Executive Summary

ES-1. Project Description

New Hampshire Department of Transportation (NHDOT) and the Federal Highway Administration (FHWA) are evaluating alternatives for the rehabilitation or replacement of the historic General Sullivan Bridge (GSB) to provide pedestrian and recreational access. The GSB spans the navigational channel of Little Bay (the "Project" or the "11238S Contract") in Newington, Strafford County, New Hampshire and Dover, Rockingham County, New Hampshire. Pursuant to the National Environmental Policy Act (NEPA), this Draft Supplemental Environmental Impact Statement (DSEIS) supplements a 2007 Final Environmental Impact Statement (FEIS) by providing updated and additional analyses and a comparison of impacts and benefits associated with the Project. While the 2007 FEIS included an analysis of alternatives related to the GSB, its scope encompassed a much larger transportation project involving the GSB, the adjacent Little Bay Bridges (LBBs), and multiple interchanges and local roads over a 3.5-mile portion of the Spaulding Turnpike.

Study Area Description

The GSB spans a tidal estuary system known as Little Bay near its confluence with the Piscataqua River in southeast New Hampshire. The bridge connects the Town of Newington and the City of Dover. The Study Area for the DSEIS includes both the GSB and the LBBs, as well as an area approximately 800 feet north and 800 feet south of the bridge abutments in Newington and Dover.

Purpose and Need

The purpose of the Project is to provide recreational access and connectivity between Newington and Dover, across Little Bay, for pedestrian and non-motorized use. This would entail reusing the GSB substructure and superstructure, as much as practicable, given the condition of the bridge.

The FEIS established the need to continue providing access across Little Bay for pedestrians and non-motorized vehicles; the Selected Alternative included rehabilitating the historic GSB for this purpose. However, the GSB is vulnerable to corrosion and deterioration based on the harsh environmental setting of the bridge, especially since the bridge is constructed of thin steel sections and plates. Several truss members and connections require replacement and strengthening to support the weight of the structure, pedestrian and non-motorized vehicle loads, and occasional loads from maintenance equipment or emergency response vehicles when necessary. Deformations and section losses limit the remaining service-life of the bridge, and continued deterioration forced the closure of the bridge in September 2018. This closure eliminated permanent recreational use of the GSB and eliminated pedestrian and bicycle access across Little Bay. However, in August 2019, NHDOT established a temporary detour along northbound LBB to maintain a temporary multi-use connection between Newington and Dover for non-motorized transportation purposes.

ES-2. Reasonable Alternatives Considered

The SEIS includes analysis of five reasonable alternatives:

- Alternative 1: Rehabilitation of the General Sullivan Bridge
- Alternative 3: Partial Rehabilitation of the General Sullivan Bridge
- Alternative 6: Southbound Little Bay Bridge - Widened Deck on Pier Extension
- Alternative 7: Southbound Little Bay Bridge - Independent Deck on Pier Extension
- Alternative 9: Superstructure Replacement - Girder Option

The DSEIS also includes an assessment of the No-Action Alternative to serve as a baseline by which to evaluate impacts of the five reasonable alternatives.

ES-3. Description of Preferred Alternative

After consideration of all reasonable alternatives, *Alternative 9: Superstructure Replacement – Girder Option* has been identified as the Preferred Alternative. Alternative 9 involves the complete removal and replacement of the GSB superstructure. 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 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 repointed GSB stone masonry piers without requiring substantial modifications.

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.

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 a 12-foot wide multi-use path with 2-foot wide shoulders on each side, and pedestrian rail. The 16-foot wide multiuse path would comply with the ADA 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.

The 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 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.

ES-4. Environmental Impacts (Beneficial and Adverse)

This DSEIS describes the environmental consequences analysis, or impacts analysis, which compares the probable consequences of the reasonable alternatives. Impacts, also known as "*effects,*" may be direct, indirect, temporary, or permanent. Impacts may also be beneficial or adverse. **Table ES-1** below summarizes the impact analysis described in the DSEIS.

ES-5. Mitigation

The DSEIS includes mitigation for natural, cultural, and socio-economic effects of the Project. Among other measures, these include:

- Compliance with state and federal environmental permitting requirements related to wetlands, shorelands, and water quality;
- Development and implementation of erosion control best management practices;
- Compliance with the *National Marine Fisheries Service (NMFS)/FHWA Best Management Practices Manual for Transportation Activities in the Greater Atlantic Region;*
- Application of several Avoidance and Minimization Measures for the Northern Long-eared bat pursuant to the US Fish and Wildlife Service (USFWS) *Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat;*
- Maintenance of access to the majority of Hilton Park during construction, along with restoration of disturbed portions of the Park following construction; and
- Development and implementation of a Soil Management Plan and adherence to appropriate protocols for identification and handling of hazardous materials.

During cultural resource agency coordination meetings with the FHWA, NHDOT, the New Hampshire Division of Historical Resources (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. Consultation regarding mitigation of historic impacts is ongoing. Note that other measures will be considered in response to public comments on this DSEIS. A draft list of measures is presented in the DSEIS, including:

- 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;
- Promotion and providing access to the NHDOT Historic Bridge Inventory and Management Plan;
- Development of an interpretive program including on-site interpretive panels and an installation at the Woodman Museum in Dover;
- Development of a plan for the rehabilitation of the Newington Railroad Depot and possible transfer of the building along with the state-owned land on Bloody Point to the Town of Newington; and
- Completion of a feasibility study of a future link between the Dover Community Trail and the new/rehabilitated GSB, including development of interpretive signage to highlight the history of the Newington-Dover Branch Line.

Mitigation measures for the adverse effect will be finalized and stipulated in a new Memorandum of Agreement pursuant to Section 106.

ES-6. Issues and Areas of Controversy

Fate of the General Sullivan Bridge

Under the 2007 NEPA evaluation, two primary alternatives were evaluated for the historic GSB, including rehabilitation and full structure replacement. During the evaluation process that led to the 2007 decision, public input was obtained in support of both alternatives (see http://www.newington-dover.com/html-studydocs/feis.html). Based upon the cost estimation of the alternatives in 2007, the difference in the construction values between the two alternatives was estimated at $10.9M more for the preservation alternative. This earlier evaluation assumed that the aging structure was in good structural condition, and was completed in the absence of a recent, detailed structural inspection.

After the issuance of the ROD, the Department proceeded to complete structural inspections. Two extensive hands-on structural inspections were completed in May of 2014 and June of 2016 that brought to the light the level of deterioration of the GSB, which put the original commitment into question. Both these inspections resulted in sequentially greater restriction of access on the structure for the safety of the public. With the latest inspection in September 2018, the continued deterioration resulted in the immediate closure of the bridge for all public access.

Table ES-1 Summary and Comparison of Environmental Impacts

Environmental Resource	No-Action[1]	Alternative 1	Alternative 3	Alternative 6	Alternative 7	Alternative 9
Wetlands and Surface Waters	No Impacts.	Approximate impacts: • 0.1 acre temporary wetland; • 0.8 acre temporary bed and bank; • 0.9 acre temporary TBZ.	Same as Alternative 1.	Approximate impacts: • 0.1 acre temporary wetland. • 0.8 acre temporary bed and bank. • 0.1 acre permanent bed and bank. • 0.9 acre temporary TBZ.	Same as Alternative 6.	Same as Alternative 1.
Water Quality and Pollutant Loading	No Impacts.	Approximately 33 percent reduction in stormwater runoff volumes from bridge deck.	Same as Alternative 1.	Approximately 23 percent reduction in stormwater runoff volumes from bridge deck.	Same as Alternative 6.	Same as Alternative 1.
Floodplains and Hydrodynamics	No Impacts.	Minor temporary floodplain and hydrodynamic changes from causeways and trestles.	Same as Alternative 1.	Permanent floodplain, and hydrodynamic and tidal changes from pier replacement. Minor temporary floodplain and hydrodynamic changes from causeways and trestles.	Same as Alternative 6.	Same as Alternative 1.
Wildlife and Fisheries	No Impacts.	Temporary tidal habitat impacts. Approximately 0.2 acre temporary impact to blue mussel shellfish bed. Minor tree and shrub clearing.	Same as Alternative 1.	Permanent tidal habitat impacts. Approximately 0.2 acre temporary impacts and approximately 50 SF of permanent impacts to a blue mussel shellfish bed. Minor tree and shrub clearing.	Same as Alternative 6.	Same as Alternative 1.
Threatened and Endangered Species	No Impacts.	Same as Alternative 9.	Same as Alternative 9.	Same as Alternative 9. Direct temporary and permanent impacts on intertidal and subtidal habitats.	Same as Alternative 6.	"*May affect but is not likely to adversely affect*" Atlantic and shortnose sturgeon critical habitat. Direct temporary impacts on intertidal and subtidal habitats. "*May affect - likely to adversely affect*" Northern long-eared bat.
Farmlands	No Impacts.	No Impacts.	No Impacts.	No Impacts.	No Impacts.	No Impacts.
Air Quality	No Impacts.	Temporary emissions increase during construction.	Same as Alternative 1.	Temporary emissions increase during construction and replacement of pier, construction of new pier, and superstructure replacement.	Same as Alternative 6.	Temporary emissions increase during construction and superstructure replacement.
Noise	No Impacts.	Temporary noise increase during construction.	Same as Alternative 1.	Temporary increase in noise during construction and replacement of pier, construction of new pier, and superstructure replacement.	Same as Alternative 6.	Temporary increase in noise during construction and superstructure replacement.
Parks, Recreation, and Conservation Lands	Loss of bicycle and pedestrian connection.	48,000 SF temporary direct impact to Hilton Park. Periodic closure of navigational channel to marine traffic from work on GSB central spans and bridge deck.	Same as Alternative 1.	48,000 SF temporary direct impact to Hilton Park. Periodic closure of navigational channel to marine traffic from GSB removal and construction of new superstructure.	Same as Alternative 6.	Same as Alternative 6.

[1] Note that the USCG would likely require removal of the GSB if it no longer serves a transportation purpose. See November 30, 2006 letter from Gary Kassof, USCG, to Marc G. Laurin, NHDOT, regarding the Draft Environmental Impact Statement for the Newington-Dover, 11238 project.

Table ES-1. Summary and Comparison of Environmental Impacts (Cont.)

Environmental Resource	No-Action[2]	Alternative 1	Alternative 3	Alternative 6	Alternative 7	Alternative 9
Cultural Resources	Adverse, direct, permanent effect to GSB due to continued deterioration and ultimate removal due to USCG requirements. No archaeological impacts.	No direct, permanent or temporary impacts to the Ira F. Pinkham House/Wentworth Summer Residence or the Newington Railroad Depot and Toll House. Direct, permanent impact to GSB, but no adverse effects. No archaeological impacts.	No direct, permanent or temporary impacts to the Ira F. Pinkham House/Wentworth Summer Residence. Has a permanent, direct effect on the Newington Railroad Depot and Toll House due to the loss of the visual link to existing approach spans, although this impact is not adverse. Adverse, direct, and permanent effect to GSB, minimized by retention of arched central spans and continuous deck truss/ through-truss configuration. No archaeological impacts.	No direct, permanent or temporary impacts to the Ira F. Pinkham House/Wentworth Summer Residence. Has a permanent, direct effect on the Newington Railroad Depot and Toll House due to the loss of the visual link to existing GSB, although this impact is not adverse Adverse, direct, and permanent effect to GSB since bridge would be demolished. No archaeological impacts.	Same as Alternative 6.	Same as Alternative 6.
Hazardous Materials	No Impacts.	Minor direct impacts from construction debris, construction equipment use.	Same as Alternative 1, with more construction debris.	Minor direct impacts from a moderate to high volume of construction debris, minor direct impacts of removing sediment from Little Bay during new pier construction, construction equipment use.	Same as Alternative 6.	Minor direct impacts from a moderate to high volume of construction debris, construction equipment use.
Visual Resources	No Impacts.	Visual benefit. Appearance of bridge remains unchanged. Enhanced pedestrian and bicyclist views of natural visual resources. Temporary direct visual impacts from construction.	Same as Alternative 1.	Permanent, substantial visual change to GSB superstructure, alignment, and Dover approach span. Inconsistent visual effect from pier replacement and new pier construction. Enhanced pedestrian and bicyclist views of natural visual resources. Temporary direct visual impacts from construction.	Same as Alternative 6.	Permanent, substantial visual change to GSB superstructure. Enhanced pedestrian and bicyclist views of natural visual resources. Temporary direct visual impacts from construction.
Construction	No Impacts.	Estimated 3 years to construct.	Estimated 2 years to construct.	Estimated 1.5 years to construct.	Estimated 1.5 years to construct.	Estimated 1.5 years to construct.
Social and Economic Resources and Environmental Justice	Minor impact on businesses and residents in Newington and Dover from loss of alternative commuting opportunities.	No direct impacts on private property. No disproportionately high, adverse impacts on EJ populations. ADA accessible multi-use path over Little Bay. Temporary beneficial impact to businesses and wages during construction.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Navigation	Safety concerns and potential direct impacts to marine traffic due to structural deficiencies. Removal required per USCG permit.	Existing vertical navigational clearance of the 100-foot and 200-foot navigation channels maintained at 47.9 feet and 34.7 feet.	Same as Alternative 1.	Vertical navigational clearance of 100-foot navigational channel would decrease by 1.3 feet. Vertical navigational clearance of the 200-foot navigational channel would increase by 10.2 feet.	Same as Alternative 6.	Vertical navigational clearance of 100-foot navigation channel would increase by 0.1 feet. Vertical navigational clearance of the 200-foot navigation channel would increase by 9.6 feet (V-frame), or 12.8 feet (Super Haunch).

[2] Note that the USCG would likely require removal of the GSB if it no longer serves a transportation purpose. See November 30, 2006 letter from Gary Kassof, USCG, to Marc G. Laurin, NHDOT, regarding the Draft Environmental Impact Statement for the Newington-Dover, 11238 project.

As a result of these inspection reports, FHWA concurred with NHDOT's recommendation that further evaluation of rehabilitation and other alternatives was warranted, and determined that a Supplemental Environmental Impact Statement (SEIS) would be necessary to re-evaluate any changes to the rehabilitation of the GSB, as such changes have the potential to result in significant environmental impacts that were not previously evaluated in the original EIS.

The Preferred Alternative identified in this DSEIS is not consistent with the April 3, 2008 Memorandum of Agreement (MOA) (see http://www.newington-dover.com/gsb_subsite/contract_ documents.html). The 2008 MOA among FHWA, NHDOT, and NHDHR pursuant to Section 106 of the National Historic Preservation Act (NHPA) memorialized the commitment to rehabilitate the GSB.

Should a replacement Preferred Alternative move forward as the Selected Alternative, measures for historic mitigation to compensate for the loss of the GSB will be developed through a collaborative, public input approach consistent with the Section 106 process. 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. Applicable Section 106 consultation documents and correspondence can be found on the project website (www.newington-dover.com/gsb_subsite/contract_ documents.html). Mitigation measures for the adverse effect would be finalized and stipulated in a new MOA pursuant to Section 106.

Maintaining a Permanent Pedestrian and Bicycle Connection

The purpose of the Project is to provide permanent pedestrian and bicycle access across Little Bay. At public informational meetings held on October 25, 2016, January 30, 2018, and September 5, 2018, the public voiced support of pedestrian and bicycle access across Little Bay via a protected bicycle lane on the LBB. A temporary detour (opened for public access in August 2019) currently provides uninterrupted pedestrian and bicycle access, but because this temporary detour requires temporary use of one lane of the northbound LBB, it limits the transportation capacity of the highway for motorized vehicles. The temporary bicycle and pedestrian detour approach on the Newington side connects to and utilizes the access road already constructed for the water quality treatment Best Management Practice (BMP) basin located adjacent to the Exit 4 northbound on-ramp from Shattuck Way. The temporary detour approach on the Dover side connects to Wentworth Terrace, adjacent to the eastern side of Hilton Park. This temporary detour would be removed as soon as possible following completion of the Project to allow the expanded LBB to accommodate vehicular traffic volumes as intended and designed.

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. Public input will continue to be important as NHDOT and FHWA take all comments received into consideration to inform the decision-making process for the Project.

United States Coast Guard Terms

The GSB spans a navigation channel, which provides access from the Great Bay to the Piscataqua River. The poor condition of the GSB has become a concern to boaters and safety agencies due to the potential hazards from falling material. Under the terms of the existing permit for the GSB and expanded LBB issued by the United States Coast Guard (USCG), the GSB superstructure and substructure would eventually need to be removed if it is no longer used for transportation purposes (*i.e.*, pedestrian and bicycle use).[3]

ES-7. Federal Actions Required for the Project

Federal requirements to construct the Preferred Alternative include several permits, approvals, certifications, and reviews from Federal agencies. **Table ES-2** below outlines the applicable Federal compliance requirements.

Table ES-2 Required Federal Permits, Approvals, Certifications or Regulatory Compliance

Regulation	Issuing Agency	Name of Approval
National Environmental Policy Act	FHWA	Final Supplemental EIS (FSEIS) and Supplemental Record of Decision (SROD); or combined FSEIS/SROD
Clean Water Act, Section 404; Federal Rivers and Harbors Act, Section 10	USACE	Individual Permit
Clean Water Act, 33 USC §1251 et sq.	USEPA	National Pollutant Discharge Elimination System Construction General Permit[1]
National Historic Preservation Act, Section 106	ACHP and FHWA	Section 106 Consultation[2]
Section 4(f) of the US Department of Transportation Act	FHWA	Section 4(f) Approval
Magnuson-Stevens Fishery Conservation and Management Act	NOAA – NMFS	Essential Fish Habitat Assessment[3]
Endangered Species Act	NOAA – NMFS	Designated Critical Habitat[4]
Endangered Species Act	USFWS	Section 4(d) Rule[5]
US Coast Guard Bridge Permit	USCG	Amended Bridge Permit

1 Includes the preparation of a Notice of Intent, Notice of Termination, and combined Stormwater Pollution Protection Plan (SWPPP) and Marine Sediment Containment/Protection Plan. The National Pollutant Discharge Elimination System Construction General Permit is to be prepared just before construction begins.

2 An Adverse Effects Memo was executed for the Project on January 2, 2020 which determined that the Preferred Alternative would result in an Adverse Effect to the General Sullivan Bridge (DOV0158). Applicable Section 106 consultation documents and

3 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.

correspondence can be found on the project website (www.newington-dover.com/gsb_subsite/contract_documents.html). An MOA will be finalized following public input on the DSEIS.

3 Essential Fish Habitat consultation with NOAA – NMFS was completed on May 17, 2019.

4 Designated Critical Habitat consultation with NOAA - NMFS was completed on June 18, 2019.

5 The Project complies with the ESA 4(d) rule (NLEB conservation) per the Streamlined Consultation Form.