham	ICC	Inner Core	2.0%	3.0%	1.6%	$0	0.0%	$0	0.0%	$0	0.0%
Wayland	MWRC	Maturing Suburb	0.4%	0.2%	0.7%	$0	0.0%	$0	0.0%	$0	0.0%
Wellesley	MWRC	Maturing Suburb	0.9%	0.9%	0.9%	$0	0.0%	$0	0.0%	$0	0.0%

APPENDIX E

REGULATORY AND POLICY FRAMEWORK

This appendix contains detailed background on the regulatory documents, legislation, and guidance that shape the Boston Region Metropolitan Planning Organization's (MPO) transportation planning process.

REGULATORY FRAMEWORK

The Boston Region MPO plays a critical role in helping the region move closer to achieving federal, state, and regional transportation goals. Therefore, an important part of the MPO's core work is to ensure that the MPO's planning activities align with federal and state regulatory guidance. This appendix describes all of the regulations, policies, and guidance taken into consideration by the MPO during development of the certification documents and other core work the MPO will undertake during federal fiscal year (FFY) 2021.

FEDERAL REGULATIONS AND GUIDANCE

Fixing America's Surface Transportation (FAST) Act: National Goals

The purpose of the national transportation goals, outlined in Title 23, section 150, of the United States Code (23 USC § 150), is to increase the accountability and transparency of the Federal-Aid

Highway Program and to improve decision-making through performance-based planning and programming. The national transportation goals include the following:

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

The Boston Region MPO has incorporated these national goals, where practicable, into its vision, goals, and objectives, which provide a framework for the MPO's planning processes. More information about the MPO's vision, goals, and objectives is included in Chapter 1.

FAST Act: Planning Factors

The MPO gives specific consideration to the federal planning factors, described in Title 23, section 134, of the US Code (23 USC § 134), when developing all documents that program federal transportation funds. The FAST Act added two new planning factors to the eight factors established in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) transportation legislation. In accordance with the legislation, studies and strategies undertaken by the MPO shall

1. Support the economic vitality of the metropolitan area, especially by enabling global competition, productivity, and efficiency
2. Increase the safety of the transportation system for all motorized and nonmotorized users
3. Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and nonmotorized users
4. Increase accessibility and mobility of people and freight
5. Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns

6. Enhance integration and connectivity of the transportation system, across and between modes, for people and freight
7. Promote efficient system management and operation
8. Emphasize preservation of the existing transportation system
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate storm water impacts of surface transportation
10. Enhance travel and tourism

The Boston Region MPO has also incorporated these federal planning factors into its vision, goals, and objectives.

FAST Act: Performance-based Planning and Programming

The United States Department of Transportation (USDOT), in consultation with states, MPOs, and other stakeholders, has established performance measures relevant to these national goals. These performance topic areas include roadway safety, transit system safety, National Highway System (NHS) bridge and pavement condition, transit asset condition, NHS reliability for both passenger and freight travel, traffic congestion, and on-road mobile source emissions. The FAST Act and related federal rulemakings require states, MPOs, and public transportation operators to follow performance-based planning and programming practices—such as setting targets—to ensure that transportation investments support progress towards these goals. See Chapter 4 for more information about these federally required performance measures and the MPO's targets, and how these measures and targets relate to the projects programmed in this TIP.

1990 Clean Air Act Amendments

The Clean Air Act, most recently amended in 1990, forms the basis of the US air pollution control policy. This act identifies air quality standards, and the US Environmental Protection Agency (EPA) designates geographic areas as *attainment* (in compliance) or *nonattainment* (not in compliance) areas with respect to these standards. If air quality in a nonattainment area improves such that it meets EPA standards, the EPA may redesignate that area as being a *maintenance* area for a 20-year period to ensure that the standard is maintained in that area.

The conformity provisions of the Clean Air Act "require that those areas that have poor air quality, or had it in the past, should examine the long-term air quality impacts of their transportation system and ensure its compatibility with the area's clean air goals." Agencies responsible for Clean Air Act requirements for nonattainment and maintenance areas must conduct air quality conformity determinations, which are demonstrations that transportation plans, programs, and projects addressing that area are consistent with a State Implementation Plan (SIP) for attaining air quality standards.

Air quality conformity determinations must be performed for capital improvement projects that receive federal funding and for those that are considered regionally significant, regardless of the funding source. These determinations must show that projects in the MPO's Long-Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP) will not cause or

contribute to any new air quality violations; will not increase the frequency or severity of any existing air quality violations in any area; and will not delay the timely attainment of air quality standards in any area. The policy, criteria, and procedures for demonstrating air quality conformity in MPO regions were established in Title 40, parts 51 and 53, of the Code of Federal Regulations.

On April 1, 1996, the EPA classified the cities of Boston, Cambridge, Chelsea, Everett, Malden, Medford, Quincy, Revere, and Somerville as in attainment for carbon monoxide (CO) emissions. Subsequently, a CO maintenance plan was set up through the Massachusetts SIP to ensure that emission levels did not increase. While the maintenance plan was in effect, past TIPs and LRTPs included an air quality conformity analysis for these communities. As of April 1, 2016, however, the 20-year maintenance period for this CO maintenance area expired and transportation conformity is no longer required for this pollutant in these communities. This ruling is documented in a letter from the EPA dated May 12, 2016.

On April 22, 2002, the City of Waltham was redesignated as being in attainment for CO emissions with an EPA-approved limited-maintenance plan. In areas that have approved limited-maintenance plans, federal actions requiring conformity determinations under the EPA's transportation conformity rule are considered to satisfy the conformity test.

On February 16, 2018, the US Court of Appeals for the DC Circuit issued a decision in *South Coast Air Quality Management District v. EPA*, which struck down portions of the 2008 Ozone National Ambient Air Quality Standards (NAAQS) SIP Requirements Rule concerning the ozone NAAQS. Those portions of the SIP Requirements Rule included transportation conformity requirements associated with EPA's revocation of the 1997 ozone NAAQS. Massachusetts was designated as an attainment area for 2008 ozone NAAQS, but as a nonattainment or maintenance area for 1997 ozone NAAQS. As a result of this court ruling, MPOs in Massachusetts must once again demonstrate conformity for ozone when developing LRTPs and TIPs.

MPOs must also perform conformity determinations if transportation control measures (TCMs) are in effect in the region. TCMs are strategies that reduce transportation-related air pollution and fuel use by reducing vehicle-miles traveled and improving roadway operations. The Massachusetts SIP identifies TCMs in the Boston region. TCMs in the SIP are federally enforceable and projects that address the identified air quality issues must be given first priority when federal transportation dollars are spent. Examples of TCMs that were programmed in previous TIPs include rapid-transit and commuter-rail extension projects (such as the Green Line Extension in Cambridge, Medford, and Somerville, and the Fairmount Line improvements in Boston), parking-freeze programs in Boston and Cambridge, statewide rideshare programs, park-and-ride facilities, residential parking-sticker programs, and the operation of high-occupancy-vehicle lanes.

In addition to reporting on the pollutants identified in the 1990 Clean Air Act Amendments, the MPOs in Massachusetts are also required to perform air quality analyses for carbon dioxide as part of the state's Global Warming Solutions Act (see below).

Nondiscrimination Mandates

The Boston Region MPO complies with Title VI of the Civil Rights Act of 1964, the American with Disabilities Act of 1990 (ADA), the Executive Order 12898—*Federal Actions to Address Environmental*

Justice in Minority Populations and Low-income Populations (EJ EO), and other federal and state nondiscrimination statutes and regulations in all programs and activities it conducts. Per federal and state law, the MPO does not discriminate on the basis of race, color, national origin (including limited English proficiency), religion, creed, gender, ancestry, ethnicity, disability, age, sex, sexual orientation, gender identity or expression, veteran's status, or background. The MPO strives to provide meaningful opportunities for participation of all persons in the region, including those protected by Title VI, the ADA, the EJ EO, and other nondiscrimination mandates.

The MPO also considers distribution of the potential beneficial and adverse effects to populations covered by these mandates when making project programming decisions. The MPO conducts activities as part of its Transportation Equity Program to ensure that the MPO meets these requirements. The MPO's TIP development process accounts for transportation equity when developing project selection criteria, evaluating and selecting projects, and analyzing their impacts. The MPO staff also supports the Massachusetts Department of Transportation (MassDOT) as it conducts its Title VI Program. The major federal requirements pertaining to nondiscrimination are discussed below.

Title VI of the Civil Rights Act of 1964

Title VI of the Civil Rights Act of 1964 requires that no person be excluded from participation in, be denied the benefits of, or be subjected to discrimination on the basis of race, color, or national origin, under any program or activity provided by an agency receiving federal financial assistance. Executive Order 13166—*Improving Access to Services for Persons with Limited English Proficiency*, dated August 11, 2000, extends Title VI protections to persons who, as a result of national origin, have limited English proficiency (LEP). Specifically, it calls for improved access to federally assisted programs and activities, and requires MPOs to develop and implement a system through which people with LEP can meaningfully participate in the transportation planning process. This requirement includes the development of a Language Assistance Plan that documents the organization's process for providing meaningful ways for people with LEP to access services and programs.

Environmental Justice Executive Order

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

On April 15, 1997, USDOT issued its *Final Order to Address Environmental Justice in Minority Populations and Low-Income Populations*. Among other provisions, this order requires programming and planning activities to

- explicitly consider the effects of transportation decisions on minority and low-income populations;
- provide meaningful opportunities for public involvement by members of minority and low-income populations;

- gather (where relevant, appropriate, and practical) demographic information such as race, color, national origin, and income level of populations affected by transportation decisions; and
- minimize or mitigate any adverse impact on minority or low-income populations.

The 1997 Final Order was updated in 2012 with USDOT Order 5610.2(a), which provided clarification while maintaining the original framework and procedures.

Americans with Disabilities Act

Title III of the Americans with Disabilities Act (ADA) "prohibits states, MPOs, and other public entities from discriminating on the basis of disability in the entities' services, programs, or activities," and requires all transportation projects, plans, and programs to be accessible to people with disabilities. Therefore, MPOs must consider the mobility needs of people with disabilities when programming federal funding for studies and capital projects. MPO-sponsored meetings must also be held in accessible buildings and be conducted in a manner that provides for accessibility. Also, MPO materials must be made available in accessible formats.

Other Nondiscrimination Mandates

The Age Discrimination Act of 1975 prohibits discrimination on the basis of age in programs or activities that receive federal financial assistance. Additionally, the Rehabilitation Act of 1975, and Title 23, section 324, of the US Code (23 USC § 324) prohibit discrimination based on sex.

STATE GUIDANCE AND PRIORITIES

Much of the Boston Region MPO's work focuses on encouraging mode shift and diminishing greenhouse gas (GHG) emissions through improving transit service, enhancing bicycle and pedestrian networks, and studying emerging transportation technologies. All of this work helps the Boston region contribute to statewide progress towards the priorities discussed in this section.

We Move Massachusetts and Planning for Performance

We Move Massachusetts (WMM) is MassDOT's statewide strategic multimodal plan. The initiative is a product of the transportation reform legislation of 2009, the You Move Massachusetts civic engagement process, outreach to populations protected by environmental justice and Title VI mandates, and other outreach activities. In May 2014, MassDOT released *We Move Massachusetts: Planning for Performance, the Commonwealth of Massachusetts' 2040 LRTP*. WMM also incorporates performance management in investment decision-making to calculate the differences in performance outcomes resulting from different funding levels available to MassDOT.

MassDOT has expanded upon the incorporation of performance management in WMM by developing a Planning for Performance (PfP) tool to influence investments. The PfP tool is a scenario-

planning tool, custom built for MassDOT, which forecasts asset conditions and allows capital planners within the divisions to consider the tradeoffs between investment strategies. The tool reports future conditions in comparison to the desired performance targets.

Choices for Stewardship: Recommendations to Meet the Transportation Future

The Commission on the Future of Transportation in the Commonwealth—established by Massachusetts Governor Charlie Baker by Executive Order 579—published *Choices for Stewardship* in 2019. This report makes 18 recommendations across the following five thematic categories to adapt the transportation system in the Commonwealth to emerging needs:

1. Modernize existing transportation assets to move more people
2. Create a mobility infrastructure to capitalize on emerging transportation technology and behavior trends
3. Reduce transportation-related greenhouse gas emissions and improve the climate resiliency of the transportation network
4. Coordinate land use, housing, economic development, and transportation policy
5. Alter current governance structures to better manage emerging and anticipated transportation trends

The Boston Region MPO supports these statewide goals by conducting planning work and making investment decisions that complement MassDOT's efforts and reflect the evolving needs of the transportation system in the Boston region.

Massachusetts Strategic Highway Safety Plan (SHSP)

The *Massachusetts 2018 SHSP* identifies the Commonwealth's key safety needs and guides investment decisions to achieve significant reductions in highway fatalities and serious injuries on all public roads. The SHSP establishes statewide safety goals and objectives and key safety emphasis areas, and it draws on the strengths of all highway safety partners in the Commonwealth to align and leverage resources to address the Commonwealth's safety challenges collectively. The Boston Region MPO considers SHSP goals, emphasis areas, and strategies when developing its plans, programs, and activities.

MassDOT's Modal Plans

In 2017, MassDOT finalized the *Massachusetts Freight Plan*, which defines the short- and long-term vision for the Commonwealth's freight transportation system. In 2018, MassDOT released the related *Commonwealth of Massachusetts State Rail Plan*, which outlines short- and long-term investment strategies for Massachusetts' freight and passenger rail systems (excluding the commuter rail system). In 2019, MassDOT also released the *Massachusetts Bicycle Transportation Plan* and the *Massachusetts Pedestrian Transportation Plan*, both of which define roadmaps, initiatives, and action plans to improve bicycle and pedestrian transportation in the Commonwealth. The MPO seeks to support the goals of MassDOT's modal plans when making funding decisions in the TIP through its investment

programs, specifically through its Bicycle Network and Pedestrian Connections Program and its new Transit Modernization Program.

Global Warming Solutions Act

The Global Warming Solutions Act (GWSA) makes Massachusetts a leader in setting aggressive and enforceable GHG reduction targets and implementing policies and initiatives to achieve these targets. In keeping with this law, the Massachusetts Executive Office of Energy and Environmental Affairs, in consultation with other state agencies and the public, developed the Massachusetts Clean Energy and Climate Plan for 2020. This implementation plan, released on December 29, 2010 (and updated in 2015), establishes the following targets for overall statewide GHG emission reductions:

- 25 percent reduction below statewide 1990 GHG emission levels by 2020
- 80 percent reduction below statewide 1990 GHG emission levels by 2050

MassDOT fulfills its responsibilities, defined in the *Massachusetts Clean Energy and Climate Plan for 2020,* through a policy directive that sets three principal objectives:

1. To reduce GHG emissions by reducing emissions from construction and operations, using more efficient fleets, implementing travel demand management programs, encouraging eco-driving, and providing mitigation for development projects
2. To promote healthy transportation modes by improving pedestrian, bicycle, and public transit infrastructure and operations
3. To support smart growth development by making transportation investments that enable denser, smart growth development patterns that can support reduced GHG emissions

In January 2015, the Massachusetts Department of Environmental Protection amended Title 310, section 7.00, of the Code of Massachusetts Regulations (310 CMR 60.05), *Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation,* which was subsequently amended in August 2017. This regulation places a range of obligations on MassDOT and MPOs to support achievement of the Commonwealth's climate change goals through the programming of transportation funds. For example, MPOs must use GHG impact as a selection criterion when they review projects to be programmed in their TIPs, and they must evaluate and report the GHG emissions impacts of transportation projects in LRTPs and TIPs.

The Commonwealth's 10 MPOs (and three non-metropolitan planning regions) are integrally involved in supporting the GHG reductions mandated under the GWSA. The MPOs seek to realize these objectives by prioritizing projects in the LRTP and TIP that will help reduce emissions from the transportation sector. The Boston Region MPO uses its TIP project evaluation criteria to score projects based on their GHG emissions impacts, multimodal Complete Streets accommodations, and ability to support smart growth development. Tracking and evaluating GHG emissions by project will enable the MPOs to anticipate GHG impacts of planned and programmed projects. See Appendix A for more information about the MPO's project selection criteria and Appendix B for more details about the MPO's GHG monitoring and evaluation activities.

Healthy Transportation Policy Initiatives

On September 9, 2013, MassDOT passed the Healthy Transportation Policy Directive to formalize its commitment to implementing and maintaining transportation networks that allow for various mode choices. This directive will ensure that all MassDOT projects are designed and implemented in ways that provide all customers with access to safe and comfortable walking, bicycling, and transit options.

In November 2015, MassDOT released the *Separated Bike Lane Planning & Design Guide*. This guide represents the next—but not the last—step in MassDOT's continuing commitment to Complete Streets, sustainable transportation, and the creation of more safe and convenient transportation options for Massachusetts' residents. This guide may be used by project planners and designers as a resource for considering, evaluating, and designing separated bike lanes as part of a Complete Streets approach.

In the LRTP, *Destination 2040*, the Boston Region MPO has continued to utilize investment programs—particularly its Complete Streets and Bicycle and Pedestrian programs—that support the implementation of Complete Streets projects. In the Unified Planning Work Program (UPWP), the MPO programs support for these projects, such as the MPO's Bicycle and Pedestrian Support Activities Program, corridor studies undertaken by MPO staff to make conceptual recommendations for Complete Streets treatments, and various discrete studies aimed at improving pedestrian and bicycle accommodations.

Congestion in the Commonwealth 2019

MassDOT developed the *Congestion in the Commonwealth 2019* report to identify specific causes of and impacts from traffic congestion on the National Highway System (NHS). The report also made recommendations for reducing congestion, including addressing local and regional bottlenecks, redesigning bus networks within the systems operated by the Massachusetts Bay Transportation Authority (MBTA) and the other regional transit authorities, increasing MBTA capacity, and investigating congestion pricing mechanisms such as managed lanes. These recommendations guide multiple new efforts within MassDOT and the MBTA and are actively considered by the Boston Region MPO when making planning and investment decisions.

REGIONAL GUIDANCE AND PRIORITIES

Focus40, The MBTA's Program for Mass Transportation

On March 18, 2019, MassDOT and the MBTA released *Focus40*, the MBTA's Program for Mass Transportation (PMT), which is the 25-year investment plan that aims to position the MBTA to meet the transit needs of the Greater Boston region through 2040. Complemented by the MBTA's Strategic Plan and other internal and external policy and planning initiatives, *Focus40* serves as a comprehensive plan guiding all capital planning initiatives at the MBTA. These initiatives include the *RailVision* plan, which will inform the vision for the future of the MBTA's commuter rail system; the Better Bus Project, the plan to improve the MBTA's bus network; and other plans. The Boston Region MPO continues to monitor the status of *Focus40* and related MBTA modal plans to inform its decision making about transit capital investments, which are incorporated to the TIP and LRTP.

MetroFuture

MetroFuture, which was developed by the Metropolitan Area Planning Council (MAPC) and adopted in 2008, is the long-range plan for land use, housing, economic development, and environmental preservation for the Boston region. It includes a vision for the region's future and a set of strategies for achieving that vision, and is the foundation for land use projections used in the Boston Region MPO's LRTP, *Destination 2040*.

MAPC is now developing *MetroCommon,* the next regional plan, which will build off of *MetroFuture* and include an updated set of strategies for achieving sustainable growth and equitable prosperity. The MPO will continue to consider *MetroFuture's* goals, objectives, and strategies in its planning and activities, and monitor *MetroCommon* as it develops.

The Boston Region MPO's Congestion Management Process

The purpose of the Congestion Management Process (CMP) is to monitor and analyze performance of highway facilities and services, develop strategies for managing congestion based on the results of traffic monitoring, and move those strategies into the implementation stage by providing decision makers in the region with information and recommendations for improving the transportation system's performance. The CMP monitors roadways and park-and-ride facilities in the Boston region for safety, congestion, and mobility, and identifies problem locations. The CMP is described in more detail in the UPWP. Studies undertaken through the CMP are often the inspiration for discrete studies funded through the UPWP. Needs identified through the MPO's CMP can also be addressed by projects funded in the TIP.

APPENDIX F

BOSTON REGION METROPOLITAN PLANNING ORGANIZATION MEMBERSHIP

VOTING MEMBERS

The Boston Region Metropolitan Planning Organization (MPO) includes both permanent members and municipal members who are elected for three-year terms. Details about the MPO's members are listed below.

The **Massachusetts Department of Transportation (MassDOT)** was established under Chapter 25 (*An Act Modernizing the Transportation Systems of the Commonwealth of Massachusetts*) of the Acts of 2009. MassDOT has four divisions: Highway, Rail and Transit, Aeronautics, and the Registry of Motor Vehicles. The MassDOT Board of Directors, comprised of 11 members appointed by the Governor, oversees all four divisions and MassDOT operations, including the MBTA. The board was expanded to 11 members by the legislature in 2015 based on a recommendation by Governor Baker's Special Panel, a group of transportation leaders assembled to review structural problems with the MBTA and deliver recommendations for improvements. MassDOT has three seats on the MPO board, including seats for the Highway Division and the Rail and Transit Division.

- The **MassDOT Highway Division** has jurisdiction over the roadways, bridges, and tunnels that were overseen by the former Massachusetts Highway Department and Massachusetts Turnpike Authority. The Highway Division also has jurisdiction over many bridges and parkways that previously were under the authority of the Department of Conservation and Recreation. The Highway Division is responsible for the design, construction, and maintenance of the Commonwealth's state highways and bridges. It is also responsible for overseeing traffic safety and engineering activities for the state highway system. These activities include operating the Highway Operations Control Center to ensure safe road and travel conditions.

- The **Rail and Transit Division** oversees MassDOT's freight and passenger rail program, and provides oversight of the 15 regional transit authorities (RTAs) in Massachusetts, as well as intercity bus service, the MBTA's paratransit service (The RIDE), and a statewide mobility-management effort.

The **MBTA**, created in 1964, is a body politic and corporate, and a political subdivision of the Commonwealth. Under the provisions of Chapter 161A of the Massachusetts General Laws (MGL), it has the statutory responsibility within its district of operating the public transportation system, preparing the engineering and architectural designs for transit development projects, and constructing and operating transit development projects. The MBTA district comprises 175 communities, including all of the 97 cities and towns of the Boston Region MPO area.

In April 2015, as a result of a plan of action to improve the MBTA, a five-member Fiscal and Management Control Board (FMCB) was created. The FMCB was created to oversee and improve the finances, management, and operations of the MBTA. The FMCB's authorizing statute called for an initial three-year term, with the option for the board to request that the Governor approve a single two-year extension. In 2017, the FMCB's initial mandate, which would have expired in June 2018, was extended for two years, through June 30, 2020. As of this writing, the FMCB's mandate has not been extended further.

The FMCB's goals target governance, finance, and agency structure and operations through recommended executive and legislative actions that embrace transparency and develop stability in order to earn public trust. By statute, the FMCB consists of five members, one with experience in transportation finance, one with experience in mass transit operations, and three who are also members of the MassDOT Board of Directors.

The **MBTA Advisory Board** was created by the Massachusetts Legislature in 1964 through the same legislation that created the MBTA. The Advisory Board consists of representatives of the 175 cities and towns that compose the MBTA's service area. 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 reviewing and commenting on the MBTA's long-range plan, the Program for Mass Transportation; proposed fare increases; the annual MBTA Capital Investment Program; the MBTA's documentation of net operating investment per passenger; and the MBTA's operating budget. The MBTA Advisory Board advocates for the transit needs of its member communities and the riding public.

The **Massachusetts Port Authority (Massport)** has the statutory responsibility under Chapter 465 of the Acts of 1956, as amended, for planning, constructing, owning, and operating such transportation and related facilities as may be necessary for developing and improving commerce in Boston and the surrounding metropolitan area. Massport owns and operates Boston Logan International Airport, the Port of Boston's Conley Terminal, Cruiseport Boston, Hanscom Field, Worcester Regional Airport, and various maritime and waterfront properties, including parks in the Boston neighborhoods of East Boston, South Boston, and Charlestown.

The **Metropolitan Area Planning Council (MAPC)** is the regional planning agency for the Boston region. It is composed of the chief executive officer (or a designee) of each of the cities and towns in the MAPC's planning region, 21 gubernatorial appointees, and 12 ex-officio members. It has statutory responsibility for comprehensive regional planning in its region under Chapter 40B of the MGL. It is the Boston Metropolitan Clearinghouse under Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966 and Title VI of the Intergovernmental Cooperation Act of 1968. Also, its region has been designated an economic development district under Title IV of the Public Works and Economic Development Act of 1965, as amended. MAPC's responsibilities for comprehensive planning encompass the areas of technical assistance to communities, transportation planning, and development of zoning, land use, demographic, and environmental studies. MAPC activities that are funded with federal metropolitan transportation planning dollars are documented in the Boston Region MPO's Unified Planning Work Program.

The **City of Boston**, six elected cities (currently **Beverly, Everett, Framingham, Newton, Somerville, and Woburn**), and six elected towns (currently **Acton, Arlington, Lexington, Medway, Norwood, and Rockland**) represent the 97 municipalities in the Boston Region MPO area. The City of Boston is a permanent MPO member and has two seats. There is one elected municipal seat for each of the eight MAPC subregions and four seats for at-large elected municipalities (two cities and two towns). The elected at-large municipalities serve staggered three-year terms, as do the eight municipalities representing the MAPC subregions.

The **Regional Transportation Advisory Council**, the MPO's citizen advisory group, provides the opportunity for transportation-related organizations, non-MPO member agencies, and municipal representatives to become actively involved in the decision-making processes of the MPO as it develops plans and prioritizes the implementation of transportation projects in the region. The Advisory Council reviews, comments on, and makes recommendations regarding certification documents. It also serves as a forum for providing information on transportation topics in the region, identifying issues, advocating for ways to address the region's transportation needs, and generating interest among members of the general public in the work of the MPO.

The **Federal Highway Administration (FHWA)** and **Federal Transit Administration (FTA)** participate in the Boston Region MPO in an advisory (nonvoting) capacity, reviewing the Long-Range Transportation Plan, Transportation Improvement Program, and Unified Planning Work Program, and other facets of the MPO's planning process to ensure compliance with federal planning and programming requirements. These two agencies oversee the highway and transit programs, respectively, of the United States Department of Transportation under pertinent legislation and the provisions of the Fixing America's Surface Transportation (FAST) Act.


TIP