WORK PROGRAM

ADDRESSING PRIORITY CORRIDORS FROM THE LONG-RANGE TRANSPORTATION PLAN NEEDS ASSESSMENT: FFY 2020

SEPTEMBER 19, 2019

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 13520

Client

Boston Region MPO

Project Supervisors

Principal: Mark Abbott
Manager: Seth Asante

Funding Source

MPO 3C Planning Contract and §5303 Contract #108217

Schedule and Budget

Schedule: Eleven 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) 2020. The work completed through this study will address the following goal area(s) established in the MPO's Long-Range Transportation Plan (LRTP): safety, system preservation, capacity management and mobility, transportation equity, and economic vitality.

Background

The Needs Assessment for the Boston Region MPO's LRTP, *Destination 2040,* identifies existing needs for all modes of transportation in the MPO region.[1] These needs guide decisions about which projects to include in the Transportation Improvement Program (TIP) and the UPWP.[2,3] Among the region's current mobility needs are maintaining and modernizing the roadways that have high levels of congestion and safety problems; improving the quantity and quality of venues for walking and bicycling; improving adherence to schedules of transit service; and advancing the efficiency and modernization of transit service.

The Needs Assessment identified several priority arterial segments that need maintenance, updates, and safety and mobility improvements. These arterial segments were identified from previous and ongoing transportation planning work, including the MPO's Congestion Management Process (CMP) and MPO planning studies. To help identify solutions to address the mobility and safety concerns in some of the identified arterial segments, a roadway corridor study was included in the FFY 2020 UPWP.

A roadway corridor study is a logical way to address regional multimodal transportation and safety needs, since it evaluates a roadway corridor or arterial segment comprehensively, considering the needs of pedestrians, bicyclists, motorists, public transportation users, and roadway abutters. The *Addressing Priority Corridors* study uses this approach to analyze the issues; the MPO staff develops short- and long-term recommendations for improvements within the roadway's right-of-way. The intent is to improve a roadway corridor so that it is safe for people to walk or bicycle to shops, schools, transit stations, and recreational areas, and so that buses can run on time.

In this document, an arterial segment is defined as either a portion of a roadway corridor that spans multiple municipalities, an entire municipality, or a segment that includes a few intersections near business and commercial areas of a municipality. Within these arterial segments, there are problem locations. The arterial segments that will be considered for this study were first identified in the Needs Assessment for the LRTP, *Destination 2040*.

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[1] *Destination 2040*, the Long-Range Transportation Plan of the Boston Region Metropolitan Planning Organization, endorsed by the Boston Region Metropolitan Planning Organization on August 29, 2019. The Plan will be reviewed by the MPO's federal partners and go into effect on October 1, 2019.

[2] Transportation Improvement Program and Air Quality Conformity Determination, Federal Fiscal Years 2020–24, endorsed by the Boston Region Metropolitan Planning Organization on May 30, 2019. The FFYs 2020–24 TIP will be reviewed by the MPO's federal partners and go into effect on October 1, 2019.

[3] Federal Fiscal Year 2020 Unified Planning Work Program, Endorsed by the Boston Region Metropolitan Planning Organization on July 18, 2019. The FFY 2020 UPWP will be reviewed by the MPO's federal partners and go into effect on October 1, 2019.

Objective(s)

1. Identify the safety, mobility, access, and other transportation-related problems within the arterial segment
2. Develop and evaluate solutions to the problems that maintain and modernize roadways, and use the existing roadway more efficiently and increase transportation options
3. Select an arterial segment from those identified in the current LRTP

Work Description

For this work program, the selection of candidate study corridors was completed in FFY 2019. This was done to allow the MPO staff to complete field data collection before the winter and expedite the study process. The MPO staff will perform the following tasks in FFY 2020:

- Establish advisory task force and identify problem locations
- Collect and gather data
- Analyze data
- Recommend improvements
- Document results
- Select FFY 2021 LRTP study locations
- Finalize study and prepare for MPO presentation

Task 1 Establish an Advisory Task Force and Identify Problem Locations

The MPO staff will establish an advisory task force composed of municipal officials and members of subregional groups in the MPO planning area whose jurisdictions include areas in which the selected arterial segment is located to participate in the study. The advisory task force would also include representatives from the Massachusetts Department of Transportation (MassDOT) Office of Transportation Planning and MassDOT Highway Division, the Metropolitan Area Planning Council (MAPC), the Massachusetts Bay Transportation Authority (MBTA), and regional transit authorities (if the segment is in the service area of MetroWest or Cape Ann). These stakeholders will advise the MPO staff about the study areas and data sources; help identify transportation-related problems; and help develop multimodal transportation solutions and recommendations. The recommendations from this study will be implemented by either municipalities or the Highway Division; therefore, it is important that the recommendations reflect those entities' experience and MassDOT design standards.

Products of Task 1

- Formation of an advisory task force

- Identification and definition of problem areas for data collection
- Documentation of stakeholder input

Task 2 Collect and Gather Data

Once the problem locations within the arterial segment have been identified, staff will gather recent and historical data from existing sources, including studies performed by municipalities or proponents of private development projects and databases maintained by the MPO staff and the Highway Division. Staff will review statewide pedestrian and bicycle plans and municipal resource guides for walkability and bikeability to identify existing databases for planning, evaluating, and designing pedestrian and bicycle facilities.[4,5,6,7] Staff will also use INRIX/RITIS databases to gather information on roadway speeds and trip origin/destination data.[8] Some data will need to be collected in the field. Data sources include the following:

- Average weekday traffic counts and turning-movement counts for the peak periods, including for truck traffic data, pedestrians, and bicyclists
- Traffic signal equipment, signage, and lane configurations
- Bus service performance data and locations of stops, signage, and shelters
- Right-of-way, pavement conditions, sidewalk widths and conditions, pedestrian and bicycle amenities, and gaps in pedestrian and bicycle networks
- Planned development projects, development mitigation proposals, and proposed transportation projects
- Crash data and police reports from the MassDOT Registry of Motor Vehicles and municipality

Products of Task 2

- Datasets for assessing safety, mobility, and operational performance at the problem locations, including roadway inventory data and an inventory of bus service and performance data
- A list of planned economic development and transportation improvement proposals for the arterial segment

[4] Massachusetts Pedestrian Transportation Plan, Massachusetts Department of Transportation, May 2019

[5] Massachusetts Bicycle Transportation Plan, Massachusetts Department of Transportation, May 2019

[6] Municipal Resource Guide for Walkability, Massachusetts Department of Transportation, May 2019

[7] Municipal Resource Guide for Bikeability, Massachusetts Department of Transportation, May 2019

[8] INRIX is a private company that collects roadway travel times and origin-destination data for most roadways that are collectors, arterials, limited-access roadways, or freeways. Regional Integrated Transportation Information System (RITIS) provides INRIX data to the Boston Region MPO through its web portal. The data are archived and provided to transportation planning organizations that use the data to monitor congestion through performance measures.

Task 3 Analyze Data

The analysis performed in this study will be guided by the goals and principles identified in the statewide pedestrian and bicycle plans. Staff will perform the following tasks based on analyses conducted in similar past studies and the need to provide Complete Streets and connectivity—where pedestrians, bicyclists, motorists, and transit riders of all ages and abilities can move along and across a street safely:

- Analyze crash data, prepare crash diagrams, and identify safety concerns including Highway Safety Improvement Program locations
- Evaluate the need for closing gaps in pedestrian and bicycle networks such as installing and repairing sidewalks, bicycle lanes, and multiuse paths to comply with MassDOT standards
- Evaluate the need for improving safety for pedestrians and bicyclists and making facilities such as crosswalks and sidewalks more accessible
- Assess potential safe and economical means of accommodating bicyclists, for example, by adding protected bicycle lanes, providing adequate shoulders, constructing multiuse paths, and allowing shared-use lanes
- Review intersection and roadway geometric layout to determine safety improvements, for example, reducing crossing distance with curb extensions, increasing pedestrian signal intervals, and preventing left-turn movement conflicts
- Analyze traffic volume and classification data to determine potential traffic safety improvements. Analyze INRIX/RITIS data to determine trip origin/destination patterns and vehicle travel speeds
- Conduct analyses of traffic signal warrants, signal retiming plans, and coordination to determine appropriate intersection traffic controls and the best signal timing plans for the safe and efficient movement of pedestrians, bicyclists, and motorists
- Assess the need for upgrading traffic signal equipment to comply with MassDOT standards
- Evaluate the on-time performance of bus service, bus stop placement in relation to demand and pedestrian activity, and the need for bus signs and shelters
- Review access management to determine improvements such as consolidating and sharing driveways; adding left-turn and U-turn lanes; spacing traffic signals and median treatments

Products of Task 3

- Crash analyses tables and figures
- Collision diagrams

- Delay and queue calculations
- Bus performance statistics tables
- Pedestrians' and bicyclists' activity maps and graphics
- Gaps in pedestrian and bicycle networks
- Origin/destination patterns
- List of problems and needs

Task 4 Recommend Improvements: Pedestrian Mobility, Traffic Operations, Bus Service, and Safety

Based on the results of consultation with advisory task force and the analyses described above, staff will recommend Complete Streets improvements, geometric and traffic control improvements, pavement rehabilitation, roadway enhancement, and other changes to improve traffic safety and operations. In addition, MPO staff will recommend improved pedestrian and bicycle facilities that provide safe accommodation and connectivity and support goals and principles of the statewide pedestrian and bicycle plans. Additional recommendations will suggest improvements to allow buses to run on time and make it safe for people to walk and bicycle to and from bus stops and train stations.

Products of Task 4

- Recommendations for addressing pedestrian, bicyclist, and motorist safety needs; accommodation of pedestrians, bicyclists, and transit users; other traffic operations improvements, including accommodating trucks and buses and reducing congestion

Task 5 Document Results

Staff will submit a report on the background of the study, agency and municipal input, identification of problems, data collection, analyses, and recommendations. The document will follow the Highway Division's guidelines for preparation of functional design reports as much as possible, taking into consideration the study's budget.

Product of Task 5

- A draft report documenting all of the project's tasks and products, including recommendations

Task 6 Select FFY 2021 LRTP Study Locations

MPO staff will review public comments gathered during the development of the LRTP and UPWP and from other FFY 2020 outreach activities. In addition, MPO staff will contact municipal officials and members of subregional groups, as well as representatives from MassDOT Office of Transportation Planning, MassDOT Highway Division, the MBTA, regional transit authorities, and the MAPC to discuss arterial segments identified in the LRTP Needs Assessment that are on their high-priority list. These stakeholders will advise the MPO staff about high-priority study

areas and data sources; help identify transportation-related problems; and assess commitment to implement study recommendations.

First, MPO staff will rate the arterial segments using available CMP data, such as traffic volumes, crashes, vehicle speeds, freight and truck routes, bus crowding and/or schedule adherence, and pedestrian and bicyclists' needs. Then staff will use information on safety and congested conditions, multimodal and regional significance, regional equity, and implementation potential to score and rank each arterial segment. MPO staff will then select an arterial segment for study based on the rankings of the arterial segments and stakeholder support for implementing the study's recommendations. The selected arterial segment will be a segment that could benefit from improvements related to sidewalks and crosswalks, access management, traffic control and operations (including traffic signal upgrades and coordination), and potential land use changes and redevelopment. This recommendation, along with the full list of arterial segments from the LRTP, will be presented to the MPO for discussion.

Products of Task 6

- List of LRTP arterial segments mentioned during MPO outreach or included on the high-priority lists of the municipalities and agencies
- A technical memorandum documenting the selection process for study location

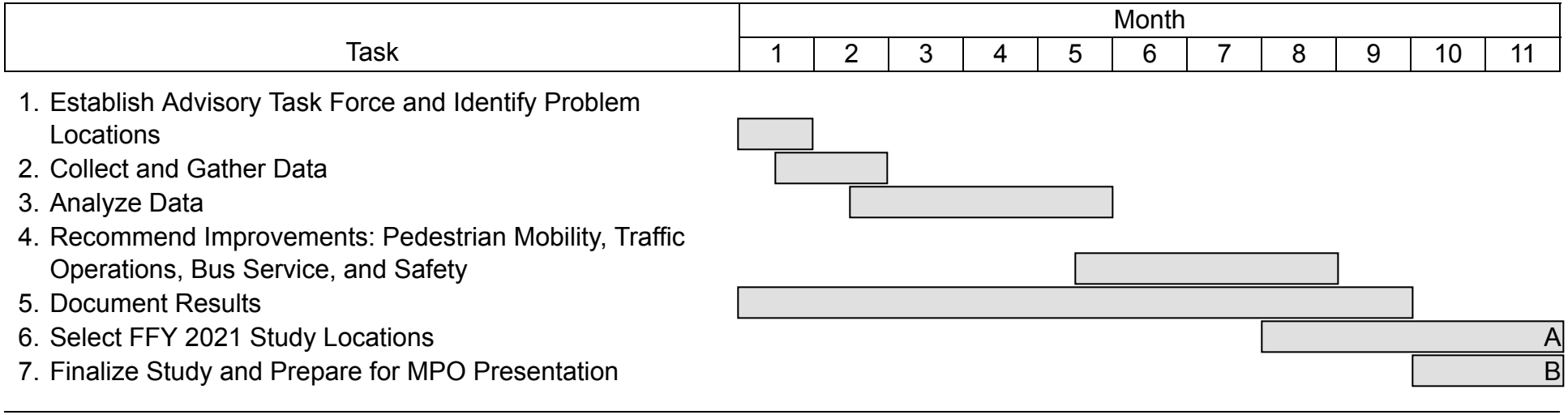
Task 7 Finalize Study and Prepare for MPO Presentation

After receiving comments on the draft report from municipal officials, MassDOT, and other study advisory groups, MPO staff will address these comments and finalize the study report. The final study report will be presented to the MPO.

Products of Task 7

- Final study report and MPO presentation.

Exhibit 1
ESTIMATED SCHEDULE
Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment: FFY 2020



Products/Milestones

A: Technical memorandum about selection process

B: Final report

Exhibit 2
ESTIMATED COST
Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment: FFY 2020

Direct Salary and Overhead									**$119,227**
Task	Person-Weeks						Direct Salary	Overhead (102.11%)	Total Cost
	M-1	P-5	P-4	P-3	Temp	Total			
1. Establish Advisory Task Force and Identify Problem Locations	0.2	2.0	0.0	0.0	0.0	2.2	$4,345	$4,437	$8,782
2. Collect and Gather Data	0.2	2.0	0.5	0.0	2.0	4.7	$6,126	$6,255	$12,381
3. Analyze Data	0.2	3.0	0.5	0.3	4.0	8.0	$9,548	$9,749	$19,297
4. Recommend Improvements: Pedestrian Mobility, Traffic Operations, Bus Service, and Safety	0.2	4.0	1.0	0.5	4.0	9.7	$12,509	$12,773	$25,283
5. Document Results	2.0	3.5	0.5	0.0	4.0	10.0	$13,511	$13,796	$27,306
6. Select FFY 2021 Study Locations	0.7	2.0	0.0	0.0	4.0	6.7	$7,390	$7,546	$14,936
7. Finalize Study and Prepare for MPO Presentation	1.0	1.5	0.5	0.0	0.0	3.0	$5,562	$5,680	$11,242
Total	4.5	18.0	3.0	0.8	18.0	44.3	$58,991	$60,236	$119,227
Other Direct Costs									**$773**
Travel									$773
TOTAL COST									**$120,000**

Funding
MPO 3C Planning and §5303 Contract #108217