



## BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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

### *MEMORANDUM*

**DATE** October 6, 2016  
**TO** Boston Region Metropolitan Planning Organization  
**FROM** Karl H. Quackenbush, Executive Director  
**RE** Work Program for: South Coast Rail 2016

#### **Action Required**

Review and approval

#### **Proposed Motion**

That the Boston Region Metropolitan Planning Organization (MPO), upon the recommendation of the Massachusetts Bay Transportation Authority (MBTA), vote to approve the work program for South Coast Rail 2016 presented in this memorandum

#### **Project Identification**

##### **Unified Planning Work Program Classification**

Agency and Other Client Transportation Planning Studies and Technical Analyses

##### **CTPS Project Number**

14354

##### **Client**

Massachusetts Department of Transportation (MassDOT)  
*Project Supervisor:* James Eng

##### **CTPS Project Supervisors**

*Principal:* Ed Bromage  
*Manager:* Bruce Kaplan

##### **Funding**

To Be Determined

## 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 Unified Planning Work Program.

## Background

Connecting the cities of New Bedford and Fall River to Boston with public transportation has been the subject of various transportation planning studies in recent years. Central Transportation Planning Staff (CTPS) conducted travel demand modeling to produce ridership forecasts for several of them, including a 2002 MBTA study and a 2007 MassDOT study that both resulted in Final Environmental Impact Reports under the Massachusetts Environmental Policy Act (MEPA) and the National Environmental Policy Act (NEPA) processes.

Recently, given various changes that have occurred in land uses, data sets, fares and other key inputs used in the last travel demand forecasts, there has been interest in updating the 2007 study by utilizing the most current data sets and modeling tools. The 2007 study examined various alternatives for commuter rail service alignments to the South Coast. One of them, the Middleborough alternative, was eliminated early-on in that study, and thus was not modeled. Due to MassDOT and the MBTA's interest in providing transit service as soon as possible to the South Coast communities, a request was made for CTPS to provide updated ridership forecasts for an interim version of this alternative, known as the New Middleborough Option, as well as the preferred alternative from the last study, the Stoughton Electric Straight.

Modeling these alternatives will make use of the following tools and data: MassDOT's statewide travel demand model, which has been updated to reflect current 2012 conditions; data from the 2011 Massachusetts Household Travel Survey; 2010 US Census Bureau data; recent data from the American Community Survey; and the most recent demographic data, estimates, and forecasts adopted by the Metropolitan Area Planning Council (MAPC) and neighboring regional planning agencies, the Southeastern Regional Planning and Economic Development District (SRPEDD) and the Old Colony Planning Council (OCPC).

## Objectives

The principal objectives of this work program are as follows:

- Produce a new set of travel demand forecasts for the years 2020, 2030, and 2040, for the South Coast Rail study area, which will be used for ridership analyses

- Provide geographic information system (GIS), graphic, and other support services as requested by the project team

## Work Description

The following tasks describe the work required of CTPS.

### **Task 1 Modify and Calibrate the Statewide Model**

The study area geography lies between South Station in Boston and the cities of New Bedford and Fall River. Because this study area extends beyond the 164-municipality area represented in the Boston Region MPO's regional travel demand model, the statewide travel demand model will be used. CTPS maintains the statewide model for MassDOT.

#### ***Subtask 1.1 Develop and Incorporate Transit Mode***

The statewide model is currently only capable of making forecasts based on the assignment of roadway trips. This model does not have a mode choice component or transit assignment process that would allow for the estimation of transit trips. CTPS will use the MPO's model to inform the creation and development of mode choice and transit assignment components for the statewide model. These mode choice and transit assignment components will be capable of discerning and keeping track of commuter rail trips taken by riders who accessed rail service by feeder bus, walking, and driving.

#### ***Subtask 1.2 Code Transit Networks***

Transit networks of transit agencies located in the study area will need to be incorporated into the statewide model. The MPO model will be able to provide much of this information. However, relevant transit networks of the Greater Attleboro Taunton Regional Transportation Authority (GATRA) and the Southeastern Regional Transit Authority (SRTA), as well as those of some private carriers that serve locations in the study area, are outside the area covered by the MPO's model. For those networks, CTPS will collect service characteristics—such as vehicle routing, headways, run times, and fares—and code data relevant to this study into the model set.

#### ***Subtask 1.3 Calibration and Validation of Base Year***

The base year model, comprised of transportation networks and trip tables reflective of year 2012 conditions, will be calibrated to accurately reflect mode splits and traffic and transit volumes in the study area.

#### ***Product of Task 1***

A fully functioning four-step statewide model calibrated to the study area

**Task 2 Develop Future Demographic Forecasts**

CTPS will work with MAPC, SRPEDD, and OCPC to develop study area demographic and land-use forecasts, at the transportation analysis zone (TAZ) level, for the years 2020, 2030, and 2040.

***Product of Task 2***

Demographic and land-use forecasts for the years 2020, 2030, and 2040

**Task 3 Develop and Model No-Build Scenarios**

CTPS will develop and model no-build scenarios for the years 2020, 2030, and 2040. The transportation network used for these scenarios will assume the implementation of transportation projects and programs as documented in the MPO's current Long-Range Transportation Plan (LRTP), *Charting Progress to 2040*. Also, the scenarios will be based on the same community level land-use assumptions adopted for the LRTP.

***Products of Task 3***

- No-build scenarios for years 2020, 2030, and 2040
- Tabular and graphic summaries of traffic volumes, vehicle miles traveled, and transit ridership in the peak travel periods in the 2020, 2030, and 2040 no-build scenarios

**Task 4 Develop and Model Alternative Scenarios**

CTPS will model up to eight scenarios each for the 2020, 2030, and 2040 model years, including the following: the Stoughton Electric Straight, the preferred commuter rail service alignment from the 2007 study; the New Middleborough Option commuter rail service alignment; and up to six variations of the New Middleborough Option, consisting of differing assumptions regarding station locations, run times, and service plans.

***Products of Task 4***

- Up to 24 modeled scenarios for the years 2020, 2030, and 2040
- Tabular and graphic summaries of vehicle miles traveled and transit ridership for the peak travel periods in the modeled scenarios

**Task 5 Coordinate with the Project Team and Provide Ongoing Technical Assistance**

CTPS will work with the project team throughout the study, with an anticipated time frame of ten months for the modeling work. Sketch planning techniques will be used to measure the demand potential of suggested options and refine the set of alternatives to be modeled. CTPS will also consult with and advise the project team and associated study teams on the MEPA filing (if necessary) for this

project. CTPS will review and assess other modeling work undertaken by the project team. Also, CTPS will fulfill data requests from the project team when the data are readily available.

***Product of Task 5***

Coordination and consultation with the project team, provision of advice, review of models, and other assistance, as needed

**Task 6 Produce a Memorandum**

CTPS will produce a memorandum summarizing the general modeling methodology and the results of the analyses. The memorandum will be sent to the MBTA and the project team.

***Product of Task 6***

Memorandum

**Estimated Schedule**

It is estimated that this project will be completed ten 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 \$249,697. This includes the cost of 73.5 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.

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**Exhibit 2  
ESTIMATED COST  
South Coast Rail 2016**

<b>Direct Salary and Overhead</b>	<b>\$249,697</b>
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Task	Person-Weeks					Direct Salary	Overhead (102.70%)	Total Cost
	M-1	P-5	P-3	P-2	Total			
1. Modify and Calibrate the Statewide Model	4.0	5.0	3.0	2.0	14.0	\$22,218	\$22,818	\$45,036
2. Develop Future Demographic Forecasts	1.5	3.0	0.0	1.5	6.0	\$9,875	\$10,142	\$20,017
3. Develop and Model No-Build Scenarios	1.5	4.5	3.0	0.0	9.0	\$14,654	\$15,050	\$29,704
4. Develop and Model Alternative Scenarios	1.5	24.0	3.0	3.0	31.5	\$54,078	\$55,539	\$109,617
5. Coordinate with Project Team and Provide Ongoing Technical Assistance	2.5	4.0	0.0	2.0	8.5	\$14,071	\$14,451	\$28,521
6. Produce a Memorandum	1.5	3.0	0.0	0.0	4.5	\$8,289	\$8,512	\$16,801
Total	12.5	43.5	9.0	8.5	73.5	\$123,185	\$126,511	\$249,697

<b>Other Direct Costs</b>	<b>\$0</b>
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<b>TOTAL COST</b>	<b>\$249,697</b>
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**Funding**  
To Be Determined