



## BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

---

Jamey Tesler, Acting MassDOT Secretary and CEO and MPO Chair  
Tegin L. Teich, Executive Director, MPO Staff

### WORK PLAN

## MBTA REVIEW OF FARE STRUCTURE, TARIFFS, AND POLICY FOR STATE FISCAL YEAR 2023

JULY 1, 2021

### Project Identification

**Project Number** 14373

**Client**

Massachusetts Bay Transportation Authority (MBTA)

**Project Supervisors**

*Principal:* Paul Christner

*Manager:* Emily Domanico

**Funding Source**

MBTA Contract (to be determined)

### Schedule and Budget

**Schedule:** 12 months after work commences

**Budget:** \$52,556

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

This budget was developed using a billing overhead rate of 106 percent as approved by the Boston Region MPO for state fiscal year (SFY) 2021. Beginning with July 1, 2021, and each July 1 thereafter, the overhead rate will be adjusted to reflect the SFY rate approved by the MPO.

### Background

The MBTA requested that Central Transportation Planning Staff (CTPS) analyze the impacts of potential changes in fare structure and tariffs for SFY 2023.<sup>1</sup> CTPS has

---

<sup>1</sup> In transit planning, "tariff" refers to the official published list of all fares. For the purposes of this work plan, "tariff" refers to the fare levels.

provided technical assistance to the MBTA related to fare structure and tariff changes for more than 25 years, most recently in SFYs 2017, 2020, 2021, and 2022. In these recent studies, CTPS conducted analyses that included projections of the ridership, revenue, and equity impacts related to the proposed fare change alternatives.

## Objectives

This project will forecast the ridership, revenue, and equity impacts of potential changes in the MBTA's fare structure and tariffs for SFY 2023.

## Work Description

### **Task 1 Participate in Meetings and Provide Technical Support**

CTPS will meet with representatives of the MBTA to receive direction on this project, including potential scenarios for changing MBTA fares, and MBTA staff will give feedback to CTPS on the preliminary results of the CTPS analyses.

Upon the MBTA's request, CTPS will participate in meetings related to the MBTA's fare policy and meetings with members of the Fiscal and Management Control Board, the Massachusetts Department of Transportation Board of Directors, or other interested parties, as the budget for this task allows.

#### ***Product of Task 1***

Meeting attendance and technical support, as needed

### **Task 2 Model the Ridership and Revenue Impacts of Potential Changes in Fare Structure, Tariffs, and Policy**

CTPS uses its spreadsheet-based model known as the Fare Elasticity, Ridership, and Revenue Estimation Tool (FERRET) to estimate fare-change impacts. Since 2007, CTPS has used iterations of FERRET to analyze fare changes. FERRET lists the number of unlinked trips for each product type (cash, LinkPass, bus pass, and other types) and parking utilization for each mode. Using this model, CTPS staff then applies price changes to each fare category (cash on a bus, LinkPass on a Green Line train, and others), and applies various elasticities of demand with respect to fares. These elasticities are based on past experiences with fare changes at the MBTA and at peer transit agencies in North America. The elasticities of demand are updated periodically to reflect the outcomes of previous MBTA fare increases.

CTPS will update the inputs to FERRET, as appropriate, in consultation with the client. After updating the inputs, CTPS will analyze as many as two fare-pricing and fare-structure scenarios. If certain fare change proposals cannot be modeled in FERRET, staff will develop alternative methods in consultation with the MBTA, as

---

the existing budget allows. After the analyses of the scenarios are complete, summaries of each fare scenario will describe the potential ridership and revenue impacts resulting from the modeled fare changes.

***Product of Task 2***

Forecasts of ridership and revenue changes of as many as two proposed fare-pricing and fare-structure scenarios

**Task 3 Model the Title VI and Environmental Justice Impacts of Potential Changes in Fare Structure, Tariffs, and Policy**

In this task, CTPS will use the models developed in Task 2 to analyze the potential effects of changes in fare structure, tariffs, and policy on different socioeconomic groups in accordance with the requirements of Federal Transit Administration (FTA) Circular 4702.1B *Title VI Requirements and Guidelines for FTA Recipients*. This work will be closely related to ongoing Title VI work at CTPS.

CTPS will prepare fare equity analysis summary results for each of the proposed fare change scenarios using the results from FERRET and any alternative methods required to complete the analysis. The analysis will include an evaluation of the effects from the proposed changes on minority and low-income populations.

***Products of Task 3***

Fare equity analysis summary results

**Task 4 Produce Draft Memorandum on Fare Change and Fare Equity Analyses**

For the two scenarios modeled in tasks 2 and 3, CTPS will compile the results of the fare change and fare equity analyses performed in the previous tasks into a draft memorandum.

***Product of Task 4***

A draft memorandum on the fare change analysis and fare equity analysis for two scenarios

**Task 5 Perform Additional Analysis as Requested by the MBTA**

The MBTA may ask CTPS to analyze additional ideas presented during the public process. CTPS will analyze the projected ridership, revenue, and fare-equity impacts of changes that fit within the existing analysis framework and provide a new draft memorandum if needed.

***Product of Task 5***

Summary results of forecasted ridership, revenue, and fare-equity impacts

**Task 6 Prepare Final Memorandum on Fare Change and Fare Equity Analyses**

After the MBTA selects a scenario for implementation, staff will process any changes made to the draft scenarios. Staff will then update and finalize the draft memoranda for the chosen scenario. Staff will incorporate the edits and revisions gathered from the review process into a final memorandum.

***Product of Task 6***

Final memorandum on the fare change analysis and fare equity analysis for the chosen scenario

The Boston Region Metropolitan Planning Organization (MPO) operates its programs, services, and activities in compliance with federal nondiscrimination laws including Title VI of the Civil Rights Act of 1964 (Title VI), the Civil Rights Restoration Act of 1987, and related statutes and regulations. Title VI prohibits discrimination in federally assisted programs and requires that no person in the United States of America shall, on the grounds of race, color, or national origin (including limited English proficiency), be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination under any program or activity that receives federal assistance. Related federal nondiscrimination laws administered by the Federal Highway Administration, Federal Transit Administration, or both, prohibit discrimination on the basis of age, sex, and disability. The Boston Region MPO considers these protected populations in its Title VI Programs, consistent with federal interpretation and administration. In addition, the Boston Region MPO provides meaningful access to its programs, services, and activities to individuals with limited English proficiency, in compliance with U.S. Department of Transportation policy and guidance on federal Executive Order 13166.

The Boston Region MPO also complies with the Massachusetts Public Accommodation Law, M.G.L. c 272 sections 92a, 98, 98a, which prohibits making any distinction, discrimination, or restriction in admission to, or treatment in a place of public accommodation based on race, color, religious creed, national origin, sex, sexual orientation, disability, or ancestry. Likewise, the Boston Region MPO complies with the Governor's Executive Order 526, section 4, which requires that all programs, activities, and services provided, performed, licensed, chartered, funded, regulated, or contracted for by the state shall be conducted without unlawful discrimination based on race, color, age, gender, ethnicity, sexual orientation, gender identity or expression, religion, creed, ancestry, national origin, disability, veteran's status (including Vietnam-era veterans), or background.

A complaint form and additional information can be obtained by contacting the MPO or at [http://www.bostonmpo.org/mpo\\_non\\_discrimination](http://www.bostonmpo.org/mpo_non_discrimination). To request this information in a different language or in an accessible format, please contact

Title VI Specialist  
Boston Region MPO  
10 Park Plaza, Suite 2150  
Boston, MA 02116  
[civilrights@ctps.org](mailto:civilrights@ctps.org)

**By Telephone:**

857.702.3702 (voice)

For people with hearing or speaking difficulties, connect through the state MassRelay service:

- **Relay Using TTY or Hearing Carry-over:** 800.439.2370
- **Relay Using Voice Carry-over:** 866.887.6619
- **Relay Using Text to Speech:** 866.645.9870

For more information, including numbers for Spanish speakers, visit <https://www.mass.gov/massrelay>

**Exhibit 1**  
**ESTIMATED SCHEDULE**  
**MBTA Review of Fare Structure, Tariffs, and Policy for State Fiscal Year 2023**

Task	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
1. Participate in Meetings and Provide Technical Support												
2. Model the Ridership and Revenue Impacts of Potential Changes in Fare Structure, Tariffs, and Policy												
3. Model the Title VI and Environmental Justice Impacts of Potential Changes in Fare Structure, Tariffs, and Policy												
4. Produce Draft Memorandum on Fare Change and Fare Equity Analyses												
5. Perform Additional Analysis as Requested by the MBTA												
6. Prepare Final Memorandum on Fare Change and Fare Equity Analyses												

Products/Milestones

- A: Draft memorandum
- B: Final memorandum

**Exhibit 2****ESTIMATED COST****MBTA Review of Fare Structure, Tariffs, and Policy for State Fiscal Year 2023**

<b>Direct Salary and Overhead</b>								<b>\$52,556</b>
Task	Person-Weeks				Direct Salary	Overhead (106%)	Total Cost	
	M-1	P-5	P-2	Total				
1. Participate in Meetings and Provide Technical Support	0.1	0.0	0.5	0.6	\$766	\$812	\$1,579	
2. Model the Ridership and Revenue Impacts of Potential Changes in Fare Structure, Tariffs, and Policy	0.1	1.1	5.5	6.7	\$7,698	\$8,160	\$15,858	
3. Model the Title VI and Environmental Justice Impacts of Potential Changes in Fare Structure, Tariffs, and Policy	0.1	0.5	4.4	5.1	\$5,717	\$6,060	\$11,778	
4. Produce Draft Memorandum on Fare Change and Fare Equity Analyses	0.9	0.0	3.8	4.7	\$5,853	\$6,204	\$12,057	
5. Perform Additional Analysis as Requested by the MBTA	0.1	0.1	0.8	1.0	\$1,203	\$1,275	\$2,478	
6. Prepare Final Memorandum on Fare Change and Fare Equity Analyses	0.8	0.0	2.7	3.5	\$4,275	\$4,531	\$8,806	
Total	2.2	1.8	17.7	21.6	\$25,512	\$27,043	\$52,556	
<b>Other Direct Costs</b>								<b>\$0</b>
<b>TOTAL COST</b>								<b>\$52,556</b>

**Funding**

MBTA Contract (to be determined)