

APPENDIX A
OTHER BOSTON REGION
TRANSPORTATION PLANNING STUDIES

ROUGH DRAFT: UNDER CONSTRUCTION

BUS

LANE



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) 2020. 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 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 XXXX, 2019.

REGIONAL CORRIDOR OR TRANSIT STUDIES

Bus Rapid Transit Planning

Agencies: Metropolitan Area Planning Council (MAPC), City of Boston, Barr Foundation

Boston Bus Rapid Transit (BRT) Planning was formed in an effort to popularize the concept of bus rapid transit in the Boston region. This effort involves the Barr Foundation, the City of Boston, MAPC, and other entities. In 2016, Boston BRT issued a report about Gold Standard BRT in the Boston area, and since then has conducted various outreach, advocacy, research, and pilot activities. A pilot program in May and June 2017 tested the possibility of all-door boarding on the Silver Line between Downtown Crossing and Dudley Station. Future plans involve further research, advocacy, and potential demonstration projects.

SUBREGIONAL PLANS AND STUDIES

MetroWest LandLine: Phase I

Agency: MetroWest Regional Collaborative (MWRC) (MAPC subregion)

MetroWest cities and towns boast a large number of paths and trails, but many of them do not connect. With the MetroWest LandLine Phase I project, MAPC’s MWRC is taking the first step to connect the trails and transform them into an active, cohesive, regional transportation and recreational network called the MetroWest Landline.

This project will launch in fall 2018. MAPC’s transportation team, working with MWRC members, will develop and promote an action plan to close one priority gap in each participating city and town. This joint effort will build community support for those action plans and for further strengthening the MetroWest LandLine.

CORRIDOR OR LOCATION STUDIES

Allston Regional Transportation Study

Agency: MAPC

The Allston Regional Transportation Study will examine opportunities to maximize existing and future nonautomotive travel within and through the Harvard Enterprise Research Campus, Beacon Park Yards, and nearby areas. The study will attempt to determine which implementation strategies and capital improvements will achieve the highest level of nonautomotive mode share among trips generated by future growth in Allston and nearby parts of Boston, Cambridge, and Brookline. Based on different development scenarios for Beacon Park Yards and projected growth estimates for nearby population and employment centers, the study will evaluate the accessibility benefits, usability, and transit ridership potential of varied sustainable transportation alternatives.

Interstate 90 Allston Interchange Placemaking Study

Agency: City of Boston

Major infrastructure changes around the Interstate 90 (I-90) Allston Interchange will unlock the potential for a large, new mixed-use district in North Allston. The sprawling railyards and existing I-90 Massachusetts Turnpike interchange in this area of Boston will be replaced by a streamlined interchange and multimodal network of streets, paths, rail, and transit facilities. The placemaking report provides guidance and recommendations for redesign of the transportation infrastructure in and around the I-90 Allston Interchange. The goal is to enable outstanding urban places and spaces to emerge as plans for the area are implemented.

For more information, visit www.bostonplans.org/planning/planning-initiatives/i-90-allston-interchange

Allston-Brighton Mobility Study

Agency: City of Boston

The Allston and Brighton neighborhoods are experiencing significant growth in new development. While this growth adds economic opportunity and vibrancy, it also raises questions and concerns about how the existing and future multimodal network will accommodate new development. To address these concerns, the Allston-Brighton Mobility Study will fully assess existing conditions while analyzing the effects of pending and approved (but not yet built) development in Allston-Brighton to identify strategies to improve the transportation network, for example, streets, bike infrastructure, sidewalks, transit, parking, and mitigate the effects of development. Building on previous studies, the primary goal of the Allston-Brighton Mobility Study will be to identify and develop an actionable list of options to improve mobility, safety for all modes, and quality of life for the Allston-Brighton neighborhood. These items will form the

basis for future development mitigation and transportation investments for the Allston-Brighton neighborhood.

For more information, visit <http://www.bostonplans.org/planning/planning-initiatives/allston-brighton-mobility-study>

Seaport Transit Strategic Plan

Agency: City of Boston

The mission of the Seaport Transit Strategic Plan is to study key transit connections to and within the Seaport District and recommend improvements that can be implemented in the short term, the next 15 years, and beyond. The recommendations will build on a comprehensive transit vision for the district and an understanding of the demand from existing and future development. The recommendations will focus on improvements to the Seaport’s bus and shuttle network and will include consideration of other potential transit services such as rail, ferry, ride-share, and private-sector sponsored initiatives.

This initiative will build on work done for the South Boston Waterfront Sustainable Transportation Project, the ongoing Silver Line Capacity Study, subsequent transit analysis done for public and private projects, and integration of transportation improvements currently in implementation. The goal of the Plan will be an actionable universe of short-, medium-, and long-term mobility improvements that will form the basis for future development mitigation and transportation investments for the Seaport District.

Fairmount Planning Initiatives

Agency: Various

State transportation agencies are collaborating with federal agencies, the City of Boston, and neighborhood-based organizations on a number of planning initiatives designed to improve access to transit and promote sustainable development in the Fairmount Corridor. These initiatives, which are underway as the MBTA has completed major infrastructure improvements and four new stations on the Fairmount Line, include the following:

Fairmount Corridor Business Development and Transit Ridership Growth Strategy

The Fairmount Indigo Community Development Corporations (CDC) Collaborative, along with the MBTA, has received a Transportation, Community, and System Preservation grant to improve the transit service connection to job development sites in the Fairmount Corridor.

Fairmount Indigo Corridor Planning Initiative

The Boston Planning and Development Agency is spearheading this planning process, which involves participation of community and agency stakeholders. The agency is developing a vision for corridor land use and neighborhood change that is focused on enhanced transit, and an action plan for targeted redevelopment and public infrastructure upgrades at station areas.

Rutherford Avenue—Sullivan Square Design Project, Charlestown

Agency: City of Boston

The City of Boston is proceeding with the redesign of the Rutherford Avenue corridor in Charlestown, which extends about 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 TIP 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 I-93 and US Route 1; therefore, reduced traffic volumes along Rutherford Avenue presents a unique opportunity to transform the corridor’s character from a 1950s-era, automobile-oriented facility to a 21st-century, multimodal, urban boulevard corridor that will accommodate private development.

Edgell Road Corridor Study

Agency: City of Framingham

The Department of Public Works in Framingham developed a draft Complete Streets assessment of the Edgell Road corridor from Vernon Road north to the Edmands Road and Water Street intersection. The evaluation recommends enhancements and improvements at six key intersections. Tasks undertaken for this study will include evaluating existing and projected traffic conditions; reviewing current bicycle and pedestrian accommodations in accordance with the town’s Complete Streets policy (adopted January 2015) and current standards set by the Americans with Disabilities Act (ADA) and Massachusetts Architectural Access Board; taking inventory of needed improvements and ADA ramp concept designs; researching usability; analyzing crash data; and developing improvement alternatives.

Pedestrian/Bicycle Crossing of the Mystic River

Agency: City of Everett

This study will select a location for a bicycle and pedestrian crossing over the Mystic River from the Wynn Resort and Mystic View Park to Draw 7 Park in Somerville, and develop 25 percent design plans for the bridge. This connection, a further extension of the Northern Strand Trail from Everett, would link to the developing path network on the east side of the Mystic River, completing a 10-mile continuous off-road path from the North Shore to the City of Boston.

Extension of the Northern Strand Bike Trail

Agency: City of Everett

This study will determine an appropriate path and develop a conceptual design to extend the Northern Strand Community Trail (NSCT) to the Mystic River. The NSCT currently runs from Lynn to Everett, ending just north of Revere Beach Parkway in Everett. The future extension would make connections to the Mystic River, Wynn Resort, Gateway Shopping Center, and Mystic View Park.

Lower Broadway Dedicated Bus Lane Study and Design

Agency: City of Everett

Seeking to build upon the success of the upper Broadway bus lane, the City of Everett plans to extend a bus-only lane south to the city limits on Route 99 and Broadway. In addition to conducting a traffic analysis and developing a conceptual design, this study would determine how such a lane would be constructed and the extent of right-of-way acquisitions required.

Second Street Reconstruction

Agency: City of Everett

The Everett Transit Action Plan (2016) identified a future transit route that would extend the Silver Line Gateway from Chelsea to Everett Square using the existing MBTA right-of-way and Second Street in the City of Everett. This study will develop a conceptual design for reconstructing Second Street to accommodate existing vehicular traffic and incorporate dedicated bicycle and bus lanes from the Chelsea line to Everett Square.

Sweetser Circle Visioning Process

Agency: City of Everett

Sweetser Circle is the interchange between Revere Beach Parkway (Route 16), Broadway (Route 99), and Main Street in Everett. A congested and dangerous intersection, Sweetser

Circle does not have adequate accommodations for transit, bicycles, or pedestrians. The existing roadway layout also prevents access to more than 10 acres of unused parkland. The results of this study would assist in developing a new vision for the roadway and parklands, which would inform future maintenance and reconstruction of the interchange.

PLAN: Glover's Corner, Dorchester

Agency: City of Boston

The study area at Glover's Corner in Dorchester (between the Savin Hill and Fields Corner stations) is increasing in density and this growth is expected to affect the transportation system. This initiative will prepare for future economic development and transportation demands by creating a future vision and physical plan, focusing on locations where the multimodal transportation network is currently limited and constrained. The future network will need to include enhancements to existing Red Line station access and comprehensive bus services. Just as important, a safe and effective network for cyclists and pedestrians will be required. Transportation network capacity constraints will influence and inform land uses and build-out scenarios.

For more information, visit www.bostonplans.org/planning/planning-initiatives/plan-dorchester-glovers-corner

PLAN: Jamaica Plain/Roxbury (JP/ROX)

Agency: City of Boston

The PLAN: JP/ROX initiative provided recommendations and strategies for affordable housing, jobs, and businesses; guidelines for urban design; and improvements to transportation connections, open space, sustainability, and the public realm. The study examined the compatibility of different land uses, including housing, commercial, and light industrial, while studying the effects of traffic and other forms of mobility in the study area. Of particular focus was the recent wave of mixed-use residential projects in the area, and determining the implications of redevelopment and areas of opportunity. The two-and-a-half year planning process engaged the communities between Forest Hills, Egleston Square, and Jackson Square, generally bounded by Washington Street, Columbus Avenue, and Amory Street. Some aspects of PLAN: JP/ROX are ongoing, including transportation planning.

For more information, visit www.bostonplans.org/planning/planning-initiatives/plan-jp-rox

PLAN: South Boston Dorchester Avenue

Agency: City of Boston

The Dorchester Avenue corridor in South Boston presents a unique opportunity to create a vision for an evolving area. This initiative establishes goals and strategies that will help drive short- and long-term investments in a new network of streets, public parks, and green space; a

range of housing types; and commercial and retail activity in South Boston. This plan will also be the foundation for updating zoning in the area so that it aligns with the community’s vision and creates predictable conditions for future development.

For more information, visit www.bostonplans.org/planning/planning-initiatives/plan-south-boston-dorchester-ave

PLAN: East Boston

Agency: City of Boston

PLAN: East Boston is a community-driven, neighborhood-wide planning initiative in East Boston. Guided by Imagine Boston 2030 and several citywide strategic plans, PLAN: East Boston will produce a framework to predictably shape the future of East Boston, and identify opportunities to preserve, enhance and grow. The effort is organized by the Boston Planning & Development Agency (BPDA) in partnership with several City agencies, and relies on the participation of the East Boston community to be both meaningful and sustainable.

PLAN: East Boston will

- update the East Boston Master Plan (2000);
- recommend updates to Article 53 (East Boston zoning article);
- produce urban design guidelines; and
- recommend immediate- to long-term improvement projects for the neighborhood’s transportation network.

For more information, visit <http://www.bostonplans.org/planning/planning-initiatives/plan-east-boston>

PLAN: Mattapan

Agency: City of Boston

Guided by Imagine Boston 2030, PLAN: Mattapan is a planning initiative that seeks to ensure that Boston preserves wisely, enhances equitably, and grows inclusively. Through these three principles, the City’s planning team will work with the community to create a comprehensive vision for the Mattapan planning area and guide future growth and investment.

PLAN: Mattapan will work closely with the community to review past planning efforts and identify needs and opportunities for improvements that will support the long-term equitable growth and sustainability of the neighborhood. Focuses will include, though are not limited to, economic development (jobs and business) and the creation of transit-oriented market-rate and affordable housing growth while preserving the neighborhood’s character and unique attributes.

For more information, visit <http://www.bostonplans.org/planning/planning-initiatives/plan->

[mattapan](#)

PLAN: Downtown

Agency: City of Boston

Over the last decade, downtown Boston has transformed from primarily a business district into a vibrant mixed-use neighborhood. Associated with this transformation and the marked increase in development proposals is a clear need to plan for the future of downtown comprehensively.

Building on past studies, the primary goal of the study will be to develop a new framework for the preservation, enhancement, and growth of the downtown area of the City of Boston, while balancing the importance of livability, walkability, access to open space, affordability, and a dynamic mix of uses, among others. As one of the most diverse places in the City, due in part to its accessibility, it is necessary to encourage growth that is inclusive for all. Supporting a thriving Downtown environment that is responsive to the 21st century needs of residents, businesses, and visitors is critical to Boston's continued success as an important American city.

For more information, visit <http://www.bostonplans.org/planning/planning-initiatives/plan-downtown>

CITYWIDE PROGRAMS OR STUDIES

Transportation Master Plan

Agency: City of Framingham

The Department of Public Works in Framingham is undertaking a three-part transportation plan in conjunction with an economic development plan to identify the effects of anticipated growth on transportation systems. This plan will identify mitigation strategies and improvements on the town's roadways and bicycle and pedestrian pathways, such as traffic-calming updates, neighborhood outreach efforts, and other transportation-related work. Part 1 of the Transportation Master Plan is currently underway. Part 2 is expected to begin in the near future along with the economic development plan. This comprehensive plan for the town's transportation systems will provide a long-term road map for implementing improvements and maintenance. The plan will address transportation systems owned and operated by the Town of Framingham and connections to railroads and state highways.

Foxborough Local Bus Service

Agency: Town of Foxborough

The Town of Foxborough is working with the Greater Attleboro Taunton Regional Transit

Authority and the Neponset Valley Transportation Management Association to establish local bus service between downtown Foxborough and Patriot Place and Gillette Stadium. This bus service will serve three out of four of Foxborough's Growth Nodes, identified in the town's 2015 Master Plan, as priority areas for development.

Neighborhood Slow Streets

Agency: City of Boston

Each year, Boston residents, neighborhood associations, and other community-based organizations can apply to have traffic-calming measures implemented in a specific neighborhood. Selected neighborhoods will work with the Boston Transportation Department and Public Works Department to plan and implement their Neighborhood Slow Streets project. Rather than planning and implementing changes one street at a time, the city will address an entire zone within a neighborhood. A typical zone will consist of 10 to 15 blocks. The Slow Streets program will emphasize quick-install, low-cost fixes, such as signage, pavement markings, speed humps, and daylighting (that is, repositioning obstacles at street corners so that drivers' sight lines are clearer). As of FFY 2020, the City continues to design and construct Slow Streets zones.

Green Links

Agency: City of Boston

The goal for Boston Green Links is to create a connected network of paths and low-stress corridors that people of all ages and abilities can use, whether on foot, bicycle, or assisted-mobility device. The citywide plan will connect people in every Boston neighborhood to the city's greenway network by installing new paths and bike facilities, and creating safer road crossings. The plan includes projects in progress by the city, the Department of Conservation and Recreation, community groups, and others, as well as new projects developed with local input. The plan will be implemented over time, through grants, partnerships, and city-funded projects.

For more information, visit www.boston.gov/transportation/boston-green-links

Neighborhood Bike Projects

Agency: City of Boston

A City of Boston goal is to build a complete bicycle network that will connect residents to jobs, open space, educational opportunities, and shops. In accordance with citywide planning efforts, Imagine Boston and Go Boston 2030, the city's departments continue to work together to plan, design, and fund transportation projects that improve streets for all users, including by identifying neighborhood connections that help complete the bike network. Boston typically adds or improves several miles of its bike routes each year.

For more information, visit www.boston.gov/departments/boston-bikes/neighborhood-bike-projects

Autonomous Vehicles

Agency: City of Boston

Autonomous vehicles offer the promise of helping to achieve the goal of zero deaths and injuries from traffic crashes. On the other hand, these vehicles could displace an important workforce (that is, professional drivers of various service vehicles) and encourage both sprawl and traffic congestion. In cooperation with MassDOT, the City of Boston launched an autonomous-vehicle testing program to try to shape the development of this technology, and create policies to deliver on autonomous vehicles' potential promise while minimizing their drawbacks. Recently, testing has been expanded to include local streets.

For more information, visit www.boston.gov/innovation-and-technology/autonomous-vehicles-bostons-approach

Woburn Center Traffic Study

Agency: City of Woburn

The purpose of the study is to determine a safer and more effective traffic configuration for the roadway surrounding Woburn Common. The city is currently funding the study and design, and expects to seek Transportation Improvement Program funding for the eventual redesign when it is finalized.

Woburn Truck Route Study

Agency: City of Woburn

The City of Woburn is planning to start a six- to seven-month study of truck traffic throughout the city to consider assigning truck routes (or as appropriate, truck exclusion routes).

REGIONWIDE OR LONGER-RANGE PLANNING EFFORTS

NEC FUTURE

Agency: Federal Railroad Administration

NEC FUTURE is a comprehensive federal planning effort, launched by the Federal Railroad Administration (FRA) in February 2012, to define, evaluate, and prioritize future investments in the Northeast Corridor (NEC), from Washington, D.C. to Boston. The FRA has initiated a comprehensive planning process for future investment in the corridor through 2040. Through the NEC FUTURE program, the FRA will determine a long-term vision and investment program

for the NEC, including the preparation of a Tier I Environmental Impact Statement and Service Development Plan (in support of that vision). Technical work will include analyzing market conditions in the corridor; developing program alternatives; and evaluating the environmental effects of those alternatives. The FRA will recommend an approach that balances the needs of various users of the corridor—commuters, intercity passengers, and freight operators—in a manner that ensures safe, efficient travel throughout the Northeast. The NEC Future process has proceeded to Phase 2, which is ongoing.

For more information, visit the NEC Future website at <https://www.fra.dot.gov/necfuture/about/>

New England University Transportation Center (Region One)

Agency: Colleges and Universities

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 U.S. 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 further information, visit the New England University Transportation Center’s website, <http://utc.mit.edu/>

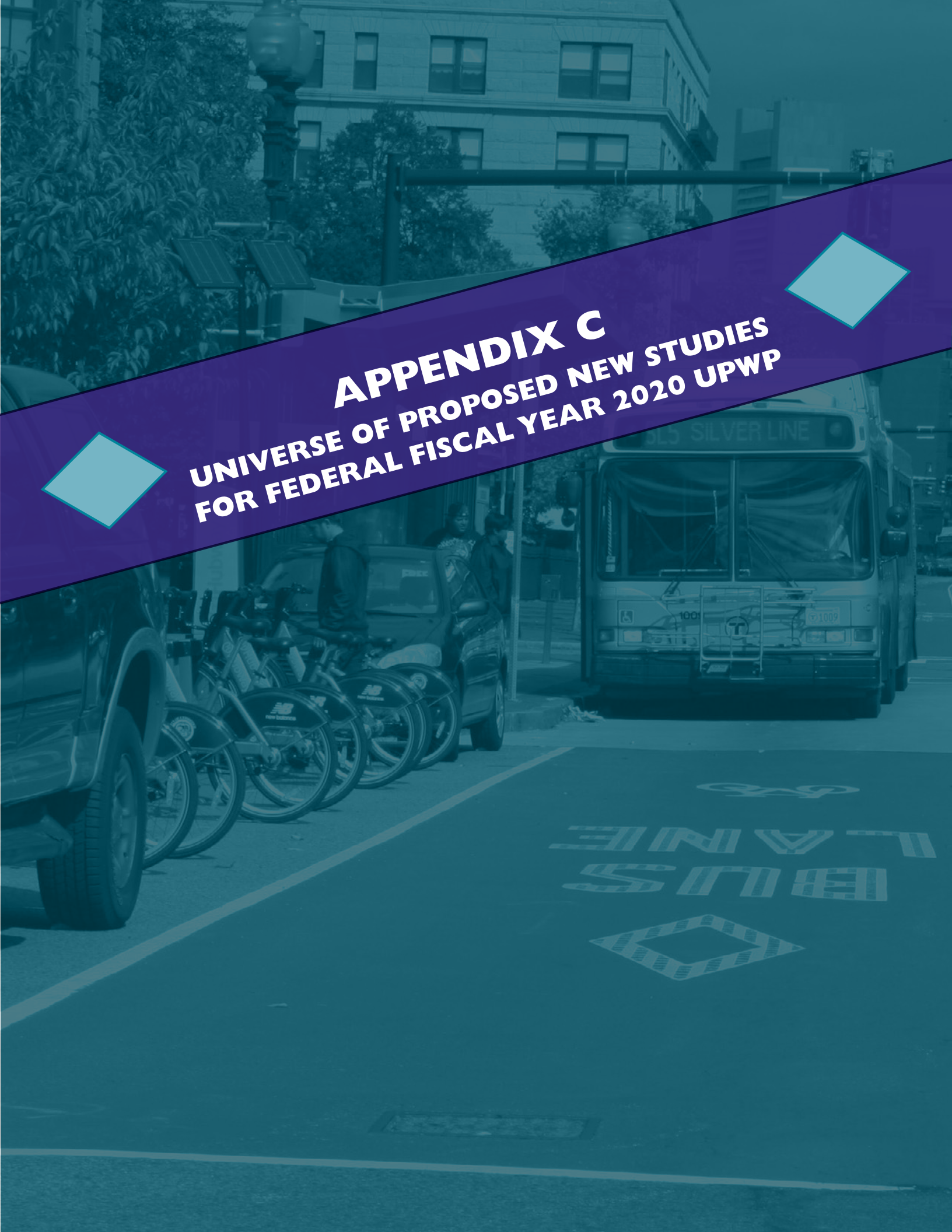




APPENDIX B
PUBLIC PARTICIPATION AND RESPONSE
TO PUBLIC COMMENTS

ROUGH DRAFT: UNDER CONSTRUCTION





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

Staff introduced the Transportation Equity and Resilience categories for the FFY 2020 UPWP development process.

Staff and the UPWP Committee evaluate each proposed study in the universe based on the following areas:

- **Primary and secondary Long-Range Transportation Plan (LRTP) goal areas:** whether a study addresses, either as a primary focus or secondary focus, one of the six LRTP goal areas
 - Safety
 - System Preservation
 - Clean Air/Clean Communities
 - Transportation Equity
 - Capacity Management/Mobility
 - Economic Vitality
- **Mode:** whether a study primarily addresses roadway, bicycle, pedestrian, or transit modes of travel
- **Study scale:** whether a study primarily affects one or two specific communities in the region, or the region as a whole

- **Time frame and type of impact:** whether a study results in research and findings that enhance the state of the transportation planning practice in the Boston region, low-cost/short-term implementation of improvements, or long-term implementation (for transportation studies leading to implementation by an agency or construction projects that must follow the Massachusetts Department of Transportation design process)
- **Connection to existing work:** whether a study furthers previously conducted analysis or builds off or enhances existing MPO work
- **Continuing or new study:** whether a study has been conducted previously analyzing a specific location or transportation service and is being conducted again at a new location, or whether a study is a completely new idea that has never been undertaken by the MPO

Evaluating the studies in this way will allow MPO staff to analyze how federal planning funds are spent in the region over time and to compare the amount of spending across the various evaluation areas. Furthermore, tracking study prioritization by LRTP goal area, mode, and study scale will allow MPO staff, in coordination with the MPO and the public, to set goals for how federal transportation planning funds are spent by the MPO for the benefit of the region. Table C-2 tracks the breakdown of studies chosen for funding in the UPWP from FFY 2016 to the present.

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, Grouped by Subject Area, FFY 2020**

ID	Project Name	Project Purpose and Outcome	Estimated Cost Level	LRTP Goal Areas						Mode			Study Scale		Impact			Other			
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management Mobility	Economic Vitality	Roadway	Bicycle/Pedestrian	Transit	Specific Community or Location	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing or Past Work	Continuing Study	Study Carried Over from 2019 Universe	New Study Concept for FFY 2020
ACTIVE TRANSPORTATION																					
A-1	Locations with High Bicycle and Pedestrian Crash Rates in the Boston Region MPO Area	This study would collect and analyze performance data for intersections that have a high presence of bicycle and/or pedestrian crashes and recommend strategies to alleviate congestion and improve safety at these intersections.	Medium	P			S					P			P		P	S	Y		Y
A-2	Transportation Equity Areas Bicycle and Pedestrian Analysis	This study would analyze the bike network in the MPO region in communities with large minority and low-income populations (and potentially other equity populations). This analysis would be more extensive than that contained in the LRTP Needs Assessment, examining the functional connectivity of the network in terms of its effectiveness in providing access to jobs and other activities.	Medium	P			P					P			P				Y		Y
LAND USE, ENVIRONMENT, AND ECONOMY																					
L-1	(More) Transportation Access Studies of Commercial Business Districts	The proposal is to conduct transportation access studies, similar to those conducted in FFY 2019's Transportation Access Studies of Central Business Districts study, on a recurring basis, each year targeting a new group of CBDs. While the FFY 2019 CBD Access study will classify CBDs and select a sample for surveying that represents the variability of CBDs in the region, staff understands that the CBDs in the region may not all be represented by the limited sample afforded by the project budget. Primary work products would include a report detailing the results of the year's work (or separate reports detailing each CBD individually), and a dataset tracking the results over time.	Medium							P	S	S	P	S		P	S		Y		Y
L-2	Zoning and MBTA Ridership	This study would examine the opportunity cost of zoning constraints near MBTA stations in terms of foregone MBTA ridership. Zoning close to transit could be well below the density that could be supported or what is required to support the frequency that customers want. This might involve reviewing current actual and allowable densities, comparing these with what the market supports in comparable place types when allowed, and creating ridership estimates.	High			S			P	P			P		P			P			Y

(Table C-1 cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Cost Level	LRTP Goal Areas						Mode			Study Scale		Impact			Other		
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management Mobility	Economic Vitality	Roadway	Bicycle/Pedestrian	Transit	Specific Community or Location	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing or Past Work	Continuing Study	Study Carried Over from 2019 Universe
ROADWAY and MULTIMODAL MOBILITY																				
M-1	Safety Improvements at Express-Highway Interchanges	This study will continue to address the 2013 MassDOT Top 200 High-Crash Locations and HSIP crash clusters in the Boston Region MPO. Many of these are express-highway interchanges, and some of them do not need costly complete rebuilds but rather low-cost improvements that address safety and operations. MPO staff would develop recommendations for these low-cost safety and operational improvements.	High	P	S			S		P			S	P		P		Y		Y
M-2	Addressing Safety, Mobility, and Access on Subregional Priority Roadways	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 include data collection, technical analysis, development of recommendations, and documentation for selected corridors.	High	P				S		P			P			P				Y
M-3	Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment	These studies develop conceptual design plans that address regional multimodal transportation needs along priority corridors identified in the LRTP, <i>Charting Progress to 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.	High					P		P			P				P			Y
M-4	Safety and Operations at Selected Intersections	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.	High	P				P		P			P				P			Y

(Table C-1 cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Cost Level	LRTP Goal Areas						Mode			Study Scale		Impact			Other			
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management Mobility	Economic Vitality	Roadway	Bicycle/Pedestrian	Transit	Specific Community or Location	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing or Past Work	Continuing Study	Study Carried Over from 2019 Universe	New Study Concept for FFY 2020
M-5	Low-Cost Intersection Improvement Program	Staff will select the intersections based on CMP performance metrics, and then consult with planners/engineers from these respective communities to see if they agree that there are congestion issues at the preselected locations. Staff will then survey the selected intersections and determine the recommended low-cost improvements for the locations. These recommendations will be presented to each community. The communities can acknowledge the recommended improvements to each intersection and create their own project that would improve traffic operations.	Medium	P				P			P			P							Y
M-6	TIP before-and-after studies	This study would examine the results of a TIP project in a before-and-after fashion, measuring whether anticipated improvements to safety, traffic flow, and other factors did in fact materialize. Locations to be analyzed could be selected from the UPWP Study Recommendations Tracking Database.	Medium	P				P				S				S		Y			Y
M-7	Congestion Pricing Sensitivity Analysis*	There has been significant legislative, advocacy, and scholarly interest in whether and how a congestion pricing scheme might work in the Boston region. Critical questions to understand relate to sensitivity and elasticity: At what price point will drivers change behavior? What pricing scheme would relieve congestion? At what point do the costs to the public outweigh the potential benefit of fee? This study could potentially include a literature review, comparative analysis that takes into account the experiences of other regions, analysis of survey data, and modeling.	High but scalable	S	S	P	S	P			P		S		P	P					Y
M-8	Downtown Framingham Mobility Study	This study would focus on a comprehensive approach to improve mobility in downtown Framingham as a regional center. Possible tasks include identifying strategies to manage truck traffic; Complete Streets improvements; evaluating grade separation of the MBTA commuter rail; moving parking to the outskirts and providing shuttles; improving transit connections to retail along Route 9 and various office parks; using the Agricultural Branch rail spur for passenger service; and improving/ connecting the off-street multi-use trail network.	High	S		S		P			P	S	S	P			S	P			Y

(Table C-1 cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Cost Level	LRTP Goal Areas						Mode			Study Scale		Impact			Other			
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management	Economic Vitality	Roadway	Bicycle/Pedestrian	Transit	Specific Community or Location	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing or Past Work	Continuing Study	Study Carried Over from 2019 Universe	New Study Concept for FFY 2020
TRANSIT																					
T-1	Using US Census Data as a Proxy for Transit Rider Survey Data	Transit agencies and other analysts often perform analyses, such as service equity analyses, that require transit rider demographic data. Where possible, transit rider demographics are collected through rider surveys. Census data may be used in places where ridership data are not available because a new service is proposed or where existing services may be significantly altered. For example, when the alignment of a route changes, new riders might be served. Because these potential new riders were never surveyed, we do not know their demographics. However, census demographics of residents near transit service are not necessarily representative of transit riders. This study would attempt to solve such a problem by developing a model to estimate the demographics of the likely transit users from the census data based on relationships found between the survey and census data. Staff would compare rider demographic characteristics from the recent MBTA systemwide survey to those of the census residents near transit service (perhaps by looking at income, minority status, modes used to travel to work, or other variables) along with the levels of transit service provided. Using this model, staff could refine Census data to better represent transit riders. Staff may also be able to use this model to improve existing analyses that rely on census data to measure the transit opportunity of likely transit users rather than the transit opportunity of all people who live near bus stops.	Medium				S	P	S	S	S	P	P				P				Y
T-2	Transit Mitigation Methodology for New Development Sites*	MPO staff could develop a standard methodology for identifying transit impacts from new development, and potentially a menu of mitigation options based on the level of impact. This work could in part follow up on the “Comparing Large-Scale Transportation Mitigation Programs” memo presented to the MPO in December 2018.	Medium			S		P				P			P	P		Y			Y
T-3	Operating a Successful Shuttle Program	The MPO would create a training/best practices module based on the experiences of CrossTown Connect and other successful TMAs/microtransit/shuttle operations, laying out for interested parties (such as municipalities and TMAs) how to make such a program successful.	Medium			S		P				P			P	P					Y
T-4	Further Development of the MPO’s Community Transportation Program	This task would further the development of the MPO’s Community Transportation program from a framework as approved by the MPO into a fully fledged funding program through the administration of a pilot round of projects. This study could work in concert with the effort to create a training module for a successful shuttle program (T-3).	Low			S		P				P				P		Y			Y

(Table C-1 cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Cost Level	LRTP Goal Areas						Mode			Study Scale		Impact			Other		
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management	Economic Vitality	Roadway	Bicycle/Pedestrian	Transit	Specific Community or Location	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing or Past Work	Continuing Study	Study Carried Over from 2019 Universe
TRANSPORTATION EQUITY																				
E-1	Disparate Impact Metrics Analysis	This study will include three tasks: 1. Literature review for the metrics that are assessed for disparate impacts—carbon monoxide, travel time, and congested VMT—and how a given increase or decrease may affect people at a population level. 2. Use results of literature review to develop potential thresholds to test using MPO model results from <i>Destination 2040</i> . Apply potential thresholds to the model results along with margin of error to come up with new proposed thresholds for the DI/DB policy. 3. Write memo describing results of literature review and analysis.	Medium	S		S	P							P	P			Y		Y
RESILIENCE																				
R-1	Exploring Resilience in MPO-funded Corridor and Intersection studies	Climate change and resiliency are a growing challenge and a statewide priority that will become more important in the coming years, and both issues were raised in the MPO's recent certification review. The MPO could launch a discrete study or begin a recurring study or technical assistance program on the topic of making transportation infrastructure resilient. The goal of this study would be to increase MPO staff familiarity with this topic in order to provide assistance to municipalities seeking to combat extreme weather, flooding, and other climate-related challenges.	High	S	P			S		P	S	S	P		P			Y		Y
R-2	Essex Transportation Resiliency Study	The causeway across which Route 133 crosses in Essex floods regularly. Apple Street, the alternate route, is a small road that cannot handle diversionary traffic. The Town of Essex has requested that the MPO study ways to make Route 133 more resilient and/or improve Apple Street to handle traffic during flood events and buses at all times. There is potential to coordinate with the Municipal Vulnerability Program and the town's Hazard Mitigation Plan.	High		P			S		P	S		P			S	P			Y

(Table C-1 cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Cost Level	LRTP Goal Areas						Mode			Study Scale		Impact			Other			
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management	Economic Vitality	Roadway	Bicycle/Pedestrian	Transit	Specific Community or Location	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing or Past Work	Continuing Study	Study Carried Over from 2019 Universe	New Study Concept for FFY 2020
TECHNICAL SUPPORT and OTHER																					
O-1	MPO Staff-Generated Research Topics and Community Assistance Projects	This program would support work by MPO staff members on topics that relate to the Boston Region MPO's metropolitan transportation-planning process, that staff members have expressed interest in, and that are not covered by an ongoing UPWP study or discrete project. This program could bring forth valuable information for the MPO's consideration and would support staff's professional development. The opportunities afforded to staff through this program could yield highly creative solutions to transportation-planning problems. For FFY 2020, staff propose to expand the range of projects that could be funded through this budget line to include not only research, but small technical assistance projects. Individual MPO staff would be able to identify small-scale needs in the diverse communities in which they live (within the MPO region) and a partner entity or entities to work with in making recommendations to solve the problem. This budget line would allow 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.	Low												P	P			Y	Y	
O-2	How the MPO Can Implement the Recommendations of the Commission on the Future of Transportation	The Commission on the Future of Transportation made a number of recommendations that are targeted specifically at, or impact, MPOs. This study would evaluate those recommendations and analyze how the Boston Region MPO could react to and/or implement them, making specific recommendations for each program area.	Low		S		S	P	S						P	P	S	P	Y		Y
O-3	Improve Stakeholder Engagement with the UPWP	This study would examine the impacts of including the public more fully in MPO studies while they are being conducted, including the additional resources required to include public involvement in a study and the opportunity cost in terms of the number of studies the MPO would be able to fund.	Medium				P								P	S			Y		Y

Notes:

* this study proposed by MAPC

22 Total study concepts

Key

- P Primary area(s) that study concept addresses
- S Secondary area(s) that study concept addresses
- Y Condition is true for this study concept

Cost Scale

- High \$80,000–\$120,000
- Medium \$40,000–\$79,999
- Low \$0–\$39,999

Glossary:

CBD = Central Business District. CMP = Congestion Management Process. DI/DB = Disparate Impact/Disproportionate Burden. FFY = federal fiscal year. HSIP = Highway Safety Improvement Program. LRTP = Long-Range Transportation Plan. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. TIP = Transportation Improvement Program. TMA = Transportation-Management Associations. UPWP = Unified Planning Work Program. US = United States. VMT = Vehicle-Miles Traveled.

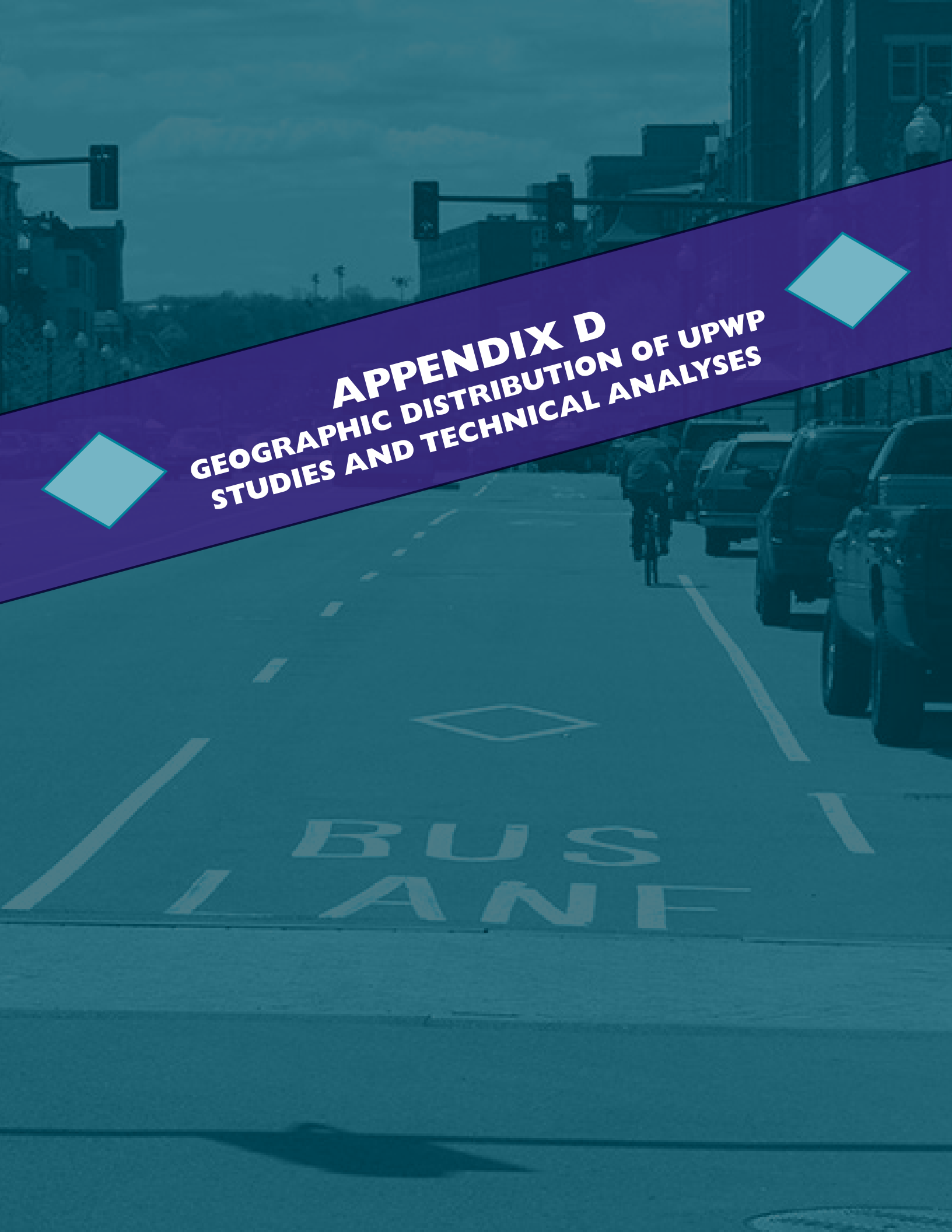
Table C-2
Studies Funded in the UPWP, by Category, FFYs 2016–20

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

*New category in FFY 2020

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





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 [CTPS]) and the staff of the Metropolitan Area Planning Council (MAPC) during federal fiscal years (FFY) 2010 through 2018, as well as work products expected to be completed by the end of FFY 2019. 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 purposes.

PURPOSE AND METHODOLOGY

Purpose

The purpose of this data collection is to understand better the geographic spread of Unified Planning Work Program (UPWP) work products (that is, reports and technical memoranda) throughout the 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 (LEP), by municipality. This is an initial approach to assessing the extent to which MPO studies may benefit these populations. This past year, staff explored the feasibility of other possible analyses that were suggested in the FFY 2019 UPWP. Staff determined that none of them are ideal for determining whether minority, LEP, and low-income populations benefit from MPO work products to the same degree as nonminority, non-LEP, and non-low-income populations. MPO staff are developing a database that will have the capability to track and geocode the location of the work products within the region. Current staff resources do not allow for the significant resource investment necessary to complete geocoding; but if it becomes possible at some point, staff will be able to map each study area precisely and determine which populations will likely benefit from the study and how money is spent. The distribution of federal funds for MPO work products to minority, LEP, and low-income populations will be analyzed and updated at that time.

The data presented in Table D-1 covers UPWP tasks completed from FFY 2010 through FFY 2019 and includes work that resulted in benefits to specific municipalities. Studies that had a regional focus are presented in Table D-2.

Tracking the geographic distribution of UPWP studies (those benefiting specific communities as well as those benefiting a wider portion of the region) can serve as one important input into the UPWP funding decisions made each FFY. When considered in combination with other

information, 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.

Methodology

As noted above, this analysis examined FFYs 2010 through 2019. 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 2019
- Excluded all agency and other client-funded studies and technical analyses to focus the analysis on MPO-funded work only
- Excluded all work products that had a focus that was regional or not limited to a specific geography
- Excluded all work related to certification requirements (Chapter 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 2017 five-year estimates

PLANNING STUDIES AND TECHNICAL ANALYSES BY COMMUNITY

Table D-I shows the number of completed MPO-funded UPWP work products from FFY 2010 through FFY 2019 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

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

Municipality	Number of Work Products							Demographics			
	2010–14 Total	2015	2016	2017	2018	2019	2010–19 Total	Total Population	Percent Minority	Percentage of Low-Income Households	Percentage of Residents Age 5+ with Low English Proficiency
Arlington	3		1	3	3	2	12	44,992	21.60%	23.65%	5.63%
Belmont	3		2	1	2		8	25,965	24.46%	20.83%	7.80%
Boston	18	4	3	2	5	9	41	669,158	55.09%	43.07%	17.39%
Brookline	4	1	1	2		1	9	59,246	28.56%	25.00%	9.50%
Cambridge	8	1	4	5	2	1	21	110,893	38.38%	31.45%	7.74%
Chelsea	9	1		2	1	1	14	39,272	78.05%	48.66%	41.82%
Everett	10	3	2	1	3	1	20	45,212	54.10%	44.02%	28.27%
Lynn	7		1		1	1	10	93,069	62.12%	48.18%	23.89%
Malden	9	1		2	2	1	15	61,212	53.36%	42.53%	24.96%
Medford	6		1		3		10	57,700	26.85%	31.40%	10.90%
Melrose	5	1		1	1		8	28,132	14.72%	29.28%	5.76%
Nahant	0						0	3,488	3.41%	30.24%	3.47%
Newton	10	2			1		13	88,479	26.22%	19.27%	7.13%
Quincy	11					2	13	93,824	39.57%	35.45%	20.33%
Revere	7				2	2	11	53,864	43.83%	46.83%	25.67%
Saugus	3				1		4	28,037	13.75%	30.37%	6.80%
Somerville	12	1	1	1	1	3	19	79,983	29.36%	29.14%	11.77%
Waltham	10	2	3	1	2	1	19	62,832	34.48%	30.75%	12.03%
Watertown	1				1		2	34,553	22.03%	23.01%	7.94%
Winthrop	2				1	1	4	18,391	14.27%	35.79%	7.48%
ICC Subtotals	138	17	19	21	32	26	253	1,698,302	44.32%	37.11%	15.97%

(Table D-1 Cont.)

Municipality	Number of Work Products							Demographics			
	2010–14 Total	2015	2016	2017	2018	2019	2010–19 Total	Total Population	Percent Minority	Percentage of Low-Income Households	Percentage of Residents Age 5+ with Low English Proficiency
Acton	2	4	1		1	3	11	23,455	30.82%	17.80%	6.97%
Bedford	5	2			2	2	11	14,105	23.26%	18.02%	4.96%
Bolton	3	1		1	2	1	8	5,167	9.75%	14.12%	0.94%
Boxborough	1	3			1	1	6	5,546	26.38%	25.79%	4.01%
Carlisle	1	1			1	1	4	5,160	15.97%	13.14%	3.25%
Concord	3	3	1	3	1	1	12	19,357	18.45%	17.74%	3.37%
Hudson	5	2			1	1	9	19,843	12.54%	29.27%	10.51%
Lexington	8	2			1	1	12	33,339	32.95%	17.00%	7.16%
Lincoln	8	1			1	1	11	6,696	26.05%	18.80%	2.06%
Littleton	2	3			1	1	7	9,754	11.03%	22.65%	3.00%
Maynard	3	4		1	2	1	11	10,560	11.35%	32.24%	4.31%
Stow	3	1			1	1	6	7,061	8.95%	19.22%	0.84%
Sudbury	6	1			1	1	9	18,697	15.31%	14.23%	3.35%
MAGIC Subtotals	50	28	2	5	16	16	117	178,740	21.18%	20.04%	5.30%
Ashland	3			1			4	17,478	18.46%	20.42%	6.63%
Framingham	13	1	1	2	1	2	20	71,232	34.04%	37.30%	15.55%
Holliston	4			1			5	14,480	11.05%	18.24%	1.79%
Marlborough	6			2			8	39,771	27.03%	32.80%	13.89%
Natick	9		1	1			11	35,957	19.90%	24.77%	5.73%
Southborough	7	1		1			9	10,021	15.84%	16.31%	2.91%
Wayland	3			1			4	13,700	17.46%	15.60%	4.27%
Wellesley	9	2	1	1			13	29,004	21.52%	14.54%	4.10%

(Table D-1 Cont.)

Municipality	Number of Work Products							Demographics			
	2010–14 Total	2015	2016	2017	2018	2019	2010–19 Total	Total Population	Percent Minority	Percentage of Low-Income Households	Percentage of Residents Age 5+ with Low English Proficiency
Weston	12	2	2	2	1		19	12,027	20.27%	17.99%	3.35%
MWRC Subtotals	66	6	5	12	2	2	93	243,670	24.48%	27.22%	9.24%
Burlington	10	1	1	1		1	14	26,103	25.48%	22.04%	7.86%
Lynnfield	2	2	1	1			6	12,732	9.33%	18.90%	3.11%
North Reading	1	1	1	1			4	15,598	9.85%	16.08%	1.68%
Reading	8	2	1	1			12	25,769	8.85%	21.72%	2.19%
Stoneham	3	1	1	1			6	21,967	9.10%	28.26%	4.43%
Wakefield	3		1	1			5	26,823	8.42%	24.64%	4.22%
Wilmington	5		1	1		1	8	23,538	11.11%	17.93%	2.99%
Winchester	4		2	1	1		8	22,579	17.80%	15.87%	5.31%
Woburn	6	1	1	2	1	1	12	39,500	19.18%	28.18%	8.12%
NSPC Subtotals	42	8	10	10	2	3	75	214,609	14.04%	22.62%	4.89%
Beverly	4	1		1	1	1	8	41,431	8.38%	35.69%	2.34%
Danvers	6			1		1	8	27,527	9.24%	32.36%	2.73%
Essex	0			1		1	2	3,687	1.08%	27.73%	0.29%
Gloucester	2			1			3	29,858	5.37%	40.34%	3.56%
Hamilton	1			1		1	3	7,991	8.47%	26.15%	3.09%
Ipswich	1			1			2	13,810	5.42%	33.45%	2.28%
Manchester	0			2	1	1	4	5,327	2.78%	21.08%	2.42%
Marblehead	2			2			4	20,393	7.33%	25.10%	3.16%
Middleton	0		1	2			3	9,656	13.87%	20.11%	3.64%
Peabody	4			2	2	1	9	52,610	15.58%	38.04%	8.19%
Rockport	3			1	2		6	7,184	4.15%	34.86%	0.67%

(Table D-1 Cont.)

Municipality	Number of Work Products							Demographics			
	2010–14 Total	2015	2016	2017	2018	2019	2010–19 Total	Total Population	Percent Minority	Percentage of Low-Income Households	Percentage of Residents Age 5+ with Low English Proficiency
Salem	5	2	1	3	2	1	14	43,146	28.17%	39.67%	8.12%
Swampscott	3			2	1		6	14,563	8.01%	24.56%	4.44%
Topsfield	0			2			2	6,496	4.65%	15.38%	1.27%
Wenham	1			1	1		3	5,179	10.29%	23.10%	1.88%
NSTF Subtotals	32	3	2	23	10	7	77	288,858	12.02%	34.02%	4.54%
Braintree	8	1	1				10	37,082	18.77%	28.22%	7.46%
Cohasset	2	1					3	8,393	2.30%	19.96%	0.42%
Hingham	2				1	2	7	23,047	4.52%	25.47%	0.71%
Holbrook	3						3	11,029	24.70%	34.14%	7.06%
Hull	1						1	10,402	7.29%	31.85%	2.71%
Marshfield	2						2	25,648	5.07%	29.35%	2.30%
Norwell	2				1	1	5	10,897	5.12%	18.64%	0.48%
Rockland	1				1		2	17,849	8.52%	31.90%	2.86%
Scituate	2	1			1		4	18,491	4.23%	23.17%	1.15%
Weymouth	5	1			1		7	55,890	16.11%	33.71%	4.45%
SSC Subtotals	31	4	1	0	5	3	44	218,728	11.36%	29.24%	3.61%
Bellingham	3				1		4	16,929	8.42%	26.37%	3.22%
Franklin	3						3	32,843	11.02%	20.61%	1.92%
Hopkinton	6	1					7	16,720	12.82%	12.34%	1.91%
Medway	4						4	13,162	10.55%	18.33%	1.50%
Milford	7	1			1		9	28,630	21.31%	32.22%	9.45%
Millis	3						3	8,144	7.27%	25.29%	2.79%
Norfolk	2						2	11,671	15.90%	15.58%	1.81%

(Table D-1 Cont.)

Municipality	Number of Work Products							Demographics			
	2010–14 Total	2015	2016	2017	2018	2019	2010–19 Total	Total Population	Percent Minority	Percentage of Low-Income Households	Percentage of Residents Age 5+ with Low English Proficiency
Sherborn	4						4	4,302	10.62%	15.81%	0.66%
Wrentham	3						3	11,597	5.93%	23.70%	1.36%
SWAP Subtotals	35	2	0	0	2	0	39	143,998	12.69%	22.82%	3.48%
Canton	2			2	2	1	7	22,829	19.67%	23.39%	5.05%
Dedham	4	1	1			1	7	25,377	21.50%	28.57%	5.48%
Dover	4					1	5	5,922	17.07%	7.31%	3.00%
Foxborough	3	1				1	5	17,448	12.28%	22.73%	2.54%
Medfield	0	1				1	2	12,610	9.25%	15.87%	1.17%
Milton	5				2	2	9	27,527	28.10%	19.39%	3.48%
Needham	6	1	1		1	2	11	30,429	15.61%	16.11%	4.44%
Norwood	2					2	4	29,121	21.02%	29.00%	5.80%
Randolph	4					1	5	33,704	63.84%	35.53%	15.81%
Sharon	0					1	1	18,245	24.53%	16.12%	7.14%
Walpole	3	1				1	5	24,960	13.05%	21.89%	2.36%
Westwood	5	1			1	1	8	15,597	11.85%	18.51%	4.34%
TRIC Subtotals	38	6	2	2	6	15	69	263,769	24.25%	23.36%	5.77%
Grand Total	435	74	41	74	76	72	767	3,250,674	31.44%	32.10%	10.92%

Notes:

- Demographic data is from American Community Survey (ACS) five-year estimates, 2013–2017. Margins of error are at the 90 percent confidence level.
- MPO staff tabulates limited English proficiency (LEP) for the population ages five and older, minority status for the entire population, and low-income status for the number of households.
- The MPO's low-income threshold is 60 percent of the region's median household income. The MPO's official threshold is \$45,392, using data from the 2014 ACS. Because of the availability of municipal-level household income data in the 2017 ACS, this table uses a low-income threshold of \$50,584 that reflects analysis of that data.
- 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.

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



REGIONWIDE PLANNING STUDIES AND TECHNICAL ANALYSES

In addition to work that benefits specific municipalities, many of the projects funded by the MPO through the UPWP have a regional focus. Table D-2 lists MPO-funded UPWP studies completed from 2010 through 2019 that were regional in focus. Some regionally focused studies may have work products that overlap with those analyzed in table D-1 above.

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

**Table D-2
Regionally Focused MPO Funded UPWP Studies**

FFY 2019	
CTPS	MAPC
<ul style="list-style-type: none"> • Pedestrian Report Card Assessment Dashboard • New and Emerging Metrics for Roadway Usage • The Future of the Curb • Updates to Express-Highway Volumes Charts 	<ul style="list-style-type: none"> • Coordination and convening of municipalities to implement recommendations of water transportation study • MetroCommon Regional Plan for smart growth and regional prosperity, including extensive stakeholder outreach and public engagement • Support for Bluebikes bikeshare system, Lime dockless bikeshare system, and support for coordinated regulation of electric scooters • Analysis of Transportation Network Company trips from varying data sources

(Table D-2 Cont.)

FFY 2018	
CTPS	MAPC
<ul style="list-style-type: none">• Community Transportation Program Development• Review of and Guide to Regional Transit Signal Priority• Crash Rates in Environmental Justice Communities (Staff-Generated Research)• Long-Distance Commuting in the Boston MPO Region (Staff-Generated Research)• Exploring New Software for Transit Planning (Staff-Generated Research)• Safety Effectiveness of Safe Routes to School Programs• Planning for Connected and Autonomous Vehicles• Study of Promising GHG Reduction Strategies	<ul style="list-style-type: none">• Participation in Water Transportation Advisory Council• Regional Plan Update process• Evaluation of Transit-Oriented Development Planning Studies• Ride-hailing research, literature review, and survey of 900 Uber and Lyft riders in Boston region to indicate how TNCs are affecting travel behavior• Participation in suburban mobility working group with MassDOT, MBTA, and CTPS staff to discuss opportunities to pilot dynamic ride dispatching
FFY 2017	
CTPS	MAPC
<ul style="list-style-type: none">• Using GTFS Data to Find Shared Bus Route Segments with Excessively Irregular Headways• Pedestrian Level-of-Service Metric Development• Exploring the 2011 Massachusetts Travel Survey: MPO Travel Profiles• Exploring the 2011 Massachusetts Travel Survey: Barriers and Opportunities Influencing Mode Shift• Core Capacity Constraints• Barriers and Opportunities Influencing Mode Shift• Bicycle Network Gaps: Feasibility Evaluations• 2016–17 Bicycle and Pedestrian Counts• Bicycle and Pedestrian Count Memo (summarizing counts 2014–17)• Memorandum documenting plans for future Boston Region MPO bicycle and pedestrian counting methodologies	<ul style="list-style-type: none">• North Suburban Mobility Study• North Shore Mobility Study• Perfect Fit Parking Report and Website• Hubway Bikeshare Coordination• MetroWest LandLine Gaps Analyses

(Table D-2 Cont.)

FFY 2016	
CTPS	MAPC
<ul style="list-style-type: none">• Modeling Capacity Constraints• Identifying Opportunities to Alleviate Bus Delay• Research Topics Generated by MPO Staff (FFY 2016): Transit dependence scoring system using driver license data• Title VI Service Equity Analyses: Methodology Development• EJ and Title VI Analysis Methodology Review• Transportation Investments for Economic Development	<ul style="list-style-type: none">• Right-Size Parking Report• Transportation Demand Management—Case Studies and Regulations• Hybrid Electric Vehicle Retrofit Procurement• Autonomous Vehicles and Connected Cars research• MetroFuture Implementation technical memorandums
FFY 2015	
CTPS	MAPC
<ul style="list-style-type: none">• Greenhouse Gas Reduction Strategy Alternatives: Cost-Effectiveness Analysis• Roadway Network for Emergency Needs• 2012 Inventory of Bicycle Parking Spaces and Number of Parked Bicycles at MBTA stations• 2012–13 Inventory of Park-and-Ride Lots at MBTA Facilities• Title VI Service Equity Analyses: Methodology Development	<ul style="list-style-type: none">• Population and Housing Projections for Metro Boston• Regional Employment Projections for Metro Boston• Right-size parking calculator
FFY 2014	
CTPS	MAPC
<ul style="list-style-type: none">• Bicycle Network Evaluation• Household Survey-Based Travel Profiles and Trends• Exploring the 2011 Massachusetts Travel Survey: Focus on Journeys to Work• Methodology for Evaluating the Potential for Limited-Stop Service on Transit Routes	<ul style="list-style-type: none">• Transportation Demand Management Best Practices and Model Municipal Bylaw• Land Use Baseline for Bus Rapid Transit• MetroFuture community engagement

(Table D-2 Cont.)

FFY 2013	
CTPS	MAPC
<ul style="list-style-type: none">• Regional HOV-Lane Systems Planning Study, Phase II• Roadway Network Inventory for Emergency Needs: A Pilot Study• Carbon Dioxide, Climate Change, and the Boston Region MPO: 2012 Update• Massachusetts Regional Bus Study• Boston Region MPO Freight Program	<ul style="list-style-type: none">• Regional Trail Network Map and Greenway Planning• MetroFuture engagement at the local level, updates to the Regional Indicators Reports, and Smart Growth Profiles
FFY 2012	
CTPS	MAPC
<ul style="list-style-type: none">• Analysis of JARC and New Freedom Projects• Safety and Security Planning• Emergency Mitigation and Hazard Mapping, Phase II• Impacts of Walking Radius, Transit Frequency, and Reliability• MBTA Systemwide Passenger Survey: Comparison of Results• Pavement Management System Development• Roundabout Installation Screening Tool• TIP Project Impacts Before/After Evaluation• Regional HOV System Planning Study• Freight Survey	<ul style="list-style-type: none">• Snow Removal Policy Toolkit• MetroFuture implementation strategies— updated implementation strategies including focus on equity indicators

(Table D-2 Cont.)

FFY 2011	
CTPS	MAPC
<ul style="list-style-type: none">• Charlie Card Trip Paths Pilot Study• Early Morning Transit Service• Maintenance Cost of Municipally Controlled Roadways• Analysis of Responses to the MBTA Systemwide Onboard Passenger Survey by Respondents in Environmental-Justice Areas• MBTA Core Services Evaluation• MPO Freight Study, Phase I and Phase II• MPO Freight/Rail Study	<ul style="list-style-type: none">• MPO Pedestrian Plan• MPO Regional Bike Parking Program• Toolkit for Sustainable Mobility—focusing on local parking issues
FFY 2010	
CTPS	MAPC
<ul style="list-style-type: none">• An Assessment of Regional Equity Outreach 2008–09• Coordinated Human Services Transportation Plan Update• Greenbush Commuter Rail Before and After Study• Mobility Assistance Program and Section 5310 Review• Safety Evaluation of TIP Projects• Red Line-Blue Line Connector Study Support	<ul style="list-style-type: none">• Creation of a GIS coverage and related database of MAPC-reviewed projects and their mitigation commitments• Implementation of the regional and statewide bicycle and pedestrian plans, and work on bicycle/pedestrian-related issues, including coordination with relevant national, state, and regional organizations

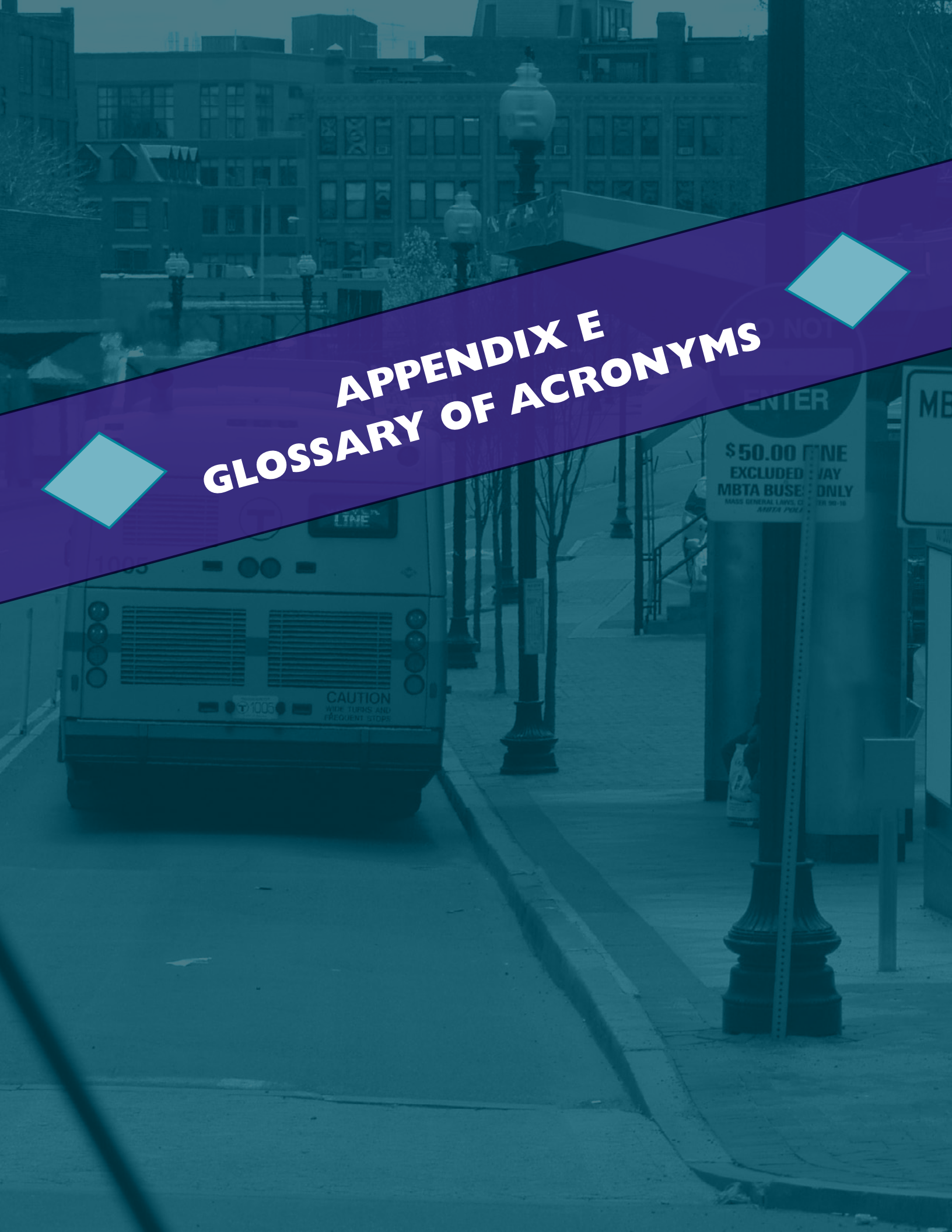
CTPS = Central Transportation Planning Staff. EJ = environmental justice. FFY = federal fiscal year. GHG = greenhouse gas. GIS = geographic information systems. GTFS = general transit feed specification. HOV = high-occupancy vehicle. JARC = job access reverse commute program. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. TIP = Transportation Improvement Program. TNC = transportation network companies.

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 the MPO holds or collects to inform a number of future analyses, including the following:

- 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 more detail the geographic distribution of UPWP studies and technical analyses per subregion or per MAPC community type to understand the type of tasks being completed and how these compare to municipally identified needs
- Examine the number of tasks per community and compare the data to the number of road miles 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), *Charting Progress to 2040*, and the one currently in development, *Destination 2040*. The transportation needs of the region for the next 25 years are identified and organized in the LRTP according to the MPO's goal areas, which 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.

A teal-tinted photograph of a city street. In the foreground, the rear of a white bus is visible, with a license plate that reads '1005'. The bus has 'CAUTION' and 'WIDE TURNS AND FREQUENT STOPS' written on its back. To the right, a bus stop sign is visible, featuring a circular 'ENTER' sign and a rectangular sign that reads '\$50.00 FINE EXCLUDED WAY MBTA BUSES ONLY'. The background shows multi-story buildings and street lamps. A purple diagonal banner with white text is overlaid across the middle of the image, flanked by two light blue diamond shapes.

APPENDIX E GLOSSARY OF ACRONYMS




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

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

Acronym	Definition
MAPC	Metropolitan Area Planning Council
MARPA	Massachusetts Association of Regional Planning Agencies
MassDOT	Massachusetts Department of Transportation
MassGIS	Massachusetts Bureau of Geographic Information
Massport	Massachusetts Port Authority
MBTA	Massachusetts Bay Transportation Authority
MEPA	Massachusetts Environmental Policy Act
MGL	Massachusetts general laws
MIRE	Model Inventory of Roadway Elements
MOVES	Motor Vehicle Emissions Simulator [EPA air quality model]
MPO	metropolitan planning organization
NO _x	nitrogen oxides
NTD	National Transit Database
OTP	MassDOT Office of Transportation Planning
PBPP	performance-based planning and programming
PfP	Planning for Performance [scenario-planning tool]
PHED	peak hour excessive delay
PL	metropolitan planning funds or public law funds [FHWA]
PMT	Program for Mass Transportation [MBTA]
PPP	Planning for Performance [scenario-planning tool]
PPP	Public Participation Program
PRCA	Pedestrian Report Card Assessment [transportation planning tool]
RMV	Registry of Motor Vehicles [MassDOT division]

Acronym	Definition
ROC	Rider Oversight Committee [MBTA]
RSA	Roadway Safety Audit [FHWA]
RTA	regional transit authority
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users
SFY	state fiscal year
SIP	State Implementation Plan
SOV	single-occupancy vehicle
SPR	Statewide Planning and Research [FHWA]
STIP	State Transportation Improvement Program
TCM	transportation control measure
TE	transportation equity
TIP	Transportation Improvement Program [MPO certification document]
TMA	Transportation Management Association
TMA	Transportation Management Area
TNC	transportation network company
TOD	transit-oriented development
TRB	Transportation Research Board
UPWP	Unified Planning Work Program [MPO certification document]
USDOT	United States Department of Transportation [oversees FHWA and FTA]
VOCs	volatile organic compounds [pollutants]
WMM	weMove Massachusetts [MassDOT planning initiative]



APPENDIX F
REGULATORY FRAMEWORK
AND MPO MEMBERSHIP



This appendix contains two elements: detailed background on the regulatory documents, legislation, and guidance that shape the Metropolitan Planning Organization’s (MPO) transportation planning process, and information on the permanent voting members of the MPO.

MPO REGULATORY FRAMEWORK

The Boston Region MPO plays a critical role in helping the region move closer to achieving federal, state, and regional transportation goals and policies. Therefore, an important part of the MPO’s core required work is to ensure that the MPO’s planning activities align with federal and state regulatory guidance. This appendix describes all of the regulations, policies, and guidance taken into consideration by the MPO during development of the certification documents and other core work undertaken during federal fiscal year (FFY) 2020.

Federal Regulations and Guidance

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

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

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

The Boston Region MPO has incorporated these national goals, where practicable, into its vision, goals, and objectives, which provide a framework for the MPO's planning processes.

FAST Act: Planning Factors

The MPO considers the federal planning factors (described in 23 USC 134) when developing all documents that program federal transportation funds. The FAST Act added two new planning factors to the eight factors established in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) transportation legislation. In accordance with the legislation, studies and strategies undertaken by the MPO shall

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

(Table F-1 cont.)

Federal Planning Factor		3C-funded Certification Activities														3C-funded Technical Analysis and Support						New and Recurring 3C-funded Planning Studies*										Administration and Resource Management										
		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 (CTPS and MAPC)	Transportation Equity Program	Congestion Management Process	Freight Planning Support	Regional Model Enhancement	Transit Committee Support	Roadway Safety Audits	Traffic Data Support	Transit Data Support	Community Transportation Technical Assistance	Bicycle and Pedestrian Support Activities	Regional Transit Service Planning Technical Support	Land-Use Development Project Reviews (MAPC)	Locations with High Bicycle and Pedestrian Crash Rates in the Boston Region MPO Area	Addressing Safety, Mobility, and Access on Subregional Priority Roadways, FFY 2020	Addressing Priority Corridors from the LRTP Needs Assessment, FFY 2020	Safety and Operations Analysis at Selected Intersections, FFY 2020	TIP Before and After Studies	Transit Mitigation for New Development Sites	Operating a Successful Shuttle Program	Further Development of the MPO's Community Transportation Program	Disparate Impact Metrics Analysis	Exploring Resilience in MPO-funded Corridor and Intersection Studies	MPO Staff-generated Research Topics and Technical Assistance	Alternative Mode Planning and Coordination (MAPC)	MetroFuture Implementation (MAPC)	Corridor/Subarea Planning Studies (MAPC)	Computer Resource Management	Data Resources Management	MPO/MAPC Liaison Activities (MAPC)	Land Use Data for Transportation Modeling (MAPC)	Subregional Support Activities (MAPC)	
7	Promote efficient system management and operation.	X			X	X	X		X		X	X	X	X	X	X	X		X			X	X	X	X	X										X	X					
8	Emphasize the preservation of the existing transportation system.	X				X	X	X			X				X	X	X	X	X								X								X							
9	Improve the resiliency and reliability of the transportation system and reduce or mitigate storm-water impacts of surface transportation.	X				X	X		X	X							X			X										X					X	X						
10	Enhance travel and tourism.	X		X		X	X		X	X				X	X	X	X	X	X															X								

* For ongoing FFY 2019 3C-funded studies, see FFY 2019 UPWP

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

3C = Continuing, cooperative, and comprehensive transportation-planning process. CTPS = Central Transportation Planning Staff. FFY = federal fiscal year. MAPC = Metropolitan Area Planning Council. MPO = Metropolitan Planning Organization. RTAC = Regional Transportation Advisory Council.

TIP = Transportation Improvement Program. X = Applicable.

FAST Act: Performance-based Planning and Programming

The US Department of Transportation (USDOT), in consultation with states, MPOs, and other stakeholders, has established performance measures relevant to these national goals in the areas of 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.

1990 Clean Air Act Amendments

The Clean Air Act, most recently amended in 1990, forms the basis of the US air pollution control policy. The act identifies air quality standards, and the US Environmental Protection Agency (EPA) may designate geographic areas as *attainment* or *nonattainment* 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 in *maintenance* for a 20-year period to ensure that the standard is maintained in the 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 of the Code of Federal Regulations (CFR), Parts 51 and 93.

As of April 1, 2016, the Boston Region MPO has been classified as being in attainment for carbon monoxide (CO), but a conformity determination must still be completed because there is a carbon monoxide maintenance plan in place and approved as part of the SIP. In the most recent LRTP, *Charting Progress to 2040*, the air quality conformity determination concluded that the emissions levels from the Boston area CO maintenance area, including emissions resulting from implementing the LRTP, are in conformance with the SIP. Specifically, the CO emissions that

would be produced under the build scenarios that were modeled during the development of the LRTP were less than the projections for the years 2020 through 2040 for the nine cities in the Boston CO maintenance area. In accordance with Section 176(c) (4) of the Clean Air Act as amended in 1990, the Boston Region MPO has completed this review and hereby certifies that the LRTP, and its latest conformity determination, conditionally conforms with federal (40 CFR Part 93) and Massachusetts (310 Code of Massachusetts Regulations [CMR] 60.03) regulations and are consistent with the air quality goals in the Massachusetts SIP.

The MPO must also perform conformity determinations if transportation control measures (TCMs) are in effect in the region. TCMs are strategies that reduce transportation-related air pollution and fuel use by reducing vehicle miles traveled and improving roadway operations. The Massachusetts' State SIP supports the attainment of air quality standards and identifies TCMs. 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.

On February 16, 2018, the US Court of Appeals for the DC Circuit issued a decision in *South Coast Air Quality Management District v. EPA*, which struck down portions of the 2008 Ozone National Ambient Air Quality Standards (NAAQS) SIP Requirements Rule concerning the ozone NAAQS. Those portions of the SIP Requirements Rule included transportation conformity requirements associated with EPA's revocation of the 1997 ozone NAAQS. Massachusetts was designated as an attainment area for 2008 ozone NAAQS, but as a nonattainment or maintenance area for 1997 ozone NAAQS. As a result, MPOs in Massachusetts must demonstrate conformity for ozone when developing LRTPs and TIPs. The MPOs in Massachusetts are also required to report on the TCMs as part of air quality conformity determinations in these documents. In addition, the MPOs are still required to perform air quality analyses for carbon dioxide as part of the state's Global Warming Solutions Act.

Nondiscrimination Mandates

The Boston Region MPO complies with Title VI of the Civil Rights Act of 1964, the American with Disabilities Act of 1990 (ADA), the Environmental Justice Executive Order (EJ EO), and other federal and state nondiscrimination statutes and regulations in all programs and activities it conducts. Per federal law, the MPO does not discriminate based on 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 takes steps in its communication practices and planning processes to provide for and facilitate participation of all persons in the region, including those protected by Title VI, ADA, the EJ EO,

and other nondiscrimination mandates. The MPO also considers distribution of the potential beneficial and adverse effects to populations covered by these mandates when making decisions about the programming of federal funding, including funding for MPO-supported studies. The MPO conducts activities as part of its Transportation Equity Program, which ensures that the MPO meets these requirements. The MPO staff also conducts the Massachusetts Department of Transportation (MassDOT) Title VI Program, and the Massachusetts Bay Transportation Authority (MBTA) Title VI Program monitoring. The major federal requirements 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, dated August 11, 2000, extends Title VI protections to persons who, because of national origin, have limited English-language proficiency (LEP). Specifically, it calls for improved access to federally assisted programs and activities, and requires MPOs to develop and implement a system through which people with LEP can meaningfully participate in the transportation planning process. This requirement includes the development of a Language Assistance Plan that documents the organization's process for providing meaningful language access to people with LEP that access their services and programs.

Environmental Justice Executive Order

Executive Order 12898, dated February 11, 1994, requires each federal agency to achieve environmental justice by identifying and addressing any disproportionately great 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 US Department of Transportation 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.

The ADA

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. It means that the MPO must consider the mobility needs of people with disabilities when programming federal funding for studies and capital projects.

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

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.

We Move Massachusetts and Planning for Performance

We Move Massachusetts (WMM) is MassDOT’s statewide strategic multimodal plan. The initiative is a product of the transportation reform legislation of 2009, the You Move Massachusetts civic engagement process, wider outreach to environmental justice and Title VI communities, and other outreach activities. In May 2014, MassDOT released *We Move Massachusetts: Planning for Performance, the Commonwealth of Massachusetts’ 2040 LRTP*. WMM also incorporates performance management in investment decision making to calculate the differences in performance outcomes that would result from various funding distributions across program areas.

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

Massachusetts Strategic Highway Safety Plan (SHSP)

The *Massachusetts 2018 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 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 MBTA's Commuter rail system). In 2018, MassDOT also released drafts of the *Statewide 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 and GreenDOT Policy

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

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

In January 2015, the Massachusetts Department of Environmental Protection amended regulation 310 CMR 60.05, *Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation*, 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 reviewing projects to be programmed in the TIPs, and they must evaluate and report the GHG emissions impacts of transportation projects in LRTPs and TIPs.

MassDOT also fulfills its responsibilities defined in the *Massachusetts Clean Energy and Climate Plan for 2020* through its GreenDOT Policy Directive, a comprehensive sustainability initiative that sets three principal objectives:

- **Reduce GHG emissions from the transportation sector.** MassDOT will achieve this objective by considering all of its responsibilities, including strategic planning, project design and construction, and system operations.

- **Promote the healthy transportation modes of walking, bicycling, and taking public transit.** MassDOT will achieve this objective by pursuing multimodal Complete Streets design standards, providing choices in transportation services, and working with MPOs and other partners to balance funding for projects that serve drivers, pedestrians, bicyclists, and public transit riders.
- **Support smart growth development.** MassDOT will achieve this objective by working with MPOs and other partners to invest in transportation projects that make possible denser smart-growth development patterns, which help reduce GHG emissions.

The Commonwealth's 10 MPOs (and three nonmetropolitan 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.

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 *Charting Progress to 2040*, the Boston Region MPO has established investment programs—particularly its Complete Streets and Bicycle and Pedestrian programs—that support the implementation of Complete Streets projects. The Unified Planning Work Program (UPWP) programs 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.

Regional Guidance and Priorities

Focus40, The MBTA's Program for Mass Transportation

Focus40 is the 25-year investment plan that aims to position the MBTA to meet the needs of the Greater Boston region through to 2040. It is known officially as the Program for Mass Transportation (PMT). On July 30, 2018, the MassDOT and the MBTA released a draft of the *Focus40* plan. The *Focus40* plan, which is guided by the MBTA's Strategic Plan and other internal and external policy and planning initiatives, will serve as a comprehensive playbook guiding all capital planning initiatives at the MBTA. This includes the *RailVision* plan, which will inform the vision for the future of the MBTA's commuter rail system; the Better Bus Project, the plan to improve the MBTA's bus network; and other plans. The Boston Region MPO continues to monitor the development of *Focus40* and related MBTA modal plans to inform its decision making about transit capital investments, which are incorporated to the TIP and LRTP.

MetroFuture

MetroFuture, which was developed by the Metropolitan Area Planning Council (MAPC) and adopted in 2008, is the long-range plan for land use, housing, economic development, and environmental preservation for the Boston region. It includes a vision for the region's future and a set of strategies for achieving that vision, and is the foundation for land-use projections used in the MPO's LRTP, *Charting Progress to 2040*. MAPC is now developing *MetroCommon*, the next regional plan, which will build off *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 will monitor *MetroCommon* as it develops.

The MPO's Congestion Management Process

The purpose of the Congestion Management Process (CMP) is to monitor and analyze performance of facilities and services, develop strategies for managing congestion based on the results of monitoring, and move those strategies into the implementation stage by providing decision makers in the region with information and recommendations for improving the transportation system's performance. The CMP monitors roadways and park-and-ride facilities in the Boston region for safety, congestion, and mobility, and identifies problem locations. The CMP is described in more detail in the UPWP, and studies undertaken through the CMP are often the inspiration for discrete studies funded through the UPWP.

VOTING MEMBERS OF THE BOSTON REGION MPO

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

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

- The **MassDOT Highway Division** has jurisdiction over the roadways, bridges, and tunnels formerly overseen by the Massachusetts Highway Department and the Massachusetts Turnpike Authority. The Highway Division also has jurisdiction over many bridges and parkways that previously were under authority of the Department of Conservation and Recreation. The Highway Division is responsible for the design, construction, and maintenance of the Commonwealth's state highways and bridges. It is also responsible for overseeing traffic safety and engineering activities for the state highway system. These activities include operating the Highway Operations Control Center to ensure safe road and travel conditions.
- The **Rail and Transit Division** oversees MassDOT's freight and passenger rail program, and provides oversight of Massachusetts' 15 regional transit authorities (RTA), as well as intercity bus service, the MBTA's paratransit service (The RIDE), and a statewide mobility management effort.

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

the MBTA FMCB consists of five members, one with experience in transportation finance, one with experience in mass transit operations, and three who are also members of the MassDOT Board of Directors.

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

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 East Boston, South Boston, and Charlestown.

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

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

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

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