



# BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

State Transportation Building  
Ten Park Plaza, Suite 2150  
Boston, MA 02116-3968  
Tel. (617) 973-7100  
Fax (617) 973-8855  
TTY (617) 973-7089  
www.bostonmpo.org

Jeffrey B. Mullan  
MassDOT Secretary and CEO  
and MPO Chairman

Arnold J. Soolman  
Director, MPO Staff

The Boston Region MPO,  
the federally designated  
entity responsible for  
transportation decision-  
making for the 101 cities  
and towns in the MPO  
region, is composed of:

MassDOT Office of Planning and  
Programming  
City of Boston  
City of Newton  
City of Somerville  
Town of Bedford  
Town of Braintree  
Town of Framingham  
Town of Hopkinton  
Metropolitan Area Planning Council  
Massachusetts Bay Transportation  
Authority Advisory Board  
Massachusetts Bay Transportation  
Authority  
MassDOT Highway Division  
Massachusetts Port Authority  
Regional Transportation Advisory  
Council (nonvoting)  
Federal Highway Administration  
(nonvoting)  
Federal Transit Administration  
(nonvoting)

## MEMORANDUM

**DATE** April 1, 2010  
**TO** Transportation Planning and Programming Committee  
of the Boston Region Metropolitan Planning Organization  
**FROM** Arnold J. Soolman, CTPS Director  
**RE** Work Program for: Evaluation of the Central Mass. Rail Right-of-Way  
as a Joint Busway and Trail Facility

### ACTION REQUIRED

Review and approval

### PROPOSED MOTION

That the Transportation Planning and Programming Committee of the Boston Region Metropolitan Planning Organization, upon the recommendation of the Metropolitan Area Planning Council, vote to approve the work program for Evaluation of the Central Mass. Rail Right-of-Way as a Joint Busway and Trail Facility in the form of the draft dated April 1, 2010.

### PROJECT IDENTIFICATION

**Unified Planning Work Program Classification**  
Technical Support/Operations Analysis Projects

**CTPS Project Number**  
53217

**Client**  
MAPC  
*Project Supervisor:* Eric Bourassa

**CTPS Project Supervisors**  
*Principal:* Karl Quackenbush  
*Manager:* Scott Peterson

**Funding**  
MAPC

## 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 other work in the UPWP.

## BACKGROUND

The Central Mass. rail line split off from the Fitchburg line in Waltham and extended west to Berlin and Clinton. Beginning in 1958, commuter rail service on the line began to be cut back in stages, until the last remaining service from South Sudbury eastward was discontinued in 1971. Freight service on the Waltham-to-Hudson segment of the line was discontinued in 1980.

In the years since, various entities have expressed interest in restoring the commuter rail service to that MBTA-owned right-of-way, and in 1996, CTPS produced a study of the feasibility of doing so.<sup>1</sup> In addition, there has been interest shown in using the right-of-way for a trail, and CTPS conducted a study of that in 1997.<sup>2</sup> Since that time, plans for using the right-of-way for a trail have advanced. To that end, the MBTA and the state Department of Conservation and Recreation are moving forward on an agreement whereby DCR would lease the right-of-way from the MBTA for 99 years with the intent of developing a trail along it.

In the meantime, while those plans are proceeding, the MAGIC subregion of MAPC would like to investigate the possibility of developing the right-of-way as both a trail and a busway. MAPC has asked CTPS to assist in this investigation. While MAPC would lead the effort and conduct public outreach in the communities through which the right-of-way goes, CTPS would conduct some modest amount of technical work as described below.

## OBJECTIVES

The objectives of CTPS's contribution to this investigation are as follows:

1. Estimate usage for both the trail and busway elements of this idea
2. Provide an overview of physical and environmental issues associated with use of the right-of-way in this manner

---

<sup>1</sup> CTPS Technical Report, *Central Mass. Commuter Rail Feasibility Study*, December 1996.

<sup>2</sup> CTPS Technical Report, *Central Massachusetts Rail Trail Feasibility Study*, April 1997.

## WORK DESCRIPTION

Funds for this effort are limited, and therefore, this cannot be an in-depth study of the issues. Rather, this is intended to be a broad-brush treatment of physical and environmental issues, and a sketch-level estimate of potential joint trail and busway usage. Fortunately, there are earlier efforts, cited above, that can be used as starting points for this effort. The basic approach will, therefore, be to review the two earlier studies, conduct some limited field reconnaissance as necessary, and update the essential elements of those earlier efforts.

It is assumed that MAPC will produce the overall report on this collaborative work effort, and that CTPS's contributions will be documented in two technical memoranda that MAPC will combine with the output of its own effort.

### **Task 1 Estimate Potential Usage of a Joint Trail/Busway Facility**

Both of the earlier studies included estimates of potential usage. The commuter rail usage forecasts will be updated to reflect new demographics, the fact that the transit service of interest is a bus rather than commuter rail, and other considerations. We will need to have some description of the busway service characteristics to assume for this purpose, and we assume that this information will be provided by the proponents of the project.

Likewise, the earlier forecasts of usage of this right-of-way as a trail will be examined and updated. Contemporary demographic forecasts will be taken into account, as will the possibility that a combined trail/busway facility could have a synergistic effect on trail usage as compared to just a trail alone.

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

A technical memorandum containing forecasts of potential trail and bus usage.

### **Task 2 Provide an Overview of Physical and Environmental Issues Associated with Joint Use of the Right-of-Way**

The two earlier studies addressed various physical and environmental issues. For example, the trail study examined right-of-way width issues, noise, and at-grade crossings. The commuter rail study examined such things as air quality, traffic (very generally), and impacts on abutters. These and all of the other pertinent issues contained in those studies will be looked at again and with respect to this being a joint trail/busway facility. New issues that arise from this particular proposal, such as whether there is sufficient right-of-way width for both uses, will be addressed as well.

#### ***Product of Task 2***

A technical memorandum containing a general treatment of all relevant physical and environmental issues associated with a joint trail/busway facility.

**ESTIMATED SCHEDULE**

It is estimated that this project will be completed 4 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 for state fiscal year (SFY) 2010 is estimated to be \$8,015. This includes the cost of 3.6 person-weeks of staff time and overhead at the rate of 88.99 percent. A detailed breakdown of estimated costs is presented in Exhibit 2.

AJS/KHQ/khq

Exhibit 1  
 ESTIMATED SCHEDULE  
 Evaluation of Central Mass. Rail ROW as Joint Busway and Trail Facility

Task	Month			
	1	2	3	4
1. Usage Forecasts		A		
2. Physical/Environmental Issues	B			

---

Products/Milestones  
 A: Technical memorandum no. 1  
 B: Technical memorandum no. 2

Exhibit 2  
 ESTIMATED COST  
 Evaluation of the Central Mass. Rail ROW as a Joint Busway and Trail Facility

<b>Direct Salary and Overhead</b>	<b>\$7,990</b>
-----------------------------------	----------------

Task	Person-Weeks					Direct Salary	Overhead (@ 88.99%)	Total Cost
	M-1	P-5	P-4	P-1	Total			
1. Usage Forecasts	0.1	0.2	0.4	0.2	0.9	\$1,105	\$984	\$2,089
2. Physical/Environmental Issues	0.0	1.0	0.7	1.0	2.7	\$3,122	\$2,779	\$5,901
Total	0.1	1.2	1.1	1.2	3.6	\$4,228	\$3,762	\$7,990

<b>Other Direct Costs</b>	<b>\$25</b>
---------------------------	-------------

Travel	\$25
--------	------

<b>TOTAL COST</b>	<b>\$8,015</b>
-------------------	----------------

*Funding*  
 MAPC



# BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

State Transportation Building  
Ten Park Plaza, Suite 2150  
Boston, MA 02116-3968  
Tel. (617) 973-7100  
Fax (617) 973-8855  
TTY (617) 973-7089  
www.bostonmpo.org

Jeffrey B. Mullan  
MassDOT Secretary and CEO  
and MPO Chairman

Arnold J. Soolman  
Director, MPO Staff

The Boston Region MPO,  
the federally designated  
entity responsible for  
transportation decision-  
making for the 101 cities  
and towns in the MPO  
region, is composed of:

MassDOT Office of Planning and  
Programming

City of Boston

City of Newton

City of Somerville

Town of Bedford

Town of Braintree

Town of Framingham

Town of Hopkinton

Metropolitan Area Planning Council

Massachusetts Bay Transportation  
Authority Advisory Board

Massachusetts Bay Transportation  
Authority

MassDOT Highway Division

Massachusetts Port Authority

Regional Transportation Advisory  
Council (nonvoting)

Federal Highway Administration  
(nonvoting)

Federal Transit Administration  
(nonvoting)

## MEMORANDUM

**DATE** April 15, 2010  
**TO** Transportation Planning and Programming Committee  
of the Boston Region Metropolitan Planning Organization  
**FROM** Arnold J. Soolman, CTPS Director  
**RE** Work Program for: MBTA Title VI Program Monitoring

### ACTION REQUIRED

Review and approval

### PROPOSED MOTION

That the Transportation Planning and Programming Committee of the Boston Region Metropolitan Planning Organization, upon the recommendation of the Massachusetts Bay Transportation Authority, vote to approve the work program for MBTA Title VI Program Monitoring in the form of the draft dated April 15, 2010.

### PROJECT IDENTIFICATION

Unified Planning Work Program Classification  
Planning Studies

CTPS Project Number  
11371

Client  
Massachusetts Bay Transportation Authority  
*Project Supervisor:* Joe Cosgrove

CTPS Project Supervisors  
*Principal:* Elizabeth M. Moore  
*Manager:* Annette Demchur

Funding  
Future MBTA Contract

## 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 other work in the UPWP.

## BACKGROUND

Every three years, the Massachusetts Bay Transportation Authority (MBTA) is required to submit reports to the Federal Transit Administration (FTA) Office of Civil Rights detailing the MBTA's efforts to comply with Title VI of the Civil Rights Act of 1964. In addition, FTA has at times required the MBTA to provide quarterly reports to more closely track specific elements of Title VI compliance.

Title VI reports assess the comparative levels and quality of service on the public transportation network for minority and/or low-income neighborhoods compared to other neighborhoods. The definitions of minority and low-income, as well as the requirements for demonstrating compliance with Title VI, are outlined in FTA Circular 4702.1A.

The most recent triennial Title VI report was provided by the MBTA to FTA in 2008. In this report, the MBTA outlined an ongoing process of Title VI data collection and analysis; documented the results of current assessments of compliance; and indicated responsive action that would be taken with respect to Title VI concerns in the interim years before the 2011 report. In addition, the MBTA continues to report quarterly to FTA on the performance of the Silver Line Washington Street BRT service.

CTPS has performed data collection and analysis for MBTA Title VI reporting, including the 2005 and 2008 triennial reports to FTA, annual internal reports for ongoing monitoring, and quarterly reporting, as required. The present project represents the continuation of the monitoring effort, and encompasses the data collection and analysis of service indicators reported both annually and biennially. Data collected and analyzed for the Silver Line Washington Street BRT service will be reported to FTA quarterly under a separate work scope. All other data will be analyzed and reported in a federal fiscal year (FFY) 2010 annual report to the MBTA, which will also be incorporated into the next triennial Title VI report to FTA in FFY 2011.

## OBJECTIVES

CTPS will assist the MBTA in data collection, will conduct assessments of service performance throughout the system, and will report the results to the MBTA. Comparisons of performance in minority and/or low-income communities with performance in communities that are not minority and/or low-income will be conducted



according to guidelines provided in FTA Circular 4702.1A. These guidelines define minority areas as “a geographic area, such as a neighborhood, Census tract, or traffic analysis zone where the proportion of minority persons residing in that area exceeds the average proportion of minority persons in the recipient’s service area,” and low-income areas as “a geographic area, such as a neighborhood, Census tract, or traffic analysis zone where the proportion of low-income persons residing in that area exceeds the average proportion of low-income persons in the recipient’s service area.” The guidelines also identify service characteristics—or service indicators—for which the performance comparisons must be made.

The MBTA has established an internal schedule that includes annual monitoring for some service indicators and biennial or triennial monitoring for others. Annual and biennial results are reported to the MBTA for internal monitoring so that any problems can be addressed early. Every three years, the most recent annual and biennial monitoring results are compiled into the required triennial Title VI report to FTA.

This FFY 2010 scope will meet the following objectives for required annual, biennial, and quarterly reporting to the MBTA.

1. Evaluate vehicle load, vehicle headway, on-time performance, distribution of transit amenities, and service availability indicators according to the established service standards. For those service indicators that the MBTA monitors annually and biennially, provide summary statistics on the levels of service provided to predominantly minority and/or low-income areas compared to the levels of service provided to other areas.
2. Assemble the results of the new level-of-service and quality-of-service analyses into a report to the MBTA.

## WORK DESCRIPTION

The Title VI Circular identifies a number of service indicators for level-of-service monitoring for which the comparative analysis must be completed. The MBTA monitors some level-of-service indicators annually, including vehicle assignment; passenger security inspections by transit security personnel; and the distribution, operability, and/or utilization of three transit amenities: (1) automated fare collections (AFC) gates, vending machines, and retail sales outlets; (2) station elevators and escalators; and (3) MBTA-owned station parking. The MBTA monitors vehicle load, vehicle headway, and on-time performance; service availability; and the distribution and condition of bus shelters every two years (in even-numbered years). In odd-numbered years, the MBTA monitors station conditions and amenities, the distribution of neighborhood maps, and the distribution and operability of variable-message signs. (These indicators will not be monitored this year because 2010 is an even-numbered year.)

Quality-of-service monitoring is conducted as part of the MBTA's ongoing service planning process, and is used to assess if there are any inequities in the average performance of services in predominantly minority and/or low-income areas and other areas.

Most of the level-of-service and quality-of-service analyses rely on up-to-date data coverages of MBTA transit routes and amenities in the geographic information system (GIS) database maintained by CTPS. These coverages allow CTPS to designate amenities as being located in, and routes as serving, predominantly minority and/or low-income areas.

### Task 1 Level-of-Service Monitoring

The first step in the level-of-service monitoring is to assess the performance of specific services against established service standards and policies for specified service indicators and then to compare the performance of the services provided for predominantly minority and/or low-income areas with the performance of services provided for other areas. The service indicators for which CTPS will collect and/or analyze data, and the actions that will be taken by CTPS, are described below.

- **Vehicle Load, Vehicle Headway, and On-Time Performance:** The MBTA reports on vehicle loads, vehicle headways, and on-time performance on all modes every two years. Data for the Green Line and for verifying counts from automated passenger counting (APC) counts are collected by CTPS through field observations. Data for all other modes are provided to CTPS by the MBTA. The analysis will be completed to compare the vehicle loads, frequency of service, and schedule adherence of those routes identified as being in minority and/or low-income areas to routes in other areas.
- **Service Availability:** The MBTA reports on service availability every two years. CTPS conducts the analysis of service availability in areas with greater than 5,000 people/square mile using the MBTA route network for all modes and compares the availability in areas identified as minority and/or low-income to the availability in other areas.
- **Distribution of Transit Amenities:** CTPS will conduct monitoring on the following transit amenities in the context of this work program: the location and condition of bus shelters, as well as the benches, timetables, and route maps that are provided in the shelters; the distribution and/or operability of AFC fare gates, fare vending machines, and retail sales terminals; the distribution and operability of station elevators and escalators; and the distribution and utilization of station parking. Monitoring data for the bus shelters and related amenities is collected by CTPS through field observations. Data on all other amenities are provided to CTPS by the MBTA. For each amenity, the location, condition, and/or operability of those found in

predominantly minority and/or low-income areas or stations to amenities in other areas or stations will be analyzed.

- **Vehicle Assignment:** For bus vehicle assignment, CTPS will obtain and analyze Bus Operations garage pullout and maintenance records for at least one sample hot day during the summer. Using these data, CTPS will analyze the functionality of air conditioning and the vehicle age for buses on routes that serve predominantly minority and/or low-income areas compared to buses on routes that serve other areas. Vehicle assignment analysis, for vehicle age only, will be completed for rapid transit and commuter rail using data collected through CTPS field observations and/or provided by the MBTA.
- **Transit Security:** Using data provided by the MBTA, CTPS will compare the percentage of passenger inspections at transit stations in minority and/or low-income areas with the percentage at stations in other areas throughout the system.

#### *Products of Task 1*

- Level-of-service summaries showing the vehicle loads, vehicle headway, and on-time performance of routes in predominantly minority and/or low-income areas and in other areas.
- Level-of-service summaries showing the service availability in predominantly minority and/or low-income areas and in other areas.
- Level-of-service summaries showing the distribution of transit amenities and passenger security inspections in predominantly minority and/or low-income areas and in other areas.
- Level-of-service summaries by route for vehicle assignment (based on vehicle age and air conditioning), with an indication of which routes serve predominantly minority and/or low-income areas.

#### **Task 2 Quality-of-Service Monitoring**

The quality-of-service analysis is an element of the MBTA's ongoing service planning process. Using the MBTA's trip-planning software, average peak-period travel time (including wait times), trip length, average travel speed, number of transfers per trip and per mile, cost per trip, and cost per mile will be measured for the 10 most-densely-populated minority (and mostly low-income) and nonminority (and mostly non-low-income) transportation analysis zones (TAZs) to the five destinations with the highest density of work trip attractions. Results for minority communities will then be compared to those for nonminority communities and presented in tabular form, along with text interpretation.

#### *Product of Task 2*

Quality-of-service summary.

**Task 3 Prepare Internal Report for the MBTA**

CTPS will compile the results of the level-of-service and quality-of-service analyses into an FFY 2010 report to the MBTA. This report will provide the data needed for the MBTA to determine whether any corrective actions need to be taken to ensure that services in minority and/or low-income areas are comparable to those in other areas.

*Product of Task 3*

FFY 2010 Report for MBTA.

**Task 4 Provide Technical Support to the MBTA**

CTPS staff will provide technical assistance to the MBTA to address Title VI issues as necessary.

*Product of Task 4*

Technical support provided to the MBTA as necessary.

**ESTIMATED SCHEDULE**

It is estimated that this project would be completed six 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 \$54,922. This includes the cost of 24.6 person-weeks of staff time, overhead at the rate of 88.99 percent, and travel. A detailed breakdown of estimated costs is presented in Exhibit 2.

AJS/AD/ad

Exhibit 1  
 ESTIMATED SCHEDULE  
 MBTA Title VI Program Monitoring

Task	Month					
	1	2	3	4	5	6
1. Level-of-Service Monitoring	A					
2. Quality-of-Service Monitoring		B				
3. Internal Report for MBTA					C	
4. Technical Support to MBTA						

Products/Milestones

- A: Level-of-service summaries
- B: Quality-of-service summaries
- C: Annual report to MBTA on level-of-service and quality-of-service monitoring

Exhibit 2  
 ESTIMATED COST  
 MBTA Title VI Program Monitoring

<b>Direct Salary and Overhead</b>	<b>\$54,422</b>
-----------------------------------	-----------------

Task	Person-Weeks							Direct Salary	Overhead (@ 88.99%)	Total Cost
	M-1	P-5	P-4	P-3	SP-3	Temp	Total			
1. Level-of-Service Monitoring	1.0	2.0	4.0	4.0	3.3	3.2	17.5	\$18,051	\$16,064	\$34,115
2. Quality-of-Service Monitoring	0.2	0.2	0.5	0.2	0.0	0.5	1.6	\$1,717	\$1,528	\$3,245
3. Internal Report for MBTA	1.5	0.0	0.0	2.0	0.0	0.0	3.5	\$4,514	\$4,017	\$8,531
4. Technical Support to MBTA	1.0	0.0	0.0	1.0	0.0	0.0	2.0	\$4,514	\$4,017	\$8,531
Total	3.7	2.2	4.5	7.2	3.3	3.7	24.6	\$28,796	\$25,625	\$54,422

<b>Other Direct Costs</b>	<b>\$500</b>
---------------------------	--------------

Travel	\$500
--------	-------

<b>TOTAL COST</b>	<b>\$54,922</b>
-------------------	-----------------

*Funding*  
 Future MBTA Contract