



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Phillip Eng, MPO Chair | Interim Secretary and CEO, Massachusetts Department of Transportation
Tegin Leigh Teich, Executive Director, MPO Staff

WORK PROGRAM

MBTA HEAVY RAIL CAPACITY ANALYSIS

DECEMBER 4, 2025

Proposed Motion

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

Project Identification

Unified Planning Work Program (UPWP) Classification

Not listed in federal fiscal year (FFY) 2026 UPWP

Project Number 11520

Client

Massachusetts Bay Transportation Authority (MBTA)

Client Supervisor: Sandy Johnston

Project Supervisors

Principal: Rose McCarron

Manager: Joe Delorto

Funding Source

MassDOT-directed planning funds

Schedule and Budget

Schedule: 9 months from notice to proceed

Budget: \$75,000

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

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

The MBTA's recently released service priorities initiative, *Full T Ahead*, lays out long-term service priorities for the MBTA system. *Full T Ahead* sets ambitious goals for more frequent, all-day transit service that serves evolving regional needs. As the MBTA plans for a future where transit is the preferred mode of travel in the Boston region, it will be critical to ensure that the transit system has sufficient capacity to serve a growing number of trips. To that end, this study aims to identify areas of the heavy rail network where excess capacity may exist or where the network may be capacity-constrained, both currently and under a variety of future service and ridership scenarios.

Objectives

1. Analyze System Capacity

Analyze the capacity of the MBTA heavy rail system under current conditions and under various future service and ridership scenarios.

2. Evaluate Tools, Data, and Methods

Identify the analytical tools, data, and methodologies best suited to the intended analysis. Assess each resource's applicability to an analysis of MBTA heavy rail system capacity and its flexibility to conform to a variety of scenarios. Analysis may include examination of scheduled capacity as opposed to actual, delivered capacity.

3. Facilitate Long-Term Service Planning

Lay the groundwork for longer-term service planning to allow the MBTA to best utilize the capacity of the heavy rail network.

Work Description

Task 1 Explore Data and Define Methodology

Staff will explore MBTA heavy rail ridership data and trends to inform their approach to this study. Staff will assess the capabilities of various tools, such as the TDM23 travel demand model and the MPO's new Simplified Trips-on-Project Software (STOPS) model, to support an analysis of current and future heavy rail system capacity. With this knowledge, staff will establish a methodology of measuring capacity on the heavy rail network according to the MBTA's Service Delivery Policy, rolling stock considerations, and infrastructure constraints.

Products of Task 1

List of available data sources

Proposed methodology for analyzing rapid transit system capacity

Task 2 Define Scenarios

In collaboration with the MBTA, staff will define a set of future scenarios to be analyzed. These scenarios will vary by land use, ridership, and the amount of transit service provided. Service scenarios should be feasible with existing, committed, or planned upgrades to heavy rail infrastructure.

Products of Task 2

List of scenarios to be analyzed

Task 3 Analyze System Capacity

Using the data, tools, and methodology defined in Task 1, staff will model the scenarios defined in Task 2. For each scenario, staff will identify areas where excess capacity may exist on the heavy rail network and areas where the network may be capacity-constrained. The analysis will focus on the heavy rail system (Red, Orange, and Blue Lines) because of data quality but may also explore analysis of the Green Line, time and capacity permitting. Bus rapid transit is out of scope for this study.

Products of Task 3

Analysis of heavy rail system capacity for each scenario

Task 4 Documentation

Staff will produce a technical memorandum detailing the findings of Tasks 1–3 and any necessary materials to support the application of this analysis.

Products of Task 4

Technical memorandum

Exhibit 1
ESTIMATED SCHEDULE
MBTA Heavy Rail Capacity Analysis

Task	Month								
	1	2	3	4	5	6	7	8	9
1. Explore Data and Define Methodology									
2. Define Scenarios									
3. Analyze System Capacity									
4. Documentation									

Products/Milestones

A: Technical memorandum

Exhibit 2
ESTIMATED COST
MBTA Heavy Rail Capacity Analysis

Direct Salary and Overhead								\$75,000
Task	Person-Weeks by Pay Grade					Direct Salary	Overhead (122.59%)	Total Cost
	G-9	G-8	G-6	G-5	Total			
1. Explore Data and Define Methodology	0.1	0.4	4.2	0.0	4.7	\$7,537	\$9,240	\$16,776
2. Define Scenarios	0.0	0.4	5.0	0.0	5.4	\$8,470	\$10,384	\$18,854
3. Analyze System Capacity	0.0	0.4	5.8	0.0	6.2	\$9,737	\$11,937	\$21,674
4. Documentation	0.2	0.2	4.0	0.5	4.9	\$7,950	\$9,746	\$17,696
Total	0.3	1.4	19.0	0.5	21.2	\$33,695	\$41,307	\$75,000
Other Direct Costs								\$0
TOTAL COST								\$75,000

Funding
 MassDOT-directed planning funds

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