Chapter 1 Introduction and Planning Framework

1.0 Introduction

The Towns of Westborough and Southborough have experienced significant growth in population and employment and increased traffic volume and congestion over the past 20-25 years. Westborough and Southborough each have large office/industrial parks and significant areas of industrially zoned land near the I-495 and Route 9 interchange. In addition, Route 9 serves as a regional shopping and employment destination, with much of the land along the highway zoned for large scale retail and office use. Westborough has grown into an employment center with more jobs (26,300) than residents (18,300) and Southborough has a population of 9,800 with 6,000 jobs. Collectively, both communities are expected to see population and employment increase by approximately 14 percent and 20 percent, respectively, by the year 2035.

Traffic volumes on I-95, I-90, and Route 9 have increased over the years as a result of employment and population growth in the surrounding communities. Both I-495 and I-90 currently carry approximately 100,000 vehicles per day (vpd) and Route 9 carries more than 50,000 vpd. As a result of these high volumes, commuters experience congestion and delay on both the mainline highway and at the I-495/Route 9 and I-495/I-90 interchanges. The expected growth in population and employment in the area will generate additional traffic, exacerbating already congested conditions. The *Interstate 495 & Route 9 Interchange Improvement Study* was initiated by MassDOT to provide a forum for state and regional agencies, municipal officials, area partnerships, legislators, transportation service providers, and other stakeholders to collaboratively develop reasonable solutions to existing and anticipated future transportation problems in the study area.

Travel demand on the I-495 corridor is high, due to the fact that this highway serves a variety of critical functions. I-495 has had a major influence on development within the multiple communities it passes through. Over time, I-495's role in connecting MetroWest corridor communities to a wider transportation system contributed to their growth and, in part, economic well-being. However, following years of population and employment growth, the travel demand from the I-495 corridor communities has combined with travel outside this corridor to stress the capacity of I-495 and its interchanges with other highways.

In addition to traffic generated by local employment and residents, I-495 also accommodates a large proportion of through traffic, with origins and destinations located outside of the immediate study area. In this capacity, I-495 fulfills a critical role in mobility as an inter-regional and interstate travel link, providing connections to New Hampshire, Maine, and Rhode Island as well as to I-95, I-93, I-90, Route 2 and Route 3. I-495 provides a vital function in the movement of people and goods. The regional connections that I-495 provides make it a particularly desirable route for moving goods, because it allows shippers to avoid the expense of time and fuel lost to congestion and longer distances associated with traveling through metropolitan Boston. This is demonstrated by the high level of truck traffic in the general traffic stream.

As changes to land use, economics and other factors influence travel demand and patterns, the role and function of I-495 have also changed. As I-495 and its interchanges have become over utilized, its ability to serve its functions has been reduced.

In 2009, CMRPC, as staff to the Central Massachusetts Metropolitan Planning Organization (CMMPO), and the MAPC, as staff to the Boston Region MPO, conducted a corridor study of Interstate 495 from

Interstate 290 to Interstate 90.[1] This study identified existing and future capacity constraints in the corridor and methods to increase interchange capacity and reduce single-occupancy vehicle trips through the interchanges.

This study builds upon the prior CMRPC/MAPC study and provides a more detailed evaluation of congestion and safety issues on the I-495 mainline and the I-495/Route 9 and I-495/I-90 interchanges, under existing conditions as well as those anticipated in 2035. While this study focuses on the I-495/Route 9 interchange, the I-495/I-90 interchange was included as part of this study due to its proximity and potential interactions with the I-495/Route 9 interchange. It was determined that issues related to the I-495/I-90 interchange could affect the I-495/Route 9 interchange, and that some improvement alternatives for the I-495/Route 9 interchange may involve changes to the I-495/I-90 interchange. The study evaluates how travel constraints that exist now, and that may worsen in the future, can be resolved over time in a manner that reflects the level of complexity and cost for the needed improvements. Additionally, the role of land use and opportunities for transit and other non-vehicular travel are evaluated as part of this study.

The study involved the development and evaluation of a full range of transportation improvement alternatives including interchange, highway, and non-highway improvements, as well as multi-modal options. A recommended master plan of multi-modal transportation improvements for the study area, including a discussion of implementation steps, was a key study product.

This report documents all phases of the work efforts completed, including input from the Study Advisory Group (SAG) and the general public. The following chapters are provided in the report:

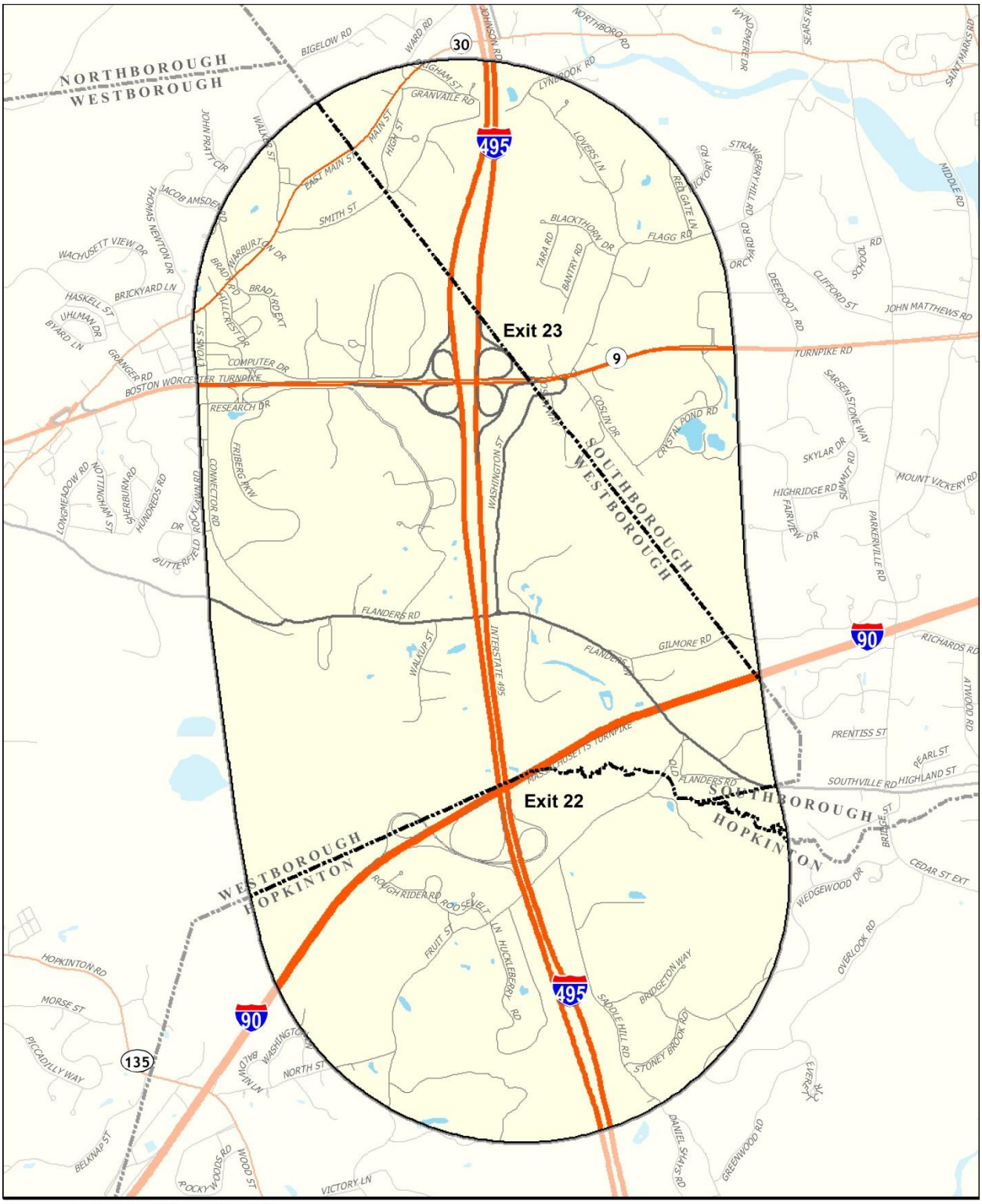
- Chapter 1 – Introduction and Planning Framework
- Chapter 2 – Existing Conditions and Issues Evaluation
- Chapter 3 – Alternatives Development and Analysis
- Chapter 4 – Recommendations and Implementation

1.1 Study Area

The project's primary study area is centered on I-495 and extends from one mile north of Route 9 to one mile south of I-90 (the Massachusetts Turnpike), and one mile east and west of I-495, as shown in Figure 1.1-1. The study area is located in the towns of Westborough, Southborough and Hopkinton. A secondary study area for transit-related analysis includes the MBTA commuter rail stations in Westborough and Southborough. Concerns about transportation issues in this corridor resulted in state, regional, and local interest in exploring potential alternative solutions for alleviating existing and expected future traffic congestion, improving regional mobility and safety.

[1] *I-495 Study I-290 to I-90,* Central Massachusetts Regional Planning Commission and Metropolitan Area Planning Council, 2009.

Figure 1.1-1 Study Area



The study area for this project was finalized during the initial stages and confirmed with the Study Advisory Group (SAG) at Meeting #1 on September 9, 2011. The study area includes the following interchanges and intersections:

- I-495/Route 9 Interchange, Exit 23 (Westborough)
- I-495/I-90 Interchange, Exit 22 (Hopkinton)
- Route 9/Crystal Pond Road (Southborough)
- Route 9 Westbound Ramps/Computer Drive (Westborough)
- Route 9 Eastbound Ramps/Research Drive (Westborough)
- Connector Road/Research Drive (Westborough)
- Connector Road/Computer Drive (Westborough)
- Route 9 Eastbound/Washington Street and Route 9 Eastbound/Coslin Drive (Southborough)
- Route 9 Westbound/Flagg Road (Southborough)
- Route 9 Westbound/Park Central Drive (Southborough)
- Route 9 Eastbound/Driveway #352 Boston Worcester Turnpike Road (Southborough)
- Route 9 Westbound/Driveway #325 Worcester Turnpike Road (Southborough)

In addition, driveways on Route 9 within the study area were evaluated as part of the overall Route 9 corridor.

1.2 Goals and Objectives

Goals and objectives identify the purpose of the study and provide a “mission statement” for addressing a particular issue or set of issues. The defined goals and objectives shape the framework of the entire study. As established by the Study Advisory Group (SAG), the study’s goal is to enhance economic development opportunities in this growing area while preserving environmental conditions and improving quality of life.

The study was conducted in order to develop viable short- and long-term transportation improvements that would achieve this goal through pursuing the following major objectives:

- Reduce traffic congestion and improve air quality
- Improve highway safety and operations
- Enhance mobility by increasing choices
- Support economic development and smart growth

The goals and objectives were endorsed by the SAG at the first meeting on September 9, 2011.

1.3 Evaluation Criteria

The evaluation criteria are specific considerations, or measures of effectiveness, used to assess benefits and impacts of alternatives developed during the study. The evaluation criteria are be based on the defined goals and objectives. The following evaluation criteria, which are closely linked to the study objectives, were confirmed at the SAG meeting on September 9, 2011:

- Congestion
- Mobility – including the use of technology and way finding
- Safety and operations
- Environmental effects
- Land use
- Economic development - including the potential for public/private partnerships
- Community effects
- Cost

These evaluation criteria, which are based on either quantifiable or more subjective qualitative measures of effectiveness, have been used to determine the best solutions for the defined goals and objectives.

The measurement methods for the evaluation criteria include:

- Congestion – changes in traffic volume, Level of Service (LOS), vehicle delay, queuing, and travel speed.
- Mobility – potential to reduce single-occupancy vehicle use, number of modal connections, potential to improve pedestrian and bicycle access, potential for Intelligent Transportation Systems (ITS) and way-finding to improve accessibility.
- Safety – potential for reduced vehicle conflict, change in traffic volume, potential to meet roadway geometric standards.
- Environmental effects – change in regional air quality emissions and greenhouse gasses, area of wetland/water bodies and threatened/endangered species habitat affected, potential for changes in stormwater runoff, impact to historic/archeological resources, impact to parkland/conservation land.
- Land use – consistency with municipal and regional plans and policy.
- Economic development – improved access to designated development areas, potential for public/private partnerships.
- Community effects – effects on adjacent environmental justice neighborhoods, potential for noise impacts on adjacent properties, takings of commercial/residential parcels.
- Cost – construction cost estimates for alternatives in 2012 dollars.

1.4 Public Involvement Plan

A key component of this study was the public involvement process. One of the first tasks of the work effort was to develop a Public Involvement Plan, the details of which can be found in Appendix A of this document, along with meeting notes from all public meetings.

The intent of the Public Involvement Plan was to establish a structure for civic engagement and ensure that there would be a forum for interested and affected parties to provide input and comment on the study process, to provide education and awareness about the project, and to engage key stakeholders in the process, to build agreement and support implementation. Principles to which the public involvement process adhered were also developed at the same time. Included were commitments to create an environment in which decisions were based on an objective, transparent, and inclusive planning process; to ensure open, honest, and clear communications; and to facilitate a two-way dialogue.

1.4-1 Study Participants

The Public Involvement Plan (PIP) called for the creation of a Study Advisory Group (SAG) to participate with MassDOT during the study process. The roles of each of these study participants were specifically defined by the PIP to provide guidance to the involved parties.

The largest group participating in the public involvement process was the SAG. The MassDOT Office of Transportation Planning (OTP) identified SAG membership after direct consultation with participants. Members included:

1. MassDOT Office of Transportation Planning
2. MassDOT Highway Division – District 3
3. MassDOT Highway Division – Boston
4. Towns of Westborough and Southborough
5. Central Mass Regional Planning Commission (CMRPC)
6. Metropolitan Area Planning Council (MAPC)
7. 495/MetroWest Partnership
8. Corridor 9 Chamber of Commerce
9. Worcester Regional Transit Authority (WRTA)
10. MetroWest Regional Transit Authority (MWRTA)
11. Massachusetts Bay Transportation Authority (MBTA)
12. Elected Officials

The purpose of the SAG was to provide input to the study process, assist with alternatives development, and provide input and feedback on the technical materials and alternatives. The primary means of coordination with the SAG was via email correspondence from OTP staff and participation in SAG meetings at project milestones.

A total of five formal SAG meetings were held throughout the course of the 21-month study as indicated in Table 1.4-1. Meeting minutes and the attendance list for each SAG meeting is provided in Appendix A.

1.4-2 Public Information

The means of disseminating information to the public for this project consisted of a MassDOT webpage, an electronic mailing list, and public outreach meetings.

Webpage – All materials related to study were provided on the webpage at http://www.massdot.state.ma.us/planning/Main/CurrentStudies/I495Route9InterchangeStudy.aspx. The webpage included an email link for interested participants to use to receive project information.

Electronic Mailing List – All study materials and meeting notifications were sent out via an electronic mailing list. This list was updated regularly based on meeting attendees, and was used for transmitting project updates.

Public Meetings –Two public stakeholder information meetings were held; the first to present existing and future conditions and initial alternative concepts, and the second to present the results of the

alternatives analysis and study recommendations. Materials presented at these meetings included a comment period for the SAG and public review.

In addition, meetings were held with the Southborough Board of Selectmen and Planning Board, Westborough Planning Board and Hopkinton Board of Selectmen to provide project updates and solicit comments.

Table 1.4-1 on the following page lists the SAG, community and public stakeholder informational meetings that were held over the course of the *Interstate 495 & Route 9 Interchange Improvement Study.* Notes from these meetings can be found in Appendix A.

1.4-3 Public Comment Summary

Public comments indicated that traffic congestion on Route 9 around I-495 and on I-495 between Route 9 and I-90 was a significant problem that would affect development potential in the study area, and pointed to the need to develop a long range plan that was responsive to land use policy to develop needed improvements. Some of the suggestions for improvements made by the public in their comments are included in the potential improvements discussed in Chapter 3. Examples include a collector-distributor (C-D) road or braided ramps for the I-495/Route 9 interchange, and improvements to the Crystal Pond Road, Park Central Drive, Computer Drive and Research Drive intersections with Route 9. Several commenters noted that alternate tolling operations should be investigated for the I-495/I-90 interchange. Others indicated the need to expand transit, bicycling and walking options to provide alternatives to travel by single-occupancy vehicle. All of the comments received through the public involvement process were considered when developing the recommended improvement plan presented in Chapter 4.

Table 1.4-1: Public Involvement

Group/Meeting	Date	Location	Agenda
Study Advisory Group Meeting #1	September 9, 2011	Westborough Public Library	• Team Introduction • SAG Membership • Project Background • Study Area • Goals & Objectives • Evaluation Criteria • Public Involvement Plan
Study Advisory Group Meeting #2	December 9, 2011	Westborough Public Library	• Existing Conditions and Issues o Traffic/Roadway o Pedestrians/Bicycles o Transit/ TMA o Land Use o Demographics o Market Conditions
Study Advisory Group Meeting #3	February 24, 2012	Westborough Public Library	• 2035 No-Build Conditions and Issues under the Regional Transportation Plan Scenario • Initial Alternative Concepts
Westborough Planning Board	March 20, 2012	Westborough Municipal Building	• Project Status Report • Existing and Future Conditions • Initial Alternative Concepts
Public Stakeholder Meeting	March 27, 2012	495/MetroWest Partnership Westborough	• Project Status Report • Existing and Future Conditions • Initial Alternative Concepts
Southborough Board of Selectmen	April 22, 2012	Southborough Senior Center	• Project Status Report • Existing and Future Conditions • Initial Alternative Concepts
Study Advisory Group Meeting #4	June 29, 2012	Westborough Public Library	• 2035 No-Build Conditions and Issues under the MetroWest Compact Priority Development Area Scenario • Preliminary Screening Criteria • Evaluation of Alternatives
Study Advisory Group Meeting #5	October 19, 2012	Westborough Municipal Building	• Recommendations • Implementation Steps
Public Stakeholder Meeting	November 2, 2012	495/MetroWest Partnership Westborough	• Evaluation of Alternatives • Recommendations • Implementation Steps
Southborough Planning Board	January 7, 2013	Southborough Town House	• Recommendations
Hopkinton Board of Selectmen	January 8, 2013	Hopkinton Town Hall	• Recommendations
Westborough Planning Board	January 15, 2013	Westborough Municipal Building	• Recommendations