



## BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Richard A. Davey, MassDOT Secretary and CEO and MPO Chairman  
Karl H. Quackenbush, Executive Director, MPO Staff

### MEMORANDUM

**DATE** September 20, 2012  
**TO** Boston Region Metropolitan Planning Organization  
**FROM** Karl H. Quackenbush  
CTPS Executive Director  
**RE** Work Program for: Priority Corridors for LRTP Needs Assessment—FFY  
2013

#### Action Required

Review and approval

#### Proposed Motion

That the Boston Region Metropolitan Planning Organization vote to approve the work program for Priority Corridors for LRTP Needs Assessment—FFY 2013 in the form of the draft dated 09/20/2012.

#### Project Identification

##### Unified Planning Work Program Classification

Planning Studies

##### CTPS Project Number

13257

##### Client

Boston Region MPO

##### CTPS Project Supervisors

*Principal:* Efi Pagitsas

*Manager:* Seth Asante

##### Funding

MPO 3C Planning Contract #69965

MPO §5303 Contract #70172

## IMPACT ON MPO WORK

This is MPO work and will be carried out in conformance with the priorities established by the MPO.

## BACKGROUND

The MPO's Long-Range Transportation Plan, *Paths to a Sustainable Region*, identified regional needs that exist for each of the modes of transportation in the MPO region.<sup>1</sup> These needs guide decision making about which projects to include in future Transportation Improvement Programs (TIPs).<sup>2</sup>

The LRTP identified several high-priority arterial roadway segments in need of maintenance, modernization, and improvements for safety and mobility. These segments were identified based on previous and ongoing transportation planning work, including the MPO's Congestion Management Process (CMP), the MBTA's Program for Mass Transportation (PMT), and MPO planning studies. To help identify solutions for problems on some of these arterial segments, studies of roadway corridors were included in the federal fiscal years (FFYs) 2012 and 2013 Unified Planning Work Programs (UPWPs). These studies focus on mobility, safety, and maintenance concerns.<sup>3</sup>

For the FFY 2012 study, MPO staff developed a prioritized list of corridor segments, which included all of the segments identified in the needs assessment of the LRTP and in the FFYs 2012 and 2013 UPWPs, and selected Route 203 in Boston and Route 114 in Danvers from that list to be the first two corridors analyzed. That work is presently underway; MPO approval of the results is anticipated by the end of October 2012.

For FFY 2013, staff will recommend two additional corridor segments to the MPO for study. Again, these segments will be selected from the list originally developed as part of the FFY 2012 study, but the prioritization of segments will be updated and two segments selected based on various criteria, including mobility and safety

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<sup>1</sup> *Paths to a Sustainable Region, the Long-Range Transportation Plan of the Boston Region Metropolitan Planning Organization*, September 22, 2011.

<sup>2</sup> Transportation Improvement Program and Air Quality Conformity Determination, Federal Fiscal Years 2013–16, endorsed by the Boston Region Metropolitan Planning Organization on June 28, 2012.

<sup>3</sup> Unified Planning Work Program, Federal Fiscal Year 2013, endorsed by the Boston Region Metropolitan Planning Organization on June 28, 2012.

needs, and on municipal and agency input, as described in Task 2. The candidate segments are (not in order of priority):

- Route 1 North in Saugus and Lynnfield
- Route 1/VFW Parkway in Dedham, Norwood, and Boston
- Route 1A from Oak Island Road to Bell Circle in Revere
- Route 1A southbound from the rotary to the first Bell Circle signal in Revere
- Route 3/3A in Burlington and Woburn
- Route 3A from Quincy to Hingham
- Route 9, various segments between Southborough and Boston
- Route 16 (Revere Beach Parkway) from Everett to Chelsea
- Route 16 from Wellesley to Newton
- Route 27 between Depot Street and Canton Street in Sharon
- Route 28 in Randolph
- Route 28 from the Assembly Square Mall to Highland Avenue in Somerville
- Route 30 in Framingham between I-90 and Route 9
- Route 37 from Braintree to Holbrook
- Route 38 in Woburn and Wilmington
- Route 60 in Arlington, Belmont, and Waltham
- Route 62, 225, and 4 corridor in Bedford, Lexington, and Middleton
- Route 99 in Everett
- Route 107 (Broadway) in Revere south of Albert J. Brown Circle
- Route 109 in Milford from I-495 to Birch Street
- Route 127 in Rockport and Gloucester
- Route 129 in Marblehead and Swampscott to Route 1A in Lynn
- Route 138 from Stoughton Center to the I-93 interchange in Canton
- Route 140 between Wrentham and Franklin
- Route 145 from Boston to Winthrop
- Alewife Brook Parkway/Fresh Pond Parkway from Soldiers Field Road to Route 2 in Cambridge
- Mystic Valley Parkway in Medford from Auburn Street to Main Street
- Storrow Drive in Boston
- Memorial Drive in Cambridge

A roadway corridor study is usually a logical way to address regional multimodal transportation needs, as it evaluates a roadway corridor comprehensively: pedestrians, bicyclists, motorists, public transportation users, and abutters are all considered, using a holistic approach to the analysis of the issues and to developing recommendations for improvements to be made within the roadway's right-of-way. The result is a roadway corridor where not only are vehicular traffic operations improved, but it is safe to cross the street and to walk or cycle, whether to shops or schools or for recreation; buses can run on time; and pedestrian access to and from train stations is safe.

An arterial segment is defined broadly in this work program as a piece of an arterial corridor that may span multiple towns or be restricted to just a few intersections in a town center, shopping area, or office/business park. For an arterial segment spanning multiple towns or an entire town, the problem locations are usually subsegments of the arterial segment.

## OBJECTIVES

The objectives of this study are to:

- select two arterial segments, based on prioritization criteria and input from municipalities and agencies,
- identify the safety, mobility, access, and other transportation-related problems within the segments, and
- develop multimodal transportation solutions to the problems.

## WORK DESCRIPTION

MPO staff will perform the following tasks:

- Solicit agency and municipal input
- Select study locations
- Collect data
- Analyze data
- Recommend improvements
- Document methodology and findings

### Task 1 Solicit Agency and Municipal Input

MPO staff will invite municipal officials, members of the subregional groups for the areas in which the potential study segments are located, representatives from the Massachusetts Department of Transportation (MassDOT) Office of Transportation Planning and MassDOT's Highway Division, and representatives of the Metropolitan Area Planning Council (MAPC) to participate in the study. The participants will provide advice and input on data, help to select study locations and identify transportation-related problems, and provide input to the development of multimodal transportation solutions and recommendations. Recommendations from this study will be carried out by the municipalities or the Highway Division; therefore it is important that the study recommendations reflect their experience and design standards.

#### *Products of Task 1*

Advice and input on: data, selection of study locations, identification of problems, and possible solutions

## Task 2 Select Arterial Segments to Be Studied

MPO staff will review and update the ranking system developed for the FFY 2012 study and apply it to the candidate segments for this study in order to select two. The system uses metrics for the following criteria areas:

- Safety
- Congestion
- Transit significance
- Regional significance
- Implementation potential

The segments selected for study will be ones MassDOT considers suitable and for which the communities through which they pass will be committed to promote implementation of the recommendations of the study. The staff's proposed selection of two segments, along with the list of candidate segments, will be presented to the MPO for discussion and approval.

Within each arterial segment selected for this study, MPO staff, working in conjunction with agency and municipal officials, will identify problem locations (subsegments) where this study should focus on developing multimodal transportation improvements. To this end, staff will examine the segment to identify safety and mobility problems facing pedestrians, bicyclists, motorists, and transit users in the corridor, as well as transit service deficiencies and connectivity problems. Staff will also identify truck traffic issues, such as crash locations with unusually high truck involvement, possible turning-radius issues at intersections along the corridor, heavy truck volumes adding to congestion along the corridor, and points of truck conflict with cars and pedestrians. In addition, staff will review the Highway Division's and MPO's TIP project information databases and contact the municipalities to identify projects and studies that have already been planned or conducted that include each arterial segment selected for study; this information will not only guide the selection of problem locations within each arterial segment, but also enable staff to consider previous recommendations for incorporation into this study.

### *Products of Task 2*

Documentation of:

- Safety, operational, and mobility problems facing pedestrians, bicyclists, and motorists
- Transit service issues, including service deficiencies and problems with connectivity and linkage
- Truck traffic issues
- Projects and studies already planned or conducted that include the arterial segments

- Justification of the corridor segment selection process (in a table and accompanying technical memorandum)

### Task 3 Collect and Gather Data

Once the problem locations have been identified for each arterial segment selected for study, recent and historical data on them will be gathered from existing sources, including studies performed by municipalities or by proponents of private development projects and databases maintained by the MPO and the Highway Division. Unavoidably, some data will have to be collected in the field for some of the types of analysis in this work program. The following data are likely to be gathered from existing sources or to be collected in the field for the problem locations under study:

- Turning-movement counts for the AM and PM peak periods, including trucks, pedestrians, and bicyclists, and average annual weekday traffic data from automatic traffic recorder (ATR) counts
- Traffic-signal timing plans and coordination settings, signage, and lane configurations
- Bus service performance data and locations of stops, signage, and shelters
- Truck traffic data, including truck origins and destinations
- Right-of-way, pavement widths and conditions, sidewalk widths and conditions, and condition of and signage for midblock crossings
- Bus service and performance data
- Development projects, development mitigation proposals, and proposed transportation projects; and specific proposed improvements for the segments from these sources
- Crash statistics, rates, and diagrams for locations with crash rates exceeding the Highway Division's district average
- Signage, street markings, and pavement conditions

#### *Products of Task 3*

- Various kinds of data for assessing safety, mobility, and operational performance at the problem locations
- A list of economic development and transportation improvement proposals previously planned for the arterial segments

### Task 4 Analyze Data

Based on the types of analyses performed in similar studies in the past and the need to provide "complete streets," where pedestrians, bicyclists, motorists, and transit riders of all ages and abilities are able to safely move along and across a street, the following types of analyses and evaluations will be performed:

- Analyze crash data and prepare crash diagrams to confirm and examine safety concerns and identify possible improvements

- In order to determine potential truck traffic safety improvements, analyze crash and traffic volume data and intersection turning-radius data
- Evaluate the need to provide new sidewalks, to replace broken and crumbled sidewalks, and to provide continuity of sidewalks
- Evaluate the need to provide new midblock pedestrian crossings or to improve existing ones by installing pedestrian crosswalk flashing beacons, improving signage at or near them, or making them accessible
- Assess safe and economical means to accommodate bicyclists—for example, adding bike lanes, providing adequate shoulders, or making provisions for bicyclists to share the road with motorists
- Conduct traffic signal warrant, signal retiming and coordination, and roundabout analyses to determine the appropriate intersection traffic controls and best signal timing plans for safe and efficient movement of pedestrians, bicyclists, and motorists
- Assess the need for traffic signal equipment upgrades, including for the purpose of compliance with the requirements of the Americans with Disabilities Act (ADA) for signalized intersections
- Evaluate on-time performance of bus service, bus-stop placement in relationship to demand and pedestrian activity, and need for bus route signs and shelters

#### *Products of Task 4*

Analysis results, including crash analysis tables, intersection crash diagrams, delay and queue calculations, warrant analyses, bus performance statistics, maps and other graphics showing pedestrian and bicyclist needs, and all other results from Task 4

#### **Task 5 Recommend Improvements**

Based on consultations with agency and municipal officials and on the analyses described above, staff will make recommendations in many areas, including geometric, traffic control, pavement rehabilitation, roadway enhancement, and other changes to improve traffic operations, with special emphasis on the effective and safe accommodation of pedestrians and bicyclists for traveling upon and crossing streets. Additional recommendations will be made for improving the on-time performance of bus service and increasing the safety of people walking or bicycling to and from bus stops and train stations.

#### *Products of Task 5*

Recommendations to address: pedestrian, bicyclist, and motorist safety; accommodation of pedestrians, bicyclists, and transit users; other traffic operations issues, including those related to trucks; and bus service issues

## Task 6 Document Study Methodology and Results

Documentation will be in the form of a report or a technical memorandum on the following subjects: study background, agency and municipal input, identification of problems, data collection, analyses, and recommendations. The document will follow the MassDOT Highway Division's guidelines for preparation of functional design reports as much as possible, taking into consideration the study's budget. A draft document will be made available for review by municipal officials, members of the subregional groups for the areas in which the arterial segments are located, and the MassDOT Highway Division and Office of Transportation Planning. After comments have been addressed, the draft will be submitted to the MPO for final approval.

### *Product of Task 6*

A final report or memorandum documenting all of the project's tasks and products, including recommendations

## ESTIMATED SCHEDULE

It is estimated that this project will be completed 12 months after the notice to proceed is received. The proposed schedule, by task, is shown in Exhibit 1.

## ESTIMATED COST

The total cost of this project is estimated to be \$104,945. This includes the cost of 40.6 person-weeks of staff time, overhead at the rate of 96.58 percent, and travel. A detailed breakdown of the estimated costs is presented in Exhibit 2.

KQ/EP/ep



**Exhibit 1**  
**ESTIMATED SCHEDULE**  
**Priority Corridors for LRTP Needs Assessment--FFY 2013**

Task	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
1. Solicit Input	A											
2. Select Study Locations	B											
3. Collect and Gather Data			C									
4. Analyze Data			D									
5. Recommend Improvements						E						
6. Document Study Results	F											

Products/Milestones

- A: Notes on stakeholder input
- B: Technical memorandum on location selection and other documentation
- C: Lists and files of data collected, including notes, worksheets and economic development proposals
- D: Worksheets, traffic model outputs, notes, and other types of analysis documentation
- E: Study recommendations to address identified issues
- F: Final report or memorandum documenting study analyses, findings and recommendations

**Exhibit 2**  
**ESTIMATED COST**  
**Priority Corridors for LRTP Needs Assessment--FFY 2013**

<b>Direct Salary and Overhead</b>	<b>\$102,945</b>
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Task	Person-Weeks					Direct Salary	Overhead (96.58%)	Total Cost
	M-1	P-5	P-1	Temp	Total			
1. Solicit Input	0.5	1.5	0.0	0.0	2.0	\$3,364	\$3,249	\$6,612
2. Select Study Locations	0.5	0.6	1.0	0.0	2.2	\$2,707	\$2,614	\$5,321
3. Collect and Gather Data	0.0	2.5	2.0	8.0	12.5	\$9,600	\$9,272	\$18,872
4. Analyze Data	0.5	7.0	4.0	0.0	11.5	\$15,668	\$15,132	\$30,800
5. Recommend Improvements	0.5	4.0	0.0	0.0	4.5	\$7,558	\$7,299	\$14,857
6. Document Study Results	3.0	5.0	0.0	0.0	8.0	\$13,471	\$13,010	\$26,482
Total	5.0	20.6	7.0	8.0	40.6	\$52,368	\$50,577	\$102,945

<b>Other Direct Costs</b>	<b>\$2,000</b>
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Travel	\$2,000
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<b>TOTAL COST</b>	<b>\$104,945</b>
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**Funding**

MPO 3C Planning Contract #69965  
MPO Section 5303 Contract #70172