



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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

MEMORANDUM

DATE September 20, 2012
TO Boston Region Metropolitan Planning Organization
FROM Karl H. Quackenbush
CTPS Executive Director
RE Work Program for: Bicycle Network Evaluation

Action Required

Review and approval

Proposed Motion

That the Boston Region Metropolitan Planning Organization vote to approve the work program for Bicycle Network Evaluation in the form of the draft dated September 20, 2012.

Project Identification

Unified Planning Work Program Classification

Planning Studies

CTPS Project Number

11247

Clients

Boston Region Metropolitan Planning Organization

CTPS Project Supervisors

Principal: Efi Pagitsas

Manager: Christine Bettin

Funding

MPO 3C Planning Contract #69965

MPO §5303 Contract #70172

Impact on MPO Work

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

Background

Local, regional, and state government agencies in the Boston region are actively working on improving bicycling infrastructure to enhance safety for bicyclists, provide more connectivity, and increase bicycling as a mode of transportation. Many bicycle facilities have been constructed as a result of these efforts, and a regionwide network of on-road facilities and off-road shared-use paths has been developed. However, within this network, there exist gaps in network continuity and connectivity, necessitating circuitous travel and reducing the efficiency with which network users can travel between key origins and destinations. The causes of these gaps include lack of coordinated planning, lack of funding, right-of-way (ROW) constraints, competition for ROW space, and physical obstructions such as waterways, bridges, roadways, and railroads.

The purpose of this project is to identify and prioritize network gaps in the metro Boston area that have regional significance and analyze them in terms of potential construction projects, or other remedial actions, which may be considered for design and funding in future Transportation Improvement Program (TIP) cycles. This project will recommend the appropriate type of bicycle facility, such as bike lanes, shared lanes, or shared-use paths, for each gap location. Its findings and products will support local, regional, and state planning efforts for providing a safe, convenient, and continuous bicycle network in the metro Boston area.

Additionally, this project will advance the goals of the Boston Region MPO Regional Bicycle Plan¹ developed by the Metropolitan Area Planning Council (MAPC), further the mobility goals discussed in the Long-Range Transportation Plan (LRTP) *Paths to a Sustainable Region*,² assist the implementation of the Massachusetts Department of Transportation (MassDOT) Bicycle Transportation Plan and elements of the Bay State Greenway,³ encourage the shared use of infrastructure recommended in the

¹ Boston Region Metropolitan Planning Organization, "Regional Bicycle Plan", prepared by the Metropolitan Area Planning Council, March 2007

² Boston Region Metropolitan Planning Organization, "Long-Range Transportation Plan: *Paths to a Sustainable Region*," Central Transportation Planning Staff, September 2011

³ Massachusetts Department of Transportation, *Massachusetts Bicycle Transportation Plan*, September 2008.

youMove Massachusetts Report,⁴ and build upon the ongoing work of the Congestion Management Process. CTPS, in coordination with MassDOT's statewide bicycle plan and in collaboration with MAPC, will be responsible for carrying out this project.

Associated with this work program there will be a public outreach component carried out by MAPC. Specifically, in addition to CTPS's applying systematic criteria for identifying network connectivity opportunities, MAPC will solicit input from local municipal planners and bicycle transportation committees about additional connectivity opportunities and their priority.

Objective

The objective of this project is to enhance regional bicycle connectivity and safety by identifying and prioritizing gaps within the existing bicycle network between major regional origin/destination points. The project will provide recommendations for future bikeway corridors, corridor segments, and other appropriate facilities that would help to eliminate gaps and promote seamless continuity within the network.

Work Description

The work required to accomplish the project objective will be carried out in five tasks. Presented in detail below, they may be summarized as follows. The first task will identify and map a regional base network of existing and planned bicycle facilities. The second task will define evaluation criteria related to safety, accessibility, and regional connectivity between major transportation services and significant residential, commercial, and employment centers. The third task will apply the evaluation criteria to the existing network in order to identify and prioritize the most significant gaps. Task 3 will also solicit public input and use it, as appropriate, to modify the selection and prioritization of gaps. The fourth task will consist of a preliminary planning assessment for up to 15 of the highest-priority gaps and the development of recommendations for proposed improvements at those locations. Recommendations will consist of on-road and off-road improvements, such as the installation of bike lanes, sharrows (pavement markings that direct bicyclists where to ride on the road), and shared-use paths. The fifth task will develop a technical memorandum documenting Tasks 1 through 4.

⁴ Massachusetts Department of Transportation, "youMove Massachusetts Phase 1 Report," Office of Transportation Planning, February 2009

Task 1 Create a Regional Bicycle Network Map Showing Existing and Planned Facilities

In this task, we will identify and map the base network that we will be evaluating for gaps and missing links in Task 3. We expect this base network to consist primarily of facilities of regional significance, because the project's objective is to enhance connectivity at the regional level. In order to identify the regional base network, we will define and apply criteria associated with the number of connections between existing and planned bicycle facilities and major origin/destination points.

The existing network will be supplemented on the map by facilities that are in the planning stage. This will be accomplished through reviews of current municipal, regional, and state bicycle planning efforts: in coordination with MAPC, we will incorporate bicycle projects from the TIP and LRTP and plans identified via MAPC's public outreach efforts to support this work program.

Product of Task 1

A map of the network of existing and proposed regional bicycle facilities within the metro Boston area

Task 2 Define the Evaluation Criteria

In coordination with MAPC, we will define the evaluation criteria that will be used, along with public input, to identify the most significant gaps in the existing network and to prioritize them. Most of the criteria will evaluate a gap by assessing what the benefits would be of a hypothetical facility filling that gap. The criteria will be based on safety, accessibility, connectivity, estimated usage, and consistency with other plans, including the LRTP Needs Assessment and the MAPC MetroFuture regional plan. There will be a special emphasis on regional connectivity: connecting communities, regional transit services, and major origin and destination points, such as central business districts, universities, hospitals, and major recreational locations.

Potential evaluation criteria include:

- Origin/destination points that could be served
 - Major employment centers
 - Universities
 - Central business districts
 - Town centers/shopping centers
 - Major recreational locations and cultural attractions

- Demographics
 - Population density
 - Employment density
- Transit network and related transportation nodes
 - Regional bus, rail, and ferry stations
 - Hubway stations
 - Zipcar stations
 - Parking facilities
- Safety
 - Number of bicycle crashes
 - Traffic volumes
 - Truck volumes
 - Average speed
 - Lane widths
 - Number of travel lanes
 - Usable shoulders
- Regional connectivity
 - Number of potential connections to existing and proposed bicycle facilities
 - Proximity to congested corridors
 - Number of origin/destination points potentially connected
 - Number of towns and cities potentially connected
 - Length of potential facility

Products of Task 2

A list of evaluation criteria that will be applied to the network map in order to identify significant gaps and prioritize them

Task 3 Identify Significant Gaps within the Network

In this task, the most significant gaps within the regional bicycle network will be identified and prioritized by applying the evaluation criteria from Task 2 and through the solicitation of public input. The findings will be documented in a set of maps that display information collected for this process.

Subtask 3.1 Apply Evaluation Criteria

Staff will apply the selected evaluation criteria from Task 2 to the regional network map in order to identify significant gaps within the regional network and prioritize them. Up to 15 high-priority gaps will be selected for analysis in Task 4.

Subtask 3.2 Solicit and Incorporate Public Input

Public input will be solicited in the following ways:

- MPO and MAPC staff will conduct one open house for the general public, targeting members of communities with local bicycling knowledge. Attendees will be requested to provide input on the prioritized gaps.
- Staff will put out a call for comments via the *TRANSREPORT* newsletter, the Boston Region MPO website, and the MAPC website.
- MAPC staff will conduct outreach efforts to the subregions, local municipal planners, and bicycle transportation committees, asking for comments.

We will document the public input and use it, as appropriate, to modify the selection and prioritization of gaps.

Products of Task 3

- Up to five thematic maps showing the network of existing and proposed bicycle facilities, with related demographics and the network's connections to origin/destination points and the transit network. The maps will be available on the MPO website.
- Compilation of comments obtained from outreach efforts, the open house, and responses to the *TRANSREPORT*/website call for comments.
- A list and map of gaps prioritized based on the application of evaluation criteria and public input.

Task 4 Propose Recommendations for Addressing High-Priority Gaps

We will analyze up to 15 high-priority gaps to determine the following:

- Existing conditions, including right-of-way (ROW) characteristics and ownership, demographics, access to public transit, and crash data.
- Potential challenges to addressing the gap, such as ROW constraints, land ownership, environmental impacts, and physical constraints such as highways, bridges, and rivers, etc.
- Proposed on-road and off-road improvements at the conceptual level, which may include bike lanes, sharrows, cycle tracks, shared-use paths, and other modifications deemed appropriate. An appropriate implementing entity will be indicated.
- Potential funding sources and/or joint development opportunities

Products of Task 4

Preliminary planning assessment of the selected high-priority gaps, including recommended improvements

Task 5 Document the Findings

The findings of this study, including the information collected, analyses, and recommendations, will be compiled into a technical memorandum.

Product of Task 5

Technical memorandum documenting Tasks 1 through 4

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 \$31,000. This includes the cost of 11.9 person-weeks of staff time, overhead at the rate of 96.58 percent, and travel. A detailed breakdown of estimated costs is presented in Exhibit 2.

KQ/EP/CB/cb

Exhibit 1
ESTIMATED SCHEDULE
Bicycle Network Evaluation

| Task | Month | | | | | |
|-------------------------------------|-------|---|---|---|---|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Create Regional Network Map | █ | | | | | |
| 2. Define the Evaluation Criteria | | █ | | | | |
| 3. Identify Gaps within the Network | | | █ | █ | | |
| 4. Propose Recommendations | | | | | █ | |
| 5. Document the Findings | █ | █ | █ | █ | █ | █ A |

Products/Milestones

A: Technical memorandum

Exhibit 2
ESTIMATED COST
Bicycle Network Evaluation

| | |
|-----------------------------------|-----------------|
| Direct Salary and Overhead | \$30,543 |
|-----------------------------------|-----------------|

| Task | Person-Weeks | | | | Direct Salary | Overhead (96.58%) | Total Cost |
|-------------------------------------|--------------|-----|-----|-------|---------------|-------------------|------------|
| | M-1 | P-4 | P-3 | Total | | | |
| 1. Create Regional Network Map | 0.1 | 1.2 | 0.3 | 1.6 | \$1,998 | \$1,930 | \$3,928 |
| 2. Define the Evaluation Criteria | 0.2 | 1.0 | 0.2 | 1.4 | \$1,810 | \$1,748 | \$3,559 |
| 3. Identify Gaps within the Network | 0.1 | 4.3 | 0.3 | 4.7 | \$5,910 | \$5,708 | \$11,618 |
| 4. Propose Recommendations | 0.2 | 1.5 | 0.1 | 1.8 | \$2,336 | \$2,257 | \$4,593 |
| 5. Document the Findings | 1.1 | 1.2 | 0.1 | 2.4 | \$3,483 | \$3,364 | \$6,846 |
| Total | 1.7 | 9.2 | 1.0 | 11.9 | \$15,537 | \$15,006 | \$30,543 |

| | |
|---------------------------|--------------|
| Other Direct Costs | \$400 |
|---------------------------|--------------|

| | |
|--------|-------|
| Travel | \$400 |
|--------|-------|

| | |
|-------------------|-----------------|
| TOTAL COST | \$30,943 |
|-------------------|-----------------|

Funding

MPO 3C Planning Contract #69965

MPO §5303 Contract #70172