General Sullivan Bridge Bicycle and Pedestrian Crossing Project

FY 2023 Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grant Application

New Hampshire Department of Transportation
February 24, 2023

Table of Contents

Tables

Figures

1 Project Description

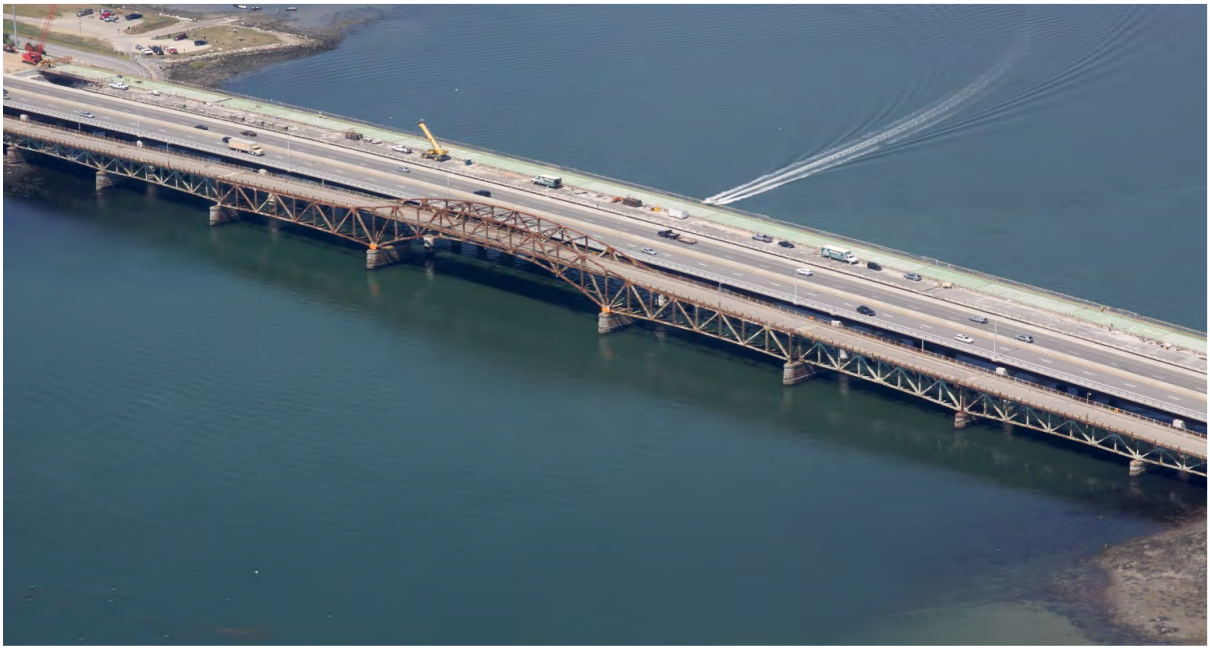


Figure 1-1: Aerial View of the General Sullivan Bridge Adjacent to the Little Bay Bridges

The General Sullivan Bridge (GSB) Bicycle and Pedestrian Crossing Project (the Project) will reopen a critical piece of infrastructure for non-motorized travelers. It will provide the only walking and bicycling access across the Little Bay tidal estuary near its confluence with the Piscataqua River, between Dover, New Hampshire, and Newington, New Hampshire, and the rest of New Hampshire's northern seacoast. This separated non-motorized transportation structure will link significant cultural resources, parks, commercial centers, neighborhoods, and transportation facilities.

The New Hampshire Department of Transportation (NHDOT), the Project Sponsor, is pursuing this Project as an innovative response to the growing demand for personal mobility solutions that increase transportation choices, shift trips away from personal automobiles, reduce traffic congestion and emissions, provide mobility options for those who do not have access to a car, and improve the efficiency and cost-effectiveness of the regional transportation network.

The Project is located at the entrance to the New Hampshire Seacoast from the cities of Dover, Somersworth, and Rochester to the north of the Project. The Project will provide connections between these cities where many of the workers that commute along this corridor to jobs in the City of Portsmouth reside. Major employers in Portsmouth include the Pease International Tradeport and Portsmouth Regional Hospital, as well as historic centers such as Strawbery Banke Museum, the USS Albacore Museum, Bloody Point, Prescott Park, and the Portsmouth Naval Shipyard along the Portsmouth waterfront. It will also link Great Bay National Wildlife Refuge on the Newington side of the waterway to Hilton Park with its recreational benefits, including water access, on the Dover side of the waterway.

1.1 Project Context

The General Sullivan Bridge Bicycle and Pedestrian Crossing Project will allow non-motorized pedestrians and bicyclists to cross Little Bay on an independent nine-span, 1,550-foot-long bridge just upstream of the recently rehabilitated and newly constructed Little Bay Bridges that carry the Spaulding Turnpike northbound (NB) and southbound (SB), respectively, from its interchange with I-95 to the south and US 4 to the north.

The Project will be located between the cities of Dover, Somersworth, and Rochester and the Town of Durham to the north and the City of Portsmouth and the Town of Newington to the south (**Figure 1-2**). The 1,550-foot-long bicycle and pedestrian bridge across Little Bay just upstream from the Piscataqua River will consist of two steel girders and a concrete deck. The northern end of the Project will connect to U.S. Route 4, which is a popular bicyclist route. This bridge will connect communities along US 4 to the Pease International Tradeport—a 3,000-acre business and industrial park that includes Portsmouth International Airport—and the historic and tourist destination of Portsmouth to the south, which is already heavily trafficked by bicyclists and pedestrians.

Figure 1-2 shown below is an aerial view of Little Bay looking towards Newington and Portsmouth. It shows the completed Spaulding Turnpike Little Bay Bridges facility and the adjacent but separated General Sullivan Bridge, with the Pease International Tradeport and Portsmouth business areas in the background.

Figure 1-2: Aerial View from the Dover Side to the Newington and Portsmouth Side of the Little Bay Area with the Overall Spaulding Turnpike Project Completed

As a result of the continued outcry from the bicycle community after closure of the GSB in 2018 due to deterioration of two floorbeams at pier 7, a temporary multi-use path was added to the east side of the Spaulding Turnpike NB Bridge (removing one of the four newly constructed through-lanes). The path was created by adding concrete Jersey barriers and fencing.

As shown in **Figure 1-3**, this is not an inviting arrangement for the bicycle and pedestrian users, given the closeness and noise of the traffic. It also removes one-quarter of the projected capacity needed for NB traffic.

Figure 1-3: Temporary Multi-Use Path on Nortbound Little Bay Bridge

1.2 Project Overview

The overall Newington-Dover Spaulding Turnpike/Little Bay Bridges Project is a 3.5-mile widening of the Spaulding Turnpike (also called NH Route 16) from its beginning at the intersection with Interstate 95, a route that traverses the New Hampshire Seacoast from Massachusetts to the south and from Maine to the north. This expansion was completed by NHDOT over a 10-year construction period, transforming the Spaulding Turnpike (a major limited access north-south highway and the only major north-south roadway on the eastern side of New Hampshire) corridor. The route had been a daily bottleneck for commuters traveling south over Little Bay to their jobs in the Portsmouth area and to Interstate 95, where they access additional employment opporunities at Portsmouth Naval Shipyard and further south in Boston, Massachusetts, and traveling back to their homes in the evening. This traffic bottleneck was even worse on Friday nights as visitors use this corridor to access New Hampshire's Lakes Region and White Mountains further north on the NH 16 corridor. The corridor bottlenecked again on Sunday evenings during these travelers' return trips. The transformative Newington-Dover Spaulding Turnpike/Little Bay Bridges Project has effectively addressed the traffic congestion on this heavily traveled corridor.

Information about the overall Newington-Dover Spaulding Turnpike project, including the $286.6 million of State funds used by NHDOT to construct the project, can be found at Spaulding Turnpike - Newington-Dover - Home Page - NH Department of Transportation.

As part of the larger project to improve the Spaulding Turnpike, NHDOT completed a Final Environmental Impact Statement (FEIS) in 2007 with a commitment to maintain pedestrian and bicycle connectivity between Dover and Newington. At that time, the multimodal connection was envisioned to be maintained by rehabilitating the historic General Sullivan Bridge. The GSB was the original vehicular crossing of Little Bay and was converted to multimodal use when the Spaulding Turnpike first opened in the 1980s.

Based on additional inspections and engineering studies completed between 2009 and 2016, the GSB was more deteriorated than originally understood. In 2017, NHDOT and the Federal Highway Administration (FHWA) reopened the NEPA process and initiated a Supplemental Environmental Impact Statement (SEIS) to review alternatives that met the GSB Project's Purpose and Need of "providing access and connectivity between Newington and Dover, across Little Bay, for pedestrians and bicyclists (non-motorized use)." During the alternatives development and screening process for addressing the GSB, a strong coalition of public supporters came out to voice their desire to replace the multi-use path that crossed over the GSB with the proposed alternative. The Final Supplemental Environmental Impact Statement (FSEIS) was approved in February 2022 with the proposed alternative to replace the existing truss superstructure with the two steel girder concrete deck system.

The Project will connect non-motorized users from the residential areas of Dover-Somersworth-Rochester with the industrial and regional commercial centers in Newington, Portsmouth, and northern Massachusetts.

If this crossing was not available for pedestrians and bicyclists, the closest alternate route is more than 25 miles in length, as shown below in **Figure 1-4,** and requires travel in the neighboring State of Maine.

The Project will also connect the less privileged cities of Dover, Somersworth, and Rochester to the City of Portsmouth's seacoast, businesses, and tourist areas via this direct link across Little Bay for commuters and for recreational use by walkers, runners, and bicyclists.

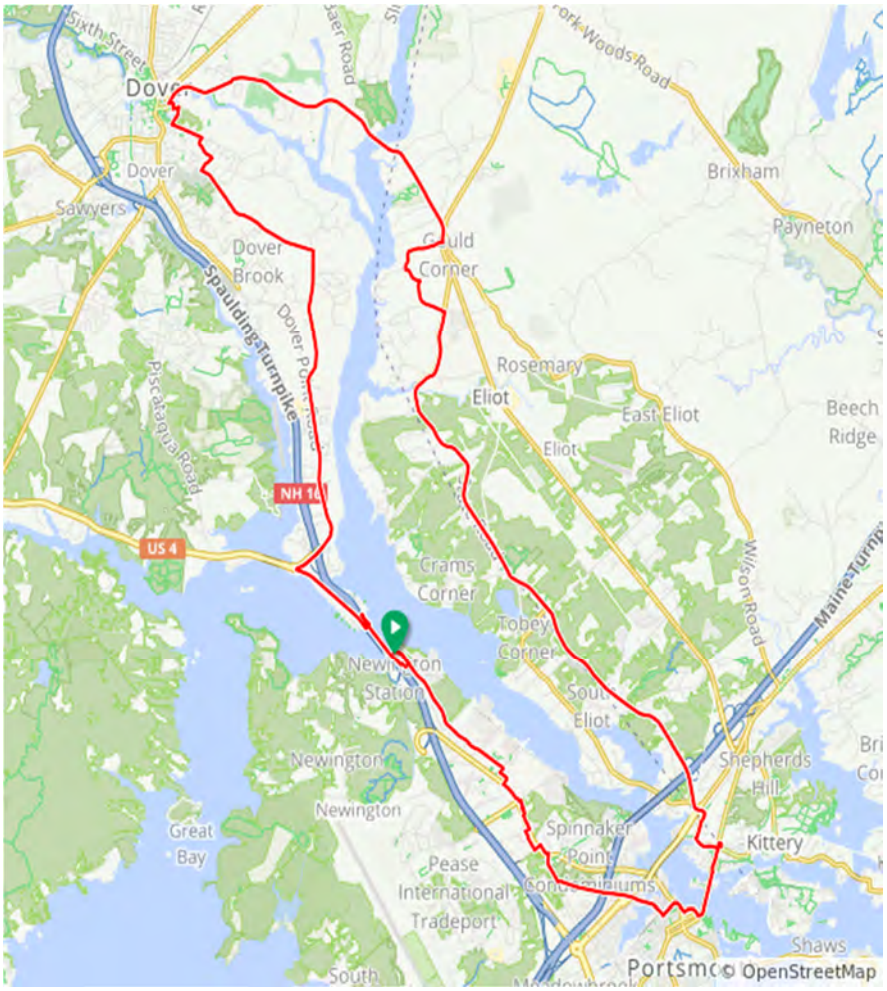


Figure 1-4: Detour Bike Route without GSB Crossing of Little Bay

1.3 Project Benefits

The General Sullivan Bridge offers a healthy alternative to vehicle travel by providing pedestrians and bicyclists a local crossing of Little Bay between Dover and Newington with an independent structure dedicated to non-motorized transportation access. In the absence of this alternative, those non-motorized travelers would likely have to drive, as alternative routes are significantly longer (see **Figure 1-3** above). Most bicyclists and pedestrians would no longer use those modes to travel from Dover to Portsmouth without the Little Bay crossing.

The Project will provide a direct connection between desired locations for commuters, recreational users, and tourists in the region. The non-motorized usage of the crossing has decreased since the closure of the GSB in 2018. This is probably due to the COVID-19 pandemic and the less appealing, narrower temporary path located on the northbound bridge adjacent to traffic. It is anticipated that with the newly reconstructed separated GSB crossing, usage of the crossing will be higher than ever. The only existing pedestrian/bicycle path connecting these two areas without this crossing is a 25-plus-mile route into Maine and then back to Portsmouth via the Memorial or Sarah Mildred Long (bicycles only) bridges (see **Figure 1-3**). This Project will address the deteriorated, closed bridge by providing a crossing that is strictly dedicated for bicyclists and pedestrians and completely separated from automobile traffic. The Project will also address the needs of commuters and recreational travelers between Dover and Durham to the north and the Newington and Portsmouth area to the south.

Project Benefits

- Improves safety by separating bicyclists and pedestrians from vehicular traffic
- Decreases greenhouse gas emissions by reducing reliance on automobiles
- Improves quality of life and equity, serving diverse users
- Links regional bicycle path and trail network for commuters and leisure travelers and connects significant destinations
- Enhances the regional economy with affordable travel choices, tourism, and good-paying jobs
- Provides network redundancy during outages for state of good repair (SOGR) projects
- Has enthusiastic support of area stakeholders from extensive collaboration

The General Sullivan Bridge Bicycle and Pedestrian Crossing will be substantially wider, at a minimum of 18 feet in width, and more attractive for bicyclists and pedestrians than the temporary bike path located adjacent to the noisy Spaulding Turnpike northbound lanes. The new crossing will:

- Improve non-motorized user safety by minimizing the potential for incidents with motorized vehicles.
- Enhance equity by providing a convenient connection for bicycle commuters to access the concentration of jobs in the City of Portsmouth and at the Pease International Tradeport.
- Reduce reliance on automobiles, which in turn will reduce greenhouse gas emissions.

2 Project Location

2.1 Project Area

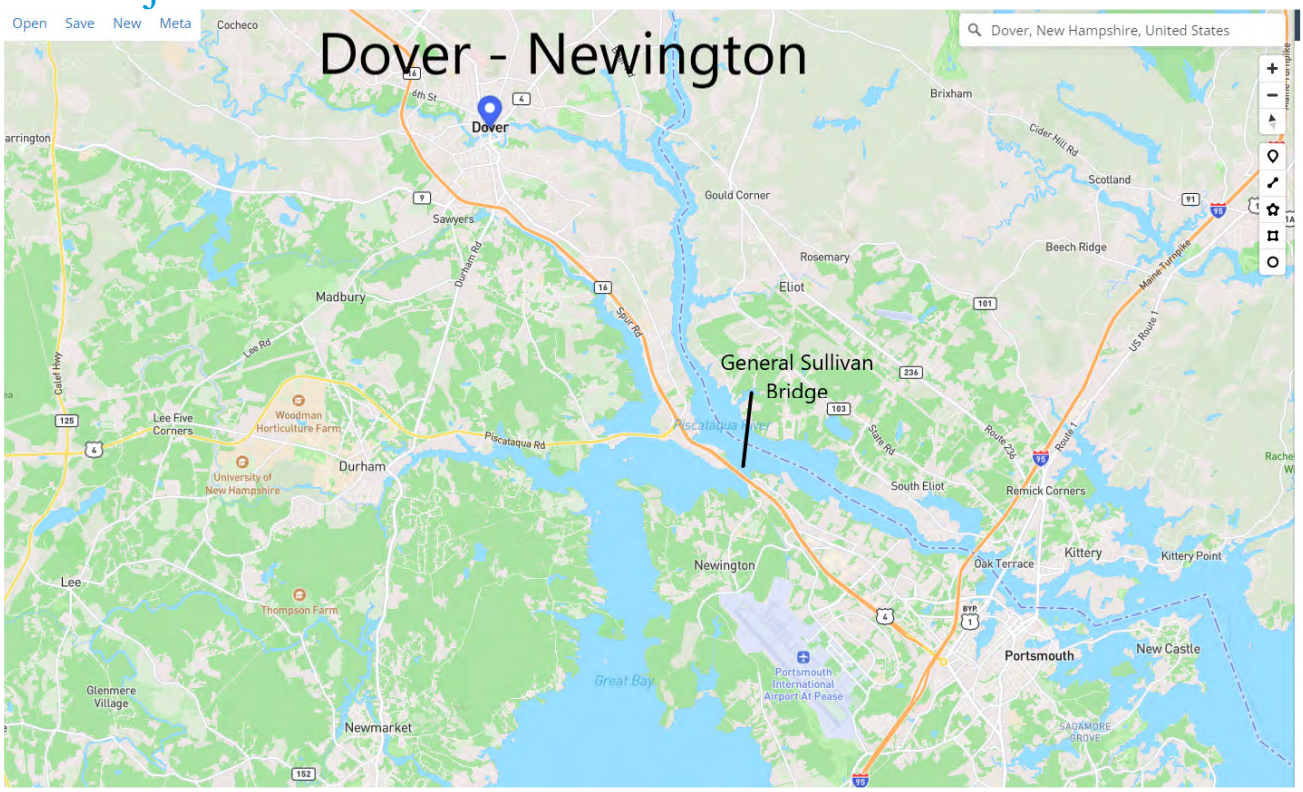


Figure 2-1: Project Location

The Project spans the New Hampshire counties of Strafford and Rockingham in the southeastern portion of New Hampshire. The General Sullivan Bridge is in the southeastern portion of the City of Dover and the northwestern portion of the Town of Newington, respectively, as shown above (**Figure 2-1**). The Project is **not** located within an Area of Persistent Poverty or a Historically Disadvantaged Community. The Project is also **not** included in a Census-designated urbanized area.

2.2 Existing Transportation

The only transportation options that serve the crossing of Little Bay are local and express buses and automobiles via the interstate-type highway, and the temporary path added to the Northbound Bridge. **The Project will restore a key component of the regional network by providing a separated bicycle and pedestrian structure (Figure 2-1) to cross Little Bay.**

2.3 Commuting Patterns

Commuters travel south from the cities of Dover, Somersworth, and Rochester to jobs in the Pease International Tradeport, the Portsmouth Naval Shipyard, and other businesses in the City of Portsmouth, as well as jobs in destinations served by Interstate 95, including Boston, Massachusetts. By providing this bicyclist and pedestrian crossing over Little Bay, some will now be able to commute to work via bicycle.

3 Grant Funds and Sources and Uses of All Project Funding

3.1 Project Costs

NHDOT has developed an 80% Cost Estimate (**Figure 3-1**) for the Project based on the recent completion of the 80% Plans (Preliminary Plans Supplementals and Estimate (PPS&E)), as well as historical cost experience for similar projects. **Table 3-1** shows a summary of those costs. See page 10 and 11 or the RAISE Grant website at http://newington-dover.com/gsb_subsite/raisegrant2023.html for an item breakdown of the Construction Estimate.

NHDOT is only requesting RAISE Grant funds for the construction portion of the Project. All previous engineering costs and costs to be expended for engineering required to complete the design and final contract documents are already covered by New Hampshire State Turnpike funds. The Bridge Project and its associated efforts are the only component of the RAISE Grant application.

There are no right-of-way (ROW) impacts; therefore, no ROW acquisition funds are required under the General Sullivan Bridge Bicycle and Pedestrian Crossing Project.

Table 3-1: Project Cost

GSB Construction Phase Only	Cost ($)
Construction Items	$32,950,509
5% Construction Engineering	$1,640,000
Section 106 Mitigation	$750,000
Wetland Permit Aquatic Resources Mitigation (ARM) Fund Payment	$250,000
Total Construction Cost	**$35,590,509**

3.2 Project Funding

NHDOT is requesting $20 million in RAISE discretionary grant funds for only the construction phase of the General Sullivan Bridge Bicycle and Pedestrian Crossing Project. This amount represents 56.2 percent of the total estimated Project cost for construction only of $35,590,509 (**Table 3-1**), as preliminary engineering is covered under other NHDOT State Turnpike funds and is already allocated for the effort through completion of Contract Plans and Documents. NHDOT State Turnpike funds will also cover any additional construction cost based on future bidding and construction of the Project.

NHDOT is currently working through final design efforts and the necessary permits from Federal and State agencies, such as the U.S. Coast Guard (USCG) Bridge Permit, New Hampshire Department of Environmental Services (NHDES) wetland permits, and U.S. Army

Corps of Engineers (ASACE) permits, all anticipated to be received and ready for advertisement by late summer of 2023. Construction is planned to be authorized by fall 2023, four years ahead of the June 30, 2027, deadline for obligation. Construction is scheduled to be completed in 2026, enabling all funds to be expended by December 31, 2026, far in advance of the September 30, 2032, expenditure deadline noted inside of the Notice of Funding Opportunity (NOFO).

Table 3-2: Sources of Funds

Source	Amount ($)	Percent of Project Cost
Federal – RAISE Grant Funds	$20,000,000	56.2%
Non-Federal – State of New Hampshire Funds **	$15,590,509	43.8%
Total *	**$35,590,509**	**100%**

** Total funds do not include funds expended or to be expended for preliminary engineering.*

*** NHDOT is prepared to cover any increase in required construction funds using these same State funds to complete the Project.*

The Project does have a non-participating effort associated with constructing an Emergency Waterline Interconnect between the water distribution systems of the Cities of Dover and Portsmouth. Construction of the waterline will be funded separately by the Cities, who are the suppliers of water for the area communities. The GSB provides a more economical crossing of Little Bay for this effort versus a more expensive directional bore through the bedrock under Little Bay.

The Bridge spans both communities with Dover in Census Tract 812 and Newington in Census Tract 1075. Based on that both Census Tract will see approximately 50% of the cost for a value of $17,795,254.50 each.

Funding for the project is committed through New Hampshire's Ten Year Transportation Improvement Plan, which was approved by the NH State Legislature under HB2022, as amended, and signed into law by the Governor Sununu on July 22, 2022. The commitment for the "Non-Federal" NH State Turnpike Funds can be found on the GSB RAISE Grant website http://newington-dover.com/gsb_subsite/raisegrant2023.html under Available Files - Funding Commitment for GSB and as a separate attachment to the application.

Cost Estimate

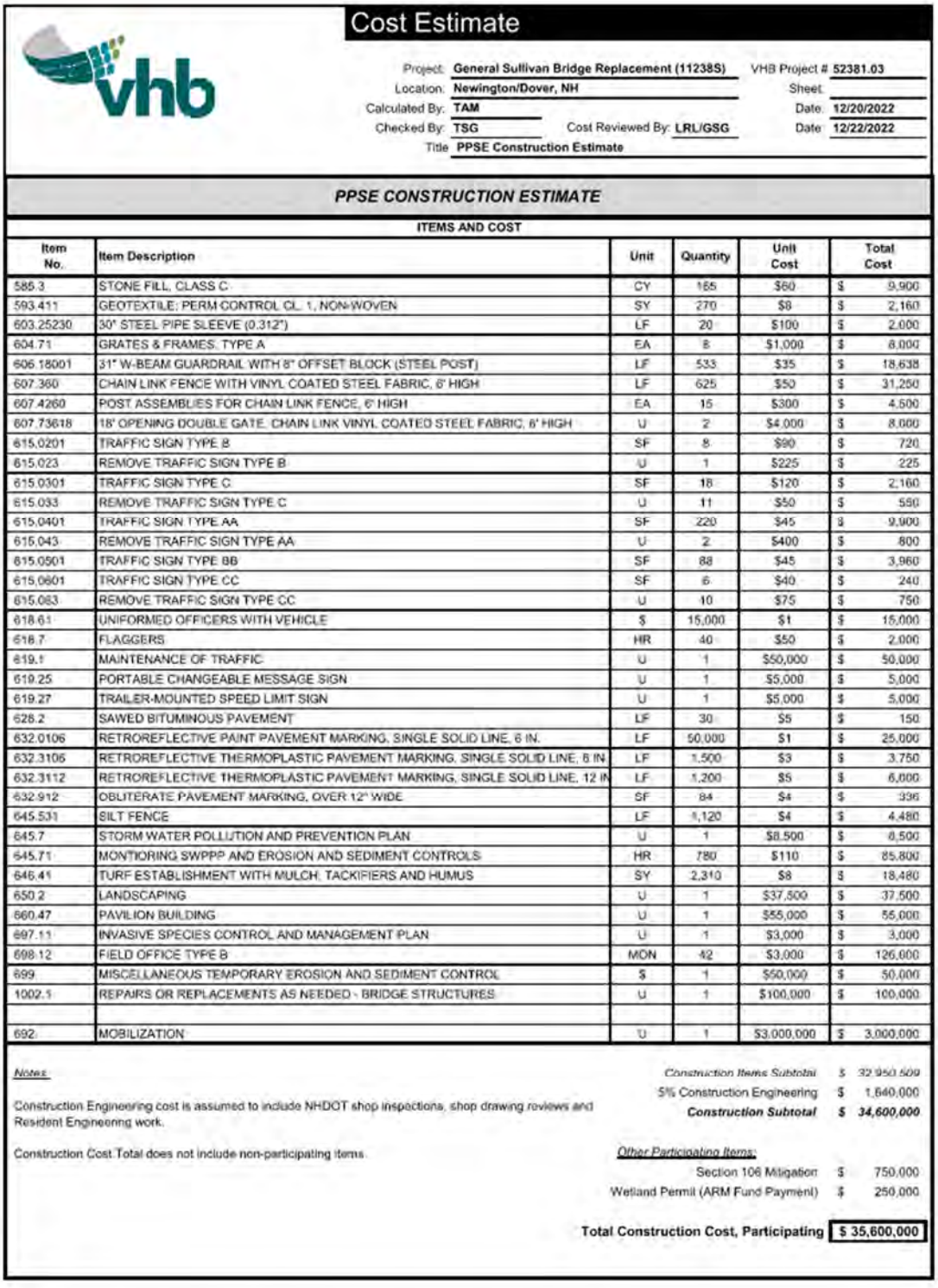
Project: General Sullivan Bridge Replacement (11238S) VHB Project # 52381.03
Location: Newington/Dover, NH Sheet:
Calculated By: TAM Date: 12/20/2022
Checked By: TSG Cost Reviewed By: LRL/GSG Date: 12/22/2022
Title: PPSE Construction Estimate

PPSE CONSTRUCTION ESTIMATE

ITEMS AND COST

Item No.	Item Description	Unit	Quantity	Unit Cost	Total Cost
201.1	CLEARING AND GRUBBING (F)	A	0.25	$20,000	$ 5,000
202.7	REMOVAL OF GUARDRAIL	LF	12.5	$10	$ 125
202.74	REMOVAL OF CONCRETE BARRIER	LF	3,310	$30	$ 99,300
202.8	REMOVAL OF FENCE	LF	4,430	$3	$ 13,290
203.1	COMMON EXCAVATION	CY	830	$40	$ 33,200
203.6	EMBANKMENT-IN-PLACE (F)	CY	15	$40	$ 600
207.3	UNCLASSIFIED CHANNEL EXCAVATION	CY	70	$75	$ 5,250
209.201	GRANULAR BACKFILL (BRIDGE) (F)	CY	90	$90	$ 8,100
304.4	CRUSHED STONE (FINE GRADATION) (F)	CY	30	$55	$ 1,650
304.5	CRUSHED STONE (COARSE GRADATION) (F)	CY	30	$55	$ 1,650
403.11023	HPB - 3/4" BINDER MIX, MACHINE METHOD	TON	80	$160	$ 12,800
403.11041	HBP - 1/2" SURFACE MIX, MACHINE METHOD, QA/QC TIER 1	TON	3,680	$110	$ 404,800
403.11043	HPB - 1/2" SURFACE MIX, MACHINE METHOD	TON	65	$160	$ 10,400
403.16	PAVEMENT JOINT ADHESIVE	LF	31,320	$1	$ 31,320
417.	COLD PLANING BITUMINOUS SURFACES	SY	43,215	$10	$ 432,150
500.02	ACCESS FOR BRIDGE CONSTRUCTION	U	1	$8,000,000	$ 8,000,000
502	REMOVAL OF EXISTING BRIDGE STRUCTURE	U	1	$2,000,000	$ 2,000,000
503.201	COFFERDAMS - PIER 1	U	1	$125,000	$ 125,000
503.202	COFFERDAMS - PIER 2	U	1	$125,000	$ 125,000
503.203	COFFERDAMS - PIER 3	U	1	$125,000	$ 125,000
503.204	COFFERDAMS - PIER 4	U	1	$125,000	$ 125,000
503.205	COFFERDAMS - PIER 5	U	1	$125,000	$ 125,000
503.206	COFFERDAMS - PIER 6	U	1	$125,000	$ 125,000
503.207	COFFERDAMS - PIER 7	U	1	$125,000	$ 125,000
503.208	COFFERDAMS - PIER 8	U	1	$125,000	$ 125,000
503.209	COFFERDAMS - ABUTMENT B	U	1	$70,000	$ 70,000
504.1	COMMON BRIDGE EXCAVATION (F)	CY	190	$75	$ 14,250
508	STRUCTURAL FILL	CY	15	$80	$ 1,200
520.01	CONCRETE CLASS AA	CY	5	$1,000	$ 5,000
520.03	CONCRETE CLASS AA, APPROACH SLABS (F)	CY	5	$700	$ 3,500
520.12	CONCRETE CLASS A, ABOVE FOOTINGS (F)	CY	170	$1,000	$ 170,000
520.213	CONCRETE CLASS B, FOOTINGS (ON SOIL) (F)	CY	40	$450	$ 18,000
520.7002	CONCRETE BRIDGE DECK (QC/QA) (F)	CY	1,030	$1,350	$ 1,390,500
528.5006	PRESTRESSED CONCRETE DECK PANELS (6" THICK) (F)	SF	23,750	$40	$ 950,000
534.3	WATER REPELLENT (SILANE/SILOXANE)	GAL	330	$100	$ 33,000
538.2	BARRIER MEMBRANE, PEEL AND STICK - VERTICAL SURFACES (F)	SY	30	$80	$ 2,400
540.42	SCUPPERS (FRP)	EA	4	$7,500	$ 30,000
541.5	PVC, WATERSTOPS, NH TYPE 5	LF	40	$15	$ 600
544	REINFORCING STEEL (F)	LB	1,500	$2	$ 3,000
544.2	REINFORCING STEEL, EPOXY COATED (F)	LB	213,900	$2	$ 449,190
547	SHEAR CONNECTORS (F)	EA	4,656	$10	$ 46,560
550.1	STRUCTURAL STEEL (F)	LB	2,318,100	$5	$ 11,590,500
550.2101	BRIDGE SHOES - HLMR (F)	EA	20	$8,000	$ 160,000
550.3	STELL BOLLARD (REMOVABLE)	U	4	$1,000	$ 4,000
581.41	PREFABRICATED MOLDED RUBBER SEGMENTAL EXPANSION JOINT (F)	LF	42	$1,900	$ 79,800
563.51	PEDESTRIAN BRIDGE RAIL (F)	LF	3,140	$450	$ 1,413,000
564.1	BRIDGE LIGHTING SYSTEM	U	1	$120,000	$ 120,000
564.4	BRIDGE NAVIGATIONAL LIGHTS	U	1	$35,000	$ 35,000
571.XX	STONE MASONRY PIER SURFACE PREPARATION	SF	17,200	$6	$ 94,600
571.2	REPAIRING AND REPOINTING STONE MASONRY PIERS	LF	4,900	$100	$ 490,000
585.21	STONE FILL, CLASS B (BRIDGE)	CY	185	$65	$ 12,025

Figure 3-1: 80% Cost Estimate



Cost Estimate

Project: General Sullivan Bridge Replacement (11238S) VHB Project # 52381.03
Location: Newington/Dover, NH Sheet
Calculated By: TAM Date: 12/20/2022
Checked By: TSG Cost Reviewed By: LRL/GSG Date: 12/22/2022
Title: PPSE Construction Estimate

PPSE CONSTRUCTION ESTIMATE

ITEMS AND COST

Item No.	Item Description	Unit	Quantity	Unit Cost	Total Cost
585.3	STONE FILL, CLASS C	CY	165	$60	$ 9,900
593.411	GEOTEXTILE; PERM CONTROL CL. 1, NON-WOVEN	SY	270	$8	$ 2,160
603.25230	30" STEEL PIPE SLEEVE (0.312")	LF	20	$100	$ 2,000
604.71	GRATES & FRAMES, TYPE A	EA	8	$1,000	$ 8,000
606.18001	31" W-BEAM GUARDRAIL WITH 8" OFFSET BLOCK (STEEL POST)	LF	533	$35	$ 18,638
607.360	CHAIN LINK FENCE WITH VINYL COATED STEEL FABRIC, 6' HIGH	LF	625	$50	$ 31,250
607.4260	POST ASSEMBLIES FOR CHAIN LINK FENCE, 6' HIGH	EA	15	$300	$ 4,500
607.73618	18' OPENING DOUBLE GATE, CHAIN LINK VINYL COATED STEEL FABRIC, 6' HIGH	U	2	$4,000	$ 8,000
615.0201	TRAFFIC SIGN TYPE B	SF	8	$90	$ 720
615.023	REMOVE TRAFFIC SIGN TYPE B	U	1	$225	$ 225
615.0301	TRAFFIC SIGN TYPE C	SF	18	$120	$ 2,160
615.033	REMOVE TRAFFIC SIGN TYPE C	U	11	$50	$ 550
615.0401	TRAFFIC SIGN TYPE AA	SF	220	$45	$ 9,900
615.043	REMOVE TRAFFIC SIGN TYPE AA	U	2	$400	$ 800
615.0501	TRAFFIC SIGN TYPE BB	SF	88	$45	$ 3,960
615.0601	TRAFFIC SIGN TYPE CC	SF	6	$40	$ 240
615.063	REMOVE TRAFFIC SIGN TYPE CC	U	10	$75	$ 750
618.61	UNIFORMED OFFICERS WITH VEHICLE	$	15,000	$1	$ 15,000
618.7	FLAGGERS	HR	40	$50	$ 2,000
619.1	MAINTENANCE OF TRAFFIC	U	1	$50,000	$ 50,000
619.25	PORTABLE CHANGEABLE MESSAGE SIGN	U	1	$5,000	$ 5,000
619.27	TRAILER-MOUNTED SPEED LIMIT SIGN	U	1	$5,000	$ 5,000
628.2	SAWED BITUMINOUS PAVEMENT	LF	30	$5	$ 150
632.0106	RETROREFLECTIVE PAINT PAVEMENT MARKING, SINGLE SOLID LINE, 6 IN.	LF	50,000	$1	$ 25,000
632.3106	RETROREFLECTIVE THERMOPLASTIC PAVEMENT MARKING, SINGLE SOLID LINE, 6 IN	LF	1,500	$3	$ 3,750
632.3112	RETROREFLECTIVE THERMOPLASTIC PAVEMENT MARKING, SINGLE SOLID LINE, 12 IN	LF	1,200	$5	$ 6,000
632.912	OBLITERATE PAVEMENT MARKING, OVER 12" WIDE	SF	84	$4	$ 336
645.531	SILT FENCE	LF	1,120	$4	$ 4,480
645.7	STORM WATER POLLUTION AND PREVENTION PLAN	U	1	$8,500	$ 8,500
645.71	MONTIORING SWPPP AND EROSION AND SEDIMENT CONTROLS	HR	780	$110	$ 85,800
646.41	TURF ESTABLISHMENT WITH MULCH, TACKIFIERS AND HUMUS	SY	2,310	$8	$ 18,480
650.2	LANDSCAPING	U	1	$37,500	$ 37,500
660.47	PAVILION BUILDING	U	1	$55,000	$ 55,000
697.11	INVASIVE SPECIES CONTROL AND MANAGEMENT PLAN	U	1	$3,000	$ 3,000
698.12	FIELD OFFICE TYPE B	MON	42	$3,000	$ 126,000
699	MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL	$	1	$50,000	$ 50,000
1002.1	REPAIRS OR REPLACEMENTS AS NEEDED - BRIDGE STRUCTURES	U	1	$100,000	$ 100,000
692	MOBILIZATION	U	1	$3,000,000	$ 3,000,000

Notes:

Construction Engineering cost is assumed to include NHDOT shop inspections, shop drawing reviews and Resident Engineering work.

Construction Cost Total does not include non-participating items.

Construction Items Subtotal	$ 32,950,509
5% Construction Engineering	$ 1,640,000
Construction Subtotal	**$ 34,600,000**

Other Participating Items:

Section 106 Mitigation	$ 750,000
Wetland Permit (ARM Fund Payment)	$ 250,000
Total Construction Cost, Participating	**$ 35,600,000**

Figure 3-2: 80% Cost Estimate, Continued

4 Merit Criteria

4.1 Safety

Figure 4-1: Rendering of Proposed Deck for General Sullivan Bridge

The General Sullivan Bridge Bicycle and Pedestrian Crossing Project will target known health and safety risks to bicyclists and pedestrians from accidents by reopening a separate, dedicated facility. Since 2018, the GSB has been closed due to deterioration of two floorbeams and all non-motorized traffic was shifted onto a temporary lane on the Spaulding Turnpike northbound bridge. This temporary lane is only separated from high-speed, high-volume interstate traffic by a concrete barrier with fencing on top of it. This temporary lane required the removal of one of the four lanes on the newly constructed Spaulding Turnpike northbound bridge over Little Bay.

According to the Centers for Disease Control and Prevention (CDC), bicycle trips account for only one percent of all trips in the United States, but bicyclists face a higher risk of crash-related injury and death than occupants of motor vehicles. In 2015, 1,000 bicyclists died and there were almost 467,000 bicycle-related injuries.

One of the best tools for reducing collisions between bicyclists and automobiles, which have worse expected outcomes for bicyclists, is providing paths for bicyclists that are physically separated from driving lanes. Protected, separated bike facilities—an enhancement desired by the bicycle and pedestrian communities of the New Hampshire Seacoast—are a critical factor associated with fewer fatalities and lower injury rates for all road users, according to one of the co-authors of a 2019 study on bicycling safety in 12 large American cities.[1]

[1] https://www.sciencedirect.com/science/article/abs/pii/S2214140518301488?via%3Dihub

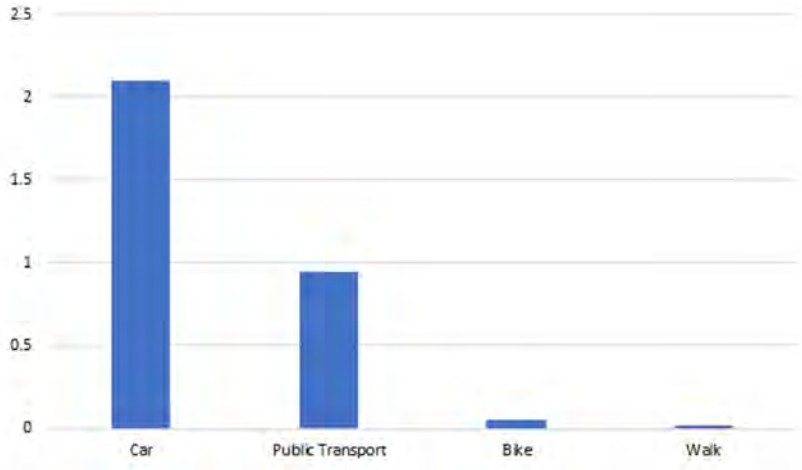
Providing a separate bridge for bicycles and pedestrians will improve safety by removing the potential for accidents with cars and trucks.

The Project will be consistent with these safety findings by introducing a crossing that is dedicated to pedestrians and bicyclists and that does not share its structure with other modes. The Project's connection to non-interstate streets on both sides of Little Bay will create a critical non-motorized link from its north side (Dover) to its south side (Portsmouth) and will allow bicyclists and pedestrians separated pathways. The shared path provided by the Project will be a minimum of 18 feet wide, which will reduce the potential for conflict between pedestrians and bicycles across the bridge. In addition, the Project will provide sufficient space for emergency vehicles to access the multi-use path in the event of a health or public safety emergency.

4.2 Environmental Sustainability

The Project will make a permanent route for non-motorized travel, reducing energy use by shifting some users from motorized transportation to bicycling or walking. The connection across Little Bay will save bicyclists and pedestrians from a 25-plus-mile detour to cross Little Bay. It will encourage additional pedestrian and bicycle trips, thereby reducing vehicle trips and the corresponding vehicular pollutant emissions, including carbon monoxide (CO), volatile organic carbon (VOC), nitrogen oxide (NOx), particulate matter (PM), and carbon dioxide (CO_2). **This will help to address carbon reduction goals for New Hampshire Seacoast Communities as bicycle and pedestrian transportation produces little to no carbon emissions, particularly in comparison to automobiles (Figure 4-2).**

Figure 4-2: Carbon Emissions by Mode (kilograms of CO_2 per day)



Source: https://www.bloomberg.com/news/articles/2021-03-31/switching-from-cars-to-bikes-cuts-commuting-emissions-by-67

A key goal of the City of Portsmouth's recently initiated Climate Action Plan is to identify solutions to reduce greenhouse gas (GHG) emissions from the transportation sector traveling to and from the City. Expanding sustainable transportation options by making Portsmouth a community that is well served by bicycle and pedestrian facilities will aid in reducing the area's carbon footprint and align with this goal of moving more people with fewer GHG emissions.

NHDOT is dedicated to sustainability and climate action planning and will incorporate innovative and environmentally sensitive materials and construction methods to implement this Project. The Project's design features will incorporate energy-efficient technologies for on-bridge equipment such as LED lighting and state-of-the-art construction materials and methods

such as metalizing the steel girders to better protect them in the saltwater environment. Energy-efficient technologies such as equipment with higher efficiency engines will be used where feasible in the construction and operations of the Project. Construction staging and access areas will be strategically planned to minimize the distance traveled by construction vehicles or trucks hauling materials to or from the site. In addition, General Sullivan Bridge Project contract plans will emphasize minimizing vehicle idling times. NHDOT will encourage contractors to use fuel-efficient or alternative fuel vehicles. Solar-powered generators will be considered as an alternative to diesel generators where feasible.

The Project will also prioritize environmental sustainability by designing the reuse of the existing 1934 piers to support the new proposed superstructure, versus replacing the existing pier supports.

The Final Supplemental Environmental Impact Statement (FSEIS) published by NHDOT and the Federal Highway Administration (FHWA) in 2021 identified many other positive environmental impacts of the Project, such as reduced regional dependency on automobiles, removal of a structure with lead-based paint from over a waterway, and providing information needed for the preservation efforts for a historic building and site on Bloody Point, to name a few.

4.3 Quality of Life

Improving quality of life for all residents, employees, and visitors by creating a community well served by bicycle and pedestrian facilities is an important goal for the Seacoast communities in the Project area. The General Sullivan Bridge Project will enhance the unique characteristics of these communities, more directly reconnecting the regional core and parks with the bicycle and pedestrian network, enhancing the convenience of bicycle and pedestrian travel, and expanding access for all to jobs, healthcare, and other recreational areas. The Project will support the use of sustainable transportation with the goals of improving air quality and creating a better quality of life along the New Hampshire Seacoast.

The General Sullivan Bridge Project will expand and improve equity and accessibility. **The Project will proactively remove barriers to opportunity and mobility, including automobile dependence as a form of barrier, by constructing a bicycle and pedestrian bridge that will increase transportation choices for people without an automobile.**

Communities well served by bicycle and pedestrian facilities like those the Project will construct experience a higher quality of life through health benefits and greater equity for a diverse group of residents, employees, and visitors.

The Project will improve quality of life by creating health benefits for the public, including vulnerable groups such as environmental justice (EJ) communities and the elderly, as it will encourage bicycling, running, and walking and other active recreation. Increasing physical activity, such as walking and biking, is critical to reduce risks of chronic diseases. The U.S. Surgeon General reports that one out of every two U.S. adults is living with a chronic disease such as heart disease, cancer, or diabetes.[2] In 2015, the U.S. Surgeon General's Office issued a *Call to Action—Step It Up!* — to promote

[2] *Executive Summary from Step It Up!: Call to Action | HHS.gov*

walking and walkable communities. Walking is one easy way to incorporate physical activity into daily routines as a way of addressing health and chronic disease.

Users of the open spaces and recreational resources served by the Project are diverse in background and in how they utilize these spaces and resources. Area residents and travelers from elsewhere use Hilton Park for activities such as cycling along the Piscataqua River, walking on trails, fishing off the GSB, and barbequing and picnicking along the waterfront.

Reopening the connection across Little Bay for bicyclists and pedestrians will create mobility, accessibility, recreation, and social cohesion benefits. This crossing will enhance access between communities on either side of the bay, between recreational opportunities in Dover and in Newington, and to the regional trail network. Minority and low-income residents will enjoy these benefits as much as the general population. NHDOT will continue to provide opportunities to ensure full and fair access to meaningful involvement by minority and low-income populations in the Project design.

4.4 Improves Mobility and Community Connectivity

As shown in **Figure 1-3**, without the General Sullivan Bridge crossing of Little Bay, bicyclists and pedestrians would need to traverse an additional 25-plus miles to get from Dover to Newington or Portsmouth, as there is no other crossing of Little Bay or the Piscataqua River within 10-plus miles of this location. This would segregate those in the cities of Dover, Somersworth, and Rochester who cannot afford an automobile from the communities of Newington and Portsmouth and the good-paying jobs available at the Pease International Tradeport, a 3,000-acre business and industrial park, and elsewhere in the City of Portsmouth. According to usage counters installed in 2016, the GSB crossing had 120 non-motorized transportation (NMT)/day on a weekday and 155 NMT/day on a weekend day. As noted at the FSEIS Public Hearing, many of these riders commute year-round using this route.

The Project adds significant value to this automobile-centric region because of the connection points on each side of Little Bay, the wider path for bikes and pedestrians, and the improved safety of a dedicated bridge for non-motorized vehicle use.

Figure 4-3: Rendering of Proposed General Sullivan Bridge (Near) and the NB and SB Little Bay Bridges (Far and Middle)

Better links to the bicycle and pedestrian network are particularly important for no- and one-car households for both work and non-work trips. The bicycle and pedestrian route the Project will provide is particularly valuable for these households that are less car dependent, either by choice, means, or other constraints, because cycling has no fuel costs and low maintenance costs, especially when compared with driving an automobile. The Project's multi-use path will be an important connection for users traveling to work or for other purposes, including recreation, as previously discussed.

The Project will link the regional bicycle and pedestrian network with a critical new direct connection, benefiting commuters and recreational users. The Project is anticipated to result in close to 500 new daily bicycle riders, encouraging a modal shift from automobiles.

Tourists will form another important user group, particularly during the peak spring, summer, and fall seasons when the weather is conducive to walking and cycling. The current temporary path is narrower than the Project's path, which increases the potential for conflicts between slower tourist traffic and bicycle commuters. It is also adjacent to a highway, which negatively impacts the user experience. The Project's path will be an exclusive structure approximately 50 percent wider than the current temporary path, which will provide more space for a variety of users and speeds as well as a more pleasant experience for tourists and others less concerned with getting quickly from Point A to B.

The Project's path will be fully compliant with Americans with Disabilities Act (ADA) requirements, providing ramps and grades that will not exceed five percent. The 18-foot width of the Project's path will also afford users with mobility challenges a more comfortable amount of space compared with the narrow 10-foot temporary path on the northbound bridge.

4.5 Economic Competitiveness and Opportunity

The Project will increase walking and bicycling, the most affordable transportation options, in the Project area. By improving bicycle and pedestrian connectivity through construction of a dedicated route across Little Bay, the Project will give commuters an additional affordable travel option that is efficient and offers dependable travel times. **The average annual costs of walking and bicycling are $96 and $600, respectively, as compared to the annual cost of nearly $9,000 to own and operate an automobile (Figure 4-4).**

Source: AAA, Your Driving Costs, 2018

Figure 4-4: Average Annual Transportation Cost for Users

The Project will enhance the economic health of the New Hampshire Seacoast region by creating good-paying jobs and giving workers, residents, and visitors an affordable transportation choice.

The Project will enable expanded economic activity and tourism within the area because of the dedicated connection across Little Bay, which will make walking and biking more attractive options. By improving pedestrian and bicycle connections to and between areas of Federal parks and destinations, the Project will enhance the use of these areas and the overall visitor experience. Visitors will use the region's bike share system to explore the significant cultural resources, parks, historic districts, commercial centers, neighborhoods, and transportation facilities within the Seacoast area.

Construction of the Project will create good-paying jobs. Construction employment benefits are typically felt regionally, especially in an area where construction workers often live outside of the city or town where construction is taking place, construction materials may originate outside of the city or town where construction is taking place, and business-to-business transactions also may take place outside of the city or town where construction is taking place. The Project will require specialized labor and equipment, necessitating a regional approach. Construction jobs will include direct jobs (jobs directly created by construction of the Project), indirect jobs (jobs supported by business-to-business transactions), and induced jobs (jobs supported by the household spending of direct job wages). Direct jobs will occur primarily within the construction, engineering, and related service industries, while the indirect and induced jobs will occur in industries such as wholesale trade, restaurants, real estate, hospitals, retail, and services.

To promote economic opportunity, NHDOT has a strong policy of encouraging the utilization of minority-owned and women-owned businesses.

4.6 State of Good Repair

The Project will address a closed bridge structure, the deteriorated truss components of which could result in falling debris and damage to the marine users traveling beneath it if not addressed.

The Project will also provide the only available crossing for non-motorized users across Little Bay and the Piscataqua River for a minimum of 10-plus miles in any direction.

Figure 4-5: Pier 7 Floorbeams That Caused Closure of GSB in 2018

4.7 Partnership and Collaboration

The public, along with multiple Federal, State, and local agencies and community groups, have been engaged in the development of the Spaulding Turnpike Project for more than 15 years. Retaining a pedestrian/bicycle connection across Little Bay has been and still is an important component of the Newington-Dover Project. Initial alternatives revolved around rehabilitating the existing historic trusses, but after the 2014, 2016, and 2018 bridge inspections, the estimated initial cost and life span of that rehabilitation effort were determined to be neither prudent nor practical. NHDOT, in coordination with the Federal Highway Administration (FHWA), reopened the Environmental Impact Statement (EIS) with a Supplemental EIS in 2017 that focused on maintaining a pedestrian/bicycle crossing at this location, given that there is no other crossing for non-motorized users within 10-plus miles.

The Project is the result of extensive collaboration and has robust support from area stakeholders, including bicycle and pedestrian advocates, the business community, and local, regional, State, and Federal agencies.

During the Supplemental Environmental Impact Statement (SEIS) process for the General Sullivan Bridge Project, which included four public informational meetings, plus the National Environmental Policy Act (NEPA) public hearing and countless Cultural Resource and Natural Resource meetings with State and Federal partners, public input guided the process to the selected alternative that maintains this separated multi-use path for pedestrians, bicyclists, and people who wish to enjoy the views and fishing from the bridge. NHDOT has consistently sought feedback from minority and low-income populations.

In addition to public meetings:

- Project information was continually shared on the Project website.
- Comments or questions could be submitted at any time via a Project email address.
- Information was distributed to an email list for anyone who expressed interest in the Project.

During the ongoing final design phase of the Project, public meetings are planned to occur at design milestones so NHDOT can receive comments on the design as it progresses and the planned construction schedule and sequence. This public engagement will be accompanied by a continually updated Project website and extensive stakeholder coordination with agencies and affected private property and business owners. (Examples of this stakeholder coordination are the recent Natural Resource Meeting, the Cultural Resource Meeting, the City of Dover Meeting, the Town of Newington Select Board Meeting, and the New Hampshire Port Authority and Marine Users of the Waterway Meeting, all held in February of this year.)

4.8 Innovation: Technology, Delivery, Financing

The General Sullivan Bridge Bicycle and Pedestrian Crossing Project will incorporate innovative technologies and delivery methods.

Technology: NHDOT is dedicated to climate action planning and intends to incorporate innovative and environmentally sensitive materials and construction methods to implement this Project. The design will include energy-efficient lighting and state-of the art construction methods such as metalizing the steel girders.

Project Delivery: NHDOT intends to arrange for rental of the downstream New Hampshire Port Authority facility for contractors to take advantage of during construction. After removal of the existing trusses, contractors could dismantle them at this facility before shipping them for recycling. To minimize navigational channel closure and to provide a safer work area, they could also use the facility to erect multiple bridge pieces before lifting them into place.

5 Project Readiness: Environmental Risk

5.1 Project Schedule

The Newington Dover Spaulding Turnpike Expansion Project that included the General Sullivan Bridge effort received a Record of Decision (ROD) on October 24, 2008, based on the 2007 Final Environmental Impact Study (FEIS) completed in 2007. Based on new General Sullivan Bridge inspection information, the project reopened the environmental process in 2017 with a Supplemental Environmental Impact Study (SEIS) for alternatives to address the General Sullivan Bridge.

The Draft SEIS was published in April 2021, and after extensive public comments, a Final Supplemental Environmental Impact Study (FSEIS) was published in February 2022, receiving a Supplemental Record of Decision (SROD) on February 17, 2022.

All associated documentation of the NEPA process can be found on the NH Department of Transportation - (newington-dover.com) website.

As of February 2023, the Project is currently in the final design stages after completing the Preliminary Plans Supplementals and Estimate (PPS&E) in December 2022, with all Contract Documents and Plans due in the summer of 2023.

The Project is also currently finalizing environmental documents needed for the necessary State and Federal permits, including the New Hampshire Department of Environmental Services (NHDES) wetland permits, the U.S. Army Corps of Engineers (USACE) permits, and the U.S. Coast Guard (USCG) Bridge Permit. All permits are scheduled to be received by the summer of 2023 based on the latest design schedule.

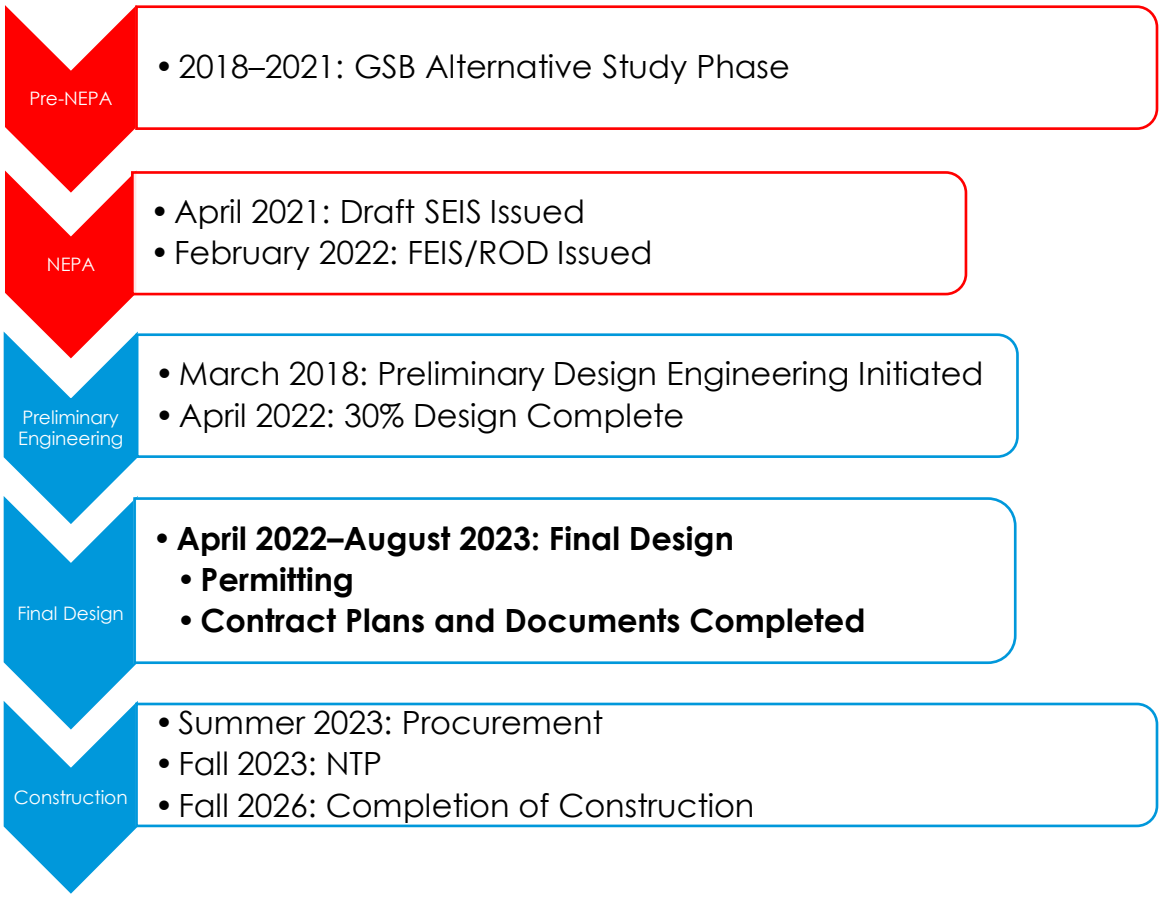
With the completion of the Contract Documents (including all required permits) and Contract Plans, NHDOT intends to advertise the project for bids in the summer of 2023. Given the unusual efforts associated with demolition of the deteriorated trusses, construction of causeways and a trestle, and erection of the two-girder superstructure, NHDOT is planning a longer than normal bidding period. This will allow Contractors time to complete the required bid documents with a bid opening eight weeks after the advertisement of the Project.

The next effort will be the gathering of contract documents from the Low Bidder before receiving approval from the New Hampshire Governor and Executive Council. This approval will allow NHDOT to give the selected Contractor a Notice to Proceed (NTP) to construct the Project.

Given the anticipated in-water work windows of November 1st to March 15th and the latest detailed construction schedule developed by a subconsultant with contracting expertise, completion of the effort will be in the fall of 2026.

Based on all of the above, this project easily meets the “Project Readiness” criteria, and “Environmental Risk” criteria noted within the NOFO (**Figure 5-1**).

Figure 5-1: Project Schedule



5.2 Required Approvals

5.2.1 Environmental Permits and Reviews

National Environmental Policy Act, Section 106, and Section 4(f)

NHDOT has received the Record of Decision for the proposed General Sullivan Bridge Bicycle and Pedestrian Project effort on February 17, 2022, from the Federal Highway Administration.

The updated Section 106 Adverse Effect Memo was signed by all parties by January 2, 2020, for the Proposed Alternative with the executed Section 106 Memorandum of Agreement (MOA) signed by all parties by November 10, 2021.

Reviews, Approvals, and Permits by Other Agencies

The Project will be subject to several permits and approvals due to its crossing of Little Bay. For work within the waterway, NHDOT will be required to obtain a permit in accordance with Section 404 of the Clean Water Act based on U.S. Army Corps of Engineers (USACE) feedback, a Bridge Permit from the U.S. Coast Guard, and Wetlands Permits from the New Hampshire Department of Environmental Services. NHDOT has been and continues coordinating with relevant agencies to ensure submission of permit applications at appropriate points in the design and construction process.

Right-of-Way Acquisition

The Project will not require any acquisition of property from a private or public property owner.

5.2.2 State and Local Approvals and Federal Transportation Requirements Affecting State and Local Planning

The Project is included in New Hampshire's Ten-Year Transportation Improvement Plan 2023-2032 that can be found at Ten Year Plan | Planning and Community Assistance | NH Department of Transportation and at http://newington-dover.com/gsb_subsite/raisegrant2023.html.

The Project is also included in NHDOT's Statewide Transportation Improvement Program (STIP) dated December 8, 2022, with construction funds in FY 2023 and FY 2024 based on the latest estimate: STIP | Planning and Community Assistance | NH Department of Transportation.

5.3 Risk and Mitigation Strategies

Throughout the planning process for the Project, NHDOT has identified risks and developed mitigation strategies as appropriate. Continued coordination with State and Federal agencies has led to the Project's final design nearing the finish line with all parties allowed to provide their input during the development of the Project. A sample of these agency meetings can be found on the Project website at NH Department of Transportation - Schedule (newington-dover.com). This website has minutes from Public Informational Meetings with officials and the public, Environmental Public Hearings, NHDOT Natural Resource Agency Meetings, and NHDOT Cultural Resource Agency Meetings. Based on all of the previous agency discussions, the process of acquiring all of the necessary permits to advertise the Project should run along smoothly.

6 Benefit-Cost Analysis

The benefits and costs of the Project were evaluated in a benefit-cost analysis (BCA) in accordance with the U.S. Department of Transportation's (USDOT) recommended methodology (BCA Guidance).[3] A summary of the analysis is provided in **Table 6-1—**the Project is poised to provide substantial economic, transportation, and community benefits and will augment the strength of the region's economy.

The BCA demonstrates the measurable benefits that the Project will yield and the costs it will incur. The benefits of the Project are assumed to start in 2027 and are considered through 2051 (a 25-year period); costs will be incurred beginning in 2023. The Project benefits and costs were discounted using the prescribed 7.0 percent discount rate. All monetized benefits and costs are in 2021 dollars and reflect net present values. The results of the analysis indicate that while the Project requires notable investment, it also provides significant benefits.

The Project costs are estimated to be $27.2 million (7.0 percent discount rate) over 25 years. The costs include capital expenses identified in the construction cost estimate, which are distributed by year according to spending. The costs also include the operations and maintenance costs projected to be associated with the General Sullivan Bridge.

Table 6-1: Discounted Project Costs and Benefits

Benefit Type	Benefit Value (7% Discount Rate)
Sustainability and Livability	
Cycling Facility Improvement	$ 642,401
Active Transportation	$ 6,025,229
Benefit Subtotal	**$ 6,667,630**
Travel Time Savings	
Travel Time Savings	$ 3,978,740
Benefit Subtotal	**$ 3,978,740**
Residual Value	
Residual Value	$ 3,627,270
Benefit Subtotal	**$ 3,627,270**
Total Project Benefits	**$ 14,273,640**
Total Project Costs	**$ 27,205,689**
Benefit-Cost Ratio	**0.52**

The Project is expected to provide substantial benefits including those related to the improved bike facility infrastructure, the active transportation health benefits for bicyclists and pedestrians, and travel time savings for bicyclists. When monetized, the Project's total benefits amount to

[3] *U.S. Department of Transportation, Office of the Secretary, "Benefit-Cost Analysis Guidance for Discretionary Grant Programs," January 2023.*

approximately $14.3 million using a 7.0 percent discount rate, yielding a benefit-cost ratio of 0.52. In an effort to not overstate results, the assumptions used to quantify the Project's benefits were conservative and pragmatic.

Details of the BCA methodology, and other supporting documentation, are provided in **Appendix A**.