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Programmatic Section 4(f) Evaluation for the Use of Historic Bridges

4.1 Introduction

This Section 4(f) evaluation documents the analysis undertaken to determine compliance with Section 4(f) of the USDOT Act of 1966. Pursuant to Section 4(f) of the USDOT Act of 1966, 49 USC 303(c), and Section 18(a) of the Federal Highway Act of 1968, 23 USC 138 (as amended by the Federal-Aid Highway Act of 1983), the Secretary of Transportation shall not approve any program or project which "…requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance as so determined by federal, state, or local officials having jurisdiction thereof, or any land from a historic site of national, state, or local significance as so determined by such officials unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use."

As defined in 23 CFR 774.17, the FHWA considers the following criteria to determine whether an action would result in a "use" of a Section 4(f) property, which can occur in one of three ways:

- When land is permanently incorporated into a transportation facility;
- When there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose and determined by the criteria set forth at 23 CFR 774.13(d); or,
- When there is a constructive use of a Section 4(f) property as determined by the criteria set forth at 23 CFR 774.15.

If an alternative avoids Section 4(f) properties and is prudent and feasible to construct, then it must be selected. If no prudent and feasible avoidance alternative exists, only the alternative that causes the least overall harm and includes all possible planning to minimize harm to Section 4(f) properties may be approved.

As discussed further in this chapter, this Section 4(f) Evaluation follows the FHWA Programmatic Section 4(f) Evaluation for *Projects that Necessitate the Use of Historic Bridges*[73] since, as discussed below, the only Section 4(f) "use" is the General Sullivan Bridge (GSB), a historic bridge which is eligible for listing in the National Register of Historic Places. FHWA approval of this Programmatic Section 4(f) Evaluation is subject to the determination that the Project meets the following criteria:

1. The bridge is to be replaced or rehabilitated with Federal funds.
2. The project will require the use of a historic bridge structure which is on or is eligible for listing on the National Register of Historic Places.
3. The bridge is not a National Historic Landmark.
4. The FHWA Division Administrator determines that the facts of the project match those set forth in the sections of the Programmatic Evaluation labeled Alternatives, Findings, and Mitigation.
5. Agreement among the FHWA, the State Historic Preservation Officer (SHPO), and the ACHP has been reached through procedures pursuant to Section 106 of the National Historic Preservation Act of 1966 (Section 106).

Based on substantial engineering analysis and public input, the NHDOT has identified the replacement of the GSB truss with a new superstructure, on the existing piers, as the Preferred Alternative to provide a connection between Dover and Newington for bicycle and pedestrian users. This programmatic Section 4(f) evaluation provides the basis for a programmatic Section 4(f) approval by FHWA, demonstrating that there are no feasible and prudent avoidance alternatives to the use of the GSB and that the preferred alternative includes all possible planning to minimize harm resulting from such use. This evaluation also outlines coordination that has occurred and provides a list of draft mitigation measures.

4.2 Proposed Action

As described in **Chapter 2**, *Alternatives*, the Preferred Alternative for the Project has been determined to be Alternative 9: Superstructure Replacement - Girder Option, which involves the complete removal and replacement of the GSB superstructure. Alternative 9 has several advantages over other alternatives, which led NHDOT to identify this alternative as the Preferred Alternative. Under Alternative 9, the GSB superstructure would be replaced with a steel girder superstructure with a structural steel frame extending from the bottom of the girders to the top of the existing GSB piers. Two design options for the steel frame are under consideration – one

[73] Federal Highway Administration. 1983. *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges*. US Department of Transportation. Accessed from https://www.environment.fhwa.dot.gov/ legislation/ section4f/4f_bridges.aspx.

in the form of a "V" longitudinally (the "V-Frame" option), and a second curved "Super Haunch" option. This alternative follows the existing GSB alignment, thereby allowing the reuse of the existing GSB stone masonry piers, that will be repointed, without requiring substantial modifications. **Figure 2.3-5** depicts the conceptual design for Alternative 9, and more detailed plans are provided in **Appendix B**.[74]

Alternative 9 would fully meet the Project's Purpose and Need of providing access and connectivity between Newington and Dover, across Little Bay, for non-motorized use.[75]

Engineering analysis determined that Alternative 9 would be reasonable and practical from a technical standpoint. It could be implemented using conventional construction techniques and materials, within a practical duration, and without excessive impacts on the environment or to the transportation network.

Alternative 9 would have an estimated initial capital cost of $28.5 million and a life cycle cost of $31.25 million. In comparison to the other alternatives, Alternative 9 is among the least expensive reasonable alternatives.

Alternative 9 would have an approximately 18.3-foot-wide deck (out-to-out), a 16-foot-wide multiuse path consisting of the desirable 12-foot-wide multiuse path with 2-foot-wide shoulders on each side. The 16-foot-wide multiuse path would comply with the ADA guidelines for accessibility and would have a steel pedestrian rail along both sides of the new bridge deck. The new path would be 22.5 feet from the LBB, approximately 7.4 feet further from the LBB than the existing GSB (at 15.1 feet). These characteristics contribute to the high performance of the design with respect to user safety, emergency access, and inspection safety. The new superstructure would not be in the form of a truss, and therefore would not be visually consistent with the existing GSB. However, there would be no changes to the northbound or southbound LBB which would preserve the existing transportation capacity of the LBB.

A recently constructed 2010 approach span at the Dover end of the bridge would not require substantial modifications as part of this alternative, as the alignment of the existing GSB would be maintained. The existing Newington abutment would be rehabilitated or removed in its entirety and replaced. The overall footprint should be smaller than the existing abutment due to the proposed reduced deck width. Alternative 9 would require temporary impacts for construction access. It would avoid the need to reconstruct the approach span from Hilton Park which would minimize intertidal habitat impacts.

4.3 Description of Section 4(f) Properties

The Study Area is defined to include both the GSB and LBBs, as well as an area approximately 800 feet north and south of the bridges' abutments in Dover and Newington. This area is intended to include both the limits of work (*i.e.*, where project construction activities are taking place) and the area immediately adjacent to the limits of work. Additionally, for purposes of identifying potential non-physical effects to historic properties (*e.g.*, by changing the visual environment), an APE was developed for the evaluation of alternatives. (See **Figure 3.10-1**.)

4.3.1 Parks, Recreational Areas, and Refuges

4.3.1.1 Hilton Park

Hilton Park is a publicly-owned park located on Dover Point, and offers picnic areas, a boat launch, fishing dock, a play area, benches, a pavilion, and open green space. Hilton Park was created in 1938 following the GSB construction. Park visitors have relatively unobstructed views of the Piscataqua River, Little Bay, the GSB, and LBB. Hilton Park is open from 6:00 AM – 8:00 PM; overnight use is prohibited. NHDOT, Bureau of Turnpikes, owns the 16-acre park and is therefore the official with jurisdiction. No other parks or recreational areas are located within the Study Area. The 1934 Hilton Park qualifies as a Section 4(f) resource as a park, but not as a historic site, having been determined by NHDHR on May 8, 2019 to be not eligible for listing in the National Register (see **Appendix I**).

4.3.1.2 Wildlife and Waterfowl Refuges

No wildlife and waterfowl refuges of national, state, or local significance are within the Study Area. The closest property that is formally part of the National Wildlife Refuge System refuge is the Great Bay National Wildlife Refuge, approximately 1.5 miles southwest of the GSB. The refuge is managed by the Parker River National Wildlife Refuge and encompasses over 1,000 acres along the seacoast.

4.3.2 Historic Sites

NHDOT and FHWA in collaboration with the NH Division of Historical Resources (NHDHR), which serves as the NH SHPO, reviewed the potential for the Project to impact historic Section 4(f) properties.

4.3.2.1 Archaeological Sites

Section 4(f) applies to archaeological sites that are on or eligible for the National Register and that warrant preservation in place, including those sites discovered during construction. The 2007 FEIS identifies areas of archaeological sensitivity for the Newington-Dover, 11238 project, based on a Phase IA archaeological analysis. Among these areas was the western side of Hilton Park in Dover (*i.e.*, Area 16 in the FEIS). This area includes an approximately 0.5-acre verified site, identified as a brickyard (27-ST-55 and 27-ST-56, *i.e.*, Area 17) within Hilton Park. Due to the presence of sensitive areas within or adjacent to the project construction access area, a Phase IB Intensive Archaeological Investigation was completed in 2019 to further investigate the APE within Hilton Park. The eligibility of this site was

[74] A temporary bicycle and pedestrian detour was installed on the northbound LBB to provide non-motorized connectivity across Little Bay, in part due to the closure of the GSB. This temporary detour was opened to the public in August 2019 and will remain in place during construction of the Project. This temporary detour is part of the Preferred Alternative.

[75] A discussion of the development of the project Purpose and Need is provided in **Section 1.2** of this SEIS.

not determined; however, construction activities have been revised to avoid the brickyard site. The Project, therefore, would have no impact on known archaeological sites.

4.3.2.2 Newington Railroad Depot and Toll House

The Newington Railroad Depot and Toll House (NWN0618/ NR #10000187) qualifies as a Section 4(f) property, as it is listed in the National Register. The official with jurisdiction over the Newington Railroad Depot and Toll House is the NH SHPO (represented by NHDHR personnel). The Newington Railroad Depot and Toll House at 24 Bloody Point Road is located at the tip of Bloody Point in Newington on 3.8 acres of land and marks the former south approach of the Portsmouth and Dover Railroad at a dedicated railroad and highway bridge over the bay, just east of the GSB and LBBs. Constructed in 1873, the 2½-story building retains clapboard siding and wood trim and is a relatively rare example of a depot that also served as a toll house and residence for the stationmaster/toll taker, resulting in a residential form for a railroad-related resource. The railroad tracks and bridge were removed following the abandonment of the line and the operation of the station in 1934. The building is in fair condition, currently vacant but "mothballed" for potential future use.

The property was listed in the National Register in 2010 and is significant under Criteria A and C in the areas of transportation and architecture. It is noted in the nomination that the ending date for the period of significance, 1934, coincided with the construction of the GSB and the abandonment of the railroad line, which ended the utilization of the Depot property for transportation purposes.

4.3.2.3 Ira F. Pinkham House/Wentworth Summer Residence

The Ira F. Pinkham House/Wentworth Summer Residence (DOV0093) qualifies as a Section 4(f) property, as it is eligible for listing in the National Register. The official with jurisdiction over the Ira F. Pinkham House/Wentworth Summer Residence is the NH SHPO (represented by NHDHR personnel). The Ira F. Pinkham House/Wentworth Summer Residence at 430 Dover Point Road in Dover was constructed c. 1853 for farmer and brickmaker Ira Pinkham. The 1½-story house is located on a 0.8-acre property adjacent to the Spaulding Turnpike in Dover. The house has a sidehall plan, is oriented gable-end to the street, and features an early 20th-century 1-story enclosed wraparound porch with a pedimented entrance. It was purchased as a summer residence by businessman Frank E. Wentworth and his wife Annie in 1912, who likely enclosed the porch and applied the asbestos shingles in the 1930s and 1940s. A 19th-century barn associated with the house was relocated off-site in 2011-2012.

The property, including the house and an associated barn, was determined eligible for listing in the National Register under Criteria A and C in 2005 for significant associations with Dover Point's former brick-making industry, and the 20th century development of Dover Point as a seasonal destination.

4.3.2.4 General Sullivan Bridge

The GSB qualifies as a Section 4(f) property, as it is eligible for listing in the National Register. The official with jurisdiction over the GSB is the NH SHPO (represented by NHDHR personnel). The GSB, built in 1934, is 1,528 feet long, with the primary superstructure consisting of a combination deck truss and partial through arch truss over Little Bay between the Town of Newington and the City of Dover, New Hampshire. The GSB is supported by two reinforced concrete abutments and eight concrete piers with granite block facing and caps. The main span traverses a navigable channel and is 275 feet long. The existing GSB deck is approximately 32 feet wide and is oriented southeast to northwest. For purposes of this document, the Dover end of the bridge is called north and the Newington end is called south. The nine spans of the GSB are numbered from north to south to maintain consistency with the original span numbering. The Dover abutment is located in Hilton Park. The approach to the GSB from Hilton Park is a pedestrian bridge constructed in 2011, and the south approach to the bridge in Newington is an on-grade pedestrian path. NHDOT's Bureau of Bridge Design-Existing Bridge Section designates the bridge as Dover 200/023.

Although originally designed to support two lanes of highway traffic over the mouth of the Little Bay, the bridge was closed to vehicular traffic in 1984, when the adjacent LBB, located to the east of the GSB, was completed. The north abutment was reconstructed in 2011, along with a new north approach bridge. Additional work in 2011 replaced the former paved vehicular south approach from Shattuck Way with a curved pedestrian path.

The general condition of the GSB has declined since the 2008 ROD was issued. Detailed inspections of the bridge determined it was in critical condition, and the exterior portions of the deck exhibit advanced deterioration. In 2015, chain link fencing was added to the center of the bridge along the entire length, as a safety measure to keep pedestrians away from the outside deck extremes. Truss members exhibit section loss, pack rust, and corrosion holes, and the underwater piers have damage from sulfates and need repointing. A more recent inspection completed in September 2018 found substantial additional deterioration of a critical floor beam under the bridge deck. Due to the unsafe condition of the GSB, it is currently closed to all traffic, including pedestrian/bicycle activities and fishing. Fencing and bridge closure signs were installed in late September 2018 to prevent access to the bridge due to its unsafe condition.

The bridge is eligible for listing in the National Register under Criterion C for national significance in engineering, and also under Criterion A in the area of transportation. The eligible property encompasses the bridge footprint including the abutments and the approaches on both sides, with modern replacement elements considered non-contributing. Fay, Spofford and Thorndike, bridge specialists from Boston, designed the bridge. The GSB was one of four major bridges of its type and style designed by Fay, Spofford and Thorndike within a decade (1927-1937), which defined the early development period for continuous truss highway bridge design in the United States. The bridge was the first highway bridge in New Hampshire to be designed as a continuous truss, without structural breaks at the supporting piers. Its design and construction contributed substantially to the advancement of twentieth century American bridge technology.

The GSB was an important step in the evolution of the continuous truss highway bridge for three reasons: it incorporated special features of the earlier continuous truss Lake Champlain Bridge that had proved economically sound, thereby encouraging widespread adaptation; it demonstrated the practical application of a new technology for weighing bridge reactions; and it helped establish a reduced economical span length for the continuous truss. The thru-arch continuous truss design was adopted for years to come, for major and minor highway bridges throughout the country where aesthetics and cantilever construction were necessary factors. When New Hampshire's bridges were evaluated for historical and engineering significance in 1982, the GSB attained the second highest ranking of any bridge in the state. Since that time the highest-ranking bridge (the Memorial Bridge in Portsmouth) has been removed. One of the

other highly influential continuous truss bridges designed by Fay, Spofford and Thorndike, the Lake Champlain Bridge, has also been demolished.

Before its full closure in 2018, the GSB provided an important bicycle/pedestrian connection across Little Bay, as well as other recreational activities. Although subsequent deterioration has affected the physical historic integrity of the bridge, the historically significant features of the structure are still evident. Thus, the bridge retains a high degree of integrity of location, design, materials, workmanship, feeling, and association, and is afforded protection under Federal (USDOT) law. The addition of a new LBB in 2015 directly adjacent to the GSB has affected the setting of the bridge, impeding viewsheds to and from the bridge on the east side. However, the setting on the west side of the bridge, overlooking the Little Bay, Dover Point, and Hilton Park, is largely intact, so while the integrity of setting has been diminished, it has not been eliminated.

4.4 Impacts to Section 4(f) Properties

This section describes the impacts of the Preferred Alternative on the Section 4(f) properties within the Study Area. As described below, the Preferred Alternative would not result in a Section 4(f) use of Hilton Park, archaeological resources, the Newington Railroad Depot and Toll House, or the Ira F. Pinkham House/Wentworth Summer Residence. However, the Preferred Alternative would result in a use of the GSB.

4.4.1 Hilton Park

Temporary occupancy of a portion of the western side of Hilton Park is anticipated during construction of the Preferred Alternative. As described in **Section 3.9**, *Parks, Recreation and Conservation Land*, the east side of Hilton Park provides more recreational opportunities for park visitors than the west side of Hilton Park (*i.e.,* boat launch, fishing dock, and play area). Approximately 48,000 square feet of Hilton Park would be temporarily occupied and fenced off for construction access, laydown, and staging (**Appendix D**). This temporary staging area represents approximately 12 percent of the total Hilton Park property in recreational use, or about 29 percent of the approximately 3.8-acre western portion of the park. To minimize land disturbance, unpaved staging areas within the fenced-off staging area are to be protected with temporary geotextile fabric under crushed stone or other means. The Hilton Park driveway off of Dover Point Road would be used for construction access but would not be fenced off, allowing for continued public use and access to the portion of the west side of Hilton Park outside of the staging area. More than 14.9 acres of Hilton Park would remain open and accessible to the public during the temporary occupancy for construction. Public access to the recreational opportunities provided by Hilton Park would be maintained. The sidewalk along Wentworth Terrace, which passes underneath the Spaulding Turnpike and runs along Dover Point Road, connects the east and west sides of Hilton Park. This sidewalk would remain open for continued public use, which would retain the existing connectivity of the east and west sides of Hilton Park, although the temporary staging area would require pedestrians to make a slight detour relative to the existing condition. During construction, Hilton Park visitors would still be able to use the existing picnic areas, boat launch, fishing dock, play area, benches, and open green space. The Hilton Park driveway off of Dover Point Road would be used for construction access but would not be fenced off. Disturbed areas would be restored to preexisting conditions once construction is complete. See **Appendix A** for site photographs of Hilton Park and the surrounding area.

For the Preferred Alternative, the temporary occupancy of Hilton Park would not constitute a Section 4(f) use, as defined in 23 CFR 774.13(d) since:

- The duration (of the occupancy of Hilton Park) will be temporary (*i.e.*, less than the time needed for construction, and there will be no change in ownership of the land);[76]
- The scope of the work is minor (*i.e.*, both the nature and the magnitude of the changes to the Section 4(f) property are minor);
- There are no anticipated permanent adverse physical impacts, nor will there be interference with the activities or purpose of the resource, on either a temporary or permanent basis;
- The land being used temporarily will be fully restored (*i.e.*, the resource will be returned to a condition which is at least as good as that which existed prior to the project); and
- NHDOT, as the "official having jurisdiction," is in agreement regarding the above-mentioned conditions.[77]

In addition to the temporary occupancy, the Preferred Alternative would involve removal of the pavilion that is currently located on the west side of Hilton Park (**Appendix D**). The pavilion provides users with a shaded picnic area and offers scenic views of the waterfront and GSB. As described in **Section 4.3.1** and as shown in the site photos in **Appendix A**, there are multiple picnic tables and benches throughout Hilton Park that the public could utilize while the pavilion is being replaced or relocated. NHDOT Bureau of Turnpikes, as the official with jurisdiction, would determine relocation details for the pavilion, such as the structure's final location and how the structure would be moved during final design.

4.4.2 Archaeological Sites

The archaeological analysis completed for the 2007 FEIS was reassessed to determine potential impacts of the alternatives. Based on preliminary plans for construction access, the Preferred Alternative would not impact Area 18 or Area 22 in Dover. Therefore, no known archaeological resources within the eastern side of Hilton Park would be impacted by the Project. Within the western side of Hilton Park, the 2019 Phase IB investigation identified archaeological features related to a historic brickyard. Based on this investigation, the project construction access area has been configured to avoid this archaeologically-sensitive area.

Based on preliminary plans for construction access and the determination made by the archaeological analysis, the Preferred Alternative would not directly impact areas of archaeological sensitivity in Newington, as identified in the 2007 FEIS.

[76] The estimated duration of construction for the Preferred Alternative is 1.5 years.

[77] FHWA's Section 4(f) regulations (23 CFR 774) require written concurrence of the official(s) with jurisdiction in order to apply the exception for temporary occupancies (23 CFR 774.13[d]). Documentation of NHDOT's formal concurrence is provided in **Appendix K**.

4.4.3 Newington Railroad Depot and Toll House

Applying the Section 106 criteria of effect at 36 CFR 800.5(a)(2), it was determined that the Preferred Alternative will result in a finding of No Adverse Effect for the Newington Railroad Depot and Toll House. Based on preliminary plans for construction access and the definitions of a Section 4(f) use (codified in 23 CFR 774.17), the Preferred Alternative would not use land from the Newington Railroad Depot and Toll House. Therefore, the Preferred Alternative would not result in a use of this Section 4(f) property.

4.4.4 Ira F. Pinkham House/Wentworth Summer Residence

Applying the Section 106 criteria of effect at 36 CFR 800.5(a)(2), it was determined that the Preferred Alternative will result in a finding of No Historic Properties Affected for the Ira F. Pinkham House/Wentworth Summer Residence. Based on preliminary plans for construction access and the definitions of a Section 4(f) use (codified in 23 CFR 774.17), the Preferred Alternative would not use land from the Ira F. Pinkham House/Wentworth Summer Residence. Therefore, the Preferred Alternative would not result in a use of this Section 4(f) property.

4.4.5 General Sullivan Bridge

The Preferred Alternative would involve the complete removal of the GSB superstructure but would retain all eight of the original piers of the GSB. While a portion of the substructure would be retained under the Preferred Alternative, the removal of the GSB superstructure would result in a Section 4(f) use and an adverse effect pursuant to Section 106. Documentation of this adverse effect is provided in a Section 106 Adverse Effect Memo (**Appendix I**), which is used for NHDOT-sponsored projects to document concurrence on effects by FHWA, NHDOT, and NHDHR. Mitigation measures for the adverse effect have been finalized and stipulated in a new MOA pursuant to Section 106, which was executed on November 10, 2021.

4.5 Programmatic Section 4(f) Evaluation for the Use of Historic Bridges

The Preferred Alternative would result in a use of the National Register-eligible GSB. Such use may be eligible under the FHWA's Programmatic Section 4(f) Evaluation, *Projects that Necessitate the Use of Historic Bridges*. The use of Section 4(f) property is prohibited unless there is no feasible and prudent avoidance alternative to the use of the land from the property. An avoidance alternative is prudent and feasible if it avoids using the Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. An avoidance alternative is not feasible if it cannot be built as a matter of sound engineering judgement.

According to 23 CFR 774.17, an alternative is not prudent if:

i. It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;
ii. It results in unacceptable safety or operational problem;
iii. After reasonable mitigation, it still causes:
    a. Severe social, economic, or environmental impacts;
    b. Severe disruption to established communities;
    c. Severe disproportionate impacts to minority or low income populations;
    d. Severe impacts to environmental resources protected under other Federal statutes;
iv. It results in additional construction, maintenance, or operational cost of an extraordinary magnitude;
v. It causes other unique problems or unusual factors; or
vi. It involves multiple factors in paragraphs (3)(i) through (3)(v) of this definition, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

4.5.1 Applicability

The Programmatic Section 4(f) Evaluation for Projects that Necessitate the Use of Historic Bridges may be applied to projects which meet the following criteria:

› Will the bridge be replaced with Federal funds?

  Yes. Federal funds have been applied to the Newington-Dover 11238 project, and federal funds may be applied to Contract S, the rehabilitation or replacement of the GSB.

› Will the project require the use of an historic bridge structure, which is on or eligible for listing in the National Register of Historic Places?

  Yes. The GSB was first determined eligible for listing in the National Register in 1988 when representatives from FHWA, NHDHR, and NHDOT completed a thematic review of continuous steel truss bridges. This finding was later reinforced through the Section 106 Adverse Effect Memo for this project, executed January 2, 2020.

› Is the bridge a National Historic Landmark?

  No. The GSB is considered historically significant at a national level, but it is not a National Historic Landmark.

› Has the FHWA Division Administrator determined that the facts of the Project match those set forth in the sections of this Programmatic Evaluation labeled Alternatives, Findings, and Mitigation?

  Yes. Please see **Sections 4.5.2** through **4.8** below for more information.

› Has agreement been reached among the FHWA, the SHPO (NHDHR), and the ACHP through procedures pursuant to Section 106 of the NHPA?

  Yes. The FHWA and NHDHR, together with NHDOT, executed an Adverse Effects Memo on January 2, 2020. The ACHP was notified of the adverse effect and on February 27, 2020 declined participation in the Section 106 consultation. Mitigation measures for the adverse effect have been finalized and stipulated in a new MOA pursuant to Section 106, which was executed on November 10, 2021.

4.5.2 Alternatives

With regard to alternatives, the Programmatic Section 4(f) Evaluation requires consideration of the following three alternatives to avoid the use of Section 4(f) property:

- Do nothing.
- Build on a new location without using the old bridge.
- Rehabilitation without affecting the historic integrity of the bridge.

In accordance with FHWA's Programmatic Section 4(f) Evaluation, this section analyzes the required list of three avoidance alternatives.

4.5.2.1 No-Action (Do-Nothing) Alternative

The No-Action Alternative would avoid use of the GSB; however, the No-Action Alternative would ignore the basic need to provide safe access across Little Bay for non-motorized transportation. Under the No-Action Alternative, such access across the Little Bay would be permanently eliminated. Therefore, the No-Action Alternative would not meet the Purpose and Need of the Project. Normal maintenance that would occur under this alternative would not be adequate to correct the existing state of substantial deterioration of the GSB. The No-Action Alternative would not correct the situation that causes the GSB to be considered structurally deficient and deteriorated, which would lead to serious and unacceptable safety hazards to the public, including hazards to navigation. Additionally, under the terms of the existing permit for the GSB and expanded LBB issued by the US Coast Guard (USCG), the GSB would eventually need to be removed.[78] For these reasons, this avoidance alternative is not considered prudent or feasible.

4.5.2.2 Build on New Location Without Using the Old Bridge

The alternatives development process considered building on a new location, without using the existing GSB.[79] Alternative 5: Reconfigure Southbound LBB would reconfigure the LBB roadway lanes and shoulders to accommodate a new multi-use path on the existing bridge deck without modifying the existing west bridge fascia,[80] thereby maintaining the existing width of the LBB.[81] Under this alternative, the four roadway lanes would remain 12 feet wide, and the roadway shoulders would be reduced from the desirable 12-foot width to the minimum 10-foot width. A 2-foot-wide concrete barrier would separate the roadway shoulders from a new multi-use path. Without modifying the west fascia of the LBB, the multi-use path would only be 2 feet wide in total with no shoulders nor a pedestrian rail, which does not provide an adequate facility. Under Alternative 5, the multi-use path would only be 2 feet wide in total with no shoulders. A 2-foot-wide multi-use path would not provide an adequate facility and would be unsafe (for both the public and emergency or inspection services). This avoidance alternative suffers an additional disadvantage in that the new path would be located directly adjacent to high-speed vehicle traffic and would put users at risk of potential accidents as well as decreased air and noise quality from adjacent vehicles, thus adversely affecting safety and user experience. In addition, as with the No-Action Alternative, under the terms of the existing permit for the GSB and expanded LBB issued by the USCG, the GSB would eventually need to be removed. For these reasons, Alternative 5 would not meet the Purpose and Need nor provide a safe multi-use path and is not considered a feasible and prudent avoidance alternative.

4.5.2.3 Rehabilitation Without Affecting the Historic Integrity of the Bridge

In the 2007 FEIS, rehabilitation of the GSB was a component of the Selected Alternative of the 2008 ROD. For purposes of this FSEIS, rehabilitation of the GSB was reconsidered as a reasonable alternative, titled Alternative 1: Rehabilitation of the General Sullivan Bridge. Under Alternative 1, the GSB would be rehabilitated, and the bridge deck would be replaced. The substructure and truss superstructure would be repaired and rehabilitated to support loading requirements. A total of 39 members and 54 gusset plates comprising the truss would require repairs or replacement in kind. In addition, eight of the nine spans of the upper lateral bracing and all nine spans of the lower lateral bracing would require repairs or replacement in kind. A pedestrian bridge railing would be installed, and the Newington abutment would be rehabilitated. Work would also include cleaning, repainting, and repointing bridge elements. **Figure 2.3-1** depicts a rendering of Alternative 1, and more detailed plans are provided in **Appendix B**.

The 2008 MOA stipulated that NH SHPO agreed that *"…the removal and replacement of the floor system and any necessary replacement of rivets with bolts are not considered to be adverse effects."* Similarly, it is assumed that in-kind replacement of braces and other structural and substructure elements would not be considered adverse effects under Section 106 and would have an overall beneficial effect of saving the bridge. The new pedestrian railing would be designed to have minor physical and visual impact, so as not to diminish the historic materials and aesthetic of the GSB. Therefore, Alternative 1 would result in no adverse effect to this historic property and would avoid a Section 4(f) use.

However, the GSB is deteriorated and structurally deficient to a point where a substantial number of structural elements would need to be replaced or extensively repaired. The initial capital cost for this extensive rehabilitation work is estimated to be $43 million.[82,83] Additionally, extraordinary maintenance would be required to preserve the rehabilitated bridge, including

[78] On November 30, 2006, Gary Kassof of the USCG sent a letter to Marc G. Laurin, Senior Environmental Manager of NHDOT, regarding the Draft Environmental Impact Statement for the Newington-Dover, 11238 Project. The USCG advised NHDOT that the GSB should be removed as it no longer served a transportation purpose, and that a clear and reasonable rationale must be presented for retaining or rebuilding the structure. The letter also stipulated that the bridge permit application to be submitted must address the need to retain or rebuild the GSB and, if the old bridge is to be removed, should include complete removal of all parts not utilized in the new structure.

[79] As described in Section 4.5.2.2 of the 2007 FEIS, a set of "Widen East" alternatives was considered during the initial screening, but they were not advanced for detailed design due to the greater impacts to Hilton Park and the estuarine wetlands near Bloody Point.

[80] A bridge "fascia" is defined as an external, covering member designed on the basis of architectural effect rather than strength and rigidity although its function may involve both; fascia girder - an exposed outermost girder of a span sometimes treated architecturally or otherwise to provide an attractive appearance

[81] **Section 2.2** provides additional description of Alternative 5, and explains the reasons why it was eliminated during the screening process.

[82] Detailed cost estimates for each reasonable alternative were developed during this study. These cost estimates include initial capital costs for design and construction of the alternative. A separate life cycle cost estimate was also developed which includes both the initial capital costs as well as the costs to maintain and operate the alternative over a 75-year design life. These data are provided in **Appendix C**.

[83] Initial capital costs include the total cost of materials and construction to bring the alternative into initial service. It does not include design engineering, permitting or maintenance items.

extensive routine paint system touch-up and sealing, overcoating, and multiple full repainting cycles, in addition to rehabilitation of members which continue to deteriorate. Therefore, the total life cycle costs for Alternative 1, when considered over a 75-year design life, rises to $74 million.[84] These life cycle costs are almost than two and a half times the estimated life cycle costs of the Preferred Alternative over the same period ($31.25 million). Because of the extraordinary magnitude of the construction, maintenance, and operational costs associated with Alternative 1, this avoidance alternative is not considered prudent or feasible.

4.6 Measures to Minimize Harm

NHDOT and FHWA have met with NHDHR sixteen times since December 2015, to evaluate potential alternatives and identify a Preferred Alternative. Since April 2018, these meetings have included the participation of a number of Consulting Parties that were identified through the Section 106 process. Once a Preferred Alternative was identified and its effects determined, the Consulting and Interested Parties began discussing potential mitigation measures for the loss of the GSB. During cultural resource agency coordination meetings with the FHWA, NHDOT, NHDHR, the City of Dover, the Town of Newington, and various Consulting and Interested Parties, it was determined that the adverse effect to the GSB could be mitigated.

The stipulations to be included in a MOA were finalized following the public input on the 2021 DSEIS. Mitigation measures for the adverse effect have been finalized and stipulated in a new MOA pursuant to Section 106 (see **Appendix I**, pages 23-34). A summary of the list of mitigation measures as presented in the MOA is as follows:

- Marketing the GSB for re-use in compliance with 23 USC Section 144;
- Documentation of the GSB in accordance with the Historic American Engineering Record standards;
- Promoting and providing access to the NHDOT Historic Bridge Inventory and NHDOT Management Plan;
- Development of an interpretive program including on-site interpretive panels and an installation at the Woodman Museum in Dover;
- Supporting the future rehabilitation and reuse of the state-owned Newington Depot property on Bloody Point including the assessment of the feasibility for the rehabilitation of the Newington Railroad Depot and possible transfer of the building along with the state-owned land to the Town of Newington; and
- Completion of a feasibility study of a future link between the Dover Community Trail and the new GSB, including development of interpretive signage to highlight the history of the Newington-Dover Branch Line.

[84] Life cycle costs are the sum of the initial capital costs and the total maintenance cost throughout the planning horizon of the structure (a 75-year planning horizon was used).

4.7 Coordination and Public Participation

The NHDOT is committed to engagement and coordination with the public and other stakeholders to solicit input and ensure that project decisions meet public transportation needs, community goals, and protect and enhance the environment.

The *Coordination Plan for Agency and Public Involvement* was completed in October 2017 in order to facilitate and document the communication process for the Project.[85] Information regarding Section 106 consultation meetings and public information meetings can be found in **Chapter 7**, *Public, Agency and Tribal Coordination*. During the process, the NHDHR Project Area Form (PAF) update, inventory forms, and effects determinations were distributed to the Consulting and Interested Parties for comments and input. These documents and meeting notes were also made available on the Project's website, at http://www.newington-dover.com/gsb_subsite/index.html.

In December 2017, FHWA sent Cooperating or Participating Agency invitation letters to the following list of Federal and state agencies, local governments, organizations, and Tribal Nations. Accepted invitations are noted with an asterisk and italics.

Federal Agencies

Advisory Council on Historic Preservation
*US Coast Guard**
US Department of the Interior, Office of Environmental Policy and Compliance
US Department of Agriculture, Natural Resource Conservation Service
Federal Emergency Management Agency
Federal Aviation Administration
National Oceanic and Atmospheric Administration
*US Department of the Interior, US Fish and Wildlife Service**
*US Army Corps of Engineers**
US Environmental Protection Agency

State Agencies

New Hampshire Department of Agriculture, Food, and Markets
New Hampshire Department of Business and Economic Affairs
New Hampshire Department of Business and Economic Affairs
New Hampshire Division of Historical Resources
*New Hampshire Department of Environmental Services**
*New Hampshire Department of Natural and Cultural Resources**
New Hampshire Fish and Game Department
New Hampshire Office of Strategic Initiatives

Local Governments

City of Dover
Town of Newington
*Town of Durham**

Organizations

University of New Hampshire
Pease Development Authority
*Strafford Regional Planning Commission**
Rockingham Planning Commission
Rockingham County Conservation District

[85] The *Coordination Plan for Agency and Public Involvement* is available for viewing online at http://www.newington-dover.com/gsb_subsite/index.html.

Tribal Nations

Mashantucket Pequot Tribal Nation	Wampanoag Tribe of Gay Head-Aquinnah
Mohegan Tribal Council	Abenaki Nation of New Hampshire
Narragansett Indian Tribe	Cowasuck Band - Pennacook/Abenaki People
Passamaquoddy Tribe	Koasek Abenaki of the Koas
Penobscot Nation	Koasek Traditional Abenaki Nation
Eastern Pequot Reservation	Nulhegan Band of the Coosuk - Abenaki Nation
Golden Hill Indian Reservation	Sovereign Abenaki Nation of Missisquoi
Paucatuck Eastern Pequot Tribe	Schaghticaoke Tribal Nation of Kent

Meetings have been held periodically throughout the development and planning process for the Project, with various Federal, state, and local agencies, as well as with the public. Specifically, coordination has included those stakeholders noted in italics above, and several Consulting Parties under Section 106, elected officials, and local citizens. These meetings have occurred since 2003, related to the larger Newington-Dover, Spaulding Turnpike Transportation Improvements Project and more recently, as of 2015, specific to the current Project. A summary of the meetings distinct to the GSB is provided in **Table 4.1-1**.

At the three recent public informational meetings that have been held to date regarding the GSB, members of the public were informed of the Project, alternatives, the ongoing Section 106 consultation, the opportunity to become a Consulting Party, as well as additional Project updates and schedule. The public was given the opportunity to provide written or oral comments to notify the NHDOT of any concerns and opinions associated with the Project.

As of May 2021, FHWA has received six requests for Consulting Party status from the public: Nathan Holth (historicbridges.org); Kitty Henderson, Executive Director of the Historic Bridge Foundation; Karen Saltus, President of the Seacoast Area Bicycle Riders (Requested removal from Consulting Party list on 01/02/2020); Lulu Pickering of the Newington Historic District Commission (HDC), Anne Rugg, Manager at CommuteSMART Seacoast (Retired; removed from Consulting Party list on 10/01/2020), and Christopher Parker, Dover Assistant City Manager. Additionally, three individuals are identifying as Interested Parties: Senator David Watters, New Hampshire Senator; Karen Anderson, Newington Special Project Coordinator; and Martha Roy, Newington City Administrator. Senator David Watters has participated in several meetings with the NHDHR and Consulting Parties, although the Senator has not requested formal Consulting Party status. **Table 4.1-1** notes the meetings where Consulting Parties were in attendance.

Agency and public comments and concerns raised during project development indicate a variety of opinions regarding the GSB. NHDHR has expressed concern about the removal of the GSB, especially since other historic bridges in New Hampshire have recently been removed, which is a concern expressed by a few members of the public. Most comments from the public support Alternative 9, with a few supporting Alternative 1. NHDOT and FHWA has taken all comments received into consideration to inform the decision-making process for the Project.

In addition to meetings, other forms of communication have been implemented to solicit input and inform the public and other stakeholders of Project updates and general information. The Project website (http://www.newington-dover.com) provides the public with important information about the Project through a variety of methods. The Project website provides a specific link for the GSB at http://www.newington-dover.com/gsb_subsite/ index.html and offers the following communication methods and opportunities, in addition to general project information:

- Press Releases
- Email List Subscriptions
- Feedback and Comment Submissions
- Project Manager Contact Information
- Newsletters
- Project Documents
- Meeting Presentations
- Meeting Notes

NHDOT will continue to engage and coordinate with the public and other stakeholders to ensure that public transportation needs and community goals are met.

4.8 Final Determinations

4.8.1 Historic Resources

The Project would not impact any known archaeological sites. The effects to the historic Ira F. Pinkham House/Wentworth Summer House and the Newington Railroad Depot and Toll House are not adverse and do not constitute a use under Section 4(f).

The Section 4(f) use of the GSB has been determined to meet the criteria for the *Programmatic Section 4(f) Evaluation for FHWA Projects that Necessitate the Use of Historic Bridges*, as discussed in **Section 4.5.1**. Additionally, the alternatives analysis described in **Section 4.5.2** assessed the following three avoidance alternatives: do nothing; build on a new location without using the old bridge; and rehabilitation without affecting the historic integrity of the bridge. The findings of this analysis demonstrate that there are no feasible and prudent avoidance alternatives to the use of the historic bridge structure to be replaced.

The Project facts meet all of the criteria included in this Programmatic Section 4(f) Evaluation, and the Project includes all possible planning to minimize harm to the Section 4(f) property resulting from such use. Mitigation measures for the adverse effect have been finalized and stipulated in a new MOA pursuant to Section 106 (see **Appendix I**).

Table 4.1-1 Summary of Cultural Resource Agency Meetings and Public Coordination

Date	Type	Participants	Topics Discussed
12/10/2015	Cultural Resources Agency Meeting	FHWA, HDR, NHDHR, NHDOT, FHWA, HDR, VHB	Project location, goals, background information, preliminary alternatives, and a draft schedule.
08/11/2016	Cultural Resources Agency Meeting	FHWA, NHDHR, NHDOT, VHB	TSL Study, background information, graphics and photo simulations of the alternatives, and summary tables and figures of cost estimates.
10/25/2016	Public Informational Meeting	Members of the Public NHDOT, Senator Watters, VHB,	Project overview, contract updates, goals, MOA stipulations, existing GSB conditions, TSL Study, and preliminary alternative renderings.
12/14/2017	Cultural Resources Agency Meeting	FHWA, NHDHR, NHDOT, VHB	SEIS Coordination Plan for Agency and Public Involvement, proceedings for SEIS, and the process to solicit and consider input from agencies and the public.
01/30/2018	Public Informational Meeting	FHWA, Members of the Public, NHDOT, Senator Watters, VHB,	Project overview, SEIS, Section 4(f), Section 106 Consultation, alternatives, and other upcoming Spaulding Turnpike projects.
04/12/2018	Cultural Resources Agency Meeting	FHWA, Consulting Parties, NHDHR, NHDOT, Senator Watters, US Army Corps of Engineers, VHB	Reasonable range of alternatives and SEIS.
07/12/2018	Cultural Resources Agency Meeting	FHWA, Consulting Parties, NHDHR, NHDOT, Senator Watters, VHB	Section 106 consultation, updates on historic resource inventory efforts, anticipated timeframes for upcoming public information meetings, preliminary screening process, and cost estimates.
09/05/2018	Public Informational Meeting	Consulting Parties, FHWA, Members of the Public, NHDOT, VHB	Project background information, alternatives screening results, preliminary cost estimates, bicycle/pedestrian construction access, next steps for the 11238S Contract, and a Contract Q construction update.
09/13/2018	Cultural Resources Agency Meeting	FHWA, Consulting Parties, NHDHR, NHDOT, Senator Watters, VHB	Project status update, changes to range of alternatives, summary of the September Public Information Meeting.
10/11/2018	Cultural Resources Agency Meeting	FHWA, NHDOT, NHDHR, VHB	Closure of the GSB, Project Area Form, potential mitigation.
02/12/2019	Cultural Resources Agency Meeting	FHWA, Consulting Parties, NHDHR, NHDOT, VHB	DSEIS draft alternatives analysis and Section 106 Consultation.
6/13/2019	Cultural Resources Agency Meeting	FHWA, Consulting Parties, NHDHR, NHDOT, VHB	Historic property evaluation update, alternatives analysis, adverse effects table, potential mitigation approaches.
07/11/2019	Cultural Resources Agency Meeting	FHWA, Consulting Parties, Sen. Watters, NHDHR, NHDOT, VHB	Adverse effect table and memo drafts discussion, timeline, and potential mitigation.
8/8/2019	Cultural Resources Agency Meeting	FHWA, Consulting Parties, Sen. Watters, NHDHR, NHDOT, VHB	Discussion regarding effects to the GSB and other historic properties identified in the APE, additional mitigation suggestions, and the Phase IB investigation at a construction access area within Hilton Park.
10/10/2019	Cultural Resources Agency Meeting	FHWA, Consulting Parties, Sen. Watters, NHDHR, NHDOT, VHB	Updated Adverse Effect Memo, eligibility determination for the Bloody Point Area, mitigation discussion and integration into the DSEIS.
01/09/2020	Cultural Resources Agency Meeting	NHDOT, FHWA, NHDHR, ACOE, VHB, Consulting Parties	Potential mitigation measures.
01/24/2020	Cultural Resources Agency Meeting	NHDOT, NHDHR, ACOE, VHB, Consulting Parties	Potential mitigation measures.
10/08/2020	Cultural Resources Agency Meeting	FHWA, Consulting Parties, Sen. Watters, NHDHR, NHDOT, VHB	Potential mitigation measures.
03/11/2021	Cultural Resources Agency Meeting	NHDOT, NHDHR, FHWA, VHB, Consulting Parties	Potential mitigation measures.
05/13/2021	Public Hearing	Public Hearing	Consulting Parties, FHWA, Members of the Public, NHDOT, VHB
07/21/2021	Cultural Resources Agency Meeting	FHWA, Consulting Parties, Sen. Watters, NHDHR, NHDOT, VHB, Newington Historical Society	Discuss the finalization of the new MOA pursuant to Section 106.

4.8.2 Parkland and Recreational Resources

The temporary occupancy of Hilton Park would not constitute a use under Section 4(f), as defined in 23 CFR 774.13(d) since:

- The duration (of the occupancy of Hilton Park) will be temporary (*i.e.*, less than the time needed for construction, and there will be no change in ownership of the land);
- The scope of the work is minor (*i.e.*, both the nature and the magnitude of the changes to the Section 4(f) property are minor);
- There are no anticipated permanent adverse physical impacts, nor will there be interference with the activities or purpose of the resource, on either a temporary or permanent basis;
- The land being used temporarily will be fully restored (*i.e.*, the resource will be returned to a condition which is at least as good as that which existed prior to the project); and
- NHDOT, as the "official having jurisdiction," agrees regarding the above-mentioned conditions.