



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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

MEMORANDUM

DATE September 20, 2012
TO Boston Region Metropolitan Planning Organization
FROM Karl H. Quackenbush
CTPS Executive Director
RE Work Program for: MPO Freight Study, Phase II

Action Required

Review and approval

Proposed Motion

That the Boston Region Metropolitan Planning Organization vote to approve the work program for MPO Freight Study, Phase II, in the form of the draft dated September 20, 2012.

Project Identification

Unified Planning Work Program Classification

Technical Support/Operations Analysis Projects

CTPS Project Number

11142

Client

Boston Region MPO

CTPS Project Supervisors

Principal: Efi Pagitsas

Manager: William Kuttner

Funding

MPO 3C Planning Contract #69965

Impact on MPO Work

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

Background

The importance of reliable freight transportation is broadly acknowledged by businesses and public officials, and the substantial demands that freight movement places on public and private infrastructure are readily evident to planning practitioners. MPOs and state agencies have come to realize that transportation planning efforts are incomplete without some effort to explicitly investigate freight transportation and identify policies and potential investments that ensure competitive and efficient freight services in state and regional jurisdictions.

Recognizing the importance of freight transportation and the difficulty of undertaking comprehensive analyses of it, the MPO wishes to formalize planning for it by establishing a freight transportation planning program starting in FFY 2013. If planning tasks appropriate for the MPO are identified, it is anticipated that freight analysis within the framework of this potential program will be undertaken on an ongoing, multiyear basis. Task 1 of the present study, MPO Freight Study, Phase II, will formulate an outline for this program, including subsequent work during FFY 2013 and beyond. In doing so, this study will build upon several sources, including recently completed statewide and MPO studies (such as the MPO's Freight Study Phase I¹), a literature search and other sources and concepts, and MAP-21² requirements for freight planning.

In Task 2, this study will develop techniques for improving truck trip modeling, focusing specifically on improving available truck trip tables. In recent years, valuable truck data have been obtained to support several planning efforts. This study will utilize these detailed and reliable findings to improve the existing truck trip tables. Model improvement techniques will be developed and demonstrated, and new data may be obtained and utilized for model improvement as resources permit.

The backbone of freight transportation in Massachusetts is the truck. It is for this reason that Task 2 will focus on trucks. The State Freight Plan estimates that 86 percent of freight into and out of Massachusetts is carried by trucks, a number that increases to 99 percent for movements within Massachusetts. International and

¹ Boston Region MPO memorandum dated March 15, 2012.

² *Moving Ahead for Progress in the 21st Century*.

national markets are also accessed by ocean shipping, rail, and air freight. Upon arrival in Massachusetts, however, the majority of these cargoes finish their journey by truck, whether they are fuels and shipping containers from the seaports, domestic containers and trans-loaded commodities from inland intermodal terminals, or freight being distributed from airports.

In addition to trucks carrying freight, numerous heavy vehicles supporting the construction and waste disposal industries are omnipresent. Together, these types of heavy-vehicle traffic, generically referred to as “trucks,” are expected to grow in volume significantly in the coming decades. Long-distance trucking alone is expected to increase 56 percent in Massachusetts, from 264 million tons in 2011 to 312 million tons by 2035. Similar growth can be anticipated for the other heavy-vehicle categories—as well as the ubiquitous four-wheeled passenger vehicles, commercial vans, and pickup trucks. This expanding burden of vehicle travel will need to be accommodated by the entire regional and statewide road systems, both limited-access and surface roads.

Objectives

The objectives of this work program are:

1. To develop a framework for a freight planning program to begin work in FFY 2013 and continue for multiple years
2. To develop techniques to improve truck trip tables using data obtained from focused truck studies and reliable vehicle classification data.

Work Description

The work required to accomplish the study objectives has been grouped into two tasks:

Task 1 Develop Framework for the MPO’s Freight Planning Program

In the FFY 2013 Unified Planning Work Program (UPWP), the MPO has dedicated funding for a freight planning program. The purpose of this task is for staff to define this potential program so that it may begin in FFY 2013. The program would be executed over time, according to available funding in future UPWPs; each year some aspect of the defined program would be completed.

In the present task, staff will define the MPO’s strategic plan for freight. This effort will be informed by the findings of the Boston Region MPO Freight Study, Phase I, the 2010 Massachusetts Freight Plan, and new freight-related planning requirements contained in the recently enacted MAP-21 federal authorization. A complementary relationship between the state and MPO freight plans is the main

objective. Input from stakeholders and freight advocates participating in the MPO's Regional Transportation Advisory Council (RTAC) will be sought and incorporated as appropriate. Freight plans and studies by other MPOs with similar geographic and other characteristics will be reviewed.

Staff will follow a process and apply standard planning principles that will ensure the development of a comprehensive freight planning framework by:

- Defining goals and objectives
- Reviewing the literature for freight planning studies and programs developed by other, similar MPOs in the US
- Considering compatibility and bounds of freight planning responsibilities between freight planning at the state level and at the MPO level
- Considering the opinions, desires, needs, and preferences of stakeholders and freight advocates in the region
- Reviewing federal legislation, including MAP-21, and other mandates and guidance about freight planning for MPOs

Staff will cooperate with MassDOT staff from the planning, safety, and other divisions and with the freight advocacy community to execute this process.

Product of Task 1

Technical memorandum establishing the framework of a comprehensive freight planning program for the MPO

Task 2 Develop Techniques for Improving Truck Trip Tables

An important finding of the Boston Region MPO Freight Study, Phase I, is that there is very little reliable data about truck traffic on MPO roadways. The MPO does have the capability of using modeling techniques to estimate truck volumes on roads represented in the network of the travel demand model set, project these modeled truck volumes into the future, and predict the effects of proposed roadway modifications on truck traffic flows. However, the scarcity of reliable truck flow data reduces confidence in the truck components of the models that the staff maintains for the MPO region and beyond.

Obtaining a large quantity of reliable truck data is beyond the scope of this study. It should be possible, however, for reliable truck data that have already been obtained from other, mostly localized studies in the region to be used to incrementally improve the MPO's truck modeling in both accuracy and usefulness. This study will develop techniques for doing that. The MPO will then be able to use these techniques employing currently available data and to use them on an ongoing basis as more truck data are obtained.

Subtask 2.1 Review Currently Available Truck Modeling Capabilities

The current status and prospective enhancements of regional and statewide truck modeling capabilities will be reviewed. A truck trip table will be selected as an appropriate test bed to use in the Subtask 2.2 work.

Subtask 2.2 Use Existing and New Truck Data to Improve Trip Tables

Existing truck flow data will be converted into appropriate model parameters, and available trip table estimation programs will be used to create new truck trip tables that reflect the newly incorporated truck flow data. After key techniques are demonstrated, project staff may obtain new truck data in consultation with stakeholders and continue the trip table improvement process as resources permit.

Products of Task 2

Technical memorandum on model improvement techniques
Re-estimated truck trip tables

Estimated Schedule

It is estimated that this project will be completed five months after the notice to proceed is received. The proposed schedule, by task, is shown in Exhibit 1.

Estimated Cost

The total cost of this project is estimated to be \$30,000. This includes the cost of 9.0 person-weeks of staff time, overhead at the rate of 96.58 percent, and travel costs. A detailed breakdown of estimated costs is presented in Exhibit 2.

KQ/WK/wk

Exhibit 1
ESTIMATED SCHEDULE
MPO Freight Study, Phase II

Task	Month				
	1	2	3	4	5
1. Develop Framework for the MPO's Freight Planning Program			A		B
2. Develop Techniques for Improving Truck Trip Tables		C		D	E

Products/Milestones

- A: Draft technical memorandum
- B: Final technical memorandum
- C: Draft technical memorandum
- D: Re-estimated trip tables
- E: Final technical memorandum

Exhibit 2
ESTIMATED COST
MPO Freight Study, Phase II

Direct Salary and Overhead	\$29,744
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Task	Person-Weeks			Direct Salary	Overhead (96.58%)	Total Cost
	M-1	P-5	Total			
1. Develop Framework for the MPO's Freight Planning Program	1.1	3.3	4.4	\$7,400	\$7,147	\$14,547
2. Develop Techniques for Improving Truck Trip Tables	0.8	3.8	4.6	\$7,731	\$7,466	\$15,197
Total	1.9	7.1	9.0	\$15,131	\$14,613	\$29,744

Other Direct Costs	\$250
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Travel	\$250
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TOTAL COST	\$29,994
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Funding

MassDOT 3C PL Highway Planning contract #69965