Purpose

The purpose of the F.E. Everett Turnpike (F.E.E.T.) Widening Project is to improve transportation efficiency and reduce safety problems associated with turnpike congestion in Nashua, Merrimack, and Bedford for all users of the turnpike while being sensitive to the needs of local communities, residents, and natural and cultural resources.

Need

The F.E.E.T. is a principal north-south arterial highway within the State of New Hampshire and is part of the New Hampshire Turnpike System. The F.E.E.T. begins at the state border with Massachusetts, where it is a continuation of US Route 3, and continues north 39.5 miles to Exit 14 in Concord, NH. It includes portions of Interstates 93 and 293 and provides a vital link for north/south travel.

The F.E.E.T. carries a mix of traffic including trucks, cars, and buses, as well as commercial traffic vital to the region's economy. The F.E.E.T. corridor serves as a regional commuting route for residents of New Hampshire and Massachusetts as well as an important local route for the communities of Nashua, Merrimack, Bedford, and other surrounding municipalities. It also serves as an important link for New England-wide travel to population centers such as Nashua, Manchester, and Concord, as well as to tourist destinations such as the New Hampshire Lakes Region, White Mountains, and ski areas. As one of the main arterials in the New Hampshire highway system, it is important to maintain the mobility of people, goods *and services through this corridor.*

Capacity

Since the F.E.E.T. was constructed in the 1950s and 1960s, many segments and interchanges have been widened and improved. Currently, between the Massachusetts border and the I-293 interchange, all but three segments have at least three lanes in each direction. These three segments are two lanes in each direction.

Traffic volumes on the F.E.E.T. have grown substantially in recent years, resulting in frequent congestion and poor Levels of Service (LOS) on several road segments. (Level of Service is a measure of how well or poorly a roadway handles traffic volumes. LOS A represents free-flow conditions with no backups or delays, and LOS F represents extreme congestion with major delays.) In the three roadway segments with two lanes in each direction, traffic volumes increased between 25% and 40% from 2009 to 2015. In the 2010 feasibility report, the 2009 LOS ranged between D and E, and the 2030 LOS was forecasted to be LOS F on all three segments. A LOS of F is frequently encountered along these turnpike roadway segments.

Traffic volumes are expected to continue to increase. An updated traffic analysis completed for this project determined the existing (2016) design hour traffic volumes (DHV is the 30th highest hourly volume for the design year) based on actual traffic counts and future volumes based on a regional traffic model. The 2016 DHV exceeded the theoretical capacity for the highway, reflecting existing levels of congestion and delays. By 2024, traffic is expected to increase by 10.4%, so congestion and delays, as well as the potential for crashes, will continue to increase if the roadway remains in its current configuration.

Regional and Local Planning

The project corridor lies within three municipalities (Nashua, Merrimack, and Bedford) and traverses two regional planning organizations (Nashua Regional Planning Commission and Southern New Hampshire Planning Commission).

The Nashua Regional Planning Commission's (NRPC) Nashua Region Metropolitan Transportation Plan, 2015-2040 identifies the F.E.E.T. as the primary north/south arterial in the region. The Plan states that the turnpike's lane reductions lead to "recurring congestion associated with bottleneck conditions" causing congestion and compromising safety. NRPC staff indicate that the congestion on the turnpike increases congestion on other roads within the region.

The Southern New Hampshire Planning Commission's (SNHPC) 2015 regional plan, Moving Southern NH Forward, identifies the F.E.E.T. as a critical regional and statewide link. A future no-build analysis conducted by SNHPC indicated that the F.E.E.T. in Manchester and Bedford would be over capacity by 2035, and that capacity improvements would improve north-south highway travel. SNHPC staff added that the current two-lane sections are a safety concern.

The City of Nashua's master plan, Nashua 2000 Master Plan, supports safety improvements and reducing congestion on roadways. The City currently shifts workers' Friday schedules to avoid traffic congestion. Merrimack's 2013 Master Plan identifies peak hour traffic congestion at Exit 11 (Merrimack), and states that approximately 26 percent of crashes reported in Merrimack occurred on the F.E.E.T. and its ramps. In interviews conducted for this project (see Land Use section of Chapter 3), town planners expressed concern with current levels of capacity and gridlock. Bedford planners also expressed concerns with safety and congestion along the existing F.E.E.T. corridor.

In recognition of these safety concerns, congestion, and deficiencies, the project has been included in the State's most recent Ten-Year Transportation Improvement Plan 2017-2026 for construction in years 2022 to 2024.

Safety

Crash data was provided by the NHDOT for the years 2006 through 2016. Of the crashes reported, the majority occurred during dry roadway conditions and were located near on-ramps and off-ramps, particularly at Exits 11 and 12 (in Merrimack) and the I-293 interchange (in Bedford). In addition, there are several locations that were not specifically located at ramp intersections where it appears that the geometry of the mainline segment, coupled with congested traffic conditions, are contributing factors to the higher incidence of crashes. Vehicle crashes cause property damage as well as injuries to drivers. As traffic volumes increase on the F.E.E.T., the geometric deficiencies will become more problematic and crashes will likely increase.

Infrastructure

There are certain deficiencies in the current infrastructure that pose safety concerns. For example, there are segments where the turnpike's alignment, profile and superelevation were designed and constructed for a 55 mph design speed, whereas the proposed design would accommodate a speed of 70 mph.

Bridges associated with the F.E.E.T. also have structural and capacity deficiencies that need to be addressed. Specifically, the F.E.E.T. over Pennichuck Brook Bridges' substructures have concrete spalling and the steel girders exhibit section loss. The Baboosic Lake Road Bridge over the F.E.E.T. exhibits heaving, spalling and other concrete-related problems and is on the State's "Red List", which indicates one or more components of the bridge is in poor condition or the bridge requires weight limit restrictions. The twin culverts carrying the F.E.E.T. over Baboosic Brook are generally considered to be in good condition, but are hydraulically undersized