



**STAFF:** Central Transportation Planning Staff

**CLIENT:** Boston Region MPO

**ID #:** TBD

**BUDGET:** TBD

**STATUS:** 0%

During MPO outreach, MAPC subregional groups identify transportation problems and issues that concern them. Often these issues are related to bottlenecks or lack of safe access to transportation facilities in their area. 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 comments from the MAPC subregional groups, MPO staff will identify priority arterial bottleneck locations (or a series of locations) in the MPO region, with an emphasis on the issues identified by the relevant subregional groups, and will develop recommendations for low-cost improvements. Special attention will be paid to the need for and feasibility of bus service 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; and access management. These corridor improvements could be recommended to implementing agencies and funded through various federal, state, and local sources, separately or in combination.

This project constitutes an additional phase of Addressing Safety, Mobility, and Access on Subregional Priority Roadways, which was included in the FFY 2013 and FFY 2014 UPWPs.

**FFY 2015 Activities and Expected Work Products:** Data collection, technical analysis, development of recommendations and documentation for selected corridors.



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In this study, MPO staff will coordinate with MassDOT to identify one or more freeway bottleneck locations in the region, and examine low-cost countermeasures. This study would support efforts to minimize congestion while maximizing the effectiveness of limited financial resources.

In the past, MPO staff analyzed several freeway bottleneck locations in two consecutive studies, titled Low-Cost Improvements to Bottlenecks Phases I and II; they were very well received by MassDOT and the FHWA. Previous study locations included sections of I-95 in Weston and Burlington and sections of Route 3A in Braintree and near the Hingham-Weymouth line. A few study recommendations already have been implemented and staff has been interviewed by FHWA consultants about the successful implementations.

In FFY 2015, staff will identify study locations, with the support of the Congestion Management Process, and professional judgment regarding the potential for low-cost improvements. Staff will research and brainstorm low-cost countermeasures for these locations, which may include: using the shoulder as a peak-hour lane, re-striping travel lanes in merge areas to improve traffic flow, implementing ramp metering, improving traffic-signal timing, and improving dissemination of traffic information to drivers.

**FFY 2015 Activities and Expected Work Products:** Staff will identify study locations, describe their characteristics, assess qualitatively varied low-cost treatments, and recommend appropriate low-cost measures for solving bottleneck problems. Products will include data and maps describing the geographic location and duration of each bottleneck, and one or more memoranda and presentations documenting findings and recommendations.



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The study of a roadway corridor or corridor segment is a logical way to address regional multimodal transportation needs, including those expected from potential future developments. It allows a corridor to be evaluated comprehensively: Pedestrians, bicyclists, motorists, and public-transportation users all are considered, using a holistic approach to the 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 the LRTP identified 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 develop recommendations for improvements. The recommendations will be forwarded to implementing agencies, which may choose to fund improvements through various federal, state, and local sources, separately or in combination.

This project will constitute an additional phase of the Priority Corridors for Long- Range Transportation Plan (LRTP) Needs Assessment project. Previous iterations were funded in the FFYs 2012, 2013, and 2014 UPWPs.

**FFY 2015 Activities and Expected Work Products:** Study location selection, data collection, technical analysis, development of recommendations for improvements, and creation of presentations and memoranda.



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The MPO's regional Bicycle Network Evaluation, which is currently underway, will result in a list of gaps that were designated "high priority" based on how well they scored against criteria to assess their potential to improve bicycle connectivity. This project will follow through on that study by conducting more detailed feasibility evaluations of up to three of the identified high-priority gaps. Deliverables will include a memorandum documenting study results and recommendations for the selected locations. The identified recommendations ultimately could become Transportation Improvement Program (TIP) projects or projects funded by state, local, or other funding sources.

**FFY 2015 Activities and Expected Work Products:** Selection of gaps for study, data collection, technical analysis, development of recommendations for improving network connections, and creation of presentations and memoranda.



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This project will support one or more municipalities within the MPO region that are interested in examining opportunities to improve their community-wide pedestrian network. Using municipal inventories of sidewalks and other data resources, MPO staff will work with communities to conduct an assessment of existing pedestrian transportation connections, including sidewalks, paths, and crosswalks; and identify opportunities to improve these connections in compliance with ADA requirements. This analysis will be coordinated with work done by the Metropolitan Area Planning Council (MAPC), MassRIDES, through the Massachusetts' Safe Routes to School Program, and other stakeholders, where appropriate. Deliverables could include reports documenting pedestrian network inventories, analysis results, and recommendations for improvement. The results of these pedestrian network assessments could be used to support community-level Complete Streets improvement efforts, which could be funded with federal, state, local, or other capital funding.

**FFY 2015 Activities and Expected Work Products:** Data gathering and technical analysis of community pedestrian networks. Development of recommendations for improvement. Preparation of documentation and presentations.



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This mapping project aims to provide information to support understanding of the impacts of school transportation on regional road systems in the Minuteman Advisory Group on Interlocal Coordination (MAGIC) subregion. This activity is intended to target the MPO and other entities' attention—and local, state, or federal funding—to those intersections which have safety problems and are within the walk zone of schools.

This mapping activity includes the following anticipated steps:

- Identifying and mapping signalized intersections within a 2-mile radius of each school in the MAGIC subregion, using existing data.
- Identifying and mapping major, federal-aid-eligible arterial routes with intersections within this 2 mile radius.
- Identifying and mapping the top three high crash locations within this 2-mile buffer of each school.

Depending on budget and data availability, MPO staff will also incorporate information regarding traffic volumes around MAGIC-area schools.

**FFY 2015 Activities and Expected Work Products:** Data gathering, mapping, and development of supporting documentation.

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As outlined in Federal Transit Administration (FTA) Circular 4702.1B (released in 2012), providers of public transportation must develop written procedures to evaluate, prior to implementation, any and all service changes that exceed the transit provider's major service change policy to determine whether those changes would have a disparate impact based on race, color, or national origin. The FTA defines the typical measure of disparate impact as a comparison between the proportion of persons in the protected class who are adversely affected by the service change and the proportion of persons not in the protected class who are adversely affected. As defined by the FTA, the disparate-impact analysis is limited to a cursory look at whether the minority percentage of the population of the area or service affected by the change (for example, the population within a quarter mile of a bus route) is greater than the minority percentage of the population of the entire service area (for example, the entire MBTA service area).

However, this approach to the equity analysis fails to examine the true impacts of service changes. The intent of this project is to provide more meaningful information about the effects of proposed service changes on protected populations. This project will develop an innovative methodology for analyzing the potential adverse effects of a major service change by using standardized metrics. The findings of this project could help to ensure congruity across all procedures and policies related to Title VI service equity analysis. The study results also could enhance the MPO's Title VI and transportation-equity-related work, as well as Title VI work conducted on behalf of MassDOT and the MBTA.

This project will deliver its findings in the form of a technical memorandum. The report will contain:

- A Title VI methodology for assessing major service changes
- A list of metrics to be used in the equity analysis of major service changes, outlined for each type of major service change

## TITLE VI SERVICE EQUITY ANALYSES: METHODOLOGY DEVELOPMENT



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- Guidelines for evaluating each equity analysis metric

**FFY 2015 Activities and Expected Work Products:** Development and documentation of a Title VI methodology and metrics for assessing major service changes, and guidelines for their application.



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The transportation system, which encompasses the roadway network and the MBTA transit system, is heavily utilized within the city of Boston and its surrounding communities. Congestion on roadways and crowding on the transit system are a result of density of land use, trip-making activity associated with the different land-use types, and the capacity of each transportation mode to handle trip making during specific times of day. Through this study, MPO staff will examine existing and future conditions of the transportation system in the region's core area, how it could accommodate future growth, and what capacity constraints exist or may arise. This analysis could support ongoing long-range planning and improvement activities.

This study will include three components:

- 1) First, this study would document current conditions in the core area that have existing or potential constraints on the roadway and transit system during peak periods. The core area is defined as the city of Boston and several neighboring communities (to include the cities of Cambridge and Somerville). The transit system would consist of only the major fixed-route MBTA modes. The roadway system would potentially consist of roads that are of a high functional class. The morning peak period is from 9:00 AM to 12:00 noon; and the evening peak period is from 3:00 PM to 6:00 PM. The constraints would be based on performance metrics to be determined; for transit, these could include load factors (carrying capacities) that exceed MBTA service levels and volume-to-capacity ratios for the higher-functional-class roadways.
- 2) Next, the study will build upon the first step and examine a future year (possibly 2040) and its developments. The future year would include future transportation projects as they exist in the current adopted Long-Range Transportation Plan. As

<sup>1</sup> The term "functional class" refers to a class within a hierarchy that the Federal Highway Administration (FHWA) uses to group roadways according to the character of traffic service that they are intended to provide. Roadways with a high functional class are designed for higher traffic volumes, among other characteristics.



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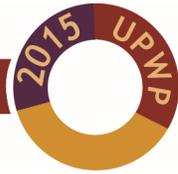
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future development or redevelopment occurs in an area, it leads to changes in the types of land-use, and the types of trips people make, in the region. Changes in trip-making activity have the potential to put more stress on the transportation system than it has today. The product of this task will be to quantify which developments would impact which transit submodes or elements of the roadway network in the future, and to what degree.

- 3) The third task will be to review the process of assessing transit investments in order to mitigate the impact of transportation development on the network. Local planning processes and environmental reviews often call for transportation mitigation as a contingency for issuing a permit. However, the way in which these mitigation efforts impact transit is not clear. This task will examine this process and identify its strengths and weaknesses.

**FFY 2015 Activities and Expected Work Products:** Examination of existing and projected future conditions on the roadway and transit system in the cities of Boston, Cambridge, and Somerville, using the regional travel demand model set and other tools as necessary. Analysis of existing practices for mitigating the impact of transportation development on the transit system. Creation of memoranda to document findings.



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In 2011, the Massachusetts Travel Survey obtained travel information from about 15,000 households across the state—10,400 of them located in the Boston Region MPO model region. A similar survey, administered only in the Boston region, had been performed in 1991. These kinds of travel surveys generally are performed primarily to obtain data with which to build or rebuild travel models; and Boston Region MPO staff indeed are engaged in rebuilding the MPO’s model set with the data from the 2011 survey.

In addition to their use in model building, the data from these household travel surveys represent a rich source of information about the travel behavior of Massachusetts householders, and as such, provide an opportunity for MPO staff and others to gain valuable insights that are particularly useful in the transportation-planning process. To that end, the FFY 2013 UPWP contained a study entitled Household-Survey-Based Travel Profiles and Trends that was intended to be the first step in “mining” the information from the 2011 survey. However, it actually went further than that. Ultimately, this study yielded a general profile of household travel behavior as measured in 2011, yet it also compared the characteristics of work trips reported and described in 2011 to those reported in the earlier 1991 survey.

Now that the initial study of the 2011 travel survey is complete, MPO staff will commence a second, more selective study during FFY 2015. In this study, selected topics of policy, programming, or other interest to the MPO will serve as the basis for further exploring the 2011 survey data. Possible topics could include active transportation, environmental justice, air quality and greenhouse gas emissions, and the propensity to utilize transit services. In all cases, the object will be to examine the survey data for insights about travel behavior that then could be used by the MPO to inform its decision making when developing policies and funding projects and programs in the LRTP and TIP. In each case, the deliverable will be a report documenting the MPO staff’s findings and their implications.



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**FFY 2015 Activities and Expected Work Products:** Analysis of Massachusetts Travel Survey data to answer research questions on policy, programming, and other topics of interest to the MPO. Development of memoranda and presentations.