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# Appendix J – Environmental Justice Evaluation



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STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION  
INTER-OFFICE COMMUNICATION

DATE: June 21, 2005

FROM:  David Chandler, Chief of Labor Compliance

TO: Craig Green, Administrator, Bureau of Highway Design  
William Oldenburg, Chief of Prelim. Design, Bureau of Highway Design  
✓ Kevin T. Nyhan, Senior Environmental Manager, Bureau of Environment

RE: Environmental Justice Population Analysis, Project: Newington-Dover,  
11238

The attached analysis and recommendations are provided pursuant to Title VI of the Civil Rights Act of 1964 and Executive Order 12898. The intent of these statutes is to ensure fair and full participation and the equal receipt of benefits under Federally-assisted programs. Your efforts in carrying out the recommendations stated herein will minimize the potential for disproportionate impact on protected groups (EJ Populations).

The table entitled "EJ Population Analysis" is a comparison of protected groups identified within the project and surrounding areas; this analysis should be used by project personnel to determine whether or not adverse impacts (if any) have a disproportionate affect on the identified EJ populations. Where disproportionate impacts exist, project personnel should seek to avoid, mitigate, or minimize impacts. Additional information regarding specific outreach measures where appropriate has been provided.

If you have questions regarding this analysis, please contact me @ 271-2467.

encls: EJ Population Analysis

cc: C. Waszczuk



## EJ Population Analysis for Project # Newington-Dover, 11238

STUDY AREA	AVG% Elderly Population	AVG % Minority Population	AVG % Low-income Population	AVG% Disabled Population
Impacted Area (US Census Tract# 812, Block Group 2; US Census Tract #685, Block Group 3	13.5%	*4.7%	*4.3%	25.3%
Surrounding Area	17.6%	2.8%	2.5%	25.0%
REMARKS:				
* The population percentage identified is meaningfully greater than the surrounding area and constitutes an EJ population. Characteristics of this particular study area indicate that targeted outreach efforts to solicit public participation should be taken.				

Impacted Area: The impacted area was defined by the population within Census Tract #812, Block Group 2; Census Tract #685, Block Group 3.

Surrounding Area: All Block Groups immediately adjacent to the impacted area.

EJ Population: A population of people protected under Title VI within the impacted area that is meaningfully greater than the surrounding population.

Special Considerations: It is apparent that the minority and low income populations within the impacted area are meaningfully greater than the surrounding areas. Additional outreach efforts should be taken to encourage public comment and participation from these groups. This project constitutes an alteration in accordance with Title II of the Americans with Disabilities Act and Section 504 of Federal requirements. As such, minimum accessibility design requirements must be met. It may be necessary and appropriate to alter the existing pedestrian right-of-way (if applicable) within the scope of the project. If you require more information regarding specific requirements or recommendations, please contact me at 271-2467.

**Outreach Recommendations:** One subsidized Apartment complex has been located in the vicinity of the impacted area. Notice of public information meetings should be sent to this location: Great Bay Residential Facility I, 2041 Woodbury Avenue, Newington, NH 03801-28041.



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# Appendix K – Wetland Impact Database Summary





APPENDIX K- WETLAND IMPACT DATABASE - PREFERRED ALTERNATIVE  
July 10, 2006

Impact Area Number	Functional Evaluation Unit	Palustrine Forested (PFO) (ft2)	Palustrine Emergent (PEM) (ft²)	Palustrine Scrub Shrub (PSS) (ft²)	Open Water (POW) (ft²)	Estuarine (E1/E2) (ft2)	Total Wetland Impact Area (ft²)	Total Wetland Impact Area (acres)	Perennial Bank Impact (linear feet)	Intermittent Bank Impact (linear feet)
1			1,615				1,615	0.04		
2	N-2	6,553	997	100			7,650	0.18		
3	N-2		1,485				1,485	0.03		
4	N-2		7,261				7,261	0.17		
5	N-2		769				769	0.02		
6	N-2	53,125					53,125	1.22		
7	N-2	3,834					3,834	0.09		
8	N-2	33,300					33,300	0.76		
9	N-3a		990				990	0.02		
10	N-3b	79,873	59,846	28,664			168,383	3.87		
11	N-19c		2,121	1,499			3,620	0.08		
12	N-3c	4,148	28,498	12,374			45,020	1.03		
13	N-3c		864				864	0.02		
14	N-3c		2,734				2,734	0.06		
15	N-3c	1,507	6,219				7,726	0.18		
16	N-9b		8,397	7,767			16,164	0.37		
17	N-9b			577			577	0.01		
18	N-9b		901				901	0.02		
19	N-9b			2,102			2,102	0.05		
20	N-9b			125			125	0.00		
21	N-9b	5,788		11,779			17,567	0.40		
22	N-9b	33					33	0.00		
23	N-9b	3,342					3,342	0.08		
24	N-9b	16,813		5,691			22,504	0.52	289	
25			1,186				1,186	0.03		
26			2,622				2,622	0.06		
27	N-8a	87,450	3,718				91,168	2.09		
28	N-8a	234					234	0.01		
29	N-8a		232				232	0.01		
30			437				437	0.01		
31			2,011		562		2,573	0.06		
32			4,787				4,787	0.11		
33	E2					4,559	4,559	0.10		
P1	E1					2,207	2,207	0.05		
P2	E1					2,194	2,194	0.05		
P3	E1					2,074	2,074	0.05		
P4	E1					1,933	1,933	0.04		
P5	E1					1,933	1,933	0.04		
P6	E1					1,982	1,982	0.05		
P7	E1					2,200	2,200	0.05		
P8	E1					1,760	1,760	0.04		
34	E2					1,120	1,120	0.03		
34a	E2					322	322	0.01		
35	D-1a		1,129				1,129	0.03		
36	D-1a		15				15	0.00		
37	D-1a		1,267				1,267	0.03		
38	D-1	2,485	1,065				3,550	0.08		
39	D-1		5,689				5,689	0.13		
40	D-1	150					150	0.00		
41	D-12	7,847					7,847	0.18		
42	D-12		244				244	0.01		
43	D-12		95				95	0.00		
44	D-1		5,517				5,517	0.13		
45	D-11		5,947				5,947	0.14		
46	D-9	765					765	0.02		
47	D-10		823				823	0.02		
48	D-10	90,970	1,287				92,257	2.12		
49	D-9		6,554				6,554	0.15		
50	D-2	239					239	0.01		
51	D-2		3,455				3,455	0.08		
52	D-2	54,946					54,946	1.26		
53	D-2		5,801				5,801	0.13		
54	D-10	43,424					43,424	1.00		
55	D-10	4,675					4,675	0.11		
56	D-10		12,453				12,453	0.29		
57	D-8	8,553					8,553	0.20		
58	D-8	290					290	0.01		
59	D-6		4,204				4,204	0.10		
60			26,689				26,689	0.61		
61	D-7	3,484					3,484	0.08		
62	D-7A	275					275	0.01		
63	D-3		2,233				2,233	0.05		
64	D-4		10,576				10,576	0.24		
65		20,884					20,884	0.48		
66			2,372				2,372	0.05		
67			2,619				2,619	0.06		
68		1,760					1,760	0.04		
69		433					433	0.01		
70			1,953				1,953	0.04		
71			37				37	0.00		
72			5,215				5,215	0.12		
73			1,131				1,131	0.03		
74			6,254				6,254	0.14		
75		1,031					1,031	0.02		
76		110					110	0.00		
77		95					95	0.00		
78			492				492	0.01		
79		4,005					4,005	0.09		
80			994				994	0.02		
TOTAL		542,421	253,800	70,678	562	22,284	889,745	20.4	289	0





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# Appendix L – Noise Barrier Evaluation



**Spaulding Turnpike Improvement Project**  
**Newington to Dover**  
**Noise Barrier Data**  
**Dover**

**NOISE BARRIER 1: Spaulding Turnpike Southbound (Station 611 on Spaulding Turnpike to Station 52 on Ramp)**

**Include residences along Dover Point Road:** 60 residential receptor locations included in the noise analysis (Area 9).

**Existing Noise Levels:** Approximately 22 Residential receptor locations approach, are at, or exceed the noise abatement criteria. The existing sound levels range from 55 to 70 dBA.

**2025 Build Noise Levels:** Approximately 25 Residential receptor locations approach, are at, or exceed the noise abatement criteria. The 2025 Build sound levels range from 60 to 71 dBA.

**Project Impacts:** The proposed project will have a slight to moderate increase from existing sound levels at this location.

**Preliminary Barrier Requirements:** The barrier<sup>1</sup> will be 14 feet high and approximately 4,100 feet long. Estimated barrier cost is \$1,148,000 and would provide a 5 dBA benefit or greater for 40 residential receptor locations.

**Cost Criteria:** Cost per 5dBA or greater benefited receptor = \$28,700

**A noise barrier is recommended for this location (Station 611 on Spaulding Turnpike to Station 52 on Ramp).**

**NOISE BARRIER 2: Spaulding Turnpike Northbound (Station 621 on Spaulding Turnpike to Station 237 on Ramp Overpass)**

**Include residences along Wentworth Terrace and Cote Drive:** 80 residential receptor locations included in the noise analysis (Areas 7, 8 and 11).

**Existing Noise Levels:** Approximately 23 Residential receptor locations approach, are at, or exceed the noise abatement criteria. The existing sound levels range from 49 to 71 dBA.

**2025 Build Noise Levels:** Approximately 26 Residential receptor locations approach, are at, or exceed the noise abatement criteria. The 2025 Build sound levels range from 51 to 72 dBA.

**Project Impacts:** The proposed project will have no noticeable change from existing sound levels at this location.

**Preliminary Barrier Requirements:** The barrier will be 14 feet high and approximately 4,200 feet long. Estimated barrier cost is \$1,176,000 and would provide a 5 dBA benefit or greater for 63 residential receptor locations.

**Cost Criteria:** Cost per 5dBA or greater benefited receptor = \$18,667

**A noise barrier is recommended for this location (Station 621 on Spaulding Turnpike to Station 237 on Ramp Overpass).**

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<sup>1</sup> Barrier costs were estimated using a Wall cost of \$20 / Sq. ft and a Berm cost of \$10 / Sq. ft

**NOISE BARRIER 3: Spaulding Turnpike Southbound (Station 668 on Spaulding Turnpike to Station 704 on Spaulding Turnpike)**

**Include residences along Clearwater Drive/Spur Road and west side of tolls (Area 13).**

40 residential receptor locations included in the noise analysis.

**Existing Noise Levels:** Approximately 19 Residential receptor locations approach, are at, or exceed the noise abatement criteria. The existing sound levels range from 44 to 66 dBA.

**2025 Build Noise Levels:** Approximately 19 Residential receptor locations approach, are at, or exceed the noise abatement criteria. The 2025 Build sound levels range from 49 to 67 dBA.

**Project Impacts:** The proposed project will have a slight to moderate increase from existing sound levels at this location.

**Preliminary Barrier Requirements:** The barrier will be 12 feet high and approximately 3,600 feet long. Estimated barrier cost is \$864,000 and would provide a 5 dBA benefit or greater for 29 residential receptor locations.

**Cost Criteria:** Cost per 5dBA or greater benefited receptor = \$29,793

**A noise barrier is recommended for this location (Station 668 on Spaulding Turnpike to Station 704 on Spaulding Turnpike).**

**NOISE BARRIER 4: Spaulding Turnpike Northbound (Station 671 on Spaulding Turnpike to Station 708 on Spaulding Turnpike)**

**Include residences along Homestead Lane/Pearson Drive and east side of tolls (Area 14):** 50 residential receptor locations included in the noise analysis.

**Existing Noise Levels:** Approximately 15 residential receptor locations will approach, are at, the noise abatement criteria. The existing sound levels range from 54 to 68 dBA.

**2025 Build Noise Levels:** Approximately 15 Residential receptor locations approach, are at, or exceed the noise abatement criteria. The 2025 Build sound levels range from 58 to 70 dBA.

**Project Impacts:** The proposed project will have no noticeable change from existing sound levels at this location.

**Preliminary Barrier Requirements:** The barrier will be 14 feet high and approximately 3,700 feet long. Estimated barrier cost is \$1,036,000 and would provide a 5 dBA benefit or greater for 35 residential receptor locations.

**Cost Criteria:** Cost per 5dBA or greater benefited receptor = \$29,600

**A noise barrier is recommended for this location (Station 671 on Spaulding Turnpike to Station 708 on Spaulding Turnpike).**

**Spaulding Turnpike Improvement Project  
Newington to Dover  
Noise Barrier Data**

**Newington  
(Areas Not Recommended for Barriers)**

**AREA 1: Fox Run Road (Station 515 to 525 on Route 16)  
Include residences along Fox Run Road and Church.**

1 residential receptor location and 1 church included in the noise analysis.

**Existing Noise Levels:** Only the Church receptor location exceeds the noise abatement criteria. The existing sound levels range from 58 to 67 dBA.

**2025 Build Noise Levels:** Only the Church receptor location exceeds the noise abatement criteria. The 2025 Build sound levels range from 60 to 68 dBA.

**Project Impacts:** The proposed project will have a slight to moderate increase from existing sound levels at this location.

**Preliminary Barrier Requirements:** The barrier<sup>1</sup> would be 20 feet high and approximately 2,600 feet long. Estimated barrier cost is \$1,040,000 and would provide a 5 dBA benefit or greater for 1 Church receptor location.

**Cost Criteria:** Cost per 5dBA or greater benefited receptor = \$520,000

**A barrier is not recommended for the following reasons:**

- A barrier does not meet the NHDOT Cost Effective Index.

**AREA 2: Woodbury Avenue (Station 4000 to 4010 on Woodbury Avenue)  
Include residences along Old Dover Road.**

5 residential receptor locations included in the noise analysis.

**Existing Noise Levels:** None of the receptor locations approach or exceeds the noise abatement criteria. The existing sound levels range from 51 to 59 dBA.

**2025 Build Noise Levels:** None of the receptor locations approach or exceeds the noise abatement criteria. The 2025 Build sound levels range from 54 to 65 dBA.

**Project Impacts:** The proposed project will have a slight to moderate increase from existing sound levels at this location.

**A barrier is not recommended for the following reasons:**

- None of the receptors in the area are impacted.

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<sup>1</sup> Barrier costs were estimated using a Wall cost of \$20 / Sq. ft and a Berm cost of \$10 / Sq. ft

**AREA 3: Patterson Lane (in the vicinity of Station 530 to 550 on Route 16)**  
**Include residences along Patterson Lane.**

10 residential receptor locations included in the noise analysis.

**Existing Noise Levels:** None of the receptor locations approach or exceeds the noise abatement criteria. The existing sound levels range from 39 to 47 dBA.

**2025 Build Noise Levels:** None of the receptor locations approach or exceeds the noise abatement criteria. The 2025 Build sound levels range from 47 to 51 dBA.

**Project Impacts:** The proposed project will have a slight to moderate increase from existing sound levels at this location.

**A barrier is not recommended for the following reasons:**

- None of the receptors in the area are impacted.
- The distance between a noise barrier and the receptors is so great that an adequate sound reduction would not be achieved.

**AREA 4: Nimble Hill Road (in the vicinity of Station 565 to 585 on Route 16)**  
**Include residences along Nimble Hill Road and in Tricky's Cove.**

25 residential receptor locations included in the noise analysis.

**Existing Noise Levels:** None of the receptor locations approach or exceeds the noise abatement criteria. The existing sound levels range from 52 to 54 dBA.

**2025 Build Noise Levels:** None of the receptor locations approach or exceeds the noise abatement criteria. The 2025 Build sound levels range from 56 to 60 dBA.

**Project Impacts:** The proposed project will have a slight to moderate increase from existing sound levels at this location.

**A barrier is not recommended for the following reasons:**

- None of the receptors in the area are impacted.
- The distance between a noise barrier and the receptors is so great that an adequate sound reduction would not be achieved.

**AREA 5: Shattuck Way (Station 565 to 575 on Route 16 )**  
**Include residences along Nimble Hill Road and in Tricky's Cove.**

5 residential receptor locations included in the noise analysis.

**Existing Noise Levels:** Only one of the receptor locations approaches or exceeds the noise abatement criteria. The existing sound levels range from 50 to 68 dBA.

**2025 Build Noise Levels:** Only one of the receptor locations approaches or exceeds the noise abatement criteria. The 2025 Build sound levels range from 58 to 69 dBA.

**Project Impacts:** The proposed project will have a slight to moderate increase from existing sound levels at this location.

**Preliminary Barrier Requirements:** The barrier would be 18 feet high and approximately 1,800 feet long. Estimated barrier cost is \$ 648,000 and would provide a 5 dBA benefit or greater for 2 receptor locations.



**Cost Criteria:** Cost per 5dBA or greater benefited receptor = \$324,000

**A barrier is not recommended for the following reasons:**

- A barrier does not meet the NHDOT Cost Effective Index.

**AREA 6: Bloody Point (in the vicinity of Station 580 to 595 on Route 16 )**  
**Include residences on Bloody Point.**

5 residential receptor locations included in the noise analysis.

**Existing Noise Levels:** None of the receptor locations approach or exceeds the noise abatement criteria. The existing sound levels range from 53 to 57 dBA.

**2025 Build Noise Levels:** None of the receptor locations approach or exceeds the noise abatement criteria. The 2025 Build sound levels range from 58 to 62 dBA.

**Project Impacts:** The proposed project will have a slight to moderate increase from existing sound levels at this location.

**A barrier is not recommended for the following reasons:**

- None of the receptors in the area are impacted.



**Noise Appendix**  
**Spaulding Turnpike Improvement Project**  
**Newington to Dover**  
**Noise Barrier Data**

**Dover**  
**(Areas Not Recommended for Barriers)**

**AREA 7: Hilton Park (in the vicinity of Station 610 to 625 on Route 16 )**  
**Include the Hilton Park area.**

1 residential receptor locations included in the noise analysis.

**Existing Noise Levels:** One of the receptor locations approaches or exceeds the noise abatement criteria. The existing sound levels range from 57 to 67 dBA.

**2025 Build Noise Levels:** One of the receptor locations approaches or exceeds the noise abatement criteria. The 2025 Build sound levels range from 60 to 68 dBA.

**Project Impacts:** The proposed project will have a slight to moderate increase from existing sound levels at this location.

**Preliminary Barrier Requirements:** The barrier would be 14 feet high and approximately 1,000 feet long. Estimated barrier cost is \$ 280,000 and would provide a 5 dBA benefit or greater for 1 receptor location.

**Cost Criteria:** Cost per 5dBA or greater benefited receptor = \$280,000

**A Barrier is not recommended for the following reasons:**

- A barrier along NH 16 would not meet the NHDOT Cost Effective Index.

**AREA 10: Boston Harbor Road (in the vicinity of Station 650 to 660 on Route 16 )**  
**Include residences on Boston Harbor Road.**

25 residential receptor locations included in the noise analysis.

**Existing Noise Levels:** None of the receptor locations approach or exceeds the noise abatement criteria. The existing sound levels range from 54 to 63 dBA.

**2025 Build Noise Levels:** None of the receptor locations approach or exceeds the noise abatement criteria. The 2025 Build sound levels range from 56 to 63 dBA.

**Project Impacts:** The proposed project will have a slight to moderate increase from existing sound levels at this location.

**A Barrier is not recommended for the following reasons:**

- None of the receptors in the area are impacted.
- The distance between a noise barrier and the majority of the receptors is so great that an adequate sound reduction would not be achieved.
- The position of the southbound on-ramp at Exit 6 prohibits the layout of an adequate barrier.

**AREA 12: Bayview Park (in the vicinity of Station 660 to 670 on Route 16)**  
**Include residences on Boston Harbor Road.**

1 receptor locations included in the noise analysis.

**Existing Noise Levels:** No receptor locations approached or exceeded the noise abatement criteria. The existing sound levels range from 40 to 56 dBA.

**2025 Build Noise Levels:** No receptor locations approached or exceeded the noise abatement criteria. The 2025 Build sound levels range from 48 to 60 dBA.

**Project Impacts:** The proposed project will have a slight to moderate increase from existing sound levels at this location.

**A Barrier is not recommended for the following reasons:**

- None of the receptors in the area are impacted.
- The distance between a noise barrier and the receptors is so great that an adequate sound reduction would not be achieved.



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# Appendix M – Essential Fish Habitat Worksheet



## EFH ASSESSMENT WORKSHEET (modified 10/02)

PROJECT NAME: Spaulding Turnpike Improvements

DATE: 08/18/06

PROJECT NO.: NHS-027-1(37) LOCATION: Dover & Newington, NH (Rockingham & Strafford Co.)

PREPARER: William F. O'Donnell, PE, Environmental Program Manager, FHWA, Concord, NH

**Step 1. Generate the species list from the EFH website for the geographic area of interest. Use the species list as part of the initial screening process to determine if EFH occurs in the vicinity of the proposed action. Attach that list to the worksheet because it will be used in later steps. Make a preliminary determination on the need to conduct an EFH Consultation.**

1. INITIAL CONSIDERATIONS		
EFH Designations	Y	N
Is action located in or adjacent to EFH? <i>The project consists of improvements to the Spaulding Turnpike including extension of eight bridge piers supporting the Little Bay Bridge. EFH is identified for 17 species in the project vicinity although suitable habitat for only four species exists at the project site, while marginal habitat is present for another four species. See the EFH Assessment report for details.</i>	√	
Is EFH designated for eggs? <i>For some of the species.</i>	√	
Is EFH designated for larvae? <i>For some of the species.</i>	√	
Is EFH designated for juveniles? <i>For some of the species.</i>	√	
Is EFH designated for adults? <i>For some of the species.</i>	√	
Is there Habitat Areas of Particular Concern (HAPC) at or near project site?		√
Does action have the potential to adversely affect EFH for any life stages checked above to any degree? <i>If no, consultation is not required. If yes, consultation is required -complete remainder of worksheet.</i>	√	

**Step 2.** In order to assess impacts, it is critical to know the habitat characteristics of the site before the activity is undertaken. Use existing information, to the extent possible, in answering these questions. Please note that, there may be circumstances in which new information must be collected to appropriately characterize the site and assess impacts.

<b>2. SITE CHARACTERISTICS</b>	
<b>Site Characteristics</b>	<b>Description</b>
<b>Is the site intertidal/sub-tidal/ water column?</b>	Site is located in Little Bay and its vicinity and includes all three zones.
<b>What are the sediment characteristics?</b>	Subtidal areas consist mainly of rocky bottom types ranging from small gravel to large boulders interspersed with widely scattered patches of soft sediments.
<b>Is there HAPC at the site, if so what type, size, characteristics?</b>	No.
<b>Is there submerged aquatic vegetation (SAV) at or adjacent to project site? If so describe aerial extent.</b>	There is no eelgrass in the vicinity of the project based on field work conducted in the project area by the UNH Jackson Estuarine Lab. However, kelp beds are located in the subtidal zone under the bridge area.
<b>What is typical salinity and temperature regime/range?</b>	Salinity normally ranges from 18 to 25 ppt in project area. Water temperatures vary seasonally from 32 to 45°F (0 to 7°C) in winter and 55 to 65°F (13 to 18°C) in summer.
<b>What is the normal frequency of site disturbance, both natural and man-made?</b>	Although the area is an active navigational channel, it is outside of the Piscataqua River federal navigation project and is not subject to dredging. The area is a tidal rapid, with velocities often approaching or exceeding 10 fps. These flows have a significant effect on the habitat in the vicinity.
<b>What is the area of proposed impact (work footprint &amp; far afield)?</b>	A total of 22,295 square feet (0.5 acre) of inter- and sub-tidal habitat will be directly impacted by the extension of eight bridge pier foundations.



**Step 3.** This section is used to describe the anticipated impacts from the proposed action on the physical/chemical/biological environment at the project site and areas adjacent to the site that may be affected.

<b>3. DESCRIPTION OF IMPACTS</b>			
<b>Impacts</b>	<b>Y</b>	<b>N</b>	<b>Description</b>
<b>Nature and duration of activity(s)</b>			Total construction period is expected to be two to three years.
<b>Will benthic community be disturbed?</b>	√		Approximately 0.5 acre of inter- and sub-tidal habitat will be directly impacted. See the EFH Assessment Report for more information.
<b>Will SAV be impacted?</b>	√		A small amount of kelp bed (< 2,000 square feet) will be impacted by extension of the Little Bay Bridge piers. Also see EFH Assessment Report.
<b>Will sediments be altered and/or sedimentation rates change?</b>	√		Since extension of the bridge piers will modify currents, some localized movement of sediments may occur. See attached EFH Assessment Report.
<b>Will turbidity increase?</b>	√		Localized and temporary impacts during construction may occur. See attached EFH Report.
<b>Will water depth change?</b>		√	A hydrodynamic model completed to investigate the potential for tidal flow changes resulting from modification to the bridge pier predicts insignificant change in tidal maxima and minima.
<b>Will contaminants be released into sediments or water column?</b>		√	None expected. Further sediment surveys will be completed prior to construction.
<b>Will tidal flow, currents or wave patterns be altered?</b>	√		Extension of the bridge piers will alter currents on a local scale, and will cause minor changes to tidal velocities. More information can be found in the DEIS and the EFH Assessment report.

**Step 4.** This section is used to evaluate the consequences of the proposed action on the functions and values of EFH as well as the vulnerability of the EFH species and their life stages. Identify which species from the EFH species list (generated in Step 1) will be adversely impacted from the action. Assessment of EFH impacts should be based upon the site characteristics identified in Step 2 and the nature of the impacts described within Step 3. The Guide to EFH Descriptions on the website should be used during this assessment to determine the ecological parameters/preferences associated with each species listed and the potential impact to those parameters.

<b>4. EFH ASSESSMENT</b>			
<b>Functions and Values</b>	<b>Y</b>	<b>N</b>	<b>Describe habitat type, species and life stages to be adversely impacted</b>
<b>Will functions and values of EFH be impacted for:</b>			
<b>Spawning</b>	√		For some species – see the EFH Assessment Report.
<b>Nursery</b>	√		For some species – see the EFH Assessment Report.
<b>Forage</b>	√		For some species – see the EFH Assessment Report.
<b>Shelter</b>	√		For some species – see the EFH Assessment Report.
<b>Will impacts be temporary or permanent?</b>			Direct permanent impacts to bottom habitat will result from extension of the bridge piers. Some temporary effects are anticipated during construction phase. See the EFH Assessment Report.
<b>Will compensatory mitigation be used?</b>		√	Standard best management practices will be employed during construction. See the EFH Assessment Report.

**Step 5.** This section provides the Federal agency's determination on the degree of impact to EFH from the proposed action. The EFH determination also dictates the type of EFH consultation that will be required with NMFS.

<b>5. DETERMINATION OF IMPACT</b>		
	√	<b>Federal Agency's EFH Determination</b>
<b>Overall degree of adverse effects on EFH (not including compensatory mitigation) will be:</b>  <b>(check the appropriate statement)</b>		<b>There is no adverse effect on EFH</b>  EFH Consultation is not required
	√	<b>The adverse effect on EFH is not substantial.</b>  This is a request for an abbreviated EFH consultation. This worksheet is being submitted to NMFS to satisfy the EFH Assessment requirement.
		<b>The adverse effect on EFH is substantial.</b>  This is a request for an expanded EFH consultation. A detailed written EFH assessment will be submitted to NMFS expanding upon the impacts revealed in this worksheet.

**Summary**

See EFH Assessment Report dated August 2006.

**O'Donnell, William F**

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**From:** Mike Johnson [Mike.R.Johnson@noaa.gov]  
**Sent:** Tuesday, November 21, 2006 2:10 PM  
**To:** Mike Johnson  
**Cc:** O'Donnell, William F; CWaszczuk@dot.state.nh.us; Chiarella, Lou ; Scott, Marcy  
**Subject:** Re: Newington-Dover, Spaulding Turnpike, DEIS  
**Attachments:** Mike.R.Johnson.vcf

Bill,

As per our telephone conversation today, a shortage of manpower at our regional office in Gloucester precludes us from providing detailed comments. However, my quick review of the EFH Assessment today supports my previous determination that the proposed widening of the Spaulding Turnpike should have only minimal impact to subtidal and intertidal habitats within the Piscataqua River. The EFH Assessment for the proposed project was very thorough and comprehensive regarding potential effects to EFH from the action. NMFS concurs with the assessment in the DEIS and EFH Assessment that, because of the highly dynamic current and tide conditions at the project site, there should be minimal adverse effects to benthic fauna and flora and EFH. While some suspended sediment plumes will be created during construction, the tidal current regime should preclude any permanent impacts to EFH.

Please let me know if you have any questions.

Thanks,

Mike

Mike Johnson wrote:

Bill,

Due to a shortage in manpower at this time, NMFS will not be providing comments on the DEIS for the Spaulding Turnpike project. Thank you for your consideration about our comments.

Thanks,

Mike

O'Donnell, William F wrote:

Mike: The Federal Register noted the deadline for comments as Oct 2, 2006, that was why I was contacting you. I knew you had a strong interest in the project area and wanted to make sure we addressed your concerns. So if you or Marcy are going to submit comments, please do so soon.

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**From:** Mike Johnson [mailto:Mike.R.Johnson@noaa.gov]



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# Appendix N - 2026 Rockingham Planning Commission Model Output



**Regional Weekday Evening Peak Hour Traffic Volumes  
Spaulding Turnpike - Newington Dover**

<u>Roadway Location</u>	<u>Condition</u>		<u>Delta</u>
	<u>2026 No Build</u>	<u>2026 Build</u>	<u>2026 Build - 2026 No Build</u>
Spaulding Turnpike on Little Bay Bridge			
Northbound	5,644	6,395	751
Southbound	3,143	3,538	395
Total	8,787	9,933	1,146
Spaulding Turnpike North of US Route 4			
Northbound	2,896	3,314	418
Southbound	1,639	1,808	169
Total	4,535	5,122	587
Dover Point Road northeast of Spaulding Turnpike			
Northbound	756	1,051	295
Southbound	316	684	368
Total	1,072	1,735	663
US Route 4 West of Spaulding Turnpike			
Westbound	1,446	1,575	129
Eastbound	828	977	149
Total	2,274	2,552	278
NH Route 125 north of US Route 4			
Northbound	986	971	-15
Southbound	812	814	2
Total	1,798	1,785	-13
NH Route 125 north of NH Route 87			
Northbound	2,043	1,967	-76
Southbound	1,492	1,485	-7
Total	3,535	3,452	-83
NH Route 108 north of NH Route 85			
Northbound	1,915	1,769	-146
Southbound	1,155	1,137	-18
Total	3,070	2,906	-164
I-95 south of Spaulding Turnpike			
Northbound	5,485	5,671	186
Southbound	5,401	5,420	19
Total	10,886	11,091	205
ME Route 236			
Northbound	1,219	1,051	-168
Southbound	713	684	-29
Total	1,932	1,735	-197

Source: Rockingham Planning Commission Model Output





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# Appendix O – Wetland Mitigation Site Screening Data



Potential Mitigation Sites – Newington

Spaulding Turnpike Improvements NHS-027-1(37), 11238

Site	Watercourse/ Watershed	Size (ac)	Brief Description	Adjacent Land Use	Buffer Preserve	Restore	Create	Replaced/Preserved Wetland Functions	Recommended for Further Consideration?
NN-4	Flagstone Brook/ Great Bay Watershed	5	Access from Nimble Hill Road. 1,000 linear foot stream connected to Railway Brook, drains to Great Bay; southern one-half cobble/sand substrate widening and stabilizing northern one-half has stabilized banks with well-developed base flow and bankfull channel width.	Forested upland, residential, industrial (Pease)	No	Yes	No	Groundwater Discharge/Recharge, Wildlife Habitat, Finfish Habitat	<b>High Priority.</b> Terminal portion of stream could be used as reference reach for portions of Railway Brook restoration.
NN-8	Railway Brook/ Great Bay & Pickering Brook/Coastal Drainage	25	3,000 linear foot ditched stream system with numerous flood control structures, heavily embedded substrate within largely undeveloped area; stream drains to Great Bay (via Flagstone Brook) and Pickering Brook; bank areas recently cleared contributing to thermal degradation.	Forested upland, scrub-shrub wetland	No	Yes	No	Wildlife Habitat Sediment/Toxicant Retention, Nutrient Uptake, Shoreline Stabilization, Floodflow Alteration	<b>High Priority.</b> Stream system represents best opportunity for restoration within study area. Undeveloped land adjacent to brook provides important wildlife habitat. Restoration would recreate natural sinuosity, stabilized banks and provide floodplain areas.
Drive-in Theater	Pickering Brook/ Coastal Drainage Watershed	16	Access from southbound lanes of highway; previously disturbed by historic use; mostly upland largely overrun by non-native plant species; proposed to be used as staging area during construction. Wetlands have formed in areas of compacted fill and/or are underlain by asphalt.	Forested upland, highway	Yes	Yes (limited)	Yes	Wildlife Habitat, Water Quality (very limited)	<b>Possible Consideration.</b> Parcel could be used for creation to replace lost water quality functions along highway drainage wetlands or as part of Railway Brook restoration efforts. Possible upland habitat restoration.
NN-1	McIntyre Brook/ Great Bay Watershed	20	Access from Pease Golf Course; 3,000 linear foot ditched sediment entrenched stream system with flood control structures (similar to Railway Brook); drains to Great Bay; impaired water quality; portion located within WHPA; adjacent public trail.	Golf course, agricultural fields, forested upland, residential, air	No	Yes	No	Sediment/Toxicant Retention, Floodflow Alteration (limited), Wildlife Habitat, Recreation	<b>Possible Consideration.</b> Success of stream restoration to improve water quality is dependent on proactive land use practices (i.e. limitation of pollutant inputs from golf course and airport).
NN-3	Knight Brook/ Great Bay Watershed	75	Access from north at Little Bay Road. Diverse wetland complex surrounded by variety of upland habitats that connect to existing conservation land (local access only) at Fox Point. Most notable features may be presence of remnant bog-like areas.	Agricultural fields, scrub-shrub wetlands, forested upland	Yes	No	No	Wildlife Habitat Sediment/Toxicant Retention, Nutrient Uptake, Shoreline Stabilization, Floodflow Alteration	<b>Possible Consideration.</b> Largest parcel identified in Newington with preservation potential; links to existing conserved land at Fox Point (for local resident access only); could be key piece to form larger block of preserved land along Little Bay and Great Bay.

**Note:** Acreages are estimated from various sources and do not reflect actual tax map parcel dimensions.  
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Potential Mitigation Sites – Newington

Spaulding Turnpike Improvements NHS-027-1(37), 11238

Site	Watercourse/ Watershed	Size (acres)	Brief Description	Adjacent Land Use	Buffer Preserve	Restore	Create	Replaced/Preserved Wetland Functions	Recommended for Further Consideration?
Pickering Brook (east of Railway Brook)	Pickering Brook/ Coastal Drainage	15	Access from rear of Thermo-Electron property on Nimble Hill Road. 2,000 feet of historic forested stream system located east of Railway Brook. Most of Pickering Brook base flow is intercepted by Railway Brook. Portions of stream channel are largely filled with sediments and thickly vegetated; stream flows in a stable channel in other areas (reference reaches). Highway culvert crossings currently handle flow without impedance.	Highway, commercial, wooded upland	No	Yes	No	Sediment/Toxicant Retention, Nutrient Uptake, Shoreline Stabilization, Floodflow Alteration	<b>Possible Consideration.</b> Restoration may be relatively uncomplicated because existing reference reach could be easily modeled and constructed. (Highway crossing culverts may have to be increased if significant flow is re-established to Pickering Brook.) Major detractors include: possible increase in flow by diverting water from Flagstone Brook and landscape position of stream (adjacent to/within highway median and Sprague property).
Paul Brook	Paul Brook/ Coastal Drainage	60	3,000 linear feet of impaired brook within urbanized setting; headwaters include stormwater discharges from Fox Run Mall.	Commercial, industrial	No	Yes	No	Water Quality, Wildlife Habitat	<b>Possible Consideration.</b> Limited restoration opportunity (500 linear feet) located to east of Woodbury Avenue. Remainder of stream system in relatively good health considering landscape position.
Unnamed Perennial Stream	Coastal Drainage	150	6,000 linear feet of brook within urbanized setting; headwaters of stream consists of a series of storm water basins and ditches with heavily degraded water quality. Lower reaches of stream and tidally-influenced pond in relatively good health considering landscape position (on PSNH property).	Commercial, industrial	No	Yes	No	Water Quality, Wildlife Habitat	<b>Possible Consideration.</b> Restoration of most-impaired sections of stream (upper 2,500 linear feet) would be most effective with upgrades to existing storm water systems on commercial properties and/or improvements in storm water BMPs.
Hislop Property	Pickering Brook/ Coastal Drainage	40	Upland and wetlands associated with headwaters of Pickering Brook; contiguous with recently preserved Frink Farm	Agricultural, rural residential	Yes	No	No	Water Quality, Wildlife Habitat	<b>Possible Consideration.</b> Property recently identified by town and The Nature Conservancy as appropriate for conservation. Needs site visit.
Watson Property et al.	Tricky's Cove	Not known	If preserved, land would provide undisturbed buffer to cove.	Forest, residential, agricultural	Yes	No	No	Water Quality, Wildlife Habitat	<b>Possible Consideration.</b> Property identified by TNC as high priority. Needs site visit.
Thomas Family Tracts	Peverly Brook/Great Bay	Not known	If preserved, land would provide additional protected acreage (link to Great Bay National Wildlife Refuge?)	Forest, residential, agricultural	Yes	No	No	Water Quality, Wildlife Habitat	<b>Possible Consideration.</b> Property identified by TNC as high priority. Needs site visit.

**Note:** Acreages are estimated from various sources and do not reflect actual tax map parcel dimensions.  
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## Potential Mitigation Sites – Newington

## Spaulding Turnpike Improvements NHS-027-1(37), 11238

Site	Watercourse/ Watershed	Size (acres)	Brief Description	Adjacent Land Use	Buffer Preserve	Restore	Create	Replaced/Preserved Wetland Functions	Recommended for Further Consideration?
Fabyan Point South	Peverly Brook/Great Bay	Not known yet	If preserved, land would provide additional protected acreage tied to farms along Newington Road along shore of Great Bay.	Agricultural, residential, some woodland	Yes	No	No	Water Quality, Wildlife Habitat	<b>Possible Consideration.</b> Property identified by TNC as high priority. Needs site visit.
Coastal Ponds	Pickering Brook/ Coastal Drainage	50	Access from Sprague industrial property along River Road. Water quality impaired ponds due to surrounding land use. Heavy sediment loading in upper freshwater pond has accelerated succession of open water to herbaceous marsh which provides important water quality functions. Lower pond appears to be functioning adequately with existing tidal hydrology (although tidal gate may impede flow during higher tides).	Industrial, commercial	No	Yes	No	Sediment/Toxicant Retention, Nutrient Uptake, Floodflow Alteration, Finfish Habitat	<b>Not Recommended.</b> Restoration of ponds would not provide much additional ecological value unless part of larger Pickering Brook restoration effort to include dredging of upper pond and enlarging lower pond tidal gate (may be difficult due to significant infrastructure in area). Dredging probably ill-advised as upper pond (marsh) now providing important water quality functions.
NN-2	McIntyre Brook/ Great Bay Watershed	10	Access from Airport Road; disturbed wetland & upland parcel adjacent to wetlands, within WHPA.	Residential, forested upland and wetland	Yes	Yes	No	Wildlife Habitat, Sediment/Toxicant Retention, Floodflow Alteration	<b>Not Recommended.</b> Relatively small in size, limited restoration opportunities; relatively healthy in current condition providing wildlife habitat as is.
NN-9	Railway Brook/ Coastal Drainage	10	Small forested upland/wetland and shrub wetland, portion within WHPA	Forested upland, industrial (Pease)	Yes	Yes	No	Groundwater Recharge/Discharge, Wildlife Habitat (very limited due to size)	<b>Not Recommended.</b> If Railway Brook restoration is carried out, preservation/restoration of parcel could protect headwaters to stream. Otherwise, parcel is small in size and would only protect small discontinuous parcel.
Hodgson Brook	Hodgson Brook/ Coastal Drainage	400	15,000 linear feet of brook (focus of ongoing studies), portion within WHPA	Commercial	No	Yes	No	Water Quality, Wildlife Habitat	<b>Not Recommended.</b> Currently the subject of a stream corridor restoration opportunity study (NHDES, Pease); site mostly located in Portsmouth, more suitable mitigation locations in Newington proper.

**Note:** Acreages are estimated from various sources and do not reflect actual tax map parcel dimensions.  
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## Potential Mitigation Sites – Newington

## Spaulding Turnpike Improvements NHS-027-1(37), 11238

Site	Watercourse/ Watershed	Size (acres)	Brief Description	Adjacent Land Use	Buffer Preserve	Restore	Create	Replaced/Preserved Wetland Functions	Recommended for Further Consideration?
Stubbs Pond/ Peverly Brook	Peverly Brook/ Great Bay Watershed	200	6,000 linear feet of impaired brook within conserved upland and wetland area	Part of large block of conservation land	No	Yes	No	Water Quality, Wildlife Habitat	<b>Not Recommended.</b> Stubbs Pond restoration assessment currently underway. Additional restoration opportunities not known at this time.
NN-6	Paul Brook & Coastal Drainage Watershed	35	Forested wetland/dead wood (circumneutral) swamp with upland buffer	Commercial, industrial, highway	Yes	No	No	Primarily to protect endangered plant species (Bulbous Bittercress)	<b>Not Recommended.</b> Parcel is 75% wetland with limited additional buffering opportunity due to turnpike and Pease development.

**Note:** Acreages are estimated from various sources and do not reflect actual tax map parcel dimensions.  
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Potential Mitigation Sites – Dover

Spaulding Turnpike Improvements NHS-027-1(37), 11238

Site	Watercourse/ Watershed	Size (Acres)	Brief Site Description	Adjacent Land Use	Buffer Preserve	Restore	Create	Replaced/Preserved Wetland Functions	Recommended for Further Consideration?
DR-8	Blackwater Brook/ Bellamy River Watershed	225	Access from Pickering Road: site consists of large wetland complex and upland forest adjacent to existing conservation land; wide interspersion of vegetated habitats providing important wildlife habitat; important features include: Exemplary Natural Community (Red maple floodplain forest: - low variant), possible historic dam site/road crossing ruins at stream constriction, historic beaver dams, fisheries, dead wood swamp, aquatic beds, shellfish (eastern floater), upland islands of mixed soft and hardwood forests	Conservation, residential, commercial, gravel pits	Yes	No	No	Wildlife Habitat, Water Quality	<b>High Priority.</b> The property has been identified as a priority area for preservation by Dover Conservation Commission and The Nature Conservancy. It is the largest parcel identified for preservation and would provide linkage to other conserved areas. If selected alone for mitigation in Dover, roughly 50-60 acres of site would be protected.
DR-4	Bellamy River	30	Floodplain forest/upland located at confluence of Knox Marsh Brook & Bellamy River located within WHPA; interesting floodplain forest (with hickory a dominant tree species) that supports a series of vernal pools.	Industrial, commercial, residential (encroaching) and gravel pits	Yes	No	No	Water Quality, Floodflow Alteration, Wildlife Habitat	<b>Possible Consideration.</b> Property is approximately 90% wetland, has interesting floodplain forest and associated habitat, but is entirely surrounded by encroaching development. Because of extensive wetlands, site is effectively protected.
DR-11	Johnson Creek/Bellamy River Watershed	65	Access from Mast Road; forested/scrub-shrub wetlands (portions disturbed), dead wood swamp and adjacent uplands; northern portions of parcel bisected by narrow manmade or altered drainageway/seasonal stream that connects two larger forested wetlands; surrounded by residential development and agricultural land; some of parcel located within WHPA	Residential, agricultural	Yes	No	No	Water Quality, Wildlife Habitat, Floodflow Alteration	<b>Possible Consideration.</b> Although parcel provides water quality and wildlife habitat values, it is surrounded by residential development; preservation would protect isolated area amidst surrounding development.
Varney Brook (culvert removal)	Varney Brook/ Bellamy River Watershed	-	Twin 6-foot culverts under highway and 6-foot granite block box culvert under Spur Road with tidal gate (restricts flow into upper reaches of Varney Brook, west of highway marsh is healthy); sewer lines run into culvert beneath Spaulding Turnpike (upgrade may be complicated).	Residential, commercial	No	Yes	No	Water Quality, Wildlife Habitat	<b>Not Recommended.</b> Twin culverts beneath highway appear to be adequate for existing flow regime. Removal and upgrade of granite block culvert under Spur Road may necessitate upgrades to twin culverts which may be complicated and costly (sewer lines) compared to benefit.

**Note:** Acres are estimated from various sources and do not reflect actual tax map parcel dimensions.

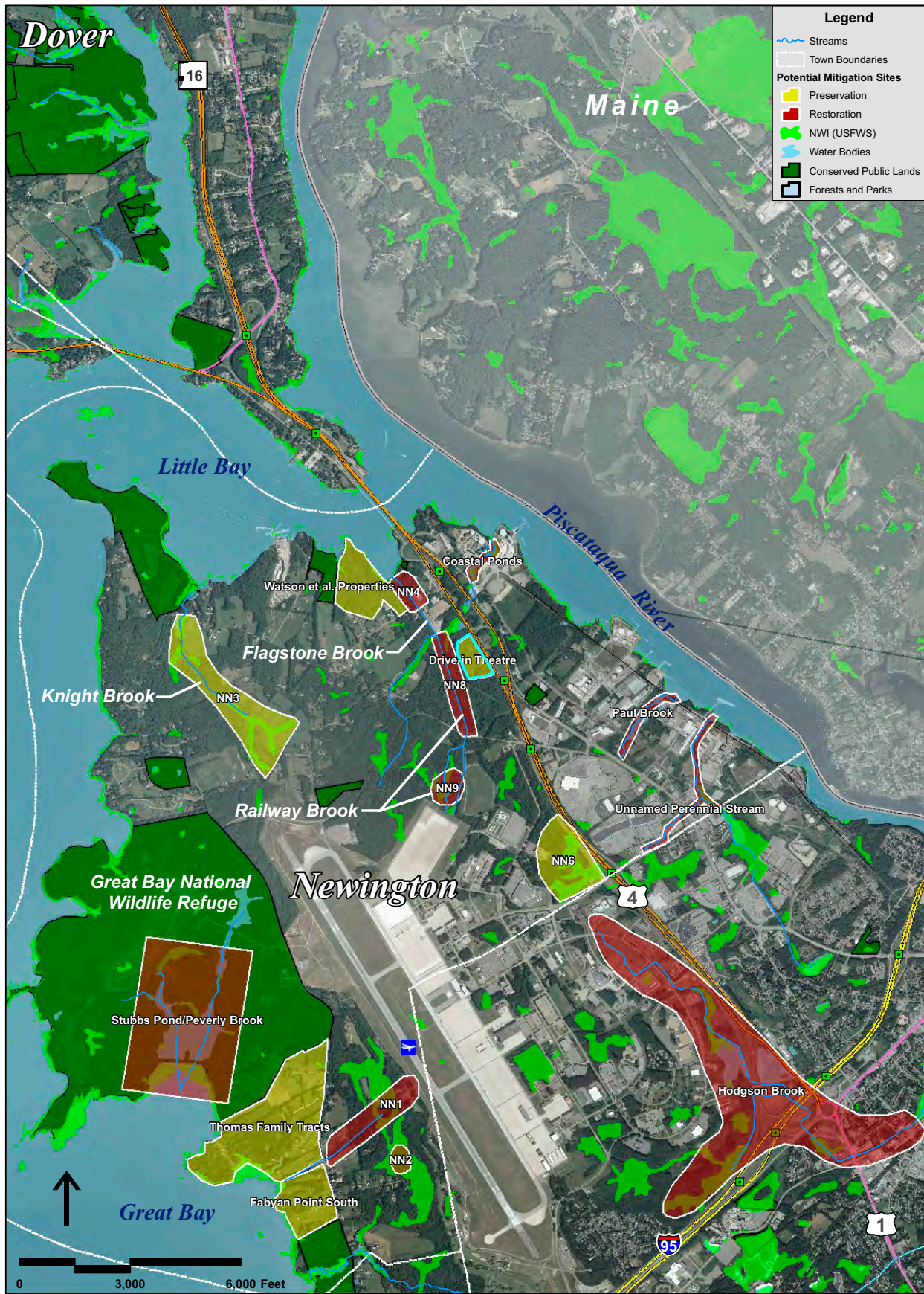
Potential Mitigation Sites – Dover

Spaulding Turnpike Improvements NHS-027-1(37), 11238

Site	Watercourse/ Watershed	Size (Acres)	Brief Site Description	Adjacent Land Use	Buffer Preserve	Restore	Create	Replaced/Preserved Wetland Functions	Recommended for Further Consideration?
Varney Brook (invasive species)	Varney Brook/ Bellamy River Watershed	2	Access from Dover Point Road; stagnant Varney Brook and emergent marsh overrun by invasive species (common reed, purple loosestrife) due to lack of tidal flow into area (may be too high to establish flow, however). Land to west of stream is residentially developed; east of stream land is largely agricultural and forest.	Residential, commercial, forest, agricultural	No	Yes	No	Water Quality, Wildlife Habitat	<b>Not Recommended.</b> Restoration of marshes by removal of invasive plants is relatively easy, although requires continual monitoring and maintenance. Success of restoration efforts would be enhanced by preservation of additional land along stream, but ecological benefit may be limited because of size of restoration efforts as related to ongoing costs associated with restoration efforts and acquisition of preservation land.

**Note:** Acreages are estimated from various sources and do not reflect actual tax map parcel dimensions.





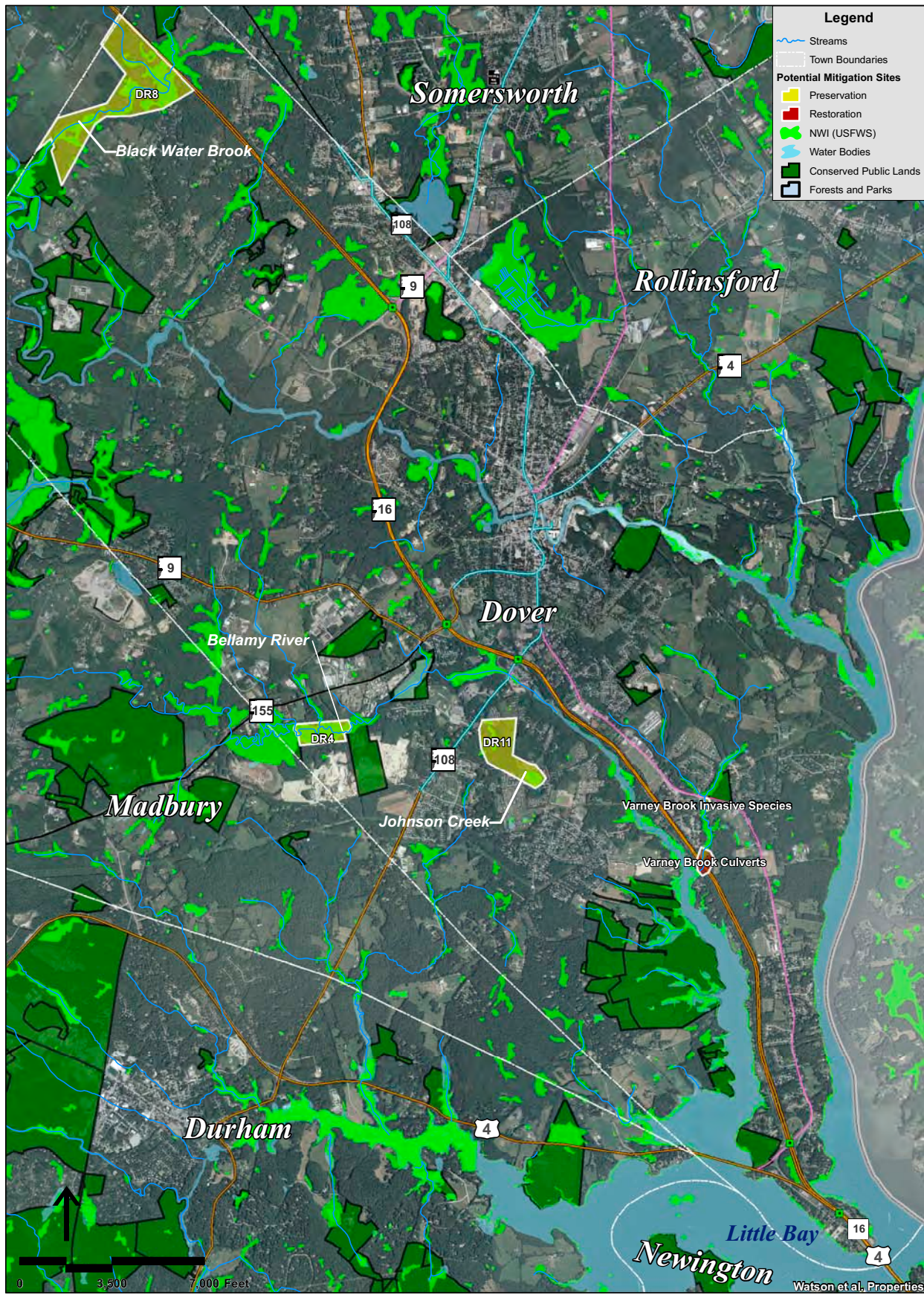
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Potential Mitigation Sites  
Newington, NH

Spaulding Turnpike Improvements  
NHS-027-1(37), 11238  
Newington to Dover, New Hampshire

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Potential Mitigation Sites  
Dover, NH

Spaulding Turnpike Improvements  
NHS-027-1(37), 11238  
Newington to Dover, New Hampshire

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