

- Barrier 5: There is insufficient space for construction of a sidewalk and barrier in several sections of this area without resulting in additional property acquisitions or construction of retaining walls that would make the barrier not feasible in terms of cost effectiveness. Existing retaining walls would also be impacted, as well as existing driveways. The eastern end of this proposed barrier would increase wetland impacts.
- Barrier 10: Construction of the noise barrier would necessitate the removal of mature trees in the front yard of two historic properties, which would likely constitute an adverse effect to the setting of these historic resources. There is also a sight distance issue at the intersection of Tsienneto Road and Scenic Drive that would necessitate locating the barrier almost to the front of the historic home at 72 Tsienneto Road to provide clear sight lines for the 35 mph design speed.

In conclusion, barriers 3, 5, and 10 would not be feasible from an engineering/environmental perspective and are not recommended for further consideration. The other 10 barriers evaluated for Tsienneto Road/Folsom Road are either not feasible based on acoustic considerations or not reasonable because they would not meet the NHDOT effectiveness criterion.

## 4.6 Visual Resources

Roadway projects may change the character and/or quality of the visual environment, as experienced by viewer groups such as local residents, through travelers, commuters, and tourists.

### 4.6.1 Affected Environment

The study area for assessing visual resources includes a 1,000-foot buffer of the alignments for the Build Alternatives. The study area is situated in the eastern-central portion of the coastal lowlands region of NH. Low-lying ponds, lakes, and streams that are bounded by gently rolling hills or nearly level sandy terraces characterize much of the study area. The viewshed of the study area includes a variety of natural amenities such as farm fields, forests, wetlands, and several water bodies. Vegetation communities range from open lands (e.g., maintained croplands and freshwater marshes) to diverse upland and wetland forest types.

The viewshed of the study area also includes human-made development, which in some instances enhances the quality of the view because of the presence of important cultural resources. These resources include the Derry Village Historic District; Hoodcroft Country Club golf course; Adams Memorial Building; and the Matthew Thornton House, designated a National Historic Landmark and listed on the National Register of Historic Places (NRHP) in 1971. The Rockingham Recreational Trail and the Derry Bike Path, two converted railroad beds, provide scenic vistas for walking, jogging, biking, snowshoeing, cross country skiing, and equestrian traffic.

In Londonderry, Apple Way consists of approximately 10 miles of roads that have been designated by the New Hampshire Office of Energy and Planning as a NH Scenic and Cultural Byway and includes stretches of Pillsbury Road directly west of the Interstate, where extensive apple orchards contribute to the diversity of the viewshed.

A section of the Robert Frost Scenic Byway follows NH 28 through Derry, along East Broadway between Crystal Avenue and North Main Street. The Derry Rail Trail and the former train

station, once a regular stop along the former M&L branch of the Boston & Maine Railroad, is located directly south of East Broadway.

In contrast, portions of the study area that diminish the quality of the viewshed because of the type of land use include the more commercially oriented developments along NH Routes 28 and 102, as well as the Derry Wastewater Treatment Plant and Derry Transfer Station and transmission line corridors.

Along Alternative A, the alignment includes sparse residential areas west of I-93, and east of I-93, the alignment begins in undeveloped, forested land with rolling hills. Near Madden Road, a combination of industrial and commercial properties along with some residential areas dominate the viewshed. The views along the alignment as it follows Tsienneto Road are primarily of commercial development, and east of North Main Street (NH 28), the views are dominated by residential areas. Near the eastern terminus of Alternative A at Chester Road (NH 102), the viewshed is dominated by residential areas and Beaver Lake.

Along Alternative B, the alignment includes sparse residential areas west of I-93, while east of I-93 the alignment begins in undeveloped, forested land with rolling hills. It diverges from Alternative A west of the industrial area along Madden Road. To the north and east of Franklin Street, the viewshed is dominated by commercial areas. East of NH 28, the view transitions from commercial development to undeveloped, forested land, interspersed with residential use. As the alignment continues to Chester Road (NH 102), the view is a combination of residential areas and undeveloped, forested land. At the eastern project terminus, Beaver Lake is also visible.

Along Alternatives C and D, the alignments begin in undeveloped land and sparse commercial development. When the alignments join Rockingham Road (NH 28), the views include sparse residential development and transitions to more dense commercial development. When Alternatives C and D diverge, Alternative C follows Alternative B. East of NH 28, the view transitions from commercial development to undeveloped, forested land. As the alignment continues to Chester Road (NH 102), the view is a combination of residential areas and undeveloped, forested land. At the eastern project terminus, Beaver Lake is also visible.

At the divergence of Alternatives C and D, Alternative D follows Alternative A. The views along the alignment as it follows Tsienneto Road are primarily of commercial development, and east of North Main Street (NH 28), the views are dominated by residential areas. Near the eastern terminus of Alternative A at Chester Road (NH 102), the viewshed is dominated by residential areas and Beaver Lake.

The viewshed along Alternative F is dominated by developed land, with commercial and industrial-oriented developments near I-93, dense development along the commercial downtown Derry extending east on Broadway (NH 102), and residential developments and the Golf Course as the alignment travels east of downtown Derry to the terminus at the NH 102/NH 28 Bypass/East Derry Road traffic circle.

## **4.6.2 Environmental Consequences**

Visual impacts may include changes to both the natural and man-made environments. Impacts can result from introducing new roadway elements into the existing environment, demolishing buildings in both commercial and residential areas, and widening existing roads.

In general, widening the Interstate for Alternatives A through D would increase the overall roadway footprint and create larger cut and fill slopes, which would increase the visual scale of the roadway. The addition of overpasses would increase the distance from which the highway would be visible. The larger footprint would necessitate removal of some existing roadside vegetation. Where this vegetation is part of forested buffer between the highway and adjacent development, this would have an adverse effect upon the quality of views from the highway.

Removal or reduction of the vegetative buffers between the highway and development would have a more substantial adverse effect on nearby residences and businesses than on highway users.

The following discussion highlights potential impacts on the visually sensitive resources for each alternative, including areas where vegetative buffers provide screening of the highway from residential areas adjacent to the Project.

### **Alternative A**

The majority of the Alternative A corridor includes existing roads located in highly developed residential and commercial/industrial areas. Therefore, in most areas of the Alternative A corridor, the existing traffic volumes, along with the type of development and its density, make for an environment that is not particularly sensitive from a visual perspective. Following the upgrade of Tsienneto Road, businesses and residences would front a road with improved points of access and egress. In some cases, improvements to the roadway and business entrances and exits would likely result in an enhanced visual environment when compared to existing conditions. One potential area of exception may be the residential neighborhood between NH 28 Bypass and NH 102. The neighborhood along this section of roadway is primarily residential, and it includes two historic properties (see Section 4.18) as well as areas of open fields and a large, emergent wetland near the intersection of Tsienneto Road and NH 102. Most of the homes in this area are set back from the road and located in subdivisions. Alternative A would not result in adverse effects to historic structures located along this segment of the corridor. Therefore, the upgrade of Tsienneto Road would have very little impact on the existing viewshed.

Between I-93 and Franklin Street Extension, the Alternative A corridor would be constructed in an undeveloped area of land. This area likely provides an opportunity for local residents to hike, bird watch, hunt, and participate in other forms of outdoor recreation. From a visual perspective, the area represents a visually pleasing landscape of woodlands and wetlands. However, there is also abundant evidence of past and ongoing illegal dumping activities, as well as all-terrain vehicle usage, which detracts from the overall visual experience. Moreover, a portion of the land that would be used for Alternative A is privately owned and has been posted. Thus, recreational opportunities, including enjoyment of the visual environment on these portions of the undeveloped land, would be limited to those individuals with landowner permission to access the property.

### **Alternative B**

Between I-93 and Franklin Street Extension, the Alternative B corridor would cross the same undeveloped land as Alternative A. Here, the impacts on the visual experience associated with Alternative B would be essentially the same as Alternative A, with one notable difference. It is likely that the requirement to construct a new crossing over Shields Brook with Alternative B would influence the existing visual environment to a far greater degree than the widening

required for the existing Folsom Road crossing associated with Alternative A. Farther to the east, Alternative B would cross the highly developed areas associated with the Derry Industrial Park and NH 28. This portion of the corridor is not visually sensitive, and construction of the Alternative B roadway and associated improvements to NH 28 would likely have little effect, if any, on the existing visual experience. To the east of NH 28, Alternative B would cross currently undeveloped areas all the way to the intersection of Tsienneto Road and NH 102. These areas are generally visually sensitive and include forested uplands and wetlands, a beaver impoundment, scrub-shrub and emergent wetlands, open fields, and streams. The combination of these natural resources offers a pleasing landscape setting. Opportunities likely exist for hiking, bird watching, and other forms of outdoor recreation. However, the presence of the cleared utility corridor in proximity to the Alternative B corridor in this area would also likely be seen as detracting from the visual experience. Similar to Alternative A, some of the land that would be used for Alternative B is posted as private land, limiting public access to portions along the corridor. The Alternative B alignment would also likely have a negative effect on the existing viewshed for those residents living on both sides of the corridor.

### **Alternative C**

The western end of the Alternative C corridor would be constructed in an undeveloped area of and east of I-93 and south and west of NH 28. This undeveloped area includes forested uplands and wetlands located between NH 28 and the existing utility line corridor. Large portions of this area appear to once have been part of a gravel pit, and there is evidence of this past disturbance present throughout the forested areas. The portion of the Alternative C corridor that follows NH 28 would pass through a commercial area and any visual impacts associated with roadway improvements would be negligible. From NH 28 to the east of the corridor at the intersection of Tsienneto Road and NH 102, the visual impacts would be similar to those already described for Alternative B.

On the west side of I-93, in the vicinity of the proposed interchange location for Alternative C, is the Reed Paige Clark Homestead properties. It was determined that the work associated with the west side of the interchange for Alternative C would have a Section 106 adverse effect on this historic property. This impact would include the potential for visual impacts caused by having a major raised interchange approximately 2,000 feet south of the historic farmhouse, which is located on the north side of Stonehenge Road.

### **Alternative D**

Between I-93 and NH 28, the Alternative D corridor would have similar impacts on the visual environment as Alternative C, including the Section 106 adverse effect on the historic Reed Paige Clark Homestead. To the east of NH 28, Alternative D would follow the same alignment as Alternative A. As a consequence, this portion of the corridor would have identical visual impacts as Alternative A.

### **Alternative F**

Because of the existing historic buildings along NH 102, the viewshed of this corridor would likely experience substantial impacts. The proposed Alternative F would extend along NH 102 through the Broadway Historic District, adjacent to the Derry Village Historic District, and past one individual historic building. This would profoundly affect the character of downtown Derry.

Following the upgrade of NH 102, businesses and residences would front a wider road, diminishing the small town and historic characteristics of this portion of the corridor. The residential and commercial buildings would likely suffer from decreased distance from the edge of road to the existing buildings, loss of available parking, decreased access for pedestrians, and difficulty accessing properties.

### 4.6.3 Mitigation

In general, mitigation measures for visual impacts would include designing roadway elements, culverts, bridges, and other structures to be less intrusive. In visually sensitive areas, landscape screening and/or privacy fencing could buffer residences from impacts caused by adjacent development of, and improvements to, roadways. In particular, landscaping and plantings in the area of bridge abutments, retaining walls, and the interchange could be used to lessen visual impacts. During final design, mitigation measures for visual impacts would be further evaluated, and where practicable, incorporated into the design. For example, during final design, the use of more aesthetically pleasing construction materials could be considered for the underpass to accommodate the future Derry Rail Trail crossing.

## 4.7 Socioeconomics

This section addresses demographic and economic conditions and housing. For each topic, an introduction (including an overview of applicable regulations), data collection and analysis methodology, existing conditions (affected environment), and impacts are presented for the No Build and Build Alternatives. The potential impacts on minority and low-income populations are addressed in Section 4.8, *Environmental Justice*. Additional information related to population and employment projections is provided in Chapter 5, *Indirect Effects and Cumulative Impacts*.

### 4.7.1 Affected Environment

U.S. Census data (U.S. Census Bureau, 2015) are the primary source for information on socioeconomic conditions in the Project area municipalities (Derry and Londonderry). The Census block groups that intersect a 500-foot buffer of the alternative alignments were selected as the socioeconomics study area (Figure 4.7-1). Demographic and economic trends for the larger five-town study area are described in Chapter 5, *Indirect Effects and Cumulative Impacts*. The following section summarizes key demographic and economic indicators in the Census block groups along the Build Alternative alignments in comparison to the Project-area municipalities (Derry and Londonderry) and to Rockingham County.

### Demographics

Table 4.7-1 shows the total population with a breakdown of race and ethnicity for the Build Alternative alignment block groups, Project-area municipalities, and Rockingham County. The total minority population in the study area is 4.1 percent, with the percentage of minorities in the block groups ranging from 0.0 to 7.4 percent. The population of Derry is 3.8 percent minority, and the population of Londonderry is 3.5 percent minority. Hispanic persons comprise 3.1 percent of the population in the study area, with the percentage of Hispanic persons in the block groups ranging from 0.0 to 12.1 percent. Hispanic persons comprise 2.2 and 3.8 percent of the populations in Derry and Londonderry, respectively.