

3.7.3 Mitigation

No substantial air quality impacts are anticipated during the operation of the Project; therefore, no mitigation measures are proposed. Construction activity associated with all Action Alternatives would not cause a substantial adverse air quality impact but would result in a temporary increase in pollutant emissions. The NHDOT will require the contractors involved with construction to include air pollution control devices on heavy diesel construction equipment, in accordance with applicable state and federal laws at the time of construction. The merits and practicality of more stringent or voluntary specification measures will be considered through the final design process with input from the contracting community at large. Mitigating fugitive dust emissions involves minimizing or eliminating its generation. Mitigation measures that will be used for construction include wetting and stabilization to suppress dust generation, cleaning paved roadways, and scheduling construction to minimize the amount and duration of exposed earth.

3.8 Noise

Noise is defined as unwanted or excessive sound. Sound becomes unwanted when it interferes with normal activities such as sleep, work, or recreation. Highway noise has the potential to affect people living and working near highways by causing annoyance or interfering with speech.

3.8.1 Affected Environment

The NHDOT⁴² and FHWA⁴³ noise impact assessment procedures for Type I projects include identifying receptor locations, predicting existing and future highway noise levels, determining project noise impacts, and evaluating noise abatement measures. A Type I project is a highway project that results in the construction of a new highway or the physical alteration of an existing highway that substantially changes either the horizontal or vertical alignment or increases the number of through travel lanes.

In the 2007 FEIS, noise measurements and modeling using FHWA's Traffic Noise Model were used to evaluate existing noise conditions at noise receptors. Most noise receptor locations in the study area are residential (Activity Category B). Existing (2007) sound levels at all the receptors analyzed in the 2007 FEIS ranged from 39 to 71 dBA⁴⁴ depending on proximity to the Spaulding Turnpike. Current (2019) sound levels in the GSB Project Study Area would vary marginally from these values due only to changes in traffic volumes since 2007 and the construction of the southbound LBB.

3.8.2 Environmental Consequences

The 2007 FEIS noise analysis results indicated that receptors on Fox Run Road and Shattuck Way in Newington, as well as receptor locations on Dover Point Road, Hilton Park, Wentworth

Terrace, Cote Drive, Spur Road, and Homestead Lane in Dover would approach or exceed the noise abatement criteria. The 2007 FEIS determined that sound barriers would be feasible and reasonable on both the east and west sides of the Turnpike between the LBB and Exit 6 and on both the east and west sides of the Spaulding Turnpike north of Exit 6.

3.8.2.1 Direct Impacts

Direct impacts have been evaluated for both the operations and construction of the GSB. During operations, the GSB would not be a substantial source of noise since it would carry pedestrians and bicyclists and would not affect motor vehicle traffic on the LBBs.

The Action Alternatives would result in a temporary increase in noise associated with construction equipment, and no permanent changes in noise level. The types of construction activities that would generate noise include pile driving and other construction activities. The intensity and duration of construction have been considered for each of the Action Alternatives. Potential hydroacoustic effects on fish due to underwater pile driving is discussed in **Section 3.4, Wildlife and Fisheries**.

No-Action Alternative

Under the No-Action Alternative, non-motorized transportation across the Little Bay would be permanently eliminated and no construction would occur. As such, there would be no construction noise and no direct noise impact (either temporary or permanent) would occur.

Alternative 1

Alternative 1 would carry bicyclists and pedestrians and would not affect motor vehicle traffic on the LBBs. Therefore, it would not be a substantial source of noise during operations and there would be no permanent direct noise impacts.

Alternative 1 would result in a temporary increase in noise during construction. The construction of Alternative 1 is anticipated to last 3 years, the longest of all Action Alternatives. Thus, construction noise exposure in Alternative 1 would last the longest. The construction would involve the reuse of all existing piers and general rehabilitation of the existing steel truss. Although the duration is longer, the rehabilitation work would likely be less noise intensive than the complete replacement of spans and piers occurring in other Action Alternatives as the partial or complete removal of the bridge superstructure, or drilling for pier foundations, would not be required.

Alternative 3

Alternative 3 would carry bicyclists and pedestrians and would not affect motor vehicle traffic on the LBBs. Therefore, it would not be a substantial source of noise during operations and there would be no direct noise impacts.

⁴² NH Department of Transportation. 2016. Policy and Procedural Guidelines for the Assessment and Abatement of Highway Traffic Noise for Type I & Type II Highway Projects.

⁴³ Procedures for Abatement of Highway Traffic Noise and Construction Noise, Federal Highway Administration, 23 CFR 772.

⁴⁴ Sound levels measured using this weighting system are called "A-weighted" sound levels and are expressed in decibel notation as "dBA." The A-weighted sound level is widely accepted by acousticians as a proper unit for describing environmental noise.

Alternative 3 would result in a temporary increase of noise during construction. The construction of Alternative 3 is anticipated to last 2 years. The construction would involve the reuse of all existing piers and rehabilitation of the thru-truss main spans 4, 5 and 6 and the replacement of the approach spans 1, 2, 3, 7, 8 and 9. Although the construction duration is shorter than Alternative 1, noise associated with the replacement of the approach spans may be more noise intensive compared to the rehabilitation activity occurring in Alternative 1.

Alternative 6

Alternative 6 would construct the non-motorized, recreational path adjacent to traffic on the southbound LBB. As this alternative would preserve the existing roadway geometries, there would be no change in traffic noise and no permanent direct noise impacts.

Alternative 6 would result in a temporary increase of noise during construction. The construction of Alternative 6 is anticipated to last 1.5 years and would involve the replacement of GSB Pier 1, and reuse of all other existing piers. Under Alternative 6, the deck of the southbound LBB would be widened approximately 17.5 feet to the west to accommodate a new multi-use path on the LBB. To accomplish this widening, the GSB superstructure would be removed, since the GSB is approximately 15 feet from the LBB. Although the construction duration is shorter than Alternatives 1 and 3, noise associated with the constructing the new superstructure and pier would be more intensive, due to the required removal of the existing GSB superstructure. Such removal would require the use of heavy construction equipment, increasing noise. The replacement of GSB Pier 1 would require foundation work, often requiring activities such as drilling or pile driving resulting in impact noise.

Alternative 7

Alternative 7 would carry bicyclists and pedestrians and would not affect motor vehicle traffic on the LBBs. Therefore, it would not be a substantial source of noise during operations and there would be no permanent direct noise impacts.

Alternative 7 would result in a temporary increase of noise during construction. Temporary noise impacts associated with Alternative 7 are expected to be largely similar to those described under Alternative 6, as the alternatives are similar. Alternative 7 varies from Alternative 6 in that Alternative 7 involves an independent deck versus the widened LBB deck. Although the construction duration is shorter than Alternatives 1 and 3, noise associated with constructing the new superstructure and pier would be more intensive, due to the required removal of the existing GSB superstructure. Such removal would require the use of heavy construction equipment, increasing noise. The replacement of GSB Pier 1 would require foundation work, often requiring activities such as drilling or pile driving resulting in impact noise.

Alternative 9 (Preferred Alternative)

Alternative 9 would carry bicyclists and pedestrians and would not affect motor vehicle traffic on the LBBs. Therefore, it would not be a substantial source of noise during operations and there would be no permanent direct noise impacts.

Alternative 9 would result in a temporary increase of noise during construction. The construction of Alternative 9 is anticipated to last 1.5 years. The construction would involve the reuse of all existing piers and complete replacement of the existing steel truss with a new steel girder superstructure. Although the duration is shorter than Alternatives 1 and 3, noise associated with constructing the new superstructure and pier would be more intensive, due to the required removal of the existing GSB superstructure. Such removal would require the use of heavy construction equipment, increasing noise. However, the Alternative 9 would reuse the existing piers, reducing the need for foundation work associated with impact noise activities such as pile driving.

3.8.2.2 Indirect Impacts

Under the No-Action Alternative, non-motorized transportation across the Little Bay would be permanently eliminated and no construction would occur. Eliminating of non-motorized transportation could increase vehicular traffic in the area, which could have an indirect effect on noise conditions.

All Action Alternatives would carry bicyclists and pedestrians and would not affect motor vehicle traffic on the LBBs. None of the Action Alternatives would be a substantial source of noise during operations. As such, no indirect impacts are anticipated for any of the Action Alternatives.

3.8.3 Mitigation

Since the Project would not affect operational noise impact, there would be no change in noise mitigation from that determined in the 2007 FEIS. There are no statewide noise regulations that relate to construction activities in New Hampshire and NHDOT is not subject to local restrictions related to construction noise.

3.9 Parks, Recreation, and Conservation Lands

This section identifies parks, recreational facilities, and conservation lands within the Study Area. FHWA evaluates potential impacts on parks and recreational facilities under NEPA and under Section 4(f) of the US Department of Transportation (USDOT) Act of 1966, 49 USC 303. Section 4(f) provides consideration of publicly-owned parks, recreation areas, wildlife or waterfowl refuges, or publicly- and privately-owned historic sites of national, state, or local significance, during the planning and design of transportation projects.⁴⁵

Certain parks and recreation areas are also protected by Section 6(f) of the Land and Water Conservation Fund Act, 16 USC 4601-8(f). Section 6(f) applies if the property was acquired or

⁴⁵ **Chapter 4, Programmatic Section 4(f) Evaluation for the Use of Historic Bridges**, presents an analysis of the properties afforded protection under Section 4(f), addresses potential impacts of the Project on these properties, and describes plans to minimize harm.