

3.6.2 Environmental Consequences

Impacts to farmlands result from the conversion or loss of undeveloped properties and prime or unique farmlands (as defined by the FPPA or the US Department of Agriculture) to paved or disturbed surfaces. Due to the Project occurring entirely with areas exempt from the FPPA, prime farmlands were not evaluated.

3.6.2.1 Direct Impacts

Due to the location of the Project within UAs it is exempt from the FPPA. Additionally, the Study Area lies entirely within State of New Hampshire parcels and bridge piers or abutments. Parcels where construction access and laydown would occur are parklands (on the Dover side of the Study Area) and State Highway right-of-way (on the Newington side of the Study Area). During construction, activities would occur in the areas leading up to the bridge abutments in Newington and Dover, as illustrated in the Preliminary Construction Impact Plans (**Appendix D**). Disturbed areas would be restored to existing conditions after construction. It is anticipated that any disturbed areas would rebound after construction.

3.6.2.2 Indirect Impacts

The Project would not result in indirect impacts on farmlands as the induced growth impacts from land conversion were evaluated in the 2007 FEIS.

3.6.3 Mitigation

No mitigation is required because the Project would have no impacts to farmlands.

3.7 Air Quality

The Clean Air Act, as amended, protects the quality of the nation's air resources at both the federal and state level. It established the National Ambient Air Quality Standards (NAAQS) for various criteria pollutants in order to protect the health and welfare of the general public. From a transportation perspective, the primary pollutants of concern are carbon monoxide, volatile organic compounds, and oxides of nitrogen, which are emitted from gasoline and diesel engines. Highway agencies are required to consider the impacts of their projects on a local and a regional level.

3.7.1 Affected Environment

The Project is located in both the Town of Newington and City of Dover, in Rockingham and Strafford County, respectively. The Clean Air Act, as amended divided the State into attainment and non-attainment areas with classifications based upon the severity of the air quality problems. A nonattainment area is an area that has had measured pollutant levels that exceed

the NAAQS and that has not been designated to attainment. The Clean Air Act, as amended, established emission reduction requirements that vary depending on an area's classification.

Based on the US Environmental Protection Agency's (EPA) Green Book³⁶, both Rockingham and Strafford Counties were designated as nonattainment areas for 1-hour (1979-Revoked) and 8-hour (1997-Revoked) Ozone standards. Rockingham County is also designated as nonattainment for Sulfur Dioxide, but Sulfur Dioxide is not a pollutant of transportation concern due to the restriction of sulfur content in on-road diesel fuels. These counties are in attainment for all other criteria pollutants.

3.7.2 Environmental Consequences

The Project is not expected to result in substantial direct or indirect, permanent or temporary, impacts on air quality. The 2007 FEIS evaluated air quality associated with the GSB and LBBs. The analyses in the 2007 FEIS considered both regional and local air quality associated with motor vehicle traffic traveling over the LBBs. The larger Newington-Dover, Spaulding Turnpike Improvements Project was incorporated into the State Transportation Improvement Plan and associated Conformity analysis and no regional impacts were found. The 2007 FEIS also evaluated local air quality by conducting microscale "hotspot" modeling that determined that all pollutant concentrations would be below the NAAQS, meaning no local air quality impact was anticipated.

During operations, the GSB would not be a substantial source of pollutant emissions since it would carry pedestrian and bicycle traffic and would not affect motor vehicle traffic on the LBB. Since the Project would not change the design of the roadway or result in changes to traffic volumes, it is assumed that there would be no long-term change in air quality impacts relative to the impacts discussed in the 2007 FEIS. The following sections consider both the direct and indirect impacts associated with the construction and operations of the Project.

3.7.2.1 Direct Impacts

Direct impacts are evaluated for both the operational period (*i.e.*, open for public use) and construction period of the Project. This section is organized by alternative, discussing direct impacts resulting from each alternative individually. However, none of the Action Alternatives (Alternatives 1, 3, 6, 7, and 9) would cause a substantial source of pollutant emissions since the bridge would carry pedestrians and bicyclists and would not affect motor vehicle traffic on the LBBs.

Construction of the Project would temporarily result in increased pollutant emissions associated with construction equipment. The intensity and duration of construction are considered for each of the alternatives. General construction air quality mitigation measures are described in **Section 3.7.3**.

³⁶ US Environmental Protection Agency. *Green Book Website*. Accessed from <https://www.epa.gov/green-book>. Accessed on July 15, 2019.

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 the lack of a viable non-motorized connection across Little Bay could be expected to increase vehicular traffic using the LBB, which could result in a minor increase in vehicle emissions.

Alternative 1

As Alternative 1 would carry bicyclists and pedestrians and would not affect motor vehicle traffic on the LBBs, it would not be a substantial source of pollutant emissions during operations. As such, no permanent direct impacts are anticipated for Alternative 1.

Alternative 1 would result in a temporary increase of emissions during construction. Emissions from the operation of construction equipment would include nitrogen oxides, sulfur oxides, carbon monoxide, and particulate matter. These emissions would be temporary and the locations at which they occur would change over time. The construction of Alternative 1 is anticipated to last 3 years, the longest of all the Action Alternatives. 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 pollutant intensive than the complete replacement of spans and piers occurring in other Action Alternatives.

Alternative 3

As Alternative 3 would carry bicyclists and pedestrians and would not affect motor vehicle traffic on the LBBs, it would not be a substantial source of pollutant emissions during operations. As such, no permanent direct impacts are anticipated for Alternative 3.

Alternative 3 would result in a temporary increase of emissions during construction. Temporary air quality impacts associated with Alternative 3 are expected to be similar to Alternative 1. 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 duration is shorter than Alternative 1, pollutant emissions associated with the replacement of the approach spans may be more intensive, although temporary in nature.

Alternative 6

Alternative 6 would construct the non-motorized, recreational path adjacent to traffic on the southbound LBB. As the alternative would preserve the existing roadway geometries, no permanent direct impacts are anticipated for Alternative 6.

Alternative 6 would result in a temporary increase of emissions 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, temporary pollutant emissions associated with constructing the new

superstructure and pier would be more intensive, due to the required removal of the existing GSB. This alternative would also temporarily impact motor vehicle traffic on the southbound LBB, increasing delays and pollutant emissions during lane closures and times of reduced capacity.

Alternative 7

As Alternative 7 would carry bicyclists and pedestrians and would not affect motor vehicle traffic on the LBBs, it would not be a substantial source of pollutant emissions during operations. As such, no permanent direct impacts are anticipated for Alternative 7.

Alternative 7 would result in a temporary increase of emissions during construction. Temporary air quality impacts associated with Alternative 7 are expected to be largely similar to those described under Alternative 6, as the alternatives are similar. The construction of Alternative 7 is anticipated to last 1.5 years and would involve the replacement of GSB Pier 1, and reuse of all other existing piers. Alternative 7 varies from Alternative 6 in that Alternative 7 involves an independent deck versus the widened LBB deck. Alternative 7 would also temporarily impact motor vehicle traffic on the southbound LBB, increasing delays and pollutant emissions during roadway closures and times of reduced capacity.

Alternative 9 (Preferred Alternative)

As Alternative 9 would carry bicyclists and pedestrians and would not affect motor vehicle traffic on the LBBs, it would not be a substantial source of pollutant emissions during operations. As such, no permanent direct impacts are anticipated for Alternative 9.

Alternative 9 would result in a temporary increase of emissions 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 construction duration is shorter than Alternatives 1 and 3, pollutant emissions associated with the new superstructure would be more intensive although still temporary in nature, due to the required removal of the existing GSB superstructure.

3.7.2.2 Indirect Impacts

The secondary air quality impacts associated with secondary growth were not evaluated in the 2007 FEIS and cannot be reasonably estimated in this DSEIS. These types of impacts are typically included in future emission estimates of Conformity Analyses for the New Hampshire State Implementation Plan.

Under the No-Action Alternative, non-motorized transportation across the Little Bay would be permanently eliminated and no construction would occur. As such, no indirect impacts are anticipated for the No-Action Alternative.

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 pollutant emissions. As such, no indirect impacts are anticipated for any of the Action Alternatives.

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 NHDOT³⁷ and FHWA³⁸ 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 dBA³⁹ 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.

³⁷ 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.

³⁸ Procedures for Abatement of Highway Traffic Noise and Construction Noise, Federal Highway Administration, 23 CFR 772.

³⁹ 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.