



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Jamey Tesler, MassDOT Secretary and CEO and MPO Chair
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WORK PROGRAM

ADDRESSING PRIORITY CORRIDORS FROM THE LONG-RANGE TRANSPORTATION PLAN NEEDS ASSESSMENT: FFY 2022

OCTOBER 21, 2021

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 13522

Client

Boston Region MPO

Project Supervisors

Principal: Mark S. Abbott

Manager: Seth Asante

Funding Source

MPO Combined PL and §5303 Contract #114674

Schedule and Budget

Schedule: Ten months after work commences

Budget: \$145,000

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) 2022. 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, 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 Boston region.¹ These needs guide decisions about which projects to include in the Transportation Improvement Program (TIP) and the Unified Planning Work Program (UPWP).² The region's current mobility needs include maintaining and modernizing the roadways that have safety problems and high levels of congestion; improving the quantity and quality of venues for walking and bicycling; and improving adherence to schedules and efficiency 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 2022 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 an assistive mobility device, use public transportation, and whose property abuts the roadway. The *Addressing Priority Corridors* study uses this approach to analyze the issues. MPO staff develop 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, use an assistive mobility device or bicycle to reach shops, schools, transit stations, and recreational areas, and so that buses can run on time.

In this document, an arterial segment is defined as a portion of a roadway corridor that spans multiple municipalities or 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 *Destination 2040*.

¹ *Destination 2040*, the Long-Range Transportation Plan of the Boston Region Metropolitan Planning Organization, was endorsed by the Boston Region Metropolitan Planning Organization on August 29, 2019.

² The Transportation Improvement Program and Air Quality Conformity Determination for Federal Fiscal Years 2021–25 was 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. The FFY 2022 UPWP was endorsed by the Boston Region Metropolitan Planning Organization on August 19, 2021. The FFY 2022 UPWP was reviewed by the MPO's federal partners and went into effect on October 1, 2021.

Objectives

1. Select an arterial segment from those identified (43 arterial segments in 33 communities) in the LRTP Needs Assessment using a set of criteria including information on safety and congested conditions, multimodal significance, transportation equity, and implementation potential to score and rank each arterial segment.
2. Identify the safety, mobility, access, and other transportation-related problems within the arterial segment.
3. Develop and evaluate solutions that maintain and modernize roadways, use the existing roadway more efficiently, and increase transportation options.

Work Description

For this work program, the selection of candidate study corridors was completed in FFY 2021. This allowed MPO staff to complete field data collection before the winter and expedite the study process. MPO staff will perform the following tasks in FFY 2022:

- Establish advisory task force
- Collect and gather data
- Analyze data
- Develop and recommend improvements
- Document results
- Select FFY 2023 LRTP study location
- Finalize study and present to MPO board

Task 1 Establish Advisory Task Force

MPO staff will establish an advisory task force composed of municipal officials and members of subregional groups in the MPO's planning area whose jurisdictions include areas in which the selected arterial segment is located. The advisory task force will 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), regional transit authorities (if the segment is in the service area of MetroWest or Cape Ann), and community-based stakeholders. These stakeholders will advise MPO staff about the 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

- 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 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, turning-movement counts, and speed data, including for truck traffic data and counts of people walking, using an assistive mobility device, or biking
- Traffic signal timing plans and layouts, equipment conditions, and lane configurations
- Bus service performance data and locations of stops, signage, and shelters
- Right-of-way, pavement conditions, walking and biking infrastructure, and gaps in walking and biking networks
- Planned development projects, development mitigation proposals, and proposed transportation projects from the MassDOT's project information database and MAPC's MassBuilds collaborative inventory of past, present, and future real estate development projects; and crash data and police reports from the MassDOT Registry of Motor Vehicles, municipalities, and the Massachusetts IMPACT portal⁵

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.

⁵ The IMPACT portal is designed to encourage public-safety initiatives and awareness specific to crash information. Within IMPACT a user can engage with crash-related data through easy-to-understand pre-built reports or conduct a self-driven analysis. The IMPACT portal allows the user to filter by MassDOT's Strategic Highway Safety Plan emphasis areas, which include bike and pedestrian transportation. Also, the tool includes data on high-risk areas and estimates which areas

- Transportation-related assets that could be vulnerable to climate change
- Community survey data on corridor problems, needs, and improvements

Products of Task 2

- Datasets for assessing problems and defining corridor needs: safety, mobility, and operations, including roadway inventory data; traffic and safety data; bus service and performance data; and 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 and the MassDOT's design guides and manuals. 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 those at Highway Safety Improvement Program locations
- Evaluate the need for closing gaps in walking and biking networks, such as by installing and repairing sidewalks, bicycle lanes, and multiuse paths to comply with MassDOT standards
- Evaluate the need for improving safety for people who walk, bike, drive, ride the bus, or use an assistive mobility device by making facilities such as crosswalks and sidewalks more accessible or by adding bicycle detection and bike boxes at signalized intersections
- Review intersection and roadway geometric layout to determine safety improvements; for example, by reducing crossing distance with curb extensions, increasing pedestrian signal intervals, and preventing left-turn movement conflicts
- Analyze crashes, traffic volumes, vehicle speeds, and classification data to determine potential traffic safety improvements
- 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, use an assistive mobility device, bike, drive, or ride the bus

are at the highest risk for future crashes based on a variety of variables.

<https://apps.impact.dot.state.ma.us/cdp/home>

- 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 vulnerabilities to protect transportation assets from climate change impacts

Products of Task 3

- Crash analyses tables and figures
- Collision diagrams
- Delay and queue calculations
- Bus performance statistics tables
- Walking and biking activity maps and graphics
- Gaps in pedestrian and bicycle networks
- List of problems and needs
- List of vulnerable transportation assets

Task 4 Develop and Recommend Improvements

Based on the results of consultation with the advisory task force and the analyses described above, staff will recommend Complete Streets improvements, including 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 walking and biking facilities that provide safe accommodation and connectivity and support the 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, bike, or use assistive mobility devices when traveling to and from bus stops. 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

- A summary of discussions and other interactions with MassDOT Office of Transportation Planning staff, Highway Division district office staff, and municipal officials about potential improvement concepts
- Recommendations for addressing walking, biking, and driving safety needs; adaptation recommendations to address climate change; and 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, 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 2023 LRTP Study Location

MPO staff will review public comments gathered during the development of the LRTP, UPWP, and other FFY 2022 outreach activities. In addition, MPO staff will contact municipal officials, members of subregional groups, and representatives from MassDOT Office of Transportation Planning, MassDOT Highway Division, the MBTA, regional transit authorities, and MAPC to discuss arterial segments identified in the LRTP Needs Assessment that are on their high priority list. These stakeholders will advise MPO staff about high priority study areas and data sources; help identify transportation-related problems; and assess their commitment to implement the study recommendations.

MPO staff will then 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. 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, separated bicycle lanes, multiuse paths, access management, and traffic signal upgrades and coordination. 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 the 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 board.

Product 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

By Telephone:

857.702.3702 (voice)

For people with hearing or speaking difficulties, connect through the state MassRelay service:

- **Relay Using TTY or Hearing Carry-over:** 800.439.2370
- **Relay Using Voice Carry-over:** 866.887.6619
- **Relay Using Text to Speech:** 866.645.9870

For more information, including numbers for Spanish speakers, visit <https://www.mass.gov/massrelay>.

Exhibit 1
ESTIMATED SCHEDULE
Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment: FFY 2022

Task	Month										
	1	2	3	4	5	6	7	8	9	10	
1. Establish Advisory Task Force	█										
2. Collect and Gather Data		█	█								
3. Analyze Data			█	█	█	█					
4. Develop and Recommend Improvements					█	█	█	█			
5. Document Results	█	█	█	█	█	█	█	█	█	█	█
6. Select FFY 2023 LRTP Study Location								█	█	█	A
7. Finalize Study and Present to MPO										█	B

Products/Milestones

- A: Technical memorandum about the selection process
- B: Final report

Exhibit 2

ESTIMATED COST

Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment: FFY 2022

Direct Salary and Overhead	\$144,680
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Task	Person-Weeks					Direct Salary	Overhead (109.09%)	Total Cost
	M-1	P-5	P-4	P-2	Total			
1. Establish Advisory Task Force	0.4	2.0	0.0	1.0	3.4	\$6,119	\$6,675	\$12,795
2. Collect and Gather Data	0.2	2.0	1.5	1.5	5.2	\$8,598	\$9,380	\$17,978
3. Analyze Data	0.2	3.0	0.0	3.0	6.2	\$10,113	\$11,032	\$21,144
4. Develop and Recommend Improvements	0.5	6.5	1.0	0.0	8.0	\$15,180	\$16,560	\$31,740
5. Document Results	3.5	4.5	0.0	1.0	9.0	\$16,987	\$18,531	\$35,518
6. Select FFY 2023 LRTP Study Location	0.5	2.0	0.0	1.0	3.5	\$6,308	\$6,881	\$13,189
7. Finalize Study and Present to MPO	1.2	1.5	0.4	0.0	3.1	\$5,890	\$6,426	\$12,316
Total	6.5	21.5	2.9	7.5	38.4	\$69,195	\$75,485	\$144,680

Other Direct Costs	\$320
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Travel	\$320
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TOTAL COST	\$145,000
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Funding

MPO Combined PL and 5303 #114674