

## 2.0 PURPOSE AND NEED

Taking into consideration agency and public input, the purpose and need for the Project was identified early in Project planning. As noted in Appendix A, for purposes of meeting the guidelines of the USACE Highway Methodology (USACE, 1993), the basic purpose of the Project is to reduce congestion and improve safety along NH 102 from I-93 easterly through downtown Derry and to promote economic vitality in the Derry-Londonderry area. This Project purpose statement was used throughout the planning process for the identification, evaluation, and screening of potential alternatives (CLD, 2000; CLD, 2001).

### 2.1 Purpose

The purpose of this Project includes:

- providing for the safe and efficient movement of people, goods, and services between I-93 and the towns served by NH 102, specifically Derry and Londonderry, that are immediately adjacent to I-93 Exit 4;
- providing an alternative route to the Interstate system for traffic using NH 102 to and from the east, thus removing a large volume of through traffic from the heavily congested downtown Derry street network;
- providing improved Interstate access for commercial and industrially zoned lands near State Route 28 (NH 28) in both Derry and Londonderry, thus allowing for the planned and orderly development of such lands to further locally defined economic development goals and tax base diversification; and
- enhancing and promoting the economic vitality of the downtown Derry area, presently characterized by traffic congestion and decreasing vehicular and pedestrian safety, by separating local, destination-oriented traffic from through traffic destined for the Interstate system.

### 2.2 Need

The Towns, working with FHWA, NHDOT, and CATF,<sup>3</sup> identified several factors demonstrating the need for transportation improvements within the study area, including traffic congestion in downtown Derry, economic vitality, and safety. Each of these aspects of the Project need is discussed below taking into account changes in traffic data and economic development opportunities since the 2007 DEIS.

#### 2.2.1 Traffic Congestion in and around Downtown Derry

NH 102, known as Broadway, is the principal east-west roadway through both Derry and Londonderry and serves as the major route for traffic accessing I-93 via Exit 4. The section of NH 102 passing through downtown Derry serves as its “main street.” The “downtown” area begins at the NH 102/Fordway intersection and progresses easterly to the NH 102/NH 28

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<sup>3</sup> The Citizens Advisory Technical Committee (CATF) was formed to offer opportunities for stakeholders to provide input into the Project planning process. The CATF included local officials, interested citizens, and federal and state agency staff. Chapter 11 includes a list of the CATF members and a summary of the highlights of Project meetings, including the scoping meetings.

intersection (Figure 2.2-1). It is currently a two-lane road from I-93 easterly through the downtown area, with several traffic signals and numerous intersections with side streets, on-street parallel parking, and a steady flow of pedestrian traffic. As a result of these complicating and often conflicting functions, downtown Derry experiences considerable congestion as locally oriented traffic intermingles with Interstate-bound through traffic.

Although operating near capacity, the updated traffic analyses conducted for 2015 existing conditions and the 2040 No Build condition generally show acceptable peak hour Level of Service (LOS) D at the major intersections along NH 102 through downtown Derry, including the NH 102/NH 28 (Crystal Ave/Birch Street) intersection. Traffic volumes in downtown Derry are projected to increase by approximately 15 percent between 2015 and 2040. Larger traffic increases and higher levels of congestion (LOS E or F) are not projected for Derry because of the availability of alternative routes to disperse traffic. The existing two-lane road is not capable of handling higher volumes without traffic flow breaking down. Therefore, traffic avoids the downtown NH 102 corridor, diverting to other local roads such as Folsom Road and Londonderry Road as alternative access routes to Exit 4. This situation has been observed on Folsom Road where traffic has increased from about 8,700 to 11,768 annual average daily traffic (AADT) between 1998 and 2015.

The traffic diversions to local roads to avoid NH 102 result in congestion issues in additional portions of Derry, such as the intersection of North High Street and Ash Street Extension, which is projected to operate at LOS F in the AM and PM peak hours in 2040. As traffic diverts around NH 102 to points easterly, it increases traffic on local streets not designed for high through-traffic volumes. Table 2.2-1 provides a summary of existing and 2040 No Build annual average weekday traffic (AAWDT) along key corridors in the study area (see Figure 2.2-1 for road segment locations).

**Table 2.2-1. Summary of 2015 and 2040 No Build Average Annual Weekday Traffic on NH 102 and Roadways Used to Bypass NH 102**

Roadway Segment	Adjusted 2015 AAWDT	2040 No Build AAWDT	2015 to 2040 Increase	Percent Increase
NH 102, East of Griffin Street	16,400	18,958	2,558	13%
NH 102, West of Abbot Street	14,350	19,217	4,867	25%
NH 102, at Derry/Chester Town Line	8,200	9,671	1,471	15%
Folsom Road, West of NH 28	11,768	13,839	2,071	15%
Tsienneto Road, West of NH 102	5,394	8,636	3,242	38%
Tsienneto Road East of Pinkerton Street	14,637	19,457	4,820	25%
Ash Street at Londonderry Town Line	6,765	15,716	8,951	57%

In addition to congestion in Derry, the Exit 4 interchange is projected to experience congestion issues by 2040, even with the improvements made by the ongoing I-93 widening project and intersection spot improvements proposed by Woodmont Commons. Specifically, the following intersections in the Exit 4 area would operate at LOS E or F in the 2040 No Build condition:

- NH 102 and Gilcreast Road in AM and PM Peak Hour
- NH 102 and I-93 Exit 4 Southbound Off-Ramp in PM Peak Hour
- NH 102 and I-93 Exit 4 Northbound On- and Off-Ramp in AM and PM Peak Hour
- NH 102 and St. Charles Street/Londonderry Road in PM Peak Hour

The I-93 Exit 4 southbound off-ramp to NH 102 is also projected to operate at LOS F in the 2040 PM peak hour.

### **2.2.2 Economic Vitality**

Economic development issues and opportunities in Derry and Londonderry are discussed in the following sections for each Town. In Derry, constraints related to through traffic are a concern to the accessibility of business downtown. In Londonderry, a large tract of undeveloped land on the east side of I-93 currently has poor highway access and is the subject of the Town's Woodmont Commons Planned Unit Development (PUD) Master Plan to attract regionally significant business opportunities.

#### **Derry**

Economic vitality is essential for the Derry downtown area to remain the center of community activity, a clear priority identified in the Derry Master Plan. The 2010 Derry Master Plan notes "The town is also continuing to pursue the I-93 Exit 4A Project which is designed to relieve traffic on NH 102 and promote the safe and efficient movement of people, goods and services. Businesses in downtown Derry will benefit from the completion of the I-93 Exit 4A Project through the reduction of traffic and related congestion and improved accessibility" (Town of Derry, 2010).

Results from the community survey conducted as part of the 2010 Master Plan show that residents of Derry support attracting new businesses and industries to Derry. New businesses with the most support are office development, light industrial, an industrial park, and downtown revitalization. One of the recommendations of the Master Plan is to "continue to research the benefits, challenges and feasibility of Exit 4A." The Master Plan notes the following potential benefits for Derry:

- A direct access route to I-93 for commercial and industrial areas of town
- A bypass for the downtown, which will alleviate some of the current traffic problems and enhance the downtown area
- More connections to existing commercial and industrial areas and opening them up for more development

The Master Plan acknowledges that the existing heavy traffic on NH 102 influences the quality of the downtown area and the businesses located there. Traffic congestion creates a less

pedestrian-friendly downtown and likely results in some drivers seeking alternative shopping opportunities and traffic routes. The Master Plan notes several actions that could be implemented to improve conditions for pedestrians and promote a business-friendly environment downtown. Many of the actions recommended in the Derry Master Plan will require alleviation of downtown traffic congestion. The Master Plan states that “Businesses in downtown Derry will benefit from the completion of the I-93 Exit 4A Project through the reduction of traffic and related congestion and improved accessibility.” Further economic benefits to both Derry and Londonderry could also be realized by providing access to the existing industrial-zoned land adjacent to the east side of I-93 between Exits 4 and 5.

In 2015, the Exit 4 southbound off-ramp was operating at or near capacity (LOS D) in the AM peak hour and failing (LOS F) in the PM peak hour. The northbound on- and off-ramp was operating at LOS E in the AM peak hour and LOS F in the PM peak hour. This has consequences to the economic well-being of Derry because the Exit 4 interchange currently provides the only direct access between the Interstate and most of Derry’s developed area. Although further improvements to the Exit 4 interchange are being constructed as part of the I-93 widening project, traffic congestion and associated safety issues along NH 102 in downtown Derry will continue, as described later in this SDEIS.

## **Londonderry**

Large tracts of undeveloped land are adjacent to the east side of I-93 between Exits 4 and 5, the attractiveness of which for commercial or industrial development would be greatly enhanced by a direct connection to I-93. The proximity of the Manchester-Boston Regional Airport to this area also adds to the development potential of this land. As noted in the *Land Use Scenarios Technical Report* (see Appendix B), a new exit would provide accessibility to existing undeveloped land, thereby enhancing the development potential. The net effect of these development activities would likely be a number of new, high-paying jobs and increased tax revenue for both towns.

Since the 2007 DEIS, additional local planning efforts have further defined the development opportunities near I-93 in Londonderry. In 2013, the Town of Londonderry approved the Woodmont Commons PUD Master Plan covering approximately 630 acres bordering the east and west sides of I-93. The Master Plan envisions a mixed-use urban village being developed in several phases over 20 years, which would support diversification of the tax base. Portions of development on the west side of I-93 are under construction, with completion expected in 2020 (Woodmont Commons Phase I). The Master Plan restricts the quantity and type of development allowed on both the east and west sides of I-93 if Exit 4A is not constructed to limit traffic impacts of development. On the east side of I-93, specifically, coordination conducted during the evaluation for the *Land Use Scenarios Technical Report* (Appendix B) found that a predominately residential development pattern would occur in a No Build scenario (approximately 330 units) as opposed to a mixed residential-commercial pattern. The provision of new Interstate access to the east side of I-93 would allow for substantially higher intensity and combination of development, nearly 700,000 gross square feet (gsf) of commercial and 420,000 gsf of institutional uses based on the land use study (Woodmont Planning Team, 2011).

### 2.2.3 Safety

Although, as part of the ongoing I-93 widening project the Exit 4 interchange is being reconstructed to handle the projected design-year traffic flows easterly into Derry, the primary design intent is to address the north-south travel demands of the I-93 corridor and not the east-west demands along NH 102. The section of NH 102 that runs easterly into downtown Derry from Exit 4 will continue to have an insufficient number of lanes, especially at the intersections, to handle existing and future peak traffic flows. These peaks are especially high during the heavy evening commuting periods when both through traffic and traffic accessing local businesses are sharing the same roadway. Because the existing road has insufficient lanes to handle the peak traffic volumes, the traffic backs up into the interchange area, which results in increased safety hazards for the traveling public. Several intersections with higher crash rates based on analysis of 2013–2015 crash data are located along NH 102 in the study area, including at Gilcreast Road, Garden Lane/Hampton Drive, and the I-93 Exit 4 Northbound Ramps.

Between 2010 and 2014, there were 716 crashes in the Exit 4A study area, including 240 crashes along NH 102 between Exit 4 and Tsienneto Road (NHDOT, 2010–2014). Of the total, approximately 24 percent resulted in an injury or fatality. If traffic using NH 102 to the east could be moved away from the interchange area more efficiently, traffic congestion at the ramp intersections could be reduced and traffic flow improved, resulting in a more orderly and safer flow of traffic through the intersections, as well as elsewhere along NH 102.

The congestion in downtown Derry results in some vehicles seeking alternative routes, many of which result in additional traffic through residential neighborhoods, representing an additional safety concern. On Broadway itself, the congestion results in increased conflicts between through traffic, turning traffic, parked cars, pedestrians, and bicyclists.