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#### **BOSTON REGION METROPOLITAN PLANNING ORGANIZATION**

Richard A. Davey, MassDOT Secretary and CEO and MPO Chairman Karl H. Quackenbush, Executive Director, MPO Staff

#### **MEMORANDUM**

**DATE:** August 7, 2014

TO: Boston Region Metropolitan Planning Organization (MPO)

FROM: Anne McGahan

RE: LRTP Schedule and Scenario Options

#### 1 BACKGROUND

This memorandum describes upcoming activities related to developing the MPO's next long-range transportation plan (LRTP), which will serve as the guiding document for the Boston Region MPO through the year 2040. These actions include

- · Developing the Goals and Objectives
- Completing the Needs Assessment
- Selecting and modeling multiple transportation and land-use scenarios
- · Ensuring that the plan is fiscally constrained

During the past year, staff have updated the MPO on various LRTP initiatives already underway. Discussion topics have included 1) converting the MPO's former Visions and Policies into Goals and Objectives, and 2) developing the MPO's performance-based planning practice. Other talks have covered developing demographic data and LRTP planning tools, such as the traveldemand model, land-use model (Cube Land), and economic-impact model (TREDIS).

#### 2 LRTP SCHEDULE

Table 1 below presents a schedule of the tasks that need to occur between now and June 2015 (adoption of new LRTP), and completion dates for each task. Following the table, we discuss some of the major milestones in the schedule.

# Table 1 Federal Fiscal Year 2014–15 Schedule for the LRTP and Needs Assessment

Task	Completion Date
Presentation to MPO on Goals and Objectives (with example performance measures) and discussion of possible scenarios	8/7/14
Outreach on Goals and Objectives (with example performance measures), introduction to the Needs Assessment, continued discussion of possible scenarios	9/15–9/30/14
Updated Needs Assessment (ready for posting)	9/25/14
Needs Assessment discussion at MPO	10/2/14
Scenario model runs (multiple land use and transportation networks)	11/1/14–1/30/15
MPO discussion of scenario results	12/4/14–2/1/15
Adoption of land use	2/12/15
Financial information available	3/1/15
Final draft transportation network	4/1/15
Environmental justice, greenhouse gas and air quality analysis of draft LRTP	4/1/15–5/1/15
Draft LRTP for public review	5/14/15
MPO adoption of LRTP	6/26/15

# 2.1 Vision, Goals, and Objectives

MPO staff have prepared a draft vision statement for the MPO and are working toward developing its Goals and Objectives, which will be presented and discussed at the August 7 meeting (see schedule above).

#### MPO Vision Statement

The draft Vision statement (cited below) is based on the MPO's existing Central Vision, but has been edited to be more succinct.

The Boston Region Metropolitan Planning Organization is committed to a transportation system that fosters sustainable cities and towns—where all people can access safe, healthy, efficient, and varied transportation options, and find jobs and services within easy reach of affordable housing. To this end, the MPO invests strategically in projects that maintain existing infrastructure and improve or expand the transportation system, where needed, in an equitable and effective manner. In addition to providing increased mobility and economic opportunities, these endeavors also benefit the environment, allow residents and visitors to enjoy improved air quality, and help transform the MPO's vision into the region's reality.

#### Goals and Objectives

The proposed Goals and Objectives below will serve as the foundation for the LRTP, performance-based planning, and future programming. These are the MPO's initial components of its emerging performance-based planning practice and are not proposed as a complete universe. The MPO likely will expand and adjust the Goals and Objectives in the future, as the practice develops. In addition, staff have identified:

- Possible performance measures for evaluating progress toward achieving Goals and Objectives
- Possible target performance levels for each measure
- Possible time frames within which the targets should be achieved
- Data sources that could be used to analyze performance

#### Safety

- Goal: Transportation by all modes will be safe
- Objective: Reduce the number and severity of crashes, all modes

#### System Preservation

- Goal: Transportation system will be well maintained
- Objectives:
  - Reduce the number of bridges that do not meet standards
  - Improve condition of on- and off-system bridges
  - Improve pavement condition on MassDOT-monitored roadway system
  - Improve transit reliability for all customers by maintaining and modernizing capital assets throughout the system

#### **Congestion Reduction**

Goal: Congestion and delays will be reduced for all modes

- Objectives:
  - o Reduce delay for all modes
  - o Expand sidewalk network in the region
  - Expand bicycle network in the region
  - Reduce delay for transit customers

#### Greenhouse Gas (GHG)/Air Pollution

- Goal: GHG emissions will meet Global Warming Solutions Act requirements
- Objective: Reduce GHGs generated in the Boston Region by all transportation modes

#### Transportation Options/Mode Share

- Goal: Transit, bicycling, and walking options will be available.
- Objectives:
  - Reduce automobile usage in the Boston Region
  - Increase the share of travel by transit, bicycling, and walking in Massachusetts
  - Increase transit usage in the Boston Region
  - o Expand bicycle and sidewalk networks in the region
  - Increase bike parking usage at transit stations
  - o Increase automobile parking usage at transit stations
  - Increase the region's land area, with more than 5,000 people per square mile served by transit
  - Increase the percentage of population and employment within onequarter mile of transit stations
  - o Increase the percentage of population and employment within one-half mile of shared-use paths or on-road bicycle facilities

#### **Transportation Equity**

- Goal: There will be an equitable level of mobility for traditionally underserved populations
- Objective: Maintain comparable access to jobs, hospitals, and schools for environmental justice (EJ) populations compared with non-EJ populations

### **Economic Vitality/Freight**

- Goal: Transportation network will provide a strong foundation for economic vitality
- Objectives:
  - o Reduce delays on freight network
  - o Improve efficiency of freight network
  - o Minimize net loss from the 25-34 year old population in the region

 Minimize burden of housing and transportation costs for residents in the region

#### 2.2 Needs Assessment

The Needs Assessment is a detailed review of existing and projected travel in the area and the impact that travel has on transportation infrastructure. The Needs Assessment is used to understand and document the need to pursue transportation investments in the region. Typically, the Needs Assessment examines travel demand compared to infrastructure supply, as congestion, delays, and other problems result when demand exceeds supply. The Needs Assessment addresses safety, the aging transportation infrastructure, and environmental characteristics, while highlighting how congestion would change over time. Currently, staff is conducting a Needs Assessment for the 2012 base year and no-build conditions for the 2040 forecast year.

The Needs Assessment will guide MPO decisions about how to address the region's geographic and modal transportation needs through the LRTP. It also will guide future decision making about which projects to fund in the Transportation Improvement Program (TIP) and which studies to conduct through the Unified Planning Work Program.

Staff estimates that the Needs Assessment would be ready to post on September 25, one week before the October 2 MPO meeting. Outreach to gather public input on the Goals and Objectives and possible scenarios would occur during the month of September, the same time as outreach for the MPO's Public Participation Plan. Although the Needs Assessment will not be available until October, the September outreach would include an introduction and explanation of how the Needs Assessment will be used and how members of the public can provide input.

# 2.3 Scenario Analysis

To address system deficiencies identified in the Needs Assessment, the MPO (and State transportation agencies) will identify projects that address specific needs. Given the level of transportation funding and our aging transportation infrastructure, the projects needed to maintain the system will greatly exceed available financial resources. Consequently, the MPO will be charged with evaluating these projects in the context of its Goals and Objectives. Typically, this evaluation is conducted under the heading of "Scenario Analysis."

A scenario is sometimes referred to as "project packaging." For example, the MPO may decide that the majority of the region's financial investment should be made in public transportation and non-motorized modes, with moderate

investment going to auto modes to encourage mode shift. Thus, a suite of transportation investments to accomplish this is selected from the list of all transportation projects. This "mode-shift" scenario would then be evaluated by MPO staff<sup>1</sup>. The process is fairly flexible and gives the MPO a great deal of latitude toward developing packages of transportation improvements that would be analyzed as various investment scenarios.

Scenario testing is scheduled to occur between November 1 and end of January 2015. Staff potentially could begin testing in October if the MPO agrees on an initial scenario that could be run while the scenario outreach process for the Needs Assessment is taking place in October. The MPO will use the scenario planning process to inform its decision about adopting land use for the LRTP.

Unique to this year's Needs Assessment and LRTP is Cube Land software. Cube Land is a computer program that calculates how property values and development patterns are affected by transportation investments. Cube Land is run in conjunction with the MPOs regional travel demand forecasting (TDF) model. The regional TDF takes as input, land use and a very detailed representation of the highway and transit system. The regional model then computes the level of congestion that likely would occur based on the land use. Cube Land reads TDF-defined congestion, as well as zoning, land use, property values, and MAPC's database of permitted development projects. Cube Land then calculates the probable future development patterns.

For example, if an MPO scenario reflected expansion of the transit system, Cube Land would compute how the expansion would affect development patterns and land use in and around the expanded system.

The overall strategy for using Cube Land is to give the MPO another tool for scenario analysis.

# 2.4 Financially Constrained LRTP

Financial information is expected to be available in March 2015, during development of the TIP. This information is usually the basis for projecting available funding through the horizon year of the LRTP, which in this case will be 2040. The MPO will choose its recommended transportation investment program in the beginning of April, after which staff will model the final land-use and transportation network and perform the environmental justice, greenhouse gas, and air-quality conformity analyses. This information will be available for the

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<sup>&</sup>lt;sup>1</sup> A list of potential scenarios for evaluation is listed in Section 3 of the memorandum.

MPO to release the draft LRTP for public review at the end of May, with adoption scheduled for the end of June 2015.

#### 3 OPTIONS FOR SCENARIO PLANNING

Table 2 below displays a set of initial ideas for the scenario planning process. The table first shows a baseline scenario where investments are planned simply to maintain the status quo. Alternatively, the MPO may package various sets of projects and programs that, for example, might expand the transit system and encourage mode shift. Ultimately, a set of projects and programs that seeks to accomplish several scenario goals and that pulls projects and programs from those several scenarios may be selected by the MPO.

Table 2
Potential Options for Scenario Planning for the LRTP

Scenario Based on Goals	Transportation	Level of Funding: Potential Future Funding Cuts	Level of Funding: Financially Constrained	Level of Funding: Illustrative Using Alternative Revenue Options
Current LRTP Program	Current program— -state of good repair, expansion, transit flex			
System Preservation (including improved freight movement)	State of Good Repair			
Non-Expansion Oriented (includes system preservation, congestion reduction, mode shift, improved freight movement)	Program Focus (complete streets, safety, clean air and mobility, bicycle and pedestrian, bottleneck, intersection improvements)			
Mode Shift	Strong Transit  -Community Transportation (potential focus on bus/bus rapid transit, bicycle and pedestrian, core capacity improvements)			
Climate Change Oriented	Greenhouse Gas Reduction Focus (fleet change, alternate transportation–transit, bicycle and pedestrian)			