



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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WORK PLAN

CONGESTION MANAGEMENT PROCESS: FEDERAL FISCAL YEARS 2018-19

JANUARY 17, 2019

Proposed Action

The Boston Region Metropolitan Planning Organization (MPO) reviews this work plan.

Project Identification

Project Number 2119

Client

Boston Region MPO

Project Supervisors

Principal: Mark Abbott

Manager: Ryan Hicks

Funding Source

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

Schedule and Budget

Schedule: 12 months after work commences

Budget: \$91,540

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

Background

The Congestion Management Process (CMP) is an integral part of the metropolitan transportation planning process. The purpose of the CMP is to apply a systematic, performance-driven approach to measuring and identifying locations where congested conditions limit mobility, in order to assess safety and mobility concerns and their causes.

Findings from the CMP are used to propose congestion mitigation projects and strategies to be included in the MPO's Long-Range Transportation Plan (LRTP). Projects that are funded by the MPO's Transportation Improvement Program (TIP) are evaluated through the CMP. The CMP utilizes data to evaluate the effectiveness of strategies that already have been implemented. In addition, the CMP recommends appropriate detailed follow-up studies and prioritizes them for funding in the MPO's Unified Planning Work Program (UPWP).

The MPO began its CMP in 1995 through the federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) legislation. The Fixing America's Surface Transportation (FAST) Act, which is the current federal transportation legislation, expanded the CMP's role. New legislative requirements include monitoring congestion reduction and system reliability. The national goal of congestion reduction is "to achieve a significant reduction in congestion on the national highway system." The national goal of system reliability is "to improve the efficiency of the surface transportation system."

As a result of CMP monitoring, numerous studies have been included in the UPWP and funds for constructing many projects have been programmed in the LRTP and TIP. CMP products may be viewed on the Congestion Management Process page of the Boston Region MPO's website (www.bostonmpo.org). Listed below is a sample of current and past work conducted by MPO staff that was based on recommendations from CMP monitoring:

- Needs Assessments for the LRTP
- Roadway Speeds and Travel Time Monitoring using INRIX Data (2013–present)
- Boston Region MPO Congestion Management Process: Performance-Based Planning for Efficiency, Mobility, and Safety (2013)
- Transportation Improvement Program (TIP) Intersection Improvement Program (2014–16)
- Route 138 Priority Corridor Study in Canton Massachusetts (2017)
- Route 1A Corridor Study in Wrentham (2017)
- Route 20 East Corridor Study in Marlborough (2017)

- Summer Street/George Washington Boulevard Subregional Priority Roadway Study in Hingham and Hull (2015)
- Washington Street Subregional Priority Roadway Study in Newton (2015)
- Routes 127A/127 Subregional Priority Roadway Study in Gloucester and Rockport (2014)
- Route 3A Subregional Priority Roadway Study in Cohasset and Scituate (2014)
- Priority Corridors for the LRTP Needs Assessment: Traffic Signal-Retiming Study for Route 2 in Concord and Lincoln (2014)
- Priority Corridors for the LRTP Needs Assessment: Route 30 Study (Route 30 Arterial Segment Study in Framingham and Natick, 2013)
- Route 114 in Danvers, Interstate 95 to the Peabody City Line: Safety, Operations, and Access Management Study (2012)
- Route 203 (Gallivan Boulevard and Morton Street): Safety, Mobility, and Access Management (2012)
- Federal Fiscal Year (FFY) 2013, 2014, and 2016 Safety and Operations Analyses at Selected Intersections
- Low-Cost Improvements to Bottleneck Locations, Phase I (2011)
- Low-Cost Improvements to Bottleneck Locations Phase II (2012)
- Low-Cost Improvements to Bottleneck Locations Phase III (2015)
- Low-Cost Improvements to Bottleneck Locations Phase IV (2017)
- 2012–13 Inventory of Park-and-Ride Lots at MBTA Facilities
- 2012 Inventory of Bicycle Parking Spaces and Number of Parked Bicycles at MBTA Stations
- Massachusetts Department of Transportation (MassDOT) Park-and-Ride Lot Capacity and Utilization Monitoring
- HOV Monitoring

In 2013, the Boston Region MPO began purchasing roadway travel time data from INRIX, which enabled the CMP to increase the scope of its performance monitoring. The first dataset purchased contained data on roadway conditions in 2012. In 2016, the MPO purchased another dataset from INRIX, which represents roadway conditions for 2015.

Objective

The mission of the Boston Region MPO's CMP is to support sustainable economic growth, sustain livability in the region, prevent congestion from increasing, and improve mobility, efficiency, and safety for people, goods, and services by encouraging

programs that reduce the use of single-occupant vehicles, including programs that employ transportation systems management and operations techniques, travel demand management, and new technologies.

The objectives of this work plan are as follows:

- Continue to support and coordinate with the MPO's CMP Committee as the committee provides program guidance.
- Identify, evaluate, and select strategies to include in the LRTP, TIP, and UPWP.
- Monitor the effectiveness of congestion management strategies implemented through the TIP.
- Devise innovative ways to communicate the results of analyses on roadway travel time data to public officials and the general public.
- Ensure that the Boston Region MPO's CMP conforms to FAST Act standards.
- Establish and refine measures to understand the transportation system's performance.
- Continue to collect data on the transportation network, which can be used for performance monitoring.

Work Description

Task 1 CMP Committee Support and Project Evaluation

The Boston Region MPO's CMP Committee was formed in January 2012. The purpose of the CMP Committee is to help implement recommended solutions from the most recent CMP report, the LRTP, the TIP, and corridor studies.

The CMP Committee will meet approximately three times during FFY 2019. In order to support the CMP Committee, MPO staff will organize and attend CMP Committee meetings; create agendas; take minutes; present materials; and ensure that the meetings are accessible according to the Americans with Disabilities Act. When the MPO staff completes a task, staff will present the results formally to the committee. Staff will also evaluate projects for the FFYs 2020–24 TIP.

Subtasks

- Prepare materials for CMP Committee meetings.
- Evaluate FFYs 2020–24 TIP projects through the CMP.
- Ensure that the CMP complies with the federal regulations.

Products of Task 1

- Materials for CMP committee meetings
- List of evaluation results for TIP projects

Task 2 MBTA Park-and-Ride Lot and Bicycle Parking Survey

Over the past two years, staff has been surveying bicycle and vehicle parking facilities for the utilization, capacity and facility conditions at 281 MBTA stations. This work is entering its third and final year.

Work in FFY 2019 will include the following activities: 1) finish collecting data at the remaining MBTA stations; 2) enter all collected data into a Microsoft Access database; 3) conduct an analysis to examine the current state of bicycle and vehicle parking facilities at MBTA stations; and 4) write a memorandum to summarize the data analysis results for all stations in the MBTA system, including a comparison of the 2013-14 and 2017-18 datasets.

Subtasks

- Collect park-and-ride lot and bicycle parking data.
- Enter data into a Microsoft Access database.
- Analyze the data.
- Complete a memorandum that summarizes vehicle and bicycle parking at every MBTA station.

Products of Task 2

- Memorandum summarizing the analysis of vehicle and bicycle parking at MBTA stations
- A database that contains vehicle parking and bicycle parking information for each MBTA station, which will be available to the MPO for various planning activities

Task 3 Develop Performance Metrics and Criteria

Federal legislation, starting with the Moving Ahead for Progress in the 21st Century Act and now the FAST Act, set the following requirements for MPOs:

- MPOs must set two-year and four-year targets and report performance and targets to the Federal Highway Administration (FHWA). Coordination between the MPOs and state Departments of Transportation will need to be established when setting the targets.
- Incorporate national goals, performance measures, and targets into LRTPs and TIPs.

MPOs are now required to set and monitor performance targets to determine if the region's roadways are becoming more or less reliable. The FHWA requires MPOs to use the following performance measures:

- Level of Travel Time Reliability (LOTTR)
- Annual Hours of Peak Hour Excessive Delay (PHED)

MPO staff will test the FHWA's performance measures using both the 2012 and 2015 INRIX datasets to identify trends and to determine if these or any other new measures are useful for the CMP, the LRTP, or any other MPO activities. Highway Performance Monitoring System (HPMS) data derived from the National Performance Management Research Data Set (NPMRDS) will be used to represent the traffic counts on the network.

Additional performance measures for the Boston region are being developed through the LRTP process. These measures may be tested to determine if they should be employed in CMP monitoring. Various datasets may need to be combined in order to conduct analyses. Targets can be created for each of these measures, which will be monitored by the CMP on a periodic basis.

Subtasks

- Calculate LOTTR and PHED for the entire region using 2012 and 2015 INRIX data.
- Potentially develop new performance metrics in addition to the two FHWA measures.
- Continue work to conflate the HPMS dataset to the National Highway System and expand the HPMS coverage to the entire CMP network.
- Determine to what extent that the new performance monitoring will be integrated into the CMP.

Products of Task 3

- New performance metrics and criteria for the CMP
- Memorandum detailing the findings of this task

Task 4 Complete Nonrecurring Congestion Dashboard

In the last FFY, the MPO completed a study that analyzed nonrecurring congestion in the Boston region. In addition, staff was also able to begin working on an online interactive dashboard that will complement the study. The dashboard will show where and when congestion occurs during particular events, including sporting events and parades, and holidays. Most of the dashboard was completed in the last

FFY. In the future, this dashboard may be updated to reflect data from other special events.

Subtasks

- Select performance measure thresholds and display colors for the dashboard.
- Compose a help page for the dashboard, which will explain to viewers how to use the dashboard.

Products of Task 4

A publicly available dashboard that will show the locations of nonrecurring congestion throughout the Boston region. This dashboard can be updated in the future to add additional events.

Exhibit 1
ESTIMATED SCHEDULE
Congestion Management Process: Federal Fiscal Years 2018-19

Task	Month											
	1	2	3	4	5	6	7	8	9	10	11	
1. CMP Committee Support and Project Evaluation	[Shaded bar]											
2. MBTA Park-and-Ride Lot and Bicycle Parking Survey	[Shaded bar]											
3. Develop Performance Metrics and Criteria			[Shaded bar]									
4. Complete Nonrecurring Congestion Dashboard					[Shaded bar]							

Exhibit 2
ESTIMATED COST
Congestion Management Process: Federal Fiscal Years 2018-19

Direct Salary and Overhead	\$91,011
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Task	Person-Weeks					Direct Salary	Overhead (99.00%)	Total Cost
	M-1	P-5	P-4	Temp	Total			
1. CMP Committee Support and Project Evaluation	0.6	0.2	3.6	0.0	4.4	\$5,928	\$5,869	\$11,798
2. MBTA Park-and-Ride Lot and Bicycle Parking Survey	2.3	0.0	8.2	3.2	13.6	\$16,025	\$15,865	\$31,890
3. Develop Performance Metrics and Criteria	2.0	5.1	6.4	0.0	13.5	\$21,000	\$20,790	\$41,791
4. Complete Nonrecurring Congestion Dashboard	0.4	0.8	0.4	0.0	1.6	\$2,780	\$2,752	\$5,533
Total	5.3	6.1	18.6	3.2	33.2	\$45,734	\$45,277	\$91,011

Other Direct Costs	\$529
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Travel	\$529
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TOTAL COST	\$91,540
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Funding

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