BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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James A. Aloisi, Jr.
Secretary of Transportation
and MPO Chairman

Arnold J. Soolman
Director, MPO Staff

MEMORANDUM

DATE September 3, 2009

TO Transportation Planning and Programming Committee of the Boston Region Metropolitan Planning Organization

FROM Arnold J. Soolman, CTPS Director

RE Work Program for: 2009-2010 HOV Monitoring on I-93 North and the Southeast Expressway

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 Massachusetts Highway Department, vote to approve the work program for 2009-2010 HOV Monitoring on I-93 North and the Southeast Expressway in the form of the draft dated September 3, 2009.

PROJECT IDENTIFICATION

Unified Planning Work Program Classification
Regional Planning Studies

CTPS Project Number
23223

Client
Massachusetts Highway Department
Project Supervisor: Douglas Carnahan

CTPS Project Supervisors
Principal: Efi Pagitsas
Manager: Seth Asante

Funding
MHD SPR Highway Planning Contract #TBD

IMPACT ON MPO WORK

The MPO staff has sufficient resources to complete this work in a capable and timely manner. By undertaking this work the MPO staff will neither delay the completion of nor reduce the quality of other work in the UPWP.

BACKGROUND

In 1998, the Massachusetts Department of Environmental Protection began requiring monitoring of the Southeast Expressway and I-93 North general-purpose and HOV lanes to determine HOV performance. The requirements are set forth in 310 CMR 7.37, which calls for travel time data collected Monday through Friday seasonally throughout the year. This work scope provides for the continuation of this process and documents the projected tasks, products, scheduling, and costs of HOV monitoring for 2009-2010.

OBJECTIVE(S)

The objectives of this work are:

1. To collect travel time runs on the I-93 North and Southeast Expressway HOV lane segments and their associated general-purpose lane segments during the fall of 2009 and the winter, spring, and summer of 2010.

2. To collect AM period vehicle occupancy counts on the I-93 North and Southeast Expressway HOV lane segments and their associated general-purpose lane segments during the fall of 2009 and the spring of 2010.

3. To calculate average speed, travel time, vehicle occupancy, and HOV travel time savings throughout this period.

4. To analyze and document the results in written and graphic format.

WORK DESCRIPTION

The work required to accomplish the study objectives will be carried out in four tasks as described below:

Task 1 Collect Travel Time Data

CTPS will collect sample travel time data using stopwatches and Global Positioning System (GPS) satellite receivers in rented automobiles on the I-93 North and Southeast Expressway HOV and general-purpose lanes. The collection hours are between 6:00 and 10:00 AM on I-93 North southbound and the Southeast Expressway northbound and between 3:00 and 7:00 PM on the Southeast Expressway southbound. Data will be collected over the course of four quarters throughout the year, beginning in the fall of 2009. CTPS will also collect travel time data from CTPS and Massachusetts Highway Department employees and Mass*RIDES* vanpoolers, as they become available.

Products of Task 1

- Travel time data for the general-purpose and HOV lanes in electronic form and on handwritten field notes.

Task 2 Process and Analyze Travel Time Data

CTPS will process the data collected using GPS technology and incorporate it into the geographic information system (GIS) travel time database. CTPS will then combine the GPS data with data collected using the stopwatch method during the same season and analyze it using tables and graphs.

Products of Task 2

- Four sets of tables and graphs presenting seasonal estimates of speed, travel time, and HOV travel time savings for I-93 North during the AM period, for the Southeast Expressway during the AM period, and for the Southeast Expressway during the PM period.

Task 3 Collect Vehicle Occupancy Data

CTPS will collect vehicle occupancy data on both the I-93 North and Southeast Expressway HOV lanes and their associated general-purpose lanes on a typical weekday during the fall of 2009 and again during the spring of 2010. Data will be collected throughout the four hours of AM HOV operation.

Products of Task 3

- Total numbers of vehicles and their occupants, grouped by fifteen-minute intervals, on a typical weekday during the spring and fall for each of the two HOV and seven general-purpose lanes under study.

Task 4 Document Travel Time Savings

The data collected in Task 1 and analyzed in Task 2 will be used to produce five technical memoranda documenting high-occupancy vehicle (HOV) lane performance. The occupancy data collected in Task 3 will be reported bi-annually and including a calculation of the total vehicles and persons and vehicle occupancy for I-93 North and Southeast Expressway HOV and general-purpose lanes.

Products of Task 4

- Four memos documenting the most recent performance of the HOV lanes by seasons (fall, winter, spring, and summer). The spring and fall memos will also include the results of vehicle occupancy counts.

- A fifth memo generated at the end of the project year, documenting the year's performance of the HOV lanes.

ESTIMATED SCHEDULE

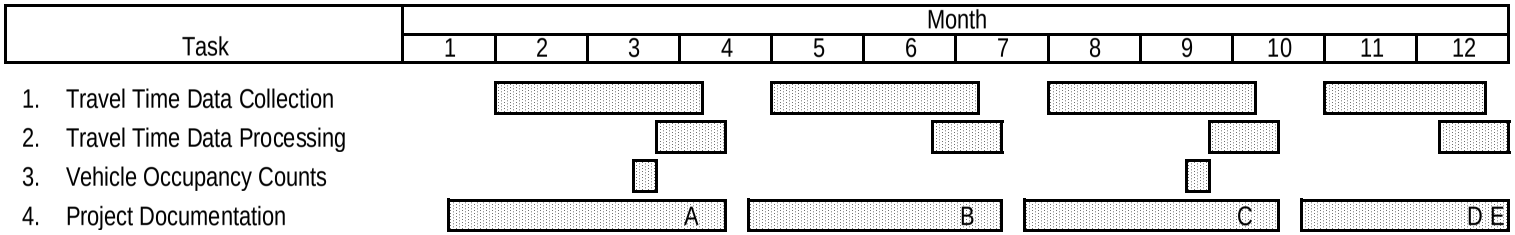
It is estimated that this project would be completed twelve months after the notice to proceed is received. The proposed schedule, by task, is shown in Exhibit 1.

ESTIMATED COST

The total cost of this project is estimated to be $60,000. This includes the cost of 39.0 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/SAA/saa

Exhibit 1
ESTIMATED SCHEDULE
2009-2010 HOV Monitoring on I-93 North and the Southeast Expressway



Products/Milestones

A: Memo documenting fall 2009 travel times and vehicle occupancy
B: Memo documenting winter 2009-2010 travel times
C: Memo documenting spring 2010 travel times and vehicle occupancy
D: Memo documenting summer 2010 travel times
E: Memo documenting annual travel times and vehicle occupancy

Exhibit 2
ESTIMATED COST
2009-2010 HOV Monitoring on I-93 North and the Southeast Expressway

Direct Salary and Overhead	$53,563

Task	Person-Weeks								Direct Salary	Overhead (@ 88.99%)	Total Cost
	M-1	P-5	P-4	P-3	P-2	P-1	Temp	Total			
1. Travel Time Data Collection	0.0	0.5	0.0	0.0	0.0	1.0	21.5	23.0	$12,417	$11,050	$23,467
2. Travel Time Data Processing	0.5	2.0	0.0	0.0	0.0	2.0	0.0	4.5	$5,355	$4,766	$10,121
3. Vehicle Occupancy Counts	0.0	1.0	0.0	0.0	0.0	1.0	5.5	7.5	$5,069	$4,511	$9,579
4. Project Documentation	1.0	2.0	0.0	0.0	0.0	1.0	0.0	4.0	$5,501	$4,895	$10,396
Total	1.0	5.5	0.0	0.0	0.0	5.0	27.0	39.0	$28,342	$25,222	$53,563

Other Direct Costs	$6,437
Travel	$6,437

TOTAL COST	$60,000

Funding

MHD SPR Highway Planning Contract #TBD