



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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

MEMORANDUM

DATE July 20, 2017
TO Boston Region Metropolitan Planning Organization
FROM Karl H. Quackenbush, Executive Director
RE Work Program for Traffic and Parking Analysis to Support Dedicated Bus Lanes

Action Required

Review and approval

Proposed Motion

That the Boston Region Metropolitan Planning Organization (MPO), upon the recommendation of the Massachusetts Department of Transportation (MassDOT), votes to approve the work program for Traffic and Parking Analysis to Support Dedicated Bus Lanes presented in this memorandum

Project Identification

Unified Planning Work Program Classification

Agency and Other Client Transportation Planning Studies and Technical Analyses

CTPS Project Number

11416

Client

Massachusetts Department of Transportation, Office of Transportation Planning
Project Supervisor: Scott Hamwey

CTPS Project Supervisors

Principal: Nicholas Hart
Manager: Annette Demchur

Funding

MassDOT §5303 Contract #94643

Impact on MPO Work

The MPO staff has sufficient resources to complete this work in a capable and timely manner. By undertaking this work, the MPO staff will neither delay the completion of nor reduce the quality of any work in the Unified Planning Work Program.

Background

Dedicated bus lanes are typically sited on urban streets where large traffic volumes subject frequent and crowded bus services to high levels of bus passenger delay. Siting dedicated bus lanes in these environments can result in significant improvements in bus travel speeds, reliability, operating efficiency, and customer satisfaction. In conjunction with other transit-supportive roadway strategies and long-term, transit-supportive planning goals, dedicated bus lanes also attract new riders and create more compact, walkable, transit-oriented neighborhoods.

The continued growth in demand for improved MBTA services, coupled with the challenging funding environment for major capital expansion projects, suggests that one of the best approaches to increasing the reach of high-quality transit is through low-cost improvements in bus operations. As a result, Central Transportation Planning Staff (CTPS) engaged with MassDOT on a Prioritization of Dedicated Bus Lanes study in an effort to identify which roadway segments in Greater Boston would provide the greatest benefit to bus passengers if existing roadway space were to be reallocated to accommodate dedicated bus lanes. In the study, CTPS identified 10 roadway segments that would provide the most effective benefit to bus riders, as measured by an estimate of the current average weekday rate of delay that they encounter.

The purpose of this study is to provide continued support for the installation of dedicated bus lanes on Greater Boston roadways. Staff will accomplish this by analyzing traffic and parking on seven of the 10 roadway segments that were identified in the Prioritization of Dedicated Bus Lanes study, and one additional roadway segment that was identified at a later date.¹ This project is conducted under the assumption that existing on-street parking can be reallocated to provide space for dedicated bus lanes along each segment. The eight roadway segments that will be studied are as follows:

¹ Three of the prioritized roadway segments will not be assessed in this study for the following reasons: a bus lane has already been designed for reconstruction of the North Washington Street Bridge on the segment between North Washington Street at the Route 1 off-ramp and North Washington Street at Valenti Way in Boston; a parking study by the Metropolitan Area Planning Council has been completed for the segment between Washington Street at Forest Hills Station and Washington Street at Cummins Highway in Boston; and the City of Cambridge is studying the segment between Massachusetts Avenue at Western Avenue and Massachusetts Avenue at Memorial Drive in Cambridge. The additional roadway segment to be included is between Park Street at Pearl Street and Hawthorne Street at Broadway in Chelsea.

- Between Park Street at Pearl Street and Hawthorne Street at Broadway, Chelsea
- Between Massachusetts Avenue at Storrow Drive and Massachusetts Avenue at Albany Street, Boston
- Between Warren Street at Dudley Street and Blue Hill Avenue at Geneva Avenue, Boston
- Between Ruggles Street at Ruggles Station and Dudley Street at Warren Street, Boston
- Between Huntington Avenue at South Huntington Avenue and Huntington Avenue at Tremont Street, Boston
- Between Blue Hill Avenue at Columbia Road and Blue Hill Avenue at Talbot Avenue, Boston
- Between Brighton Avenue at Cambridge Street and Brighton Avenue at Harvard Avenue, Boston
- Between Washington Street at Warren Street and Washington Street at Melnea Cass Boulevard, Boston

Objective

The objective of this work is to support MassDOT's strategy for providing municipal stakeholders with resources to inform the reallocation of existing roadway space for dedicated bus lanes in the Greater Boston region.

Work Description

The work required to accomplish this project's objectives will be carried out in the three tasks described below:

Task 1 Collect Parking Data

Staff will collect parking data along the eight identified roadway segments and their surrounding areas by completing the following four subtasks:

Subtask 1.1 Catalog Parking Locations, Regulations, and Capacity

Staff will conduct an initial site visit to catalog parking locations, regulations, and capacity along each roadway segment. Staff will also use information from the initial site visit to prepare data collection forms and develop field staff assignments for collecting parking use and license plate information.

Subtask 1.2 Prepare Data Collection Forms for Parking Use and License Plate Data Collection

Using the information gathered in subtask 1.1, staff will create data collection forms and develop field staff assignments for collecting parking occupancy and license plate information in each study area.

Subtask 1.3 Collect Parking Occupancy and License Plate Data

Field staff will record the occupancy of each parking spot in hourly increments from 6:00 AM to 10:00 AM. Field staff will also record the license plate information of each vehicle.

Subtask 1.4 Catalog Home Addresses of Parked Vehicles

Using the license plate information collected in subtask 1.3, staff will determine the home location of the vehicles parked in each study area.

Products of Task 1

- Catalog of parking locations, regulations, and capacity in each study area
- Catalog of parking occupancy rates in each study area
- Catalog of home addresses of vehicles parked in each study area

Task 2 Update Estimate of Weekday Bus Passenger Delay

In the previous Prioritization of Dedicated Bus Lanes study, staff provided an estimate of bus passenger delay for each study area. Using more recent data, staff will update the estimated amount of delay encountered by bus passengers in each study area by completing the following three subtasks:

Subtask 2.1 Compile Most Recent Traffic Data along Identified Roadway Segments

Staff will compile the most recent traffic data from the CTPS INRIX database to estimate roadway delay in each study area.

Subtask 2.2 Compile Most Recent Passenger Load Data for MBTA Bus Trips along Identified Roadway Segments

Staff will compile the most recent passenger load data from the MBTA's composite-day automated passenger counts to estimate the average number of bus passengers for each trip traversing each study area.

Subtask 2.3 Estimate Weekday Bus Passenger Delay along Identified Roadway Segments

Staff will estimate bus passenger delay in each study area using data compiled from subtasks 2.1 and 2.2. Summaries of bus passenger delay will be provided on a trip-by-trip basis during the weekday morning peak period along with aggregate weekday, morning peak, and evening peak totals.

Product of Task 2

Updated estimate of bus passenger delay in each study area

Task 3 Document Results

Staff will document the results of the study according to the following three subtasks:

Subtask 3.1 Produce Technical Memorandum

Staff will produce a technical memorandum that outlines the methodologies and data sets used to complete the study.

Subtask 3.2 Produce Study Area Maps and Graphics

In the Prioritization of Dedicated Bus Lanes study, staff produced maps of each study area to highlight the roadway geometry of each roadway segment. Staff will update these maps to incorporate the information produced in this study, including parking locations, parking regulations, parking occupancy rates, adjacent land use, bus passenger delay, and bus stop boardings and alightings. Staff will develop separate graphics to depict the home location of vehicles parked in each study area.

Subtask 3.3 Produce Slide Deck for Circulation to Stakeholders

Staff will produce a slide deck that contains key findings and summaries from the study. MassDOT will use the slide deck as a resource to inform municipal stakeholders about the reallocation of existing roadway space for dedicated bus lanes in the Greater Boston region.

Products of Task 3

- Technical memorandum outlining the methodologies and data sets used to complete the study
- Study area maps and graphics depicting the information collected in this study
- Slide deck containing key findings and summaries from the study

Estimated Schedule

It is estimated that this project will be completed eight months after work commences. The proposed schedule, by task, is shown in Exhibit 1.

Estimated Cost

The total cost of this project is estimated to be \$95,000. This includes the cost of 40.8 weeks of staff time and overhead at the rate of 105.66 percent. A detailed breakdown of estimated costs is presented in Exhibit 2.

KQ/NH/nh

Exhibit 1
ESTIMATED SCHEDULE
Traffic and Parking Analysis to Support Dedicated Bus Lanes

Task	Month							
	1	2	3	4	5	6	7	8
1. Collect parking data	█							
2. Update estimate of weekday bus passenger delay		█						
3. Document results				█				

Exhibit 2
ESTIMATED COST
Traffic and Parking Analysis to Support Dedicated Bus Lanes

Direct Salary and Overhead **\$95,000**

Task	Person-Weeks						Direct Salary	Overhead (105.66%)	Total Cost
	M-1	P-5	P-3	P-1	Temp	Total			
1. Collect parking data	0.4	1.2	5.4	2.2	11.8	21.0	\$17,119	\$18,088	\$35,207
2. Update estimate of weekday bus passenger delay	0.0	0.0	3.4	0.0	0.0	3.4	\$4,054	\$4,283	\$8,337
3. Document results	3.6	4.8	8.0	0.0	0.0	16.4	\$25,019	\$26,436	\$51,455
Total	4.0	6.0	16.8	2.2	11.8	40.8	\$46,193	\$48,807	\$95,000

Other Direct Costs **\$0**

TOTAL COST **\$95,000**

Funding

MassDOT §5303 Contract #94643