



## BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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Stephanie Pollack, MassDOT Secretary and CEO and MPO Chair  
Karl H. Quackenbush, Executive Director, MPO Staff

### *WORK PROGRAM*

## ADDRESSING SAFETY, MOBILITY, AND ACCESS ON SUBREGIONAL PRIORITY ROADWAYS: FFY 2019

SEPTEMBER 20, 2018

### Proposed Motion

The Boston Region Metropolitan Planning Organization (MPO) votes to approve this work program.

### Project Identification

Unified Planning Work Program (UPWP) Classification

Boston Region MPO Planning Studies and Technical Analyses

Project Number 13419

Client

Boston Region MPO

Project Supervisors

*Principal:* Mark Abbott

*Manager:* Chen-Yuan Wang

Funding Source

MPO Planning Contract #105757 and MPO §5303 Contract #102694 and subsequent MPO §5303 contract

### Schedule and Budget

**Schedule:** 11 months after work commences

**Budget:** \$120,000

Schedule and budget details are shown in Exhibits 1 and 2, respectively.

### Relationship to MPO Goals

The Boston Region MPO elected to fund this study with its federally allocated metropolitan planning funds during federal fiscal year (FFY) 2019. The work completed through this study will address the following goal areas established in the MPO's Long-Range Transportation Plan (LRTP): safety, system preservation, capacity management and mobility, clean air and clean communities, economic vitality.

## Background

During outreach for the development of the Boston Region MPO's UPWP and LRTP, Metropolitan Area Planning Council (MAPC) subregional groups and other entities submit comments and identify transportation problems and issues that concern them. Often these issues are related to roadway bottlenecks, safety, or lack of safe or convenient access to abutters along roadway corridors. Such issues can affect mobility and safety along a roadway and its side streets, livability, quality of life, economic development, and air quality.

To address these issues, the MPO staff implements the *Addressing Safety, Mobility, and Access on Subregional Priority Roadways* study each year to identify and study roadway corridor segments in the MPO region that are of concern, but that have not been identified in the LRTP regional needs assessment.<sup>1</sup> The roadways selected for study are not major arterials, but rather arterial or collector roadways that carry fewer vehicles daily than major arterials. The studies emphasize the issues that are identified by relevant subregional groups and offer recommendations for short- and long-term improvements. In addition to safety, mobility, and access, other subjects that are considered are transit feasibility, truck-related issues, and bicycle and pedestrian transportation.

Roadway corridor segments are selected for study based on criteria that are used to evaluate safety and mobility needs; agency, municipal, and MAPC subregional group input; and the feasibility of implementing study recommendations. A segment selected for study may span multiple municipalities, or it may be restricted to a few intersections in a town center, shopping area, or office park.

A roadway corridor study is a logical way to address subregional multimodal transportation needs, since it evaluates a roadway corridor segment comprehensively; pedestrians, bicyclists, motorists, public transportation users, and abutters are all considered. A holistic approach is taken to analyze the issues and develop recommendations for improvements within the roadway's right-of-way. The recommendations are intended to improve transportation facilities and traffic operations, and to increase safety and quality of life for all users. Pedestrians and bicyclists should be able to cross the street safely on their way to shops, schools, or recreation; buses should be able to run on schedule; and transit riders should be assured safe access to and from transit stations.

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<sup>1</sup> *Charting Progress to 2040, the Long-Range Transportation Plan of the Boston Region Metropolitan Planning Organization*, July 30, 2015.

## Objective(s)

The objectives of this study are as follows:

1. Finalize memo documenting the selection of study location
2. Identify safety, mobility, access, and other transportation-related problems within the study roadway
3. Develop and evaluate multimodal transportation solutions addressing the pedestrian, bicycle, truck, and transit modes
4. Select a roadway segment for study in FFY 2020 based on prioritization criteria and input from agencies, municipalities, and MAPC subregional groups

## Work Description

In this work program, the selection of the study corridor began the previous federal fiscal year. MPO staff reviewed 24 potential corridors in the region. Staff will present the final selection for FFY 2019 to the MPO. This will allow the staff to complete field data collection before the winter and expedite the study process. In addition, the MPO staff will perform the following tasks in FFY 2019:

- Identify problem locations in study corridor
- Collect data
- Analyze data
- Develop and evaluate improvement strategies
- Document methodology, findings, and recommendations
- Review and elicit input for FFY 2020 study locations
- Select roadway segment for study in FFY 2020

### Task 1 Identify Problem Locations in Study Corridor

The MPO staff—working in conjunction with agencies, municipalities, and subregional groups—will identify the problem locations within the roadway corridor selected for study.

Staff will examine the safety, mobility, and access problems facing pedestrians, bicyclists, motorists, and transit users, as well as any transit service deficiencies and connectivity problems. Staff also will identify truck traffic issues indicated by crash locations with an unusually high level of truck involvement, turning-radius issues at intersections, heavy truck volumes contributing to congestion along the corridor, and points where trucks conflict with cars and pedestrians.

In addition, staff will contact the municipalities in the study areas and review the Massachusetts Department of Transportation (MassDOT) Highway Division's databases and the MPO's Transportation Improvement Program (TIP) project

information database to identify projects and studies planned or already implemented in the study areas. The information gathered from these sources will guide the selection of problem locations within each segment and enable staff to consider previous recommendations for incorporation into this study.

### *Products of Task 1*

Documentation of the following:

- Safety, operational, and mobility problems facing pedestrians, bicyclists, motorists, and transit users
- Transit service issues, including service deficiencies and problems with connectivity
- Truck traffic issues
- Projects and studies already planned or conducted in the study corridor

### Task 2 Collect Data

Once the problem locations have been identified on the roadway segment selected for this study, corresponding recent and historical data will be gathered from existing sources, including studies performed by municipalities or proponents of private development projects, and databases maintained by the MPO and MassDOT Highway Division. Some data may be collected in the field, such as the following:

- Average annual weekday traffic data from automatic traffic recorder counts
- Turning movement counts for trucks, pedestrians, and bicyclists in the AM and PM peak periods
- Traffic signal timing plans and coordination settings
- Intersection geometry and lane configurations
- Most recent crash data from MassDOT Registry of Motor Vehicles and crash reports from State and local police departments
- Bus service performance data and locations of bus stops, signage, and shelters
- Truck traffic data, including truck origins and destinations
- Right-of-way measurements
- Condition of pavement, sidewalks, and midblock crossings
- Mitigation proposals for development projects and proposed transportation projects, and specific proposed improvements for the chosen roadway segment from these sources

- Signage and street markings
- Video recordings of traffic operations and geometrics along corridor

#### *Products of Task 2*

- Data sets for assessing safety, mobility, access, and operational performance at problem locations
- A list of economic development and transportation improvement proposals previously planned for the areas near the selected roadway segment

#### **Task 3 Analyze Data**

The MPO staff will conduct a series of analyses to use in developing recommendations for ways to provide Complete Streets—where pedestrians, bicyclists, motorists, and transit riders of all ages and abilities are able to travel safely. Staff will perform the following analyses and evaluations:

- Analysis of crash data and preparation of crash diagrams to identify safety issues and possible improvements
- Analysis of crash, traffic-volume, and intersection turning-radius data to develop potential safety improvements related to truck traffic
- Evaluation of sidewalk continuity to determine the need to install new sidewalks or replace damaged sidewalks
- Evaluation of pedestrian crosswalks to determine the need for new midblock crosswalks or the need to improve existing crosswalks by installing flashing beacons, improving signage, or making the crosswalks accessible to people with disabilities
- Development of safe and economical means for accommodating bicyclists, for example, by adding bicycle lanes, providing adequate shoulders, or making other provisions so that bicyclists can share the road with motorists
- Analyses of traffic signal warrants and signal retiming and coordination plans to determine the appropriate intersection traffic controls and best signal timing plans for the safe and efficient movement of pedestrians, bicyclists, and motorists
- Assessment of traffic signal equipment to determine the need for upgrades, including upgrades to signalized intersections for compliance with the requirements of the Americans with Disabilities Act
- Evaluation of the on-time performance of bus service, bus stop placement in relation to demand and pedestrian activity, and the need for bus route signs and shelters

*Product of Task 3*

- Documentation of the results of Task 3 analyses, 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

**Task 4 Develop and Evaluate Improvement Strategies**

Based on the analyses described above, staff will develop short- and long-term improvement strategies that would address the following issues: 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.

Specific improvements may relate to geometric configuration; traffic control devices; pavement rehabilitation; and traffic operations, including effective and safe accommodations for pedestrians and bicyclists. Staff will also make recommendations related to truck traffic; improving on-time performance of bus service; and providing safe access to bus stops and train stations for pedestrians and bicyclists.

Staff will then evaluate the proposed strategies and review them with participating municipal officials, agencies, and subregional group representatives.

*Product of Task 4*

- Recommendations of improvements

**Task 5 Document Methodology, Findings, and Recommendations**

The MPO staff will produce a final technical report documenting the study's tasks and products. The final document will cover study background; input from agencies, municipalities, and MAPC subregional groups; identification of problems; data collection; analyses; and recommendations. When preparing the document, staff will follow the MassDOT Highway Division's guidelines for preparing functional design reports to the extent possible considering the limits of the study's budget. A draft document will be made available for review by municipal officials, members of the subregional groups where the study segment is located, and the MassDOT Highway Division and Office of Transportation Planning. Once their comments have been addressed, the final report will be presented to the MPO.

*Product of Task 5*

- Final study report

**Task 6 Review and Elicit Input for FFY 2020 Study Locations**

The MPO staff will review public comments gathered during the development of the LRTP and UPWP and from other FFY 2019 outreach activities, and construct an

initial list of roadway segments to consider. Subsequently, staff will invite municipal officials and members of the MAPC subregional groups in the potential study areas, and representatives from the MassDOT Office of Transportation Planning and Highway Division, the Massachusetts Bay Transportation Authority (MBTA), and regional transit authorities (if the segment is in the service area of MetroWest or Cape Ann) to comment on the candidate roadway segments. Participants will provide advice and input regarding data, the selection of roadway segments for study, and the identification of transportation-related problems associated with those roadways.

*Products of Task 6*

- A list of potential study locations with relevant information
- Documentation of input received from participants, including their advice regarding data and the selection of roadway segments for study

**Task 7 Select Roadway Segments for Study in FFY 2020**

The MPO staff will develop a ranking system and apply it to the candidate roadway segments in order to select a roadway corridor for study. The ranking system will use metrics for the following criteria:

- Safety conditions
- Multimodal significance
- Subregional priority
- Implementation potential
- Regional equity (so that over time locations will be studied throughout the MPO's planning area)

The proposed selection, along with the list of candidate segments, will be presented to the MPO for discussion and approval.

*Products of Task 7*

A technical memorandum containing:

- The process for selecting the roadway segment
- Evaluation criteria and results



**Exhibit 2****ESTIMATED COST****Addressing Safety, Mobility, and Access on Subregional Priority Roadways FFY 2019****Direct Salary and Overhead** **\$119,124**

Task	Person-Weeks						Direct Salary	Overhead (99.00%)	Total Cost
	M-1	P-5	P-4	P-3	Temp	Total			
1. Identify Problem Locations in Study Corridor	0.2	1.0	0.0	0.0	0.6	1.8	\$2,639	\$2,613	\$5,252
2. Collect Data	0.2	1.8	0.0	0.0	1.5	3.5	\$4,670	\$4,624	\$9,294
3. Analyze Data	0.4	3.4	0.4	0.8	2.0	7.0	\$10,007	\$9,906	\$19,913
4. Develop and Evaluate Improvement Strategies	0.8	6.5	0.8	0.4	1.8	10.3	\$16,795	\$16,627	\$33,423
5. Document Methodology, Findings, and Recommendations	2.5	7.5	0.6	0.0	1.0	11.6	\$20,699	\$20,492	\$41,191
6. Review and Elicit Input for FFY 2020 Study Locations	0.2	1.0	0.0	0.0	0.8	2.0	\$2,741	\$2,714	\$5,455
7. Select Roadway Segments for Study in FFY 2020	0.4	0.8	0.0	0.0	0.0	1.2	\$2,309	\$2,286	\$4,595
Total	4.7	22.0	1.8	1.2	7.7	37.4	\$59,861	\$59,262	\$119,124

**Other Direct Costs** **\$876**

Travel	\$876
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**TOTAL COST** **\$120,000****Funding**

MPO Planning Contract #105757

MPO §5303 Contract #102694 and subsequent MPO §5303 contract