



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Richard A. Davey, MassDOT Secretary and CEO and MPO Chairman
Karl H. Quackenbush, Executive Director, MPO Staff

DRAFT MEMORANDUM

DATE December 5, 2013
TO Boston Region Metropolitan Planning Organization
FROM Karl H. Quackenbush
CTPS Executive Director
RE Work Program for: Transportation Investments for Economic
Development

Action Required

Review and approval

Proposed Motion

That the Boston Region Metropolitan Planning Organization vote to approve the work program for Transportation Investments for Economic Development presented in this memorandum

Project Identification

Unified Planning Work Program Classification

Technical Support/Operations Analysis Projects

CTPS Project Number

11149

Client

Boston Region Metropolitan Planning Organization

CTPS Project Supervisors

Principal: Ying Bao

Manager: Hiral Gandhi

Funding

MPO Planning Contract #78890

MPO §5303 Contract #78922

Impact on MPO Work

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

Background

An economic impact analysis (EIA) and benefit-cost analysis (BCA) examine the effect of a transportation policy, program, project, activity, or event on the economy in a given area. The area can range from a neighborhood to the entire state. BCA differs from EIA in that it also takes into account noneconomic benefits that have a value to people (such as the value of the effects on personal travel time savings, safety, security, and improvements in the quality of life). Because of these impacts, the use of economic analysis is growing in the transportation field. There are many ways to conduct these analyses, including using software such as TREDIS. The Central Transportation Planning Staff (CTPS), which is the staff to the Boston Region Metropolitan Planning Organization, recently purchased a subscription to TREDIS, an economic impact and cost-benefit analysis tool that can be used to inform decision makers at key steps of the planning process. A growing number of transportation agencies are showing that economic analysis is useful in the decision-making process. Most recently, the Chicago Metropolitan Agency for Planning used TREDIS to conduct its economic analysis for the development of its GO TO 2040 plan. Economic impact tools helped to identify how the planned Georgia Multimodal Passenger Terminal in Atlanta could affect the city, region, and state. In the Boston metropolitan area, labor market access was a key factor in deciding whether to proceed with the South Coast Rail project. The TREDIS analysis showed that rail would improve linkages with the Boston jobs market; facilitate the mobility of professional, skilled, and unskilled workers; and enhance economic development.¹

Different forms of analysis are typically required at each stage in the transportation-planning and decision-making process:

- Public policy discussion, through certification activities
- Vision and strategy planning, through the MPO's Long-Range Transportation Plan
- Project prioritization and selection, through the MPO's Transportation Improvement Plan
- Project refinement, through an alternatives analysis

¹ Julie Lorenz and Glen Weisbrod, "Getting Up to Speed with Transportation Economic Impact Tools," American Planning Association, October 2013.

Economic impact analysis can be cost-effective and can provide valuable metrics when applied in the applicable decision-making stage.

When MPO staff use the Boston Region MPO's regional travel demand model set to study a transportation project, the model set produces many outputs, such as the travel times by mode, parking costs, transit fares, highway tolls, and emissions, that can be used as inputs into the TREDIS program. TREDIS then provides measures that can help decision makers weigh the benefits and burdens of a project from multiple perspectives. Some examples of such measures and outputs are:

- Job growth
- Personal income
- Business output and GDP (growth domestic product) growth
- Social benefits (such as an increase in disposable income)
- Fiscal impacts

These measures can vary by mode, study area, and year.

For this work program, staff will assess how TREDIS can be best utilized in project alternatives analyses in order to be able to describe potential economic development benefits in quantitative terms based on changes in the transportation system and in land use.

Objectives

MPO staff will determine, using TREDIS software, what types of transportation investments might yield the greatest economic development benefits. The outputs of this study will inform the MPO's efforts to prioritize transportation investments and will also support updates to the MPO's Long-Range Transportation Plan (LRTP). The analyses will focus on major infrastructure projects, with an emphasis on the data needs of TREDIS software. In order to understand the software's capabilities, staff will select several projects from the most recent LRTP. TREDIS will also allow staff to develop an understanding of the strengths and weaknesses of TREDIS software itself through this study.

Work Description

The work required to accomplish the study objectives will be carried out in three tasks, as described below:

Task 1 Conduct Research and a Literature Review

Staff will research and examine the following topics related to an economic impact analysis:

- The range of inputs and outputs involved in using TREDIS software in different geographic scales and modes. The findings from this review will

be used to determine which inputs and outputs should be used in future analyses.

- Various measurements of impacts coming out of the economic model. The findings from this review will be used to help determine which measurements to apply to a specific project.
- Different modules of TREDIS software. The findings of this review will help staff to identify which level of detail should be used to analyze an individual project.

As part of the research and literature review, staff will examine previous presentations on economic impacts analyses and will participate in webinars and view webcasts to gain a deeper knowledge of TREDIS and of the economic impacts of proposed projects.

Products of Task 1

- Summaries of the findings of the research and literature review

Task 2 Evaluate Projects and Conduct Sensitivity Analyses

MPO staff will perform a sensitivity analysis using the TREDIS software based on the findings of Task 1.

Subtask 2.1 Geographic Extent

MPO staff will explore the software's capability to analyze a given project at a county level compared to a subcounty level, taking into account the geographic extent of the project.

Subtask 2.2 Modes

TREDIS can be used to examine various modes—passenger and freight transport via aviation, marine and rail modes, and truck, car, bus, bicycle, and pedestrian travel. Staff will determine what outputs from the regional travel demand model set would be the most useful TREDIS inputs for each transportation mode.

Subtask 2.3 Inputs

Staff will determine which key inputs to use with TREDIS. These data can be derived from the regional model set or other CTPS sources, such as data from the Congestion Management Process. Data related to freight operations could potentially be gleaned from the data recently made available by the Federal Highway Administration. Bicycle and pedestrian data could be derived from current CTPS databases, such as the household survey

database.² Staff will also determine which data play a significant role in the analysis.

Subtask 2.4 Outputs

Based on the literature review and research and the capabilities of TREDIS software, staff will determine which outputs are appropriate for Boston Region MPO planning work. Staff will compile a list of potential TREDIS outputs that are significant to MPO planning projects; these may vary by mode.

Products of Task 2

- Summaries of the sensitivity analysis for each of the subtasks

Task 3 Document Findings and Recommendations

The data gathered in Task 1 and analyzed in Task 2 will be used to produce a technical memorandum documenting the findings.

Products of Task 3

- Technical memorandum documenting the findings of the research and literature review and the results of the sensitivity analysis on the TREDIS software

Estimated Schedule

It is estimated that this project will be completed nine 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 \$50,000. This includes the cost of 22.9 person-weeks of staff time and overhead at the rate of 97.42 percent. A detailed breakdown of estimated costs is presented in Exhibit 2.

KQ/HHG/hhg/sap

² The Massachusetts Travel Survey (MTS) was a survey of more than 15,000 households on residents' travel patterns, preferences, and behavior.

Exhibit 1
ESTIMATED SCHEDULE
Transportation Investments for Economic Development

Task	Month									
	1	2	3	4	5	6	7	8	9	
1. Conduct Research and a Literature Review	█									
2. Evaluate Projects and Conduct a Sensitivity Analysis				█						
3. Document Findings and Recommendations							█			A

Products/Milestones
 A: Final memo

Exhibit 2
ESTIMATED COST
Transportation Investments for Economic Development

Direct Salary and Overhead							\$50,000
Task	Person-Weeks				Direct Salary	Overhead (97.42%)	Total Cost
	M-1	P-5	P-2	Total			
1. Conduct Research and a Literature Review	0.4	0.5	3.0	3.9	\$4,228	\$4,119	\$8,348
2. Evaluate Projects and Conduct a Sensitivity Analysis	0.2	1.8	10.0	12.0	\$12,400	\$12,080	\$24,480
3. Document Findings and Recommendations	2.0	1.0	4.0	7.0	\$8,698	\$8,474	\$17,173
Total	2.6	3.3	17.0	22.9	\$25,327	\$24,673	\$50,000
Other Direct Costs							\$0
TOTAL COST							\$50,000

Funding

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