



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Stephanie Pollack, MassDOT Secretary and CEO and MPO Chair
Tegin L. Teich, Executive Director, MPO Staff

WORK PROGRAM

ADDRESSING PRIORITY CORRIDORS FROM THE LONG-RANGE TRANSPORTATION PLAN NEEDS ASSESSMENT: FFY 2021

DECEMBER 3, 2020

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 13521

Client

Boston Region MPO

Project Supervisors

Principal: Mark Abbott

Manager: Seth Asante

Funding Source

MPO Planning Contract #112310

Schedule and Budget

Schedule: 10 months after work commences

Budget: \$137,000

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) 2021. 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, clean air and clean communities, transportation equity, economic vitality.

Background

The Needs Assessment for the Boston Region MPO's current 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 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 require 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 2021 UPWP.

A roadway corridor study is a logical way to address regional multimodal transportation and safety needs as it evaluates a roadway corridor or arterial segment comprehensively, considering the needs of people who walk, bicycle, drive, use public transportation, and whose property abuts the roadway. 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 identify ways 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*.

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.

² Transportation Improvement Program and Air Quality Conformity Determination, Federal Fiscal Years 2021–25, endorsed by the Boston Region Metropolitan Planning Organization on May 28, 2020. The FFYs 2021–25 TIP was reviewed by the MPO's federal partners and went into effect in October 2020 (FFY 2021 UPWP, Endorsed by the Boston Region Metropolitan Planning Organization on July 16, 2020). The FFY 2021 UPWP was reviewed by the MPO's federal partners and went into effect on October 1, 2020.

Objectives

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 2020. This allowed 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 2021:

- Establish advisory task force and identify problem locations
- Collect and gather data
- Analyze data
- Recommend improvements
- Document results
- Select FFY 2022 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.³ Staff will also use INRIX/RITIS databases to gather information on roadway speeds and trip origin/destination data.⁴ 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 and people who walk and people who bicycle
- 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
- Transportation-related assets that could be vulnerable to climate change

Products of Task 2

- Datasets for assessing safety, mobility, and operational performance at the problem locations, including roadway inventory data, an inventory of

³ Massachusetts Department of Transportation, Massachusetts Pedestrian Transportation Plan, May 2019; Massachusetts Department of Transportation, Massachusetts Bicycle Transportation Plan, May 2019; Massachusetts Department of Transportation, Municipal Resource Guide for Walkability, May 2019; Massachusetts Department of Transportation, Municipal Resource Guide for Bikeability, May 2019.

⁴ 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 Massachusetts Department of Transportation, which provides access to the Boston Region MPO. The data are archived and provided to transportation planning organizations that use the data to monitor congestion through performance measures.

bus service and performance data, and inventory of climate-change-vulnerable transportation assets

- A list of planned economic development and transportation improvement proposals for the arterial segment

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 people of all ages and abilities who walk, bicycle, drive, and ride public transit 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 people who bicycle, 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 people who walk, bicycle, and drive
- 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
- Evaluate adaptation alternatives to protect transportation assets from climate change by applying MC-FRM, FIRM, and NOAA models to determine vulnerabilities.⁵

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
- List of climate change problems and needs

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

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. Adaption recommendations for climate change will also be included to ensure that proposed improvements will be viable in the long term.

Products of Task 4

- Recommendations for addressing pedestrian, bicyclist, and motorist safety needs; accommodation of pedestrians, bicyclists, and transit users; adaptation recommendations to address climate change; and

⁵ MC-FRM is the Massachusetts Coast Flood Risk Model for analyzing flood risk for coastal communities; FIRM is the Flood Insurance Rate Map for assessing and planning for flood risk. The maps are produced by the Federal Emergency Management Agency; National Oceanic and Atmospheric Administration (NOAA) provides data, tools, and information to help understand and prepare for climate variability and change.

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 2022 LRTP Study Location

MPO staff will review public comments gathered during the development of the LRTP, UPWP, and other FFY 2021 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 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 Present to MPO

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

The Boston Region Metropolitan Planning Organization (MPO) operates its programs, services, and activities in compliance with federal nondiscrimination laws including Title VI of the Civil Rights Act of 1964 (Title VI), the Civil Rights Restoration Act of 1987, and related statutes and regulations. Title VI prohibits discrimination in federally assisted programs and requires that no person in the United States of America shall, on the grounds of race, color, or national origin (including limited English proficiency), be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination under any program or activity that receives federal assistance. Related federal nondiscrimination laws administered by the Federal Highway Administration, Federal Transit Administration, or both, prohibit discrimination on the basis of age, sex, and disability. The Boston Region MPO considers these protected populations in its Title VI Programs, consistent with federal interpretation and administration. In addition, the Boston Region MPO provides meaningful access to its programs, services, and activities to individuals with limited English proficiency, in compliance with U.S. Department of Transportation policy and guidance on federal Executive Order 13166.

The Boston Region MPO also complies with the Massachusetts Public Accommodation Law, M.G.L. c 272 sections 92a, 98, 98a, which prohibits making any distinction, discrimination, or restriction in admission to, or treatment in a place of public accommodation based on race, color, religious creed, national origin, sex, sexual orientation, disability, or ancestry. Likewise, the Boston Region MPO complies with the Governor's Executive Order 526, section 4, which requires that all programs, activities, and services provided, performed, licensed, chartered, funded, regulated, or contracted for by the state shall be conducted without unlawful discrimination based on race, color, age, gender, ethnicity, sexual orientation, gender identity or expression, religion, creed, ancestry, national origin, disability, veteran's status (including Vietnam-era veterans), or background.

A complaint form and additional information can be obtained by contacting the MPO or at http://www.bostonmpo.org/mpo_non_discrimination. To request this information in a different language or in an accessible format, please contact

Title VI Specialist
Boston Region MPO
10 Park Plaza, Suite 2150
Boston, MA 02116
civilrights@ctps.org
857.702.3700 (voice)
617.570.9193 (TTY)

Exhibit 1

ESTIMATED SCHEDULE

Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment: FFY 2021

Task	Month										
	1	2	3	4	5	6	7	8	9	10	
1. Establish Advisory Task Force and Identify Problem Locations	█										
2. Collect and Gather Data		█									
3. Analyze Data			█								
4. Recommend Improvements: Pedestrian Mobility, Traffic Operations, Bus Service, Safety, and Climate Change					█						
5. Document Results	█										
6. Select FFY 2022 LRTP Study Location								█		A	
7. Finalize Study and Present to MPO										█	B

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 2021**

Direct Salary and Overhead										\$136,421
Task	Person-Weeks						Direct Salary	Overhead (106%)	Total Cost	
	M-1	P-5	P-4	P-3	P-2	Total				
1. Establish Advisory Task Force and Identify Problem Locations	0.4	2.0	0.0	0.0	1.0	3.4	\$5,921	\$6,276	\$12,198	
2. Collect and Gather Data	0.2	2.0	0.5	0.0	2.0	4.7	\$7,432	\$7,878	\$15,309	
3. Analyze Data	0.2	3.5	0.5	0.3	2.0	6.5	\$10,777	\$11,423	\$22,200	
4. Recommend Improvements: Pedestrian Mobility, Traffic Operations, Bus Service, Safety, and Climate Change	0.2	5.0	1.0	0.5	2.0	8.7	\$14,722	\$15,605	\$30,328	
5. Document Results	2.0	4.0	0.5	0.0	2.0	8.5	\$14,884	\$15,777	\$30,660	
6. Select FFY 2022 LRTP Study Location	0.7	2.0	0.0	0.0	0.3	3.0	\$5,678	\$6,019	\$11,698	
7. Finalize Study and Present to MPO	1.0	1.5	0.5	0.0	1.0	4.0	\$6,810	\$7,218	\$14,028	
Total	4.7	20.0	3.0	0.8	10.3	38.8	\$66,223	\$70,197	\$136,421	
Other Direct Costs										\$579
Travel										\$579
TOTAL COST										\$137,000

Funding

MPO Planning Contract #112310