



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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

MEMORANDUM

DATE January 9, 2014
TO Boston Region Metropolitan Planning Organization
FROM Karl H. Quackenbush
CTPS Executive Director
RE Work Program for: Pedestrian Signal Phasing Study

Action Required

Review and approval

Proposed Motion

That the Boston Region Metropolitan Planning Organization vote to approve the work program for the Pedestrian Signal Phasing Study presented in this memorandum

Project Identification

Unified Planning Work Program Classification

Technical Support/Operations Analysis Projects

CTPS Project Number

13264

Client

Boston Region Metropolitan Planning Organization

CTPS Project Supervisors

Principal: Efi Pagitsas

Manager: Beth Isler

Funding

MPO Planning Contract #78890

Impact on MPO Work

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

Background

The selection of pedestrian signal phasing involves many complicated factors and is challenging to traffic engineers. Exclusive pedestrian phasing (in which all traffic is stopped and pedestrians can cross in all directions) is favored for safety, but forces pedestrians to wait through an entire cycle of traffic before being permitted to cross. Concurrent phasing allows pedestrians to cross with traffic and can therefore reduce their delay, but conflicts between pedestrians and turning vehicles may arise. This study is designed to identify the conditions under which each type of phasing is most appropriate.

Objective

Develop guidance for municipalities on when to use concurrent or exclusive pedestrian phasing

Work Description

This study will review the existing practices and available guidelines for the two types of pedestrian signal operations, perform case studies in the MPO region (including an analysis of crash data), compare the two types of signal operations, and summarize the findings for the MPO's reference. This information will be disseminated to Boston-region municipalities through a variety of methods, which may include: 1) documents made available on the Boston Region MPO website; 2) information in the MPO's newsletter, *TRANSREPORT*; and 3) presentations to the MPO and to interested municipalities. Municipalities can then apply this information when developing policies for redesigning traffic signals that include pedestrian phases.

This project will be performed in three phases:

1. A literature review of current research and practices for concurrent and exclusive pedestrian signal phasing
2. In-depth case studies of up to five cities and towns within the MPO region
3. Data analysis to identify any existing patterns between pedestrian-vehicle crashes and the type of pedestrian phasing used

These tasks are discussed in more detail below.

Task 1 Conduct a Literature Review and Assess the State of the Practice

The literature review will focus on publications from professional organizations recognized as leaders in transportation research: the American Association of State Highway and Transportation Officials (AASHTO), Institute of Transportation Engineers (ITE), Transportation Research Board (TRB), and Association of Pedestrian and Bicycle Professionals (APBP). The literature review will inform the study on the state of the practice in exclusive and concurrent pedestrian phasing and any findings on the differences between the two types of operations.

Product of Task 1

Memorandum summarizing the findings of the literature review

Task 2 Perform Case Studies

Based on the findings in Task 1, CTPS will contact up to five municipalities within the Boston region for more in-depth examination of their pedestrian-phasing policies and engineering practices. These case studies will serve as local examples of how municipalities within the region have approached this topic. The selected municipalities will include cities and towns, both urban and suburban.

Product of Task 2

Memorandum summarizing the findings of the case studies

Task 3 Analyze Data

CTPS will gather crash data, turning-movement volumes, and signal phasing data (as available) to determine whether any discernible trends exist between safety and pedestrian signal phasing under various traffic conditions. The mobility needs of pedestrians with disabilities will also be considered. These findings will be documented in Task 4.

Product of Task 3

Notes, tables, and other materials displaying these data

Task 4 Document and Present Results

The study will be presented to the MPO at a regularly scheduled MPO meeting and to interested municipalities at a separate meeting, which will be held at the State Transportation Building.

One draft memorandum summarizing the methodology and findings of this project and providing guidance on pedestrian signal phasing will be sent for review and comment to staff in the five cities and towns that participated in the case studies. Reviewers will have two weeks to comment and then the draft will be revised and finalized.

Products of Task 4

- PowerPoint presentation summarizing the study
- Draft memo
- Final memo

Estimated Schedule

It is estimated that this project will be completed eight months after work commences. The proposed schedule, by task, is shown in Exhibit 1.

Estimated Cost

The total cost of this project is estimated to be \$30,000. This includes the cost of 8.9 person-weeks of staff time, overhead at the rate of 97.42 percent, travel, and other direct costs. A detailed breakdown of estimated costs is presented in Exhibit 2.

KQ/EP/BI/bi

Exhibit 1
ESTIMATED SCHEDULE
Pedestrian Signal Phasing Study

Task	Month							
	1	2	3	4	5	6	7	8
1. Conduct a Literature Review	A							
2. Perform Case Studies		B						
3. Analyze Data								
4. Document and Present Results	C D							

Products/Milestones

- A: Memorandum summarizing the findings of the literature review
- B: Memorandum summarizing the findings of the case studies
- C: Draft memorandum on the results of the study
- D: Final memorandum on the results of the study

Exhibit 2
ESTIMATED COST
Pedestrian Signal Phasing Study

Direct Salary and Overhead	\$22,827
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Task	Person-Weeks			Direct Salary	Overhead (97.42%)	Total Cost
	M-1	P-4	Total			
1. Conduct a Literature Review	0.0	2.0	2.0	\$2,530	\$2,464	\$4,994
2. Perform Case Studies	0.0	2.2	2.2	\$2,783	\$2,711	\$5,493
3. Analyze Data	0.0	2.0	2.0	\$2,530	\$2,464	\$4,994
4. Document and Present Results	0.7	2.0	2.7	\$3,721	\$3,625	\$7,346
Total	0.7	8.2	8.9	\$11,563	\$11,265	\$22,827

Other Direct Costs	\$7,173
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Travel	\$212
Other (Project Support Budgets)	\$6,961

TOTAL COST	\$30,000
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Funding
MPO Planning Contract #78890