



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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and MPO Chairman

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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 March 18, 2010
TO Transportation Planning and Programming Committee
of the Boston Region Metropolitan Planning Organization
FROM Arnold J. Soolman, CTPS Director
RE Work Program for: Low-Cost Improvements to Bottleneck
Locations

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 Federal Highway Administration, vote to approve the work program for Low-Cost Improvements to Bottleneck Locations in the form of the draft dated March 18, 2010.

PROJECT IDENTIFICATION

Unified Planning Work Program Classification

Planning Studies

CTPS Project Number

13247

Client(s)

Boston Region Metropolitan Planning Organization

CTPS Project Supervisors

Principal: Efi Pagitsas

Manager: Seth Asante

Funding

MassDOT Highway Division 3C PL Contract #59796

IMPACT ON MPO WORK

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

BACKGROUND

According to the Federal Highway Administration, “Much of recurring congestion is due to physical bottlenecks – potentially correctible points on the highway system where traffic flow is restricted. While many of the nation’s bottlenecks can only be addressed through costly major construction projects, there is a significant opportunity for the application of operational and low-cost infrastructure solutions to bring about relief at these chokepoints.”¹ Consistent with this guidance, the local office of the Federal Highway Administration has recommended, as part of its comments on the Unified Planning Work Program process, that the MPO identify the three worst bottlenecks in the region that can be mitigated with low-cost countermeasures and develop recommendations for such countermeasures at these locations.

The causes and durations of highway chokepoints or bottlenecks are various. Recurring bottlenecks, the subject of this work program, are usually influenced by the highway system design or operation at the point where the bottleneck begins, including:

- Merges
- Diverges
- Lane drops
- Traffic weaving
- Abrupt changes in highway alignment
- Low-clearance structures
- Lane narrowing
- Intended disruption of traffic for management purposes
- In general, less-than-optimal highway design

Usually, bottlenecks occur at specific locations and clear downstream from that point. There is an important distinction between “bottlenecks” and “congestion.” Bottlenecks are congested highway segments with recurring operational problems. However, congestion can result from causes other than bottlenecks; it is generally considered to be the result of imbalance between supply and demand. Two examples of causes of recurring congestion are inadequate physical capacity and poor signal timing.

¹ *Recurring Traffic Bottlenecks: A Primer: Focus on Low-Cost Operations Improvements*, U.S. Department of Transportation, Federal Highway Administration, June 2009, p. 1.

Bottlenecks usually:

- Have a traffic queue upstream of them and improved flow conditions downstream of them
- Have a defining point where the queue begins
- Are predictable and recurring
- Have traffic volumes that exceed the capacity of the highway point/segment to process traffic

Low-cost bottleneck improvement strategies include:

- Shoulder conversions to travel lanes
- Restriping
- Lane-width reduction in order to accommodate additional lanes
- Lane reallocation
- Modification of weaving areas
- Ramp modifications
- Improved traffic signal timing
- Parking management
- Application of access management principles
- Provision of traveler information
- Construction of high-occupancy-vehicle (HOV) lanes
- Congestion pricing

The MPO agrees with the FHWA that, if there are opportunities to implement low-cost bottleneck mitigation countermeasures in this region's highway and arterial system, they should be identified and carried out. Benefits of localized low-cost bottleneck improvements include:

- They are less invasive to the physical and human travel environment
- Lower costs allow for more locations to be addressed
- They are highly cost-effective
- They can have significant safety benefits
- They address existing problems and therefore have high visibility
- They may actually end up being the long-term solution required

OBJECTIVE(S)

There are two objectives to this study:

1. Identify three bottleneck segments or points where low-cost mitigation improvements seem applicable. The identified bottlenecks may not be the

worst in the region, as the worst may not be correctible with low-cost mitigation strategies.

2. Recommend low-cost mitigation improvements. The recommendations are to be based on analysis of traffic volumes, geometric design, and other data and projected service performance associated with countermeasures at each location.

WORK DESCRIPTION

To meet the above-mentioned objectives, MPO staff will perform the following tasks:

Task 1 Inventory Candidate Locations for Bottleneck Study

MPO staff will develop an initial list of candidate bottleneck locations in the highway and arterial roadway system of the MPO region. To this end, staff will largely rely on their knowledge of congestion and bottleneck locations in the region's roadway system. In addition, staff will review Congestion Management Process monitoring data and recent MPO and other planning studies, consult with state agency and local representatives, seek input from private-sector transportation professionals, and meet with other MPO staff who drive frequently under congested conditions. The identified locations will not necessarily be the worst bottleneck locations. Instead, the main criteria will be that the bottleneck is caused by an operational characteristic, such as those listed in the Background section of this memorandum, and can, seemingly, be corrected with low-cost mitigation measures similar to those also listed in the Background section.

Product(s) of Task 1

An initial list of bottleneck locations, including associated characteristics

Task 2 Screen Initial List of Bottlenecks and Propose Three for Analysis

Candidates from the initial list will be evaluated in order to select three locations for final analysis. The candidate locations will be screened based on need (queue length, volume impacted, safety), ease of implementation (available right-of-way, available capacity from nearby or opposing streams of traffic), and cost considerations. Staff will present the initial list and final recommendations to the Transportation Planning and Programming Committee for review.

Product(s) of Task 2

A technical memo discussing the selection of three bottlenecks for analysis and for development of low-cost mitigation countermeasures; it will include maps showing the location and length of the bottlenecks

Task 3 Identify Alternative Countermeasures and Perform Analysis

As the bottleneck locations will have been selected with a seemingly suitable countermeasure in mind, it will not be difficult to identify mitigation strategies. In some cases, there may be more than one strategy to consider. In compiling a comprehensive list of potential countermeasures, staff will mainly rely on their technical expertise and judgment regarding the nature of bottlenecks. However, in addition, staff will seek the input of public and private transportation professionals who are also familiar with the operation of the region's roadway system and input from other MPO staff who frequently travel through the identified bottleneck locations.

Analysis of the potential countermeasures will be qualitative and, if possible, quantitative. Qualitative assessment will include consideration of: existing conditions, reasons for the bottleneck, length of the bottleneck, characteristics of the mitigating strategy, right-of-way and other requirements, potential non-transportation impacts, and other factors. Depending on data availability and level of complexity of the bottleneck, staff may perform a quantitative assessment of the bottleneck location. This may involve applying a microsimulation model or simply developing a traffic flow map. Regardless of the technical assessment level employed by staff, analysis will include conceptual designs of existing conditions and the countermeasures.

Product(s) of Task 3

- List of alternative countermeasures
- Analysis results of tested countermeasures, including countermeasure conceptual designs

Task 4 Document Results

Staff will write a technical memorandum to document: the process for choosing the three bottlenecks, characteristics of the locations, analysis of existing conditions, the countermeasures considered, the impact of the countermeasures, and conceptual designs of the recommended strategies.

Product(s) of Task 4

A technical memorandum documenting analysis, results, and recommendations

ESTIMATED SCHEDULE

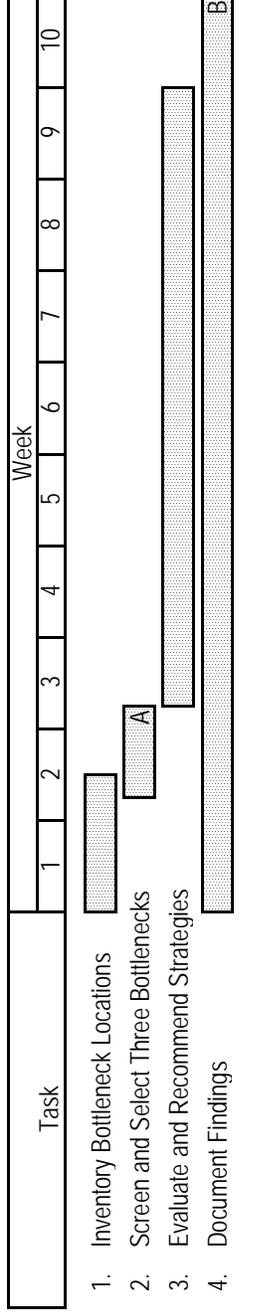
It is estimated that this project will be completed 10 weeks after the notice to proceed is received. The proposed schedule, by task, is shown in Exhibit 1.

ESTIMATED COST

The total cost of this project is estimated to be \$29,928. This includes the cost of 9.8 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/EP/ep

Exhibit 1
ESTIMATED SCHEDULE
Low-Cost Improvements to Bottleneck Locations



Products/Milestones
 A: Bottleneck Selection Technical Memorandum to TPPC
 B: Final Draft Technical Memorandum to TPPC

Exhibit 2
 ESTIMATED COST
 Low-Cost Improvements to Bottleneck Locations

Direct Salary and Overhead **\$29,728**

Task	Person-Weeks		Direct Salary	Overhead (@ 88.99%)	Total Cost
	M-1	P-5			
1. Inventory Bottleneck Locations	0.3	0.5	\$1,289	\$1,147	\$2,436
2. Screen and Select Three Bottlenecks	0.2	0.5	\$1,125	\$1,001	\$2,126
3. Evaluate and Recommend Strategies	0.8	4.5	\$8,488	\$7,554	\$16,042
4. Document Findings	1.0	2.0	\$4,828	\$4,296	\$9,124
Total	2.3	7.5	\$15,730	\$13,998	\$29,728

Other Direct Costs **\$200**

Travel \$200

TOTAL COST **\$29,928**

Funding
 MassDOT Highway Division 3C PL Contract #59796



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MEMORANDUM

DATE March 18, 2010
TO Transportation Planning and Programming Committee
FROM Alicia Wilson
RE Regional Equity Outreach Results

BACKGROUND

Through its Regional Equity Program, the MPO has an established process for considering the transportation needs and views of underserved constituencies, including communities of low-income, limited-English-proficiency (LEP), and minority residents. The MPO developed its Regional Equity Program in order to have a systematic method of considering environmental justice in all of its transportation planning work. The program builds on the foundation of ongoing outreach concerning transportation needs and previous analyses of accessibility and mobility for low-income and minority communities in the Boston region. The findings from this work have been incorporated in the development of MPO documents, including the Regional Transportation Plan (RTP), the Transportation Improvement Program (TIP), and the Unified Planning Work Program (UPWP).

In this program, information about the transportation needs of minority, LEP, and low-income populations has been primarily collected through one-on-one and small-group interviews, meetings with community contacts, surveys, and larger MPO focus groups or forums. Staff record, summarize, and classify the needs identified by each participant in the outreach process as related to the RTP, TIP, UPWP, service planning, and other planning processes. This information, along with copies of surveys, maps, and any other notes and information, is compiled in briefing books for review by community representatives and as input to MPO work.

OUTREACH ACTIVITY AND RESULTS IN 2008 AND 2009

The following is an analysis of community response to regional equity outreach between January 2008 and December 2009. This work analyzing participation has been undertaken to assess the effectiveness of the outreach approach in order to improve results from future outreach activity.

The Outreach Process

Staff identified 116 agencies and organizations (community development corporations and departments, housing authorities, family/multi-service centers, municipal planning departments, community action agencies, and health centers) as potential

contacts. Letters requesting meetings to discuss the Boston Region MPO transportation planning process were mailed to 88 of these entities between January 2008 and December 2009. They are located in 14 municipalities and 11 Boston neighborhoods. These 88 entities were selected after considering two factors regarding the area served by each entity: do one or more of the transportation analysis zones composing the area both (1) have a total minority (nonwhite or Hispanic) population of over 200 residents and (2) meet one or both of the following criteria:

- *Low Income*: A median household income at or below 60% of the 2000 MPO-region median household income (60% of the region's median household income of \$55,800 is \$33,480).
- *Minority*: A population that is more than 50% minority (nonwhite or Hispanic).

In addition, for regional equity outreach purposes, the order in which to contact the entities (presented in the appendix) was determined according to the following criteria regarding the area served:

- Areas that had not been contacted previously received highest priority. These areas were ranked by the size of their minority population and their average income and were assigned priority according to the combined rank.
- Areas that had been contacted previously were also ranked by the size of their minority population and their average income, and then ordered according to combined rank. In addition, municipalities with the very most recent contact were assigned lowest priority.

Participation in the form of input—given at meetings, by telephone, or by e-mail—was elicited from 25% of the contacted agencies. (Of this input, 59% was obtained through face-to-face meetings.) One percent of all respondents stated that they had no input to offer. Nearly three-quarters of all contacts either did not respond or said they would fill out a list of questions attached to the letter but never sent the responses. See Figure 1.

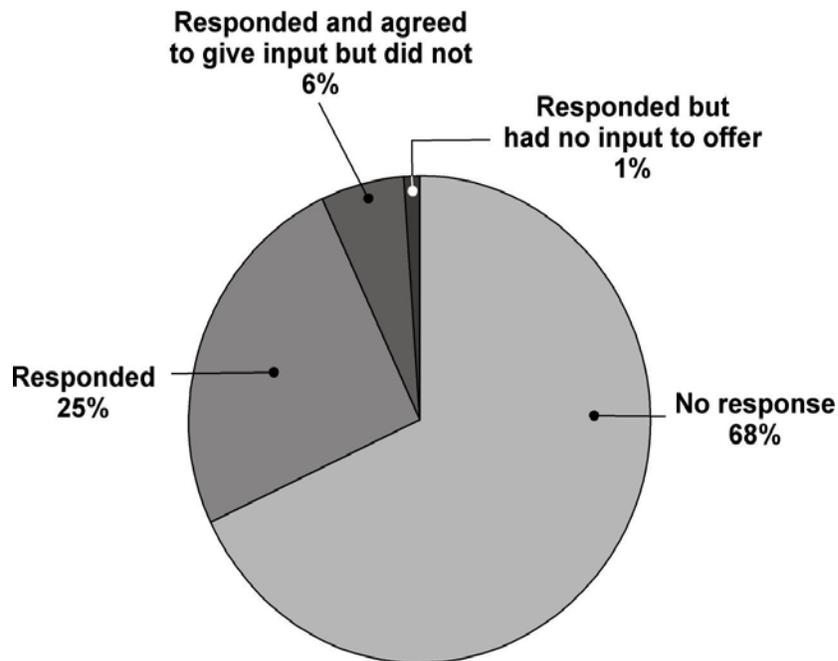
Multiple unsuccessful attempts by telephone and e-mail were made to reach most nonresponsive contacts. However, outreach letters were sent to 14 contacts late in 2009 and staff has yet to make follow-up calls. The response rate might improve after additional follow-up.

Of the contacts who responded to the original letter, 46% did so with no follow-up communication from the MPO having been necessary to elicit the response. See Figure 2. Approximately 40% required one follow-up call. Another 14% required two calls or a combination of phone calls and e-mail.

Issues Raised by Responsive Contacts

A majority of all comments (46%) received from the contacts were expressions of concern about some aspect of MBTA service. Thirteen percent were about issues related to traffic congestion, traffic signals, or roadway safety. Six percent of the comments raised no issue or indicated that MBTA transportation service is good. Table 1 categorizes the comments by eight categories of

Figure 1
Response to Regional Equity Outreach



issue. The dominant category is MBTA service/maintenance/shelters. Examples of specific issues within this category are:

- Commuter rail service is infrequent (especially during the off-peak), and the Lynn station is dark, dirty, and in poor condition.
- Transit service is focused on trips to Boston; traveling elsewhere requires travel first into Boston and then out to the destination, and often requires several transfers.
- Many bus stops do not have shelters.

The category Various Uncategorized Issues includes such issues as that some people have difficulty reading schedules.

MPO staff translated issues into needs and suggestions. It has notified responsible entities about the information gathered in 2008 and will soon notify them about the 2009 information. When a need raised by an issue straddles jurisdictional boundaries, more than one entity is notified. Table 2 shows primary recipients that have been/will be sent notifications. The MBTA is the lead agency being notified 63% of the time, followed by individual communities (15%). The MPO is the lead agency for 4% of proposed follow-up. (The latter includes the suggestions that the MPO include the Veterans Health Administration in outreach activities and publish *TRANSREPORT* summaries in local newspapers.) Some issues had already been considered by the MPO.

Figure 2
Responsive Contacts: Level of Follow-up
Communication Required to Elicit the Response

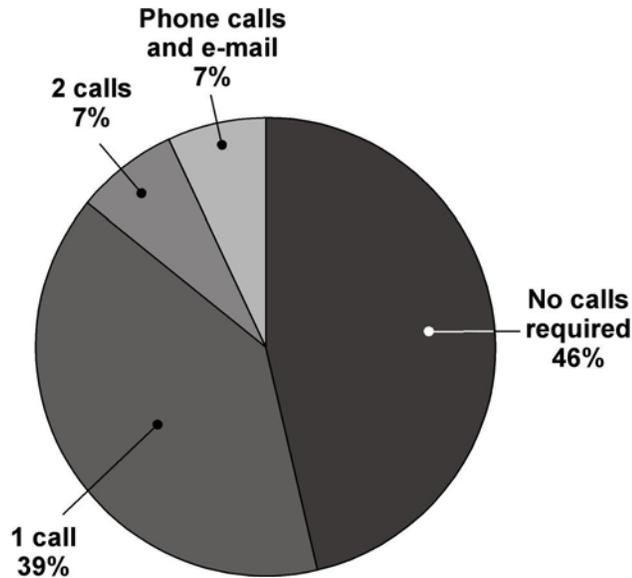


TABLE 1
Comments Received During Regional Equity Outreach,
by Category of Issue

Category	Percent of Total
MBTA Service/Maintenance/Shelters	46
Various Uncategorized Issues	14
Traffic Congestion/Signals/Safety	13
Transit Needs of Elderly/Handicapped	9
Human Services Transportation Issues	6
No Issues/Good Service	6
Fare Affordability	4
Lack of Information	3

TABLE 2
Entities That Have
Been/Will Be Notified of
Needs/Suggestions

Entity Notified	Percent of Total
MBTA	63
Community	15
None -- Issue Studied or Service Exists	8
Other	8
MPO	4
MassDOT	2

FUTURE OUTREACH ACTIVITY

To improve the program's response rate, staff have developed a survey form that can be e-mailed to contacts, who can fill it out at a computer and e-mail it back to staff. This alternative has been created to facilitate responses and input from entities that are unable to meet. The initial outreach will continue to be a letter. If no response is received, staff will make follow-up calls. If the calls do not generate a response, staff will then e-mail the survey form and request that contacts fill it out if they feel they do not have time to meet.

The following work will be undertaken in 2010:

- Reach out to the remaining entities on the regional equity contact list.
- Post the Regional Equity Survey form on the MPO web site for individuals who live in environmental justice areas to complete.
- Analyze responses to the MBTA passenger survey from individuals who live in environmental justice areas and include this information in environmental justice analysis.
- Send MPO information and the Regional Equity Survey to umbrella organizations and work with them to identify ways to communicate with member entities.
- Contact implementing agencies to determine if they have acted upon needs/suggestions previously forwarded to them.
- Communicate with entities that were contacted more than two years ago: send them summaries of their stated issues and list issues that have been acted upon; give them the opportunity to state any new issues.

AW/aw

APPENDIX

Organizations Contacted (Listed in the order in which contact was made)

Organizations Contacted between January 2008 and December 2009 (Response Noted)

Community	Organization	Responded
Lynn		
	Essex County Community Organization	
	Lynn Housing Authority	
	Lynn Housing Authority	√
	Lynn Economic Opportunity, Inc.	√
	Community Minority Cultural Center	√
	Bridgewell	
	Lynn Community Health Center	
	Lynn Investing in Neighborhoods Coalition	
Revere		
	Revere Community Development Dept.	√
	Revere Housing Authority	√
Peabody		
	North Shore Community Action Programs	
	Peabody Community Development and Planning	√
Everett		
	Everett Community Development Dept	√
	Tri-City Community Action Program	√
South End		
	SNAP: South End Neighborhood Action Program	
	Tent City Corporation	
	Inquilinos Boricuas En Acción	√
	Castle Square Tenants Association	
	United South End Settlements (USES)	
South Boston		
	South Boston NDC	
	South Boston Action Center	
Fenway		
	Fenway CDC	
	Fenway Civic Association	
Charlestown		
	John F. Kennedy Family Service Center	√
	Charlestown Multicultural Tenants Task Force	
	Boston Housing Authority Charlestown Development	
	Peabody Properties (Mishawum)	
	CharlesNEWtown	
East Boston		
	East Boston Ecumenical Community Council (EBECC)	
	Neighborhood of Affordable Housing	
	East Boston Area Planning Action Council	
	East Boston CDC	√
Jamaica Plain		
	Jamaica Plain Neighborhood Development Corporation	√

Organizations Contacted between January 2008 and December 2009 (Response Noted), cont.

Community	Organization	Responded
Jamaica Plain (cont.)		
	Back of the Hill CDC	√
	Jamaica Plain Area Planning Action Council	
	Urban Edge	
	City Life/Vida Urbana	
Hyde Park		
	Hyde Park Main Streets	
	Southwest Boston CDC	√
Roslindale		
	Roslindale Village Main Street	
	Southwest Boston CDC	
Malden, Medford, Everett		
	Tri-City Community Action Program, Inc.	√
Malden		
	Healthy Malden	√
	Malden Dept. of Engineering, Planning, and Waterworks	
	Malden Housing Authority	
	Bread of Life	
Medford		
	Medford Health Matters	
	Medford Office of Community Development	
	Medford Housing Authority	
Milford		
	Milford Family Network	
	Milford Housing Authority	
	Milford WIC Program	√
	Milford Planning & Engineering Department	√
Waltham		
	Waltham Alliance to Create Housing	
	Joseph Smith Health Center	
	Waltham Housing Authority	
	Waltham Transportation and Parking Department	√
	128 Business Council	√
Randolph		
	Randolph Chinese American Neighborhood Development Organization	
	Randolph Community Partnership	√
	Randolph Housing Authority	√

Organizations Contacted between January 2008 and December 2009 (Response Noted), cont.

Community	Organization	Responded
Roxbury		
	Roxbury Multi-service Center	
	Alternatives for Community and Environment	
	La Alianza Hispana	
	Parker Hill Fenway Neighborhood Service Center	
	Madison Park Development Corporation	
	Nuestra Comunidad Development Corporation	
	Grove Hall Neighborhood Development Corporation	
	Mission Hill Neighborhood Housing Services	
Chinatown		
	Asian Community Development Corporation	√
	Asian American Civic Association, Inc.	
	The Chinatown Coalition	
	Chinatown Gateway Coalition	√
Allston-Brighton		
	Allston-Brighton Community Development Corporation	
	Allston-Brighton Area Planning Action Council	
	Allston-Brighton Healthy Boston Coalition	
Mattapan		
	Mattapan Community Development Corporation	
	Southwest Boston Community Development Corporation	
	Mattapan Family Service Center	
Dorchester		
	Fields Corner Community Development Corporation	
	Viet-AID	
	Dorchester Bay Economic Development Corporation	
	Codman Square Neighborhood Development Corporation	
Mattapan		
	Mattapan Community Development Corporation	
	Southwest Boston Community Development Corporation	
	Mattapan Family Service Center	
Chinatown		
	Chinatown Gateway Coalition	√
	Asian Community Development Corporation	√



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Federal Transit Administration
(nonvoting)

MEMORANDUM

DATE March 11, 2010
TO Transportation Planning and Programming Committee
of the Boston Region Metropolitan Planning Organization
FROM Alicia Wilson
RE Job Access and Reverse Commute (JARC) and New Freedom Grant
Proposals Received

The solicitation period for JARC and New Freedom proposals closed at 4:00 PM on Friday, March 5, 2010. Eight proposals from six entities were received within the time limit.

The attached table briefly describes the proposals and the amounts requested. There is \$3.2 million in JARC funds and \$2.26 million in New Freedom funds available for the Boston Urbanized Area. This solicitation generated requests for \$1,315,639 in JARC funds and \$1,302,452 in New Freedom funds. A more detailed matrix will be sent to you prior to the meeting on March 18, 2010.

AW/aw

JOB ACCESS AND REVERSE COMMUTE (JARC) AND NEW FREEDOM PROPOSALS, March 2010
Boston Region MPO

APPLICANT	JARC	\$ REQUESTED	NEW FREEDOM	\$ REQUESTED
MetroWest Regional Transit Authority (MWRTA)	East Marlborough Service	\$887,250	Expanded Paratransit Service	\$726,000
Cape Ann Transportation Operating Company			Medical HealthLink Shuttle	\$59,885
Logan Transportation Management Association (TMA)	Logan Sunrise Shuttle North Extension	\$92,984		
Greater Lynn Senior Services			The GLSS Mobility Links Project, Phase 2	\$179,698
Cape Ann Transportation Authority	CATA Interactive Voice Response Project	\$76,500		
Greater Attleboro-Taunton Regional Transit Authority/Bill's Taxi			Enhanced Demand Response Service in the Foxboro Area	\$77,965
North Shore Workforce Investment Board	Specialized Employment Transportation Service for the North Shore	\$258,905	Specialized Employment Transportation Service for the North Shore	\$258,905
TOTAL FUNDS REQUESTED		\$1,315,639		\$1,302,452
FUNDS AVAILABLE		\$3,200,000		\$2,260,000