



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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

MEMORANDUM

DATE November 1, 2012
TO Boston Region Metropolitan Planning Organization
FROM Karl H. Quackenbush
CTPS Executive Director
RE Work Program for: MBTA Silver Line to Chelsea: Alternatives Analysis,
Phase 2

Action Required

Review and approval

Proposed Motion

That the Boston Region Metropolitan Planning Organization, upon the recommendation of the Massachusetts Department of Transportation (MassDOT), vote to approve the work program for MBTA Silver Line to Chelsea: Alternatives Analysis, Phase 2, in the form of the draft dated November 1, 2012.

Project Identification

Unified Planning Work Program Classification

Planning Studies

CTPS Project Number

23324

Clients

Massachusetts Department of Transportation, Office of Transportation Planning
Project Supervisor: Scott Hamwey

CTPS Project Supervisors

Principal: Ying Bao

Manager: Bruce Kaplan

Funding

MassDOT §5303 Planning Contract #75366

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 nor reduce the quality of other work in the UPWP.

Background

In 2009, MassDOT acquired from CSX several railroad lines, including the Grand Junction Railroad, which includes railroad right-of-way in Chelsea. As part of the Urban Ring Revised DEIR/S (RDEIR/S) process, MassDOT identified a locally preferred alternative (LPA) that would create a busway in portions of the Chelsea Grand Junction right-of-way. A bus rapid transit (BRT) route connecting Chelsea to East Boston, Logan Airport, and South Boston would operate along this busway. Although MassDOT suspended further environmental review of the full Urban Ring project in 2010 due to its prohibitive cost (\$2.3 billion per the 2008 RDEIR/S), the Chelsea-to-South Boston portion of the project was identified as one of the highest-ridership and most cost-effective segments of the Urban Ring project.

The city of Chelsea is in many ways an ideal market for enhanced public transportation service. The southern portion of the city features some of the highest population and building densities found in the MBTA service area outside of downtown Boston. Despite nearly 50 percent of its land area being devoted to industrial/commercial uses, its population density is the third-highest in the state. Chelsea has the lowest median household income and per capita income in Greater Boston and the lowest rate of auto ownership. It also has the highest percentage of foreign-born residents in the commonwealth. Yet despite being less than three miles away from downtown Boston, Chelsea lacks rapid transit connections, depending instead on infrequent commuter rail service and bus routes along roadways that are frequently congested.

In 2011, the Central Transportation Planning Staff, at the request of MassDOT, conducted a study analyzing several Silver Line extensions to Chelsea. Pivoting off this work, MassDOT is conducting a study that will refine and develop variations of the alternative service plans and evaluate the potential for public transportation improvements that would enhance mobility for Chelsea residents.

Objectives

The principal objectives of this work program are to support the MassDOT study team by:

1. Estimating ridership and conducting environmental-justice analyses.
2. Assisting in the evaluation of Silver Line extension alternatives.

Work Description

Using the regional travel demand model set, CTPS will support MassDOT and the study team by producing ridership data and providing other important modeling results and analyses for use in the evaluation of proposed service alternatives. CTPS will provide cost and revenue estimates, ridership projections, capacity analyses, and environmental-justice analyses.

Task 1 Refine and Code Alternatives

CTPS will assist the study team in the refinement of the three service alternatives advanced from the 2011 study and code them, along with a No-Build scenario. Issues such as stop locations, service frequencies, run times, and route alignments will be clarified with the consultant on the study team. All concerns will be addressed as needed to ensure proper representation and coding of these alternatives in the regional travel demand model set.

Products of Task 1

Coded service alternatives in the regional travel demand model set

Task 2 Perform Base-Year Model Calibration

CTPS will use the AM peak and midday periods of the latest version of its base-year model, which is for the year 2010. Specific attention will be paid to further calibrating study area transit and roadway networks to closely replicate existing conditions. The results of running the base-year model will be summarized in sufficient detail to provide desired systemwide statistics as well as study-area-specific data.

Product of Task 2

A calibrated travel demand model set for the study area in the AM peak and midday periods

Task 3 Run Model for Proposed Alternatives

The three proposed alternatives, as well as a no-build alternative, will be analyzed for the AM peak and midday periods of the 2035 horizon year. PM peak and nighttime periods can be estimated by assuming mirror images of the AM and midday conditions; this can be used to produce daily totals. Mode choice and highway assignment results will be summarized in tabular form. Aggregate statistics such as total linked and unlinked transit trips will be summarized by submode. These statistics will form the basis for forecasting the utilization of the proposed services. In this task, air quality analyses will also be conducted: the potential of each alternative to benefit local air quality will be examined.

Product of Task 3

Tabular summaries of travel forecasts and air quality benefits for the scenarios

Task 4 Estimate Project Revenue and Operating Costs

Travel model results will serve as the starting point for estimating likely passenger revenue associated with each scenario. CTPS will also estimate the operating costs associated with each scenario.

Products of Task 4

Estimates of passenger revenue and operating costs for each scenario

Task 5 Perform Environmental-Justice Analyses and Produce a Ridership and Mobility Memorandum

CTPS will conduct environmental-justice analyses for the tested service strategies. After identifying communities of concern, performance measures—accessibility to health care, higher education, and jobs; mobility and congestion; and environmental impacts—will be used as indicators of benefits and burdens for environmental-justice and non-environmental-justice communities. A memorandum will be produced detailing both findings from environmental-justice analyses and those from Task 3: estimates of ridership by station and by access mode for the proposed services, and changes in ridership and station boardings/alightings for other, existing services of the MBTA and of other transit providers.

Product of Task 5

A memorandum documenting demand modeling results and environmental-justice analyses

Task 6 Produce a Ridership Technical Memorandum

A technical memorandum documenting all of the model methodology, assumptions, and results and the analysis findings will be provided to MassDOT.

Product of Task 6

A technical memorandum documenting the project

Task 7 Provide Study Team Assistance

CTPS will provide additional necessary assistance to MassDOT and the study team. This may involve attendance at up to two public meetings and five internal meetings.

Products of Task 7

Attendance at meetings and other assistance as needed

Estimated Schedule

It is estimated that this project will be completed approximately 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 \$55,000. This includes the cost of 20.6 person-weeks of staff time and overhead at the rate of 96.58 percent. A detailed breakdown of estimated costs is presented in Exhibit 2.

KQ/BK/bk

Exhibit 1
ESTIMATED SCHEDULE
MBTA Silver Line to Chelsea: Alternatives Analysis, Phase 2

Task	Month						
	1	2	3	4	5	6	7
1. Refine and Code Alternatives	█						
2. Perform Base-Year Model Calibration	█	█					
3. Run Model for Proposed Alternatives		█	█	█			
4. Estimate Project Revenue and Operating Costs				█			
5. Perform Environmental-Justice Analyses and Produce a Ridership and Mobility Memorandum						█ A	
6. Produce a Ridership Technical Memorandum							█ B
7. Provide Study Team Assistance	█	█	█	█	█	█	█

Products/Milestones

- A: Ridership and mobility memorandum
- B: Ridership technical memorandum

Exhibit 2
ESTIMATED COST
MBTA Silver Line to Chelsea: Alternatives Analysis, Phase 2

Direct Salary and Overhead							\$55,000	
Task	Person-Weeks				Direct Salary	Overhead (96.58%)	Total Cost	
	M-1	P-5	P-4	Total				
1. Refine and Code Alternatives	0.0	0.5	2.0	2.5	\$3,363	\$3,248	\$6,610	
2. Perform Base-Year Model Calibration	0.0	1.0	2.2	3.2	\$4,454	\$4,302	\$8,756	
3. Run Model for Proposed Alternatives	0.2	0.0	5.3	5.5	\$7,050	\$6,809	\$13,860	
4. Estimate Project Revenue and Operating Costs	0.2	0.0	0.5	0.7	\$970	\$937	\$1,906	
5. Perform Environmental-Justice Analyses and Produce a Ridership and Mobility Memorandum	0.2	0.0	2.2	2.4	\$3,178	\$3,069	\$6,248	
6. Produce a Ridership Technical Memorandum	1.5	0.2	3.0	4.8	\$6,747	\$6,516	\$13,262	
7. Provide Study Team Assistance	0.8	0.0	0.8	1.5	\$2,217	\$2,141	\$4,358	
Total	2.8	1.8	16.0	20.6	\$27,979	\$27,022	\$55,000	
Other Direct Costs							\$0	
TOTAL COST							\$55,000	

Funding

MassDOT 5303 Contract #75366