



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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

WORK PROGRAM

MBTA TRANSIT SERVICE DATA COLLECTION

MARCH 7, 2019

Proposed Motion

The Boston Region Metropolitan Planning Organization (MPO) votes to approve this work program.

Project Identification

Unified Planning Work Program (UPWP) Classification

Agency and Other Client Transportation Planning Studies and Technical Analyses

Project Number 11422

Client

Massachusetts Bay Transportation Authority (MBTA)

Client Supervisor: Melissa Dullea

Project Supervisors

Principal: Katie Pincus Stetner

Manager: Jonathan Belcher

Funding Source

Future MBTA Contract

Schedule and Budget

Schedule: 39 months from notice to proceed

Budget: \$540,000

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

This budget was developed using a billing overhead rate of 99.0 percent as approved by the Boston Region MPO for state fiscal year (SFY) 2019. On each consecutive July 1, beginning with July 1, 2019, the overhead rate will be adjusted to reflect the SFY rate approved by the MPO.

Relationship to MPO Work

This study is supported in full with non-MPO funding. Committing MPO staff to this project will not impinge on the quality or timeliness of MPO-funded work.

Background

In 1996, Central Transportation Planning Staff (CTPS) began the Comprehensive Ridecheck Program for the MBTA. This effort produced a full set of bus ridership and schedule adherence data, covering all of the routes within the span of one year. Since January 1999, CTPS has been performing ongoing monitoring of MBTA transit service, including ridechecks and pointchecks. Even with the installation of automated data collection devices, the MBTA still needs to use manual data collection.

Beginning in late 2007, the MBTA began using automatic passenger counters (APCs) on some of its buses. Although the need for manual data collection has decreased since the introduction of APCs, it can take several months to collect enough data using APCs to review peak-period crowding conditions because of the limited number of APC-equipped buses. Therefore, pointchecks continue to be a valuable method for quickly collecting data on multiple routes during peak periods.

The MBTA also completed the installation of an automated-fare-collection (AFC) system in 2007. While this system can be used to determine daily counts of boardings at rapid transit stations, manual counts are still required at key transfer stations in order to determine the distribution by mode (heavy rail, light rail, and bus rapid transit). Additional manual counts may also be required to determine boardings by direction.

During the past 20 years, CTPS has also provided the MBTA Service Planning Department with analytical assistance for interpreting the ridership and schedule adherence data. In particular, raw data are examined immediately after being collected to determine whether there are any acute problems in the field. CTPS staff regularly recommends adjustments to the scheduled frequency and running times to address identified problems.

Objectives

1. To perform various forms of data collection on MBTA transit services, primarily the following tasks:
 - *Pointchecks:* Peak-load checks may be conducted to monitor ridership on selected routes.
 - *Ridechecks:* Using the same methods employed in the former Bus Service Data Collection program, data on ridership at each stop and on running times will be collected on selected routes or trips as requested by the MBTA.

2. To provide analytical assistance to the MBTA with identifying crowding or schedule adherence problems on bus, trackless trolley, and rapid transit routes, and to recommend changes in the scheduled frequency and running times to address those problems.
3. To conduct annual manual counts at one or more rapid transit stations where multiple modes serve one facility, or at stations where boarding information by direction is required.

Work Description

Task 1 Collect Data

CTPS staff will carry out data collection assignments as directed by MBTA staff. The primary data collection activity will be pointchecks conducted at or near the peak-load point along a bus or rail route, or for a group of routes that have a common stop. Pointchecks are usually conducted at 80–100 locations in the fall and again in the spring. Pointcheck data include the vehicle number, direction, and time at each location, and the number of passengers on board.

As a supplement to data collected automatically by the MBTA, CTPS, if requested by MBTA staff, will also collect ridecheck data. These data would include boardings and alightings by stop, farebox readings, vehicle trip times, departure and arrival times, and intermediate times.

CTPS staff will also be available, as requested by MBTA staff, to conduct manual rapid transit or light rail station counts to supplement data collected automatically. Station counts require having personnel at all entry locations in order to count all of the passengers entering the system, and sometimes require counts at stairwells, escalators, and elevators within a station to determine which modes passengers are using and the direction in which they are traveling.

Products of Task 1

Ridership and schedule adherence data in digital or paper form

Task 2 Process and Analyze Data

CTPS staff will summarize the pointcheck data—after they have been transferred to spreadsheets—in order to provide peak-load summaries, and will examine those data, as well as data collected automatically by the MBTA, to identify problems with vehicle loads or schedule adherence on a route-by-route basis. CTPS staff will then review existing schedules to develop plans for appropriate corrective actions. These actions may include assigning additional vehicles to a route, lengthening or reducing segment-level running times, implementing short-turn services, and other modifications. CTPS staff will also provide the MBTA

with the projected hours-of-service costs of implementing any recommended corrective actions.

CTPS staff will participate in the quarterly process of the MBTA Service Committee and will suggest possible modifications, additions, or reductions to MBTA service based on an analysis of pointcheck and station count data collected by CTPS staff, as well as data collected automatically by the MBTA. If requested, CTPS staff will assist the MBTA in reviewing and updating the data that were automatically collected by the MBTA.

CTPS staff will summarize any requested rapid transit station counts in a database.

Products of Task 2

- Summaries of pointcheck data
- Participation in the MBTA Service Committee's quarterly process
- Database of rapid transit station counts

Task 3 Provide Ongoing Technical Support to the MBTA

CTPS staff will provide ongoing technical assistance to the MBTA, as necessary, to address service planning needs.

Exhibit 2
ESTIMATED COST
MBTA Transit Service Data Collection

Direct Salary and Overhead	\$539,775
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Task	Person-Weeks					Direct Salary	Overhead (99.00%)	Total Cost
	M-1	P-5	P-4	Temp	Total			
1. Collect Data	0.0	0.5	12.4	198.5	211.4	\$119,621	\$118,424	\$238,045
2. Process and Analyze Data	0.5	60.0	1.0	2.5	64.0	\$121,527	\$120,312	\$241,840
3. Provide Ongoing Technical Support to the MBTA	0.5	0.5	20.0	0.0	21.0	\$30,096	\$29,795	\$59,890
Total	1.0	61.0	33.4	201.0	296.4	\$271,244	\$268,531	\$539,775

Other Direct Costs	\$225
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Travel	\$225
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TOTAL COST	\$540,000
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Funding
 Future MBTA Contract