



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Monica Tibbits-Nutt, MPO Chair | Secretary and CEO, Massachusetts Department of Transportation
Tegin Leigh Teich, Executive Director, MPO Staff

WORK PROGRAM

INTERMEDIATE YEAR SERVICE EQUITY ANALYSIS METHODS AND APPLICATIONS

APRIL 3, 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) 2025 UPWP

Project Number TBD

Client

Massachusetts Bay Transportation Authority (MBTA)

Client Supervisor: Melissa Dullea

Project Supervisors

Principal: Rosemary McCarron

Manager: Sophie Fox

Funding Source

MBTA Contract

Schedule and Budget

Schedule: 5 months

Budget: \$40,000

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

As an agency that receives federal funds, the MBTA is subject to Title VI of the Civil Rights Act of 1964, which protects people from discrimination based on race, color, and national origin. The MBTA's Service and Fare Change Equity Policy¹ documents how the agency evaluates the impacts of proposed fare and major service changes on minority and low-income populations relative to other groups in compliance with the Federal Transit Administration's (FTA) Title VI Circular 4702.1B.²

According to the Service and Fare Change Equity Policy, the MBTA must evaluate the impact of major service changes. In winter 2022, the MBTA Board of Directors voted to implement a collection of major changes known as the Bus Network Redesign. The MBTA plans to roll out these changes in a phased approach. The first set of changes were implemented in December 2024. While the effects of the entire package of changes were deemed nondiscriminatory in the Service Equity Analysis (SEA), the MBTA is interested in an ongoing process to monitor intermediate equity impacts during the implementation period. This will allow the MBTA to understand cumulative impacts of phased Bus Network Redesign implementation and smaller service changes that do not require a SEA.

The MBTA requested that the Central Transportation Planning Staff (CTPS) develop and implement a process to compare relative equity impacts across schedule periods with the overarching goal of providing the MBTA with data to evaluate whether it is making progress towards its intended outcomes.

Objectives

The objective of this work is to support the MBTA in monitoring the equity impacts of its incremental Bus Network Redesign service changes. There are two main objectives of this analysis:

1. Implement a process to estimate equity impacts of two General Transit Feed Specification (GTFS) schedules that is consistent with the MBTA's Service and Fare Change Equity Policy.

¹ Massachusetts Bay Transportation Authority, "MBTA Service and Fare Change Equity Policy," October 24, 2023, <https://cdn.mbta.com/sites/default/files/2023-10/2023-10-Service-Fare-Change-Equity-Policy-English-Accessible.pdf>.

² Federal Transit Administration, "Title VI Requirements and Guidelines for Federal Transit Administration Recipients," Circular 4702.1B, October 1, 2012, <https://www.transit.dot.gov/regulations-and-guidance/fta-circulars/title-vi-requirements-and-guidelines-federal-transit>.

2. Communicate the methodology and the changes in revenue vehicle hours (RVH) and coverage between GTFS schedules.

Work Description

Task 1 Meetings and Administrative Tasks

Task 1 will be reserved for any internal meetings and meetings with representatives from the MBTA, as well as any additional administrative tasks that arise throughout the course of this analysis.

Task 2 Gather Data

CTPS will use GTFS data to develop its methodology. At its core, the methodology will compare two GTFS files, one representing the base scenario and the other representing the comparison scenario. CTPS will also compile relevant demographic data to evaluate disparate impacts and disproportionate burdens.

Task 3 Develop and Implement GTFS-based Service Equity Analysis Methodology

Based on the guidance in the MBTA Service and Fare Change Equity Policy, CTPS will develop a methodology to use two GTFS files to 1) quantify the RVH and coverage for a GTFS file, 2) evaluate whether the differences between two GTFS files represent a “major service change,” and 3) describe the impacts of the changes on protected populations in a way that helps the MBTA determine whether the changes would help the MBTA meet intended goals.

CTPS will use this methodology to evaluate the impacts between two GTFS files representing schedules before the Bus Network Redesign implementation (pre-COVID and pre-implementation) compared to a GTFS file representing schedules post-Bus Network Redesign.

Products of Task 3

Methodology to use GTFS files to conduct SEAs

Numerical summary results of two analyses comparing GTFS files

Task 4 Document Impacts

CTPS will document the methodology and the outcomes of the two GTFS comparisons in a technical memorandum and other communication mediums as budget allows.

Products of Task 4

Technical memorandum

Exhibit 1
ESTIMATED SCHEDULE
Intermediate Year Service Equity Analysis Methods and Applications

Task	Month				
	1	2	3	4	5
1. Meetings and Administrative Tasks					
2. Gather Data					
3. Develop and Implement Service Equity Analysis Methodology					
4. Document Impacts					

Products/Milestones

A: Technical memorandum no. 1

Exhibit 2
ESTIMATED COST
Intermediate Year Service Equity Analysis Methods and Applications

Direct Salary and Overhead	\$40,000
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Task	Person-Weeks by Pay Grade					Direct Salary	Overhead (120.3%)	Total Cost
	G-9	G-8	G-7	G-6	Total			
1. Meetings and Administrative Tasks	0.1	0.2	0.2	0.2	0.7	\$1,362	\$1,638	\$3,000
2. Gather Data	0.0	0.0	0.4	1.0	1.4	\$2,270	\$2,731	\$5,000
3. Develop and Implement Service Equity Analysis Methodology	0.0	0.5	2.1	4.0	6.6	\$10,894	\$13,106	\$24,000
4. Document Impacts	0.0	0.0	0.5	1.8	2.3	\$3,632	\$4,369	\$8,000
Total	0.1	0.7	3.2	7.0	11.0	\$18,158	\$21,844	\$40,000

Other Direct Costs	\$0
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TOTAL COST	\$40,000
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Funding
 MBTA Contract

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To request this information in a different language or format, please contact:

Boston Region MPO Title VI Specialist

10 Park Plaza, Suite 2150

Boston, MA 02116

Phone: 857.702.3700

Email: civilrights@ctps.org

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