BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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Richard A. Davey
MassDOT Secretary and CEO
and MPO Chairman

Karl H. Quackenbush
Executive Director, MPO Staff

MEMORANDUM

DATE **December 1, 2011**

TO **Boston Region Metropolitan Planning Organization**

FROM **Karl H. Quackenbush**
CTPS Executive Director

RE **Work Program for: MBTA Rapid Transit Replacement Service Study**

ACTION REQUIRED

Review and approval

PROPOSED MOTION

That the Boston Region Metropolitan Planning Organization, upon the recommendation of the Massachusetts Department of Transportation, vote to approve the work program for the MBTA Rapid Transit Replacement Service Study in the form of the draft dated December 1, 2011.

PROJECT IDENTIFICATION

Technical Support/Operations Analysis Projects

CTPS Project Number
14331

Client
MassDOT
Project Supervisor: Matt Ciborowski

CTPS Project Supervisors
Principal: Elizabeth Moore
Manager: Jonathan Belcher

Funding
MassDOT §5303 Contract #70174

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

Whenever there is a problem that causes one of the MBTA heavy or light rail lines to shut down, replacement shuttle service for customers is provided using buses. The events that cause shutdowns can be either planned or unplanned. Planned shutdowns occur for the purposes of maintenance or repair of the line and may last for a few hours to a few years. Unplanned shutdowns generally occur in response to an unexpected equipment or infrastructure failure or an emergency such as a station fire or a medical emergency.

Whether a rapid transit shutdown is planned or unplanned, the MBTA must be prepared to implement replacement service using buses. The MBTA has recently updated standard routings for replacement shuttle service that have been developed and modified over time, taking into consideration the trade-offs among customer service, operational logistics, and fare collection issues.

Although the routings are planned in advance (and are generally the same for a planned vs. unplanned service disruption), operations are dynamic and require on-the-spot decision making by operators, inspectors, and other MBTA personnel based on factors such as road construction or other unanticipated impediments to using the planned route. In addition, when replacement services are provided, the MBTA must communicate to both bus operators and the public about the replacement bus-shuttle routes. In an emergency situation, bus drivers must sometimes operate—on very short notice—in areas and on routings with which they are not intimately familiar, and passengers must be made aware of the replacement services and kept continuously updated regarding the changes. Bus Operations has expressed a need for assistance in exploring best-practice techniques and developing guidelines to address these issues at the MBTA.

OBJECTIVES

The purpose of this study is to examine ways in which rapid transit replacement bus-shuttle services can be made more effective by providing the MBTA with tools and strategies that could be used to more finely tune responses to service interruptions. The specific objectives are:

1. Review current MBTA rapid transit replacement bus-shuttle routes to determine whether additional efficiencies could be implemented

2. Determine how information on routes can best be packaged and how it can be made most easily accessible to operators in the field when replacement services are needed
3. Develop guidelines for inspectors and other MBTA personnel to help them make decisions in the field when running replacement shuttle services

4. Develop guidelines for effective communication by the MBTA with the public during replacement service operations

WORK DESCRIPTION

The work required to accomplish the project objectives will be carried out in four tasks, as described below.

Task 1 Review Replacement-Service Routings

CTPS will review the MBTA's current rapid transit replacement bus service routes to determine whether additional efficiencies could be implemented in terms of directness of routes or in terms of varying routes according to time of day or ridership levels.

Product of Task 1

- A written summary of any potential route modifications

Task 2 Explore Specific MBTA Needs

CTPS will consult with MBTA staff in subway and bus operations, the Training School, and Operations Technology, as well as personnel in other relevant departments, to determine specific needs, explore potential solutions, and identify existing technologies and other resources that can be utilized to achieve each of the study objectives.

Product of Task 2

- A written summary of identified needs and potential solutions discussed with MBTA personnel

Task 3 Conduct Literature and Peer Property Review

CTPS will conduct a literature and peer property review to determine whether other transit agencies have guidelines for achieving each of the objectives outlined for this study and/or whether best-practice techniques have been documented in the literature. This task will include both web-based research and phone interviews, as needed.

Product of Task 3

- A written summary of the findings of the review as they relate to the needs identified in Task 2

Task 4 Develop Guidelines for Improving Replacement-Service Operations

Using information gathered in Tasks 2 and 3, CTPS will develop guidelines for shuttle operations that will result in improved service.

Subtask 4.1 Develop Instructions/Guidelines for Inspectors

CTPS will document best-practice guidelines for inspectors that would instruct them in the key elements of running a shuttle service, such as:

- How/where to best deploy stationary and mobile support staff in the field to perform functions such as communicating with operators, providing information to customers, loading/protecting rear doors, ensuring safe loads, loading multiple buses, maintaining the proper number of buses, and determining when to deadhead buses

- The considerations necessary for determining where buses should offload and/or load customers, such as the impact on traffic, the needs of persons with disabilities, and the desire to reduce dwell times

- How to train and use non-bus-operations employees (for example, Customer Service Agents or rapid transit inspectors) effectively to assist with replacement shuttle operations, such as loading passengers through a rear door or providing information to customers

Subtask 4.2 Identify User-Friendly Route Formats and Distribution System

CTPS will identify a process for translating shuttle-route information to a format that could be easily used by replacement-shuttle operators, as well as an effective system for distributing this information to operators. Development of specific materials, such as route maps, or processes that require development of customized computer applications that are identified in this subtask, would need to occur under a separate work program.

Subtask 4.3 Develop Effective Communication Tools and Techniques

CTPS will document techniques for effectively communicating with customers, such as where and how to place signage, how (and how frequently) to make announcements, and the best use of existing communication avenues and technologies.

Product of Task 4

- A technical memorandum that matches best-practice methods to identified MBTA needs to provide guidelines for achieving each of the Task 4 sub-tasks and, if applicable, describes potential route modifications that could improve operational efficiencies

ESTIMATED SCHEDULE

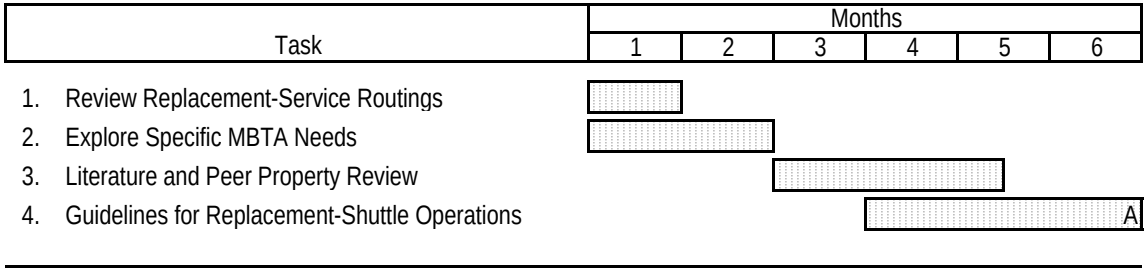
It is estimated that this project will be completed six months after the notice to proceed is received. The proposed schedule, by task, is shown in Exhibit 1.

ESTIMATED COST

The total cost of this project is estimated to be $50,304. This includes the cost of 20.7 person-weeks of staff time and overhead at the rate of 94.57 percent. A detailed breakdown of estimated costs is presented in Exhibit 2.

KQ/EMM/emm

Exhibit 1
ESTIMATED SCHEDULE
MBTA Rapid Transit Replacement Service Study



Products/Milestones

A: Final technical memorandum

Exhibit 2
ESTIMATED COST
MBTA Rapid Transit Replacement Service Study

Direct Salary and Overhead	$50,304

Task	Person-Weeks M-1	P-5	P-4	P-3	Total	Direct Salary	Overhead (@ 94.57%)	Total Cost
1. Review Replacement-Service Routings	0.2	0.0	2.0	0.0	2.2	$2,781	$2,630	$5,411
2. Explore Specific MBTA Needs	1.0	0.0	2.0	1.0	4.0	$5,124	$4,846	$9,970
3. Literature and Peer Property Review	1.0	0.0	1.0	3.5	5.5	$6,455	$6,105	$12,560
4. Guidelines for Replacement-Shuttle Operations	3.0	0.0	2.0	4.0	9.0	$11,493	$10,869	$22,363
Total	5.2	0.0	7.0	8.5	20.7	$25,854	$24,450	$50,304

Other Direct Costs	$0

TOTAL COST	$50,304

Funding
MassDOT §5303 Contract #70174