



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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

MEMORANDUM

DATE October 1, 2015
TO Boston Region Metropolitan Planning Organization
FROM Karl H. Quackenbush
CTPS Executive Director
RE Work Program for: Temporal Changes in Demographics and Title VI Implications

Action Required

Review and approval

Proposed Motion

That the Boston Region Metropolitan Planning Organization, upon the recommendation of the Massachusetts Department of Transportation, vote to approve the work program for Temporal Changes in Demographics and Title VI Implications, presented in this memorandum

Project Identification

Unified Planning Work Program Classification

Technical Support/Operations Analysis: MassDOT Transit Planning Assistance

CTPS Project Number

11403

Client

Massachusetts Department of Transportation
Project Supervisor: Scott Hamwey

CTPS Project Supervisors

Principal: Annette Demchur
Manager: Paul Reim

Funding

MassDOT §5303 Contract #88429

Impact on MPO Work

The MPO staff has sufficient resources to complete this work in a capable and timely manner. By undertaking this work, the MPO staff will neither delay the completion of nor reduce the quality of any work in the UPWP.

Background

Like many transportation-planning activities, the quality of the results of equity analyses of our transportation system are dependent on the demographic data that are used. This is especially true for Title VI and environmental justice (EJ) equity analyses, whose results are used to assess potential disparate impacts of past decisions and to inform planning activities and decisions that may result in future disparate impacts. However, these analyses must rely on whatever demographic data are available, and the best demographic data available are often US Census data, which may represent demographic conditions that occurred several years before an equity analysis. Additionally for most capital projects, equity analyses are completed in the planning phase, years before a project is implemented.

As a result, there may be a discrepancy between the projected impacts and the actual level and distribution of benefits and burdens that are realized when a transportation project or major transit service change has been implemented.

It is possible that the use of data based on good demographic projections could improve the correlation between the estimated benefits and burdens of an equity analysis and the actual benefits and burdens resulting from a change in the transportation system. Although transportation agencies are required to conduct Title VI and EJ analyses for New Start, Small Start, and other new fixed-guideway capital projects and for all fare and major service changes, for the purpose of this study, CTPS will analyze the impacts of demographic changes on the results of equity analyses of transportation projects and major transit service changes, but not the impacts of fare changes.

Objectives

- Determine how the geographic movement over time of minority and low-income populations affects the analysis of the benefits and burdens of transportation projects and/or major transit service changes.
- Determine whether developing procedures for projecting demographic data for use in equity analyses would improve the accuracy of assessments of future benefits and burdens of a transportation project or of a major transit service change.

Work Description

Task 1 Identify Available Datasets and Create a Geographic Unit of Analysis

CTPS will review available datasets containing counts of minority and low-income populations, immigration and population projections, and transportation access and travel times. CTPS will also review the datasets used in previous equity analyses, including the decennial US Census and the American Community Survey's one-, three-, and five-year estimates.

We will adjust the data to account for changes in US Census boundaries and in the value of a dollar over the years analyzed, using constant dollar values (adjusted for inflation) and a standardized geographic unit.

CTPS will then examine and identify additional datasets, which may include population forecasts used by the Commonwealth of Massachusetts and/or spatial datasets used by other sources. CTPS will identify the spatial datasets that include public transit and highway network improvements and their opening and implementation dates.

Products of Task 1

Data tables and geographic datasets produced from the identified datasets

Task 2 Identify Demographic Trends

The data tables developed in Task 1 will be used to identify trends in the geographic movement of minority and low-income populations in the combined MBTA service area and the area modeled by the Boston Region MPO.

Staff will examine the following demographic changes as they relate to equity analyses:

- Regionwide proportion of minority and low-income populations
- Proportions of minority and/or low-income populations within subareas of the region
- Locations of new immigrant communities and their national origins
- Designation of minority or low-income areas using the minority and low-income thresholds applicable in each dataset
- Spatial relationship of minority populations and/or low-income populations to the MBTA's network, and proposed network extensions

CTPS will use the findings of this task to assess the potential for developing procedures for projecting demographic data for use in equity analyses. CTPS will produce a white paper (including maps and graphics) that identifies demographic

trends and changes over time in the proportions and locations of minority and low-income populations and their spatial relationship to the MBTA's network and the highway system.

Product of Task 2

White paper

Task 3 Compare the Results of Equity Analyses of a Transportation Project or Major Transit Service Change Using Demographic Data for Different Points in Time

CTPS will select several transportation projects and/or major service changes in the public transit system and conduct equity analyses using demographic data collected at different times. The analyses using different data for each project will then be compared in order to understand the effects of the underlying demographic changes on equity analyses.

Subtask 3.1 Select Projects and Major Service Changes for the Analyses

CTPS will examine roadway projects, public transit projects, and major transit service changes. The following criteria will be used to select projects for inclusion in this study:

- Availability of previously completed Title VI and/or EJ analyses
- Expectation of a significant impact on transit service or roadway network performance

The previous public transit projects that may be included in this study are:

- MBTA Red Line extension to Alewife
- MBTA Orange Line rerouting to the Southwest Corridor
- MBTA Silver Line implementation
- MBTA Fairmount Line improvements
- MBTA bus Route 28X enhancements

CTPS will evaluate completed roadway projects and major transit service changes to identify the projects and service changes that would be most appropriate for this study.

Subtask 3.2 Perform Project-Level Analyses Using Demographic Data for Several Different Times

CTPS will conduct Title VI and/or EJ analyses for the selected projects using the following datasets:

- Demographic data available during the planning stage of a project
- Demographic data for the time of project implementation
- Demographic data for points in time after project implementation, to the extent possible

Because guidance from the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) on the methodologies to be used for conducting the required Title VI and EJ analyses has changed, some projects with previously completed Title VI and EJ analyses may have used a now-outdated methodology to analyze the impacts on minority and low-income populations. Previously recommended methodologies analyzed potential impacts on minority and low-income populations combined, rather than analyzing the potential impacts on minority populations and low-income populations separately, which is now required.

For cases in which the previous methodologies were used, CTPS will perform a post hoc Title VI and/or EJ analysis consistent with the currently recommended methodology using the datasets available at the time of project planning. More-recently completed Title VI and EJ analyses were conducted according to the current guidance, with minority and low-income populations considered separately, and will not require this type of analysis.

Subtask 3.3 Compare the Analyses

CTPS will compare the results of the Title VI and/or EJ analyses performed in Subtask 3.2. For each project or service change, CTPS will examine the changes in the proportions and locations of minority and low-income populations; the project's or major service change's impacts on those populations; and the distribution of benefits and burdens.

Subtask 3.4 Produce a White Paper

CTPS will produce a white paper (including maps and graphics) that discusses the selected transportation projects and major transit service changes and compare the results of the Title VI and/or EJ analyses conducted using data that had been collected at different times.

Product of Task 3

White paper

Estimated Schedule

It is estimated that this project will be completed eight 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 \$65,000. This includes the cost of 21.8 person-weeks of staff time and overhead at the rate of 98.88 percent. A detailed breakdown of estimated costs is presented in Exhibit 2.

KQ/AR/ar

Exhibit 1

ESTIMATED SCHEDULE

Temporal Changes in Demographics and Title VI Implications

Task	Month								
	1	2	3	4	5	6	7	8	
1. Identify Available Datasets and Create a Geographic Unit of Analysis	■								
2. Identify Demographic Trends		■ A							
3. Compare the Results of Equity Analyses of a Transportation Project or Major Transit Service Change Using Demographic Data						■ B			

Products/Milestones

A: White paper

B: White paper

Exhibit 2

ESTIMATED COST

Temporal Changes in Demographics and Title VI Implications

Direct Salary and Overhead	\$65,000
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Task	Person-Weeks				Direct Salary	Overhead (98.88%)	Total Cost
	M-1	P-5	P-3	Total			
1. Identify Available Datasets and Create a Geographic Unit of Analysis	1.4	2.2	3.1	6.7	\$9,880	\$9,769	\$19,649
2. Identify Demographic Trends	1.9	2.7	3.2	7.8	\$11,788	\$11,656	\$23,445
3. Compare the Results of Equity Analyses of a Transportation Project or Major Transit Service Change Using Demographic Data	1.9	2.4	3.0	7.3	\$11,015	\$10,892	\$21,907
Total	5.2	7.3	9.3	21.8	\$32,683	\$32,317	\$65,000

Other Direct Costs	\$0
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TOTAL COST	\$65,000
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Funding

MassDOT §5303 Contract #88429