



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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

MEMORANDUM

DATE July 7, 2016
TO Boston Region Metropolitan Planning Organization
FROM Karl H. Quackenbush
CTPS Executive Director
RE Work Program for: Systemwide Title VI/Environmental Justice
Assessment of Transportation Improvement Program (TIP) Projects

Action Required

Review and approval

Proposed Motion

That the Boston Region Metropolitan Planning Organization (MPO) vote to approve the work program for the Systemwide Title VI/Environmental Justice Assessment of Transportation Improvement Program (TIP) Projects, presented in this memorandum

Project Identification

Unified Planning Work Program Classification

Technical Support/Operations Analysis Projects

CTPS Project Number

11356

Client

Boston Region Metropolitan Planning Organization

CTPS Project Supervisors

Principal: Lourenço Dantas

Manager: Harun Rashid

Funding

MPO Planning Contract #89787

MPO §5303 Contract #91027

Impact on MPO Work

This is MPO work and will be carried out in conformance with the priorities established by the MPO.

Background

The MPO's Transportation Equity (TE) program was created to ensure that populations protected under various federal and state civil rights statutes, executive orders, and regulations share equitably in the benefits and burdens of past, present, and planned transportation projects, programs, and services. One of the main objectives of the TE program is to establish a systematic method of considering equity in all of the MPO's transportation-planning-and-programming work. Therefore, as part of the TE program, MPO staff perform equity analyses of the Long-Range Transportation Plan (LRTP) and TIP.

For the LRTP, the MPO uses its regional travel demand model to perform an equity analysis of the whole MPO transportation system (roadways and transit). This analytical method, which the MPO has used since 2006, looks at a number of equity indicators, such as impacts on mobility, congestion, and air quality; and access to employment, health care, and educational facilities.

MPO staff also have developed a method for analyzing the equity of the distribution of all of the projects (both roadway and transit) that are programmed in the TIP. However, for the TIP equity analysis, MPO staff evaluate transit projects separately from roadway projects; the methods currently used for analyzing transit projects are more structured than the methods used for roadway projects. The purpose of this work program is to develop more effective methods for analyzing the equity of roadway projects programmed in the TIP.

For the purpose of analyzing equity in the TIP, the MPO currently looks at populations protected under Title VI of the Civil Rights Act of 1964, the Environmental Justice (EJ) Presidential Executive Order 12898 of February 11, 1994, and the Presidential Executive Order 13166 of August 11, 2000. Title VI prohibits discrimination based on race, color, and national origin. Executive Order 13166 calls for improved access to federally assisted programs and activities for persons who, because of national origin, have limited English proficiency (LEP). The EJ Executive Order expands on Title VI by requiring each federal agency to achieve environmental justice by identifying and addressing any disproportionately high adverse human-health or environmental effects—including interrelated social and economic effects—of its programs, policies, and activities for minority or low-income populations. The federal agencies pass their Title VI and EJ requirements through to the recipients (for example, state departments of transportation (DOTs)) and subrecipients (for example, MPOs) of federal financial assistance, as they are the entities that implement federal programs.

As a recipient of funding from Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA), the Boston Region MPO must adhere to federal Title VI and EJ requirements. Although some FTA and FHWA requirements are the same, others differ. Both agencies require MPOs to identify, for both the LRTP and TIP, potential social and environmental impacts of transportation at the system level (disparate impacts or disproportionate burdens) that may affect minority or low-income populations. Neither federal agency identifies a method for equity analyses for planning purposes. MPOs have some leeway to develop appropriate methods for determining whether their plans and programs are equitable.

To determine whether the benefits and burdens of projects, programs, and services are equitably distributed, the study will use thresholds set in the MPO's proposed Disparate Impact Policy. If necessary, additional thresholds will be established for the metrics developed in this project. The proposed Disparate Impact Policy will subsequently undergo public review and comment before being adopted by the MPO.

Objectives

The purpose of this work program is to develop better methods for conducting equity analyses for the roadway projects programmed in the TIP. The objectives are to:

1. Develop a method for examining systemwide benefits and burdens associated with users of the roadway system, focusing on the locations for which TIP projects have been selected
2. Develop a procedure for examining the impacts (benefits and burdens) on EJ populations living in areas adjacent to roadway projects
3. Implement the method and test the procedure on a set of roadway projects programmed in TIP to assess the systemwide benefits and burdens associated with those projects on EJ and non-EJ populations

The outcome of this study will not only inform the Boston Region MPO's own work, but also may provide methods that could be utilized by other MPOs to enhance their equity analyses.

Work Description

Task 1 Analyze Massachusetts Household Survey (MTS-2011) Data

Staff will mine the MTS-2011 dataset to better understand the travel characteristics and trip-making activities of low-income and minority populations.

This exploration is of potential use in developing the analysis methods described in Tasks 2 and 3, and may be used to establish a non-model based aspect of EJ analyses.

Product of Task 1

Dataset (tables and metrics) mined from MTS-2011

Task 2 Develop a Method for Examining EJ Impacts Associated with Users of the Roadway System

The MPO's regional travel demand model set contains a wealth of information about the socioeconomic and trip-making characteristics of people who use the roadway system in the modeled area. Staff will use this model to analyze the metrics that are associated with the roadway usage of four market segments: low-income, non-low-income, minority, and nonminority. This will allow staff to compare roadway usage of low-income versus non-low-income and minority versus nonminority populations.

As a part of the MPO's recently adopted LRTP, staff updated the MPO's travel demand model by incorporating 2012 base-year socioeconomic and transportation network conditions. Staff will use this model set to determine current roadway usage by roadway type (for example, major arterials, minor arterials, and express highways), and by time of day for low-income versus non-low-income and minority versus nonminority populations. Some metrics that may be used to help understand the potential benefits and burdens associated with users of the transportation system include: travel time, trip length, travel cost, access to services, air quality, and safety.

The outputs of this analysis will enable staff to assess the potential benefits and burdens associated with a set of roadway projects from the universe of projects developed for the current LRTP, *Charting Progress to 2040*, which are representative of roadway projects in the federal fiscal years (FFYs) 2016–20 TIP.

Products of Task 2

A method and baseline for assessing the roadway system's transportation equity by market segment for users of the roadway

Task 3 Develop a Method for Examining EJ Impacts Associated with Populations in Areas Adjacent to Roadway Projects

MPO staff will define "areas adjacent to the roadway system" for this analysis and will quantify the adjacent-area population for the market segments. In this step, staff will identify the metrics that could be associated with a benefit or a burden for people living adjacent to roadway projects. The metrics may include air quality and congestion levels. This method will allow staff to estimate a baseline for each of the established metrics that will be used for comparing changes and differences.

Products of Task 3

A method and baseline for assessing transportation equity by market segment for populations in areas adjacent to roadway projects

Task 4 Apply the Equity Analysis Methodology to a Set of TIP Roadway Projects

MPO staff will refine the methodology developed in Tasks 2 and 3 and apply it to a set of roadway projects programmed in the FFYs 2016–20 TIP. For areas adjacent to projects, staff will use the definition of “adjacent” that was developed in Task 3.

Staff will develop a method for interpreting the results of the analyses of the selected metrics by market segment and will apply the MPO’s proposed Disparate Impact Policy to determine whether disparate impacts or disproportionate burdens are associated with any of the metrics.

Products of Task 4

A refined method and an equity analysis of a set of roadway projects that are programmed in the FFYs 2016–20 TIP

Task 5 Document TIP Equity Analysis Methodology

Staff will produce a memorandum documenting a methodology for assessing the equity of an alternative set of roadway projects (from the LRTP; not programmed in the TIP). The memorandum will include the results of an application of that methodology to a set of roadway projects that are programmed in TIP. Staff will list the pros and cons of this analytical approach and indicate whether further research or refinements would be needed.

Products of Task 5

A technical memorandum documenting the methodology and results of the TIP equity analysis

Estimated Schedule

It is estimated that this project will be completed seven months after work commences. The proposed schedule, by task, is shown in Exhibit 1.

Estimated Cost

The total cost of this project is estimated to be \$75,000. This includes the cost of 24.1 person-weeks of staff time and overhead at the rate of 102.7 percent. A detailed breakdown of estimated costs is presented in Exhibit 2.

Exhibit 1

ESTIMATED SCHEDULE

Systemwide Title VI/Environmental Justice Assessment of Transportation Improvement Program (TIP) Projects

Task	Month						
	1	2	3	4	5	6	7
1. Analyze Massachusetts Household Survey (MTS-2011) Data	█						
2. Develop a Method for Examining EJ Impacts Associated with Users of the Roadway System		█	█	█			
3. Develop a Method for Examining EJ Impacts Associated with Populations in Areas Adjacent to Roadway Projects			█	█	█		
4. Apply the Equity Analysis Methodology to a Set of TIP Roadway Projects				█	█	█	
5. Documentation TIP Equity Analysis Methodology					█	█	█

Exhibit 2

ESTIMATED COST

Systemwide Title VI/Environmental Justice Assessment of Transportation Improvement Program (TIP) Projects

Direct Salary and Overhead	\$75,000
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Task	Person-Weeks					Direct Salary	Overhead (102.70%)	Total Cost
	M-1	P-5	P-4	P-3	Total			
1. Analyze Massachusetts Household Survey (MTS-2011) Data	0.2	1.0	1.0	0.0	2.2	\$3,675	\$3,775	\$7,450
2. Develop a Method for Examining EJ Impacts Associated with Users of the Roadway System	2.0	0.3	5.5	0.0	7.8	\$11,867	\$12,188	\$24,055
3. Develop a Method for Examining EJ Impacts Associated with Populations in Areas Adjacent to Roadway Projects	0.7	1.5	3.6	0.0	5.8	\$9,102	\$9,348	\$18,450
4. Apply the Equity Analysis Methodology to a Set of TIP Roadway Projects	0.8	0.0	2.0	1.0	3.8	\$5,407	\$5,553	\$10,960
5. Documentation TIP Equity Analysis Methodology	2.3	0.0	1.0	1.2	4.5	\$6,949	\$7,136	\$14,085
Total	6.0	2.8	13.1	2.2	24.1	\$37,001	\$38,000	\$75,000

Other Direct Costs	\$0
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TOTAL COST	\$75,000
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Funding

- MPO Planning Contract #89787
- MPO §5303 Contract #91027