

Section 2

Project Purpose and Need

2.1 Existing Transportation Deficiencies in the Project Area

The Massachusetts Highway Department (MassHighway) is proposing to make improvements to a portion of Route 1 in Revere, Malden and Saugus. The 2.4-mile project begins 1,500 feet south of the Route 1/Route 60 interchange (Copeland Circle) and continues north through the Route 1/Route 99 interchange.

Route 1 within the project area is primarily a limited-access urban principal arterial highway that serves as the major north-south roadway for communities north of Boston. This portion of Route 1 has long-standing operational and safety problems that are the result of a combination of factors -- high traffic volumes, poor ramp geometry, and a reduction in travel lanes from six to four throughout the 2.4-mile stretch. Average daily traffic is approximately 100,000 vehicles per day.

The existing deficiencies on Route 1 in the project area have been documented in a number of studies, three of which are summarized below. These studies provide the context and form the basis for the need to undertake improvements to this segment of Route 1.

2.1.1 Lower North Shore Transportation Improvement Project

The "Lower North Shore Transportation Improvement Project," prepared in October 2000 by the Central Transportation Planning Staff (CTPS), is a comprehensive multimodal planning study designed to identify and address existing and future transportation needs and issues related to roadway congestion, transit services, and bicycle and pedestrian safety. The study area covered five communities on the lower North Shore -- Chelsea, East Boston, Everett, Malden, and Revere, and the major roadway network including this segment of Route 1, Routes 16 and 60 (east-west), and Route 1A.

The study noted that congestion on Route 1 mainly occurs in the section north of Copeland Circle due to the reduction in number of lanes (from six to four) from this location to the north. At the point on Route 1 northbound where three lanes transition to two lanes, traffic demand exceeds capacity, causing congestion on a daily basis. The CTPS study also notes that recurring congestion occurs on Route 1 southbound at the Route 60 off-ramp during the AM peak period (when traffic from the north is traveling towards Route 1A) and on Route 1 northbound at the Route 60 on-ramp during the PM peak period (when traffic is traveling from Route 1A to Malden and other towns to the north).

The project area, according to CTPS, includes a high-crash location that ranked #2 on the state's list of high crash intersections between 1997 and 1999. This location -- the

intersection of Route 1 and Copeland Circle – was the site of 466 crashes in that three-year period, almost half of which involved bodily injury, including one fatality.

The CTPS study further describes the traffic problems on Route 1 at the Salem Street/Lynn Street off- and on-ramps in Malden. Even though the volumes of the traffic using these ramps are not high, traffic operations are poor. This deficiency is largely due to the ramps' geometric limitations, including the absence of deceleration and acceleration lanes along Route 1, low design speeds, and the close spacing of the ramps. The poor geometry, in particular, makes this interchange unsafe – a fact demonstrated by the high number of accidents that have occurred there (122 between 1997 and 1999).

To address these deficiencies, the CTPS study recommends that Route 1 be reconstructed as a six-lane highway between Copeland Circle and Route 99. It also recommends reconstruction of the Lynn Street and Route 99 interchanges to address the geometric issues described above.

2.1.2 Regional Transportation Plan 2004-2025 of the Boston Region MPO

The Boston Region Metropolitan Planning Organization (MPO) is a cooperative board of 14 voting members representing federal, state, and local entities. The MPO is charged with the responsibility of developing a regional transportation plan at least every three years. "Plan 2004" (dated September 11, 2003 and amended on August 11, 2005) addresses the transportation needs of 101 cities and towns in eastern Massachusetts, encompassing an area of approximately 1,405 square miles and including the Route 1 project area.

In developing recommendations for improvements in its region, the MPO emphasized reinvestment in the region's transportation infrastructure, consistent with the Commonwealth's "Fix it First" policy. The MPO plan sets its own policies consistent with this and other guiding principles, selects "regionally significant projects" and identifies the actions necessary to serve all modes of transportation in the region.

The Route 1 Improvement Project, described as widening Route 1 from four to six lanes between Copeland Circle and Route 99, is one such "regionally significant project" identified in the 2003 MPO plan. The project is defined as reconstructing the on- and off-ramps at the Salem Street and Lynn Street interchanges, and improving the connection between Route 99 and Route 1 by providing a normal right-lane merge from Route 99 northbound to Route 1 northbound.

The MPO plan rated the Route 1 project as "high" for consistency with three of its policies:

- Enhance safety and security;

- Improve regional mobility; and
- Preserve/modernize the system.

2.1.3 Route 1 Transportation Improvement Project (MassHighway)

MassHighway took steps to improve this segment of Route 1 by filing an Environmental Notification Form (ENF) describing the project, pursuant to the Massachusetts Environmental Policy Act (MEPA, G.L. c.30, ss. 61-62H), and MEPA regulations (301 CMR 11.00) . Filed in November 2003, the ENF cites the previous regional traffic studies and reinforces the overall purpose and need for the proposed improvements – to improve the safety as well as the efficiency of Route 1 in this area.

In the ENF, nine preliminary alternatives (Alternatives 1-9, summarized in Table 2.1 1) are defined and presented as having the potential to address project purpose and need. MassHighway proposed Alternative 9 as its preferred alternative in the ENF.

Recognizing that the identification of a preferred alternative is a fluid process, particularly in the early stages of project planning, the Secretary of Environmental Affairs (now the Secretary of Energy and Environmental Affairs), in the Certificate on the ENF, directed MassHighway to explain any changes to the preferred alternative “based on comments received and/or adjustments of the design between now and the filing of the EIR.” In fact, following filing of the ENF and in response to comments on that document, MassHighway added another alternative, referred to as “10C,” and identified it as the preferred alternative at a meeting with the MEPA Director on May 13, 2004 and subsequently in a letter to the Secretary of Environmental Affairs (dated July 8, 2004 and included in Appendix E).

2.2 Project Purpose and Need

The Route 1 Transportation Improvement Project is formulated to build upon the studies summarized above. The overall purpose and need includes the following elements:

- Improve regional mobility;
- Improve local mobility and access;
- Reduce congestion on Route 1 between Copeland Circle and Route 99; and
- Improve traffic safety caused by vehicle conflict points between Route 1 mainline and on- and off-ramps.

**Table 2.1-1
Proposed Route 1 Improvement Alternatives**

Alternative 1	No Build - Leave Route 1 in current state.
Alternative 2	Widen Route 1 from four to six lanes along current alignment and modify exit and entrance ramps to improve safety.
Alternative 3	Reconstruct and widen Route 1 from four to six lanes along a "straight line" alignment through the Overlook Ridge site. Replace Route 1/Lynn Street/Salem Street Interchange with diamond-shaped interchange.
Alternative 4	Same as Alternative 3, but along a slightly more western alignment through Overlook Ridge.
Alternative 5	Same as Alternative 4, but along a slightly more western alignment through Overlook Ridge.
Alternative 6	Same as Alternative 5, but along a slightly more western alignment through Overlook Ridge.
Alternative 7	Same as Alternative 6, but along a slightly more western alignment through Overlook Ridge. This alignment is close to the existing Route 1 alignment.
Alternative 8	Reconstruct and widen Route 1, realigning it 1,200 feet to the east through Overlook Ridge. This alignment is the same as Alternative 5 but with fewer wetland impacts.
Alternative 9	Reconstruct and widen Route 1 from four to six lanes along a more westerly alignment than Alternative 8. Replace Route 1/Lynn Street/Salem Street Interchange with diamond-shaped interchange.
Alternative 10C	Construct new lane in each direction on Route 1 and new exit ramp from Route 1 SB to Route 60 EB. Reconstruct intersection of Route 1 and Salem/Lynn Street to provide longer acceleration/deceleration lanes.