



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Stephanie Pollack, MassDOT Secretary and CEO and MPO Chair
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WORK PROGRAM

TRIP GENERATION RATE RESEARCH

DECEMBER 3, 2020

Proposed Motion

The Boston Region Metropolitan Planning Organization (MPO) votes to approve this work program.

Project Identification

Unified Planning Work Program (UPWP) Classification

Boston Region MPO Planning Studies and Technical Analyses

Project Number 13304

Client

Boston Region MPO

Project Supervisors

Principal: Ed Bromage

Manager: Drashti Joshi

Funding Source

3C Combined Contract # 112310

Schedule and Budget

Schedule: 8 months after work commences

Budget: \$45,000

Schedule and budget details are shown in Exhibits 1 and 2, respectively.

Relationship to MPO Goals

The Boston Region MPO elected to fund this study with its federally allocated metropolitan planning funds during federal fiscal year (FFY) 2021. The work completed through this study will address the following goal area(s) established in the MPO's Long-Range Transportation Plan: safety, system preservation, capacity management and mobility, transportation equity, economic vitality.

Background

According to Massachusetts Environmental Policy Act (MEPA) and National Environmental Policy Act (NEPA) any proposed land use development project (over certain traffic and environmental thresholds, and involving state or federal land, funds, or action) is required to prepare traffic/transportation impact analysis. This analysis shows the transportation system impacts associated with the proposed action. The trip generation rates are essential to this analysis. Standard practice for this type of land use analysis is to use the Institute of Transportation Engineers (ITE) trip generation rate manual to estimate the trip generation rates for the proposed development.

However, ITE rates are based on national averages from across the United States, in many suburban locations, and with smaller sample sizes. ITE lacks the regional/local transportation characteristic considerations such as transit availability, its usage-focus on mixed use development, bike-pedestrian facilities, and economic growth centers. For these reasons, using ITE rates for all land use projects may lead to a different trip generation estimation than what may actually transpire. In addition, ITE rates are known for giving wide ranges of rates and low sample sizes, thus resulting in a high degree of variability and interpretability in their application. As a result, the use of these rates varies considerably, which can affect the mitigation of transportation-related impacts of proposed land use projects and possibly change the scale of the development.

For this research, the Central Transportation Planning Staff (CTPS) will examine recently completed site development impact studies in the greater Boston area. As a point of comparison, CTPS will review MEPA available travel monitoring data from completed projects; trip generation rates used in MEPA/NEPA submissions; and the statewide travel models trip generation results. This research can aid in the MPO's understanding of the appropriateness of the ITE rates, model trip generation rates to support corridor studies, environmental processes such as NEPA and MEPA filings, and our understanding of the relationship between land use and trip activity.

Objective(s)

The primary objectives of this project are as follows:

1. Detailed literature review with comparison of alternative approaches to ITE trip generation rate practices for different communities at local and national levels. The literature review will build upon recently completed "Innovations in Estimating Trip Generation" work by CTPS staff
2. Derive and compare local trip generation rates using the Massachusetts 2011 Household (HH) Survey data and statewide Travel Demand Model (TDM) inputs

3. Coordinate with the Massachusetts Department of Transportation (MassDOT) and Metropolitan Area Planning Council (MAPC) (stakeholders) on ongoing ITE trip generation rate research work

Work Description

Work will be completed according to the following tasks:

Task 1 Information Gathering and Coordination

Subtask 1.1 Coordinate with Stakeholders

MPO staff will coordinate with stakeholders (MassDOT and MAPC) involved in the research and use of trip generation rates in the Boston region to gain an understanding of current practice and seek input in developing the Boston region specific ITE trip generation rates. This coordination includes attending meetings and providing technical inputs and support with the MAPC, MassDOT, and ITE.

Subtask 1.2 Review Current Literature on ITE Trip Generation Rates and Alternative Practices

Staff will conduct a literature review to understand the need, benefits, and impacts of local area specific trip generation rates. The literature review will attempt to answer the following questions:

- How are other regional and national level communities dealing with trip generation analysis for new developments?
- What alternative practices to ITE trip rates are being used?

Products of Task 1

- Summary of relevant studies
- A comparison table of alternative approaches to ITE trip generation rate practices for selected communities

Task 2 Data Analysis

Subtask 2.1 2011 Massachusetts HH Survey-based Trip Generation Rates

Along with lessons learned, as an alternative method for better representation of regional characteristic-based trip generation rates, staff will use statistical analysis tools to process HH survey data and derive trip rates for mixed-use development-based land use categories.

Staff will prepare trip generation rates by trip purpose based on the HH survey data and compare these rates with TDM trip rates. If deemed feasible, TDM will incorporate new land use categories in the trip generation model.

Subtask 2.2 Travel Monitoring Data-Based Trip Generation Rates

Based on an ongoing ITE trip generation rate research effort, staff will also look at up to 10 travel monitoring reports for trip generation counts for local developments and compare them with TDM rates and ITE rates.

Products of Task 2

- An analysis of the processed data including supporting materials such as tables, graphs, and maps (included in the final report)
- Development of a possible short-term planning measure to pursue for TDM

Task 3 Prepare a Final Report

Staff will produce a white paper or final report, summarizing the study's research and findings and a possible presentation to the MPO board regarding this study.

Product of Task 3

- White paper or report

Estimated Schedule

It is estimated that this project will be completed 8 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 \$45,000. This includes the cost of 13.7 person-weeks of staff time and overhead at the rate of 106 percent. A detailed breakdown of estimated costs is presented in Exhibit 2.

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Exhibit 1
ESTIMATED SCHEDULE
Trip Generation Rate Research

Task	Month							
	1	2	3	4	5	6	7	8
1. Information Gathering and Coordination								
2. Data Analysis								
3. Prepare a Final Report								

Exhibit 2
ESTIMATED COST
Trip Generation Rate Research

Direct Salary and Overhead							\$45,000
Task	Person-Weeks				Direct Salary	Overhead (106%)	Total Cost
	M-1	P-5	P-4	Total			
1. Information Gathering and Coordination	0.8	0.0	5.0	5.8	\$8,769	\$9,295	\$18,065
2. Data Analysis	0.8	0.5	3.2	4.5	\$7,161	\$7,591	\$14,752
3. Prepare a Final Report	1.5	0.5	1.4	3.4	\$5,914	\$6,269	\$12,183
Total	3.1	1.0	9.6	13.7	\$21,844	\$23,155	\$45,000
Other Direct Costs							\$0
TOTAL COST							\$45,000

Funding
 3C Combined Contract #112310