



APPENDIX A

Other Boston Region Transportation Planning Projects

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 (Massachusetts Department of Transportation [MassDOT], Massachusetts Bay Transportation Authority [MBTA], etc.) and municipalities during federal fiscal year (FFY) 2017. MPO funding will not be used for these studies, although in certain instances an agency or one of its consultants may contract with MPO staff (Central Transportation Planning Staff [CTPS]) to provide support for the preparation of an environmental impact report or a large-scale study. CTPS support work is described in Chapters 5 through 8.

The projects in this appendix are not subject to the MPO's public participation process. Rather, they follow their own public processes, some of which may be required by the Massachusetts Environmental Policy Act (MEPA). They are included here to provide a more complete picture of all of the surface-transportation planning projects occurring in the Boston region.

OTHER BOSTON REGION TRANSPORTATION PLANNING PROJECTS

Allston I-90, Massachusetts Turnpike Interchange Improvement Project

Agency: MassDOT

The proposed project consists of an interchange improvement project to address the structural and geometric deficiencies of the I-90 Allston Interchange between Cambridge Street and Commonwealth Avenue in the city of Boston. Context-sensitive design alternatives will be discussed and will then be developed for further evaluation in an environmental document that will ensure that the reconstructed interchange and ramp configurations will continue to support the vehicular loading conditions and provide safe and reliable transportation access. The existing viaduct has severely deteriorated, and alternatives under consideration for its replacement will provide MassDOT the opportunity to reconfigure the Allston Interchange, which dates from the 1965 extension of the Massachusetts Turnpike to Downtown Boston. This project includes the provision of improving the alignment of I-90 between Cambridge Street and Commonwealth Avenue when all electronic tolling (AET) is implemented. Provisions for improved access through the project area for alternative modes of transportation will also be considered.

Arsenal Street Corridor Transportation Study

Agency: MassDOT

The Arsenal Street Corridor Transportation Study aims to evaluate existing and future multimodal transportation conditions along the Arsenal Street corridor in the town of Watertown and its surrounding communities in order to develop and analyze alternatives to improve transportation conditions. The study will have a primary focus on bus service along Arsenal Street and at locations where bus service ties into crossing bus routes, including but not limited to MBTA routes 57, 70/70A, 71, and 73. In

addition, the study will examine and evaluate alternatives in the context of vehicular, bicycle, and pedestrian use; land use; economic development; community effects; health effects; and cost. The impact on existing users of the transportation network will also be examined. The study will produce a final report that will include analytical findings, a recommended plan of future scheduled transportation improvements (short-term, medium-term, and long-term), preliminary cost estimates for these improvements, and a comprehensive implementation plan for the recommended improvements.

Cape Cod Canal Transportation Study

Agency: MassDOT

The purpose of the Cape Cod Canal Transportation Study is to identify improvements to the transportation system in the area surrounding the Cape Cod Canal in Bourne and Sandwich, Massachusetts, including the construction of new Cape Cod Canal crossings. This study will include the development and analysis of a full range of transportation alternatives to address the identified transportation needs. The alternatives considered will include new or replacement Cape Cod Canal crossings; highway, interchange, and non-highway improvements; and other options and design elements that improve access in all modes. The alternatives will be evaluated using criteria that relate to the study's goals and objectives. The study will result in the production of a final report that includes analytical findings, a recommended plan of future scheduled transportation improvements (short-term, medium-term, and long-term), preliminary cost estimates for these improvements, and a comprehensive implementation plan for the recommended improvements.

Climate Change Adaptation Plan: Phase I, Transportation Asset Vulnerability Assessment

Agency: MassDOT

MassDOT will be conducting a statewide transportation asset vulnerability assessment. The Office of Transportation Planning kicked off the first phase of the Climate Change Adaptation Plan: Transportation Asset Vulnerability Assessment in summer 2015. This will include developing future climate scenarios for the Commonwealth of Massachusetts as well as a detailed assessment of the risks posed to the full inventory of MassDOT assets from the climate and extreme weather predictions.

Everett Transit Study

Agency: MassDOT

Everett, a small densely populated urban city located across the Mystic River from Boston, is currently in the process of revitalizing its neighborhoods by attracting new or expanding existing industrial and business users, remediating brownfields, enhancing residential quality of life, and improving waterfront access. Many substantial future development and redevelopment projects have been identified by the city of Everett and MassDOT.

The massive change associated with such development presents the challenge of creating a balanced and integrated multimodal transportation system capable of serving the city for its long-term success. MassDOT will form a project team to create a transit-focused transportation plan given the future forecasts of major development.

I-93/I-95 Interchange Improvements Project

Agency: MassDOT

MassDOT intends to redesign and reconstruct the I-93/I-95 Interchange to improve traffic flow and safety. The I-93/I-95 Interchange lies at the center of a regional highway network serving Massachusetts and the rest of New England. It is also an important link for the local communities of Woburn, Reading, Stoneham, Wakefield, and other neighboring towns. This interchange experiences heavy traffic volumes during peak hours. Delays are common during peak commuting times, with traffic often dangerously backed up from the ramps onto the mainline highways.

An in-depth planning study of the I-93/I-95 Interchange, completed in 2007, analyzed and recommended several short-term and long-term improvement alternatives. As a part of the required National Environmental Policy Act (NEPA) and Massachusetts Environmental Policy Act (MEPA) processes, and to complete an Environmental Impact Statement (EIS) and Environmental Impact Report (EIR), MassDOT now desires to refine and develop variations of the alternative interchange configurations and to evaluate the potential for improvements that are expected to enhance mobility and safety for users.

Intelligent Transportation Systems: Development and Implementation

Agency: MassDOT

MassDOT is engaged in planning, developing, and implementing intelligent transportation systems (ITS) to more effectively operate the transportation system in Massachusetts. MassDOT's Office of Transportation Planning conducts ITS planning, as described in the State Planning and Research Program, Part I. Current planning activities include implementing a statewide ITS planning program, deploying a recently completed statewide ITS strategic plan, maintaining and updating the regional ITS architecture for metropolitan Boston and other regions within the state, increasing awareness of ITS within the transportation community and among related stakeholders, planning activities in support of the use of ITS as a tool for improving system performance and function, and providing assistance in planning for the use of ITS for all modes.

MassDOT's Highway Division established the ITS Programs Unit within the Statewide Operations Division to design, develop, implement, and maintain ITS systems for the state highway system. The ITS Programs Unit works with consultants and contractors on these rapidly evolving technologies. Current activities in the Boston region include operation of the Statewide Traffic Operations Center in South Boston, operation of the high-occupancy-vehicle (HOV) lanes on I-93 into Boston from the north and south,

expansion of the real time travel monitoring (RTTM) system deployment, operation of the Massachusetts Interagency Video Information System (MIVIS) and advanced traveler-information system, and development of an Advanced Transportation Management System.

Kendall Square Mobility Task Force

Agency: MassDOT

MassDOT's Kendall Square Mobility Task Force process will provide a holistic approach to mobility issues in the Kendall Square area of Cambridge. In recent years, the city of Cambridge, MassDOT, the MBTA, institutions, and private organizations have documented the need for improved mobility in Kendall Square through a series of studies and initiatives. The existing mobility issues and deficiencies identified through these processes, coupled with planned growth in Kendall Square and East Cambridge, has created a need to develop a transportation strategy to address local and regional mobility needs and to mitigate potential future impacts.

The Kendall Square Mobility Task Force will work to identify projects and policy initiatives in support of the continued success of the Kendall Square area. These projects and initiatives will be technically and financially achievable over the short-term, medium-term, and long-term horizons. The task force will consider the capacity of connections into and within the Kendall Square area.

CTPS will support the Kendall Square Mobility Task Force through the MassDOT Statewide Planning and Research Program Support work (see Chapter 7 for additional information).

MassDOT Greenhouse Gas Strategies Phase II— Energy and Emissions Reduction Policy Analysis Tool (EERPAT) Strategy Testing

Agency: MassDOT

MassDOT is working with the Executive Office of Energy and Environmental Affairs (EOEEA) to adapt the Federal Highway Administration's (FHWA's) Energy and Emissions Reduction Policy Analysis Tool (EERPAT), which will enable modeling of the effectiveness of various approaches to reducing transportation sector greenhouse gas (GHG) emissions. EERPAT will help MassDOT model the GHG impacts associated with capital investments and examine system adjustments for both transit and roadway operations. This tool also may allow modeling of the impacts of GHG education and encouragement policies designed to encourage mode shift, carpooling, and eco-driving. The results of this modeling and other analyses will be used to refine the transportation sector strategies included in EEOEA's Clean Energy and Climate Plan (CECP) for 2020.

MBTA Modal Plans

Agency: MassDOT

MassDOT's Office of Transportation Planning will be undertaking a series of mode-specific plans as part of the update of the Program for Mass Transportation. MassDOT will procure consultant support for the technical and civic engagement elements of the modal plans.

CTPS will support the development of MBTA Modal Plans through the MassDOT Statewide Planning and Research Program support work.

McCarthy Overpass on McGrath Highway (Route 28)

Agency: MassDOT

In 2011, MassDOT launched a planning process, generally known as Grounding McGrath, to determine the future of this section of the Route 28 corridor and particularly the McCarthy Overpass, which was determined to be in poor structural condition and in need of substantial repairs to both its substructure and superstructure. To follow up on the study Grounding McGrath: Determining the Future of the Route 28 Corridor, MassDOT will develop state and federal environmental review documents as part of the project development process for the preferred alternative for this project.

Northern New England Intercity Rail Initiative

Agency: MassDOT

The Commonwealth of Massachusetts, with the participation of the state of Vermont and the state of Connecticut, is conducting the Northern New England Intercity Rail Initiative (NNEIRI) Feasibility and Planning Study to identify upgrades and improvements along two major rail corridors known as the Inland Route and the Boston-to-Montreal Route that make up part of the federally designated Northern New England High-Speed Rail Corridor. The Inland Route rail corridor connects the cities of Boston, MA and New Haven, CT via the cities of Worcester, MA and Springfield, MA. Improvements to the Inland Route may facilitate initiation of passenger train service along a second route between Boston and New York at speeds comparable to the existing Amtrak regional trains that travel along the Northeast Corridor. The Boston-to-Montreal rail corridor connects the cities of Boston, MA and Montreal, Quebec via Springfield, MA and White River Junction, VT. Both corridors share common track on the route between the cities of Boston and Springfield. This study will result in a draft Service Development Plan for each passenger rail corridor and a Tier 1 Draft Environmental Impact Study, the first document necessary to comply with the National Environmental Policy Act (NEPA) for high-speed rail service along both the Inland Route and the Boston-to-Montreal rail corridor.

Route 107 Corridor Study

Agency: MassDOT

The purpose of this study is to evaluate operational and potential geometric improvements that would address the existing issues and mitigate the potential future impacts of new retail development along Route 107 in the cities of Lynn and Salem. The project extends from Wilson Street in Salem to Maple Street in Lynn. A plan for future transportation improvements (short-term, medium-term, and long-term), based on an alternatives analysis, will be the end product of this project.

South Station Expansion Project

Agency: MassDOT

The 13 tracks currently available at Boston's South Station significantly constrain current and future rail mobility, not only within Massachusetts but throughout New England and Amtrak's Northeast Corridor. South Station operates above its design capacity for efficient train operations and orderly passenger queuing, and lacks comfortable, modern facilities for passenger queuing, leaving riders standing in the elements as they wait to board their trains.

This project will complete all necessary analysis of alternatives, environmental review, and preliminary engineering (approximately the 30 percent design phase) required for the expansion of South Station and for the development of a new midday commuter rail layover facility. The project will include planning and designing an enhanced passenger environment at South Station through improved streetscape and pedestrian, bicycle, local transit, and vehicular facilities in and around South Station, including the reopening of Dorchester Avenue at the station for public use. The project will consider opportunities for joint public-private development above an expanded South Station, and will also include a plan for the relocation of the existing US Postal Service General Mail Facility, which must be moved to accommodate the station's expansion.

Plan for Accessible Transportation Infrastructure (PATI) Prioritization Criteria

Agency: MBTA

The MBTA will be cataloging access barriers at each subway station, commuter rail station, and bus stop. Stations and bus stops that are considered accessible today will be surveyed starting in spring 2016. Parallel to the survey effort, a working group comprised of MBTA officials and disability/accessibility stakeholders (PATI Engagement Committee) will develop a shared method for prioritizing the removal of the barriers in a manner that is sustainable and has the largest possible positive impact on access.

Downtown Beverly Parking Plan

Agency: City of Beverly

The city of Beverly will procure consulting services to conduct a comprehensive parking analysis and plan for the two core commercial districts located in downtown Beverly along Cabot and Rantoul Streets. Project scope will include analysis of the existing conditions, development of policy and management recommendations to maximize utilization of existing parking spaces, and, where necessary, make recommendations for additional parking capacity. The parking strategy will provide policy recommendations that will support continued redevelopment and success for downtown businesses and institutions while continuing to serve current and future downtown residents.

Dudley Square Complete Streets Design Project

Agency: City of Boston

The Dudley Square Complete Streets Design Project is a Boston Transportation Department (BTD)–led initiative and community-planning process that will develop roadway, intersection, and streetscape design plans for construction in Dudley Square. The initiative aims to modernize existing conditions and bolster the ongoing municipal and private investment projects in Dudley Square, including the Ferdinand Building and the former Area B-2 police station site. The project will consider a range of improvements for traffic, parking, buses, pedestrians, bicycles, accessibility, and the overall safety and aesthetics of the streets and sidewalks. Special emphasis will be given to developing plans that improve the multimodal environment of Dudley Square and build upon previous planning initiatives. The geographic limits of work are generally bounded by Dudley Street between Shawmut Avenue and Harrison Avenue, Washington Street between Shawmut Extension and Melnea Cass Boulevard, and Warren Street between Kearsarge Avenue and Washington Street.

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, other suburbs north and east of Boston, and Boston’s downtown business area. The corridor’s highway-like design is inconsistent with present day 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 8 to 10 lanes wide (120 to 140 feet), which has created a significant barrier to areas on either side of the roadway, including Bunker Hill Community College, Paul Revere Park, the Hood Business Park employment area, and MBTA rapid transit stations.

There are significant transit-oriented development (TOD) opportunities along the corridor, and public investment in new infrastructure will provide support for the development of commercial and residential uses that otherwise would be unlikely

or unable to locate in 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 completion of the Central Artery/Tunnel (CA/T) project and more traffic on roadways such as I-93 and US Route 1, a dramatic reduction in traffic volumes along Rutherford Avenue presents a unique opportunity to transform the corridor's character from a 1950s automobile-oriented facility to a 21st-century multimodal urban boulevard corridor that will attract private developments.

Grand Junction Greenway

Agency: City of Cambridge

The vision of the Grand Junction corridor with a multi-use path alongside the existing tracks was first formally envisioned as a top priority by the 2000 Cambridge Green Ribbon Open Space Committee in its study of possible new parks and open space in the city. Since then, feasibility studies have been completed, and the Massachusetts Institute of Technology (MIT) provided \$500,000 in funds to the Cambridge Redevelopment Authority for construction of a segment of the path between Broadway and Main Street, which was completed in spring 2016. In fiscal year 2016, the city undertook a physical survey of the northern portion of the corridor to be used as the basis for a more detailed design of the path. In addition, deed and plan research provided better understanding for the need and impact of a zoning overlay to protect land for the path. In fiscal year 2017, the city will continue to explore the development of a concept for a multi-use path that works with future transit options from Massachusetts Avenue north to the Somerville line. Design review will be coordinated with MassDOT and the MBTA, which own and operate trains in the right of way.

Envision Cambridge

Agency: City of Cambridge

The city of Cambridge has embarked on Envision Cambridge, a comprehensive multi-year planning process, to create a shared vision for the community and to develop policy and design goals and actionable recommendations to guide future changes in the city. This work will integrate and build upon existing policies, programs, and initiatives through an inclusive, wide-reaching process that looks beyond traditional planning efforts to engage the public, analyze information, and craft solutions. Residents, business employers and employees, property owners and developers, institutions, nonprofit organizations, and many other stakeholders will be active participants in this process and a key component to ensuring that the citywide plan reflects the values of the entire community.

City staff are working with a community advisory committee and an interdisciplinary consultant team that will use a rigorous, data-driven process to complement and augment the capacity of the city staff. This process will result in a strategic framework that addresses a broad range of issues, including mobility, housing, land use, urban design, climate resiliency, social equity, economic development, and open space.

Newton in Motion

Agency: City of Newton

The city of Newton has launched Newton in Motion, a year-long initiative to focus on a transportation strategy for the city. The Newton-in-Motion project will produce a comprehensive guide towards a more equitable and economically and environmentally sustainable multimodal transportation system. This plan will create a nuanced and up-to-date strategy that carries the Newton Comprehensive Plan forward while also complementing the missions of the Housing Strategy and Sustainability Plan. This plan will also be a strategy that is adaptable to changing travel patterns within the city and region as well as to the rapid growth of transportation options. Produced from extensive community engagement and data analysis, the strategy will address the needs of all members of the Newton community and will provide a variety of real options that support a balance among all modes of transportation.

The Newton-in-Motion project will collect public input through online methods as well as through three series of public workshops: one focused on transportation visions and goal setting; one focused on preliminary transportation concepts, including some pilot demonstrations of ideas; and one presenting and collecting input on a draft strategy. Each meeting will have an associated online activity. The project will have a number of benchmark deliverables, including:

- A fact book on the state of today's transportation
- A vision document for the future of transportation
- An active transportation network plan, a transit plan, and a motor vehicle and parking plan
- An implementation plan to prioritize future actions and investments

Citywide Mobility Plan

Agency: City of Somerville

In 2015, the city of Somerville will launch a 12–18 month citywide strategic planning process focusing on mobility. Extensive data collection and analysis will be conducted, and deliverables will include customized multimodal level-of-service criteria for Somerville. Street typologies and design standards will be established. Capital and operating budgets will be evaluated, and related policies, programs, and projects will be studied and prioritized for consistency with the adopted SomerVision Comprehensive Plan.

Union Square Neighborhood Plan (includes Streetscape and Utilities Design and Engineering)

Agency: City of Somerville

In 2015, the city of Somerville will begin construction of the Union Square Early Action streetscape and utility improvements, which will return Prospect Street and Webster Avenue to their historic two-way configuration. Simultaneously, the Somerville by Design neighborhood plan for Union Square will be completed, which will include a longer-term streetscape improvement plan, as well as deep utility engineering, for the study area.

Fairmount Planning Initiatives

Agency: Various

State transportation agencies are partnering 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 completes major infrastructure improvements and three of the four planned new stations on the Fairmount Line, include:

- **Fairmount Corridor Business Development and Transit Ridership Growth Strategy:** The Fairmount Community Development Corporation (CDC) Collaborative, with the MBTA, has received a Transportation, Community, and System Preservation grant to improve the transit service connection to job development in the Fairmount Corridor.
- **Fairmount Indigo Corridor Planning Initiative:** The Boston Redevelopment Authority is spearheading this planning process, which involves the participation of community and agency stakeholders. A vision for corridor land use and neighborhood change that is focused on enhanced transit is being developed, along with an action plan for targeted redevelopment and public infrastructure upgrades at station areas.

Ferry Compact

Agency: Various

The Ferry Compact's principal mission is to identify an overall vision for the ferry system in Massachusetts that improves the transportation of people, goods, and vehicles by water. The Compact's membership (including MassDOT, the MBTA, Massport, the Massachusetts General Court, the Steamship Authority, the Seaport Advisory Council, the Boston Harbor Association, and several Boston region municipalities) is a mix of state agencies, state and local elected officials, and other organizations that are dedicated to improving ferry transportation in the commonwealth. For more information, visit MassDOT's Ferry Compact website (<https://www.massdot.state.ma.us/planning/Main/StatewidePlans/FerryCompact.aspx>).

Go Boston 2030

Agency: Various

The goal of this multiyear planning process is to envision the city of Boston's long-term transportation future and recommend policies and projects that will support improved and equitable access to jobs, education, and health care. The focus of Go Boston 2030 will be to improve roadway safety, alleviate congestion, promote alternatives to cars, and build new transit connections. The plan will be linked to economic revitalization and ongoing climate change initiatives. The Boston Transportation Department will lead an interagency team for Go Boston 2030, which will be driven by a far-reaching public engagement process.

South Coast Rail Project

Agency: Various

The South Coast Rail project will restore passenger rail transportation from South Station in Boston to the South Coast of Massachusetts, including the cities of Taunton, New Bedford, and Fall River. The Final Environmental Impact Statement/Report (FEIS/R) was issued in September 2013, and the state was authorized to advance permitting in November 2013. The project will include 10 new stations, modifications at Canton Junction and Stoughton, and two layover facilities at the end of both the Fall River Secondary leg at the Weaver's Cove East site and the end of the New Bedford Mainline leg at the Wamsutta site.

Next steps for this project include advancing the preliminary engineering (including approximately the 15 percent design phase) and permitting processes, which will include a final Wetlands Mitigation Plan that must be approved by the US Army Corps of Engineers prior to issuing their Record of Decision (ROD). These activities will be led by the MBTA. In addition, the project team has been meeting with permitting agencies to develop a strategy and process for obtaining permits in the most expeditious and prudent manner possible. Preliminary engineering efforts were completed in the fall of 2015. As of the fall of 2015, the U.S. Army Corps permit was in process and the agency chose a preferred route. Additionally, the Section 106 historic resources permitting process was substantially completed. To further other permitting and environmental approval processes, the project team has coordinated with the U.S. Environmental Protection Agency, the Massachusetts Department of Environmental Protection, the Massachusetts Natural Heritage and Endangered Species Program, the Federal Highway Administration, the Federal Transit Administration, the Massachusetts Historic Commission, and the Massachusetts Division of Fish and Wildlife.

MassDOT and the MBTA also moved forward with several projects that have independent utility (separate, complete projects), including upgrading and/or replacing grade crossings and replacing several rail bridges (four bridges in Fall River and six bridges in New Bedford).

The Southeastern Regional Planning and Economic Development District (SRPEDD) directs the South Coast Rail Task Force, which is composed of appointed members from the 31 communities in the South Coast Rail Corridor, as well as regional transit authorities and environmental groups. Initially established as a result of the 2002 Secretary's Certificate, the focus of the task force is now limited to land use planning rather than route determination and vetting. Visit the South Coast Rail website for more information on this project and updates to the environmental, engineering, and construction schedules (<http://www.massdot.state.ma.us/southcoastrail/Home.aspx>).

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 and will provide a Tier 1 Environmental Impact Statement (EIS) and Service Development Plan (SDP) in 2016 in support of that vision. Technical work includes an analysis of market conditions in the corridor, the development of program alternatives, an evaluation of the environmental impacts of those alternatives, and a recommended approach that balances the needs of various users of the corridor (whether commuters, intercity passengers, or freight) in a manner that ensures safe, efficient travel throughout the Northeast. For more information, visit the NEC Future website (<http://www.necfuture.com/>).

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 United States Department of Transportation's University Transportation Centers (UTC) Program. The New England UTC conducts multiyear research programs that seek to assess and make improvements to transportation safety, as well as to develop a systems-level understanding of livable communities. For further information, visit the New England University Transportation Center's website (<http://utc.mit.edu/>).



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APPENDIX B

Public Participation and Response to Public Comments

The staff of the Metropolitan Planning Organization (MPO) followed the procedures set forth in the MPO's adopted *Public Participation Plan for the Boston Region Metropolitan Planning Organization* when developing the federal fiscal year (FFY) 2017 Unified Planning Work Program (UPWP). These procedures are designed to ensure early and continued public involvement in the transportation-planning process.

The FFY 2017 UPWP development process began in September 2015. Staff solicited topics for study through outreach at Metropolitan Area Planning Council (MAPC) subregional group meetings. Staff also sought suggestions at Regional Transportation Advisory Council meetings and through public outreach at two development sessions for the Transportation Improvement Program (TIP) and the UPWP. Staff considered these suggestions and public input, as well as comments received during the FFY 2016 public review period and inputs from recent planning documents in the FFY 2017 UPWP draft development process. This process, described in Chapter 1, culminated in the MPO UPWP Committee's recommendation for the FFY 2017 UPWP budget. The committee also recommended a set of new studies for inclusion in the FFY 2017 UPWP draft for public review, which was subsequently approved by the MPO for public circulation on June 2, 2016. MPO staff also has presented information on the recommended new studies to the Regional Transportation Advisory Council.

Following the MPO's approval for circulating the FFY 2017 UPWP draft for public review, staff posted the document on the MPO's website (<http://bosmpo.ctps.org/upwp>). Staff also emailed the MPO's contact list (MPOinfo) notifying recipients of the document's availability and of the 30-day period for public review and comment. The email list includes Chief elected officials and planning directors of the region's 101 municipalities, the Regional Transportation Advisory Council, the MAPC subregional groups, participants in the MPO's transportation equity work, state legislators, public libraries in the region, and many other interested parties. In addition to the MPO's website, this information was also posted in the MPO's newsletter (*TRANSREPORT*). Additionally, a press release was sent to local and regional media outlets.

During the review period, the MPO held two public workshops (called "office hours") during which MPO staff made themselves available, either in person or over the phone, to stakeholders who wanted to discuss the FFY 2017 UPWP draft. These meetings were also used to gather input from the public about their planning priorities. All of these MPO meetings and public workshops, which were held to discuss the FFY 2017 UPWP draft, were accessible by transit service and to people with disabilities.

A summary of written comments on the FFY 2017 UPWP draft, as well as the MPO's responses to those comments, can be found in Table B 1.

Table B-1: Response to Public Comments on the FFY 2017 UPWP Draft

Comment Number	Comment Origin	How was Comment Received?	Chapter	Page # in Public Review Draft	Section	Comment	MPO Response	Revision to UPWP Text
1	MassDOT	Written comment to MPO staff	Overall	Overall	Overall	MassDOT submitted several comments addressing editorial revisions and clarifying questions on budget amounts and work descriptions. These are not included separately as they do not require substantive revisions to the document.	All revisions will be made in response to MassDOT's editorial and clarifying comments.	Yes
2	MassDOT	Written comment to MPO staff	Overall	Overall	Overall	Provide a geographic distribution table of UPWP-funded studies by municipality, including the name of the beneficiary and the number of tasks per year, along with an accompanying narrative.	This is being developed and will be included with the final UPWP document.	Yes (The draft included a placeholder for this summary.)
3	MassDOT	Written comment to MPO staff	Chapter 3/ Regulatory Framework	3-8	3.2	Add discussion about how the UPWP ties into state guidance and transportation priorities.	Language will be added to the final UPWP to discuss how studies and ongoing work funded through the UPWP relate to state guidance and transportation priorities. Proposed addition under Section 3.2: As described in Chapters 6 through 8, much of the work funded through the UPWP focuses on encouraging mode shift and diminishing 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 throughout this section.	Yes
4	MassDOT	Written comment to MPO staff	Chapter 4/Federal Fiscal Years 2014-2016 Completed UPWP Studies	4-3	Table 4-1	These are only federal funds and do not include match? Or do they? Specify	All budget numbers throughout the UPWP include the federal and local match amounts. A note will be added to the table to clarify this.	Yes

Table B-1(cont.)

Comment Number	Comment Origin	How was Comment Received?	Chapter	Page # in Public Review Draft	Section	Comment	Revision to UPWP Text	
5	MassDOT	Written comment to MPO staff	Chapter 5/ Certification Requirements	5-3	Table 5-1	General comment on funding differences: If the activities are "generally the same," then why are we increasing/decreasing the costs (in some cases, significantly) on some of these tasks? Suggest providing a more detailed explanation in that regard.	<p>Text will be added preceding the table to explain reasons that there are differences between FFY 2016 and FFY 2017 budgets for various tasks and work areas.</p> <p>Proposed addition: The tables show some differences in the budgets for CTPS and MAPC tasks between FFY 2016 and FFY 2017. There are several reasons for these differences. In some years, MPO staff may plan to undertake new or additional data collection and analysis under specific line items; there may be greater emphasis placed on a task in a given year (e.g., the final year in an LRTP development cycle); there may be a determination that the tasks undertaken as part of one line item may be combined with an ongoing activity; and there may be staff fluctuations from year to year.</p> <p>Where possible, explanations will be added for line items in which the budget has changed significantly.</p>	Yes
6	MassDOT	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-9	Study of Promising Greenhouse Gas Reduction Strategies	Ensure this document and efforts therewith are not largely a rehashing of previous efforts. The approach appears to be focused on regional impacts, but care should be taken not to bog the study down with information staff has already researched and presented.	As described in the "Approach" section of this study, the objective of this work is to build off of the 2016 GHG Reduction Strategies Study. Specifically, this study funded in FFY 2017, would focus on a particular subset of the 14 strategies identified in the 2016 report to understand the potential for their implementation at a regional level.	No
7	MassDOT	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-9	Study of Promising Greenhouse Gas Reduction Strategies	Please coordinate with OTP's Sustainable Transportation Group on these efforts to avoid duplication with the Energy and Emissions Reduction Policy Analysis Tool (EERPAT) for evaluating transportation sector GHG reduction measures in Massachusetts, which was performed by Cambridge Systematics for MassDOT.	As the work scope for this study is developed, CTPS will coordinate with OTP's Sustainable Transportation Group.	No

Table B-1(cont.)

Comment Number	Comment Origin	How was Comment Received?	Chapter	Page # in Public Review Draft	Section	Comment	MPO Response	Revision to UPWP Text
8	MassDOT	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-10	Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment	What necessarily is considered a "high level of congestion"?	Congestion is used as one of the selection criteria for potential study locations. Congested conditions are defined as a travel time index of at least 1.3 (this means that a trip takes 30 percent longer than it would under ideal conditions). The text will be clarified to explain this.	Yes
9	MassDOT	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-14	Low-Cost Improvements to Express-Highway Bottlenecks	Define what low-cost infrastructure solutions mean, and provide examples from previous efforts.	Low-cost infrastructure solutions can be defined as design or operational infrastructure solutions as opposed to major construction projects. Low-cost solutions stay within existing right-of-ways and often involve things like re-striping lanes or utilizing existing highway shoulder areas for an additional lane. Examples of recommendations from previous phases of this study include creating an auxiliary lane for merging and diverging traffic and lengthening the deceleration lane at an exit. Text will be added to the document to clarify this project description.	Yes
10	MassDOT	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-16	Planning for Connected and Autonomous Vehicles	Then what? We need to have a next step here. If the first step is research, we should have another step in mind.	Suggested addition: The next step would be to follow up on the recommendations. These could be related to model development, data resources, or planning studies.	Yes
11	MassDOT	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-18	MPO Staff-Generated Research Topics	Provide examples from the last two years. I believe MPO members expressed interest in knowing more about this as well.	This program was funded for the first time in FFY 2016. The work being undertaken in FFY 2016 consists of investigating the possibility of using drivers-license acquisition rates obtained through RMV data as a possible measure of transit dependence. The thought is that current measures of transit dependence, such as vehicles per household, may not be an accurate measure given the availability of car-sharing services such as zipcar. Therefore, this research aims to develop a new measure of transit dependence that could be more accurate and meaningful.	Yes

Table B-1(cont.)

Comment Number	Comment Origin	How was Comment Received?	Chapter	Page # in Public Review Draft	Section	Comment	MPO Response	Revision to UPWP Text
12	Joan Meschino, Candidate for State Representative, Third Plymouth District	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-14	Low-Cost Improvements to Express-Highway Bottlenecks	The Braintree Split is a major interchange that is crippled daily by extreme congestion. Many South Shore residents are tied up daily at this bottleneck. They suffer extended travel times and unsafe roadway conditions. The Braintree Split is also one of the high-priority locations identified in the MPO's Long-Range Transportation Plan. I ask that the MPO fund this study and give attention to the Braintree Split.	The MPO completed a corridor study about the Braintree Split in 2006 (http://www.ctps.org/braintree_split). This corridor and the surrounding transportation network remains a high priority of the MPO, and the issues in this area will continue to be considered for cost-effective and multimodal solutions that can be implemented.	No
13	Joan Meschino, Candidate for State Representative, Third Plymouth District	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	Overall	Overall	I write to support several planning studies and ongoing programs that would be particularly helpful for South Shore towns (Hingham, Hull, Cohasset, and Scituate), as they work to address local transportation problems. These towns have varied and important transportation needs. In addition, I am advocating for proposed work in greenhouse gas reduction. For the FFY 2018 UPWP, I suggest planning for more commuter-boat service and for intra-community shuttle buses, including shuttle buses to commuter boats and/or the commuter rail.	The MPO appreciates Ms. Meschino's comments and will consider these points as work programmed in the FFY 2017 UPWP is planned in further detail and in the development of the FFY 2018 UPWP.	No
14	Joan Meschino, Candidate for State Representative, Third Plymouth District	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-12	Addressing Safety, Mobility, and Access on Subregional Priority Roadways	Earlier versions of this study have focused on priority needs in MAPC's South Shore Coalition, and the Coalition and municipalities have greatly appreciated this work. These studies typically identify implementable, complete streets solutions that are well-received by municipalities. I support continuing this series of studies and hope that locations in the South Shore Coalition might be considered again as an area of focus.	The MPO appreciates Ms. Meschino's comments and will consider these points as work programmed in the FFY 2017 UPWP is planned in further detail and in the development of the FFY 2018 UPWP.	No
15	Joan Meschino, Candidate for State Representative, Third Plymouth District	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-10	Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment	This study could help address the serious traffic problems on the South Shore's heavily congested arterials: Route 3A, Route 228, Route 53, and Route 18. Please include it in the UPWP.	The MPO appreciates Ms. Meschino's comments and will consider these points as work programmed in the FFY 2017 UPWP is planned in further detail and in the development of the FFY 2018 UPWP.	No

Table B-1(cont.)

Comment Number	Comment Origin	How was Comment Received?	Chapter	Page # in Public Review Draft	Section	Comment	MPO Response	Revision to UPWP Text
16	Joan Meschino, Candidate for State Representative, Third Plymouth District	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-9	Study of Promising Greenhouse Gas Reduction Strategies	I heartily support the MPO's ongoing work to identify effective steps to reduce GHGs. The outcomes of this work are essential to having real impact in slowing the advance of climate change and related sea-level rise — a real threat to South Shore communities. This study can guide the MPO and the state to do our part to help minimize the devastating effects of inaction or ineffective action in reducing GHGs produced by transportation.	The MPO appreciates Ms. Meschino's comments and will consider these points as work programmed in the FFY 2017 UPWP is planned in further detail and in the development of the FFY 2018 UPWP.	No
17	Joan Meschino, Candidate for State Representative, Third Plymouth District	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-19 through 6-23	Bicycle/Pedestrian Support Activities; Regional Transit Service Planning Technical Support; Community Transportation Technical Assistance Program	I ask that the MPO fund the ongoing technical analysis programs: Bicycle/Pedestrian Support Activities; Regional Transit Service Planning Technical Support; and the Community Transportation Technical Assistance Program. These programs provide essential guidance and input to local officials in support of their initiatives to improve mobility through better bicycle and pedestrian facilities and new, locally operated bus transit. These programs are an effective way of sharing the MPO's expertise with local officials who are aiming to make improvements. I support this ongoing work and, if they are funded, will work to raise awareness about them within the South Shore.	The MPO appreciates Ms. Meschino's comments and will consider these points as work programmed in the FFY 2017 UPWP is planned in further detail and in the development of the FFY 2018 UPWP.	No
18	Terry Forrest	Phone call during public comment period outreach	Overall	Overall	Overall	Overall, Mr. Forrest wishes there would be greater discussion of accessibility issues in the TIP and UPWP. Specifically, Mr. Forrest wanted to make sure that the MPO considers accessibility issues into corridor and bicycle/pedestrian studies that are completed for municipalities.	<p>Accessibility is factored into the TIP project evaluation.</p> <p>In the UPWP, accessibility is addressed through the MPO's work with the Access Advisory Committee to the MBTA; our support of the MBTA's Plan for Accessible Transit Infrastructure; and other community technical assistance that focuses on improving pedestrian connections and safety. The MPO's work, specifically studies such as Safety Analysis at Selected Intersections; Addressing Safety, Mobility, and Access on Subregional Priority Roadways; and Addressing Priority Corridors from the LRTP Needs Assessment, considers accessibility requirements and improvements.</p>	No

Table B-1(cont.)

Comment Number	Comment Origin	How was Comment Received?	Chapter	Page # in Public Review Draft	Section	Comment	MPO Response	Revision to UPWP Text
19	Terry Forrest	Phone call during public comment period outreach	Overall	Overall	Overall	<p>Mr. Forrest had the following additional comments:</p> <ul style="list-style-type: none"> • Interest in an improved paratransit user registration system so that people registered and approved to use paratransit in one region were automatically approved to use it throughout the state. • Interest in a Google map type of system that shows paratransit or accessible routes and extends beyond the Boston region to show accessible directions to other regions in the state. • Interest in improved access and accommodations on Amtrak to secure wheelchairs into place. Sometimes, people in wheelchairs are forced to ride in the luggage areas of the trains. 	The MPO appreciates Mr. Forrest's comments. MPO staff forwarded his questions and concerns to the appropriate parties at the MBTA and Amtrak. Additionally, the MPO will consider accessibility focused studies and analyses in the FFY 2018 UPWP.	No
20	Scott Zadakis, CrossTown Connection Transportation Management Association	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-7	Safety Effectiveness of Safe Routes to School Programs	As an organization that promotes walking and biking, CrossTown Connect supports project #13280 to improve the Safe Routes to School program. We believe bike/pedestrian to be very important, and we additionally support all other technical and planning assistance you can offer to Massachusetts communities as well as studies you conduct to better understand how to create a better, safer, and more connected network of bike/pedestrian facilities.	The MPO appreciates the comments from CrossTown Connect TMA.	No

Table B-1(cont.)

Comment Number	Comment Origin	How was Comment Received?	Chapter	Page # in Public Review Draft	Section	Comment	MPO Response	Revision to UPWP Text
21	Scott Zadakis, CrossTown Connection Transportation Management Association	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-10 and 6-21	Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment Regional Transit Service Planning Technical Support	<p>CrossTown Connect supports project #13276 addressing multimodal mobility, and we would urge CTPS to identify our region as a priority corridor. The broader 495 corridor is experiencing high levels of growth and traffic is increasingly becoming a problem, yet our towns are caught between MART, LRTA, and the MBTA. Consequently, our transit options are limited to the Fitchburg Line on the Commuter Rail and the LRTA #15 bus that comes from Lowell through Westford as far as IBM, just over the Littleton line. With a much improved reverse commute schedule on the Fitchburg Line of the Commuter Rail (three outbound trains before 9:00 AM), it will be even more important to address multimodal access and mobility in our region. If we were to be identified as a priority region, we would be very interested in addressing first and last mile connections to the Fitchburg Line with various solutions, including fixed-route shuttles, vanpools, and even ride-hailing services. It is critical as this region continues to grow that we develop a multimodal transportation system that can support it.</p> <p>Similarly, we strongly support programs and studies related to regional transit service planning whether carried out locally or for large organizations such as MassDOT or RTAs.</p>	<p>The MPO appreciates the comments from CrossTown Connect TMA. These comments will be considered as specific study locations are being chosen for FFY 2017 planning studies and technical assistance work.</p> <p>The study of priority corridors identified in the LRTP is geared towards corridors specifically identified throughout the region during the development of the LRTP. These expressway and arterial corridors were defined as congested locations based on speed index, travel time index, volume-to-capacity ratio, and crash history. For the list of these corridors, please see Chapter 4 of the Regionwide Needs Assessment (http://bosmpo.ctps.org/data/pdf/plans/LRTP/charting/Charting_Progress_2040_Chapter4_final.pdf). Interstate 495 was not specifically identified as a priority corridor; however, many intersection roadways were, including a portion of Route 2 in Acton and Concord.</p> <p>The TMA and other stakeholders will have the ability to weigh in on which locations are chosen for study in the fall and winter (October–January) as specific study locations are defined.</p> <p>First-mile-and-last-mile studies are being undertaken in FFY 2017 under the Regional Transit Service Planning Technical Assistance line item in the UPWP. The TMA and other stakeholders will have the ability to weigh in on which locations are chosen for study in the fall and winter (October - January), as specific study locations are defined. Please follow up with MPO staff in the fall and winter for more information.</p>	No

Table B-1(cont.)

Comment Number	Comment Origin	How was Comment Received?	Chapter	Page # in Public Review Draft	Section	Comment	MPO Response	Revision to UPWP Text
22	Scott Zadakis, CrossTown Connection Transportation Management Association	Written comment to MPO staff	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-22	Community Transportation Technical Assistance Program	As an organization that coordinates and provides community transportation, Crosstown Connect also supports CTPS's efforts to provide Community Transportation Technical Assistance to localities in need of your expertise. In fact CrossTown Connect recently took advantage of a DLTA grant to study potential shuttle routes connecting the Littleton Commuter Rail Station to area businesses and other locations where demand exists. This study mapped out potential routes and estimated costs for operating them. We believe that Community Transportation Technical Assistance is a powerful tool to help communities address wide-ranging issues from sidewalk facilities to high crash-rate intersections.	The MPO appreciates the comments from CrossTown Connect TMA.	No
23	Scott Zadakis, CrossTown Connection Transportation Management Association	Written comment to MPO staff	Chapter 7/Agency and Other Client Transportation Planning Studies and Technical Analyses	7-8	North-South Rail Link	As mentioned earlier, we are very pleased with the schedule enhancements on the Fitchburg Line that went into effect this past May. In order to capitalize on these enhancements further in the future, we support the updating of the analysis of the North-South Rail Link. Connecting North and South stations would increase the capacity of the system and negate the inconvenient need to transfer via two different subway lines (or another means such as a cab) when traveling through Boston by rail. It would also negate much of the South Station Expansion project by creating thru-capacity.	The MPO appreciates the comments from CrossTown Connect TMA. Please refer to Chapter 7, page 7-8 (in the public review draft of the UPWP) for a description of the North-South Rail Link work that CTPS is conducting as part of its agency-funded work.	No
24	Louise Baxter, T Riders Union	In-person comment during public comment period outreach	Overall	Overall	Overall	Ms. Baxter was interested in commenting on the draft UPWP and interested in the TRU being more involved in next development cycle.	<p>The MPO welcomes your comments on the UPWP and will consider them in the development of the FFY 2018 UPWP.</p> <p>In order for the TRU to become more involved in the upcoming UPWP and TIP development cycles, please follow-up with either Alexandra Kleyman, TIP and UPWP Manager at akleyman@ctps.org, or Jennifer Rowe, CTPS Public Participation Program Manager at jrowe@ctps.org. MPO staff would like to work with you and the rest of the TRU to help make sure you can be more involved in our transportation planning and programming processes.</p>	No

Table B-1(cont.)

Comment Number	Comment Origin	How was Comment Received?	Chapter	Page # in Public Review Draft	Section	Comment	MPO Response	Revision to UPWP Text
25	Karen Dumaine, Neponset Valley TMA and Alewife TMA	Phone call during public comment period outreach	Overall	Overall	Overall	<p>Ms. Dumaine made the following comments:</p> <ul style="list-style-type: none"> • Concern about traffic and safety at the rotary near Alewife, interest in technical assistance programs. • General interest in understanding what the MPO/CTPS does, how to be involved in the processes. • Interested in having MPO Staff come speak to TMAs 	<p>The MPO has studied traffic issues in and around the Alewife area in previous years. Data and analysis completed in 2008 and 2009 can be found on the MPO's website at http://www.ctps.org/alewife_phase_ii. If you have specific questions about addressing the transportation issues in this area, please contact Alexandra Kleyman, TIP and UPWP Manager, at akleyman@ctps.org.</p> <p>Jennifer Rowe, CTPS Public Participation Program Manager, will follow-up with you about further outreach to the TMA as we begin out fall public outreach.</p> <p>Feel free to be in touch with her at jrowe@ctps.org.</p>	No
26	Lenard Diggins, MBTA Rider Oversight Committee	In-person comment during public comment period outreach	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-16	Planning for Connected and Autonomous Vehicles	Mr. Diggins expressed interest in this study and is happy that the MPO is undertaking it.	The MPO appreciates your comments.	No
27	Lenard Diggins, MBTA Rider Oversight Committee	In-person comment during public comment period outreach	Overall	Overall	Overall	Mr. Diggins would like to understand the times during the MPO UPWP process that are most appropriate for public input.	<p>Jennifer Rowe, CTPS Public Participation Program Manager, will follow-up with you about further outreach to the MBTA Rider Oversight Committee as we begin our fall public outreach.</p> <p>Feel free to be in touch with her at jrowe@ctps.org.</p>	No
28	Andrea Downs, Newton Transportation Advisory Group	In-person comment during public comment period outreach	Overall	Overall	Overall	<p>Ms. Downs made the following comments:</p> <ul style="list-style-type: none"> • She supports a UPWP study on developing a level of service measure beyond vehicles. • She is interested in better bicycle and pedestrian data and counts in the region. • Other projects she supports include right-sized parking, closing safety gaps for cyclists, and safe routes to school. • She expressed frustration about transportation projects that do not provide safe accommodations for cyclists and pedestrians despite prioritization in MPO/DOT planning documents. There seems to be a gap from plan to execution. 	The MPO appreciates Ms. Downs's comments and will consider these points as work programmed in the FFY 2017 UPWP is planned in further detail and in the development of the FFY 2018 UPWP.	No

Table B-1(cont.)

Comment Number	Comment Origin	How was Comment Received?	Chapter	Page # in Public Review Draft	Section	Comment	MPO Response	Revision to UPWP Text
29	James Jay, member of the public	Email	Chapter 6/Boston Region MPO Planning Studies and Technical Analysis	6-27	Alternative-Mode Planning and Coordination	<p>It's great to see funds allocated for further implementation of the Hubway bike share program. I hope to see this in all future UPWPs, along with language surrounding:</p> <ul style="list-style-type: none"> • Hubway stations at all current T stations (where there is room) • All future T station redesigns should allocate space for Hubway stations • Encouraging Hubway as a last-mile option for T riders • Including Hubway stations on certain MBTA maps • The possibility of eventually linking Hubway passes with MBTA passes • Including the MBTA's bike policy on all spider maps (especially the time frame for which bikes are allowed) 	The MPO appreciates Mr. Jay's comments and will consider these points as work programmed in the FFY 2017 UPWP is planned in further detail and in the development of the FFY 2018 UPWP.	No
30	Senator Joan B. Lovely, Second Essex District	Letter	Overall	Overall	Overall	<p>Included in the UPWP are 2 projects in the 2nd Essex Senate District. I am pleased to see the Boston Region MPO has prioritized these studies to help achieve its transportation goals as a region. Specifically, I am thankful that the planning study and technical analysis of the Salem Cycle Track Pilot Project and at Route 114/Andover Street at Esquire Drive and Violet Road in Peabody are moving forward.</p>	<p>The MPO appreciates Senator Lovely's comments. A Bicycle Circulation Master Planning Study was completed in January 2010 by Fay, Spofford & Thorndike and the Salem Bike Path Committee. It can be accessed online here: http://www.salem.com/sites/salemma/files/uploads/circulation.pdf. If you have specific questions or ideas about bicycle planning in the region, please contact Casey-Marie Claude, CTPS Bicycle and Pedestrian Coordinator, at cclaude@ctps.org.</p> <p>Under its study of priority corridors from the Long-Range Transportation Plan, the MPO completed a corridor analysis of Route 114 between Interstate 95 and the Peabody city line in Danvers. This study was completed in November of 2012 and can be accessed online here: http://www.ctps.org/data/html/studies/highway/priority_corridors/Route_114.html. If you have specific questions about the UPWP process or any of the work programmed in the FFY 2017 UPWP, please contact Ali Kleyman, CTPS UPWP Manager, at akleyman@ctps.org.</p>	No

CTPS = Central Transportation Planning Staff. DLT A = District Local Technical Assistance Program. DOT = Department of Transportation. FFY = federal fiscal year. GHG = greenhouse gas. LRTA = Lowell Regional Transit Authority. LRTP = Long-Range Transportation Plan. MAPC = Metropolitan Area Planning Council. MART = Montachusett Regional Transit Authority. MassDOT = Massachusetts Department of Transportation. MBTA = Massachusetts Bay Transportation Authority. MPO = Metropolitan Planning Organization. OTP = MassDOT's Office of Transportation Planning. RMV = Registry of Motor Vehicles. RTA = Regional Transit Agency. TIP = Transportation Improvement Program. TMA = Transportation Management Association. TRU = MBTA Riders' Union. UPWP = Unified Planning Work Program.



APPENDIX C

Federal Fiscal Year 2017 UPWP Universe of Proposed New Studies

This appendix includes the Universe of Proposed New Projects, which documents the proposed new discrete studies that the Boston Region Metropolitan Planning Organization (MPO) staff and the Metropolitan Area Planning Council (MAPC) staff collected or developed for the development of the federal fiscal year (FFY) 2017 Unified Planning Work Program (UPWP). Each entry includes a summary of the purpose of the proposed study and the anticipated outcomes.

Studies in the universe are organized into the following categories:

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

Within these categories, studies were considered based on origin:

- **Renew:** These studies have been funded in the past, and there is another phase that could be funded and studied.
- **Evolve:** These studies take the findings of a previously conducted study and bring them to the next level by advancing the ideas and recommendations made in the preceding study.
- **Another Chance:** These studies were considered in a previous FFY's Universe list and not chosen for funding. They are being reconsidered to evaluate whether the timing is better to fund them, or whether they can be modified to be more useful for advancing the goals of the MPO region.
- **New:** These are study ideas that have not been considered previously.

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

- **Primary and secondary Long-Range Transportation Plan (LRTP) goal areas:** whether a study addresses, either as a primary focus or secondary focus, one of the six LRTP goal areas:
 - o Safety
 - o System Preservation
 - o Clean Air/Clean Communities
 - o Transportation Equity
 - o Capacity Management/Mobility
 - o Economic Vitality

- **Mode:** whether a study primarily addresses roadway, bicycle, pedestrian, or transit modes of travel
- **Study scale:** whether a study primarily impacts one or two specific communities in the region, or the region as a whole
- **Time frame and type of impact:** whether a study results in research and findings that enhance the state of the transportation planning practice in the Boston Region, low-cost/short-term implementation of improvements, or, long-term implementation (for transportation studies leading to implementation by an agency or construction projects that must follow the Massachusetts Department of Transportation design process)
- **Connection to existing work:** whether a study furthers previously conducted analysis, or builds off or enhances existing MPO work
- **Continuing or new study:** whether a study has been conducted previously at a specific location/roadway and is being conducted again at a new location, or whether a study is a completely new idea that has never been undertaken by the MPO.

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

In addition to evaluating the proposed new studies in the Universe, MPO staff defines general scopes and estimated costs for the proposed studies and considers potential feasibility issues. These various factors, along with the availability of funds for new studies, were considered as staff identified a recommended set of new proposed planning studies for review by the UPWP Committee. For more information on the process of developing and evaluating the Universe, please see Chapter 1.



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FFY 2017 Draft Universe and Study Evaluation

ID	Project Name	Estimated Cost	Project Purpose and Outcome	LRTP Goal Areas						Mode			Study Scale		Impact			Other		
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Multi-Modal Roadway	Bicycle Pedestrian	Transit	Specific Community	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing Work	Continuing Study	New Study
ACTIVE TRANSPORTATION																				
Renew																				
A-1	Closing Gaps in the Boston Region Bicycle Network	\$55,000	<p>Purpose: This study would build off of the work of the Bicycle Network Gaps: Feasibility Evaluation study, which began by identifying the status of the eleven highest priority gaps that were highlighted in the 2014 Bicycle Network Evaluation. This project would follow up on that study by conducting more detailed feasibility evaluations of up to three identified high-priority gaps. The first phase of this project was conducted during FFY 2015.</p> <p>Anticipated Outcome: One or more memoranda documenting the results of the study and recommendations for selected locations. The identified recommendations could ultimately become projects that are funded by federal, state, local, or other sources.</p>	S		S		P	S			P		P			P	P		
Evolve																				
A-2	The Impact of a Connected, High Quality Bicycle Network on GHG Emissions and Mode Shift	\$40,000	<p>Purpose: This study comes out of the GHG Reduction Strategies Study completed in 2015. This project would estimate the impact of a connected, high-quality bicycle network on GHG emissions and mode shift, also looking at the safety, equity, mobility, and health benefits.</p> <p>Anticipated Outcome: Currently, the MPO funds bicycle improvements as part of individual projects and shorter segments of off-road bicycle paths. This study would look at bicycle networks in high-density areas at various levels of deployment, ranging from quarter-mile intervals to one-mile intervals in a grid system, which was initially defined in the bicycle improvements strategy from the GHG Reduction Strategies Study. Other variations of a comprehensive bicycle network strategy could be considered in this study as well.</p>	S		P	S	S	S			P		P	P			P	P	
A-3	Bicycle and Pedestrian Crash Clusters Analyses	\$40,000	<p>Purpose: This study would review bicycle and pedestrian crash clusters developed by the MassDOT Highway Division and the Boston Region MPO. Safety projects often focus on vehicle crash locations, so the specific focus on high-crash bicycle and pedestrian locations would make this project unique. Three locations that have not been addressed up to this point in time would be selected for study and development of recommendations for safety and mobility improvements to benefit bicycle and pedestrian travel.</p> <p>Anticipated Outcome: MPO staff would work with the municipalities and other stakeholders to propose cost-effective and low-cost improvements to increase safety for bicyclists and pedestrians at those locations.</p>	P	S	S		S	S			P		P			P	P	P	

FFY 2017 Draft Universe and Study Evaluation

ID	Project Name	Estimated Cost	Project Purpose and Outcome	LRTP Goal Areas						Mode			Study Scale		Impact			Other		
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Multi-Modal Roadway	Bicycle Pedestrian	Transit	Specific Community	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing Work	Continuing Study	New Study
Another Chance																				
A-4	Municipal Pedestrian Network Studies	\$40,000	<p>Purpose: Through this project, MPO staff would provide support to several municipalities in the MPO region that are interested in exploring opportunities to improve their community-wide pedestrian network.</p> <p>Anticipated Outcome: Using municipal inventories of sidewalks and other data resources, MPO staff would work with communities to conduct an assessment of existing pedestrian transportation connections, including sidewalks, paths, and crosswalks, and would identify opportunities to improve these connections. These analyses would be coordinated with work done by the MAPC, MassRIDES (through the Massachusetts Safe Routes to School Program), and other stakeholders, when appropriate. The results of these assessments and recommendations could be used to support community-level Complete Streets improvement programs and projects, which could be funded with federal, state, local, or other funding.</p>	S	S	S		P	S		P		P				P	N		P
New																				
A-5	Low-Cost Tactical Urbanism Projects for Rapid Implementation with Community Engagement	\$55,000	<p>Purpose: This project would assist communities with the planning/design work as well as before and after data collection and analysis for low cost, temporary/interim Complete Streets pilot projects. This project would offer communities additional and new tools related to Complete Streets that are distinct from the state's Complete Streets Program. Specifically, this project would focus on implementing extremely low-cost (in the range of several hundred to one thousand dollars) projects that would be meant to be temporary. These low-cost, temporary projects can showcase improvements such as protected bicycle lanes, green bike lane paint through intersections, and curb extensions created with paint, spray chalk or paint, duct tape, planters, traffic cones, flexible posts, and signs. These pilots can also be integrated with events such as neighborhood festivals to maximize community engagement in addition to traditional community meetings for public outreach.</p> <p>The temporary nature of these projects is an important factor to allow communities to test/pilot Complete Streets approaches in different areas and learn from their implementation. The relatively fast timeline for implementation could allow for increased public involvement and public education of Complete Streets solutions as well as the ability for communities to conduct before and after studies to enhance understanding of how different Complete Streets approaches function and what could be improved for longer-term implementation.</p> <p>This project also has the potential to reach smaller communities without budgets to spend on Complete Streets and without the staff available to plan, design, and implement the projects.</p> <p>Anticipated Outcome: Increased implementation of low-cost Complete Streets pilot projects, increased understanding of the potential benefits of complete streets improvements, and community engagement opportunities facilitated by CTPS. Planning and design reports to accomplish low-cost complete streets projects.</p>	S	S	S	S	P	S		P		P		P			N		P

FFY 2017 Draft Universe and Study Evaluation

ID	Project Name	Estimated Cost	Project Purpose and Outcome	LRTP Goal Areas						Mode			Study Scale		Impact			Other	
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Multi-Modal Roadway	Bicycle Pedestrian	Transit	Specific Community	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing Work	Continuing Study
A-6	Before and After Studies of Protected and Conventional Bicycle Lanes	\$55,000	<p>Purpose: This study would conduct detailed counts, analyze crash data, and survey people using the street and businesses to compare “before” and “after” conditions and public perceptions of new bicycle lanes. The effect of different types of bicycle lanes upon greenhouse gas emissions can be analyzed as well.</p> <p>Anticipated Outcome: Identify effects of the newly constructed bicycle lanes on bike counts, crashes, and mode split compared to existing conditions and relative to conditions on similar nearby streets that did not receive newly constructed bicycle facilities. Add to our understanding of to what degree the new bicycle facility attracts people who were not previously biking in the area and to what degree it attracts people who were already biking away from their former route to the new facility.</p>	P		S		S			P		P			P		P	
A-7	Safety Effectiveness of Safe Routes to School Program	\$80,000	<p>Purpose: This study will investigate the safety and effectiveness of the Safe Routes to School (SRTS) program and the primary factors contributing to a program’s effectiveness. Such factors could include such things as the presence of reduced speed school zones or infrastructure improvements, as well as the grade levels of students and the presence of school crossing guards.</p> <p>Anticipated Outcome: Through this study, a task force will be formed to guide the direction of the research. A literature review will be conducted on SRTS programs throughout the Boston region, as well as in other states, to determine the factors that contribute to various SRTS improvements either being encouraged, requiring further study, or being discouraged in specific locations.</p> <p>Schools selected for detailed study will be those that have been participating in the SRTS program and represent a broad range of communities throughout the Boston region (factors considered when choosing schools will include representing a range of grade levels, high- and low- density communities, varied traffic characteristics on surrounding roads, and environmental justice zones, among others). Once the schools are selected, MPO staff will gather data on traffic volumes, pedestrian and bicycle volumes, crashes, roadway setting and characteristics, traffic control devices, modes of commute to school, school hours and after school activities, and school policies. The outcome will be an understanding of the traffic and safety characteristics before and after implementation of the SRTS program in both the immediate vicinity of the selected schools and within a two-mile radius. In cases where there is good before and after data, these findings will be quantitative.</p>	P	S	S	S	S			P		P					P	
A-8	Bicycle Level-of-Service Metric	\$55,000	<p>Purpose: This project would help to understand the travel behaviors and comfort levels of cyclists within diverse environments and to be better able to accurately plan for transportation in the Boston region.</p> <p>Anticipated Outcome: Enhanced ability to calculate expected bicycle trips and to prioritize projects. This study would begin with a literature review of existing bicycle level-of-service (LOS) criteria to identify the data that CTPS staff should use when modeling cyclist trips within the Boston region. This process would be informed by communication with CTPS staff and entities at the local and state level in order to identify what data is currently available for calculating bicycle LOS in the Boston region. Depending on data availability, criteria for the LOS metric would be selected and used to evaluate bicycle LOS in the Boston region.</p>	S		S		P			P		P			P		P	

FFY 2017 Draft Universe and Study Evaluation

ID	Project Name	Estimated Cost	Project Purpose and Outcome	LRTP Goal Areas					Mode			Study Scale		Impact			Other			
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Multi-Modal Roadway	Bicycle Pedestrian	Transit	Specific Community	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing Work	Continuing Study	New Study
A-9	Study of Possible Places and Times for Car-Free Days	\$35,000	<p>Purpose: This study would aim to understand and analyze the appropriateness of instituting car-free days or locations. CTPS staff would work with selected municipalities (up to three) to analyze streets, days, and times (including different times of year) that car-free days would benefit the community and multimodal transportation or recreation throughout the community. Aspects that could be analyzed to understand the possible costs and benefits of establishing a car-free street/day include: traffic and commuting patterns, air quality improvements, economic impact to businesses, and community support, among others.</p> <p>Anticipated Outcome: Memorandum(s) describing the recommended approach to implementing car-free days/streets and an analysis of the costs and benefits that could be realized.</p>			S		P	S		P			P					P	
LAND USE, ENVIRONMENT, AND ECONOMY																				
Another Chance																				
B-1	Methodologies and Tools for Understanding Transportation, Population, Housing, and Economic Displacement	\$85,000	<p>Purpose: Through this project, staff would work on developing methodologies or approaches that the MPO could use to better project economic displacement as a result of transportation projects.</p> <p>Anticipated Outcome: Through this project, staff would identify, through a literature review and other methods, techniques for accounting for displacement through the regional travel demand model, the land use model, or other approaches. These techniques could be tested on a project programmed in the Long-Range Transportation Plan (which would serve a hypothetical example). MPO staff could also attempt to do some before and after comparisons on a past large-scale transportation project to better understand displacement. Deliverables may include a memorandum documenting techniques and the results of sample analyses. Ultimately, these results could inform MPO project selection and performance-based planning.</p>				P		S				P	P				N		P
B-2	Transportation Mitigation of Major Developments: Review of Existing Strategies	\$60,000	<p>Purpose: This project would build off of the MPO's Core Capacity Constraints study (included in the FFY 2015 UPWP) that focused on examining strategies to mitigate the impacts new developments may have on the region's transportation system.</p> <p>Anticipated Outcome: Through this particular study, inspired by the discussion of transportation mitigation strategies at the January 8, 2015 MPO meeting, MPO staff would explore major land use developments that have occurred in the recent past (perhaps 15 years), along with transportation mitigation measures that were incorporated into the development process. These would include measures to address the impacts that the new development would have on the transportation system, such as the increased travel demand on nearby rapid transit or bus routes. MPO staff would then track the implementation of these measures and try to assess results. Through this process, MPO staff may be able to make recommendations for improvements to transportation mitigation-related processes and regulations and to the types of mitigation measures required by permitting agencies.</p>	P	S	S	S	S				P	P				P			P

FFY 2017 Draft Universe and Study Evaluation

ID	Project Name	Estimated Cost	Project Purpose and Outcome	LRTP Goal Areas						Mode			Study Scale		Impact			Other	
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Multi-Modal Roadway	Bicycle Pedestrian	Transit	Specific Community	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing Work	Continuing Study
B-3	Energy and Electric Vehicle Use in the MPO Region	\$55,000	<p>Purpose: Through this project, MPO staff would gather information and develop a profile of energy use for transportation in the MPO region. MPO staff would focus in particular on energy-use trends that pertain to electric vehicles.</p> <p>Anticipated Outcome: This project would inventory the distribution and location characteristics of charging stations, examine the characteristics of the electric vehicle fleet in the Boston region (such as the proportions of electric vehicles that are owned by households as compared to institutions), and analyze trends in the availability and use of these vehicles. Other activities may include an analysis of levels of consumption for different fuel types. This information may be useful to the MPO in future plan development and performance-based planning activities.</p>			P					P		P			P		P	
New																			
B-4	Shopping Behavior by Mode of Arrival	\$55,000	<p>Purpose: This study aims to create a local understanding of the concept and previous research conducted in other states about shopping behavior by mode of arrival. The supply and availability of parking is an issue in planning and implementing priority bus lanes and bicycle/pedestrian facilities as well as when new development comes to an area. This study would select two or three specific locations in the Boston region to understand local shopping behavior by individuals arriving by various modes. One approach to choosing the locations of study would be to build off of a study that the MPO is currently conducting on priority bus lanes and choose several locations that are highlighted in that study. This could be an important step in gaining support for implementing the findings from that study.</p> <p>Anticipated Outcome: The findings from this study would be useful to transit agencies and advocates as well as municipalities. Previous research points to the fact that pedestrians, bicyclists, and transit riders spend just as much money at commercial locations as drivers. The local knowledge gained from this study could help municipalities adjust parking requirements for new developments and could be an important tool in gaining support for additional bicycle, pedestrian, and transit infrastructure.</p>	S	S			P	S		P		P	P			N		P
B-5	Electric Vehicle Technologies for Transit	\$55,000	<p>Purpose: This study would investigate the electric vehicle technologies available for transit vehicles. It could look at what technologies are being used successfully in other areas/states, as well as the economic and environmental costs and benefits of implementing these technologies in the Boston region.</p> <p>Anticipated Outcome: A report documenting the findings of research from around the country and an analysis of applicability to the Boston region.</p>			P		S	S		P		P	P			N		P
B-6	Impacts of SIP Commitments on Regional Air Quality	\$55,000	<p>Purpose: This study would investigate the air-quality impacts of transit projects included in the State Implementation Plan (SIP) as transportation control measures during the environmental review process for the Central Artery/Third Harbor Tunnel project.</p> <p>Anticipated Outcome: An understanding and approach to analysis of the impact of SIP commitments on regional air quality. The study would also shed light on the effectiveness of using legal commitments as a strategy for ensuring implementation of transportation projects and priorities for attaining and/or maintaining compliance with the National Ambient Air Quality Standards.</p>			P	S				P		P	P			N		P

FFY 2017 Draft Universe and Study Evaluation

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				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Multi-Modal Roadway	Bicycle Pedestrian	Transit	Specific Community	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing Work
B-7	Study of Promising GHG-Reduction Strategies	\$55,000	<p>Purpose: Based on recommendations from the 2016 study completed by staff that provided information about cost-effective GHG reduction strategies, staff is proposing to study a subset of the 14 promising strategies that the MPO can fund, study, or advocate for in order to understand implementation at the regional level and determine their GHG reduction and cost-effectiveness potential.</p> <p>Anticipated Outcome: Examples of potential strategies that the MPO can fund and which could be studied in more detail include transit expansion or service improvement, teleworking, and parking management. The study could also look at the equity, safety, and mobility impacts of these strategies.</p>			P		S	S				P			P		P
MULTIMODAL MOBILITY																		
Renew																		
C-1	Addressing Safety, Mobility, and Access on Subregional Priority Roadways: FFY 2017	\$110,000	<p>Purpose: Identify priority arterial and bottleneck locations and recommend low-cost improvements.</p> <p>Anticipated Outcome: An enhanced understanding of approaches to improve safety and mobility for all modes. Communities can contact CTPS for roadways to be considered for study.</p>	P	S	S		S	S	P			P			P	N	P
C-2	Safety and Operations Analysis at Selected Intersections	\$65,000	<p>Purpose: The purpose of this project would be to examine mobility and safety issues at major intersections on the region's arterial highways, where, according to the MPO's crash database, many crashes occur. These locations are also congested during peak traffic periods. The resulting bottlenecks may occur only at single large intersections, but usually spill over to a few adjacent intersections along an arterial. These intersections may also accommodate multiple transportation modes, including buses, bicyclists, and pedestrians.</p> <p>Anticipated Outcome: This study would build directly on the results of the monitoring of delays and safety along arterial roadways that the Congestion Management Process (CMP) produces, and the resulting recommendations would be "management and operations" improvements. Municipalities in the region are very receptive to this type of study since these studies give them an opportunity to begin looking at the needs of these locations, starting at the conceptual level, before they commit funds for design. Eventually, if a project qualifies for federal funds, the study's documentation is also useful to MassDOT.</p>	P	S	S		S	S	P			P			P	N	P
C-3	Low-Cost Improvements to Express-Highway Bottleneck Locations	\$50,000	<p>Purpose: Build on previously conducted analysis of several express-highway bottleneck locations (Low-Cost Improvements to Bottlenecks Phase I and Phase II). These studies were very well received by the MassDOT and the FHWA. Some of the recommendations from these studies already have been executed, and the FHWA has interviewed MPO staff about the successful implementation.</p> <p>Anticipated Outcome: Identification of low-cost methods to reduce congestion, increase safety, and improve traffic operations in the Boston Region.</p>	S	S	S		P	S	P			P			P	N	P

FFY 2017 Draft Universe and Study Evaluation

ID	Project Name	Estimated Cost	Project Purpose and Outcome	LRTP Goal Areas						Mode			Study Scale		Impact			Other	
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Multi-Modal Roadway	Bicycle Pedestrian	Transit	Specific Community	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing Work	Continuing Study
C-4	Priority Corridors from the Long-Range Transportation Plan Needs Assessment	\$110,000	<p>Purpose: These planning studies develop conceptual plans recommending improvements for specific arterial segments.</p> <p>Anticipated Outcome: Cities and towns are able 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, the study's documentation also may be useful to MassDOT and the municipalities.</p>	S	S	S		P	S	P			P		P	P	P		
Evolve																			
C-5	The Effects of Induced Demand upon Transportation System Efficiency	\$55,000	<p>Purpose: In this UPWP project, CTPS can explore the concept of induced demand and its ramifications upon transportation projects such as intersection improvements and capacity expansion. The effect of induced demand upon other types of transportation projects could be considered as well. Specifically, the project would include the following:</p> <ul style="list-style-type: none"> • Definition of induced travel/demand • Context of induced travel/demand in different planning contexts • Determination of when induced travel/demand should be included in transportation analyses • Determination of the magnitude of induced travel/demand for different types of transportation projects and land uses • Determination of how induced demand can be incorporated into the travel demand model <p>Anticipated Outcome: Better understanding of the ability of system efficiency improvements, such as capacity expansion and intersection improvements, to achieve long-term GHG emission reduction and congestion relief.</p>			P				P		P	P			P		P	
Another Chance																			
C-6	Planning for Connected and Autonomous Vehicles	\$50,000	<p>Purpose: This project would involve research into the overarching issues that the Boston Region MPO needs to understand and plan for around autonomous and connected vehicle technologies. Some of the questions that could form the body of research include:</p> <ul style="list-style-type: none"> • What research exists already? • How are other states, regions, and municipalities approaching being prepared for these technologies? • How might these technologies affect transportation planning (i.e., the need for off-street parking) and modeling in the future? • What is the current thinking around the potential penetration level of these new technologies? • Could scenario planning provide a useful approach to understand how best to plan for these technologies? • What are the best next steps for the region in terms of being prepared for these technological changes? <p>Anticipated Outcome: This project would be an important first step to understanding the transportation planning consequences of AV/CV technologies and how the MPO and region can be prepared.</p>	S	S	S		P	S	P			P	P			N		P

FFY 2017 Draft Universe and Study Evaluation

ID	Project Name	Estimated Cost	Project Purpose and Outcome	LRTP Goal Areas						Mode			Study Scale		Impact			Other	
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Multi-Modal Roadway	Bicycle Pedestrian	Transit	Specific Community	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing Work	Continuing Study
C-7	Safety Improvements at Express-Highway Interchanges	\$55,000	<p>Purpose: Continue to address the 2013 MassDOT Top 200 High-Crash Locations and Highway Safety Improvement Program (HSIP) crash clusters in the Boston Region MPO. Many of these are express-highway interchanges, and some of them do not need complete rebuilds (which are costly), but rather low-cost improvements that address safety and operations.</p> <p>Anticipated Outcome: The study would review the Top 200 Intersection Clusters and HSIP crash clusters to identify candidate locations. MPO staff would develop low-cost safety and operational improvements.</p>	P	S			S	S	P			P			P	N	P	
TRANSIT Evolve																			
E-1	MBTA Bicycle Parking/MBTA Park-and-Ride Lot Monitoring (including nearby private lots and on-street parking)	\$80,000	<p>Purpose: Two hundred and seventy-nine (279) MBTA stations would need to be surveyed for bicycle parking data. Additionally, the MBTA parking lots, which have not been surveyed since 2013, also would need to be updated. The parking lots for this iteration of the park-and-ride lot survey will include any parking near stations that commuters use, including MBTA lots, private lots, and on-street parking. Because it is less costly to make a single visit to stations that offer parking for both modes, this collection effort will combine the data for both bicycle and automobile parking. This task will also include talking to communities to see what the parking trends for each station are and to see if the communities have recommendations of their own.</p> <p>This study would also look at the pricing and management structure of all of the publicly and privately owned parking lots at and near MBTA stations.</p> <p>Anticipated Outcome: Update the demand and supply of parking at MBTA stations and catalog the institutional structure that shapes pricing for parking in the lots.</p>		S	S	S	P	S			P	P	P			P	P	
Another Chance																			
E-2	Potential Uses for Unused Land Underused ROW	\$55,000	<p>Purpose: Through this study, MPO staff would inventory and map the unused or underused rail right-of-way (ROW) in the region, and then suggest possible transportation uses for the ROW. Options for alternative uses could include the creation of bicycle and/or pedestrian routes, or routes for new transit service.</p> <p>Anticipated Outcome: The deliverable could be a memorandum describing the study process, recommendations for a few specific locations, and maps of the region describing the used and underused ROW.</p>		S	S		P	S		P		P		P		N		P
E-3	Non-Fixed Route Transportation Services: Lessons for Transit Agencies	\$90,000	<p>Purpose: In a past study, CTPS used taxi origin-destination data, along with other data sources, to determine where transit dollars might be best spent to improve the MBTA's early-morning service. This proposed study would go beyond the scope of the previous study and would include all-day taxi data and other non-fixed-route service origin-destination data to determine where the fixed-route transit system is inadequately serving potential riders and where improvements could be made. This study would focus on areas with concentrated taxi or other point-to-point service origins and destinations since these are the areas with the most potential for supporting fixed-route transit service. The study area for this project would include Boston and Cambridge.</p> <p>Anticipated Outcome: Understanding of improvements that could be made to the fixed-route transit service.</p>		S	S	S	P				P		P		P		P	P

FFY 2017 Draft Universe and Study Evaluation

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				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Multi-Modal Roadway	Bicycle Pedestrian	Transit	Specific Community	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing Work	Continuing Study
New																			
E-4	Collecting Better MBTA Survey Data	\$55,000	<p>Purpose: As technology advances, opportunities improve for gathering data of a better quality and in a greater quantity. The MBTA strives to serve the needs of its users and often relies on surveys to determine how the MBTA might improve its service. Current MBTA survey formats provide a great deal of information, but there may be additional avenues that the MBTA could pursue in order to compile robust user data. The MBTA application that allows users to purchase tickets on their smartphones could provide a quick and easy means by which the MBTA could gather data on a constant basis. After a user purchases a ticket, the application could prompt the user to provide the mode or modes by which he or she reached the station, the distance traveled to the station using each travel mode, and his or her demographic information. Additionally, as use of the ticket purchase application expands to other modes besides the commuter rail, this survey approach could be useful in reaching many more riders. This study could explore this approach as well as others to gather better user data. Other options would be determined in coordination with the MBTA's new data chief.</p> <p>Anticipated Outcome: The project would begin with a literature review of existing data collection methods. This would be followed by an assessment of the feasibility of using each approach for MBTA surveys. Finally, this project would recommend approaches that the MBTA should take when conducting surveys in the future.</p>				P				P	P		P		P			P
E-5	Strategies to Reduce Paratransit Trips in the Boston MPO Region: Reducing Barriers to Entry to Fixed-Route Transit Service	\$55,000	<p>Purpose: Throughout the MPO region, people use the MBTA's paratransit services such as THE RIDE. Some of their travel patterns may overlap with the existing fixed-route network, and other travel patterns might be accommodated through minor adjustments to existing transit service. In the past, the MBTA offered free CharlieCards to THE RIDE users to lower the barrier of entry to the fixed-route system for the trips they can make using the fixed-route system. Depending on the available data, knowing where the users of these special CharlieCards make trips on the fixed-route system and where they use THE RIDE may provide valuable insights to system improvements.</p> <p>Anticipated Outcome: Identify the travel patterns of THE RIDE users, quantify some service issues that prohibit people from fully using fixed-route services, and make recommendations to existing service that may improve access to the fixed-route system.</p>	S		P	S				P	P		P		N			P

FFY 2017 Draft Universe and Study Evaluation

ID	Project Name	Estimated Cost	Project Purpose and Outcome	LRTP Goal Areas						Mode			Study Scale		Impact			Other	
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Multi-Modal Roadway	Bicycle Pedestrian	Transit	Specific Community	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing Work	Continuing Study
E-6	IA Review of Interlining at the MBTA	\$55,000	<p>Purpose: This study's goal would be to review some of the issues with interlining and discover the conditions where interlining may and may not be operationally beneficial. It would include a review of the MBTA's practices for scheduling running time and using interlining compared with use of these practices at peer agencies.</p> <p>Anticipated Outcome: The results of this study would provide the MBTA with parameters they could use to fine-tune how they schedule their services—reaping the benefits of interlining when it makes sense, yet providing reliable and resilient service.</p>		S	S	S	P				P	P		P		N		P
E-7	Using GTFS to Find Shared Segments with Excessively Irregular Headways	\$25,000	<p>Purpose: The goals of this study are to use existing data to provide schedule improvements for MBTA buses and to document reasons behind irregularities in the existing schedule.</p> <p>Anticipated Outcome: By mining the MBTA's GTFS data, we can discover the distribution of headways at a stop over time, discovering segments that have excessively irregular headways or segments where multiple bus routes are scheduled to overlap.</p> <p>In many cases, there may be a reason for the irregular combined headways. This project would document these reasons and, where appropriate, propose recommendations for improvement.</p>		S	S	S	P				P	P		P		N		P
E-8	Low-Cost Improvements to Transit Service	\$35,000	<p>Purpose: This study would examine the transit system in the Boston Region MPO and identify several locations where inadequate service occurs as a result of inefficient passenger queuing, passenger loading, or wayfinding. Three to five locations where this "friction" occurs would be chosen for more in-depth study to identify low-cost solutions that could be implemented.</p> <p>Anticipated Outcome: The first part of the study would involve a literature review to determine the range of low-cost solutions that exist and which ones would be most appropriate and efficacious to address identified service issues at the chosen locations. The resulting report would also describe the suggested processes for implementation of the solutions and could recommend an approach to study the after-condition at each location to determine how well the interventions are working. This study could include the MBTA commuter rail as well as locations within regional transit agency service areas that are in need of improvement.</p>		S	S	S	P				P	P		P		N		P

FFY 2017 Draft Universe and Study Evaluation

ID	Project Name	Estimated Cost	Project Purpose and Outcome	LRTP Goal Areas					Mode			Study Scale		Impact			Other		
				Safety	System Preservation	Clean Air/Clean Communities	Transportation Equity	Capacity Management/Mobility	Economic Vitality	Multi-Modal Roadway	Bicycle Pedestrian	Transit	Specific Community	Broader Region	Enhance State of Practice	Low-Cost/Near-Term Implementation	Long-Term Implementation	Connection to Existing Work	Continuing Study
OTHER TECHNICAL SUPPORT																			
Renew																			
F-1	MPO Staff-Generated Research Topics	\$30,000	<p>Purpose: This program would support work by MPO staff members on topics that relate to the Boston Region MPO's metropolitan transportation-planning process, that staff members have expressed interest in, and that are not covered by an ongoing Unified Planning Work Program (UPWP) or discrete project. MPO staff members would complete an application, which would be reviewed by MPO managers and directors, for some MPO funding to do independent research on a topic of professional interest and potential use in the metropolitan transportation-planning program.</p> <p>Anticipated Outcome: This program could bring forth valuable information for the MPO's consideration and would support staff's professional development. The opportunities afforded to staff through this program could yield highly creative solutions to transportation-planning problems.</p>											P	P			P	P
Another Chance																			
F-2	Future of Transportation Data Collection	\$55,000	<p>Purpose: This study would review the transportation data sources traditionally gathered using person time and would explore whether there are cost-effective ways to automate these processes. To complement this review, the study would also identify areas in the transportation field where human-based data collection is more beneficial than machine-based data collection and also where automated data collection methods cannot be used.</p> <p>Anticipated Outcome: Enhanced understanding of the most cost-effective and efficient ways to collect transportation data. Ability to adjust our approaches to data collection based on the findings.</p>											P	P			P	P

Notes: (1) Green highlighted rows are new studies that were chosen for funding in FFY 2017. These studies are described in further detail in Chapter 6.

(2) Proposed studies F-1 and F-2 were not evaluated using the evaluation areas. F-1 dedicates an amount of funding for a yet-to-be-determined MPO staff research proposal, and F-2 is a data-collection research study with the potential to enhance staff's work; however, it does not directly relate to an LRTP goal area or the other evaluation areas.

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



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APPENDIX D

Geographic Distribution of UPWP Funded Studies

D.1 INTRODUCTION

This appendix summarizes the Metropolitan Planning Organization (MPO)-funded work products produced by MPO staff and the staff of the Metropolitan Area Planning Council (MAPC) during federal fiscal years (FFY) 2010 through 2015, as well as those expected to be completed by the end of FFY 2016. The narrative below describes the methodology used to compile this information, as well as some of the additional factors that could be used to further analyze and use this data to inform and guide public involvement and regional equity purposes.

D.2 PURPOSE AND METHODOLOGY

Purpose

The purpose of this data collection and analysis is to better understand the geographic spread of Unified Planning Work Program (UPWP) work products (i.e., reports and technical memoranda) throughout the region. In other words, this exercise serves to illuminate which communities and areas of our metropolitan region have been the subject of transportation studies and analyses (or recipients of technical support) conducted by the MPO staff with 3C (continuing, comprehensive, and cooperative) planning funds. The data presented below covers UPWP tasks completed from FFY 2010 through FFY 2016 and includes work that resulted in benefits to specific municipalities as well as studies that had a regional focus.

This is the first FFY in which this data has been compiled, and MPO staff intends to continue to compile this information each FFY. Maintaining a database to track 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 data, such as the presence and size of a municipal planning department or the percentage of minority residents, this data on geographic distribution of MPO-funded UPWP studies can help guide the MPO's public outreach to help ensure that, over time, we are meeting the needs of the region with the funds allocated through the UPWP.

Methodology

As noted above, this analysis examined FFYs 2010 through 2016. In order to generate information on the number of UPWP studies produced during these FFYs that benefited specific cities and towns in the Boston region, MPO staff performed the following main steps:

- Reviewed all work products listed as complete in UPWPs from FFYs 2011 through 2017
- Excluded all agency and other client-funded studies and technical analyses in order to focus the analysis on MPO-funded work only

- Excluded all work products that had a regional focus rather than benefiting specific municipalities
- Excluded all work related to certification requirements (Chapter 5) and administration, resource management, and support activities (Chapter 8)
- 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. Examples of studies and reports that benefited multiple municipalities include the Massachusetts Bay Transportation Authority (MBTA) Bus Route 1 Transit Signal Priority Study (both Boston and Cambridge were beneficiaries of this study) and the Route 126 Corridor Study (both Bellingham and Medway were beneficiaries of this study)
- Reviewed and discussed the status and focus of studies, technical memoranda, and reports with project managers and technical staff

D.3 PLANNING STUDIES AND TECHNICAL ANALYSES BY COMMUNITY

Table D-1 shows the number of completed MPO-funded UPWP work products from FFY 2010 through FFY 2016 that are determined to provide benefits to specific municipalities. Studies and technical analyses are grouped by the year in which they were completed, rather than the year in which they were first programmed in the UPWP. Examples of the types of studies and work in the table include:

- Evaluating Transit-Oriented Development opportunities at specific MBTA Stations
- Technical assistance on Massachusetts Environmental Policy Act (MEPA) Environmental Impact Reports
- Complete streets analyses for specific municipalities
- Operations analyses and alternative conceptual design recommendations for specific intersections



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

Community	2010	2011	2012	2013	2014	2015	2016	Total	2010 Population	2010 Minority Population Count	2010 Median Household Income	2010 Roadway Miles	Subregion
Boston	3	4	5	2	4	4	3	25	617,594	327,282	\$50,684	778	Inner Core
Everett	2	1	2	2	3	3	2	15	41,667	19,351	\$49,737	57	Inner Core
Waltham	2	2	2	2	2	2	3	15	60,632	18,954	\$66,346	115	Inner Core
Somerville	4	3	2	2	1	1	1	14	75,754	23,395	\$61,731	88	Inner Core
Cambridge	2	2	2	1	1	1	4	13	105,162	39,903	\$64,865	120	Inner Core
Newton	1	2	3	2	2	2		12	85,146	17,345	\$107,696	276	Inner Core
Quincy	3	1	3	2	2			11	92,271	31,823	\$59,803	185	Inner Core
Chelsea	4	1	2	1	1	1		10	35,177	26,295	\$40,487	44	Inner Core
Malden	2	2	3	1	1	1		10	59,450	28,239	\$56,347	93	Inner Core
Lynn	3		1	3			1	8	90,329	47,360	\$43,200	153	Inner Core
Medford	2	1	1	1	1		1	7	56,173	13,384	\$70,102	92	Inner Core
Revere	1		2	2	2			7	51,755	19,456	\$49,759	85	Inner Core
Brookline		1	1	1	1	1	1	6	58,732	15,692	\$95,448	92	Inner Core
Melrose	1		1	2	1	1		6	26,983	2,822	\$82,482	71	Inner Core
Belmont	1	1			1		2	5	24,729	4,611	\$95,197	72	Inner Core
Arlington	2	1					1	4	42,844	7,040	\$82,771	101	Inner Core
Saugus	1		1	1				3	26,628	2,768	\$71,023	77	Inner Core
Winthrop	1		1					2	17,497	2,011	\$67,535	36	Inner Core
Watertown	1							1	31,915	5,850	\$74,081	72	Inner Core
Nahant								0	3,410	153	\$81,831	17	Inner Core
Inner Core Subtotals	36	22	32	25	23	17	17	172	1,603,848	653,734		2624	

Table D-1(cont.)

Community	2010	2011	2012	2013	2014	2015	2016	Total	2010 Population	2010 Minority Population Count	2010 Median Household Income	2010 Roadway Miles	Subregion
Lexington	2	1	3	1	1	2		10	31,394	8,256	\$130,637	117	MAGIC
Lincoln	1	1	3	2	1	1		9	6,362	1,096	\$121,104	51	MAGIC
Acton			2			4	1	7	21,924	5,369	\$105,523	103	MAGIC
Bedford	3		1		1	2		7	13,320	2,136	\$107,639	70	MAGIC
Hudson		2	2	1		2		7	19,063	2,118	\$74,983	83	MAGIC
Maynard			2	1		4		7	10,106	996	\$75,597	35	MAGIC
Sudbury	2	2	1	1		1		7	17,659	1,880	\$153,295	138	MAGIC
Concord			1	1	1	3	1	7	17,668	2,266	\$119,858	104	MAGIC
Littleton			2			3		5	8,924	685	\$103,616	62	MAGIC
Bolton	1	1	1			1		4	4,897	320	\$125,741	60	MAGIC
Boxborough			1			3		4	4,996	1,056	\$102,222	33	MAGIC
Stow			2	1		1		4	6,590	511	\$117,440	52	MAGIC
Carlisle			1			1		2	4,852	595	\$155,000	55	MAGIC
MAGIC Subtotals	9	7	22	8	4	28	1	79	167,755	27,284		963	
Weston	4	2	2	2	2	2	2	16	11,261	1,868	\$148,512	88	MetroWest
Framingham	3	3	3	2	2	1	1	15	68,318	23,693	\$64,061	219	MetroWest
Wellesley	3	1	2	2	1	2	1	12	27,982	4,921	\$139,784	109	MetroWest
Natick	3	2	2	2			1	10	33,006	4,817	\$87,568	123	MetroWest
Southborough	2	2	2	1		1		8	9,767	1,362	\$140,184	69	MetroWest
Marlborough	1	1	1	2	1			6	38,499	9,546	\$71,617	129	MetroWest
Holliston	2			1	1			4	13,547	902	\$103,600	86	MetroWest
Ashland	2			1				3	16,593	3,063	\$92,974	73	MetroWest

Table D-1(cont.)

Community	2010	2011	2012	2013	2014	2015	2016	Total	2010 Population	2010 Minority Population Count	2010 Median Household Income	2010 Roadway Miles	Subregion
Wayland	1	1		1				3	12,994	1,912	\$129,805	87	MetroWest
MetroWest Subtotals	21	12	12	14	7	6	5	77	231,967	52,084		983	
Burlington	3	2	2	2	1	1	1	12	24,498	5,106	\$90,341	94	NSPC
Reading	2		1	3	2	2	1	11	24,747	1,870	\$99,130	89	NSPC
Woburn	2		1	3		1	1	8	38,120	6,990	\$71,060	121	NSPC
Wilmington	1		1	3			1	6	22,325	1,725	\$94,900	95	NSPC
Winchester	1		1	2			2	6	21,374	3,065	\$121,572	73	NSPC
Lynnfield	1			1		2	1	5	11,596	758	\$87,590	66	NSPC
Stoneham	1			2		1	1	5	21,437	2,033	\$76,574	65	NSPC
Wakefield	1		1	1			1	4	24,932	1,751	\$89,246	85	NSPC
North Reading				1		1	1	3	14,892	901	\$96,016	76	NSPC
NSPC Subtotals	12	2	7	18	3	8	10	60	203,921	24,199		764	
Salem	2	3				2	1	8	41,340	9,963	\$56,979	88	NSTF
Danvers	1	2	2		1			6	26,493	1,654	\$75,310	104	NSTF
Beverly		2		1	1	1		5	39,502	3,397	\$66,671	125	NSTF
Peabody	2	2						4	51,251	6,317	\$65,515	159	NSTF
Rockport		2		1				3	6,952	286	\$70,625	33	NSTF
Swampscott	1		1	1				3	13,787	963	\$90,763	43	NSTF
Gloucester				1	1			2	28,789	1,689	\$60,506	88	NSTF
Marblehead	1			1				2	19,808	990	\$97,097	66	NSTF
Hamilton		1						1	7,764	676	\$99,732	45	NSTF
Ipswich		1						1	13,175	704	\$80,816	73	NSTF

Table D-1(cont.)

Community	2010	2011	2012	2013	2014	2015	2016	Total	2010 Population	2010 Minority Population Count	2010 Median Household Income	2010 Roadway Miles	Subregion
Middleton							1	1	8,987	1,142	\$87,728	46	NSTF
Wenham		1						1	4,875	268	\$132,697	27	NSTF
Essex								0	3,504	135	\$76,989	24	NSTF
Manchester								0	5,136	184	\$105,000	24	NSTF
Topsfield								0	6,085	283	\$115,015	50	NSTF
NSTF Subtotals	7	14	3	5	3	3	2	37	277,448	28,651		995	
Braintree	5		1	2		1	1	10	35,744	5,273	\$81,146	104	SSC
Weymouth	3			1	1	1		6	53,743	6,379	\$65,849	141	SSC
Cohasset				2		1		3	7,542	288	\$114,214	32	SSC
Holbrook	1			2				3	10,791	2,070	\$62,623	34	SSC
Scituate				2		1		3	18,133	856	\$86,723	101	SSC
Hingham	1			1				2	22,157	1,022	\$98,890	110	SSC
Marshfield			1	1				2	25,132	1,005	\$86,486	131	SSC
Norwell				2				2	10,506	495	\$108,944	69	SSC
Duxbury				1				1	15,059	560	\$114,565	103	SSC
Hanover				1				1	13,879	579	\$100,233	85	SSC
Hull				1				1	10,293	591	\$72,166	50	SSC
Pembroke				1				1	17,837	699	\$80,694	91	SSC
Rockland	1							1	17,489	1,610	\$64,512	48	SSC
SSC Subtotals	11	0	2	17	1	4	1	36	258,305	21,427		1099	
Milford	1			3	3	1		8	27,999	4,895	\$66,636	109	SWAP
Hopkinton	2	1		3		1		7	14,925	1,238	\$120,240	106	SWAP
Medway	1		1	2				4	12,752	828	\$102,002	70	SWAP

Table D-1(cont.)

Community	2010	2011	2012	2013	2014	2015	2016	Total	2010 Population	2010 Minority Population Count	2010 Median Household Income	2010 Roadway Miles	Subregion
Sherborn	1			3				4	4,119	274	\$145,250	56	SWAP
Bellingham	1			2				3	16,332	1,347	\$78,290	83	SWAP
Franklin				2	1			3	31,635	2,709	\$89,330	132	SWAP
Millis	1			2				3	7,891	576	\$85,472	52	SWAP
Wrentham	1			2				3	10,955	414	\$94,406	67	SWAP
Norfolk				2				2	11,227	1,734	\$113,266	70	SWAP
SWAP Subtotals	8	1	1	21	4	2	0	37	137,835	14,015		745	
Needham	2		1	2	1	1	1	8	28,886	3,156	\$114,365	119	TRIC
Dedham	1		1	2		1	1	6	24,729	3,682	\$80,865	82	TRIC
Westwood	1		1	2	1	1		6	14,618	1,237	\$114,250	80	TRIC
Foxborough				2	1	1		4	16,865	1,400	\$93,397	82	TRIC
Randolph	4							4	32,112	19,559	\$64,607	93	TRIC
Walpole	2			1		1		4	24,070	2,222	\$89,697	117	TRIC
Stoughton	1	1			1			3	26,962	5,822	\$67,175	108	TRIC
Canton	1				1			2	21,561	3,610	\$89,705	92	TRIC
Norwood	1			1				2	28,602	4,960	\$72,472	93	TRIC
Medfield						1		1	12,024	731	\$126,048	72	TRIC
Sharon								0	17,612	3,341	\$115,172	106	TRIC
Milton	2	3						5	27,003	6,514	\$97,421	94	TRIC/Inner Core
Dover	1			3				4	5,589	490	\$164,583	59	TRIC/SWAP
TRIC Subtotals	16	4	3	13	5	6	2	49	280,633	56,724		1197	
Grand Total	120	62	82	121	50	74	38	547	3,161,712	878,118		9370	

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

D.4 REGIONWIDE PLANNING STUDIES AND TECHNICAL ANALYSES

In addition to work that benefits specific municipalities, many of the projects funded by the MPO through the UPWP have a regional focus. Table D-2 lists MPO-funded UPWP studies completed from 2010 through 2016 that were regional in focus.

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

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

FFY 2016	
Central Transportation Planning Staff	Metropolitan Area Planning Council
<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 • Exploring the 2011 Massachusetts Travel Survey: MPO Travel Profiles • Exploring the 2011 Massachusetts Travel Survey: Barriers and Opportunities Influencing Mode Shift • Core Capacity Constraints • 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	
Central Transportation Planning Staff	Metropolitan Area Planning Council
<ul style="list-style-type: none"> • Barriers and Opportunities Influencing Mode Shift • Bicycle Network Gaps: Feasibility Evaluations • 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 • 2012-2013 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	
Central Transportation Planning Staff	Metropolitan Area Planning Council
<ul style="list-style-type: none"> • Bicycle Network Evaluation • Household Survey-Based Travel Profiles and Trends • Exploring the 2011 Massachusetts Travel Survey: Focus on Journeys to Work • Methodology for Evaluating the Potential for Limited-Stop Service on Transit Routes 	<ul style="list-style-type: none"> • Transportation Demand Management Best Practices and Model Municipal Bylaw • Land Use Baseline for Bus Rapid Transit • MetroFuture community engagement
FFY 2013	
Central Transportation Planning Staff	Metropolitan Area Planning Council
<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	
Central Transportation Planning Staff	Metropolitan Area Planning Council
<ul style="list-style-type: none"> • Analysis of JARC and New Freedom Projects • Safety and Security Planning • Emergency Mitigation and Hazard Mapping, Phase II • Impacts of Walking Radius, Transit Frequency, and Reliability • MBTA Systemwide Passenger Survey: Comparison of Results • Pavement Management System Development • Roundabout Installation Screening Tool • TIP Project Impacts Before/After Evaluation • Regional HOV System Planning Study • Freight Survey 	<ul style="list-style-type: none"> • Snow Removal Policy Toolkit • MetroFuture implementation strategies— updated implementation strategies including focus on equity indicators

FFY 2011	
Central Transportation Planning Staff	Metropolitan Area Planning Council
<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	
Central Transportation Planning Staff	Metropolitan Area Planning Council
<ul style="list-style-type: none"> • An Assessment of Regional Equity Outreach 2008–2009 • 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

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

D.5 NEXT STEPS

As mentioned previously, this is the first year that this type of data has been comprehensively compiled for the MPO staff's work as programmed through the UPWP. Going forward, MPO staff intends to collect this data on an annual basis and to continue to use it as one input that can inform UPWP funding decisions. The data summarized in this appendix and future UPWP funding data that is added to it could be used in a number of different ways to help guide the spending decisions made in future UPWPs. Some analyses that the MPO could complete in the future include:

- Compare the number of tasks per community to the presence and size of a municipal planning department in each city and town
- Examine the use of different measures to understand the geographic distribution of benefits derived from funding programmed through the UPWP. For example, in addition to analyzing the number of tasks per community, the MPO could consider the number of dollars spent per community or the magnitude of benefits that could be derived from UPWP studies (e.g., congestion reduction, air quality improvement, etc.)
- Examine in more detail the geographic distribution of UPWP studies and technical analyses per subregion or per MAPC community type to understand the type of tasks being completed and how these compare to municipally identified needs
- Examine the number of tasks per community and compare the data to the number of road miles, the median household income, or the minority population in each community
- Compare the number of tasks directly benefiting each municipality with the geographic distribution of transportation needs identified in the Long-Range Transportation Plan (LRTP), *Charting Progress to 2040*. The transportation needs of the region for the next 25 years are identified and organized in the LRTP according to the MPO's goal areas, which include safety, system preservation, capacity management and mobility, clean air and clean communities, transportation equity, and economic vitality.

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



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APPENDIX E

MPO Glossary of Acronyms

Acronym	Definition
3C	continuous, comprehensive, cooperative [planning process]
A&F	administration and finance
AACT	Access Advisory Committee to the MBTA
ABP	Accelerated Bridge Program
ADA	Americans with Disabilities Act of 1990
ADT	average daily traffic
AFC	automated fare collection
AMPO	Association of Metropolitan Planning Organizations
APC	automatic passenger counter
APTA	American Public Transportation Association
ARAN	automatic road analyzer
ARRA	The American Recovery and Reinvestment Act of 2009
ASL	American sign language
ATR	automatic traffic recorder
AVL	automatic vehicle location
AWDT	average weekday daily traffic
BCIL	Boston Center for Independent Living
BRA	Boston Redevelopment Authority
BRT	bus rapid transit
BTD	Boston Transportation Department
CA/T	Central Artery/Tunnel [project]
CAA	Clean Air Act of 1970

Acronym	Definition
CAAA	Clean Air Act Amendments of 1990
CATA	Cape Ann Transportation Authority
CBD	central business district
CFR	Code of Federal Regulation
CHSTP	Coordinated Public Transit Human Services Transportation Plan
CIC	Community Innovation Challenge
CIP	Capital Investment Program
CMAQ	Congestion Mitigation and Air Quality
CMP	Congestion Management Process
CNG	compressed natural gas
CO	carbon monoxide
CO2	carbon dioxide
CTPS	Central Transportation Planning Staff [to the Boston Region MPO]
CTTAP	Community Transportation Technical Assistance Program
DBMS	Database Management System
DCAMM	Division of Capital Asset Management and Maintenance
DCR	Department of Conservation and Recreation
DEIR	draft environmental impact report [MA]
DEIS	draft environmental impact statement [federal]
DEP	Department of Environmental Protection [MA]
DMU	diesel multiple unit
DTA	dynamic traffic assignment

Acronym	Definition
EERPAT	Energy and Emissions Reduction Policy Analysis Tool
EIR	environmental impact report [MA]
EIS	environmental impact statement [federal]
EJ	environmental justice
EOEEA	Executive Office of Energy and Environmental Affairs [MA]
EOHED	Executive Office of Housing and Economic Development [MA]
EOHHS	Executive Office of Health and Human Services [MA]
EPA	Environmental Protection Agency [federal]
EPDO	equivalent property damage only [index]
ETC	electronic toll collection
FDR	functional design report
FEIR	final environmental impact report [MA]
FEIR	final environmental impact statement [federal]
FFGA	full funding grant agreement
FFY, FFYs	federal fiscal year, federal fiscal years
FHEA	Fair Housing Equity Assessment
FHWA	Federal Highway Administration
FONSI	finding of no significant impact
FTA	Federal Transit Administration
GANS	grant anticipation notes [municipal bond financing]
GHG	greenhouse gas [as in greenhouse gas emissions]
GIS	geographic information system

Acronym	Definition
GLX	Green Line Extension [Green Line Extension project]
GPS	global positioning system
GWI	global warming index
GWSA	Global Warming Solutions Act of 2008 [MA]
HOV	high-occupancy vehicle
HPP	high-priority projects
HSIP	Highway Safety Improvement Program
HTC	Healthy Transportation Compact
ICC	Inner Core Committee [MAPC subregion]
IMS	intermodal management system
INVEST	Infrastructure Voluntary Evaluation Sustainability Tool [FHWA]
IPCC	Intergovernmental Panel on Climate Change
ISTEA	Intermodal Surface Transportation Efficiency Act [federal]
IT&S	Information Technology and Systems [CTPS group]
ITDP	Institute for Transportation and Development Policy
ITE	Institute of Transportation Engineers
ITS	intelligent transportation systems
JARC	Job Access and Reverse Commute [program]
LAP	language access plan
LCW	Livable Community Workshop
LEP	limited English proficiency
LNG	liquefied natural gas

Acronym	Definition
LOS	level of service
LRTA	Lowell Regional Transit Authority
LRTP	Long-Range Transportation Plan
MAGIC	Minuteman Advisory Group on Interlocal Coordination
MAP-21	Moving Ahead for Progress in the 21st Century Act [federal]
MAPC	Metropolitan Area Planning Council
MARPA	Massachusetts Association of Regional Planning Agencies
MassDOT	Massachusetts Department of Transportation
MassGIS	Massachusetts Office of Geographic Information
Massport	Massachusetts Port Authority
MassRIDES	MassDOT's statewide travel options program
MBCR	Massachusetts Bay Commuter Railroad
MBTA	Massachusetts Bay Transportation Authority
MCAD	Massachusetts Commission Against Discrimination
MEMA	Massachusetts Emergency Management Agency
MEPA	Massachusetts Environmental Policy Act
MGL	Massachusetts general laws
MHS	metropolitan highway system
MAGIC	Minuteman Advisory Group on Interlocal Coordination [MAPC subregion]
MOU	memorandum of understanding
MOVES	Motor Vehicle Emissions Simulator [EPA]
MPO	metropolitan planning organization [Boston Region MPO]

Acronym	Definition
MPOinfo	Boston Region MPO's email contact list
MWGMC	MetroWest Growth Management Committee
MWRC	MetroWest Regional Collaborative [MAPC subregion]
MWRTA	MetroWest Regional Transit Authority
NAAQS	National Ambient Air Quality Standards
NBPD	National Bicycle and Pedestrian Documentation Project
NEPA	National Environmental Policy Act
NHPP	National Highway Performance Program
NMHC	non-methane hydrocarbons
NSTF	North Shore Task Force [MAPC subregion]
NSPC	North Suburban Planning Council [MAPC subregion]
NOx	nitrogen oxides
NTD	National Transit Database
NTP	notice to proceed
O&M	operations and management
ODCR	Office of Diversity and Civil Rights [MassDOT]
OE	operating expenses
OTA	Office for Transportation Access [MBTA]
OTP	Office of Transportation Planning [MassDOT]
P3 [1]	Public Participation Plan
P3 [2]	public private partnership
PBPP	performance-based planning and programming

Acronym	Definition
PDM	Pre-Disaster Mitigation Program [federal]
PEV	pedestrian environmental variable
PL	public law [PL] funds, or metropolitan planning funds [FHWA]
PM2.5	particulate matter smaller than 2.5 micrometers in size
PM10	particulate matter up to 10 micrometers in size
PMT	Program for Mass Transportation [MBTA]
ppm	parts per million
PSA	Project Selection Advisory Council
RCCs	Regional Coordinating Councils
RIF	roadway inventory file
RMV	Registry of Motor Vehicles
ROC	Rider Oversight Committee [MBTA]
ROW	right-of-way
RPA	regional planning agency
RSA	Roadway Safety Audit [FHWA]
RSS	rich site summary [Web, feed]
RTA	regional transit authority
RTAC	Regional Transportation Advisory Council [Advisory Council]
RTC	Regional Transportation Center
SAFE	service and fare equity [analysis]
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users
SCCCT	Statewide Coordinating Council on Community Transportation

Acronym	Definition
SCI	sustainable communities initiative
SDO	supplier diversity office
SFY	state fiscal year
SGR	state-of-good repair
SHRP	Strategic Highway Research Program
SHSP	Strategic Highway Safety Plan
SIP	State Implementation Plan
SNAC	special needs advisory committee
SNLA	Small Necessities Leave Act
SORE	statement of revenue and expenses
SOV	single-occupancy vehicle
SPR	Statewide Planning and Research
SRTS	Safe Routes to School
STB	State Transportation Building [Boston]
STIP	State Transportation Improvement Program
STP	Surface Transportation Program
SWAP	South West Advisory Committee [MAPC subregion]
TAM	transit asset management
TAP	Transportation Alternatives Program
TAZ	transportation analysis zone
TCMs	transportation control measures
TCRP	Transit Cooperative Research Program

Acronym	Definition
TDM	travel-demand management, or transportation-demand management
TE	transportation equity
TEAMS	Travel Efficiency Assessment Method
TEA-21	Transportation Equity Act for the 21st Century [federal]
TIGER	Transportation Investment Generating Economic Recovery [TIGER Discretionary Grant program, federal]
TIGGER	Transit Investments for Greenhouse Gas and Energy Reduction [FTA grant program]
TIP	Transportation Improvement Program [MPO]
Title VI	Title VI of the Civil Rights Act of 1964
TMA [1]	transportation management area [FTA, FHWA]
TMA [2]	Transportation Management Association
TMC	turning movement counts
TOD	transit-oriented development
TRB	Transportation Research Board
TREDIS	Transportation Economic Development Impact System [software]
TRIC	Three Rivers Interlocal Council [MAPC subregion]
TSIMS	Transportation Safety Information Management System
TSM	transportation systems management [FHWA]
UFP	ultrafine particles
UPWP	Unified Planning Work Program
US	The United States of America
USDOT	United States Department of Transportation

Acronym	Definition
USGS	US Geological Survey
UZA	urbanized area
V/C	volume-to-capacity ratio
VHT	vehicle-hours traveled
VMS	variable message signs
VMT	vehicle-miles traveled
VOCs	volatile organic compounds [pollutants]
VRH	vehicle revenue-hours
VRM	vehicle revenue-miles
WalkBoston	pedestrian advocacy group [Boston area]
WAT	walk-access transit
WMM	weMove Massachusetts [MassDOT long-range transportation plan]
WTS	Women in Transportation Seminar
YMM	youMove Massachusetts [MassDOT planning initiative]