



# Appendix A

## Other Boston Region Transportation Planning Studies

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

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

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

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

## MULTIMODAL OR ROADWAY STUDIES

### Statewide Studies

#### *MassDOT*

##### Impact of Teleworking

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

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

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

### Regional or Subregional Studies

#### *MassDOT*

##### Wellington Circle Study

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

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

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

#### **Kosciuszko Circle and William T. Morrissey Boulevard Corridor Study**

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

## **TRANSIT STUDIES**

### **Statewide Studies**

#### ***MassDOT***

##### **Northern Tier Passenger Rail Study**

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

### **Regional or Subregional Studies**

#### ***MassDOT/MBTA***

##### **MBTA Bus Network Redesign**

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

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

### Route 1A East Boston Corridor Study

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

### Silver Line Extension Alternatives Analysis

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

## CORRIDOR, AREA, OR GENERAL STUDIES

### Regional or Subregional Studies

#### *MassDOT*

#### Route 128 Land Use Study

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

## Municipal Studies

### *City of Boston*

#### Rutherford Avenue—Sullivan Square Design Project

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

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

## MISCELLANEOUS STUDIES AND PLANNING ACTIVITIES

### Statewide Studies

#### *MassDOT*

#### Climate Adaptation Vulnerability Assessment

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

## Shared Travel Network

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

## Regional or Subregional Studies

### *Colleges and Universities*

#### New England University Transportation Center (Region One)

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



# Appendix B

## Public Participation and Response to Public Comments

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

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

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

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

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

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

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









# Appendix C

## Universe of Proposed New Studies for Federal Fiscal Year 2022 UPWP

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

Studies in the Universe are organized into the following categories:

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

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

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

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

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

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

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

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

(Table C-1 cont.)

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

(Table C-1 cont.)

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

(Table C-1 cont.)

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



(Table C-1 cont.)

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

(Table C-1 cont.)

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

(Table C-1 cont.)

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

(Table C-1 cont.)

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

(Table C-1 cont.)

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

(Table C-1 cont.)

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

(Table C-1 cont.)

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

(Table C-1 cont.)

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



(Table C-1 cont.)

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

**Notes:**

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

30 Total study concepts

**LRTP Goal Area Acronyms:**

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

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

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

\*New category in FFY 2020



# Appendix D

## Geographic Distribution of UPWP Studies and Technical Analyses

### INTRODUCTION

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

## PURPOSE AND METHODOLOGY

### Purpose

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

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

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

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

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

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



## Methodology

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

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

## PLANNING STUDIES AND TECHNICAL ANALYSES BY COMMUNITY

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

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

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





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

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

(Table D-2 cont.)

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

(Table D-2 cont.)

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

(Table D-2 cont.)

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

(Table D-2 cont.)

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

(Table D-2 cont.)

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

## Notes:

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

## REGIONWIDE PLANNING STUDIES AND TECHNICAL ANALYSES

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

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

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

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

(Table D-3 cont.)

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



(Table D-3 cont.)

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

(Table D-3 cont.)

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

(Table D-3 cont.)

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

(Table D-3 cont.)

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

(Table D-3 cont.)

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

(Table D-3 cont.)

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

## USES FOR THE DATA

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

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

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

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







# Appendix E

## Regulatory and Policy Framework

This appendix contains detailed background on the regulatory documents, legislation, and guidance that shape the Boston Region Metropolitan Planning Organization's (MPO) transportation planning process.

## REGULATORY FRAMEWORK

The Boston Region MPO is charged with executing its planning activities in line with federal and state regulatory guidance. Maintaining compliance with these regulations allows the MPO to directly support the work of these critical partners and ensures its continued role in helping the region move closer to achieving federal, state, and regional transportation goals. This appendix describes all of the regulations, policies, and guidance taken into consideration by the MPO during development of the certification documents and other core work the MPO will undertake during federal fiscal year (FFY) 2022.

### Federal Regulations and Guidance

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

The purpose of the national transportation goals, outlined in Title 23, section 150, of the United States Code (23 USC § 150), is to increase the accountability and transparency of the Federal-Aid Highway Program and to improve decision-making through performance-based planning and programming. The national transportation goals include the following:

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

The Boston Region MPO has incorporated these national goals, where practicable, into its vision, goals, and objectives, which provide a framework for the MPO's planning processes. More information about the MPO's vision, goals, and objectives is included in Chapter 1.

## FAST Act: Planning Factors

The MPO gives specific consideration to the federal planning factors, described in Title 23, section 134, of the US Code (23 USC § 134), when developing all documents that program federal transportation funds. In accordance with the legislation, studies and strategies undertaken by the MPO shall

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

The Boston Region MPO has also incorporated these federal planning factors into its vision, goals, and objectives. Table E-1 shows the relationships between FFY 2022 MPO studies and activities and these federal planning factors.



T  
TAPPAN  
STREET  
GREEN LINE  
PARK BY A NO

T GREEN LINE  
Shuttle Bus  
to Kenmore  
  
We're building a better T.

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

Federal Planning Factor	3C-funded Certification Activities														3C-funded Technical Analysis and Support						New and Recurring 3C-funded Planning Studies*										Administration and Resource Management		MAPC Activities											
	3C Planning and MPO Support**	Provision of Materials in Accessible Formats	General Graphics	Professional Development	Long-Range Transportation Plan	Transportation Improvement Program	Performance-Based Planning and Programming	Air Quality Conformity and Support Activities	Unified Planning Work Program	Transportation Equity Program	Congestion Management Process	Freight Planning Support	Regional Model Enhancement	Transit Working Group Support	MPO Resilience Program	Roadway Safety Audits	Traffic Data Support	Transit Data Support	Community Transportation Technical Assistance (CTPS and MAPC)	Bicycle and Pedestrian Support Activities	Regional Transit Service Planning Technical Support	Trip Generation Follow-Up	Travel Demand Management Follow-Up	COVID Recovery Research and Technical Assistance	Addressing Safety, Mobility, and Access on Subregional Priority Roadways, FFY 2022	Addressing Priority Corridors from the LRP Needs Assessment, FFY 2022	Safety and Operations of Selected Intersections, FFY 2022	The Future of the Curb Phase 3	Addressing Equity and Access in the Blue Hills	Identifying Transportation Inequities in the Boston Region	MPO Staff-generated Research Topics and Technical Assistance	Computer Resource Management	Data Resources Management	Corridor/Subarea Planning Studies	Alternative Mode Planning and Coordination	MetroCommon 2050	Land-Use Development Project Reviews	MPO/MAPC Liaison Activities	UPWP Support	Land-use Data and Forecasts for Transportation Modeling	Subregional Support Activities			
1	•			•	•	•	•	•		•	•	•	•	•	•			•	•	•	•	•	•	•	•	•														•	•			
2	•				•	•	•	•	•	•				•	•	•		•	•					•	•	•	•	•										•	•				•	
3	•				•	•		•	•					•													•												•					
4	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•	•	•		•	•	•	•	•	•
5	•				•	•	•	•	•	•		•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•	•	•		•	•	•	•	•	•
6	•		•		•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•				•	•		•	•			•	•	
7	•				•	•	•	•		•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•	•		•	•			•	•	•	



## FAST Act: Performance-Based Planning and Programming

The United States Department of Transportation (USDOT), in consultation with states, MPOs, and other stakeholders, has established performance measures relevant to these national goals. These performance topic areas include roadway safety, transit system safety, National Highway System (NHS) bridge and pavement condition, transit asset condition, NHS reliability for both passenger and freight travel, traffic congestion, and on-road mobile source emissions. The FAST Act and related federal rulemakings require states, MPOs, and public transportation operators to follow performance-based planning and programming practices—such as setting targets—to ensure that transportation investments support progress towards these goals. See Chapter 3 for more information about how the MPO has and will continue to conduct performance-based planning and programming.

### 1990 Clean Air Act Amendments

The Clean Air Act, most recently amended in 1990, forms the basis of the United States' air pollution control policy. The act identifies air quality standards, and the US Environmental Protection Agency (EPA) designates geographic areas as *attainment* (in compliance) or *nonattainment* (not in compliance) areas with respect to these standards. If air quality in a nonattainment area improves such that it meets EPA standards, the EPA may redesignate that area as being a *maintenance* area for a 20-year period to ensure that the standard is maintained in that area.

The conformity provisions of the Clean Air Act “require that those areas that have poor air quality, or had it in the past, should examine the long-term air quality impacts of their transportation system and ensure its compatibility with the area’s clean air goals.” Agencies responsible for Clean Air Act requirements for nonattainment and maintenance areas must conduct air quality conformity determinations, which are demonstrations that transportation plans, programs, and projects addressing that area are consistent with a State Implementation Plan (SIP) for attaining air quality standards.

Air quality conformity determinations must be performed for capital improvement projects that receive federal funding and for those that are considered regionally significant, regardless of the funding source. These determinations must show that projects in the MPO’s Long-Range Transportation Plan (LRTP) and Transportation Improvement Program (TIP) will not cause or contribute to any new air quality violations; will not increase the frequency or severity of any existing air quality violations in any area; and will not delay the timely attainment of air quality standards in any area. The policy, criteria, and procedures for demonstrating air quality conformity in the MPO region were established in Title 40, parts 51 and 53, of the Code of Federal Regulations.

On April 1, 1996, the EPA classified the cities of Boston, Cambridge, Chelsea, Everett, Malden, Medford, Quincy, Revere, and Somerville as in attainment for carbon monoxide (CO) emissions. Subsequently, a CO maintenance plan was set up through the Massachusetts SIP to ensure that emission levels did not increase. While the maintenance plan was in effect, past TIPs and LRTPs included an air quality conformity analysis for these communities.

As of April 1, 2016, however, the 20-year maintenance period for this CO maintenance area expired and transportation conformity is no longer required for this pollutant in these communities. This ruling is documented in a letter from the EPA dated May 12, 2016.

On April 22, 2002, the City of Waltham was redesignated as being in attainment for CO emissions with an EPA-approved limited-maintenance plan. In areas that have approved limited-maintenance plans, federal actions requiring conformity determinations under the EPA's transportation conformity rule are considered to satisfy the conformity test.

On February 16, 2018, the US Court of Appeals for the DC Circuit issued a decision in *South Coast Air Quality Management District v. EPA*, which struck down portions of the 2008 Ozone National Ambient Air Quality Standards (NAAQS) SIP Requirements Rule concerning the ozone NAAQS. Those portions of the SIP Requirements Rule included transportation conformity requirements associated with the EPA's revocation of the 1997 ozone NAAQS. Massachusetts was designated as an attainment area in accord with the 2008 ozone NAAQS but as a nonattainment or maintenance area as relates to the 1997 ozone NAAQS. As a result of this court ruling, MPOs in Massachusetts must once again demonstrate conformity for ozone when developing LRTPs and TIPs.

MPOs must also perform conformity determinations if transportation control measures (TCM) are in effect in the region. TCMs are strategies that reduce transportation-related air pollution and fuel use by reducing vehicle-miles traveled and improving roadway operations. The Massachusetts SIP identifies TCMs in the Boston region. SIP-identified TCMs are federally enforceable and projects that address the identified air quality issues must be given first priority when federal transportation dollars are spent. Examples of TCMs that were programmed in previous TIPs include rapid-transit and commuter-rail extension programs (such as the Green Line Extension in Cambridge, Medford, and Somerville, and the Fairmount Line improvements in Boston), parking-freeze programs in Boston and Cambridge, statewide rideshare programs, park-and-ride facilities, residential parking-sticker programs, and the operation of high-occupancy-vehicle lanes.

In addition to reporting on the pollutants identified in the 1990 Clean Air Act Amendments, the MPOs in Massachusetts are also required to perform air quality analyses for carbon dioxide as part of the state's Global Warming Solutions Act (GWSA) (see below).

### ***Nondiscrimination Mandates***

The Boston Region MPO complies with Title VI of the Civil Rights Act of 1964, the American with Disabilities Act of 1990 (ADA), Executive Order 12898—*Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations* (EJ EO), and other federal and state nondiscrimination statutes and regulations in all programs and activities it conducts. Per federal and state law, the MPO does not discriminate on the basis of race, color, national origin (including limited English proficiency), religion, creed, gender, ancestry, ethnicity, disability, age, sex, sexual orientation, gender identity or expression, veteran's status, or background. The MPO strives to provide meaningful opportunities for participation of all persons in the region, including those protected by Title VI, the ADA, the EJ EO, and other nondiscrimination mandates.



The MPO also analyzes the likely benefits and adverse effects of transportation projects to equity populations (populations traditionally underserved by the transportation system, as identified in the MPO's Transportation Equity program) when deciding which projects to fund. This analysis is conducted through the MPO's project selection criteria, which were recently strengthened to prioritize projects that provide benefits to these populations. MPO staff also evaluate the projects that are selected for funding, in the aggregate, to determine their overall impacts and whether they improve transportation outcomes for equity populations. The major federal requirements pertaining to nondiscrimination are discussed below.

## Title VI of the Civil Rights Act of 1964

Title VI of the Civil Rights Act of 1964 requires that no person be excluded from participation in, be denied the benefits of, or be subjected to discrimination on the basis of race, color, or national origin, under any program or activity provided by an agency receiving federal financial assistance. Executive Order 13166—*Improving Access to Services for Persons with Limited English Proficiency*, dated August 11, 2000, extends Title VI protections to people who, as a result of their nationality, have limited English proficiency. Specifically, it calls for improved access to federally assisted programs and activities, and requires MPOs to develop and implement a system through which people with limited English proficiency can meaningfully participate in the transportation planning process. This requirement includes the development of a Language Assistance Plan that documents the organization's process for providing meaningful language access to people with limited English proficiency who access their services and programs.

## Environmental Justice Executive Order

Executive Order 12898, dated February 11, 1994, requires each federal agency to advance environmental justice by identifying and addressing any disproportionately high and adverse human health or environmental effects, including interrelated social and economic effects, of its programs, policies, and activities on minority and low-income populations.

On April 15, 1997, the USDOT issued its *Final Order to Address Environmental Justice in Minority Populations and Low-Income Populations*. Among other provisions, this order requires programming and planning activities to

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

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

### Americans with Disabilities Act

Title III of the ADA “prohibits states, MPOs, and other public entities from discriminating on the basis of disability in the entities’ services, programs, or activities,” and requires all transportation projects, plans, and programs to be accessible to people with disabilities. Therefore, MPOs must consider the mobility needs of people with disabilities when programming federal funding for studies and capital projects. MPO-sponsored meetings must also be held in accessible venues and be conducted in a manner that provides for accessibility. Also, MPO materials must be made available in accessible formats.

### Other Nondiscrimination Mandates

The Age Discrimination Act of 1975 prohibits discrimination on the basis of age in programs or activities that receive federal financial assistance. Additionally, the Rehabilitation Act of 1975, and Title 23, section 324, of the US Code (23 USC § 324) prohibit discrimination based on sex.

## State Guidance and Priorities

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

### ***Choices for Stewardship: Recommendations to Meet the Transportation Future***

The Commission on the Future of Transportation in the Commonwealth—established by Massachusetts Governor Charlie Baker’s Executive Order 579—published *Choices for Stewardship* in 2019. This report makes 18 recommendations across these five thematic categories to adapt the transportation system in the Commonwealth to emerging needs:

1. Modernize existing transportation assets to move more people
2. Create a mobility infrastructure to capitalize on emerging transportation technology and behavior trends
3. Reduce transportation-related greenhouse gas emissions and improve the climate resiliency of the transportation network
4. Coordinate land use, housing, economic development, and transportation policy
5. Alter current governance structures to better manage emerging and anticipated transportation trends

The Boston Region MPO supports these statewide goals by conducting planning work and making investment decisions that complement MassDOT's efforts and reflect the evolving needs of the transportation system in the region.

### **Massachusetts Strategic Highway Safety Plan**

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

### **MassDOT Modal Plans**

In 2017, MassDOT finalized the *Massachusetts Freight Plan*, which defines the short- and long-term vision for the Commonwealth's freight transportation system. In 2018, MassDOT released the related *Commonwealth of Massachusetts State Rail Plan*, which outlines short- and long-term investment strategies for Massachusetts' freight and passenger rail systems (excluding the commuter rail system). In 2019, MassDOT also released the *Massachusetts Bicycle Transportation Plan* and the *Massachusetts Pedestrian Transportation Plan*, both of which define roadmaps, initiatives, and action plans to improve bicycle and pedestrian transportation in the Commonwealth. The MPO considers the findings and strategies of MassDOT's modal plans when conducting its planning, including through its Freight Planning Support and Bicycle/Pedestrian Support Activities programs.

### **Global Warming Solutions Act**

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

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

MassDOT fulfills its responsibilities, defined in the *Massachusetts Clean Energy and Climate Plan for 2020*, through a policy directive that sets three principal objectives:

1. To reduce GHG emissions by reducing emissions from construction and operations, using more efficient fleets, implementing travel demand management programs, encouraging eco-driving, and providing mitigation for development projects

2. To promote healthy transportation modes by improving pedestrian, bicycle, and public transit infrastructure and operations
3. To support smart growth development by making transportation investments that enable denser, smart growth development patterns that can support reduced GHG emissions

In January 2015, the Massachusetts Department of Environmental Protection amended Title 310, section 7.00, of the Code of Massachusetts Regulations (310 CMR 60.05), *Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation*, which was subsequently amended in August 2017. This regulation places a range of obligations on MassDOT and MPOs to support achievement of the Commonwealth's climate change goals through the programming of transportation funds. For example, MPOs must use GHG impact as a selection criterion when they review projects to be programmed in their TIPs, and they must evaluate and report the GHG emissions impacts of transportation projects in LRTPs and TIPs.

The Commonwealth's 10 MPOs (and three non-metropolitan planning regions) are integrally involved in supporting the GHG reductions mandated under the GWSA. The MPOs seek to realize these objectives by prioritizing projects in the LRTP and TIP that will help reduce emissions from the transportation sector. The Boston Region MPO uses its TIP project evaluation criteria to score projects based on their GHG emissions impacts, multimodal Complete Streets accommodations, and ability to support smart growth development. Tracking and evaluating GHG emissions by project will enable the MPOs to anticipate GHG impacts of planned and programmed projects. See Chapter 3 for more details related to how the MPO conducts GHG monitoring and evaluation.

### **Healthy Transportation Policy Initiatives**

On September 9, 2013, MassDOT passed the Healthy Transportation Policy Directive to formalize its commitment to implementing and maintaining transportation networks that allow for various mode choices. This directive will ensure that all MassDOT projects are designed and implemented in ways that provide all customers with access to safe and comfortable walking, bicycling, and transit options.

In November 2015, MassDOT released the *Separated Bike Lane Planning & Design Guide*. This guide represents the next—but not the last—step in MassDOT's continuing commitment to Complete Streets, sustainable transportation, and the creation of more safe and convenient transportation options for Massachusetts' residents. This guide may be used by project planners and designers as a resource for considering, evaluating, and designing separated bike lanes as part of a Complete Streets approach.

In the LRTP, *Destination 2040*, the Boston Region MPO has continued to use investment programs—particularly its Complete Streets and Bicycle Network and Pedestrian Connections programs—that support the implementation of Complete Streets projects. In the Unified Planning Work Program, the MPO budgets to support these projects, such as the MPO's

Bicycle and Pedestrian Support Activities program, corridor studies undertaken by MPO staff to make conceptual recommendations for Complete Streets treatments, and various discrete studies aimed at improving pedestrian and bicycle accommodations.

### ***Congestion in the Commonwealth 2019***

MassDOT developed the *Congestion in the Commonwealth 2019* report to identify specific causes of and impacts from traffic congestion on the NHS. The report also made recommendations for reducing congestion, including addressing local and regional bottlenecks, redesigning bus networks within the systems operated by the Massachusetts Bay Transportation Authority (MBTA) and the other regional transit authorities, increasing MBTA capacity, and investigating congestion pricing mechanisms such as managed lanes. These recommendations guide multiple new efforts within MassDOT and the MBTA and are actively considered by the Boston Region MPO when making planning and investment decisions.

## **Regional Guidance and Priorities**

### ***Focus40, The MBTA's Program for Mass Transportation***

On March 18, 2019, MassDOT and the MBTA released *Focus40*, the MBTA's Program for Mass Transportation, which is the 25-year investment plan that aims to position the MBTA to meet the transit needs of the Greater Boston region through 2040. Complemented by the MBTA's Strategic Plan and other internal and external policy and planning initiatives, *Focus40* serves as a comprehensive plan guiding all capital planning initiatives at the MBTA. These initiatives include the RailVision plan, which will inform the vision for the future of the MBTA's commuter rail system; the Better Bus Project, the plan to redesign and improve the MBTA's bus network; and other plans. The Boston Region MPO continues to monitor the status of *Focus40* and related MBTA modal plans to inform its decision-making about transit capital investments, which are incorporated to the TIP and LRTP.

### ***MetroFuture***

*MetroFuture*, which was developed by the Metropolitan Area Planning Council (MAPC) and adopted in 2008, is the long-range plan for land use, housing, economic development, and environmental preservation in the Boston region. It includes a vision for the region's future and a set of strategies for achieving that vision, and it serves as the foundation for land use projections used in the MPO's LRTP, *Destination 2040*.

MAPC is now developing *MetroCommon*, the next regional plan, which will build off of *MetroFuture* and include an updated set of strategies for achieving sustainable growth and equitable prosperity. The MPO will continue to consider *MetroFuture's* goals, objectives, and strategies in its planning and activities, and monitor *MetroCommon* as it develops. See Chapter 7 for more information about *MetroCommon* development activities.

## ***The Boston Region MPO's Congestion Management Process***

The purpose of the Congestion Management Process (CMP) is to monitor and analyze performance of facilities and services, develop strategies for managing congestion based on the results of traffic monitoring, and move those strategies into the implementation stage by providing decision makers in the region with information and recommendations for improving the transportation system's performance. The CMP monitors roadways and park-and-ride facilities in the Boston region for safety, congestion, and mobility, and identifies problem locations. See Chapter 3 for more information about the MPO's CMP.

## **State and Regional COVID-19 Adaptations**

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



# Appendix F

## Boston Region Metropolitan Planning Organization Membership

### VOTING MEMBERS

The Boston Region Metropolitan Planning Organization (MPO) includes both permanent members and municipal members who are elected for three-year terms. Details about the MPO's members are listed below.

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

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

The **Massachusetts Bay Transportation Authority (MBTA)**, created in 1964, is a body politic and corporate, and a political subdivision of the Commonwealth. Under the provisions of Chapter 161A of the Massachusetts General Laws, it has the statutory responsibility within its district of operating the public transportation system, preparing the engineering and architectural designs for transit development projects, and constructing and operating transit development projects. The MBTA district comprises 175 communities, including all of the 97 cities and towns of the Boston Region MPO area.

In April 2015, as a result of a plan of action to improve the MBTA, a five-member Fiscal and Management Control Board (FMCB) was created. The FMCB was created to oversee and improve the finances, management, and operations of the MBTA. The FMCB's authorizing statute called for an initial three-year term, with the option for the board to request that the governor approve a single two-year extension. In 2017, the FMCB's initial mandate, which would have expired in June 2018, was extended for two years, through June 30, 2020. In 2020, the FMCB's mandate was extended a second time for an additional period of one year, through June 30, 2021. As of this writing, the FMCB's mandate has not been extended further.

The FMCB's goals target governance, finance, and agency structure and operations through recommended executive and legislative actions that embrace transparency and develop stability in order to earn public trust. By statute, the FMCB consists of five members, one with experience in transportation finance, one with experience in mass transit operations, and three who are also members of the MassDOT Board of Directors.

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



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

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

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

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

The **Federal Highway Administration (FHWA)** and **Federal Transit Administration (FTA)** participate in the Boston Region MPO in an advisory (nonvoting) capacity, reviewing the Long-Range Transportation Plan, Transportation Improvement Program, and Unified Planning Work Program, and other facets of the MPO’s planning process to ensure compliance with federal planning and programming requirements. These two agencies oversee the highway and transit programs, respectively, of the United States Department of Transportation under pertinent legislation and the provisions of the Fixing America’s Surface Transportation (FAST) Act.