

UPWP Committee-Recommended CTPS New
Discrete Projects for the FFY 2016 Unified
Planning Work Program



STAFF: Central Transportation Planning Staff

CLIENT: Boston Region MPO

ID #: TBD

BUDGET: TBD

STATUS: TBD

During MPO outreach, MAPC subregional groups identify transportation problems and issues that concern them, often which relate to bottlenecks or lack of safe access to transportation facilities in their areas. These issues can affect livability, quality of life, crash incidence, and air quality along an arterial and its side streets. If problems are not addressed, mobility, access, safety, economic development, and air quality are compromised.

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

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

These improvement strategies will provide a guide to designing and implementing a “complete street” corridor and could be recommended to implementing agencies and funded through various federal, state, and local sources, separately or in combination.

The MPO conducted corridor studies for its Address Safety, Mobility, and Access on Subregional Priority Roadways project as part of the FFY 2013, FFY 2014, and FFY 2015 UPWPs.

FFY 2016 Activities and Expected Work Products: Data collection, technical analysis, development of recommendations, and documentation for selected corridors.

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During the MPO’s LRTP outreach in fall 2014, a frequent topic was the need to find ways to address “first-and-last-mile” connections to and from the region’s transit system, particularly in suburban areas. People expressed interest in strengthening links, for example, by providing or increasing shuttle service (including expanding the frequency and hours of existing services) to link MBTA commuter rail stations and suburban communities.

In this project, MPO staff would assist municipalities, Transportation Management Associations (TMAs) or other service providers that request planning support for addressing first-and-last-mile connections to transit. Candidate locations might be identified through outreach to MAPC subregions and other MPO outreach activities.

For identified locations, MPO staff will document existing conditions, including barriers and opportunities for linking residential, commercial, and employment areas to transit services and stations, and will propose services that could fill the gaps. Staff also may recommend improvements to support access for pedestrians and bicyclists, where applicable.

FFY 2016 Activities and Expected Work Products: Selection of study locations. Data collection and analysis and development of recommendations pertaining to first-and-last-mile connections to transit. Creation of presentations and memoranda.

IDENTIFYING OPPORTUNITIES TO ALLEVIATE BUS DELAY



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Reliable public transit provides mobility, access, and livability benefits to residents throughout the region and improves transportation capacity on congested roadways; however, traffic delays can counteract these benefits. Increasing the use of operational and infrastructure improvements—such as bus queue jumps,¹ transit signal priority, and bus-only lanes—could decrease delay, improve on-time performance, reduce travel times, and make transit a more attractive travel mode.

To help address the problem of bus delays, MPO staff will use automatic passenger counter (APC) and automatic vehicle location (AVL) data to identify roadway locations where bus routes regularly experience significant delay. Staff will perform further analysis using roadway geometry, congestion, passenger boarding, and/or fare payment data sets to identify causes of the delays—such as operational issues related to fare payment, heavy passenger loads, stop locations, roadway design, and congestion—at the identified locations. MPO staff will then recommend low-, medium-, and high-cost transit operational or infrastructure improvements that could reduce delays on the bus routes studied. Staff will also compare the recommended improvements and rank them in terms of their effects on transit delay, on-time performance, travel time, and potential operational cost savings.

MPO staff will coordinate this study with work that is underway or proposed by the MBTA Advisory Board, the MBTA, and the city of Cambridge to prevent duplication of effort.

FFY 2016 Activities and Expected Work Products: Analysis to identify priority locations for transit-priority upgrades. Recommendations to reduce bus delays at those locations. Creation of memoranda and presentations.

¹ A bus queue jump refers to a change in roadway geometry that allows transit vehicles to bypass cars that are queued up at an intersection when the light turns green.



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Many MBTA stations have parking lots nearby; some of these parking lots are operated by the MBTA and some are privately owned. The MBTA charges \$4.00 for daily parking in commuter rail lots and between \$4.00 and \$7.00 per day for rapid transit parking, regardless of demand or where the lot is located. Monthly parking passes are also available.

This study follows the *2012–13 Inventory of Park-and-Ride Lots at MBTA Facilities* memorandum (May 1, 2014), which staff developed as part of the Congestion Management Process (CMP). The memorandum examined parking utilization rates; documented information about parking lot prices and amenities; changes in capacity; and other topics.

In this follow-on study, MPO staff will examine the price elasticity of MBTA parking lots. MPO staff will provide information to the MBTA and others about identified price elasticities, which could be taken into account in establishing and re-establishing parking rates.

FFY 2016 Activities and Expected Work Products: Analysis of elasticity between MBTA parking lot prices and lot-utilization. Additional data collection, as needed. Memoranda describing identified parking elasticities.



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Currently, there are several new metrics available for measuring the extent to which infrastructure supports pedestrian travel and comfort, known as “pedestrian level of service.” It has yet to be seen, however, if these metrics are applicable to the Boston region.

In this project, MPO staff will formulate a plan for developing and implementing a pedestrian level-of-service index. This index might consist of information collected from intersection surveys and pedestrian counts, among other possible sources. This information could help transportation planners and government officials make decisions about pedestrian programs, including prioritizing projects and allocating funding. MPO staff would analyze the potential structure and needs of a pedestrian level-of-service index for the region and would produce a white paper of the results. The steps for formulating a plan include:

1. Researching criteria that already exist, such as that in the 2010 Highway Capacity Manual (a publication of the Transportation Research Board) and criteria that other entities have applied to specific projects
2. Interviewing local and state entities to determine what data are already available or could be readily obtained
3. Developing a plan to aggregate any data that can be obtained, and refining data collection processes that would be beneficial
4. Determining what criteria are best for evaluating pedestrian facilities in the Boston Region MPO area

The anticipated result of this project would be a recommended pedestrian LOS index that the MPO could implement as part of its planning and monitoring processes in the future. In the long term, MPO staff may seek to create an interactive tool based on this index that could analyze pedestrian facilities in the region. This tool would be located in the applications section of the Boston Region MPO’s website.

FFY 2016 Activities and Expected Work Products: Conduct research and interviews pertaining to existing pedestrian level-of-service measures, available data, and potential criteria. Recommend a pedestrian LOS index for the Boston region and provide guidance for its implementation.



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Studying a roadway corridor or corridor segment is a logical way to address regional transportation needs, including those expected from future developments. Such a study evaluates a corridor comprehensively and holistically. It considers pedestrians, bicyclists, motorists, and public-transportation users when analyzing the problems and recommending associated improvements. Typically, this type of study is multimodal; it addresses issues, analyzes services, and makes recommendations for areas within the roadway’s right-of-way, accounting for the needs of abutters and other users.

Through this study, staff will recommend conceptual improvements for one or more corridors, or several small sections within a corridor, that the CMP and LRTP identify as part of the needs-assessment process. Staff will select locations for study—considering municipal, subregional, and other public feedback—and collect data, conduct technical analysis, and recommend improvements. Recommendations will be sent to implementing agencies, which may choose to fund improvements through various federal, state, and local sources, separately or in combination.

The MPO has conducted Priority Corridors for LRTP Needs Assessment studies through the FFY 2012, FFY 2013, FFY 2014, and FFY 2015 UPWPs. For the next UPWP, *Charting Progress to 2040*, the MPO staff has identified a new set of potential study corridors via the Needs Assessment process. Some of these corridors already may be under study. The list below presents a sampling of these new candidate corridors for study:

- Rte. 1 Westwood to Sharon – Southwest Corridor
- Rte. 138 (Canton) – Southwest Corridor
- Rte. 1A from Salem to Revere – Northeast Corridor
- Rte. 107 Western Ave. at Route 129 Washington St. (Lynn) – Northeast Corridor
- Rte. 114 (Peabody, Salem) – Northeast Corridor
- Rte. 1A (Revere) – Northeast/Central Corridor
- Rte. 2 Bypass Rd./Cambridge Turnpike-Piper Road/Taylor Rd. (Concord, Acton) – Northwest Corridor
- Rte. 60 from Rte. 2 to Rte. 2A and Medford St. (Arlington) – Northwest Corridor
- Rte. 62 Main Street in Concord between Elm St. and Rte. 2 – Northwest Corridor
- Rtes. 62, 225 and 4 corridor (Bedford, Lexington) – Northwest Corridor



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- Rte. 16 Fresh Pond Parkway and Alewife Brook Parkway – Northwest/Central Corridor
- Memorial Drive (Cambridge) – Northwest/Central Corridor
- Rte. 3A Marshfield to Quincy – Southeast Corridor
- Rte. 18 (Weymouth) – Southeast Corridor
- Rte. 28 Milton to Randolph – Southeast Corridor
- Rte. 138 (Milton) – Southeast Corridor
- Rte. 9 Southborough to Newton – West Corridor
- Rte. 16 Holliston to Newton – West Corridor
- Rte. 20 (Weston) – West Corridor
- Rte. 30 between I-90 and Rte. 9 (Framingham) – West Corridor
- Rte. 135 Wellesley to Natick – West Corridor
- Rte. 16 Mystic Valley Parkway and Revere Beach Parkway – North/Central Corridor
- Rte. 99 Broadway (Everett) – North/Central Corridor
- Rte. 129 Wilmington to Reading – North Corridor

FFY 2016 Activities and Expected Work Products: Study location selection, data collection, technical analysis, development of recommendations for improvements, and creation of presentations and memoranda.

RESEARCH TOPICS GENERATED BY MPO STAFF



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This program will support work by MPO staff on topics that 1) relate to the Boston Region MPO's metropolitan transportation-planning process; 2) staff members have expressed interest in; and 3) are not covered by an ongoing UPWP program or discrete project. Throughout the federal fiscal year, interested MPO staff members will prepare their proposals for independent research studies, which will be reviewed by MPO staff managers and directors, then discussed with the MPO before final selection by the MPO executive director. MPO staff then will research the selected topics, and their findings and recommendations will be presented to the MPO. This research program could produce valuable information for the MPO's consideration and could support staff members' professional development. In addition, the research could yield highly creative solutions to transportation-planning challenges.

FFY 2016 Activities and Expected Work Products: Research and analysis of staff-identified topics pertaining to metropolitan transportation planning. Creation of presentations and memoranda.



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

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

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

FFY 2016 Activities and Expected Work Products: Selection of intersection locations for study, data collection, technical analysis, development of recommendations for improvements, and creation of presentations and memoranda.



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This project's intent is to develop best practices for the Boston Region MPO's systemwide analysis of the benefits and burdens of TIP investments for environmental justice (EJ)/Title VI populations. The MPO's Title VI reporting currently describes recent TIP project locations and their costs and indicates which projects are located in EJ and Title VI communities. However, MPO staff believe that this method may not sufficiently capture the impact of TIP investments on protected populations.

MPO staff will document current, nationwide best practices for analyzing the benefits and burdens of TIP highway and transit investments. Based on the most feasible and successful methods identified, staff will develop and test a new analytical methodology. This process may involve the MPO's regional travel demand model set and methods developed during the MPO's LRTP scenario-planning process.

The study's results will be documented in a memorandum for MPO consideration and, where applicable, incorporated into MPO Title VI reporting. In addition, the new methodology resulting from the study could be used to measure the benefits and burdens of TIP and LRTP investments. The methodology may also be used in equity analyses conducted in other studies for the MPO and client agencies.

FFY 2016 Activities and Expected Work Products: Documentation of existing, nationwide best practices for analyzing the equity implications of highway and transit investments. Development and testing of an alternative methodology for capturing these effects. Documentation and presentation of results.