



Unified Planning Work Program FFY 2022



Unified Planning Work Program

Federal Fiscal Year 2022

Boston Region MPO

ENDORSED BY THE MPO, AUGUST 19, 2021

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

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

Massachusetts Department of Transportation
Metropolitan Area Planning Council
Massachusetts Bay Transportation Authority
MBTA Advisory Board
Massachusetts Port Authority
Regional Transportation Advisory Council
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Title VI Specialist

Boston Region MPO
10 Park Plaza, Suite 2150
Boston, MA 02116
civilrights@ctps.org

By telephone:

857.702.3702 (voice)

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CONTACT MPO STAFF

By mail:

Srilekha Murthy
UPWP Manager, Central Transportation Planning Staff
10 Park Plaza, Suite 2150
Boston, MA 02116

By telephone:

857.702.3702 (voice)
For people with hearing or speaking difficulties, connect through the state MassRelay service:
Relay Using TTY or Hearing Carry-over: 800.439.2370
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Relay Using Text to Speech: 866.645.9870
For more information, including numbers for Spanish speakers,
visit <https://www.mass.gov/massrelay>

By email:

smurthy@ctps.org

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The Boston Region Metropolitan Planning Organization certifies that its conduct of the metropolitan transportation planning process complies with all applicable requirements, which are listed below, and that this process includes activities to support the development and implementation of the Regional Long-Range Transportation Plan and Air Quality Conformity Determination, the Transportation Improvement Program and Air Quality Conformity Determination, and the Unified Planning Work Program.

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August 19, 2021

Daniel M. McKe _____ for _____

Jamey Tesler, Secretary and Chief Executive Officer
Massachusetts Department of Transportation
Chair, Boston Region MPO

Due to the COVID-19 pandemic, and guidance provided by the Massachusetts Division of FHWA, this document was endorsed by the MPO via voice vote. The signature of the MPO Chair represents the endorsement of all voting MPO members who voted to endorse this document and who were present at the June 3, 2021 MPO meeting.



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ABBREVIATIONS

Acronym	Definition
3C	continuous, comprehensive, cooperative [metropolitan transportation planning process]
A&F	Administration and Finance Committee [Boston Region MPO]
ADA	Americans with Disabilities Act of 1990
Advisory Council	Regional Transportation Advisory Council
AFC	automated fare collection [system]
APC	automatic passenger counter
CAAA	Clean Air Act Amendments of 1990
CA/SC	Clean Air/Sustainable Communities.
CATA	Cape Ann Transportation Authority
CBD	central business district
CM/M	Capacity Management and Mobility
CMP	Congestion Management Process
CO	carbon monoxide
CO2	carbon dioxide
CTPS	Central Transportation Planning Staff
CUFC	Critical Urban Freight Corridors
DBMS	Database Management System
DCR	Department of Conservation and Recreation
DEP	Massachusetts Department of Environmental Protection
DI/DB	Disparate Impact and Disproportionate Burden
DOT	Department of Transportation

Acronym	Definition
EJ	environmental justice
EO	executive order [federal]
EPA	US Environmental Protection Agency
EV	economic vitality
FAST Act	Fixing America's Surface Transportation Act
FFY	federal fiscal year
FHWA	Federal Highway Administration
FMCB	MBTA Fiscal and Management Control Board
FTA	Federal Transit Administration
GHG	greenhouse gas
GIS	Geographic Information System
GTFS	General Transit Feed Specification
GWSA	Global Warming Solutions Act of 2008 [Massachusetts]
ICC	Inner Core Committee
ITDP	Institute for Transportation and Development Policy
ITE	Institute of Transportation Engineers
LAP	Language Assistance Plan
LEP	limited English proficiency
LOS	level of service
L RTP	Long-Range Transportation Plan [MPO certification document]
MAGIC	Minuteman Advisory Group on Interlocal Coordination
MAP-21	Moving Ahead for Progress in the 21st Century Act
MAPC	Metropolitan Area Planning Council

Acronym	Definition
MARPA	Massachusetts Association of Regional Planning Agencies
MassDOT	Massachusetts Department of Transportation
MassGIS	Massachusetts Bureau of Geographic Information
Massport	Massachusetts Port Authority
MBTA	Massachusetts Bay Transportation Authority
MEPA	Massachusetts Environmental Policy Act
MOU	Memorandum of Understanding
MOVES	Motor Vehicle Emission Simulator
MPO	metropolitan planning organization
MWRC	MetroWest Regional Collaborative
MWRTA	MetroWest Regional Transit Authority
NAAQS	National Ambient Air Quality Standards
NHS	National Highway System
NO _x	nitrogen oxides
NSPC	North Suburban Planning Council
NSTF	North Shore Task Force
NTD	National Transit Database
OD	Origin/Destination
OTP	MassDOT Office of Transportation Planning
PBPP	performance-based planning and programming
PL	metropolitan planning funds or public law funds [FHWA]
POP	Public Outreach Plan
PPP	Public Participation Plan

Acronym	Definition
ROC	Rider Oversight Committee [MBTA]
RMAT	Resilient Massachusetts Action Team
RTA	Regional Transit Authority
RTAC	Regional Transportation Advisory Committee
S	Safety
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act— A Legacy for Users
SFY	state fiscal year
SHSP	Strategic Highway Safety Plan
SIP	State Implementation Plan
SOV	single-occupancy vehicle
SP/M	System Preservation and Modernization
SPR	Statewide Planning and Research [FHWA]
SSC	South Shore Coalition
SWAP	Southwest Advisory Planning Committee
TAZ	transportation analysis zone
TDM	travel demand management
TE	transportation equity
TIP	Transportation Improvement Program [MPO certification document]
TNC	transportation network company
TRIC	Three Rivers Interlocal Council
UPWP	Unified Planning Work Program [MPO certification document]
USDOT	United States Department of Transportation [oversees FHWA and FTA]

Acronym	Definition
UTC	United States Department of Transportation's University Transportation Centers Program
VMT	vehicle-miles traveled
VOC	volatile organic compounds
ZEV	zero emission vehicles

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Executive Summary

WHAT IS THE BOSTON REGION MPO?

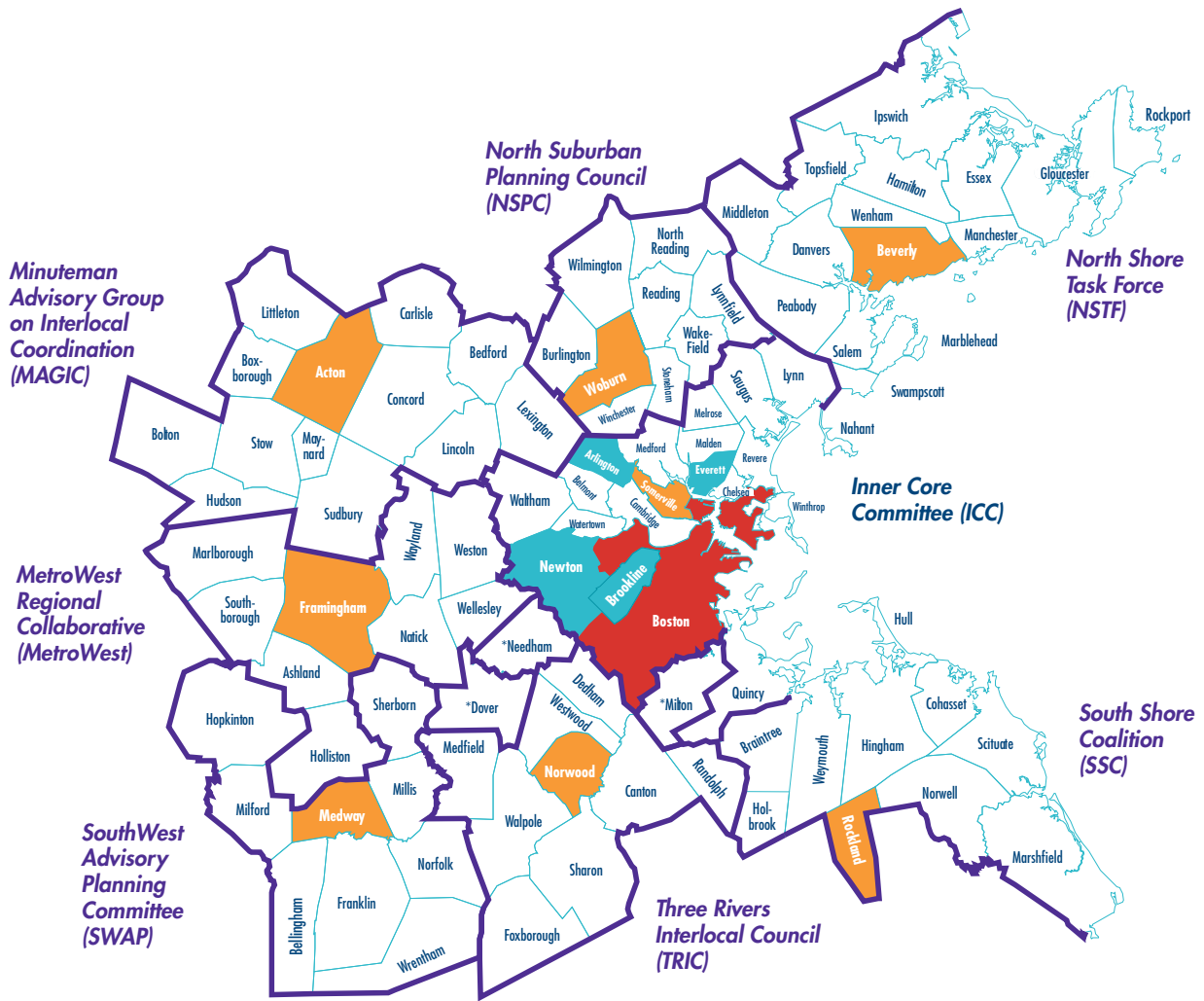
Decisions about how to allocate transportation funds in a metropolitan area are guided by information and ideas garnered from a broad group of people, including elected officials, municipal planners and engineers, transportation advocates, and interested residents. Metropolitan planning organizations (MPO) 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.

Boston Region MPO Jurisdiction and Membership

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

**Figure ES-1
Municipalities in the Boston Region**



*Community is in more than one subregion: Dover is in TRIC and SWAP; Milton and Needham are in ICC and TRIC.

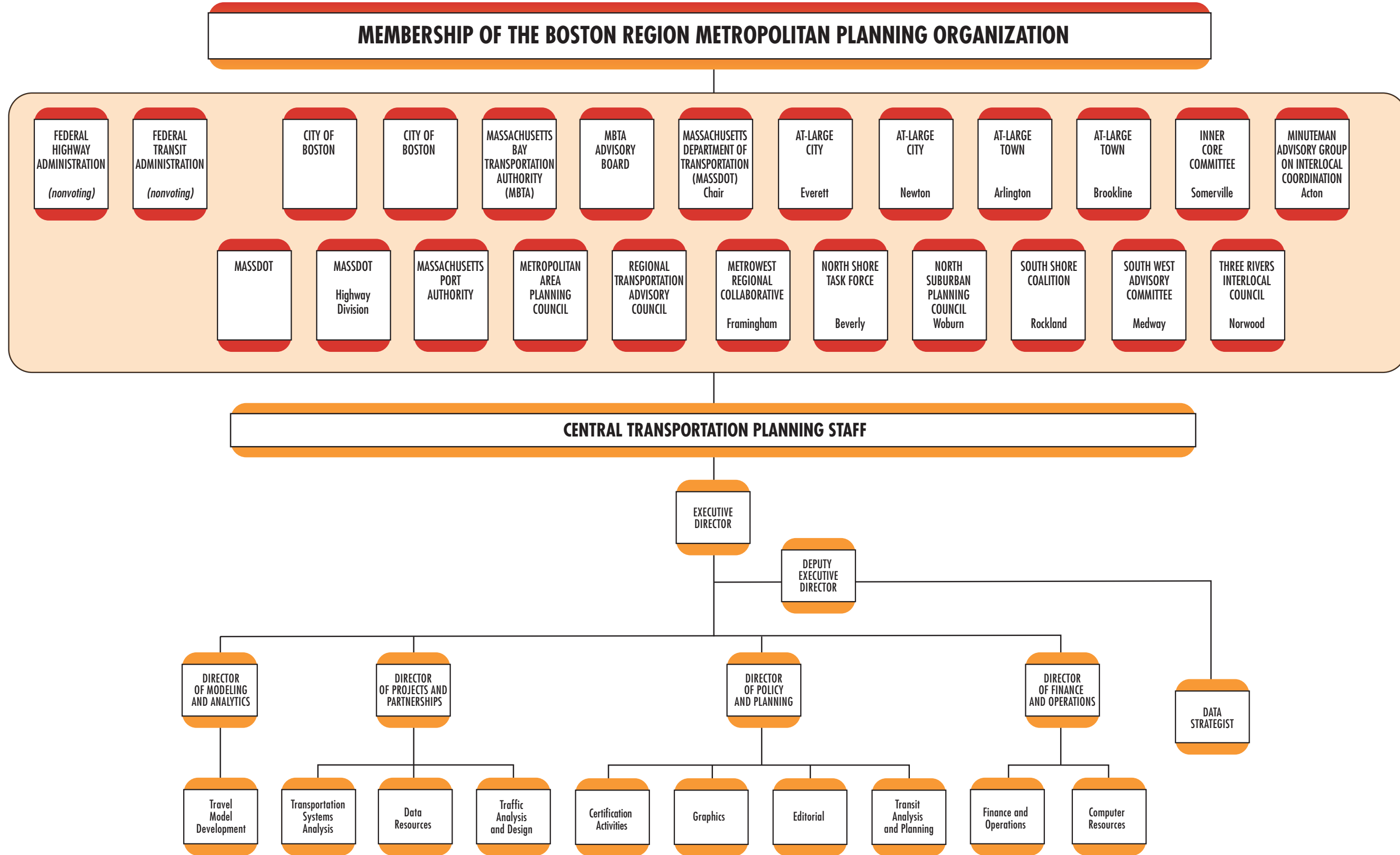
- 97 Cities and towns
- Subregion boundary
- MPO representative from subregion
- MPO city or town at-large representative
- Boston has two permanent MPO representatives

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



**Figure ES-2
Boston Region MPO Organizational Chart**





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The Transportation Planning Process

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

As of the completion of this document, the most recent reauthorization of the surface transportation law is the Fixing America's Surface Transportation (FAST) Act. The FAST Act sets policies related to metropolitan transportation planning. The law requires all MPOs to carry out a continuing, comprehensive, and cooperative (3C) transportation planning process. As part of its 3C planning process, the Boston Region MPO annually produces the Transportation Improvement Program (TIP) and the Unified Planning Work Program (UPWP). These documents, along with the quadrennial Long-Range Transportation Plan (LRTP), are referred to as certification documents and are required for the MPO to be certified as meeting federal requirements; this certification is a prerequisite for receiving federal transportation funds. In addition to the requirement to produce the certification documents, the MPO must establish and conduct an inclusive public participation process, as well as maintain travel models and data resources to support air quality conformity determinations, transportation equity analyses, and long- and short-range planning work and initiatives.

Appendix E explains the regulatory and legislative context in which the MPO operates in greater detail.

The 3C Planning Process

The 3C planning process is an approach for conducting meaningful transportation planning. The federal government requires that MPOs conduct a process that is continuing, comprehensive, and cooperative:

- **Continuing:** Transportation planning should plan for the short- and long-range horizons, emphasizing the evolving progression from systems planning to project planning, programming, and implementation. It should recognize the necessity for continuously reevaluating data and plans.
- **Comprehensive:** Transportation planning should integrate all of the stages and levels of the process and examine all modes to ensure a balanced planning and programming approach. The planning process should include analysis of related non-transportation elements such as land use, economics, environmental resources, and population.
- **Cooperative:** Transportation planning should be a process designed to encourage involvement by all users of the system including businesses, community groups, environmental organizations, the traveling public, freight operators, and the public.

Chapter 1 explains the 3C process in greater detail.

WHAT IS THE UPWP?

The UPWP, produced by the Boston Region MPO, explains how the Boston region's federal transportation planning funds will be spent in a given federal fiscal year (FFY). Specifically, the UPWP is a financial plan that is produced in compliance with the federally mandated metropolitan transportation planning process described above.

The development of the UPWP involves the prioritization of all potential transportation planning studies and technical analyses that could be undertaken to benefit the region in a given year. The scopes and budgets of the prioritized studies are documented in the UPWP. The aim is to ensure that the outcomes of the studies help achieve the transportation goals that the MPO, through its public processes, has set for the region.

The UPWP serves as a source for the following information:

- information for government officials, municipal officials, and the public about surface transportation planning projects and programs expected to be conducted in the Boston region
- budget information for federal and state officials about how the Boston Region MPO plans to spend federal metropolitan planning funds on studies and programs performed on behalf of the MPO

How does the UPWP relate to the goals of the Boston Region MPO?

The Boston Region MPO plans for the transportation future of the Boston region. The MPO is guided by a 20-year vision for a modern, safe, equitable, sustainable, and technologically advanced transportation system for the region. This vision is described in the MPO's current LRTP, *Destination 2040*. The transportation planning work funded through the UPWP is an integral part of achieving this regional vision.

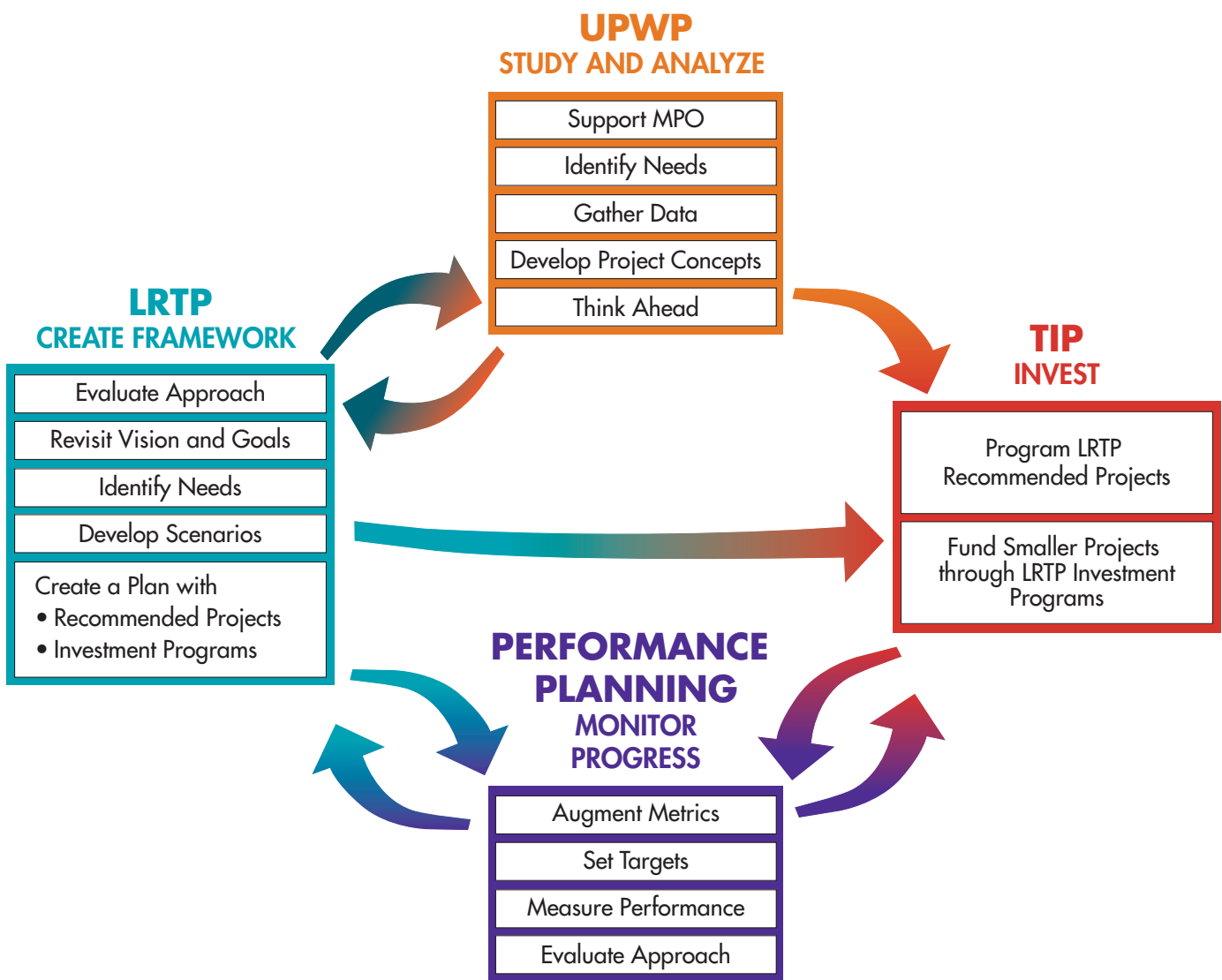
The transportation goals of the Boston region, as defined in *Destination 2040*, are as follows:

1. Safety: Transportation by all modes will be safe.
2. System Preservation: Maintain and modernize the transportation system and plan for its resiliency.
3. Clean Air/Clean Communities: Create an environmentally friendly transportation system.
4. Capacity Management/Mobility: Use existing facility capacity more efficiently and increase transportation options.
5. 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.

6. Economic Vitality: Ensure our transportation network provides a strong foundation for economic vitality.

The MPO is currently in the process of developing its next LRTP. In addition to the LRTP and the UPWP, the MPO also produces the TIP for the Boston region. As the near-term capital investment plan of the MPO, the TIP describes and prioritizes transportation construction projects that are expected to be implemented during the upcoming five-year period. Figure ES-3 illustrates the relationship between the LRTP vision and goals; the planning foundation for the MPO’s work, the UPWP; the TIP; and the process for monitoring and evaluating progress towards achieving the region’s goals.

Figure ES-3
Links Between LRTP, TIP, and UPWP



What are federal metropolitan planning funds?

The total federal funding programmed in this UPWP is \$5,708,978. All federal funds programmed in the UPWP are awarded to the Boston Region MPO by the Massachusetts Department of Transportation (MassDOT) as FHWA 3C Planning (PL) funds. However, these federal funds initially come from two sources: the FHWA and the FTA. The federal funds, which are supplemented by a local match provided by MassDOT, include the following initial sources:

- FHWA 3C Planning (PL): FHWA planning funds are distributed to the MassDOT Office of Transportation Planning (OTP), according to an allocation formula established by federal legislation, to carry out the 3C planning process. OTP distributes these funds to Massachusetts MPOs according to a formula that is primarily based on the region's road mileage and population. The formula was developed by the Massachusetts Association of Regional Planning Agencies (MARPA) and is known as the MARPA formula. The FFY 2022 3C PL funding allocation for the Boston region, including state matching funds, is \$3,761,668. The total Boston region 3C PL allocation is split between CTPS, which receives \$3,046,951, and MAPC, which receives \$714,717.
- FTA 3C Planning (§5303): FTA provides 3C planning funds for transit projects to MPOs and the Department of Transportation (DOT) under Section 5303 of the Federal Transit Act. These funds require a local match, are distributed according to an allocation formula, and are administered by MassDOT. These funds are converted to PL planning funds by MassDOT before distribution. The FFY 2022 FTA allocation for the Boston region, including a total local match, is \$2,221,810 and, like the 3C PL funds, is split into two categories:
 - MPO and MassDOT FTA 3C Planning (§5303): The total amount of FTA funds, including a local match, programmed in this UPWP as PL for work conducted by the MPO staff is \$1,569,042.
 - MAPC FTA 3C Planning (§5303): A portion of the Boston region's FTA allocation also goes to MAPC. MAPC uses these funds to conduct its transit-planning studies programmed through the UPWP. The total amount of FTA-derived funds, including a local match, allocated to MAPC as PL for FFY 2022 is \$332,272.

In addition, this UPWP includes \$45,000 in carryover FFY 2021 3C PL funds that support the Professional Development task and some direct costs related to travel demand model development.

Are there other funding sources in the UPWP?

Yes, in addition to MPO-funded work, CTPS performs planning analyses and studies funded by state transportation agencies, including MassDOT, the Massachusetts Bay Transportation Authority (MBTA), and the Massachusetts Port Authority (Massport). More detail about these agency-funded studies can be found in Chapter 5. For FFY 2022, the agency funding amounts programmed in this UPWP for projects to be conducted by MPO staff are as follows:

- FHWA Statewide Planning and Research (SPR): \$586,600 (including state matching funds). As in the case of 3C PL funds, FHWA provides SPR funds to OTP according to a distribution formula. OTP uses these funds to carry out planning and research projects throughout the state. This UPWP describes only the SPR-funded studies that will be conducted in the Boston region; however, OTP provides a complete listing of how these funds are distributed statewide in a document called the SPR Transportation-Planning Work Program.
- Other MassDOT: \$455,000
- MBTA: \$516,200
- Other Sources: \$80,000

WHAT STUDIES AND ACTIVITIES ARE IN THIS FFY 2022 UPWP?

Throughout the following chapters, there is detailed information about work programs, studies, support activities, and technical analyses that are organized in the following categories:

- Certification requirements and administrative activities: The UPWP includes activities that the MPO must conduct to remain certified as an MPO by the federal government, to be eligible to receive and distribute federal transportation dollars, and to maintain its data resources and computer equipment properly. See Chapters 3 and 6 for more detail about these areas of work.
- Ongoing/continuing work programs: These areas of work support technical analyses and planning studies for cities and towns in the region. See Chapter 4 for more detail on these studies and technical analyses.
- New studies: Every year, funding is available for new studies to be conducted by the MPO staff. These efforts are undertaken to enhance the staff's knowledge of the practice, to improve analytical methods, and to evaluate strategies for implementation. See Chapter 4 for more detail on these new studies.
- Agency-funded studies and technical analyses: CTPS conducts planning analyses and studies funded by state transportation agencies, including MassDOT, the MBTA, and Massport. These agency-funded studies are described in Chapter 5.

Table ES-1 contains the budget allocated for the MPO's 3C planning activities in FFY 2022. The table reflects the FHWA metropolitan PL funds and FTA Section 5303 funds, which the CTPS and MAPC expect to spend in FFY 2022. The table also reflects the work that CTPS will conduct with funds provided by other transportation agencies.

Chapters 3 through 6 provide detailed information about the transportation-planning activities that will be performed by CTPS during FFY 2022. The new studies chosen for funding in FFY 2022 are summarized below in Table ES-2 and described in more detail in Chapter 4.

**Table ES-1
Unified Planning Work Program Budget for FFY 2022**

3C Studies and Programs by Budget Categories	Proposed FFY 2022 CTPS Budget
Resource Management and Support Activities	\$527,000
MPO Certification Requirements	\$2,805,485
Continuing MPO-Funded Planning Studies and Technical Analyses	\$376,500
New MPO-Funded Discrete Studies	\$563,500
MassDOT-Directed PL Funds*	\$271,505
Direct Support	\$117,000
Total for CTPS 3C Studies and Programs	\$4,660,990

Agency-Funded CTPS Work	Proposed FFY 2022 CTPS Budget
MassDOT SPR Funds	\$586,600
MassDOT Other Funds	\$455,000
MBTA Funds	\$516,200
Other	\$80,000
Total for Agency-Funded CTPS Project Work	\$1,637,800

Total FFY 2022 CTPS Budget (3C + Agency Work)	\$6,298,790
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Note: Budget figures include salary, overhead, and direct support.

* This project is conducted on behalf of MassDOT but funded through the MPO 3C contract.

(Table ES-1 cont.)

3C Studies and Programs by MAPC Budget Categories	Proposed FFY 2022 MAPC Budget
MAPC Planning Studies and Technical Analyses	\$590,988
MAPC Administration, Resource Management, and Support Activities	\$457,000
Total MAPC FFY 2021 UPWP Programmed Funds	\$1,047,988

Agency Supporting MPO/3C Work	Proposed FFY 2022 Budget
CTPS	\$4,660,990
MAPC	\$1,047,988
3C Budget Subtotal	\$5,708,978

Agency-Funded CTPS Work	\$1,637,800
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FFY 2022 UPWP Budget	\$7,346,778
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**Table ES-2
New Discrete Funded Studies in FFY 2022**

Project ID	Study or Program	Proposed FFY 2022 CTPS Budget
13310	Trip Generation Follow-Up	\$20,000
13311	Travel Demand Management Follow-Up	\$10,000
13422	Addressing Safety, Mobility, and Access on Subregional Priority Roadways	\$123,000
13522	Addressing Priority Corridors from the LRTP Needs Assessment	\$140,000
13722	Safety and Operations at Selected Intersections	\$79,500
13313	The Future of the Curb Phase 3	\$70,000
13314	Addressing Equity and Access in the Blue Hills	\$40,000
13315	Identifying Transportation Inequities in the Boston Region	\$70,000
20906	Staff-Generated Research and Technical Assistance	\$11,000
Total for New Discrete and Recurring Studies		\$563,500

WHAT IS THE PROCESS FOR CREATING THE UPWP AND MONITORING PROGRESS ON STUDIES?

Developing the UPWP

The annual process of creating the UPWP includes both generating and evaluating ideas for new studies, as well as updating the scopes and anticipated deliverables for ongoing technical analysis activities, certification requirements, and administrative support activities.

Ideas for new studies come from a combination of the following resources:

- Public input gathered through community meetings and meetings with MAPC's eight subregional municipal planning groups
- Regional Transportation Advisory Council input gathered from meetings in which the MPO staff discussed study ideas and transportation priorities of the Advisory Council's member organizations
- MPO UPWP Committee input gathered from meetings held throughout the year, supported by MPO staff. The UPWP Committee oversees the development of the entire UPWP document
- Existing planning documents such as the MPO's Congestion Management Process and LRTP Needs Assessment; the MBTA's long-range capital plan; MetroFuture, MAPC's long-range plan for smart growth in the Boston region; and other recent studies
- Guidance issued by FHWA and FTA on studies that address the federal transportation planning emphasis areas (for more information on the federal emphasis areas, see Appendix E and Table E-1)
- Public comment letters and study proposals that the MPO staff receive during outreach events and during the public comment period for the UPWP and other CTPS-produced reports
- Consultations with MassDOT, the MBTA, and MAPC that occur during document development and throughout the year as new ideas for transportation planning needs arise
- MPO staff-identified needs that emerge from continual interactions between the MPO staff, state and local agencies, organizations, and community groups

Ideas for new studies are compiled into the Universe of Proposed Studies. Each proposal is evaluated based on how it would help the region accomplish the LRTP goals. In selecting the final list of studies, the UPWP Committee also considers the utility of the projected study results to MPO stakeholders; whether sufficient staff resources are available to execute the needed work; and whether the work to be carried out is coordinated rather than redundant with work being done in other agencies.

The MPO continually seeks to improve its process through inclusive and collaborative decision-making. For this reason, the MPO seeks to involve a broad and diverse range of stakeholders throughout the UPWP development process.

The MPO staff will continue to seek public input for ideas for the Universe of Proposed New Studies and engage participants in discussing, evaluating, and eventually prioritizing studies for inclusion in the UPWP. Staff also continue to monitor and enhance the MPO's communication channels, such as those documented below.

- An engaging website, which serves as a resource for those seeking to influence transportation planning in the Boston region
- Lively Facebook, Twitter, Instagram, and LinkedIn accounts (@BostonRegionMPO) covering transportation planning news and publicizing MPO events, and a YouTube channel featuring recordings of MPO meetings and virtual events
- A blog, TransReport, that publishes MPO research and data in an approachable format
- Targeted external outreach to advocacy and community groups, especially those representing populations that historically have been less involved in the MPO's processes
- Public in-person and virtual outreach events, hosted by MPO staff or the MPO's partners, where staff present, facilitate activities, and listen at information and resource tables
- Open-house style events, where those seeking feedback and advice on TIP projects, UPWP proposals, or technical assistance applications can interact one-on-one with MPO staff

What is the public review process?

Feedback from public outreach forms a significant part of the input into the UPWP every year. Towards the end of every UPWP development process, the MPO votes to release for public review a draft document that describes ongoing work, new studies, and financial information. Then the MPO invites the public to comment on the Draft UPWP. The MPO staff posts the document for downloading via the MPO's website (www.bostonmpo.org) and publicizes its release via an email distribution list that includes municipal contacts, interested members of the public, and other stakeholders in the region and social media. Email messages inform these contacts about upcoming opportunities for public comment and involvement in MPO decision-making, and for announcing other events sponsored or held by the MPO. The MPO staff also solicit public input during CTPS open house and at public events hosted by the MPO or its transportation partners (including MassDOT and the MBTA). The MPO staff compiles all of the comments made during this public review period and presents them to the MPO board.

Information about the public review process for the Draft FFY 2022 UPWP is provided in Appendix B.

How are progress and outcomes monitored?

The MPO monitors the progress of studies funded through the UPWP by performing the following tasks:

- approving detailed work programs and scopes
- reviewing monthly progress reports
- tracking UPWP study budgets and updates on actual spending via quarterly reports
- approving the release of deliverables based on whether the objectives stated in the work program were met and whether the stated deliverables were produced

OVERVIEW OF THIS DOCUMENT

This UPWP document is structured as follows:

- Chapter 1 provides background on the metropolitan transportation planning process and the Boston Region MPO member agencies.
- Chapter 2 provides detailed background and information on the purpose of this document, the process of developing and monitoring it, and how it helps the MPO achieve its regional transportation goals.
- Chapter 3 includes descriptions of the certification requirement activities to be completed in FFY 2022 (including the support to the MPO, its committees, and related processes and activities), and the current budgets assigned to each program and activity.
- Chapter 4 describes the following ongoing and discrete CTPS study and technical analysis work:
 - summary tables of FFYs 2020–21 UPWP studies that have been completed or are projected to be completed by the end of September 2021, in addition to work products, including reports and technical memoranda
 - MPO planning studies and technical analyses that will be carried over from FFY 2021 to FFY 2022, if any
 - descriptions of the new planning studies chosen for funding in FFY 2022
 - updated descriptions of the ongoing technical analysis and support work that the MPO staff conducts for municipalities and the region
- Chapter 5 includes descriptions of the agency-funded transportation planning studies and technical analyses that will be undertaken by CTPS in FFY 2022. These include recurring contracts such as MassDOT's SPR grant; ongoing contracts such as the MassDOT Title VI Program and the MBTA's National Transit Database: Data Collection and Analysis; and new contracts.

- Chapter 6 provides detailed information and FFY 2022 budgets for the resource management and support activities conducted by the MPO staff.
- Chapter 7 provides details on MAPC programs funded by the UPWP, including administrative, support, liaison, technical assistance, and study activities.
- Chapter 8 includes budget summary tables that present how federal metropolitan planning funds will be spent on the support activities, studies, and programs documented in this UPWP. This chapter provides federal and state officials with necessary information for approving the use of funds and for administering contracts.
- Appendix A presents descriptions of non-MPO transportation-planning projects/studies that are being (or will be) conducted in the Boston region during FFY 2022 and are funded using federal planning dollars and/or of regional significance. These projects have a separate review and approval process outside of the MPO's purview. They are included in the UPWP to provide a comprehensive picture of plans and studies that are expected to take place in the Boston region and to ensure that MPO planning efforts are coordinated with other ongoing work.
- Appendix B describes the public participation process used for developing and reviewing the Draft UPWP. This appendix also includes written comments on the Draft UPWP that were received during the public review period.
- Appendix C includes the FFY 2022 Universe of Proposed New Studies and describes the evaluation process that was used by the UPWP Committee and the MPO as a guide for selecting new studies.
- Appendix D contains an updated analysis of the geographic distribution of location-specific studies programmed through the UPWP.
- Appendix E gives detailed information on the regulatory framework that guides the development of the UPWP and the studies and activities programmed for funding, as well as the overall regulations and guidance that the MPO considers in all of its work.
- Appendix F documents the membership of the MPO in detail.



Chapter 1

3C Transportation Planning and the Boston Region Metropolitan Planning Organization

Decisions about 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 (MPO) 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, as amended, and Section 5303 of Title 49 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. The MPO has established the following objectives for the process:

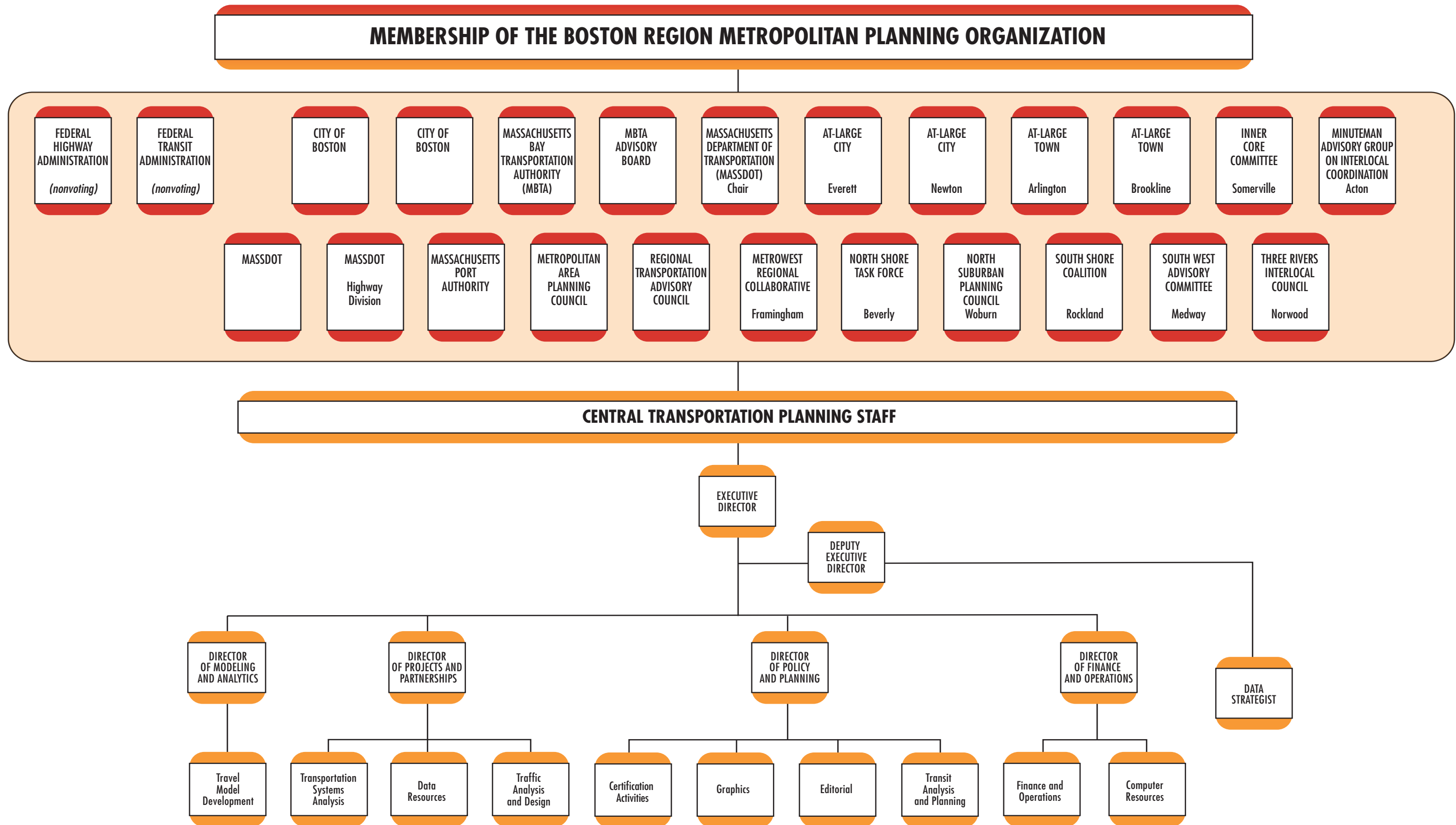
- Identify transportation problems and develop possible solutions
- Ensure that decision-making balances short- and long-range considerations and adequately reflects the range of possible future scenarios, options, and consequences
- Represent both regional and local considerations, and both transportation 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 E.

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





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 the MPO's 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 federal government to certify the MPO's planning process. This federal certification is a prerequisite for the MPO to receive 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, improvements for pedestrians, and first- and last-mile connections to transit or other key destinations. 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

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)

(Figure 1-3 cont.)

CAPACITY MANAGEMENT AND MOBILITY

Use existing facility capacity more efficiently and increase transportation options

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

TRANSPORTATION EQUITY

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

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

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

CLEAN AIR/SUSTAINABLE COMMUNITIES

Create an environmentally friendly transportation system

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

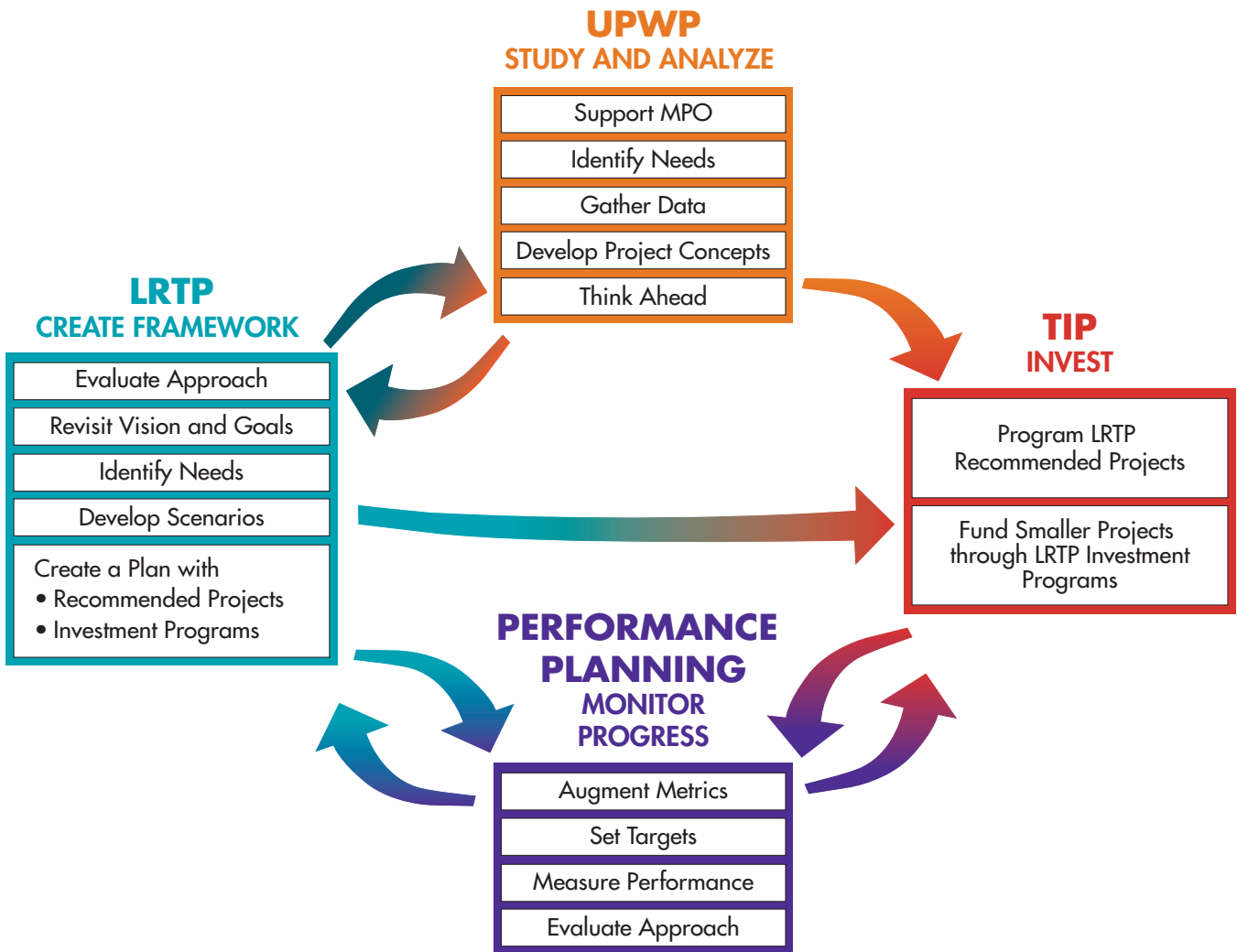
ECONOMIC VITALITY

Ensure our transportation network provides a strong foundation for economic vitality

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

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

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





Chapter 2

About the Unified Planning Work Program

BACKGROUND

This chapter explains the Unified Planning Work Program (UPWP) and its connection to the overall regional transportation vision developed in the Long-Range Transportation Plan (LRTP). As outlined in Chapter 1, the UPWP plays an integral part of achieving the Boston Region Metropolitan Planning Organization's (MPO) vision and mandate by documenting the federal funding that will be spent on surface transportation studies and work programs in the Boston region during a given federal fiscal year (FFY). This plan also serves as the basis for financing the ongoing work of the staff to the Boston Region MPO.

WHAT DOES THE UPWP DO?

The UPWP is a financial plan that the MPO produces annually in compliance with the federally mandated continuing, cooperative, and comprehensive (3C) metropolitan planning process described in Chapter 1.

As the basis for transportation planning at the Boston Region MPO, the UPWP prioritizes federal funding for transportation planning work that will be implemented in the 97-municipality area of the Boston region. The Central Transportation Planning Staff (CTPS) or the staff of the Metropolitan Area Planning Council (MAPC) conduct this work (CTPS is the staff of the MPO and MAPC is Boston's regional planning agency). This work primarily consists of the following four parts.

Certification Requirements and Other MPO Support Activities. The UPWP includes activities that the federal government requires the MPO to conduct to remain certified as an MPO and be eligible to receive and distribute federal transportation dollars. Work in this category includes preparing federally required plans such as the LRTP and the Transportation Improvement Program (TIP). The LRTP allocates funding for transportation construction projects and programs over a 20-year period, while the TIP allocates funding for the implementation of projects during the next five years. This category also includes air quality conformity and transportation equity-related compliance and other planning activities associated with the LRTP and TIP. In addition, the UPWP programs the MPO's public participation activities, including support to the Regional Transportation Advisory Council (Advisory Council) and support to meetings of the MPO and its committees.

The UPWP also funds other activities that support MPO planning and certification requirements, including graphics and editing support; managing data and computer resources; and maintaining the MPO's regional travel demand model, which is used to forecast the potential impacts that changes to the transportation system will have on traffic congestion and transit ridership. See Chapters 3 and 6 for more detail about these areas of work.

Ongoing/Continuing Work Programs. Ongoing and continuing work programs support technical analyses and planning studies for cities and towns in the region. Examples of these programs include Bicycle and Pedestrian Support Activities, Regional Transit Service Planning Technical Support, and Community Transportation Technical Assistance. See Chapter 4 for more detail about these programs.

New Studies. Every year, funds are available for the MPO staff to perform new studies. CTPS conducts these activities to enhance staff's and the MPO's knowledge of transportation planning practices, augment analytical methods, and evaluate strategies. Examples of these studies in the FFY 2022 UPWP include Addressing Equity and Access in the Blue Hills and Identifying Transportation Inequities in the Boston Region. See Chapter 4 for more detail about these new studies.

Agency Studies and Technical Analyses. CTPS conducts planning analyses and studies funded by state transportation agencies, including the Massachusetts Department of Transportation (MassDOT), the Massachusetts Bay Transportation Authority (MBTA), and the Massachusetts Port Authority. See Chapter 5 for more details on these agency-funded studies.

THE PROCESS OF CREATING AND MONITORING THE UPWP

MPO staff produces the UPWP each year under the supervision and guidance of the MPO's UPWP Committee. The UPWP Committee, supported by MPO staff, convened 10 times in FFY 2021 to consider and provide input on the UPWP development process. Discussion included the following topics:

- proposed budgets for ongoing and continuing activities
- new study ideas and how to prioritize them
- improvements to the UPWP outreach and development process

These meetings resulted in the committee's recommendation for the Draft FFY 2022 UPWP. The MPO approved the UPWP Committee's recommendations for public review of the Draft FFY 2022 UPWP on July 15, 2021.

Below are details about the process for selecting studies and programs for the FFY 2022 UPWP.

Developing the New FFY UPWP

To develop new planning studies for the FFY 2022 UPWP, the MPO drew from the following sources to generate a listing known as the Universe of Proposed New Studies (see Appendix C) for evaluation by MPO staff and the MPO's UPWP Committee.

1. **Public outreach:** Staff held meetings to gain input from subregional planning groups and other stakeholders. Subregional groups—organized by MAPC—involve municipal representatives who are focused on regional planning topics (Figure 1-1). Staff also visited meetings of community-based organizations and transportation advocacy groups during the fall outreach period, and provided opportunities for input at UPWP committee meetings.
2. **Advisory Council:** MPO staff met several times with the Advisory Council to present preliminary drafts of the FFY 2022 Universe of Proposed New Studies and gain ideas and input on transportation planning priorities. The Advisory Council is an independent body that brings public viewpoints and advice on transportation planning to the MPO.
3. **UPWP Committee:** MPO staff met with the UPWP Committee of the MPO throughout development of the UPWP. The committee oversaw the entire document development process and contributed to generating, analyzing, and prioritizing new study ideas.

4. **Existing planning documents:** Various plans and programs developed and conducted by the MPO and other state agencies document transportation issues that require further study. These include the Congestion Management Process, which monitors the transportation network to identify locations and sources of congestion; *Focus40*, the MBTA's long-range capital plan; the MPO's long-range planning documents, including the current LRTP *Destination 2040*; *MetroCommon*, MAPC's long-range plan for the region; and other recent studies.
5. **Past guidance:** The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) issue guidance on addressing the planning emphasis areas.
6. **FFY 2021 UPWP public comment letters and study proposals.**
7. **Consultations with MassDOT, the MBTA, and MAPC.**
8. **MPO staff-identified needs.**

MPO staff works continuously to enhance public participation in the UPWP and other MPO activities, and strives to achieve continued improvements in the volume, diversity, and quality of public input. More information about the MPO's public outreach process is available in Chapter 3, and at www.bostonmpo.org/public_involvement.

Evaluating and Selecting New Studies

MPO staff evaluated each new proposal in the Universe of Proposed New Studies based on how it helps the region accomplish the MPO's goals as laid out in the LRTP; whether staff has the capacity to carry it out; and a variety of other factors.

In addition to conducting the study evaluation process, MPO staff defined general scopes and estimated costs for proposed planning studies and considered potentially feasible issues to study. Staff considered these factors with input from the public, MPO members, and partner agencies, along with the availability of funds for new studies, when identifying a recommended set of new proposed planning studies for review by the UPWP committee.

Table 2-1 shows the studies in the FFY 2022 universe that were selected for funding in FFY 2022. Chapter 4 provides detailed descriptions of these studies.

**Table 2-1
FFY 2022 New Discrete Funded Studies**

Project ID	Study or Program	Proposed FFY 2022 CTPS Budget	Page Number
13310	Trip Generation Follow-Up	\$20,000	4-11
13311	Travel Demand Management Follow-Up	\$10,000	4-13
13422	Addressing Safety, Mobility, and Access on Subregional Priority Roadways	\$123,000	4-14
13522	Addressing Priority Corridors from the LRTP Needs Assessment	\$140,000	4-16
13722	Safety and Operations at Selected Intersections	\$79,500	4-18
13313	The Future of the Curb Phase 3	\$70,000	4-19
13314	Addressing Equity and Access in the Blue Hills	\$40,000	4-20
13315	Identifying Transportation Inequities in the Boston Region	\$70,000	4-22
20906	Staff-Generated Research and Technical Assistance	\$11,000	4-23
Total for New Discrete and Recurring Studies		\$563,500	

Updates to Ongoing and Continuing Activities

In addition to the process of selecting new discrete transportation planning studies, the MPO reviews activities for ongoing programs and work. MPO staff identifies and develops budgets for these continuing programs that will be carried out in the upcoming FFY. Staff proposes changes to the budget of any program resulting from revisions to planned activities.

Examples of ongoing and continuing activities comprise work that is required of the MPO, including certification requirements (see Chapter 3), ongoing technical assistance to municipalities (see Chapter 4), and resource management and support activities (see Chapter 6).

The annual study program review and budget development process defines the amount of 3C funding (from federal grants that support the 3C process) that is available for new studies in the UPWP. After accounting for 3C-funded continuing and ongoing programs, the remaining funding is available for new studies.

Public Review of the Draft UPWP

MPO staff incorporates into the draft UPWP descriptive and financial information about ongoing and new UPWP studies, information about the UPWP development process, and other major transportation planning studies that will occur in the region during the relevant federal fiscal year. Appendix D provides an analysis of the distribution of UPWP-funded work products by subregion and municipality. Once the MPO votes to release the draft for public review, MPO staff posts the document to the MPO website (www.bostonmpo.org) and provides notice of its availability through various communication outlets.

As previously noted, public outreach forms a major part of the input to the UPWP each FFY. After the MPO approves the draft UPWP, there is a public comment period. During this time, MPO staff members solicit public input via the MPO email list, the MPO website, and social media outlets. Staff compiles all public comments received during this period and presents them to the MPO. Information about the public review process for the Draft FFY 2022 UPWP is available in Appendix B.

Other Regionally Significant Transportation Planning Studies

The UPWP also includes a list (Appendix A) of other federally funded and/or regionally significant transportation planning activities active in the region during the relevant FFY. These activities are not funded with the MPO's planning funds, but may be funded and implemented by individual transportation agencies, municipalities, or academic institutions. Often, these efforts make use of the expertise and tools that CTPS is uniquely able to provide.

Monitoring Progress of UPWP Studies

The MPO approved the following procedures for monitoring the studies in the FFY 2022 UPWP:

- Work programs for tasks that are not permanent (ongoing) MPO programs but are supported by federal 3C planning funds must be approved by the MPO prior to execution of work.
- CTPS work supported by other funding sources (for example, other governmental entities) should be approved by the MPO with the assurance that the new work will not interfere with other MPO-funded work.
- Monthly progress reports on all active studies and work programs must be submitted to the respective funding agency (FHWA or FTA) by the agency conducting the work (CTPS and/or MAPC). The reports must include the following information for each study or work program:
 - brief narrative describing the work accomplished
 - key personnel attendance at meeting(s) held during the reporting month
 - objectives and planned activities for the next month
 - percent of work completed
 - some measure of actual resources (for example, hours and funds) charged to the contract over the past month
 - comparison of actual cumulative resources expended compared to the contract budget
- CTPS presents a quarterly report that compares the UPWP study budgets with the actual spending.
- MPO approval for release of a 3C-funded study's work products is based on whether the objectives stated in the work program were met and whether the stated deliverables were produced.

Amendments and Administrative Modifications to the UPWP

If necessary, MPO staff can make amendments and administrative modifications to the UPWP throughout the year. All 3C documents endorsed by MPOs, such as the TIP, LRTP, and the UPWP, must follow standardized procedures regarding amendments and/or administrative modifications. If an amendment is under consideration, MPO staff notifies the Advisory Council and other interested parties, including any affected communities. The MPO follows the procedures specified in the MPO's Public Participation Plan.

The following are the guidelines regarding the conditions that constitute an amendment to the UPWP, as received from FHWA by MassDOT and the MPO in FFY 2021 for future UPWPs.

Amendments to the UPWP, defined as significant changes to the overall UPWP that require federal approval, include the following:

- addition or deletion of a UPWP task or sub-task
- major changes to UPWP task descriptions, activities, and other information

- funding increase above the originally approved UPWP overall budget
- funding transfers between tasks equal to or greater than 25 percent of the UPWP task budget
- funding increase or decrease equal to or greater than 25 percent of the UPWP task budget

Administrative modifications to the UPWP, defined as minor adjustments to the overall UPWP that do not require federal approval, include the following:

- minor changes to UPWP task descriptions, activities, and other information
- funding transfers between UPWP tasks less than 25 percent of the UPWP task budget
- funding increase or decrease less than 25 percent of the UPWP task budget

Staff must present all proposed amendments and administrative modifications to the MPO for consultation prior to endorsement. The UPWP Committee will review both amendments and administrative modifications before forwarding them to the MPO. MPO members must vote to approve both amendments and administrative modifications. For amendments, the MPO will vote to release the amendment for a 21-day public comment period prior to an endorsement vote. Members of the public may attend and provide comments at UPWP committee meetings and MPO meetings at which amendments and administrative modifications are discussed. The MPO may make administrative modifications without a public review period at the MPO's discretion, although information will be shared with MassDOT's Office of Transportation Planning (OTP). When submitting the standard Budget Reallocation Request form to OTP, staff must fill out all fields with clear indication that the MPO was consulted prior to submission. Staff must submit back-up documentation, including the UPWP description of task(s) affected, original budget, revised budget, and justification for the request. Amendments will go into effect after approval by FHWA.

HOW IS THE WORK FUNDED?

See Chapter 8 for detailed information about the UPWP budget.



Chapter 3

Certification Requirements

INTRODUCTION

The programs and activities described in this chapter are categorized as certification requirements because they include work that the Boston Region Metropolitan Planning Organization (MPO) must complete to fulfill the continuous, comprehensive, and cooperative (3C) process and to maintain its certification by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). Several of these programs include activities that are necessary to comply with other federal and state laws, such as the federal Clean Air Act Amendments, Title VI of the Civil Rights Act of 1964, the Americans with Disabilities Act of 1990 (ADA), and the Global Warming Solutions Act (GWSA).

The certification requirement activities serve to further the MPO operations and decision-making responsibilities. In addition, various programs described in this chapter directly relate to the MPO's planning and programming activities, including the development of the regional Long-Range Transportation Plan (LRTP) and the Transportation Improvement Program (TIP). Other activities described in this chapter support all other projects, studies, and programs contained in this Unified Planning Work Program (UPWP) in compliance with the 3C planning process and planning regulations. These activities foster the implementation of MPO policies, federal planning factors and guidance, and all applicable orders and requirements.

Table 3-1 summarizes the ongoing programs conducted as part of the MPO's certification requirements and related MPO support. The table presents the funding in federal fiscal year (FFY) 2021 and FFY 2022 and includes a brief description of the work, progress, and products for these ongoing programs. Although many of these programs generally comprise the same type of task from year to year, often there are variations in budgets that reflect greater or lesser emphasis in certain efforts or tasks. For example, MPO staff may undertake new or additional analyses under specific line items; expand or change the form of public outreach; fold tasks undertaken in one year into an ongoing activity in a subsequent year; take on a new initiative of the MPO; or experience fluctuations in staffing levels that account for budget changes. Where appropriate, the table and individual program descriptions explain these differences.

The budget tables that accompany each of the individual program descriptions in this chapter include the salary and overhead costs associated with these programs. In this chapter, the programs are grouped into two general activity areas: (1) programs that support the MPO and its 3C process (see the section on Support to the MPO and Its 3C Process) and (2) programs that support the 3C planning and programming activities (see the section on 3C Planning and Other Certification Requirements). Any direct costs associated with the projects are presented in Chapter 6 in the Direct Support budget table, under the Administration, Resource Management, and Support Activities section.

**Table 3-1
FFY 2022 Certification Requirements**

Project Name	ID	FFY 2021 Funding	FFY 2021 Work Progress and Products	FFY 2022 Funding	FFY 2022 Planned Work Progress and Products
Support to the MPO					
Support to the MPO and its Committees	9122	\$229,920	<p>Continued support to the meetings and activities of the MPO board and its committees. Work entailed</p> <ul style="list-style-type: none"> • Preparing meeting and information materials, including agendas, minutes, notices, document translations, memoranda, reports, correspondence, summaries, website content, maps, charts, illustrations, and other visual materials as needed to support MPO discussion and actions • Posting meeting materials in digital form on the MPO meeting calendar webpage and in hard copies that are provided at meetings • Hosting approximately 24 MPO meetings and 10 MPO subcommittee meetings, and performing the associated tasks and pre- and post-meeting logistics • Conducting activities to support compliance with federal requirements and guidance, including coordination with neighboring MPOs, MassDOT, and federal partners 	\$263,500	<p>Tasks and work products generally remain the same from year to year, with variations to the level of effort based on the specific requests by the MPO and state and federal partners.</p> <p>Generally, the expected effort includes</p> <ul style="list-style-type: none"> • Hosting approximately 24 MPO meetings and 10 MPO subcommittee meetings, and performing the associated tasks and pre- and post-meeting logistics • Coordinating 3C planning and programming activities and programs • Coordinating with state and federal partners • Coordinating with neighboring MPOs
Regional Transportation Advisory Council Support	9322	\$45,960	<p>Continued support to the Advisory Council. Tasks generally consist of organizing and conducting the Advisory Council's monthly meetings and annual field trip, including</p> <ul style="list-style-type: none"> • Preparing and distributing informational materials, including documents posted on the MPO's website and via email • Organizing and hosting virtual Advisory Council meetings and subcommittee meetings, as needed, in response to COVID-19 • Setting up audio/visual equipment for in-person meetings • Attending and recording meetings • Completing meeting follow-up activities, such as maintaining the information flow for members of the Advisory Council and the public, and preparing meeting minutes 	\$20,000	<ul style="list-style-type: none"> • Organizing and hosting approximately 11 Advisory Council meetings and several subcommittee meetings, as needed, and performing associated support tasks and pre- and post-meeting logistics • Conducting targeted outreach efforts to seek representation on the Advisory Council from organizations representing people with disabilities, people with low incomes, people who identify as a race other than white and/or who identify as Hispanic or Latino/a/x, people with limited English proficiency, young people, and older adults

(Table 3-1 cont.)

Project Name	ID	FFY 2021 Funding	FFY 2021 Work Progress and Products	FFY 2022 Funding	FFY 2022 Planned Work Progress and Products
Public Participation Process	9622	\$182,290	<ul style="list-style-type: none"> Supported the MPO's commitment to engage the people of the Boston region in regional transportation planning, including residents of communities that may have been underserved by the transportation system Communicated about the MPO's meetings and planning activities via the web, emails, newsletters, blog posts, Twitter, Instagram, Facebook, and LinkedIn Engaged the public through virtual outreach events, MAPC subregional meetings, virtual meetings with stakeholder organizations, focus groups, and web-based surveys and other digital communications Conveyed public comments and input to MPO members about MPO programs and processes 	\$150,000	<ul style="list-style-type: none"> Continue support of the MPO's commitment to inclusion through timely communications and engagement opportunities Gather input and feedback on the MPO's various certification documents, projects, and other processes Publish TransReport articles and other digital communications Create a new Public Outreach Plan Provide translations of outreach materials in non-English languages as specified in the MPO's LAP
General Graphics	9222	\$85,290	<p>Provided graphics support to the MPO and its member agencies. This includes</p> <ul style="list-style-type: none"> Designing and producing maps, charts, illustrations, report covers, brochures, slides, and photographs Applying other visualization techniques Creating other products that improve communication 	\$93,800	<p>Tasks and work products generally remain the same from year to year, although the level of effort varies based on the specific work products and reports that the MPO produces each year.</p>
Provision of Materials in Accessible Formats	3122	\$102,040	<p>Supported the MPO and CTPS in</p> <ul style="list-style-type: none"> Producing accessible materials in PDF and HTML formats for posting on the Boston Region MPO website Assisting in producing materials, including meeting minutes, work scopes, memoranda, reports, and other public materials Reviewing accessibility requirements and current CTPS standards and processes Implementing standards within memorandum and report templates 	\$120,685	<p>Tasks and work products generally remain the same from year to year, although the level of effort varies based on the specific work products and reports that the MPO produces each year that need to be converted into accessible formats.</p>
Professional Development	9522	\$52,720	<p>Covered the labor expenses of staff attending conferences and seminars related to MPO work</p>	\$64,500	<p>Cover the labor expenses of staff attending conferences and seminars related to MPO work.</p>

(Table 3-1 cont.)

Project Name	ID	FFY 2021 Funding	FFY 2021 Work Progress and Products	FFY 2022 Funding	FFY 2022 Planned Work Progress and Products
3C Planning and Other Certification Requirements					
Long-Range Transportation Plan	8122	\$324,120	<ul style="list-style-type: none"> Continued implementation of <i>Destination 2040</i>, the LRTP adopted in August 2019. This included research on new investment programs and initiatives outlined in the LRTP. Specifically, research continued on resiliency of the transportation system and coordination with state and local agencies on ongoing resiliency initiatives. Established new guidelines for the LRTP Major Infrastructure Program, which is now being implemented in the TIP Started exploring scenarios by coordinating with staff on the discreet study <i>Informing the Big Ideas for the MPO's Scenario Planning</i>. Staff is preparing the travel demand model in preparation of scenario runs to start in FY 2022. This study and model and off-model analyses will help the MPO in its decision-making for the next LRTP Incorporated information from outreach on the transportation needs throughout the region into the LRTP Needs Assessment Coordinated with staff and MPO members on the revisions of criteria to be used in project selection for the LRTP and the TIP Started work on updating and revising the MPO's webpage for the LRTP to be adopted in 2023 	\$359,000	<ul style="list-style-type: none"> Continue to implement the LRTP through its investment programs Start analyzing scenarios that have been vetted by the MPO Continue to explore additional scenarios that will help the MPO in its decision-making for the next LRTP Continue to update the LRTP Needs Assessment Begin coordination with the state and MPOs on demographic projections to be used in the next LRTP Continue to develop the website to present information from outreach and scenario planning Develop an LRTP Amendment if needed

(Table 3-1 cont.)

Project Name	ID	FFY 2021 Funding	FFY 2021 Work Progress and Products	FFY 2022 Funding	FFY 2022 Planned Work Progress and Products
Transportation Improvement Program	8222	\$278,890	<ul style="list-style-type: none">• Developed the FFYs 2022–26 TIP• Administered amendments to the FFYs 2021–25 TIP• Conducted outreach to municipalities, TIP contacts, and subregional groups about TIP development and specific TIP projects, both funded and being considered for funding• Coordinated with MassDOT Highway District offices, MassDOT’s Office of Transportation Planning, and MPO members on TIP projects, TIP amendments, and the TIP process• Continued updating the public-facing TIP project web application• Implemented the FFY 2020 revisions to the TIP project selection criteria through the creation of new scoring methodologies and other supporting materials• Supported MPO policy development on project cost changes and other TIP programming issues	\$194,000	<p>Activities generally remain the same year to year, with staff supporting the MPO in developing its five-year (FFYs 2023–27) TIP. FFY 2022 work will also focus on</p> <ul style="list-style-type: none">• Continuing to refine the public-facing TIP web application and the internal TIP project database to reflect evolving MPO needs on project cost tracking and related concerns• Enhancing outreach to municipalities and TIP contacts to communicate the changes to TIP programming policies• Sourcing projects to fund through the TIP within the LRTP’s new investment programs, including transit modernization, dedicated bus lane, and resiliency projects• Making further improvements to the TIP development process to make it clearer and more engaging for municipal stakeholders, MPO members, and the public• Continuing to report on the progress of the MPO’s PBPP program

(Table 3-1 cont.)

Project Name	ID	FFY 2021 Funding	FFY 2021 Work Progress and Products	FFY 2022 Funding	FFY 2022 Planned Work Progress and Products
Performance-Based Planning and Programming	8822	\$153,570	<ul style="list-style-type: none"> Conducted analysis, made presentations, and developed documents to help the MPO set or update targets for federally required roadway safety, transit safety, and transit asset management performance measures Coordinated with MassDOT, the MBTA, CATA, MWRTA, FHWA, and other stakeholders on target-setting and other PBPP topics Analyzed project-level data, supported TIP programming scenario development, and created a performance report for the FFYs 2022–26 TIP Monitored federal guidance and identified ways to integrate PBPP into MPO processes, including TIP and LRTP development Advised on updates to MPO project selection criteria Updated data and content in the MPO’s Performance Dashboard and on the PBPP page of the MPO website Explored software applications to support performance-management and target setting Attended conferences to learn ways to expand the MPO’s PBPP practice, including to support scenario planning Presented on PBPP topics to regional stakeholders 	\$84,00	<ul style="list-style-type: none"> Support the MPO in setting targets for federally required measures and other measures, as requested. Analyze data and prepare related presentations, memoranda, and other supporting documents and materials Produce or update performance reports, such as the performance report included in the TIP, and tools, such as the MPO’s Performance Dashboard Work with fellow staff, the MPO, and other stakeholders to more closely link MPO investment processes to performance outcomes. Produce memoranda and presentations describing related recommendations Explore other measures and methods that the MPO could incorporate into its PBPP process, as well as tools the MPO can apply to PBPP work Coordinate with MPO program managers, MPO board members, MassDOT, the region’s public transportation providers, other states and MPOs, federal agencies, and other partners to research measures, identify investment strategies, set targets, and otherwise implement PBPP practices
Air Quality Conformity and Support	8422	\$34,690	<ul style="list-style-type: none"> Updated inputs for the new MOVES 3 model and ran that model for emission factors to be used for air quality analyses of transportation projects Performed system-level and project-level air quality analysis for conformity with Federal and State Requirements for the LRTP and TIP Supported MPO’s climate change initiatives Trained staff to run the new MOVES 3 model 	\$25,500	<ul style="list-style-type: none"> Continue to work with state and local agencies in developing additional emission factors as needed for transportation project analyses Perform system-level and project-level air quality analysis for the TIP and any required LRTP Amendments Continue to support the MPO’s climate change initiatives

(Table 3-1 cont.)

Project Name	ID	FFY 2021 Funding	FFY 2021 Work Progress and Products	FFY 2022 Funding	FFY 2022 Planned Work Progress and Products
Unified Planning Work Program	8322	\$127,480	<ul style="list-style-type: none">• Developed the FFY 2021 UPWP• Conducted outreach to municipalities and other stakeholders in the region through MAPC subregional meetings, digital communications, and conversations with agencies to develop study ideas for the UPWP• Conducted outreach to advocacy and policy groups and interested citizens to gauge needs and collect study ideas for the FFY 2021 UPWP and beyond• Discussed UPWP matters with Advisory Council, including development of study ideas for the UPWP and education about the UPWP products and process• Maintained the UPWP Study Recommendations Tracking Database• Held internal discussions on potential future changes to the UPWP process and document	\$125,000	Activities generally remain the same year to year, with staff supporting the MPO in producing its annual (FFY 2023) UPWP. A potential point of emphasis in FFY 2023 may be developing an interactive online interface documenting past and current transportation studies in and around the Boston region.
Transportation Equity Program	8522	\$174,100	<ul style="list-style-type: none">• Finalized DI/DB Policy for the LRTP• Supported the MPO's public participation program in outreach to and engagement with Title VI, EJ, and other nondiscrimination populations• Provided technical support to the LRTP, TIP, and MPO-guided studies• Finalized proposals for revisions to the equity criteria for TIP project selection• Provided public outreach support for revisions to the TIP project selection criteria• Began revising metrics analyzed in the LRTP DI/DB analysis• Updated the MPO's LAP• Explored the creation a new transportation equity task force at the MPO	\$125,000	Activities generally remain the same year to year. New activities will include completing a Triennial Title VI annual or triennial report, pursuing the creation of a transportation equity task force at the MPO, and supporting the LRTP Needs Assessment and Scenario Planning for the LRTP.

(Table 3-1 cont.)

Project Name	ID	FFY 2021 Funding	FFY 2021 Work Progress and Products	FFY 2022 Funding	FFY 2022 Planned Work Progress and Products
Congestion Management Process	2122	\$118,240	<ul style="list-style-type: none"> Monitored the performance of the MPO Region's arterial roadways and freeways using electronic travel-time and speed data Mapped and tabulated electronic data for analysis and performance evaluation Coordinated and supported the MPO's programs and documents (LRTP, PBPP, TIP, and UPWP) Supported the MPO's CMP committee 	\$100,500	<ul style="list-style-type: none"> Monitor the performance of MPO-region arterial roadways and freeways using electronic travel-time and speed data Map and tabulate electronic data for analysis and performance evaluation Monitor the performance of the MBTA Park-and-Ride Lots Coordinate with and support the MPO's programs and documents (LRTP, TIP, PBPP, and UPWP) Support the MPO's CMP committee
Freight Planning Support	2222	\$68,340	<ul style="list-style-type: none"> Published a study on truck issues at South Bay in Boston Supported MassDOT data needs for Bypass Road management Conducted required MPO freight planning Provided data and analysis in support of advanced model implementation 	\$65,000	<ul style="list-style-type: none"> Publish a topical truck study Support stakeholder freight-related analytical or planning needs Conduct required MPO freight planning Provide data and analysis in support of advanced model implementation
Regional Model Enhancement	7122	\$875,370	<ul style="list-style-type: none"> Initiated a steering committee with CTPS, MAPC, and OTP members to guide maintenance priorities, development of the next generation model for the 2023 LRTP, and definition of other modeling tools Evaluated the 2020 census data boundaries and identified strategies and tradeoffs to update TAZ geographies Defined 2023 LRTP travel demand model (TDM23) high-level requirements and conceptual design Conducted research into data products, code development standards, and model structures for TDM23. Maintained and enhanced the trip-based regional travel demand model 	\$880,000	<ul style="list-style-type: none"> Develop land use, transit, and highway networks for a 2019 model base year Develop validation datasets for a 2019 model base year Complete development, validation, training and support of trip-based regional travel demand model for the 2023 LRTP (TDM23) Adoption of TDM23 features for current trip-based travel demand model for near-term applications Continue engagement with model steering committee and broader set of stakeholders to promote understanding of model capabilities and limitations and stakeholder needs
Research Next Generation Data and Tools	7222	\$57,790	<ul style="list-style-type: none"> Evaluated MAPC's EMMA model for MPO application 	\$57,000	<ul style="list-style-type: none"> Understand data sets better for use in the MPO's technical analysis Review tools for planning application Develop a strategic plan regarding how CTPS manages, processes, and shares data

(Table 3-1 cont.)

Project Name	ID	FFY 2021 Funding	FFY 2021 Work Progress and Products	FFY 2022 Funding	FFY 2022 Planned Work Progress and Products
Transit Working Group Support	8922	\$64,120	<ul style="list-style-type: none">• Hosted four working group meetings and a series of small discussion groups, and managed pre- and post-meeting communications and logistics• Updated the MPO about Transit Working Group activities• Summarized meeting discussions• Supported outreach and communications about the MBTA's Forging Ahead process• Researched topics and issues that may be relevant to future Transit Working Group meetings	\$50,000	<ul style="list-style-type: none">• Host a series of working group meetings, manage pre- and post-meeting logistics• Develop materials and resources to support working group meeting and activities, as needed• Provide updates to the MPO about the transit working group• Support communication for and about the group using email, social media, and the MPO website• Prepare documentation about pilot working group meetings, activities, and participant feedback for the MPO
MPO Resilience Program	TBD	n/a	n/a; program new in FFY 2022	\$11,000	<ul style="list-style-type: none">• Coordinate and inventory climate resiliency activities in the MPO region• Coordinate and collaborate with other entities conducting resilience work• Participate on resiliency-focused groups at the state, local, and regional level• Pursue educational opportunities to gain subject-matter expertise• Conduct monthly internal Resiliency Committee meetings

SUPPORT TO THE MPO AND ITS 3C PROCESS

These programs provide staff support to the MPO, its committees, and the Regional Transportation Advisory Council (Advisory Council). Other aspects of the work involve the MPO's external communications and public engagement activities. These activities are described in the following work program efforts.

- Support to the MPO and Its Committees
- Regional Transportation Advisory Council Support
- Public Participation Process
- General Graphics
- Provision of Materials in Accessible Formats
- Professional Development

Other programs that support 3C planning and programming activities are described in Chapter 4.

Support to the MPO and its Committees

Project ID Number	9122
FFY 2022 Total Budget	\$263,500
Schedule	Ongoing

Purpose

Support to the MPO and its committees includes implementing MPO policies, planning and coordinating delivery of information for MPO decision-making, and supporting the operation of the MPO and its committees. It involves providing support for MPO meeting management and agenda planning.

Approach

MPO staff will perform the following tasks related to MPO board and committee meetings.

- Develop meeting agendas
- Prepare and distribute informational materials via email and the MPO's website
- Conduct meeting site selection and logistics planning
- Set up digital arrangements for virtual meetings and audio/visual equipment for in-person meetings
- Attend and record meetings
- Complete meeting follow-up activities, such as maintaining the information flow for members of the MPO and the public, processing approved work scopes, preparing audio-recording files, and documenting meeting minutes

Technical and process support is provided to the MPO's UPWP Committee, Administration and Finance (A&F) Committee, Congestion Management Process (CMP) Committee, and other ad hoc committees. The identified committees of the MPO conduct their work as follows.

- The UPWP Committee meets as needed to develop a UPWP for the upcoming FFY and to monitor expenditures and the progress of studies and programs in the current fiscal year.
- The A&F Committee meets periodically to make recommendations to the MPO on the staff's operating budget, legal matters, and other administrative functions.

- The CMP Committee meets as needed to discuss the federally required CMP. Activities include developing and reviewing its TIP Intersection Improvement Program and making recommendations to the MPO.

MPO support also includes conducting metropolitan transportation planning for the MPO. The goal of this work is to ensure compliance with federal requirements and to provide excellence in transportation planning processes, techniques, and outcomes. The work involves researching, analyzing, and reporting information on 3C planning topics, responding to federal recommendations, and incorporating new requirements into the MPO's 3C program. MPO staff will continue to implement Fixing America's Surface Transportation (FAST) Act requirements (see Chapter 2 and Appendix E) as guidance is communicated to the MPO, and staff will be prepared to implement future legislation. Staff also participates in training to support compliance with federal requirements and guidance. Staff will support updates to governing Memorandum of Understanding (MOU) between the Boston MPO and partner agencies when necessary.

This effort also includes collaboration with other entities involved in 3C planning activities, other Massachusetts MPOs (particularly those in the Boston region urbanized area), and Metropolitan Area Planning Council (MAPC) subregional municipal groups.

Other activities include overseeing 3C program-related activities, collecting and fielding comments and inquiries, and responding to requests for information and support.

FFY 2022 Anticipated Outcomes

- Hosting approximately 24 MPO meetings and 10 MPO subcommittee meetings, and performing the associated tasks and pre- and post-meeting logistics
- Coordinating 3C planning and programming activities and programs
- Coordinating with state and federal partners
- Coordinating with neighboring MPOs, including attendance at monthly transportation managers' group meetings

Regional Transportation Advisory Council Support

Project ID Number	9322
FFY 2022 Total Budget	\$20,000
Schedule	Ongoing

Purpose and Approach

The Advisory Council is the MPO's public advisory committee. MPO staff provides operations support to this body and its subcommittees. This includes planning programs and meetings; scheduling speakers; and preparing and distributing agendas, meeting notices, informational packets, and meeting minutes. It also includes helping to facilitate meetings; attending and making presentations at meetings; organizing and conducting field trips; soliciting new members; implementing and updating the bylaws; coordinating other activities, such as Advisory Council elections; and maintaining contact lists.

MPO staff regularly provides information, updates, and briefings on MPO activities, studies, and reports; requests and coordinates comments on MPO documents; and works with the Advisory Council and its committees as they conduct their programs, planning, and reviews.

FFY 2022 Anticipated Outcomes

- Hosting approximately 11 Advisory Council meetings and several subcommittee meetings, associated tasks, and pre- and post-meeting logistics

Public Participation Process

Project ID Number	9622
FFY 2022 Total Budget	\$150,000
Schedule	Ongoing

Purpose

Public participation is one of the six core functions of an MPO. The Boston Region MPO’s vision for public participation in the region is “to hear, value, and consider—throughout its planning and programming work—the views of and feedback from the full spectrum of the public, and use this input in its decision making.”

Staff coordinates public participation efforts with the MPO’s Transportation Equity (TE) Program to reach organizations that serve populations covered by federal and state regulations and ensure that people from these populations have meaningful opportunities to participate in the MPO’s planning process. These populations include people who are protected by federal mandates—people who identify as minority, have a low income, have limited English proficiency (LEP), are 75 years old or older or 17 years old or younger, or have a disability.

Approach

Implementing the Public Participation Process

MPO staff implements the MPO’s Public Participation Process according to the MPO’s Public Participation Plan (PPP). The process includes coordinating and implementing the MPO’s public outreach activities, via communications and engagement efforts. This process, which supplements the involvement of the Advisory Council, provides information to various parties and collects input from them for MPO use in planning and decision-making, and in developing certification documents. During FFY 2022, staff will publish a new Public Outreach Plan that reflects current practices and goals for future enhancements to the Public Outreach process. This will include updates on virtual engagement and will be paired with a Public Outreach Guidebook.

Communications Methods

MPO staff aims to make it easy to access the information required to understand, follow, and engage in the MPO’s transportation planning and decision-making. Staff will use in-person and virtual meetings, printed materials, and digital tools, such as website content, emails, social media, and blog posts, for external communications.

Engagement Methods

Through the MPO's Public Participation Process, staff work to provide opportunities for members of the public to participate in transportation planning and to ensure that everyone's voice may be heard, valued, and considered. These opportunities include the following:

- MPO meetings
- Advisory Council meetings
- MAPC subregional municipal group/coordination meetings
- stakeholder organizations' meetings
- open house events to publicize and solicit feedback on certain MPO efforts
- electronic surveys and solicitation of comments and input
- partnerships with other organizations on their events and communications platforms
- targeted one-on-one and outreach meetings with organizations representing TE populations and other potentially underrepresented populations

Program Administration

MPO staff will continue to explore and refine the Public Participation Process to increase public understanding of the MPO's work and its efforts to break down barriers to participation.

In accordance with the MPO's Language Assistance Plan (LAP), The Public Participation Process also supports the MPO's federally required efforts to provide language access (both interpreter and translation services) at all MPO-sponsored meetings, as well as outreach events as necessary. (Translation and interpreter services are funded as a direct cost.) As public outreach is a critical avenue for members of the public to be involved in and benefit from MPO activities, staff provide translations of outreach documents, emails, the MPO website, and other materials that allow for participation that is comparable to those with English language fluency. (See the LAP for information about the specific documents the MPO provides translations for.) Translations are provided in the six most commonly spoken non-English languages in the MPO region. Updates to the MPO's LAP (funded under the TE Program) will be reflected in translation and interpreter services provided for public outreach efforts.

FFY 2022 Anticipated Outcomes

- Deliver MPO communications, send engagement emails, and update MPO website, social media, and TransREPORT blog as needed
- Conduct engagement opportunities with municipalities and the public
- Develop printed and digital communication materials
- Update the PPP

General Graphics

Project ID Number	9222
FFY 2022 Total Budget	\$93,800
Schedule	Ongoing

Purpose and Approach

MPO staff will provide graphics support to the MPO and its member agencies. This includes designing and producing maps, charts, illustrations, report covers, brochures, slides, and photographs; applying other visualization techniques; and creating other products that improve communication.

Provision of Materials in Accessible Formats

Project ID Number	3122
FFY 2022 Total Budget	\$120,685
Schedule	Ongoing

Purpose

The MPO conducts its transportation planning activities and public outreach process in accordance with ADA, Section 508 of the Rehabilitation Act as amended in 1998, and other policies and regulations governing accessibility standards. Adherence to these policies and regulations enhance public outreach and engagement because more stakeholders in the region can access MPO informational materials and reports.

Approach

In support of these standards, the MPO produces written and electronic materials in accessible formats. The MPO also maintains a library of document templates that incorporate accessibility guidelines and standards. To ensure web access for people with low or no vision who use screen readers, all documents are posted to the MPO website and meeting calendar in both PDF and HTML formats. In addition, the MPO makes every effort to make data presented in tables fully navigable by a screen reader and provides alternative text to describe tables, figures, and images that cannot be read by a screen reader.

FFY 2022 Anticipated Outcomes

- Produce materials in accessible formats for public meetings and website postings
- Maintain accessible document templates
- Maintain and update accessibility guidelines and standards for MPO products as needed

Professional Development

Project ID Number	9522
FFY 2022 Total Budget	\$64,500
Schedule	Ongoing

Purpose and Approach

MPO staff maintains its technical expertise in part by participating in courses, programs, and workshops offered by FHWA, the FTA, the Transportation Research Board, the Association of Metropolitan Planning Organizations, the Institute of Transportation Engineers, and other public, private, and nonprofit organizations. Previous professional development endeavors have related to topics such as performance-based planning, traffic engineering issues and applications, regional modeling, bicycle/pedestrian issues, transit planning, public involvement, environmental justice, air quality, computer operations and maintenance, database applications, and other areas related to the provision of technical support services.

FFY 2022 Anticipated Outcomes

Staff will attend conferences, peer exchanges, trainings, and other enrichment and professional advancement opportunities.

3C PLANNING AND OTHER CERTIFICATION REQUIREMENTS

These programs produce the core documents and work products that the MPO's federal partners require and are the center of the MPO's transportation planning work. These programs cover budgeting, planning, capital programming, and performance management, among other topics, and include the following programs:

- LRTP
- TIP
- Performance-Based Planning and Programming (PBPP)
- Air Quality Conformity Determinations and Support
- UPWP
- TE Program (which includes the development of the Coordinated Public Transit–Human Services Transportation Plan)
- CMP
- Freight Planning Support
- Regional Model Enhancement

Long-Range Transportation Plan

Project ID Number	8122
FFY 2022 Total Budget	\$359,000
Schedule	Ongoing

Purpose

Under federal transportation funding legislation, a new LRTP must be produced every four years. The LRTP guides transportation system investments for the Boston metropolitan region for at least the next 20 years. The MPO adopted its most recent LRTP, *Destination 2040*, in August 2019. This LRTP serves as the Boston Region MPO’s guiding document: it establishes regional goals and objectives that the MPO will use for future decision-making until September 30, 2023.

Although the latest quadrennial LRTP document was endorsed in FFY 2019, the MPO’s 3C planning process—including its long-range planning activities—is ongoing. The MPO’s robust LRTP development program helps meet the federal FAST Act requirements, which include keeping abreast of current state-of-the-practice planning tools and approaches and coordinating planning efforts with other regional and state transportation plans and programs. This program also supports scenario planning to generate data for decision-making.

Approach

LRTP Needs Assessment

The Needs Assessment has become a foundational resource for the MPO’s transportation planning work. In FFY 2019, staff updated the Needs Assessment for use in developing *Destination 2040*; it is available to the public via the Needs Assessment document and application on the MPO’s website. In FFYs 2020 and 2021, staff continued to update the Needs Assessment with new information, particularly information on the resiliency of the transportation network.

In FFY 2022, staff will continue to update the Needs Assessment with new information as it becomes available. Staff will also perform further analyses to keep the Needs Assessment current and will use this information for future studies, reports, and deliberations. The updated information will also be made available to the public via the website.

Data from the Needs Assessment will support these other LRTP activities in FFY 2022:

- Scenario Planning: Output from the Needs Assessment can be used to develop and analyze land use and transportation options and scenarios
- Revisiting Goals and Objectives: Information from analyses and public input received during outreach for the Needs Assessment will be used as staff reviews and revises the MPO's goals and objectives for the next LRTP

The Needs Assessment will also support other MPO work. For example, it may provide data that the MPO can use to select corridor study locations or monitor regional transportation performance.

The LRTP and Scenario Planning in FFY 2022

The MPO has an ongoing practice of using model-based planning tools and off-model processes to generate forecasts and information about regional conditions and future needs. These tools will be used to assess the effects of potential options for changes to the transportation network. The MPO will use this information to make policy and capital-investment decisions.

Throughout the year, MPO staff will seek to identify one or more opportunities to explore options and compare various alternative scenarios to understand effects on transportation, air quality, climate change, mode shift, the economy, and land use. Some of this work also may explore policy-related implications. In this way, the LRTP program serves as an ongoing resource for current information, insights, and analysis for all those involved in managing and improving the regional transportation network.

Laying the Groundwork for the Next LRTP

In developing the next LRTP, staff will research, plan, coordinate with interested parties, and review the priorities of the MPO and other state and regional agencies. Through updating the Needs Assessment and scenario planning, MPO staff will generate information that will guide the investment strategies for the next LRTP.

The LRTP program plays an important role in keeping the MPO abreast of current state-of-the-practice communications methods, planning tools, and approaches. In collaboration with MAPC, the MPO staff will explore effective ways to gather information, understand the needs of the Boston region, and analyze transportation and land-use options. As part of FFY 2022 work activities, staff will research the best practices in metropolitan transportation planning and other facets of planning.

LRTP Amendments

If any changes are made to regionally significant projects in the FFYs 2022–26 TIP, an amendment to the LRTP might be required. Staff will prepare the informational materials for MPO decision-making and follow MPO procedures for informing and involving the public.

FFY 2022 Anticipated Outcomes

- Update details and analyses in the current Needs Assessment to supply the most current information to the MPO and public
- Produce summaries of results from transportation scenario analyses for the MPO
- Conduct public outreach on all LRTP topics, including Needs Assessment updates, goals and objectives, and scenario planning; report results to the MPO for use in all of its planning and programming
- Keep abreast of current state-of-the-practice communications methods, planning tools, and approaches
- Prepare amendment(s) to *Destination 2040*, if necessary
- Address comments or changes from FHWA and the FTA or changes to the State Implementation Plan (SIP)

Transportation Improvement Program

Project ID Number	8222
FFY 2022 Total Budget	\$194,000
Schedule	Ongoing

Purpose

The Boston Region MPO's TIP represents a five-year, financially constrained program of planned investments in the metropolitan area's transportation system. Although federal regulations require that the TIP be updated every four years, Massachusetts and its MPOs are committed to producing annual updates.

Approach

Development of the FFYs 2023–27 TIP

MPO staff conducts outreach to municipalities and TIP contacts; collects TIP project-funding requests; evaluates and scores proposed new projects; updates the scores of previously scored unprogrammed projects (as needed); proposes programming of current and new projects based on anticipated funding levels; supports the MPO in its decision-making about programming those funds; develops a draft document; and facilitates public review of the draft document before the MPO endorses the final TIP.

Outreach and Compilation of the Universe of Projects

MPO staff communicates with the cities and towns in the region through TIP conference calls, MAPC subregional meetings with municipalities, and correspondence with municipal TIP contacts and elected officials to gather information on existing and new TIP project-funding requests. MPO staff compiles the projects into a Universe of Projects list for consideration by the MPO.

Project Evaluation

The MPO uses TIP project evaluation criteria to identify projects that will help the region attain the vision, goals, and objectives established by the LRTP. The MPO's evaluation criteria support decision-making for the programming of transportation projects in the region by establishing a transparent, inclusive, and data-driven process through which funds are allocated.

In coordination with the development and endorsement of the current LRTP, *Destination 2040*, staff examined the TIP evaluation criteria and revised them to continue to align the TIP process with LRTP goals and objectives as well as state-of-the-practice transportation project metrics. These new criteria were implemented for the FFYs 2022–26 TIP.

Staff Recommendation

MPO staff develops a recommendation that proposes how to prioritize the MPO's Regional Target funding. Staff prepares a list of projects containing the evaluation scores and project-readiness information. Staff then develops programming recommendations that include a selection of these projects while considering the geographic distribution of investments across the region, project design status, LRTP-identified needs, and cost.

In addition to preparing a recommendation for regionally prioritized projects, MPO staff prepares and presents Massachusetts Department of Transportation's (MassDOT) state-prioritized projects and the capital programs for the Massachusetts Bay Transportation Authority (MBTA), the Cape Ann Transportation Authority, and the MetroWest Regional Transit Authority for the MPO's consideration.

TIP Document Preparation and Endorsement

MPO staff prepares a draft TIP that maintains compliance with federal regulations and requirements for a public review and comment period. During the public comment period, staff compiles and summarizes comments on the draft TIP and relays the comments to the MPO for consideration before endorsing the final TIP document.

Amendments and Administrative Modifications

In a typical year, various projects experience cost or schedule changes that require an amendment or administrative modification to the TIP. MPO staff manages all public review processes regarding TIP amendments and administrative modifications, including posting TIP materials on the MPO website.

Staff will prepare for the possibility of implementing several amendments and/or administrative modifications to the FFYs 2022–26 TIP during FFY 2022.

For more information about the TIP development process or the administrative modifications and amendments procedures, refer to Chapter 2 of the TIP, available online at www.bostonmpo.org/tip.

Implementing Performance-Based Planning

The FFYs 2023–27 TIP document will continue to report on the MPO's implementation of its performance-based planning program. The TIP will highlight the results of monitoring trends in the region and will note any progress made toward established performance targets.

FFY 2022 Anticipated Outcomes

- Develop the FFYs 2023–27 TIP, amendments, and administrative modifications to the FFYs 2022–26 TIP
- Continue to explore enhancements to the TIP interactive database and other web-based TIP resources
- Continue to document progress made on performance measures through the programming of TIP projects
- Continue to develop and implement the MPO’s new investment programs, including the Community Connections and Transit Modernization Programs
- Conduct additional analysis of the distribution of TIP funding and alignment with LRTP-identified needs to help pinpoint areas for targeted outreach to municipalities

Performance-Based Planning and Programming

Project ID Number	8822
FFY 2022 Total Budget	\$84,000
Schedule	Ongoing

Purpose

PBPP applies data to inform decisions aimed at helping to achieve desired outcomes for the region's multimodal transportation system. The PBPP process involves the following tasks:

- 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 spending decisions
- monitoring, analyzing, and supporting decision outputs and outcomes

The FAST Act directs states, public transportation providers, and MPOs to use this performance-driven, outcome-based approach in their transportation planning processes. The Boston Region MPO can also use PBPP practices to help achieve its goals and objectives.

Approach

The MPO is already applying PBPP principles when making investment decisions as part of the LRTP, TIP, and UPWP development processes, and it is already responding to federal PBPP requirements. In recent years, the MPO established or updated performance targets for several sets of federally required performance areas, including but not limited to roadway safety, National Highway System (NHS) bridge and pavement condition, NHS reliability, and transit asset management. MPO staff continue to examine the links between programmed or funded capital projects and potential improvements in various performance areas.

In FFY 2022, staff will support the MPO in continuing to meet federal requirements for PBPP, and will monitor and report on performance. Staff will also support the MPO in expanding and enhancing its PBPP practices, including further integrating PBPP into ongoing MPO planning processes. MPO staff will continue to coordinate with MassDOT, federal agencies, other MPOs and states, the region's public transportation providers, and other stakeholders as part of this work.

Develop Targets for Federally Required Performance Measures

In FFY 2022, staff will continue to provide information and recommendations to MPO members as they set or update targets for federally required performance measures. This work will involve reviewing federal regulations and guidance, gathering and analyzing data, developing performance baselines, and exploring ways to improve target-setting methodologies.

Continue to Integrate PBPP Elements into MPO Planning

Staff will build upon prior work to include PBPP elements in LRTP and TIP processes, and other processes as appropriate. In FFY 2022, this will include researching how MPO investments and other factors may influence changes in performance outcomes and what strategies could help the MPO achieve established targets. This will likely include supporting ongoing evaluation of the impacts of MPO-funded TIP projects. Staff will also continue to examine ways to refine project and program selection criteria and work with program managers to make desired changes in future LRTP and TIP development cycles. Finally, staff will research—and if feasible, implement—best practices for incorporating PBPP into MPO programs and other MPO-supporting work.

Monitor and Report on Performance

The MPO currently reports on performance in its LRTP and TIP documents, through the CMP, and on its web-based Performance Dashboard. In FFY 2022, staff will enhance these existing reports and tools by adding and/or updating baseline and trend data, and may create additional reports or tools. When developing these documents and resources, staff will incorporate information on performance targets and, to the extent practicable, describe the effect that MPO investments may have on performance. MPO staff will also prepare federally required reports as needed, such as performance plans and reports for the Congestion Mitigation and Air Quality Improvement program. In addition, MPO staff will continue to provide information about PBPP on the MPO website.

Expand the MPO's PBPP Practice

The MPO's PBPP practice needs to address the MPO's specific goals and objectives as well as meet federal requirements. During FFY 2022, staff will continue to seek guidance from MassDOT and federal agencies to ensure that its PBPP program addresses federal requirements and recommendations. Staff will also

- continue to research other measures—beyond those that are federally required—that the MPO may wish to monitor;
- explore the PBPP practices used by other planning agencies and institutions, including by attending conferences and participating in working groups;
- research other PBPP approaches to implement;
- explore new tools available to analyze performance data and set targets; and
- support the MPO in setting additional performance targets, as desired.

FFY 2022 Anticipated Outcomes

- Support the MPO in setting targets for federally required measures and other measures, as requested. Analyze data and prepare related presentations, memoranda, and other supporting documents and materials
- Produce or update performance reports, such as the performance report included in the TIP, and tools, such as the MPO's Performance Dashboard
- Work with fellow staff, the MPO, and other stakeholders to link MPO investment processes more closely to performance outcomes. Produce memoranda and presentations describing related recommendations
- Explore other measures and methods that the MPO could incorporate into its PBPP process, as well as tools the MPO can apply to PBPP work
- Coordinate with MPO program managers, MPO board members, MassDOT, the region's public transportation providers, other states and MPOs, federal agencies, and other partners to research measures, identify investment strategies, set targets, and otherwise implement PBPP practices

Air Quality Conformity and Support Activities

Project ID Number	8422
FFY 2022 Total Budget	\$25,500
Schedule	Ongoing

Purpose

- To ensure that the MPO's plans, programs, and projects comply with the Clean Air Act Amendments (CAAA) of 1990 and to secure federal funding for the Boston Region MPO's transportation system
- To provide ongoing support services for the MPO regarding air quality matters and maintain technical expertise in air quality and climate-change matters, including conformance with federal air quality requirements and the state's climate-change policies

Approach

Air Quality Conformity Determinations

This program covers the tasks needed to demonstrate that an MPO's federally funded transportation programs meet conformity requirements. Typically, a conformity determination is performed annually for the TIP and every four years for a new LRTP (or if an LRTP amendment is undertaken).

Under the CAAA, states must monitor emissions from transportation vehicles and other sources to determine whether ambient emissions levels exceed health-based allowable levels of air pollutants. Areas in which the emissions exceed the allowable levels are designated as nonattainment areas. For these, the state must develop a SIP that establishes emissions budgets and shows how the plan would reduce emissions in the area sufficiently to comply with national ambient air quality standards. MPOs with nonattainment areas must complete air quality conformity determinations to demonstrate the conformity of transportation plans, programs, and projects with the Massachusetts SIP.

The Boston Region MPO area previously had been classified as a nonattainment area for ozone, but it was reclassified as an attainment area under the new 2008 ozone standard. Because the reclassification resulted from a new standard, a maintenance plan was not required, and the area was not classified as a maintenance area. A maintenance area is an area that had been reclassified from nonattainment to attainment. It is an area for which a maintenance plan has been approved as part of the Massachusetts SIP.

As an attainment area, the MPO was not required to demonstrate that the LRTP and TIP conform to national standards for the two pollutants that form ozone: volatile organic compounds (VOC) and nitrogen oxides (NO_x). A new ozone standard was recently proposed and released for public comment by the United States Environmental Protection Agency (EPA), and the Boston Region MPO area might again be classified as a nonattainment area if this standard is approved. If the MPO area is reclassified as a nonattainment area, conformity determinations for ozone would be required.

In 2018, the FHWA and the FTA released new guidance regarding transportation conformity requirements. The United States Court of Appeals for the DC Circuit issued a decision in the *South Coast Air Quality Management District v. EPA*, No. 15-1115 in February 2018, which struck down portions of the 2008 Ozone National Ambient Air Quality Standards (NAAQS) SIP Requirements Rule concerning the ozone NAAQS.

The portions of the 2008 Ozone NAAQS SIP Requirements Rule addressed implementation requirements of the 2008 ozone NAAQS and the anti-backsliding requirements (ensuring that areas do not revert to nonattainment) associated with the revocation of the 1997 ozone NAAQS. The impact of the decision addresses two groups of ozone areas described in the decision, one of which affects Massachusetts. It affects areas that were designated as nonattainment for the 1997 ozone NAAQS at the time of revocation and are designated as attainment for the 2008 ozone NAAQS. These areas have not been required to make transportation conformity determinations for any ozone NAAQS since the 1997 ozone NAAQS were revoked by EPA in April 2016.

With this new court ruling, Massachusetts is now required to perform a transportation conformity determination on any new LRTP and TIP, updates, and amendments that include the addition of a project that is not exempt (also known as a regionally significant project) from transportation conformity.

The City of Boston and surrounding cities and towns were classified as a maintenance area for carbon monoxide (CO). However, as of April 1, 2016, the 20-year maintenance period expired and conformity is not required for this area. The city of Waltham, however, is classified as attainment with a limited maintenance plan in place, and projects in this city still must comply with certain requirements. The MPO must still show that it is complying with transportation control measure requirements outlined in the Massachusetts SIP.

Other Air Quality Support

This ongoing Air Quality Conformity and Support Activities program supports the MPO's expertise in air quality and climate-change matters, as well as the MPO's response to changing requirements for planning, analysis, and reporting. This includes initiatives known today, as well as the ability to participate in issues that might emerge during the year. This program also supports implementation of air quality-related transportation programs and projects, and it includes consultation, research, and coordination between the MPO and federal, state, local, and private entities.

FFY 2022 Anticipated Outcomes

Conformity Determinations

Perform and present conformity determinations as noted below. These include a detailed analysis of air quality impacts (VOC, NO_x, CO, and carbon dioxide) of the projects in the FFYs 2022–26 TIP, *Destination 2040* LRTP amendments, if required, and any work required for implementing the Massachusetts GWSA.

- Prepare a systemwide conformity determination if there are changes to regionally significant projects in the LRTP and TIP.
- Conduct a detailed project-level analysis for each project to receive Congestion Mitigation and Air Quality Program funding in the TIP and for any projects that will help meet the requirements of the GWSA.

Support to MassDOT (including the Highway Division, the Office of Transportation Planning, and the MBTA) and Massachusetts Port Authority (Massport)

Activities will include analysis of transportation-control measures, park-and-ride facilities, and proposed high-occupancy-vehicle projects throughout the Boston Region MPO area, as well as evaluation of emerging and innovative highway and transit clean-air activities.

Support for Climate-Change Initiatives

Activities will include integrating concerns about climate change and opportunities for emissions reduction into the MPO's planning process relative to the regional travel-demand model set, the TIP, project-specific work products, the LRTP, the CMP, the UPWP, and performance measures. Staff will work with MassDOT to comply with the Department of Environmental Protection's (DEP) GWSA requirements for the Transportation Sector and MassDOT. Staff will also confer with agencies and organizations concerned about climate-change issues to inform actions in the MPO region.

Mobile-Source Element of the SIP

The Massachusetts DEP is required to submit a SIP to the EPA documenting strategies and actions to bring Massachusetts into compliance with air quality standards. MPO staff support will include the following activities:

- support for amendments or revisions to the MOU between the MPO and the DEP
- support to regional, local, and private entities, and to the agencies involved in monitoring, updating, and revising the mobile-source section of the SIP
- data collection and analysis to measure regional air quality conditions, support development of MOVES3 emission factors, validate emissions inventories and budgets, and evaluate the air quality impacts of policies regarding long-term growth, transportation, and land use

- coordination with the DEP to develop statewide regulations and programs concerning transportation and air quality
- support to regional, local, and private entities
- provide data and recommendations to MPO agencies regarding funding and the implementation of transportation programs and projects with air quality benefits

Unified Planning Work Program

Project ID Number	8322
FFY 2022 Total Budget	\$125,000
Schedule	Ongoing

Purpose

The UPWP, a federally required document that supports the 3C transportation planning process, has two main purposes.

1. Provide budget information to federal and state officials about the expenditure of federal funds for transportation planning projects being carried out by the Boston Region MPO
2. Provide information to government officials, local communities, and the general public about surface transportation planning projects expected to take place in the Boston Region MPO area

The UPWP document includes descriptions and budgets for work that MPO staff will conduct during the upcoming federal fiscal year, including 3C-funded work conducted by CTPS for the MPO; work conducted by CTPS and funded by state agencies or other entities; and 3C-funded work executed by MAPC, which receives approximately one-third of the Boston region's allotment of 3C funding. Appendix A provides supplementary information about transportation studies happening in the Boston region that are either regionally significant or supported by federal, but not MPO, funds.

Chapter 2 contains a thorough description of the UPWP process and document.

Approach

Work on the UPWP is ongoing throughout the year, with the twin goals of developing the coming year's UPWP and supporting staff, the MPO, and its UPWP Committee in monitoring implementation of the current UPWP.

MPO staff coordinates and prepares materials for all phases of development of the upcoming UPWP, including

- coordinating public participation in the UPWP process, such as
 - engaging state transportation agencies, municipalities, and the public, in conjunction with the MPO's Public Participation Plan; and

- soliciting, evaluating, and recommending ideas for planning studies and technical assistance programs;
- conducting background research into planning needs;
- preparing budgets and project/program descriptions;
- coordinating document development with the MPO's UPWP Committee;
- responding to federal and state Department of Transportation guidance; and
- preparing, coordinating public review of, and distributing draft and final documents.

In support of the implementation of the current year's UPWP, staff will

- support meetings of the MPO's UPWP Committee;
- prepare quarterly reports on the implementation of the UPWP;
- make adjustments, administrative modifications, and amendments as needed, according to federal regulations and guidance; and
- maintain the UPWP Study Recommendations Tracking Database, which houses details of project contacts, proposed improvements, implementation status, milestones, funding, and issues affecting implementation progress.

FFY 2022 Anticipated Outcomes

- Conduct public outreach for development of the FFY 2022 UPWP
- Implement planned changes to the UPWP document and process
- Plan for and support meetings of the MPO's UPWP committee
- Report on FFY 2022 UPWP implementation quarterly
- Complete amendments and administrative modifications to the FFY 2022 UPWP, as necessary
- Continue to maintain and update the UPWP Study Recommendations Tracking Database
- Work to establish a database and interactive online interface documenting transportation planning studies active around the Boston region
- Provide other informational materials as needed

Transportation Equity Program

Project ID Number	8522
FFY 2022 Total Budget	\$125,000
Schedule	Ongoing

Purpose

The TE program is designed to ensure that the transportation needs of populations underserved by the transportation system and underrepresented in the planning process are addressed throughout all of the MPO's activities. These populations—referred to as TE populations—include those covered by the regulations listed below. They include the minority population, low-income population, people with LEP, elderly population, youth population, and people with disabilities.

- Title VI of the Civil Rights Act of 1964 prohibits discrimination based on race, color, and national origin, including people with LEP, in programs and activities that receive federal financial assistance.
- EO 12898 "Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations" directs recipients of federal financial assistance to identify and address any disproportionate burdens placed on low-income and minority populations.
- The ADA prohibits discrimination against individuals with disabilities by recipients of federal financial assistance.
- United States Department of Transportation (USDOT) nondiscrimination regulations prohibits discrimination on the basis of sex and age under other federal authorities, and requires MPOs to understand and consider the transportation needs of these populations.

Staff undertake several activities under the program. Staff ensure MPO compliance with FTA and FHWA Title VI, environmental justice (EJ), and other nondiscrimination requirements, as described above. Staff also conduct inclusive and accessible public outreach and communications, collect and analyze demographic and other data related to equity, and use the outcomes of these analyses and outreach to support other MPO programs. These tasks not only help the MPO comply with federal regulations, but also go beyond compliance by supporting the building of an equitable transportation system that serves all people, regardless of their background.

Approach

Complying with Title VI, EJ, and Nondiscrimination Requirements and Preparing Title VI Report

The MPO will continue to implement its Title VI program and respond to MassDOT requests regarding changes to the program. MPO staff will also prepare and submit an annual or triennial Title VI report to MassDOT as requested. The report documents the MPO's compliance with Title VI, EJ, and other nondiscrimination requirements, as well as MPO areas of focus of import to MassDOT. Staff will also update the LAP as necessary, as new Census data are released.

Providing Meaningful Opportunities for Underrepresented Populations to Participate in the Transportation Planning Process

In collaboration with the MPO's Public Participation Program, staff will ensure that TE populations remain central to the MPO's public outreach process. These engagement activities are described in the MPO's Public Participation Program.

Providing Technical Support to the LRTP, TIP, and UPWP

Staff will support development of the MPO's certification documents through the continuing implementation of analyses that advance the MPO's equity goals and to adhere to Title VI, EJ, and other nondiscrimination regulations. This may include but is not limited to disparate impact analyses, project evaluation criteria, metric development, and the MPO equity goal and objectives.

Leading the Transportation Equity Task Force

Staff will continue the initial pilot year of the new Transportation Equity Task Force. The purpose of the Task Force is to provide an accessible space for the public to discuss ways to improve equity in the region's transportation system, while elevating underrepresented voices in the MPO's decision-making process. Staff will host approximately five meetings through the spring of 2022, and will subsequently evaluate the success of the Task Force to determine next steps.

Refining Equity-Related Analytical and Modeling Techniques

To improve the effectiveness of the analyses that evaluate the impacts of the MPO's activities on TE populations, staff will refine current methods. This work will largely focus on the metrics assessed as part of the TIP and LRTP equity analyses and project evaluation criteria. While this work will continue to include CTPS's regional travel-demand model, staff will focus on leveraging other lighter-weight tools, such as the accessibility analysis tool Conveyal and the health impacts model Integrated Transport and Health Impact Model.

Coordinating with and Supporting Other Agencies

MPO staff will continue to coordinate with MassDOT's Office of Diversity and Civil Rights to ensure consistency of MPO Title VI-related processes, procedures, and activities. Staff will also continue to support the MassDOT Rail and Transit Division in its evaluation of applications for funding from the Community Transit Grant Program.

FFY 2022 Anticipated Outcomes

- Submit an annual or triennial Title VI report to MassDOT
- LAP updates, as necessary
- Lead the MPO's Transportation Equity Task Force
- Gather and analyze data related to equity from the United States Census Bureau and other sources, and explore new sources of data that support this program and inform the MPO's planning and programming decision-making
- Explore the use of new analytical tools to assist MPO staff with planning and programming decision-making
- Evaluate, refine, and complete equity analyses and other support activities as needed for the TIP, LRTP, and UPWP
- Monitor developments at USDOT regarding civil rights, Title VI, and EJ; participate in workshops, conferences, and seminars, as appropriate; and use this knowledge to inform MPO activities
- Support MassDOT's evaluations of funding applications for the Community Transit Grant Program

Congestion Management Process

Project ID Number	2122
FFY 2022 Total Budget	\$100,500
Schedule	Ongoing

Purpose

The MPO's CMP is a federally mandated requirement that seeks to monitor congestion, mobility, and safety needs; it also recommends appropriate strategies for reducing congestion. The CMP is developed in an integrated manner along with the MPO's certification documents (LRTP, TIP, and UPWP) to ensure cohesive strategy evaluation and implementation.

Approach

In the Boston Region MPO area, the CMP follows federal guidelines and recommendations from the MPO's CMP Committee to fulfill the following activities:

- set goals, objectives, and performance measures
- identify congested locations
- determine the causes of congestion
- develop alternative strategies to mitigate congestion
- evaluate the strategies' potential for efficacy
- recommend the strategies that best address the causes and impacts of congestion
- coordinate with and support development of the LRTP, TIP, and UPWP
- identify needs and priorities for planning studies

Depending upon CMP Committee recommendations, monitoring and analysis will continue for highways, arterial roads, park-and-ride lots, freight movements, and bicycle and pedestrian facilities. CMP activities will include using electronic travel-time and speed data to monitor roadways, identify existing conditions, and recommend appropriate improvements in accordance with federal guidelines.

FFY 2022 Anticipated Outcomes

CMP activities will include monitoring performance, assessing needs, and recommending strategies for multimodal facilities and services, including the following tasks:

- monitor the performance of MPO-region arterial roadways and freeways using electronic travel-time and speed data
- map and tabulate electronic data for analysis and performance evaluation
- coordinate with the MPO's certification activities (including the LRTP, TIP, PBPP, and UPWP programs and documents)
- support the CMP Committee of the MPO

Freight Planning Support

Project ID Number	2222
FFY 2022 Total Budget	\$65,000
Schedule	Ongoing

Purpose

As part of its FFY 2014 UPWP, the Boston Region MPO established a formal freight-planning program. The goals for MPO freight planning are to

- fulfill the Boston Region MPO's freight-planning needs;
- complement state and other official planning efforts;
- study specific freight-related issues;
- fulfill analysis requirements of federal surface transportation legislation; and
- address the lack of freight data for the MPO region, including developing enhanced technical capabilities for MPO staff to use in estimating freight demand.

Freight program priorities and activities were described in an action plan prepared in 2013, which was updated as part of the FFY 2019 freight program. The goals remain the same, but new freight-related issues were suggested for study because most issues from the initial action plan had already been studied.

Approach

The freight analysis within the framework of this program is ongoing and conducted on a multiyear basis. Freight studies, data collection, and model development efforts in the future will build on work undertaken as part of the initial action plan.

The freight program supports the MPO's freight planning needs. In 2017, the MPO was required to recommend a set of Critical Urban Freight Corridors (CUFC) for inclusion in the National Highway Freight Network. As part of this effort, MPO staff identified several truck hot spots where the CUFCs connected with important but congested limited-access highways. Most of these CUFC hot spots have been subjects of freight program memoranda or focused data gathering efforts.

In addition to looking at geographical areas and network hot spots, some studies look at freight transportation submarkets. These include the Conley Container Terminal gate survey as part of the 2017 South Boston Waterfront study, followed by a study of regional intermodal warehouses. Similar efforts in FFY 2021 include analyses of Amazon distribution operations and core area hazardous cargo routing.

Specific study topics are chosen in consultation with MPO members and other stakeholders each year. The choice of topic sometimes hinges on complex regulatory and land use issues outside the direct scope of MPO activities. East Boston and Logan Airport are of interest both as a CUFC network hot spot and as important freight submarkets, and could consequently be an area of study, pending support from Massport and other board members.

Outreach and MPO support activities will continue as opportunities and needs are identified. Freight model development activities, generally funded under the Regional Model Enhancement task, are able to take advantage of ongoing freight program findings and data.

FFY 2022 Anticipated Outcomes

Anticipated FFY 2022 efforts may include

- publishing one or more studies;
- serving on interagency working groups, likely involving truck rest areas;
- conducting required MPO freight planning; and
- providing data and analysis in support of advanced model implementation.

Regional Model Enhancement

Project ID Number	7122
FFY 2022 Total Budget	\$880,000
Schedule	Ongoing

Purpose

The long-term goal of the travel demand modeling practice at CTPS is to have a reliable, robust set of well-documented travel demand tools, data, and procedures that address a diverse set of needs for transportation planning in the Boston region and statewide with engaged and informed stakeholders and a coordinated team of modelers who have the skills, knowledge, and experience to effectively

- maintain the set of tools, data, and procedures;
- develop new components in the tool platforms;
- apply the tools and data appropriately on projects; and
- communicate all things related to travel demand modeling.

Through the Regional Model Enhancement work program, CTPS supports the maintenance and development aspects of the long-term goal. This has been realized through the development and maintenance of a regional travel-demand model and support of other tools for assessing the area's transportation needs and evaluating alternatives to improve the transportation system. The regional travel-demand model estimates the millions of individual decisions that generate travel throughout the region and simulates the impact of those decisions on an abstracted representation of the region's roadway and transit networks. Through variations of the inputs and assumptions, the regional travel-demand model provides insights to planners to current and future travel activity and conditions. Metrics produced by the model aid in developing policy, performing technical and equity analyses, and meeting federal reporting requirements, including the MPO's certification requirements. The model is also used by the MPO and state and regional agencies to support planning and policy analysis.

Approach

Model enhancement work is balanced across support for the current model application work, development of a new model for the 2023 LRTP, and efforts to evaluate and adopt new tools for long-term needs. CTPS will continue to engage a model steering committee composed of stakeholders internal and external to the agency to solicit feedback and guidance on model enhancement activities and build an understanding of the capabilities and limitations of model tools.

Maintain and Enhance the Regional Travel-Demand Model

The current trip-based regional model (TDM19), developed to support the 2019 LRTP, will be the primary tool for planning and policy analysis requiring regional model support through FFY 2022, with the exception of work towards the 2023 LRTP development. As such, CTPS will continue to maintain and enhance TDM19. Maintenance work includes bug fixes, network improvements, documentation, and user support. Enhancements will primarily be through the opportunistic adoption of the features developed for the 2023 LRTP model (TDM23).

Develop a New Model for the 2023 LRTP

Development of a 2023 LRTP travel demand model (TDM23) will be in full swing at the beginning of FFY 2022. The development work is structured such that beta versions of the model will be used for early scenario planning work to refine the model structure. CTPS will conclude the development process with an initial validation of the TDM23 in the second quarter of FFY 2022. The final validation will be complete following the completion of the regional demographics, expected in late FFY 2022.

TDM23 will have a similar structure and platform as TDM19, but each component, or submodel, will be revised to better meet the current MPO planning needs. The implementation of TDM23 will be largely redeveloped to be more readable and extensible.

A key new feature of TDM23 is the integration with FHWA's Travel Model Improvement Program Exploratory Modeling and Analysis Tool. This utility facilitates the definition of a range of scenario inputs, an efficient modeling procedure to produce outputs, and visualization tools to explore outputs across scenarios varying in multiple dimensions.

Planning for the Long Term

In FFY 2022, CTPS will develop a long-term plan with the model steering committee that identifies and prioritizes other model tools and practices.

The TDM23 development process began with the identification of planning needs for model support. Not all of the identified needs will be met by TDM23 because of time and resource constraints as well as the limitations intrinsic in the model structure. CTPS will work to address those needs through complementary tools and data and endeavor to maintain a suite of next generation practices and tools that will serve regional transportation planning needs. The suite will define practice areas, procedures, and tools for common activities. The potential tools and data to be included in this suite include

- dynamic traffic assignment models that can provide a more detailed representation of the roadway and transit networks;
- activity based models that can provide a more detailed representation of travel behavior;

- model platforms such as the Simplified Trips-on-Project Software model, developed by the FTA, and FHWA's VisionEval that can provide insight into specific aspects of travel behavior with less effort than a full regional travel demand model;
- big data products such as origin destination tables, trip patterns, and travel times can inform our understanding of the existing transportation system to improve the accuracy of the models and could directly support some near-term applications; and
- focused sketch and post-processor tools that leverage the regional model outputs into more useful products.

FFY 2022 Anticipated Outcomes

Staff will continue to improve the existing trip-based model while pursuing the development of new models to enhance the MPOs ability to provide state-of-the-practice support for MPO staff, member agencies, and partner organizations.

Research Next Generation Data and Tools

Project ID Number	7222
FFY 2022 Total Budget	\$57,000
Schedule	Ongoing

Purpose

The goal of this ongoing effort is to conduct a leading-edge assessment of new data sources, analytical techniques, and application needs. This assessment will inform CTPS's long-term investments into the travel modeling data, tools, and staff skills to meet the evolving needs of the MPO and its stakeholders. Maintaining this line item allows MPO staff to support an ongoing process for conducting work that had previously been executed in a more limited or piecemeal approach, to be on the leading edge with rapidly evolving data and models, and to be comprehensive and strategic about how we apply it to our MPO and state work.

The nature, quality, and source of transportation data products are continuously evolving. Passively collected data from phones and GPS devices have recently introduced a new suite of metrics with varying degrees of completeness and validity. Academia, consultants, and other transportation agencies are also continuously developing and demonstrating new analytical approaches to gain insight into travel behavior. Finally, the transportation landscape itself is changing as new mobility services develop and travel behavior responds in different ways.

Approach

Research pursuits for FFY 2022 may encompass a variety of data, tools, and planning efforts. Potential new data products include synthesized accessibility data, transportation network company reports, and passively collected travel data. New analytical tools of interest may include data-driven models and exploratory modeling analyses. An example of this new planning effort requiring advances in application practice is the congestion bottleneck assessment, which requires a systematic assessment across the region and consideration of a variety of future uncertainties.

These resources will be used for the following activities:

- assessing the state of the practice through review of conference proceedings, papers, and phone interviews with MPOs and DOTs
- acquiring and testing demonstration versions of identified tools and datasets

- producing an assessment of and recommendations for adoption and integration of these analytical tools
- producing a design requirement specification describing the necessary components of new analytical tools and data sets for application in the MPO's workflow

FFY 2022 Anticipated Outcomes

- Better understanding of data sets for use in the MPO's technical analysis
- Review of tools for planning application
- Building a long-term strategic plan for how CTPS acquires, maintains, and provides data to the MPO community

Transit Working Group Support

Project ID Number	8922
FFY 2022 Total Budget	\$50,000
Schedule	Ongoing

Purpose

This task would continue to support an MPO transit working group, which provides a forum for coordination and dialogue among transit providers and stakeholders in the Boston region.

Approach

Staff will continue work from FFYs 2019, 2020, and 2021 to support an MPO transit working group. During FFY 2022, MPO staff support for the MPO's transit working group will likely include the following activities:

- planning programs and meetings
- scheduling speakers and developing presentations
- preparing and distributing agendas, meeting notices, informational packets, and meeting summaries
- facilitating and presenting at meetings
- soliciting new members and maintaining contact lists
- implementing and updating transit working group procedures, as necessary
- gathering feedback from the transit working group participants to inform MPO activities and decision-making
- assessing the success and direction of transit working group activities
- coordinating with MetroWest Regional Transit Authority and the Cape Ann Transportation Authority on how to best address their needs in MPO decision-making, as necessary

This program will also support MPO staff in providing the MPO with information, updates, and briefings about the transit working group.

FFY 2022 Anticipated Outcomes

- Host a series of working group meetings and manage pre- and post-meeting logistics
- Develop materials and resources to support working group meetings and activities
- Provide updates to the MPO about the transit working group
- Support communication for and about the group using email, social media, and the MPO website
- Prepare documentation for the MPO about working group meetings, activities, participant feedback, and future recommendations for the working group

MPO Resiliency Program

Project ID Number	8722
FFY 2022 Total Budget	\$28,000
Schedule	Ongoing

Purpose

In the 2014 federal planning certification review, the Federal Highway Administration (FHWA) issued a recommendation that the Boston Region MPO incorporate resiliency in its TIP project selection criteria. In 2019, FHWA issued a corrective action on resiliency as part of the MPO's federal planning certification review. That corrective action advised the MPO to address resiliency of the transportation system in the LRTP and TIP selection criteria and to seek other opportunities to emphasize the importance of climate resiliency in transportation planning and programming of projects.

The Boston Region MPO incorporated resiliency into its *Charting Progress to 2040* LRTP, adopted in 2015, through its vision, goals and objectives. The MPO's next LRTP, *Destination 2040*, further strengthened its goals and objectives and identified actions to address resiliency as part of the Needs Assessment under the System Preservation and Modernization goal area. The MPO's project selection criteria for resiliency was recently strengthened to reflect the enhanced focus on it and to properly account for projects that prioritize resiliency investments. In addition, a study on *Exploring Resiliency in MPO-Funded Corridor and Intersection Studies* was conducted using funding in the FFY 2020 UPWP as a discrete study. Funding was also programmed in FFY 2021 to update the MPO's All-Hazards Planning Application, again as a discrete study. In addition, staff has incorporated resiliency into its planning practices as described below.

Approach

Over the last two years, staff performed work to strengthen resiliency in the MPO's transportation planning process. That work included

- inventorying ongoing climate resiliency activities in the municipalities in the MPO region participating in the Commonwealth's Municipal Vulnerability Preparedness program;
- participating in the Commonwealth's Resilient Massachusetts Action Team (RMAT) committee to coordinate and collaborate on resiliency activities at the state, local, and regional level;

- coordinating with state (MassDOT, MBTA, the Executive Office of Energy and Environmental Affairs) and regional agencies (MAPC subregions and Resilient Mystic Collaborative) on resiliency activities;
- presenting the MPO's work at national FHWA events; and
- conducting monthly internal Resiliency Committee meetings.

The work performed over the last two years was included in the Needs Assessment task of the LRTP. Since the MPO strengthened its goals and objectives to address resiliency of the transportation network, staff is proposing to formalize resiliency as part of the MPO's planning process and establish a separate ongoing program to address climate resiliency in the Boston region. The work listed above will continue to be performed under this program.

FFY 2022 Anticipated Outcomes

- Ongoing coordination and inventory of climate resiliency activities in the municipalities in the MPO region as part of state, regional, and municipal resiliency programs
- Continued participation with RMAT and coordination and collaboration on resiliency activities at the state, local, and regional levels
- Pursuing educational opportunities to gain subject-matter expertise (that is, conferences, webinars, research, and other virtual events)
- Monthly internal Resiliency Committee meetings

This program will allow staff to identify areas that may require additional studies through the UPWP, assistance through the MPO's Technical Assistance programs, projects that could potentially be funded in the TIP, and partnerships with regional entities.



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Chapter 4

Boston Region MPO Planning Studies and Technical Analyses

INTRODUCTION

As described in Chapter 1, each federal fiscal year (FFY), the Boston Region Metropolitan Planning Organization (MPO) receives federal transportation planning funds from the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). Combined with the local Massachusetts Department of Transportation (MassDOT) matching amount, these funds form the budget that allows the MPO staff—Central Transportation Planning Staff (CTPS)—to accomplish the certification requirement activities described in Chapter 3; the planning studies and technical analyses described in this chapter; and the administrative tasks and data management described in Chapter 6.

To prepare each Unified Planning Work Program (UPWP) accurately, the Boston Region MPO must understand the status of the previous year's studies and work activities. In general, throughout the UPWP's development, the MPO tracks a study's progress according to the four categories cited below.

- **Completed Studies:** Completed studies are either already complete or expected to be completed by October 1, 2021, when the FFY 2022 UPWP document goes into effect. Table 4-1 (MPO-funded studies) provides a summary of these studies, their funding sources and amounts, and their work products or activities.
- **Continuing or Carried Over Studies:** Continuing studies were originally funded in FFY 2021 or earlier and continue into FFY 2022. Unlike ongoing activities that take place each FFY, these projects have a specific, limited duration. These include defined-duration MPO-funded studies as well as defined-duration agency-funded studies. These studies were either originally planned with a schedule extending beyond one FFY or are continuing because of unforeseen delays or changes in scope. Table 4-2 provides a summary of the salary and overhead costs, status (percent complete by the end of FFY 2021), and completed and planned work products for planning studies started in a previous FFY and continued into FFY 2022.
- **Ongoing Studies and Programs:** Ongoing programs support the transportation planning process from year to year, and often serve to provide technical assistance to communities or transportation agencies throughout the region. These programs include certification requirements (Chapter 3), planning studies and technical analyses (Chapter 4), agency-funded contracts (Chapter 5), and administration, resource management, and support activities (Chapter 6). Tables containing summaries of the funding and progress for these ongoing programs are included at the beginning of the relevant chapters. Table 4-3 summarizes the salary and overhead costs in FFY 2021 and FFY 2022, as well as the completed and planned work products, for ongoing MPO technical assistance and transportation planning support work to municipalities throughout the region (also see Technical Analysis and Support section).
- **New Discrete Studies:** New discrete studies are selected through the MPO's UPWP committee and public outreach process for funding as one-time studies in a given FFY. Some of these studies are funded on a predictable schedule and are known as recurring studies. Table 4-4 contains a summary of the new discrete studies for FFY 2022.

In addition, the Metropolitan Area Planning Council (MAPC), an MPO member agency, conducts planning studies and technical assistance throughout the region (see Chapter 7, Metropolitan Area Planning Council Activities).

The project descriptions throughout this chapter describe new transportation planning studies chosen for funding in FFY 2022. They provide detailed updates for the FFY 2022 funding and work products for the MPO's and MAPC's ongoing programs.

Some titles of these products and activities may change as they are finalized. All certification documents and many other work products are, or will be, available for download from the MPO website (www.bostonmpo.org). Work products not found on the MPO website may be requested by contacting CTPS at 857.702.3500 (voice), 711 (MassRelay), or ctps@ctps.org (email).

Table 4-1
Completed MPO-Funded Transportation Planning Studies, FFY 2020–21

Project Name	ID	FFY 2021 Budgeted Total Funding	Work Products (reports, technical memoranda, and other work products or activities)
FFY 2021 Studies			
Active Transportation			
Improving Pedestrian Variables in the Travel Demand Model	13302	\$25,000	A brief technical memorandum, summarizing findings about the current pedestrian variable and the proposed improvements to it.
Land Use, Environment, and Economy			
Regional TDM Strategies	13303	\$10,000	Two forums on the practice of Travel Demand Management, held in conjunction with MAPC staff.
Multimodal Mobility			
Trip Generation Rate Research	13304	\$45,000	A report of findings on trip generation rate practices and recommendation for applications using ITE and TDM.
Transit			
Access to CBDs Phase 2	14370	\$75,000	A transportation planning guidebook and brief memo on COVID-19 recovery scenarios, supported by interviews of local stakeholders.
The Future of the Curb Phase 2	14371	\$60,000	A guidebook for municipalities interested in planning and implementing curb management strategies, supported by interviews and other research.

(Table 4-1 cont.)

Project Name	ID	FFY 2021 Budgeted Total Funding	Work Products (reports, technical memoranda, and other work products or activities)
Resilience			
Multimodal Resilience and Emergency Planning	13306	\$30,000	An updated All-Hazards Planning application and a presentation to the MPO.
Other Technical Support			
MPO Staff-Generated Research Topics	20905	\$20,000	For the project <i>Exploring Equity Classifications with Machine Learning</i> , a geographic file that shows groupings of towns by demographic profile as found by the unsupervised machine learning algorithm as well as a written description of what each grouping represents. For the project <i>Commuting Profiles of Environmental Justice Communities Using the 2011 Massachusetts Travel Survey</i> , a short memorandum with accompanying tables.
Mapping Major Transportation Infrastructure Projects in the Boston Region	13307	\$20,000	A web-based interactive tool mapping transportation investments in the Boston region and an accompanying print map.
FFY 2020 Studies			
Active Transportation			
Locations with High Bicycle and Pedestrian Crash Rates in the Boston Region MPO Area	13293	\$960	Final report and presentation to the MPO.

(Table 4-1 cont.)

Project Name	ID	FFY 2021 Budgeted Total Funding	Work Products (reports, technical memoranda, and other work products or activities)
Multimodal Mobility			
Addressing Safety, Mobility, and Access on Subregional Priority Roadways FFY 2020	13420	\$13,400	Final report and presentation to the MPO.
Addressing Priority Corridors from the LRTP Needs Assessment FFY 2020	13520	\$13,400	Final report and presentation to the MPO.
Safety and Operations Analysis at Selected Intersections FFY 2020	13720	\$7,420	Final report and presentation to the MPO.
TIP Before and After Studies	13294	\$22,480	Final report and presentation to the MPO.
Resilience			
Exploring Resilience in MPO-Funded Corridor and Intersection Studies	13299	\$960	Final report and presentation to the MPO.



RAVERICK

THE LOFT

LAUREN'S NAILS

WALKING STREETS
CAFE ZONE
TERRACE

ONE WAY
WATER

**Table 4-2
Discrete Boston Region MPO Planning Studies and Technical Analyses Continued into FFY 2022**

Project Name	ID	Previous Funding	Percent Complete by end of FFY 2021	FFY 2021 Work Products and Progress	FFY 2022 Funding	FFY 2022 Planned Work Products and Progress
FFY 2021						
Multimodal Mobility						
Addressing Safety, Mobility, and Access on Subregional Priority Roadways	13421	\$127,900	75%	Established advisory task force for the Grove Street corridor in Braintree, investigated the concerns and issues with the corridor, completed existing condition evaluation, and completed needs assessment.	\$49,000	Complete development of recommendations, finalize study reports, and present to the MPO.
Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment	13521	\$137,000	75%	Investigated the concerns and issues at select segments of Route 9 in Framingham and Natick, completed existing condition evaluation, and completed needs assessment.	\$43,000	Complete development of recommendations, finalize study reports, and present to the MPO.
Low-Cost Improvements to Express-Highway Bottleneck Locations	13621	\$64,500	70%	Investigated the concerns and issues at two bottleneck locations, completed existing condition evaluations, and completed needs assessments.	\$24,500	Complete development of recommendations, finalize study reports, and present to the MPO.
Intersection Improvement Program	13305	\$75,000	70%	Investigated the concerns and issues at selected municipal locations, completed existing condition evaluations, and completed needs assessments.	\$47,000	Complete development of recommendations, finalize study reports, and present to the MPO.

**Table 4-3
Ongoing Boston Region MPO Technical Analyses, FFY 2021–22**

Project Name	ID	FFY 2021 Funding	FFY 2021 Work Products and Progress	FFY 2022 Funding	FFY 2022 Planned Work Products and Progress
CTPS Activities					
Roadway Safety Audits	2321	\$14,920	Provided support to MassDOT and communities for safety audits conducted in the Boston Region MPO area	\$13,000	Tasks and work products generally remain the same from year to year
Traffic Data Support	2721	\$15,340	Responded to data request needs	\$15,000	Continue to respond to data request needs
Transit Data Support	4221	\$11,170	Responded to data request needs	\$12,000	Continue to respond to data request needs
Community Transportation Technical Assistance Program*	2421, MAPC5	\$73,330	<p>Responded to various communities' inquiries related to transportation issues:</p> <p>Salem—Provided assistance analyzing potential impacts associated with changing residential streets to one-way to prevent diversions from a congested main street</p> <p>Concord—Provided guidance regarding a possible bicycle count program that Concord would like to conduct associated with the Bruce Freeman Trail and the West Concord MBTA station</p> <p>Coordinated with MAPC about various technical assistance outreach needs and possible study locations</p>	\$67,000	Continue to support communities seeking transportation technical assistance

(Table 4-3 cont.)

Project Name	ID	FFY 2021 Funding	FFY 2021 Work Products and Progress	FFY 2022 Funding	FFY 2022 Planned Work Products and Progress
Bicycle/Pedestrian Support Activities	2522	\$71,810	<p>Spring 2021 bicycle and pedestrian counts</p> <p>Maintained awareness of bicycle- and pedestrian-related work and developments in the Boston metropolitan region</p> <p>Followed bicycle- and pedestrian-planning best practices and developments nationwide and globally</p> <p>Summarized Boston region bicycle and pedestrian count data</p> <p>Studied locations that currently affect the safety and comfort of bicycling and walking in the Boston region</p>	\$84,000	<p>Coordinate with state agencies, MAPC, other MPOs, MassDOT's Safe Routes to School Program, WalkBoston, MassBike, LivableStreets, municipalities, and other groups regarding bicycle and pedestrian planning for the region</p> <p>Collect data on bicycle and pedestrian volumes at on-road and off-road facilities in the Boston region, and post collected count data to the Boston Region MPO's Bicycle and Pedestrian Count Database for public use</p> <p>Examine bicycle and pedestrian crash data at the intersection, corridor, and regional levels to support development of strategies to address bicycle and pedestrian safety problems</p> <p>Provide ongoing technical support to communities for current tools and practices regarding bicycle and pedestrian issues, with particular focus on promoting safety</p> <p>Conduct technical analyses to quantify the effects of proposed bicycle facilities, including air quality improvements, reductions in vehicle-miles traveled, and changes in parking needs</p> <p>Conduct analyses to identify critical sidewalk gaps in the region, and possibly provide guidance to communities who may be able to access Surface Transportation Block Grant program funding for transportation alternatives to close gaps on federally aided roadways</p> <p>Examine potential routes, both on-road and off-road, to increase the connectivity of the existing transportation system, including trails, on-road facilities, and public transit, emphasizing connections on the Bay State Greenway, LandLine Network, and Emerald Network, where applicable</p> <p>Consider development of future possible strategic bicycle and pedestrian safety plans</p> <p>Coordinate regional efforts to coincide with the vision and goals outlined in the Massachusetts Bicycle and Pedestrian Statewide Transportation Plans</p>
Regional Transit Service Planning Technical Support	4122	\$56,470	Supported Hingham with bus to ferry connection planning, Lexington with some basic fare elasticity and revenue analysis, and MWRTA with microtransit analysis	\$22,000	Continue support to communities seeking transit service planning technical assistance

*This program is shared between MAPC and CTPS.

**Table 4-4
Unified Planning Work Program Budget—MPO New Discrete Studies, FFY 2022**

Universe ID	Project ID	Study or Program	Proposed FFY 2022 CTPS Budget
L-1	13310	Trip Generation Follow-Up	\$20,000
L-2	13311	Travel Demand Management Follow-Up	\$10,000
M-1	13422	Addressing Safety, Mobility, and Access on Subregional Priority Roadways	\$123,000
M-2	13522	Addressing Priority Corridors from the LRTP Needs Assessment	\$140,000
M-3	13722	Safety and Operations at Selected Intersections	\$79,500
M-6	13313	The Future of the Curb Phase 3	\$70,000
T-2	13314	Addressing Equity and Access in the Blue Hills	\$40,000
E-2	13315	Identifying Transportation Inequities in the Boston Region	\$70,000
O-1	20906	Staff-Generated Research and Technical Assistance	\$11,000
Total for New Discrete and Recurring Studies			\$563,500

NOTE: This information may be updated as the FFY 2022 UPWP budget continues to develop.

PLANNING STUDIES

The project descriptions in this section describe the new studies chosen by the MPO for funding in FFY 2022. As described in Chapter 2 and Appendix B, CTPS gathers new study ideas each year and classifies them into the following categories: active transportation; land use, environment, and economy; multimodal mobility; transit; safety and security; and other technical work. Each of the project descriptions on the following pages begins with a funding table that shows the project identification number, category, funding sources, and total budget.

Trip Generation Follow-Up

Project ID Number	13310
Category	Land Use, Environment, and Economy
FFY 2022 Total Budget	\$20,000
Schedule	10/2021 through 9/2022

Purpose

This study will follow up on the FFY 2020 UPWP study *Innovations in Estimating Trip Generation Rates* and the FFY 2021 UPWP study *Trip Generation Rate Research*. This study will hone in on the focus area of parking, identified in previous research as a major factor in trip generation and a powerful policy lever for municipalities to pull.

Approach

Staff will conduct a literature review and interview municipal planners and experts on the topic. Staff will also collaborate with colleagues at MAPC and MassDOT to collect and analyze data on parking from a variety of sources, covering a variety of uses and build environments, and draw conclusions about how parking policy, provision, and pricing can influence trip generation. Data collected may be submitted to the Institute of Transportation Engineers (ITE) for inclusion in the next edition of the *ITE Parking Generation Manual*. Staff will also continue to attend coordination meetings and work on sharing data with colleagues at other agencies engaging in similar work.

FFY 2022 Anticipated Outcomes

A technical memorandum documenting findings and recommendations to municipal stakeholders for relating parking policy and provision to land use and trip generation goals.

Travel Demand Management Follow-Up

Project ID Number	13311
Category	Land Use, Environment, and Economy
FFY 2022 Total Budget	\$10,000
Schedule	10/2021 through 9/2022

Purpose

This task will continue the MPO's efforts around the topic of Travel Demand Management (TDM) initially established through the FFY 2021 UPWP task *Regional Travel Demand Management Strategies Coordination*. Work conducted for that task revealed significant demand for regional discussion, collaboration, and coordination on TDM, as well as a set of important research questions in both the short and long term. The FFY 2022 task will allow staff to continue and expand this work and work with partners at MAPC to determine the need for more intensive TDM work by either or both agencies.

Approach

In FFY 2022, staff will

- track and document evolutions in commute and travel demand in the recovery from the COVID-19 pandemic and support stakeholders in adapting to new commute patterns
- continue work to establish an equity lens for TDM; and
- work with partners such as MAPC and municipalities to examine the possibility of establishing a permanent forum for regional coordination and collaboration on TDM, drawing on the experience of hosting forums and "coffee chats" in FFY 2021.

FFY 2022 Anticipated Outcomes

A report to the MPO on staff's TDM-related activities; several stakeholder-oriented public events; and potential plans for a permanent collaborative forum.

Addressing Safety, Mobility, and Access on Subregional Priority Roadways

Project ID Number	13422
Category	Multimodal Mobility
FFY 2022 Total Budget	\$123,000
Schedule	10/2021 through 9/2022

Purpose

The Boston Region MPO has conducted Addressing Safety, Mobility, and Access on Subregional Priority Roadways studies as part of the UPWP in every FFY since 2013. During MPO outreach, MAPC subregional groups identify transportation problems and issues that concern them, often those relating to bottlenecks or lack of safe access to transportation facilities in their areas. These issues can affect livability, quality of life, crash incidence, and air quality along an arterial roadway and its side streets. If problems are not addressed, mobility, access, safety, economic development, and air quality are compromised.

Approach

To address feedback from the MAPC subregional groups, MPO staff will identify priority arterial roadway segments in the MPO region, emphasizing issues identified by the relevant subregional groups and Environmental Justice (EJ) and Title VI considerations. MPO staff will concentrate on transit service, nonmotorized modes of transportation, and truck activity along these arterial segments. MPO staff will consider numerous strategies to improve these arterials, including examining and evaluating any or all of the following factors:

- traffic signals (equipment, retiming, redesign, and coordination)
- bus stop locations
- processing buses through traffic lights
- location and management of pedestrian crossings and signals
- Americans with Disabilities Act of 1990 requirements
- travel-lane use by motorized and bicycle traffic
- speed limit
- access management

The improvement strategies will help develop a guide to designing and implementing a Complete Streets corridor, which could be recommended to implementing agencies and funded through various federal, state, and local sources, separately or in combination.

FFY 2022 Anticipated Outcomes

The study will include data collection, technical analysis, development of recommendations, and documentation for selected corridors.

Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment

Project ID Number	13522
Category	Multimodal Mobility
FFY 2022 Total Budget	\$140,000
Schedule	10/2021 through 9/2022

Purpose

The purpose of these studies is to develop conceptual design plans that address regional multimodal transportation needs along priority corridors identified in the MPO's L RTP, *Destination 2040*. These studies include recommendations that address multimodal transportation needs that are expected to arise from potential future developments in the study area.

Approach

The L RTP identified needs for all modes of transportation in the MPO region. These needs guide decision-making about which projects to include in current and future Transportation Improvement Programs. Projects that address the region's current mobility needs are those that focus on maintaining and modernizing roadways with high levels of congestion and safety problems;¹ expanding the quantity and quality of walking and bicycling; and making transit service more efficient and modern. During the past several years, the MPO has conducted these planning studies, and municipalities have been receptive to them.

MPO staff will select locations for study with consideration of municipal, subregional, and other public feedback as well as EJ and Title VI considerations, and then collect data, conduct technical analyses, and develop recommendations for improvements. The recommendations will be forwarded to implementing agencies, which may choose to fund improvements through various federal, state, and local sources, either separately or in combination.

¹ Congestion is used as one of the selection criteria for potential study locations. Congested conditions are defined as a travel time index of at least 1.3 (this means that a trip takes 30 percent longer than it would under ideal conditions).

FFY 2022 Anticipated Outcomes

Through these studies, MPO staff will recommend conceptual improvements for one or more corridors, or several small sections within a corridor, that are identified by the congestion management process (CMP) and the LRTP as part of the Needs Assessment process.

The studies will provide cities and towns with the opportunity to review the requirements of a specific arterial segment, starting at the conceptual level, before committing design and engineering funds to a project. If the project qualifies for federal funds for construction of the recommended upgrades, the study's documentation may be useful to MassDOT and the municipalities.

Safety and Operations at Selected Intersections

Project ID Number	13722
Category	Multimodal Mobility
FFY 2022 Total Budget	\$79,500
Schedule	10/2021 through 9/2022

Purpose

This recurring study, typically funded every other year, will examine mobility and safety issues at major intersections on the region's arterial highways. According to the MPO's crash database, many crashes occur at these locations, which are congested during peak travel periods. While the resulting congestion may occur only at the intersections, it usually spills over to a few, adjacent intersections along an arterial. These intersections may also accommodate multiple transportation modes including buses, trucks, and people who are walking or bicycling.

Approach

MPO staff will examine intersection locations based on a review of the MPO's crash database and the MPO CMP's travel-time and delay information. MPO staff will recommend safety and operations improvements to enhance the intersections' operations for all transportation modes, including transit, bicycling, and walking, and to enhance the safety of drivers, bicyclists, and pedestrians.

Municipalities are receptive to these studies, as they provide an opportunity to review the locations' needs, starting at the conceptual level, before municipalities commit funds for project design. If a project qualifies for federal funds, the study's documentation is also useful to MassDOT.

FFY 2022 Anticipated Outcomes

MPO staff will select intersection locations for study and develop recommendations for improvements. The findings will be documented in memoranda and presented to the MPO.

The Future of the Curb Phase 3

Project ID Number	13313
Category	Multimodal Mobility
FFY 2022 Total Budget	\$70,000
Schedule	10/2021 through 9/2022

Purpose

This study will build on the previous Future of the Curb studies that provided references for planners as they adapt and manage curb space. Within the guidebook (*Future of the Curb II*), CTPS identified potential metrics to evaluate the success of curb management changes, and in this new study CTPS staff would test these methods with the aim to generate ground-truthed models to estimate curb space efficiency within communities of the Boston region. This study advances the MPO goals for Capacity Management and Mobility by helping planners adapt curb space to meet changing demands.

Approach

Staff will identify specific curb management strategies to study (such as bus lanes, pick up/drop off zones, and freight/delivery designated spaces). Staff will also find examples where they are active within the Boston region, keeping in mind different community types throughout the region. Staff will then collect data to measure their efficacy through digital data sources available (such as automatic passenger counter-derived bus delay data, municipal parking data) and through in-person data collection efforts (such as turnover counts in parking spaces). CTPS staff will then analyze the results to compare the metrics throughout the region and generate a model to estimate the effect curb management changes will have on different community types.

FFY 2022 Anticipated Outcomes

This study will generate a method to estimate curb space usage by management strategy and municipality type, developed from data collected within the Boston region.

Addressing Equity and Access in the Blue Hills

Project ID Number	13314
Category	Transit
FFY 2022 Total Budget	\$40,000
Schedule	10/2021 through 9/2022

Purpose

A coalition of groups, including the Urban Outdoors Association, Friends of the Blue Hills, the Mattapan Food and Fitness Coalition, Brookwood Community Farm, and the Mary May Binney Wakefield Arboretum, approached MPO staff and the UPWP Committee with a proposal to study transit access to the Blue Hills Reservation. The Blue Hills Reservation is rich in natural and cultural resources, and hosts many recreational activities, such as hiking, biking, swimming, and skiing. It also is home to a number of cultural and environmental organizations—including a community farm, a nature museum, and a certified arboretum—that welcome visitors to enjoy and participate in their activities. Access to areas of natural beauty and wilderness is also documented to be critical for wellness and mental health, especially in a time of social distancing. Though the heart of the Blue Hills Reservation is located just four miles from Mattapan Square in Boston, a major transit hub in a marginalized community, transit access to the Reservation is extremely limited.

In response to this request, MPO staff will conduct a study combining community engagement and service planning support to determine the best and most relevant ways to provide improved transit access to the cultural and recreational activities of the Blue Hills. This study will also allow MPO staff to engage deeply with key communities and stakeholders.

Approach

Staff will

- work with the coalition that proposed this study as well as other stakeholders such as the Department of Conservation and Recreation, the Massachusetts Bay Transportation Authority (MBTA), and the Town of Milton to determine ways to engage community stakeholders and define a research/analysis agenda;
- carry out engagement activities, with the anticipation of conducting consultation throughout the study process;
- analyze existing conditions and transit service patterns to determine the best ways to improve transit service to the Blue Hills Reservation and its constituent parts;

- workshop recommendations with the proposing coalition and community stakeholders; and
- create a final document and user-friendly summary materials, documenting recommendations and next steps, possibly including ideas for funding additional service.

FFY 2022 Anticipated Outcomes

MPO outreach and engagement activities to help qualitatively determine how best to provide access to the Blue Hills, and a report or other document summarizing engagement activities and technical recommendations.

Identifying Transportation Inequities in the Boston Region

Project ID Number	13315
Category	Transportation Equity
FFY 2022 Total Budget	\$70,000
Schedule	10/2021 through 9/2022

Purpose

The purpose of this study is to develop a baseline assessment of existing transportation inequities in the Boston region. While the equity policies applied by the MPO and other transportation agencies often take the status quo as a given and attempt to prevent making inequities worse through future investments, this study will take a historical perspective and attempt to identify *existing* inequities that have been caused by past decisions and identify opportunities for the MPO to reduce the divergent outcomes between population groups.

Approach

The study will have two parts. Staff will begin by gathering qualitative data from equity populations and advocates about the transportation impacts they experience in their communities. The second part will consist of quantitative analyses of transportation outcomes (selected in part from the results from the public outreach). Staff will measure the extent of existing transportation benefits and burdens on equity populations compared to non-equity populations, and identify those inequities that are most extreme. Analyses undertaken in both parts of the study will focus on transportation metrics that the MPO is most ideally positioned to address, as well as those that have received little or no analysis in the Boston region. One likely topic for analysis is the cost of transportation for different modes and across various demographic groups. The results of this study will provide the MPO with better information about opportunities for improving transportation equity outcomes in the region.

FFY 2022 Anticipated Outcomes

A report documenting the results of the quantitative and qualitative analyses.

Staff-Generated Research and Technical Assistance

Project ID Number	20906
Category	Other
FFY 2022 Total Budget	\$11,000
Schedule	10/2021 through 9/2022

Purpose

This program would support work by MPO staff members on topics that relate to the Boston Region MPO's metropolitan transportation planning process that staff members have expressed interest in, and that are not covered by an ongoing UPWP or discrete project.

This program was funded for the first time in FFY 2016, when the work undertaken consisted of investigating the possibility of using driver license acquisition rates obtained through Registry of Motor Vehicles data as a possible measure of transit dependence. In FFY 2017, MPO staff members completed research projects including an examination of crash rates in EJ communities; analysis of long-distance commuting in the Boston region and its implications for the MPO; and development of a new software tool for transit planning.

In FFY 2020, the scope of this program was extended to allow MPO staff members to pursue small technical assistance projects for local communities. Individual MPO staff members would be able to identify small-scale needs in the diverse communities in which they live (within the MPO region), and a partner entity or entities to work with in making recommendations to solve the problem. This budget line would provide MPO staff with time to study the problem—involving their colleagues with specialty skills if resources and availability allow—and make recommendations to solve it.

Approach

Interested MPO staff members will complete an application for MPO funding to conduct independent research on a topic of professional interest and potential use in the metropolitan transportation planning process, or pursue a local transportation-related technical assistance project. MPO managers and directors will review the applications and select the most promising topics for study.

FFY 2022 Anticipated Outcomes

The research element of this program will produce valuable information for the MPO's consideration and support staff members' professional development. The technical assistance element will yield highly creative, yet flexible and lightweight, solutions for transportation planning problems. Both elements allow staff to raise the profile of the MPO and publicize its ability to help local communities, whether by publishing compelling research or by reaching out to help solve local problems.

TECHNICAL ANALYSIS AND SUPPORT

The project descriptions in this section consist of ongoing MPO programs that provide technical planning assistance, support, and analyses to cities, towns, and other entities throughout the region. The major areas of technical analyses include data provision and analysis, bicycle and pedestrian support, transit service planning, and community-level transportation planning and technical assistance.

Roadway Safety Audits

Project ID Number	2322
FFY 2022 Total Budget	\$13,000
Schedule	Ongoing

Purpose

This program supports CTPS participation in roadway safety audits (RSA).

Approach

An RSA, as defined by FHWA, is a formal safety performance examination of an existing or future road or intersection by an independent audit team. MassDOT guidelines require an RSA to be conducted where Highway Safety Improvement Program-eligible crash clusters are present. The program has expanded to cover additional high-crash locations and individual crash types, such as pedestrian and bicycle hot spots. The RSA examines the location to develop both short- and long-term recommendations to improve safety for vehicles, for people who walk, and for people who bicycle. These recommendations help communities identify safety improvements that can be implemented in the short term, and determine if more substantial improvements are needed as part of a larger, long-term improvement process.

Audit teams include MassDOT headquarters and district office staff, MassDOT consultants, municipal planners and engineers, local and state police, local emergency response personnel, and CTPS personnel, as requested. In the RSA process, the audit team (1) reviews available crash data; (2) meets and communicates with local officials, planners, engineers, and other stakeholders; (3) visits the site to observe traffic operations and identify safety issues; and (4) develops and documents recommendations.

FFY 2022 Anticipated Outcomes

The anticipated outcome is participation in audit teams as requested by MassDOT.

Traffic Data Support

Project ID Number	2722
FFY 2022 Total Budget	\$15,000
Schedule	Ongoing

Purpose

The purpose of this program is to perform various quick-response data-gathering or data-analysis tasks for public and private institutions throughout the federal fiscal year.

Approach

For the vast majority of requests for transportation planning and traffic engineering analysis, the amount of effort is significant; therefore, a specific scope of work is developed for these projects. Occasionally, public and private institutions and their consultants ask CTPS to perform various quick-response analyses or to gather data. These requests, which are expected to require fewer than two person-days each, are accounted for under this general project description.

FFY 2022 Anticipated Outcomes

Work products will depend on the tasks requested by the MPO, other agencies, members of the general public, consultants, or other interested parties.

Transit Data Support

Project ID Number	4222
FFY 2022 Total Budget	\$12,000
Schedule	Ongoing

Purpose

The purpose of this program is to provide transit data and small-scale analyses of available data to interested parties, upon request.

Approach

By performing various planning studies for the MBTA and other entities, CTPS has accumulated a large amount of transit ridership, revenue, and service data. This program allows CTPS to provide these data to interested parties throughout the federal fiscal year.

FFY 2022 Anticipated Outcomes

CTPS will respond to requests for data and small-scale studies from agencies, municipalities, members of the public, academic institutions, and other interested parties.

Community Transportation Technical Assistance Program

Project ID Number	2421, MAPC5
FFY 2022 Total Budget	\$67,000
Schedule	Ongoing

Purpose

Through this ongoing program, MPO staff and MAPC provide technical advice to municipalities throughout the region about identified transportation issues of concern.

Approach

This program is a mechanism for providing quick-response advice to communities that have identified transportation issues of concern about which they would like to have technical advice. In this program, a team of CTPS and MAPC engineers and planners will meet with community officials to learn more about specific problems and provide advice on next steps concerning issues that the community may have identified, such as those related to parking, traffic calming, walking, bicycling, and bus stops. In many cases, there will be a site visit to understand the potential problem, review existing data, and make suggestions for additional data that may be needed. General types of solutions, appropriate follow up, and contact information for appropriate MPO and MassDOT staff could be recommended. Descriptions of the various planning processes at MassDOT, the MBTA, the MPO, and MAPC, as well as guidance on how communities can get involved, could also be provided. Technical assistance activities could produce conceptual designs for some project locations.

This work will advance the MPO's goals for system preservation, modernization, and efficiency; mobility; and land use and economic development. It will be consistent with the MPO's CMP and other staff-identified needs. It also will include a safety component in which staff will respond to community requests to conduct analyses at crash locations and recommend possible mitigation strategies.

FFY 2022 Anticipated Outcomes

In FFY 2022, MPO staff will solicit municipal technical assistance requests. The number of technical assistance cases will depend on the funding amount, and MAPC and CTPS will coordinate and collaborate on a case-by-case basis. Depending on the complexity of the specific technical assistance requests from municipalities, CTPS and MAPC typically undertake three to four projects each FFY. MPO staff will document the work, recommendations, and outcomes of these consultations in the form of technical memoranda.

Bicycle/Pedestrian Support Activities

Project ID Number	2522
FFY 2022 Total Budget	\$84,000
Schedule	Ongoing

Purpose

MPO staff supports the MPO's and the region's needs for bicycle and pedestrian planning through ongoing data collection, analysis, and technical assistance in this program.

Approach

In addition to the items listed below, during the federal fiscal year, other bicycle and pedestrian planning studies often are identified collaboratively by MPO members, communities, bicycle and pedestrian advisory groups, and CTPS. Through such studies, MPO staff provides support to communities by creating bicycle and pedestrian improvement projects that can be advanced through the MassDOT Project Development process.

FFY 2022 Anticipated Outcomes

Anticipated outcomes include technical assistance, data collection, analysis, review of materials, and attendance at state, regional, and local forums and committee meetings. Tasks not related directly to separate studies or activities may include the following:

- Review potential bicycle and pedestrian improvements to ready project recommendations for compliance with the Healthy Transportation Directive.
- Coordinate with state agencies, MAPC, other MPOs, MassDOT's Safe Routes to School Program, WalkBoston, MassBike, LivableStreets, municipalities, and other groups regarding bicycle and pedestrian planning for the region.
- Collect data on bicycle and pedestrian volumes at on-road and off-road facilities in the Boston region, and post collected count data to the Boston Region MPO's Bicycle and Pedestrian Count Database for public use.
- Examine bicycle and pedestrian crash data at the intersection, corridor, and regional levels to support development of strategies to address bicycle and pedestrian safety problems.
- Provide ongoing technical support to communities for current tools and practices regarding bicycle and pedestrian issues, with a particular focus on promoting safety.

- Conduct technical analyses to quantify the effects of proposed bicycle facilities, including air quality improvements, reductions in vehicle-miles traveled, and changes in parking needs.
- Conduct analyses to identify critical sidewalk gaps in the region, and possibly provide guidance to communities by accessing available Surface Transportation Block Grant program funding for transportation alternatives to close gaps on federal-aided roadways.
- Examine potential routes, both on-road and off-road, to increase the connectivity of the existing transportation system, including trails, on-road facilities, and public transit, emphasizing connections on the Bay State Greenway, LandLine Network, and Emerald Network, where applicable.
- Consider development of future possible strategic bicycle and pedestrian safety plans.
- Coordinate regional efforts to coincide with the vision and goals outlined in the Massachusetts Bicycle and Pedestrian Statewide Transportation Plans.

Regional Transit Service Planning Technical Support

Project ID Number	4122
FFY 2022 Total Budget	\$22,000
Schedule	Ongoing

Purpose

Through this ongoing program, the MPO provides technical support to regional transit authorities, municipalities, MAPC subregions, and transportation management associations. This work is focused on improving or expanding transit service and reducing single-occupancy-vehicle (SOV) travel in the region.

Approach

The MPO's policy is to support transit services and reduce SOV travel in the region. As such, MPO staff provides technical support to RTAs to promote best practices and address issues of ridership, cost-effectiveness, route planning, first- and last-mile strategies, and other service characteristics. The MPO also extends support to TMAs, MAPC subregions, and municipalities seeking to improve the transit services that they operate or fund.

FFY 2022 Anticipated Outcomes

MPO staff will provide technical assistance to RTAs, municipalities, MAPC subregions, and TMAs as described above.



Chapter 5

Agency and Other Client Transportation Planning Studies and Technical Analysis

INTRODUCTION

The transportation studies and technical analysis work described in this chapter will be conducted to support the work of various transportation agencies in the Boston Region Metropolitan Planning Organization (MPO) area.

Some of the contracts described in this chapter are issued to the Central Transportation Planning Staff (CTPS) every year and generally coincide with either the federal fiscal year (FFY) or the state fiscal year (SFY). Examples include the Massachusetts Department of Transportation (MassDOT) PL and MassDOT Statewide Planning and Research (SPR) contracts. Other contracts are issued for tasks and technical support to be conducted over a multi-year period, and they might be renewed with the agencies after several years. A third contract type covers the work for discrete studies or technical analyses intended to be completed within a specified timeframe. These may either be one-time contracts in which CTPS conducts analysis or technical support to further a specific agency project, such as MassDOT's Silver

Line Extension Alternatives Analysis, or they can be contracts in which CTPS provides technical support to an agency for data collection and analysis that is undertaken annually, such as the Massachusetts Bay Transportation Authority's (MBTA) National Transit Database (NTD): Data Collection and Analysis contract.

The work conducted on behalf of the agencies includes data collection and analyses covering a broad range of topics, including travel demand modeling, air quality, traffic engineering, Title VI, and environmental justice. The products of this work are vital to support compliance with federal and state regulations such as the Massachusetts Environmental Policy Act (MEPA) and Title VI of the Civil Rights Act of 1964. CTPS also enhances regional understanding of critical transportation issues through the preparation of graphics, maps, and other materials for agency studies and presentations. The work described in this chapter is organized by agency and includes studies and technical analyses for MassDOT, the MBTA, and other agencies in the Boston region.

**Table 5-1
Unified Planning Work Program Budget—New and Continuing Agency Transportation Planning Studies and Technical Analyses for FFY 2022**

Project ID	Name	Total Contract ^a	Funding Source	FFY 2022 Agency Funds	Direct Support	Proposed FFY 2022 CTPS Budget
Varies by project	MassDOT SPR Program Support ^b	\$1,007,000	SPR	\$586,000	\$600	\$586,600
Varies by project	MassDOT On-Call Projects	\$1,150,000	MassDOT	\$350,000	\$0	\$350,000
13155	MassDOT Title VI Program	\$95,000	MassDOT	\$35,000	\$0	\$35,000
Varies by project	MassDOT Transit Planning Assistance ^c	n/a	MassDOT 3C PL	\$271,505	\$0	\$271,505
11495	Silver Line Extension Alternatives	\$115,000	MassDOT	\$35,000	\$0	\$35,000
22216	Wellington Circle Study	\$108,664	MassDOT	\$35,000	\$0	\$35,000
MassDOT Subtotal				\$1,041,000	\$600	\$1,041,600
11415	AFC 2.0 Equity Analysis	\$76,972	MBTA	\$42,000	\$0	\$42,000
11424	MBTA 2020 Triennial Title VI Report	\$139,632	MBTA	\$14,000	\$0	\$14,000
11429	MBTA 2022 Title VI Program Monitoring	\$77,000	MBTA	\$53,250	\$250	\$53,500
11491	MBTA Mapping Support	\$18,000	MBTA	\$6,000	\$0	\$6,000
14355	MBTA Rider Oversight Committee Support III	\$24,500	MBTA	\$1,500	\$0	\$1,500
14376	MBTA Rider Oversight Committee Support IV	\$24,500	MBTA	\$4,500	\$0	\$4,500
14366	MBTA SFY 2021 National Transit Database (NTD) Support	\$123,317	MBTA	\$4,800	\$0	\$4,800
14372	MBTA SFY 2022 National Transit Database (NTD) Support	\$127,288	MBTA	\$89,850	\$150	\$90,000
14373	MBTA SFY 2023 Fare Equity Analysis	\$20,000	MBTA	\$27,700	\$0	\$27,700
14375	MBTA SFY 2023 National Transit Database (NTD) Support	\$132,500	MBTA	\$27,900	\$100	\$28,000

(Table 5-1 cont.)

Project ID	Name	Total Contract ^a	Funding Source	FFY 2022 Agency Funds	Direct Support	Proposed FFY 2022 CTPS Budget
11422	MBTA Transit Service Data Collection	\$540,000	MBTA	\$194,200	\$0	\$194,200
14358	Service Equity Analysis Support to the MBTA	\$115,000	MBTA	\$50,000	\$0	\$50,000
MBTA Subtotal				\$515,700	\$500	\$516,200
	Other (Massport, Municipalities, etc.)	\$80,000	Other	\$80,000	\$0	\$80,000
Other Subtotal				\$80,000	\$0	\$80,000
Agency-Funded and Client-Funded Subtotal				\$1,636,700	\$1,100	\$1,637,800

^a The total contract amounts include direct costs. Annual direct costs are not included in the FFY budget amounts in the table and are shown separately in the Direct Support column.

^b The total FFY budgets in the UPWP represent a combination of funding from two different contract years. The total contract amount listed for the MassDOT SPR is the total contract amount for the FY 2022 and FY 2023 contracts.

^c This project is conducted on behalf of MassDOT but funded through the MPO 3C Planning contract, and thus is not included in totals in this table.

MASSDOT

The contracts and technical analyses in this section are being undertaken for MassDOT.

MassDOT Statewide Planning and Research Program Support

Project ID Number	Varies
Funding Source	MassDOT SPR
FFY 2022 Total Budget*	\$586,000

*The term of the MassDOT SPR 2020-2021 Contract was extended from September 30, 2021, through December 31, 2021. Therefore, the total FFY budget in the UPWP represents a combination of funding from two different contract years. The FFY 2022 total budget is from the FFY 2021 and FFY 2022 contracts.

Purpose

CTPS provides support to MassDOT's SPR program as requested. These contracts will include multiple individual projects or tasks throughout the federal fiscal year.

Approach

CTPS will conduct studies and analyses and provide technical assistance upon request. Two of the projects that are either underway or expected to begin in FFY 2022 are the Roadway Inventory and Related Support Maintenance, Green Line Transformation, and Miscellaneous Technical Support.

Other projects may be added throughout FFY 2022.

FFY 2022 Anticipated Outcomes

Activities and work products will depend on tasks requested by MassDOT's Office of Transportation Planning (OTP).

MassDOT Road Inventory and Related Support Maintenance

Project ID Number	97921
Funding Source	MassDOT SPR
FFY 2022 Total Budget*	\$357,500

*The term of the MassDOT SPR Contract aligns with the SFY, from July 1 through June 30. Therefore, the total FFY 2022 Total Budget represents nine months of funding from the SFY 2022 contract.

Purpose

CTPS provides support to MassDOT’s Geographical Information System (GIS) Services team as requested. This contract will bolster MassDOT’s Road Inventory maintenance and development and expand MassDOT’s GIS Services capacity.

Approach

CTPS staff will support MassDOT’s GIS Services in data cleaning and repair, updating road attributes, and improving routing for the MassDOT Road Inventory File.

FFY 2022 Anticipated Outcomes

Work will primarily result in improvements to the MassDOT Road Inventory File.

MassDOT Highway Division On-Call Modeling Support

Project ID Number	Varies
Funding Source	MassDOT Other
FFY 2022 Total Budget	\$350,000

Purpose

The purpose of this on-call contract is to provide the MassDOT Highway Division with travel demand modeling and planning assistance throughout FFY 2022.

Approach

MassDOT's Highway Division created a general on-call contract to retain CTPS's services, beginning in 2017, to provide travel demand modeling support, planning assistance, and data resources to MassDOT Highway Division projects.

FFY 2022 Anticipated Outcomes

Staff will document findings of travel demand modeling or planning recommendations in memoranda. In addition, staff will fulfill data requests and coordinate with project teams on various issues and items.

MassDOT Title VI Program

Project ID Number	13155
Funding Source	MassDOT Other
FFY 2022 Total Budget	\$45,000

Purpose

Under this contract, CTPS will continue to provide technical support to MassDOT for implementing its Title VI Program for both the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA).

Approach

MassDOT, as a recipient of federal funds from both FHWA and the FTA, is required to comply with Title VI of the Civil Rights Act of 1964, and with protections enacted through several other laws and executive orders that prohibit discrimination based on gender, age, income, and disability. Through this technical support work, CTPS will assist MassDOT in complying with these nondiscrimination laws.

FFY 2022 Anticipated Outcomes

Staff will provide technical support to MassDOT as described above.

MassDOT-Directed Planning

Project ID Number	Varies
Funding Source	MassDOT 3C PL
FFY 2022 Total Budget	\$271,505

Purpose

CTPS will provide transit-planning assistance to MassDOT and the MBTA by conducting various studies under MassDOT's FHWA-funded PL Program. This task will include multiple individual projects or tasks throughout the federal fiscal year.

Approach

In FFY 2022, CTPS will continue to assist MassDOT and the MBTA with the Bus Network Redesign Service Equity Analysis. Following the MBTA's Disparate Impact/Disproportionate Burden (DI/DB) Policy, staff will evaluate whether the effects of the proposed changes in weekly revenue vehicle hours and route length are equitable. Staff will prepare and present formal Title VI equity analyses to the Fiscal and Management Control Board (FMCB) at critical points throughout this process.

In addition to the formal service equity analyses, staff will use a CTPS-developed tool, known as the Modified Transit Opportunity Index, to evaluate changes in the amount of service available to the protected populations (minority and low-income) and to the non-protected populations. Further, staff will measure the equity impacts of metrics developed by MassDOT and the MBTA that are not contained in the DI/DB Policy.

Over the course of the FFY CTPS may take on additional work through this task, as assigned by MassDOT.

FFY 2022 Anticipated Outcomes

For the Bus Network Redesign Service Equity Analysis, staff will generate the results of several Title VI Service Equity Analyses and produce a final analysis for the system change packages that are likely to move forward from the Bus Network Redesign process. Staff will also create graphics and provide technical assistance as described above.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

The contracts and technical analyses in this section are being undertaken for the MBTA.

MBTA National Transit Database: Data Collection and Analysis

Project ID Number	14366 (SFY 2021) 14374 (SFY 2022) 14375 (SFY 2023)
Funding Source	MBTA
Total Contract*	\$383,105
FFY 2022 Total Budget	\$3,500 (SFY 2021) \$108,025 (SFY 2022) \$37,044 (SFY 2023)

*Multiple contract years are represented.

Purpose

For many years, in support of the MBTA's NTD submittals to the FTA, CTPS has produced passenger-miles traveled and unlinked trip estimates for MBTA services. This project will develop these estimates for the following uses:

- directly operated MBTA transportation modes (including motor bus, trackless trolley, heavy and light rail, and bus rapid transit)
- purchased-service bus routes (that is, local routes for which the MBTA contracts with a private carrier)
- commuter rail

Approach

CTPS will use the following methods to collect the data on which these estimates will be based:

- ridechecks on a sample of automatic passenger counter-equipped buses on the directly operated bus, rapid bus, trackless trolley, and the purchased service bus modes
- full-route ridechecks, including farebox fare-mix surveys, on the purchased service bus mode for the routes without automatic passenger equipped-equipped buses
- transit trip surveys on heavy rail, light rail, and rapid-bus modes to determine origin-destination information (transfer rates and average trip lengths)
- faregate noninteraction, farebox noninteraction, and rear-door entry surveys from stations or Green Line and Mattapan High-Speed Line vehicles equipped with automated fare collection (AFC) technology
- Inferred origin-destination information from AFC data, if available from the MBTA or its partners, to determine origin-destination information (transfer rates and average trip lengths)
- Commuter rail ridership data from passenger counts conducted by the MBTA or its contractors or from the MBTA's mobile ticketing vendor
- Counts of temporary bus bridge passengers during sample periods when portions of rail service are temporarily suspended for maintenance and replaced with bus service

The MBTA will submit its SFY 2021 NTD passenger-miles traveled and unlinked trip estimates for various transit modes to the FTA with the aid of CTPS during FFY 2022. The final technical memoranda for the 2021 NTD will be completed in FFY 2022.

FFY 2022 Anticipated Outcomes

In FFY 2022, staff will complete the final technical memoranda and auditing process for SFY 2021 NTD reporting and will complete data collection begun in FFY 2021 for SFY 2022. Field staff will begin collecting data for SFY 2023 NTD reporting.

MBTA Title VI Program Monitoring

Project ID Number	11424 (SFY2020) 11429 (SFY2022)
Funding Source	MBTA
Total Contract*	\$216,632
FFY 2022 Total Budget	\$15,000 (SFY2020) \$59,750 (SFY2022)

*Multiple contract years are represented.

Purpose

Under this contract, CTPS provides the MBTA with technical assistance by collecting data on and assessing the level of service (LOS) provided in minority areas compared to nonminority areas to support the MBTA's compliance with Title VI requirements.

Approach

Staff will collect and analyze data on the following service indicators:

- service coverage
- vehicle load
- vehicle headway
- on-time performance
- station conditions and amenities
- distribution and operability of AFC faregates and fare vending machines
- distribution of AFC retail sales terminals
- station elevator and escalator locations and operability
- vehicle age and condition

The data-collection and LOS-analysis activities will help to fulfill monitoring required as part of the MBTA's ongoing Title VI Program. The results of the data collection efforts and analyses will be reported in a memorandum to the MBTA for internal review and follow up and will be included in the next triennial report.

FFY 2022 Anticipated Outcomes

CTPS will provide documentation about selected LOS evaluations for SFY 2021 MBTA revenue service and amenities.

MBTA Transit Service Data Collection

Project ID Number	11422
Funding Source	MBTA
Total Contract	\$540,000
FFY 2022 Total Budget	\$180,000

Purpose

The work conducted under this contract will help the MBTA to assess bus and rapid transit service changes.

Approach

The MBTA requires ongoing data collection regarding its transit system in order to assess service changes. As part of this project, CTPS collects ridership and performance data to support future MBTA service changes. Work may also include support for improving the ridecheck database so that it will be compatible with new software and data sources. CTPS also may provide analytical assistance to the MBTA as requested.

FFY 2022 Anticipated Outcomes

- Point checks (observations of the arrival times, departure times, and passenger loads of a transit service at a single location) and other data collection as requested by the MBTA for planning purposes
- Improvements to the ridecheck database
- Analytical assistance as requested

MBTA Rider Oversight Committee Support

Project ID Number	14355 (SFY 2018-21) 14376 (SFY 2022-25)
Funding Source	MBTA
Total Contract*	\$49,000
FFY 2022 Total Budget	\$6,000

*Multiple contract years are represented.

Purpose

The MBTA established a Rider Oversight Committee (ROC) in 2004 to provide ongoing public input on a number of different issues, including strategies for increasing ridership, developing new fare structures, and prioritizing capital improvements. Through this contract, CTPS supports the MBTA by providing technical assistance to the ROC on an ongoing basis.

Approach

Over the past several years, the assistance provided by CTPS has included offering insights into the MBTA's planning processes, providing data analysis, and attending committee meetings, at which staff may respond directly to ROC members' questions.

FFY 2022 Anticipated Outcomes

CTPS will continue to provide technical assistance to the MBTA ROC and attend committee and subcommittee meetings.

Service Equity Analysis Support to the MBTA

Project ID Number	14358
Funding Source	MBTA
Total Contract	\$115,000
FFY 2022 Total Budget	\$63,000

Purpose

CTPS will support the MBTA in conducting the required Title VI service equity analyses for major service changes that take place during the duration of this contract.

Approach

CTPS will conduct service equity analyses for as many as two major service changes.

FFY 2022 Anticipated Outcomes

CTPS will prepare technical memoranda documenting service equity analyses for each major service change.

MBTA Mapping Support

Project ID Number	11491
Funding Source	MBTA
Total Contract	\$18,000
FFY 2022 Total Budget	\$6,000

Purpose

The objective of this work is to provide map-making support, upon request from the MBTA. At the time of each request, CTPS will provide the MBTA with an estimate of the specific cost and schedule for completing the map(s).

Approach

CTPS will update MBTA maps, upon request from the MBTA, within the budget provided for this project.

FFY 2022 Anticipated Outcomes

Updated district maps to reflect changes in bus routes and bus route garage assignments. Upon request from the MBTA, CTPS staff will update other existing CTPS-created MBTA maps within the budget provided for this project.

Silver Line Extension Ridership Projections

Project ID Number	11495
Funding Source	MassDOT
Total Contract	\$115,000
FFY 2022 Total Budget	\$35,000

Purpose

MassDOT is analyzing alternatives for potential extension of the Silver Line from its current Silver Line 3 terminus in the City of Chelsea to connect through the City of Everett to the MBTA's Orange Line. CTPS will be engaged to develop ridership projections for this work.

Approach

Staff will be provided with station locations and Silver Line operations data for the development of ridership projections for a no-build alternative and for up to four service alternatives using data provided by a MassDOT consultant.

FFY 2022 Anticipated Outcomes

Staff will develop a Ridership Technical Memorandum documenting the assumptions used to generate the ridership projections. Ridership estimates will include estimates of ridership by station and by access mode for specific Silver Line stations, potential connecting MBTA subway and commuter rail stations, and connecting bus routes.

AFC 2.0 Equity Analysis

Project ID Number	11415
Funding Source	MBTA
Total Contract	\$88,972
FFY 2022 Total Budget	\$42,000

Purpose

The MBTA is developing a new AFC system, known as AFC 2.0, to supplant its existing fare payment system. In late 2017, the contract for the design, integration, and implementation of AFC 2.0 was awarded to Cubic | John Laing. This change in the MBTA's fare payment system will also lead to changes that may negatively affect some riders. The MBTA has requested that CTPS analyze the equity of the impacts of the following three components of AFC 2.0.

1. Elimination of cash on board

Once AFC 2.0 has been implemented, cash will no longer be accepted on board MBTA vehicles. As part of the project the MBTA will be vastly increasing its retail network and installing fare vending machines at bus stops. The MBTA wants to ensure that access to locations where riders may purchase fares using cash is equitable.

2. Fee for specific fare media

Unlike the MBTA's current system, passengers may need to purchase some types of fare media for a small fee. Accompanied by this change is the ability for passengers to 'go negative' in stored value to complete a single, complete one-way trip using that fare media. The MBTA wants to determine whether this fee presents a barrier for riders who are classified as low-income or minority riders. Depending on the findings from the analysis, there may also be an evaluation of the effectiveness of any proposed mitigation from the MBTA.

3. Potential changes in fare structure

The new system will also give the MBTA the opportunity to implement fare structure changes, such as allowing discounted transfers between modes that are not currently offered; changing the existing periods of validity for pass products; and eliminating

the differential between fares paid using CharlieCards and fares paid using cash or CharlieTickets. The MBTA wants to evaluate whether any proposed fare structure changes would result in inequities.

Approach

CTPS will evaluate the distribution of fare vending machines and other fare media sales locations, the equity impacts of charging for a fare card, and a package of various fare structure changes that may be implemented with AFC 2.0. Tasks in this project include

- participating in meetings and providing technical support;
- analyzing the distribution of fare vending machines and/or sales locations;
- analyzing the impacts of charging for fare media; and
- analyzing other fare structure changes.

FFY 2022 Anticipated Outcomes

CTPS will produce a memorandum documenting the equity analysis of the set of proposed fare structure changes.

CTPS will produce a memorandum documenting the equity analysis of the fare card fee.

MBTA SFY 2023 Fare Equity Analysis

Project ID Number	14373
Funding Source	MBTA
Total Contract	\$52,556
FFY 2022 Total Budget	\$35,000

Purpose

The MBTA requested that CTPS analyze the impacts of potential changes in fare structure and tariffs for SFY 2023.¹ CTPS has provided technical assistance to the MBTA related to fare structure and tariff changes for more than 25 years, most recently in SFYs 2017, 2020, 2021, and 2022. In these recent studies, CTPS conducted analyses that included projections of the ridership, revenue, and equity impacts related to the proposed fare change alternatives.

Approach

This project will forecast the ridership, revenue, and equity impacts of potential changes in the MBTA's fare structure and tariffs for SFY 2023. CTPS will analyze as many as two fare-pricing and fare-structure scenarios. Tasks in this project include

- participating in meetings and providing technical support;
- modeling the ridership and revenue impacts of potential changes in fare structure, tariffs, and policy; and
- modeling the Title VI and Environmental Justice impacts of potential changes in fare structure, tariffs, and policy.

FFY 2022 Anticipated Outcomes

CTPS will produce a draft memorandum on the fare change analysis and fare equity analysis for two scenarios.

CTPS will produce a final memorandum on the fare change analysis and fare equity analysis for the final chosen scenario.

¹ In transit planning, "tariff" refers to the official published list of all fares. For the purposes of this work plan, "tariff" refers to the fare levels.

Other Funding Sources

Project ID Number	Varies by Contract
Funding Source	Varies
Total Contract	\$80,000
FFY 2022 Total Budget	\$80,000

CTPS is assumed to receive revenue from other sources throughout the year. The projection for this revenue is based on past experience.



Chapter 6

Resource Management and Support Activities

INTRODUCTION

To support core Metropolitan Planning Organization (MPO) activities and studies, staff conduct various ongoing computer and data resource management and other support activities.

For each activity described in this chapter, we cite the purpose of the work, describe how the work is accomplished, and provide a summary of the anticipated federal fiscal year (FFY) 2022 work products. The budget tables at the head of each project description give salary and overhead costs associated with the projects. Any direct costs associated with the projects are included in the Direct Support section beginning page 6-7.

Table 6-1 summarizes the funding assigned to each of the activities in this chapter that were also assigned in FFY 2021, a summary of the work products and/or progress made in FFY 2021, the funding proposed for each of these activities in FFY 2022, and the anticipated work products and/or progress in FFY 2022.

Although many of the activities in this chapter generally comprise similar tasks from year to year, often there are variations in budgets that reflect greater or lesser emphasis on certain efforts. For example, MPO staff may undertake new or additional data collection and/or analysis under specific line items; the tasks undertaken as part of one line item in one year might be folded into an ongoing activity in a subsequent year; or there simply could be fluctuations in staffing levels. Where appropriate, these differences are explained in Table 6-1.

**Table 6-1
CTPS Ongoing Resource Management and Support Activities, FFY 2021–22**

Project Name	ID	FFY 2021 Funding	FFY 2021 Work Products and Progress	FFY 2022 Funding	FFY 2022 Planned Work Progress and Products
CTPS Activities					
Computer Resource Management	Varies by Task	\$334,000	Provided maintenance and enhancements to CTPS’s desktop and server computer systems; computer network back-up system; and peripheral devices, such as printers, plotters, and mass storage devices.	\$309,000	Tasks and work products generally remain the same from year to year.
Data Resources Management	Varies by Task	\$320,100	<p>Provided database maintenance and enhanced CTPS’s database of standard reference GIS layers and GIS layers required to carry out particular projects.</p> <p>Updated databases with new versions of standard reference GIS layers released by MassGIS, the MassDOT OTP, and other agencies.</p> <p>Created GIS maps, computer map files, tables of socioeconomic and travel-related data, and databases.</p> <p>Analyzed data.</p>	\$218,000	Tasks and work products generally remain the same from year to year.



**CURBSIDE
PICK UP
ONLY
DRIVER
MUST STAY
WITH CAR**

CTPS ACTIVITIES

The following sections contain details on the administration, resource management, and support activities undertaken by Central Transportation Planning Staff (CTPS) each FFY.

Computer Resource Management

Project ID Number	See Individual Tasks Below
FFY 2022 Total Budget	\$309,000

Purpose

In order to fulfill the Boston Region MPO functions, CTPS maintains state-of-the-practice computer resources.

Approach

CTPS performs the following subtasks as part of computer resource management.

6022 Computer Resource Management

01 System Administration and Computer Room Management

Manage and maintain hardware and software for all CTPS computer systems to ensure that staff has maximum access to the computing resources required for its work, including an intranet site. Continue to ensure the security and integrity of all hardware, software, and data resources. Plan, monitor, and maintain CTPS's server room and computing facilities.

02 Software Development

Develop computer software to support CTPS's analytical, administrative, and documentation requirements. Maintain and enhance software developed by CTPS and/or others when program maintenance is no longer available from the original vendor.

03 Staff Assistance and Training

Assist staff in using computer resources; organize and distribute vendor-supplied documentation; and, where appropriate, provide written and online user guides for particular resources.

04 Computing Resource Purchasing and Maintenance

Purchase and maintain CTPS's computing resources. These include in-house assets such as servers, desktop and laptop computers, tablets and handheld computers, mass-storage devices, networking and communications hardware, printers and plotters, system and application software, and consumable supplies. These also include out-of-house resources, such as software purchased as a service, cloud-based storage, and other cloud-based computing resources.

05 Computer Resource Planning

Update the CTPS Five-Year Plan for Computer Resource Development in conjunction with developing the next CTPS budget.

FFY 2022 Anticipated Outcomes

Work on these tasks will continue as described above.

Data Resources Management

Project ID Number	See Individual Tasks Below
FFY 2022 Total Budget	\$218,000

Purpose

CTPS provides travel data and analyses at regional, corridor, and site-specific levels to support transportation planning and decision-making in the Boston Region MPO area.

Approach

The categories below comprise the variety of tasks encompassed by this work.

5022 Data Resources Management

01 Socioeconomic Data

CTPS will maintain and keep current its database of statistics from the US Census Bureau's Decennial Census and American Community Survey, and products derived from these sources.

02, 03 Response to Data Requests

CTPS will process or analyze data upon request to meet the needs of local, state, and federal agencies, and private institutions and firms. The 02 project number is used for data requests handled by CTPS's Data Resources group; the 03 number is used for data requests handled by all other groups.

04 Geographic Information System/Database Management System (GIS/DBMS)

CTPS will continue to develop and enhance its stores of spatial and tabular reference data, along with associated tools. CTPS will coordinate data development and distribution internally and cooperate with the Massachusetts Department of Transportation (MassDOT), the Commonwealth's Office of Geographic Information (MassGIS), Metropolitan Area Planning Council (MAPC), and other agencies to prevent duplication of effort, ensure quality, and reduce costs. CTPS's GIS (spatial) database will be available to staff through both Esri and open-source GIS software, web services, and web applications.

05 Boston Region MPO Website

CTPS will continue to develop and maintain a website that provides information regarding the MPO's activities, reports and studies produced by MPO staff, a data catalogue, and self-service data exploration applications. CTPS will continue to improve the site's design, content, and accessibility to those who are visually impaired. The website plays a critical role in the MPO's public participation program by providing information and eliciting public comment. CTPS posts all announcements for MPO and Regional Transportation Advisory Council meetings and committee meetings, as well as their related materials, on the website. During FFY 2022 MPO staff will work to integrate future plans for the website with plans for and procurement of technologies needed to support future digital or hybrid (in-person and digital) MPO meetings and activities.

06 Liaison with Other Agencies

Work with other public agencies, including MAPC, MassDOT's Office of Performance Management and Innovation, MassDOT's Office of Transportation Planning, and MassGIS to encourage sharing of computer and data resources and techniques.

FFY 2022 Anticipated Outcomes

As described above, work will continue on spatial and tabular reference databases, including socioeconomic data, Registry of Motor Vehicles data, and travel data; data processing tools; data analyses; web services and web applications; and responses to data requests.

Direct Support

Project ID Number	Varies
MPO 3C Planning Funds	\$92,000
Extended FFY 2021 MPO 3C Planning Funds	\$25,000
3C-Funded Work Direct Support Total	\$117,000
SPR Funds	\$600
MassDOT Other Funds	\$0
MBTA Funds	\$500
Other Funds	\$0
Agency-Funded Work Direct Support Total	\$1,100

Purpose

Through this activity, CTPS provides integral direct support for all CTPS projects and functions.

Approach

Computer Equipment

CTPS computer needs are programmed in the CTPS Five-Year Plan for Computer Resource Development, as amended.

Consultants

Consultants are hired periodically to perform specialized, time-specific tasks as project work demands. During FFY 2022, CTPS plans to procure support from Caliper, the developer of the travel demand software TransCAD used by the Boston Region MPO. Caliper's support provides a one-time opportunity to accelerate the development of the next phase of travel demand modeling tools.

Membership Dues

Annual dues are paid to some organizations of which the MPO is a member. These organizations provide coordination opportunities with other MPOs and transportation planning resources.

Printing

Project-specific printing costs, such as those for surveys, maps, reports, presentation boards, and other informational materials, are included in this budget.

Travel

Periodically, the US Department of Transportation and other organizations sponsor courses and seminars that enhance staff's ability to do project work; the costs of registration, travel, and lodging associated with attending such programs are direct-support expenditures. Mileage, tolls, and parking expenses associated with project work also are charged as direct-support expenditures.

Translation and Interpretation Services

To meet the needs of persons with Limited English Proficiency, the MPO translates vital documents into the six most widely spoken non-English languages in the MPO region, currently Chinese (both traditional and simplified), Haitian Creole, Portuguese, Russian, Spanish, and Vietnamese, which is new for FFY 2022. Translation expenses are considered a direct cost. The MPO also provides real-time interpretation of meetings and events upon request with one week of advance notice, which is also considered a direct cost.

Other

Various other expenditures may become necessary during the term of this Unified Planning Work Program, such as postage for return mail or services for preparing and processing data for specific projects. Other nonrecurring costs, such as software for specific project work, equipment for conducting passenger surveys, or traffic-counting equipment, also may be funded through this line item.

FFY 2022 Anticipated Outcomes

Direct costs include computer and general office equipment, professional consulting services, in-state project-related travel, out-of-state travel associated with staff attendance at professional and training conferences, and other costs deemed appropriate.



Chapter 7

Metropolitan Area Planning Council Activities

INTRODUCTION

The Metropolitan Area Planning Council (MAPC) receives approximately 20 percent of the Boston region's annual combined 3C PL and §5303 funding. With this funding, MAPC staff conduct various studies, technical analyses, and outreach and support activities to help fulfill the Metropolitan Planning Organization's (MPO) functions as a regional planning body. The Massachusetts Department of Transportation (MassDOT) provides the match to both the Federal Transit Administration and Federal Highway Administration funds described in this chapter.



**Table 7-1
UPWP-Funded MAPC Activities, FFY 2022**

Project Name	ID	FFY 2021 Funding	FFY 2021 Work Products and Progress	FFY 2022 Funding	FFY 2022 Planned Work Products and Progress
MAPC Planning Studies and Technical Analyses					
Corridor/Subarea Planning Studies	MAPC1	\$191,768	Parking data for Brookline Avenue in Boston to convert the parking lane to a separated bicycle lane; parking data and analysis for Washington and Cambridge Street in Allston/Brighton for a dedicated bus lane; multimodal transportation recommendations for the Route 1 and Route 1A corridor from Dedham to Foxborough; analysis of commuter rail parking expansion opportunities.	\$160,000	Local parking management plans; data collection and analysis to repurpose on-street parking spaces for dedicated bus and bike lanes; planning products and engagement support for MBTA Better Bus Project; multimodal transportation plans for select corridors or subregions.
Alternative-Mode Planning and Coordination	MAPC2	\$204,713	Technical memo outlining policy recommendations for the Executive Office of Energy and Environment regarding how to encourage taxi and TNC vehicles to be zero emission; planning and research for the expansion of the BlueBikes bicycle share system; updated LandLine regional greenway map and website www.mapc.ma/landlinemap and https://www.mapc.org/transportation/landline/ ; data collection for bicycle and pedestrian plans in Milton and Wakefield.	\$198,136	Planning to support the advancement of zero emission vehicles with a focus on charging station siting and incentives for vehicle purchases; expansion and strategic planning of the Blue Bikes bikeshare system; advancement of the LandLine regional greenway system with conceptual planning to connect key gaps and continued updating of region wide mapping tools; completed municipal bicycle and pedestrian plans in Milton and Wakefield.
MetroCommon 2050	MAPC3	\$95,000	Process to engage the public, municipalities, and other stakeholders in the development of the updated regional plan. Research to determine major factors affecting the region, including demographic changes, climate change, and technology.	\$95,000	Final updated plan with policy recommendations and identification of planning needs to mitigate impacts of scenarios.
Land Use Development Project Reviews	MAPC4	\$89,696	Detailed review and technical letters regarding transportation impacts and mitigation of the Allston Multimodal Project, 475-511 Dorchester Avenue in Boston, Redevelopment of the Bayside Expo Center in Boston, and numerous other development sites in the region triggered by the Massachusetts Environmental Policy Act and/or the City of Boston's local public development review process.	\$89,696	Technical memos with transportation recommendations for development projects and large transportation infrastructure projects with a land use component.

(Table 7-1 cont.)

Project Name	ID	FFY 2021 Funding	FFY 2021 Work Products and Progress	FFY 2022 Funding	FFY 2022 Planned Work Products and Progress
Community Transportation Technical Assistance Program*	MAPC5, 2421	\$48,156	Support for the MassDOT Shared Streets and Spaces program, including hosting numerous webinars to promote the program, support to procure materials, technical assistance in several communities, and hosting a peer exchange to document best practices and lessons learned.	\$48,156	Continue to support local technical assistance requests.
MAPC Administration and Support Activities					
MPO/MAPC Liaison and Support Activities	MAPC6	\$167,000	Interagency coordination, including developing work scopes and agendas, and participating in advisory and corridor committees. Support for MPO elections and public participation, TIP project evaluations; attend relevant meetings.	\$165,000	Continue to support the MPO process to develop the TIP, UPWP, and LRTP with robust public engagement, as well as participate in related regional planning efforts conducted by MassDOT, MBTA, municipalities, or federal partners.
UPWP Support	MAPC7	\$10,000	Support the UPWP development process and attend relevant meetings.	\$10,000	Tasks and work products generally remain the same from year to year.
Land Use Data and Forecasts for Transportation Modeling	MAPC8	\$95,000	Continued work in support of operational land use allocation model including data development and analysis, documentation, and mapping products for advanced transportation modeling.	\$95,000	Improved land use allocation model; multiple demographic and land use scenarios for transportation modeling; updated development data and analysis; documentation; and mapping products to support advanced transportation modeling year to year.
Subregional Support Activities	MAPC9	\$187,000	Support subregional groups. Includes preparing agendas, coordinating with transportation agencies, reviewing transportation studies in subregions, and helping to set subregional transportation priorities.	\$187,000	Tasks and work products generally remain the same from year to year.

* This program is shared between MAPC and CTPS and is described in Chapter 4.

MAPC PLANNING STUDIES AND TECHNICAL ANALYSES

MAPC conducts transportation planning studies through four ongoing programs: Corridor/Subarea Planning Studies, Alternative Mode Planning and Coordination, MetroCommon 2050 Implementation, and Land Use Development Project Reviews. MAPC and Central Transportation Planning Staff (CTPS) also collaborate on the Community Transportation Technical Assistance Program (MAPC5), which is described in Chapter 4.

Corridor/Subarea Planning Studies

Project ID Number	MAPC1
FFY 2022 Total Budget	\$160,000

Purpose

This Unified Planning Work Program (UPWP) task includes funding to support MAPC’s work on several corridor and subarea studies in the region. Some of these projects will be funded jointly through the UPWP and other funding that MAPC receives through its assessment on cities and towns, state contracts, and other planning grants.

Approach

This area of work is accomplished through the following subtasks.

Local Parking Management Plans in Selected Communities (\$50,000)

MAPC will work with selected municipalities to develop local parking management plans to provide optimal parking supply to stimulate local economic prosperity, reduce congestion caused by circling vehicles, help municipalities plan for greater land use density by decreasing parking requirements, and encourage mode shift away from single-occupant vehicle trips. This work will involve on- and off-street parking, as well as understanding trade-offs associated with repurposing on-street parking for dedicated bus lanes, bike lanes, or wider sidewalks. The goal of this work program is to address the problems that municipalities face from not managing their parking supply in commercial and mixed-used areas, and to identify whether space that is currently dedicated for parked cars could be used more efficiently for other transportation or land use purposes. This work would benefit local air quality and congestion by managing parking supply and demand and creating places where people can park once and then walk to multiple destinations. In locations where parking requirements can be reduced, the number of households with one or more vehicles could decline, which could result in higher percentages of walking, biking, and transit ridership.

Supporting MBTA Better Bus Project (\$60,000)

MAPC will support the Massachusetts Bay Transit Authority's (MBTA) Better Bus Project, a multifaceted planning effort to improve the bus system through bus priority infrastructure, a redesigned bus network with changed and new routes, an increase in bus vehicles through planning for fleets and facilities, and improved bus stops with better shelters, street furniture, and electronic information signs. MAPC will convene municipal officials and other stakeholders to coordinate planning. MAPC will provide technical assistance at the corridor level to understand the trade-off of repurposing parking or travel lanes for more dedicated bus space. MAPC will support community engagement at the corridor level.

Corridor/Subarea Multimodal Transportation Planning (\$60,000)

MAPC will work in a selected subregion or roadway corridor to coordinate multimodal transportation planning and transit service operations to be implemented by MassDOT, MBTA, Regional Transit Authorities, Transportation Management Agencies, the Department of Conservation and Recreation (DCR), employers, and/or municipalities with local land use planning to achieve livability and smart growth goals. The goal is to provide more mobility options for a variety of different users and trip types.

FFY 2022 Anticipated Outcomes

- Activities and expected work products related to Local Parking Management Plans include parking use data collection, analysis of data, and recommendations to municipalities in the form of a report with pricing and parking management solutions, or recommendations to repurpose on-street parking for other uses.
- Activities and expected work products related to Supporting MBTA Better Bus Project include coordination meetings, corridor level data collection and technical memos, community engagement meetings, survey information, and data visualization.
- Activities and expected work products related to Corridor/Subarea Multimodal Transportation Planning include identifying mobility solutions, conceptual designs, pilot projects, data and analysis to inform recommendations, and a technical report summarizing findings.

Alternative-Mode Planning and Coordination

Project ID Number	MAPC2
FFY 2022 Total Budget	\$198,136

Purpose

MAPC provides alternative-mode transportation-planning support to the Boston Region MPO and municipalities that focuses on non-single-occupancy vehicle modes and promoting zero emission vehicles (ZEV). This work benefits bicycle and pedestrian transportation, encourages transit in areas that currently are underserved by existing RTAs, improves the region's understanding of transportation network companies, advances ZEVs, and identifies and supports transportation demand management strategies.

Approach

This area of work is accomplished through the following subtasks.

Zero Emission Vehicle Support (\$25,000)

MAPC will support municipalities in planning for ZEVs, such as electric vehicle infrastructure, transitioning or retrofitting municipal fleets, advancing electric school buses, promoting zero emission car sharing, and other initiatives. This work will increase the number of ZEVs in the region, thereby helping the state meet greenhouse gas (GHG) emission reduction goals.

Bicycle and Pedestrian Planning (\$33,136)

MAPC will work with municipalities to identify local bicycle and pedestrian improvements with a focus on closing sidewalk gaps, implementing separated bicycle facilities, and other improvements at the local level. This work will lead to better infrastructure and increase the rate of cycling and walking in the region.

Regional Bike Share Planning (\$40,000)

MAPC will continue to support municipalities in the region to plan for the implementation and expansion of the BlueBikes bicycle sharing program. This work will include analyzing trip data, supporting station siting, coordinating funding opportunities and new municipalities that join, and researching future governance and funding structures.

Regional Greenway Planning and Mapping (\$100,000)

MAPC will continue to work with MassDOT, CTPS, DCR, Executive Office of Energy and Environmental Affairs, municipalities, and trail organizations to plan, map, design, and implement portions of a regional bicycle and pedestrian network of off-road and on-road connections (a greenway) that form a contiguous system around greater Boston. In 2015, MAPC worked with the above-cited partners to develop the branding of this system named the LandLine. The trails consist of shared-use paths along former railroad rights-of-way, hiking trails through conservation land, and historic corridors that connect points of interest. The binding theme of the proposed and completed corridors is creating attractive places to walk, bike, or otherwise travel through low-traffic or no-traffic green areas.

FFY 2022 Anticipated Outcomes

- Planning to support deployment of ZEV infrastructure
- Data collection, research, and analysis to support completed bicycle and pedestrian plans in selected municipalities
- Technical support for bicycle and pedestrian improvements
- Support for regional trail and greenway development
- Support, technical analysis, coordination, and research to expand the BlueBikes system
- Research and recommendations to support first- and last-mile connections

MetroCommon 2050: Greater Boston's Next Regional Vision

Project ID Number	MAPC3
FFY 2022 Total Budget	\$95,000

Purpose

This UPWP study area will continue to support the ongoing coordination and implementation of our new regional plan, MetroCommon 2050, the Boston region's 30-year comprehensive plan (through the year 2050) for sustainable equitable growth and development. The new plan establishes goals for topics including mobility, climate mitigation, and resiliency, as well as actionable recommendations needed to accomplish these goals. The agency is aligning its annual workplan and technical assistance priorities to implement the recommendations of MetroCommon.

Approach

This area of work is accomplished through the following subtasks.

MetroCommon 2050 Implementation and Education (\$35,000)

Changing demographics and location preferences, planned investments in public transportation, and emerging transportation technologies will have a profound influence on the Boston region in the decades ahead. The regional plan includes recommendations for improving mobility, reducing GHG emissions from the transportation sector, and expanding the access, capacity, and affordability of public and active transportation. This task will include outreach and education to municipal leaders about the mobility focused recommendations, seeking commitments to work towards implementing specific action items.

Building Constituencies for Local, Regional, and State Decisions that Enable Livable Communities and Sustainable Transportation (\$30,000)

MAPC will continue to work with municipal and state officials and residents to seek changes in land use that will support livable communities and sustainable transportation. This will include engaging the public in planning and dialogue that enhances equitable transit-oriented development planning, and influences other decision-making to improve development outcomes, transportation opportunities, and reduction of GHG emissions. As part of the plan update, we will hold regional discussions regarding challenges and opportunities in making long-term improvements to the Boston region's transportation system, including restoring and expanding service to equitable transit-oriented development locations. This is especially critical with the new state law that requires our cities and towns to zone for multifamily districts around transit stations. Task outputs are expected to include

engaging at least 500 people with a focus on diverse and underserved communities and partnering with organizations that serve those communities. Outputs also include hosting at least 10 different events or activities as part of the engagement.

Research and Evaluation that Support Livable Communities and Sustainable Transportation (\$30,000)

Incorporation of best practices and evaluation is important to improving MAPC's work and for advancing implementation at the local and state levels. Transportation and integrated land use planning practices will be evaluated to determine if improvements can be made to our practices, with a particular emphasis on evaluating the equity outcomes and processes of these plans.

FFY 2022 Anticipated Outcomes

Anticipated outcomes include a stronger constituency for sustainable land use and transportation investments and programs; case studies or best practices for regional and local mobility; and local commitments to implement the regional plan's recommendations.

Land Use Development Project Reviews

Project ID Number	MAPC4
FFY 2022 Total Budget	\$89,696

Purpose

This UPWP task supports MAPC’s review of potential development projects in the region. In particular, MAPC will review projects for consistency with its sustainable land use and transportation goals, impacts on the transportation network and projects identified in the TIP and Long-Range Transportation Plan (LRTP), and consistency with the MPO’s livability goals.

Approach

MAPC tracks all projects reviewed in the region under the Massachusetts Environmental Policy Act (MEPA), and provides a regional-planning analysis to MassDOT and the Secretary of Energy and Environmental Affairs for all developments considered to have significant impact. Special attention is given to mitigation and planning requirements that serve to reduce auto travel by encouraging carpooling, transit, parking regulations, and other travel demand management techniques. MAPC coordinates these reviews with MassDOT and the municipalities, and works with MassDOT to identify updated requirements to be included in the transportation impact assessments that must be conducted by developers.

MAPC also reviews notices of offered railroad property from MassDOT, consults with municipalities as necessary, and provides appropriate input. Often, these notices involve rail trails, but they also may involve other types of proposed developments.

FFY 2022 Anticipated Outcomes

Anticipated outcomes include analysis and reports of MEPA reviews, development of mitigation recommendations, coordination with municipalities and transportation agencies, maintenance and updates of MAPC’s development database, and input into the project evaluations for the TIP and LRTP. In addition, MAPC will continue to review and respond to notices of offered railroad property.

MAPC ADMINISTRATION AND SUPPORT ACTIVITIES

The following section contains details on the administration, resource management, and support activities undertaken by MAPC every federal fiscal year.

MPO/MAPC Liaison and Support Activities

Project ID Number	MAPC6
FFY 2022 Total Budget	\$165,000

Purpose

This project includes working with MPO members and staff to establish work priorities and meeting agendas. It also includes implementing the continuous, comprehensive, and cooperative (3C) transportation planning process and engagement in regional transportation planning led by MassDOT, the MBTA, or municipalities in the region. It also includes reporting to the MAPC executive committee, MAPC council members, MAPC subregions, and MAPC staff on MPO activities to ensure strong coordination of land use and transportation planning across the region.

Approach

Statewide and Regional Planning Committees and Processes (\$95,000)

In addition to participating in the Boston MPO process, MAPC actively participates in and attends statewide and regional planning committees, task forces, working groups, and commissions to represent the interests of the region, with a particular focus on the critical links between land use and transportation. These committees include the Massachusetts Association of Regional Planning Agencies; Regional Coordinating Councils; Global Warming Solutions Act Implementation Advisory Committee; MassDOT and MBTA board meetings; and various MassDOT, MBTA, or municipally led transportation working groups or study advisory committees. MAPC will also be actively involved in regional transportation plans and programs related to land use and transportation. Advisory committees may change from year to year as studies are started or completed, but participation in various advisory committees is an ongoing task.

Support the Public Participation Process for Metropolitan Planning Documents (\$10,000)

MAPC provides education and outreach for a wide variety of transportation-related and land use-related topics in the region, with emphasis on outreach through the subregions to municipal officials. MAPC also supports CTPS in its outreach to environmental justice and senior populations and to people with disabilities.

MPO Elections (\$10,000)

Working with the MBTA Advisory Board, MAPC will coordinate and implement annual elections for municipal representatives in the MPO.

Performance-Based Planning and Programming (PBPP) (\$5,000)

MAPC will review PBPP targets and follow progress toward meeting targets and objectives.

TIP Evaluation and Criteria (\$20,000)

MAPC will work with CTPS to finalize the TIP scoring criteria and to advise CTPS about the land use and economic-development aspects of the TIP evaluations. MAPC will provide updated TIP criteria and help implement the comprehensive regional growth plan, MetroCommon. MAPC will evaluate TIP projects and work with municipalities to advance TIP projects.

MPO Agenda Setting, Meetings, and Coordination (\$25,000)

MAPC will work with CTPS and MassDOT to develop MPO meeting agendas and presentations, and participate in MPO processes.

FFY 2022 Anticipated Outcomes

Outcomes of this program will result in interagency coordination; work scopes and agendas; participation in advisory and corridor committees; public participation and outreach; reports to the MAPC executive committee, MAPC Council members, MAPC subregions, and MAPC staff; MPO elections; PBPP targets and data; LRTP scenarios; TIP criteria update and project evaluations; and attendance at relevant meetings.

UPWP Support

Project ID Number	MAPC7
FFY 2022 Total Budget	\$10,000

Purpose

This UPWP task supports MAPC’s management and oversight of UPWP-funded planning studies, projects, and programs, including preparing updates and budget information in monthly reports to MassDOT.

Approach

MAPC assists with the annual development of the UPWP and coordinates with MassDOT and CTPS to support development of UPWP project ideas and specific work scopes. Through community liaison and subregional support activities, MAPC staff also helps communities identify and develop studies for inclusion in the UPWP.

FFY 2022 Anticipated Outcomes

MAPC staff will prepare UPWP project listings and monthly reports on UPWP activities. MAPC will assist with annual development of the UPWP and support development of specific project proposals and work scopes. MAPC staff will also provide assistance to communities in identifying and developing studies to be included in the UPWP through community liaison and subregional support activities.

Land Use Data and Forecasts for Transportation Modeling

Project ID Number	MAPC8
FFY 2022 Total Budget	\$95,000

Purpose

This program allows MAPC to support the MPO’s planning and decision-making by providing CTPS with detailed population, household, employment, and land use data (current conditions and scenarios of future growth) for transportation modeling and project evaluation.

Approach

MAPC will continue to investigate, acquire, and improve additional sources of employment and built environment data to inform land use allocation modeling. MAPC will continue to refine and improve Zoning Atlas data and corresponding development capacity estimates that serve as key inputs to the land use allocation model.

MAPC will continue to monitor development projects that are being planned across the region and will maintain an up-to-date development database in an online portal at www.massbuilds.com. MAPC will support CTPS and MassDOT in applying these data for project evaluation or updates to the regional travel demand model.

MAPC will collaborate with MassDOT and other stakeholders on the development of regional population, household, and employment control totals for the Boston MPO region and the next LRTP.

MAPC will use the UrbanSim Land use allocation model to develop scenarios of future land use, represented as population and employment forecasts at the transportation analysis zone and Census Block level, which can be incorporated into CTPS’s travel demand model.

MAPC will continue frequent and regular communication and coordination with the CTPS modeling staff to support travel model improvements and integration of the land use allocation and travel demand models. MAPC will also help to plan and participate in webinars and other peer exchange opportunities involving other regional agencies to improve our understanding of the state of practice regarding demographic and land use forecasting.

FFY 2022 Anticipated Outcomes

Anticipated outcomes include new data sources; an improved land use allocation model; multiple demographic and land use scenarios for transportation modeling; updated development data and analysis; documentation; and mapping products to support advanced transportation modeling.

Subregional Support Activities (MAPC)

Project ID Number	MAPC9
FFY 2022 Total Budget	\$187,000

Purpose

The Boston MPO region consists of 97 cities and towns. The region is subdivided into eight geographic areas that are represented by subregional councils comprising municipal officials, business leaders, community-based organizations, and other local participants. MAPC staff planners are assigned as coordinators to each of the subregional groups to help members develop an understanding of subregional and regional transportation and land use issues. This project supports community involvement in the development of transportation planning documents.

Approach

Subregions jointly identify and review the transportation priorities in their areas and recommend subregional projects and priorities for the TIP, LRTP, UPWP, and the MassDOT and MBTA capital investment plans.

Subregional coordinators and MAPC transportation staff report to the MPO through formal and informal communications. MAPC subregional groups will continue to participate in local corridor advisory committees whenever these committees are appropriate vehicles for working on projects in their areas. The subregions will continue to identify priority transportation needs, plan for first- and last-mile connections to transit, identify regional trail connections, pilot new technology to support increased mobility, and engage in the MPO's PBPP initiative.

MAPC staff ensures timely discussions of transportation-related issues by placing the topics on meeting agendas, leading and participating in the discussions, and distributing appropriate documents and notices relating to region and statewide transportation meetings.

FFY 2022 Anticipated Outcomes

Outcomes of this program include preparing monthly meeting agendas for transportation topics at subregional meetings; coordinating with transportation agencies; reviewing transportation studies in subregions; supporting subregional and corridor advisory committee meetings; generating public input on MPO processes and certification documents; and helping to set subregional transportation priorities.





Chapter 8

Boston Region MPO Budget and Operating Summaries

This chapter contains overall budget information for the Boston Region Metropolitan Planning Organization's (MPO) federal fiscal year (FFY) 2022 activities. The information is organized according to the Unified Planning Work Program (UPWP) categories described in Chapters 3 through 7 and recipient agencies and funding sources are indicated.

UPWP Work Areas	Total Budget
Certification Requirements	\$2,805,485
Continuing MPO Planning Studies and Technical Analyses	\$376,500
MAPC Planning Studies and Technical Analyses	\$590,988
New MPO-Funded Discrete Studies	\$563,500
Agency and Other Client Planning Studies and Technical Support	\$1,637,800
CTPS Administration, Resource Management, and Support Activities	\$527,000
MAPC Resource Management and Support Activities	\$457,000
Direct Costs (3C)	\$117,000
Total	\$7,346,778

The funding for the projects, programs, and activities listed in Chapters 3 through 7 comes from the following sources, which are described in Chapter 2.

Funding Source	Total Programmed Funds
FHWA 3C PL/MassDOT Local Match	\$3,761,668
MPO FTA 3C PL (Section 5303)/MassDOT Local Match	\$1,902,314
Extended FFY 2021 FHWA 3C PL/MassDOT Local Match	\$45,000
FHWA SPR/MassDOT Local Match	\$586,600
MassDOT	\$455,000
MBTA	\$516,200

The 10 tables on the following pages summarize the funding information presented in the preceding chapters. There is one table for each UPWP category of work conducted by CTPS, one for each UPWP category of work conducted by Metropolitan Area Planning Council (MAPC), and two summary tables. These summaries assist federal and state contract administrators in reviewing each work program in detail.

The total federal funding programmed in this UPWP is \$5,663,982. All federal funds programmed in the UPWP are awarded to the Boston Region MPO by the Massachusetts Department of Transportation (MassDOT) as FHWA 3C Planning (PL) funds. However, these federal funds initially come from two sources: the FHWA and the FTA. The federal funds, which are supplemented by a local match provided by MassDOT, include the following initial sources:

- FHWA 3C PL: FHWA planning funds are distributed to the MassDOT Office of Transportation Planning (OTP), according to an allocation formula established by federal legislation, to carry out the 3C planning process. OTP distributes these funds to Massachusetts MPOs according to a formula that is primarily based on the region's road mileage and population. The formula was developed by the Massachusetts Association of Regional Planning Agencies (MARPA) and is known as the MARPA formula. The FFY 2022 3C PL funding allocation for the Boston region, including state matching funds, is \$3,761,668. The total Boston region 3C PL allocation is split between CTPS, which receives \$3,046,951, and MAPC, which receives \$714,717.
- FTA 3C Planning (§5303): FTA provides 3C planning funds for transit projects to MPOs and state departments of transportation under Section 5303 of the Federal Transit Act. These funds require a local match, are distributed according to an allocation formula, and are administered by MassDOT. These funds are converted to PL planning funds by MassDOT before distribution. The FFY 2022 FTA allocation for the Boston region, including a total local match, is \$2,221,810 and, like the 3C PL funds, is split into two categories:
 - MPO and MassDOT FTA 3C Planning (§5303): The total amount of FTA funds, including a local match, programmed in this UPWP as PL for work conducted by the MPO staff is \$1,569,042.
 - MAPC FTA 3C Planning (§5303): A portion of the Boston region's FTA allocation also goes to MAPC. MAPC uses these funds to conduct its transit-planning studies programmed through the UPWP. The total amount of FTA-derived funds, including a local match, allocated to MAPC as PL for FFY 2022 is \$332,272.

In addition, this UPWP includes \$45,000 in carryover FFY 2021 3C PL funds that support the Professional Development task and some direct costs related to travel demand model development.

This budget also reflects projects funded with Statewide Planning and Research and other funds from MassDOT; projects funded with Massachusetts Bay Transportation Authority funds; and projects funded from other sources. These projects are listed in Table 8-4.

Project status and financial data reported in the following tables are subject to change.

**Table 8-1
UPWP Budget—Certification Requirements for FFY 2022**

Project ID	Name	FFY 2021 CTPS UPWP Budget	Expected Project Status as of 10/1/2021	Proposed FFY 2022 CTPS Budget
9122	Support to the MPO and its Committees	\$229,920	Ongoing	\$263,500
9322	Regional Transportation Advisory Council Support	\$45,960	Ongoing	\$20,000
9622	Public Participation Process	\$182,290	Ongoing	\$150,000
9222	General Graphics	\$85,290	Ongoing	\$93,800
3122	Provision of Materials in Accessible Formats	\$102,040	Ongoing	\$120,685
9522	Professional Development	\$52,720	Ongoing	\$64,500
Support to the MPO Subtotal		\$698,220		\$712,485
8122	Long-Range Transportation Plan	\$324,120	Ongoing	\$359,000
8222	Transportation Improvement Program	\$278,890	Ongoing	\$194,000
8822	Performance-Based Planning and Programming	\$153,570	Ongoing	\$84,000
8422	Air Quality Conformity Determinations and Support	\$34,690	Ongoing	\$25,500
8322	Unified Planning Work Program	\$127,480	Ongoing	\$125,000
8522	Transportation Equity Program	\$174,100	Ongoing	\$125,000
2122	Congestion Management Process	\$118,240	Ongoing	\$100,500

(Table 8-1 cont.)

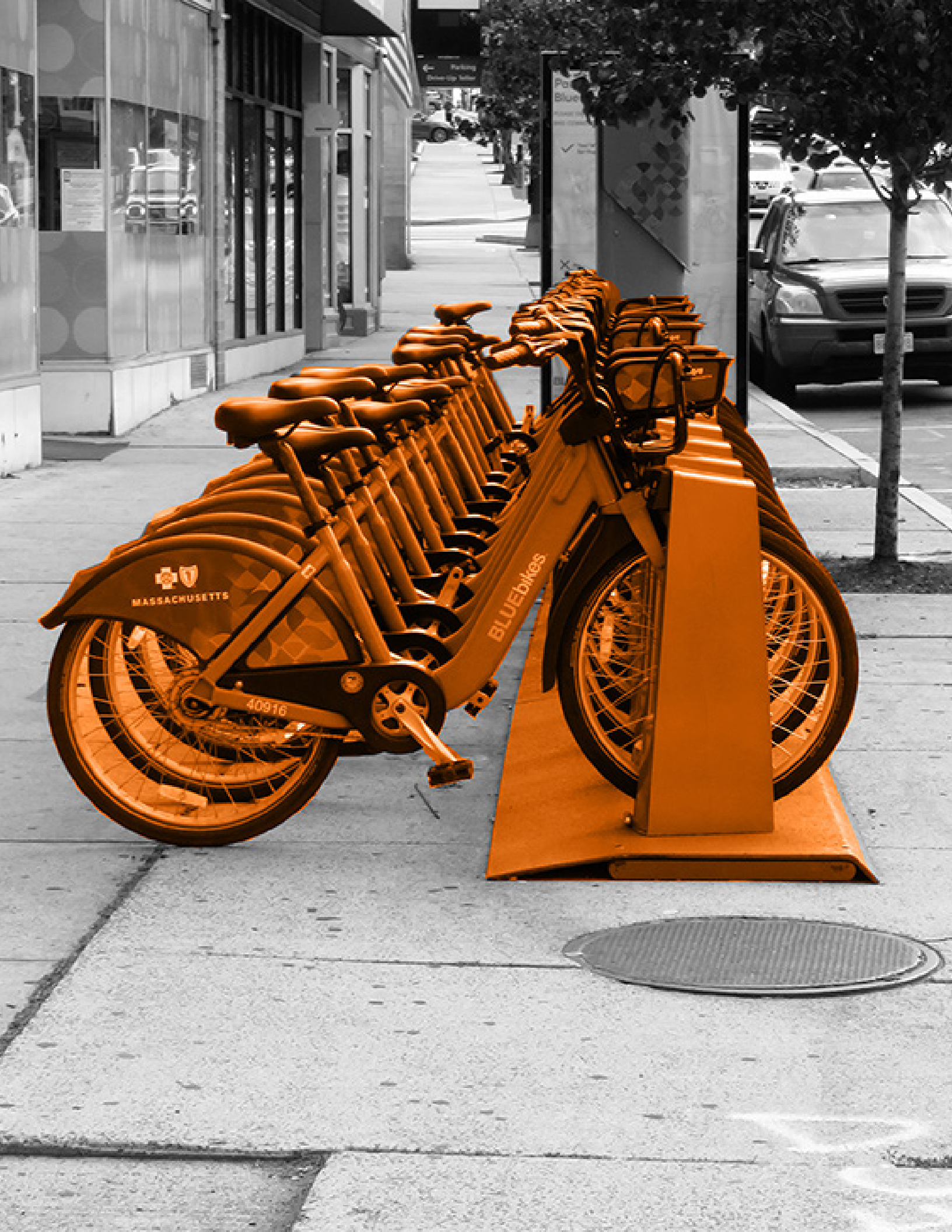
Project ID	Name	FFY 2021 CTPS UPWP Budget	Expected Project Status as of 10/1/2021	Proposed FFY 2022 CTPS Budget
2222	Freight Planning Support	\$68,340	Ongoing	\$65,000
7122	Regional Model Enhancement	\$875,370	Ongoing	\$880,000
7222	Research Next Generation Data and Tools	\$57,790	Ongoing	\$57,000
8922	Transit Working Group Support	\$64,120	Ongoing	\$50,000
8722	MPO Resilience Program	n/a	Ongoing	\$28,000
3C Planning and Other Certification Requirements Activities Subtotal		\$2,276,710		\$2,113,000
Certification Requirements Subtotal		\$2,974,930		\$2,805,485

**Table 8-2
UPWP Budget—Ongoing and Continuing MPO Planning Studies
and Technical Analyses for FFY 2022**

Project ID	Name	FFY 2021 CTPS UPWP Budget	Expected Project Status/ Completion as of 10/1/2021	Proposed FFY 2022 CTPS Budget
13421	Addressing Safety, Mobility, and Access on Subregional Priority Roadways FFY 2021	\$127,900	75% complete	\$49,000
13521	Addressing Priority Corridors from the LRTP Needs Assessment FFY 2021	\$137,000	75% complete	\$43,000
13621	Low-Cost Improvements to Express-Highway Bottleneck Locations FFY 2021	\$64,500	70% complete	\$24,500
13305	Intersection Improvement Program	\$75,000	70% complete	\$47,000
Planning Studies Subtotal (Continuing FFY 2021 Initiated Work)		\$404,400		\$163,500
2322	Roadway Safety Audits	\$13,740	Ongoing	\$13,000
2722	Traffic Data Support	\$18,180	Ongoing	\$15,000
4222	Transit Data Support	\$13,730	Ongoing	\$12,000
2422	Community Transportation Technical Assistance	\$69,190	Ongoing	\$67,000
2522	Bicycle and Pedestrian Support Activities	\$77,420	Ongoing	\$84,000
4122	Regional Transit Service Planning Technical Support	\$55,360	Ongoing	\$22,000
Technical Analysis and Support Subtotal		\$247,620		\$213,000
MPO-Funded Planning Studies and Technical Analyses Subtotal		\$652,020		\$376,500

Table 8-3
UPWP Budget—MPO New Discrete Studies for FFY 2022

Universe ID	Project ID	Study or Program	Proposed FFY 2022 CTPS Budget
L-1	13310	Trip Generation Follow-Up	\$20,000
L-2	13311	Travel Demand Management Follow-Up	\$10,000
M-1	13422	Addressing Safety, Mobility, and Access on Subregional Priority Roadways	\$123,000
M-2	13522	Addressing Priority Corridors from the LRTP Needs Assessment	\$140,000
M-3	13722	Safety and Operations at Selected Intersections	\$79,5000
M-6	13313	The Future of the Curb Phase 3	\$70,000
T-2	13314	Addressing Equity and Access in the Blue Hills	\$40,000
E-2	13315	Identifying Transportation Inequities in the Boston Region	\$70,000
O-1	20906	Staff-Generated Research and Technical Assistance	\$11,000
Total for New Discrete and Recurring Studies			\$563,500



**Table 8-4
UPWP Budget—New and Continuing Agency Transportation Planning Studies and Technical Analyses for FFY 2022**

Project ID	Name	Total Contract ^a	Funding Source	FFY 2022 Agency Funds	Direct Support	Proposed FFY 2022 CTPS Budget
Varies by project	MassDOT SPR Program Support ^b	\$1,007,000	SPR	\$586,000	\$600	\$586,600
Varies by project	MassDOT On-Call Projects	\$1,150,000	MassDOT	\$350,000	\$0	\$350,000
13155	MassDOT Title VI Program	\$95,000	MassDOT	\$35,000	\$0	\$35,000
Varies by project	MassDOT Transit Planning Assistance ^c	n/a	MassDOT 3C PL	\$271,505	\$0	\$271,505
11495	Silver Line Extension Alternatives	\$115,000	MassDOT	\$35,000	\$0	\$35,000
22216	Wellington Circle Study	\$108,664	MassDOT	\$35,000	\$0	\$35,000
MassDOT Subtotal				\$1,041,000	\$600	\$1,041,600
11415	AFC 2.0 Equity Analysis	\$76,972	MBTA	\$42,000	\$0	\$42,000
11424	MBTA 2020 Triennial Title VI Report	\$139,632	MBTA	\$14,000	\$0	\$14,000
11429	MBTA 2022 Title VI Program Monitoring	\$77,000	MBTA	\$53,250	\$250	\$53,500
11491	MBTA Mapping Support	\$18,000	MBTA	\$6,000	\$0	\$6,000
14355	MBTA Rider Oversight Committee Support III	\$24,500	MBTA	\$1,500	\$0	\$1,500
14376	MBTA Rider Oversight Committee Support IV	\$24,500	MBTA	\$4,500	\$0	\$4,500
14366	MBTA SFY 2021 National Transit Database (NTD) Support	\$123,317	MBTA	\$4,800	\$0	\$4,800
14372	MBTA SFY 2022 National Transit Database (NTD) Support	\$127,288	MBTA	\$89,850	\$150	\$90,000
14373	MBTA SFY 2023 Fare Equity Analysis	\$20,000	MBTA	\$27,700	\$0	\$27,700
14375	MBTA SFY 2023 National Transit Database (NTD) Support	\$132,500	MBTA	\$27,900	\$100	\$28,000

(Table 8-4 cont.)

Project ID	Name	Total Contract ^a	Funding Source	FFY 2022 Agency Funds	Direct Support	Proposed FFY 2022 CTPS Budget
11422	MBTA Transit Service Data Collection	\$540,000	MBTA	\$194,200	\$0	\$194,200
14358	Service Equity Analysis Support to the MBTA	\$115,000	MBTA	\$50,000	\$0	\$50,000
MBTA Subtotal				\$515,700	\$500	\$516,200
	Other (Massport, Municipalities, etc.)	\$80,000	Other	\$80,000	\$0	\$80,000
Other Subtotal				\$80,000	\$0	\$80,000
Agency-Funded and Client-Funded Subtotal				\$1,636,700	\$1,100	\$1,637,800

^a The total contract amounts include direct costs. Annual direct costs are not included in the FFY budget amounts in the table and are shown separately in the Direct Support column.

^b The total FFY budgets in the UPWP represent a combination of funding from two different contract years. The total contract amount listed for the MassDOT SPR is the total contract amount for the FY 2022 and FY 2023 contracts.

^c This project is conducted on behalf of MassDOT but funded through the MPO 3C Planning contract, and thus is not included in totals in this table.

**Table 8-5
UPWP Budget—Resource Management and Support Activities for FFY 2022**

Project ID	Name	FFY 2021 CTPS UPWP Budget	Expected Project Status as of 10/1/2022	Proposed FFY 2022 CTPS Budget
6020	Computer Resource Management	\$334,000	Ongoing	\$309,000
5020	Data Resources Management	\$320,100	Ongoing	\$218,000
Resource Management and Support Activities Subtotal*		\$654,100		\$527,000

*Does not include Direct Support.

**Table 8-6
UPWP Budget—MAPC Planning Studies and Technical Analyses for FFY 2022**

Project ID	Name	FFY 2021 MAPC UPWP Budget	Proposed FFY 2022 MAPC Budget
MAPC1	Corridor/Subarea Planning Studies	\$191,768	\$160,000
MAPC2	Alternative-Mode Planning and Coordination	\$204,713	\$198,136
MAPC3	MetroCommon 2050	\$95,000	\$95,000
MAPC4	Land Use Development Project Reviews	\$89,696	\$89,696
MAPC5, 2421	Community Transportation Technical Assistance Program*	\$48,156	\$48,156
MAPC Planning Studies and Technical Analyses Subtotal		\$629,333	\$590,988

*This project also receives funding from CTPS; these additional funds are accounted for in the CTPS budget.

**Table 8-7
UPWP Budget—MAPC Resource Management and Support Activities for FFY 2022**

Project ID	Name	FFY 2021 MAPC UPWP Budget	Proposed FFY 2022 MAPC Budget
MAPC6	MPO/MAPC Liaison and Support Activities	\$167,000	\$165,000
MAPC7	UPWP Support	\$10,000	\$10,000
MAPC8	Land Use Data and Forecasts for Transportation Modeling	\$95,000	\$95,000
MAPC9	Subregional Support Activities	\$187,000	\$187,000
MAPC Resource Management and Support Activities		\$459,000	\$457,000

**Table 8-8
UPWP Budget—Summary of FFY 2022 Budgets for CTPS**

3C Studies and Programs by Budget Categories	Proposed FFY 2022 CTPS Budget
Resource Management and Support Activities	\$527,000
MPO Certification Requirements	\$2,805,485
Continuing MPO-Funded Planning Studies and Technical Analyses	\$376,500
New MPO-Funded Discrete Studies	\$563,500
MassDOT-Directed PL Funds*	\$271,505
Direct Support	\$117,000
Total for CTPS 3C Studies and Programs	\$4,660,990

(Table 8-8 cont.)

Agency-Funded CTPS Work	Proposed FFY 2022 CTPS Budget
MassDOT SPR Funds	\$586,600
MassDOT Other Funds	\$455,000
MBTA Funds	\$516,200
Other	\$80,000
Total for Agency-Funded CTPS Project Work	\$1,637,800

Total FFY 2022 CTPS Budget (3C + Agency Work)	\$6,298,790
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Note: Budget figures include salary, overhead, and direct support.

* This project is conducted on behalf of MassDOT but funded through the MPO 3C contract.

**Table 8-9
UPWP Budget—Summary of FFY 2022 Budgets for MAPC**

3C Studies and Programs by MAPC Budget Categories	Proposed FFY 2022 MAPC Budget
MAPC Planning Studies and Technical Analyses	\$590,988
MAPC Administration, Resource Management, and Support Activities	\$457,000
Total MAPC FFY 2021 UPWP Programmed Funds	\$1,047,988

**Table 8-10
UPWP Budget—3C Budget and Overall Budget for FFY 2022**

Agency Supporting MPO/3C Work	Proposed FFY 2022 Budget
CTPS	\$4,660,990
MAPC	\$1,047,988
3C Budget Subtotal	\$5,708,978
Agency-Funded CTPS Work	\$1,637,800
FFY 2022 UPWP Budget	\$7,346,778



Appendix A

Other Boston Region Transportation Planning Studies

This appendix consists of brief descriptions of planning studies that will be conducted in the Boston Region Metropolitan Planning Organization (MPO) area by individual agencies, such as the Massachusetts Department of Transportation (MassDOT) and the Massachusetts Bay Transportation Authority (MBTA), during federal fiscal year (FFY) 2022. These studies fall into one of two categories:

- studies supported with federal planning (but not MPO) funds
- studies that MPO and partner agency staff have determined to be of regional significance

MPO discretionary funding will not be used for these studies, although in certain cases, an agency or one of its consultants may contract with MPO staff—the Central Transportation Planning Staff (CTPS)—to prepare an environmental impact report or large-scale study. For these projects, support work that will be conducted by CTPS is described in Chapters 3 through 6. Likewise, the project listings in this appendix indicate whether components of the projects will be conducted by CTPS. The appendix is organized hierarchically: first by type of study, then by geography, then by the entity organizing or leading the study effort.

The projects in this appendix are not subject to the MPO's public participation process. Rather, they follow their own public processes, parts of which may be required by the Massachusetts Environmental Policy Act. They are included here to provide a more complete picture of the surface-transportation-planning projects occurring in the region. The listings contained in this appendix were provided to CTPS prior to June 17, 2021.

MULTIMODAL OR ROADWAY STUDIES

Statewide Studies

MassDOT

Impact of Teleworking

The Impact of Teleworking Study is developing plausible future scenarios for teleworking in Massachusetts and will use a modeling approach to understand the effects that teleworking changes may have on the Commonwealth's transportation system. This study will examine how anticipated increases and/or decreases in teleworking could change household and aggregate travel behavior through measures that include overall vehicle-miles traveled, trip attributes, and mode share. The potential macro-economic impacts of these changes in travel behavior will also be analyzed. The modeled projections for each scenario could assist MassDOT in future decision-making by providing information about how the demands on the transportation system will change and how the mix of transportation investment may need to respond.

Understanding the Impacts of COVID-19 on the Massachusetts Freight Network and Freight Planning

Because of pandemic-related shifts in supply chains, consumer buying, e-commerce, and associated distribution networks—which each have clear implications on freight transportation behaviors and travel patterns—and to prepare the state freight network for present and future disruptions, this study will evaluate the network in light of observed and anticipated impacts of COVID-19.

Regional or Subregional Studies

MassDOT

Wellington Circle Study

The Wellington Circle Study will evaluate the existing and future multimodal transportation conditions at Wellington Circle in the City of Medford, and develop and analyze alternatives that are intended to improve transportation conditions. The study will focus on the redesign of Wellington Circle intended to provide better connectivity and mitigate traffic throughout the

area for the City of Medford and other communities in the surrounding region. The study will examine and evaluate the alternatives to the extent possible in the context of vehicular use, bicycle and pedestrian use, transit use, land use, cost, and the resulting economic, social, and cultural impacts.

MassDOT/Executive Office of Energy and Environmental Affairs/Department of Conservation and Recreation/Boston Planning and Development Authority

Kosciuszko Circle and William T. Morrissey Boulevard Corridor Study

This is a conceptual planning study that will evaluate the existing and future multimodal transportation conditions at Kosciuszko Circle and William T. Morrissey Boulevard in the City of Boston, and develop and analyze alternatives for the corridor that are intended to improve the public realm, mobility, connectivity, safety, and climate resiliency throughout the area for the City and other communities in the surrounding region.

TRANSIT STUDIES

Statewide Studies

MassDOT

Northern Tier Passenger Rail Study

The Northern Tier Passenger Rail Study is a conceptual planning study assessing rail service alternatives along the North Adams-Greenfield-Boston corridor. The study will examine the benefits, costs, and investments necessary to implement passenger rail service from North Adams to Greenfield and Boston, with the speed, frequency, and reliability necessary to be a competitive option for travel along this corridor.

Regional or Subregional Studies

MassDOT/MBTA

MBTA Bus Network Redesign

This work builds off of the *Focus40* effort and the Better Bus Project to evaluate the overall MBTA bus network and propose an alternate vision for how the bus network can better reflect the travel needs of the region and create a more competitive bus service for current and future bus riders. The consultant team will be responsible for conducting an in-depth analysis of the network using location based systems data and the MBTA's origin-destination-transfer model to better understand travel demand in the region. Given that more than 450,000 MBTA customers rely on the bus network every day, the Network Redesign will feature a major civic engagement effort to ensure that the feedback from current and potential bus customers is a major input into this process. Stakeholder engagement will also involve

meeting with a range of municipal, business, and advocacy representatives. The consultant will develop concepts for a redesigned MBTA bus network and recommend one final proposed network. The final network will be based on a phased implementation approach. The Redesign will develop a detailed phasing plan for rolling out changes based on vehicle availability, the scale of changes, work to be completed, and political will.

Route 1A East Boston Corridor Study

The purpose of this study is to improve connections to the local and regional roadway network, enhance transit, improve bicycle and pedestrian connections, and mitigate climate change impacts. The study will examine possible transportation improvements for both Route 1A and the parallel parcel owned by MassDOT and the MBTA. Alternatives will be developed for various transportation uses as well as Transportation Systems Management and Operations opportunities.

Silver Line Extension Alternatives Analysis

Building off of the work of the Everett Transit Action Plan and the Lower Mystic Regional Working Group, the purpose of the Silver Line Extension Alternatives Analysis is to assess the feasibility, utility, and cost of various alignment and service frequency options of an extension of the Silver Line from Chelsea through Everett to Glendale Square and on to Sullivan Square, North Station, Lechmere, or Kendall Square. The analysis will include the development of conceptual designs for alternatives, in addition to modeling how the alternatives would interact with other existing services, parking, and transportation demand management policies. The intended outcome of this effort is a report containing the information necessary for MassDOT/MBTA to select a preferred alternative to move into design.

CORRIDOR, AREA, OR GENERAL STUDIES

Regional or Subregional Studies

MassDOT

Route 128 Land Use Study

This study will establish future land use, housing, and economic development assumptions of the segment of Route 128 between Newton and Lexington and make recommendations to improve access to destinations and mobility in the region.

Municipal Studies

City of Boston

Rutherford Avenue—Sullivan Square Design Project

The City of Boston is progressing with the redesign of the Rutherford Avenue corridor in Charlestown, which extends approximately 1.5 miles from the North Washington Street Bridge to Sullivan Square and provides a critical connection between Everett, Somerville, suburbs north and east of Boston, and Boston’s downtown business area. Reconstruction of this corridor is currently programmed in the Transportation Improvement Program beginning in 2022. The corridor’s highway-like design is inconsistent with present-day design preferences and local circumstances, and the function and design of the Sullivan Square rotary is problematic. Pedestrian mobility is limited and bicycle travel is not compatible with the high-speed road. The corridor is eight- to 10-lanes wide (120 to 140 feet), presenting a significant barrier between areas on either side of the roadway, such as the Bunker Hill Community College, Paul Revere Park, the Hood Business Park employment area, and MBTA rapid transit stations.

There are significant transit-oriented development opportunities along the corridor, and public investment in new infrastructure will support development of commercial and residential uses, whose tenants otherwise probably would not, or could not, locate to the area. A number of major structural elements in the corridor were constructed more than 60 years ago; they are approaching the end of their life cycle and will need to be replaced. With the Central Artery/Tunnel project now complete, more traffic remains on facilities such as Interstate 93 and US Route 1; therefore, reduced traffic volumes along Rutherford Avenue present a unique opportunity to transform the corridor’s character from a 1950s-era, automobile-oriented facility to a twenty-first century, multimodal, urban boulevard corridor that will accommodate private development.

MISCELLANEOUS STUDIES AND PLANNING ACTIVITIES

Statewide Studies

MassDOT

Climate Adaptation Vulnerability Assessment

The Climate Adaptation Vulnerability Assessment is a planning-level analysis of which transportation assets are at risk to flooding over the coming century. This study identifies flood exposure for in-state National Highway System roads, bridges, and large culverts; MassDOT- and MBTA-owned rail; MassDOT facilities; and many public-use airports. It assesses damage and repair costs, time estimates for repairs, and considers the consequences from loss of service. Specifically, this study will estimate “do nothing” costs and qualitative consequences of at-risk transportation assets under future conditions assuming no intervention. This information can be used during the capital planning process to prioritize investments that avoid or reduce long-term climatic impacts associated with flooding.

Shared Travel Network

This study will develop recommendations about where and how to leverage existing facilities and resources that could contribute to the development of a shared travel network, as well as where these existing facilities could be expanded and where new facilities and assets could be introduced.

Regional or Subregional Studies

Colleges and Universities

New England University Transportation Center (Region One)

The New England University Transportation Center (Region One) is a research consortium that includes the Massachusetts Institute of Technology (lead university), Harvard University, and the state universities of Massachusetts, Connecticut, and Maine. It is funded by the US Department of Transportation's University Transportation Centers (UTC) Program. The New England UTC conducts multiyear research programs that seek to assess and make improvements for transportation safety as well as develop a systems-level understanding of livable communities. For more information, visit the New England University Transportation Center's website at <http://utc.mit.edu/>.



Appendix B

Public Participation and Response to Public Comments

The Boston Region Metropolitan Planning Organization (MPO) staff followed the procedures set forth in the MPO's adopted Public Participation Plan while developing the Unified Planning Work Program (UPWP). These procedures are designed to ensure early, active, and continuous public involvement in the transportation-planning process.

The Federal Fiscal Year (FFY) 2022 UPWP development process began in October 2020. Staff solicited topics for study through outreach at Metropolitan Area Planning Council subregional municipal group meetings. Staff also sought suggestions and public input from other sources:

- Regional Transportation Advisory Council meetings
- Outreach to transportation advocacy and community groups
- Comments received during the FFY 2021 UPWP's public review period
- Topics generated from recently completed planning studies and documents

The document development process, described in Chapter 2, culminated in the MPO UPWP Committee's recommendation for the FFY 2022 UPWP, including a set of new discrete studies. On July 15, 2021, the MPO approved a draft document for public circulation.

After receiving the MPO's approval to circulate the public-review draft FFY 2022 UPWP, staff posted the document on the MPO's website (<https://www.bostonmpo.org/upwp>) and used the MPO's contact list (MPOinfo) and social media accounts to notify the public of the document's availability and the opening of the 30-day period for public review and comment.

During the review period, staff presented the draft UPWP and this set of new studies at digital open houses and made themselves available to interested parties who wanted to discuss the draft FFY 2022 UPWP.

The following pages contain the comments received about the UPWP during the public comment period. All correspondents have received a response from the UPWP Manager.





Appendix C

Universe of Proposed New Studies for Federal Fiscal Year 2022 UPWP

This appendix describes the Universe of Proposed New Studies, a key step in the evolution of the federal fiscal year (FFY) Unified Planning Work Program (UPWP). The Universe documents the study concepts that the Boston Region Metropolitan Planning Organization (MPO) staff collected or suggested for the development of the FFY 2022 UPWP. Each entry includes a summary of the purpose of the proposed study.

Studies in the Universe are organized into the following categories:

- Active Transportation
- Land Use, Environment, and Economy
- Multimodal Mobility
- Transit
- Transportation Equity
- Resilience
- Other Technical Support

The FFY 2020 UPWP development process introduced the Transportation Equity and Resilience categories. Table C-2 tracks the breakdown of studies chosen for funding in the UPWP from FFY 2016 to the present by category.

Staff and the UPWP Committee evaluate each proposed study in the Universe based on the extent to which a study concept addresses each of the six Long-Range Transportation Plan goal areas:

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

The process of developing a final list of studies to be funded also includes consideration of staff capacity in relevant areas and work that is occurring in other agencies to avoid redundancy.

In addition to evaluating the proposed new studies in the Universe, MPO staff defines general scopes and estimated costs for the proposed studies and considers potential feasibility issues. These various factors, along with the availability of funds for new studies, were considered as staff identified a recommended set of new proposed planning studies for review by the UPWP Committee. For more information about the process of developing and evaluating the Universe, please see Chapter 2.

**Table C-1
Universe of Proposed Studies for FFY 2022**

Study Information						LRTP Goals					
ID	Project Name	Project Purpose and Outcome	Notes	Estimated Budget	S	SP/M	CM/M	TE	CA/SC	EV	
ACTIVE TRANSPORTATION					Key: 5 = most relevant, 1 = least relevant						
A-1	Infrastructure Bank and Tactical Outreach	<p>Purpose: This work program would pilot some combination of a new MPO technical assistance program; new outreach and engagement modes; and a concept known as an “infrastructure bank” in which the MPO acquires materials such as traffic cones and street furniture and lends them out to municipal partners to test new street configurations. The MPO would purchase materials, provide them to municipalities or to community groups with municipal authorization, and use the opportunity to measure effects and engage participants/people in the neighborhood.</p> <p>Anticipated Outcome: Procurement of a library of materials for the MPO to lend out to municipalities for testing tactical roadway interventions and potential changes, and a series of workshops or programs in which the MPO partners with municipalities to do outreach to communities based on using the library of materials.</p>	Project would be scalable. If MPO funding cannot be used for purchasing materials, foundation funding could potentially be sought in partnership with MAPC.	\$100,000	5	2	3	4	5	4	
A-2	Healthy Streets Lookback	<p>Purpose: Review of a variety of healthy/pandemic streets implementations, including analysis of use and implementation. Would support future applications to the Boston MPO Community Connections and MassDOT Shared Streets programs. Data would likely be gathered qualitatively from interviews with municipal and state staff.</p> <p>Anticipated Outcome: Development of a guidebook for future interim and permanent projects.</p>		\$40,000	5	2	4	3	3	4	

(Table C-1 cont.)

Study Information						LRTP Goals					
ID	Project Name	Project Purpose and Outcome	Notes	Estimated Budget	S	SP/M	CM/M	TE	CA/SC	EV	
A-3	Vision Zero Phase 2	<p>Purpose: Staff would research MPOs/RPAs/other regional bodies that have adopted a Vision Zero policy and learn about</p> <ul style="list-style-type: none">(1) their characteristics (of their region or of their organization)(2) their process for adopting this policy(3) the characteristics of the policy itself(4) how these MPOs implement this policy <p>This research may involve interviews of staff or members of those MPOs. Staff might also look at Vision-Zero-adjacent policies that have been adopted by MPOs. As part of this research, staff could look at how these MPOs work with state DOTs and how they integrate their Vision Zero (or adjacent policy) with federal safety performance management requirements. Staff could compare these research findings with the characteristics and functions of the Boston Region MPO to determine a Vision Zero policy's viability and value, given the MPO's operating context.</p> <p>Anticipated Outcome: A report and MPO presentation on the findings of this research.</p>		\$60,000	5	4	4	4	4	4	
LAND USE, ENVIRONMENT, AND ECONOMY											
L-1	Trip Generation Follow-Up	<p>Purpose: MPO members and other stakeholders have expressed interest in staff continuing work on trip generation as a follow-up to the FFY 2020 discrete study Innovations in Estimating Trip Generation Rates and the FFY 2021 discrete study Trip Generation Rate Research. This task would allocate funds to continue trip generation research, pending outcomes from the FFY 2021 study and stakeholder outreach to determine the direction of research. One possible area of research would explore how parking policy affects trip generation in urban mixed-use, multimodal environments.</p> <p>Anticipated Outcome: Coordination with stakeholders and a research memorandum summarizing new research findings.</p>		\$40,000	2	3	3	3	4	4	

(Table C-1 cont.)

Study Information						LRTP Goals					
ID	Project Name	Project Purpose and Outcome	Notes	Estimated Budget	S	SP/M	CM/M	TE	CA/SC	EV	
L-2	TDM Follow-Up	<p>Purpose: This task would allocate a modest amount of funding to continue to build momentum from the FFY 2021 task Innovations in Travel Demand Management, which included hosting two forums and discussing potential future structures for regional TDM coordination. This task would fund ongoing coordination with MAPC, municipalities, and other stakeholders in the form of a working group or a series of smaller conversations with the goal of swapping knowledge and practices and creating durable structures for regional collaboration.</p> <p>Anticipated Outcome: A series of collaborations with stakeholders, and possibly one or more public-facing events.</p>		Scalable	2	3	4	2	3	4	
L-3	COVID Recovery	<p>Purpose: Stakeholders have made apparent to staff the need for the MPO and its partner agencies to respond flexibly and rapidly to the changing needs of the anticipated recovery from the COVID-19 pandemic through studies, technical assistance, and other activities. This task would set aside some level of funding specifically for COVID-19 response tasks, such as transit service planning assistance; advising municipalities on street usage; and many others.</p> <p>Anticipated Outcome: A series of technical assistance and research projects responding to MPO member and partner needs as they emerge.</p>		Scalable; at least \$25,000	3	3	4	4	4	5	
L-4	Freight, Mode Shift, and Land Use	<p>Purpose: The landscape of freight transportation in the Boston region has changed rapidly over the last several decades and is continuing to evolve rapidly, especially with the rapid growth of e-commerce and just-in-time logistics. Along with that change comes increased truck traffic and attendant concerns about air quality, congestion and safety on the region’s roadways, as well as increased maintenance costs—challenges that MPO staff have heard about as serious issues of concern from member municipalities. This study proposes to explore the changing geography of freight and logistics in the Boston region and some strategies for mode shift and minimizing VMT added by deliveries, logistics, and e-commerce in the region, with an emphasis on coordinating freight and land use and exploring mode shift to rail where possible. It would involve coordination with MAPC, including leveraging work MAPC is currently conducting on industrial land use classification.</p> <p>Anticipated Outcome: Coordination with various stakeholders and a final report or storymap laying out findings.</p>	Could be scaled up or down; the minimum version would involve a literature review to determine an approach and examining one or several municipalities as a proof of concept.	Scalable; at least \$40,000	2	4	5	2	4	5	

(Table C-1 cont.)

Study Information						LRTP Goals					
ID	Project Name	Project Purpose and Outcome	Notes	Estimated Budget	S	SP/M	CM/M	TE	CA/SC	EV	
ROADWAY AND MULTIMODAL MOBILITY											
M-1	Addressing Safety, Mobility, and Access on Subregional Priority Roadways	<p>Purpose: During MPO outreach, MAPC subregional groups identify transportation problems and issues that concern them, often those relating to bottlenecks or lack of safe access to transportation facilities in their areas. These issues can affect livability, quality of life, crash incidence, and air quality along an arterial roadway and its side streets. If problems are not addressed, mobility, access, safety, economic development, and air quality are compromised. Tasks in these studies include data collection, technical analysis, development of recommendations, and documentation for selected corridors.</p> <p>Anticipated Outcome: Recommendations for addressing safety, mobility, and access for the selected subregional priority roadways.</p>	Recurring study (every year)	\$125,000	5	5	5	3	3	3	
M-2	Addressing Priority Corridors from the LRTP Needs Assessment	<p>Purpose: These studies develop conceptual design plans that address regional multimodal transportation needs along priority corridors identified in the LRTP, <i>Destination 2040</i>. MPO staff would recommend conceptual improvements for one or more corridors, or several small sections within a corridor, that are identified by the CMP or the LRTP's Needs Assessment process. These studies provide cities and towns with the opportunity to review the requirements of a specific arterial segment, starting at the conceptual level, before committing design and engineering funds to a project. If the project qualifies for federal funds for construction of the recommended upgrades, the study's documentation also might be useful to MassDOT and the municipalities. MPO partners have suggested increasing the budget for these highly successful studies.</p> <p>Anticipated Outcome: Conceptual design plans for the selected priority corridors.</p>	Recurring study (every year)	\$125,000	5	5	5	3	3	3	
M-3	Safety and Operations at Selected Intersections	<p>Purpose: The Safety and Operations Analyses at Selected Intersections study provides municipalities in the MPO with recommendations and conceptual designs for potential short-term, low-cost solutions or long-term, high-cost solutions for intersections that need safety improvements and congestion management.</p> <p>Anticipated Outcome: This study would select a number of intersections and produce reports documenting low-cost solutions to existing traffic and safety issues at the selected locations. A before-and-after analysis of previous work may be included, depending on the final scope of the study.</p>	Recurring study (every other year)	\$80,000	5	4	5	2	2	2	

(Table C-1 cont.)

Study Information						LRTP Goals					
ID	Project Name	Project Purpose and Outcome	Notes	Estimated Budget	S	SP/M	CM/M	TE	CA/SC	EV	
M-4	SWAP Warehousing, Logistics, and Mitigation Study	<p>Purpose: Communities in the SWAP subregion and neighboring municipalities have seen an influx of large-scale warehouse and distribution facilities permitted and constructed in the past several years. This is in part due to the surge in e-commerce activity across the country. While municipalities can take steps individually to mitigate some of these congestion impacts, a coordinated regional approach would provide more predictability for developers and tenants and offer regional transportation benefits. This proposal is for a comprehensive regional traffic mitigation strategy for the SWAP subregion and Holliston in response to the surge in logistics operations in region. The study would assess existing conditions, drawing on previous work by MPO and MAPC staff; develop a comprehensive mitigation strategy; and create long-term strategies to mitigate traffic impacts. It would involve MPO and MAPC staff working closely together. As growth in warehousing and logistics, especially relating to e-commerce, is a notable challenge across the MPO region, this study could serve as a template or model for future analysis in other geographic areas.</p> <p>Anticipated Outcome: A report or several memoranda summarizing findings and recommendations.</p>	<p>Proposed by: SWAP subregion Town of Holliston</p>	\$100,000	2	5	5	2	4	4	
M-5	Congestion Pricing	<p>Purpose: This long-term conceptual study would enhance understanding of the potential benefits of congestion pricing schemes and applicability to the Boston region, and help inform regional conversations and the development of scenarios for the LRTP using travel demand modeling. It would examine the benefits, equity and sustainability implications, and other elements of different examples of congestion pricing, including the recently approved congestion pricing system in New York City and the cordon system in London. While the future of any congestion pricing scheme in the Commonwealth is uncertain, decisions should be made in an informed context, and this study would enhance the understanding of the ability for a congestion pricing system to self-fund and/or generate new funding for other entities such as transit agencies. This work would be grounded in previous conceptual work by various entities including MassDOT, and would consider uncertainties relating to the impacts of the pandemic.</p> <p>Anticipated Outcome: A report or memorandum documenting findings of the study.</p>		\$80,000	3	5	5	4	5	3	

(Table C-1 cont.)

Study Information						LRTP Goals					
ID	Project Name	Project Purpose and Outcome	Notes	Estimated Budget	S	SP/M	CM/M	TE	CA/SC	EV	
M-6	Future of the Curb Phase 3	<p>Purpose: Staff will identify specific curb management strategies to study (such as bus lanes, pick up/drop off zones, and freight/delivery designated spaces). Staff will also find various examples where they are active within the Boston region, keeping in mind different community types, then collect data to measure their efficacy through digital data sources available (such as APC derived bus delay data, municipal parking data) and through in person data collection efforts (such as turnover counts in parking spaces). Staff will then analyze the results to compare the metrics throughout the region and generate a model to estimate the effect curb management changes will have on different community types.</p> <p>Anticipated Outcome: A method to estimate curb space usage by management strategy and municipality type, developed from data collected within the Boston region.</p>		\$80,000	4	4	4	3	3	4	
M-7	Route 28 Blue Hills Study	<p>Purpose: We propose a traffic study of Route 28 between Chickatawbut Road and Route 93, where trails in the Blue Hills Reservation cross the highway. The study should include traffic volume and speed as it relates to the safety of several trail crossings that link one section of the Blue Hills to another, with the goal of identifying how to improve the safety of crossing the highway for hikers. The study should explore the need for traffic calming, speed regulations, or pedestrian traffic signals.</p> <p>Anticipated Outcome: A memorandum or report summarizing findings and making recommendations for this corridor.</p>	<p>Proposed by: Judy Lehrer Jacobs, Executive Director, Friends of the Blue Hills</p> <p>Staff note: Could likely be covered under Subregional Priority Roadways or Community Transportation Technical Assistance.</p>	n/a	5	4	4	2	3	2	
M-8	Work Zone Impacts	<p>Purpose: We propose designing and executing a series of representative work zone scenarios to evaluate the usefulness of different travel demand and operational models. The study will identify key metrics and useful insights to inform work zone planning and present an assessment of the estimation of these metrics through different modeling approaches.</p> <p>Anticipated Outcome: A memorandum describing the different approaches to supporting work zone planning and recommendations by work zone extent.</p>		\$75,000	4	4	4	1	2	2	

(Table C-1 cont.)

Study Information						LRTP Goals					
ID	Project Name	Project Purpose and Outcome	Notes	Estimated Budget	S	SP/M	CM/M	TE	CA/SC	EV	
TRANSIT											
T-1	Opportunities for BRT in the Boston Region	<p>Purpose: Staff will select 10 to 20 potential corridors in the Boston region for new BRT, possibly using suggestions from stakeholders. Staff will then conduct an analysis to find which corridors would provide the greatest accessibility improvements to the greatest number of disadvantaged people. This will be accomplished by measuring improvements to accessibility using GTFS, US Census, and MBTA Survey data.</p> <p>Anticipated Tool: A report outlining findings and a recommendation of the best five corridors for future BRT in the Boston region.</p>		\$60,000	2	4	5	3	3	2	
T-2	Addressing Equity and Access in the Blue Hills	<p>Purpose: The Blue Hills Reservation, located just four miles from Mattapan Square, is an area rich in natural and cultural resources, and the location for many recreational activities, such as hiking, biking, swimming, skiing, etc. It also is home to a number of cultural and environmental organizations—including a community farm, a nature museum, and a certified arboretum—which welcome visitors to enjoy and participate in their activities. Access to areas of natural beauty and wilderness is also documented to be critical for psychosocial wellness and mental health, especially in a time of social distancing. The problem is that for tens of thousands of families in Boston and surrounding communities, and especially those without a car, the Blue Hills and its resources remain inaccessible: there is no MBTA public transit service that connects transportation hubs in Boston to the Blue Hills. We urge MPO to conduct an “Equity and Access Feasibility Study” that would study altering existing or creating new MBTA bus routes that connect T-hubs and Boston neighborhoods to the Blue Hills Reservation. For example, a simple alteration to one existing bus route could connect residents of Roslindale, Mattapan, and Hyde Park to all of the resources the Blue Hills Reservation has to offer.</p> <p>Anticipated Outcome: MPO outreach and engagement activities to help qualitatively determine how best to provide access to the Blue Hills, and a report or other document summarizing engagement activities and technical recommendations.</p>	<p>Proposed by:</p> <p>Michelle Cook, Co-Founder, Urban Outdoors Association</p> <p>Jerel Ferguson, Co-Founder, Urban Outdoors Association</p> <p>Judy Lehrer Jacobs, Executive Director, Friends of the Blue Hills</p> <p>Shavel’le Olivier, Executive Director, Mattapan Food and Fitness Coalition</p> <p>Cathy Smith, President, Brookwood Community Farm</p> <p>Mark Smith, Executive Director, Mary May Binney Wakefield Arboretum</p>	\$80,000	3	4	4	5	5	2	

(Table C-1 cont.)

Study Information					LRTP Goals					
ID	Project Name	Project Purpose and Outcome	Notes	Estimated Budget	S	SP/M	CM/M	TE	CA/SC	EV
T-3	Microtransit Tracking and Integration	<p>Purpose: Microtransit (a flexible, demand-response-based transit service using vans or small vehicles that can be called with an app) is an emerging mode choice, including in Eastern Massachusetts, where several programs are up and running and others have applied to the MPO's Community Connections Program or other funding sources. This task would use the data that those services report to their sponsors to track microtransit projects, evaluate the data to establish metrics for success or failure, and attempt to correlate those metrics with factors such as land use and provision of fixed-route transit. Ultimately the study would seek to establish the conditions under which microtransit can be successful, including examining possibilities for integrating it into the larger transit system through fare policy and technology, scheduling, and other planning fundamentals. This task would be structured as a multi-year study, perhaps over two to three years, with a small amount of money committed each year.</p> <p>Anticipated Outcome: Documentation of findings and promulgation of metrics for anticipating success or failure of microtransit in the Boston region, as well as recommendations for integrating microtransit services into the fixed-route transit network.</p>		\$20,000 annually for several years	2	4	4	2	2	2
T-4	Bus Electrification	<p>Purpose: This bus electrification technology study would ideally</p> <ol style="list-style-type: none"> 1. Examine zero-emission bus technologies used internationally and domestically, including in-motion charging from catenary wires (also known as battery trolleybus technology), simple trolleybus operations without batteries, and in-route charging, and compare them to one another and existing MBTA and RTA bus technologies, similar to the TSP guidebook prepared in 2018 by CTPS. 2. Determine the characteristics of the different service typologies (both spatial and temporal) that would be best served and enabled by different kinds of electrification. 3. Survey existing MBTA and RTA traction power infrastructure and investigate ease of integration thereof with different electrification types. 4. Estimate life cycle costs and investigate how costs scale with different kinds of electrification. 5. Estimate the upgrades to existing bus maintenance facilities needed to support different kinds of zero-emission bus technologies. <p>Anticipated Outcome: A report summarizing findings.</p>	<p>Proposed by:</p> <p>TransitMatters Len Diggins, Arlington Select Board, MBTA ROC, RTAC City of Chelsea Conservation Law Foundation MBTA ROC Sierra Club MA ITDP MassPIRG</p>	\$100,000	2	5	5	4	5	2

(Table C-1 cont.)

Study Information						LRTP Goals					
ID	Project Name	Project Purpose and Outcome	Notes	Estimated Budget	S	SP/M	CM/M	TE	CA/SC	EV	
T-5	Advanced Parking Management Systems Study for MBTA Parking Lots	<p>Purpose: Especially considering the coming implementation of a Regional Rail operating model, there is a need to examine more accessible, flexible, and sophisticated methods of payment for many MBTA parking lots. Advanced systems are often able to provide real-time information about how full lots are. Any advanced parking management systems that have been implemented in the United States will need to be researched and documented in a brief literature review. Station locations will then be selected for this project. Analysis will need to be conducted for the selected locations. This work would be coordinated with MBTA work to avoid redundancy and would encourage use of MAPC’s collective purchasing framework for procurement.</p> <p>Anticipated Outcome: Collaboration with the MBTA to produce recommendations about specific lots and/or a general strategy for modernizing parking payment and integrating it into the fare structure and technology.</p>		\$75,000	2	5	4	2	2	2	
T-6	Fare Policy Post-Covid to Address Flexible Telecommuting	<p>Purpose: This study would research and analyze new fare policy ideas for the MBTA and RTAs to support commuters who may have newly flexible schedules. Monthly passes may become significantly less popular especially on the commuter rail system. Other types of multi-trip fare policies will be useful to encourage riders to use the system for commuting even if they no longer have a daily commute. The project could research various fare policies from around the United States and the world that support more flexible use of the transit system. Various ideas could be analyzed to determine their effects on MBTA and RTA revenue and ridership.</p> <p>Anticipated Outcome: A report, coordinated with the MBTA, on various possibilities for flexible fare structures.</p>		\$50,000 to \$75,000	1	4	4	5	3	3	

(Table C-1 cont.)

Study Information						LRTP Goals					
ID	Project Name	Project Purpose and Outcome	Notes	Estimated Budget	S	SP/M	CM/M	TE	CA/SC	EV	
T-7	Paratransit Operations in the Boston MPO Region	<p>Purpose: MPO staff have heard considerable input from stakeholders that many users experience paratransit services in the MPO region as fragmented and not always conducive to the types of travel that paratransit users need. This UPWP study would provide an overview of paratransit operations provided by the MBTA and RTAs in the MPO district. Special attention would be paid to how these paratransit providers interact at RTA borders, specifically in terms of passenger transfers and passenger fares. The study would examine case studies where existing paratransit operations have been regionalized or otherwise consolidated to lay the groundwork for future high level analysis of what a unified regional paratransit operation might look like in terms of operating costs, customer experience, and passenger fares. Further consideration should also be given to the regulatory environment in which RTAs provide paratransit, and how, if any, these regulations would hamper or help a region-wide paratransit operation.</p> <p>Anticipated Outcome: A report documenting findings of this research.</p>	<p>Proposed by: Brian Kane, Executive Director, MBTA Advisory Board</p>	\$80,000	2	5	4	5	2	2	
T-8	MBTA Construction Costs	<p>Purpose: This study would consist of a literature review of existing documents considering and comparing the cost estimates of MBTA projects compared to similar projects in North America and elsewhere in the world.</p> <p>Anticipated Outcome: A report documenting findings on this topic.</p>	<p>Proposed by: Brian Kane, Executive Director, MBTA Advisory Board</p> <p>Staff note: This concept could be expanded to include all modes, with such research potentially informing MPO decision-making about capital project policy in future years.</p>	\$80,000	2	5	5	2	2	3	
T-9	Capacity Constraints in the Boston-South Shore Corridor	<p>Purpose: We propose to conduct a corridor study of how to improve commuter rail capacity from Braintree to South Station. A key piece of the study should be focused on eliminating single-track sections and other chokepoints or schedule constraints along the Old Colony Commuter Rail Line. The study should identify necessary rights-of-way, and the full range of possibilities to implement full double-track commuter rail on the main line.</p> <p>Anticipated Outcome: The study should include both planning and conceptual engineering.</p>	<p>Proposed by: Rep. Joan Meschino (Third Plymouth/Hull)</p>	\$500,000 over multiple years	2	5	5	3	3	4	

(Table C-1 cont.)

Study Information						LRTP Goals					
ID	Project Name	Project Purpose and Outcome	Notes	Estimated Budget	S	SP/M	CM/M	TE	CA/SC	EV	
T-10	Innovative Transit Financing	<p>Purpose: The study will focus on shuttle bus routes created outside of the typical MBTA/RTA operations with innovative funding and governing partnerships. The research will delve into the best financing and operation models currently in use in Massachusetts and across the country, and make policy recommendations based on best practices. The study would canvass transit operators, municipalities, and other stakeholders to establish needs and desires with regard to funding and future policy.</p> <p>Anticipated Outcome: A report summarizing research and stakeholder feedback and making recommendations about innovative transit financing options in the Boston region.</p>	<p>Proposed by: Rep. Michelle Ciccolo (15th Middlesex/Lexington, Woburn)</p>	\$80,000	2	4	4	2	3	4	
TRANSPORTATION EQUITY											
E-1	Transportation User Costs Over Time	<p>Purpose: In light of recent stakeholder discussions about transportation equity, particularly with regard to MBTA and RTA fare structures, this study would research the relative costs to the user and comprehensively analyze the subsidies provided to each mode over time. It could also examine the relationship of the findings to other goals expressed by the MPO and other stakeholders.</p> <p>Anticipated Outcome: A report or other document summarizing findings.</p>		\$60,000	2	3	3	5	4	4	
E-2	Measuring Inequities in Transportation Impacts in the Boston Region	<p>Purpose: The purpose of this study is to define transportation equity specific to the Boston region and develop a baseline assessment of current inequities. The study would have two parts. It would start by gathering qualitative data by getting input from equity populations and advocates across the region about how transportation affects them and the impacts they see in their communities. The second component would consist of quantitative analyses of impacts (selected in part from the results from the public outreach) to measure the extent of benefits and burdens on equity populations that currently exist, and where those inequities are most extreme. The analyses would be done both regionally and subregionally, and the results of this study will provide information about where the MPO can target projects to improve equity in the region.</p> <p>Anticipated Outcome: A report and online tool documenting the results of the quantitative and qualitative analyses.</p>		\$80,000	3	3	3	5	2	2	

(Table C-1 cont.)

Study Information						LRTP Goals					
ID	Project Name	Project Purpose and Outcome	Notes	Estimated Budget	S	SP/M	CM/M	TE	CA/SC	EV	
RESILIENCE											
R-1	CTPS Resilience Program	<p>Purpose: This task would pilot the creation of a new ongoing program to address resiliency in the Boston region. It will provide funding to continue coordination with municipalities and state and regional agencies. It will allow staff to identify areas that may require additional studies through the UPWP, assistance through the MPO's Technical Assistance programs, and projects that could potentially be funded in the TIP. To this point, this work has been funded through the LRTP.</p> <p>Anticipated Outcome: Creation of a new program; coordination of meetings with stakeholders; and a presentation reporting on the pilot to the MPO.</p>		\$30,000, and potentially scalable	5	5	3	4	5	3	
R-2	Network Resilience, Importance, and Sustainability	<p>Purpose: This task would incorporate consideration of network importance to the assessment of roadway susceptibility to disruption from disasters. We will leverage the routable roadway network from the regional travel demand model to identify the importance of roadway segments for direct connectivity and as detour routes if other facilities are disabled. This, in combination with travel demand, will better highlight the criticality of roadway segments.</p> <p>Anticipated Outcome: Development of a new procedure to conduct the roadway network assessment. Memo documenting the procedure and flagging the most critical roadway segments in the region.</p>		\$40,000	5	5	3	3	5	2	

(Table C-1 cont.)

Study Information						LRTP Goals					
ID	Project Name	Project Purpose and Outcome	Notes	Estimated Budget	S	SP/M	CM/M	TE	CA/SC	EV	
TECHNICAL SUPPORT and OTHER											
O-1	Staff-Generated Research and Technical Assistance	<p>Purpose: This program supports work by MPO staff members on topics that relate to the Boston Region MPO’s metropolitan transportation-planning process, that staff members have expressed interest in, and that are not covered by an ongoing UPWP study or discrete project. This program brings forth valuable information for the MPO’s consideration and would support staff’s professional development. The opportunities afforded to staff through this program could yield highly creative solutions to transportation-planning problems.</p> <p>Starting in FFY 2020, the range of projects that could be funded through this budget line was expanded to include small technical assistance projects in addition to research. Individual MPO staff are able to identify small-scale needs in the diverse communities within the MPO region and work with partner entities to make recommendations to solve the problems. This budget line allows staff to then use some of their time to study the problem—involving their colleagues with specialty skills if staff resources and availability allow—and make recommendations to solve it.</p> <p>Anticipated Outcome: Reports on staff-proposed innovative research and small technical assistance projects.</p>	Recurring study (every year)	Typically \$20,000 to \$40,000	n/a*	n/a*	n/a*	n/a*	n/a*	n/a*	

Notes:

* = Relationship to Goals and Objectives depends on the individual project(s) selected

30 Total study concepts

LRTP Goal Area Acronyms:

S = Safety. SP/M = System Preservation and Modernization. CM/M = Capacity Management and Mobility. TE = Transportation Equity. CA/SC = Clean Air/Sustainable Communities. EV = Economic Vitality

**Table C-2
Studies Funded in the UPWP, by Category, FFYs 2016–22**

	FFY 2016	FFY 2017	FFY 2018	FFY 2019	FFY 2020	FFY 2021	FFY 2022
Active Transportation	1	1	1	1	1	1	0
Land Use, Environment, and Economy	0	1	1	1	0	1	3
Roadway & Multimodal Mobility	3	4	5	6	4	5	4
Transit	2	1	2	1	3	2	1
Transportation Equity*	1	0	0	0	1	0	1
Resilience*	0	0	0	0	1	1	0
Other	1	1	1	1	1	3	1
Total	8	8	10	10	11	13	10

*New category in FFY 2020



Appendix D

Geographic Distribution of UPWP Studies and Technical Analyses

INTRODUCTION

This appendix summarizes the Metropolitan Planning Organization (MPO)-funded work products produced by MPO staff (the Central Transportation Planning Staff) and the staff of the Metropolitan Area Planning Council (MAPC) during federal fiscal years (FFY) 2010 through 2020, as well as work products expected to be completed by the end of FFY 2021. The narrative below describes the methodology used to compile this information, as well as some of the additional factors that could be used to further analyze and use these data to inform and guide public involvement and regional equity considerations.

PURPOSE AND METHODOLOGY

Purpose

The purpose of this data collection is to better understand the geographic spread of Unified Planning Work Program (UPWP) work products (that is, reports and technical memoranda) throughout the Boston region. This analysis provides an initial glimpse at which communities and areas of our metropolitan region have benefited from transportation studies and analyses (or have been recipients of technical support) conducted by the MPO staff with continuing, comprehensive, and cooperative (3C) planning funds.

In addition, this Appendix includes a preliminary analysis of the distribution of MPO work products to minority populations, low-income households, and people with limited English proficiency in each municipality. This is an initial approach to assessing the extent to which MPO studies may benefit these populations; further development of the UPWP Study Recommendations Tracking Database, including geocoding of studies and creation of an interactive online interface, will eventually allow a more precise analysis of where and how study and analysis funds are spent.

Table D-1 presents a summary of UPWP tasks completed from FFY 2010 through FFY 2021 that resulted in benefits to specific municipalities, aggregated to the subregional level. Table D-2 presents this information disaggregated by municipality. Studies that had a regional focus are presented in Table D-3.

Tracking the geographic distribution of UPWP studies (those benefiting specific communities and those benefiting a wider portion of the region) can serve as one important input into the UPWP funding decisions made each FFY. When considered in combination with other information, these data on geographic distribution of MPO-funded UPWP studies can help guide the MPO's public outreach to ensure that, over time, we are meeting the needs of the region with the funds allocated through the UPWP.

**Table D-1
Summary of Distribution of Work Products by FFY and Subregion**

Municipality	Number of Work Products								Demographics					
Name	2010-15 Total	2016	2017	2018	2019	2020	2021	2010-21 Total	Total Population	Percent Minority	Percentage of Residents in Poverty	Percentage of Residents Age 5+ with Low English Proficiency	Household Median Income	Household Median Income
ICC Subtotals	155	19	21	32	26	17	14	284	1,656,327	40.04%	25.70%	16.01%	\$83,353	\$83,353
MAGIC Subtotals	78	2	5	16	16	9	6	132	167,755	16.26%	8.17%	5.17%	\$140,742	\$140,742
MWRC Subtotals	72	5	12	2	2	0	9	102	231,967	22.45%	13.95%	9.47%	\$108,727	\$108,727
NSPC Subtotals	50	10	10	2	3	1	1	77	203,921	11.87%	10.03%	4.97%	\$113,795	\$113,795
NSTF Subtotals	35	2	23	10	7	4	1	82	280,858	10.26%	17.90%	5.05%	\$84,781	\$84,781
SSC Subtotals	35	1	0	5	3	3	1	48	220,039	11.48%	12.93%	3.84%	\$99,533	\$99,533
SWAP Subtotals	37	0	0	2	0	0	3	42	151,221	13.68%	10.28%	4.36%	\$117,228	\$117,228
TRIC Subtotals	44	2	2	6	15	14	10	93	253,671	20.07%	11.06%	6.87%	\$114,929	\$114,929
Grand Total	509	41	74	76	72	48	45	865	3,087,975	28.19%	19.55%	11.24%	\$93,390	\$93,390



Methodology

As noted above, this analysis examined FFYs 2010 through 2021. To generate information on the number of UPWP studies produced during these FFYs that benefited specific cities and towns in the Boston region, MPO staff performed the following tasks:

- reviewed all work products listed as complete in UPWPs from FFYs 2010 through 2021
- excluded all agency and other client-funded studies and technical analyses to focus the analysis on MPO-funded work only
- excluded all work products with a focus that was regional or not limited to a specific geography
- excluded all work related to certification requirements (Chapter 3), resource management, and support activities (Chapter 6), which consist of programs and activities that support the MPO, its staff operations, and its planning and programming activities
- compiled a count of all reports and technical memoranda completed specifically for one municipality or reports and technical memoranda directly benefiting multiple municipalities. In the case where multiple municipalities directly benefit from a report or technical memoranda, the work product was counted once for each municipality that benefited.
- reviewed and discussed the status and focus of studies, technical memoranda, and reports with project managers and technical staff
- refreshed demographic data using American Community Survey 2015–19 five-year estimates. In response to Federal Highway Administration guidance, this year's analysis includes a breakdown of median income by municipality.

PLANNING STUDIES AND TECHNICAL ANALYSES BY COMMUNITY

Table D-2 shows the number of completed MPO-funded UPWP work products from FFY 2010 through FFY 2021 that are determined to provide benefits to specific municipalities. Studies and technical analyses are grouped by the year in which they were completed, rather than the year in which they were first programmed in the UPWP. Examples of the types of studies and work in the table include the following:

- evaluating parking in several municipalities
- technical assistance on Massachusetts Environmental Policy Act Environmental Impact Reports
- Complete Streets analyses for specific municipalities
- operations analyses and alternative conceptual design recommendations for specific intersections

The number of work products completed in FFY 2021 may appear lower than previous years because of COVID-19 affecting the timeline for various tasks.



**Table D-2
Number of UPWP Tasks by FFY and Municipality, Grouped by Subregion**

Municipality		Number of Work Products							Demographics				
NAME	2010-15 Total	2016	2017	2018	2019	2020	2021	2010-21 Total	Total Population	Percent Minority	Percentage of Residents in Poverty	Percentage of Residents Age 5+ with Low English Proficiency	Household Median Income
Arlington	3	1	3	3	2	1	0	12	42,844	16.43%	11.15%	5.71%	\$108,389
Belmont	3	2	1	2	0	0	0	8	24,729	18.65%	10.19%	8.06%	\$129,380
Boston	22	3	2	5	9	3	5	46	617,594	52.99%	31.46%	17.36%	\$71,115
Brookline	5	1	2	0	1	3	0	9	58,732	26.72%	18.69%	10.06%	\$117,326
Cambridge	9	4	5	2	1	1	0	21	105,162	37.94%	18.48%	7.76%	\$103,154
Chelsea	10	0	2	1	1	2	1	15	35,177	74.75%	41.22%	39.22%	\$56,802
Everett	13	2	1	3	1	2	0	20	41,667	46.44%	31.92%	30.24%	\$65,528
Lynn	7	1	0	1	1	0	1	11	90,329	52.43%	37.09%	26.90%	\$56,181
Malden	10	0	2	2	1	0	1	16	59,450	47.50%	32.41%	26.73%	\$65,975
Medford	6	1	0	3	0	1	0	10	56,173	23.83%	18.85%	9.56%	\$96,455
Melrose	6	0	1	1	0	0	1	9	26,983	10.46%	11.91%	4.82%	\$106,955
Nahant	0	0	0	0	0	0	0	0	3,410	4.49%	15.05%	3.09%	\$97,778
Newton	12	0	0	1	0	1	0	13	85,146	20.37%	8.99%	6.40%	\$151,068
Quincy	11	0	0	0	2	1	2	15	92,271	34.49%	25.26%	20.98%	\$77,562
Revere	7	0	0	2	2	1	1	12	51,755	37.59%	33.69%	27.93%	\$62,568
Saugus	3	0	0	1	0	0	0	4	26,628	10.40%	17.74%	6.00%	\$88,667
Somerville	13	1	1	1	3	0	2	21	75,754	30.88%	21.78%	11.95%	\$97,328
Waltham	12	3	1	2	1	0	0	19	60,632	31.26%	16.47%	11.20%	\$95,964
Watertown	1	0	0	1	0	1	0	2	31,915	18.33%	13.14%	7.27%	\$101,103

(Table D-2 cont.)

Municipality		Number of Work Products							Demographics				
NAME	2010-15 Total	2016	2017	2018	2019	2020	2021	2010-21 Total	Total Population	Percent Minority	Percentage of Residents in Poverty	Percentage of Residents Age 5+ with Low English Proficiency	Household Median Income
Winthrop	2	0	0	1	1	0	0	4	17,497	11.49%	18.97%	7.49%	\$74,069
ICC Subtotals	155	19	21	32	26	17	14	284	1,656,327	40.04%	25.70%	16.01%	\$83,353
Acton	6	1	0	1	3	3	0	11	21,924	24.49%	8.46%	8.37%	\$141,665
Bedford	7	0	0	2	2	0	0	11	13,320	16.04%	9.73%	5.15%	\$128,354
Bolton	4	0	1	2	1	0	0	8	4,897	6.53%	2.89%	0.89%	\$173,024
Boxborough	4	0	0	1	1	0	0	6	4,996	21.14%	11.89%	4.08%	\$115,395
Carlisle	2	0	0	1	1	0	0	4	4,852	12.26%	6.74%	1.83%	\$195,889
Concord	6	1	3	1	1	1	2	14	17,668	12.83%	6.82%	4.11%	\$152,318
Hudson	7	0	0	1	1	0	1	10	19,063	11.11%	11.35%	9.28%	\$91,706
Lexington	10	0	0	1	1	1	1	13	31,394	26.30%	6.97%	6.33%	\$186,201
Lincoln	9	0	0	1	1	1	1	12	6,362	17.23%	12.84%	1.64%	\$124,507
Littleton	5	0	0	1	1	1	0	7	8,924	7.68%	9.37%	2.38%	\$123,413
Maynard	7	0	1	2	1	1	0	11	10,106	9.86%	8.05%	5.09%	\$105,254
Stow	4	0	0	1	1	0	0	6	6,590	7.75%	7.22%	1.51%	\$148,235
Sudbury	7	0	0	1	1	1	1	10	17,659	10.65%	5.74%	2.43%	\$191,310
MAGIC Subtotals	78	2	5	16	16	9	6	132	167,755	16.26%	8.17%	5.17%	\$140,742
Ashland	3	0	1	0	0	0	1	5	16,593	18.46%	10.88%	7.66%	\$124,130
Framingham	14	1	2	1	2	0	1	21	68,318	34.68%	21.33%	15.51%	\$82,709
Holliston	4	0	1	0	0	0	1	6	13,547	6.66%	5.86%	1.76%	\$135,340
Marlborough	6	0	2	0	0	0	1	9	38,499	24.80%	19.63%	14.50%	\$80,943

(Table D-2 cont.)

Municipality		Number of Work Products							Demographics				
NAME	2010-15 Total	2016	2017	2018	2019	2020	2021	2010-21 Total	Total Population	Percent Minority	Percentage of Residents in Poverty	Percentage of Residents Age 5+ with Low English Proficiency	Household Median Income
Natick	9	1	1	0	0	0	1	12	33,006	14.59%	9.46%	6.10%	\$115,545
Southborough	8	0	1	0	0	0	1	10	9,767	13.94%	8.56%	4.60%	\$146,554
Wayland	3	0	1	0	0	0	1	5	12,994	14.71%	5.20%	3.79%	\$185,375
Wellesley	11	1	1	0	0	0	1	14	27,982	17.59%	5.93%	3.66%	\$197,132
Weston	14	2	2	1	0	0	1	20	11,261	16.59%	12.47%	3.39%	\$207,702
MWRC Subtotals	72	5	12	2	2	0	9	102	231,967	22.45%	13.95%	9.47%	\$108,727
Burlington	11	1	1	0	1	0	0	14	24,498	20.84%	10.02%	7.64%	\$118,721
Lynnfield	4	1	1	0	0	0	0	6	11,596	6.54%	8.03%	3.06%	\$128,641
North Reading	2	1	1	0	0	0	0	4	14,892	6.05%	7.44%	2.23%	\$128,651
Reading	10	1	1	0	0	0	0	12	24,747	7.56%	8.28%	1.67%	\$132,731
Stoneham	4	1	1	0	0	0	0	6	21,437	9.48%	9.99%	4.07%	\$101,549
Wakefield	3	1	1	0	0	0	1	6	24,932	7.02%	10.04%	3.72%	\$100,278
Wilmington	5	1	1	0	1	1	0	8	22,325	7.73%	9.86%	3.91%	\$125,922
Winchester	4	2	1	1	0	0	0	8	21,374	14.34%	6.20%	5.36%	\$169,623
Woburn	7	1	2	1	1	0	0	12	38,120	18.34%	15.05%	8.62%	\$91,022
NSPC Subtotals	50	10	10	2	3	1	1	77	203,921	11.87%	10.03%	4.97%	\$113,795
Beverly	5	0	1	1	1	1	0	8	39,502	8.60%	18.48%	3.65%	\$80,586
Danvers	6	0	1	0	1	0	0	8	26,493	6.24%	14.54%	3.54%	\$89,250
Essex	0	0	1	0	1	0	0	2	3,504	3.85%	16.15%	0.86%	\$106,283
Gloucester	2	0	1	0	0	0	0	3	28,789	5.87%	22.24%	3.65%	\$72,574

(Table D-2 cont.)

Municipality		Number of Work Products							Demographics				
NAME	2010-15 Total	2016	2017	2018	2019	2020	2021	2010-21 Total	Total Population	Percent Minority	Percentage of Residents in Poverty	Percentage of Residents Age 5+ with Low English Proficiency	Household Median Income
Hamilton	1	0	1	0	1	0	0	3	7,764	8.71%	18.59%	3.17%	\$127,813
Ipswich	1	0	1	0	0	0	0	2	13,175	5.34%	15.72%	2.60%	\$93,212
Manchester	0	0	2	1	1	0	0	4	14,925	8.29%	7.52%	2.36%	\$148,854
Marblehead	2	0	2	0	0	0	0	4	19,808	5.00%	12.72%	3.72%	\$123,333
Middleton	0	1	2	0	0	0	0	3	8,987	12.71%	5.16%	3.39%	\$125,204
Peabody	4	0	2	2	1	1	0	9	51,251	12.33%	20.49%	8.42%	\$73,217
Rockport	3	0	1	2	0	0	0	6	6,952	4.11%	14.80%	0.47%	\$85,208
Salem	7	1	3	2	1	1	1	15	41,340	24.10%	27.81%	9.07%	\$68,808
Swampscott	3	0	2	1	0	1	0	6	13,787	6.98%	7.87%	4.83%	\$113,407
Topsfield	0	0	2	0	0	0	0	2	6,085	4.65%	9.21%	1.51%	\$136,863
Wenham	1	0	1	1	0	0	0	3	4,875	5.50%	4.96%	2.16%	\$128,056
NSTF Subtotals	35	2	23	10	7	4	1	82	280,858	10.26%	17.90%	5.05%	\$84,781
Braintree	9	1	0	0	0	1	0	10	35,744	14.75%	13.65%	7.83%	\$96,522
Cohasset	3	0	0	0	0	0	0	3	7,542	3.82%	8.22%	0.23%	\$145,679
Hingham	2	0	0	1	2	1	1	8	22,157	4.61%	7.15%	1.09%	\$142,435
Holbrook	3	0	0	0	0	0	0	3	10,791	19.18%	15.28%	6.33%	\$76,055
Hull	1	0	0	0	0	0	0	1	10,293	5.74%	14.41%	0.84%	\$88,476
Marshfield	2	0	0	0	0	0	0	2	25,132	4.00%	11.37%	0.64%	\$102,560
Norwell	2	0	0	1	1	1	1	6	10,506	4.71%	6.88%	0.79%	\$157,987
Rockland	1	0	0	1	0	0	0	2	17,489	9.21%	17.12%	4.10%	\$78,011

(Table D-2 cont.)

Municipality		Number of Work Products							Demographics				
NAME	2010-15 Total	2016	2017	2018	2019	2020	2021	2010-21 Total	Total Population	Percent Minority	Percentage of Residents in Poverty	Percentage of Residents Age 5+ with Low English Proficiency	Household Median Income
Scituate	3	0	0	1	0	0	0	4	18,133	4.72%	9.11%	1.28%	\$128,864
Weymouth	6	0	0	1	0	0	0	7	53,743	11.87%	16.65%	5.73%	\$84,942
SSC Subtotals	35	1	0	5	3	3	1	48	220,039	11.48%	12.93%	3.84%	\$99,533
Bellingham	3	0	0	1	0	0	0	4	16,332	8.25%	9.10%	2.59%	\$101,477
Franklin	3	0	0	0	0	0	0	3	31,635	8.56%	8.68%	1.76%	\$122,607
Hopkinton	7	0	0	0	0	0	0	7			8.27%	3.24%	\$157,353
Medway	4	0	0	0	0	0	0	4	12,752	6.49%	8.88%	1.25%	\$132,823
Milford	8	0	0	1	0	0	1	10	27,999	17.48%	19.94%	13.99%	\$83,243
Millis	3	0	0	0	0	0	0	3	7,891	7.30%	10.14%	4.13%	\$106,164
Norfolk	2	0	0	0	0	0	0	2	11,227	15.44%	3.41%	1.90%	\$151,279
Sherborn	4	0	0	0	0	0	1	5	4,119	6.65%	8.83%	1.21%	\$198,681
Wrentham	3	0	0	0	0	0	1	4	10,955	3.78%	9.21%	1.10%	\$126,613
SWAP Subtotals	37	0	0	2	0	0	3	42	151,221	13.68%	10.28%	4.36%	\$117,228
Canton	2	0	2	2	1	3	0	7	21,561	16.74%	9.23%	7.25%	\$105,919
Dedham	5	1	0	0	1	2	1	8	24,729	14.89%	13.29%	4.23%	\$100,757
Dover	4	0	0	0	1	0	1	6	5,589	8.77%	2.00%	2.38%	\$250,001
Foxborough	4	0	0	0	1	2	1	6	16,865	8.30%	14.35%	2.91%	\$96,062
Medfield	1	0	0	0	1	0	1	3	12,024	6.08%	9.60%	1.62%	\$160,963
Milton	5	0	0	2	2	1	3	12	27,003	24.12%	9.64%	4.47%	\$133,718
Needham	7	1	0	1	2	0	0	11	28,886	10.93%	5.22%	4.82%	\$165,547

(Table D-2 cont.)

Municipality		Number of Work Products							Demographics				
NAME	2010-15 Total	2016	2017	2018	2019	2020	2021	2010-21 Total	Total Population	Percent Minority	Percentage of Residents in Poverty	Percentage of Residents Age 5+ with Low English Proficiency	Household Median Income
Norwood	2	0	0	0	2	2	1	5	28,602	17.34%	15.45%	8.36%	\$90,133
Randolph	4	0	0	0	1	0	0	5	32,112	60.91%	19.75%	19.66%	\$82,510
Sharon	0	0	0	0	1	0	0	1	17,612	18.97%	4.70%	6.03%	\$141,423
Walpole	4	0	0	0	1	2	1	6	24,070	9.23%	11.17%	3.82%	\$119,846
Westwood	6	0	0	1	1	2	1	9	14,618	8.46%	5.68%	4.78%	\$160,132
TRIC Subtotals	44	2	2	6	15	14	10	93	253,671	20.07%	11.06%	6.87%	\$114,929
Grand Total	509	41	74	76	72	48	45	865	3,087,975	28.19%	19.55%	11.24%	\$93,390

Notes:

- Demographic data is from American Community Survey (ACS) five-year estimates, 2014–18. Margins of error are at the 90 percent confidence level.
- MPO staff tabulates limited English proficiency (LEP) for the population age five and older, and minority and poverty status for the entire population. A person in the MPO region is considered low income if their annual family income is 200 percent or less of the national poverty level based on family size.
- People with LEP are those that speak English less than very well, according to the ACS.
- People who identify as minority are those who identify as Hispanic or Latino/a/x and/or Black or African American, Asian, American Indian or Alaska Native, or Native Hawaiian or other Pacific Islander.
- Duxbury, Hanover, Pembroke, and Stoughton transitioned out of the Boston Region MPO in Federal Fiscal Year 2018, so work product totals for some subregions may have changed from previous UPWPs.

REGIONWIDE PLANNING STUDIES AND TECHNICAL ANALYSES

In addition to work that benefits specific municipalities, many of the projects funded by the MPO through the UPWP have a regional focus. Table D-3 lists MPO-funded UPWP studies completed from 2010 through 2021 that were regional in focus. Some regionally focused studies may have work products that overlap with those analyzed in the tables above.

More information on these studies and other work can be found on the MPO’s website (https://www.bostonmpo.org/recent_studies) or by contacting Srilekha Murthy, UPWP Manager, at smurthy@ctps.org.

**Table D-3
Regionally Focused MPO-Funded UPWP Studies**

FFY 2021	
CTPS	MAPC
<ul style="list-style-type: none"> • Improving Pedestrian Variables in the Travel Demand Model • Regional TDM Strategies • Trip Generation Rate Research • Access to CBDs Phase 2 • The Future of the Curb Phase 2 • Multimodal Resilience and Emergency Planning • MPO Staff-Generated Research Topics • Mapping Major Transportation Infrastructure Projects in the Boston Region • Exploring Resilience in MPO-Funded Corridor and Intersection Studies 	<ul style="list-style-type: none"> • Rideshare Electrification Working Group • Impacts of E-commerce in Massachusetts • Planning Successful Bus Priority Projects in Greater Boston • MetroCommon Regional Plan Development

(Table D-3 cont.)

FFY 2020	
CTPS	MAPC
<ul style="list-style-type: none">• Operating a Successful Shuttle Program• Further Development of the MPOs Community Transportation Program• Disparate Impact Metrics Analysis• Pedestrian Report Card Assessment Dashboard• Innovations in Estimating Trip Generation Rates• Review of Vision Zero Strategies	<ul style="list-style-type: none">• Participation in Rail Vision Study• Participation in East-West Rail Study• MetroCommon Regional Plan Development• Review of Institute of Traffic Engineers Trip Generation Estimates• Inventory of National TNC Fee Structures• Analysis of How Local and State Governments in North America Use TNC Data for Regulation• Literature Review of Initiatives to Incentivize Zero Emission TNC Vehicles
FFY 2019	
CTPS	MAPC
<ul style="list-style-type: none">• Pedestrian Report Card Assessment Dashboard• New and Emerging Metrics for Roadway Usage• The Future of the Curb• Updates to Express-Highway Volumes Charts	<ul style="list-style-type: none">• Coordination and convening of municipalities to implement recommendations of water transportation study• MetroCommon Regional Plan for smart growth and regional prosperity, including extensive stakeholder outreach and public engagement• Support for Blue Bike bikeshare system, Lime dockless bikeshare system, and support for coordinated regulation of electric scooters• Analysis of Transportation Network Company trips from varying data sources

(Table D-3 cont.)

FFY 2018	
CTPS	MAPC
<ul style="list-style-type: none">• Community Transportation Program Development• Review of and Guide to Regional Transit Signal Priority• Crash Rates in Environmental Justice Communities (Staff-Generated Research)• Long-Distance Commuting in the Boston MPO Region (Staff-Generated Research)• Exploring New Software for Transit Planning (Staff-Generated Research)• Safety Effectiveness of Safe Routes to School Programs• Planning for Connected and Autonomous Vehicles• Study of Promising GHG Reduction Strategies	<ul style="list-style-type: none">• Participation in Water Transportation Advisory Council• Regional Plan Update process• Evaluation of Transit-Oriented Development Planning Studies• Ride hailing research, literature review, and survey of 900 Uber and Lyft riders in Boston region to indicate how TNCs are affecting travel behavior.• Participation in suburban mobility working group with MassDOT, MBTA, and CTPS staff to discuss opportunities to pilot dynamic ride dispatching.

(Table D-3 cont.)

FFY 2017	
CTPS	MAPC
<ul style="list-style-type: none">• Using GTFS Data to Find Shared Bus Route Segments with Excessively Irregular Headways• Pedestrian Level-of-Service Metric Development• Exploring the 2011 Massachusetts Travel Survey: MPO Travel Profiles• Exploring the 2011 Massachusetts Travel Survey: Barriers and Opportunities Influencing Mode Shift• Core Capacity Constraints• Barriers and Opportunities Influencing Mode Shift• Bicycle Network Gaps: Feasibility Evaluations• 2016–17 Bicycle and Pedestrian Counts• Bicycle and Pedestrian Count Memo (summarizing counts 2014–17)• Memorandum documenting plans for future Boston Region MPO bicycle and pedestrian counting methodologies	<ul style="list-style-type: none">• North Suburban Mobility Study• North Shore Mobility Study• Perfect Fit Parking Report and Website• Hubway Bikeshare Coordination• MetroWest LandLine Gaps Analyses

(Table D-3 cont.)

FFY 2016	
CTPS	MAPC
<ul style="list-style-type: none">• Modeling Capacity Constraints• Identifying Opportunities to Alleviate Bus Delay• Research Topics Generated by MPO Staff (FFY 2016): Transit dependence scoring system using driver license data• Title VI Service Equity Analyses: Methodology Development• EJ and Title VI Analysis Methodology Review• Transportation Investments for Economic Development	<ul style="list-style-type: none">• Right-Size Parking Report• Transportation Demand Management—Case Studies and Regulations• Hybrid Electric Vehicle Retrofit Procurement• Autonomous Vehicles and Connected Cars research• MetroFuture Implementation technical memorandums
FFY 2015	
CTPS	MAPC
<ul style="list-style-type: none">• Greenhouse Gas Reduction Strategy Alternatives: Cost-Effectiveness Analysis• Roadway Network for Emergency Needs• 2012 Inventory of Bicycle Parking Spaces and Number of Parked Bicycles at MBTA Stations• 2012–13 Inventory of Park-and-Ride Lots at MBTA Facilities• Title VI Service Equity Analyses: Methodology Development	<ul style="list-style-type: none">• Population and Housing Projections for Metro Boston• Regional Employment Projections for Metro Boston• Right-size parking calculator

(Table D-3 cont.)

FFY 2014	
CTPS	MAPC
<ul style="list-style-type: none">• Bicycle Network Evaluation• Household Survey-Based Travel Profiles and Trends• Exploring the 2011 Massachusetts Travel Survey: Focus on Journeys to Work• Methodology for Evaluating the Potential for Limited-Stop Service on Transit Routes	<ul style="list-style-type: none">• Transportation Demand Management Best Practices and Model Municipal Bylaw• Land Use Baseline for Bus Rapid Transit• MetroFuture community engagement
FFY 2013	
CTPS	MAPC
<ul style="list-style-type: none">• Regional HOV-Lane Systems Planning Study, Phase II• Roadway Network Inventory for Emergency Needs: A Pilot Study• Carbon Dioxide, Climate Change, and the Boston Region MPO: 2012 Update• Massachusetts Regional Bus Study• Boston Region MPO Freight Program	<ul style="list-style-type: none">• Regional Trail Network Map and Greenway Planning• MetroFuture engagement at the local level, updates to the Regional Indicators Reports, and Smart Growth Profiles

(Table D-3 cont.)

FFY 2012	
CTPS	MAPC
<ul style="list-style-type: none">• Analysis of JARC and New Freedom Projects• Safety and Security Planning• Emergency Mitigation and Hazard Mapping, Phase II• Impacts of Walking Radius, Transit Frequency, and Reliability• MBTA Systemwide Passenger Survey: Comparison of Results• Pavement Management System Development• Roundabout Installation Screening Tool• TIP Project Impacts Before/After Evaluation• Regional HOV System Planning Study• Freight Survey	<ul style="list-style-type: none">• Snow Removal Policy Toolkit• MetroFuture implementation strategies—updated implementation strategies including focus on equity indicators
FFY 2011	
CTPS	MAPC
<ul style="list-style-type: none">• Charlie Card Trip Paths Pilot Study• Early Morning Transit Service• Maintenance Cost of Municipally Controlled Roadways• Analysis of Responses to the MBTA Systemwide Onboard Passenger Survey by Respondents in Environmental-Justice Areas• MBTA Core Services Evaluation• MPO Freight Study, Phase I and Phase II• MPO Freight/Rail Study	<ul style="list-style-type: none">• MPO Pedestrian Plan• MPO Regional Bike Parking Program• Toolkit for Sustainable Mobility—focusing on local parking issues

(Table D-3 cont.)

FFY 2010	
CTPS	MAPC
<ul style="list-style-type: none">• An Assessment of Regional Equity Outreach 2008–09• Coordinated Human Services Transportation Plan Update• Greenbush Commuter Rail Before and After Study• Mobility Assistance Program and Section 5310 Review• Safety Evaluation of TIP Projects• Red Line-Blue Line Connector Study Support	<ul style="list-style-type: none">• Creation of a GIS coverage and related database of MAPC-reviewed projects and their mitigation commitments• Implementation of the regional and statewide bicycle and pedestrian plans, and work on bicycle/pedestrian-related issues, including coordination with relevant national, state, and regional organizations

USES FOR THE DATA

MPO staff intends to continue to collect these data annually to allow use in future analyses and, potentially, UPWP funding decisions. The MPO could potentially use this collected data in concert with other data that the MPO holds or collects to inform a number of the following future analyses.

- Compare the number of tasks per community to the presence and size of a municipal planning department in each city and town.
- Examine the use of different measures to understand the geographic distribution of benefits derived from funding programmed through the UPWP. For example, in addition to analyzing the number of tasks per community, the MPO could consider the magnitude of benefits that could be derived from UPWP studies (for example, congestion reduction or air quality improvement).
- Examine in greater detail the geographic distribution of UPWP studies and technical analyses per subregion or per MAPC community type to understand the type of tasks being completed and how these compare to municipally identified needs.
- Examine the number of tasks per community and compare the data to the number of road miles or amount of transit service provided in the municipality.
- Develop graphics illustrating the geographic distribution of UPWP studies and spending and mapping that distribution relative to Environmental Justice and Transportation Equity concern areas.

- Compare the number of tasks directly benefiting each municipality with the geographic distribution of transportation needs identified in the current Long-Range Transportation Plan (LRTP), *Destination 2040*. The transportation needs of the region for the next 25 years are identified and organized in the LRTP according to the MPO's goal areas, which are
 - safety;
 - system preservation;
 - capacity management and mobility;
 - clean air and clean communities;
 - transportation equity; and
 - economic vitality.
- Compare the data analyzed in this appendix to the data collected through the MPO's UPWP Study Recommendations Tracking Database, which classifies tasks differently and provides a higher level of detail but is reliant on provision of data by municipalities.

Analyses such as these would provide the MPO with a clearer understanding of the influence of the work programmed through the UPWP.





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 is charged with executing its planning activities in line with federal and state regulatory guidance. Maintaining compliance with these regulations allows the MPO to directly support the work of these critical partners and ensures its continued role in helping the region move closer to achieving federal, state, and regional transportation goals. 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) 2022.

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 by 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. 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. Table E-1 shows the relationships between FFY 2022 MPO studies and activities and these federal planning factors.



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TAPPAN
STREET
GREEN LINE
PARK BY A NO

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Shuttle Bus
to Kenmore
Work Building a better T.

**Table E-1
FFY 2022 3C-Funded UPWP Studies and Programs—Relationship to Federal Planning Factors**

Federal Planning Factor		3C-funded Certification Activities													3C-funded Technical Analysis and Support						New and Recurring 3C-funded Planning Studies*										Administration and Resource Management		MAPC Activities												
		3C Planning and MPO Support**	Provision of Materials in Accessible Formats	General Graphics	Professional Development	Long-Range Transportation Plan	Transportation Improvement Program	Performance-Based Planning and Programming	Air Quality Conformity and Support Activities	Unified Planning Work Program	Transportation Equity Program	Congestion Management Process	Freight Planning Support	Regional Model Enhancement	Transit Working Group Support	MPO Resilience Program	Roadway Safety Audits	Traffic Data Support	Transit Data Support	Community Transportation Technical Assistance (CTPS and MAPC)	Bicycle and Pedestrian Support Activities	Regional Transit Service Planning Technical Support	Trip Generation Follow-Up	Travel Demand Management Follow-Up	COVID Recovery Research and Technical Assistance	Addressing Safety, Mobility, and Access on Subregional Priority Roadways, FFY 2022	Addressing Priority Corridors from the LTRP Needs Assessment, FFY 2022	Safety and Operations of Selected Intersections, FFY 2022	The Future of the Curb Phase 3	Addressing Equity and Access in the Blue Hills	Identifying Transportation Inequities in the Boston Region	MPO Staff-generated Research Topics and Technical Assistance	Computer Resource Management	Data Resources Management	Corridor/Subarea Planning Studies	Alternative Mode Planning and Coordination	MetroCommon 2050	Land-Use Development Project Reviews	MPO/MAPC Liaison Activities	UPWP Support	Land-use Data and Forecasts for Transportation Modeling	Subregional Support Activities			
1	Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.	•			•	•	•	•	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•												•	•				
2	Increase the safety of the transportation system for all motorized and nonmotorized users.	•				•	•	•	•	•	•				•	•			•	•				•	•	•	•	•	•														•		
3	Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and nonmotorized users.	•				•	•	•	•	•				•														•															•		
4	Increase accessibility and mobility of people and freight.	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•												•	•	
5	Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.	•				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•													•	•
6	Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.	•		•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•														•	
7	Promote efficient system management and operation.	•				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•														•	

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 3 for more information about how the MPO has and will continue to conduct performance-based planning and programming.

1990 Clean Air Act Amendments

The Clean Air Act, most recently amended in 1990, forms the basis of the United States' air pollution control policy. The 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 the MPO region 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 the EPA's revocation of the 1997 ozone NAAQS. Massachusetts was designated as an attainment area in accord with the 2008 ozone NAAQS but as a nonattainment or maintenance area as relates to the 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 (TCM) 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. SIP-identified TCMs are federally enforceable and projects that address the identified air quality issues must be given first priority when federal transportation dollars are spent. Examples of TCMs that were programmed in previous TIPs include rapid-transit and commuter-rail extension programs (such as the Green Line Extension in Cambridge, Medford, and Somerville, and the Fairmount Line improvements in Boston), parking-freeze programs in Boston and Cambridge, statewide rideshare programs, park-and-ride facilities, residential parking-sticker programs, and the operation of high-occupancy-vehicle lanes.

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 (GWSA) (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), 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 analyzes the likely benefits and adverse effects of transportation projects to equity populations (populations traditionally underserved by the transportation system, as identified in the MPO's Transportation Equity program) when deciding which projects to fund. This analysis is conducted through the MPO's project selection criteria, which were recently strengthened to prioritize projects that provide benefits to these populations. MPO staff also evaluate the projects that are selected for funding, in the aggregate, to determine their overall impacts and whether they improve transportation outcomes for equity populations. 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 people who, as a result of their nationality, have limited English proficiency. 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 limited English proficiency can meaningfully participate in the transportation planning process. This requirement includes the development of a Language Assistance Plan that documents the organization's process for providing meaningful language access to people with limited English proficiency who access their services and programs.

Environmental Justice Executive Order

Executive Order 12898, dated February 11, 1994, requires each federal agency to advance 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, the USDOT issued its *Final Order to Address Environmental Justice in Minority Populations and Low-Income Populations*. Among other provisions, this order requires programming and planning activities to

- explicitly consider the effects of transportation decisions on minority and low-income populations;
- provide meaningful opportunities for public involvement by members of minority and low-income populations;
- gather (where relevant, appropriate, and practical) demographic information such as race, color, national origin, and income level of populations affected by transportation decisions; and
- minimize or mitigate any adverse impact on minority or low-income populations.

The 1997 Final Order was updated in 2012 with USDOT Order 5610.2(a), which provided clarification while maintaining the original framework and procedures.

Americans with Disabilities Act

Title III of the 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 venues 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 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.

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’s Executive Order 579—published *Choices for Stewardship* in 2019. This report makes 18 recommendations across these 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 region.

Massachusetts Strategic Highway Safety Plan

The *Massachusetts 2018 Strategic Highway Safety Plan* (SHSP) identifies the state's key safety needs and guides investment decisions to achieve significant reductions in highway fatalities and serious injuries on all public roads. The SHSP establishes statewide safety goals and objectives and key safety emphasis areas, and it draws on the strengths of all highway safety partners in the Commonwealth to align and leverage resources to address the state's safety challenges collectively. The Boston Region MPO considers SHSP goals, emphasis areas, and strategies when developing its plans, programs, and activities.

MassDOT Modal Plans

In 2017, MassDOT finalized the *Massachusetts Freight Plan*, which defines the short- and long-term vision for the Commonwealth's freight transportation system. In 2018, MassDOT released the related *Commonwealth of Massachusetts State Rail Plan*, which outlines short- and long-term investment strategies for Massachusetts' freight and passenger rail systems (excluding the 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 considers the findings and strategies of MassDOT's modal plans when conducting its planning, including through its Freight Planning Support and Bicycle/Pedestrian Support Activities programs.

Global Warming Solutions Act

The 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 Chapter 3 for more details related to how the MPO conducts GHG monitoring and evaluation.

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 use investment programs—particularly its Complete Streets and Bicycle Network and Pedestrian Connections programs—that support the implementation of Complete Streets projects. In the Unified Planning Work Program, the MPO budgets to support 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 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, 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 redesign and 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 in the Boston region. It includes a vision for the region's future and a set of strategies for achieving that vision, and it serves as the foundation for land use projections used in the 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. See Chapter 7 for more information about *MetroCommon* development activities.

The Boston Region MPO's Congestion Management Process

The purpose of the Congestion Management Process (CMP) is to monitor and analyze performance of facilities and services, develop strategies for managing congestion based on the results of 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. See Chapter 3 for more information about the MPO's CMP.

State and Regional COVID-19 Adaptations

The COVID-19 pandemic has radically shifted the way many people in the Boston region interact with the regional transportation system. The pandemic's effect on everyday life has had short-term impacts on the system and how people travel and it may have lasting impacts. State and regional partners have advanced immediate changes in the transportation network in response to the situation brought about by the pandemic. Some of the changes may become permanent, such as the expansion of bicycle, bus, sidewalk, and plaza networks, and a reduced emphasis on traditional work trips. As the region recovers from the impacts of the COVID-19 pandemic and the long-term effects become apparent, state and regional partners' guidance and priorities are likely to be adjusted.



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 and works closely with the Fiscal and Management Control Board of the Massachusetts Bay Transportation Authority. The MassDOT Board of Directors 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.

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 **Massachusetts Bay Transportation Authority (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, 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. In 2020, the FMCB's mandate was extended a second time for an additional period of one year, through June 30, 2021. 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 Massachusetts General Laws. 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, Brookline, 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.