

# **Appendix I: Wetland Functions and Values and Wetland Photographs**



Wetlands proposed to be impacted by each alternative were reviewed to determine what functions and values the wetland currently provides that may be affected by construction of each alternative. *The Highway Methodology Workbook Supplement* (USACE, 1999) recognizes up to 13 different functions and values, including:

- Groundwater recharge/discharge; GW
- Floodflow Alteration; FA
- Fish and Shellfish habitat; FS
- Sediment/toxicant retention; SR
- Nutrient removal/retention/transformation; NR
- Production Export; PE
- Sediment/shoreline stabilization; SS
- Wildlife habitat; WH
- Recreation; RE
- Education/scientific value; ED
- Uniqueness/Heritage; UH
- Visual Quality/aesthetics; VQ and
- Endangered Species; ES

Results of the impact review follow. In accordance with Highway Methodology practices, functions are either assigned a P, for Primary Function provided by the wetland, an X for function provided by the wetland, or left blank to indicate that the function is not provided by the wetland.

**Table 1 Impacts to Wetland Functions and Values for 4A Alternatives (Bold font indicates Prime Wetland)**

Alternative A (Preferred Alternative) Impacts to Wetland Functions and Values																
Wetland ID	Total Wetland Acres	Square Feet Impact	Cowardin Class	GW	FA	FS	SR	NR	PE	SS	WH	RE	ED	UH	VQ	ES
11	3.38	5,260	PFO	X	X	-	X	X	X	-	X	-	-	-	-	-
13	0.06	1,779	PFO	X	-	-	-	-	-	-	-	-	-	-	-	-
14	3.46	77,472	PFO	X	P	X	P	X	X	X	P	-	-	-	X	-
15 <sup>1</sup>	0.27	21,890	PFO	X	X	-	X	X	X	-	P	-	-	-	-	-
16 <sup>1</sup>	0.46	16,105	PFO	X	X	-	X	X	X	-	P	-	-	-	-	-
17	0.30	5,002	PFO	X	X	-	X	X	X	-	P	-	-	-	-	-
18	0.02	659	PEM	X	-	-	-	-	-	-	X	-	-	-	-	-
19 <sup>1</sup>	0.22	13,779	PFO	X	X	-	X	X	X	-	P	-	-	-	-	-
20	0.03	1,505	PFO	X	X	-	X	X	X	-	P	-	-	-	-	-
21	0.06	361	PFO	X	-	-	-	-	-	-	X	-	-	-	-	-
22 <sup>1</sup>	0.61	324	PFO	X	X	-	X	X	X	-	P	-	-	-	-	-
24 <sup>1</sup>	0.11	19,032	PFO	X	X	-	P	X	X	-	X	-	-	-	-	-
35 <sup>1</sup>	0.10	13,464	PFO	X	-	-	-	-	-	-	P	-	-	-	-	-
39	0.19	4,379	PEM	X	-	-	X	-	-	-	X	-	-	-	-	-
40	0.02	845	PSS	X	-	-	X	-	-	-	-	-	-	-	-	-
41	0.95	6,954	PFO	X	P	X	P	X	P	X	P	-	-	-	-	-
46	0.18	25	PFO	X	P	X	P	X	P	X	P	-	-	-	X	-
49	1.15	2,474	PFO	X	-	X	X	X	-	-	P	-	-	-	-	-
54	0.12	51	PEM	X	-	-	-	-	X	-	P	-	-	-	-	-
56	0.31	109	PEM	X	X	-	P	-	X	-	X	-	-	-	-	-
59	2.91	5,360	PFO	P	X	X	P	X	X	P	X	X	X	X	X	-
61	0.01	576	PSS	X	P	-	X	X	X	-	-	-	X	-	-	-
<b>62</b>	<b>17.79</b>	<b>3,265</b>	<b>PSS/EM</b>	<b>X</b>	<b>P</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>P</b>	<b>X</b>	<b>P</b>	<b>X</b>	-	-	<b>X</b>	-
64	0.12	703	PFO	X	-	-	X	-	-	-	P	-	-	-	-	-

Alternative A (Preferred Alternative) Impacts to Wetland Functions and Values																
Wetland ID	Total Wetland Acres	Square Feet Impact	Cowardin Class	GW	FA	FS	SR	NR	PE	SS	WH	RE	ED	UH	VQ	ES
66	0.36	348	PFO	X	-	-	P	X	X	-	X	-	-	-	-	-
67	0.31	1,483	PEM	X	X	-	X	-	-	-	X	-	-	-	-	-
68	0.20	117	PFO	X	X	-	X	-	-	-	P	-	-	-	-	-
<b>72</b>	<b>13.82</b>	<b>98</b>	<b>PSS</b>	X	P	X	P	P	X	P	P	X	-	-	X	-
73	10.13	3,618	PEM	X	X	-	P	X	X	X	X	-	-	-	X	-
80	3.15	2,241	PFO	X	P	-	X	X	-	P	X	X	-	-	-	-
81	0.30	28	PEM	X	X	-	X	X	-	-	-	-	-	-	-	-
86	0.01	552	PFO	X	-	-	-	-	-	-	-	-	-	-	-	-
90	0.04	1,519	PFO	X	-	-	S	-	-	-	-	-	-	-	-	-

1 - vernal pool impacts are included in wetland impact quantities

**Alternative B - Impacts to Wetland Functions and Values**

Wetland ID	Total Wetland Acres	Square Feet Impact	Cowardin Class	GW	FA	FS	SR	NR	PE	SS	WH	RE	ED	UH	VQ	ES
11	3.38	3,350	PFO	X	X	-	X	X	X	-	X	-	-	-	-	-
13	0.06	958	PFO	X	-	-	-	-	-	-	-	-	-	-	-	-
14	3.46	51,317	PFO	X	P	X	P	X	X	X	P	-	-	-	X	-
15	0.27	5,344	PFO	X	X	-	X	X	X	-	P	-	-	-	-	-
16	0.46	8,115	PFO	X	X	-	X	X	X	-	P	-	-	-	-	-
17	0.30	5,530	PFO	X	X	-	X	X	X	-	P	-	-	-	-	-
18	0.02	659	PEM	X	-	-	-	-	-	-	X	-	-	-	-	-
19	0.22	7,610	PFO	X	X	-	X	X	X	-	P	-	-	-	-	-
20	0.03	1,504	PFO	X	X	-	X	X	X	-	P	-	-	-	-	-
21	0.06	871	PFO	X	-	-	-	-	-	-	X	-	-	-	-	-
22	0.61	758	PFO	X	X	-	X	X	X	-	P	-	-	-	-	-
23	0.05	978	PFO	X	X	-	X	X	X	-	P	-	-	-	-	-
24	0.11	1,252	PFO	X	X	-	P	X	X	-	X	-	-	-	-	-
32	0.01	256	PFO	X	-	-	X	-	-	-	-	-	-	-	-	-
33	0.03	1,482	PFO	X	-	-	-	-	-	-	-	-	-	-	-	-
34	0.07	2,916	PFO	X	-	-	-	-	-	-	-	-	-	-	-	-
36	0.01	416	PFO	X	-	-	-	-	-	-	P	-	-	-	-	-
37	0.06	2,153	PFO	X	-	-	-	-	-	-	-	-	-	-	-	-
38	0.93	15,325	PFO	X	P	X	P	X	P	X	P	-	-	-	X	-
42	2.26	55,700	PUB	X	P	X	P	X	X	X	X	-	-	-	X	-

**Alternative B - Impacts to Wetland Functions and Values**

Wetland ID	Total Wetland Acres	Square Feet Impact	Cowardin Class	GW	FA	FS	SR	NR	PE	SS	WH	RE	ED	UH	VQ	ES
43	2.38	347	PSS/PEM	X	P	-	P	X	X	-	P	X	-	-	X	-
44	0.12	4,748	PEM	P	-	-	P	X	-	-	-	-	-	-	-	-
47	2.27	18,453	PFO	P	P	-	X	X	X	X	P	-	-	-	-	-
48	8.58	90,956	PFO	P	P	-	X	X	X	X	P	-	-	-	-	-
50	0.20	5,037	PEM	-	-	-	X	-	-	-	X	-	-	-	-	-
51	0.16	3,576	PEM	-	-	-	X	-	-	-	X	-	-	-	-	-
52	2.17	19,976	PFO	-	-	-	X	-	-	-	X	-	X	-	-	-
53	7.42	79,714	PSS	P	P	X	X	X	X	X	P	-	-	-	-	-
56	0.31	13	PEM	X	X	-	P	-	X	-	X	-	-	-	-	-
57	0.12	614	PSS	-	-	-	-	-	-	-	X	-	-	-	-	-
59	1.72	2,806	PFO	X	P	X	X	X	P	X	P	X	-	-	X	-
47	2.27	18,453	PFO	P	P	-	X	X	X	X	P	-	-	-	-	-
48	8.58	90,956	PFO	P	P	-	X	X	X	X	P	-	-	-	-	-
50	0.20	5,037	PEM	-	-	-	X	-	-	-	X	-	-	-	-	-
51	0.16	3,576	PEM	-	-	-	X	-	-	-	X	-	-	-	-	-
52	2.17	19,976	PFO	-	-	-	X	-	-	-	X	-	X	-	-	-
53	7.42	79,714	PSS	P	P	X	X	X	X	X	P	-	-	-	-	-
56	0.31	13	PEM	X	X	-	P	-	X	-	X	-	-	-	-	-
57	0.12	614	PSS	-	-	-	-	-	-	-	X	-	-	-	-	-
59	1.72	2,806	PFO	X	P	X	X	X	P	X	P	X	-	-	X	-

**Alternative C - Impacts to Wetland Functions and Values**

Wetland ID	Total Wetland Acres	Square Feet Impact	Cowardin Class	GW	FA	FS	SR	NR	PE	SS	WH	RE	ED	UH	VQ	ES
1	5.41	26,288	PFO	P	P	X	P	P	P	X	P	-	-	-	X	-
2	0.01	16	PFO	X	-	-	-	-	X	-	P	-	-	-	-	-
3	0.06	2,185	PFO	X	-	-	X	-	-	-	P	-	-	-	-	-
4	6.40	54,416	PFO	P	P	X	P	P	P	X	P	-	-	-	X	-
5	0.19	8,125	PFO	X	-	-	X	-	-	-	X	-	-	-	-	-
6	0.20	1,305	PFO	X	-	-	X	-	-	-	X	-	-	-	-	-
7	0.05	925	PFO	X	-	-	X	-	-	-	X	-	-	-	-	-
8	0.93	17,270	PEM	X	X	-	X	X	X	-	P	-	-	-	-	-
9	3.63	1,025	PFO	X	X	-	X	X	P	X	P	-	-	-	-	-
10	0.10	735	PFO	X	-	-	X	-	-	-	X	-	-	-	-	-
11	3.38	1,693	PFO	X	X	-	X	X	X	-	X	-	-	-	-	-
25	0.13	4,194	PFO	-	-	-	-	-	-	-	P	-	-	-	-	-
26	0.22	8,332	PSS	-	-	-	X	-	-	-	-	-	-	-	-	-
27	0.04	1,152	PSS	-	-	-	X	-	-	-	-	-	-	-	-	-
28	0.42	12,758	PFO	-	-	-	P	-	-	-	X	-	-	-	-	-
29	0.35	5,616	PSS	-	-	-	X	-	-	-	-	-	-	-	-	-
30	0.08	732	PEM	-	-	-	X	-	-	-	-	-	-	-	-	-
31	0.04	534	PEM	-	-	-	X	-	-	-	-	-	-	-	-	-
47	2.27	18,453	PFO	P	P	-	X	X	X	X	P	-	-	-	-	-
48	8.58	90,956	PFO	P	P	-	X	X	X	X	P	-	-	-	-	-
50	0.20	5,037	PEM	-	-	-	X	-	-	-	X	-	-	-	-	-
51	0.16	3,576	PEM	-	-	-	X	-	-	-	X	-	-	-	-	-



**Alternative C - Impacts to Wetland Functions and Values**

<b>Wetland ID</b>	<b>Total Wetland Acres</b>	<b>Square Feet Impact</b>	<b>Cowardin Class</b>	<b>GW</b>	<b>FA</b>	<b>FS</b>	<b>SR</b>	<b>NR</b>	<b>PE</b>	<b>SS</b>	<b>WH</b>	<b>RE</b>	<b>ED</b>	<b>UH</b>	<b>VQ</b>	<b>ES</b>
52	2.17	19,976	PFO	-	-	-	X	-	-	-	X	-	X	-	-	-
53	7.42	79,714	PSS	P	P	X	X	X	X	X	P	-	-	-	-	-
57	0.12	614	PSS	-	-	-	-	-	-	-	X	-	-	-	-	-
59	1.72	2,788	PFO	X	P	X	X	X	P	X	P	X	-	-	X	-



**Alternative D - Impacts to Wetland Functions and Values**

Wetland ID	Total Wetland Acres	Square Feet Impact	Cowardin Class	GW	FA	FS	SR	NR	PE	SS	WH	RE	ED	UH	VQ	ES
31	0.04	534	PEM	-	-	-	X	-	-	-	-	-	-	-	-	-
45	1.57	5,009	PSS/PEM	P	X	-	P	X	-	-	-	-	-	-	-	-
46	0.18	789	PFO	X	P	X	P	X	P	X	P	-	-	-	X	-
49	1.15	2,020	PFO	X	-	X	X	X	-	-	P	-	-	-	-	-
54	0.12	203	PEM	X	-	-	-	-	X	-	P	-	-	-	-	-
55	0.07	2	PEM	X	-	-	-	-	X	-	P	-	-	-	-	-
56	0.31	33	PEM	X	X	-	P	-	X	-	X	-	-	-	-	-
59	2.91	1,479	PFO	X	P	X	X	X	P	X	P	X	-	-	X	-

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**Photo 1. Facing west-northwest from Wetland 14,  
south of Project boundary crossing with Stream Crossing 1 (5/21/2018)**



**Photo 2. Facing southwest from northern boundary of Wetland 14 (5/21/2018).  
Riprap from recent construction on I-93.**

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**Photo 3. Facing northwest from Stream Crossing 1 crossing with western Project boundary, within Wetland 14 (5/21/2018)**



**Photo 4. Facing east-southeast from western Project boundary crossing with Wetland 14 (5/21/2018)**

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**Photo 5. Facing north near southern end of Wetland 15 towards Vernal Pool 2 (5/21/2018). Erosion controls from recent construction for I-93.**



**Photo 6. Facing southeast from northwest boundary of Wetland 15, towards Vernal Pool 2 (5/21/2018) Sideslopes of recently widened I-93 to right in photo.**

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**Photo 7. Facing north-northwest from southern boundary of Wetland 16, towards Vernal Pool 03 (5/21/2018).  
Erosion controls from recent I-93 construction.**



**Photo 8. Facing north-northeast from northern boundary of Wetland 16, towards Vernal Pool 4 (5/21/2018)**

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**Photo 9. Facing east-northeast to Wetland 16, near southern boundary of Vernal Pool 4 (5/21/2018).  
Erosion controls from recent I-93 construction.**



**Photo 10. Facing north-northeast of Wetland 17 and Stream Crossing 7 (5/21/2018)**



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**Photo 11. Facing southwest from northeastern boundary of Wetland 17 and Stream 7 (5/21/2018)**



**Photo 12. Facing east-southeast from eastern boundary of Wetland 19, towards Vernal Pool 42, south of Wetland 18 (5/21/2018)**

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**Photo 13. Facing northeast from western boundary of Wetland 19, towards Vernal Pool 42 (5/21/2018)**

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**Photo 14. Facing northwest from eastern boundary of Wetland 20 (5/21/2018)**



**Photo 15. Facing east-northeast between wetlands 20 and 22 along Stream 8 (5/21/2018)**

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**Photo 16. Facing northeast from junction of Stream 8 and Wetland 22 at Project boundary crossing/southern boundary of Vernal Pool 46 (5/21/2018)**



**Photo 17. Facing north-northeast from southern boundary of Wetland 24, toward Vernal Pool 06 (5/21/2018)**

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**Photo 18. Facing west from eastern boundary of Wetland 24, toward Vernal Pool 06 (5/21/2018)**



**Photo 19. Facing north from Wetland 35 to Vernal Pool 08 from southwest Project boundary crossing (5/21/2018)**

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**Photo 20. Facing southwest from Wetland 35 to Vernal Pool 08 from eastern pool/wetland boundary (5/21/2018)**



**Photo 21. Facing south-southwest from northeast boundary of Wetland 39 (5/24/2018)**

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**Photo 22. Facing northeast from southwest boundary of Wetland 40, near Stream 11 (5/24/2018)**



**Photo 23. Facing northwest to Wetland 41 and Stream 2, north of North High Street (5/15/2018)**

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**Photo 24. Facing southeast toward Stream 2 at road crossing, south of North High Street (5/15/2018)**



**Photo 25. Facing south to Wetland 41 from Franklin Street Extension (5/21/2018)**



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**Photo 26. Facing southeast towards Wetland 46 from Folsom Road (5/15/2018)**



**Photo 27. Facing northwest from Tsienneto Road toward Wetland 49 (5/15/2018)**

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**Photo 28. Facing northwest from Tsienneto Road toward Wetland 54/Vernal Pool 11 (5/15/2018)**



**Photo 29. Wetland 11 facing north from wetland plot(10/25/2019)**

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**Photo 30. Wetland 13 facing north from wetland plot (10/25/2019)**



**Photo 31. Facing southeast from Tsienneto Road toward Stream Crossing 4 (5/15/2018)**

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**Photo 32. Facing northwest from Tsienneto Road toward Wetland 56 (5/15/2018)**



**Photo 33. Facing southeast from Tsienneto Road toward Wetland 59 (5/15/2018)**

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**Photo 34. Facing north from Tsienneto Road toward Prime Wetland 62 (previously called Wetland 59) and Stream Crossing 5 (5/15/2018)**



**Photo 35. Facing south from Tsienneto Road toward Wetland 59 and Stream Crossing 5 (5/15/2018)**

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**Photo 36. Facing southeast from Chester Road (NH Route 102) towards Wetland 59 and Stream Crossing 6 into Beaver Lake (5/15/2018)**



**Photo 37. Facing northwest from Chester Road (NH Route 102) towards Stream Crossing 6 (5/15/2018)**

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**Photo 38 Wetland 60, north of Tsienneto Road, view north (7/27/2018)**



**Photo 39 Wetland 61, south of Tsienneto Road, view south (7/27/2018)**

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**Photo 40 Wetland 18 view north (10/25/2019)**



**Photo 41 Wetland 21 from army corps plot, view west (10/15/2019)**



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**Photo 42 Wetland 59 from Tsienneto Road view southeast (10/24/2019)**



**Photo 43 Wetland 61 from Tsienneto Road view southeast (10/24/2019)**

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**Photo 44 Wetland 64 view west(10/15/2019)**



**Photo 45 Wetland 66 at wetland plot (10/25/2019)**

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**Photo 46 Wetland 67 at wetland plot (10/25/2019)**



**Photo 47 Wetland 68 at wetland plot (10/25/2019)**

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**Photo 48 Wetland 72 at wetland plot (10/14/2019)**



**Photo 49 Wetland 80 near Tsienneto Rd facing east (10/12/2019)**

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**Photo 50 Wetland 80 near proposed stormwater outlet facing east (10/12/2019)**



**Photo 51 Wetland 81 from driveway off Tsienneto Rd facing west(10/12/2019)**

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**Photo 52 Wetland 63 from northwest corner facing south (10/12/2019)**



**Photo 53 Wetland 83 from southern edge facing north (10/12/2019)**

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**Photo 54 Wetland 73 north side facing south (10/14/2019)**



**Photo 55 Wetland 85 north side facing south (10/14/2019)**

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**Photo 56 Wetland 86 north side facing southeast (10/14/2019)**



**Photo 57 Wetland 87 west edge facing northeast (10/14/2019)**