WORK PROGRAM

ROADWAY PRICING: BALANCING THE NEED FOR A TRANSITION TO SUSTAINABLE MOBILITY WITH EQUITY CONSIDERATIONS

MARCH 6, 2025

Proposed Motion

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

Project Identification

Unified Planning Work Program (UPWP) Classification

Boston Region MPO Planning Studies and Technical Analyses

Project Number 13820

Client

Boston Region MPO

Project Supervisors

Principal: Rose McCarron
Manager: Joe Delorto

Funding Source

MPO Planning Contract and MPO §5303 Contract 126734

Schedule and Budget

Schedule: 6 months after work commences

Budget: $50,000

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

Relationship to MPO Goals

The Boston Region MPO elected to fund this study with its federally allocated metropolitan planning funds during federal fiscal year (FFY) 2025. The work completed through this study will address the following goal area(s) established in the MPO's Long-Range Transportation Plan: equity, mobility and reliability, and clean air and healthy communities.

Background

This FFY 2025 discrete study builds on a discrete study from FFY 2023, *Learning from Roadway-Pricing Experiences*, that explored best practices in roadway pricing and identified challenges and opportunities from the review of a few selected case studies. In this study, staff will begin exploring a conceptual roadway-pricing scenario applied to the Greater Boston context for its potential congestion, revenue, and equity impacts.

The Boston region's urban highway network is among the most congested in the nation and many roads operate well above their designed capacity during peak travel hours. Currently, the region has few tolled highways and tolling is not intended as a congestion management tool. The Massachusetts Turnpike (I-90) is tolled for its entire length, and three major water crossings (the Sumner/Callahan Tunnels, the Ted Williams Tunnel, and the Tobin Bridge) are each tolled at less than $1.50 one-way for many drivers. A robust system of roadway pricing can help mitigate congestion, encourage mode shift to more sustainable travel modes, and generate revenue to fund transportation improvements.

This study will explore one conceptual roadway-pricing scenario to help understand the potential magnitude of impacts that roadway pricing may have on congestion, revenue, and equity in the Boston region. Referencing existing roadway-pricing mechanisms and the available research literature, the study team will estimate the potential range of congestion reduction and revenue generation from the scenario applied to the Boston region. This study will also examine the equity impacts of roadway pricing, both in terms of increased travel costs and the potential impacts of reduced congestion on people living near urban highways, a disproportionate number of whom are minority and/or have low incomes. The study team will use available data and tools such as Replica, US Census data, and the Massachusetts Motor Vehicle Census to help quantify the demographic characteristics of drivers and residents who would be impacted by a conceptual system of roadway pricing.

Objectives

This study will evaluate the potential magnitude of the impacts of roadway pricing on congestion, revenue, and equity populations:

1. Congestion and Revenue: This study aims to quantify the level of congestion reduction that might result from a roadway-pricing program in the Boston metropolitan area and the range of revenue that could be generated by such a program.
2. Equity Populations: This study will examine the equity impacts of a roadway-pricing scenario, especially the sociodemographic characteristics of those impacted both by roadway pricing and reduced congestion.

Work Description

Task 1 Research and Literature Review

Staff will conduct a literature review, case studies, and/or interviews to understand the congestion, revenue, and equity impacts of existing roadway-pricing programs, such as dynamic highway pricing and congestion zones in cities such as New York and London. This research will include a review of previous MPO and Transportation Funding Task Force work on roadway pricing. Through this research, staff will identify considerations for developing a pricing scenario in the Massachusetts context and will review analyses and techniques used to understand the potential impact of congestion-pricing scenarios.

Products of Task 1

Summary of research and literature review findings

Task 2 Explore Data and Identify Potential Scenarios

Staff will explore roadway-pricing scenarios to investigate, based on the review of roadway-pricing strategies from Task 1. Staff will review each strategy's applicability to the Boston region and the available data to support each analysis to determine which strategies to evaluate further. These scenarios and related tasks may include the following:

- Cordon-based congestion pricing
    - Identifying the cordon zone
    - Setting prices, potentially varying by time of day, day of week, residence status, vehicle type, income, etc.
- Corridor-level congestion pricing
    - Identifying specific roadways to be priced
    - Setting prices, potentially varying by time of day, day of week, residence status, vehicle type, income, etc.
- Parking pricing
    - Identifying areas to increase parking charges
    - Setting prices, potentially varying by time of day, day of week, residence status, vehicle type, income, etc.

Staff will analyze available data on existing travel patterns and behavior, such as outputs from Replica and the MPO's travel demand model and traffic counts from the Massachusetts Department of Transportation, to understand the magnitude of potential impact of each scenario. Based on this estimation and the availability of

relevant data, staff will select a scenario for further analysis. Staff will present the candidate scenarios to the MPO's Congestion Management Process Committee for members' assistance in deciding on a preferred scenario.

Products of Task 2

Proposed scenario to analyze

Summary of data sources

Task 3 Develop Methodology and Analyze One Roadway-Pricing Scenario

Staff will draw from the body of research reviewed in Task 1 and the data exploration exercise in Task 2 to develop a methodology to evaluate the selected scenario. The goal of the analysis will be to provide a high-level understanding of the potential impact of the pricing scenario. The analysis will evaluate metrics such as potential congestion reduction, emissions reduction, transportation mode shift, job access, and potential revenue generation. Staff will review how these changes impact different populations across the region.

Products of Task 3

Summary of methodology

Results of analysis

Task 4 Documentation

Staff will produce a white paper describing the findings of Tasks 1–3 and a two-page brief with key findings.

Products of Task 4

Two-page brief that distills the key findings of the study

White paper

Exhibit 1
ESTIMATED SCHEDULE
Roadway Pricing: Balancing the Need for a Transition to Sustainable Mobility with Equity Considerations

Task	Month 1	2	3	4	5	6
1. Research and Literature Review						
2. Explore Data and Identify Potential Scenarios						
3. Develop Methodology and Analyze One Roadway Pricing Scenario						
4. Documentation						A

Products/Milestones

A: White paper and two-page brief

Exhibit 2
ESTIMATED COST
Roadway Pricing: Balancing the Need for a Transition to Sustainable Mobility with Equity Considerations

Direct Salary and Overhead	**$50,000**

Task	Person-Weeks by Pay Grade G-9	G-8	G-6	Total	Direct Salary	Overhead (120.3%)	Total Cost
1. Research and Literature Review	0.0	0.2	1.5	1.7	$2,795	$3,363	$6,158
2. Explore Data and Identify Potential Scenarios	0.0	0.4	3.7	4.1	$6,688	$8,046	$14,735
3. Develop Methodology and Analyze One Roadway Pricing Scenario	0.0	0.5	4.8	5.3	$8,740	$10,515	$19,255
4. Documentation	0.2	0.4	2.0	2.6	$4,472	$5,380	$9,852
Total	0.2	1.5	12.0	13.7	$22,696	$27,303	$50,000

Other Direct Costs	**$0**

TOTAL COST	**$50,000**

Funding

MPO Planning Contract #126734
MPO §5303 Planning Contract #126734

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