

UNIFIED PLANNING WORK PROGRAM
FFY 2020



Unified Planning Work Program

Federal Fiscal Year 2020

Boston Region MPO

DRAFT FOR ENDORSEMENT BY THE MPO, JULY 18, 2019

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

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

Massachusetts Department of Transportation

Metropolitan Area Planning Council

Massachusetts Bay Transportation Authority

MBTA Advisory Board

Massachusetts Port Authority

Regional Transportation Advisory Council

City of Boston

City of Beverly

City of Everett

City of Framingham

City of Newton

City of Somerville

City of Woburn

Town of Arlington

Town of Bedford

Town of Braintree

Town of Lexington

Town of Medway

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The Massachusetts Bay Transportation Authority, Cape Ann Transportation Authority, and MetroWest Regional Transit Authority, which are Federal Transit Administration Section 5307(c) applicants, have consulted with the MPO and concur that the public involvement process adopted by the MPO for the development of the Transportation Improvement Program satisfies the public hearing requirements that pertain to the development of the Program of Projects for regular Section 5307, Urbanized Area Formula Program, grant applications, including the provision for public notice and the time established for public review and comment.

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Certification of the Boston Region MPO Transportation Planning Process

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

1. 23 USC 134, 49 USC 5303, and this subpart.
2. Sections 174 and 176 (c) and (d) of the Clean Air Act, as amended (42 USC 7504, 7506 (c) and (d) and 40 CFR Part 93.
3. Title VI of the Civil Rights Act of 1964, as amended (42 USC 2000d-1) and 49 CFR Part 21.
4. 49 USC 5332, prohibiting discrimination on the basis of race, color, creed, national origin, sex, or age in employment or business opportunity.
5. Section 1101(b) of the SAFETEA-LU (Pub. L. 109-59) and 49 CFR Part 26 regarding the involvement of disadvantaged business enterprises in U.S. DOT-funded projects.
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July 18, 2019

Stephanie Pollack, Secretary and Chief Executive Officer
Massachusetts Department of Transportation
Chair, Boston Region MPO

The signatures of the other MPO members may be found on page 2.

Massachusetts Department of Transportation
Highway Division

At-Large – Town of Lexington

Massachusetts Department of Transportation

At-Large – Town of Arlington

Massachusetts Bay Transportation Authority

Minuteman Advisory Group on Interlocal
Coordination – Town of Bedford

Advisory Board to the MBTA

South Shore Coalition – Town of Braintree

Metropolitan Area Planning Council

Inner Core Committee – City of Somerville

Massachusetts Port Authority

North Shore Task Force – City of Beverly

Regional Transportation Advisory Council

SouthWest Advisory Planning Committee – Town of
Medway

City of Boston

MetroWest Regional Collaborative – City of
Framingham

City of Boston

North Suburban Planning Council – City of Woburn

At-Large – City of Everett

Three Rivers Interlocal Council – Town of
Norwood

At-Large – City of Newton

TABLE OF CONTENTS

PAGE

EXECUTIVE SUMMARY.....	ES-1
WHAT IS THE BOSTON REGION MPO?.....	ES-1
Boston Region MPO Jurisdiction and Membership.....	ES-1
The Transportation Planning Process.....	ES-5
The 3C Planning Process.....	ES-5
WHAT IS THE UPWP?.....	ES-6
How does the UPWP relate to the goals of the Boston Region MPO?.....	ES-6
What are federal metropolitan planning funds?.....	ES-8
Are there other funding sources in the UPWP?.....	ES-8
WHAT STUDIES AND ACTIVITIES ARE IN THIS FFY 2020 UPWP?.....	ES-9
WHAT IS THE PROCESS FOR CREATING THE UPWP AND MONITORING PROGRESS ON STUDIES?.....	ES-13
Developing the UPWP.....	ES-13
What is the public review process?.....	ES-14
How are progress and outcomes monitored?.....	ES-15
OVERVIEW OF THIS DOCUMENT.....	ES-15
CHAPTER 1: 3C TRANSPORTATION PLANNING AND THE BOSTON REGION MPO.....	I-1
THE TRANSPORTATION PLANNING PROCESS.....	I-1
3C Transportation Planning.....	I-2
THE BOSTON REGION MPO.....	I-2
MPO Central Vision Statement.....	I-7
Certification Documents.....	I-7
CHAPTER 2: COORDINATING COMPREHENSIVE TRANSPORTATION PLANNING IN THE REGION: WHAT IS THE UNIFIED PLANNING WORK PROGRAM?.....	2-1
BACKGROUND.....	2-1
WHAT DOES THE UPWP DO?.....	2-2
Certification Requirements and Other MPO Support Activities.....	2-2
Ongoing/Continuing Work Programs.....	2-2

TABLE OF CONTENTS (CONT.)

PAGE

New Studies 2-2

Agency Studies and Technical Analyses 2-3

THE PROCESS OF CREATING AND MONITORING THE UPWP. 2-3

 Developing the New Federal Fiscal Year UPWP 2-3

HOW IS THE WORK FUNDED?. 2-9

CHAPTER 3: CERTIFICATION REQUIREMENTS 3-1

INTRODUCTION 3-1

SUPPORT TO THE MPO AND ITS 3C PROCESS. 3-9

 Support to the MPO and its Committees 3-9

 Regional Transportation Advisory Council Support 3-12

 Public Participation Process 3-13

 General Graphics 3-15

 Provision of Materials in Accessible Formats. 3-16

 Professional Development 3-17

3C PLANNING AND OTHER CERTIFICATION REQUIREMENT ACTIVITIES. 3-18

 Long-Range Transportation Plan 3-18

 Transportation Improvement Program 3-21

 Performance-Based Planning and Programming 3-24

 Air Quality Conformity and Support Activities. 3-27

 Unified Planning Work Program. 3-31

 Transportation Equity Program 3-33

 Congestion Management Process 3-36

 Freight-Planning Support 3-38

 Regional Model Enhancement 3-40

 Transit Committee Support. 3-43

TABLE OF CONTENTS (CONT.)

PAGE

CHAPTER 4: BOSTON REGION MPO PLANNING STUDIES AND TECHNICAL ANALYSES	4-1
INTRODUCTION	4-1
PLANNING STUDIES	4-10
Locations with High Bicycle/Pedestrian Crash Rates in the Boston Region MPO Area	4-10
Addressing Safety, Mobility, and Access on Subregional Priority Roadways	4-12
Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment	4-14
Safety and Operations Analysis at Selected Intersections	4-16
TIP Before and After Studies	4-17
Transit Mitigation for New Development Sites	4-18
Operating a Successful Shuttle Program	4-19
Further Development of the MPO's Community Transportation Program	4-20
Disparate Impact Metrics Analysis	4-21
Exploring Resilience in MPO-Funded Corridor and Intersection Studies	4-23
MPO Staff-Generated Research and Technical Assistance	4-24
TECHNICAL ANALYSIS AND SUPPORT	4-26
Transit Data Support	4-26
Traffic Data Support	4-27
Roadway Safety Audits	4-28
Bicycle/Pedestrian Support Activities	4-29
Regional Transit Service Planning Technical Support	4-31
Community Transportation Technical Assistance Program	4-32
MAPC PLANNING STUDIES AND TECHNICAL ANALYSES	4-34
Corridor/Subarea Planning Studies	4-34
Alternative-Mode Planning and Coordination	4-36
MetroCommon x 2050	4-38
Land Use Development Project Reviews	4-40

TABLE OF CONTENTS (CONT.)

PAGE

CHAPTER 5: AGENCY AND OTHER CLIENT-FUNDED TRANSPORTATION PLANNING STUDIES AND TECHNICAL ANALYSES. 5-1

INTRODUCTION 5-1

MASSDOT. 5-4

 MassDOT Statewide Planning and Research Program Support 5-4

 MassDOT Highway Division On-Call Modeling Support 5-5

 MassDOT Title VI Program 5-6

 MassDOT Transit Planning Assistance 5-7

 Commuter Rail Vision Study Support 5-8

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY. 5-9

 MBTA NTD: Data Collection and Analysis 5-9

 MBTA Title VI Program Monitoring 5-11

 MBTA Transit Service Data Collection 5-13

 MBTA Rider Oversight Committee Support. 5-14

 Support for MBTA Service Standards Development 2020 5-15

 Service Equity Analysis Support to the MBTA. 5-16

 Fare Equity Analysis Support to the MBTA 5-17

 AFC 2.0 Equity Analysis 5-18

 MBTA Mapping Support. 5-19

 Diversity Posters 5-20

OTHER TECHNICAL SUPPORT WORK 5-21

 Weymouth Union Point Technical Support 5-21

CHAPTER 6: RESOURCE MANAGEMENT AND SUPPORT ACTIVITIES. 6-1

INTRODUCTION 6-1

CTPS ACTIVITIES. 6-5

 Computer Resource Management. 6-5

 Data Resources Management 6-7

 Direct Support 6-9

TABLE OF CONTENTS (CONT.)

PAGE

MAPC ACTIVITIES	6-11
MPO/MAPC Liaison and Support Activities	6-11
Unified Planning Work Program Support	6-13
Subregional Support Activities	6-14
Land Use Data and Forecasts for Transportation Modeling	6-16
CHAPTER 7: BOSTON REGION MPO BUDGET AND OPERATING SUMMARIES	7-1

APPENDICES

APPENDIX A: OTHER BOSTON REGION TRANSPORTATION PLANNING STUDIES

APPENDIX B: PUBLIC PARTICIPATION AND RESPONSE TO PUBLIC COMMENTS

APPENDIX C: UNIVERSE OF PROPOSED NEW STUDIES FOR FEDERAL FISCAL YEAR 2020 UPWP

APPENDIX D: GEOGRAPHIC DISTRIBUTION OF UPWP STUDIES AND TECHNICAL ANALYSES

APPENDIX E: GLOSSARY OF ACRONYMS

APPENDIX F: REGULATORY FRAMEWORK AND MPO MEMBERSHIP

LIST OF TABLES AND FIGURES

TABLE	PAGE
ES-1 UPWP Budget for FFY 2020	ES-10
ES-2 New Discrete Funded Studies in FFY 2020	ES-12
2-1 FFY 2020 New Discrete Funded Studies	2-6
2-2 UPWP Administrative Adjustment and Amendment Guidelines as of April 2019	2-8
2-3 UPWP Budget—Summary of FFY 2020 Budgets for CTPS	2-11
2-4 Summary of MAPC UPWP Budget for FFY 2020	2-12
2-5 UPWP Budget for FFY 2020	2-12
3-1 FFY 2020 Certification Requirements	3-3
4-1 Completed MPO-Funded Transportation Planning Studies, FFY 2018–19	4-3
4-2 Discrete Boston Region MPO Planning Studies and Technical Analyses Continued into FFY 2020	4-5
4-3 Ongoing Boston Region MPO Technical Analyses, FFY 2019–20	4-6

LIST OF TABLES AND FIGURES (CONT.)

TABLE	PAGE
4-4 UPWP Budget—MPO New Discrete Studies, FFY 2020	4-9
5-1 UPWP Budget—New and Continuing Agency Transportation Planning Studies and Technical Analyses for FFY 2020	5-2
6-1 CTPS Ongoing Resource Management and Support Activities, FFY 2019–20	6-3
7-1 UPWP Budget—Certification Requirements for FFY 2020	7-3
7-2 UPWP Budget—Ongoing and Continuing MPO Planning Studies and Technical Analyses for FFY 2020	7-4
7-3 UPWP Budget—MPO New Discrete Studies for FFY 2020	7-5
7-4 UPWP Budget—New and Continuing Agency Transportation Planning Studies and Technical Analyses for FFY 2020	7-6
7-5 UPWP Budget—Resource Management and Support Activities for FFY 2020	7-8
7-6 UPWP Budget—MAPC Planning Studies and Technical Analyses for FFY 2020	7-9
7-7 UPWP Budget—MAPC Resource Management and Support Activities for FFY 2020	7-9
7-8 UPWP Budget—Summary of FFY 2020 Budgets for CTPS	7-10
7-9 UPWP Budget—Summary of FFY 2020 Budgets for MAPC	7-11
7-10 UPWP Budget—3C Budget and Overall Budget for FFY 2020	7-11
7-11 Programmed FFY 2020 FTA Section 5303 Funding by Element and Task	7-13
FIGURE	PAGE
ES-1 Municipalities in the Boston Region	ES-1
ES-2 Boston Region MPO Organizational Chart	ES-3
ES-3 Relationship Between LRTP, TIP, UPWP, and Performance-Based Planning Process	ES-7
I-1 Municipalities in the Boston Region	I-3
I-2 Boston Region MPO Organizational Chart	I-5
I-3 LRTP Goals and Objectives, as of Spring 2019	I-8
I-4 Relationship Between the LRTP, TIP, UPWP, and Performance-Based Planning Process	I-10

EXECUTIVE SUMMARY

WHAT IS THE BOSTON REGION MPO?

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

Boston Region MPO Jurisdiction and Membership

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

Figure ES-I shows the map of the Boston Region MPO’s member municipalities.

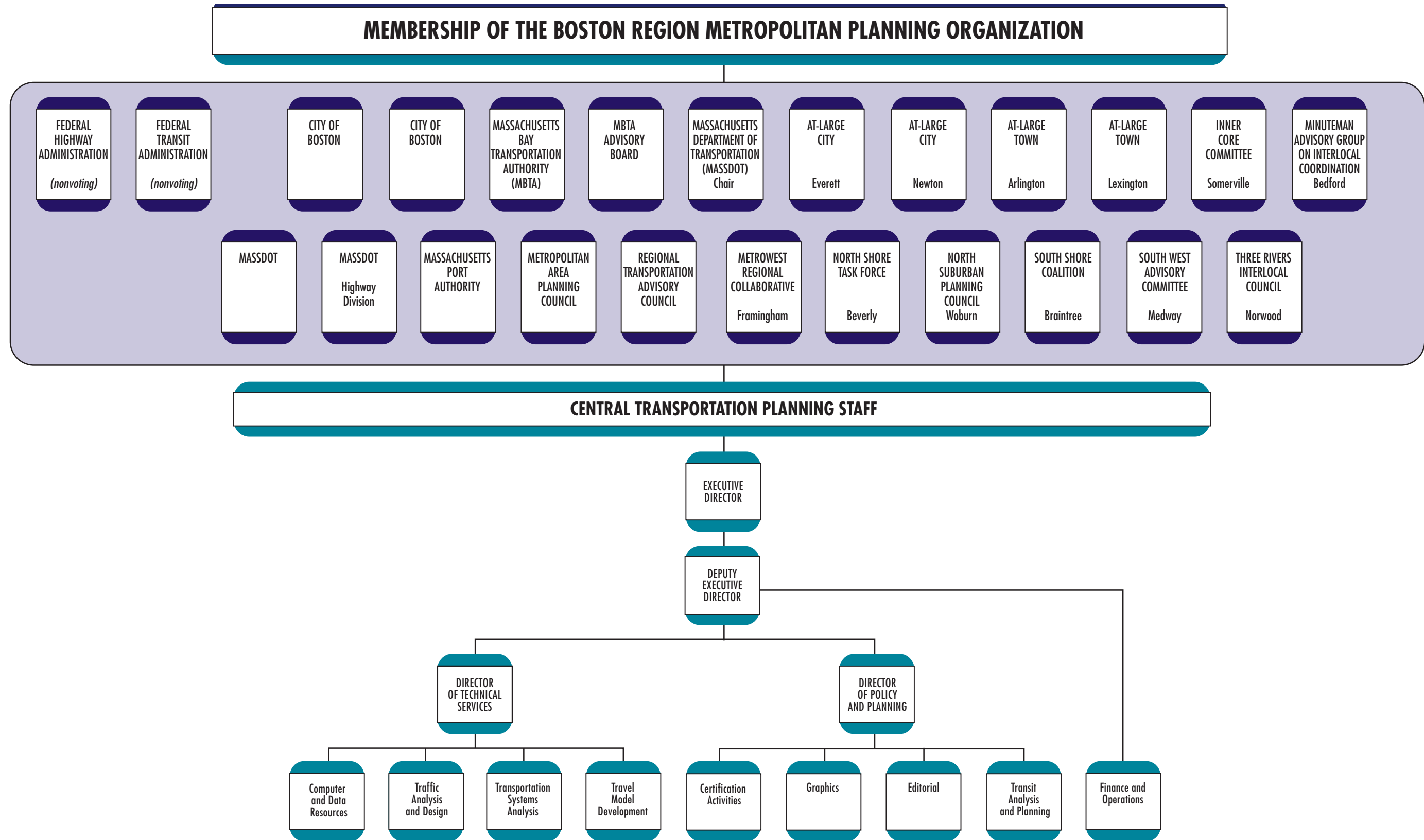
**Figure ES-I
Municipalities in the Boston Region**

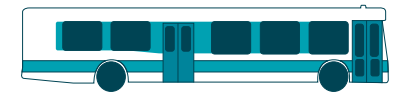


The MPO's board comprises 22 voting members. Several state agencies, regional organizations, and the City of Boston are permanent voting members, while 12 municipalities are elected as voting members for three-year terms. Eight municipal members represent each of the eight subregions of the Boston region,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

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

Figure ES-2
Boston Region MPO Organizational Chart





The Transportation Planning Process

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

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

The 3C Planning Process

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

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

WHAT IS THE UPWP?

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

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

The UPWP serves as a source for the following information:

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

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

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

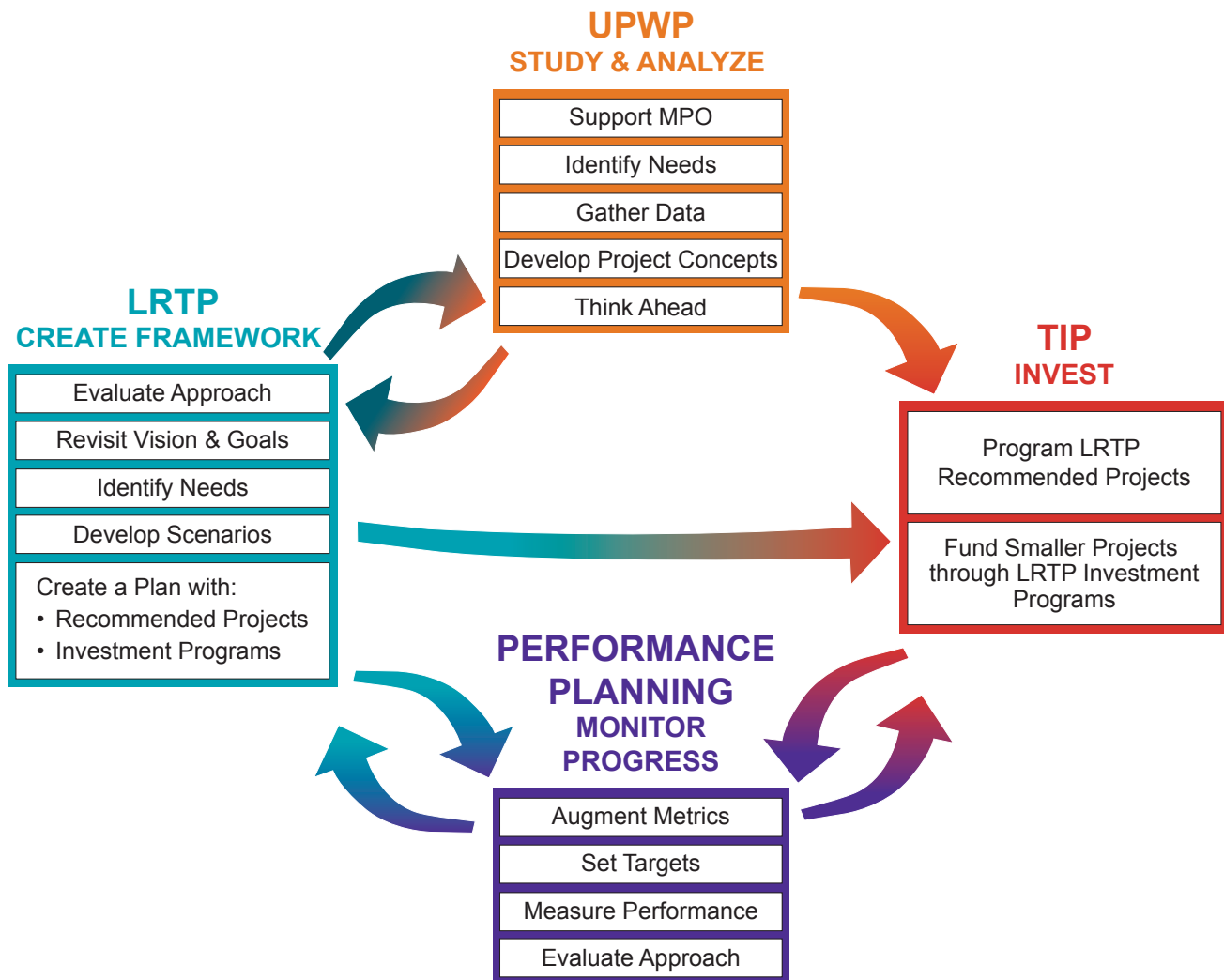
The transportation goals of the Boston region, as agreed to by the MPO during the development of *Destination 2040*, are as follows:

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

5. **Transportation Equity:** Ensure that all people receive comparable benefits from, and are not disproportionately burdened by, MPO investments, regardless of race, color, national origin, age, income, ability, or sex.
6. **Economic Vitality:** Ensure our transportation network provides a strong foundation for economic vitality.

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

Figure ES-3
Relationship Between LRTP, TIP, UPWP, and Performance-Based Planning Process



What are federal metropolitan planning funds?

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

- FHWA 3C Planning (PL): FHWA planning funds are distributed to the MassDOT Office of Transportation Planning (OTP), according to an allocation formula established by federal legislation, to carry out the 3C planning process. OTP distributes these funds to Massachusetts MPOs according to a formula that is primarily based on the region's road mileage and population. The formula was developed by the Massachusetts Association of Regional Planning Agencies (MARPA) and is known as the MARPA formula. The FFY 2020 3C PL funding allocation for the Boston region is \$3,813,949, which includes state matching funds. The full allocation 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 2020 FTA allocation for the Boston region, including a total local match, is \$2,321,502. The total amount programmed in this UPWP for studies to be conducted by CTPS, MassDOT, and the Metropolitan Area Planning Council (MAPC) on behalf of the MPO is \$1,799,814 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 \$1,355,757.
 - MassDOT FTA 3C Planning (§5303): The total amount of FTA funds, including a local match, allocated to MassDOT for FFY 2020 is \$283,688. 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). Of these funds, \$95,832 are programmed in this UPWP.
 - 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 2020 is \$348,225.

Are there other funding sources in the UPWP?

Yes, in addition to MPO-funded work, CTPS performs planning analyses and studies funded by state transportation agencies, including MassDOT, the Massachusetts Bay Transportation Authority (MBTA), and the Massachusetts Port Authority (Massport). More detail about these agency-funded studies can be found in Chapter 5. For FFY 2020, 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): \$301,500 (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: \$95,832**
- **Other MassDOT: \$79,000**
- **MBTA: \$615,425**
- **Other Sources: \$55,000**

WHAT STUDIES AND ACTIVITIES ARE IN THIS FFY 2020 UPWP?

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

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

Table ES-1 contains the budget allocated for the MPO's 3C planning activities in FFY 2020. The table reflects the FHWA metropolitan PL funds and FTA Section 5303 funds, which CTPS and MAPC expect to spend in FFY 2020. The table also reflects the work that CTPS will conduct with funds provided by other transportation agencies.

Chapters 3 through 6 provide detailed information about the transportation-planning activities that will be performed by CTPS during FFY 2020. The new studies chosen for funding in FFY 2020 are summarized below in Table ES-2 and described in more detail in Chapter 4.

**Table ES-1
UPWP Budget for FFY 2020**

3C Studies and Programs by CTPS Budget Categories	3C PL Funds	Section 5303 Funds	Proposed FFY 2020 Budget
Administration, Resource Management, and Support Activities	\$424,340	\$181,780	\$606,120
MPO Certification Requirements	\$1,936,259	\$803,947	\$2,740,206
Continuing MPO-Funded Planning Studies and Technical Analyses	\$155,200	\$124,530	\$279,730
New MPO-Funded Discrete Studies	\$521,500	\$223,500	\$745,000
Direct Support	\$52,000	\$22,000	\$74,000
Total for CTPS 3C Studies and Programs	\$3,089,299	\$1,355,757	\$4,445,056

Budget figures include salary, overhead, and direct support.

Agency-Funded CTPS Work	Agency Funds	Direct Support	Proposed FFY 2020 CTPS Budget
MassDOT SPR Funds	\$295,500	\$6,000	\$301,500
MassDOT Section 5303 Funds	\$89,832	\$6,000	\$95,832
MassDOT Other Funds	\$79,000	\$-	\$79,000
MBTA Funds	\$614,500	\$925	\$615,425
Other	\$55,000	\$-	\$55,000
Total for Agency-Funded CTPS Project Work	\$1,133,832	\$12,925	\$1,146,757
Total CTPS Budget (3C and Agency Work)			\$5,591,813

(Table ES-1 cont.)

3C Studies and Programs by MAPC Budget Categories	3C PL Funds	Section 5303 Funds	Proposed FFY 2020 Budget
MAPC Planning Studies and Technical Analyses	\$393,599	\$220,276	\$613,875
MAPC Administration, Resource Management, and Support Activities	\$331,051	\$127,949	\$459,000
Total MAPC 3C Budget	\$724,650	\$348,225	\$1,072,875
Total 3C Budget Subtotal by Funding Program	\$3,813,949	\$1,703,982	\$5,517,931
Agency-Funded CTPS Work			\$1,146,757
TOTAL PROGRAMMED IN FFY 2020 (CTPS 3C Budget, CTPS Agency-Funded Budget, and MAPC 3C Budget)			\$6,664,688

3C = Continuing, comprehensive, and cooperative. CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. 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 2020

Project ID	Study or Program	Proposed FFY 2020 CTPS Budget	Page Number
13293	Locations with High Bicycle and Pedestrian Crash Rates in the Boston Region MPO Area	\$70,000	4-10
13420	Addressing Safety, Mobility, and Access on Subregional Priority Roadways	\$115,000	4-12
13520	Addressing Priority Corridors from the LRTP Needs Assessment	\$120,000	4-14
13720	Safety and Operations Analysis at Selected Intersections	\$80,000	4-16
13294	TIP Before and After Studies	\$60,000	4-17
13295	Transit Mitigation for New Development Sites	\$60,000	4-18
13296	Operating a Successful Shuttle Program	\$50,000	4-19
13297	Further Development of the MPO's Community Transportation Program	\$20,000	4-20
13298	Disparate Impact Metrics Analysis	\$40,000	4-21
13299	Exploring Resilience in MPO-Funded Corridor and Intersection Studies	\$90,000	4-23
20904	MPO Staff-Generated Research and Technical Assistance	\$40,000	4-24
Total for New Discrete and Ongoing Studies		\$745,000	

NOTE: This information may be updated as the FFY 2020 UPWP budget continues to develop.
 CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. LRTP = Long-Range Transportation Plan.
 MPO = Metropolitan Planning Organization. TIP = Transportation Improvement Program.

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

Developing the UPWP

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

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

- Public input gathered through community meetings and meetings with eight subregional municipal planning groups
- Regional Transportation Advisory Council (Advisory Council) input gathered from meetings in which the MPO staff discussed study ideas and transportation priorities of the Advisory Council's member organizations
- UPWP Committee input gathered 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 and LRTP Needs Assessment; the MBTA's long-range capital plan; MetroFuture, MAPC's long-range plan for smart growth in the Boston region; and other recent studies
- Guidance issued by FHWA and FTA on studies that address the federal transportation planning emphasis areas (for more information on the federal emphasis areas, see Appendix F and Table F-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 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. Staff also will continue to monitor and enhance the MPO's communication channels, such as those documented below.

- [An engaging website](#), which serves as a resource for those seeking to influence transportation planning in the Boston region
- A lively Twitter account ([@BostonRegionMPO](#)) covering transportation planning news and events
- A blog, [TRANSREPORT](#), that publishes MPO research and data in an approachable format
- Targeted external outreach to advocacy and community groups, especially those representing populations that historically have been less involved in the MPO's processes
- Public events, hosted by the MPO's transportation partners, where staff administer and listen at information and resource tables
- 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 significant part of the input into the UPWP every year. Towards the end of every UPWP development process, the MPO votes to release for public review a draft document that describes ongoing work, new studies, and financial information. Then the MPO invites the public to comment on the Draft UPWP. The MPO staff posts the document for downloading via the MPO's website (www.bostonmpo.org) and publicizes its release via [MPOinfo](#) (an email distribution list that includes municipal contacts, interested members of the public, and other stakeholders in the region) and Twitter. Email messages inform these contacts about upcoming opportunities for public comment and involvement in MPO decision making, and for announcing events sponsored or held by the MPO. The MPO staff also solicit public input during CTPS open houses and at public events hosted by the MPO or its transportation partners (including MassDOT and the MBTA). The MPO staff compile 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 2020 UPWP is provided in Appendix B.

How are progress and outcomes monitored?

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

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

OVERVIEW OF THIS DOCUMENT

This UPWP document is structured as follows:

- **Chapter 1** provides background on the metropolitan transportation planning process and the Boston Region MPO member agencies.
- **Chapter 2** provides detailed background and information on the purpose of this document, the process of developing and monitoring it, and how it helps the MPO achieve its regional transportation goals.
- **Chapter 3** includes descriptions of the certification requirement activities to be completed in FFY 2020 (including the support to the MPO, its committees, and related processes and activities), and the current budgets assigned to each program and activity.
- **Chapter 4** describes the following ongoing and discrete CTPS and MAPC study and technical analysis work:
 - Summary tables of FFYs 2018–19 UPWP studies that have been completed or are projected to be completed by the end of September 2019, in addition to work products, including reports and technical memoranda
 - MPO planning studies and technical analyses that will be carried over from FFY 2019 to FFY 2020
 - Descriptions of the new planning studies chosen for funding in FFY 2020
 - Updated descriptions of the ongoing technical analysis and support work that the MPO staff conducts for municipalities and the region
- **Chapter 5** includes descriptions of the agency-funded transportation planning studies and technical analyses that will be undertaken by CTPS in FFY 2020. These include recurring contracts such as MassDOT's SPR grant; ongoing contracts such as the MassDOT Title VI Program and the MBTA's National Transit Database: Data Collection and Analysis; and new contracts.
- **Chapter 6** provides detailed information and FFY 2020 budgets for the resource management and support activities conducted by the MPO staff.

- **Chapter 7** 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 2020 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.
- **Appendix F** 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. It also documents the membership of the MPO.



CHAPTER I

3C TRANSPORTATION PLANNING AND THE BOSTON REGION MPO

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

THE TRANSPORTATION PLANNING PROCESS

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

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

3C Transportation Planning

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

- Identify transportation problems and develop possible solutions
- Ensure that decision-making balances short- and long-range considerations and adequately reflects the range of possible future scenarios, options, and consequences.
- Represent both regional and local considerations, 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, the Clean Air Act, the Civil Rights Act of 1964, Executive Order 12898 (regarding environmental justice), Executive Order 13166 (regarding outreach to populations with limited English-language proficiency), and Executive Order 13330 (regarding the coordination of human-services transportation)

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

THE BOSTON REGION MPO

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

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

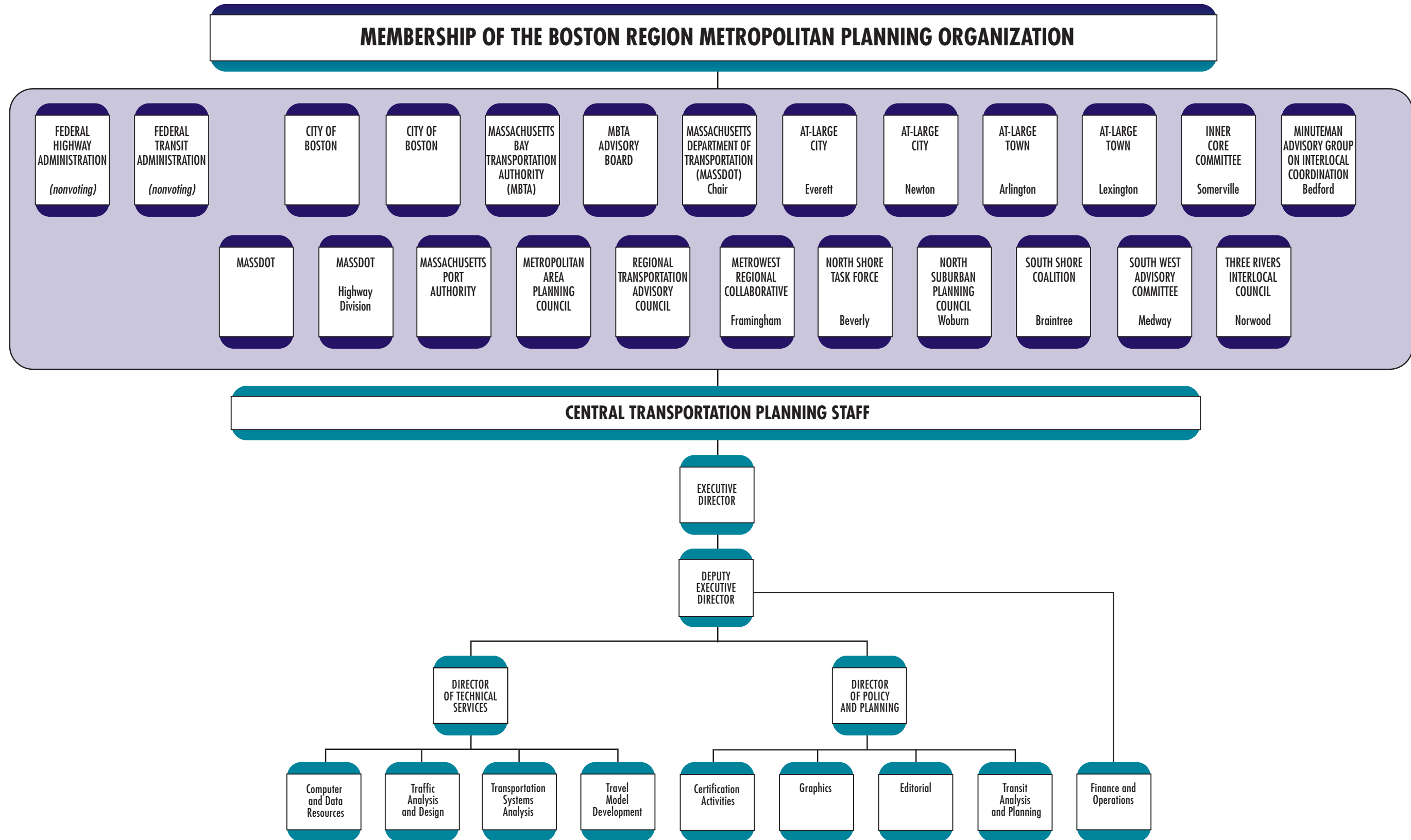
Figure I-1
Municipalities in the Boston Region

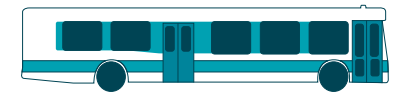


The MPO's board comprises 22 voting members. Several state agencies and regional organizations and the City of Boston are permanent voting members, while 12 municipalities are elected as voting members for three-year terms. Eight municipal members represent each of the eight subregions of the Boston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

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

Figure 1-2
Boston Region MPO Organizational Chart





MPO Central Vision Statement

The MPO board agreed on the following vision statement on January 17, 2019, in preparation for the upcoming adoption of *Destination 2040*, the MPO's next Long-Range Transportation Plan (LRTP):

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

Certification Documents

As part of its 3C process, the Boston Region MPO annually produces the Transportation Improvement Program (TIP) and the Unified Planning Work Program (UPWP). These documents, along with the quadrennial LRTP, are referred to as *certification documents* and are required for the MPO's 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.

The following is a summary of each of the certification documents other than the UPWP:

- The LRTP guides decision-making about investments that will be made in the Boston region's transportation system over the next two decades. It defines an overarching vision of the future of transportation in the region, establishes goals and objectives that will lead to achieving that vision, and allocates projected revenue to transportation projects and programs consistent with established goals and objectives. The Boston Region MPO produces an LRTP every four years. *Charting Progress to 2040* is the LRTP that was endorsed by the MPO board in 2015 and will be in effect until the next LRTP, *Destination 2040*, is adopted in 2019. Figure 1-3 shows the MPO's goals and objectives, as approved by the MPO board in January 2019 in accordance with the preparation of *Destination 2040*.
- The TIP is a multiyear, multimodal program of transportation improvements that is consistent with the LRTP. It describes and prioritizes transportation projects that are expected to be implemented during a five-year period. The types of transportation projects funded include major highway reconstruction and maintenance, arterial and intersection improvements, public transit expansion and maintenance, bicycle paths and facilities, and improvements for pedestrians. The TIP contains a financial plan that shows the revenue sources, current or proposed, for each project. The TIP serves as the implementation arm of the MPO's LRTP, and the Boston Region MPO updates the

TIP annually. An MPO-endorsed TIP is incorporated into the State Transportation Improvement Program for submission to the FHWA, FTA, and US Environmental Protection Agency for approval.

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

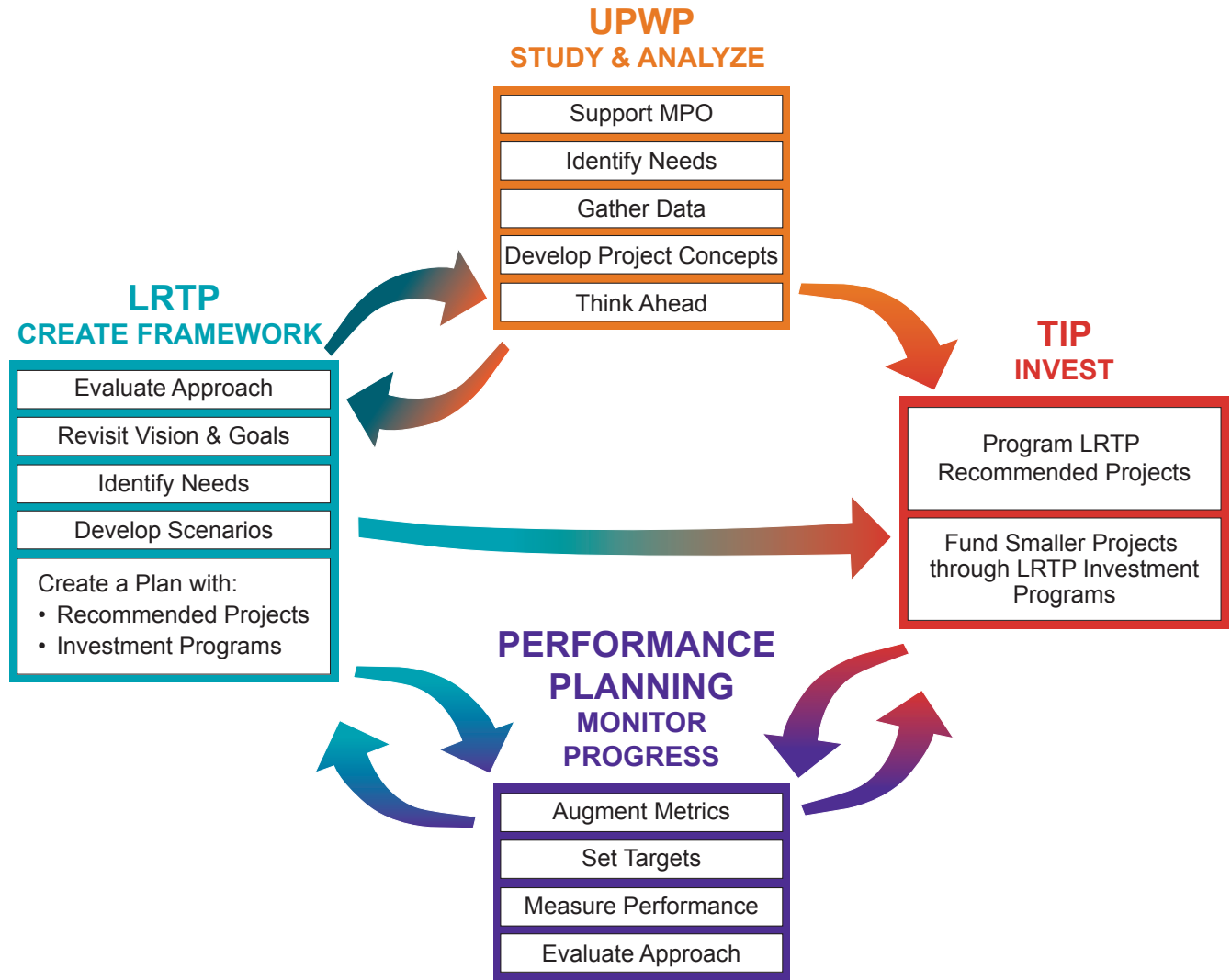
Figure I-3
L RTP Goals and Objectives, as of Spring 2019

CENTRAL VISION STATEMENT	
<p>The Boston Region Metropolitan Planning Organization envisions a modern, well-maintained transportation system that supports a sustainable, healthy, livable, and economically vibrant region. To achieve this vision, the transportation system must be safe and resilient; incorporate emerging technologies; and provide equitable access, excellent mobility, and varied transportation options.</p>	
SAFETY	
Transportation by all modes will be safe	<ul style="list-style-type: none"> • Reduce the number and severity of crashes and safety incidents for all modes • Reduce serious injuries and fatalities from transportation • Make investments and support initiatives that help protect transportation customers, employees, and the public from safety and security threats
SYSTEM PRESERVATION	
Maintain and modernize the transportation system and plan for its resiliency	<ul style="list-style-type: none"> • Maintain the transportation system, including roadway, transit, and active transportation infrastructure, in a state of good repair • Modernize transportation infrastructure across all modes • Prioritize projects that support planned response capability to existing or future extreme conditions (sea level rise, flooding, and other natural and security-related man-made impacts)
CAPACITY MANAGEMENT AND MOBILITY	
Use existing facility capacity more efficiently and increase transportation options	<ul style="list-style-type: none"> • Improve access to and accessibility of all modes, especially transit and active transportation • Support implementation of roadway management and operations strategies to improve travel reliability, mitigate congestion, and support non-single-occupant vehicle travel options • Emphasize capacity management through low-cost investments; prioritize projects that focus on lower-cost operations/management-type improvements such as intersection improvements, transit priority, and Complete Streets solutions • Improve reliability of transit • Increase percentage of population and employment within one-quarter mile of transit stations and stops • Support community-based and private-initiative services and programs to meet first- and last-mile, reverse commute, and other nontraditional transit/transportation needs, including those of people 75 years old or older and people with a disability • Support strategies to better manage automobile and bicycle parking capacity and usage at transit stations • Fund improvements to bicycle/pedestrian networks aimed at creating a connected network of bicycle and accessible sidewalk facilities (both regionally and in neighborhoods) by expanding existing facilities and closing gaps • Increase percentage of population and places of employment with access to facilities on the bicycle network • Eliminate bottlenecks on freight network/improve freight reliability • Enhance freight intermodal connections

(Fig 1-3 cont.)

GOALS (CONT.)	OBJECTIVES (CONT.)
● TRANSPORTATION EQUITY	
Ensure that all people receive comparable benefits from, and are not disproportionately burdened by, MPO investments, regardless of race, color, national origin, age, income, ability, or sex	<ul style="list-style-type: none">• Prioritize MPO investments that benefit equity populations*• Minimize potential harmful environmental, health, and safety effects of MPO-funded projects for all equity populations*• Promote investments that support transportation for all ages (age-friendly communities)• Promote investments that are accessible to all people regardless of ability <p>*Equity populations include people who identify as minority, have limited English proficiency, are 75 years old or older or 17 years old or younger, or have a disability; or are members of low-income households.</p>
● CLEAN AIR/SUSTAINABLE COMMUNITIES	
Create an environmentally friendly transportation system	<ul style="list-style-type: none">• Reduce greenhouse gases generated in Boston region by all transportation modes• Reduce other transportation-related pollutants• Minimize negative environmental impacts of the transportation system• Support land use policies consistent with smart, healthy, and resilient growth
● ECONOMIC VITALITY	
Ensure our transportation network provides a strong foundation for economic vitality	<ul style="list-style-type: none">• Respond to mobility needs of the workforce population• Minimize burden of housing/transportation costs for residents in the region• Prioritize transportation investments that serve residential, commercial, and logistics targeted development sites and “Priority Places” identified in MBTA’s <i>Focus40</i> plan• Prioritize transportation investments consistent with compact-growth strategies of the regional land use plan

**Figure I-4
Relationship Between the LRTP, TIP, UPWP, and Performance-Based
Planning Process**





CHAPTER 2

COORDINATING COMPREHENSIVE TRANSPORTATION PLANNING IN THE REGION: WHAT IS THE UNIFIED PLANNING WORK PROGRAM?

BACKGROUND

The Unified Planning Work Program (UPWP) is a financial plan that the Metropolitan Planning Organization (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 and 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.

As outlined in Chapter 1, the transportation planning work funded through the UPWP is an integral part of achieving the Boston Region MPO's vision and mandate.

This chapter explains the UPWP, its connection to the overall regional transportation vision developed in the Long-Range Transportation Plan (LRTP), and how the planning work of the MPO is funded.

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. The Central Transportation Planning Staff (CTPS), staff to the MPO, or the staff of the Metropolitan Area Planning Council (MAPC), Boston's regional planning agency, conduct this work. This work primarily consists of four parts:

Certification Requirements and Other MPO Support Activities

The UPWP includes activities that the federal government requires the MPO to conduct to remain certified as an MPO and be eligible to receive and distribute federal transportation dollars. Work in this category includes preparing federally required 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, while the TIP allocates funding for the implementation of projects 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 and 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 3 and 6 for more detail about these areas of work.

Ongoing/Continuing Work Programs

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

New Studies

Every year, a certain amount of funding is available for the MPO staff to perform new studies. CTPS conducts these activities to enhance staff's and the MPO's knowledge of transportation planning practices, augment analytical methods, and evaluate strategies. Examples of these studies in the FFY 2020 UPWP include Disparate Impacts Metrics Analysis and Exploring Resilience in MPO-Funded Corridor studies. See Chapter 4 for more detail about these new studies.

Agency Studies and Technical Analyses

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

THE PROCESS OF CREATING AND MONITORING THE UPWP

MPO staff produces the UPWP each year under the supervision and guidance of the MPO's UPWP Committee. The UPWP Committee, supported by MPO staff, convened six times in FFY 2019 to consider and provide input on the UPWP development process. Topics of discussion included the following:

- Proposed budgets for ongoing and continuing activities
- New study ideas and how to prioritize them
- Improvements to the UPWP outreach and development process

These meetings resulted in the committee's recommendation for the Draft FFY 2020 UPWP. The MPO approved the UPWP Committee's recommendation for public review of the Draft FFY 2020 UPWP on May 6, 2019.

Below are details about the process for selecting studies and programs for the FFY 2020 UPWP.

Developing the New Federal Fiscal Year UPWP

To develop new planning studies for the FFY 2020 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 gather input from subregional planning groups and other stakeholders. Subregional groups—organized by MAPC, an MPO member agency—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 2020 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, which monitors the transportation network to identify locations and sources of congestion; *Focus40*, the MBTA's long-range capital plan; the MPO's long-range planning documents, including the current LRTP, *Charting Progress to 2040*, and the draft 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 2019 UPWP public comment letters and study proposals.**
7. **Consultations with MassDOT, the MBTA, and MAPC.**
8. **MPO staff-identified needs.**

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

The FFY 2020 UPWP Universe of Proposed New Studies documents proposed planning studies (see Appendix C).

Evaluating and Selecting New Studies

MPO staff evaluated each new proposed study in the Universe of Proposed New Studies based on 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 affects one or two specific communities in the region or the region as a whole
- **Type of impact:** whether a study results in research and findings that enhance the state of transportation planning practice in the Boston region; implementable recommendations for the MPO, municipalities, or other entities; or another specific work product
- **Time frame:** whether the study’s recommendations are for 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 2-1 shows the studies in the FFY 2020 universe selected for funding in FFY 2020. Chapter 4 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 (Chapter 3), ongoing technical assistance to municipalities (Chapter 4), and resource management and support activities (Chapter 6).

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

**Table 2-1
FFY 2020 New Discrete Funded Studies**

Project ID	Study or Program	Proposed FFY 2020 CTPS Budget	Page Number
13293	Locations with High Bicycle and Pedestrian Crash Rates in the Boston Region MPO Area	\$70,000	4-10
13420	Addressing Safety, Mobility, and Access on Subregional Priority Roadways	\$115,000	4-12
13520	Addressing Priority Corridors from the LRTP Needs Assessment	\$120,000	4-14
13720	Safety and Operations Analysis at Selected Intersections	\$80,000	4-16
13294	TIP Before and After Studies	\$60,000	4-17
13295	Transit Mitigation for New Development Sites	\$60,000	4-18
13296	Operating a Successful Shuttle Program	\$50,000	4-19
13297	Further Development of the MPO's Community Transportation Program	\$20,000	4-20
13298	Disparate Impact Metrics Analysis	\$40,000	4-21
13299	Exploring Resilience in MPO-Funded Corridor and Intersection Studies	\$90,000	4-23
20904	MPO Staff-Generated Research and Technical Assistance	\$40,000	4-24
Total for New Discrete and Recurring Studies		\$745,000	

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

Public Review of the Draft UPWP

MPO staff incorporates into the draft UPWP descriptive and financial information about ongoing and new UPWP studies, information about the UPWP development process, and other major transportation planning studies that occur in the region. Once the MPO votes to release the draft for public review, MPO staff posts the document to the MPO website (www.bostonmpo.org) and provides notice of its availability through various communication outlets.

As previously noted, public outreach forms a major part of the input to the UPWP each FFY. After the MPO approves the draft UPWP, there is a public comment period. During this time, MPO staff members solicit public input via the MPO 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 2020 UPWP is available in Appendix B.

Monitoring Progress of UPWP Studies

The MPO approved the following procedures for monitoring the studies in the FFY 2020 UPWP:

- 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 interfere with 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 and funds) charged to the contract over the past month
 - Comparison of actual cumulative resources expended compared to the contract budget
- CTPS presents a quarterly report that compares the UPWP study budgets with the actual spending.

- MPO approval for release of a 3C-funded study's work products is based on whether the objectives stated in the work program were met and whether the stated deliverables were produced.

Amendments and Administrative Modifications to the UPWP

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

Table 2-2 gives general guidelines regarding the conditions that constitute an administrative adjustment or amendment to the UPWP.

**Table 2-2
UPWP Administrative Adjustment and Amendment Guidelines
as of April 2019**

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

Staff must present all proposed administrative adjustments and amendments to the MPO for consultation prior to endorsement. MPO members must vote on both adjustments and amendments and then release amendments 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. The MPO may make administrative modifications 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), staff must fill out all fields with clear indication that the MPO was consulted prior to submission. Staff must submit back-up documentation, including the UPWP description of task(s) affected, original budget, revised budget, and justification for the request.

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.

HOW IS THE WORK FUNDED?

The funding for the studies and programs included in this UPWP (presented in Chapters 3 through 6) 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 2020 3C PL funding allocation for the Boston region is \$3,813,949, which includes in-state matching funds. That allocation is fully 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 2020 FTA allocation for the Boston region, including a total local match, is \$2,321,502. The total amount programmed in this UPWP for studies to be conducted by CTPS, MassDOT, and the MAPC on behalf of the MPO is \$1,799,814 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 \$1,355,757.
 - MassDOT FTA 3C Planning (§5303): The total amount of FTA funds, including a local match, allocated to MassDOT for FFY 2020 is \$283,688. 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). Of these funds, \$95,832 are programmed in this UPWP.

- 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 2020 is \$348,225.
- **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 for \$301,500 (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 for \$79,000 for MassDOT studies are included in this UPWP.
- **MBTA:** The MBTA provides \$615,425 in funding for this UPWP for transit studies to be conducted by CTPS.
- **Other Sources:** This UPWP also includes \$55,000 in funding provided by other entities for work being conducted by CTPS on their behalf.

**Table 2-3
UPWP Budget—Summary of FFY 2020 Budgets for CTPS**

3C Studies and Programs by Budget Categories	CTPS 3C PL Funds	CTPS Section 5303 Funds	Proposed FFY 2020 CTPS Budget
Administration, resource management, and support activities	\$424,340	\$181,780	\$606,120
MPO Certification Requirements	\$1,936,259	\$803,947	\$2,740,206
Continuing MPO-funded planning studies and technical analyses	\$155,200	\$124,530	\$279,730
New MPO-funded discrete studies	\$521,500	\$223,500	\$745,000
Direct support	\$52,000	\$22,000	\$74,000
Total for CTPS 3C Studies and Programs	\$3,089,299	\$1,355,757	\$4,445,056

Agency-Funded CTPS Work	Agency Funds	Direct Support	Proposed FFY 2020 CTPS Budget
MassDOT SPR Funds	\$295,500	\$6,000	\$301,500
MassDOT Section 5303 Funds	\$89,832	\$6,000	\$95,832
MassDOT Other Funds	\$79,000	\$-	\$79,000
MBTA Funds	\$614,500	\$925	\$615,425
Other	\$55,000	\$-	\$55,000
Total for Agency-Funded CTPS Project Work	\$1,133,832	\$12,925	\$1,146,757

Total FFY 2020 CTPS Budget (3C + Agency Work)	\$5,591,813
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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. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. PL = Planning. SPR = Statewide Planning and Research.

UPWP = Unified Planning Work Program.

**Table 2-4
Summary of MAPC UPWP Budget for FFY 2020**

3C Studies and Programs by MAPC Budget Categories	MAPC 3C PL Funds	MAPC Section 5303 Funds	Proposed FFY 2020 MAPC Budget
MAPC planning studies and technical analyses	\$393,599	\$220,276	\$613,875
MAPC administration, resource management, and support activities	\$331,051	\$127,949	\$459,000
Total MAPC 3C Budget	\$724,650	\$348,225	\$1,072,875

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

**Table 2-5
UPWP Budget for FFY 2020**

Agency Supporting MPO/3C Work	3C PL Funds	Section 5303 Funds	Proposed FFY 2020 Budget
CTPS	\$3,089,299	\$1,355,757	\$4,445,056
MAPC	\$724,650	\$348,225	\$1,072,875
3C Budget Subtotal by Funding Program	\$3,813,949	\$1,703,982	\$5,517,931
Agency-Funded CTPS Work			\$1,146,757
FFY 2020 UPWP Budget			\$6,664,688

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.



CHAPTER 3

CERTIFICATION REQUIREMENTS

INTRODUCTION

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

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

Table 3-1 summarizes the ongoing programs conducted as part of the MPO's certification requirements and related MPO support. The table presents the funding in federal fiscal year (FFY) 2019 and FFY 2020 and includes a brief description of the work, progress, and products for these ongoing programs. Although many of these programs generally comprise the same type of task from year to year, often there are variations in budgets that reflect greater or lesser emphasis in certain efforts or tasks. For example, MPO staff may undertake new or additional analyses under specific line items; expand or change the form of public outreach; fold tasks conducted in one year into an ongoing activity in a subsequent year; take on a new initiative of the MPO; or experience fluctuations in staffing levels that account for budget changes. Where appropriate, the table and individual program descriptions explain these differences.

The budget tables that accompany each of the individual program descriptions in this chapter include the salary and overhead costs associated with these programs. In this chapter, the programs are grouped into two general activity areas: (1) programs that support the MPO and its 3C process; and (2) programs that support the 3C planning and programming activities. Any direct costs associated with the projects are presented in Chapter 6.

**Table 3-1
FFY 2020 Certification Requirements**

Project Name	ID	FFY 2019 Total Funding	FFY 2019 Work Progress and Products	FFY 2020 PL Funding	FFY 2020 \$5303 Funding	FFY 2020 Total Funding	FFY 2020 Planned Work Progress and Products
Support to the MPO and its 3C Process							
Support to the MPO and its Committees	9120	\$234,640	Continued support to the meetings and activities of the MPO board and its committees. Work entailed: <ul style="list-style-type: none"> Preparing meeting and information materials, including agendas, minutes, notices, document translations, memoranda, reports, correspondence, summaries, website content, maps, charts, illustrations, and other visual materials as needed to support MPO discussion and actions Posting meeting materials in digital form on the MPO meeting calendar webpage and in hard copies that are provided at meetings Hosted approximately 24 MPO meetings and 10 MPO subcommittee meetings, and performed the associated tasks and pre- and post-meeting logistics Conducted activities to support compliance with federal requirements and guidance, including coordination with neighboring MPOs, MassDOT, and federal partners 	\$152,740	\$65,460	\$218,200	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: <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	9320	\$46,790	Continued support to the Advisory Council. Tasks generally consist of organizing and conducting the Advisory Council's monthly meetings and annual field trip, including: <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, and preparing meeting minutes 	\$31,190	\$13,360	\$44,550	<ul style="list-style-type: none"> Hosting approximately 11 Advisory Council meetings and several subcommittee meetings, as needed, and performing associated support tasks and pre- and post-meeting logistics Conducting targeted outreach efforts to seek representation on the Advisory Council from organizations representing people with disabilities, people with low incomes, people who identify as a race other than white and/or who identify as Hispanic or Latino/a/x, people with limited English proficiency, young people, and older adults

(Table 3-1 cont.)

Project Name	ID	FFY 2019 Total Funding	FFY 2019 Work Progress and Products	FFY 2020 PL Funding	FFY 2020 \$5303 Funding	FFY 2020 Total Funding	FFY 2020 Planned Work Progress and Products
Public Participation Process	9620	\$181,720	<ul style="list-style-type: none"> Supported the MPO's commitment to include the people of the Boston region in transportation planning, including residents of communities that may have been underserved by the transportation system Communicated about the MPO's meetings and planning activities via the web, emails, newsletters, blog posts, and Twitter Engaged the public through MAPC subregional groups, visits to stakeholder organizations, and web-based surveys and other digital communications Conveyed public comments to MPO members Updated the Public Participation Plan Supported the MPO's federal recertification process 	\$110,180	\$47,220	\$157,400	<ul style="list-style-type: none"> Continuing support of the MPO's commitment to inclusion through timely communications and engagement opportunities Gathering input and feedback on the MPO's various certification documents and other processes Publish <i>TransReport</i> articles and other digital communications Provide translations of printed materials in non-English languages as specified in the MPO's LAP
General Graphics	9220	\$85,250	<p>Provided graphics support to the MPO and its member agencies. This includes:</p> <ul style="list-style-type: none"> Designing and producing maps, charts, illustrations, report covers, brochures, slides, and photographs Applying other visualization techniques Creating other products that improve communication 	\$61,210	\$26,230	\$87,440	Tasks and work products generally remain the same from year to year, although the level of effort varies based on the specific work products and reports that the MPO produces each year.
Provision of Materials in Accessible Formats	3120	\$105,540	<p>Supported the MPO and CTPS in:</p> <ul style="list-style-type: none"> Producing accessible materials in PDF and HTML formats for posting on the Boston Region MPO website Assisting in producing materials, including meeting minutes, work scopes, memoranda, reports, and other public materials Reviewing accessibility requirements and current CTPS standards and processes Implementing standards within memorandum and report templates 	\$74,040	\$31,730	\$105,770	Tasks and work products generally remain the same from year to year, although the level of effort varies based on the specific work products and reports that the MPO produces each year that need to be converted into accessible formats.
Professional Development	9120.09	\$21,770	Covered the labor expenses of staff attending conferences and seminars related to MPO work	\$21,329	\$7,667	\$28,996	Cover the labor expenses of staff attending conferences and seminars related to MPO work.

(Table 3-1 cont.)

Project Name	ID	FFY 2019 Total Funding	FFY 2019 Work Progress and Products	FFY 2020 PL Funding	FFY 2020 §5303 Funding	FFY 2020 Total Funding	FFY 2020 Planned Work Progress and Products
3C Planning and Other Certification Requirements							
L RTP	8120	\$362,290	<p>Developed the final Needs Assessment for <i>Destination 2040</i>.</p> <ul style="list-style-type: none"> Reviewed and revised the MPO's vision, goals, and objectives Performed analyses to provide input into the recommended list of projects and programs for the final L RTP, <i>Destination 2040</i> Developed the Universe of Projects and Programs lists and evaluated the projects using the MPO's evaluation criteria Conducted outreach to gather public input to inform MPO decision making Finalized the <i>Destination 2040</i> L RTP 	\$231,650	\$99,270	\$330,920	<ul style="list-style-type: none"> Continue to update Needs Assessment Continue to expand the MPO's scenario planning capabilities using the regional travel demand model set and other tools Conduct outreach activities related to transportation needs and scenarios in the Boston region Administer amendments as necessary
TIP	8220	\$244,190	<ul style="list-style-type: none"> Developed the FFYs 2020–24 TIP Administered amendments to the FFYs 2019–23 TIP Conducted outreach to municipalities, TIP contacts, and subregions about TIP development and specific TIP projects, both funded and being considered for funding Coordinated with MassDOT district offices, the Office of Transportation Planning, and MPO members on TIP projects, TIP amendments, and the TIP process Developed an updated/reorganized internal TIP project database Developed an initial version of a public-facing TIP project web application 	\$183,870	\$78,790	\$262,660	<p>Activities generally remain the same year to year, with staff supporting the MPO in developing its five-year (FFY 2021–25) TIP. FFY 2020 work will also focus on:</p> <ul style="list-style-type: none"> Finishing implementation of the public-facing TIP project web application Making further improvements to the TIP development process to make it clearer and more engaging for municipal stakeholders and MPO members Reevaluating the TIP scoring criteria to reflect the priorities and objectives outlined in the forthcoming L RTP, <i>Destination 2040</i> Continue to report on progress of the MPO's PBPP program

(Table 3-1 cont.)

Project Name	ID	FFY 2019 Total Funding	FFY 2019 Work Progress and Products	FFY 2020 PL Funding	FFY 2020 \$5303 Funding	FFY 2020 Total Funding	FFY 2020 Planned Work Progress and Products
PBPP	8820	\$155,300	<ul style="list-style-type: none"> Conducted analysis, made presentations, and developed documents to help the MPO set initial targets or to update targets for several sets of federally required performance measures Coordinated with MassDOT, the MBTA, CATA, MWRTA, FHWA, and other stakeholders on target-setting and other PBPP topics, such as coordination agreements Developed performance reports for the LRTP and TIP and updated reporting materials and tools, such as in the MPO's performance dashboard Monitored federal guidance and identified ways to integrate PBPP into MPO processes, including TIP and LRTP development Explored other performance measures that the MPO could monitor 	\$99,430	\$42,610	\$142,040	<ul style="list-style-type: none"> Support the MPO in setting targets for federally required measures and other measures, as requested Analyze data and prepare related presentations, memoranda, and other supporting documents and materials Prepare an updated CMAQ performance plan, as applicable, and other PBPP documents, as needed Produce or update 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
Air Quality Conformity and Support Activities	8420	\$41,340	<ul style="list-style-type: none"> Conducted air quality analyses, including greenhouse gas analyses for projects to be considered for funding in the TIP, as well as those to be considered for CMAQ funding Performed air quality conformity determinations for the TIP and LRTP Provided support to MassDOT on air quality matters 	\$21,890	\$9,370	\$31,260	<ul style="list-style-type: none"> Conduct air quality analyses, including greenhouse gas analyses for projects to be considered for funding in the TIP, as well as those to be considered for CMAQ funding Update air quality emission factors using the latest inputs and emission factor software Participate in SIP meetings on state air quality legislation Provide support to MassDOT on air quality matters Support integration of climate change measures and initiatives into the MPO's processes

(Table 3-1 cont.)

Project Name	ID	FFY 2019 Total Funding	FFY 2019 Work Progress and Products	FFY 2020 PL Funding	FFY 2020 \$5303 Funding	FFY 2020 Total Funding	FFY 2020 Planned Work Progress and Products
UPWP	8320	\$108,930	<ul style="list-style-type: none"> Developed the FFY 2020 UPWP Conducted outreach to municipalities and other stakeholders in the region through MAPC subregional meetings, digital communications, and conversations with agencies to develop study ideas for the UPWP Conducted outreach to advocacy and policy groups and interested citizens to gauge needs and collect study ideas for the FFY 2020 UPWP and beyond Discussed UPWP matters with Advisory Council, including development of study ideas for the UPWP and education about the UPWP products and process Maintained the UPWP Study Recommendations Tracking Database, gaining significant data on implementation status of previous UPWP recommendations through outreach to municipalities, MassDOT, and RTAs 	\$81,240	\$34,810	\$116,050	Activities generally remain the same year to year, with staff supporting the MPO in producing its annual (FFY 2020) UPWP. A special emphasis for FFY 2020 work will be targeted outreach to transportation equity populations
Transportation Equity Program	8520	\$149,790	<ul style="list-style-type: none"> Developed a Disparate Impact and Disproportionate Burden Policy for use in the LRTP <i>Destination 2040</i>, and accompanying memo Provided annual Title VI update to MassDOT/FHWA. Prepared the Coordinated Public Transit-Human Services Transportation Plan for the MPO region Supported the MPO's public participation program in outreach to and engagement with Title VI, EJ, and other nondiscrimination populations Provided technical support to the LRTP, TIP, and MPO-guided studies Convened an internal staff-based Transportation Equity Analysis Committee in support of updating existing and developing new equity-related analytical techniques Coordinated with other agencies to support external programs that target people who identify as minority, have limited English proficiency, are 75 years of age or older, have a disability, or who are members of low-income households 	\$120,300	\$51,550	\$171,850	<p>Activities generally remain the same year to year</p> <p>New activities will include preparing and submitting the FFY 2020 MPO Title VI triennial report to MassDOT/FTA/FHWA</p>

(Table 3-1 cont.)

Project Name	ID	FFY 2019 Total Funding	FFY 2019 Work Progress and Products	FFY 2020 PL Funding	FFY 2020 \$5303 Funding	FFY 2020 Total Funding	FFY 2020 Planned Work Progress and Products
CMP	2120	\$91,540	<ul style="list-style-type: none"> Memorandum summarizing the analysis of vehicle and bicycle parking at MBTA stations A database that contains vehicle parking and bicycle parking information for each MBTA station Memorandum detailing the new performance metrics and criteria for the CMP Nontraditional congestion dashboard 	\$78,450	\$33,610	\$112,060	<ul style="list-style-type: none"> Continue working with CMP committee to complete relevant CMP work Support to development of <i>Destination 2040</i> New activities TBD
Freight Planning Support	2220	\$56,370	<ul style="list-style-type: none"> Memorandum: Boston Region MPO Freight Planning Action Plan Update Memorandum: Trucks in the Rutherford Avenue Corridor Ongoing stakeholder outreach, notably to truck safety working groups Ongoing data collection and model improvement efforts Ongoing freight-related support to the LRTP, TIP, and MPO-guided studies 	\$56,730	\$-	\$56,730	<ul style="list-style-type: none"> Research memorandum on a specific topic Ongoing stakeholder outreach, notably truck safety working groups Ongoing data collection and model improvement efforts Ongoing freight-related support to the LRTP, TIP, and MPO-guided studies
Regional Model Enhancement	7120	\$795,760	<ul style="list-style-type: none"> Maintained and enhanced the regional travel demand model Development of the ABM; this task involved data development and involved extensive processing of the 2011 Massachusetts Travel Survey to create variables for model structures Improved Regional Travel Demand Model to support significantly different operating scenarios. To aid in analyzing the regional rail system, the regional travel demand model was improved to make it more sensitive to different operational scenarios 	\$579,360	\$248,290	\$827,650	<ul style="list-style-type: none"> Maintain and enhance the regional travel demand model Continue work on the ABM. This phase involves model estimation and component testing Incorporate TNCs, such as Uber and Lyft, into the regional travel demand model and planning process Develop a hierarchical zone system (Super Zones). To reduce run times, TAZs in areas farther away from the MPO area will be combined Test other travel modeling methods. Investigate other modeling tools in the public domain that could be useful in project analysis and certification work
Transit Committee Support	8920	n/a	n/a	\$32,650	\$13,980	\$46,630	<ul style="list-style-type: none"> Provide operations support to the committee Provide updates and briefings on MPO activities Host approximately four to six meetings and manage supporting logistics

3C = continuing, cooperative, and comprehensive. ABM = Activity Based Model. CATA = Cape Ann Transportation Authority. CMAQ = Congestion Management and Air Quality. CMP = Congestion Management Process. CTPS = Central Transportation Planning Staff. EJ = Environmental Justice. FFY = Federal Fiscal Year. FHWA = Federal Highway Administration. FTA = Federal Transit Administration. LAP = Language Assistance Plan. LRTP = Long-Range Transportation Plan. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. MWRTA = MetroWest Regional Transit Authority. n/a = not applicable. PBPP = Performance-Based Planning and Programming. PL = Planning. RTA = Regional Transportation Authority. SIP = State Implementation Plan. TAZ = Traffic Analysis Zone. TBD = To be determined. TIP = Transportation Improvement Program. TNC = Transportation Network Company. UPWP = Unified Planning Work Program.

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
- Advisory Council Support
- Public Participation Process
- General Graphics
- Provision of Materials in Accessible Formats
- Professional Development

The other programs that support the 3C planning and programming activities are described in Chapter 4 under Technical Analysis and Support.

Support to the MPO and Its Committees

Project ID Number	9120
FHWA 3C PL Funds	\$152,740
FTA Section 5303 Funds	\$65,460
FFY 2020 Total Budget	\$218,200

FFY = Federal fiscal year. FHWA = Federal Highway Administration. FTA = Federal Transit Administration. MassDOT = Massachusetts Department of Transportation. PL Funds = Public Law Funds (also known as Metropolitan Planning Funds).

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 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 2020 Anticipated Outcomes

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

Regional Transportation Advisory Council Support

Project ID Number	9320
FHWA 3C PL Funds	\$31,190
FTA Section 5303 Funds	\$13,360
FFY 2020 Total Budget	\$44,550

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

Purpose and Approach

The Regional Transportation Advisory Council (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 facilitate meetings; attending and making presentations at meetings; organizing and conducting field trips; soliciting new members; implementing and updating the bylaws; coordinating other activities, such as Advisory Council elections; and maintaining contact lists.

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

FFY 2020 Anticipated Outcomes

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

Public Participation Process

Project ID Number	9606
FHWA 3C PL Funds	\$110,180
FTA Section 5303 Funds	\$47,220
FFY 2020 Total Budget	\$157,400

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

Purpose

Public participation is one of the six core functions of an MPO. The Boston Region MPO's vision for public participation in the region is "to hear, value, and consider—throughout its planning and programming work—the views of and feedback from the full spectrum of the public, and use this input in its decision making." The MPO's Public Participation Process supports the MPO's commitment to include and engage the people of the Boston region in transportation planning.

Staff makes a concerted effort to reach organizations that serve populations covered by federal regulations (referred to here as transportation equity [TE] populations) and their clients. These populations include people who are protected by federal mandates—people who identify as minority, have limited English proficiency (LEP), are 75 years old or older or 17 years old or younger, or have a disability; or are members of low-income households—as well as members of transit-dependent households, which are of interest to the MPO from an equity standpoint. Staff coordinates public participation efforts with the Transportation Equity Program to ensure that people from these populations have meaningful opportunities to participate in the MPO's planning process.

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 Advisory Council.

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, newsletters, and other digital tools 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 the following:

- MPO meetings
- Advisory Council meetings
- Subregional municipal group/coordination meetings
- Stakeholder organizations meetings
- Open houses to publicize certain MPO efforts
- Electronic surveys and solicitation of comments and input
- Partnering with other organizations on their events
- Efforts to reach TE populations and other potentially underrepresented populations

Program Administration

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

The MPO's Public Participation Process also involves consultations as specified in federal guidance, providing required American Sign Language and non-English language interpretation services at MPO-sponsored meetings and translations of MPO materials into non-English languages.

FFY 2020 Anticipated Outcomes

- Deliver MPO communications
- Conduct engagement opportunities with municipalities and the public
- Update MPO website as needed
- Publish *TransReport* articles
- Develop printed communication materials

General Graphics

Project ID Number	9220
FHWA 3C PL Funds	\$61,210
FTA Section 5303 Funds	\$26,230
FFY 2020 Total Budget	\$87,440

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.

Provision of Materials in Accessible Formats

Project ID Number	3120
FHWA 3C PL Funds	\$74,040
FTA Section 5303 Funds	\$31,730
FFY 2020 Total Budget	\$105,770

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. Adherence to these policies and regulations enhance public outreach and engagement because more stakeholders in the region can access MPO informational materials and reports.

Approach

In support of these standards, the MPO produces written and electronic materials in accessible formats. The MPO also maintains a library of document templates that incorporate accessibility guidelines and standards.

FFY 2020 Anticipated Outcomes

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

Professional Development

Project ID Number	9520
FHWA 3C PL Funds	\$21,329
FTA Section 5303 Funds	\$7,667
FFY 2020 Total Budget	\$28,996

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 nonprofit organizations. Previous professional development endeavors have related to topics such as performance-based planning, traffic engineering issues and applications, regional modeling, bicycle/pedestrian issues, transit planning, public involvement, environmental justice, air quality, computer operations and maintenance, database applications, and other areas related to the provision of technical support services.

FFY 2020 Anticipated Outcomes

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

3C PLANNING AND OTHER CERTIFICATION REQUIREMENT ACTIVITIES

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:

- LRTP
- TIP
- Performance-Based Planning and Programming (PBPP)
- Air Quality Conformity Determinations and Support
- UPWP
- Transportation Equity Program
- CMP
- Freight Planning Support
- Regional Model Enhancement

Long-Range Transportation Plan

Project ID Number	8120
FHWA 3C PL Funds	\$231,650
FTA Section 5303 Funds	\$99,270
FFY 2020 Total Budget	\$330,920

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, *Destination 2040*, in July 2019. This LRTP serves as the Boston Region MPO’s guiding document: it establishes regional goals and objectives that the MPO will use for future decision making until September 30, 2023.

Although the latest quadrennial LRTP document was endorsed in FFY 2019, the MPO's 3C planning process—including its long-range planning activities—is ongoing. The MPO's robust LRTP development program helps meet Moving Ahead for Progress in the 21st Century Act (MAP-21) and FAST Act requirements, which include keeping abreast of current state-of-the-practice planning tools and approaches and coordinating planning efforts with other regional and state transportation plans and programs. This program also supports scenario planning to generate data for decision making.

Approach

LRTP Needs Assessment

The Needs Assessment has become a foundational resource for the MPO's transportation planning work. In FFY 2019, staff updated the Needs Assessment for use in developing *Destination 2040*; it is available to the public via the Needs Assessment document and application on the MPO's website. In FFY 2020, staff will continue to update the Needs Assessment with new information as it becomes available. Staff will also perform further analyses to keep the Needs Assessment current and will use this information for future studies, reports, and deliberations. The updated information will also be made available to the public via the website. Data from the Needs Assessment will support two of the MPO initiatives: the MPO's scenario planning activities and its performance-based planning practice.

In FFY 2020, the MPO will use the output from the Needs Assessment to develop and analyze land use and transportation options and scenarios. The MPO will use this information to monitor performance measures, set MPO performance targets, evaluate progress toward them, and track other indicators of interest.

The LRTP and Scenario Planning in FFY 2020

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

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

Laying the Groundwork for the Next LRTP

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

The LRTP program plays an important role in keeping the MPO abreast of current state-of-the-practice communications methods, planning tools, and approaches. In collaboration with MAPC, the MPO staff will explore effective ways to gather information, understand the needs of the Boston region, and analyze transportation and land use options. As part of FFY 2020 work activities, staff will research the best practices in metropolitan transportation planning and other facets of planning.

LRTP Amendments

If any changes are made to regionally significant projects in the FFYs 2021–25 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 2020 Anticipated Outcomes

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

Transportation Improvement Program

Project ID Number	8220
FHWA 3C PL Funds	\$183,870
FTA Section 5303 Funds	\$78,790
FFY 2020 Total Budget	\$262,660

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

Purpose

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

Approach

Development of the FFYs 2021–25 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 of previously scored unprogrammed projects (as needed); proposes programming of current and new projects based on anticipated funding levels; supports the MPO in its decision making about programming those funds; develops a draft document; and facilitates public review of the draft document before the MPO endorses the final TIP.

Outreach and Compilation of the Universe of Projects

MPO staff communicates with the cities and towns in the region through TIP workshops, MAPC sub-regional meetings with municipalities, and correspondence with municipal TIP contacts and 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 the programming of transportation projects in the region by establishing a transparent, inclusive, and data-driven process through which funds are allocated.

In coordination with the development and endorsement of the next LRTP, *Destination 2040*, staff will examine the TIP evaluation criteria and revise them as needed to continue to align the TIP process 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 project evaluation ratings and project-readiness information. Staff then develops programming 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 Massachusetts Bay Transportation Authority (MBTA), the Cape Ann Transportation Authority (CATA), and the MetroWest Regional Transit Authority (MWRTA) 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 MPO website.

Staff will prepare for the possibility of implementing several amendments and/or administrative modifications to the FFYs 2020–24 TIP during FFY 2020.

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: www.ctps.org/tip.

Implementing PBPP

The FFYs 2021–25 TIP document will continue to report on the MPO's implementation of its PBPP. The TIP will highlight the results of monitoring trends in the region and will note any progress made toward established performance targets.

FFY 2020 Anticipated Outcomes

- Develop the FFYs 2021–25 TIP, amendments, and administrative modifications to the FFYs 2020–24 TIP
- Continue to explore enhancements to the TIP interactive database
- Continue efforts related to PBPP, including tracking performance measures and setting targets
- 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 pinpoint areas for targeted outreach to municipalities

Performance-Based Planning and Programming

Project ID Number	8820
FHWA 3C PL Funds	\$99,430
FTA Section 5303 Funds	\$42,610
FFY 2020 Total Budget	\$142,040

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

Purpose

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

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

MAP-21 and its successor, FAST Act, direct states, public transportation providers, and MPOs to use this performance-driven, outcome-based approach in their transportation planning processes. The Boston Region MPO can also use PBPP practices to help achieve its 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 FFYs 2018 and 2019, the MPO established or updated performance targets for several sets of federally required performance areas, including but not limited to roadway safety, National Highway System (NHS) bridge and pavement condition, NHS reliability, and transit asset management.

In FFY 2020, staff will support the MPO in continuing to meet federal requirements for PBPP, and will monitor and report on performance. Staff will also support the MPO in expanding and enhancing its PBPP practices, including further integrating PBPP into LRTP and TIP development.

Develop Targets for Federally Required Performance Measures

In FFY 2020, staff will continue to provide information and recommendations to the MPO as it sets or updates 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 Massachusetts Department of Transportation (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 prior work to include PBPP elements into LRTP and TIP processes. In FFY 2020, 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 will also 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 2020, 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 that MPO investments may have on performance. This work likely will involve updating the structure of existing performance reports, such as the one in the TIP, or relevant elements of the Performance Dashboard, or creating new reports. 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. During FFY 2020, staff will also update its federally required Congestion Mitigation and Air Quality Improvement program (CMAQ) plan, as applicable, and will produce other performance documentation as needed.

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 that its PBPP program addresses federal requirements and recommendations. In FFY 2020, staff will continue to research other measures—beyond those that are federally required—that the MPO may wish to monitor. This work will be coordinated with the TIP update and other performance-related activities that will take place in FFY 2020. Staff will also

explore the PBPP practices used by other planning agencies and institutions. Staff will make recommendations to the MPO about 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 2020 Anticipated Outcomes

- Support the MPO in setting targets for federally required measures and other measures, as requested. Analyze data and prepare related presentations, memoranda, and other supporting documents and materials
- Prepare an updated CMAQ performance plan, as applicable, and other PBPP documents, as needed
- Produce or update performance reports, such as the report in the TIP, and tools, such as the MPO's Performance Dashboard
- Work with fellow staff, the MPO, and other stakeholders to more closely link MPO investment processes to performance outcomes. Produce memoranda and presentations describing 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

Air Quality Conformity and Support Activities

Project ID Number	8420
FHWA 3C PL Funds	\$21,890
FTA Section 5303 Funds	\$9,370
FFY 2020 Total Budget	\$31,260

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

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

The Boston Region MPO area previously had been classified as a nonattainment area for ozone, but it was reclassified as an attainment area under the new 2008 ozone standard. Because the reclassification resulted from a new standard, a maintenance plan was not required, and the

area was not classified as a maintenance area. A maintenance area is an area that had been reclassified from nonattainment to attainment. It is an area for which a maintenance plan has been approved as part of the Massachusetts SIP.

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

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

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

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

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

Other Air Quality Support

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

FFY 2020 Anticipated Outcomes

Conformity Determinations

Perform and present conformity determinations as noted below. These include a detailed analysis of air quality impacts (VOC, NO_x, CO, and carbon dioxide) of the projects in the FFYs 2021–25 TIP, *Destination 2040* LRTP amendments, if required, and any work required for implementing GreenDOT (the state's comprehensive environmental responsibility and sustainability policy).

- Prepare a systemwide conformity determination for the *Destination 2040* LRTP amendments 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 CMP, 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 the following:

- 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
- Provide data and recommendations to MPO agencies regarding funding and the implementation of transportation programs and projects with air quality benefits

Unified Planning Work Program

Project ID Number	8320
FHWA 3C PL Funds	\$81,240
FTA Section 5303 Funds	\$34,810
FFY 2020 Total Budget	\$116,050

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:

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

The UPWP document includes descriptions and budgets for work that MPO staff will conduct during the upcoming federal fiscal year, including 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 approximately one-third of the Boston region's allotment of 3C funding. The UPWP's Appendix A 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. 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 public throughout the process. Some of the public outreach activities for the UPWP are covered under the Public Participation Process; in FFY 2020, staff plans to expand UPWP outreach targeted at TE populations.

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 LRTP; 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 regularly update the database, informing the Boston Region MPO about the status of recommendations from its planning studies.

FFY 2020 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 UPWP subcommittee
- Report quarterly FFY 2020 UPWP implementation
- Complete amendments and administrative modifications to the FFY 2020 UPWP, as necessary
- Continue to maintain and update the UPWP Study Recommendations Tracking Database
- Provide other informational materials as needed

Transportation Equity Program

Project ID Number	8520
FHWA 3C PL Funds	\$120,300
FTA Section 5303 Funds	\$51,550
FFY 2020 Total Budget	\$171,850

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

Purpose

The objective of the 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, EO 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations,” and the 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 people with 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

Complying with Title VI, EJ, and Nondiscrimination Requirements and Preparing the MPO Triennial Title VI Report

The MPO will continue to implement its Title VI program and respond to any requests made by MassDOT regarding changes to the program. MPO staff will also prepare and submit the triennial Title VI report to MassDOT as requested by the FTA and FHWA. The report

documents the MPO's compliance with Title VI, EJ, and other nondiscrimination 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 triennial reporting for Title VI and EJ are identified as such and the results reported separately. The triennial report will also include updates to the MPO's Language Assistance Plan, which guides the MPO's efforts to ensure that activities are accessible to people with LEP.

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

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 Program. 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 nondiscrimination regulations. This will include assisting in the establishment of equity performance measures, supporting the development and implementation of equity-related evaluation criteria for projects programmed in the TIP, 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 fully into the MPO's activities 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 conducted with other tools. These processes will directly support the improvement of analyses conducted for the LRTP, TIP, and UPWP.

Coordinating with and Supporting Other Agencies

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

FFY 2020 Anticipated Outcomes

- Prepare and submit the MPO's triennial Title VI report, documenting compliance with FTA's Title VI and EJ programs, and FHWA's Title VI/EJ/Nondiscrimination programs 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 MassDOT's evaluations of funding applications for the Community Transit Grant Program
- 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

Congestion Management Process

Project ID Number	2120
FHWA 3C PL Funds	\$78,450
FTA Section 5303 Funds	\$33,610
FFY 2020 Total Budget	\$112,060

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
- Identify 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 2020 Anticipated Outcomes

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

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

Freight-Planning Support

Project ID Number	2220
FHWA 3C PL Funds	\$56,730
FTA Section 5303 Funds	\$-
FFY 2020 Total Budget	\$56,730

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

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

Approach

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

The freight program supports the MPO's freight planning needs. In 2017, the MPO was required to recommend a set of Critical Urban Freight Corridors (CUFC) for inclusion in the National Highway Freight Network. As part of this effort, MPO staff identified several truck hot spots where the CUFCs connected with poorly operating limited-access highways. These truck hot spots include the following locations:

- Sullivan Square and the Rutherford Avenue Corridor
- The Allston interchange and its connections to arterials crossing the Charles River
- The Southeast Expressway at Interchange 18, serving three industrial areas

Truck traffic serves as a lens through which other freight modes can be studied. The South Boston Waterfront was one of the initial action plan topics, and a comprehensive gate survey of trucks entering and leaving Massport's Conley Container Terminal in South Boston provided a clear geographical picture of merchandise freight travel markets served through the port of Boston. The new action plan envisions using similar analyses to understand airfreight and intermodal rail travel markets.

The topics mentioned above may be addressed in some manner over the next several years. For FFY 2020, the Southeast Expressway bottleneck at Interchange 18 may be studied first because the location is complicated by a number of traffic, regulatory, and land use issues. Outreach and MPO support activities will continue as opportunities and needs are identified. Model development activities may accelerate because truck data development and study of possible model improvement approaches during the initial action plan have placed the MPO in a good position to make progress in this challenging area.

FFY 2020 Anticipated Outcomes

MPO staff will move beyond the 2013 action plan. Anticipated efforts include:

- Publish a study, possibly of a CUFC hot spot or one or more intermodal terminals
- Serve on interagency working groups, likely involving truck rest areas
- Conduct required MPO freight planning
- Provide data and analysis in support of advanced model implementation

Regional Model Enhancement

Project ID Number	7120
FHWA 3C PL Funds	\$579,360
FTA Section 5303 Funds	\$248,290
FFY 2020 Total Budget	\$827,650

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 travel-demand 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 plans to pursue the activities listed below to enhance staff's technical analysis capabilities.

Maintain and Enhance the Regional Travel-Demand Model

Maintain the regional model in good working order to address certification and project needs. In addition, the model set updates regularly so it can continue to be used for MPO- and agency-funded projects. Enhancements include the following:

- a) Upgrade to the latest modeling software and testing compatibility with in-house model code/script
- b) Develop future land use scenarios for use as model inputs. In addition, maintain the model's existing and projected land use files, reflecting the latest construction and permit activities in the Boston region

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 affecting travel decisions.

The first phase of this task involved data development, was mostly completed during FFY 2018–19, and involved extensive processing of the 2011 Massachusetts Travel Survey to create variables for model structures. The second phase of the ABM development project planned for FFY 2020 involves model estimation and component testing.

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

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' effect on taxi service, the MBTA, and private auto modes is difficult. In the coming year, 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. CTPS will work toward incorporating this travel mode into the regional travel model and planning process.

Develop a Hierarchical Zone System (Super Zones)

Currently, the statewide travel model has more than 5,800 transportation analysis zones (TAZ), covering 448 communities in Massachusetts, Rhode Island, and New Hampshire. This level of detail is needed for accurate statewide analysis of vehicle-miles/hours traveled and for the preparation of accurate mobile emissions; however, having more zones increases model run times and is not necessary for analyzing projects within the Boston Region MPO area. To reduce run times, a hierarchical zone system will be created by combining TAZs in areas farther away from the MPO area according to community boundaries, thereby creating "Super Zones," while maintaining the current, detailed TAZ system within the MPO area and adjacent communities. The enhanced regional model's user interface and reporting capabilities will be modified to work with this new system and provide users with options regarding when and how to use it.

Test Other Travel Modeling Methods

This task will investigate other modeling tools in the public domain that could be useful in project analysis and certification work. Of particular interest is the Simplified Trips-on-Project Software (STOPS) model developed by the FTA, which can be used to examine transit service area changes and/or transit operation changes. CTPS will investigate further the potential for

STOPS project application in the Boston Region MPO area. In addition, there may be other tools to explore and evaluate that address specific needs related to certification activities or project evaluations.

FFY 2020 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 the development of the complementary activity based model, and respond to requests for data and modeling support from MPO staff, member agencies, and partner organizations.

Transit Committee Support

Project ID Number	8920
FHWA 3C PL Funds	\$32,650
FTA Section 5303 Funds	\$13,980
FFY 2020 Total Budget	\$46,630

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

Purpose

This budget item would fund the staff resources required to establish and support a transit committee, which would have one representative that would vote on the MPO board.

Approach

Staff will continue work it began in FFY 2019 to establish a transit committee. The creation of this committee will provide representation for the region's Regional Transit Authorities (MWRTA and CATA) on the MPO board and support coordination and dialogue with Boston region transit providers, particularly regarding MPO activities.

In addition to establishing the committee, MPO staff will provide operations support to this body. Support may include any of the following:

- Planning programs and meetings
- Scheduling speakers
- Preparing and distributing agendas, meeting notices, informational packets, and meeting minutes
- Facilitating meetings
- Attending and presenting at meetings
- Soliciting new members
- Implementing and updating the bylaws
- Coordinating other activities, such as Transit Committee elections
- Maintaining contact lists

MPO staff will regularly provide information, updates, and briefings on MPO activities, studies, and reports; request and coordinate comments on MPO documents; and support the Transit Committee for planning, reviews, and other activities.

FFY 2020 Anticipated Outcomes

Host approximately four to six meetings, perform associated tasks, and manage pre- and post-meeting logistics.



CHAPTER 4

BOSTON REGION MPO PLANNING STUDIES AND TECHNICAL ANALYSES

INTRODUCTION

As described in Chapter 2, each federal fiscal year (FFY), the Boston Region Metropolitan Planning Organization (MPO) receives federal transportation planning funds from the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). Combined with the local Massachusetts Department of Transportation (MassDOT) matching amount, these funds form the budget that allows the MPO staff—Central Transportation Planning Staff (CTPS)—to accomplish the certification requirement activities described in Chapter 3; the planning studies and technical analyses described in this chapter; and the administrative tasks and data management described in Chapter 6.

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

- **Completed:** Completed studies are either already complete or expected to be completed by October 1, 2019, when the FFY 2020 UPWP goes into effect. Table 4-1 (MPO-funded studies) provides a summary of these studies, their funding sources and amounts, and their work products or activities.
- **Continuing or Carried Over:** Continuing studies were originally funded in FFY 2019 or earlier, and will continue into FFY 2020. 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 4-2 provides a summary of the salary and overhead costs, status (percent complete by the end of FFY 2019), and completed and planned work products for planning studies started in a previous FFY and continued into FFY 2020.

- **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 3), planning studies and technical analyses (Chapter 4), agency-funded contracts (Chapter 5), and administration, resource management, and support activities (Chapter 6). Tables containing summaries of the funding and progress for these ongoing programs are included at the beginning of the relevant chapters. Table 4-3 summarizes the salary and overhead costs in FFY 2019 and FFY 2020, as well as the completed and planned work products, for ongoing MPO technical assistance and transportation planning support work to municipalities throughout the region (also see Technical Analysis and Support, 4-26).
- **New Discrete Studies.** New discrete studies are selected through the MPO's UPWP committee and public outreach process for funding as one-time studies in a given FFY. Some of these studies are funded on a predictable schedule and are known as recurring studies. Table 4-4 contains a summary of the new discrete studies for FFY 2020.

In addition, the Metropolitan Area Planning Council (MAPC), an MPO member agency, conducts planning studies and technical assistance throughout the region under four ongoing work programs each FFY (see MAPC Planning Studies and Technical Analyses, 4-34).

The project descriptions throughout this chapter describe new transportation planning studies chosen for funding in FFY 2020. They provide detailed updates for the FFY 2020 funding and work products for the MPO's and MAPC's ongoing programs.

Some titles of these products and activities may change as they are finalized. All certification documents and many other work products are, or will be, available for download from the MPO website (www.bostonmpo.org). Work products not found on the MPO website may be requested by contacting CTPS at 857.702.3500 (voice), 617.570.9193 (TTY), or ctps@ctps.org (email). MAPC work products may be found at www.mapc.org.

**Table 4-1
Completed MPO-Funded Transportation Planning Studies, FFY 2018–19**

Project Name	ID	FFY 2019 Budgeted PL Funding	FFY 2019 Budgeted \$5303 Funding	FFY 2019 Budgeted Total Funding	Work Products (reports, technical memoranda, and other work products or activities)
FFY 2019 Studies					
<i>Land Use, Environment, and Economy</i>					
Reverse Commute Areas Analysis	14359	\$45,050	\$19,950	\$65,000	Report summarizing the magnitude of reverse commuting in the Boston region and, in selected case study locations, the challenges and opportunities for improving multimodal reverse commute options
Transportation Access Studies of Commercial Business Districts	14360	\$58,910	\$26,090	\$85,000	Report summarizing the transportation access modes of customers in selected business districts, the customer access modes perceived by businesses in the same districts, and how access modes may be related to characteristics of the districts
<i>Multi-Modal Mobility</i>					
The Future of the Curb	14361	\$24,260	\$10,740	\$35,000	Report summarizing current examples of repurposing the curbside lane, applications to the Boston region, and potential future demands for the curb
Updates to Express Highway Volumes Charts	13291	\$58,910	\$26,090	\$85,000	<ul style="list-style-type: none"> • Static graphic representations of highway volumes • Dynamic interactive online tool representing highway volumes • Technical memorandum explaining the process used to create the visual representations and various considerations
<i>Other Technical Support</i>					
MPO Staff-Generated Research Topics	20903	\$13,900	\$6,210	\$20,110	Research memo on ferry service in the Boston region
FFY 2018 Studies					
<i>Active Transportation</i>					
Bicycle LOS Metric	13281	\$2,377	\$1,003	\$3,380	Final report and presentation to the MPO
<i>Land Use, Environment, and Economy</i>					
Transportation Mitigation of Major Developments	13282	\$2,152	\$908	\$3,060	Final report and presentation to the MPO

(Table 4-1 cont.)

Project Name	ID	FFY 2019 Budgeted PL Funding	FFY 2019 Budgeted §5303 Funding	FFY 2019 Budgeted Total Funding	Work Products (reports, technical memoranda, and other work products or activities)
<i>Multi-Modal Mobility</i>					
Travel Alternatives to Regional Traffic Bottlenecks	13285	\$2,117	\$893	\$3,010	Final report and presentation to the MPO
Safety and Operations at Selected Intersections FFY 2018	13283	\$2,454	\$1,036	\$3,490	Final report and presentation to the MPO
Addressing Safety, Mobility, and Access on Subregional Priority Corridors FFY 2018	13286	\$2,342	\$988	\$3,330	Final report and presentation to the MPO
Addressing Priority Corridors from the LRTP Needs Assessment FFY 2018	13287	\$2,532	\$1,068	\$3,600	Final report and presentation to the MPO

FFY = Federal Fiscal Year. LOS = Level of Service. LRTP = Long-Range Transportation Plan. MPO = Metropolitan Planning Organization. PL = Planning.

**Table 4-2
Discrete Boston Region MPO Planning Studies and Technical Analyses Continued into FFY 2020**

Project Name	ID	Previous Total Funding	Percent Complete by end of FFY 2019	FFY 2019 Work Products and Progress	FFY 2020 PL Funding	FFY 2020 §5303 Funding	FFY 2020 Total Funding	FFY 2020 Planned Work Products and Progress
FFY 2019								
<i>Active Transportation</i>								
Pedestrian Report Card Assessment Dashboard	13292	\$65,000	90%	Draft Report and Web Dashboard	\$6,090	\$2,610	\$8,700	Final Report and Presentation to MPO
<i>Multi-Modal Mobility</i>								
New and Emerging Metrics for Roadway Usage	13290	\$60,000	90%	Draft Report	\$4,010	\$1,710	\$5,720	Final Report and Presentation to MPO
Addressing Safety, Mobility, and Access on Subregional Priority Roadways FFY 2019	13419	\$120,000	95%	Draft Report	\$5,060	\$2,160	\$7,220	Final Report and Presentation to MPO
Addressing Priority Corridors from the LRTP Needs Assessment FFY 2019	13519	\$120,000	95%	Draft Report	\$5,350	\$2,280	\$7,630	Final Report and Presentation to MPO
Low-Cost Improvements to Express Highway Bottleneck Locations FFY 2019	13619	\$60,000	95%	Draft Report	\$7,420	\$-	\$7,420	Final Report and Presentation to MPO

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

**Table 4-3
Ongoing Boston Region MPO Technical Analyses, FFY 2019–20**

Project Name	ID	FFY 2019 Total Funding	FFY 2019 Work Products and Progress	FFY 2020 PL Funding	FFY 2020 §5303 Funding	FFY 2020 Total Funding	FFY 2020 Planned Work Products and Progress
CTPS Activities							
Community Transportation Technical Assistance Program*	2420	\$73,250	<ul style="list-style-type: none"> Acton: Provided sensitivity analysis related to the town’s park-and-ride commuter rail lot Essex: Provided assistance evaluating a school bus route Hingham: Provided a review of a pilot road diet study proposed by CTPS 	\$51,340	\$21,990	\$73,330	Continue to support communities seeking transportation technical assistance
Bicycle and Pedestrian Support Activities	2520	\$65,440	<ul style="list-style-type: none"> 2018–2019 bicycle and pedestrian counts Maintained 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 Wrote memorandum summarizing 2018–2019 bicycle and pedestrian counts Updated the status of gaps identified in the 2014 Bicycle Network Evaluation and identified gaps that currently affect the safety and comfort of bicycling in the Boston region at both urban and suburban levels 	\$50,270	\$21,540	\$71,810	<ul style="list-style-type: none"> Review potential bicycle and pedestrian improvements to ready project recommendations for compliance with the Healthy Transportation Directive Coordinate with state, regional, and local agencies; municipalities; advocacy groups; and other stakeholders regarding bicycle and pedestrian planning for the region 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, LandLine Network, and Emerald Network, where applicable Consider development of future possible strategic bicycle and pedestrian safety plans Coordinate regional efforts to coincide with the vision and goals outlined in the Massachusetts Bicycle and Pedestrian Statewide Transportation Plans

(Table 4-3 cont.)

Project Name	ID	FFY 2019 Total Funding	FFY 2019 Work Products and Progress	FFY 2020 PL Funding	FFY 2020 \$5303 Funding	FFY 2020 Total Funding	FFY 2020 Planned Work Products and Progress
Regional Transit Service Planning Technical Support	14342	\$45,810	<ul style="list-style-type: none"> Updated memorandum about bus priority feasibility near Alewife Station for the Town of Arlington and City of Cambridge Recommended strategies for improving Mission Hill Link service efficiency Recommend alternatives for improving transit connections between the city of Peabody and the MBTA commuter rail station in Salem 	\$-	\$56,470	\$56,470	Continue support to communities seeking transit service planning technical assistance
Transit Data Support	4220	\$15,350	Responded to data request needs	\$-	\$11,170	\$11,170	Continue to respond to data request needs
Traffic Data Support	2720	\$15,180	Responded to data request needs	\$10,740	\$4,600	\$15,340	Continue to respond to data request needs
Roadway Safety Audits	2320	\$14,640	Provided support to MassDOT for safety audits conducted in the Boston Region MPO area.	\$14,920	\$-	\$14,920	Tasks and work products generally remain the same from year to year
MAPC Activities							
Corridor/Subarea Planning Studies	MAPC 4	\$165,480	<ul style="list-style-type: none"> Support for implementation of North Shore Mobility Study focused on reverse commute shuttle bus from Beverly Depot Station to office parks in Beverly and Danvers Support for TRIC Mobility Study to identify transit and active transportation improvements for Route I and IA corridors Framingham Downtown Parking Management plan Manchester By the Sea Downtown Parking Management plan Coordination and convening of municipalities to implement recommendations of water transportation study 	\$116,663	\$70,523	\$187,186	<ul style="list-style-type: none"> Continue to support local parking management planning and multimodal corridors Allston West Station area report
Land Use Development Project Reviews	MAPC 5	\$88,820	<p>Technical memoranda regarding major development and transportation projects in the Boston region:</p> <ul style="list-style-type: none"> I-90 Allston Interchange Suffolk Downs Redevelopment in East Boston Union Square Redevelopment in Somerville Assembly Square Redevelopment in Somerville Hood Plant Redevelopment in Charlestown 	\$59,400	\$29,420	\$88,820	Technical memos with transportation recommendations for development projects and large transportation infrastructure projects with a land use component.

(Table 4-3 cont.)

Project Name	ID	FFY 2019 Total Funding	FFY 2019 Work Products and Progress	FFY 2020 PL Funding	FFY 2020 §5303 Funding	FFY 2020 Total Funding	FFY 2020 Planned Work Products and Progress
MetroCommon x 2050	MAPC 6	\$90,000	MetroCommon Regional Plan for smart growth and regional prosperity, including extensive stakeholder outreach and public engagement	\$64,400	\$30,600	\$95,000	MetroCommon Implementation Plan
Alternative-Mode Planning and Coordination	MAPC 7	\$256,272	<ul style="list-style-type: none"> • Analysis of Transportation Network Company trips from varying data sources • Support for MAGIC subregion seeking an automated transit dispatching technology through an RFI and RFP process to create a microtransit pilot to help fill gaps in transit services • Support for Bluebike bikeshare system, Lime dockless bikeshare system, and support for coordinated regulation of electric scooters • LandLine regional active trail mapping update and detailed plans in East Boston, Malden, and Norwood • Bicycle and pedestrian planning support for Norwell and Duxbury. 	\$128,136	\$66,577	\$194,713	<ul style="list-style-type: none"> • Continue to research the potential impact of ride hailing and autonomous vehicle technology on the region • Improved bicycle-sharing efforts and other micro-mobility in the region • Advancement of the LandLine trail network • Subregional mobility plans that use dynamic ride dispatching and sharing technology
Community Transportation Technical Assistance Program*	MAPC 8	\$50,000	<ul style="list-style-type: none"> • Boston: Analysis of parking use along Brighton Avenue in Allston and Warren Street in Roxbury • Somerville: Analysis of parking use along Broadway and Holland Street • Bedford: Support for incorporating art and safety elements into Narrow Gauge Rail Trail • Support for off-street residential parking program in Revere 	\$25,000	\$23,156	\$48,156	Continue to support local technical assistance requests

*This program shared between MAPC and CTPS.

CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. MAGIC = Minuteman Advisory Group on Interlocal Coordination. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. PL = Planning. RFI = Request for Information. RFP = Request for Proposal.

**Table 4-4
UPWP Budget—MPO New Discrete Studies, FFY 2020**

Project ID	Study or Program	CTPS PL Funds	CTPS §5303 Funds	Proposed FFY 2020 CTPS Budget
13293	Locations with High Bicycle and Pedestrian Crash Rates in the Boston Region MPO Area	\$49,000	\$21,000	\$70,000
13420	Addressing Safety, Mobility, and Access on Subregional Priority Roadways	\$80,500	\$34,500	\$115,000
13520	Addressing Priority Corridors from the LRTP Needs Assessment	\$84,000	\$36,000	\$120,000
13720	Safety and Operations Analysis at Selected Intersections	\$56,000	\$24,000	\$80,000
13294	TIP Before and After Studies	\$42,000	\$18,000	\$60,000
13295	Transit Mitigation for New Development Sites	\$42,000	\$18,000	\$60,000
13296	Operating a Successful Shuttle Program	\$35,000	\$15,000	\$50,000
13297	Further Development of the MPO's Community Transportation Program	\$14,000	\$6,000	\$20,000
13298	Disparate Impact Metrics Analysis	\$28,000	\$12,000	\$40,000
13299	Exploring Resilience in MPO-Funded Corridor and Intersection Studies	\$63,000	\$27,000	\$90,000
20904	MPO Staff-Generated Research and Technical Assistance	\$28,000	\$12,000	\$40,000
Total for New Discrete and Ongoing Studies		\$521,500	\$223,500	\$745,000

NOTE: This information may be updated as the FFY 2020 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. TIP = Transportation Improvement Program. UPWP = Unified Planning Work Program.

PLANNING STUDIES

The project descriptions in this section describe the new studies chosen by the MPO for funding in FFY 2020. As described in Chapter 2 and Appendix B, CTPS gathers new study ideas each year and classifies them into the following categories: active transportation; land use, environment, and economy; multimodal mobility; transit; transportation equity; resilience; and other technical work. Each of the project descriptions on the following pages begins with a funding table that shows the project identification number, category, funding sources, and total budget.

Locations with High Bicycle/Pedestrian Crash Rates in the Boston Region MPO Area

Project ID Number	13293
Category	Active Transportation
FHWA 3C PL Funds	\$49,000
FTA Section 5303 Funds	\$21,000
FFY 2020 Total Budget	\$70,000

FFY = Federal fiscal year. FHWA = Federal Highway Administration. FTA = Federal Transit Administration. MassDOT = Massachusetts Department of Transportation. PL Funds = Public Law Funds (also known as Metropolitan Planning Funds).

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

Purpose

The purpose of this task is to report intersections that have a high presence of pedestrian crashes and recommend improvements to these intersections. This task relates to the Congestion Management Process (CMP) because it includes collecting performance data and outlines strategies to alleviate congestion and improve safety. This is a follow up to a study conducted through the CMP in 2010 and again in 2012.

Approach

MPO staff will select a number of intersections identified through one Highway Safety Improvement Program process using Equivalent Property Damage Only (EPDO) to rank the clusters. MPO staff will select only those clusters with the highest EPDO based on crashes that involved pedestrians between 2005 and 2014 for this study.

Once selected, MPO staff will visit every intersection to evaluate the safety and traffic operations of the intersections. The pedestrian report card assessment tool will be applied to each intersection to determine what improvements are applicable to each intersection.

FFY 2020 Anticipated Outcomes

MPO staff will write a memorandum to document findings, including a description of each intersection, and recommend improvements. This memorandum will be shared with municipalities to promote awareness and encourage implementation.

Addressing Safety, Mobility, and Access on Subregional Priority Roadways

Project ID Number	13420
Category	Multimodal Mobility
FHWA 3C PL Funds	\$80,500
FTA Section 5303 Funds	\$34,500
FFY 2020 Total Budget	\$115,000

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

Purpose

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

Approach

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

- Traffic signals (equipment, retiming, redesign, and coordination)
- Bus stop locations
- Processing buses through traffic lights
- Location and management of pedestrian crossings and signals
- Americans with Disabilities Act of 1990 requirements
- Travel-lane use by motorized and bicycle traffic
- Speed limit
- Access management

The improvement strategies will 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.

FFY 2020 Anticipated Outcomes

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

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

Project ID Number	13520
Category	Multimodal Mobility
FHWA 3C PL Funds	\$84,000
FTA Section 5303 Funds	\$36,000
FFY 2020 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 MPO's previous Long-Range Transportation Plan (LRTP), *Charting Progress to 2040*, or the LRTP that takes effect in 2019, *Destination 2040*. These studies include recommendations that address multimodal transportation needs that are expected to arise from potential future developments in the study area.

Approach

The 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 congestion¹ 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, and 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.

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

FFY 2020 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 CMP and the LRTP as 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.

Safety and Operations Analysis at Selected Intersections

Project ID Number	13720
Category	Multimodal Mobility
FHWA 3C PL Funds	\$56,000
FTA Section 5303 Funds	\$24,000
FFY 2020 Total Budget	\$80,000

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

Purpose

This project will examine mobility and safety issues at major intersections on the region's arterial highways. According to the MPO's crash database, many crashes occur at these locations, which also are congested during peak travel periods. While the resulting congestion may occur only at the intersections, it usually spills over to a few, adjacent intersections along an arterial. These intersections may also accommodate multiple transportation modes including buses, trucks, bicyclists, and pedestrians.

Approach

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

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

FFY 2020 Anticipated Outcomes

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

TIP Before and After Studies

Project ID Number	13294
Category	Multimodal Mobility
FHWA 3C PL Funds	\$42,000
FTA Section 5303 Funds	\$18,000
FFY 2020 Total Budget	\$60,000

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

Purpose

The purpose of this study is to identify the effectiveness of selected TIP projects and evaluate their anticipated improvements to safety, traffic flow, and other factors. Measuring project effectiveness is important in evaluating whether the employed strategies work well and are, therefore, suitable for application in similar situations.

Approach

Locations for study could be selected from the UPWP Study Recommendations Tracking or TIP databases. Selected study locations will have been constructed and operational for several years to allow users at each project location to become familiar with the operations and for user demand to normalize in the area.

To evaluate the effectiveness of a TIP project, “before” data and relevant measures of effectiveness will be gathered from relevant functional design reports and traffic studies. The “after” data will be collected in the field. The types of “before” and “after” data that will be collected and the associated performance measures that will be calculated depend on the type of project and improvements that are being assessed and also on the primary objective of the TIP project. Typically, for intersection improvement projects, intersection operations and safety will be evaluated using turning-movement counts, operational performance measures, and crash data. MPO staff will compare the two sets of data and draw conclusions on changes in performance.

FFY 2020 Anticipated Outcomes

This study will determine if certain improvement strategies work well and are, therefore, suitable to propose for other project locations in the Boston Region MPO area. The findings of the study will be documented in memoranda.

Transit Mitigation for New Development Sites

Project ID Number	13295
Category	Transit
FHWA 3C PL Funds	\$42,000
FTA Section 5303 Funds	\$18,000
FFY 2020 Total Budget	\$60,000

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

Purpose

Developers are often required to provide mitigation for increased traffic that will occur as a result of their development. Similar mitigation for increased transit ridership is starting to be explored in the MPO region. This study will explore transit mitigation methodologies from other regions and develop recommendations for transit mitigation in the MPO region. This study follows up on the FFY 2018 UPWP study “Transportation Mitigation of Major Developments,” which was presented to the MPO in December 2018 and can be found at <https://www.ctps.org/comparing-transportation-mitigation>.

Approach

MPO staff will work with MassDOT and the Massachusetts Bay Transportation Authority (MBTA) to understand the current transit mitigation methodology that they use and to identify areas for which staff research could be beneficial. MPO staff will review literature of transit mitigation methodologies in other regions, focusing on the topics identified as the most important and relevant to MassDOT and the MBTA. MPO staff may potentially study topics such as how to use transit mitigations to fund capital improvements, and how to assess the level of mitigation for capital improvements. MPO staff may also consider how to balance transit mitigation with the desire for development and growth around transit nodes.

FFY 2020 Anticipated Outcomes

This study will produce a report highlighting current examples of transit mitigation methodologies. The study will also evaluate which strategies are most promising for the MPO region.

Operating a Successful Shuttle Program

Project ID Number	13296
Category	Transit
FHWA 3C PL Funds	\$35,000
FTA Section 5303 Funds	\$15,000
FFY 2020 Total Budget	\$50,000

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

Purpose

MPO staff and other transportation planners have repeatedly heard significant feedback from stakeholders in the Boston region regarding ways to operate shuttle and other nontraditional transit programs successfully. There is demand for both first- and last-mile and workforce transportation solutions, but relatively few examples of programs available to meet that demand that have proven both successful and fiscally sustainable. The goal of this study is to develop a guide for operating a successful shuttle program in the MPO region that will inform agencies and organizations who are interested in starting such a program. The guide will also assist MPO staff in better responding to requests from agencies and organizations seeking analysis and planning assistance for shuttle programs.

Approach

MPO staff will review existing, successful, sustainable, and well-regarded shuttle programs in the MPO region and elsewhere to understand their development, operations, and financing, and the factors behind their success. Based on the findings of this review, MPO staff will develop a guide for developing a successful shuttle program in the MPO region. MPO staff will design this guide to inform agencies and organizations who are interested in starting shuttle programs about best practices, and will cover areas including operations, strategies for obtaining financial support, and coordination with public transit systems and the region's transportation network as a whole.

FFY 2020 Anticipated Outcomes

The product of this work will be a guide to assist agencies and organizations on how to develop, operate, and maintain a successful shuttle program in the MPO region.

Furthur Development of the MPO's Community Transportation Program

Project ID Number	13297
Category	Transit
FHWA 3C PL Funds	\$14,000
FTA Section 5303 Funds	\$6,000
FFY 2020 Total Budget	\$20,000

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

Purpose

MPO staff anticipate further efforts in FFY 2020 to administer, review, and develop the MPO's Community Transportation Program. The Community Transportation Program was first described in *Charting Progress to 2040* and further clarified through the FFY 2018 UPWP study "Community Transportation Program Development" and in *Destination 2040*. This budget line would allow MPO staff to continue developing and refining the program after its pilot round in FFY 2019.

Approach

MPO staff will administer the initial round of grants under the Community Transportation Program, to be awarded in FFY 2021; review the program structure and make modifications to the framework and evaluation criteria as necessary; attend outreach meetings and work with other agencies and stakeholders to learn needs and best practices; and deliver periodic progress reports to the MPO.

FFY 2020 Anticipated Outcomes

MPO staff members anticipate the following outcomes:

- Review of the first Community Transportation funding round
- Attendance at outreach and coordination meetings
- Modifications to the program framework, as necessary
- Reports to the MPO Board

Disparate Impact Metrics Analysis

Project ID Number	13298
Category	Transportation Equity
FHWA 3C PL Funds	\$28,000
FTA Section 5303 Funds	\$12,000
FFY 2020 Total Budget	\$40,000

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

Purpose

FTA and FHWA require MPOs to identify and address potential disproportionately high and adverse impacts on minority and low-income populations that may result from its investments, which are called disparate impacts and disproportionate burdens, respectively. This study would build off the work undertaken in the MPO's Transportation Equity program in FFY's 2018 and 2019 to develop a Disparate Impact and Disproportionate Burden (DI/DB) Policy for the LRTP program of projects. The policy determines whether implementation of the program of projects may cause potential future disparate impacts and disproportionate burdens.

In FFYs 2018 and 2019, MPO staff conducted the first phase of this work. This consisted of a public engagement process that included convening a stakeholder working group and a public workshop to get input on the content of the DI/DB Policy; quantifying the uncertainty in the MPO's travel demand modeling process that is used to identify potential disparate impacts and disproportionate burdens; and updating metrics that are part of the analysis. This work culminated in April 2019 with the completion of a draft DI/DB Policy that was used starting with *Destination 2040*, the MPO's next LRTP. This study will complete phase two of this effort by developing thresholds for each metric that indicate when an impact to a protected population would be significantly high and adverse. According to federal guidance, this is a critical component of a DI/DB policy. When this study is completed, the current draft DI/DB Policy will be updated to reflect the study's outcomes.

Approach

The study will evaluate the metrics that the MPO currently uses to assess the LRTP program of projects for disparate impacts and disproportionate burdens, which broadly fall into three categories: accessibility to opportunities, mobility, and environmental. Staff will conduct a literature review of how other MPOs analyze these metrics for disparate impacts and

disproportionate burdens, as well as a broader investigation into how much of a change in one of these metrics (for example, carbon monoxide [CO]) would adversely affect a population at a macro scale (the size of the MPO region).

Using the findings of the literature review, as well as results of testing potential thresholds on past DI/DB analysis results, staff will then develop thresholds for each metric. The thresholds will be based on how much of a change in the projected impact of each metric (such as an increase in CO emissions or in minutes of travel time) would adversely affect a given population. Therefore, each threshold will be used to indicate when the minority or low-income population would be projected to be more adversely affected by the LRTP program of projects than the nonminority or non-low-income population. Finally, the staff will propose changes to the current draft DI/DB Policy that reflect the outcomes of this study. This will wrap up the MPO's development of the LRTP's DI/DB Policy.

FFY 2020 Anticipated Outcomes

Memo documenting the study process and resulting thresholds for each metric, as well as proposed updates to the MPO's LRTP DI/DB Policy.

Exploring Resilience in MPO-Funded Corridor and Intersection Studies

Project ID Number	13299
Category	Resilience
FHWA 3C PL Funds	\$63,000
FTA Section 5303 Funds	\$27,000
FFY 2020 Total Budget	\$90,000

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

Purpose

Climate change and resiliency are a growing challenge and addressing these issues is a statewide priority that will become more important in the coming years. The goal of this study would be to increase MPO staff familiarity with this topic to provide assistance to municipalities seeking to combat extreme weather, flooding, and other climate-related challenges. This familiarity with resiliency relating to transportation infrastructure can then be incorporated into MPO discrete studies, recurring studies, and technical assistance.

Approach

MPO staff will research resiliency practices that already exist and that other entities have applied to studies and projects. Part of this research may include interviewing other local and state entities to determine what practices are already available and implemented. MPO staff will then determine what resiliency practices are both useful and practical, and can be included in MPO studies.

FFY 2020 Anticipated Outcomes

A study that will increase MPO staff familiarity of climate change and resiliency practices to enhance future MPO studies and projects.

MPO Staff-Generated Research and Technical Assistance

Project ID Number	20904
Category	Other
FHWA 3C PL Funds	\$28,000
FTA Section 5303 Funds	\$12,000
FFY 2020 Total Budget	\$40,000

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 that staff members have expressed interest in, and that are not covered by an ongoing UPWP or discrete project.

This program was funded for the first time in FFY 2016, when the work undertaken consisted of investigating the possibility of using driver license acquisition rates obtained through Registry of Motor Vehicles data as a possible measure of transit dependence. In FFY 2017, MPO staff members completed research projects including an examination of crash rates in 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.

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

Approach

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

FFY 2020 Anticipated Outcomes

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

TECHNICAL ANALYSIS AND SUPPORT

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

Transit Data Support

Project ID Number	4220
FHWA 3C PL Funds	\$-
FTA Section 5303 Funds	\$11,170
FFY 2020 Total Budget	\$11,170

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 these data to interested parties throughout the FFY.

FFY 2020 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.

Traffic Data Support

Project ID Number	2720
FHWA 3C PL Funds	\$10,740
FTA Section 5303 Funds	\$4,600
FFY 2020 Total Budget	\$15,340

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 FFY.

Approach

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

FFY 2020 Anticipated Outcomes

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

Roadway Safety Audits

Project ID Number	2320
FHWA 3C PL Funds	\$14,920
FTA Section 5303 Funds	\$-
FFY 2020 Total Budget	\$14,920

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 2020 Anticipated Outcomes

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

Bicycle/Pedestrian Support Activities

Project ID Number	2520
FHWA 3C PL Funds	\$50,270
FTA Section 5303 Funds	\$21,540
FFY 2020 Total Budget	\$71,810

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

Purpose

MPO staff supports both 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 FFY, 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 2020 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, LivableStreets, 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 effects 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, LandLine Network, and Emerald Network, where applicable
- Consider development of future possible strategic bicycle and pedestrian safety plans
- Coordinate regional efforts to coincide with the vision and goals outlined in the Massachusetts Bicycle and Pedestrian Statewide Transportation Plans

Regional Transit Service Planning Technical Support

Project ID Number	14342
FHWA 3C PL Funds	\$-
FTA Section 5303 Funds	\$56,470
FFY 2020 Total Budget	\$56,470

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

Purpose

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

Approach

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

FFY 2020 Anticipated Outcomes

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

Community Transportation Technical Assistance Program

Project ID Number	2420, MAPC8
FHWA 3C PL Funds	(CTPS) \$51,340 (MAPC) \$25,000
FTA Section 5303 Funds	(CTPS) \$21,990 (MAPC) \$23,156
FFY 2020 Total Budget	(CTPS) \$73,330 (MAPC) \$48,156

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, 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 2020 Anticipated Outcomes

In early FFY 2020, MPO staff will solicit town municipal technical assistance requests. The number of technical assistance cases will depend on the funding amount, and MAPC and CTPS will coordinate and collaborate on a case-by-case basis. Depending on the complexity of the specific technical assistance requests from municipalities, CTPS and MAPC typically undertake three to four projects each FFY. MPO staff will document the work, recommendations, and outcomes of these consultations in the form of technical memoranda.

MAPC PLANNING STUDIES AND TECHNICAL ANALYSES

MAPC conducts transportation planning studies through four ongoing programs: Corridor/Subarea Planning Studies, Alternative Mode Planning and Coordination, MetroCommon x 2050, and Land Use Development Project Reviews. During each FFY, work that was started in previous FFYs is continued through these ongoing programs and new work is planned and undertaken.

Corridor/Subarea Planning Studies

Project ID Number	MAPC4
FHWA 3C PL Funds	\$116,663
FTA Section 5303 Funds	\$70,523
FFY 2020 Total Budget	\$187,186

Note: The 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 subarea 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/Subarea Multimodal Transportation Planning (\$85,000)

MAPC will work in one or 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.

Allston West Station Area Planning (\$42,186)

MAPC will examine opportunities to maximize existing and future nonautomotive travel within and through the proposed new Allston I-90 Interchange area, to and from major population and employment nodes in Boston, Cambridge, Brookline, and throughout the region. More specifically, the study will examine the type and sequencing of transit services and capital improvements that achieve the highest nonautomotive mode share for the trips that will be generated by future growth in Beacon Yards as well as Harvard University, Kendall Square, Boston University, the Longwood Medical Area, and potentially other areas of Boston, Cambridge, and Brookline. Based on different development scenarios for Beacon Park Yards and projected growth estimates for nearby population and employment centers, the study will evaluate the accessibility benefits, utility, and transit ridership potential of varied transit alternatives.

FFY 2020 Anticipated Outcomes

- Activities and expected work products related to Local Parking Management Plans include parking use data collection, analysis of data, and recommendations to municipalities in the form of a report with pricing and parking management solutions.
- Activities and expected work products related to Corridor/Subarea Multimodal 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 Allston West Station area planning include conceptual transit services and infrastructure recommendations, as well as active transportation facilities, which improve accessibility and best achieve sustainable transportation goals under different land use scenarios. Identification of land use policies that will support sustainable transportation goals.

Alternative-Mode Planning and Coordination

Project ID Number	MAPC7
FHWA 3C PL Funds	\$128,136
FTA Section 5303 Funds	\$66,577
FFY 2020 Total Budget	\$194,713

Note: The 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 transportation network companies (TNC), 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 (\$19,713)

MAPC will further the regional and municipal understanding of the potential future effects 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 abreast of how federal agencies and other states and municipalities are regulating TNCs and preparing for AV/CV technologies.

Suburban Mobility and Technology (\$40,000)

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 and Micro-mobility Support (\$35,000)

MAPC will continue to support municipalities in the region to implement bicycle-sharing programs, including analyzing data to understand trip patterns. MAPC will also support municipalities, MassDOT, MBTA, DCR, and other agencies in the safe deployment of micro-mobility devices such as electric scooters.

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

MAPC will continue to work with MassDOT, CTPS, DCR, Executive Office of Energy and Environmental Affairs, municipalities, and trail organizations to 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 2020 Anticipated Outcomes

Anticipated outcomes include the following:

- Data collection, research, and analysis to support completed bicycle and pedestrian plans in selected municipalities
- Technical support for bicycle and pedestrian improvements
- Support for regional trail and greenway development
- Support for bicycle-sharing programs
- Regulatory framework for safe deployment of micro-mobility devices
- Research and recommendations to support first- and last-mile connections
- Research to understand potential transportation and land use effects of AV/CV technologies in long-range planning efforts

MetroCommon x 2050

Project ID Number	MAPC6
FHWA 3C PL Funds	\$64,400
FTA Section 5303 Funds	\$30,600
FFY 2020 Total Budget	\$95,000

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

Purpose

This UPWP study area will continue to support the update of MetroFuture, the Boston region’s 30-year comprehensive plan (through the year 2030) for sustainable growth and development. The new plan will be called MetroCommon 2050 and will have two plan horizons, 2030 and 2050. MAPC began the update in the fall of 2018 (and the planning for the update in 2017). During the winter of 2018/2019, MAPC began Phase 1, which is updating the vision and goals for the region. Phase 2 will focus on the strategic challenges and opportunities of the plan and Phase 3 is scenario planning, where MAPC will test various scenarios for the future of the region. Phase 4 is recommendation selection and Phase 5 is pulling it all together and launching MetroCommon 2050.

Approach

This area of work is accomplished through the following subtasks:

Creating MetroCommon x 2050

MAPC has just launched the planning process for creating its next comprehensive regional plan. Mobility will be a significant component of the plan. Changing demographics and location preferences, planned investments in public transportation and emerging transportation technologies will have a profound influence on the Boston region in the decades ahead. 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, Regional, and State Decisions that Enable Livable Communities and Sustainable Transportation

MAPC will continue to work with municipal and state officials and residents to seek changes in land use that will support livable communities and sustainable transportation. This will include engaging the public in planning and dialogue that enhances equitable transit-oriented development planning, and influences other decision making to improve development outcomes, transportation opportunities, and reduction of greenhouse gas emissions. As part of the plan update, MAPC will convene an external advisory committee on mobility, as well as regional discussions about challenges and opportunities in making long-term improvements to the Boston region's transportation system. Task outputs are expected to include engaging at least 500 people in at least 10 different events or activities.

Research and Policy Development that Support Livable Communities and Sustainable Transportation

Best practices and state policy support sustainable land use planning, which include local and state practices from across the country, and 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 2020 Anticipated Outcomes

Anticipated outcomes include a stronger constituency for sustainable land use and transportation investments and programs; case studies or best practices for regional and local mobility; and recommendations for local, regional, and state actions.

Land Use Development Project Reviews

Project ID Number	MAPC5
FHWA 3C PL Funds	\$59,400
FTA Section 5303 Funds	\$29,420
FFY 2020 Total Budget	\$88,820

Note: The FTA match is 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 its sustainable land use and transportation goals, impacts on the transportation network and projects identified in the TIP and LRTP, and consistency with the MPO's livability goals.

Approach

MAPC tracks all projects reviewed in the region under the Massachusetts Environmental Policy Act (MEPA), and provides a regional-planning analysis to 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, parking regulations, and other travel demand management techniques. MAPC also will recommend appropriate mitigation measures. MAPC coordinates these reviews with MassDOT and the municipalities, and works with MassDOT to identify updated requirements to be included in the transportation impact assessments that must be conducted by developers.

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

FFY 2020 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 5

AGENCY AND OTHER CLIENT-FUNDED TRANSPORTATION PLANNING STUDIES AND TECHNICAL ANALYSES

INTRODUCTION

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

Some of the contracts described in this chapter are issued to the Central Transportation Planning Staff (CTPS) every year, and generally coincide with either the federal fiscal year (FFY) or the state fiscal year (SFY). Examples include the Massachusetts Department of Transportation (MassDOT) 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, or they can be contracts in which CTPS provides technical support to an agency for data collection and analysis that is undertaken annually, such as the Massachusetts Bay Transportation Authority's (MBTA) National Transit Database (NTD): Data Collection and Analysis contract.

The work conducted on behalf of the agencies includes data collection and analyses covering a broad range of topics, including travel-demand modeling, air quality, traffic engineering, Title VI, and environmental justice. The products of this work are vital to support compliance with federal and state regulations such as the Massachusetts Environmental Policy Act 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 and the MBTA.

Table 5-1
UPWP Budget—New and Continuing Agency Transportation Planning Studies and Technical Analyses for FFY 2020

Project ID	Name	Total Contract ^a	Funding Source	FFY 2020 Agency Funds	Direct Support	Proposed FFY 2020 CTPS Budget
Varies by Specific Project (97xxx)	MassDOT SPR Program Support ^b	\$600,000	SPR	\$295,500	\$6,000	\$301,500
Varies by Specific Project (8100x)	MassDOT On-Call	\$400,000	MassDOT	\$44,000	\$-	\$44,000
13156	MassDOT Title VI Program	\$70,000	MassDOT	\$35,000	\$-	\$35,000
Varies by Specific Project	MassDOT Transit Planning Assistance ^c	\$781,450	MassDOT 5303	\$89,832	\$6,000	\$95,832
MassDOT Subtotal				\$464,332	\$12,000	\$476,332
14356	MBTA SFY 2019 NTD	\$136,600	MBTA	\$5,800	\$-	\$5,800
14362	MBTA SFY 2020 NTD	\$143,400	MBTA	\$99,200	\$350	\$99,550
14366	MBTA SFY 2021 NTD	\$150,600	MBTA	\$38,700	\$150	\$38,850
11417	MBTA 2019 Title VI Program Monitoring	\$161,500	MBTA	\$20,000	\$-	\$20,000
11424	MBTA 2020 Triennial Title VI Report	\$180,000	MBTA	\$160,800	\$300	\$161,100
11422	MBTA Transit Service Data Collection	\$540,000	MBTA	\$166,000	\$125	\$166,125
14355	MBTA Rider Oversight Committee Support	\$24,500	MBTA	\$5,000	\$-	\$5,000

(Table 5-1 cont.)

Project ID	Name	Total Contract ^a	Funding Source	FFY 2020 Agency Funds	Direct Support	Proposed FFY 2020 CTPS Budget
11414	Support for MBTA Service Standards Development	\$50,000	MBTA	\$37,500	\$-	\$37,500
14358	Service Equity Analysis Support to MBTA	\$115,000	MBTA	\$48,000	\$-	\$48,000
14364	Fare Equity Analysis Support to the MBTA	\$10,000	MBTA	\$7,500	\$-	\$7,500
11415	AFC 2.0 Equity Analysis	\$77,000	MBTA	\$20,000	\$-	\$20,000
11491	MBTA Mapping Support	\$12,000	MBTA	\$3,000	\$-	\$3,000
74018	Diversity Posters	\$7,650	MBTA	\$3,000	\$-	\$3,000
MBTA Subtotal				\$614,500	\$925	\$615,425
23328	Weymouth Union Point	\$245,000	Other	\$50,000	\$-	\$50,000
TBD	MAPC Allston	\$10,000	Other	\$5,000	\$-	\$5,000
Other Subtotal				\$55,000	\$-	\$55,000
Agency-Funded and Client-Funded Subtotal				\$1,133,832	\$12,925	\$1,146,757

^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 July 1 through June 30. Therefore, the total FFY budgets in the UPWP represent a combination of funding from two different contract years. The total contract amount listed for the MassDOT SPR is the total contract amount for the 2019–20 contracts.

^c Includes project ID 22214, Rail Vision. The MassDOT Transit Planning Assistance Contract is also called the MassDOT Section 5303 Contract. During the course of this UPWP, this contract is transitioning from operating on an SFY basis to an FFY basis; the total contract amount listed for the MassDOT Transit Planning Assistance includes two months of the SFY 2018 contract and five months of the SFY 2019 contract, in addition to the full FFY 2020 contract.

AFC = Automated Fare Collection. CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. MBTA = Massachusetts Bay Transportation Authority. NTD = National Transit Database. SFY = State Fiscal Year. SPR = Statewide Planning and Research. TBD = to be determined. UPWP = Unified Planning Work Program.

MASSDOT

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

MassDOT Statewide Planning and Research Program Support

Project ID Number	Varies by Specific Project (97xxx)
Funding Source	SPR
Total Contract	\$600,000
FFY 2020 Total Budget	\$301,500

Purpose

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

Approach

CTPS will conduct studies and analyses, and provide technical assistance upon request. Projects that are either underway or expected to begin in FFY 2020 are listed below. (Other projects may be added throughout FFY 2020.)

- Green Line Corridor Study
- Road Inventory and Related Support Maintenance
- Statewide Travel Model Assistance
- Miscellaneous Technical Support

FFY 2020 Anticipated Outcomes

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

MassDOT Highway Division On-Call Modeling Support

Project ID Number	Varies by Specific Project (8100x)
Funding Source	MassDOT
Total Contract	\$400,000
FFY 2020 Total Budget	\$44,000

Purpose

The purpose of this on-call contract is to provide the MassDOT Highway Division with travel demand modeling and planning assistance throughout FFY 2020.

Approach

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

FFY 2020 Anticipated Outcomes

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

MassDOT Title VI Program

Project ID Number	13156
Funding Source	MassDOT
Total Contract	\$70,000
FFY 2020 Total Budget	\$35,000

Purpose

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

Approach

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

FFY 2020 Anticipated Outcomes

Staff will provide technical support to MassDOT as described above.

MassDOT Transit Planning Assistance

Project ID Number	Varies by Specific Project
Funding Source	MassDOT 5303
Total Contract	\$781,450
FFY 2020 Total Budget	\$95,832

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 FFY.

Approach

This assistance may include the following tasks:

- 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 2020 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.

Commuter Rail Vision Study Support

Project ID Number	22214
Funding Source	MassDOT 5303
Total Contract	Part of MassDOT Transit Planning Assistance
FFY 2020 Total Budget	\$4,520

Note: This project is part of the MassDOT Transit Planning Assistance contract and included in that total

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 use the regional travel demand model to support MassDOT and the MBTA's project team in its 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 2020 Anticipated Outcomes

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

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

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

MBTA NTD: Data Collection and Analysis

Project ID Number	(SFY 2019) 14356 (SFY 2020) 14362 (SFY 2021) 14366
Funding Source	MBTA
Total Contract*	(SFY 2019) \$136,600 (SFY 2020) \$143,400 (SFY 2021) \$150,600
FFY 2020 Total Budget	(SFY 2019) \$5,800 (SFY 2020) \$99,550 (SFY 2021) \$38,850

*Several different contract years are included in this work.

Purpose

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

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

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 ridechecks on contracted MBTA local bus routes with buses not equipped with automatic passenger counters (APC)
- MBTA APC data
- Passenger counts on APC-equipped buses and trackless trolleys to verify APC data
- Electronic passenger fare-mix counts from automated-fare-collection (AFC) faregates at heavy and light rail subway
- 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 2019 NTD estimates of passenger boardings and passenger miles for various transit modes to the FTA with the aid of CTPS during FFY 2020. In addition, the MBTA will submit its SFY 2020 NTD estimates of passenger boardings and passenger miles for various transit modes to the FTA with the aid of CTPS during FFY 2021. The final technical memorandum for the 2020 NTD will be completed in FFY 2021.

FFY 2020 Anticipated Outcomes

In FFY 2020, CTPS will complete the final technical memorandum for SFY 2019 NTD reporting and will continue data collection begun in FFY 2019 for SFY 2020. Field staff will conduct ridechecks for the trackless trolley and contracted local bus service portions of the SFY 2020 NTD reporting. For bus routes, staff will collect data on 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.

MBTA Title VI Program Monitoring

Project ID Number	11417 (MBTA 2019 Title VI Monitoring) 11424 (MBTA Triennial Title VI Report)
Funding Source	MBTA
Total Contract*	(11417) \$161,500 (11424) \$180,00
FFY 2020 Total Budget*	(11417) \$20,000 (11424) \$161,100

*Two different contract years are included in this work.

Purpose

Under this contract, CTPS provides the MBTA with technical assistance by collecting data on and assessing the level of service (LOS) provided in minority communities compared to nonminority areas to support the MBTA's compliance with Title VI requirements. In addition, the MBTA is required to submit a report to the FTA Office of Civil Rights every three years detailing the MBTA's efforts to comply with Title VI of the Civil Rights Act of 1964. CTPS will compile and produce the next triennial report for the MBTA in 2020 (project ID 11424).

Approach

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

- Service coverage
- Vehicle load
- Vehicle headway
- On-time performance
- Station conditions and amenities
- Distribution and operability of AFC faregates and fare vending machines
- Distribution of AFC retail sales terminals
- Station elevator and escalator locations and operability
- Vehicle age and condition

The data-collection and LOS-analysis activities will help to fulfill monitoring required as part of the MBTA's ongoing Title VI Program. The results of the analyses will be reported internally at the MBTA, and will be included in the triennial report.

In addition to conducting annual Title VI service monitoring, CTPS will produce the MBTA's 2020 Triennial Title VI Report for submission to the FTA. The triennial report will include the service equity analyses and fare equity analyses that were conducted for the MBTA in the preceding three years, demographic and service profile maps and charts, and the additional documentation needed to meet the MBTA's general reporting requirements.

FFY 2020 Anticipated Outcomes

CTPS will provide documentation about selected LOS evaluations for SFY 2019 MBTA revenue service and amenities, and staff will prepare the MBTA's 2020 Triennial Title VI Report.

MBTA Transit Service Data Collection

Project ID Number	11422
Funding Source	MBTA
Total Contract	\$540,000
FFY 2020 Total Budget	\$166,125

Purpose

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

Approach

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

FFY 2020 Anticipated Outcomes

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

MBTA Rider Oversight Committee Support

Project ID Number	I4355
Funding Source	MBTA
Total Contract	\$24,500
FFY 2020 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 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 2020 Anticipated Outcomes

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

Support for MBTA Service Standards Development

Project ID Number	11414
Funding Source	MBTA
Total Contract	\$50,000
FFY 2020 Total Budget	\$37,500

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 2020 Anticipated Outcomes

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

Service Equity Analysis Support to the MBTA

Project ID Number	I4358
Funding Source	MBTA
Total Contract	\$115,000
FFY 2020 Total Budget	\$48,000

Purpose

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

Approach

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

FFY 2020 Anticipated Outcomes

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

Fare Equity Analysis Support to the MBTA

Project ID Number	I4364
Funding Source	MBTA
Total Contract	\$10,000
FFY 2020 Total Budget	\$7,500

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 based on race, color, or national origin. CTPS will support the MBTA in conducting the required Title VI equity analyses for proposed fare changes during FFY 2020.

Approach

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

FFY 2020 Anticipated Outcomes

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

AFC 2.0 Equity Analysis

Project ID Number	11415
Funding Source	MBTA
Total Contract	\$77,000
FFY 2020 Total Budget	\$20,000

Purpose

The MBTA is developing a new all-electronic AFC system, known as AFC 2.0, for all MBTA service modes. With this system, direct payment of cash fares on vehicles would be eliminated and some riders would need to pay a fee for their fare media. The purpose of this study is to evaluate the distribution of fare vending machines and other fare media sales locations, the equity impacts of charging for a fare card, and a package of various fare structure changes that may be implemented with AFC 2.0.

Approach

Because riders will no longer be able to add value to their fare media using cash onboard a vehicle, riders who rely on cash may have to travel farther than they currently do to add value to their accounts at a fare vending machine or sales outlet. CTPS will gather relevant data and will analyze whether the distribution of fare vending machines and/or sales locations will serve to mitigate the impact of eliminating onboard cash payments.

Charging riders a fee for MBTA-provided fare cards (virtual or physical) is not specifically a fare increase, but it may disproportionately affect riders classified as low-income or minority riders and could create a barrier to accessing transit.

CTPS will gather relevant existing data and will determine the equity implications of the fee by using an FTA-approved methodology.

Lastly, AFC 2.0 brings with it a host of possible fare structure changes that may have equity implications. CTPS will analyze a selected set of fare structure changes to determine their combined equity impacts.

FFY 2020 Anticipated Outcomes

Title VI equity analyses of select components of the new MBTA fare system.

MBTA Mapping Support

Project ID Number	11491
Funding Source	MBTA
Total Contract	\$12,000
FFY 2020 Total Budget	\$3,000

Purpose

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

Approach

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

FFY 2020 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.

Diversity Posters

Project ID Number	74018
Funding Source	MBTA
Total Contract	\$7,650
FFY 2020 Total Budget	\$3,000

Purpose

The purpose of this contract is to design and produce posters and flyers to advertise MassDOT's diversity events.

Approach

During calendar year 2019, the CTPS Graphics Group will design and produce a series of diversity posters and flyers for the MassDOT diversity events consistent with the national diversity topic theme. The following topics are included in the series: Black History; Martin Luther King Jr. Day; Woman's History; Asian/Pacific Islander Heritage; Gay, Lesbian, Bisexual, and Transgender Pride; Disability Awareness; Hispanic Heritage; Native American History; and Veterans Day.

FFY 2020 Anticipated Outcomes

Posters and flyers for the remaining diversity celebrations in calendar year 2019: Disability Awareness, Veterans Day, and Native American History.

OTHER TECHNICAL SUPPORT WORK

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

Weymouth Union Point Technical Support

Project ID Number	23328
Funding Source	Other
Total Contract	\$245,000
FFY 2020 Total Budget	\$50,000

Purpose

Note: this item was originally programmed in the FFY 2018 UPWP, but much of the work is now planned for FFY 2020.

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 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 because 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 I is scheduled to be completed by 2022; 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 I 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 its 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 Long-Range Transportation Plan.
3. CTPS will perform a transit-crowding analysis for the Kingston/Plymouth commuter rail line.

FFY 2020 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.



CHAPTER 6

RESOURCE MANAGEMENT AND SUPPORT ACTIVITIES

INTRODUCTION

To support certification requirements and Metropolitan Planning Organization (MPO) studies, staff from both the Central Transportation Planning Staff (CTPS) and the Metropolitan Area Planning Council (MAPC) conduct various ongoing computer and data resource management activities 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) 2020 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 Direct Support.

Table 6-1 summarizes the funding assigned to each of the activities in this chapter that were also assigned in FFY 2019, a summary of the work products and/or progress made in FFY 2019, the funding proposed for each of these activities in FFY 2020, and the anticipated work products and/or progress in FFY 2020.

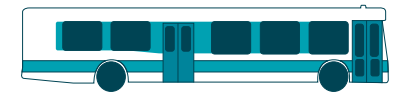
Although many of the activities in this chapter generally comprise the same type of tasks from year to year, often there are variations in budgets that reflect greater or lesser emphasis on certain efforts. For example, MPO staff may undertake new or additional data collection and/or analysis under specific 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.



**Table 6-1
CTPS Ongoing Resource Management and Support Activities, FFY 2019–20**

Project Name	ID	FFY 2019 Total Funding	FFY 2019 Work Products and Progress	FFY 2020 PL Funding	FFY 2020 §5303 Funding	FFY 2020 Total Funding	FFY 2020 Planned Work Progress and Products
CTPS Activities							
Computer Resource Management	Varies by Task	\$334,160	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.	\$228,220	\$97,780	\$326,000	Tasks and work products generally remain the same from year to year.
Data Resources Management	Varies by Task	\$284,900	<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>	\$196,120	\$84,000	\$280,120	Tasks and work products generally remain the same from year to year.
MAPC Activities							
MPO/MAPC Liaison and Support Activities	MAPC 1	\$167,000	<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.
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.
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.	\$66,051	\$28,949	\$95,000	Tasks and work products generally remain the same from year to year.

CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. GIS = Geographic Information Systems. MassDOT = Massachusetts Department of Transportation. MAPC = Metropolitan Area Planning Council. MPO = Metropolitan Planning Organization. PL = Planning. TIP = Transportation Improvement Program. UPWP = Unified Planning Work Program.



CTPS ACTIVITIES

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

Computer Resource Management

Project ID Number	See Individual Tasks Below
FHWA 3C PL Funds	\$228,220
FTA Section 5303 Funds	\$97,780
FFY 2020 Total Budget	\$326,000

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:

6220 System Administration and Computer Room Management

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

6420 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.

6520 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.

6620 Liaison with Other Agencies

Work with other public agencies, including MAPC and MassGIS, the Commonwealth's Bureau of Geographic Information, to encourage sharing of computer and data resources and techniques.

6720 Computing Resource Purchasing and Maintenance

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

6820 Computer Resource Planning

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

FFY 2020 Anticipated Outcomes

Work on these tasks will continue as described above.

Data Resources Management

Project ID Number	See Individual Tasks Below
FHWA 3C PL Funds	\$196,120
FTA Section 5303 Funds	\$84,000
FFY 2020 Total Budget	\$280,120

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:

5220 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.

5320, 5420 Response to Data Requests

CTPS will process or analyze data upon request to meet the needs of local, state, and federal agencies, and private institutions and firms. The 5320 project number is used for data requests handled by CTPS's Data Resources group; the 5420 number is used for data requests handled by all other groups.

5520 Geographic Information System/Database Management System (GIS/DBMS)

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

5620 Boston Region MPO Website

CTPS will continue to develop and maintain a website that provides information regarding the MPO's activities, reports, and studies produced by MPO staff, a data catalogue, and self-service data exploration applications. CTPS will continue to improve the site's design, content, and accessibility to those who are visually impaired. The website plays a critical role in the MPO's public participation program by providing information and eliciting public comment. CTPS posts all announcements on the website for MPO and Regional Transportation Advisory Council meetings and committee meetings, as well as their related materials.

FFY 2020 Anticipated Outcomes

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

Direct Support

Project ID Number	Varies
FHWA 3C PL Funds	\$52,000
FTA Section 5303 Funds	\$22,000
3C-Funded Work Direct Support Total	\$74,000
SPR Funds	\$6,000
MassDOT Section 5303 Funds	\$6,000
MassDOT Other Funds	\$0
MBTA Funds	\$925
Agency-Funded Work Direct Support Total	\$12,925

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 2020 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.

MAPC ACTIVITIES

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

MPO/MAPC Liaison and Support Activities

Project ID Number	MAPC I
FHWA 3C PL Funds	\$119,000
FTA Section 5303 Funds	\$48,000
FFY 2020 Total Budget	\$167,000

Note: The FTA match is provided by 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 continuous, comprehensive, and cooperative (3C) transportation planning process and engagement in regional transportation planning led by MassDOT, the Massachusetts Bay Transportation Authority (MBTA), and 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)

In addition to participating in the Boston Region MPO process, MAPC actively participates in and attends statewide and regional planning committees, task forces, working groups, and commissions to represent the interests of the region, with a particular focus on the critical links between land use and transportation. These committees include the Massachusetts Association of Regional Planning Agencies; Regional Coordination Councils; Global Warming Solutions Act Implementation Advisory Committee; MassDOT and MBTA board meetings; and 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 Boston region.

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.

Transportation Improvement Program (TIP) Evaluation and Criteria (\$20,000)

MAPC will work with CTPS to update the TIP scoring criteria and to advise CTPS about the land use and economic-development aspects of the TIP evaluations. MAPC will provide updated TIP criteria and help implement the comprehensive regional growth plan, MetroCommon. MAPC will 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 2020 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; Long-Range Transportation Plan (LRTP) scenarios; TIP criteria updates and project evaluations; and attendance at relevant meetings.

Unified Planning Work Program Support

Project ID Number	MAPC3
FHWA 3C PL Funds	\$7,000
FTA Section 5303 Funds	\$3,000
FFY 2020 Total Budget	\$10,000

Note: The FTA match is 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 2020 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.

Subregional Support Activities

Project ID Number	MAPC2
FHWA 3C PL Funds	\$139,000
FTA Section 5303 Funds	\$48,000
FFY 2020 Total Budget	\$187,000

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

Purpose

The Boston 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

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

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

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

FFY 2020 Anticipated Outcomes

Outcomes of this program include monthly meeting agendas for transportation topics at subregional meetings; coordination with transportation agencies; review of transportation studies in subregions; support to subregional and corridor advisory committee meetings; public input on MPO processes and certification documents; and the setting of subregional transportation priorities.

Land Use Data and Forecasts for Transportation Modeling

Project ID Number	MAPC10
FHWA 3C PL Funds	\$66,051
FTA Section 5303 Funds	\$28,949
FFY 2020 Total Budget	\$95,000

Note: The FTA match is provided by MAPC 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

Land Use Allocation Model Development

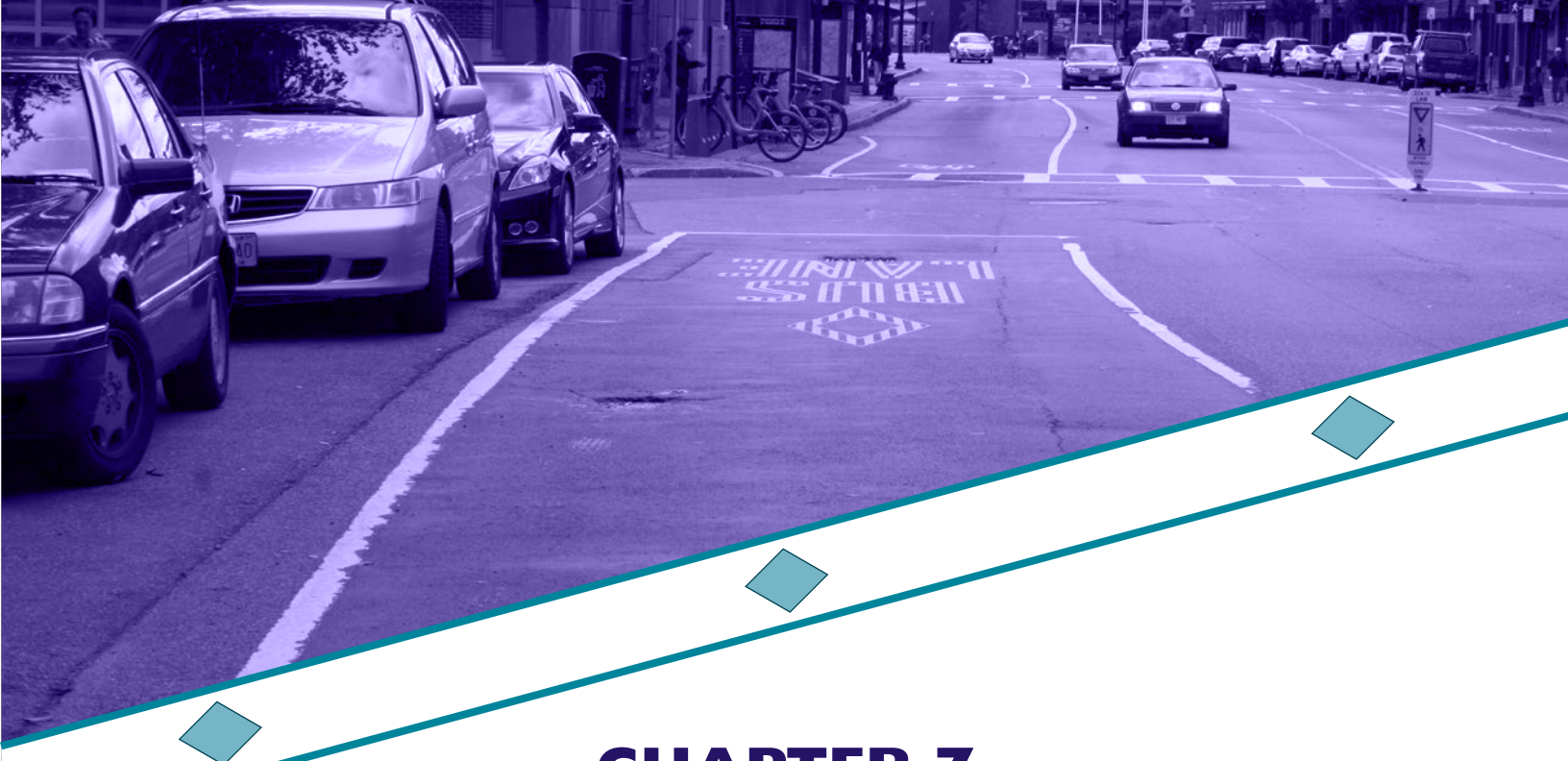
MAPC will focus on improvements to the land use allocation model to better assign population and employment forecasts at the transportation analysis zone level, based on changes to the transportation network. MAPC will use the model to support land use scenarios to be evaluated during development of MAPC's MetroCommon 2050 plan.

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 2020 Anticipated Outcomes

Anticipated outcomes include an improved land use allocation model; multiple land use alternatives for use in the MetroCommon process; updated development data and analysis; documentation; and mapping products to support advanced transportation modeling.



CHAPTER 7

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 3 through 6.

UPWP Work Areas	Total Budget
Certification Requirements	\$2,740,206
Continuing Metropolitan Planning Organization (MPO) Planning Studies and Technical Analyses	\$279,730
Metropolitan Area Planning Council (MAPC) Planning Studies and Technical Analyses	\$613,875
New MPO-Funded Discrete Studies	\$745,000
Agency and Other Client Planning Studies and Technical Support	\$1,146,757
Central Transportation Planning Staff (CTPS) Administration, Resource Management, and Support Activities	\$606,120
MAPC Resource Management and Support Activities	\$459,000
Direct Costs (3C)	\$74,000
Total	\$6,664,688

The funding for the projects, programs, and activities listed in Chapters 3 through 6 comes from the following sources, which are described in Chapter 2.

Funding Source	Total Programmed Funds
Federal Highway Administration (FHWA) continuing, comprehensive, and cooperative (3C) Planning (PL)/Massachusetts Department of Transportation (MassDOT) Local Match	\$3,813,949
MPO Federal Transit Administration (FTA) 3C PL (Section 5303)/MassDOT Local Match	\$1,355,757
MassDOT FTA 3C PL (Section 5303)/MassDOT Local Match	\$95,832
MAPC FTA 3C PL (Section 5303)/MassDOT Local Match	\$348,225
FHWA Statewide Planning and Research (SPR)/MassDOT Local Match	\$301,500
MassDOT	\$79,000
Massachusetts Bay Transportation Authority (MBTA)	\$615,425
Other	\$55,000
Total	\$6,664,688

The II tables on the following pages summarize the funding information presented in the preceding chapters: one for each UPWP category of work conducted by CTPS, one for each UPWP category of work conducted by 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 CTPS and MAPC expect to receive for federal fiscal year (FFY) 2020. CTPS has received its estimated FFY 2020 FHWA PL allocation of \$3,089,299. MAPC's FFY 2020 FHWA PL allocation is \$724,650. The total Boston region allocation of FTA Section 5303 funds is \$2,321,502. CTPS has received its estimated amount of FFY 2020 FTA Section 5303 allocation of \$1,355,757. MAPC's 2020 FTA Section 5303 allocation is \$348,225. 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 7-1
UPWP Budget—Certification Requirements for FFY 2020**

Project ID	Name	FFY 2019 CTPS UPWP Budget	Expected Project Status as of 10/1/2019	CTPS PL Funds	CTPS Section 5303 Funds	Proposed FFY 2020 CTPS Budget
9120	Support to the MPO and its Committees	\$234,640	Ongoing	\$152,740	\$65,460	\$218,200
9320	Regional Transportation Advisory Council Support	\$46,790	Ongoing	\$31,190	\$13,360	\$44,550
9620	Public Participation Process	\$181,720	Ongoing	\$110,180	\$47,220	\$157,400
9220	General Graphics	\$85,250	Ongoing	\$61,210	\$26,230	\$87,440
3120	Provision of Materials in Accessible Formats	\$102,050	Ongoing	\$74,040	\$31,730	\$105,770
9520	Professional Development	\$21,770	Ongoing	\$21,329	\$7,667	\$28,996
Support to the MPO Subtotal		\$672,220		\$450,689	\$191,667	\$642,356
8120	Long-Range Transportation Plan	\$362,290	Ongoing	\$231,650	\$99,270	\$330,920
8220	Transportation Improvement Program	\$244,190	Ongoing	\$183,870	\$78,790	\$262,660
8820	Performance-Based Planning and Programming	\$155,300	Ongoing	\$99,430	\$42,610	\$142,040
8420	Air Quality Conformity Determinations and Support	\$41,340	Ongoing	\$21,890	\$9,370	\$31,260
8320	Unified Planning Work Program	\$108,930	Ongoing	\$81,240	\$34,810	\$116,050
8520	Transportation Equity Program	\$149,790	Ongoing	\$120,300	\$51,550	\$171,850
2120	Congestion Management Process	\$91,540	Ongoing	\$78,450	\$33,610	\$112,060
2220	Freight Planning Support	\$56,370	Ongoing	\$56,730	\$-	\$56,730
7120	Regional Model Enhancement	\$795,760	Ongoing	\$579,360	\$248,290	\$827,650
8920	Transit Committee Support	n/a	Ongoing	\$32,650	\$13,980	\$46,630
90015	Federal Certification Review	\$29,690	Complete	n/a	n/a	\$-
3C Planning and Other Certification Requirements Activities Subtotal		\$2,035,200		\$1,485,570	\$612,280	\$2,097,850
Certification Requirements Subtotal		\$2,707,420		\$1,936,259	\$803,947	\$2,740,206

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

**Table 7-2
UPWP Budget—Ongoing and Continuing MPO Planning Studies and Technical Analyses for FFY 2020**

Project ID	Name	FFY 2019 CTPS UPWP Budget	Expected Project Status/ Completion as of 10/1/2019	CTPS PL Funds	CTPS Section 5303 Funds	Proposed FFY 2020 CTPS Budget
13290	New and Emerging Metrics for Roadway Usage	\$60,000	90%	\$4,010	\$1,710	\$5,720
13292	Pedestrian Report Card Assessment Dashboard	\$65,000	90%	\$6,090	\$2,610	\$8,700
13419	Addressing Safety, Mobility, and Access on Subregional Priority Roadways FFY 2019	\$120,000	95%	\$5,060	\$2,160	\$7,220
13519	Addressing Priority Corridors from the LRTP Needs Assessment FFY 2019	\$120,000	95%	\$5,350	\$2,280	\$7,630
13619	Low-Cost Improvements to Express Highway Bottlenecks FFY 2019	\$60,000	90%	\$7,420	\$-	\$7,420
Planning Studies Subtotal (Continuing FFY 2019 Initiated Work)		\$425,000		\$27,930	\$8,760	\$36,690
2320	Roadway Safety Audits	\$14,640	Ongoing	\$14,920	\$-	\$14,920
2720	Traffic Data Support	\$15,180	Ongoing	\$10,740	\$4,600	\$15,340
4220	Transit Data Support	\$15,350	Ongoing	\$-	\$11,170	\$11,170
2420	Community Transportation Technical Assistance	\$73,250	Ongoing	\$51,340	\$21,990	\$73,330
2520	Bicycle and Pedestrian Support Activities	\$65,440	Ongoing	\$50,270	\$21,540	\$71,810
4120	Regional Transit Service Planning Technical Support	\$45,810	Ongoing	\$-	\$56,470	\$56,470
Technical Analysis and Support Subtotal		\$229,670		\$127,270	\$115,770	\$243,040
MPO-Funded Planning Studies and Technical Analyses Subtotal		\$654,670		\$155,200	\$124,530	\$279,730

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 7-3
UPWP Budget—MPO New Discrete Studies for FFY 2020**

Universe ID	Project ID	Study or Program	CTPS PL Funds	CTPS Section 5303 Funds	Proposed FFY 2020 CTPS Budget
A-1	13293	Locations with High Bicycle and Pedestrian Crash Rates in the Boston Region MPO Area	\$49,000	\$21,000	\$70,000
M-2	13420	Addressing Safety, Mobility, and Access on Subregional Priority Roadways	\$80,500	\$34,500	\$115,000
M-3	13520	Addressing Priority Corridors from the LRTP Needs Assessment	\$84,000	\$36,000	\$120,000
M-4	13720	Safety and Operations Analysis at Selected Intersections	\$56,000	\$24,000	\$80,000
M-6	13294	TIP Before and After Studies	\$42,000	\$18,000	\$60,000
T-2	13295	Transit Mitigation for New Development Sites	\$42,000	\$18,000	\$60,000
T-3	13296	Operating a Successful Shuttle Program	\$35,000	\$15,000	\$50,000
T-4	13297	Further Development of the MPO's Community Transportation Program	\$14,000	\$6,000	\$20,000
E-1	13298	Disparate Impact Metrics Analysis	\$28,000	\$12,000	\$40,000
R-1	13299	Exploring Resilience in MPO-Funded Corridor and Intersection Studies	\$63,000	\$27,000	\$90,000
O-1	20904	MPO Staff-Generated Research and Technical Assistance	\$28,000	\$12,000	\$40,000
Total for New Discrete and Recurring Studies			\$521,500	\$223,500	\$745,000

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

**Table 7-4
UPWP Budget—New and Continuing Agency Transportation Planning Studies and Technical Analyses for FFY 2020**

Project ID	Name	Total Contract ^a	Funding Source	FFY 2020 Labor and Overhead	Direct Support	Proposed FFY 2020 CTPS Budget
Varies by Specific Project (97xxx)	MassDOT SPR Program Support ^b	\$600,000	SPR	\$295,500	\$6,000	\$301,500
Varies by Specific Project (8100x)	MassDOT On-Call	\$400,000	MassDOT	\$44,000	\$-	\$44,000
13156	MassDOT Title VI Program	\$70,000	MassDOT	\$35,000	\$-	\$35,000
Varies by Specific Project	MassDOT Transit Planning Assistance ^c	\$781,450	MassDOT 5303	\$89,832	\$6,000	\$95,832
MassDOT Subtotal				\$464,332	\$12,000	\$476,332
14356	MBTA SFY 2019 NTD	\$136,600	MBTA	\$5,800	\$-	\$5,800
14362	MBTA SFY 2020 NTD	\$143,400	MBTA	\$99,200	\$350	\$99,550
14366	MBTA SFY 2021 NTD	\$150,600	MBTA	\$38,700	\$150	\$38,850
11417	MBTA 2019 Title VI Program Monitoring	\$161,500	MBTA	\$20,000	\$-	\$20,000
11424	MBTA 2020 Triennial Title VI Report	\$180,000	MBTA	\$160,800	\$300	\$161,100
11422	MBTA Transit Service Data Collection	\$540,000	MBTA	\$166,000	\$125	\$166,125
14355	MBTA Rider Oversight Committee Support	\$24,500	MBTA	\$5,000	\$-	\$5,000
11414	Support for MBTA Service Standards Development	\$50,000	MBTA	\$37,500	\$-	\$37,500
14358	Service Equity Analysis Support to MBTA	\$115,000	MBTA	\$48,000	\$-	\$48,000
14364	Fare Equity Analysis Support to the MBTA	\$10,000	MBTA	\$7,500	\$-	\$7,500
11415	AFC 2.0 Equity Analysis	\$77,000	MBTA	\$20,000	\$-	\$20,000
11491	MBTA Mapping Support	\$12,000	MBTA	\$3,000	\$-	\$3,000
74018	Diversity Posters	\$7,650	MBTA	\$3,000	\$-	\$3,000

(Table 7-4 cont.)

Project ID	Name	Total Contract ^a	Funding Source	FFY 2020 Labor and Overhead	Direct Support	Proposed FFY 2020 CTPS Budget
MBTA Subtotal				\$614,500	\$925	\$615,425
23328	Weymouth Union Point	\$245,000	Other	\$50,000	\$-	\$50,000
TBD	MAPC Allston	\$10,000	Other	\$5,000	\$-	\$5,000
Other Subtotal				\$55,000	\$-	\$55,000
Agency-Funded and Client-Funded Subtotal				\$1,133,832	\$12,925	\$1,146,757

^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 July 1 through June 30. Therefore, the total FFY budgets in the UPWP represent a combination of funding from two different contract years. The total contract amount listed for the MassDOT SPR is the total contract amount for the 2019–20 contracts.

^c MassDOT Transit Planning Assistance includes project ID 22214, Rail Vision. The MassDOT Transit Planning Assistance Contract is also called the MassDOT Section 5303 Contract. During the course of this UPWP, this contract is transitioning from operating on an SFY basis to an FFY basis; the total contract amount listed for the MassDOT Transit Planning Assistance includes two months of the SFY 2018 contract and five months of the SFY 2019 contract, in addition to the full FFY 2020 contract.

AFC = Automated Fare Collection. CTPS = Central Transportation Planning Staff. FFY = Federal Fiscal Year. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. NTD = National Transit Database. SFY = State Fiscal Year. SPR = Statewide Planning and Research. UPWP = Unified Planning Work Program.

**Table 7-5
UPWP Budget—Resource Management and Support Activities for FFY 2020**

Project ID	Name	FFY 2019 CTPS UPWP Budget	Expected Project Status as of 10/1/2019	CTPS PL Funds	CTPS Section 5303 Funds	Proposed FFY 2020 CTPS Budget
6220	System Administration and Computer Room Management	\$103,020	Ongoing	\$71,970	\$30,840	\$102,810
6420	Software Development	\$11,480	Ongoing	\$5,630	\$2,410	\$8,040
6520	Staff Assistance and Training	\$61,510	Ongoing	\$42,580	\$18,240	\$60,820
6620	Liaison with Other Agencies	\$3,800	Ongoing	\$1,640	\$700	\$2,340
6720	Computing Resource Purchasing and Maintenance	\$109,540	Ongoing	\$73,430	\$31,470	\$104,900
6820	Computer Resource Planning	\$44,810	Ongoing	\$32,970	\$14,120	\$47,090
Computer Resource Management Subtotal		\$334,160		\$228,220	\$97,780	\$326,000
5220	Socioeconomic Data	\$32,740	Ongoing	\$24,480	\$10,480	\$34,960
5320	Response to Data Requests (Data Resources group)	\$4,510	Ongoing	\$520	\$210	\$730
5420	Response to Data Requests (Other groups)	\$15,390	Ongoing	\$7,430	\$3,180	\$10,610
5520	GIS/DBMS	\$157,570	Ongoing	\$109,020	\$46,710	\$155,730
5620	MPO Website	\$74,690	Ongoing	\$54,670	\$23,420	\$78,090
Data Resources Management Subtotal		\$284,900		\$196,120	\$84,000	\$280,120
Direct Support		\$72,000		\$52,000	\$22,000	\$74,000
Resource Management and Support Activities Subtotal*		\$619,060		\$424,340	\$181,780	\$606,120

*Does not include Direct Support

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

**Table 7-6
UPWP Budget—MAPC Planning Studies and Technical Analyses for FFY 2020**

Project ID	Name	FFY 2019 MAPC UPWP Budget	PL Funds	Section 5303 Funds	Proposed FFY 2020 MAPC Budget
MAPC 7	Alternative-Mode Planning and Coordination	\$194,713	\$128,136	\$66,577	\$194,713
MAPC 4	Corridor/Subarea Planning Studies	\$165,480	\$116,663	\$70,523	\$187,186
MAPC 8	Community Transportation Technical Assistance Program ^a	\$45,000	\$25,000	\$23,156	\$48,156
MAPC 5	Land Use Development Project Reviews	\$88,820	\$59,400	\$29,420	\$88,820
MAPC 6	MetroCommon x 2050	\$90,000	\$64,400	\$30,600	\$95,000
MAPC Planning Studies and Technical Analyses Subtotal		\$584,013	\$393,599	\$220,276	\$613,875

^aThis 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 7-7
UPWP Budget—MAPC Resource Management and Support Activities for FFY 2020**

Project ID	Name	FFY 2019 MAPC UPWP Budget	PL Funds	Section 5303 Funds	Proposed FFY 2020 MAPC Budget
MAPC 1	MPO/MAPC Liaison and Support Activities	\$167,000	\$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	\$66,051	\$28,949	\$95,000
MAPC Resource Management and Support Activities		\$451,451	\$331,051	\$127,949	\$459,000

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

**Table 7-8
UPWP Budget—Summary of FFY 2020 Budgets for CTPS**

3C Studies and Programs by Budget Categories	CTPS 3C PL Funds	CTPS Section 5303 Funds	Proposed FFY 2020 CTPS Budget
Resource management and support activities	\$424,340	\$181,780	\$606,120
MPO certification requirements	\$1,936,259	\$803,947	\$2,740,206
Continuing MPO-funded planning studies and technical analyses	\$155,200	\$124,530	\$279,730
New MPO-funded discrete studies	\$521,500	\$223,500	\$745,000
Direct support	\$52,000	\$22,000	\$74,000
Total for CTPS 3C Studies and Programs	\$3,089,299	\$1,355,757	\$4,445,056

Agency-Funded CTPS Work	Agency Funds	Direct Support	Proposed FFY 2020 CTPS Budget
MassDOT SPR Funds	\$295,500	\$6,000	\$301,500
MassDOT Section 5303 Funds	\$89,832	\$6,000	\$95,832
MassDOT Other Funds	\$79,000	\$-	\$79,000
MBTA Funds	\$614,500	\$925	\$615,425
Other	\$55,000	\$-	\$55,000
Total for Agency-Funded CTPS Project Work	\$1,133,832	\$12,925	\$1,146,757

Total FFY 2020 CTPS Budget (3C + Agency Work)	\$5,591,813
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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. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. PL = Planning. SPR = Statewide Planning and Research. UPWP = Unified Planning Work Program.

**Table 7-9
UPWP Budget—Summary of FFY 2020 Budgets for MAPC**

3C Studies and Programs by MAPC Budget Categories	MAPC 3C PL Funds	MAPC Section 5303 Funds	Proposed FFY 2020 MAPC Budget
MAPC Planning Studies and Technical Analyses	\$393,599	\$220,276	\$613,875
MAPC Administration, Resource Management, and Support Activities	\$331,051	\$127,949	\$459,000
Total MAPC FFY 2020 UPWP Programmed Funds	\$724,650	\$348,225	\$1,072,875

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

**Table 7-10
UPWP Budget—3C Budget and Overall Budget for FFY 2020**

Agency Supporting MPO/3C Work	3C PL Funds	Section 5303 Funds	Proposed FFY 2020 Budget
CTPS	\$3,089,299	\$1,355,757	\$4,445,056
MAPC	\$724,650	\$348,225	\$1,072,875
3C Budget Subtotal by Funding Program	\$3,813,949	\$1,703,982	\$5,517,931

Agency-Funded CTPS Work	\$1,146,757
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FFY 2020 UPWP Budget	\$6,664,688
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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.



**Table 7-11
Programmed FFY 2020 FTA Section 5303 Funding by Element and Task**

Projects by Element and Task		FFY 2020 UPWP Project ID	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		\$596,773	\$379,694	\$94,923	\$97,725	\$24,431	\$4,800	\$1,200
	Unified Planning Work Program	8320	\$34,810	\$27,848	\$6,962	\$-	\$-	\$-	\$-
	Unified Planning Work Program Support	MAPC 3	\$3,000	\$-	\$-	\$2,400	\$600	\$-	\$-
	Provision of Materials in Accessible Formats	3120	\$31,730	\$25,384	\$6,346	\$-	\$-	\$-	\$-
	Direct Support	varies	\$22,000	\$17,600	\$4,400	\$-	\$-	\$4,800	\$1,200
	Support to the MPO and its Committees	9120	\$65,460	\$52,368	\$13,092	\$-	\$-	\$-	\$-
	Professional Development	9520	\$7,667	\$6,134	\$1,533	\$-	\$-	\$-	\$-
	Regional Transportation Advisory Council Support	9320	\$13,360	\$10,688	\$2,672	\$-	\$-	\$-	\$-
	Public Participation Process	9620	\$47,220	\$37,776	\$9,444	\$-	\$-	\$-	\$-
	General Graphics	9220	\$26,230	\$20,984	\$5,246	\$-	\$-	\$-	\$-
	Transportation Equity Program	8520	\$51,550	\$41,240	\$10,310	\$-	\$-	\$-	\$-
	Transit Committee Support	8920	\$13,980	\$11,184	\$2,796	\$-	\$-	\$-	\$-
	Community Transportation Technical Assistance Program	2420, MAPC 8	\$45,146	\$17,592	\$4,398	\$18,525	\$4,631	\$-	\$-
	Bicycle and Pedestrian Support Activities	2520	\$21,540	\$17,232	\$4,308	\$-	\$-	\$-	\$-
	Regional Transit Service Planning Technical Support	4120	\$56,470	\$45,176	\$11,294	\$-	\$-	\$-	\$-
	Performance-Based Planning and Programming	8820	\$42,610	\$34,088	\$8,522	\$-	\$-	\$-	\$-
	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	\$-	\$-
	Further Development of the MPO's Community Transportation Program	13297	\$6,000	\$4,800	\$1,200	\$-	\$-	\$-	\$-
	Disparate Impact Metrics Analysis	13298	\$12,000	\$9,600	\$2,400	\$-	\$-	\$-	\$-

(Table 7-11 cont.)

			FTA Funding by Agency with Local Match						
Projects by Element and Task		FFY 2020 UPWP Project ID	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		\$284,439	\$156,376	\$39,094	\$71,175	\$17,794	\$-	\$-
	Computer Resource Management	varies	\$97,780	\$78,224	\$19,556	\$-	\$-	\$-	\$-
	Data Resource Management	varies	\$84,000	\$67,200	\$16,800	\$-	\$-	\$-	\$-
	Air Quality Conformity Determinations and Support	8420	\$9,370	\$7,496	\$1,874	\$-	\$-	\$-	\$-
	Land Use Development Project Reviews	MAPC 5	\$29,420	\$-	\$-	\$23,536	\$5,884	\$-	\$-
	Land Use Data to Support Transportation Modeling	MAPC 10	\$28,949	\$-	\$-	\$23,159	\$5,790	\$-	\$-
	MetroCommon x 2050	MAPC 6	\$30,600	\$-	\$-	\$24,480	\$6,120	\$-	\$-
	New and Emerging Metrics for Roadway Usage	13290	\$1,710	\$1,368	\$342	\$-	\$-	\$-	\$-
	Pedestrian Report Card Assessment Dashboard	13292	\$2,610	\$2,088	\$522	\$-	\$-	\$-	\$-
44.23.00	Long-Range Transportation Planning		\$716,210	\$463,288	\$115,822	\$109,680	\$27,420	\$-	\$-
23.01	Systems-Level Planning								
	Regional Model Enhancement	7120	\$248,290	\$198,632	\$49,658	\$-	\$-	\$-	\$-
	L RTP	8120	\$99,270	\$79,416	\$19,854	\$-	\$-	\$-	\$-
	Congestion Management Process	2120	\$33,610	\$26,888	\$6,722	\$-	\$-	\$-	\$-
23.02	Project-Level Planning								
	Addressing Safety, Mobility, and Access on Subregional Priority Roadways FFY 2020	13420	\$34,500	\$27,600	\$6,900	\$-	\$-	\$-	\$-
	Addressing Priority Corridors from the LRTP Needs Assessment FFY 2020	13520	\$36,000	\$28,800	\$7,200	\$-	\$-	\$-	\$-
	Safety and Operations Analysis at Selected Intersections FFY 2020	13720	\$24,000	\$19,200	\$4,800	\$-	\$-	\$-	\$-
	Locations with High Bicycle and Pedestrian Crash Rates in the Boston Region MPO Area	13293	\$21,000	\$16,800	\$4,200	\$-	\$-	\$-	\$-
	TIP Before and After Studies	13294	\$18,000	\$14,400	\$3,600	\$-	\$-	\$-	\$-

(Table 7-11 cont.)

			FTA Funding by Agency with Local Match						
			FTA §5303 Total Funds	CTPS		MAPC		MassDOT	
Projects by Element and Task		FFY 2020 UPWP Project ID		Federal Funds	Local Funds	Federal Funds	Local Funds	Federal Funds	Local Funds
	Transit Mitigation for New Development Sites	13295	\$18,000	\$14,400	\$3,600	\$-	\$-	\$-	\$-
	Operating a Successful Shuttle Program	13296	\$15,000	\$12,000	\$3,000	\$-	\$-	\$-	\$-
	Exploring Resilience in MPO-funded Corridor and Intersection Studies	13299	\$27,000	\$21,600	\$5,400	\$-	\$-	\$-	\$-
	Corridor/Subarea Planning Studies	MAPC 4	\$70,523	\$-	\$-	\$56,418	\$14,105	\$-	\$-
	Alternative Mode Planning and Coordination	MAPC 7	\$66,577	\$-	\$-	\$53,262	\$13,315	\$-	\$-
	Addressing Safety, Mobility, and Access on Subregional Priority Roadways FFY 2019	13419	\$2,160	\$1,728	\$432	\$-	\$-	\$-	\$-
	Addressing Priority Corridors from the Long Range Transportation Plan Needs Assessment FFY 2019	13519	\$2,280	\$1,824	\$456	\$-	\$-	\$-	\$-
44.24.00	Short-Range Transportation Planning		\$111,602	\$12,616	\$3,154	\$-	\$-	\$76,666	\$19,166
	MassDOT Transit Planning Assistance	Varies	\$95,832	\$-	\$-	\$-	\$-	\$76,666	\$19,166
	Traffic Data Support	2720	\$4,600	\$3,680	\$920	\$-	\$-	\$-	\$-
	Transit Data Support	4220	\$11,170	\$8,936	\$2,234	\$-	\$-	\$-	\$-
44.25.00	Transportation Improvement Program		\$78,790	\$63,032	\$15,758	\$-	\$-	\$-	\$-
	Transportation Improvement Program	8220	\$78,790	\$63,032	\$15,758	\$-	\$-	\$-	\$-
44.27.00	Other Activities		\$12,000	\$9,600	\$2,400	\$-	\$-	\$-	\$-
	MPO Staff-Generated Research and Technical Assistance	20904	\$12,000	\$9,600	\$2,400	\$-	\$-	\$-	\$-
Total Boston Region MPO 5303 Funds Programmed			\$1,799,814	\$1,084,606	\$271,151	\$278,580	\$69,645	\$81,466	\$20,366

CTPS = Central Transportation Planning Staff. FFY = Federal fiscal year. FTA = Federal Transit Administration. LRTP = Long-Range Transportation Plan MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. MPO = Metropolitan Planning Organization. TIP = Transportation Improvement Program. UPWP = Unified Planning Work Program.

