

MBTA PMT Stakeholder Advisory Committee Meeting

September 27, 2007

The seventh meeting of the PMT Stakeholder Advisory Committee was held in the MPO Conference Room, Suite 2150, on September 27, 2007 from 12 – 2 PM.

Attendees:

Name	Agency/Organization
Dave Barker	MBTA
Clinton Bench	Central Transportation Planning Staff (CTPS)/Boston Region MPO
Paul Christner	Boston Transportation Department
Joe Cosgrove	MBTA
Tony Gouveia	MBTA
Patrick Hart	Department of Housing and Community Development
John Hersey	Central Transportation Planning Staff (CTPS)/Boston Region MPO
Ulla Hester	MBTA Advisory Board
Maureen Kelly	Central Transportation Planning Staff (CTPS)/Boston Region MPO
John Lewis	MBTA
Barbara Lucas	Metropolitan Area Planning Council
Steve Martinson	UMASS/Boston
Elizabeth Moore	Central Transportation Planning Staff (CTPS)/Boston Region MPO
Ron Morgan	MBTA Planning
Thomas Nally	A Better City
Steve Olanoff	Regional Transportation Advisory Council
Jim Oliver	Access Advisory Committee to the MBTA
Richard Page	Blue Cross Blue Shield
Steve Pepin	Office of Transportation Planning
Karen Wepsic	MBTA Rider Oversight Committee
Nigel Wilson	Massachusetts Institute of Technology

Meeting Highlights:

- The MBTA plans to expand its use of Intelligent Transportation Systems (ITS) to increase the operating efficiency, safety, and convenience of the transportation system.
- The MBTA will employ ITS systems to monitor on-time performance of buses, improve web-based and in-station communication to customers, and enhance customer service.
- By the end of 2008, the Bus Control Center will use Computer-aided Dispatch/Automated Vehicle Locator (CAD/AVL) technology to monitor on-time performance of buses systemwide.
- Public Address/Variable Message Signs (PA/VMS) are now on all buses.
- LED (light emitting diode) signage upgrades will be made at 127 commuter rail stations by March 2009. The systems will provide next-train information and improved audio in train coaches.

- Committee members reviewed and discussed a summary of the mobility challenges identified through the public meetings and interviews with MBTA staff.
- Committee members also reviewed a flowchart and outline illustrating the PMT decision-making process and discussed the project evaluation process.
- The outcome of the evaluation process will be the development of cost-effective mobility strategies that meet defined benchmarks.

MBTA ITS & Communication needs & priorities

Joe Cosgrove, MBTA, opened the meeting with a presentation regarding the MBTA's Intelligent Transportation Systems (ITS) and communication systems.

ITS include a range of technologies—such as information processing, communications, control, and electronics systems—that can be used to increase the operating efficiency, safety, and convenience of the transportation system. ITS applications have expanded over the last five to ten years and ITS use is expected to continue to increase.

Current MBTA ITS initiatives include:

- At the Bus Control Center, Computer-aided Dispatch/Automated Vehicle Locator (CAD/AVL) technology is used to monitor on-time performance of buses. This technology is currently employed on the Silver Line and will be extended to the rest of the system by late 2008.
- The MBTA has improved its website to make it more interactive and enhance customer service. The Customer Care Center has been centralized to ensure that complaints do not fall through the cracks. The website enables customers to plan trips and receive alerts about delays or problems within the system. Multi-lingual translation is provided on the website and through Customer Support Services.
- The Silver Line has a next-bus countdown system. Installation of Public Address/Variable Message Signs (PA/VMS), which provides stop information to passengers, has been completed on all buses. The MBTA is also implementing an ADA-compliant Public Address/Electronic Sign System (PA/ESS) that will improve audio announcements at train stations and provide next-train arrival information.
- Upgrades to LED signage to display next-train and other information for passengers will be completed at 127 commuter rail stations by March 2009. The systems will provide next-train information and on-board audio announcement capability. Tony Gouveia, MBTA, explained that the MBTA has a \$5.5 million contract with General Electric (GE) for the work. GE will install GPS (global positioning system) modules on train cars and this technology will enable the posting of messages that will tell customers when the next train will arrive. The PA system on the coaches will be improved so that automated announcements can be made at the correct decibel level in every coach.

Karen Wepsic, MBTA Rider Oversight Committee, noted that real-time bus arrival information should be provided at bus stops as well as at commuter rail stations, as buses are more likely to encounter delays than trains. At a minimum, information about bus delays should be accessible via the MBTA's website. She suggested that a pilot project be implemented on heavily traveled bus routes such as Routes #1 and 66.

Dave Barker, MBTA, explained that, with CAD/AVL, the MBTA is laying the groundwork for implementation of next-bus information in the future, and the MBTA will be looking to provide this capability on all routes. Applying the technology on the bus system will be more challenging than on the commuter rail, however, since the latter is a fixed-route system in a dedicated right-of-way. The MBTA is considering including delay information on its website as soon as possible.

Nigel Wilson, MIT, suggested that it is the role of this committee to recommend procurement of these kinds of technologies in the PMT. He also referred to a study that MIT did with the MBTA to investigate the possibility of coordinating information on arrival/departure times between the Red and Green Lines. John Lewis, MBTA, agreed that the possibility of implementing this technology should be revisited, as it would be relatively inexpensive and would provide a major benefit to people on the Green Line.

N. Wilson also suggested that, although the MBTA now has an updated bus central control center, where dispatchers have access to real-time schedule information, many decisions that affect service performance are made in the field. Therefore, the MBTA should invest in a system that would get the information to the inspectors to help improve service. In addition, he suggested investing in bus holding lights at major transfer stations, as it would provide a large benefit for customers.

Mobility Challenges

Clinton Bench and Elizabeth Moore, CTPS/MPO, distributed a summary of the mobility challenges identified through the public process, interviews with MBTA staff, data analysis, and review of existing studies and reports (see attached hand-out). This summary is not yet complete.

At the public meetings, people were asked to provide comments about problems they face; however, many provided suggestions about specific projects they would like to see implemented. Because the project team is trying to look at mobility problems in the region and identify solutions to evaluate in the PMT, the list of mobility challenges tries to identify the underlying problems rather than listing the suggested projects/solutions at this point in the process. After the problems have been refined, projects/solutions, including the projects proposed by the public, will be considered and evaluated.

CTPS is also doing data analysis, which has identified some interesting mobility issues that need further research. For example, congested corridors that have a low transit mode share or urban areas (such as Lynn and Malden) that demonstrate lower than expected transit usage given their robust transit networks.

N. Wilson noted that the summary does not include any mention of speed of service as a factor. C. Bench agreed that this factor should be included, as the issue was raised in

public meetings. N. Wilson also remarked that the scale of the information under each bulleted item varies and suggested that, as the document is refined, the grouping of the items be changed to make the items more uniform.

Steve Olanoff, RTAC, referring to one of the mobility challenges listed for Southwest Corridor, questioned why so much money was being invested in the new Arborway garage if it won't provide the capacity needed for an enlarged fleet. It was noted that an MOU is in place that limits to how large the garage can be.

Proposed Evaluation Methodology and Criteria

A flowchart and outline illustrating the PMT decision-making process was distributed (see attached handout). The major steps in the evaluation process include:

- Collect data on mobility challenges
- Develop a list of mobility gaps and challenges and refine them into mobility problem statements
- Develop and screen potential mobility solutions
- Evaluate and refine mobility solutions through application of evaluation criteria
- Group solutions by corridor/theme into comprehensive mobility strategies to address PMT goals
- Evaluate potential strategies

During the evaluation process, the potential solutions will be measured using evaluation criteria that are linked to the PMT goals and objectives. Solutions that have a direct operational impact will be evaluated by a separate set of criteria than those that pertain to customer support and safety. In addition, separate criteria have been added to evaluate accessibility projects and parking projects, in response to concerns expressed at the last meeting. Evaluation criteria for State-of-Good Repair projects will also be developed. After application of the evaluation criteria, the solutions will be grouped into comprehensive strategies that will be measured against benchmarks that have been developed for each PMT objective, as well as for cost-effectiveness.

It was noted that when screening potential solutions, fiscal reasonableness of the projects would be taken into consideration. The Committee discussed how the issue of fiscal reasonableness should be handled. B. Lucas expressed concern that early screening of projects for fiscal reasonableness could eliminate worthy projects. J. Cosgrove and C. Bench explained that the process for evaluating projects would be transparent and that the Committee would have opportunities to discuss whether projects should be removed or retained among the mix of potential solutions. It was agreed that this topic needs further clarification.

In the development of the last PMT, individual projects were scored and given a rank to compare the value of one project against another. For the 2008 PMT, the intention is not to rank order individual projects, but to define comprehensive mobility strategies by grouping potential solutions/projects. The mobility strategies—groups of potential solutions—will then be evaluated against the benchmarks, and a cost effective group of projects that meet the benchmarks will eventually be developed. In this way, the

benchmarks will be the key to determining which projects are selected—not project scores and ranks. The benchmarks can also help to demonstrate the need for expansion and enhancement projects, which has been expressed as a concern by some committee members.

N. Wilson stressed the critical importance of the benchmarks and how they are set for the success of this PMT process. Given their pivotal role, he questioned the lack of a feedback loop in the process for setting the benchmarks, so that they could be changed if they prove unreasonable.

N. Wilson asked why parking is not evaluated under the category of customer conveyance. It was noted that, in the past, parking has been considered as a parallel priority by the MBTA. Barbara Lucas, MAPC, suggested that when considering adding parking the focus should be on making improvements that are the best for the system as a whole. C. Bench noted that this issue has been flagged and will be given additional consideration.

To address suggestions made at the last meeting, the text under the “fairness” evaluation criterion has been revised. The new language clarifies that the MBTA’s aim is to eliminate barriers to travel between key destinations and neighborhoods within substantial minority or low-income populations, and to provide benefits that outweigh burdens in those neighborhoods. K. Wepsic indicated that she preferred the original language that mentioned environmental justice. She stated her continuing belief that the MBTA should address concerns that environmental justice areas have not received equal benefits in the past and that burdens should be shared across environmental justice and non-environmental justice areas.

N. Wilson suggested that in the first bullet under the System Configuration evaluation criteria, “elimination of transfers/minimization of transfer time” should be changed to “reduction in number of transfers/minimization of transfer time.” He also suggested that the split between the “customer conveyance” and “customer support and safety” might be revisited. Specifically, the “customer information” criteria might be moved into the “customer support and safety” category.

The next Stakeholder Advisory Committee is scheduled for Thursday, October 25, 2007 from 12:00 - 2:00 PM in the MPO Conference Room, 10 Park Plaza, Suite 2150.

Mobility challenges that apply to all corridors

Accessibility:

- Persons with disabilities do not currently have easy access to the whole system (vehicles, station, buses not pulling to curb, lack of snow removal, etc)
- The RIDE service is not reliable and service scheduling need improvement
- The center aisle on low-floor buses is too narrow for easy movement of passengers, strollers, and wheelchairs

Customer service and communication:

- Customers need to have meaningful input into MBTA policies and decisions
- The MBTA does not always keep customers well informed about services
- Vehicle and station announcements need to be accurate and intelligible
- Access to and replacement of Charlie cards should be easier

Service connectivity and customer demand:

- Service nonexistent or insufficient to attract ridership and take customers where they need to go in some areas, which will be identified through data analysis.
- Service connections to shopping, entertainment, and other discretionary activities are not adequate in some areas, which will be identified through data analysis
- The MBTA does not coordinate services and fares with other RTAs
- The hub and spoke design of the system does not provide easy circumferential or crosstown travel
- Schedules should be coordinated and services connected to provide faster, more direct trips with fewer transfers
- More than one free bus-to-bus transfer should be available within one trip
- Reverse commute options are limited

Station access and parking:

- Parking supply does not meet demand at some stations, which will be identified through data analysis
- Improvements in pedestrian and bicycle access are needed at some stations, which will be identified through data analysis

System preservation:

- MBTA assets need to be maintained in a state of good repair
- All track yards need to be rehabilitated
- Elevators and escalators are often out of service

Service frequency and reliability:

- On-time performance is not reliable, particularly for bus services
- Service is not frequent enough in some areas and at some times of the day, which will be identified through data analysis
- The hours and/or days of service need to be expanded in some areas, which will be identified through data analysis

Environmental protection:

- The MBTA creates some negative environmental impacts; however, improved services could contribute to the reduction of others, such as air pollution and global warming
- Transit should support sustainable development

Northeast corridor mobility challenges

Service connectivity and customer demand:

- Existing gap in high frequency service in a dedicated right-of-way connecting Boston to densely developed urban corridors in Chelsea and Everett
- Transit services need to respond to significant changes in land use that have occurred over last few years
- Lynn has a comparatively low transit mode share, despite a robust bus/commuter rail network
- By 2030, a large growth in intra-city trips is projected for Peabody, which currently has only partial local transit coverage (on east side of city)
- By 2030, ridership on Blue the Line is expected to grow by 10% (with 6-car trains)

Station access and parking:

- A need for additional parking on the Newburyport/Rockport line exists at a number of stations, most notably Salem and Beverly; unused parking capacity exists at Lynn

System preservation:

- Charlestown and Lynn Bus Garages need to be refurbished (Lynn may be reduced in size when Wellington is opened)
- Blue Line signal system is outdated and limits speeds to 40 mph

North corridor mobility challenges

Service connectivity and customer demand:

- Existing gap in high frequency service in a dedicated right-of-way connecting Boston to densely developed urban corridor in Medford
- Transit services do not provide a connection to NH (as alternative to I-93)
- Transit connections are not sufficient from the Reading/Stoneham (Rt. 128) area to Wellington
- Transit services need to respond to significant changes in land use that have occurred over last few years
- Malden has a comparatively low transit mode share, despite a robust bus/rail network
- By 2030 large growth in intra-city trips is projected for Wilmington, which has no existing local transit
- Orange Line is overcrowded during peak hours between Downtown Crossing and North Station

Station access and parking:

- Pedestrian access to Malden Center Station is not adequate
- Parking at Anderson RTC is underutilized

System preservation:

- Bridges, especially the Merrimack River bridge, need to be maintained

Service frequency and reliability:

- Haverhill line infrastructure problems restrict frequency and efficiency of service: signals need to be modernized, there is only a single track over a substantial portion of the route, multiple grade crossings remain, platforms are of insufficient

- length, and trains must currently lay over north of the end of the line, which wastes fuel & time)
- Lack of layover facility on the Lowell line.

Northwest corridor mobility challenges

Service connectivity and customer demand:

- Existing gap in high frequency service in a dedicated right-of-way connecting Boston to densely developed urban corridor in Somerville
- Growing demand in “circumferential” corridors served by Routes 1, 47 and 66
- Waltham has a comparatively low transit mode share, despite a robust bus/rail network
- By 2030, a large growth in intra-city trips is projected for Acton, Concord, and Bedford
- Bus garage capacity will need to be increased if the fleet is enlarged

Station access and parking:

- Parking capacity is insufficient at Alewife
- Pedestrian access to Alewife Station needs improvement

System preservation:

- Red Line tracks are nearing end of their useful life between Harvard and Alewife

West corridor mobility challenges

Customer service and communication:

- Not all Green Line outbound riders are currently interacting with fare collection equipment

Service connectivity and customer demand:

- Green Line is operating at close to capacity and is overcrowded (especially for Sox games)
- Growing demand in “circumferential” corridors served by Routes 47 & 66
- Substantial growth in intra-city trips is projected for Wellesley

System preservation:

- Signal system in Green Line central tunnel dates from 1920s
- Green Line tracks need constant inspection & work due to Type 8s

Service frequency and reliability:

- Commuter rail service is infrequent between Framingham and Worcester

Southwest corridor mobility challenges

Service connectivity and customer demand:

- Additional service is needed to Jackson Square to support TOD
- Existing circumferential/crosstown bus connections are not reliable or sufficient
- By 2030 large growth in intra-city trips is projected for Norwood and Walpole
- Growing demand in “circumferential” corridors served by Routes 1, 47 & 66
- Arborway garage capacity will not be sufficient to accommodate enlarged fleet

Station access and parking:

- Parking is at or near capacity at all stations on the Franklin line (except Forge Park)

Southeast corridor mobility challenges**Service connectivity and customer demand:**

- Crosstown travel within Quincy is hindered by radial bus route structure and poor connectivity at Quincy Center
- Quincy has a comparatively low transit mode share, despite a robust bus/rail network
- Cape Cod does not have direct transit service to Boston via a dedicated right of way
- New Bedford and Fall River do not have direct transit service to Boston via a dedicated right of way
- High growth area, including Abington, Rockland, Hanover, Norwell, Scituate, Cohasset, Hingham and Hull, lacks intra-regional transit options

Station access and parking:

- Parking is at or near capacity at most Red Line and Old Colony Stations, most notably Quincy Adams, Quincy, and Braintree

System preservation:

- Quincy bus garage facilities are antiquated

Service frequency and reliability:

- Signal problems at junction of Red Line branches reduce reliability

Urban core mobility challenges**Service connectivity and customer demand:**

- Speed and convenience of travel between northeast and northwest neighborhoods of urban core is hindered by the need for multiple transfers.
- Cross-regional suburb-suburb trips are hindered by need for multiple transfers
- South Station platform capacity is inadequate for future growth
- Growing demand in “circumferential” corridors served by Routes 1 & 47
- Bus garage and maintenance facilities are inadequate if the CNG fleet is expanded

Environmental Protection

- Locomotive exhaust problems at Back Bay station

2008 Program for Mass Transportation ~~Process Steps for to~~ Determining Preferred Mobility Strategies

~~Identify~~ **Potential mobility Solutions** ~~problems~~

- **Compile list of mobility challenges**
Each mobility challenge identified during the public process will be categorized by corridor and theme and stored in a database for ease of reference.
- **Develop problem statements**
Groups of mobility challenges will be summarized in the form of a limited number of “problem statements.” In some cases, these statements will be corridor-specific, while in others they will reach across corridor lines.

~~Compile list of potential~~ **Identify mobility solutions**

- **Compile list of mobility solutions**
For each problem statement, potential solutions will be identified that further system preservation, service enhancements, and system expansion. Solution concepts will be drawn from various sources, including the Commonwealth’s transportation agencies, the 2003 PMT, the ongoing 2008 PMT public process, the Boston Region MPO Transportation Improvement Program (TIP), the Regional Transportation Plan (RTP), the MBTA State of Good Repair Database, and other sources.
- **Screen potential solutions**
Each of the potential service enhancement and system expansion solutions identified to address problem statements will be screened to ensure that they are technologically feasible, fiscally reasonable, and consistent with MBTA operations service standards/goals. Solutions that meet these screening criteria will be advanced to a more detailed assessment. In addition, the commonwealth’s legal commitments will be considered at this stage to identify solutions that must be part of the PMT’s final set of mobility strategies.

~~Determine Measurable Targets For Each Objective~~

~~For each 2008 PMT objective, a specific target for the year 2030 . . .~~

~~Assess~~ **Evaluate Potential Solutions**

~~Screen potential solutions~~

~~Each of the potential service enhancement and system expansion . . .~~

- **Apply evaluation criteria to potential solutions**
Each of the potential solutions advanced from the previous step will be measured according to applicable evaluation criteria that are linked to the PMT goals and objectives. In the case of service enhancement and system expansion solutions that have a direct operational impact, one set of evaluation criteria will apply. Service enhancement and system expansion solutions pertaining to customer support and safety will be evaluated separately, as well as those pertaining to accessibility and parking. as will all system preservation projects will also be compared to a separate set of evaluation criteria. Each criterion will have a unit of measurement appropriate to the corresponding objective.
- **Estimate cost of potential solutions**
For each of the potential solutions identified, including system preservation needs, estimates will be made of both operating and capital costs, where applicable. In addition, a consolidated annual cost will be calculated in 2008 Dollars. In some cases, these estimates will be drawn from existing feasibility studies or the MBTA's State of Good Repair Database, while in other cases they will be based on a unit cost database. With this information, the cost effectiveness of achieving the estimated level of benefit associated with each quantitative evaluation criterion will also be calculated.
- **Summarize performance of potential solutions**
The results of the evaluation of all potential solutions to a given problem statement will be shown together, but solutions will not be ranked at this stage.

Define Comprehensive Mobility Strategies

~~–Summarize performance of potential solutions~~

~~The results of the evaluation of all potential solutions to a given ...~~

- **Identify proposed groupings of solutions**
For each corridor and systemwide mobility challenge, preferred groupings of solutions – mobility strategies – will be identified with the intent of meeting the targets-benchmarks for each PMT goal-objective in the most cost-effective manner. These strategies will require a combination of system expansion and service enhancement solutions with a variety of strengths. Indeed, some solutions may not perform well on all evaluation criteria overall, but together with other solutions may compose the most cost-effective approach to reaching the desired benchmarks.
- **Estimate combined impacts of mobility strategies**
Using the regional travel demand model, the proposed mobility strategies for all corridors and systemwide mobility challenges will be evaluated as a whole to determine whether the defined targets-benchmarks for PMT goals

objectives will be met. If they are not met, additional iterations of this and the previous step may be performed.

- **Estimate combined costs of mobility strategies**

Cumulative operating and capital costs, as well as consolidated annual costs, will be identified. The cost effectiveness of achieving the estimated level of benefit associated with each quantitative evaluation criterion will also be calculated. Additional iterations of this and the previous two steps may be performed if it appears likely that the PMT goals can be met at a lower cost.

- **Identify incremental milestones for each strategy**

After the comprehensive set of mobility strategies are confirmed to meet the targets for each PMT goal, specific solutions within each strategy will be ordered according to their urgency, effectiveness, and estimated cost. The extent to which each goal is achieved at incremental stages of the 25-year plan will also be identified.

Steps to Determine Evaluation Factors

Develop vision, goals, and objectives for 25-year horizon

The vision, goals, and objectives for the 2008 PMT should together define the desired state of the MBTA's capital facilities at a 25-year horizon. In particular, the vision should be broad and articulate the MBTA's role in the commonwealth's transportation network and its contributions to economic and community vitality. The PMT goals then provide a concise set of customer-oriented measures that can be taken to achieve this vision, and should be the primary driving force behind the formulation of potential mobility solutions. Finally, the objectives describe more specific actions that can be taken to achieve the identified goals.

Define Evaluation Criteria

Evaluation criteria for the 2008 PMT are divided into two primary categories for service enhancements and system expansion. The first category applies to proposed mobility solutions that have a direct impact on the conveyance of customers throughout the system. The second category applies to customer support and safety solutions. Within each category, evaluation criteria include both qualitative and quantitative measures that correspond to the PMT goals and objectives. They are listed below in a similar order to and grouped in a similar fashion as these goals and objectives. Cost effectiveness is an additional factor that will also be applied across these criteria. In particular, the annualized cost (capital and operating) per unit benefit for each measure will be calculated and considered in the development of proposed mobility strategies.

Determine ~~Identify~~ Measurable ~~Targets~~ ~~Benchmarks~~ For Each Objective

For each 2008 PMT objective, a specific target-benchmark for the year 2030 will be identified. In the case of quantitative objectives, such as those relating to travel speed, ridership, and environmental impacts, it will be easier to identify measurable targets. However, qualitative targets will also be identified for other objectives, such as those relating to service coverage, safety, etc. With respect to system preservation in particular, the PMT will assume a goal of achieving a state of good repair in 25 years.

PMT Evaluation Criteria

~~Evaluation criteria for the 2008 PMT are divided into two primary ...~~

Service Enhancement and System Expansion Evaluation Criteria – Customer Conveyance

System Configuration

- Elimination of Transfers/Minimization of Transfer Time
- Improvements to Interconnectivity Between Modes (including fare collection)
- Improvements to station access
- Expansion of transit access to geographical areas underserved by transit

Expediency

- Improvements to service frequency *
- Reduction in travel time
- Reduction in automobile travel time advantage *
- Expansion of transit access during time periods poorly served by transit

Reliability and Comfort

- Improvements to reliability of service
- Expansion of capacity where and when crowding occurs
- Improvements to vehicle comfort and passenger circulation

Fairness

- ~~Rectification-Elimination~~ of barriers to efficient travel between key destinations and neighborhoods with substantial minority or low-income population. Structural and/or Operational Transportation Barriers Faced by environmental justice areas of concern
- ~~Provision Cumulative extension~~ of benefits that outweigh to environmental justice areas of concern at a level commensurate with or greater than any burdens in neighborhoods with substantial minority or low-income population.
~~Expansion of accessibility for persons with disabilities~~

Customer Information

- Improvements to reliability and quality of stop announcements *
- Improvements to availability of real-time service performance data *

Regional Transportation Impacts

- Number of transit riders served
- Number of new transit riders served
- Change in transit mode share for the regional network
- Reduction in regional emissions

Land Use Impacts

- Consistency with local plans that promote coordinated, transit-oriented development and support sustainable land use patterns
- Contribution to attainment of MPO land-use goals
- Contribution to brownfield and infill development

Service Enhancement and System Expansion Evaluation Criteria – Customer Support and Safety

- Enhancements to customers' personal safety
- Provision of amenities where customers access service
- Enhancements to vehicle and station cleanliness *
- Improvements to responsiveness and courtesy of employees *
- Improvements to safety and security training for operators *
- Improvements to navigational tools
- Expansion of schedule availability *
- Provision of customer information in languages other than English *

Service Enhancement and System Expansion Evaluation Criteria – Accessibility

- Number of transit riders served
- Improvements to ease of transfers between rail lines
- Improvements to ease of transfers between rail lines and other transit modes
- Expansion of access to major activity centers

Service Enhancement and System Expansion Evaluation Criteria – Parking

- Connectivity of parking facility to major arterial roadways
- Availability of land and/or air rights
- Projected demand for parking
- Projected ratio of demand to potential capacity
- Potential for minimizing environmental impacts
- Ease of Construction
- Level of community support
- Availability of non-MBTA funding sources

* indicates criterion not included in 2003 PMT