

Unified Planning
Work Program
Federal Fiscal
Year 2019





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Unified Planning Work Program

Federal Fiscal Year 2019

Boston Region MPO

Member Review Draft April 26, 2018

**Prepared by
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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City of Beverly

City of Everett

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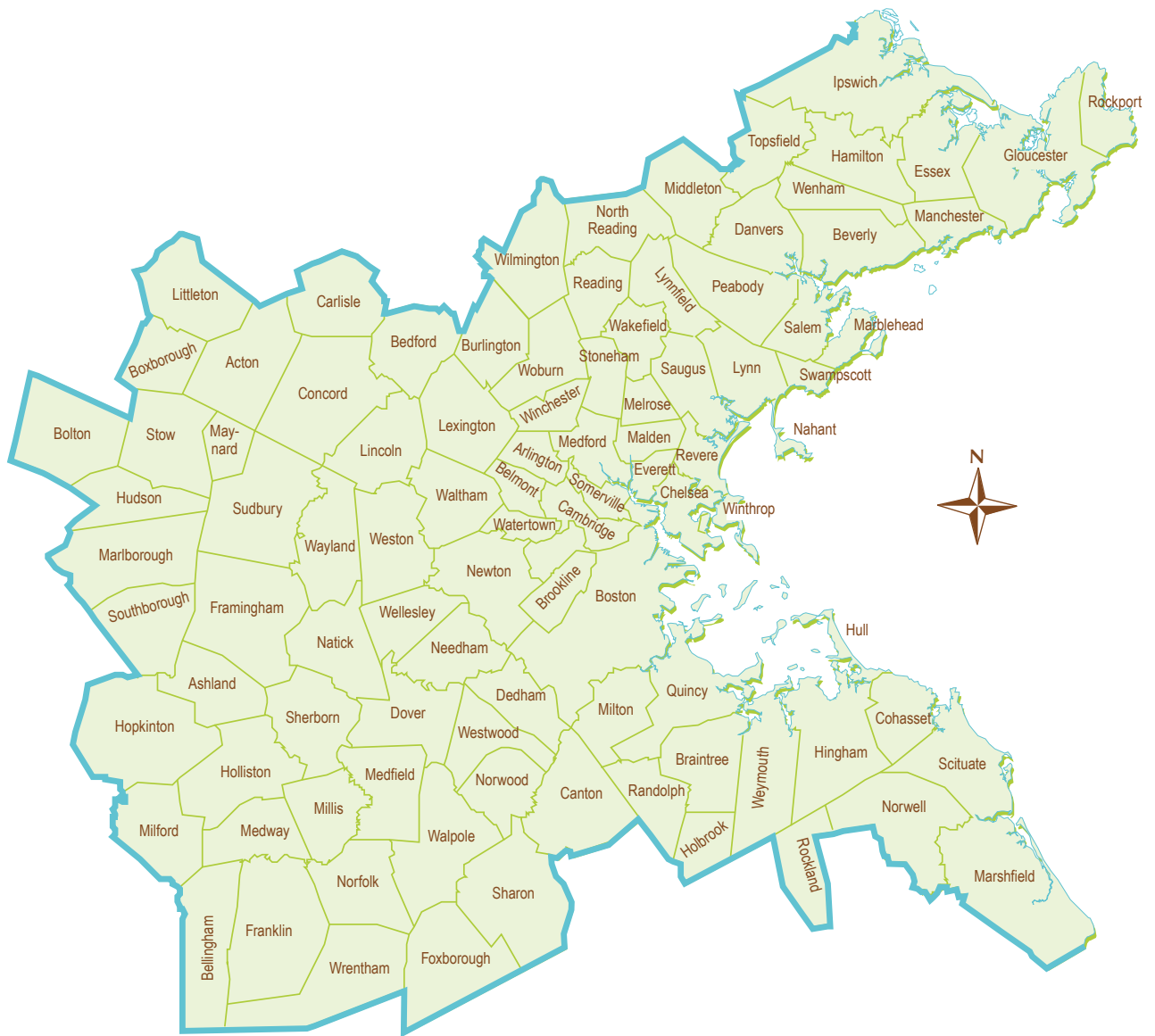
Town of Lexington

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BOSTON REGION METROPOLITAN PLANNING ORGANIZATION MUNICIPALITIES

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This document was funded in part through grants from the Federal Highway Administration and Federal Transit Administration of the U.S. Department of Transportation. Its contents do not necessarily reflect the official views or policies of the U.S. Department of Transportation.

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Executive Summary

ES.1 WHAT IS THE UNIFIED PLANNING WORK PROGRAM?

The Unified Planning Work Program (UPWP) produced by the Boston Region Metropolitan Planning Organization (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, known as the 3C planning process. (see sidebar)

The development of the UPWP involves the prioritization of all the 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.

Essentially, the UPWP serves as a source for the following information:

1. Information for government officials, municipal officials, and the general public about surface transportation planning projects and programs expected to be conducted in the Boston region
2. 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

What is a Metropolitan Planning Organization?

In order to receive federal transportation funds, every urbanized area with a population of 50,000 or more in the United States must conduct an ongoing transportation planning process that engages state and local governments as well as other stakeholders. This so-called 3C planning process must be continuous, comprehensive, and cooperative.

Metropolitan planning organizations (MPOs) are the entities tasked with carrying out this planning process. The Boston Region MPO is made up of a decision-making board that is supported by its staff, the Central Transportation Planning Staff.

How is the Boston region defined?

The Boston region encompasses an area of approximately 1,317 square miles and is made up of 97 cities and towns, including the cities and towns surrounding the City of Boston and north to Ipswich, south to Marshfield, and west to Interstate 495. The region is home to more than three million people and provides approximately two million jobs. The diverse communities in the region range from relatively rural communities, such as Dover, to the urban centers of Boston and Cambridge. Therefore, transportation planning must take into account the region's demographic, cultural, environmental, and mobility diversity.

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 Long-Range Transportation Plan (LRTP), *Charting Progress to 2040*, and will be further expanded in its LRTP under development, *Destination 2040*. The transportation planning work funded through the UPWP is an integral part of achieving this regional vision.

The 3C Planning Process

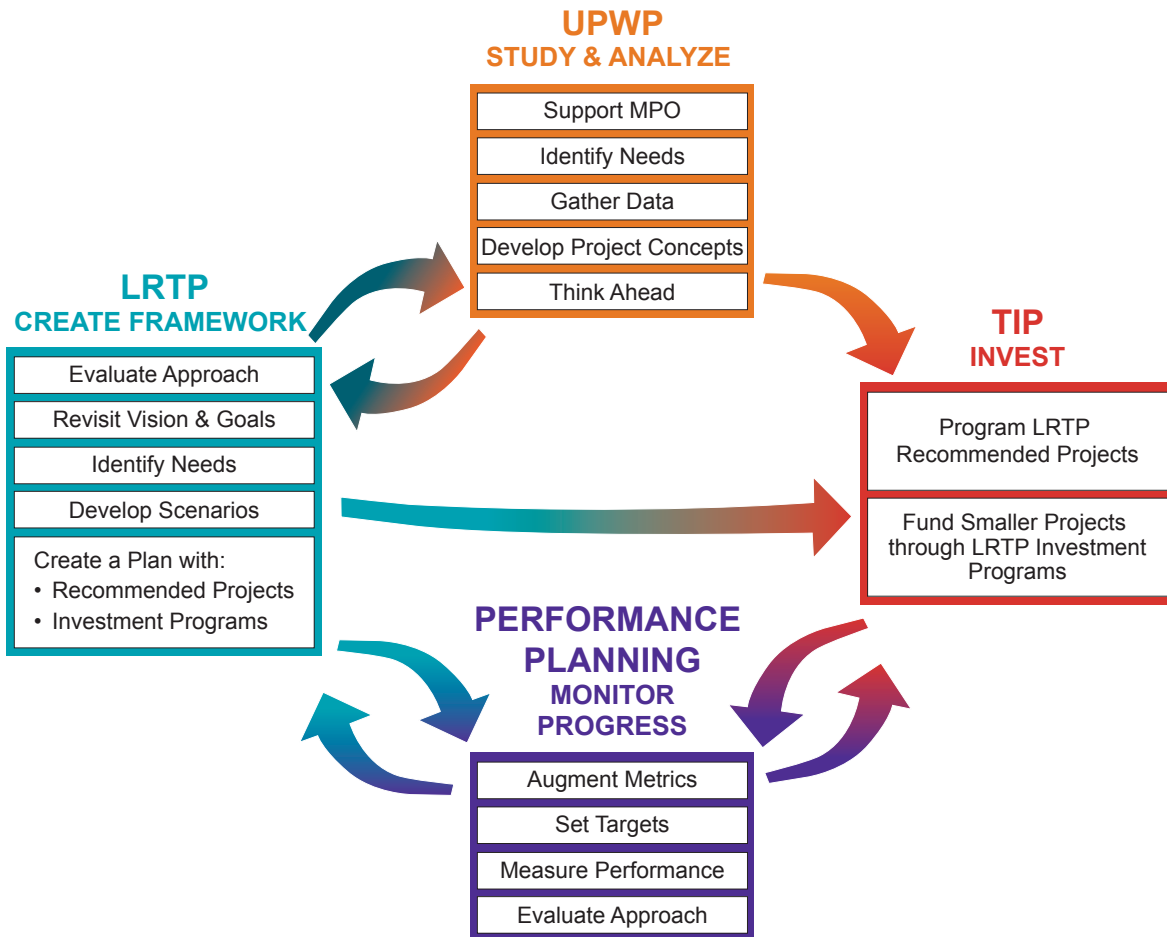
The 3C planning process is an approach for conducting meaningful transportation planning. The federal government requires that MPOs conduct a process that is continuing, comprehensive, and cooperative:

- **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 be done with recognition of 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 general public.

The transportation goals of the Boston region are as follows:

1. Safety: Transportation by all modes will be safe.
2. System Preservation: Maintain the transportation system.
3. Clean Air/Clean Communities: Create an environmentally friendly transportation system.
4. Capacity Management/Mobility: Use existing facility capacity more efficiently and increase healthy transportation capacity.
5. Transportation Equity: Provide comparable transportation access and service quality among communities, regardless of income level or minority population.
6. Economic Vitality: Ensure our transportation network provides a strong foundation for economic vitality.

Figure ES-1
Links Between LRTP, TIP, and UPWP



In addition to the LRTP and the UPWP, the MPO also produces the Transportation Improvement Program (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-1 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.

What are federal metropolitan planning funds?

The federal government regulates the funding, planning, and operation of the surface transportation system through the federal transportation program enacted into law through Titles 23 and 49 of the United States Code. The most recent reauthorization of the surface transportation law is the Fixing America's Surface Transportation (FAST) Act.

Federal funding that supports much of the work described in this UPWP comes from two main sources: the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). The federal funding sources, which are supplemented by a local match provided by the Massachusetts Department of Transportation (MassDOT), are as follows:

- **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 2019 3C PL funding allocation for the Boston region is \$3,727,192, which includes state matching funds. Of that allocation, \$3,727,187 is programmed in this UPWP.
- **FTA 3C Planning (\$5303):** FTA provides 3C planning funds for transit projects to MPOs 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. The FFY 2019 FTA allocation for the Boston region, including a total local match, is \$2,181,986. The total amount programmed in this UPWP for work to be conducted by the Central Transportation Planning Staff (which is the staff to the MPO), MassDOT, and the Metropolitan Area Planning Council (MAPC) on behalf of the MPO is \$1,825,897, as described below:
 - **MPO FTA 3C Planning (\$5303):** The total amount of FTA funds, including a local match, programmed in this UPWP for work conducted by the MPO staff is \$1,347,600.

- **MassDOT FTA 3C Planning (\$5303):** The total amount of FTA funds, including a local match, allocated to MassDOT for FFY 2019 is \$151,000. MassDOT uses these funds to issue a contract to the MPO for transit planning assistance throughout the FFY (the contract is referred to as MassDOT Transit Planning Assistance).
- **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 funds, including a local match, allocated to MAPC for FFY 2019 is \$327,297.

Are there other funding sources in the UPWP?

Yes, in addition to MPO-funded work, the staff to the MPO—the Central Transportation Planning Staff (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 6. For FFY 2019, 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): \$306,000 (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.
- **MassDOT Section 5303: \$151,000**
- **Other MassDOT : \$357,500**
- **MBTA: \$618,950**
- **Massport: \$25,000**
- **Other Sources: \$234,600**

ES.2 WHAT STUDIES AND ACTIVITIES ARE IN THIS FFY 2019 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 in order 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 4 and 7 for more detail about these areas of work.
- **Ongoing/continuing work programs:** These are areas of work that support technical analyses and planning studies for cities and towns in the region. See Chapter 5 for more detail on these studies and technical analyses.
- **New studies:** Every year, a certain amount of funding is available for new studies to be undertaken by the MPO staff. These efforts are conducted to enhance the staff's knowledge of the practice, to improve analytical methods, and to evaluate strategies for implementation. See Chapter 5 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 more detail in Chapter 6.

The Boston Region MPO's Objectives

In carrying out the 3C planning process, the Boston Region MPO aims to achieve the following objectives:

- Identify transportation problems and develop possible solutions.
- Balance short- and long-range considerations.
- Represent both regional and local considerations, as well as both transportation and non-transportation objectives and impacts.
- Assist implementing agencies in effecting timely policy and project decisions while considering a broad range of impacts and allowing for input from all stakeholders.
- Help implementing agencies to prioritize transportation activities in a manner consistent with the region's needs and resources.
- Comply with all federal transportation, environmental justice, and equal rights legislation.

Table ES-1 contains the budget allocated for the MPO's 3C planning activities in FFY 2019. The table reflects the FHWA metropolitan planning (PL) funds and FTA Section 5303 funds, which the CTPS and MAPC expect to spend in FFY 2019. The table also reflects the work that CTPS will conduct with funds provided by other transportation agencies.

Chapters 4 through 7 provide detailed information about the transportation-planning activities that will be undertaken by CTPS during FFY 2019. The new studies chosen for funding in FFY 2019 are summarized below in Table ES-2 and described in more detail in Chapter 5.

Table ES-1
Unified Planning Work Program Budget for FFY 2019

3C Studies and Programs by CTPS Budget Categories	3C PL Funds	Section 5303 Funds	Proposed FFY 2019 Budget
Resource Management and Support Activities	\$429,020	\$190,040	\$619,060
MPO Certification Requirements	\$1,895,980	\$814,930	\$2,710,910
Continuing MPO-Funded Planning Studies and Technical Analyses	\$135,040	\$114,500	\$249,540
New MPO-Funded Discrete Studies	\$513,980	\$201,130	\$715,110
Direct Support	\$45,000	\$27,000	\$72,000
Total for CTPS 3C Studies and Programs	\$3,019,020	\$1,347,600	\$4,366,620

Agency-Funded CTPS Work	Agency Funds	Direct Support	Proposed FFY 2018 CTPS Budget
MassDOT SPR Funds	\$300,000	\$6,000	\$306,000
MassDOT Section 5303 Funds	\$150,000	\$1,000	\$151,000
MassDOT Other Funds	\$357,500	\$-	\$297,100
MBTA Funds	\$615,700	\$3,250	\$618,950
Massport Funds	\$24,500	\$500	\$25,000
Other	\$234,600	\$-	\$234,600
Total for Agency-Funded CTPS Project Work			\$1,693,050
Total CTPS Budget (3C and Agency Work)			\$6,059,670

Budget figures include salary, overhead, and direct support.

Table ES-1 (cont.)

3C Studies and Programs by MAPC Budget Categories	3C PL Funds	Section 5303 Funds	Proposed FFY 2019 Budget
MAPC Administration, Resource Management, and Support Activities	\$326,051	\$125,400	\$451,451
MAPC Planning Studies and Technical Analyses	\$382,116	\$201,897	\$584,013
Total MAPC 3C Budget	\$708,167	\$327,297	\$1,035,464
Total 3C Budget Subtotal by Funding Program (CTPS #C Budget and MAPC 3C Budget)	\$3,727,187	\$1,674,897	\$5,402,084
Agency-Funded CTPS Work			\$1,693,050
TOTAL PROGRAMMED IN FFY 2019 (CTPS 3C Budget, CTPS Agency-Funded Budget, and MAPC 3C Budget)			\$7,095,134

3C = Continuing, comprehensive, and cooperative. CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. Massport = Massachusetts Port Authority. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. PL = Planning. SPR = Statewide Planning and Research. UPWP = Unified Planning Work Program.

Table ES-2
New Discrete Funded Studies in FFY 2019

Project ID	Study or Program	Proposed FFY 2019 CTPS Budget	Page Number
13292	Pedestrian Report Card Assessment Dashboard	\$65,000	5-4
14359	Reverse Commute Areas Analysis	\$65,000	5-9
14360	Transportation Access Studies of Commercial Business Districts	\$85,000	5-6
13619	Low-Cost Improvements to Express Highway Bottleneck Locations FFY 2019	\$60,000	5-11
13419	Addressing Safety, Mobility, and Access on Subregional Priority Roadways FFY 2019	\$120,000	5-13
13519	Addressing Priority Corridors from the LRTP Needs Assessment FFY 2019	\$120,000	5-15
13290	New and Emerging Metrics for Roadway Usage	\$60,000	5-17
14361	The Future of the Curb	\$35,000	5-8
13291	Updates to Express Highway Volumes Charts	\$85,000	5-18
20903	MPO Staff-Generated Research Topics	\$20,110	5-20
Total for New Discrete and Ongoing Studies		\$715,110	

CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. LRTP = Long-Range Transportation Plan. MPO = Metropolitan Planning Organization. PL = Planning. UPWP = Unified Planning Work Program.

ES.3 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:

- Public input gained through community meetings and meetings with eight subregional municipal planning groups
- Regional Transportation Advisory Council input gained from meetings in which the MPO staff discussed study ideas and transportation priorities of the Advisory Council's member organizations
- UPWP Committee input gained from meetings held throughout the year between this committee of the MPO and the MPO staff. The UPWP Committee oversees the development of the entire UPWP document.
- Existing planning documents such as the MPO's Congestion Management Process (CMP) 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
- Past 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 Chapter 3 and Table 3-1)
- 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 New Studies*. Each proposal is evaluated based on the following criteria: how it would help the region accomplish the LRTP goals; the transportation mode(s) it addresses; the scale of the

study; the time frame for implementation; the type of impact it would have; whether it furthers a body of existing work; and whether it has been considered in the past or is a completely new idea.

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. Also, the staff is working to enhance the MPO's communication channels, including the following:

- An engaging website, which serves as a resource for those seeking to influence transportation planning in the Boston region
- A lively Twitter account (@BostonRegionMPO) covering transportation planning news and events
- A *TRANSREPORT* blog publishing 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 events, hosted by the MPO's transportation partners, where staff administer and listen at information and resource tables
- CTPS Office Hours, open-house style events, where those seeking feedback and advice on TIP projects, UPWP proposals, or Community Transportation Technical Assistance applications can interact one-on-one with MPO staff

What is the public review process?

Feedback from public outreach forms a major 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 MPOinfo (an email distribution list that includes municipal contacts, interested members of the public, and other stakeholders in the region) and Twitter. Email messages are used to keep all of these contacts

informed 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 solicits public input during CTPS Office Hours 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 2019 UPWP is provided in Appendix B.

How are progress and outcomes monitored?

The MPO monitors the progress of studies funded through the UPWP by approving detailed work programs and scopes, reviewing monthly progress reports, keeping track of UPWP study budgets and updates on actual spending via quarterly reports, and approving the release of deliverables based on whether the objectives stated in the work program were met and whether the stated deliverables were produced.

ES.4 WHAT ELSE DOES THE MPO DO, AND WHO ARE THE MEMBERS?

The transportation planning process

Title 23, Section 134 of the Federal-Aid Highway Act and Section 5303 of the Federal Transit Act, as amended, require that urbanized areas, in order to be eligible for federal funds, conduct a 3C planning process resulting in plans and programs consistent with the planning objectives of the metropolitan area. In complying with this requirement, the Boston Region MPO established specific objectives that guide its 3C planning process.

As part of its 3C planning process, the Boston Region MPO annually produces the TIP and the UPWP. These documents, along with the quadrennial LRTP, are referred to as *certification documents* (described in Chapter 2, Section 2.1.2) 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 transportation models and data resources to support air quality conformity determinations, transportation equity analyses, and long- and short-range planning work and initiatives.

The Boston Region MPO Membership

The Boston Region MPO consists of a 22 voting member board that includes state agencies, regional organizations, and municipalities. A map of the 97 cities and towns within the MPO's jurisdiction is in Figure 1-1 in Chapter 1.

The permanent MPO voting members are as follows:

- MassDOT (3 seats)
- MAPC
- MBTA
- MBTA Advisory Board
- Massport
- City of Boston (2 seats)
- Regional Transportation Advisory Council

The elected MPO voting members are municipalities. A municipality from each of the eight MAPC subregions has a seat, and there are four at-large municipal seats (two cities and two towns). The current elected members, and the seats they hold, are as follows:

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

The FHWA and the FTA participate on the board as advisory (nonvoting) members. Details about MPO voting members are provided in Chapter 2. Figure 2-1 shows the MPO membership and the organization of CTPS, staff to the MPO.

Metropolitan Area Planning Council Subregional Groups

The Metropolitan Area Planning Council (MAPC) is the regional planning agency for the Boston region and a member agency of the MPO.

To support the regional planning process and enhance collaboration and coordination, the Boston region is divided into eight subregional groups that involve municipal representatives in the planning process. These groups are better able to focus on planning topics that are of particular importance to their subregion:

- Inner Core Committee (ICC)
- MetroWest Regional Collaborative (MWRC)
- Minuteman Advisory Group on Interlocal Coordination (MAGIC)
- North Shore Task Force (NSTF)
- North Suburban Planning Council (NSPC)
- South Shore Coalition (SSC)
- SouthWest Advisory Planning Committee (SWAP)
- Three Rivers Interlocal Council (TRIC)

ES.5 OVERVIEW OF THIS DOCUMENT

This UPWP document is structured as follows:

- Chapter 1 provides more detailed background and information on the purpose of this document, how it helps the MPO achieve its regional transportation goals, and the funding available in FFY 2019.
- Chapter 2 provides background on the metropolitan transportation planning process and the Boston Region MPO member agencies.
- Chapter 3 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.
- Chapter 4 includes descriptions of the certification requirement activities to be completed in FFY 2019 (including the support to the MPO, its committees, and related processes and activities), and the current budgets assigned to each program and activity.
- Chapter 5 presents summary tables of FFYs 2015–18 UPWP studies that have been completed or are projected to be completed by the end of September 2018, in addition to work products, including reports and technical memoranda; summarizes the MPO's planning studies and technical analyses that will be carried over from FFY 2018 to FFY 2019; provides descriptions of the new planning studies chosen for funding in FFY 2019; and includes updated descriptions of the ongoing technical analysis and support work that the MPO staff conducts for municipalities and the region.

- Chapter 6 includes descriptions of the agency-funded transportation planning studies and technical analyses that will be undertaken by CTPS in FFY 2019. These include recurring contracts such as MassDOT’s Statewide Planning and Research (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 7 provides detailed information and FFY 2019 budgets for the resource management and support activities conducted by the MPO staff.
- 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 project summaries for non-MPO transportation-planning projects/studies that are being (or will be) conducted in the Boston region. 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 a summary of written comments on the Draft UPWP that were received during the public review period, as well as the MPO’s responses to these comments.
- Appendix C includes the FFY 2019 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 contains a glossary of acronyms.



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CHAPTER

Coordinating Comprehensive Transportation Planning in the Region: What is the Unified Planning Work Program?



1.1 BACKGROUND

The Boston Region Metropolitan Planning Organization (MPO) plans for the transportation future of the Boston region (Figure 1-1). The MPO is guided by a 25-year vision for a modern, safe, equitable, sustainable, and technologically advanced transportation system for the region, which is described in the MPO's Long-Range Transportation Plan (LRTP), *Charting Progress to 2040*. An integral part of achieving this regional vision is the transportation planning work funded through the Unified Planning Work Program (UPWP).

The UPWP is a financial plan that the MPO produces annually in compliance with the federally mandated metropolitan planning process. This process requires transportation decision making in urbanized areas based on a continuing, comprehensive, and cooperative planning process (the 3C process) that involves coordination of state and local governments as well as the public.

The UPWP documents the federal funding that will be spent on surface transportation studies and 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.

This chapter explains the UPWP, its connection to the overall regional transportation vision developed in the LRTP, and how the planning work of the MPO is funded.

Figure 1-1
Boston Region MPO Municipalities Map, as of April 2018



1.2 WHAT DOES THE UPWP DO?

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. This work is conducted by the Central Transportation Planning Staff (CTPS), staff to the MPO, or by the staff of the Metropolitan Area Planning Council (MAPC), Boston's Regional Planning Agency. This work primarily consists of four parts:

Certification Requirements and MPO Support

The UPWP includes activities that the MPO must conduct in order to remain certified as an MPO by the federal government, and to be eligible to receive and distribute federal transportation dollars. Work in this category includes preparing federally required financial plans, including the LRTP and the Transportation Improvement Program (TIP). The LRTP allocates funding for regionally significant transportation construction projects and programs over a 25-year period; and the TIP allocates funding for projects to be implemented in the near-term, during the next five years. Air quality conformity and environmental justice-related compliance associated with the LRTP and TIP are also included in this category.

Other work funded through the UPWP to support MPO planning and certification requirements includes managing data and computer resources as well as maintaining the MPO's regional travel demand model, which is used to forecast the potential impacts and changes that the transportation system will have on traffic congestion and transit ridership. See Chapters 4 and 7 for more detail about these areas of work.

Ongoing/Continuing Work Programs

These are areas of work that support technical analyses and planning studies for cities and towns in the region. Examples of these ongoing/continuing programs include Bicycle and Pedestrian Support Activities, Regional Transit Service Planning Technical Support, and Community Transportation Technical Assistance. See Chapter 5 for more detail about these studies and technical analyses.

New Studies

Every year, a certain amount of funding is available for new studies to be performed by MPO staff. CTPS conducts these activities to enhance knowledge of the practice, augment analytical methods, and evaluate strategies. Examples of these studies in the FFY 2019 UPWP include Reverse Commute Areas Analysis; New and Emerging Metrics for Roadway Usage; and The Future of the Curb. See Chapter 5 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 (Massport). These agency-funded studies are described in more detail in Chapter 6.

1.3 HOW ARE FUNDING DECISIONS MADE?

The MPO's UPWP Committee works with CTPS to develop the UPWP for the upcoming FFY. Numerous sources of guidance are considered when compiling the UPWP; and careful decisions are made about the new and ongoing work that will be fulfilled. The amount of available funding plays an important role in determining what work will be done in a given FFY.

The Guiding Vision of the LRTP

The chief framework that directs decisions about what to fund through the UPWP incorporates the goals and objectives of the LRTP, which guide the MPO in its overall decision making. As described in more detail in Section 1.2.2, each new proposed study is evaluated based on how it helps the region achieve the goals and objective outlined in the LRTP.

Figure 1-2 shows the goals and objectives in the MPO's most recent LRTP, *Charting Progress to 2040*, endorsed by the MPO in July 2015 (a new LRTP, *Destination 2040*, is in development and is expected to be endorsed by the MPO during FFY 2019).

Figure 1-2
L RTP Goals and Objectives, as of April 2018

GOALS	OBJECTIVES
SAFETY	
Transportation by all modes will be safe	<ul style="list-style-type: none"> Reduce number and severity of crashes, all modes Reduce serious injuries and fatalities from transportation Protect transportation customers and employees from safety and security threats <p>(Note: The MPO action will be to incorporate security investments into capital planning.)</p>
SYSTEM PRESERVATION	
Maintain the transportation system	<ul style="list-style-type: none"> Improve condition of on- and off-system bridges Improve pavement conditions on MassDOT-monitored roadway system Maintain and modernize capital assets, including transit assets, throughout the system Prioritize projects that support planned response capability to existing or future extreme conditions (sea level rise, flooding, and other natural and security-related man-made hazards) Protect freight network elements, such as port facilities, that are vulnerable to climate-change impacts
CLEAN AIR/CLEAN COMMUNITIES	
Create an environmentally friendly transportation system	<ul style="list-style-type: none"> Reduce greenhouse gases generated in the Boston region by all transportation modes as outlined in the Global Warming Solutions Act Reduce other transportation-related pollutants Minimize negative environmental impacts of the transportation system Support land use policies consistent with smart and healthy growth

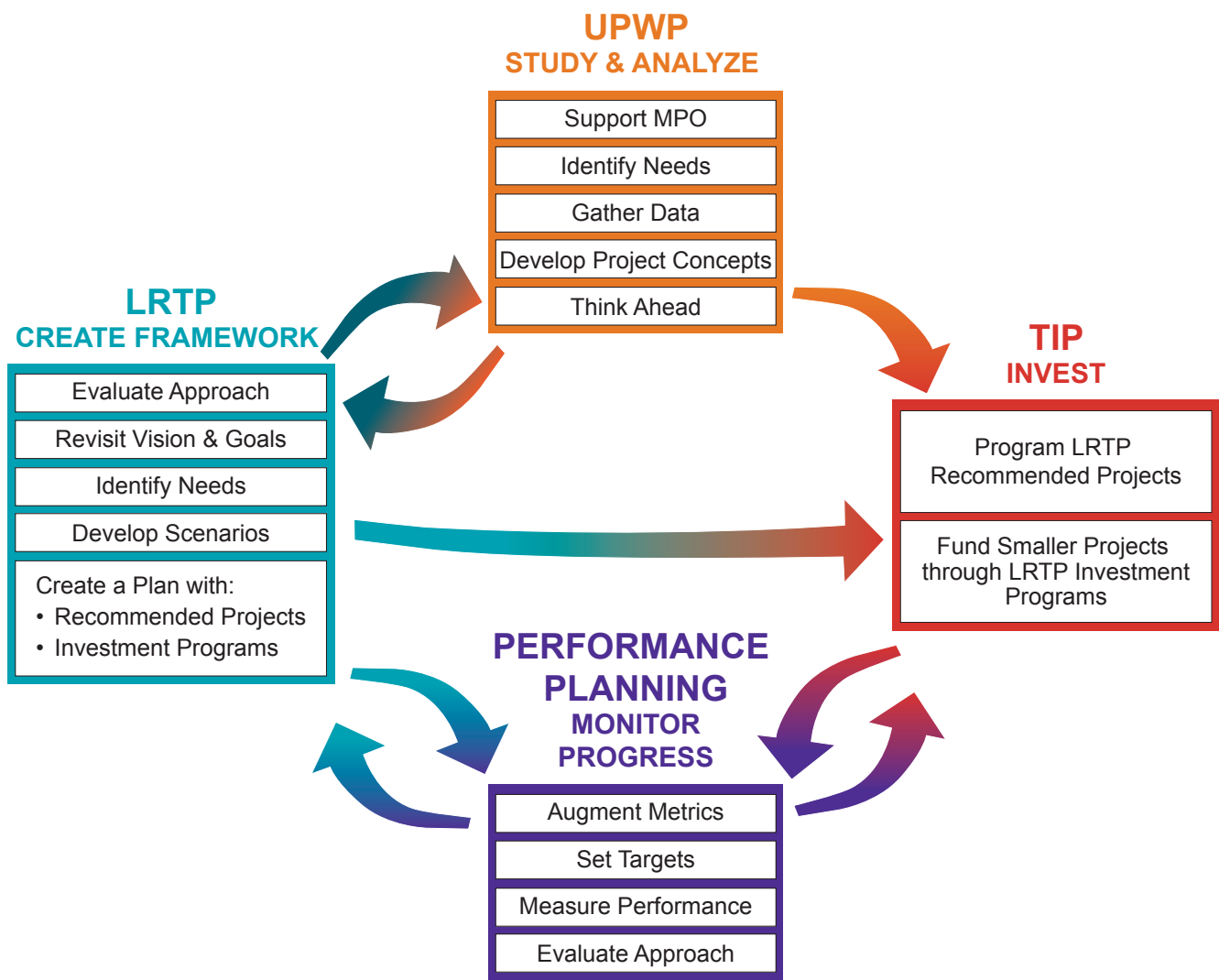
GOALS (cont.)	OBJECTIVES (cont.)
CAPACITY MANAGEMENT/ MOBILITY	
<p>Use existing facility capacity more efficiently and increase healthy transportation capacity</p>	<ul style="list-style-type: none"> • Improve reliability of transit • Implement roadway management and operations strategies, constructing improvements to the bicycle and pedestrian network, and supporting community-based transportation • Create connected network of bicycle and accessible sidewalk facilities (at both regional and neighborhood scale) by expanding existing facilities and closing gaps • Increase automobile and bicycle parking capacity and usage at transit stations • Increase percentage of population and places of employment within one-quarter mile of transit stations and stops • Increase percentage of population and places of employment with access to bicycle facilities • Improve access to and accessibility of transit and active modes • Support community-based and private-initiative services and programs to meet last mile, reverse commute and other non-traditional transit/transportation needs, including those of the elderly and persons with disabilities • Eliminate bottlenecks on the freight network • Enhance intermodal connections • Emphasize capacity management through low-cost investments; give priority to projects that focus on lower-cost operations and management improvements such as intersection improvements and Complete Streets solutions
TRANSPORTATION EQUITY	
<p>Provide comparable transportation access and service quality among communities, regardless of income level or minority population</p>	<ul style="list-style-type: none"> • Target investments to areas that benefit a high percentage of low-income and minority populations • Minimize any burdens associated with MPO-funded projects in low-income and minority areas • Break down barriers to participation in MPO decision-making
ECONOMIC VITALITY	
<p>Ensure that our transportation network provides a strong foundation for economic vitality</p>	<ul style="list-style-type: none"> • Respond to the mobility needs of the 25–34-year-old workforce • Minimize the burden of housing and transportation costs for residents in the region • Prioritize transportation investments that serve targeted development sites • Prioritize transportation investments consistent with the compact-growth strategies of MetroFuture

Central Vision Statement

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

Figure 1-3 depicts the relationship between the framework established in the LRTP, the planning foundation of the MPO (the UPWP), the near-term investment plan of the MPO (the TIP), and the feedback loop for monitoring progress towards the region’s goals as well as continuously evaluating the MPO’s approach to achieving them.

Figure 1-3
Links between the LRTP, TIP, and UPWP



The Process of Creating and Monitoring the UPWP

Each year, the UPWP Committee considers new studies for funding. The UPWP documents these new studies (as well as studies that are continuing from previous UPWPs), and it provides updates on the MPO's ongoing programs that fulfill the federally required 3C transportation planning process.

The UPWP Committee met with MPO staff seven times in FFY 2018 to consider and provide guidance on the UPWP development process, including proposed budgets for ongoing and continuing activities, new study ideas, and prioritizing these ideas. These meetings resulted in the committee's recommendation for the Draft FFY 2019 UPWP. The MPO approved the UPWP Committee's recommendations for public review of the Draft FFY 2019 UPWP on May 3, 2018.

Below are details about the process for selecting studies and programs for the FFY 2019 UPWP.

Developing the New Federal Fiscal Year UPWP

To develop new planning studies for the FFY 2019 UPWP, the MPO drew from the following sources to generate a listing known as the Universe of Proposed New Studies 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—which are organized by an MPO member agency, MAPC—involve municipal representatives who are focused on regional planning topics. Staff also visited meetings of community-based organizations and transportation advocacy groups during the fall outreach period, and provided opportunities for input at regular MPO public office hours and at UPWP committee meetings.
2. **Regional Transportation Advisory Council (Advisory Council):** MPO staff met several times with the Advisory Council, an independent body that brings public viewpoints and advice on transportation planning to the MPO, to present preliminary drafts of the FFY 2019 Universe of Proposed New Studies and gain ideas and input on transportation planning priorities.
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 and analyzing 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 (CMP), which monitors the transportation network to identify locations and sources of congestion; the Program for Mass Transportation (PMT), the MBTA's long-range capital plan; the MPO's long-range planning documents, including the current LRTP, *Charting Progress to 2040*, and the developing LRTP Needs Assessment for the next LRTP, *Destination 2040*; MetroFuture, a long-range plan for smart growth developed by MAPC; 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 2018 UPWP public comment letters and study proposals.**
7. **Consultations with MassDOT, the MBTA, and MAPC.**
8. **MPO staff-identified needs.**

MPO staff has been working to enhance public participation in the UPWP and other MPO activities. Based on input gathered and experience gained during the FFY 2018 outreach process, staff members expect to see continued improvements in the volume, diversity, and quality of public input in FFY 2019 and beyond. More information about the MPO's public outreach process is available in Chapter 4, and at ctps.org/public_involvement.

Proposed planning studies are documented in the FFY 2019 UPWP Universe of Proposed New Studies (see Appendix C).

Evaluating and Selecting New Studies

Staff evaluated each new proposed study in the Universe of Proposed New Studies based on the following criteria: how it helps the region accomplish the LRTP goals; the mode(s) it addresses; the scale of the study; the time frame and type of impact it is anticipated to have; whether it furthers some body of existing work; and whether it has been funded in the past or is a completely new idea.

The evaluation process provides an important tool for the MPO and stakeholders to understand the amount of spending on studies across the following criteria:

- **Focus on LRTP goal areas:** whether a study addresses, either as a primary focus or a secondary focus, one of the six LRTP goal areas:
 - Safety
 - System Preservation
 - Clean Air/Clean Communities

- Transportation Equity
 - Capacity Management/Mobility
 - Economic Vitality
- **Mode:** whether a study primarily addresses roadway, bicycle and pedestrian, or transit issues.
 - **Study scale:** whether a study primarily impacts one or two specific communities in the region or the region as a whole.
 - **Time frame and type of impact:** whether a study results in research and findings that enhance the state of transportation planning practice in the Boston region, low-cost/short-term implementation of improvements, or long-term implementation (for transportation studies leading to construction projects that need to go through the MassDOT design process).
 - **Connection to existing work:** whether a study furthers analysis or conclusions developed from a previous study.
 - **Continuing or new study:** whether a study has been conducted previously at a specific location/roadway and is being conducted again at a new location, or whether a study is a completely new idea that has never been undertaken by the MPO.

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 various factors, 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 1-1 shows the studies in the FFY 2019 universe that were chosen for funding in FFY 2019. Chapter 5 provides detailed descriptions of these studies.

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 4), resource management and support activities (see Chapter 7), and ongoing technical assistance to municipalities (see Chapter 5).

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.

Table 1-1
FFY 2019 New Discrete Funded Studies, FFY 2019

Project ID	Study or Program	Proposed FFY 2019 CTPS Budget	Page Number
13292	Pedestrian Report Card Assessment Dashboard	\$65,000	5-4
14359	Reverse Commute Areas Analysis	\$65,000	5-9
14360	Transportation Access Studies of Commercial Business Districts	\$85,000	5-6
13619	Low-Cost Improvements to Express Highway Bottleneck Locations FFY 2019	\$60,000	5-11
13419	Addressing Safety, Mobility, and Access on Subregional Priority Roadways FFY 2019	\$120,000	5-13
13519	Addressing Priority Corridors from the LRTP Needs Assessment FFY 2019	\$120,000	5-15
13290	New and Emerging Metrics for Roadway Usage	\$60,000	5-17
14361	The Future of the Curb	\$35,000	5-8
13291	Updates to Express Highway Volumes Charts	\$85,000	5-18
20903	MPO Staff-Generated Research Topics	\$20,110	5-20
Total for New Discrete and Ongoing Studies		\$715,110	

CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. LRTP = Long-Range Transportation Plan. MPO = Metropolitan Planning Organization. PL = Planning. UPWP = Unified Planning Work Program.

Public Review of the Draft UPWP

Staff incorporates descriptive and financial information about ongoing and new UPWP studies, along with information about the UPWP development process and other major transportation planning studies that occur in the region, into the draft UPWP. 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 noted above, public outreach forms a major part of the input to the UPWP each FFY. After the draft UPWP is approved by the MPO, there is a public comment period. During this time, MPO staff members solicit public input via the MPO website, social media outlets, open houses, and public meetings held in conjunction with MassDOT and the MBTA. 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 2019 UPWP is available in Appendix B.

Monitoring Progress of UPWP Studies

The following procedures for monitoring the studies in the FFY 2019 UPWP were approved by the MPO:

- Work programs supported by federal 3C planning funds must be approved by the MPO prior to execution of work.
- Work scopes supported by other funding sources (for example, agency) for CTPS work must be approved by the MPO with the assurance that the new work will not impact other MPO-funded work to be performed by CTPS.
- 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 each week
 - Objectives and planned activities for the next month
 - Percent of work completed
 - Some measure of actual resources (for example, hours, funds, and so forth) 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, amendments and administrative modifications may be made to the UPWP throughout the year. All 3C documents (TIP, LRTP, and UPWP) endorsed by MPOs must follow standardized procedures regarding amendments and/or administrative adjustments. If an amendment is under consideration, the Advisory Council and other interested parties, including any affected communities, are notified. The MPO follows the procedures specified in the MPO's Public Participation Plan.

Below are general guidelines regarding the conditions that constitute an administrative adjustment or amendment to the UPWP.

Table 1-2
UPWP Amendment and Administrative Adjustment Guidelines, as of April 2018

UPWP Administrative Adjustment	UPWP Amendment
Reallocation of budget funds	Addition or Removal of UPWP task(s)
Change in start/completion dates within the originally intended federal fiscal year(s)	Change in start/completion dates, outside of originally intended federal fiscal year(s)
Adjustment to project scope	Significant change in project scope, cost, and/or time allocation

All proposed administrative adjustments and amendments must be presented to the MPO for consultation prior to endorsement. Both adjustments and amendments must be voted on by the MPO members, and amendments must be released for a 30-day public comment period prior to endorsement. Members of the public may attend and present comments at UPWP committee meetings and MPO meetings at which amendments and administrative modifications are discussed. Administrative modifications may be made by the MPO without a public review period at the MPO's discretion. When submitting the standard Budget Reallocation Request form to MassDOT's Office of Transportation Planning (OTP), all fields must be filled out with clear indication that the MPO was consulted prior to submission. Back-up documentation must be submitted, including the UPWP description of task(s) affected, original budget, revised budget, and justification for the request.

A change to a project scope, budget, and/or project schedule is considered significant when it alters the original intent of the project or intended deliverables of the project.

Other Regionally Significant Transportation Planning Studies

To provide a comprehensive perspective of transportation planning in the Boston region, the UPWP also includes a list of other major transportation planning activities in the region. This list, which is included in Appendix A of this UPWP, includes projects that are not funded with the MPO's planning funds, but which are being funded and implemented by individual transportation agencies, municipalities, or academic institutions. Often, these efforts also use the expertise and tools that CTPS is uniquely able to provide.

1.4 HOW IS THE WORK FUNDED?

The funding for the studies and programs included in this UPWP (presented in Chapters 4 through 7) comes from a variety of federal and state sources, as described below. The source of funds has important implications with regard to which agency or organization is responsible for programming them and for the MPO's vote to approve both the UPWP and the subsequent work programs for the studies. The chapters of this UPWP are organized based on funding source: MPO-funded (3C-funded) studies and agency/other client-funded studies.

- **FHWA 3C Planning (PL)/MassDOT Local Match:** These are FHWA planning funds distributed to MassDOT's 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 based on population. The FFY 2019 3C PL funding allocation for the Boston Region is \$3,727,192, which includes in-state matching funds. Of that allocation, \$3,727,187 is programmed in this UPWP.
- **FTA 3C Planning (\$5303)/MassDOT Local Match:** FTA provides 3C planning funds for transit projects to MPOs 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. The FFY 2019 FTA allocation for the Boston Region, including a total local match, is \$2,181,986. The total amount programmed in this UPWP for studies to be conducted by MPO staff, MassDOT, and MAPC on behalf of the MPO is \$1,674,897. Of the total FTA 3C funds allocated to the region, MassDOT, MAPC, and the MPO receive a portion, as described below:
 - **MPO FTA 3C Planning (\$5303)/MassDOT Local Match:** The total amount of FTA funds, including a local match, programmed in this UPWP for work conducted by MPO staff is \$1,347,600.

- **MassDOT FTA 3C Planning (\$5303)/MassDOT Local Match:** The total amount of FTA funds, including a local match, allocated to MassDOT for FFY 2019 is \$274,530. MassDOT uses these funds to issue a contract to the MPO for transit planning assistance throughout the FFY (referred to as MassDOT Transit Planning Assistance).
- **MAPC FTA 3C Planning (\$5303)/MassDOT Local Match:** A portion of the Boston Region FTA allocation also goes to MAPC. MAPC uses these funds to conduct their transit planning studies programmed through the UPWP. The total amount of FTA funds, including a local match, allocated to MAPC for FFY 2019 is \$327,297.
- **FHWA Statewide Planning and Research (SPR)/MassDOT Local Match:** 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 studies that will be conducted in the Boston Region MPO area; however, OTP provides a complete listing of how these funds are distributed throughout the state in a document called the SPR Transportation-Planning Work Program. SPR funds in the amount of \$306,000 (including in-state matching funds) are programmed in this UPWP for studies to be conducted by MPO staff. The MPO's role in these studies is crucial to the 3C process because it provides an opportunity to coordinate studies with other related transportation work efforts that may be planned for the same area.
- **MassDOT:** Other MassDOT funds in the amount of \$357,500 for MassDOT studies are included in this UPWP.
- **MBTA:** The MBTA provides \$618,950 in funding for this UPWP for transit studies to be conducted by CTPS.
- **Massport:** This UPWP also includes \$25,000 in funding provided by Massport for work being conducted by CTPS on its behalf.

Table 1-3
Unified Planning Work Program Budget—Summary of FFY 2019 Budgets for CTPS

3C Studies and Programs by Budget Categories	CTPS 3C PL Funds	CTPS Section 5303 Funds	Proposed FFY 2019 CTPS Budget
Administration, Resource Management, and Support Activities	\$429,020	\$190,040	\$619,060
MPO Certification Requirements	\$1,895,980	\$814,930	\$2,710,910
Continuing MPO-funded Planning Studies and Technical Analyses	\$135,040	\$114,500	\$249,540
New MPO-funded Discrete Studies	\$513,980	\$201,130	\$715,110
Direct Support	\$45,000	\$27,000	\$72,000
Total for CTPS 3C Studies and Programs	\$3,019,020	\$1,347,600	\$4,366,620

Agency-Funded CTPS Work	Agency Funds	Direct Support	Proposed FFY 2019 CTPS Budget
MassDOT SPR Funds	\$300,000	\$6,000	\$306,000
MassDOT Section 5303 Funds	\$150,000	\$1,000	\$151,000
MassDOT Other Funds	\$357,500	\$-	\$357,500
MBTA Funds	\$615,700	\$3,250	\$618,950
Massport Funds	\$24,500	\$500	\$25,000
Other	\$234,600	\$-	\$234,600
Total for Agency-Funded CTPS Project Work	\$1,682,300	\$10,750	\$1,693,050
Total FFY 2019 CTPS Budget (3C and Agency Work)			\$6,059,670

Note: Budget figures include salary, overhead, and direct expenses.

3C = Continuing, comprehensive, and cooperative. CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. MassDOT = Massachusetts Department of Transportation. Massport = Massachusetts Port Authority. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. PL = Planning. SPR = Statewide Planning and Research. UPWP = Unified Planning Work Program.

**Table 1-4
Summary of MAPC UPWP Budget for FFY 2019**

3C Studies and Programs by MAPC Budget Categories	MAPC 3C PL Funds	MAPC Section 5303 Funds	Proposed FFY 2019 MAPC Budget
MAPC Administration, Resource Management, and Support Activities	\$326,051	\$125,400	\$451,451
MAPC Planning Studies and Technical Analyses	\$382,116	\$201,897	\$584,013
Total MAPC FFY 2019 UPWP Programmed Funds	\$708,167	\$327,297	\$1,035,464

3C = Continuing, comprehensive, and cooperative. FFY = Federal Fiscal Year. MAPC = Metropolitan Area Planning Council. PL = Planning. UPWP = Unified Planning Work Program.

**Table 1-5
FFY 2019 Unified Planning Work Program Budget**

Agency Supporting MPO/3C Work	3C PL Funds	Section 5303 Funds	Proposed FFY 2019 Budget
CTPS	\$3,019,020	\$1,347,600	\$4,366,620
MAPC	\$708,167	\$327,297	\$1,035,464
3C Budget Subtotal by Funding Program	\$3,727,187	\$1,674,897	\$5,402,084
Agency-Funded CTPS Work			\$1,693,050
Total UPWP Budget Programmed in FFY 2019 (CTPS 3C Budget, CTPS Agency-Funded Budget, and MAPC 3C Budget)			\$7,095,134

3C = Continuing, comprehensive, and cooperative. CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. MAPC = Metropolitan Area Planning Council. MPO = Metropolitan Planning Organization. PL = Planning. UPWP = Unified Planning Work Program.



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CHAPTER

Transportation Planning and the Boston Region MPO



This chapter explains the transportation-planning process in the Boston Region Metropolitan Planning Organization (MPO) area and the composition of the Boston Region MPO.

Decisions about how to spend 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 other interested people. MPOs are the bodies responsible for providing a forum for this decision-making process. Each metropolitan area in the United States with a population of 50,000 or more—also known as an urbanized area—has an MPO, which decides how to spend federal transportation funds for capital projects and planning studies for the area.

2.1 THE TRANSPORTATION-PLANNING PROCESS

The federal government regulates the funding, planning, and operation of the surface transportation system through the federal transportation program (enacted into law through Titles 23 and 49 of United States Code). The most recent reauthorization of the surface transportation law is the Fixing America's Surface Transportation (FAST) Act.

FAST Act legislation, as with previous federal transportation laws, sets policies related to metropolitan transportation planning. The law requires all MPOs to carry out a continuing, comprehensive, and cooperative (3C) transportation-planning process.

3C Transportation Planning

Title 23, Section 134 of the Federal-Aid Highway Act and Section 5303 of the Federal Transit Act, as amended, require that urbanized areas, in order to be eligible for federal funds, conduct a 3C transportation-planning process, resulting in plans and programs consistent with the planning objectives of the metropolitan area. The Boston Region MPO is responsible for carrying out the 3C planning process in the Boston region and has established the following objectives for the process:

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

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 Long-Range Transportation Plan (LRTP), are referred to as Certification Documents (described in Section 2.1.2) and are required for the MPO's process to be certified as meeting federal requirements; this certification is a prerequisite for receiving federal transportation funds. In addition to the requirement to produce the LRTP, TIP, and UPWP, the MPO must establish and conduct an inclusive public participation process, as well as maintain transportation models and data resources to support air quality conformity determinations and long- and short-range planning work and initiatives.

Certification Documents

An essential aspect of maintaining an open and transparent 3C transportation planning and programming process in conformance with federal and state requirements and guidelines is development of the MPO's certification documents.

- The LRTP guides investment in the transportation system of the Boston metropolitan region for the next two decades. It defines an overarching vision of the future of transportation in the region, establishes goals and objectives that will lead to achieving that vision, and allocates projected revenue to transportation projects and programs consistent with established goals and objectives. The Boston Region MPO produces an LRTP every four years. *Charting Progress to 2040*, the current LRTP, was endorsed by the MPO in 2015 and guided the development of this document. The MPO is in the process of developing the next LRTP, *Destination 2040*, and expect to endorse it in 2019.
- The TIP is a multiyear, multimodal program of transportation improvements that is consistent with the LRTP. It describes and prioritizes transportation projects that are expected to be implemented during a five-year period. The types of transportation projects funded include major highway reconstruction and maintenance, arterial and intersection improvements, public transit expansion and maintenance, bicycle paths and facilities, and improvements for pedestrians. The TIP contains a financial plan that shows the revenue sources, current or proposed, for each project. The TIP serves as the implementation arm of the MPO's LRTP, and the Boston Region MPO updates the TIP annually. An MPO-endorsed TIP is incorporated into the State Transportation Improvement Program (STIP) for submission to the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and Environmental Protection Agency for approval.
- The UPWP contains information about transportation planning studies that will be conducted by MPO staff. Generally, the work described throughout the following chapters has a scope defined by the federal fiscal year (FFY), October 1 through September 30. The UPWP also describes all of the supportive planning activities undertaken by the MPO, including data resources management, preparation of the federally required certification documents, and ongoing regional transportation planning assistance. The UPWP is produced annually and it is often a means to study transportation projects and alternatives before they are advanced for further design, construction, and possible future programming through the TIP. As described throughout this document, 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 (MassDOT), the Massachusetts Bay Transportation Authority (MBTA), the Massachusetts Port Authority (Massport), the Metropolitan Area Planning Council (MAPC), and municipalities in the Boston region.

2.2 THE BOSTON REGION MPO

The Boston Region MPO consists of a 22 voting member board that includes state agencies, regional organizations, and municipalities; its jurisdiction extends from Boston north to Ipswich, south to Marshfield, and west to Interstate 495. There are 97 cities and towns that make up this area (see Chapter 1, Figure 1-1).

The permanent MPO voting members are as follows:

- MassDOT
- MBTA
- MBTA Advisory Board
- Massport
- MAPC
- City of Boston
- Regional Transportation Advisory Council (Advisory Council)

The elected MPO voting members are municipalities. A municipality from each of the eight MAPC subregions has a seat, and there are four at-large municipal seats. The current elected members are as follows:

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

In addition, FHWA and the FTA participate in the MPO as advisory (nonvoting) members. Figure 2-1 shows MPO membership and the organization of the Central Transportation Planning Staff (CTPS), which serves as staff to the MPO. Details about MPO voting members are provided below.

MassDOT was established under Chapter 25 (*An Act Modernizing the Transportation Systems of the Commonwealth of Massachusetts*) of the Acts of 2009. It includes four divisions: Highway, Rail and Transit, Aeronautics, and the Registry of Motor Vehicles. The MassDOT Board of Directors, comprised of 11 members appointed by the Governor, oversees all four divisions and MassDOT operations, including the MBTA. The board was expanded to 11 members by the legislature in 2015 based on a recommendation by Governor Baker's Special Panel, a group of transportation leaders assembled to review structural problems with the MBTA and deliver recommendations for improvements. MassDOT has three seats on the MPO, including seats for the Highway Division and the MBTA.

The MassDOT Highway Division has jurisdiction over the roadways, bridges, and tunnels formerly overseen by the Massachusetts Highway Department and the Massachusetts Turnpike Authority. The Highway Division also has jurisdiction over many bridges and parkways that previously were under authority of the Department of Conservation and Recreation. The Highway Division is responsible for the design, construction, and maintenance of the Commonwealth's state highways and bridges. It is also responsible for overseeing traffic safety and engineering activities for the state highway system. These activities include operating the Highway Operations Control Center to ensure safe road and travel conditions.

The Rail and Transit Division oversees MassDOT's freight and passenger rail program, and provides oversight of Massachusetts's 15 regional transit authorities (RTAs), as well as intercity bus service, the MBTA's paratransit service (THE RIDE), and a statewide mobility-management effort.

The MBTA, created in 1964, is a body politic and corporate, and a political subdivision of the Commonwealth. Under the provisions of Chapter 161A of the Massachusetts General Laws (MGL), it has the statutory responsibility within its district of operating the public transportation system, preparing the engineering and architectural designs for transit development projects, and constructing and operating transit development projects. The MBTA district comprises 175 communities, including all of the 97 cities and towns of the Boston Region MPO area. In April 2015, as a result of a plan of action to improve the MBTA, a five-member Fiscal and Management Control Board (FMCB) was created. The FMCB was created to oversee and improve the finances, management, and operations of the MBTA. The FMCB's authorizing statute called for an initial three-year term, with the option for the board to request that the Governor approve a single two-year extension. In 2017, the FMCB's initial mandate, which would have expired in June 2018, was extended for two years, through June 30, 2020. The FMCB's goals target governance, finance, and agency structure and operations through recommended executive and legislative actions that embrace transparency and develop stability in order to earn public trust. By statute, the MBTA FMCB consists of five members, one with experience in transportation finance, one with experience in mass transit operations, and three who are also members of the MassDOT Board of Directors.

The MBTA Advisory Board was created by the Massachusetts Legislature in 1964 through the same legislation that created the MBTA. The Advisory Board consists of representatives of the 175 cities and towns that compose the MBTA district. Cities are represented by either the city manager or mayor, and towns are represented by the chairperson of the board of selectmen. Specific responsibilities of the Advisory Board include review of and comment on the MBTA's long-range plan, the Program for Mass Transportation (PMT), proposed fare increases, and the annual MBTA Capital Investment Program; review of the MBTA's documentation of net operating investment per passenger; and review of the MBTA's operating budget. The MBTA Advisory Board advocates for the transit needs of its member communities and the riding public.

Massport has the statutory responsibility under Chapter 465 of the Acts of 1956, as amended, for planning, constructing, owning, and operating such transportation and related facilities as may be necessary for developing and improving commerce in Boston and the surrounding metropolitan area. Massport owns and operates Boston Logan International Airport, the Port of Boston's Conley Terminal, Cruiseport Boston, Hanscom Field, Worcester Regional Airport, and various maritime and waterfront properties, including parks in East Boston, South Boston, and Charlestown.

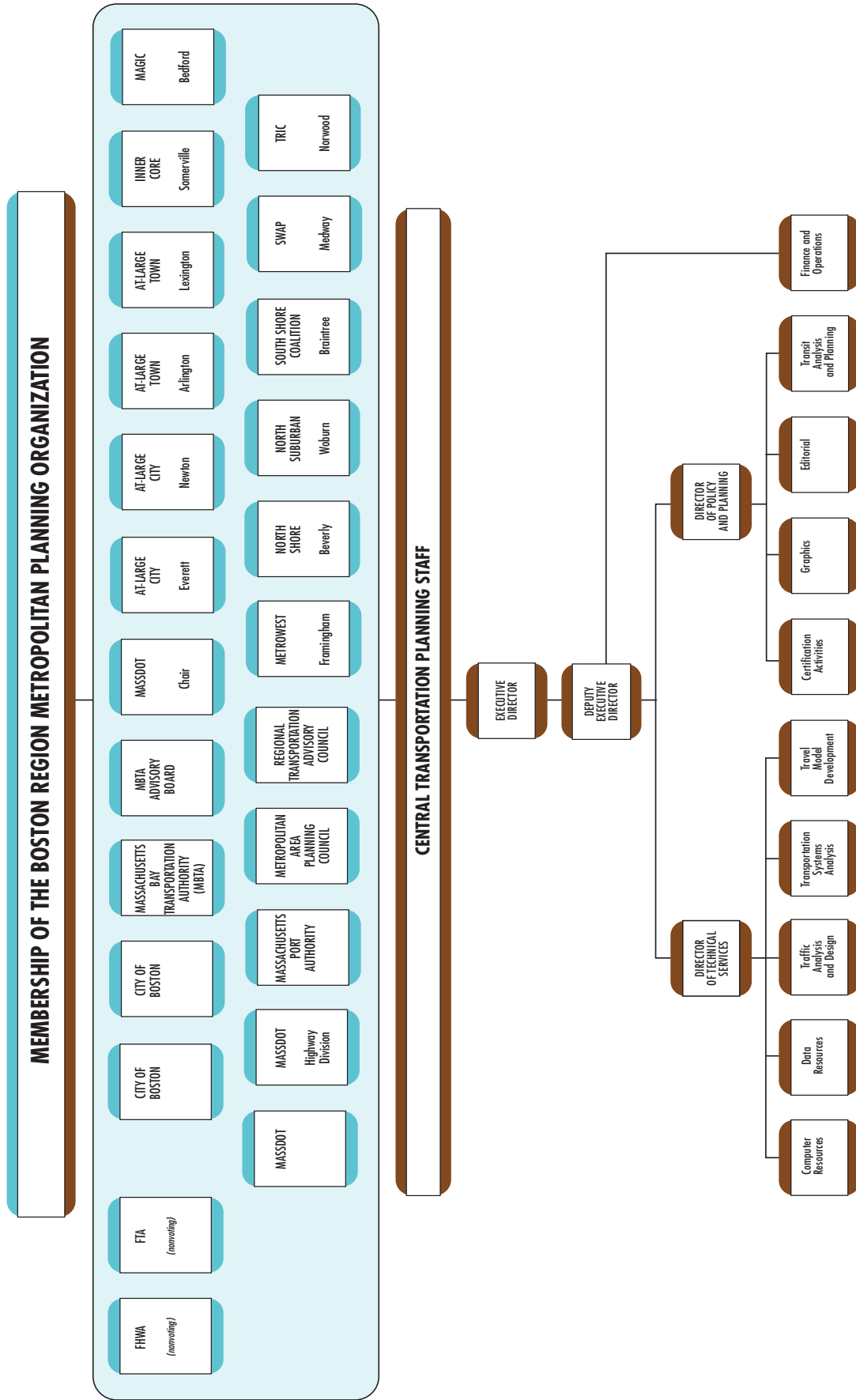
MAPC is the regional planning agency for the Boston region. It is composed of the chief executive officer (or her/his designee) of each of the cities and towns in the MAPC region, 21 gubernatorial appointees, and 12 ex-officio members. It has statutory responsibility for comprehensive regional planning in its region under Chapter 40B of the MGL. It is the Boston Metropolitan Clearinghouse under Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966 and Title VI of the Intergovernmental Cooperation Act of 1968. Also, its region has been designated an economic development district under Title IV of the Public Works and Economic Development Act of 1965, as amended. MAPC's responsibilities for comprehensive planning encompass the areas of technical assistance to communities, transportation planning, and development of zoning, land use, demographic, and environmental studies. MAPC activities that are funded with federal metropolitan transportation planning dollars are included in this UPWP.

The City of Boston, seven elected cities (currently Beverly, Braintree, Everett, Framingham, Newton, Somerville, and Woburn), and five elected towns (currently Arlington, Bedford, Lexington, Medway, and Norwood) represent the 97 municipalities in the Boston Region MPO area. The City of Boston is a permanent MPO member and has two seats. There is one elected municipal seat for each of the eight MAPC subregions and four seats for at-large elected municipalities (two cities and two towns). The elected at-large municipalities serve staggered three-year terms, as do the eight municipalities representing the MAPC subregions.

The Regional Transportation Advisory Council, the MPO's citizen advisory group, provides the opportunity for transportation-related organizations, non-MPO member agencies, and municipal representatives to become actively involved in the decision-making processes of the MPO as it develops plans and prioritizes the implementation of transportation projects in the region. The Advisory Council reviews, comments on, and makes recommendations regarding certification documents. It also serves as a forum for providing information on transportation topics in the region, identifying issues, advocating for ways to address the region's transportation needs, and generating interest among members of the general public in the work of the MPO.

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

Figure 2-1
Boston Region MPO Organizational Chart



CHAPTER

Regulatory Framework



The Boston Region Metropolitan Planning Organization (MPO) plays a critical role in helping the region move closer to achieving federal, state, and regional transportation goals and policies. Therefore, a central step in producing the Unified Planning Work Program (UPWP) is to ensure that the MPO's planning activities align with federal and state regulatory guidance. This chapter describes all of the regulations taken into consideration by the MPO during development of the federal fiscal year (FFY) 2019 UPWP.

3.1 FEDERAL REGULATIONS AND GUIDANCE

Fixing America's Surface Transportation (FAST) Act: National Goals

The purpose of the national transportation goals (23 United States Code [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

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 national freight network, strengthen 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 project development and delivery process, including reducing regulatory burdens and improving agencies' work practices

FAST Act: Planning Factors

Because transportation-planning studies are programmed for funding in the UPWP, specific consideration is given to the federal planning factors (23 USC 134). The FAST Act added two new planning factors to the eight factors established in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) transportation legislation. In accordance with the legislation, studies and strategies undertaken by the MPO shall

1. Support the economic vitality of the metropolitan area, especially by enabling global competition, productivity, and efficiency
2. Increase the safety of the transportation system for all motorized and nonmotorized users
3. Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and nonmotorized users
4. Increase accessibility and mobility of people and freight
5. Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns
6. Enhance integration and connectivity of the transportation system, across and between modes, for people and freight
7. Promote efficient system management and operation
8. Emphasize preservation of the existing transportation system

9. Improve the resiliency and reliability of the transportation system and reduce or mitigate storm-water impacts of surface transportation
10. Enhance travel and tourism

The US Department of Transportation (USDOT), in consultation with states, MPOs, and other stakeholders, has established measures in performance areas relevant to these national goals. 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. Work being done to address federal performance-based planning and programming requirements is discussed in Chapter 4.

Table 3-1 illustrates how studies and ongoing work conducted by the MPO and funded through federal formula grant programs address the federal planning factors.



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TABLE 3-1
3C-Funded UPWP Studies and Programs—Relationship to Federal Planning Factors

Federal Planning Factor	3C-funded Certification Activities										3C-funded Technical Analysis and Support						3C-funded Planning Studies, New and Ongoing										Resource Management and Support Activities											
	3C Planning and MPO Support*	Provision of Materials in Accessible Formats	Regional Model Enhancement	Long-Range Transportation Plan	Transportation Improvement Program	Unified Planning Work Program (CTPS and MAPC)	Air Quality Conformity and Support Activities	Boston Region MPO Title VI Reporting	Congestion Management Process	Freight Planning Support	Transportation Equity/Environmental Justice Program	Bicycle/Pedestrian Support Activities	Community Transportation Technical Assistance	Regional Transit Service Planning Technical Assistance Program	Land-Use Development Project Reviews	Transit Data Support	Traffic Data Support	Roadway Safety Audits	Pedestrian Report Card Assessment Dashboard	Reverse Commute Areas Analysis	Transportation Access Studies of Commercial Business Districts	"Low-Cost Improvements to Express Highway Bottleneck Locations FFY 2019"	Addressing Safety, Mobility, and Access on Subregional Priority Roadways FFY 2019	Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment FFY 2019	New and Emerging Metrics for Roadway Usage	The Future of the Curb	Updates to Express Highway Volumes Charts	MPO Staff-Generated Research Topics	Alternative Mode Planning and Coordination (MAPC)	MetroFuture Implementation (MAPC)	Corridor/Subarea Planning Studies (MAPC)	Computer Resource Management	Data Resources Management	MPO/MAPC Liaison Activities	Land-Use Data for Transportation Modeling	Subregional Support Activities		
1	X			X	X	X			X	X									X	X				X	X													
2	X			X	X	X			X		X	X				X	X	X			X	X	X												X			
3	X			X	X	X			X									X			X	X	X											X				
4	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X		X	X	X		X		X									X		
5	X			X	X	X	X	X		X	X	X	X	X	X	X	X		X	X					X											X	X	
6	X			X	X	X			X	X	X	X	X		X	X	X		X																			
7	X			X	X	X			X	X					X	X	X		X		X	X	X	X	X	X	X											
8	X			X	X	X			X							X	X				X	X	X			X	X											
9	X			X	X	X	X					X		X																								
10	X			X	X	X					X	X	X		X	X																						

* includes Support to the MPO and its Committees, Public Participation Process, and RTAC Support

3C = Continuing, cooperative, and comprehensive transportation-planning process. CTPS = Central Transportation Planning Staff. MAPC = Metropolitan Area Planning Council. MPO = Metropolitan Planning Organization. X = Applicable.



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1990 Clean Air Act Amendments

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.

In the most recent LRTP, *Charting Progress to 2040*, the air quality conformity determination concluded that the emissions levels from the Boston area carbon monoxide (CO) maintenance area, including emissions resulting from implementing the LRTP, are in conformance with the State Implementation Plan (SIP) according to state and federal conformity criteria. Specifically, the CO emissions for the build scenarios of the MPO's regional travel demand model set are less than the projections for analysis for the years 2020 through 2040 for the nine cities in the Boston CO maintenance area. In accordance with Section 176(c) (4) of the Clean Air Act as amended in 1990, the Boston Region MPO has completed this review and hereby certifies that the LRTP, and its latest conformity determination, conditionally conforms with federal (40 CFR Part 93) and Massachusetts (310 CMR 60.03) regulations and is consistent with the air quality goals in the Massachusetts SIP.

Transportation control measures (TCMs) identified in the SIP for attaining air quality standards are federally enforceable and must be given first priority when using federal funds. Such projects include the parking-freeze program in Boston, the statewide rideshare program, rapid transit and commuter rail extension programs, park-and-ride facilities, residential parking-sticker programs, and the operation of high-occupancy-vehicle lanes. The United States Environmental Protection Agency 40 CFR Parts 51 and 93 Conformity Regulation established the policy, criteria, and procedures for demonstrating air quality conformity in the MPO region.

As of April 1, 2016, the Boston Region MPO has been classified as being in attainment for CO. Therefore, the MPO is in attainment for all of the criteria pollutants (ozone and CO) and is not required to perform air quality analyses for these pollutants as part of the LRTP and TIP. The MPO, however, is still required to report on the TCMs as part of air quality conformity determinations in these documents. In addition, the MPO is still required to perform air quality analyses for carbon dioxide as part of the state's Global Warming Solutions Act (see below).

Non-Discrimination Mandates

The Boston Region MPO complies with Title VI of the Civil Rights Act of 1964, the American with Disabilities Act of 1990 (ADA), and other federal and state non-discrimination statutes and regulations in all programs and activities. The MPO, as well as its plans and programs, does not discriminate on the basis of race, color, national origin, English-language proficiency, income, religious creed, ancestry, disability, age, gender, sexual orientation, gender identity or expression, or military service. The major federal requirements are discussed below.

Title VI of the Civil Rights Act of 1964

This statute requires that no person be excluded from participation in, be denied the benefits of, or be subjected to discrimination on the basis of race, color, or national origin, under any program or activity provided by an agency receiving federal financial assistance.

Executive Order 13166, dated August 11, 2000, extends Title VI protections to persons who, as a result of national origin, have limited English-language proficiency (LEP). Specifically, it calls for improved access to federally conducted and federally assisted programs and activities, and requires MPOs to develop and implement a system through which LEP persons can meaningfully participate in the transportation planning process.

MPO activities that meet these requirements are discussed in the Boston Region MPO Title VI Report, the Massachusetts Department of Transportation (MassDOT) Title VI Program, and the Massachusetts Bay Transportation Authority (MBTA) Title VI Program Monitoring. These projects are discussed in detail in Chapters 4 and 6.

Environmental Justice Executive Orders

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

On April 15, 1997, the US Department of Transportation (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
- Minimize or mitigate any adverse impact on minority or low-income populations

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

The ADA

Title III of the ADA requires all transportation projects, plans, and programs to be accessible to people with disabilities. At the MPO level, this means that public meetings must be held in accessible buildings and be conducted in a manner that provides for accessibility. MPO materials must also be made available in accessible formats.

Executive Order 13330

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

3.2 STATE GUIDANCE AND TRANSPORTATION PRIORITIES

Much of the work funded through the UPWP focuses on encouraging mode shift and diminishing greenhouse gas (GHG) emissions through improving transit service, enhancing bicycle and pedestrian networks, and studying emerging transportation technologies. All of this work helps the Boston Region contribute to statewide progress towards the priorities discussed in this section.

We Move Massachusetts and Planning for Performance

We Move Massachusetts (WMM) is MassDOT's statewide strategic multimodal plan. The initiative is a product of the transportation reform legislation of 2009, You Move Massachusetts civic engagement process, wider outreach to environmental justice and Title VI communities, and other outreach activities. In May 2014, MassDOT released *We Move Massachusetts: Planning for Performance, the Commonwealth of Massachusetts' 2040 LRTP*. WMM identifies high-level policy priorities that were considered in the

development of this UPWP. WMM also incorporates performance management into investment decision making to calculate the differences in performance outcomes resulting from different funding levels available to MassDOT.

MassDOT has expanded upon the incorporation of performance management in WMM by developing a Planning for Performance (PfP) tool to influence investments. The PfP tool is a scenario-planning tool, custom built for MassDOT, which forecasts asset conditions and allows capital planners within the divisions to consider the tradeoffs between investment strategies. The tool reports future conditions in comparison to the desired performance target.

Global Warming Solutions Act

The Global Warming Solutions Act (GWSA) makes Massachusetts a leader in setting aggressive and enforceable GHG reduction targets and implementing policies and initiatives to achieve these targets. In keeping with this law, the Massachusetts Executive Office of Energy and Environmental Affairs, in consultation with other state agencies and the public, developed the *Massachusetts Clean Energy and Climate Plan for 2020*. This implementation plan, released on December 29, 2010 (and updated in 2015), establishes the following targets for overall statewide GHG emission reductions:

- 25 percent reduction below statewide 1990 GHG emission levels by 2020
- 80 percent reduction below statewide 1990 GHG emission levels by 2050

In August 2017, the Massachusetts Department of Environmental Protection amended regulation 310 CMR 60.05, *Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation*. 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.

The Commonwealth's 10 MPOs (and 3 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 the planned and programmed projects.

Healthy Transportation Compact

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

Participating agencies work together to achieve positive health outcomes by coordinating land use, transportation, and public health policy. HTC membership is comprised of the Secretary of Transportation or designee (co-chair), the Secretary of Health and Human Services or designee (co-chair), the Secretary of Energy and Environmental Affairs or designee, the MassDOT Highway Administrator or designee, the MassDOT Transit Administrator or designee, the Commissioner of Public Health or designee, and the Secretary of Housing and Economic development or designee. The HTC will also promote improved coordination among the public sector, private sector, and advocacy groups, as well as among transportation, land use, and public health stakeholders.

3.3 REGIONAL GUIDANCE AND TRANSPORTATION PRIORITIES

The MBTA's Program for Mass Transportation

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

The next PMT, Focus40, is under development. Focus40 is the 25-year investment plan to position the MBTA to meet the needs of the greater Boston Region in 2040. Focus40 process will create a long-term investment vision that recognizes current infrastructure challenges and shifting demographics, changing climate, and evolving technology that may alter the role that the MBTA will play in greater Boston in the future. Focus40 will 1) emphasize performance and reliability; 2) support economic growth; 3) support inclusive growth; 4) support climate change mitigation and adaptation; and 5) provide a seamless multimodal experience.

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

Recommendations from Focus40 will support MassDOT's capital investment plans. The Boston Region MPO continues to monitor development of Focus40 to inform its decision making about transit capital investments.

MetroFuture

MetroFuture, which was developed by MAPC and adopted in 2008, is the long-range plan for land use, housing, economic development, and environmental preservation in the Boston region. It includes a vision for the region's future and a set of strategies for achieving that vision, and is the foundation for land use projections used in the MPO's LRTP, *Charting Progress to 2040*. Work being done to support MetroFuture implementation and updates is detailed in the MetroFuture implementation project description in Chapter 5. MetroFuture's goals, objectives, and strategies were considered in developing this UPWP.

The MPO's Congestion Management Process

The purpose of the Congestion Management Process (CMP) is to monitor and analyze performance of facilities and services, develop strategies for managing congestion based on the results of monitoring, and move those strategies into the implementation stage by providing decision makers in the region with information and recommendations for improving the transportation system's performance. The CMP monitors roadways and park-and-ride facilities in the MPO region for safety, congestion, and mobility, and identifies problem locations. Studies that help address problems identified in the most recent CMP monitoring were considered for inclusion in this UPWP, including *Priority Corridors for LRTP Needs Assessment: FFY 2019*. Work that is currently being performed in accordance with the FFY 2019 CMP is detailed in Chapter 4.

CHAPTER

Certification Requirements



4.1 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 do 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 federal Civil Rights Act of 1964, and the Americans with Disabilities Act of 1990.

The certification requirement activities serve to further the MPO's 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 4-1 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) 2018 and FFY 2019 and includes a brief description of the work, progress, and products for these on-going 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, there simply may be fluctuations in staffing levels that account for budget changes. Where appropriate, these differences are explained in the table and individual program descriptions.

The budget tables that accompany each of the individual program descriptions in this chapter include the salary and overhead costs associated with these programs. Any direct costs associated with the programs are included in the Direct Support budget table, under Resource Management and Support Activities (Chapter 7).

In this chapter, the programs are grouped into three general activity areas: 1) programs that support the MPO in carrying out its 3C process (section 4.2); 2) 3C planning and programming activities and other certification requirements (section 4.3), and 3) other 3C planning support activities (section 4.4).

**Table 4-1
Certification Requirement Activities, FFY 2019**

Project Name	ID	FFY 2018 Total Funding	FFY 2018 Work Progress and Products	FFY 2019 PL Funding	FFY 2019 \$5303 Funding	FFY 2019 Total Funding	FFY 2019 Planned Work Progress and Products
Support to the MPO							
Support to the MPO and its Committees	9119	\$229,361	<p>Continued support to the meetings and activities of the MPO board and its committees. Work entails preparing meeting and information materials—including agendas, minutes, notices, document translations, memoranda, reports, correspondence, summaries, and website content, as well as maps, charts, illustrations, and other visual materials—as needed to support MPO discussion and actions. Meeting materials are posted in digital form on the MPO meeting calendar webpage and in hard copies that are provided at meetings.</p> <p>Conducted activities to support compliance with federal requirements and guidance, including coordination with neighboring MPOs, MassDOT, and federal partners.</p>	\$162,610	\$72,030	\$234,640	<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. 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 (Advisory Council) Support	9319	\$109,110	<p>Continued support to the Advisory Council. Tasks generally consist of organizing and conducting the Advisory Council’s monthly meetings and field trips, including:</p> <ul style="list-style-type: none"> • Preparing and distributing informational materials, including documents posted on the MPO’s website and via email • Conducting meeting site selection and logistics planning • Setting up audio/visual equipment for 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, preparing audio-recording files, and documenting meeting minutes. 	\$32,430	\$14,360	\$46,790	<p>Hosting approximately 11 Advisory Council meetings (and a few subcommittee meetings, as needed), and performing the associated support tasks and pre- and post-meeting logistics.</p> <p>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.</p>
Public Participation Process	9619	\$187,970	<p>Supported the MPO’s commitment to including the people of the Boston region in transportation planning, including residents of communities that may have been underserved by the transportation system. Presented a participation plan for the LRTP and gathered input on transportation needs and opportunities for improving the transportation system. Communicated about the MPO’s meetings and planning activities via the web, emails, newsletters, blog posts, and Twitter. Engaged the public through Office Hours, MAPC subregional groups, visits to stakeholder organizations, a joint Summit on Accessible Transportation, and electronic surveys. Conveyed public comments to MPO members.</p>	\$125,930	\$55,790	\$181,720	<p>Continuing support of the MPO’s commitment to inclusion through timely communications and engagement opportunities.</p> <p>Gathering input and feedback on the LRTP’s vision, goals, and investments.</p> <p>Updating the Public Participation Plan</p> <p>Compiling a guide to help people understand transportation decision making in the Boston region.”</p>

Table 4-1 (cont.)

Project Name	ID	FFY 2018 Total Funding	FFY 2018 Work Progress and Products	FFY 2019 PL Funding	FFY 2019 \$5303 Funding	FFY 2019 Total Funding	FFY 2019 Planned Work Progress and Products
General Graphics	9219	\$85,170	Graphics support is provided 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.	\$59,080	\$26,170	\$85,250	Tasks and work products generally remain the same from year to year; however, the level of effort varies based on the specific work products and reports that the MPO produces each year.
Professional Development	9119.09	n/a	Cover the labor expenses of staff attending conferences and seminars related to MPO work.	\$15,090	\$6,680	\$21,770	Cover the labor expenses of staff attending conferences and seminars related to MPO work.
3C Planning and Other Certification Requirements							
Long-Range Transportation Plan (LRTP)	\$8,119	\$371,669	Continued to update details and analyses that led to an updated Needs Assessment (document and web-based data applications) completed in summer 2018. Continued to expand the MPO's scenario planning capabilities using the regional travel demand model set and other tools. Conducted and reported on the results of the baseline (2016 and 2040 no-build) scenarios. Initiated the second round of scenario analyses. Developed demographic (population and employment) projections for 2040. Conducted outreach activities related to transportation needs in the Boston region.	\$251,070	\$111,220	\$362,290	Continue scenario analyses to provide input into a recommended list of projects and programs for the final LRTP, <i>Destination 2040</i> . (Adoption by the MPO of a new LRTP is expected in spring 2019.) Review and revise, as necessary, the MPO's vision, goals, and objectives. Develop a Universe of Projects and Programs list, which will be evaluated using the MPO's evaluation criteria. The Universe is used in project selection for the LRTP. Conduct outreach to gather public input to inform MPO decision making. Document and finalize <i>Destination 2040</i> .
Transportation Improvement Program (TIP)	\$8,219	\$201,596	Development of the FFYs 2019-23 TIP. Amendments to the FFYs 2018-22 TIP. (Four as of May 2018.) Outreach to municipalities, TIP contacts, and subregions about TIP development and specific TIP projects, both funded and being considered for funding. Coordination with MassDOT district offices, the Office of Transportation Planning, and MPO members on TIP projects, TIP amendments, and the TIP process. Started development of an updated/reorganized internal TIP project database. Developed new approach for giving project proponents the ability to review their detailed project scores through an online spreadsheet. Developed new approach for summarizing changes in MassDOT's federal highway programming in the TIP.	\$169,220	\$74,970	\$244,190	Activities generally remain the same year to year, with staff supporting the MPO in developing its five-year (FFY 2020-24) TIP. FFY 2019 work will focus on: 1. finishing implementation of the new internal TIP project database and 2. making further improvements to the TIP development process to make it clearer and more engaging for municipal stakeholders and MPO members.

Table 4-1 (cont.)

Project Name	ID	FFY 2018 Total Funding	FFY 2018 Work Progress and Products	FFY 2019 PL Funding	FFY 2019 \$5303 Funding	FFY 2019 Total Funding	FFY 2019 Planned Work Progress and Products
Performance-Based Planning and Programming*	8819	n/a	<p>Coordinated with MassDOT, the MBTA, CATA, MWRTA, and other stakeholders on target-setting and other PBPP topics.</p> <p>Conducted analysis, made presentations, drafted MPO discussions, and facilitated MPO discussions to set initial MPO targets for federally required measures. Topics include, but are not limited to, highway safety and transit asset management.</p> <p>Monitored federal guidance and identified ways to integrate PBPP into MPO processes, including TIP and LRTP development.</p> <p>Explored other performance measures that the MPO could monitor.</p>	\$107,620	\$47,680	\$155,300	<p>Continue to support the MPO in setting targets for federally required measures and other measures as requested.</p> <p>Monitor performance data and work with MPO staff, the MPO board, and other stakeholders to link MPO investment processes more closely to performance outcomes.</p> <p>Update and enhance performance reports, such as those in the LRTP and TIP, and tools, such as the MPO's Performance Dashboard.</p> <p>Continue to explore other measures and methods that the MPO could incorporate into its PBPP process.</p> <p>Prepare presentations, memoranda, and supporting documents and materials to communicate with the MPO, other stakeholders, and the public.</p>
Air Quality Conformity and Support Activities	8419	\$37,400	<p>Conducted air quality analyses, including greenhouse gas analyses for projects to be considered for funding in the TIP, as well as for those to be considered for Congestion Management and Air Quality (CMAQ) funding.</p> <p>Updated air quality emission factors using the latest emissions factors software.</p> <p>Attended State Implementation Plan (SIP) meetings for updates on state air quality legislation.</p> <p>Provided support to MassDOT on air quality matters.</p>	\$28,650	\$12,690	\$41,340	<p>Activities generally remain the same from year to year.</p>
Unified Planning Work Program (UPWP)	\$8,319	\$112,529	<p>Development of the FFY 2019 UPWP.</p> <p>Amendment to the FFY 2018 UPWP.</p> <p>Outreach to municipalities in the region through open house events, MAPC subregional meetings, and conversations with agencies to develop study ideas for the UPWP.</p> <p>Outreach to advocacy and policy groups and interested citizens to gauge needs and collect study ideas for the FFY 2019 UPWP and beyond.</p> <p>Outreach to the Regional Transportation Advisory Council to develop study ideas for the UPWP and to educate and inform the council about the UPWP products and process.</p> <p>Maintenance of the UPWP Study Recommendations Tracking Database, updating information and records.</p>	\$75,490	\$33,440	\$108,930	<p>Activates generally remain the same year to year, with staff supporting the MPO in producing its annual (FFY 2020) UPWP.</p> <p>Added emphasis for FFY 2019 work will be on expanding outreach and maintaining current records in the UPWP Study Recommendations Tracking Database.</p>

Table 4-1 (cont.)

Project Name	ID	FFY 2018 Total Funding	FFY 2018 Work Progress and Products	FFY 2019 PL Funding	FFY 2019 \$5303 Funding	FFY 2019 Total Funding	FFY 2019 Planned Work Progress and Products
Transportation Equity Program (including MPO Title VI reporting)	8519	\$146,424	<p>Provided annual Title VI update to MassDOT/FHWA.</p> <p>Convened a stakeholder working group and held public meetings to support the MPO's development of a Disparate Impact/ Disproportionate Burden Policy for the LRTP.</p> <p>Supported the MPO's public participation program in outreach to and engagement with Title VI, EJ, and other non-discrimination populations.</p> <p>Provided technical support to the LRTP, TIP, and MPO-guided studies.</p> <p>Convened an internal staff-based Transportation Equity Analysis Committee in support of updating existing and developing new equity-related analytical techniques.</p> <p>Coordinated with other agencies to support external programs that target people who identify as minorities, have limited English proficiency, are 75 or older, have a disability, or who are members of low-income households.</p>	\$103,800	\$45,990	\$149,790	<p>Activities generally remain the same year-to-year.</p> <p>New activities will include:</p> <ul style="list-style-type: none"> • Preparing a Coordinated Public Transit-Human Services Transportation Plan for the MPO region. • Developing a final Disparate Impact and Disproportionate Burden Policy for the MPO.
Congestion Management Process	2119	\$111,897	<p>Continued monitoring MBTA park-and-ride lot and bicycle parking utilization; this data collection effort will continue into the fall of 2018. Analyzed and verified roadway datasets; documented findings about each roadway dataset.</p> <p>Created an annual snapshot summary of the MBTA performance measures for the MBTA bus system.</p> <p>Created a dashboard that displays the performance measures for the MBTA bus routes.</p> <p>Documented the changes in travel speeds between the 2012 and 2015 INRIX datasets.</p>	\$63,440	\$28,100	\$91,540	<p>Memorandum(a) documenting automobile and bicycle parking use at MBTA stations.</p> <p>Continue working with Congestion Management Process (CMP) committee to complete relevant CMP work.</p> <p>Support to development of <i>Destination 2040</i>.</p>
Freight Planning Support	2219	\$55,595	<p>Freight and logistics database for MPO and key statewide locations. Maps and technical memorandum on content and methodology.</p>	\$56,370	\$0	\$56,370	<p>First-round analysis of truck rest area opportunities.</p> <p>Freight model improvements utilizing freight and logistics database.</p>
Regional Model Enhancement	7119	\$773,060	<p>Update regional model databases and computer programs that implement modeling procedures. Began work on implementing an Activity-Based Model.</p> <p>Continued to refine linkages between the CTPS model and the Statewide model.</p>	\$551,460	\$244,300	\$795,760	<p>Continue work on the Activity-Based Model (ABM). Incorporate Transportation Network Companies (TNCs), such as Uber and Lyft, into the Regional Travel Demand Model. Improve Regional Travel Demand Model to support significantly different operating scenarios for modes such as commuter rail. Maintain the model's land use data.</p> <p>Continue to work toward developing freight and truck models that reflect existing conditions more accurately, and which can be reliable for developing forecasts</p>

Table 4-1 (cont.)

Project Name	ID	FFY 2018 Total Funding	FFY 2018 Work Progress and Products	FFY 2019 PL Funding	FFY 2019 \$5303 Funding	FFY 2019 Total Funding	FFY 2019 Planned Work Progress and Products
Provision of Materials in Accessible Formats	3119	\$102,050	<p>Support the MPO and CTPS in the production of accessible materials in pdf and html formats for posting on the Boston Region MPO website; materials include meeting minutes, work scopes, memoranda, reports, and other public materials.</p> <p>Review accessibility requirements, current CTPS standards and processes, and work on implementing standards within memorandum and report templates.</p>	\$73,140	\$32,400	\$105,540	Tasks and work products generally remain the same from year to year; however, the level of effort varies based on the specific work products and reports that the MPO produces each year that need to be made into accessible formats.
Federal Certification Review**	90025	\$40,000	MPO staff will prepare for and support the MPO in the upcoming federal recertification review, which is expected to begin in July 2018. This work will include preparing for the document and material review sessions, responding to federal agency requests for information and documentation, creating printed and graphical materials for the reviewers, and developing and participating in presentations, meetings, and discussions. MPO staff anticipates that the desk review phase of the work will occur in FFY 2018, and the on-site visit and related meetings (including the public meeting) will occur in early FFY 2019.	\$20,580	\$9,110	\$29,690	Concluding activities related to the recertification review process, including developing and participating in presentations and meetings with federal and state officials; hosting meetings and discussions during the site visit; hosting a public meeting, and providing reports and responses to information and inquiries, as requested.

*Part of LRTP previously.

**This budget line programmed as part of FFY 2018 UPWP Amendment 1.



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4.2 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 engagement activities with the public, municipalities, and other stakeholders. Specifically, 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
- Professional Development

The other programs that support the 3C planning and programming activities are described in section 4.3.

4.2.1 Support to the MPO and Its Committees

Project ID Number	9119
FHWA 3C PL Funds	\$162,610
FTA Section 5303 Funds	\$72,030
FFY 2019 Total Budget	\$234,640

FFY = Federal fiscal year. FHWA = Federal Highway Administration

FTA = Federal Transit Administration.

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

Support to the MPO and Its Committees includes implementing MPO policies on planning and programming, planning and coordinating delivery of information for MPO decision making, and supporting the work and 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 meetings and MPO committee meetings.

- Develop meeting agendas
- Prepare and distribute informational materials, including documents posted on the MPO's website and via email
- Conduct meeting site selection and logistics planning
- Set up audio/visual equipment
- 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 that are formed as needed. The identified committees of the MPO conduct their work as follows.

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

This effort also includes consultation with other entities and agencies involved with or interested in 3C planning activities, collaboration with other Massachusetts MPOs (with more detailed coordination with those in the Boston Region urbanized area), and communication with Metropolitan Area Planning Council (MAPC) subregional municipal groups.

MPO support also includes conducting metropolitan transportation planning and implementing planning activities for the MPO. The goal of this work is to ensure compliance with federal regulations and requirements and to provide excellence in transportation planning processes, techniques, and outcomes. The work involves researching, analyzing, and reporting information on 3C planning topics, including those identified in federal reauthorization legislation, and issues related to other federal policies, regulations, and guidance. It also involves responding to federal recommendations or requirements for certification documents or MPO certification, 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 Chapter 3) as guidance from this federal legislation 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.

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

FFY 2019 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

4.2.2 Regional Transportation Advisory Council Support

Project ID Number	9319
FHWA 3C PL Funds	\$32,430
FTA Section 5303 Funds	\$14,360
FFY 2019 Total Budget	\$46,790

Note: FTA and FHWA funds include the MassDOT local match.

Purpose and Approach

The Advisory Council is the MPO's citizens' 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 conduct 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 2019 Anticipated Outcomes

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

4.2.3 Public Participation Process

Project ID Number	9619
FHWA 3C PL Funds	\$ 125,930
FTA Section 5303 Funds	\$ 55,790
FFY 2019 Total Budget	\$ 181,720

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

The 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. The MPO's Public Participation Process supports the MPO's commitment to include and engage people of the Boston region in transportation planning; in particular, residents in communities that may have been underserved by the transportation system.

Staff makes a concerted effort to reach organizations that serve populations protected by federal regulations (referred to here as protected populations). Protected populations include people who 1) may have been underserved by the existing transportation system; 2) are often underrepresented in the transportation planning process; or 3) have unique transportation (mobility) needs and challenges.

Approach

Implementing the Public Participation Plan

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 both communications and engagement efforts. This process provides information to various parties and collects input from them for the MPO to use in its planning and decision making, and in developing certification documents. This process supplements the involvement of the Regional Transportation Advisory Council.

In FFY 2019, MPO staff anticipates working with the MPO to update the current PPP, which was developed in 2014. Updating the PPP will include a review of the communication methods, engagement and outreach activities, and public comment and review process.

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 meetings, website content, email messages, social media (Twitter), blog/newsletter, and other electronic means for external communications.

Engagement Methods

Through the MPO's Public Participation Process, staff works 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

- MPO meetings
- Advisory Council meetings
- Office Hours with MPO staff
- Open House public meetings
- Subregional municipal group/coordination meetings
- Meetings with stakeholder organizations
- Electronic surveys and solicitation of comments and input
- Partnering with other organizations on their events

Program Administration

MPO staff will continue to explore and implement refinements to the Public Participation Process, in order to increase an understanding of the MPO's work and its tactics designed to break down barriers to participation for groups that currently are underrepresented in the transportation planning process.

In FFY 2019, under the Public Participation Process work program, MPO staff will begin compiling a guide to help people understand transportation decision making in the Boston region. MPO staff will review the long-range planning and project design and development processes, their inter-relationships, and the opportunities that they offer for public engagement.

The MPO's Public Participation Process also involves consultations as specified in federal guidance; arranging, upon request, for the provision of American Sign Language (ASL) and other language interpretation services at meetings; and providing public participation support to MPO member entities.

FFY 2019 Anticipated Outcomes

- Update the Public Participation Plan
- Deliver MPO communications
- Conduct engagement opportunities with municipalities and the public, including hosting Office Hours and Open House meetings
- Update website
- Publish TransReport articles
- Develop printed communication materials

4.2.4 General Graphics

Project ID Number	9219
FHWA 3C PL Funds	\$59,080
FTA Section 5303 Funds	\$26,170
FFY 2019 Total Budget	\$85,250

Note: FTA and FHWA funds include the MassDOT local match.

Purpose and Approach

MPO staff will provide graphics support to MPO 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.

FFY 2019 Anticipated Outcomes

Various graphics products, as described above

4.2.5 Professional Development

Project ID Number	9119.09
FHWA 3C PL Funds	\$15,090
FTA Section 5303 Funds	\$6,680
FFY 2019 Total Budget	\$21,770

Note: FTA and FHWA funds include the MassDOT local match.

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 (TRB), the Association of Metropolitan Planning Organizations (AMPO), the Institute of Transportation Engineers (ITE), and other public, private and non-profit 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.

4.3 3C PLANNING AND PROGRAMMING 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. Programs include:

- Long-Range Transportation Plan
- Transportation Improvement Program
- Performance Based Planning and Programming (PBPP)
- Air Quality Conformity Determinations and Support
- Unified Planning Work Program
- Transportation Equity Program
- Congestion Management Process
- Freight Planning Support
- Regional Model Enhancement
- Provision of Materials in Accessible Formats
- Federal Certification Review

4.3.1 Long-Range Transportation Plan

Project ID Number	8119
FHWA 3C PL Funds	\$251,070
FTA Section 5303 Funds	\$111,220
FFY 2019 Total Budget	\$362,290

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

Under the current federal transportation funding legislation, FAST Act, 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, *Charting Progress to 2040*, in August 2015. 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, 2019.

Although the latest quadrennial LRTP document was endorsed in FFY 2015, the MPO's continuing, comprehensive, and cooperative planning process—including its long-range planning activities—is ongoing. The MPO's robust LRTP development program helps meet Moving Ahead for Progress in the 21st Century Act (MAP-21) and FAST Act requirements, which include measuring and tracking performance of the region's transportation system and the effectiveness of MPO programming in meeting regional goals. This program also supports scenario planning to generate data for decision making. Staff is currently working with the MPO to develop its next LRTP, *Destination 2040*.

Approach

Complete the LRTP Needs Assessment

The Needs Assessment has become a foundational resource for the MPO's transportation planning work. In FFY 2018, 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 FFY 2019, staff will continue to update the Needs Assessment with new information and perform additional analyses.

In FFY 2019, the MPO will use the output from the Needs Assessment to develop and analyze land use and transportation options and scenarios. This process will inform the MPO as it revisits its vision, goals, and objectives for the LRTP. The MPO will use this information to monitor performance measures, set MPO performance targets, evaluate progress toward them, and track other indicators of interest.

Review the MPO Vision, Goals, and Objectives

During each LRTP development process, the MPO has the opportunity to review and revise its vision, goals, and objectives. In FFY 2019, staff will support this review process by organizing information, sharing recommendations, and soliciting input from the public.

Conduct the The LRTP Scenario Planning

Staff will continue to compare different investment (and possibly land use) scenarios. This scenario-planning process will culminate in the testing of a scenario that reflects the projects and investment programs that the MPO recommends for the LRTP. This stage will include evaluations of the air quality and equity impacts of these transportation projects and programs.

Select LRTP Projects and Programs

Staff will work with the MPO and other stakeholders to select projects and programs to include in the LRTP (and ultimately fund through the TIP). These investment strategies are intended to meet the region's transportation needs and make progress toward performance goals. Tasks will include

- **Creating a universe of projects and identifying potential programs.** Staff will work with MPO members, Boston region transportation agencies, municipal representatives, and other stakeholders to identify candidate projects or investment programs for the LRTP. Staff will document these potential projects in a universe for MPO consideration.
- **Evaluating candidate LRTP projects.** Staff will propose revisions to the criteria used for evaluating candidate LRTP projects based on the MPO's vision, goals, objectives, performance measures, and available data. Once the MPO has approved these criteria, staff will compile data on candidate projects, conduct the evaluations, and make results available for MPO and public review.
- **Recommending LRTP programs and projects.** Based on the universe of projects, project evaluations, and a list of projects being implemented by MassDOT, the MBTA, and other agencies (without federal funding), staff will recommend a set of projects and programs—at recommended funding levels—to include in the LRTP.

Document and Finalize the LRTP

Staff will produce and circulate a draft LRTP document that details the recommended transportation projects and programs, summarizes the process used to create the recommended plan, and organizes relevant information from the various stages of LRTP development.

Based on input and endorsement of the MPO, staff will produce a final version of the plan. The document then will be submitted to MassDOT and the relevant federal and state agencies for review and approval.

Continue to Monitor Best Planning Practices

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 Boston region's needs, and analyze transportation and land-use options. As part of FFY 2019 work activities, staff will research the best practices in metropolitan transportation planning and other facets of planning.

Prepare LRTP Amendments

If any changes are made to regionally significant projects in the FFYs 2019–2023 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 2019 Anticipated Outcomes

- Produce summaries of results from transportation scenario analyses for the MPO
- Review and revise the MPO's vision, goals, and objectives, as necessary
- Conduct public outreach on all LRTP topics, including scenario planning; vision, goals, and objectives; and investment projects and programs; and report results of the outreach to the MPO
- Select projects and programs for the recommended LRTP
- Document and finalize the LRTP, Destination 2040, for hard-copy publication and online via the web
- Prepare an amendment to Charting Progress to 2040, if necessary
- Address comments or changes from FHWA and the FTA or changes to the State Implementation Plan (SIP)

4.3.2 Transportation Improvement Program

Project ID Number	8219
FHWA 3C PL Funds	\$169,220
FTA Section 5303 Funds	\$74,970
FFY 2019 Total Budget	\$244,190

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

The Boston Region MPO's Transportation Improvement Program (TIP) presents a 5-year, financially constrained program of planned investments in the metropolitan area's transportation system. Although federal regulations require the TIP to be updated every four years, Massachusetts and its MPOs are committed to producing annual updates.

Approach

Development of the FFYs 2020–2024 TIP

MPO staff conducts outreach to municipalities and TIP contacts, coordinates the collection of TIP project-funding requests, evaluates and scores proposed new projects, updates the scores on previously-scored un-programmed 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 workshops, MAPC subregional meetings with municipalities, and correspondence with municipal TIP contacts and chief elected officials to gather information on existing and new TIP funding requests. MPO staff compiles the projects into a Universe of Projects list for 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 enhance decision making for transportation projects in the region by establishing a transparent, inclusive, and data-driven process.

In coordination with the development and endorsement of the next LRTP, *Destination 2040*, in April 2019, staff will examine the TIP evaluation criteria and revise, as needed, to continue to align with LRTP goals and objectives as well as state-of-the-practice transportation project impact analysis.

Staff Recommendation

Staff develops a recommendation that proposes how to prioritize the MPO's regional target funding. Typically staff prepares a first-tier list of projects using the results of the evaluation ratings and project-readiness information. Staff then develops recommendations, giving strong consideration to the first-tier list of projects while also balancing equity of investments across the region and considering such things as design status, LRTP-identified needs, and cost.

In addition to preparing a recommendation for regionally prioritized projects, MPO staff also prepares and presents the Statewide Infrastructure Items and Bridge Programs and the capital programs for the MBTA, the Cape Ann Transportation Authority, and the MetroWest Regional Transit Authority for the MPO's consideration.

TIP Document Preparation and Endorsement

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, MPO 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 website.

Staff estimates that there will be as many as four amendments and/or administrative modifications to the FFYs 2019–2023 TIP during FFY 2019.

For more information about the TIP development process or the administrative modifications and amendments procedures, refer to Chapter 2 of the TIP, available online here: bosmpo.ctps.org/tip.

Implementing Performance-Based Planning and Programming

The FFYs 2020–24 TIP document will continue to report on the MPO’s implementation of its performance-based planning program and the results of monitoring trends in the region and progress toward established goal-setting targets.

FFY 2019 Anticipated Outcomes

- Develop the FFYs 2020–24 TIP, as well as amendments and administrative modifications to the FFYs 2019–2023 TIP
- Continue to explore enhancements to the TIP interactive database
- Prepare materials and presentations related to revising the TIP evaluation criteria
- Conduct additional analysis of the distribution of TIP funding and alignment with LRTP-identified needs to help identify areas for targeted outreach to municipalities

4.3.3 Performance-based Planning and Programming

Project ID Number	8819
FHWA 3C PL Funds	\$107,620
FTA Section 5303 Funds	\$47,680
FFY 2019 Total Budget	\$155,300

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

Performance-based planning and programming (PBPP) applies data to inform decisions aimed at helping to achieve desired outcomes for the region’s multimodal transportation system. The PBPP process involves

- 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 reporting decision outputs and outcomes

Moving Ahead for Progress in the 21st Century Act (MAP-21)—and its successor, Fixing America’s Surface Transportation (FAST) Act—directs states, public transportation providers, and MPOs to plan using this performance-driven, outcome based approach. The Boston Region MPO can also use PBPP practices to help achieve its specific goals and objectives. These practices will help the MPO to understand better how spending decisions affect the overall performance of the transportation system, to improve its decision making, and to increase accountability and transparency in its planning processes.

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 FFY 2019, staff will support the MPO in continuing to meet federal requirements, such as those pertaining to target setting. Staff will also support the MPO in expanding and enhancing its PBPP practices, including further integrating PBPP into LRTP and TIP development.

Develop Targets for Federally Required Performance Measures

In FFY 2019, staff will continue to provide information and recommendations to the MPO as it sets 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. 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 the process. Outputs of this process will include memoranda, presentations, and other documentation to support target setting.

Continue to Integrate PBPP Elements into MPO Planning

Staff will build upon past work to include PBPP elements in LRTP and TIP processes. In FFY 2019, this will include researching how MPO investments and other factors may influence changes in performance outcomes and what strategies could help the MPO achieve its targets. Staff also will examine ways to update project and program selection criteria and work with program managers to make desired changes in future LRTP and TIP development cycles. Staff will coordinate these activities with UPWP development and CMP research and will work with MassDOT, the region's public transportation providers, and other external stakeholders when exploring and proposing process improvements.

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 2019, staff will enhance these existing reports and tools by adding and/or updating baseline and trend data. Staff will also incorporate information on performance targets and, to the extent practicable, describe the effect MPO investments may have on performance. This work likely will involve updating the structure of LRTP and TIP performance reports and relevant elements of the Performance Dashboard. The goals of these activities are to meet federal requirements, and to enhance the MPO's understanding of how the transportation system's performance is changing over time and how its investments affect those changes.

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. Staff will continue to seek guidance from MassDOT and federal agencies to ensure its PBPP program addresses federal requirements and recommendations. In FFY 2019, staff will also research other measures—beyond those that are federally required—that the MPO may wish to monitor. This work will be coordinated with updates to the LRTP Needs Assessment, scenario planning, and

other aspects of LRTP and TIP development that take place in FFY 2019. Staff will also explore the PBPP practices used by other planning agencies and institutions. Staff will recommend other PBPP approaches to implement and measures to track. Should the MPO wish to set targets for any of these additional measures, staff will support those processes as well.

FFY 2019 Anticipated Outcomes

- Support the MPO in setting targets for federally required measures and other measures, as requested. Prepare related presentations, memoranda, and other supporting documents and materials.
- Update and enhance performance reports, such as those in the LRTP and 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 recommendations.
- Explore other measures and methods the MPO could incorporate into its PBPP process.
- Coordinate with MassDOT, the region's public transportation providers, other states and MPOs, and federal agencies to research measures, identify investment strategies, set targets, and otherwise implement PBPP practices.

4.3.4 Air Quality Conformity and Support Activities

Project ID Number	8419
FHWA 3C PL Funds	\$28,650
FTA Section 5303 Funds	\$12,690
FFY 2019 Total Budget	\$41,340

Note: FTA and FHWA funds include the MassDOT local match.

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 the 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 is 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 (NOx). 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 will be required.

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 2019 Anticipated Outcomes

Conformity Determinations

Perform and present conformity determinations as noted below. These include a detailed analysis of air-quality impacts (CO and carbon dioxide [CO₂]) of the projects in the FFYs 2020–24 TIP, the *Destination 2040* LRTP, and any work required for implementing GreenDOT (the state's comprehensive environmental responsibility and sustainability policy). MPO staff will also perform analysis of VOCs and NOx emissions.

- Prepare a systemwide conformity determination for the *Destination 2040* LRTP documenting regionally significant projects
- 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 GreenDOT initiative

Support to MassDOT (including the Highway Division, the Office of Transportation Planning, and the MBTA) and 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 Congestion Management Process, the UPWP, and performance measures. Staff will work with MassDOT to implement its GreenDOT policy and comply with the Department of Environmental Protection’s (DEP) Global Warming Solutions Act 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:

- Support for amendments or revisions to the Memorandum of Understanding 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 MOVES2014 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
- Provision of data and recommendations to MPO agencies regarding funding and the implementation of transportation programs and projects with air quality benefits

4.3.5 Unified Planning Work Program

Project ID Number	8319
FHWA 3C PL Funds	\$75,490
FTA Section 5303 Funds	\$33,440
FFY 2019 Total Budget	\$108,930

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

The UPWP, a federally required document that supports the 3C transportation planning process, is the mechanism for programming federal funding for transportation planning work that will be implemented in the Boston Region MPO area. The UPWP must comply with federal regulations and address the focus areas recommended by FHWA and the FTA.

The UPWP has two main purposes:

- 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
- 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 both 3C-funded work for the MPO and work that is funded by state agencies or other entities. The UPWP document also describes the work that is executed by MAPC that is funded by 3C planning dollars. MAPC receives as much as approximately one-third of the Boston region's allotment of 3C funding. The UPWP also provides supplementary information about other transportation planning activities in the region that are not funded by the MPO or conducted by MPO staff.

Work on the UPWP is ongoing year-round. This work program element focuses on developing the FFY 2020 UPWP and supports the MPO and its UPWP Committee in monitoring FFY 2019 UPWP implementation, including any adjustments and amendments to the current UPWP.

An integral part of developing the UPWP is engaging state transportation agencies, municipalities, and the general public throughout the process. Some of the public outreach activities for the UPWP are covered under the *Public Participation Process*.

Approach

MPO staff coordinates and prepares materials for all phases of this work, including 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 DOT guidance; and preparing draft and final documents.

MPO staff members are responsible for coordinating public participation in the UPWP process, distributing the draft UPWP document, preparing the final UPWP document, and making administrative modifications and amendments as needed. MPO staff also prepares quarterly reports on the implementation of the UPWP.

Staff maintains the UPWP Study Recommendations Tracking Database, which houses details of project contacts, proposed improvements, implementation status, milestones, funding, and issues affecting implementation progress. MPO staff uses the database to support MPO activities such as developing the Long-Range Transportation Plan; producing reports for the MPO board detailing topics such as the percentage of planning studies that have advanced to preliminary design; and conducting other inquiries relevant to the tracking of study recommendations and their implementation. Staff will update the database on an ongoing basis, informing the Boston Region MPO about the status of recommendations from its planning studies.

FFY 2019 Anticipated Outcomes

- Develop and conduct public outreach for the FFY 2020 UPWP, with details related to certification requirements and other administration activities, ongoing/continuing work programs, and new studies
- Plan for relevant meetings, including the MPO's subcommittee
- Report quarterly FFY 2019 UPWP implementation
- Complete amendments and administrative modifications to the FFY 2019 UPWP, as necessary
- Continue to maintain the UPWP Study Recommendations Tracking Database
- Provide other informational materials as needed

4.3.6 Transportation Equity Program

Project ID Number	8519
FHWA 3C PL Funds	\$103,800
FTA Section 5303 Funds	\$45,990
FFY 2019 Total Budget	\$149,790

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

The objective of the Transportation Equity (TE) program is to perform activities related to FTA and FHWA Title VI, environmental justice (EJ), and other nondiscrimination requirements. These requirements are rooted in several federal laws and executive orders (EO), including Title VI of the Civil Rights Act of 1964, Presidential EO 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, and the Americans with Disabilities Act (ADA), as well as United States Department of Transportation (USDOT) nondiscrimination regulations and guidance.

Title VI prohibits discrimination based on race, color, and national origin, including persons with limited English proficiency (LEP), in programs and activities that receive federal financial assistance. EO 12898 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. In addition to these programs, FHWA's Title VI/Nondiscrimination Program 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.

The TE program encompasses the programmatic, monitoring, and reporting activities that are necessary for MPOs to comply with the above federal civil rights requirements and guidelines, including public outreach to protected populations, data collection and analysis, and support to other MPO programs regarding populations protected by the above EOs and laws. The TE program also involves monitoring the success of these activities and reporting their results to demonstrate compliance.

Approach

Completing FTA and FHWA Reporting Requirements

Although many TE program activities apply to all populations, regardless of the authority under which they are protected, the Boston Region MPO makes every effort to ensure that monitoring efforts for Title VI and EJ are identified as such and the results reported separately. As requested by the FTA and FHWA, reporting the impacts of the MPO's programs and activities will occur via various quantitative analyses, and documentation of the MPO's efforts to engage protected populations in its transportation-planning and decision-making process. Reporting will also include updates to the MPO's Language Assistance Plan (LAP), which guides the MPO's efforts to ensure that activities are accessible to people with LEP. MPO staff will compose annual and triennial reports as requested by the FTA and FHWA through MassDOT, and respond to requests made by MassDOT regarding changes in the MPO's Title VI, EJ, and nondiscrimination reporting activities.

Supporting Participation in the MPO's Transportation Planning Process and the Public Participation Process

To ensure that TE populations remain central to the MPO's public outreach process, these engagement activities are described in the MPO's Public Participation Process. This reflects the MPO's continued approach of undertaking outreach to these populations in coordination with all public outreach efforts done by the MPO. This approach strengthens the MPO's capacity for engagements with these populations by formally committing more staff resources to these outreach efforts.

Providing Technical Support to the LRTP, TIP, and UPWP

Staff will support development of the MPO's certification documents through continuing analyses in adherence to Title VI, EJ, and other non-discrimination regulations. This will include assisting in the establishment of equity performance measures, conducting equity analyses of the TIP, supporting development of equity goals and objectives for the LRTP, analyzing state and federally funded projects for disparate impacts and disproportionate burdens, and analyzing the distribution of UPWP-funded studies.

Managing the MPO Staff's Transportation Equity Analysis Committee (TEAC)

This committee provides an opportunity for MPO staff to discuss its analytical practices on behalf of the MPO and client agencies, make decisions about updating and implementing these practices, and promote integration of EJ and Title VI principles throughout MPO activities. TEAC's overarching goals are to ensure that these principles are integrated into the MPO's activities fully and that analytical processes are applied

consistently. While the TIP and LRTP equity analyses are currently the primary concern of TEAC, other topics that deal with analytical components of the MPO's transportation equity program are also of interest. Topics under TEAC's consideration generally evolve as the need arises within the MPO.

Refining Equity-Related Analytical and Modeling Techniques

Federal requirements instruct the Boston Region MPO to conduct analyses that evaluate the impacts of the MPO's activities on populations protected by the civil rights regulations stated above. In order to improve the effectiveness of these analyses, including equity analyses, staff will refine current methods and develop novel methodologies. Staff will address analyses that are prepared using CTPS's regional travel demand model, as well as those that are done with other tools. These processes will directly support the improvement of analyses conducted for the LRTP, TIP, and UPWP.

Preparing a Coordinated Public Transit-Human Services Transportation Plan

As required by federal transportation legislation, all projects funded under the FTA Section 5310 program must address transportation needs identified in a Coordinated Public Transit-Human Services Transportation Plan (CPT-HST). As MassDOT's designee for developing the CPT-HST for the Boston region, the MPO develops the plan every four years in coordination with development of the MPO's LRTP. The CPT-HST catalogs existing transportation services and identifies the transportation needs of seniors and people with disabilities, as well as the gaps and barriers in the transportation system that are experienced by these populations.

Under the TE program, staff will update the existing CPT-HST, which was last updated in 2015, to reflect transportation services that have been established or eliminated since the last iteration of the plan, as well as newly identified gaps in transportation services and any additional emerging transportation needs that since have been identified in the region. Staff will engage seniors, people with a disability, and representatives of transportation and human services providers to help identify transportation gaps and needs.

Supporting and Coordinating with Other Agencies

MPO staff will continue to support FTA programs that target minority and low-income populations, elderly individuals, and people with disabilities in the region.

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.

FFY 2019 Anticipated Outcomes

- Prepare and submit a report documenting the MPO's FTA Title VI and FHWA Title VI/Nondiscrimination programs, as required, to MassDOT
- Gather and analyze data from the United States Census Bureau, and explore other potential sources of data, that support this program and inform the MPO's planning and programming decision making
- Evaluate, refine, and complete equity analyses as needed for the MPO's 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 the Community Transit Grant Program solicitation for projects, and help to evaluate applicant proposals
- Continue to train staff in Title VI, EJ, ADA, and other nondiscrimination policies as they relate to the MPO's activities
- Explore development of new analytical tools to assist MPO staff with planning and programming decision making
- Prepare and submit a CPT-HST, documenting the needs of seniors and people with a disability to support applications to FTA's Section 5310 program in the MPO region

4.3.7 Congestion Management Process

Project ID Number	2119
FHWA 3C PL Funds	\$63,440
FTA Section 5303 Funds	\$28,100
FFY 2019 Total Budget	\$91,540

Note: FTA and FHWA funds include the MassDOT local match.

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
- Create needs 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 2019 Anticipated Outcomes

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

- Monitoring the performance of MPO-region arterial roadways and freeways using electronic travel-time and speed data
- Mapping and tabulating electronic data for analysis and performance evaluation
- Coordinating with the MPO's certification activities (including the LRTP, TIP, PBPP, and UPWP programs and documents)
- Supporting the CMP Committee of the MPO

4.3.8 Freight-Planning Support: FFY 2019

Project ID Number	2219
FHWA 3C PL Funds	\$ 56,370
FTA Section 5303 Funds	\$0
FFY 2019 Total Budget	\$ 56,370

Note: FTA and FHWA funds include the MassDOT local match.

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
- Address the lack of freight data for the MPO region, including developing enhanced technical capabilities for MPO staff to use in estimating freight demand

Approach

The freight analysis within the framework of this program will be ongoing and conducted on a multiyear basis. In September 2013, MPO staff proposed a Freight Planning Action Plan, which presented possible studies for one or more of the MPO's freight-planning goals.¹

Several MPO FFY 2018 freight-planning activities built upon earlier efforts, notably studies of rest locations for long-distance truck drivers², weight and height restrictions that impact truck travel³, and truck traffic in the South Boston Waterfront⁴. Subsequent to publishing these studies, the MPO freight program manager was invited to serve on FHWA- and state-sponsored working groups addressing associated planning, policy, and safety issues. Industry outreach efforts of this nature will continue in FFY 2019.

¹ *Proposed Freight Planning Action Plan for the Boston Region MPO: Meeting the Goals and Addressing the Issues*, Boston Region MPO, September 2013.

² *Rest Locations for Long-Distance Truck Drivers in Massachusetts*, Boston Region MPO, October 2016

³ *Weight and Height Restrictions that Impact Truck Travel*, Boston Region MPO, December 2017

⁴ *Trucks in the South Boston Waterfront*, Boston Region MPO, April 2017

The investigation topics identified in the FFY 2013 Freight Planning Action Plan largely have been studied. Starting in FFY 2018, MPO staff has begun to look at new topics, notably regional industrial geography and advanced freight modeling techniques. These efforts will be ongoing and will involve the MPO's state and federal partners and the MPO's model development staff.

Topical local area and policy studies will also be undertaken as schedule and resources allow. For instance, it is anticipated that one or more locations may be identified as potential truck rest areas, and MPO staff may be asked to analyze the suitability of these locations.

FFY 2019 Anticipated Outcomes

MPO staff will move beyond the 2013 Freight Planning Action Plan. Anticipated efforts include:

- Conduct follow-on studies, possibly of rest areas or intermodal terminals
- Serve on inter-agency working groups
- Publish or disseminate materials related to industrial geography
- Provide data and analysis in support of advanced model implementation

4.3.9 Regional Model Enhancement

Project ID Number	7119
FHWA 3C PL Funds	\$551,460
FTA Section 5303 Funds	\$244,300
FFY 2019 Total Budget	\$795,760

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

Through this work program, CTPS builds and maintains a state-of-the-practice regional travel-demand model; and fosters development of other tools to help assess the area's transportation needs and evaluate alternatives to improve the transportation system. The regional model is a simulation of travel behavior that emulates the millions of individual decisions that generate travel throughout the region. Metrics produced by the model are designed to aid in developing policy, performing technical and equity analyses, and meeting federal reporting requirements. The model is also used by MPO member transportation agencies because it is an extremely robust tool that incorporates data from all of the transportation agencies and transportation service providers (both public and private) that serve the Boston Region MPO area.

Approach

MPO staff plan to pursue the activities listed below to enhance staff's technical analysis capabilities:

Continue Work on the Activity Based Model (ABM)

Most MPOs similar in size to Boston (or larger), and many small MPOs, have already developed an ABM. The transition to ABMs is based on needing to have a tool that more accurately simulates how individuals and households plan and execute daily travel. The ABM initially will not replace the existing model, but instead will augment the agency's analytical capabilities by providing a tool that is more sensitive to variables effecting travel decisions.

Incorporate Transportation Network Companies (TNCs), such as Uber and Lyft) into the Regional Travel Demand Model

CTPS will work in conjunction with partner transportation agencies to quantify the effects of TNCs on mode share, vehicle-miles traveled and vehicle-hours traveled, and system capacity. TNCs have usurped a considerable share of the Logan Airport ground access trips. In addition, TNCs' market share has grown in Boston to the extent that the city is considering installing well-marked curbside passenger pickup areas. Quantifying TNCs' impact on taxis, the Massachusetts Bay Transportation Authority (MBTA), and private auto modes is difficult. CTPS will work toward incorporating this travel mode into the regional travel model and planning process.

Improve Regional Travel Demand Model to Support Significantly Different Operating Scenarios

The current regional travel demand model treats commuter rail as an independent mode, principally providing access to Boston's core from suburban communities. However, there is interest in studying if the commuter rail corridors might better serve residents if they operate like rapid transit, with shorter headways, faster speeds, and a high level of service throughout the day. To aid in analyzing the regional rail system, CTPS will work to improve the regional travel demand model to make it more sensitive to these significantly different operational scenarios.

Maintain the Model's Land-Use Data

MPO staff will continue ongoing efforts to maintain the model's existing and projected land-use files, reflecting the latest construction and permit activities in the Boston region.

Continue to Work toward Developing Freight and Truck Models that Reflect Existing Conditions More Accurately, and which can be Reliable for Developing Forecasts

The activities listed above support projects in this UPWP that rely on the travel demand model for travel forecasting and analysis, particularly analysis that supports the Long-Range Transportation Plan (LRTP) and the Transportation Improvement Program (TIP).

Additional regional model enhancement activities may include the following:

- Continue to improve the linkage between the regional travel demand model set and Cube Land; and examine the potential for using Cube Land for project-level land-use forecasting
- Continue to improve on ways to use Google, Bing, and INRIX travel data in developing and calibrating the regional travel demand model

- Continue to examine ways to improve on accessibility analysis through examining tools such as Citilab's Sugar software
- Explore innovative tools and methodologies that will enhance our understanding of travel in the region in order to respond to planning questions in a timely manner

FFY 2019 Anticipated Outcomes

Engaging in a process of continuous enhancement, staff will continue to update the model and its various aspects, as described above. Staff will also continue to develop the complementary activity based model, and respond to requests for data and modeling support from MPO staff, member agencies, and partner organizations.

4.3.10 Provision of Materials in Accessible Formats

Project ID Number	3119
FHWA 3C PL Funds	\$73,140
FTA Section 5303 Funds	\$32,400
FFY 2019 Total Budget	\$105,540

Note: FTA and FHWA funds include the MassDOT local match.

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. When the MPO complies with these policies and regulations, public outreach and engagement is enhanced because more stakeholders in the region can access our informational materials and reports.

Approach

In support of these standards, the MPO produces written and electronic materials in accessible formats. In addition to producing these materials, the MPO will continue to maintain a library of document templates that incorporate accessibility guidelines and standards.

FFY 2019 Anticipated Outcomes

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

4.3.11 Federal Certification Review

Project ID Number	90025
FHWA 3C PL Funds	\$20,580
FTA Section 5303 Funds	\$9,110
FFY 2019 Total Budget	\$29,690

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

Federal regulation requires that the FHWA and FTA jointly review and evaluate the transportation planning process conducted in each Transportation Management Area, defined as an urbanized area with a population over 200,000. This certification review must be conducted at least once every four years.

Subjects of focus for a certification review include compliance with the federal requirements of 23 United States Code (U.S.C.) 134, 49 U.S.C. 5303, and other associated Federal laws; the challenges and successes of the planning process; and the cooperative relationship between the MPO, the public, and other transportation planning stakeholders. The certification review process is only one of several methods used to assess the quality of the metropolitan planning process and compliance with applicable statutes and regulations. Other opportunities for review include routine oversight activities such as attendance at meetings, day-to-day interactions, review and approval of work products, and coordination with the MPO on prior certification review recommendations.

Approach

Certification reviews generally consist of four components: 1) a desk review of MPO planning products and documents, 2) a site visit and meeting(s) with the MPO (including a public meeting), 3) a final report by the Federal Review Team that summarizes the review and offers findings, and 4) a letter transmitting the report and announcing the findings of the review.

MPO staff will prepare for and support the MPO in the upcoming federal recertification review. This will include preparing for the review sessions, responding to federal agency requests for information and documentation, creating printed and graphical materials for the reviewers, and developing and participating in presentations, meetings, and discussions. MPO staff anticipates that the desk review phase of the work will occur in FFY 2018, while the site visit and related meetings (including the public meeting) will occur in early FFY 2019.

FFY 2019 Anticipated Outcomes

Concluding the following activities related to the recertification review process:

- develop and participate in presentations
- host meetings and discussions
- provide reports and responses to information and inquiries, as requested



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CHAPTER

Boston Region MPO Planning Studies and Technical Analyses



5.1 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 4; the planning studies and technical analyses described in this chapter; and the administrative tasks and data management described in Chapter 7.

In order to plan 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:** Completed studies are either already complete or expected to be completed by October 1, 2018, when the federal fiscal year (FFY) 2019 UPWP document goes into effect. Table 5-1 provides a summary of these studies, their funding sources and amounts, and their work products or activities.
- **Continuing or Carried Over:** Continuing studies were originally funded in FFY 2018 or earlier, and will continue into FFY 2019. However, 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. Table 5-2 provides a summary of the salary and overhead

costs, status (percent complete by the end of FFY 2018), and completed and planned work products for planning studies started in a previous FFY and continued into FFY 2019.

- **Ongoing:** 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 4), transportation technical analyses (Chapter 5), agency-funded contracts (Chapter 6), and resource management and support activities (Chapter 7). Tables containing summaries of the funding and progress for these ongoing programs are included at the beginning of the relevant chapters. Table 5-3 summarizes the salary and overhead costs in FFY 2018 and FFY 2019, 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 Analyses 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 5-4 contains a summary of the new discrete studies for FFY 2019.

In addition, the MPO member agency, the Metropolitan Area Planning Council (MAPC), conducts planning studies and technical assistance throughout the region under four ongoing work programs each FFY (see Section 5.4, MAPC Planning Studies and Technical Analyses).

The project descriptions throughout this chapter describe new transportation planning studies chosen for funding in FFY 2019. They provide detailed updates for the FFY 2019 funding and work products for the MPO's and MAPC's ongoing programs.

Please note that 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 857-702-3700 (voice), 617-570-9193 (TTY), or ctps@ctps.org (email). MAPC work products may be found at www.mapc.org.

**Table 5-1
Completed MPO-Funded Transportation Planning Studies, FFY 2015–18**

Project Name	ID	FFY 2018 Budgeted PL Funding	FFY 2018 Budgeted \$ 5303 Funding	FFY 2018 Budgeted Total Funding	Work Products (reports, technical memoranda, and other work products or activities)
FFY 2018 Studies					
Multi-Modal Mobility:					
Community Transportation Program Development	13288	\$61,300	\$23,700	\$85,000	Memorandum summarizing literature and survey findings, presentations to the MPO about initial proposed Community Transportation Program and final program
Review of and Guide to Regional Transit Signal Priority	13289	\$46,800	\$18,200	\$65,000	Memorandum summarizing state-of-the-art transit signal priority systems in the Boston region, inventory of traffic signals on select routes, transit signal priority implementation guidebook
Other Technical Support:					
MPO Staff-Generated Research Topics	20902	\$14,400	\$5,600	\$20,000	Technical memoranda about crash rates in environmental justice communities and long-distance commuting; development of a new software tool for transit planning
FFY 2017 Studies					
Active Transportation:					
Safety Effectiveness of Safe Routes to School Programs	13280	\$3,301	\$1,279	\$4,580	Final report and presentation to the MPO

Table 5-1 (cont.)

Project Name	ID	FFY 2018 Budgeted PL Funding	FFY 2018 Budgeted \$ 5303 Funding	FFY 2018 Budgeted Total Funding	Work Products (reports, technical memoranda, and other work products or activities)
Multi-Modal Mobility:					
Low-Cost Improvements to Freeway Bottlenecks	13275	\$4,680	\$0	\$4,680	Final report and presentation to the MPO
Addressing Safety, Mobility, and Access on Subregional Priority Roadways, FFY 2017	13274	\$3,639	\$1,411	\$5,050	Final report and presentation to the MPO
Priority Corridors for L RTP Needs Assessment, FFY 2017	13276	\$4,027	\$1,578	\$5,650	Final report and presentation to the MPO
Planning for Connected and Autonomous Vehicles	13277	\$0	\$0	\$0	Final report and presentation to the MPO
Land Use, Environment and Economy:					
Study of Promising Greenhouse Gas Reduction Strategies	13279	\$0	\$0	\$0	Final report and presentation to the MPO
FFY 2015 Studies					
Active Transportation:					
Bicycle Network Gaps: Feasibility Evaluations	11250	\$0	\$0	\$0	Final report and presentation to the MPO

Table 5-2
Discrete Boston Region MPO Planning Studies and Technical Analyses Continued
into FFY 2019

Project Name	ID	Previous Total Funding	Percent Complete by end of FFY 2018	FFY 2018 Work Products and Progress	FFY 2019 PL Funding	FFY 2019 \$5303 Funding	FFY 2019 Total Funding	FFY 2019 Planned Work Products and Progress
FFY 2018								
Active Transportation:								
Bicycle Level-of-Service (LOS) Metric	13281	\$55,000	95%	Draft memorandum documenting a bicycle LOS metric.	\$2,377	\$1,003	\$3,380	Final report and presentation to the MPO
Multi-Modal Mobility:								
Travel Alternatives to Regional Traffic Bottlenecks	13285	\$70,000	95%	Draft memorandum listing regional bottleneck during peak periods and special events, the impacts they have on regional travel, and recommendations for possible solutions.	\$2,117	\$893	\$3,010	Final report and presentation to the MPO
Safety and Operations at Selected Intersections—FFY 2018	13283	\$70,000	95%	Wenham: Conceptual design and evaluation of possible signal installation along Route 1A at Cherry, Monument, and Arbor streets. Bellingham: Conceptual design and evaluation for improving Route 126 truck access to/from Maple Street.	\$2,454	\$1,036	\$3,490	Final report and presentation to the MPO
Subregional Priority Corridors—FFY 2018	13286	\$120,000	95%	Draft report documenting Complete Streets recommendations for Medford Square area.	\$2,342	\$988	\$3,330	Final report and presentation to the MPO
Priority Corridors for LRTP Needs Assessment—FFY 2018	13287	\$120,000	95%	Draft report documenting Complete Streets recommendations for Route 138 in Milton.	\$2,532	\$1,068	\$3,600	Final report and presentation to the MPO
Land Use, Environment, and Economy:								
Transportation Mitigation of Major Developments	13282	\$50,000	95%	Draft memorandum documenting the experience and presence of development-related transportation mitigation strategies.	\$2,152	\$908	\$3,060	Final report and presentation to the MPO

**Table 5-3
Ongoing Boston Region MPO Technical Analyses, FFY 2018–19**

Project Name	ID	FFY 2018 Total Funding	FFY 2018 Work Products and Progress	FFY 2019 PL Funding	FFY 2019 \$5303 Funding	FFY 2019 Total Funding	FFY 2019 Planned Work Products and Progress
CTPS Activities							
Community Transportation Technical Assistance Program*	2419	\$73,741	Canton: Provided conceptual alternatives for Washington Street/ Randolph Street intersection; and evaluated signal coordination of four intersections along Washington Street. Rockland: Provided conceptual alternative for a sidewalk along Pond Street. Norwell: Provided assistance with pedestrian crosswalks.	\$50,760	\$22,490	\$73,250	Continue support to communities seeking transportation technical assistance.
Bicycle/Pedestrian Support Activities	2519	\$67,247	2016-2017 bicycle and pedestrian counts. 2017-2018 bicycle and pedestrian counts. Maintain awareness of bicycle- and pedestrian-related work and developments in the Boston metropolitan region. Gain understanding of bicycle and pedestrian planning best practices and developments nationwide and globally. Write memorandum summarizing 2014-2018 bicycle and pedestrian counts. Write memorandum providing an overview of bicycle and pedestrian counting practices and products."	\$45,350	\$20,090	\$65,440	2017-2018 bicycle and pedestrian counts. 2018-2019 bicycle and pedestrian counts. Maintain awareness of bicycle- and pedestrian-related work and developments in the Boston metropolitan region. Understand bicycle and pedestrian planning best practices and developments nation-wide and globally. Memo summarizing bicycle and pedestrian counts and analyzing travel trends. Explore innovative ways to update Boston region bicycle and pedestrian counts.
Regional Transit Service Planning Technical Support	14342	\$44,978	Evaluated feasibility of bus priority improvements in the vicinity of Alewife Station for the Town of Arlington and City of Cambridge. Recommend strategies for improving Mission Hill Link service efficiency. Provide assistance for one additional project."	\$0	\$45,810	\$45,810	Continue support to communities seeking transit service planning technical assistance
Transit Data Support	4219	\$15,843	Continue to respond to data request needs.	\$0	\$15,350	\$15,350	Continue to respond to data request needs.
Traffic Data Support	2719	\$15,460	Continue to respond to data request needs.	\$10,520	\$4,660	\$15,180	Continue to respond to data request needs.
Roadway Safety Audits	2319	\$15,731	Continue to provide support to MassDOT for safety audits conducted in the Boston Region MPO area.	\$14,640	\$0	\$14,640	Tasks and work products generally remain the same from year to year.

Table 5-3 (cont.)

Project Name	ID	FFY 2018 Total Funding	FFY 2018 Work Products and Progress	FFY 2019 PL Funding	FFY 2019 \$5303 Funding	FFY 2019 Total Funding	FFY 2019 Planned Work Products and Progress
MAPC Activities							
Corridor/Subarea Planning Studies	MAPC 4	\$167,480	<p>Woburn: Transit Oriented Development Plan for area between Anderson and Mishawum Commuter Rail stations.</p> <p>Rockport: Transit Oriented Development Plan for Commuter Rail station area.</p> <p>Stoughton Downtown Parking Management plan.</p> <p>Swampscott Downtown Parking Management plan</p> <p>Maynard Downtown Parking Management plan.</p> <p>North Shore Mobility Study focused on Beverley, Salem, and Peabody.</p> <p>Roslindale Washington Street corridor dedicated bus lane analysis.</p> <p>Participate in Water Transportation Advisory Council and Boston Harbor Now Water Transportation Study</p>	\$110,180	\$55,300	\$165,480	Continue to support local parking management planning, water transportation, and multi-modal corridor planning.
Land Use Development Project Reviews	MAPC 5	\$88,820	<p>Technical memoranda regarding major development and transportation projects in the Boston region: I-90 Allston Interchange; Suffolk Downs Redevelopment in East Boston; MBTA Green Line Extension to Route 16 in Medford; and Union Point development in Weymouth, Rockland, and Abington.</p>	\$59,400	\$29,420	\$88,820	Technical memos with transportation recommendations for development projects and large transportation infrastructure projects with a land use component.
MetroFuture Implementation	MAPC 6	\$90,000	<p>Develop Regional Plan Update process and scenario planning framework.</p> <p>Provide outreach to stakeholders for input into plan update.</p> <p>Evaluate Transit-Oriented Development planning studies.</p>	\$59,400	\$30,600	\$90,000	Updated MetroFuture Plan for regional smart growth and prosperity

Table 5-3 (cont.)

Project Name	ID	FFY 2018 Total Funding	FFY 2018 Work Products and Progress	FFY 2019 PL Funding	FFY 2019 \$5303 Funding	FFY 2019 Total Funding	FFY 2019 Planned Work Products and Progress
Alternative-Mode Planning and Coordination	MAPC 7	\$193,502	<p>Conduct research ride hailing, review literature, and conduct survey of 900 Uber and Lyft riders in the Boston region to indicate how Transportation Network Companies (TNCs) are affecting travel behavior.</p> <p>Participate in suburban mobility working group with MassDOT, MBTA, and CTPS to discuss opportunities to pilot dynamic ride dispatching.</p> <p>MAGIC subregion initiative to explore dynamic ride dispatching and sharing technology.</p> <p>Dockless bikeshare procurement and vendor selection process for a "no cost to municipal government" bike sharing system in Needham, Newton, Watertown, Waltham, Belmont, Arlington, Bedford, Medford, Melrose, Everett, Malden, Chelsea, Revere, and Milton.</p> <p>LandLine regional active trail report, and advancement of trail segments in the MetroWest subregion and Northern Strand Community Trail that includes Everett, Malden, Saugus and Lynn.</p> <p>Bicycle and Pedestrian Plan for Bolton</p>	\$128,136	\$128,136	\$256,272	<p>Continue to research the potential impact of ride hailing and autonomous vehicle technology on the region. Improved bicycle sharing efforts in the region.</p> <p>Local bicycle and pedestrian plans.</p> <p>Advancement of the LandLine trail network.</p> <p>Subregional mobility plans that utilize dynamic ride dispatching and sharing technology.</p>
Community Transportation Technical Assistance Program*	MAPC 8	\$45,000	<p>Everett: Analysis of parking utilization along Chelsea Street</p> <p>Arlington: Analysis of parking utilization along Massachusetts Avenue in East Arlington</p> <p>Winthrop: Analysis of parking data for the downtown area collected by the town</p> <p>Salem: Pedestrian and parking support for downtown</p> <p>Winchester: Analysis of parking utilization in downtown</p>	\$25,000	\$25,000	\$50,000	Continue to support local technical assistance requests.

*This program shared between MAPC and CTPS.

**Table 5-4
Unified Planning Work Program Budget—MPO New Discrete Studies, FFY 2019**

Project ID	Study or Program	CTPS PL Funds	CTPS Section 5303 Funds	Proposed FFY 2019 CTPS Budget
13292	Pedestrian Report Card Assessment Dashboard	\$45,050	\$19,950	\$65,000
14359	Reverse Commute Areas Analysis	\$45,050	\$19,950	\$65,000
14360	Transportation Access Studies of Commercial Business Districts	\$58,910	\$26,090	\$85,000
13619	Low-Cost Improvements to Express Highway Bottleneck Locations FFY 2019	\$60,000	\$-	\$60,000
13419	Addressing Safety, Mobility, and Access on Subregional Priority Roadways FFY 2019	\$83,160	\$36,840	\$120,000
13519	Addressing Priority Corridors from the LRTP Needs Assessment FFY 2019	\$83,160	\$36,840	\$120,000
13290	New and Emerging Metrics for Roadway Usage	\$41,580	\$18,420	\$60,000
14361	The Future of the Curb	\$24,260	\$10,740	\$35,000
13291	Updates to Express Highway Volumes Charts	\$58,910	\$26,090	\$85,000
20903	MPO Staff-Generated Research Topics	\$13,900	\$6,210	\$20,110
Total for New Discrete and Ongoing Studies		\$513,980	\$201,130	\$715,110

NOTE: This information may be updated as the FFY 2019 UPWP budget continues to develop.
 CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. LRTP = Long-Range Transportation Plan.
 MPO = Metropolitan Planning Organization. PL = Planning. UPWP = Unified Planning Work Program.

5.2 PLANNING STUDIES

The project descriptions in this section describe the new studies chosen by the MPO for funding in FFY 2019. As described in Chapter 1, each year as ideas for new studies are formed, CTPS classifies them into the following categories: active transportation; land use, environment, and economy; multi-modal mobility; transit; safety and security; and other technical work. Each of the project descriptions on the following pages is preceded by a funding table that shows the project identification number, category, funding sources, and total budget.

5.2.1 Pedestrian Report Card Assessment Dashboard

Project ID Number	13292
Category	Active Transportation
FHWA 3C PL Funds	\$45,050
FTA Section 5303 Funds	\$19,950
FFY 2019 Total Budget	\$65,000

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

This study is a follow up to the Pedestrian Level of Service metric development study, which resulted in the Pedestrian Report Card Assessment (PRCA) tool, completed during FFY 2015. The PRCA allows planners and engineers to rate the quality of the pedestrian environment at roadway segments and intersections in terms of pedestrian accommodations and safety. This proposed study will focus on implementing the PRCA tool and creating an interactive dashboard that will monitor pedestrian suitability of intersections and roadway segments throughout the Boston region.

Approach

Staff will create an interactive web-based performance dashboard to display the PRCA grades for selected locations. The interactive dashboard will be located on the MPO website. Data presented on the dashboard will include assessments from previous MPO studies. Additional PRCA assessments will be done to help populate the dashboard.

FFY 2019 Anticipated Outcomes

An interactive dashboard to display the PRCA on the MPO website and allow users to locate areas of interest easily, assess the pedestrian environment, and determine if pedestrian improvements are needed. This dashboard can provide planners and decision makers' additional information to help prioritize pedestrian infrastructure projects.

5.2.2 Transportation Access Studies of Commercial Business Districts

Project ID Number	14360
Category	Land Use, Environment, and Economy
FHWA 3C PL Funds	\$58,910
FTA Section 5303 Funds	\$26,090
FFY 2019 Total Budget	\$85,000

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

The curbside lane in a city's central/commercial business districts (CBD) has traditionally been used for parking, but recent efforts locally and across the country have aimed to use curbside lanes in other ways. A November 2017 publication by the National Association of City Transportation Officials (NACTO) describes curbside management strategies that support and encourage multimodal access to commercial corridors, with examples from New York City, San Francisco, and Los Angeles. The strategies include improving bus stop locations, giving buses priority treatment, and improving pedestrian and non-motorized vehicle infrastructure.

In the Boston region, dedicated bus lanes have been making headway as a bus priority treatment. CTPS has identified roadway segments where bus lanes would provide the greatest benefit to bus passengers, and staff are currently studying the traffic and parking conditions on those roadways. As the curbside lane is reimaged in the Boston region, it is important to understand the effects on not only traffic and bus riders but also on the businesses that the transportation system serves.

Cities and towns have relatively little information about the characteristics of CBD patrons and, as a result, the transportation planning process for these areas is often governed by perceptions that may or may not be correct. Understanding the transportation access mode, spending patterns, and visitation and demographic characteristics of CBD patrons would help planners in their work to improve transportation access to CBDs. This information might help planners make the case for improving transit and non-motorized vehicle access using the curbside lane. A transportation access study of a selection of Boston metropolitan area CBDs would evaluate how patrons access CBDs, including those on corridors that have been identified as potential bus lane opportunities.

Approach

The study would consist of several tasks:

- CTPS would conduct a literature review and summary of other studies of transportation access to CBDs.
- CTPS would also characterize the CBDs in the Boston metropolitan area by demographics, commercial development type and density, and existing transportation facilities and services.
- For a selection of CBDs, CTPS would work with the municipalities and local business associations to solicit business participation in the study.
- CTPS would first ask businesses to provide their perceptions of their customers' actual and preferred transportation access modes.
- CTPS would ask participating businesses to encourage their customers to fill out a short survey while they wait in line at the register.
 - The customer survey would ask the transportation access mode for the visit and the typical transportation access mode to that business.
 - For each mode selected by the respondent, the survey would ask how frequently the patron uses that mode to access the business and how much the patron typically spends at the business (when using that mode).

FFY 2019 Anticipated Outcomes

The findings from this study could be used to inform planning processes that are debating transportation access and changes to the curbside travel lane to better serve transit and non-motorized modes. The results of the study will also be used in the subsequent Future of the Curb study.

5.2.3 The Future of the Curb

Project ID Number	14361
Category	Land Use, Environment, and Economy
FHWA 3C PL Funds	\$24,260
FTA Section 5303 Funds	\$10,740
FFY 2019 Total Budget	\$35,000

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

The curbside lane in urban areas traditionally has been used for parking. However, current trends in transportation and efforts to support non-motorized modes have caused an increase in demand for the curbside lane. The popularity of transportation network companies has risen in recent years, autonomous vehicle technology is currently evolving, and city dwellers increasingly rely on deliveries for items they once purchased in brick-and-mortar stores. In the Boston region, dedicated bus lanes have been making headway, and bike lanes are in demand. This study will explore current demands on the curbside lane, the ways progressive regions are repurposing the lane, and potential considerations for the curb in the future.

Approach

Staff will review current literature about the use of curbside lanes for purposes other than parking. Staff will explore initiatives to transform the curbside lane in other regions, including the impetus for change, challenges, and results. Staff will also consider how other regions are planning for future transportation technologies in relation to the curbside lane. Staff will use results of the Transportation Studies of Commercial Business Districts study to understand existing demands on the curbside lane from non-motorized modes, and will synthesize these needs with the best practices of other regions.

FFY 2019 Anticipated Outcomes

This study will produce a report highlighting current examples of repurposing the curbside lane, applications to the Boston region, and potential future demands for the curb. The findings from this study could be used to inform decision making about curbside lanes in the Boston region.

5.2.4 Reverse Commute Areas Analysis

Project ID Number	14359
Category	Land Use, Environment, and Economy
FHWA 3C PL Funds	\$45,050
FTA Section 5303 Funds	\$19,950
FFY 2019 Total Budget	\$65,000

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

This study will explore the nature of reverse commuting in the Boston region and identify areas where there are significant numbers of reverse commuters. Anecdotally, there are suburban areas within the Boston region that have significant job concentrations and face challenges filling jobs with local residents. These areas need to draw from labor markets in urban cores or other remote areas, but potential employees may face a challenging reverse commute with the existing transportation system. This study will strategize options for improving transportation for reverse commuters.

Approach

This study will be conducted in several tasks:

- First, staff will analyze journey-to-work data to understand the scope of reverse commuting in the region. Staff will analyze commuting patterns by mode between municipalities and along major corridors in the region and quantify the location and magnitude of reverse commute trips.
- Next, staff will analyze a case study for one or more reverse commute areas. For the location or locations selected for the case study, staff will identify barriers to worker access to these areas, and identify potential solutions for improving multimodal options for reverse commute trips including but not limited to
 1. Last-mile transit options (including shuttles)
 2. Improved bicycle and pedestrian infrastructure, especially relative to safe routes to transit
 3. Guaranteed ride home programs

FFY 2019 Anticipated Outcomes

The product of this work will be a report quantifying the magnitude of reverse commuting in the Boston region, and examining one or more reverse commute areas as a case study to explore the challenges and opportunities for improving multimodal reverse commute options.

5.2.5 Low-Cost Improvements to Express Highway Bottlenecks

Project ID Number	13619
Category	Multimodal Mobility
FHWA 3C PL Funds	\$60,000
FTA Section 5303 Funds	\$0
FFY 2019 Total Budget	\$60,000

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

This study would build off of the work conducted in previous iterations of this study, Low-Cost Improvements to Express Highway Bottlenecks Phases I, II, and III. These studies aim to address points in the highway system where traffic flow is restricted with operational and low-cost infrastructure solutions. The recommendations that stem from these studies are aimed at reducing congestion, increasing safety, and improving traffic operations throughout the Boston region. Examples of recommendations from previous phases of this study include creating an auxiliary lane for merging and diverging traffic and lengthening the deceleration lane at an exit. The previous three studies of express-highway bottlenecks were very well received by MassDOT and the FHWA. Some of the recommendations from those studies already have been executed, and the FHWA has interviewed MPO staff about the successful implementation.

Approach

According to the FHWA, “Much of recurring congestion is due to physical bottlenecks—potentially correctable points on the highway system where traffic flow is restricted. While many of the nation’s bottlenecks can only be addressed through costly major construction projects, there is a significant opportunity for the application of operational and low-cost infrastructure solutions to bring about relief at these chokepoints.”¹ In general, recurring bottlenecks are influenced by the design or operation present at the point where the bottleneck begins—for example, merges, diverges, lane drops, traffic weaving, and any abrupt changes in highway alignment. Low-cost infrastructure solutions, as opposed to major construction projects, could

¹ Federal Highway Administration, Recurring Traffic Bottlenecks: A Primer: Focus on Low-Cost Operations Improvements, US Department of Transportation, Federal Highway Administration, June 2009, p. 1.

involve changes in the design or operation of merges, traffic operations, or highway alignment. Examples of recommendations from previous phases of this study include creating an auxiliary lane for merging and diverging traffic and lengthening the deceleration lane at an exit. The previous three studies of express-highway bottlenecks were very well received by MassDOT and the FHWA. Some of the recommendations from those studies already have been executed, and the FHWA has interviewed MPO staff about the successful implementation.

FFY 2019 Anticipated Outcomes

Reports documenting low-cost solutions to existing traffic congestion issues at the selected express-highway bottleneck locations.

5.2.6 Addressing Safety, Mobility, and Access on Subregional Priority Roadways

Project ID Number	13419
Category	Multimodal Mobility
FHWA 3C PL Funds	\$83,160
FTA Section 5303 Funds	\$36,840
FFY 2018 Total Budget	\$120,000

Note: FTA and FHWA funds include the MassDOT local match.

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.

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. Staff will concentrate on transit service, nonmotorized modes of transportation, and truck activity along these arterial segments. 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 (ADA) requirements
- Travel-lane utilization by motorized and bicycle traffic
- Speed-limit
- Access management

The improvements will provide 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.

The Boston Region MPO has conducted Addressing Safety, Mobility, and Access on Subregional Priority Roadways studies as part of the FFY 2013, 2014, 2015, 2016, 2017, and 2018 UPWPs.

FFY 2019 Anticipated Outcomes

Data collection, technical analysis, development of recommendations, and documentation for selected corridors.

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

Project ID Number	13519
Category	Multimodal Mobility
FHWA 3C PL Funds	\$83,160
FTA Section 5303 Funds	\$36,840
FFY 2019 Total Budget	\$120,000

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

The purpose of these studies is to develop conceptual design plans that address regional multimodal transportation needs along priority corridors identified in the Long-Range Transportation Plan (LRTP), *Charting Progress to 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 LRTP 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 (TIP). Projects that address the region's current mobility needs are those that focus on maintaining and modernizing roadways with high levels of congestion² and safety problems; 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 would select locations for study with consideration of municipal, subregional, and other public feedback, then would collect data, conduct technical analyses, and develop recommendations for improvements. The recommendations would be forwarded to implementing agencies, which may choose to fund improvements through various federal, state, and local sources, either separately or in combination.

² 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 2019 Anticipated Outcomes

Through these studies, MPO staff would recommend conceptual improvements for one or more corridors, or several small sections within a corridor, that are identified by the Congestion Management Process and the LRTP as being part of the Needs Assessment process.

The studies would 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.

5.2.8 New and Emerging Metrics for Roadway Usage

Project ID Number	13290
Category	Multimodal Mobility
FHWA 3C PL Funds	\$41,580
FTA Section 5303 Funds	\$18,420
FFY 2019 Total Budget	\$60,000

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

Traditionally, planners and engineers have relied upon a level of service (LOS) metric based on delay per vehicle to determine a roadway's performance. Planners and researchers are currently developing a number of new and interesting performance metrics to communicate better the performance of a roadway for all users, including single occupant vehicles (SOV), high occupancy vehicles (HOV), and transit vehicles. These methods may help planners and engineers steer away from relying on traditional LOS metrics—or they may complement traditional LOS metrics—and could help sharpen MPO staff's analysis of roadways and corridors through a better understanding of non-SOV modes. One example is FHWA's recently changed federal guidance to encourage MPOs to use person-hours of delay, rather than vehicle-hours of delay, in measuring peak hour excessive delay (PHED) on segments of the National Highway System.

Approach

Staff will conduct a review of industry research organizations such as the American Association of State Highway and Transportation Officials (AASHTO), Institute of Transportation Engineers (ITE), Transportation Research Board (TRB), Association of Pedestrian and Bicycle Professionals (APBP), and other stakeholders to identify information related to roadway performance metrics beyond the Highway Capacity Manual's traditional LOS.

FFY 2019 Anticipated Outcomes

MPO staff will analyze case studies to explore and develop an approach to creating new and emerging metric(s) to measure roadway efficiency fully by different modes to express the needs (travel demands) of all corridor travelers. This review also could provide planners and decision makers with additional information to help prioritize pedestrian infrastructure projects.

5.2.9 Updates to Express Highway Volumes Charts

Project ID Number	13291
Category	Multimodal Mobility
FHWA 3C PL Funds	\$58,910
FTA Section 5303 Funds	\$26,090
FFY 2019 Total Budget	\$85,000

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

The goal of this study is to develop updated estimates of traffic volumes on key regional limited-access highways, including traffic on each entry and exit ramp by hour during AM and PM peak periods. Taken altogether, these are referred to as “balanced volumes,” and are a basic tool for studying the express highway system.

Approach

Staff proposes to work with MassDOT to obtain a complete set of reliable ramp and mainline counts in the MPO region. These will be “balanced,” a process which smooths small daily traffic differences to present traffic flows in which exactly as many vehicles enter an express highway as leave. These estimates will be developed for an entire weekday, and for each hour during the AM and PM peak periods.

The limited-access express highway system has been built with integral traffic counting equipment that can provide reliable estimates of traffic volumes by hour on the main highway travel lanes. These permanent count stations do not, however, count the vehicles entering or leaving the limited-access system at the numerous intersecting arterial roadways.

MassDOT has an ongoing program of performing ramp counts, and counts completed within the last few years will be utilized in this study. To complete key system segments where these counts have not been taken in the last few years, these counts will be supplemented by some specifically requested counts.

Because of prior efforts, CTPS has a historic database of balanced volumes on these highways. CTPS will apply updated graphics capabilities to depict changes in traffic flow both in terms of regional growth trends and daily peaking patterns. Staff will

conduct a review with industry research organizations (AASHTO, ITE, TRB, APBP, and other stakeholders) to obtain information related to roadway performance metrics beyond the Highway Capacity Manual's traditional LOS.

FFY 2019 Anticipated Outcomes

This study will produce current hourly and daily balanced volumes and associated graphics for key elements of the regional limited-access highway system.

5.2.10 MPO Staff-Generated Research Topics

Project ID Number	20903
Category	Other Technical Support
FHWA 3C PL Funds	\$13,900
FTA Section 5303 Funds	\$6,210
FFY 2019 Total Budget	\$20,110

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

This program would support work by MPO staff members on topics that relate to the Boston Region MPO's metropolitan transportation planning process, which 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 (RMV) data as a possible measure of transit dependence. In FFY 2018, staff members completed research projects including an examination of crash rates in Environmental Justice 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.

Approach

Interested MPO staff members would complete an application for MPO funding to do independent research on a topic of professional interest and potential use in the metropolitan transportation planning process. MPO managers and directors would review the applications and select the most promising topics for study.

FFY 2019 Anticipated Outcomes

This research program would produce valuable information for the MPO's consideration and would support staff members' professional development. It would yield highly creative solutions for transportation planning problems.

5.3 TECHNICAL ANALYSIS AND SUPPORT

The project descriptions in this section consist of ongoing MPO programs that provide technical planning assistance, support, and analysis 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.

5.3.1 Transit Data Support, FFY 2019

Project ID Number	4219
FHWA 3C PL Funds	
FTA Section 5303 Funds	\$15,350
FFY 2019 Total Budget	\$15,350

Note: FTA and FHWA funds include the MassDOT local match.

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 this data to interested parties throughout the federal fiscal year.

FFY 2019 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.

5.3.2 TRAFFIC DATA SUPPORT, FFY 2019

Project ID Number	2719
FHWA 3C PL Funds	\$10,520
FTA Section 5303 Funds	\$4,660
FFY 2019 Total Budget	\$15,180

Note: FTA and FHWA funds include the MassDOT local match.

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 less than two person-days each, are accounted for under this general project description.

FFY 2019 Anticipated Outcomes

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

5.3.3 Roadway Safety Audits

Project ID Number	2319
FHWA 3C PL Funds	\$14,640
FTA Section 5303 Funds	\$0
FFY 2019 Total Budget	\$14,640

Note: FTA and FHWA funds include the MassDOT local match.

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 RSA examines the location to develop both short- and long-term recommendations to improve safety for vehicles, pedestrians, and bicyclists. 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, 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 2019 Anticipated Outcomes

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

5.3.4 Bicycle/Pedestrian Support Activities

Project ID Number	2519
FHWA 3C PL Funds	\$45,350
FTA Section 5303 Funds	\$20,090
FFY 2019 Total Budget	\$65,440

Note: FTA and FHWA funds include the MassDOT local match.

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 2019 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, the Safe Routes to School Program at MassRIDES, WalkBoston, MassBike, Livable Streets, municipalities, and other groups regarding bicycle and pedestrian planning for the region, possibly to include issues pertaining to bicycle/pedestrian law enforcement and education
- Collect data on bicycle and pedestrian volumes at selected on-road and off-road facilities

- 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 impacts of proposed bicycle facilities, including air quality improvements, reductions in vehicle-miles traveled, and parking needs
- Conduct analyses to identify critical sidewalk gaps in the region, and possibly provide guidance to communities by accessing available Transportation Alternatives Program funding 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, where applicable
- Consider development of future possible strategic bicycle and pedestrian safety plans

5.3.5 Regional Transit Service Planning Technical Support

Project ID Number	14342
FHWA 3C PL Funds	
FTA Section 5303 Funds	\$45,810
FFY 2019 Total Budget	\$45,810

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

Through this ongoing program, the MPO provides technical support to regional transit authorities (RTA), transportation management associations (TMA), MAPC subregions, and municipalities. This work is focused on improving or expanding transit service and reducing 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 2019 Anticipated Outcomes

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

5.3.6 Community Transportation Technical Assistance Program

Project ID Number	2419, MAPC8
FHWA 3C PL Funds	(CTPS) \$50,760 (MAPC) \$25,000
FTA Section 5303 Funds	(CTPS) \$22,490 (MAPC) \$20,000
FFY 2019 Total Budget	\$118,250

Note: FTA and FHWA funds include the MassDOT local match.

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, along with appropriate follow-up and contact information, 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 2019 Anticipated Outcomes

In early FFY 2019, 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. Staff will document the work, recommendations, and outcomes of these consultations in the form of technical memoranda.

5.4 MAPC PLANNING STUDIES AND TECHNICAL ANALYSES

MAPC conducts transportation planning studies through four ongoing programs, including Corridor/Subarea Planning Studies, Alternative Mode Planning and Coordination, MetroFuture Implementation, and Land Use Development Project Reviews. Each FFY, some work that was started in previous FFYs is continued through these ongoing programs, and new work is planned and undertaken.

5.4.1 Corridor/Subarea Planning Studies

Project ID Number	MAPC4
FHWA 3C PL Funds	\$110,180
FTA Section 5303 Funds	\$55,300
FFY 2019 Total Budget	\$165,480

Note: FTA match is provided by MAPC, and FHWA funds include the MassDOT local match.

Purpose

This UPWP task includes funding to support MAPC’s work on several corridor and sub-area studies in the region. Some of these projects will be funded jointly through the UPWP and the District Local Technical Assistance Program.

Approach

This area of work is accomplished through the following subtasks.

Local Parking Management Plans in Selected Communities (\$60,000)

MAPC will work with selected municipalities to develop local parking management plans to provide better parking availability 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. 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. 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.

Corridor/Sub-Area Multi-Modal Transportation Planning (\$85,480)

MAPC will work in two selected subregions or roadway corridors to coordinate multimodal transportation planning and transit service operations to be implemented by MassDOT, MBTA, RTAs, TMAs, the Department of Conservation and Recreation (DCR), and/or municipalities with local land use planning to achieve livability and smart growth goals. The goal of this work is to provide more mobility options for a variety of different users and trip types.

Water Transportation Planning (\$20,000)

MAPC will work with municipalities along Boston Harbor and the Mystic River to coordinate water transportation planning and related land use planning, and to facilitate coordination with MassDOT, MBTA, and Massport.

FFY 2019 Anticipated Outcomes

- Activities and expected work products related to Local Parking Management Plans include parking utilization data collection, analysis of data, and recommendations to municipalities in the form of a report with pricing and parking management solutions.
- Activities and expected work products related to Corridor/Sub-Area Multi-Modal Transportation Planning include identified mobility solutions, conceptual designs, pilot projects, data and analysis to inform recommendations, and a technical report summarizing findings.
- Activities and expected work products related to Water Transportation Planning include coordination among stakeholders and recommended services that are sustainable and cost-effective.

5.4.2 Alternative-Mode Planning and Coordination

Project ID Number	MAPC7
FHWA 3C PL Funds	\$128,136
FTA Section 5303 Funds	\$66,577
FFY 2019 Total Budget	\$194,713

Note: FTA match is provided by MAPC, and FHWA funds include the MassDOT local match.

Purpose

MAPC provides alternative-mode transportation-planning support to the Boston Region MPO and municipalities that focuses on non-SOV modes. This work benefits bicycle and pedestrian transportation, encourages transit in areas that currently are underserved by existing RTAs, improves the region's understanding of TNCs, advances electric vehicles, and identifies and supports transportation demand management strategies.

Approach

This area of work is accomplished through the following subtasks:

Autonomous Vehicles, Connected Cars, and TNCs (\$39,713)

MAPC will further the regional and municipal understanding of the potential future impacts of TNCs and autonomous vehicle/connected vehicle (AV/CV) technologies. MAPC staff will work with CTPS to identify how expanded TNC use and movement toward AV/CV technologies may influence future travel behaviors and how these findings can best be incorporated into travel demand and land use modeling as well as long-range transportation and land use plans. Staff also will continue to stay informed of how federal agencies and other states and municipalities are regulating TNCs and preparing for AV/CV technologies.

Suburban Mobility and Technology (\$30,000)

MAPC will work with selected municipalities to advance solutions that apply technology, dynamic ride dispatching, ride-sharing technologies, and public-private partnership funding models to first-and last-mile connections and other gaps in the transit system.

Bike Share Implementation (\$25,000)

MAPC will continue to work with the cities of Boston, Cambridge, and Somerville, and the town of Brookline to implement the regional Hubway Bike Share system, expanding the system within these municipalities and to neighboring cities and towns as applicable. MAPC will also facilitate the implementation of a separate dockless bike share system in Arlington, Bedford, Belmont, Chelsea, Concord, Everett, Lexington, Malden, Medford, Milton, Newton, Needham, Quincy, Revere, Waltham, Watertown, and Winthrop. MAPC also will help other cities and towns plan for bike sharing systems in a coordinated fashion.

Local Bicycle and Pedestrian Plans and Technical Assistance in Selected Communities (\$20,000)

MAPC will continue to work with selected municipalities to develop local bicycle and pedestrian prioritization plans. MAPC will provide technical support to identify implementable steps that the municipalities, MassDOT, the Massachusetts Department of Conservation and Recreation, and other entities could take to advance bicycle and pedestrian infrastructure in specific locations. MAPC also will provide small-scale technical assistance to municipalities that are seeking support. This work continues the implementation efforts of the MPO's 2007 Regional Bicycle Plan and the 2010 Regional Pedestrian Plan.

Regional Greenway Planning and Mapping (\$80,000)

MAPC will continue to work with MassDOT, CTPS, DCR, Executive Office of Energy and Environmental Affairs (EOEEA), municipalities, and trail organizations to better develop 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—working with the above-cited partners—developed the branding of this system, called the LandLine. Trail development is increasingly frequent in most communities in the Boston region. 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. These greenways often are local in nature; however, if all of these separate projects could be connected to form a regional system, a world-class regional network could be created.

FFY 2019 Anticipated Outcomes

Anticipated outcomes include 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, implementation of the regional bike share program, research and recommendations to support first-mile and last-mile connections, and research to understand potential transportation and land use impacts of AV/CV technologies in long-range planning efforts.

5.4.3 MetroFuture Update and Implementation

Project ID Number	MAPC6
FHWA 3C PL Funds	\$59,400
FTA Section 5303 Funds	\$30,600
FFY 2019 Total Budget	\$90,000

Note: FTA and FHWA funds include the MassDOT local match.

Purpose

This UPWP study area will continue to support implementation, evaluation, and update of MetroFuture, the Boston region’s 30-year comprehensive plan (through the year 2030) for sustainable growth and development. Staff will expand community engagement in MAPC’s regional and local planning work. Specifically, this task includes an emphasis on engaging diverse groups of stakeholders. It also will identify transportation and land use best practices by evaluating the different approaches and strategies used in MAPC’s work, and through case studies of positive models from around the region and nation.

Approach

This area of work is accomplished through the following subtasks:

Updating MetroFuture

MAPC will launch the update of MetroFuture. Changing demographics and location preferences, planned investments in public transportation and Complete Streets, and emerging transportation technologies will have a profound impact on our region in the decades ahead. Through the plan update, staff will explore the implications of these emerging technologies, and develop recommendations for improving mobility, reducing greenhouse gas emissions from the transportation sector, and expanding access to and capacity of public and active transportation.

Building Constituencies for Local Decisions that Enable Livable Communities and Sustainable Transportation

MAPC will continue to work with municipal officials and residents at the local level 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 (eTOD) planning; supports

engagement in MPO planning processes; and influences other decision-making to improve development outcomes, transportation opportunities, and reduction of greenhouse gas emissions. As part of the MetroFuture update, MAPC will supplement the civic engagement tasks in developing the land use scenarios for the LRTP and convene discussions about challenges and opportunities to make long-term improvements to our transportation system. Task outputs are expected to include engagement of at least 500 people in at least ten different events or activities.

Honing MAPC's Practice of Planning for Livable Communities and Sustainable Transportation

MAPC will evaluate the approaches, strategies, and implementation status of its transportation and land use planning work, with particular emphasis on equity. This may include focusing on strategies to steer investments and development to low-income neighborhoods, working to mitigate and minimize displacement pressures, and expanding senior mobility.

Research and Policy Development that Support Livable Communities and Sustainable Transportation

Best practices and state policy that support sustainable land use planning, which include local and state practices from across the country, provide both ideas and "proof of concept." MAPC will identify such best practices and employ appropriate means to promote their use in the region. Activities may include researching transportation strategies for senior mobility that are successfully employed in other parts of the country to assess their applicability in Massachusetts. MAPC may also research strategies to improve transportation equity and access for low-income and minority residents.

FFY 2019 Anticipated Outcomes

Anticipated outcomes include enhanced and expanded engagement in land use and transportation planning processes, including the LRTP and MetroFuture.

5.4.4 Land Use Development Project Reviews

Project ID Number	MAPC5
FHWA 3C PL Funds	\$59,400
FTA Section 5303 Funds	\$29,420
FFY 2019 Total Budget	\$88,820

Note: FTA match provided by MAPC and FHWA funds include the MassDOT local match.

Purpose

This UPWP task supports MAPC’s review of potential development projects in the region. In particular, MAPC will review projects for consistency with MetroFuture (the Boston Region’s 30-year comprehensive plan for sustainable development), impacts on the transportation network and projects identified in the TIP and LRTP, and consistency with the MPO’s livability goals and the Commonwealth’s sustainable-development principles.

Approach

MAPC tracks all projects reviewed in the region under the Massachusetts Environmental Policy Act (MEPA), and provides a regional-planning analysis to the Secretary of Energy and Environmental Affairs for all developments considered to have significant impact. Special attention is given to local zoning ordinances and regulations that serve to reduce auto travel by encouraging carpooling, transit, and other travel demand management techniques. MAPC also will recommend appropriate mitigation measures. MAPC coordinates these reviews with MassDOT, 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 2019 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.

CHAPTER

Agency and Other Client Transportation Planning Studies and Technical Analyses



6.1 INTRODUCTION

The transportation studies and technical analysis work described in this chapter will be undertaken 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) Section 5303 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 one FFY. 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 RailVision study; 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 for a broad range of topics, including travel-demand modeling, air quality, traffic engineering, 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 Massachusetts Port Authority (Massport), and the MBTA.

**Table 6-1
Unified Planning Work Program Budget—New and Continuing Agency Transportation Planning Studies
and Technical Analyses, for FFY 2019**

Project ID	Name	Total Contract ^a	Funding Source	FFY 2019 Agency Funds	Direct Support	Proposed FFY 2019 CTPS Budget
111xx	MassDOT Highway Division On-Call Modeling Support	\$400,000	MassDOT	\$134,000	\$-	\$134,000
Varies by Specific Project	MassDOT SPR Program Support ^b	\$306,000	MassDOT SPR	\$300,000	\$6,000	\$306,000
13155	MassDOT Title VI Program	\$100,000	MassDOT	\$50,000	\$-	\$50,000
Varies by Specific Project	MassDOT Transit Planning Assistance ^c	\$274,530	MassDOT 5303	\$150,000	\$1,000	\$151,000
11157	North/South Rail Link	\$251,765	MassDOT	\$17,000	\$-	\$17,000
23327	I-90/I-495 Interchange Traffic Analysis Technical Support	\$87,097	MassDOT	\$4,500	\$-	\$4,500
22214	Commuter Rail Vision Study Support	\$200,000	MassDOT	\$152,000	\$-	\$152,000
MassDOT Subtotal		\$ 1,619,392		\$807,500	\$7,000	\$814,500
14353	MBTA SFY 2018 National Transit Database: Data Collection and Analysis	\$152,725	MBTA	\$6,100	\$-	\$6,100
14356	MBTA SFY 2019 National Transit Database: Data Collection and Analysis	\$160,500	MBTA	\$90,000	\$150	\$90,150
14362	MBTA SFY 2020 National Transit Database: Data Collection and Analysis	\$168,500	MBTA	\$37,500	\$250	\$37,750
13155	MBTA 2018 and 2019 Title VI Program Monitoring	\$161,511	MBTA	\$81,000	\$350	\$81,350
11406	MBTA Bus Service Data Collection IX	\$540,000	MBTA	\$135,000	\$-	\$135,000

Table 6-1 (cont.)

Project ID	Name	Total Contract ^a	Funding Source	FFY 2019 Agency Funds	Direct Support	Proposed FFY 2019 CTPS Budget
11422	MBTA Bus Service Data Collection X	\$360,000	MBTA	\$45,000	\$-	\$45,000
14355	MBTA Rider Oversight Committee Support 2019	\$24,500	MBTA	\$5,000	\$-	\$5,000
11414	Support for MBTA Service Standards Development 2019	\$40,000	MBTA	\$30,000	\$-	\$30,000
11412	MBTA Commuter Rail Passenger Counts	\$240,850	MBTA	\$96,500	\$2,500	\$99,000
14358	Service Equity Analysis Support to the MBTA	\$115,000	MBTA	\$80,000	\$-	\$80,000
11420	Fare Equity Analysis Support to the MBTA	\$10,000	MBTA	\$5,600	\$-	\$5,600
11419	MBTA Mapping Support	\$12,000	MBTA	\$4,000	\$-	\$4,000
MBTA Subtotal		\$1,985,586		\$615,700	\$3,250	\$618,950
221xx	Massport Technical Assistance	\$75,000	Massport	\$24,500	\$500	\$25,000
Massport Subtotal		\$75,000		\$24,500	\$500	\$25,000
23328	Weymouth Union Point	\$245,200	Developer	\$150,000	\$-	\$150,000
22213	Allston Enhanced Transit Study	\$65,000	MAPC	\$54,000	\$-	\$54,000
11161	Section 405C Traffic Records Improvement	\$91,775	EOPSS	\$30,600	\$-	\$30,600
Other Subtotal		\$401,975		\$234,600	\$-	\$234,600
Agency-Funded and Client-Funded Subtotal				\$1,682,300	\$10,750	\$1,693,050

Note: Blank or NA indicates that no FFY 2018 budget or status was noted either because this is a new study or contract, or because this study or contract was not active in FFY 2018.

- ^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 term of the MassDOT SPR Contract is from April 1 through March 30. Therefore, the total FFY budgets in the UPWP represent a combination of six months of funding from two different contract years. The total contract amount listed for the MassDOT SPR is the total contract amount for the 2018–19 contracts.
- ^c The MassDOT Transit Planning Assistance Contract is also called the MassDOT Section 5303 Contract. The total FFY budgets in the UPWP represent six months of two different contracts (MassDOT Section 5303 Contracts are issued every SFY). The total contract amount listed for the MassDOT Transit Planning Assistance is the amount of one SFY contract.

CTPS = Central Transportation Planning Staff. EOPSS = Executive Office of Public Safety and Security. FFY = Federal Fiscal Year. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. Massport = Massachusetts Port Authority. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. SFY = State Fiscal Year. SPR = Statewide Planning and Research. UPWP = Unified Planning Work Program.

6.2 MASSDOT

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

6.2.1 MassDOT Highway Division On-Call Modeling Support

Project ID Number	111xx
Funding Source	MassDOT
Total Contract	\$400,000
FFY 2019 Total Budget	\$134,000

Purpose

The purpose of this on-call contract is to provide the MassDOT Highway Division with travel demand modeling and planning assistance throughout FFY 2019.

Approach

MassDOT's Highway Division will create a general on-call contract to retain CTPS's services for three years to provide travel demand modeling support, planning assistance, and data resources to MassDOT Highway Division projects.

FFY 2019 Anticipated Outcomes

Memoranda documenting findings of travel demand model or planning recommendations. In addition, staff will fulfill data requests and otherwise coordinate with project teams on various issues and items.

6.2.2 MassDOT Statewide Planning and Research Program Support

Project ID Number	Varies
Funding Source	MassDOT SPR
Total Contract	\$306,000
FFY 2019 Total Budget	\$306,000

Purpose

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

Approach

CTPS will conduct studies, analyses, and technical assistance upon request. Projects that are either underway or expected to begin in FFY 2019 are listed below. (Other projects may be added throughout FFY 2019.)

- Western Massachusetts I-90 Interchange Analysis
- Green Line Corridor Study
- Road Inventory and Related Support Maintenance
- Statewide Travel Model Assistance
- Miscellaneous Technical Support

FFY 2019 Anticipated Outcomes

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

6.2.3 MassDOT Title VI Program

Project ID Number	13155
Funding Source	MassDOT
Total Contract	\$100,000
FFY 2019 Total Budget	\$50,000

Purpose

Under this contract, CTPS will continue to provide technical support to MassDOT by 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 on the basis of gender, age, income, and disability. Through this technical support work, CTPS will assist MassDOT in complying with these equal protection laws.

FFY 2019 Anticipated Outcomes

Staff will provide technical support to MassDOT as described above.

6.2.4 MassDOT Transit Planning Assistance

Project ID Number	Varies
Funding Source	MassDOT Section 5303
Total Contract	\$274,530
FFY 2019 Total Budget	\$151,000

Purpose

CTPS will provide transit-planning assistance to MassDOT and the MBTA by conducting various studies under MassDOT's FTA-funded Section 5303 Program. This contract will include multiple individual projects or tasks throughout the federal fiscal year.

Approach

This assistance may include:

- Analysis of projects and proposals (both short-term and ongoing), including modeling, impact analyses, transit service planning, and other technical support
- Preparation of supporting data, graphics, maps, and other materials

FFY 2019 Anticipated Outcomes

Activities and work products will depend on tasks requested by MassDOT's OTP. Projects of appropriate scope will be submitted to the MPO before proceeding.

6.2.5 North-South Rail Link

Project ID Number	11157
Funding Source	MassDOT
Total Contract	\$251,765
FFY 2019 Total Budget	\$17,000

Purpose

This work will update the previously completed analysis of the demand for the proposed North-South Rail Link project that would connect Boston’s North Station and South Station by rail. In the coming years, trainset capacity at South Station is expected to be a major limitation that would inhibit expansion of the commuter rail network south of Boston. The rail link project would add capacity to the commuter rail system, while at the same time obviating the need to conduct a costly expansion project at South Station. This update is required because the North-South Rail Link project was last studied in detail more than a decade ago.

Approach

Staff will examine the local and regional demand for a north-south rail connection that would provide more transit connectivity to the region by linking transit markets that now require two or more transfers and provide passengers with a one-seat ride. Staff will also address the air quality and economic impacts associated with the rail-link project.

FFY 2019 Anticipated Outcomes

CTPS will produce draft and final reports for MassDOT on the local and regional demand for a north-south rail connection, and the air quality and economic impacts associated with the rail-link project.

6.2.6 I-90/I-495 Interchange Traffic Analysis Technical Support

Project ID Number	23327
Funding Source	MassDOT
Total Contract	\$87,097
FFY 2019 Total Budget	\$4,500

Purpose

The Interstate 90 and 495 (I-90/I-495) interchange, Massachusetts Turnpike Exit 11A, serves commerce traveling to and from northern New England and points west and south. This travel includes commuter traffic associated with jobs in the MetroWest complex; Boston Proper; and the Route 128 corridor. The interchange also connects I-90 to the substantial employment locations along the I-495 corridor and serves recreational travel to and from Cape Cod. In addition, the interchange connects I-84, I-90, I-495, and I-95, all of which are truck corridors between New York and Maine.

MassDOT is conducting a study to examine four possible reconfigurations of this interchange in order to improve safety and operations. The target reconstruction time is between 2021 and 2025. CTPS was tasked to use the Massachusetts statewide travel demand forecasting model to project future travel demand for I-90 at interchanges 10, 10A, 11, and 12, as well as I-495 from West Main Street to I-290, and I-290 from I-495 to I-90.

Approach

During FFY 2019, CTPS will respond to questions about the following tasks associated with this project that were accomplished in FFY 2018:

1. CTPS updated the Massachusetts statewide travel demand forecasting model to include all of Massachusetts, all of Rhode Island, and New Hampshire just south of Concord.
2. The land use assumption was updated to be consistent with the state control totals for 2012 and 2040.
3. The updated model was recalibrated.
4. CTPS projected 2040 traffic volumes under the No-Build conditions.

5. CTPS will complete the remaining tasks of projecting the traffic volumes for Build alternatives as well as supporting air quality analysis and environmental-justice analysis.

FFY 2019 Anticipated Outcomes

CTPS will respond to questions from the project team as relevant.

6.2.7 Commuter Rail Vision Study Support

Project ID Number	22214
Funding Source	MassDOT
Total Contract	\$200,000
FFY 2019 Total Budget	\$152,000

Purpose

MassDOT and the MBTA are embarking upon a long-term study, the Commuter Rail Vision study, to identify current and future needs for the commuter rail system. MassDOT has hired a consultant to assess the state of the rail system and identify opportunities to improve its reliability, operations, and connectivity; the consultant has requested a substantial amount of data from CTPS. CTPS will assist MassDOT by responding to the consultant's data requests and providing technical analyses.

Approach

CTPS will utilize the regional travel demand model to support MassDOT and the MBTA's project team in their analysis of different commuter rail scenarios. This technical analysis will be used to produce multiple performance metrics for gauging the effectiveness of the different strategies proposed by the consultant.

FFY 2019 Anticipated Outcomes

Data, technical assistance, and coordination with MassDOT and the MBTA's project team.

6.3 MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

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

6.3.1 MBTA National Transit Database: Data Collection and Analysis

Project ID Number	(SFY 2018) 14353 (SFY 2019) 14356 (SFY 2020) 14362
Funding Source	MBTA
Total Contract*	(SFY 2018) \$152,725 (SFY 2019) \$160,500 (SFY 2020) \$168,500
FFY 2019 Total Budget	(SFY 2018) \$6,100 (SFY 2019) \$90,150 (SFY 2020) \$37,750

*Several different contract years are included in this work.

Purpose

For many years, in support of the MBTA's National Transit Database submittals to the FTA, CTPS has produced estimates of passenger miles and boardings for MBTA services. This project will develop these estimates for

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

CTPS will also verify MBTA estimates of average passenger trip length on its commuter rail service.

Approach

The data underlying these estimates will be collected in a variety of ways:

- Full-route ridechecks¹ on buses used in contracted MBTA local bus service and trackless trolleys
- MBTA automatic passenger counter (APC) data
- Passenger counts on APC-equipped buses to verify APC data
- Electronic passenger fare-mix counts from automated-fare-collection (AFC) faregates at heavy and light rail subway stations and fareboxes on motor bus and trackless trolley routes
- Origin-destination information inferred from AFC data
- Commuter rail ridership data from passenger counts conducted by the MBTA or its contractors, or from the MBTA's mobile ticketing vendor
- Fare-mix counts from AFC faregates at stations and from fareboxes on vehicles
- Passenger surveys on the heavy rail, light rail, and gated portions of the bus rapid-transit systems to collect origin and destination information

The MBTA will submit its SFY 2018 NTD estimates of passenger boardings and passenger miles for various transit modes to the FTA with the aid of CTPS during FFY 2019. In addition, the MBTA will submit its SFY 2019 NTD estimates of passenger boardings and passenger miles for various transit modes to the FTA with the aid of CTPS during FFY 2020. The final technical memorandum for the 2019 NTD will be completed in FFY 2020.

FFY 2019 Anticipated Outcomes

In SFY 2019, CTPS will complete the final technical memorandum for SFY 2018 NTD reporting and will continue data collection begun in SFY 2018 for SFY 2019. Field staff will conduct ridechecks for the trackless trolley and contracted local bus service portions of the SFY 2019 NTD reporting. For bus routes, staff will collect data about boardings and alightings by stop, farebox readings, trip-level travel times, departure and arrival times, and arrival times at intermediate stops.

For heavy and light rail lines, staff will conduct origin-destination surveys and obtain fare-mix data.

¹ Ridechecks refer to a method of collecting sample data with one or more persons observing and recording passenger activities while riding in a transit vehicle.

6.3.2 MBTA Title VI Program Monitoring

Project ID Number	(SFY 2018 and 2019) 13155
Funding Source	MBTA
Total Contract	(SFY 2018 and 2019) \$161,511
FFY 2019 Total Budget	\$81,350

**Several different contract years are included in this work.*

Purpose

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

Approach

Staff will collect and analyze data on service indicators such as

- 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 analyses will be reported internally at the MBTA, and will be folded into the triennial FTA reporting.

FFY 2019 Anticipated Outcomes

CTPS will provide documentation about selected LOS evaluations for SFY 2018 MBTA revenue service and amenities in a technical memorandum.

6.3.3 MBTA Bus Service Data Collection

Project ID Number	11406 (IX) and 11422 (X)
Funding Source	MBTA
Total Contract	\$540,000 (IX) and \$360,000 (X)
FFY 2019 Total Budget	\$135,000 (IX) & \$45,000 (X)

Purpose

The work conducted under this contract will help the MBTA to assess bus service changes included in the biennial MBTA service plans. The program described here includes sections of two consecutive contracts known as MBTA Bus Service Data Collection IX and X.

Approach

The MBTA requires ongoing data collection regarding its bus system in order to assess bus service changes that are included in the biennial MBTA service plans. As part of this project, CTPS collects bus ridership and performance data to support future MBTA service plans, through which bus routes undergo comparative evaluations for cost-effectiveness, crowding, schedule adherence, and other indicators. 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 2019 Anticipated Outcomes

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

6.3.4 MBTA Rider Oversight Committee Support

Project ID Number	14355
Funding Source	MBTA
Total Contract	\$24,500
FFY 2019 Total Budget	\$5,000

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 analyzing the revenue and ridership impacts of potential fare and service changes, providing the MBTA with ridership statistics, 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 2019 Anticipated Outcomes

CTPS will continue to provide technical assistance to the MBTA Rider Oversight Committee and attend committee and subcommittee meetings.

6.3.5 Support for MBTA Service Standards Development 2019

Project ID Number	11414
Funding Source	MBTA
Total Contract	\$40,000
FFY 2019 Total Budget	(SFY 2019) \$30,040

Purpose

Under this contract, CTPS will work with the MBTA and other partners to refine MBTA service standards and measures and develop new measures.

Approach

CTPS will assist the MBTA in evaluating some of the potential service metrics that were not included in the final MBTA Service Delivery Policy, as the MBTA did not have the data or processes in place to calculate the metrics to determine if they should be included in a future revision to the Service Delivery Policy. In addition, CTPS will help the MBTA refine some of the approved metrics that have not been fully implemented, and develop tools to automate calculation of some of the new metrics.

FFY 2019 Anticipated Outcomes

Refined metrics and, to the extent feasible, tools for calculating some of the metrics

6.3.6 MBTA Commuter Rail Passenger Counts

Project ID Number	11412
Funding Source	MBTA
Total Contract	\$240,850
FFY 2019 Total Budget	\$99,000

Purpose

Accurate ridership information for the MBTA commuter rail system is important for many planning purposes. The last comprehensive count of the commuter rail system was in 2012. This project will obtain updated passenger counts for the commuter rail system.

Approach

CTPS will obtain passenger counts for each line and station of the MBTA commuter rail system by conducting full station counts. CTPS started the counts in FFY 2018; and in FFY 2019, CTPS plans to complete the counts, create a composite for each line and station representing ridership on a typical weekday, and summarize results of the counts in various ways, such as by route, station, or train.

FFY 2019 Anticipated Outcomes

CTPS will prepare a technical memorandum summarizing results of the counts and comparing them to those of past counts.

6.3.7 Service Equity Analysis Support to the MBTA

Project ID Number	14358
Funding Source	MBTA
Total Contract	\$115,000
FFY 2019 Total Budget	\$80,000

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. The MBTA is undertaking a systemwide bus service planning process, which is expected to include a set of changes that exceed the MBTA's major service change threshold, therefore requiring a service equity analysis. Furthermore, the MBTA envisions the need for additional service equity analyses for service changes that might occur outside of the bus service plan.

Approach

CTPS will conduct service equity analyses for the MBTA's set of proposed service changes for developing its bus service plan, and as many as two other major service changes that occur during the time period and within the budget provided for this project.

FFY 2019 Anticipated Outcomes

CTPS will prepare technical memoranda documenting service equity analyses for the MBTA's bus service planning project and for each major service change that occurs outside of the bus service planning project.

6.3.8 Fare Equity Analysis Support to the MBTA

Project ID Number	11420
Funding Source	MBTA
Total Contract	\$10,000
FFY 2019 Total Budget	\$5,600

Purpose

The MBTA is required to conduct a Title VI fare equity analysis to evaluate, prior to implementing any fare change, whether the planned change would have a discriminatory impact on the basis of race, color, or national origin. CTPS will support the MBTA in conducting the required Title VI equity analyses for proposed fare changes during FFY 2019.

Approach

CTPS will conduct the FTA-required fare equity analysis for any proposed changes in fare structure and tariffs.

FFY 2019 Anticipated Outcomes

CTPS will prepare a technical memorandum of findings from the fare equity analysis.

6.3.9 MBTA Mapping Support

Project ID Number	11419
Funding Source	MBTA
Total Contract	\$12,000
FFY 2019 Total Budget	\$4,600

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 2019 Anticipated Outcomes

Upon request from the MBTA, CTPS will update 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.

6.4 MASSACHUSETTS PORT AUTHORITY (MASSPORT)

The contracts and technical analysis in this section are being undertaken for the Massachusetts Port Authority (Massport).

6.4.1 Massport Technical Assistance

Project ID Number	221xx
Funding Source	Massport
Total Contract	\$50,000
FFY 2019 Total Budget	\$25,000

Purpose

CTPS will provide technical assistance to Massport's Department of Economic Planning and Development, which will support Massport in its desire to examine and improve ground-access options.

Approach

Activities may include support for Logan International Airport ground-access planning, ground-access model development, and related data collection and analysis; analysis related to Logan Airport; assistance to Massport consultants; and support for additional to-be-determined transportation planning activities. This work may be redirected or modified in response to emerging issues.

FFY 2019 Anticipated Outcomes

This contract will include multiple individual projects or tasks, and specific work activities and products will be determined by Massport.

6.5 OTHER TECHNICAL SUPPORT WORK

The contracts and technical analysis in this section are being undertaken for other clients and agencies.

6.5.1 Weymouth Union Point Technical Support

Project ID Number	23328
Funding Source	Other (Developer)
Total Contract	\$245,000
FFY 2019 Total Budget	\$150,000

Purpose

Note: this item was originally programmed in the FFY 2018 UPWP, but much of the work is now planned for FFY 2019.

The South Weymouth Naval Air Station located in Weymouth, Abington, and Rockland was closed in 1997 on recommendation of the Base Realignment and Closure Commission. In 1998, the Massachusetts Legislature created the South Shore Tri-Town Development Corporation, which was subsequently reconstituted in 2014 as the Southfield Redevelopment Authority. The Southfield Redevelopment Authority is charged with reinforcing municipal control over the land use and redevelopment of the former base. The 1,400-acre site was recently purchased by a development company, which has ambitious redevelopment plans that contemplate as much as eight million square feet of commercial development and approximately 4,000 housing units.

Significant transportation impacts associated with the new development, now known as Union Point, are anticipated. An east-west parkway was constructed through the site as a result of a prior redevelopment effort. The site is immediately east of State Routes 18 and 58. Funds are programmed to widen State Route 18 in the near future. This improvement, along with other programmed improvements, will be represented in the Boston Region MPO's regional travel demand model.

The proposed development of Union Point is anticipated to occur in phases. Phase 1 is scheduled to be completed by 2022; and full build-out of the property is planned to occur by 2032. CTPS has worked with the project team to define the appropriate study

area and acquire updated traffic counts for a selection of intersections in the study area from the project team. CTPS will produce forecasts of travel demand for a base year, an intermediate year, and the future, full build-out year.

Approach

CTPS will follow the general approach outlined below:

1. CTPS will run the travel demand forecasting model for the base year, the opening year for the phase 1 build conditions, and a horizon year with the land use build-out assumption. CTPS will test different alternatives for highway and/or transit improvement scenarios.
2. CTPS will coordinate with the project team and provide data to support their analyses. CTPS will work with the project team to develop morning and evening peak-period traffic data to assess traffic impact and identify mitigation strategies. These outputs will be consistent with those developed for the MPO's LRTP.
3. CTPS will perform a transit-crowding analysis for the Kingston/Plymouth commuter rail line.

FFY 2019 Anticipated Outcomes

CTPS will complete all model runs and analyses for various alternatives. CTPS will also provide traffic data to the project team for traffic impact analysis.

6.5.2 Allston Enhanced Transit Study

Project ID Number	22213
Funding Source	MAPC
Total Contract	\$65,000
FFY 2019 Total Budget	\$54,000

Purpose

This project is being undertaken by MAPC and several possible consultants in collaboration with the cities of Boston and Cambridge to examine how transit connections in the Allston area can improve accessibility. This is one of several undertakings in the Allston area, including studies of a new I-90 interchange, and a new commuter rail station (West Station), and significant land use changes associated with the Harvard Beacon Yards redevelopment opportunity. CTPS will provide support in the form of data, travel demand modeling, and transit service planning.

Approach

CTPS will support MAPC analysis of development in the area with the following:

- Travel demand modeling support
- Transit service planning assistance
- Transportation and land use data

FFY 2019 Anticipated Outcomes

Data, technical assistance, and coordination with MAPC and other stakeholders as needed to support the MAPC project.

6.5.3 Section 405C Traffic Records Improvement

Project ID Number	11161
Funding Source	EOPSS
Total Contract	\$91,775
FFY 2019 Total Budget	\$30,600

Purpose

The purpose of this program is to test the template, developed by a consulting firm, for collecting Model Inventory Road Element (MIRE) Fundamental Data Elements (FDEs) for intersections in a subset of Massachusetts intersections.

Approach

MPO staff initiated work on this project in FFY 2018. For this project, staff is using a template application developed by a consultant to collect MIRE FDEs at approximately 5,500 intersections in Massachusetts. Staff will provide feedback on the template to the consultant (via MassDOT's Traffic Safety and Engineering group). If necessary, the template may be modified before it is used to collect MIRE FDEs on more than 250,000 intersections in the Commonwealth of Massachusetts.

FFY 2019 Anticipated Outcomes

Anticipated outcomes include collecting MIRE FDEs for approximately 5,500 intersections in Massachusetts. Staff will provide written reports regarding the consultant's data collection template.

CHAPTER

Resource Management and Support Activities



7.1 INTRODUCTION

To support certification requirements and MPO studies, staff supporting the Boston Region Metropolitan Planning Organization (MPO) from both the Central Transportation Planning Staff (CTPS) and the Metropolitan Area Planning Council (MAPC)—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, how the work is accomplished, and a summary of the anticipated federal fiscal year (FFY) 2019 work products. The budget tables at the head of each project description provide the salary and overhead costs associated with the projects. Any direct costs associated with the projects are included in Section 7.2.3, Direct Support.

Table 7-1 summarizes the funding assigned to each of the activities in this chapter that were also assigned in FFY 2018, a summary of the work products and/or progress made in FFY 2018, the funding proposed for each of these activities in FFY 2019, and the anticipated work products and/or progress in FFY 2019.

Although many of the activities in this chapter generally comprise the same type of 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 the table.



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**Table 7-1
CTPS Ongoing Resource Management and Support Activities, FFY 2018–2019**

Project Name	ID	FFY 2018 Total Funding	FFY 2018 Work Products and Progress	FFY 2019 PL Funding	FFY 2019 \$5303 Funding	FFY 2019 Total Funding	FFY 2019 Planned Work Progress and Products
CTPS Activities							
Computer Resource Management	Varies by Task	\$411,770	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.	\$231,570	\$102,590	\$334,160	Tasks and work products generally remain the same from year to year.
Data Resources Management	Varies by Task	\$207,206	<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 Office of Transportation Planning, 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>	\$197,450	\$87,450	\$284,900	Tasks and work products generally remain the same from year to year.
MAPC Activities							
MPO/MAPC Liaison and Support Activities	MAPC 1	\$160,000	<p>Interagency coordination: Includes developing work scopes and agendas, and participating in advisory and corridor committees.</p> <p>Support for MPO elections and public participation, TIP project evaluations; attend relevant meetings.</p>	\$119,000	\$48,000	\$167,000	Continue work in support of the operational land use model.
UPWP Support	MAPC 3	\$10,000	Support the UPWP development process and attend relevant meetings.	\$7,000	\$3,000	\$10,000	Tasks and work products generally remain the same from year to year.
Land Use Data and Forecasts for Transportation Modeling	MAPC 10	\$87,451	Continued work in support of operational land use allocation model including data development and analysis, documentation, and mapping products for advanced transportation modeling.	\$61,051	\$26,400	\$87,451	Tasks and work products generally remain the same from year to year.
Subregional Support Activities	MAPC 2	\$187,000	Support subregional groups. Includes preparing agendas, coordinating with transportation agencies, reviewing transportation studies in subregions, and helping to set subregional transportation priorities.	\$139,000	\$48,000	\$187,000	Tasks and work products generally remain the same from year to year.



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7.2 CTPS ACTIVITIES

The following sections contain details on the administration, resource management, and support activities undertaken by CTPS each FFY.

7.2.1 Computer Resource Management

Project ID Number	See Individual Tasks Below
FHWA 3C PL Funds	\$231,570
FTA Section 5303 Funds	\$102,590
FFY 2019 Total Budget	\$334,160

Note: FTA and FHWA funds include the MassDOT local match.

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:

6219 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. Increased emphasis will be given to the security and integrity of all hardware, software, and data resources. Plan, monitor, and maintain CTPS's server room and computing facilities.

6419 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.

6519 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.

6619 Liaison with Other Agencies

Work with other public agencies, including the Metropolitan Area Planning Council (MAPC) and the Commonwealth's Office of Geographic Information (MassGIS), to encourage sharing of computer and data resources and techniques.

6719 Computing Resource Purchasing and Maintenance

Purchase and maintain CTPS's computing resources. These include in-house assets such as servers, desktop and laptop computers, tablet 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.

6819 Computer Resource Planning

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

FFY 2019 Anticipated Outcomes

Work on these tasks will continue as described above.

7.2.2 Data Resources Management

Project ID Number	See Individual Tasks Below
FHWA 3C PL Funds	\$197,450
FTA Section 5303 Funds	\$87,450
FFY 2019 Total Budget	\$284,900

Note: FTA and FHWA funds include the MassDOT local match.

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:

5219 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.

5319, 5419 Response to Data Requests

CTPS will process or analyze data upon request to meet the needs of local, state, and federal agencies, as well as private institutions and firms. The 5319 project number is used for data requests handled by CTPS's Data Resources group; the 5419 number is used for data requests handled by all other groups.

5519 Geographic Information System/Database Management System (GIS/DBMS)

CTPS will continue to develop and enhance its GIS database. CTPS will coordinate data development and distribution with MassDOT and MassGIS in order to prevent duplication of effort, ensure quality, and reduce costs. CTPS's GIS database will be made available to staff through ArcSDE, ArcMap layer files, web services, and web applications.

5619 Boston Region MPO Website

CTPS will continue to develop and maintain a website that provides information regarding the MPO's activities and reports, studies produced by MPO staff, a data catalogue, and several interactive mapping 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 (the Advisory Council) meetings and committee meetings, as well as their related materials, on the website.

FFY 2019 Anticipated Outcomes

As described above, work will continue on databases of standard reference GIS data, socioeconomic data, Registry of Motor Vehicles (RMV) data, and travel data; GIS processing tools; tabular and spatial data analyses; web service and web applications; responses to data requests.

7.2.3 Direct Support

Project ID Number	Varies
FHWA 3C PL Funds	\$45,000
FTA Section 5303 Funds	\$27,000
3C-Funded Work Direct Support Total	\$72,000
SPR Funds	\$6,000
MassDOT Section 5303 Funds	\$1,000
MassDOT Other Funds	\$0
MBTA Funds	\$3,250
Massport Funds	\$500
Agency-Funded Work Di-rect Support Total	\$10,750

Note: FTA and FHWA funds include the MassDOT local match.

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.

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.

Other

Various other expenditures may become necessary during the term of this Unified Planning Work Program (UPWP). Costs associated with postage for return mail, services for preparing and processing data for specific projects, and translations of MPO materials into other languages are direct-support expenditures. Other nonrecurring costs, such as software for specific project work, video-camera equipment for license-plate surveys, or traffic-counting equipment, also may be funded through this line item.

FFY 2019 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.

7.3 MAPC ACTIVITIES

The following sections contain details on the resource management and support activities undertaken by MAPC every FFY.

7.3.1 MPO/MAPC Liaison and Support Activities

Project ID Number	MAPC1
FHWA 3C PL Funds	\$119,000
FTA Section 5303 Funds	\$48,000
FFY 2019 Total Budget	\$167,000

Note: FTA funds include a local match from MAPC and FHWA funds include the MassDOT local match.

Purpose

This project includes working with MPO members and staff to establish work priorities and meeting agendas. It also includes implementing the 3C process and engagement in regional transportation planning lead 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 (\$90,000)

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 (MARPA); Regional Coordination Councils; Global Warming Solutions Act Implementation Advisory Committee; and MassDOT and MBTA board meetings, as well as various MassDOT, MBTA, or municipally led transportation working groups or studies. 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) (\$10,000)

MAPC will support CTPS in developing the PBPP targets and identifying data to measure progress toward meeting targets and objectives.

Long-Range Transportation Plan (LRTP) (\$10,000)

MAPC will support CTPS to develop the next LRTP, with a focus on scenario planning and public engagement.

Transportation Improvement Program (TIP) Evaluation and Criteria (\$10,000)

MAPC will 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, MetroFuture. MAPC will research TIP projects and work with municipalities to advance TIP projects.

MPO Agenda Setting, Meetings, and Coordination (\$27,000)

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

FFY 2019 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.

7.3.2 Unified Planning Work Program Support (MAPC)

Project ID Number	MAPC3
FHWA 3C PL Funds	\$7,000
FTA Section 5303 Funds	\$3,000
FFY 2019 Total Budget	\$10,000

Note: FTA match provided by MAPC and FHWA funds include the MassDOT local match.

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 supports, in coordination with MassDOT and CTPS, 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 to be included in the UPWP.

FFY 2019 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. 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.

7.3.3 Land Use Data and Forecasts for Transportation Modeling (MAPC)

Project ID Number	MAPC10
FHWA 3C PL Funds	\$61,051
FTA Section 5303 Funds	\$26,400
FFY 2019 Total Budget	\$87,451

Note FTA and FHWA funds include the MassDOT local match.

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 projections) for transportation modeling and project evaluation.

Approach

Regional Population, Household, and Employment Projections

MAPC will collaborate with MassDOT, interested state agencies, RPAs, and other stakeholders to help produce regional socioeconomic projections based on updated information about migration patterns, household formation, economic activity, and development patterns.

Land-Use Allocation Model Development

MAPC will make targeted improvements to the land-use allocation model and will use the model to create land-use scenarios to be evaluated during development of the LRTP.

Development Database

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 in applying this data for project evaluation or updates to the regional travel demand model.

FFY 2019 Anticipated Outcomes

Anticipated outcomes include updated population and household projections; an improved land-use allocation model; multiple land-use alternatives for use in the LRTP; new data and analysis; documentation; and mapping products to support advanced transportation modeling.

7.3.4 Subregional Support Activities (MAPC)

Project ID Number	MAPC2
FHWA 3C PL Funds	\$139,000
FTA Section 5303 Funds	\$48,000
FFY 2019 Total Budget	\$187,000

Note: FTA match provided by MAPC and FHWA funds include the MassDOT local match...

Purpose

The MAPC 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 MBTA's Focus 40 long-range planning.

Subregional coordinators and MAPC transportation staff report back 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 advance priority development area and priority preservation area planning and mapping activities, planning for first-and-last-mile connections to transit, and engagement in the MPOs performance-based planning and programming initiative and development of the next LRTP.

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 2019 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; inputting public on MPO processes and certification documents; and helping to set subregional transportation priorities.



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CHAPTER

Boston Region MPO Budget and Operating Summaries



This chapter contains overall budget information by recipient agency and funding source. The information is presented according to the same Unified Planning Work Program (UPWP) categories used in Chapters 4 through 7.

UPWP Work Areas	Total Budget
Certification Requirements	\$2,710,910
Continuing Metropolitan Planning Organization (MPO) Planning Studies and Technical Analyses	\$249,540
Metropolitan Area Planning Council (MAPC) Planning Studies and Technical Analyses	\$584,013
New MPO-Funded Discrete Studies	\$715,110
Agency and Other Client Planning Studies and Technical Support	\$1,693,050
Central Transportation Planning Staff (CTPS) Administration, Resource Management, and Support Activities	\$619,060
MAPC Resource Management and Support Activities	\$451,451
Direct Costs (3C)	\$72,000
Total	\$7,095,134

The funding for the projects, programs, and activities listed in Chapters 4 through 7 comes from the following sources, which are described in Chapter 1.

Funding Source	Total Programeed Funds
Federal Highway Administration (FHWA) continuing, comprehensive, and cooperative (3C) Planning (PL)/ Massachusetts Department of Transportation (MassDOT) Local Match	\$3,727,187
MPO Federal Transit Administration (FTA) 3C PL (Section 5303)/MassDOT Local Match	\$1,347,600
MassDOT FTA 3C PL (Section 5303)/MassDOT Local Match	\$151,000
MAPC FTA 3C PL (Section 5303)/MassDOT Local Match	\$327,297
FHWA Statewide Planning and Research (SPR)/MassDOT Local Match	\$306,000
MassDOT	\$357,500
Massachusetts Bay Transportation Authority (MBTA)	\$618,950
MassPort	\$25,000
Other	\$234,600
Total	\$7,095,134

The 11 tables on the following pages summarize the funding information presented in the preceding chapters: one for each UPWP category of work conducted by the CTPS, one for each UPWP category of work conducted by the MAPC, and two summary tables. Another table follows that shows the federally designated elements and tasks for projects using Section 5303 funding. These summaries assist federal and state contract administrators in reviewing each work program in detail.

The budget tables reflect 3C transportation planning funds, consisting of FHWA PL funds and FTA Section 5303 funds that the CTPS and the MAPC expect to receive for federal fiscal year (FFY) 2019. CTPS has received its estimated FFY 2019 FHWA PL allocation of \$3,019,026. MAPC's FFY 2019 FHWA PL allocation is \$708,167. CTPS has received its estimated amount of FFY 2019 FTA Section 5303 allocation of \$1,347,600. MAPC's FFY 2019 FTA Section 5303 allocation is \$327,297. All of these federal allocations include a state match. This budget also reflects projects funded with SPR, FTA Section 5303, and other funds from MassDOT; projects funded with MBTA funds; and projects funded from other sources.

Project status and financial data on this sheet are subject to change.

Table 8-1
UPWP Budget—Certification Requirements for FFY 2019

Project ID	Name	FFY 2018 CTPS UPWP Budget	Expected Project Status as of 10/1/2018	CTPS PL Funds	CTPS Section 5303 Funds	Proposed FFY 2019 CTPS Budget
9119	Support to the MPO and Its Committees	\$229,360	Ongoing	\$162,610	\$72,030	\$234,640
9319	RTAC Support	\$109,110	Ongoing	\$32,430	\$14,360	\$46,790
9619	Public Participation Process	\$187,970	Ongoing	\$125,930	\$55,790	\$181,720
9219	General Graphics	\$85,170	Ongoing	\$59,080	\$26,170	\$85,250
9119.09	Professional Development	\$-	Ongoing	\$15,090	\$6,680	\$21,770
Support to the MPO Subtotal				\$395,140	\$175,030	\$570,170
8119	Long-Range Transportation Plan	\$371,670	Ongoing	\$251,070	\$111,220	\$362,290
8219	Transportation Improvement Program	\$201,600	Ongoing	\$169,220	\$74,970	\$244,190
8819	Performance-Based Planning and Programming*	\$-	Ongoing	\$107,620	\$47,680	\$155,300
8419	Air Quality Conformity Determinations and Support	\$37,400	Ongoing	\$28,650	\$12,690	\$41,340
8319	Unified Planning Work Program	\$112,530	Ongoing	\$75,490	\$33,440	\$108,930
8519	Transportation Equity Program**	\$146,420	Ongoing	\$103,800	\$45,990	\$149,790
2119	Congestion Management Process	\$111,895	Ongoing	\$63,440	\$28,100	\$91,540

Table 8-1 (cont.)

Project ID	Name	FFY 2018 CTPS UPWP Budget	Expected Project Status as of 10/1/2018	CTPS PL Funds	CTPS Section 5303 Funds	Proposed FFY 2019 CTPS Budget
2219	Freight Planning Support	\$55,600	Ongoing	\$56,370	\$-	\$56,370
7119	Regional Model Enhancement	\$773,060	Ongoing	\$551,460	\$244,300	\$795,760
3119	Provision of Materials in Accessible Formats	\$102,050	Ongoing	\$73,140	\$32,400	\$105,540
90025	Federal Certification Review	\$-	66%	\$20,580	\$9,110	\$29,690
3C Planning Other Certification Requirements Activities Subtotal		\$1,037,115		\$1,500,840	\$639,900	\$2,140,740
Certification Requirements Subtotal		\$2,523,835		\$1,895,980	\$814,930	\$2,710,910

*included in LRTP in FFY 2018. FFY 2018 PBPP budget was \$136,692

**includes preparing the MPO Title VI Report and a CPT-HST

3C = Continuing, comprehensive, and cooperative. CMP = Congestion Management Process. CPT-HST = Coordinated Public Transit-Human Services Transportation Plan.

CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. LRTP = Long-Range Transportation Plan. MPO = Metropolitan Planning Organization.

PBPP = Performance-Based Planning Process. PL = Planning. RTAC = Regional Transportation Advisory Council. TIP = Transportation Improvement Program.

UPWP = Unified Planning Work Program.

Table 8-2
UPWP Budget—Ongoing and Continuing MPO Planning Studies and Technical Analyses for FFY 2019

Project ID	Name	FFY 2018 CTPS UPWP Budget	Expected Project Status/ Completion as of 10/1/2018	CTPS PL Funds	CTPS Section 5303 Funds	Proposed FFY 2019 CTPS Budget
13281	Bicycle LOS Metric	\$55,000	95%	\$2,340	\$1,040	\$3,380
13282	Transportation Mitigation of Major Developments	\$50,000	95%	\$2,120	\$940	\$3,060
13285	Travel Alternatives to Regional Traffic Bottlenecks	\$70,000	95%	\$2,090	\$920	\$3,010
13283	Safety and Operations at Selected Intersections—FFY 2018	\$70,000	95%	\$2,420	\$1,070	\$3,490
13286	Subregional Priority Corridors—FFY 2018	\$120,000	95%	\$2,310	\$1,020	\$3,330
13287	Priority Corridors for LRTP Needs Assessment—FFY 2018	\$120,000	95%	\$2,490	\$1,110	\$3,600
Planning Studies Subtotal (Continuing FFY 2018 Initiated Work)		\$485,000		\$13,770	\$6,100	\$19,870
2319	Roadway Safety Audits	\$15,730	Ongoing	\$14,640	\$-	\$14,640
2719	Traffic Data Support	\$15,460	Ongoing	\$10,520	\$4,660	\$15,180
4219	Transit Data Support	\$15,840	Ongoing	\$-	\$15,350	\$15,350
2419	Community Transportation Technical Assistance	\$71,140	Ongoing	\$50,760	\$22,490	\$73,250

Table 8-2 (cont.)

Project ID	Name	FFY 2018 CTPS UPWP Budget	Expected Project Status/ Completion as of 10/1/2018	CTPS PL Funds	CTPS Section 5303 Funds	Proposed FFY 2019 CTPS Budget
2519	Bicycle and Pedestrian Support Activities	\$64,840	Ongoing	\$45,350	\$20,090	\$65,440
14342	Regional Transit Service Planning Technical Support	\$35,210	Ongoing	\$-	\$45,810	\$45,810
Technical Analysis and Support Subtotal		\$218,220		\$121,270	\$108,400	\$229,670
MPO-Funded Planning Studies and Technical Analyses Subtotal		\$703,220		\$135,040	\$114,500	\$249,540

CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. LOS = Level of Service. LRTP = Long-Range Transportation Plan. MPO = Metropolitan Planning Organization. PL = Planning. UPWP = Unified Planning Work Program.

Table 8-3
UPWP Budget—MPO New Discrete and Recurring Studies for FFY 2019

Universe ID	Project ID	Study or Program	CTPS PL Funds	CTPS Section 5303 Funds	Proposed FFY 2019 CTPS Budget
A-1	13292	Pedestrian Report Card Assessment Dashboard	\$45,050	\$19,950	\$65,000
L-1	14359	Reverse Commute Areas Analysis	\$45,050	\$19,950	\$65,000
L-2	14360	Transportation Access Studies of Commercial Business Districts	\$58,910	\$26,090	\$85,000
M-2	13619	Low-Cost Improvements to Express Highway Bottleneck Locations FFY 2019	\$60,000	\$-	\$60,000
M-3	13419	Addressing Safety, Mobility, and Access on Subregional Priority Roadways FFY 2019	\$83,160	\$36,840	\$120,000
M-4	13519	Addressing Priority Corridors from the LRTP Needs Assessment FFY 2019	\$83,160	\$36,840	\$120,000
M-5	13290	New and Emerging Metrics for Roadway Usage	\$41,580	\$18,420	\$60,000
M-7	14361	The Future of the Curb	\$24,260	\$10,740	\$35,000
M-8	13291	Updates to Express Highway Volumes Charts	\$58,910	\$26,090	\$85,000
O-1	20903	MPO Staff-Generated Research Topics	\$13,900	\$6,210	\$20,110
Total for New Discrete and Recurring Studies			\$513,980	\$201,130	\$715,110

CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. LRTP = Long-Range Transportation Plan. MPO = Metropolitan Planning Organization. PL = Planning. UPWP = Unified Planning Work Program.

Table 8-4
UPWP Budget—New and Continuing Agency Transportation Planning Studies and Technical Analyses FFY 2019

Project ID	Name	Total Contract ^a	Funding Source	FFY 2019 Agency Funds	Direct Support	Proposed FFY 2019 CTPS Budget
111xx	MassDOT Highway Division On-Call Modeling Support	\$400,000	MassDOT	\$134,000	\$-	\$134,000
Varies by Specific Project	MassDOT SPR Program Support ^b	\$306,000	MassDOT SPR	\$300,000	\$6,000	\$306,000
13155	MassDOT Title VI Program	\$100,000	MassDOT	\$50,000	\$-	\$50,000
Varies by Specific Project	MassDOT Transit Planning Assistance ^c	\$274,530	MassDOT 5303	\$150,000	\$1,000	\$151,000
11157	North/South Rail Link	\$251,765	MassDOT	\$17,000	\$-	\$17,000
23327	I-90/I-495 Interchange Traffic Analysis Technical Support	\$87,097	MassDOT	\$4,500	\$-	\$4,500
22214	Commuter Rail Vision Study Support	\$200,000	MassDOT	\$152,000	\$-	\$152,000
MassDOT Subtotal		\$1,619,392	blank	\$807,500	\$7,000	\$814,500
14353	MBTA SFY 2018 National Transit Database: Data Collection and Analysis	\$152,725	MBTA	\$6,100	\$-	\$6,100
14356	MBTA SFY 2019 National Transit Database: Data Collection and Analysis	\$160,500	MBTA	\$90,000	\$150	\$90,150
14362	MBTA SFY 2020 National Transit Database: Data Collection and Analysis	\$168,500	MBTA	\$37,500	\$250	\$37,750
13155	MBTA 2018 and 2019 Title VI Program Monitoring	\$161,511	MBTA	\$81,000	\$350	\$81,350
111406	MBTA Bus Service Data Collection IX	\$540,000	MBTA	\$135,000	\$-	\$135,000
111422	MBTA Bus Service Data Collection X	\$360,000	MBTA	\$45,000	\$-	\$45,000

Table 8-4 (cont.)

Project ID	Name	Total Contract ^a	Funding Source	FFY 2019 Agency Funds	Direct Support	Proposed FFY 2019 CTPS Budget
14355	MBTA Rider Oversight Committee Support 2019	\$24,500	MBTA	\$5,000	\$-	\$5,000
11414	Support for MBTA Service Standards Development 2019	\$40,000	MBTA	\$30,000	\$-	\$30,000
11412	MBTA Commuter Rail Passenger Counts	\$240,850	MBTA	\$96,500	\$2,500	\$99,000
14358	Service Equity Analysis Support to the MBTA	\$115,000	MBTA	\$80,000	\$-	\$80,000
11420	Fare Equity Analysis Support to the MBTA	\$10,000	MBTA	\$5,600	\$-	\$5,600
11419	MBTA Mapping Support	\$12,000	MBTA	\$4,000	\$-	\$4,000
MBTA Subtotal		\$1,985,586		\$615,700	\$3,250	\$618,950
221xx	Massport Technical Assistance	\$75,000	Massport	\$24,500	\$500	\$25,000
Massport Subtotal		\$75,000		\$24,500	\$500	\$25,000
23328	Weymouth Union Point	\$245,200	Developer	\$150,000	\$-	\$150,000
22213	Allston Enhanced Transit Study	\$65,000	MAPC	\$54,000	\$-	\$54,000
11161	Section 405C Traffic Records Improvement	\$91,775	EOPSS	\$30,600	\$-	\$30,600
Other Subtotal		\$401,975		\$234,600	\$-	\$234,600
Agency-Funded and Client-Funded Subtotal				\$1,682,300	\$10,750	\$1,693,050

Note: Blank or NA indicates that no FFY 2018 budget or status was noted either because this is a new study or contract, or because this study or contract was not active in FFY 2018.

^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 term of the MassDOT SPR Contract is from April 1 through March 30. Therefore, the total FFY budgets in the UPWP represent a combination of six months of funding from two different contract years. The total contract amount listed for the MassDOT SPR is the total contract amount for the 2018-19 contracts.

^c The MassDOT Transit Planning Assistance Contract is also called the MassDOT Section 5303 Contract. The total FFY budgets in the UPWP represent six months of two different contracts (MassDOT Section 5303 Contracts are issued every SFY). The total contract amount listed for the MassDOT Transit Planning Assistance is the amount of one SFY contract.

CTPS = Central Transportation Planning Staff. EOPSS = Executive Office of Public Safety and Security. FFY = Federal Fiscal Year. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. Massport = Massachusetts Port Authority. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. SFY = State Fiscal Year. SPR = Statewide Planning and Research. UPWP = Unified Planning Work Program.

**Table 8-5
UPWP Budget—Resource Management and Support Activities for FFY 2019**

Project ID	Name	FFY 2018 CTPS UPWP Budget	Expected Project Status as of 10/1/2018	CTPS PL Funds	CTPS Section 5303 Funds	Proposed FFY 2019 CTPS Budget
6219	System Administration and Computer Room Management	\$119,830	Ongoing	\$71,390	\$31,630	\$103,020
6419	Software Development	\$3,950	Ongoing	\$7,960	\$3,520	\$11,480
6519	Staff Assistance and Training	\$30,820	Ongoing	\$42,630	\$18,880	\$61,510
6619	Liaison with Other Agencies	\$3,910	Ongoing	\$2,630	\$1,170	\$3,800
6719	Computing Resource Purchasing and Maintenance	\$157,780	Ongoing	\$75,910	\$33,630	\$109,540
6819	Computer Resource Planning	\$31,310	Ongoing	\$31,050	\$13,760	\$44,810
Computer Resource Management Subtotal		\$347,600		\$231,570	\$102,590	\$334,160
5219	Socioeconomic Data	\$34,890	Ongoing	\$22,690	\$10,050	\$32,740
5319	Response to Data Requests (ITS group)	\$13,070	Ongoing	\$3,130	\$1,380	\$4,510
5419	Response to Data Requests (Other groups)	\$30,690	Ongoing	\$10,670	\$4,720	\$15,390
5519	GIS/DBMS	\$128,560	Ongoing	\$109,200	\$48,370	\$157,570
5619	MPO Website	\$64,170	Ongoing	\$51,760	\$22,930	\$74,690
Data Resources Management Subtotal		\$271,380		\$197,450	\$87,450	\$284,900
Direct Support		\$83,000		\$45,000	\$27,000	\$72,000
Resource Management and Support Activities Subtotal		\$701,980		\$474,020	\$217,040	\$691,060

CTPS = Central Transportation Planning Staff. DBMS = Database Management System. FFY = Federal Fiscal Year. GIS = Geographic Information System. ITS = Information Technology and Services. MPO = Metropolitan Planning Organization. PL = Planning. UPWP = Unified Planning Work Program.

Table 8-6
UPWP Budget—MAPC Planning Studies and Technical Analyses for FFY 2019

Project ID	Name	FFY 2018 MAPC UPWP Budget	PL Funds	Section 5303 Funds	Proposed FFY 2019 MAPC Budget
MAPC 7	Alternative-Mode Planning and Coordination	\$193,502	\$128,136	\$66,577	\$194,713
MAPC 4	Corridor/Subarea Planning Studies	\$167,480	\$110,180	\$55,300	\$165,480
MAPC 8	Community Transportation Technical Assistance Program ^a	\$45,000	\$25,000	\$20,000	\$45,000
MAPC 5	Land-Use Development Project Reviews	\$88,820	\$59,400	\$29,420	\$88,820
MAPC 6	MetroFuture Implementation	\$90,000	\$59,400	\$30,600	\$90,000
MAPC Planning Studies and Technical Analyses Subtotal		\$584,802	\$382,116	\$201,897	\$584,013

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

FFY = Federal Fiscal Year. MAPC = Metropolitan Area Planning Council. PL = Planning. UPWP = Unified Planning Work Program.

Table 8-7
UPWP Budget—MAPC Resource Management and Support Activities for FFY 2019

Project ID	Name	FFY 2018 MAPC UPWP Budget	PL Funds	Section 5303 Funds	Proposed FFY 2019 MAPC Budget
MAPC 1	MPO/MAPC Liaison and Support Activities	\$160,000	\$119,000	\$48,000	\$167,000
MAPC 3	MAPC Unified Planning Work Program Support	\$10,000	\$7,000	\$3,000	\$10,000
MAPC 2	Subregional Support Activities	\$187,000	\$139,000	\$48,000	\$187,000
MAPC 10	Land-Use Data to Support Transportation Modeling	\$87,451	\$61,051	\$26,400	\$87,451
MAPC Resource Management and Support Activities		\$444,451	\$326,051	\$125,400	\$451,451

FFY = Federal Fiscal Year. MAPC = Metropolitan Area Planning Council. MPO = Metropolitan Planning Organization. PL = Planning. UPWP = Unified Planning Work Program.

Table 8-8
UPWP Budget—Summary of FFY 2019 Budgets for CTPS

3C Studies and Programs by Budget Categories	CTPS 3C PL Funds	CTPS Section 5303 Funds	Proposed FFY 2019 CTPS Budget
Administration, resource management, and support activities	\$429,020	\$190,040	\$619,060
MPO Certification Requirements	\$1,895,980	\$814,930	\$2,710,910
Continuing MPO-funded planning studies and technical analyses	\$135,040	\$114,500	\$249,540
New MPO-funded discrete studies	\$513,980	\$201,130	\$715,110
Direct support	\$45,000	\$27,000	\$72,000
Total for CTPS 3C Studies and Programs	\$3,019,020	\$1,347,600	\$4,366,620

Agency-Funded CTPS Work	Agency Funds	Direct Support	Proposed FFY 2019 CTPS Budget
MassDOT SPR Funds	\$300,000	\$6,000	\$306,000
MassDOT Section 5303 Funds	\$150,000	\$1,000	\$151,000
MassDOT Other Funds	\$357,500	\$-	\$357,500
MBTA Funds	\$615,700	\$3,250	\$618,950
Massport Funds	\$24,500	\$500	\$25,000
Other	\$234,600	\$-	\$234,600
Total for Agency-Funded CTPS Project Work	\$1,682,300	\$10,750	\$1,693,050

Total FFY 2019 CTPS Budget (3C + Agency Work)	\$6,059,670
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Note: Budget figures include salary, overhead, and direct support.

3C = Continuing, comprehensive, and cooperative. CTPS = Central Transportation Planning Staff.
 FFY = Federal Fiscal Year. MassDot = Massachusetts Department of Transportation. Massport = Massachusetts Port Authority. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization.
 PL = Planning. SPR = Statewide Planning and Research. UPWP = Unified Planning Work Program.

Table 8-9
FFY 2019 UPWP Budget—Summary of FFY 2019 Budgets for MAPC

3C Studies and Programs by MAPC Budget Categories	MAPC 3C PL Funds	MAPC Section 5303 Funds	Proposed FFY 2019 MAPC Budget
MAPC administration, resource management, and support activities	\$326,051	\$125,400	\$451,451
MAPC planning studies and technical analyses	\$382,116	\$201,897	\$584,013
Total MAPC FFY 2019 UPWP Programmed Funds	\$708,167	\$327,297	\$1,035,464

3C = Continuing, comprehensive, and cooperative. FFY = Federal Fiscal Year. MAPC = Metropolitan Area Planning Council. PL = Planning. UPWP = Unified Planning Work Program.

Table 8-10
FFY 2019 UPWP Budget—3C Budget and Overall Budget

Agency Supporting MPO/3C Work	3C PL Funds	Section 5303 Funds	Proposed FFY 2019 Budget
CTPS	\$3,019,020	\$1,347,600	\$4,366,620
MAPC	\$708,167	\$327,297	\$1,035,464
3C Budget Subtotal by Funding Program	\$3,727,187	\$1,674,897	\$5,402,084

Agency-Funded CTPS Work	\$1,693,050
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3C = Continuing, comprehensive, and cooperative. CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. MAPC = Metropolitan Area Planning Council. PL = Planning. UPWP = Unified Planning Work Program.

FFY 2019 UPWP Budget	\$7,095,134
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Table 8-11
Programmed FFY 2019 FTA Section 5303 Funding by Element and Task

Projects by Element and Task		FFY 2019 UPWP Project ID	Federal Transit Administration (FTA) Funding by Agency with Local Match						
			FTA \$5303 Total Funds	CTPS		MAPC		MassDOT	
				Federal Funds	Local Funds	Federal Funds	Local Funds	Federal Funds	Local Funds
44.21.00	Program Support and Administration		\$579,040	\$367,232	\$91,808	\$95,200	\$23,800	\$800	\$200
	Unified Planning Work Program	8319	\$33,440	\$26,752	\$6,688	\$-	\$-	\$-	\$-
	Unified Planning Work Program Support	MAPC 3	\$3,000	\$-	\$-	\$2,400	\$600	\$-	\$-
	Provision of Materials in Accessible Formats	3119	\$32,400	\$25,920	\$6,480	\$-	\$-	\$-	\$-
	Direct Support	varies	\$28,000	\$21,600	\$5,400			\$800	\$200
	Support to the MPO and its Committees	9119	\$72,030	\$57,624	\$14,406	\$-	\$-	\$-	\$-
	Professional Development	9119.09	\$6,680	\$5,344	\$1,336				
	Regional Transportation Advisory Council Support	9319	\$14,360	\$11,488	\$2,872	\$-	\$-	\$-	\$-
	Public Participation Process	9619	\$55,790	\$44,632	\$11,158	\$-	\$-	\$-	\$-
	General Graphics	9219	\$26,170	\$20,936	\$5,234	\$-	\$-	\$-	\$-
	Transportation Equity Program (including MPO Title VI Reporting)	8519	\$45,990	\$36,792	\$9,198	\$-	\$-	\$-	\$-
	Community Transportation Technical Assistance Program	2419, MAPC 8	\$42,490	\$17,992	\$4,498	\$16,000	\$4,000	\$-	\$-
	Bicycle and Pedestrian Support Activities	2519	\$20,090	\$16,072	\$4,018	\$-	\$-	\$-	\$-
	Regional Transit Service Planning Technical Support	14342	\$45,810	\$36,648	\$9,162	\$-	\$-	\$-	\$-
	Federal Certification Review	90025	\$9,110	\$7,288	\$1,822				
	Performance-Based Planning and Programming	8819	\$47,680	\$38,144	\$9,536				
	MPO/MAPC Liaison and Support Activities	MAPC 1	\$48,000	\$-	\$-	\$38,400	\$9,600	\$-	\$-
	Subregional Support Activities	MAPC 2	\$48,000	\$-	\$-	\$38,400	\$9,600	\$-	\$-

Projects by Element and Task		FFY 2019 UPWP Project ID	Federal Transit Administration (FTA) Funding by Agency with Local Match						
			FTA \$5303 Total Funds	CTPS		MAPC		MassDOT	
				Federal Funds	Local Funds	Federal Funds	Local Funds	Federal Funds	Local Funds
44.22.00	General Development and Comprehensive Planning		\$289,150	\$162,184	\$40,546	\$69,136	\$17,284	\$-	\$-
	Computer Resource Management	varies	\$102,590	\$82,072	\$20,518	\$-	\$-	\$-	\$-
	Data Resource Management	varies	\$87,450	\$69,960	\$17,490	\$-	\$-	\$-	\$-
	Air Quality Conformity Determinations and Support	8419	\$12,690	\$10,152	\$2,538	\$-	\$-	\$-	\$-
	Land Use Development Project Reviews	MAPC 5	\$29,420	\$-	\$-	\$23,536	\$5,884	\$-	\$-
	Land-Use Data to Support Transportation Modeling	MAPC 10	\$26,400	\$-	\$-	\$21,120	\$5,280	\$-	\$-
	MetroFuture Implementation	MAPC 6	\$30,600	\$-	\$-	\$24,480	\$6,120	\$-	\$-
44.23.00	Long-Range Transportation Planning		\$706,517	\$467,712	\$116,928	\$97,502	\$24,375	\$-	\$-
23.01	Systems-Level Planning					\$0	\$0	\$0	\$0
	Regional Model Enhancement	7119	\$244,300	\$195,440	\$48,860	\$-	\$-	\$-	\$-
	Long-Range Transportation Plan	8119	\$111,220	\$88,976	\$22,244	\$-	\$-	\$-	\$-
	Congestion Management Process	2119	\$28,100	\$22,480	\$5,620	\$-	\$-	\$-	\$-
	Bicycle LOS Metric	13281	\$1,040	\$832	\$208	\$-	\$-	\$-	\$-
	Transportation Mitigation of Major Developments	13282	\$940	\$752	\$188	\$-	\$-	\$-	\$-
	Pedestrian Report Card Assessment Dashboard	13292	\$19,950	\$15,960	\$3,990	\$-	\$-	\$-	\$-
	New and Emerging Metrics for Roadway Usage	13290	\$18,420	\$14,736	\$3,684	\$-	\$-	\$-	\$-
23.02	Project-Level Planning								
	Travel Alternatives to Regional Traffic Bottlenecks	13285	\$920	\$736	\$184	\$-	\$-	\$-	\$-
	Safety and Operations at Selected Intersections -- FFY 2018	13283	\$1,070	\$856	\$214	\$-	\$-	\$-	\$-
	Subregional Priority Corridors -- FFY 2018	13286	\$1,020	\$816	\$204	\$-	\$-	\$-	\$-
	Addressing Priority Corridors from the Long Range Transportation Plan Needs Assessment: FFY 2018	13287	\$1,110	\$888	\$222	\$-	\$-	\$-	\$-

Projects by Element and Task		FFY 2019 UPWP Project ID	Federal Transit Administration (FTA) Funding by Agency with Local Match						
			FTA \$5303 Total Funds	CTPS		MAPC		MassDOT	
				Federal Funds	Local Funds	Federal Funds	Local Funds	Federal Funds	Local Funds
	Reverse Commute Areas Analysis	14359	\$19,950	\$15,960	\$3,990	\$-	\$-	\$-	\$-
	Addressing Safety, Mobility, and Access on Subregional Priority Roadways FFY 2019	13419	\$36,840	\$29,472	\$7,368	\$-	\$-	\$-	\$-
	Addressing Priority Corridors from the Long Range Transportation Plan Needs Assessment: FFY 2019	13519	\$36,840	\$29,472	\$7,368	\$-	\$-	\$-	\$-
	Corridor/Subarea Planning Studies	MAPC 4	\$55,300	\$-	\$-	\$44,240	\$11,060	\$-	\$-
	Alternative Mode Planning and Coordination	MAPC 7	\$66,577	\$-	\$-	\$53,262	\$13,315	\$-	\$-
	The Future of the Curb	14361	\$10,740	\$8,592	\$2,148	\$-	\$-	\$-	\$-
	Updates to Express Highway Volumes Charts	13291	\$26,090	\$20,872	\$5,218	\$-	\$-	\$-	\$-
	Transportation Access Studies of Commercial Business Districts	14360	\$26,090	\$20,872	\$5,218	\$-	\$-	\$-	\$-
44.24.00	Short-Range Transportation Planning		\$170,010	\$16,008	\$4,002	\$-	\$-	\$120,000	\$30,000
	MassDOT Transit Planning Assistance	Varies	\$150,000	\$-	\$-	\$-	\$-	\$120,000	\$30,000
	Traffic Data Support	2719	\$4,660	\$3,728	\$932	\$-	\$-	\$-	\$-
	Transit Data Support	4219	\$15,350	\$12,280	\$3,070	\$-	\$-	\$-	\$-
44.25.00	Transportation Improvement Program		\$74,970	\$59,976	\$14,994	\$-	\$-	\$-	\$-
	Transportation Improvement Program	8219	\$74,970	\$59,976	\$14,994	\$-	\$-	\$-	\$-
44.27.00	Other Activities		\$6,210	\$4,968	\$1,242	\$-	\$-		
	Research Topics Generated by MPO Staff	20903	\$6,210	\$4,968	\$1,242	\$-	\$-	\$-	\$-
Total Boston Region MPO 5303 Funds Programmed			\$1,825,897	\$1,078,080	\$269,520	\$261,838	\$65,459	\$120,800	\$30,200

3C = Continuing, cooperative, and comprehensive transportation planning process. CTPS = Central Transportation Planning Staff. FFY = Federal fiscal year. LOS = Level of service. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. MPO = Metropolitan Planning Organization.



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APPENDIX A

Other Boston Region Transportation Planning Studies

[Under Development]



APPENDIX B

Public Participation

[Under Development]



APPENDIX C

Universe of Proposed New Studies for Federal Fiscal Year 2019 UPWP

This appendix includes the Universe of Proposed New Studies, which documents the proposed new discrete studies that the Boston Region Metropolitan Planning Organization (MPO) staff and the Metropolitan Area Planning Council (MAPC) staff collected or developed for the development of the federal fiscal year (FFY) 2019 Unified Planning Work Program (UPWP). Each entry includes a summary of the purpose of the proposed study and the anticipated outcomes.

Studies in the universe are organized into the following categories:

- Active Transportation
- Land Use, Environment, and Economy
- Multi-Modal Mobility
- Transit
- Other Technical Support

Each proposed study in the universe is evaluated based on the following evaluation areas:

- **Primary and secondary Long-Range Transportation Plan (LRTP) goal areas:** whether a study addresses, either as a primary focus or secondary focus, one of the six LRTP goal areas:
 - Safety
 - System Preservation
 - Clean Air/Clean Communities
 - Transportation Equity
 - Capacity Management/Mobility
 - Economic Vitality
- **Mode:** whether a study primarily addresses roadway, bicycle, pedestrian, or transit modes of travel
- **Study scale:** whether a study primarily impacts one or two specific communities in the region, or the region as a whole
- **Time frame and type of impact:** whether a study results in research and findings that enhance the state of the transportation planning practice in the Boston Region, low-cost/short-term implementation of improvements, or, long-term implementation (for transportation studies leading to implementation by an agency or construction projects that must follow the Massachusetts Department of Transportation design process)

- **Connection to existing work:** whether a study furthers previously conducted analysis, or builds off or enhances existing MPO work
- **Continuing or new study:** whether a study has been conducted previously at a specific location/roadway and is being conducted again at a new location, or whether a study is a completely new idea that has never been undertaken by the MPO.

Evaluating the studies in this way will allow MPO staff to analyze how federal planning funds are being spent in the region over time and to compare the amount of spending across the various evaluation areas. Furthermore, tracking spending by LRTP goal area, mode, study scale, etc., will allow MPO staff, in coordination with the MPO and the public, to set goals for how federal transportation planning funds are spent by the MPO for the benefit of the region.

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 on the process of developing and evaluating the Universe, please see Chapter 1.



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Table C-1
FFY 2019 Universe of Proposed Studies, Grouped by Subject Area

ID	Project Name	Project Purpose and Outcome	LRTP Goal Areas					Mode			Study Scale		Impact			Other			
			Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Roadway	Bicycle Pedestrian	Transit	Specific Community or Location	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing or Past Work	Continuing Study	Study Carried Over from 2018 Universe
ACTIVE TRANSPORTATION																			
A-1	Pedestrian Report Card Assessment Dashboard	<p>Purpose: This project is a follow up study to the pedestrian level of service, which was completed in January 2017. The previous study created the Pedestrian Report Card Assessment (PRCA) tool, which allows planners and engineers to rate the suitability of roadway segments and intersections for pedestrians. This proposed project will focus on the implementation of PRCA, including creating an interactive dashboard that will monitor pedestrian suitability on intersections and roadway segments throughout the Boston Region.</p> <p>Anticipated Outcome: An interactive dashboard will be created that will display the PRCA on the MPO website.</p>	P		S		S			P			P		P			P	
A-2	Locations with High Bicycle and Pedestrian Crash Rates in the Boston Region MPO Area	<p>Purpose: To report intersections that have a high presence of pedestrian crashes and recommend improvements to these intersections. This task relates to the CMP, because it includes collecting performance data, and outlines strategies to alleviate congestion and improve safety. This is a follow up to a study that was done through the CMP in 2010 and again in 2012.</p> <p>Anticipated Outcome: A memorandum to document findings, including a description of each intersection, and recommended improvements.</p>	P			S				P		P		P	S	P			
LAND USE, ENVIRONMENT, AND ECONOMY																			
L-1	Reverse Commute Areas Analysis	<p>Purpose: This study would, using data analysis and stakeholder input, identify areas that have significant job concentrations AND face challenges filling jobs with local residents, and therefore need to draw from labor markets in urban cores or other remote areas. The study would then analyze transportation barriers to worker access to these areas, including but not limited to:</p> <ol style="list-style-type: none"> 1. Last-mile transit options (including shuttles) 2. Bike and ped LOS evaluation of area, especially relating to safe routes to transit 3. Guaranteed Ride Home programs <p>Anticipated Outcome: A report identifying several of these areas and using one or more as a case study, and drawing on previous CTPS reports to evaluate their transportation-related needs and challenges.</p> <p>Note: Possible collaboration with MAPC--CTPS does transportation analysis and MAPC examines jobs/demographics/housing</p>				S	S	P		S	P		P		S	P	P		

Table C-1 (cont.)

ID	Project Name	Project Purpose and Outcome	LRTP Goal Areas					Mode			Study Scale		Impact			Other				
			Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Roadway	Bicycle Pedestrian	Transit	Specific Community or Location	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing or Past Work	Continuing Study	Study Carried Over from 2018 Universe	New Study Concept for FFY 2019
L-2	Transportation Access Studies of Commercial Business Districts	<p>Purpose: Cities and towns have relatively little information on the characteristics of CBD patrons and, as a result, the transportation planning process for these areas is often governed by perceptions that may or may not be correct. Understanding the transportation access mode and spending and visiting characteristics of CBD patrons would help planners in their work with businesses to improve transportation access to CBDs. This information might help planners make the case for improving transit and non-motorized vehicle access by improving bus stop locations, giving buses priority treatment, and improving pedestrian and non-motorized vehicle infrastructure. A transportation access study of a selection of Boston metropolitan area CBDs would evaluate how patrons access CBDs.</p> <p>Anticipated Outcome: The study would consist of several tasks. CTPS would conduct a literature review and summary of other studies of transportation access to CBDs. CTPS would also characterize the CBDs in the Boston metropolitan area by demographics, commercial development type and density, and existing transportation facilities and services. For a selection of CBDs, CTPS would work with the municipalities and any business associations to solicit business participation in the study. Businesses would first be asked to provide their perceptions on their customers' actual and preferred transportation access modes. Participating businesses would then be asked to encourage their customers to fill out a short survey while they wait in line at the register. The survey would ask the transportation access mode for this visit and their typical transportation access mode to that business. For each mode selected, the survey would ask how frequently the patron uses that mode to access the business and how much the patron typically spends at the business (when using that mode).</p>						P	S	S	P	S		P	S					
ROADWAY and MULTIMODAL MOBILITY																				
M-1	Safety Improvements at Express-Highway Interchanges	<p>Purpose: Continue to address the 2013 MassDOT Top 200 High-Crash Locations and Highway Safety Improvement Program (HSIP) crash clusters in the Boston Region MPO. Many of these are express-highway interchanges, and some of them do not need costly complete rebuilds but rather low-cost improvements that address safety and operations.</p> <p>Anticipated Outcome: The study would review the Top 200 Intersection Clusters and HSIP crash clusters to identify candidate locations. MPO staff would develop low-cost safety and operational improvements.</p>	P	S					P			S	P		P		P			
M-2	Low-Cost Improvements to Express Highway Bottleneck Locations	<p>Purpose: Recurring bottlenecks, the subject of this study, are influenced by the design or operation present at the point where the bottleneck begins (e.g., merges, diverges, lane drops, traffic weaving, and abrupt changes in highway alignment). Low-cost infrastructure solutions, as opposed to major construction projects, could involve changes in the design or operation of merges, traffic operations, or highway alignment.</p> <p>The previous two studies of express-highway bottlenecks were very well received by MassDOT and the FHWA. Some of the recommendations from those studies already have been executed. The MPO has been conducting these studies to identify low-cost methods to reduce congestion, increase safety, and improve traffic operations in the Boston region.</p> <p>Anticipated Outcome: This study would select additional express-highway bottleneck locations and produce reports documenting low-cost solutions to existing traffic congestion 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>	P	S			P		P			P			P			Recurring		

Table C-1 (cont.)

ID	Project Name	Project Purpose and Outcome	LRTP Goal Areas					Mode			Study Scale		Impact			Other				
			Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Roadway	Bicycle Pedestrian	Transit	Specific Community or Location	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing or Past Work	Continuing Study	Study Carried Over from 2018 Universe	New Study Concept for FFY 2019
M-3	Addressing Safety, Mobility, and Access on Subregional Priority Roadways	<p>Purpose: During MPO outreach, Metropolitan Area Planning Council (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.</p> <p>Anticipated Outcome: Anticipated outcomes include data collection, technical analysis, development of recommendations, and documentation for selected corridors.</p>	P				S			P				P				Recurring		
M-4	Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment	<p>Purpose: The purpose of these studies are to develop conceptual design plans that address regional multimodal transportation needs along priority corridors identified in the Long-Range Transportation Plan (LRTP), <i>Charting Progress to 2040</i>. These studies include recommendations that address multimodal transportation needs that are expected to arise from potential future developments in the study area.</p> <p>Anticipated Outcome: Through these studies, MPO staff would recommend conceptual improvements for one or more corridors, or several small sections within a corridor, that are identified by the Congestion Management Process and the LRTP as being part of the 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 the Massachusetts Department of Transportation (MassDOT) and the municipalities.</p>					P			P					P			Recurring		
M-5	New and Emerging Metrics for Roadway Usage	<p>Purpose: Planners and researchers have recently developed a number of interesting ways to better communicate the balance of needs among roadway users of a corridor, including measuring person throughput relative to the amount of space used by vehicles. These methods may help planners and engineers steer away or complement from reliance on traffic/vehicle-oriented LOS and may help sharpen MPO staff's analysis of roadways and corridors through a better understanding of non-SOV modes. One example is how FHWA recently changed federal guidance to encourage MPOs to use person-hours of delay, rather than vehicle-hours of delay, in measuring Peak Hour Excessive Delay (PHED) on segments of the National Highway System.</p> <p>Anticipated Outcome: Use case studies to develop the MPO's exploration of and approach to new and emerging metrics and/or popularly accessible terms to express the needs (travel demands) of all corridor travelers and to fully measure roadway efficiency under use by different modes.</p>	P	S	S	S	S			S	P	S		P	P	S				

Table C-1 (cont.)

ID	Project Name	Project Purpose and Outcome	LRTP Goal Areas					Mode			Study Scale		Impact			Other				
			Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Roadway	Bicycle Pedestrian	Transit	Specific Community or Location	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing or Past Work	Continuing Study	Study Carried Over from 2018 Universe	New Study Concept for FFY 2019
M-6	Framingham Truck Traffic and Complete Streets Study	<p>Purpose: Downtown Framingham has a Complete Streets policy and encourages TOD, but there is also significant truck traffic from the Adesa auto auction south of downtown. Several downtown streets are designated truck corridors. The city is looking for ways to mitigate the impact of truck traffic and implement safe infrastructure for pedestrians and bikes given presence of trucks. The future downtown should balance industrial/commercial and residential development needs.</p> <p>Anticipated Outcome: A study attempting to balance the needs of freight and Complete Streets in downtown Framingham.</p>	S				S	P	P	S		P			P					
M-7	The Future of the Curb	<p>Purpose: There is an increasing amount of competition for curb space in urban areas, as well as the potential for transformation of their purpose in coming years. AVs/CVs may require less curb space for parking, while deliveries (Amazon etc) are increasingly common. Curbside bus and bike lanes are also in demand.</p> <p>Anticipated Outcome: An MPO study examining what the curb of the future will look like and how to balance demand between all of these modes/dynamics. Article on this concept: https://www.wired.com/story/city-planning-curbs/</p>	S	S	S		P		P	S	S		P	P	S					
M-8	Updates to Express Highway Volumes Charts	<p>Purpose: There is demand for sophisticated visualizations of highway volumes. This study would update the last published data and charts.</p> <p>Anticipated Outcome: Updated charts based on the most recent data. [Effort is scalable.]</p>					P		P				P	P			P			
M-9	Sweetser Circle Reconstruction and Bus Priority	<p>Purpose: Sweetser Circle (intersection of Rte 16 and Rte 99) is a major bottleneck not only for vehicles, but also for buses. Intersection is state owned and affects regionally-significant roadways. The city of Everett seeks to extend the Broadway bus lane south through this intersection, and needs state assistance to get bus priority at this location.</p> <p>Anticipated Outcome: Would be a good project for a "low cost improvements" study to see if lane markings, quick curb or other easy solutions exist to prioritize bus movement through this intersection.</p>	S				P		P		S	P			P					
TRANSIT																				
T-1	Allston Transit Study	<p>Purpose: The Allston I-90 Interchange Project, which will alter the alignment of I-90 and create new land use development opportunity, includes a proposal to create a West Station along the Framingham/Worcester Commuter Rail Line. This infrastructure project also affords the possibility of a bus transit connection through the old Beacon Rail Yard, potentially providing a more direct routing of buses from the Harvard Square area to the Longwood Medical Area via a connection over I-90 and the adjacent rail lines.</p> <p>This proposed transportation study would assess the demand for bus transit service that could connect with the rail service. NEW IN 2019 UNIVERSE: Emphasize studying north-south transit connectivity and connections to Kendall and Harvard.</p> <p>Anticipated Outcome: A study examining possibilities for improving transit in the Allston-Beacon Yard area of Boston, especially those afforded by the rebuilding of I-90 and the redevelopment of Beacon Yard.</p>				S	P	S	S	S	P	P			P					

Table C-1 (cont.)

ID	Project Name	Project Purpose and Outcome	LRTP Goal Areas						Mode			Study Scale		Impact			Other			
			Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Roadway	Bicycle Pedestrian	Transit	Specific Community or Location	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing or Past Work	Continuing Study	Study Carried Over from 2018 Universe	New Study Concept for FFY 2019
TECHNICAL SUPPORT and OTHER																				
O-1	MPO Staff-Generated Research Topics	<p>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 Unified Planning Work Program (UPWP) or discrete project. This program was funded for the first time in FFY 2017.</p> <p>Anticipated Outcome: This program could bring 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	P			P	P			

Notes:

ITALICS --> may need more info

15 Total projects

Glossary:

AV/CV = autonomous vehicles/connected vehicles. CTPS = Central Transportation Planning Staff. FFY = federal fiscal year. FHWA = Federal Highway Administration. GHG = greenhouse gas(es). GTFS = general transit feed specification. LOS = level of service. LRTP = Long-Range Transportation Plan. MassDOT = Massachusetts Department of Transportation. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. P = primary. S = secondary. ROW = right-of-way. SIP = State Implementation Plan. SRTS = Safe Routes to School. TNCs = transportation network companies. UPWP = Unified Planning Work Program



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APPENDIX D

Geographic Distribution of UPWP Studies and Technical Analyses

D.1 INTRODUCTION

This appendix summarizes the Metropolitan Planning Organization (MPO)-funded work products produced by MPO staff (the Central Transportation Planning Staff (CTPS)) and the staff of the Metropolitan Area Planning Council (MAPC) during federal fiscal years (FFY) 2010 through 2017, as well as those expected to be completed by the end of FFY 2018. 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 this data to inform and guide public involvement and regional equity purposes.

D.2 PURPOSE AND METHODOLOGY

Purpose

The purpose of this data collection is to understand better the geographic spread of Unified Planning Work Program (UPWP) work products (that is, reports and technical memoranda) throughout the region. In other words, this exercise serves to illuminate which communities and areas of our metropolitan region have been the subject of transportation studies and analyses (or recipients of technical support) conducted by the MPO staff with 3C (continuing, comprehensive, and cooperative) planning funds. The data presented in Table D-1 below covers UPWP tasks completed from FFY 2010 through FFY 2018 and includes work that resulted in benefits to specific municipalities. Studies that had a regional focus are presented in Table D-2.

Tracking the geographic distribution of UPWP studies (those benefiting specific communities as well as 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 this data on geographic distribution of MPO-funded UPWP studies can help guide the MPO's public outreach to help ensure that, over time, we are meeting the needs of the region with the funds allocated through the UPWP.

Methodology

As noted above, this analysis examined FFYs 2010 through 2018. In order 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 main steps:

- Reviewed all work products listed as complete in UPWPs from FFYs 2010 through 2018

- Excluded all agency and other client-funded studies and technical analyses in order to focus the analysis on MPO-funded work only
- Excluded all work products that had a focus that was regional or not limited to a specific geography
- Excluded all work related to certification requirements (Chapter 4), resource management, and support activities (Chapter 7), 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 ACS 2014 5-year estimates.

D.3 PLANNING STUDIES AND TECHNICAL ANALYSES BY COMMUNITY

Table D-1 shows the number of completed MPO-funded UPWP work products from FFY 2010 through FFY 2018 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:

- Evaluating parking in several municipalities
- Technical assistance on Massachusetts Environmental Policy Act (MEPA) Environmental Impact Reports
- Complete streets analyses for specific municipalities
- Operations analyses and alternative conceptual design recommendations for specific intersections



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Table D-1
Number of UPWP Tasks by Federal Fiscal Year and Community, Grouped by Subregion

Community	2010-2014 Total	2015	2016	2017	2018	2010-2018 Total	Population	Minority %	Low-Income %
Arlington	3		1	3	3	10	42,845	16.4%	24.7%
Belmont	3		2	1	2	8	24,729	18.6%	21.3%
Boston	18	4	3	2	5	32	617,599	53.0%	44.1%
Brookline	4	1	1	2		8	58,732	26.7%	27.8%
Cambridge	8	1	4	5	2	20	105,163	37.9%	33.1%
Chelsea	9	1		2	1	13	35,178	74.7%	47.3%
Everett	10	3	2	1	3	19	41,667	46.4%	45.1%
Lynn	7		1		1	9	90,330	52.4%	48.4%
Malden	9	1		2	2	14	59,451	47.5%	41.8%
Medford	6		1		3	10	56,173	23.8%	29.9%
Melrose	5	1		1	1	8	26,983	10.5%	25.1%
Nahant	0					0	3,410	4.5%	33.2%
Newton	10	2			1	13	85,145	20.4%	20.8%
Quincy	11					11	92,272	34.5%	36.3%
Revere	7				2	9	51,755	37.6%	44.3%
Saugus	3				1	4	42,845	16.4%	24.7%
Somerville	12	1	1	1	1	16	75,754	30.9%	33.3%
Waltham	10	2	3	1	2	18	60,632	31.3%	32.2%
Watertown	1				1	2	31,915	18.3%	23.5%
Winthrop	2				1	3	17,497	11.5%	35.7%
Inner Core Subtotals	138	17	19	21	32	227	1,620,075	40.6%	37.7%

Table D-1 (cont.)

Community	2010-2014 Total	2015	2016	2017	2018	2010-2018 Total	Population	Minority %	Low-Income %
Acton	2	4	1		1	8	21,924	24.5%	19.1%
Bedford	5	2			2	9	13,320	16.0%	16.8%
Bolton	3	1		1	2	7	4,897	6.5%	18.7%
Boxborough	1	3			1	5	4,996	21.1%	23.1%
Carlisle	1	1			1	3	4,852	12.3%	15.6%
Concord	3	3	1	3	1	11	17,668	12.8%	18.2%
Hudson	5	2			1	8	19,063	11.1%	30.7%
Lexington	8	2			1	11	31,393	26.3%	18.1%
Lincoln	8	1			1	10	6,362	17.2%	16.4%
Littleton	2	3			1	6	8,925	7.7%	23.2%
Maynard	3	4		1	2	10	10,106	9.9%	30.8%
Stow	3	1			1	5	6,590	7.8%	19.5%
Sudbury	6	1			1	8	17,659	10.6%	10.8%
MAGIC Subtotals	50	28	2	5	16	101	167,755	16.3%	19.9%
Ashland	3			1		4	16,593	18.5%	22.0%
Framingham	13	1	1	2	1	18	68,321	34.7%	36.3%
Holliston	4			1		5	13,547	6.7%	25.8%
Marlborough	6			2		8	38,498	24.8%	31.5%
Natick	9		1	1		11	33,005	14.6%	24.5%
Southborough	7	1		1		9	9,766	13.9%	13.2%
Wayland	3			1		4	12,994	14.7%	20.2%
Wellesley	9	2	1	1		13	27,984	17.6%	13.8%
Weston	12	2	2	2	1	19	11,261	16.6%	14.8%
MetroWest Subtotals	66	6	5	12	2	91	231,969	22.5%	26.5%

Table D-1 (cont.)

Community	2010-2014 Total	2015	2016	2017	2018	2010-2018 Total	Population	Minority %	Low-Income %
Burlington	10	1	1	1		13	24,498	20.8%	22.4%
Lynnfield	2	2	1	1		6	11,595	6.5%	18.7%
North Reading	1	1	1	1		4	14,892	6.1%	17.7%
Reading	8	2	1	1		12	24,746	7.6%	20.7%
Stoneham	3	1	1	1		6	21,437	9.5%	31.5%
Wakefield	3		1	1		5	24,931	7.0%	24.4%
Wilmington	5		1	1		7	22,324	7.7%	16.4%
Winchester	4		2	1	1	8	21,374	14.3%	14.9%
Woburn	6	1	1	2	1	11	38,120	18.3%	28.8%
NSPC Subtotals	42	8	10	10	2	72	203,917	11.9%	22.6%
Beverly	4	1		1	1	7	39,502	8.6%	32.8%
Danvers	6			1		7	26,493	6.2%	27.5%
Essex	0			1		1	3,504	3.9%	25.5%
Gloucester	2			1		3	28,789	5.9%	40.1%
Hamilton	1			1		2	7,764	8.7%	25.5%
Ipswich	1			1		2	13,175	5.3%	30.6%
Manchester	0			2	1	3	5,136	3.6%	25.9%
Marblehead	2			2		4	19,809	5.0%	22.3%
Middleton	0		1	2		3	8,988	12.7%	21.1%
Peabody	4			2	2	8	51,252	12.3%	36.6%
Rockport	3			1	2	6	6,952	4.1%	31.4%
Salem	5	2	1	3	2	13	41,340	24.1%	40.6%
Swampscott	3			2	1	6	13,787	7.0%	22.3%
Topsfield	0			2		2	6,085	4.7%	15.8%

Table D-1 (cont.)

Community	2010-2014 Total	2015	2016	2017	2018	2010-2018 Total	Population	Minority %	Low-Income %
Wenham	1			1	1	3	4,875	5.5%	22.5%
NSTF Subtotals	32	3	2	23	10	70	277,451	10.3%	32.1%
Braintree	8	1	1			10	35,745	14.7%	26.2%
Cohasset	2	1				3	7,542	3.8%	17.9%
Duxbury*	1					1	15,059	3.7%	18.7%
Hanover*	1					1	13,879	4.2%	20.1%
Hingham	2				1	3	21,962	4.6%	24.0%
Holbrook	3					3	10,792	19.2%	32.3%
Hull	1					1	10,293	5.7%	32.4%
Marshfield	2					2	25,132	4.0%	26.2%
Norwell	2				1	3	10,506	4.7%	18.0%
Pembroke*	1					1	17,837	3.9%	22.1%
Rockland	1				1	2	17,489	9.2%	35.8%
Scituate	2	1			1	4	18,133	4.7%	22.3%
Weymouth	5	1			1	7	53,744	11.9%	32.7%
SSC Subtotals	31	4	1	0	5	41	258,113	8.3%	26.6%
Bellingham	3				1	4	16,333	8.2%	22.8%
Franklin	3					3	31,635	8.6%	19.9%
Hopkinton	6	1				7	14,925	8.3%	14.1%
Medway	4					4	12,752	6.5%	20.5%
Milford	7	1			1	9	28,000	17.5%	31.4%
Millis	3					3	7,891	7.3%	20.8%
Norfolk	2					2	11,227	15.4%	13.7%
Sherborn	4					4	4,119	6.7%	13.1%

Table D-1 (cont.)

Community	2010-2014 Total	2015	2016	2017	2018	2010-2018 Total	Population	Minority %	Low-Income %
Wrentham	3					3	10,955	3.8%	20.9%
SWAP Subtotals	35	2	0	0	2	39	137,837	10.2%	21.4%
Canton	2			2	2	6	21,561	16.7%	24.3%
Dedham	4	1	1			6	24,729	14.9%	25.1%
Dover	4					4	5,589	8.8%	10.7%
Foxborough	3	1				4	16,865	8.3%	25.2%
Medfield	0	1				1	12,024	6.1%	12.7%
Milton	5				2	7	27,002	24.1%	22.3%
Needham	6	1	1		1	9	28,886	10.9%	15.2%
Norwood	2					2	28,603	17.3%	30.1%
Randolph	4					4	32,111	60.9%	36.6%
Sharon	0					0	17,612	19.0%	16.2%
Stoughton*	3			1	1	5	26,963	21.6%	31.9%
Walpole	3	1				4	24,071	9.2%	21.6%
Westwood	5	1			1	7	14,618	8.5%	19.2%
TRIC Subtotals	41	6	2	3	7	59	280,634	20.2%	24.3%
Grand Total	435	74	41	74	76	700	3,177,751	27.8%	31.7%

MAGIC = Minuteman Advisory Group on Interlocal Coordination. NSPC = North Suburban Planning Council. NSTF = North Shore Task Force. SSC = South Shore Coalition. SWAP = South West Advisory Planning Committee. TRIC = Three Rivers Interlocal Council.



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D.4 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-2 lists MPO-funded UPWP studies completed from 2010 through 2018 that were regional in focus. Some regionally focused studies may have work products that overlap with those analyzed in table D-1 above.

More information on these studies and other work can be found on the MPO’s website (bosmpo.ctps.org/recent_studies) or by contacting Sandy Johnston, UPWP Manager, at sjohnston@ctps.org.

Table D-2
Regionally Focused MPO Funded UPWP Studies

FFY 2018	
Central Transportation Planning Staff	Metropolitan Area Planning Council
Community Transportation Program Development	Participation in Water Transportation Advisory Council
Review of and Guide to Regional Transit Signal Priority	Regional Plan Update process
Crash Rates in Environmental Justice Communities (Staff-Generated Research)	Evaluation of Transit-Oriented Development Planning Studies
Long-Distance Commuting in the Boston MPO Region (Staff-Generated Research)	Ride hailing research, literature review, and survey of 900 Uber and Lyft riders in Boston region to indicate how TNCs are affecting travel behavior.
Exploring New Software for Transit Planning (Staff-Generated Research)	Participation in suburban mobility working group with MassDOT, MBTA, and CTPS staff to discuss opportunities to pilot dynamic ride dispatching.
Safety Effectiveness of Safe Routes to School Programs	
Planning for Connected and Autonomous Vehicles	
Study of Promising GHG Reduction Strategies	

Table D-2 (cont.)

FFY 2017	
Central Transportation Planning Staff	Metropolitan Area Planning Council
Using GTFS Data to Find Shared Bus Route Segments with Excessively Irregular Headways	North Suburban Mobility Study
Pedestrian Level-of-Service Metric Development	North Shore Mobility Study
Exploring the 2011 Massachusetts Travel Survey: MPO Travel Profiles	Perfect Fit Parking Report and Website
Exploring the 2011 Massachusetts Travel Survey: Barriers and Opportunities Influencing Mode Shift	Hubway Bikeshare Coordination
Core Capacity Constraints	MetroWest LandLine Gaps Analyses
Barriers and Opportunities Influencing Mode Shift	
Bicycle Network Gaps: Feasibility Evaluations	
2016-17 Bicycle and Pedestrian Counts	
Bicycle and Pedestrian Count Memo (summarizing counts 2014-2017)	
Memorandum documenting plans for future Boston Region MPO bicycle and pedestrian counting methodologies	
FFY 2016	
Central Transportation Planning Staff	Metropolitan Area Planning Council
Modeling Capacity Constraints	Right-Size Parking Report
Identifying Opportunities to Alleviate Bus Delay	Transportation Demand Management— Case Studies and Regulations
Research Topics Generated by MPO Staff (FFY 2016): Transit dependence scoring system using driver license data	Hybrid Electric Vehicle Retrofit Procurement
Title VI Service Equity Analyses: Methodology Development	Autonomous Vehicles and Connected Cars research
EJ and Title VI Analysis Methodology Review	MetroFuture Implementation technical memorandums
Transportation Investments for Economic Development	

Table D-2 (cont.)

FFY 2015	
Central Transportation Planning Staff	Metropolitan Area Planning Council
Greenhouse Gas Reduction Strategy Alternatives: Cost-Effectiveness Analysis	Population and Housing Projections for Metro Boston
Roadway Network for Emergency Needs	Regional Employment Projections for Metro Boston
2012 Inventory of Bicycle Parking Spaces and Number of Parked Bicycles at MBTA stations	Right-size parking calculator
2012-2013 Inventory of Park-and-Ride Lots at MBTA Facilities	
Title VI Service Equity Analyses: Methodology Development	
FFY 2014	
Central Transportation Planning Staff	Metropolitan Area Planning Council
Bicycle Network Evaluation	Transportation Demand Management Best Practices and Model Municipal Bylaw
Household Survey-Based Travel Profiles and Trends	Land Use Baseline for Bus Rapid Transit
Exploring the 2011 Massachusetts Travel Survey: Focus on Journeys to Work	MetroFuture community engagement
Methodology for Evaluating the Potential for Limited-Stop Service on Transit Routes	
FFY 2013	
Central Transportation Planning Staff	Metropolitan Area Planning Council
Regional HOV-Lane Systems Planning Study, Phase II	Regional Trail Network Map and Greenway Planning
Roadway Network Inventory for Emergency Needs: A Pilot Study	MetroFuture engagement at the local level, updates to the Regional Indicators Reports, and Smart Growth Profiles
Carbon Dioxide, Climate Change, and the Boston Region MPO: 2012 Update	
Massachusetts Regional Bus Study	
Boston Region MPO Freight Program	

Table D-2 (cont.)

FFY 2012	
Central Transportation Planning Staff	Metropolitan Area Planning Council
Analysis of JARC and New Freedom Projects	Snow Removal Policy Toolkit
Safety and Security Planning	MetroFuture implementation strategies—updated implementation strategies including focus on equity indicators
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	
FFY 2011	
Central Transportation Planning Staff	Metropolitan Area Planning Council
Charlie Card Trip Paths Pilot Study	MPO Pedestrian Plan
Early Morning Transit Service	MPO Regional Bike Parking Program
Maintenance Cost of Municipally Controlled Roadways	Toolkit for Sustainable Mobility— focusing on local parking issues
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	

Table D-2 (cont.)

FFY 2010	
Central Transportation Planning Staff	Metropolitan Area Planning Council
An Assessment of Regional Equity Outreach 2008–2009	Creation of a GIS coverage and related database of MAPC-reviewed projects and their mitigation commitments
Coordinated Human Services Transportation Plan Update	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
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	

EJ = environmental justice. FFY = federal fiscal year. GIS = geographic information systems. HOV = high-occupancy vehicle. JARC = job access reverse commute program. MAPC = Metropolitan Area Planning Council. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. TIP = Transportation Improvement Program.

D.5 NEXT STEPS

MPO staff intends to continue to collect this data on an annual basis and develop a process for using it as one input that can inform UPWP funding decisions. The data summarized in this appendix and future UPWP funding data that is added to it could potentially be used in a number of different ways to help guide the spending decisions made in future UPWPs. Depending on the direction the development of this process takes, some analyses that the MPO could complete in the future include:

- 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 number of dollars spent per community or the magnitude of benefits that could be derived from UPWP studies (e.g., congestion reduction, air quality improvement, etc.)

- Examine in more 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, the median household income, or the minority population in each community
- 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), *Charting Progress to 2040*, and the one currently in development, *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 include safety, system preservation, capacity management and mobility, clean air and clean communities, transportation equity, and economic vitality.

Making these comparisons with the data will provide the MPO with a clearer understanding of the impacts of the work that is programmed through the UPWP. Additionally, the MPO will be able to make more informed decisions about how we choose to distribute funding for transportation studies and technical analyses throughout the region.



APPENDIX E

Glossary of Acronyms

Acronym	Definition
3C	continuous, comprehensive, cooperative [metropolitan transportation planning process]
A&F	Administration and Finance Committee [Boston Region MPO]
AASHTO	American Association of State Highway and Transportation Officials
ABM	Activity based model [transportation planning tool]
ADA	Americans with Disabilities Act of 1990
Advisory Council	Regional Transportation Advisory Council
AFC	automated fare collection [system]
AMPO	Association of Metropolitan Planning Organizations
APBP	Association of Pedestrian and Bicycle Professionals
APC	automatic passenger counter
ASL	American sign language
AV/CV	autonomous vehicle/connected vehicle
CAA	Clean Air Act of 1970
CAAA	Clean Air Act Amendments of 1990
CBD	central business district
CFR	Code of Federal Regulation
CMP	Congestion Management Process
CMR	Code of Massachusetts Regulations
CO	carbon monoxide
CO2	carbon dioxide
CPT-HST	Coordinated Public Transit-Human Services Transportation Plan
CTPS	Central Transportation Planning Staff
DCR	Department of Conservation and Recreation
DEP	Massachusetts Department of Environmental Protection

Acronym	Definition
EJ	environmental justice
EO	executive order [federal]
EOEEA	Massachusetts Executive Office of Energy and Environmental Affairs
EPA	US Environmental Protection Agency
eTOD	equitable transit-oriented development
FAST Act	Fixing America's Surface Transportation Act
FDE	fundamental data element
FFY	federal fiscal year
FHWA	Federal Highway Administration
FMCB	MBTA Fiscal and Management Control Board
FTA	Federal Transit Administration
GHG	greenhouse gas
GWSA	Global Warming Solutions Act of 2008 [Massachusetts]
HOV	high-occupancy vehicle
HTC	Healthy Transportation Compact
ITE	Institute of Transportation Engineers
LAP	language access plan
LEP	limited English proficiency
LOS	level of service
L RTP	Long-Range Transportation Plan [MPO certification document]
MAP-21	Moving Ahead for Progress in the 21st Century Act
MAPC	Metropolitan Area Planning Council
MARPA	Massachusetts Association of Regional Planning Agencies
MassDOT	Massachusetts Department of Transportation

Acronym	Definition
MassGIS	Massachusetts Bureau of Geographic Information
Massport	Massachusetts Port Authority
MBTA	Massachusetts Bay Transportation Authority
MEPA	Massachusetts Environmental Policy Act
MGL	Massachusetts general laws
MIRE	Model Inventory of Roadway Elements
MOVES	Motor Vehicle Emissions Simulator [EPA air quality model]
MPO	metropolitan planning organization
NOx	nitrogen oxides
NTD	National Transit Database
OTP	MassDOT Office of Transportation Planning
PBPP	performance-based planning and programming
PfP	Planning for Performance [scenario-planning tool]
PHED	peak hour excessive delay
PL	metropolitan planning funds or public law funds [FHWA]
PMT	Program for Mass Transportation [MBTA]
PPP	Planning for Performance [scenario-planning tool]
PPP	Public Participation Program
PRCA	Pedestrian Report Card Assessment [transportation planning tool]
RMV	Registry of Motor Vehicles [MassDOT division]
ROC	Rider Oversight Committee [MBTA]
RSA	Roadway Safety Audit [FHWA]
RTA	regional transit authority
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users

Acronym	Definition
SFY	state fiscal year
SIP	State Implementation Plan
SOV	single-occupancy vehicle
SPR	Statewide Planning and Research [FHWA]
STIP	State Transportation Improvement Program
TCM	transportation control measure
TE	transportation equity
TIP	Transportation Improvement Program [MPO certification document]
TMA	Transportation Management Association
TMA	Transportation Management Area
TNC	transportation network company
TOD	transit-oriented development
TRB	Transportation Research Board
UPWP	Unified Planning Work Program [MPO certification document]
USDOT	United States Department of Transportation [oversees FHWA and FTA]
VOCs	volatile organic compounds [pollutants]
WMM	weMove Massachusetts [MassDOT planning initiative]



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