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## Appendices

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# Appendix A - Preliminary Project Plans

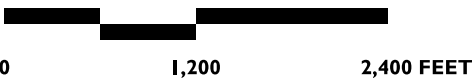
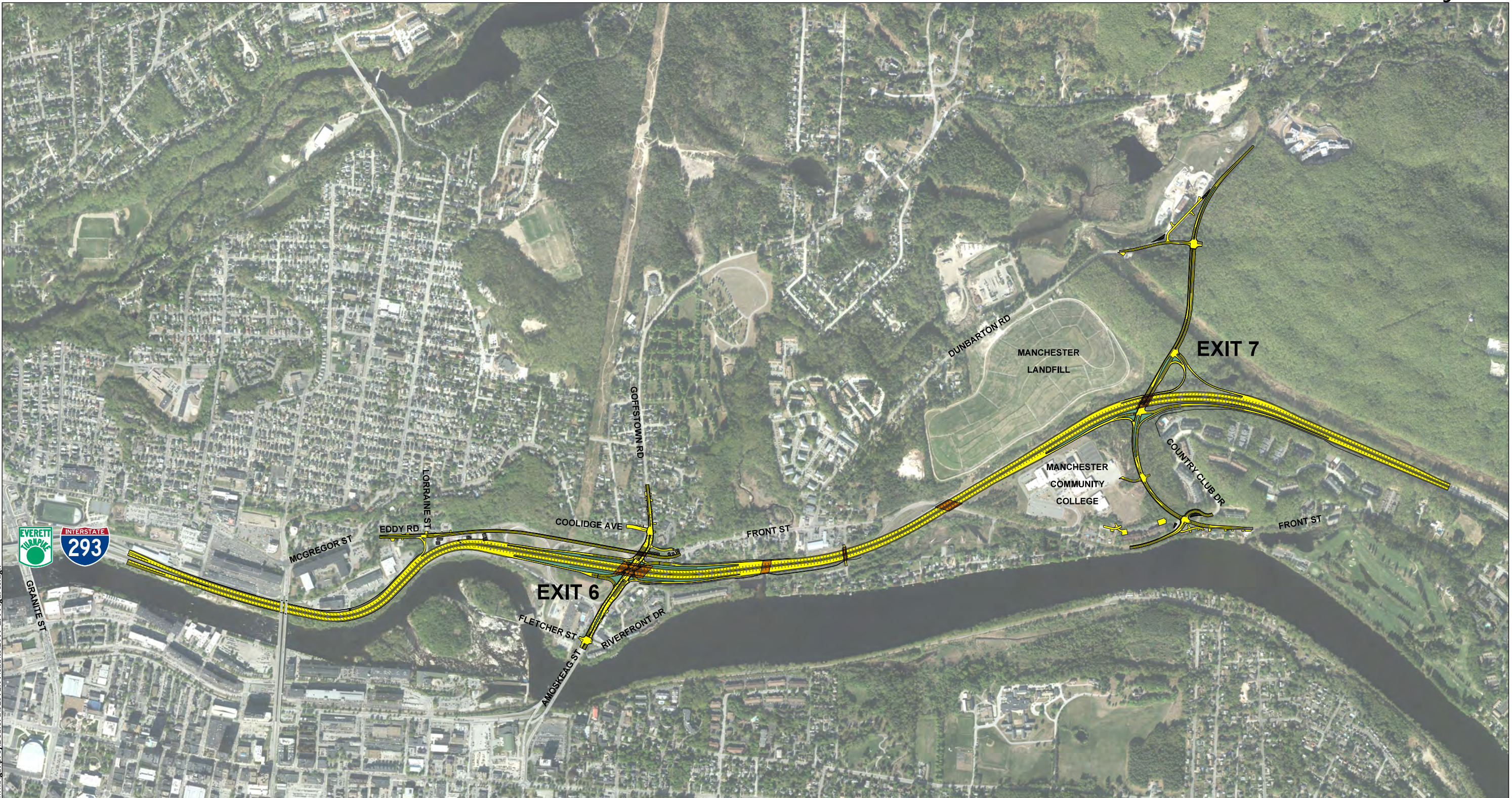
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Figure A-1

10/15/2019

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Manchester 16099



Manchester, NH

I-293 Exits 6 and 7

Proposed Action Plan



Figure A-2



Manchester 16099



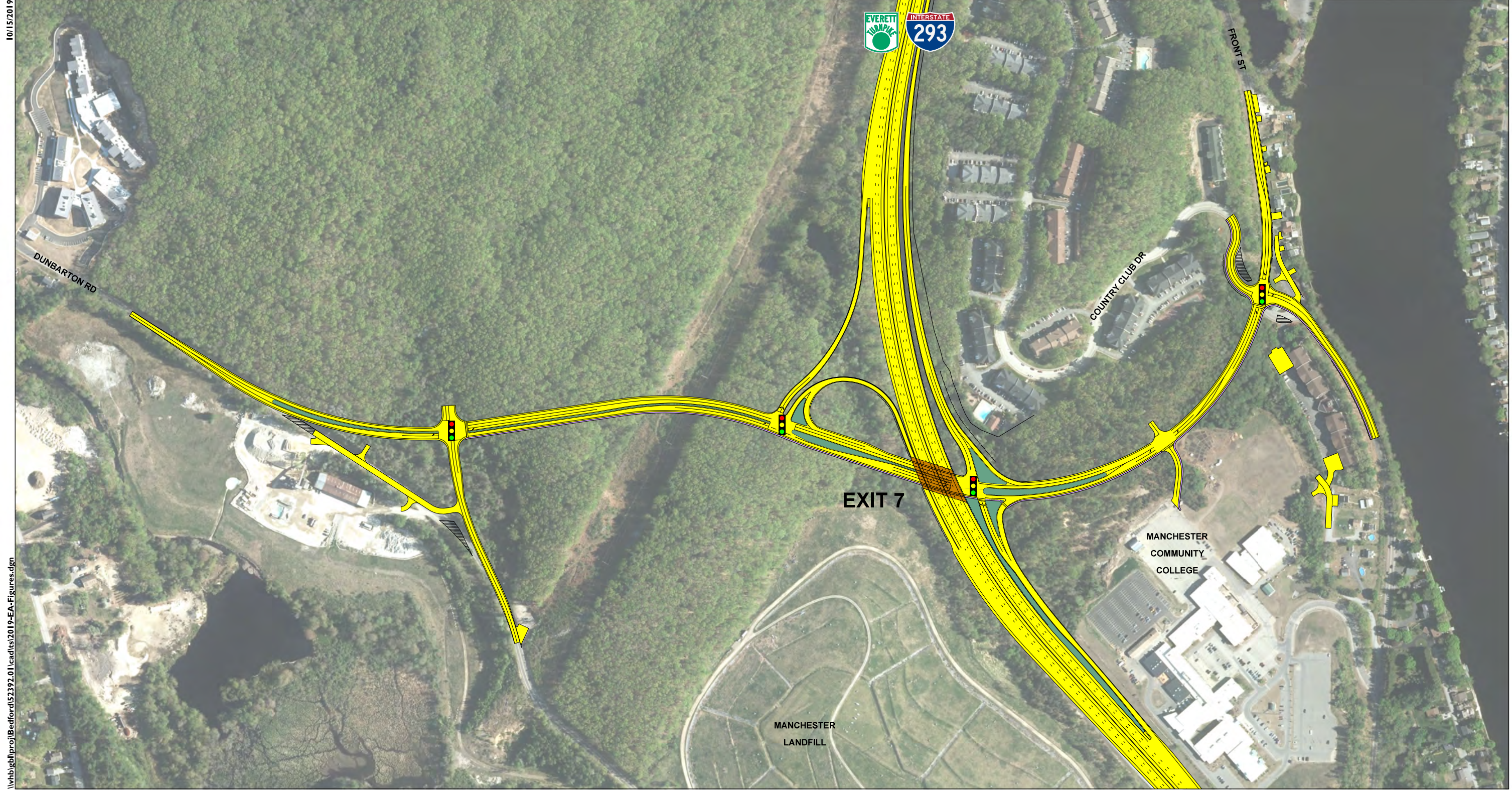
Manchester, NH

I-293 Exits 6 and 7

Exit 6 - Proposed Action Plan



Figure A-3



Manchester 16099



Manchester, NH

I-293 Exits 6 and 7

Exit 7 - Proposed Action Plan



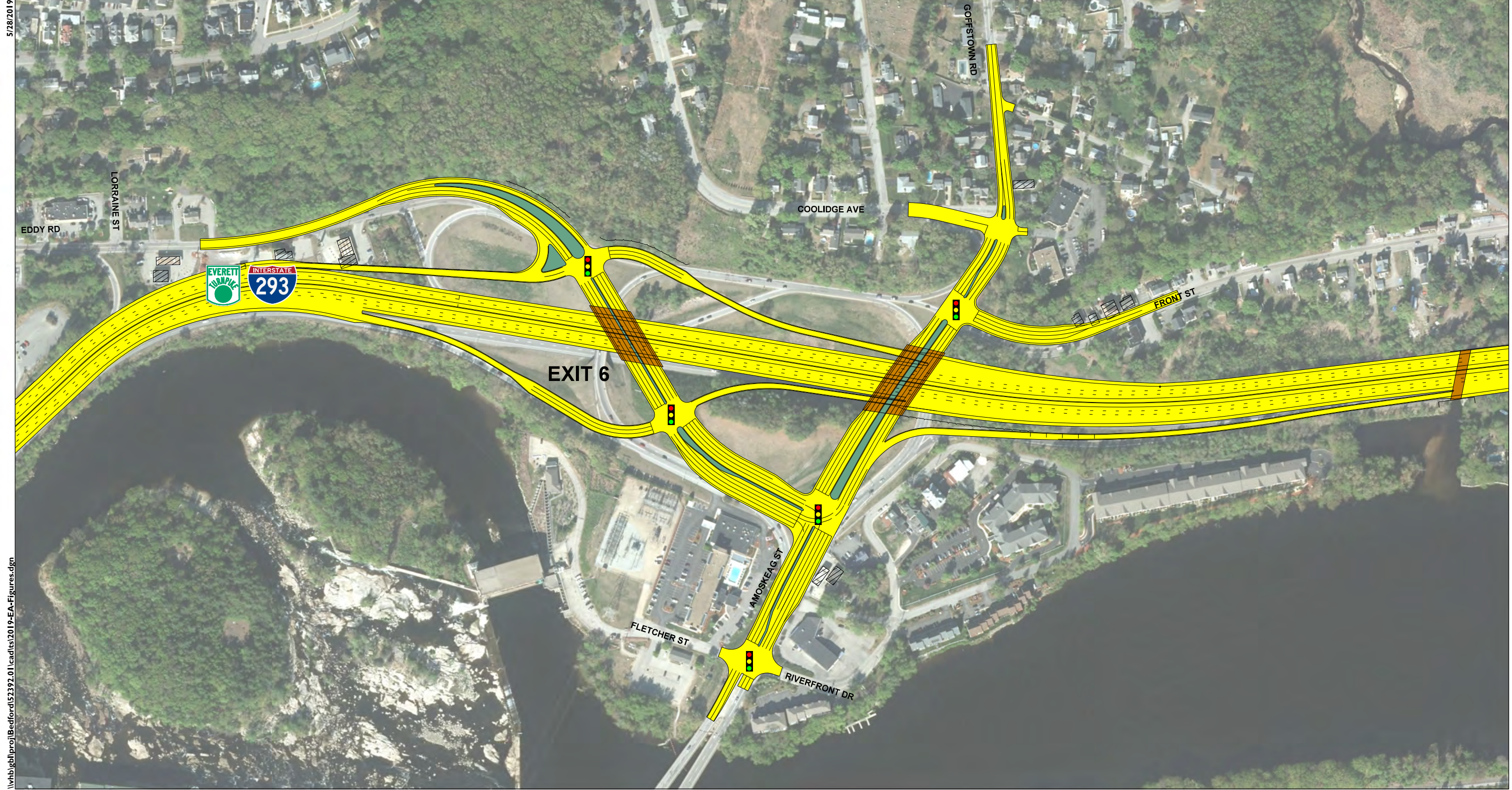
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# Appendix B - Alternative Design Plans

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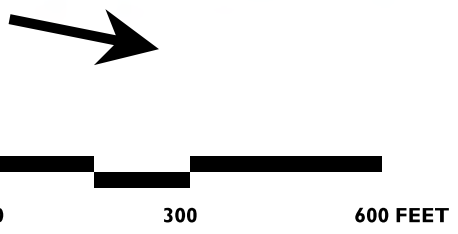


Figure B-1



5/28/2019

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Manchester 16099



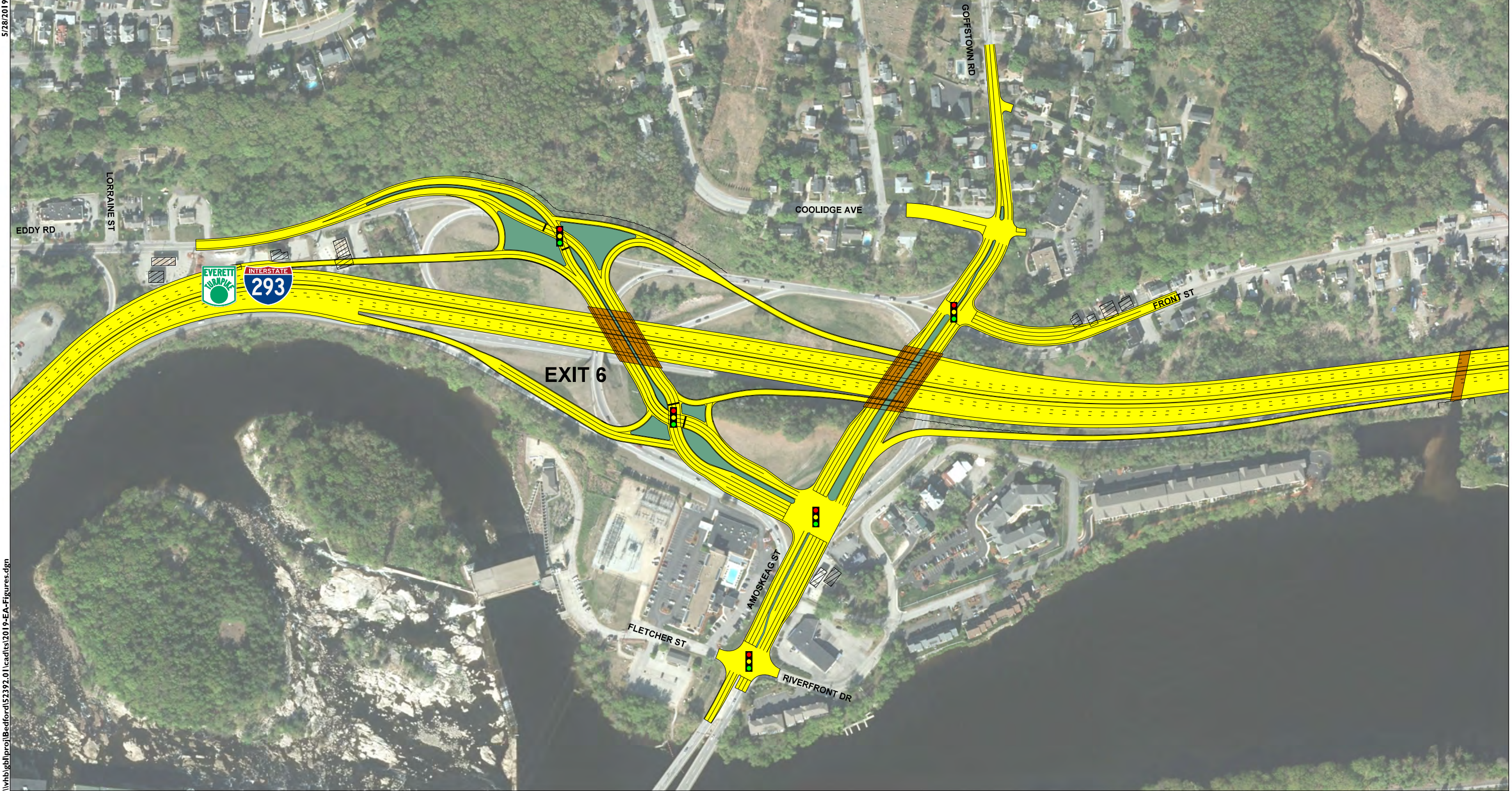
Manchester, NH

I-293 Exits 6 and 7

Exit 6 - Diamond Interchange

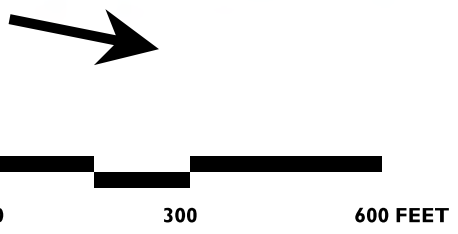


Figure B-2



5/28/2019

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Manchester 16099



Manchester, NH

I-293 Exits 6 and 7

Exit 6 - Diverging  
Diamond Interchange



Figure B-3



Manchester 16099



Manchester, NH

I-293 Exits 6 and 7

Exit 6 - Offset  
Diamond Interchange



Figure B-4



5/28/2019  
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Manchester 16099



Manchester, NH

I-293 Exits 6 and 7

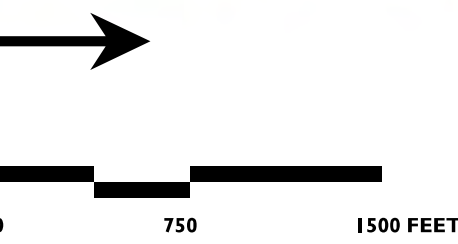
Exit 7 - Diamond Interchange  
(Existing Location)



Figure B-5

5/28/2019

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Manchester 16099



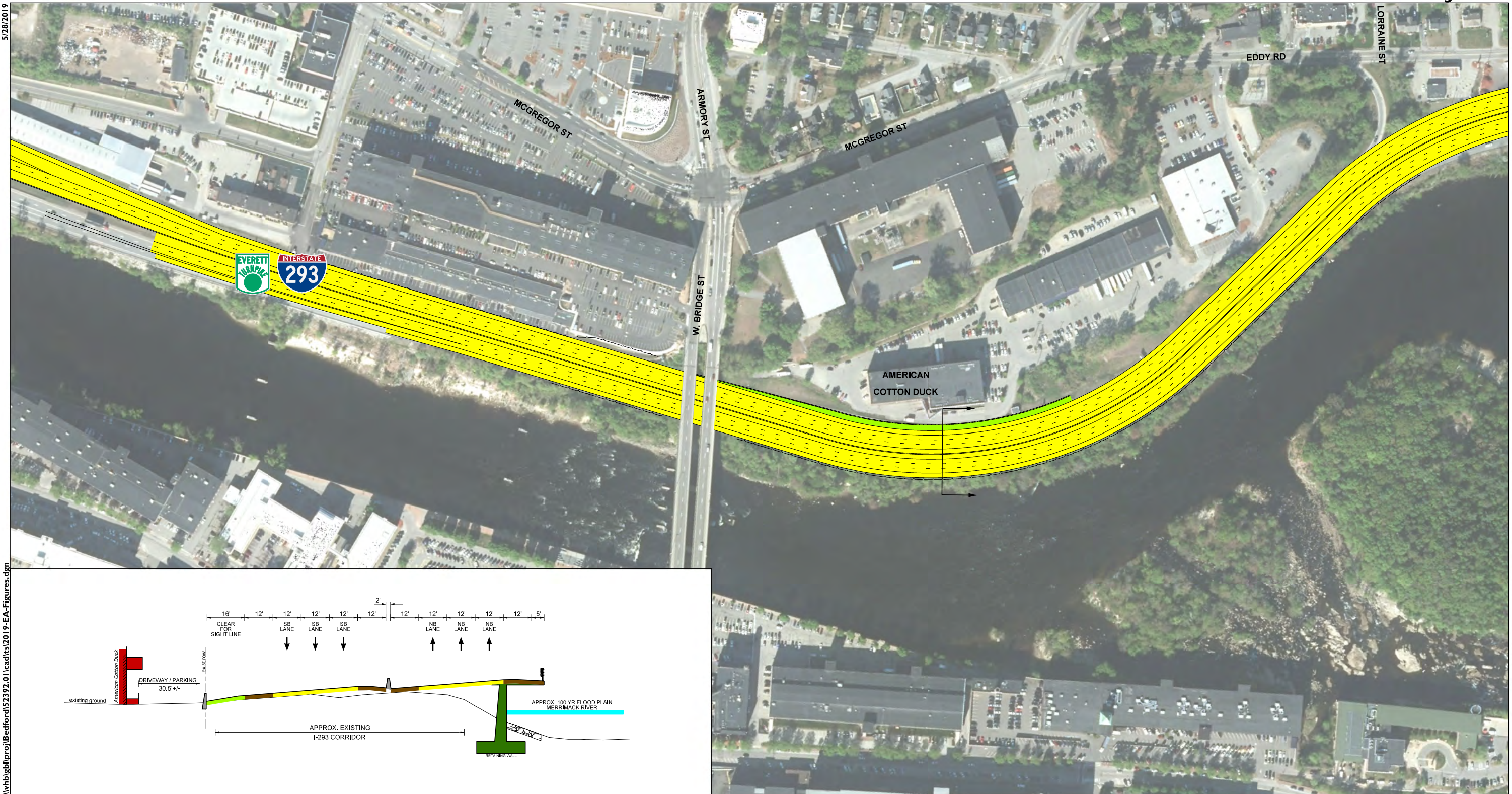
Manchester, NH

I-293 Exits 6 and 7

Exit 7 - Relocated Interchange  
with Goffstown Road Connection



Figure B-6



0 250 500 FEET

Manchester 16099



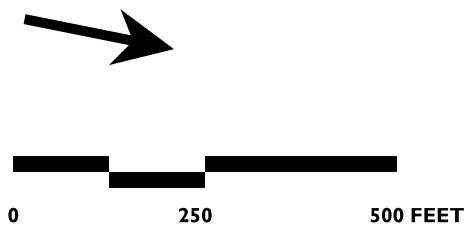
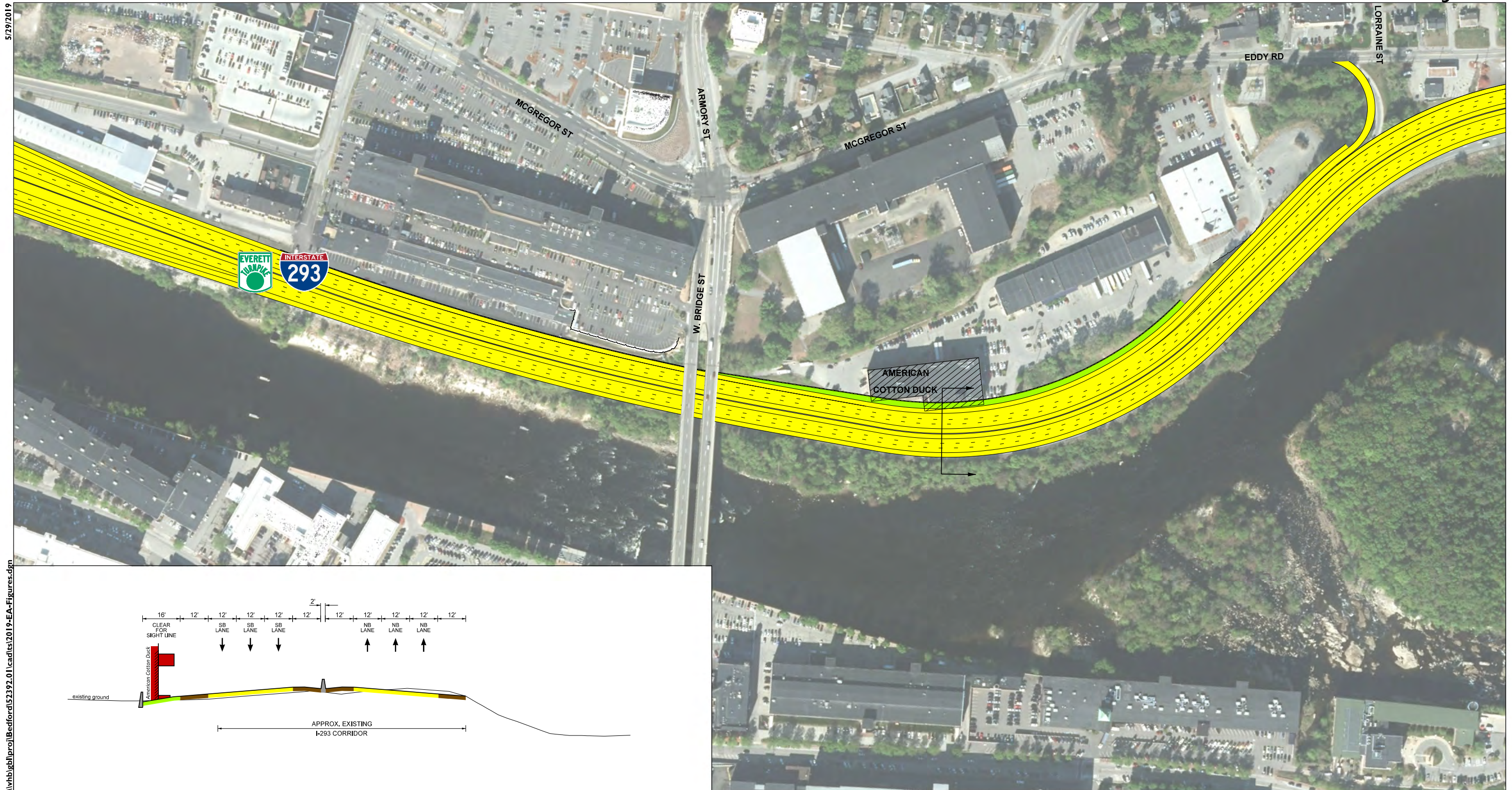
Manchester, NH

I-293 Exits 6 and 7

Mainline Alternative  
Skew Toward River



Figure B-7



Manchester 16099



Manchester, NH

I-293 Exits 6 and 7

Mainline Alternative  
Skew Toward  
Cotton Duck Building



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# Appendix C - Hot Spot Finding and Intersection Microscale Analysis

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# Carbon Monoxide Categorical Hot-Spot Finding Form

## Results

### Urban Intersection

Project Description

Main St/McGregor St & Amory St/West Bridge St - No Build

Parameter	Entered value	Acceptable range	
Analysis Year	2035	≥ 2017	
Angle of cross streets for intersection (degrees)	90	90	
Maximum grade for intersection (%)	2	≤ 2	
Maximum grade (%) on cross street for intersection	0	0	
Number of through lanes			
Approach 1	2	≤ 4	
Approach 2	2	≤ 4	
Approach 3	2	≤ 4	
Approach 4	3	≤ 4	
Number of left turn lanes			
Approach 1	1	≤ 2	
Approach 2	1	≤ 2	
Approach 3	1	≤ 2	
Approach 4	1	≤ 2	
Lane width (ft)	12	12	
Median width (ft)	0	0	
Peak hour average approach speed (mph)			
Approach 1	30	≥ 25	
Approach 2	30	≥ 25	
Approach 3	30	≥ 25	
Approach 4	30	≥ 25	
Maximum approach volume (vph)			
Approach 1	995	≤ 2640	
Approach 2	800	≤ 2640	
Approach 3	685	≤ 2640	
Approach 4	1475	≤ 2640	
Level of Service	D	A through E	
Ambient temperature (°F)	32	≥ -10	
Heavy-duty trucks (%)	5	≥ 5	
1-hour background CO concentration (ppm)	0.5	≤ 29.5	
8-hour background CO concentration (ppm)	0.4	≤ 5.1	
Persistence Factor	0.7	≤ 0.7	

**If all checks are green**, the project parameters entered on the form are within the acceptable range to rely on FHWA's categorical finding for the intersection being analyzed for the project. All intersections requiring analysis must fall within the acceptable range for all the parameters in order to rely on the CO categorical hot-spot finding. Reliance on the CO categorical hot-spot finding is still subject to existing interagency consultation and the public involvement requirements under NEPA and the conformity rule (40 CFR 93.105) for this project.

**If any of the checks are red**, as indicted by the red X(s) above, one or more of the project parameters entered on the form fall outside the acceptable range to rely on the FHWA's categorical finding for the intersection being analyzed for this project. A project specific CO hot-spot analysis will be necessary to meet the requirements of 40 CFR 93.116(a) of the transportation conformity rule.

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# Carbon Monoxide Categorical Hot-Spot Finding Form

## Results

### Urban Intersection

Project Description

Main St/McGregor St & Amory St/West Bridge St - Build

Parameter	Entered value	Acceptable range	
Analysis Year	2035	≥ 2017	
Angle of cross streets for intersection (degrees)	90	90	
Maximum grade for intersection (%)	2	≤ 2	
Maximum grade (%) on cross street for intersection	0	0	
Number of through lanes			
Approach 1	2	≤ 4	
Approach 2	2	≤ 4	
Approach 3	2	≤ 4	
Approach 4	3	≤ 4	
Number of left turn lanes			
Approach 1	1	≤ 2	
Approach 2	1	≤ 2	
Approach 3	1	≤ 2	
Approach 4	1	≤ 2	
Lane width (ft)	12	12	
Median width (ft)	0	0	
Peak hour average approach speed (mph)			
Approach 1	30	≥ 25	
Approach 2	30	≥ 25	
Approach 3	30	≥ 25	
Approach 4	30	≥ 25	
Maximum approach volume (vph)			
Approach 1	1275	≤ 2640	
Approach 2	565	≤ 2640	
Approach 3	405	≤ 2640	
Approach 4	1575	≤ 2640	
Level of Service	D	A through E	
Ambient temperature (°F)	32	≥ -10	
Heavy-duty trucks (%)	5	≥ 5	
1-hour background CO concentration (ppm)	0.5	≤ 29.5	
8-hour background CO concentration (ppm)	0.4	≤ 5.1	
Persistence Factor	0.7	≤ 0.7	

**If all checks are green**, the project parameters entered on the form are within the acceptable range to rely on FHWA's categorical finding for the intersection being analyzed for the project. All intersections requiring analysis must fall within the acceptable range for all the parameters in order to rely on the CO categorical hot-spot finding. Reliance on the CO categorical hot-spot finding is still subject to existing interagency consultation and the public involvement requirements under NEPA and the conformity rule (40 CFR 93.105) for this project.

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# Carbon Monoxide Categorical Hot-Spot Finding Form

## Results

### Urban Intersection

**Project Description**  
Fletcher St/Riverfront Dr & Amoskeag St - No Build

Parameter	Entered value	Acceptable range	
Analysis Year	2035	≥ 2017	
Angle of cross streets for intersection (degrees)	90	90	
Maximum grade for intersection (%)	2	≤ 2	
Maximum grade (%) on cross street for intersection	0	0	
Number of through lanes			
Approach 1	1	≤ 4	
Approach 2	2	≤ 4	
Approach 3	1	≤ 4	
Approach 4	2	≤ 4	
Number of left turn lanes			
Approach 1	0	≤ 2	
Approach 2	1	≤ 2	
Approach 3	0	≤ 2	
Approach 4	1	≤ 2	
Lane width (ft)	12	12	
Median width (ft)	0	0	
Peak hour average approach speed (mph)			
Approach 1	25	≥ 25	
Approach 2	30	≥ 25	
Approach 3	25	≥ 25	
Approach 4	30	≥ 25	
Maximum approach volume (vph)			
Approach 1	31	≤ 2640	
Approach 2	1361	≤ 2640	
Approach 3	25	≤ 2640	
Approach 4	2086	≤ 2640	
Level of Service	B	A through E	
Ambient temperature (°F)	32	≥ -10	
Heavy-duty trucks (%)	5	≥ 5	
1-hour background CO concentration (ppm)	0.5	≤ 29.5	
8-hour background CO concentration (ppm)	0.4	≤ 5.1	
Persistence Factor	0.7	≤ 0.7	

**If all checks are green**, the project parameters entered on the form are within the acceptable range to rely on FHWA's categorical finding for the intersection being analyzed for the project. All intersections requiring analysis must fall within the acceptable range for all the parameters in order to rely on the CO categorical hot-spot finding. Reliance on the CO categorical hot-spot finding is still subject to existing interagency consultation and the public involvement requirements under NEPA and the conformity rule (40 CFR 93.105) for this project.

**If any of the checks are red**, as indicted by the red X(s) above, one or more of the project parameters entered on the form fall outside the acceptable range to rely on the FHWA's categorical finding for the intersection being analyzed for this project. A project specific CO hot-spot analysis will be necessary to meet the requirements of 40 CFR 93.116(a) of the transportation conformity rule.

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# Carbon Monoxide Categorical Hot-Spot Finding Form

## Results

### Urban Intersection

**Project Description**  
Fletcher St/Riverfront Dr & Amoskeag St - Build

Parameter	Entered value	Acceptable range	
Analysis Year	2035	≥ 2017	
Angle of cross streets for intersection (degrees)	90	90	
Maximum grade for intersection (%)	2	≤ 2	
Maximum grade (%) on cross street for intersection	0	0	
Number of through lanes			
Approach 1	1	≤ 4	
Approach 2	2	≤ 4	
Approach 3	1	≤ 4	
Approach 4	2	≤ 4	
Number of left turn lanes			
Approach 1	0	≤ 2	
Approach 2	1	≤ 2	
Approach 3	0	≤ 2	
Approach 4	1	≤ 2	
Lane width (ft)	12	12	
Median width (ft)	0	0	
Peak hour average approach speed (mph)			
Approach 1	25	≥ 25	
Approach 2	30	≥ 25	
Approach 3	25	≥ 25	
Approach 4	30	≥ 25	
Maximum approach volume (vph)			
Approach 1	31	≤ 2640	
Approach 2	1506	≤ 2640	
Approach 3	25	≤ 2640	
Approach 4	1711	≤ 2640	
Level of Service	A	A through E	
Ambient temperature (°F)	32	≥ -10	
Heavy-duty trucks (%)	5	≥ 5	
1-hour background CO concentration (ppm)	0.5	≤ 29.5	
8-hour background CO concentration (ppm)	0.4	≤ 5.1	
Persistence Factor	0.7	≤ 0.7	

**If all checks are green**, the project parameters entered on the form are within the acceptable range to rely on FHWA's categorical finding for the intersection being analyzed for the project. All intersections requiring analysis must fall within the acceptable range for all the parameters in order to rely on the CO categorical hot-spot finding. Reliance on the CO categorical hot-spot finding is still subject to existing interagency consultation and the public involvement requirements under NEPA and the conformity rule (40 CFR 93.105) for this project.

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# Carbon Monoxide Categorical Hot-Spot Finding Form

## Results

### Urban Intersection

Project Description

Dunbarton Rd & New E-W Road & HH driveway - Build

Parameter	Entered value	Acceptable range	
Analysis Year	2035	≥ 2017	
Angle of cross streets for intersection (degrees)	90	90	
Maximum grade for intersection (%)	1	≤ 2	
Maximum grade (%) on cross street for intersection	0	0	
Number of through lanes			
Approach 1	2	≤ 4	
Approach 2	1	≤ 4	
Approach 3	2	≤ 4	
Approach 4	2	≤ 4	
Number of left turn lanes			
Approach 1	0	≤ 2	
Approach 2	1	≤ 2	
Approach 3	0	≤ 2	
Approach 4	1	≤ 2	
Lane width (ft)	12	12	
Median width (ft)	0	0	
Peak hour average approach speed (mph)			
Approach 1	30	≥ 25	
Approach 2	30	≥ 25	
Approach 3	30	≥ 25	
Approach 4	30	≥ 25	
Maximum approach volume (vph)			
Approach 1	160	≤ 2640	
Approach 2	385	≤ 2640	
Approach 3	575	≤ 2640	
Approach 4	845	≤ 2640	
Level of Service	E	A through E	
Ambient temperature (°F)	32	≥ -10	
Heavy-duty trucks (%)	5	≥ 5	
1-hour background CO concentration (ppm)	0.5	≤ 29.5	
8-hour background CO concentration (ppm)	0.4	≤ 5.1	
Persistence Factor	0.7	≤ 0.7	

**If all checks are green**, the project parameters entered on the form are within the acceptable range to rely on FHWA's categorical finding for the intersection being analyzed for the project. All intersections requiring analysis must fall within the acceptable range for all the parameters in order to rely on the CO categorical hot-spot finding. Reliance on the CO categorical hot-spot finding is still subject to existing interagency consultation and the public involvement requirements under NEPA and the conformity rule (40 CFR 93.105) for this project.

**If any of the checks are red**, as indicted by the red X(s) above, one or more of the project parameters entered on the form fall outside the acceptable range to rely on the FHWA's categorical finding for the intersection being analyzed for this project. A project specific CO hot-spot analysis will be necessary to meet the requirements of 40 CFR 93.116(a) of the transportation conformity rule.

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I-293 Exit 6-7  
Intersection Ranking Table

Intersection Name	Signalized/ Unsignalized	No Build				Build			
		AM Peak		PM Peak		AM Peak		PM Peak	
		Total Volume	LOS	Total Volume	LOS	Total Volume	LOS	Total Volume	LOS
Exit 6 SB On Ramp/Exit 6 NB On Ramp & Exit 6 NB Off Ramp/Exit 6 SB Off Ramp & Goffstown Rd	Signalized	2755	A	2950	B	4530	C	4735	B
Fletcher St/River Front Dr & Amoskeag St	Signalized	3417	B	3503	B	3312	B	3273	A
Main St/McGregor St & Amory St/West Bridge St	Signalized	3180	E	3955	D	2925	E	3820	D
New E-W Rd & Exit 7 SB Ramps	Signalized					2780	C	2650	C
Elm St & West Bridge St/Bridge St	Signalized	2740	C	3390	D	2735	C	3560	D
Exit 7 NB Off Ramp/Exit 7 NB On Ramp & New E-W Road	Signalized	-	-	-	-	2641	E	3236	F
S. Main St/Main St & Granite St	Signalized	2295	C	2675	D	2615	C	2700	C
Elm St & Amoskeag St/Salmon St	Signalized	2840	D	2745	D	2345	C	2555	C
Coolidge Ave & Goffstown Rd	Unsignalized	1828	F	1840	G	2256	F	2145	E
Dunbarton Rd & New E-W Road & HH driveway	Signalized	-	-	-	-	2060	C	1965	E
New E-W Rd & Country Club Dr & Front St	Signalized	1715	C	2210	H	1965	B	2315	B
Goffstown Rd & Straw Rd	Unsignalized	1270	D	1295	B	1185	D	1265	D
Eddy Rd & Exit 6 SB On-Ramp	Unsignalized	1920	B	1760	B	730	A	770	A
Front St & Dunbarton Rd/Business Lot	Unsignalized	1497	G	1814	H	548	A	618	A

I-293 Exit 6-7 Microscale Analysis																
Free Flow Links - No Build																
ID	Intersection	Name	X1 (ft)	Y1 (ft)	X2 (m)	Y2 (m)	Width (ft)	Width (m)	Width + 6 (m)	Speed	Elev1 (ft)	Elev2(m)	Length(ft)	Grade	Volume	Emission Factor (g/mi)
1	Exit6_NB (PM)	Eddy_S	1035161.474	184251.3374	315517.21713	56159.80764	-	-	-	-	228	69	-	-	-	-
1	Exit6_NB (PM)	Eddy_S	1035138.557	184127.3791	315510.23213	56122.02514	-	-	-	-	-	-	126	-	-	-
1	Exit6_NB (PM)	Eddy_S	1035159.911	183743.0041	315516.74088	56004.86764	12	3.6576	9.6576	30	208	63	385	-3.9	1150	0.79
2	Exit6_NB (PM)	Amoskeag_E	1035164.533	184260.3479	315518.14964	56162.55403	-	-	-	-	228	69	-	-	-	-
2	Exit6_NB (PM)	Amoskeag_E	1035258.856	184233.1609	315546.89936	56154.26746	-	-	-	-	-	-	98	-	-	-
2	Exit6_NB (PM)	Amoskeag_E	1035508.869	184232.978	315623.10338	56154.21170	24	7.3152	13.3152	30	217	66	250	-3.2	1570	1.79
3	Exit6_NB (PM)	Amosk_to_Eddy	1035171.369	183748.9503	315520.23338	56006.68004	-	-	-	-	207	63	-	-	-	-
3	Exit6_NB (PM)	Amosk_to_Eddy	1035158.175	184027.4225	315516.21172	56091.55837	-	-	-	-	-	-	279	-	-	-
3	Exit6_NB (PM)	Amosk_to_Eddy	1035210.258	184150.3391	315532.08672	56129.02337	-	-	-	-	-	-	133	-	-	-
3	Exit6_NB (PM)	Amosk_to_Eddy	1035302.619	184206.5891	315560.23838	56146.16837	-	-	-	-	-	-	108	-	-	-
3	Exit6_NB (PM)	Amosk_to_Eddy	1035504.008	184216.3114	315621.62172	56149.13170	12	3.6576	9.6576	30	217	66	202	1.4	770	1.27
4	Exit6_NB (PM)	Goff_to_Eddy	1035130.397	184119.0891	315507.74505	56119.49837	-	-	-	-	225	69	-	-	-	-
4	Exit6_NB (PM)	Goff_to_Eddy	1035041.508	184267.0058	315480.65172	56164.58337	-	-	-	-	-	-	173	-	-	-
4	Exit6_NB (PM)	Goff_to_Eddy	1034922.064	184332.978	315444.24505	56184.69170	-	-	-	-	-	-	136	-	-	-
4	Exit6_NB (PM)	Goff_to_Eddy	1034792.203	184341.3114	315404.66339	56187.23170	12	3.6576	9.6576	30	250	76	130	5.7	620	0.66
5	Exit6_NB (PM)	Goffstown_W	1035160.258	184251.728	315516.84672	56159.92670	-	-	-	-	228	69	-	-	-	-
5	Exit6_NB (PM)	Goffstown_W	1034969.286	184346.1725	315458.63838	56188.71337	-	-	-	-	-	-	213	-	-	-
5	Exit6_NB (PM)	Goffstown_W	1034881.092	184358.6725	315431.75672	56192.52337	-	-	-	-	-	-	89	-	-	-
5	Exit6_NB (PM)	Goffstown_W	1034793.592	184346.1725	315405.08672	56188.71337	12	3.6576	9.6576	30	250	76	88	5.6	1160	2.63
6	Exit6_NB (PM)	Front_N	1035161.647	184251.728	315517.27005	56159.92670	-	-	-	-	228	69	-	-	-	-
6	Exit6_NB (PM)	Front_N	1035215.119	184411.4503	315533.56838	56208.61004	-	-	-	-	-	-	168	-	-	-
6	Exit6_NB (PM)	Front_N	1035222.064	184519.0891	315535.68505	56241.41837	36	10.9728	16.9728	30	222	68	108	-2.2	1400	1.62





I-293 Exit 6-7 Microscale Analysis																	
Queue Links - Build																	
ID	Intersection	Name	# of lanes	X1 (ft)	Y1 (ft)	X2 (m)	Y2 (m)	Width (ft)	Width (m)	Signal	Red	Lost	Volume	EF (g/hr)	Sat.Flow	Signal Type	Arrival Rate
Exit6_Build (PM)	Amoskeag_W_Turn_Q	-	-	1035236.97	184284.61	315540.23	56169.95	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	Amoskeag_W_Turn_Q	-	-	1035073.43	184353.88	315490.38	56191.06	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	Amoskeag_W_Turn_Q	-	2	1035010.41	184367.94	315471.17	56195.35	24	7.32	90	57	2	315	5.67	3200	2	3
Exit6_Build (PM)	Amoskeag_E_Turn_Q	-	-	1035537.49	184160.65	315631.83	56132.17	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	Amoskeag_E_Turn_Q	-	2	1035899.99	184000.76	315742.32	56083.43	24	7.32	90	58	2	480	5.67	3200	2	3
Exit6_Build (PM)	I293_SB_Off_W_Q	-	-	1035241.14	184346.41	315541.50	56188.79	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	I293_SB_Off_W_Q	-	-	1035264.75	184399.19	315548.69	56204.87	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	I293_SB_Off_W_Q	-	-	1035226.55	184522.11	315537.05	56242.34	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	I293_SB_Off_W_Q	-	1	1035205.02	184689.47	315530.49	56293.35	12	3.66	90	57	2	300	5.67	1600	2	3
Exit6_Build (PM)	I293_SB_Off_E_Q	-	-	1035349.47	184308.91	315574.52	56177.36	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	I293_SB_Off_E_Q	-	-	1035279.33	184420.72	315553.14	56211.44	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	I293_SB_Off_E_Q	-	-	1035239.05	184540.16	315540.86	56247.84	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	I293_SB_Off_E_Q	-	2	1035222.39	184697.80	315535.78	56295.89	24	7.32	90	57	2	480	5.67	3200	2	3
Exit6_Build (PM)	I293_NB_Off_E_Q	-	-	1035620.28	184056.27	315657.06	56100.35	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	I293_NB_Off_E_Q	-	-	1035556.05	184011.13	315637.48	56086.59	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	I293_NB_Off_E_Q	-	2	1035547.89	183772.41	315635.00	56013.83	24	7.32	90	58	2	660	5.67	3200	2	3
Exit6_Build (PM)	I293_NB_Off_W_Q	-	-	1035424.10	184138.91	315597.27	56125.54	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	I293_NB_Off_W_Q	-	-	1035483.48	184035.26	315615.36	56093.95	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	I293_NB_Off_W_Q	-	-	1035523.93	183896.55	315627.69	56051.67	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	I293_NB_Off_W_Q	-	2	1035524.80	183771.55	315627.96	56013.57	24	7.32	90	57	2	700	5.67	3200	2	3
Exit6_Build (PM)	Amoskeag_W_Q	-	-	1035228.31	184262.04	315537.59	56163.07	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	Amoskeag_W_Q	-	-	1035069.63	184328.70	315489.22	56183.39	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	Amoskeag_W_Q	-	2	1034972.76	184348.84	315459.70	56189.53	24	7.32	90	65	2	365	5.67	3200	2	3
Exit6_Build (PM)	Amoskeag_E_Q	-	-	1035547.06	184182.52	315634.75	56138.83	-	-	-	-	-	-	-	-	-	-
Exit6_Build (PM)	Amoskeag_E_Q	-	2	1035905.05	184024.54	315743.86	56090.68	24	7.32	90	66	2	230	5.67	3200	2	3
Exit7_L_Build (PM)	L_New_Road_E_Q	-	-	1031488.83	190251.89	314397.80	57988.78	-	-	-	-	-	-	-	-	-	-
Exit7_L_Build (PM)	L_New_Road_E_Q	-	2	1031775.98	190157.10	314485.32	57959.88	24	7.32	120	75	2	625	5.67	3200	2	3
Exit7_L_Build (PM)	L_SB_Off_Q	-	-	1031427.02	190311.96	314378.96	58007.09	-	-	-	-	-	-	-	-	-	-
Exit7_L_Build (PM)	L_SB_Off_Q	-	-	1031465.22	190376.89	314390.60	58026.88	-	-	-	-	-	-	-	-	-	-
Exit7_L_Build (PM)	L_SB_Off_Q	-	-	1031523.20	190434.88	314408.27	58044.55	-	-	-	-	-	-	-	-	-	-
Exit7_L_Build (PM)	L_SB_Off_Q	-	2	1031567.30	190475.85	314421.71	58057.04	24	7.32	120	98	2	390	5.67	3200	2	3
Exit7_L_Build (PM)	L_New_Road_W_Turn_Q	-	-	1031380.06	190259.71	314364.64	57991.16	-	-	-	-	-	-	-	-	-	-
Exit7_L_Build (PM)	L_New_Road_W_Turn_Q	-	1	1031239.44	190305.28	314321.78	58005.05	12	3.66	120	67	2	540	5.67	1600	2	3
Exit7_L_Build (PM)	L_New_Road_W_Q	-	-	1031375.98	190248.42	314363.40	57987.72	-	-	-	-	-	-	-	-	-	-
Exit7_L_Build (PM)	L_New_Road_W_Q	-	1	1031233.62	190291.82	314320.01	58000.95	12	3.66	120	22	2	440	5.67	1600	2	3
Exit7_R_Build (PM)	R_New_Road_W_Q	-	-	1032128.43	189989.72	314592.75	57908.87	-	-	-	-	-	-	-	-	-	-
Exit7_R_Build (PM)	R_New_Road_W_Q	-	1	1031888.41	190066.76	314519.59	57932.35	12	3.66	120	56	2	225	5.67	1600	2	3
Exit7_R_Build (PM)	R_New_Road_Turn_W_Q	-	-	1032133.21	190007.52	314594.20	57914.29	-	-	-	-	-	-	-	-	-	-
Exit7_R_Build (PM)	R_New_Road_Turn_W_Q	-	2	1031896.23	190083.69	314521.97	57937.51	24	7.32	120	103	2	385	5.67	3200	2	3
Exit7_R_Build (PM)	R_NB_Off_Ramp_Q	-	-	1032262.46	189943.33	314633.60	57894.73	-	-	-	-	-	-	-	-	-	-
Exit7_R_Build (PM)	R_NB_Off_Ramp_Q	-	2	1032322.33	189774.58	314651.85	57843.29	24	7.32	120	64	2	591	5.67	3200	2	3
Exit7_R_Build (PM)	R_New_Road_E_Q	-	-	1032284.79	190006.69	314640.40	57914.04	-	-	-	-	-	-	-	-	-	-
Exit7_R_Build (PM)	R_New_Road_E_Q	-	-	1032377.89	189998.88	314668.78	57911.66	-	-	-	-	-	-	-	-	-	-
Exit7_R_Build (PM)	R_New_Road_E_Q	-	-	1032522.42	190004.96	314712.83	57913.51	-	-	-	-	-	-	-	-	-	-
Exit7_R_Build (PM)	R_New_Road_E_Q	-	2	1032661.87	190033.45	314755.34	57922.20	24	7.32	120	73	2	690	5.67	3200	2	3

I-293 Exits 6-7 Microscale Analysis							
Receptors - No Build							
#	Intersection	ID	Desc	X	Y	Height	Conc
1	Exit6NoBuild	D1	NE1	315524.5	56164.5	1.8	0.1
2	Exit6NoBuild	D11	NE2	315547.28	56157.94	1.8	0.1
3	Exit6NoBuild	D12	NE3	315572.26	56158.91	1.8	0.1
4	Exit6NoBuild	D13	NE4	315597.25	56159.87	1.8	0.1
5	Exit6NoBuild	D14	NE5	315622.23	56160.84	1.8	0.2
10	Exit6NoBuild	D46	NW1	315404.4	56193.49	1.8	0.1
11	Exit6NoBuild	D47	NW2	315432.43	56197.3	1.8	0.1
12	Exit6NoBuild	D48	NW3	315460.78	56193.04	1.8	0.1
13	Exit6NoBuild	D49	NW4	315483.19	56181.96	1.8	0.2
14	Exit6NoBuild	D50	NW5	315505.6	56170.88	1.8	0.1
15	Exit6NoBuild	D51	NW6	315517.16	56186.33	1.8	0.1
16	Exit6NoBuild	D52	NW7	315525.1	56210.03	1.8	0.1
17	Exit6NoBuild	D53	NW8	315525.17	56210.26	1.8	0.2
18	Exit6NoBuild	D54	NW9	315526.78	56235.21	1.8	0.2
19	Exit6NoBuild	D2	SE1	315517.42	56134.35	1.8	0.1
20	Exit6NoBuild	D3	SE2	315515.09	56121.72	1.8	0.1
21	Exit6NoBuild	D4	SE3	315516.2	56108.2	1.8	0.1
22	Exit6NoBuild	D15	SE4	315598.38	56146.59	1.8	0.3
23	Exit6NoBuild	D16	SE5	315573.4	56145.63	1.8	0.0
24	Exit6NoBuild	D17	SE6	315544.66	56144.85	1.8	0.1
25	Exit6NoBuild	D18	SE7	315520.61	56151.69	1.8	0.2
26	Exit6NoBuild	D19	SE8	315521.52	56116.46	1.8	0.2
27	Exit6NoBuild	D20	SE9	315529.58	56133.15	1.8	0.1
28	Exit6NoBuild	D21	SE10	315550.93	56146.15	1.8	0.0
29	Exit6NoBuild	D22	SE11	315621.85	56144.31	1.8	0.1
30	Exit6NoBuild	D23	SE12	315561.7	56141.4	1.8	0.1
31	Exit6NoBuild	D24	SE13	315535.93	56125.71	1.8	0.1
32	Exit6NoBuild	D25	SE14	315526.17	56102.69	1.8	0.1
33	Exit6NoBuild	D26	SE15	315521.09	56090.69	1.8	0.0
34	Exit6NoBuild	D27	SE16	315522.27	56065.72	1.8	0.0
35	Exit6NoBuild	D28	SE17	315523.45	56040.74	1.8	0.1
36	Exit6NoBuild	D29	SE18	315524.64	56015.77	1.8	0.1
37	Exit6NoBuild	D5	SW1	315511.92	56004.6	1.8	0.1
38	Exit6NoBuild	D6	SW2	315510.53	56029.56	1.8	0.1
39	Exit6NoBuild	D7	SW3	315509.15	56054.52	1.8	0.1
40	Exit6NoBuild	D8	SW4	315507.76	56079.48	1.8	0.1
41	Exit6NoBuild	D9	SW5	315506.37	56104.45	1.8	0.1
42	Exit6NoBuild	D10	SW6	315510.03	56147.49	1.8	0.2
43	Exit6NoBuild	D30	SW7	315503.61	56117.01	1.8	0.1
44	Exit6NoBuild	D31	SW8	315490.73	56138.44	1.8	0.1
45	Exit6NoBuild	D32	SW9	315477.18	56160.98	1.8	0.1
46	Exit6NoBuild	D33	SW10	315455.3	56173.07	1.8	0.1
47	Exit6NoBuild	D34	SW11	315442.86	56179.94	1.8	0.0



48	Exit6NoBuild	D35	SW12	315421.9	56182.1	1.8	0.2
49	Exit6NoBuild	D36	SW13	315439.1	56188.6	1.8	0.2
50	Exit6NoBuild	D37	SW14	315448.8	56187.4	1.8	0.2
51	Exit6NoBuild	D38	SW15	315484.79	56167.07	1.8	0.2
52	Exit6NoBuild	D39	SW16	315499.6	56147.6	1.8	0.1
53	Exit6NoBuild	D40	SW17	315507.3	56132.3	1.8	0.1
54	Exit6NoBuild	D41	SW18	315508.7	56155.6	1.8	0.2
55	Exit6NoBuild	D42	SW19	315492.3	56166.68	1.8	0.2
56	Exit6NoBuild	D43	SW20	315469.89	56177.76	1.8	0.2
57	Exit6NoBuild	D44	SW21	315457.19	56184.04	1.8	0.3
58	Exit6NoBuild	D45	SW22	315403.5	56180.6	1.8	0.1

I-293 Exits 6-7 Microscale Analysis							
Receptors - Build							
#	Intersection	ID	Desc	X	Y	Height	Conc
1	Exit6Build	D1	N1	315589.9	56171.4	1.8	0.2
2	Exit6Build	D66	N2	315540.26	56316.37	1.8	0.1
3	Exit6Build	D67	N3	315543.88	56291.63	1.8	0.1
4	Exit6Build	D68	N4	315547.49	56266.9	1.8	0.2
5	Exit6Build	D69	N5	315551.11	56242.16	1.8	0.1
6	Exit6Build	D70	N6	315552.97	56229.44	1.8	0.2
7	Exit6Build	D71	N7	315565.95	56208.07	1.8	0.2
8	Exit6Build	D72	N8	315578.93	56186.7	1.8	0.2
9	Exit6Build	D73	N9	315603.42	56177.73	1.8	0.1
10	Exit6Build	D74	N10	315611.82	56197.87	1.8	0.1
11	Exit6Build	D75	N11	315608.41	56222.63	1.8	0.1
12	Exit6Build	D76	N12	315605	56247.4	1.8	0.1
13	Exit6Build	D77	N13	315601.59	56272.17	1.8	0.1
14	Exit6Build	D2	NE1	315615.05	56158.23	1.8	0.2
15	Exit6Build	D3	NE2	315637.97	56148.23	1.8	0.2
16	Exit6Build	D4	NE3	315660.88	56138.23	1.8	0.2
17	Exit6Build	D5	NE4	315683.8	56128.24	1.8	0.2
18	Exit6Build	D6	NE5	315706.71	56118.24	1.8	0.2
19	Exit6Build	D7	NE6	315729.62	56108.24	1.8	0.2
20	Exit6Build	D8	NE7	315752.54	56098.25	1.8	0.2
21	Exit6Build	D9	NE8	315775.45	56088.25	1.8	0.2
22	Exit6Build	D10	NE9	315798.37	56078.25	1.8	0.2
23	Exit6Build	D11	NE10	315821.28	56068.26	1.8	0.2
24	Exit6Build	D78	NE11	315614.11	56278.74	1.8	0.1
25	Exit6Build	D79	NE12	315617.52	56253.97	1.8	0.1
26	Exit6Build	D80	NE13	315620.93	56229.2	1.8	0.1
27	Exit6Build	D81	NE14	315624.34	56204.44	1.8	0.1
28	Exit6Build	D82	NE15	315613.72	56168.49	1.8	0.2
29	Exit6Build	D169	NE16	315608	56163.8	1.8	0.2
30	Exit6Build	D28	NW1	315444.11	56210.52	1.8	0.2
31	Exit6Build	D29	NW2	315469.07	56209.1	1.8	0.3
32	Exit6Build	D30	NW3	315500.44	56206.39	1.8	0.2
33	Exit6Build	D31	NW4	315523.46	56196.65	1.8	0.2
34	Exit6Build	D32	NW5	315545.4	56188.9	1.8	0.2
35	Exit6Build	D60	NW6	315559.6	56183.5	1.8	0.3
36	Exit6Build	D61	NW7	315549.6	56199.1	1.8	0.2
37	Exit6Build	D62	NW8	315536.4	56225.27	1.8	0.2
38	Exit6Build	D63	NW9	315532.78	56250.01	1.8	0.1
39	Exit6Build	D64	NW10	315529.17	56274.74	1.8	0.1
40	Exit6Build	D65	NW11	315525.55	56299.48	1.8	0.1
41	Exit6Build	D19	S1	315649.56	56108.69	1.8	0.2
42	Exit6Build	D20	S2	315626.65	56118.69	1.8	0.2
43	Exit6Build	D21	S3	315603.73	56128.69	1.8	0.2
44	Exit6Build	D22	S4	315580.3	56134	1.8	0.2

45	Exit6Build	D33	S5	315615.05	56105.91	1.8	0.3
46	Exit6Build	D34	S6	315625.64	56088.01	1.8	0.2
47	Exit6Build	D36	S7	315621.24	55995.43	1.8	0.1
48	Exit6Build	D37	S8	315620.89	56020.42	1.8	0.2
49	Exit6Build	D38	S9	315620.46	56050.82	1.8	0.2
50	Exit6Build	D39	S10	315614.92	56075.2	1.8	0.2
51	Exit6Build	D40	S11	315612.92	56083.99	1.8	0.2
52	Exit6Build	D41	S12	315599.82	56105.28	1.8	0.2
53	Exit6Build	D42	S13	315586.72	56126.58	1.8	0.2
54	Exit6Build	D46	S14	315628	56081.9	1.8	0.2
55	Exit6Build	D47	S15	315643.35	56101.87	1.8	0.2
56	Exit6Build	D48	S16	315564.97	56126.6	1.8	0.1
57	Exit6Build	D49	S17	315556.84	56100.62	1.8	0.1
58	Exit6Build	D50	S18	315558.93	56075.71	1.8	0.1
59	Exit6Build	D51	S19	315561.02	56050.79	1.8	0
60	Exit6Build	D52	S20	315563.12	56025.88	1.8	0
61	Exit6Build	D53	S21	315565.21	56000.97	1.8	0
62	Exit6Build	D167	S22	315603.7	56127	1.8	0.2
63	Exit6Build	D168	S23	315650.5	56106.3	1.8	0.2
64	Exit6Build	D12	SE1	315809.96	56038.72	1.8	0.2
65	Exit6Build	D13	SE2	315787.05	56048.71	1.8	0.2
66	Exit6Build	D14	SE3	315764.13	56058.71	1.8	0.2
67	Exit6Build	D15	SE4	315741.22	56068.71	1.8	0.2
68	Exit6Build	D16	SE5	315718.3	56078.7	1.8	0.2
69	Exit6Build	D17	SE6	315741.22	56068.71	1.8	0.2
70	Exit6Build	D18	SE7	315673	56096.7	1.8	0.2
71	Exit6Build	D35	SE8	315641.5	56000.6	1.8	0.1
72	Exit6Build	D43	SE9	315641.17	56075.22	1.8	0.2
73	Exit6Build	D44	SE10	315641.25	56050.22	1.8	0.2
74	Exit6Build	D45	SE11	315641.34	56025.22	1.8	0.1
75	Exit6Build	D23	SW1	315556.38	56148.4	1.8	0.2
76	Exit6Build	D24	SW2	315533.36	56158.15	1.8	0.2
77	Exit6Build	D25	SW3	315510.33	56167.89	1.8	0.2
78	Exit6Build	D26	SW4	315490.65	56176.22	1.8	0.2
79	Exit6Build	D27	SW5	315465.69	56177.64	1.8	0.2
80	Exit6Build	D54	SW6	315552.21	55996.81	1.8	0
81	Exit6Build	D55	SW7	315550.12	56021.73	1.8	0
82	Exit6Build	D56	SW8	315548.03	56046.64	1.8	0
83	Exit6Build	D57	SW9	315545.93	56071.55	1.8	0.1
84	Exit6Build	D58	SW10	315543.75	56103.35	1.8	0.1
85	Exit6Build	D59	SW11	315551.22	56127.21	1.8	0.1
86	Exit6Build	D170	SW12	315564.5	56142.4	1.8	0.2
87	Exit7Build_L	D88	N1	314406.9	57995.7	1.8	0.1
88	Exit7Build_L	D101	N2	314421.82	58044.35	1.8	0.1
89	Exit7Build_L	D102	N3	314447.9	58052.21	1.8	0
90	Exit7Build_L	D103	N4	314455.82	58044.36	1.8	0
91	Exit7Build_L	D104	N5	314431.75	58037.6	1.8	0

92	Exit7Build_L	D105	N6	314407.5	58018.3	1.8	0.1
93	Exit7Build_L	D106	N7	314395.4	57999	1.8	0.2
94	Exit7Build_L	D112	N8	314444.8	58074.74	1.8	0.1
95	Exit7Build_L	D113	N9	314428.15	58053.9	1.8	0.1
96	Exit7Build_L	D114	N10	314427.08	57989.62	1.8	0.1
97	Exit7Build_L	D115	N11	314450.87	57981.94	1.8	0.1
98	Exit7Build_L	D116	N12	314474.65	57974.25	1.8	0.1
99	Exit7Build_R	D123	N13	314503.39	57960.56	1.8	0.1
100	Exit7Build_R	D124	N14	314527.22	57952.99	1.8	0.1
101	Exit7Build_R	D125	N15	314551.04	57945.42	1.8	0.1
102	Exit7Build_R	D126	N16	314574.87	57937.84	1.8	0.1
103	Exit7Build_R	D127	N17	314598.69	57930.27	1.8	0.1
104	Exit7Build_R	D150	N18	314611.31	57939.77	1.8	0.1
105	Exit7Build_R	D151	N19	314608.49	57954.87	1.8	0.1
106	Exit7Build_R	D152	N20	314595.08	57975.97	1.8	0
107	Exit7Build_R	D153	N21	314584.34	57993.02	1.8	0
108	Exit7Build_R	D154	N22	314574.42	58015.97	1.8	0
109	Exit7Build_R	D171	N23	314612.6	57927	1.8	0.1
110	Exit7Build_R	D135	NE1	314629.8	57921.7	1.8	0.1
111	Exit7Build_R	D136	NE2	314650.43	57918.05	1.8	0.1
112	Exit7Build_R	D137	NE3	314659.9	57919	1.8	0.1
113	Exit7Build_R	D138	NE4	314756.39	57917.4	1.8	0.1
114	Exit7Build_R	D139	NE5	314600.55	58001.43	1.8	0
115	Exit7Build_R	D140	NE6	314616.01	57981.78	1.8	0
116	Exit7Build_R	D141	NE7	314631.48	57962.14	1.8	0
117	Exit7Build_R	D142	NE8	314646.94	57942.49	1.8	0.1
118	Exit7Build_R	D143	NE9	314651.55	57936.63	1.8	0.1
119	Exit7Build_R	D144	NE10	314672.44	57922.9	1.8	0.1
120	Exit7Build_R	D145	NE11	314696.34	57920.9	1.8	0.1
121	Exit7Build_R	D146	NE12	314721.01	57924.97	1.8	0
122	Exit7Build_R	D147	NE13	314745.67	57929.03	1.8	0.1
123	Exit7Build_R	D148	NE14	314644.42	57930.01	1.8	0.1
124	Exit7Build_R	D149	NE15	314628.96	57949.66	1.8	0.1
125	Exit7Build_R	D155	NE16	314583	58029.63	1.8	0
126	Exit7Build_R	D156	NE17	314621.33	57958.57	1.8	0
127	Exit7Build_R	D157	NE18	314625.92	57934	1.8	0.1
128	Exit7Build_L	D95	NW1	314248.11	58027.78	1.8	0.2
129	Exit7Build_L	D96	NW2	314272.89	58024.45	1.8	0.1
130	Exit7Build_L	D97	NW3	314297.67	58021.13	1.8	0.2
131	Exit7Build_L	D98	NW4	314319.08	58018.13	1.8	0.1
132	Exit7Build_L	D99	NW5	314343.05	58011.05	1.8	0.2
133	Exit7Build_L	D100	NW6	314367.03	58003.97	1.8	0.1
134	Exit7Build_L	D107	NW7	314379.64	58021.82	1.8	0.2
135	Exit7Build_L	D108	NW8	314385.63	58031.79	1.8	0.2
136	Exit7Build_L	D109	NW9	314403.74	58049.03	1.8	0.2
137	Exit7Build_L	D110	NW10	314418.64	58063.22	1.8	0.2
138	Exit7Build_L	D111	NW11	314434.2	58082.79	1.8	0

139	Exit7Build_L	D83	S1	314492.11	57936.51	1.8	0.1
140	Exit7Build_L	D84	S2	314468.53	57944.81	1.8	0.1
141	Exit7Build_L	D85	S3	314444.95	57953.12	1.8	0.1
142	Exit7Build_L	D86	S4	314421.37	57961.43	1.8	0
143	Exit7Build_L	D87	S5	314397.79	57969.74	1.8	0.1
144	Exit7Build_L	D89	S6	314373.7	57978.6	1.8	0.1
145	Exit7Build_L	D90	S7	314352.35	57986.83	1.8	0.2
146	Exit7Build_L	D91	S8	314328.37	57993.91	1.8	0.2
147	Exit7Build_L	D92	S9	314314	57998.15	1.8	0.2
148	Exit7Build_L	D93	S10	314289.23	58001.47	1.8	0.2
149	Exit7Build_L	D94	S11	314264.45	58004.8	1.8	0.1
150	Exit7Build_R	D117	S12	314619.22	57898.25	1.8	0.1
151	Exit7Build_R	D118	S13	314595.39	57905.82	1.8	0.2
152	Exit7Build_R	D119	S14	314571.57	57913.39	1.8	0.2
153	Exit7Build_R	D120	S15	314547.74	57920.97	1.8	0.2
154	Exit7Build_R	D121	S16	314523.92	57928.54	1.8	0.1
155	Exit7Build_R	D122	S17	314500.09	57936.11	1.8	0.1
156	Exit7Build_R	D134	S18	314625.5	57896.2	1.8	0.1
157	Exit7Build_R	D160	S19	314655.71	57823.32	1.8	0
158	Exit7Build_R	D161	S20	314645.66	57846.21	1.8	0
159	Exit7Build_R	D162	S21	314635.61	57869.1	1.8	0.1
160	Exit7Build_R	D128	SE1	314759.86	57907.58	1.8	0.1
161	Exit7Build_R	D129	SE2	314735.47	57902.1	1.8	0.1
162	Exit7Build_R	D130	SE3	314719.39	57898.52	1.8	0.1
163	Exit7Build_R	D131	SE4	314694.53	57895.84	1.8	0.1
164	Exit7Build_R	D132	SE5	314683.23	57894.69	1.8	0.1
165	Exit7Build_R	D133	SE6	314659.6	57894.4	1.8	0.2
166	Exit7Build_R	D158	SE7	314644.5	57884.7	1.8	0.2
167	Exit7Build_R	D159	SE8	314651.4	57871	1.8	0.1
168	Exit7Build_R	D163	SE9	314663.65	57856.44	1.8	0.1
169	Exit7Build_R	D164	SE10	314672.08	57832.9	1.8	0.1
170	Exit7Build_R	D165	SE11	314664.51	57825.27	1.8	0.1
171	Exit7Build_R	D166	SE12	314662	57878	1.8	0.1

I-293 Exits 6-7 Microscale Analysis					
Results					
Intersection	Quadrant	Project Increments		Total With Background	
		1-Hour	8-Hour	1-Hour	8-Hour
Exit 6 - No Build	Northeast	0.2	0.1	0.7	0.5
	Southeast	0.3	0.2	0.8	0.6
	Southwest	0.3	0.2	0.8	0.6
	Northwest	0.2	0.1	0.7	0.5
Exit 6 - Build	North	0.2	0.1	0.7	0.5
	Northeast	0.2	0.1	0.7	0.5
	Southeast	0.2	0.1	0.7	0.5
	South	0.3	0.2	0.8	0.6
	Southwest	0.2	0.1	0.7	0.5
	Northwest	0.3	0.2	0.8	0.6
Exit 7 - Build	North	0.2	0.1	0.7	0.5
	Northeast	0.1	0.1	0.6	0.5
	Southeast	0.2	0.1	0.7	0.5
	South	0.2	0.1	0.7	0.5
	Northwest	0.2	0.1	0.7	0.5

Persistance Factor	0.7		NAAQS	
1-Hour Background	0.5	ppm	9	ppm
8-Hour Background	0.4	ppm	35	ppm

Road Output - No Build				
Sort ID	Receptor Number	Receptor ID	Concentration	Angle
1	REC1	D1	0.1	330
2	REC2	D2	0.1	180
3	REC3	D3	0.1	190
4	REC4	D4	0.1	0
5	REC5	D5	0.1	0
6	REC6	D6	0.1	10
7	REC7	D7	0.1	160
8	REC8	D8	0.1	160
9	REC9	D9	0.1	0
10	REC10	D10	0.2	280
11	REC11	D11	0.1	90
12	REC12	D12	0.1	90
13	REC13	D13	0.1	180
14	REC14	D14	0.2	290
15	REC15	D15	0.3	330
16	REC16	D16	0	0
17	REC17	D17	0.1	60
18	REC18	D18	0.2	280
19	REC19	D19	0.2	60
20	REC20	D20	0.1	220
21	REC21	D21	0	0
22	REC22	D22	0.1	0
23	REC23	D23	0.1	190
24	REC24	D24	0.1	340
25	REC25	D25	0.1	330
26	REC26	D26	0	0
27	REC27	D27	0	0
28	REC28	D28	0.1	0
29	REC29	D29	0.1	30
30	REC30	D30	0.1	0
31	REC31	D31	0.1	0
32	REC32	D32	0.1	0
33	REC33	D33	0.1	0
34	REC34	D34	0	0
35	REC35	D35	0.2	20
36	REC36	D36	0.2	310
37	REC37	D37	0.2	90
38	REC38	D38	0.2	90
39	REC39	D39	0.1	20
40	REC40	D40	0.1	80
41	REC41	D41	0.2	110
42	REC42	D42	0.2	120
43	REC43	D43	0.2	130
44	REC44	D44	0.3	110
45	REC45	D45	0.1	20

46	REC46	D46	0.1	10
47	REC47	D47	0.1	10
48	REC48	D48	0.1	70
49	REC49	D49	0.2	190
50	REC50	D50	0.1	0
51	REC51	D51	0.1	0
52	REC52	D52	0.1	0
53	REC53	D53	0.2	110
54	REC54	D54	0.2	260

Road Output - Build				
Sort ID	Receptor Number	Receptor ID	Concentration	Angle
1	REC1	D1	0.2	120
2	REC2	D2	0.2	120
3	REC3	D3	0.2	120
4	REC4	D4	0.2	120
5	REC5	D5	0.2	120
6	REC6	D6	0.2	120
7	REC7	D7	0.2	120
8	REC8	D8	0.2	130
9	REC9	D9	0.2	140
10	REC10	D10	0.2	240
11	REC11	D11	0.2	250
12	REC12	D12	0.2	300
13	REC13	D13	0.2	300
14	REC14	D14	0.2	70
15	REC15	D15	0.2	60
16	REC16	D16	0.2	60
17	REC17	D17	0.2	60
18	REC18	D18	0.2	20
19	REC19	D19	0.2	20
20	REC20	D20	0.2	20
21	REC21	D21	0.2	20
22	REC22	D22	0.2	10
23	REC23	D23	0.2	80
24	REC24	D24	0.2	90
25	REC25	D25	0.2	100
26	REC26	D26	0.2	100
27	REC27	D27	0.2	70
28	REC28	D28	0.2	110
29	REC29	D29	0.3	110
30	REC30	D30	0.2	110
31	REC31	D31	0.2	110
32	REC32	D32	0.2	120
33	REC33	D33	0.3	310
34	REC34	D34	0.2	80
35	REC35	D35	0.1	330
36	REC36	D36	0.1	10
37	REC37	D37	0.2	20
38	REC38	D38	0.2	0
39	REC39	D39	0.2	0
40	REC40	D40	0.2	0
41	REC41	D41	0.2	0
42	REC42	D42	0.2	80
43	REC43	D43	0.2	180
44	REC44	D44	0.2	330
45	REC45	D45	0.1	210

46	REC46	D46	0.2	40
47	REC47	D47	0.2	80
48	REC48	D48	0.1	0
49	REC49	D49	0.1	40
50	REC50	D50	0.1	40
51	REC51	D51	0	0
52	REC52	D52	0	0
53	REC53	D53	0	0
54	REC54	D54	0	0
55	REC55	D55	0	0
56	REC56	D56	0	0
57	REC57	D57	0.1	60
58	REC58	D58	0.1	60
59	REC59	D59	0.1	0
60	REC60	D60	0.3	120
61	REC61	D61	0.2	140
62	REC62	D62	0.2	130
63	REC63	D63	0.1	10
64	REC64	D64	0.1	20
65	REC65	D65	0.1	130
66	REC66	D66	0.1	180
67	REC67	D67	0.1	180
68	REC68	D68	0.2	220
69	REC69	D69	0.1	130
70	REC70	D70	0.2	150
71	REC71	D71	0.2	180
72	REC72	D72	0.2	180
73	REC73	D73	0.1	120
74	REC74	D74	0.1	0
75	REC75	D75	0.1	10
76	REC76	D76	0.1	150
77	REC77	D77	0.1	150
78	REC78	D78	0.1	180
79	REC79	D79	0.1	190
80	REC80	D80	0.1	140
81	REC81	D81	0.1	130
82	REC82	D82	0.2	130
83	REC83	D83	0.1	10
84	REC84	D84	0.1	80
85	REC85	D85	0.1	100
86	REC86	D86	0	0
87	REC87	D87	0.1	290
88	REC88	D88	0.1	140
89	REC89	D89	0.1	0
90	REC90	D90	0.2	290
91	REC91	D91	0.2	290
92	REC92	D92	0.2	90

93	REC93	D93	0.2	80
94	REC94	D94	0.1	0
95	REC95	D95	0.2	110
96	REC96	D96	0.1	90
97	REC97	D97	0.2	100
98	REC98	D98	0.1	100
99	REC99	D99	0.2	260
100	RE100	D100	0.1	50
101	RE101	D101	0.1	0
102	RE102	D102	0	0
103	RE103	D103	0	0
104	RE104	D104	0	0
105	RE105	D105	0.1	250
106	RE106	D106	0.2	130
107	RE107	D107	0.2	50
108	RE108	D108	0.2	80
109	RE109	D109	0.2	90
110	RE110	D110	0.2	210
111	RE111	D111	0	0
112	RE112	D112	0.1	230
113	RE113	D113	0.1	0
114	RE114	D114	0.1	120
115	RE115	D115	0.1	120
116	RE116	D116	0.1	110
117	RE117	D117	0.1	0
118	RE118	D118	0.2	300
119	RE119	D119	0.2	0
120	RE120	D120	0.2	90
121	RE121	D121	0.1	0
122	RE122	D122	0.1	0
123	RE123	D123	0.1	100
124	RE124	D124	0.1	100
125	RE125	D125	0.1	100
126	RE126	D126	0.1	110
127	RE127	D127	0.1	110
128	RE128	D128	0.1	260
129	RE129	D129	0.1	20
130	RE130	D130	0.1	30
131	RE131	D131	0.1	0
132	RE132	D132	0.1	40
133	RE133	D133	0.2	280
134	RE134	D134	0.1	40
135	RE135	D135	0.1	220
136	RE136	D136	0.1	100
137	RE137	D137	0.1	110
138	RE138	D138	0.1	200
139	RE139	D139	0	0

140	RE140	D140	0	0
141	RE141	D141	0	0
142	RE142	D142	0.1	250
143	RE143	D143	0.1	250
144	RE144	D144	0.1	270
145	RE145	D145	0.1	210
146	RE146	D146	0	0
147	RE147	D147	0.1	210
148	RE148	D148	0.1	250
149	RE149	D149	0.1	250
150	RE150	D150	0.1	170
151	RE151	D151	0.1	240
152	RE152	D152	0	0
153	RE153	D153	0	0
154	RE154	D154	0	0
155	RE155	D155	0	0
156	RE156	D156	0	0
157	RE157	D157	0.1	200
158	RE158	D158	0.2	290
159	RE159	D159	0.1	70
160	RE160	D160	0	0
161	RE161	D161	0	0
162	RE162	D162	0.1	310
163	RE163	D163	0.1	160
164	RE164	D164	0.1	240
165	RE165	D165	0.1	0
166	RE166	D166	0.1	0
167	RE167	D167	0.2	20
168	RE168	D168	0.2	20
169	RE169	D169	0.2	120
170	RE170	D170	0.2	60
171	RE171	D171	0.1	140

I-293 Exit 6-7 Microscale Analysis									
MOVES Links									
Design	linkID	countyID	zoneID	roadTypeID	linkLength	linkVolume	linkAvgSpeed	linkDescription	linkAvgGrade*
No Build	1	33011	330110	5	1	1	30	Eddy_S	-3.9
No Build	2	33011	330110	5	1	1	30	Amoskeag_E	3.1
No Build	3	33011	330110	5	1	1	30	Amosk_to_Eddy	0.3
No Build	4	33011	330110	5	1	1	30	Goff_to_Eddy	-5.7
No Build	5	33011	330110	5	1	1	30	Goffstown_W	5.6
No Build	6	33011	330110	5	1	1	30	Front_N	2.2
Build	7	33011	330110	5	1	1	30	Amoskeag_E	3.4
Build	8	33011	330110	5	1	1	30	Amoskeag_W	3.5
Build	9	33011	330110	5	1	1	30	I293_NB_Off_W	2.7
Build	10	33011	330110	5	1	1	30	I293_NB_Off_E	3.5
Build	11	33011	330110	5	1	1	30	I293_SB_On	-6.0
Build	12	33011	330110	5	1	1	30	I293_SB_Off	3.4
Build	13	33011	330110	5	1	1	30	I293_NB_On	-4.3
Build	14	33011	330110	5	1	1	30	L_New_Road_EEB	-3.4
Build	15	33011	330110	5	1	1	30	L_New_Road_EWB	3.4
Build	16	33011	330110	5	1	1	30	L_New_Road_W	4.0
Build	17	33011	330110	5	1	1	30	L_SB_On_Ramp_W	1.1
Build	18	33011	330110	5	1	1	30	L_SB_Off_Ramp	-1.5
Build	19	33011	330110	5	1	1	30	L_SB_On_Ramp_E	0.8
Build	20	33011	330110	5	1	1	30	R_New_Road_W	2.9
Build	21	33011	330110	5	1	1	30	R_New_Road_EEB	-0.9
Build	22	33011	330110	5	1	1	30	R_New_Road_EWB	0.9
Build	23	33011	330110	5	1	1	30	R_New_Road_to_NB_On	1.3
Build	24	33011	330110	5	1	1	30	R_NB_On_Ramp	-2.6
Build	25	33011	330110	5	1	1	30	R_NB_Off_Ramp_W	-1.6
Build	26	33011	330110	5	1	1	30	R_NB_Off_Ramp_E	-2.3
Build	27	33011	330110	5	0	1	0	Idle Link	0.0
Build	28	33011	330110	5	1	1	30	I293_NB_On_Ch_Right	-1.6
Build	29	33011	330110	5	1	1	30	I293_SB_On_Ch_Right	-1.5
Build	30	33011	330110	5	1	1	30	I293_SB_Off_Ch_Right	3.7

\*Values in red indicate change in grade due to traffic flow direction

I-293 Exit 6-7 Microscale Analysis									
MOVES Results									
movesRunID	yearID	monthID	dayID	hourID	linkID	linkDescription	pollutant	GramsPerVehMile	GramsPerVehHour
1	2035	1	5	9	1	Eddy_S	CO	0.79	-
1	2035	1	5	9	2	Amoskeag_E	CO	1.79	-
1	2035	1	5	9	3	Amosk_to_Eddy	CO	1.27	-
1	2035	1	5	9	4	Goff_to_Eddy	CO	0.66	-
1	2035	1	5	9	5	Goffstown_W	CO	2.63	-
1	2035	1	5	9	6	Front_N	CO	1.62	-
2	2035	1	5	9	1	Amoskeag_E	CO	1.86	-
2	2035	1	5	9	2	Amoskeag_W	CO	1.89	-
2	2035	1	5	9	3	I293_NB_Off_W	CO	1.71	-
2	2035	1	5	9	4	I293_NB_Off_E	CO	1.89	-
2	2035	1	5	9	5	I293_SB_On	CO	0.64	-
2	2035	1	5	9	6	I293_SB_Off	CO	1.86	-
2	2035	1	5	9	7	I293_NB_On	CO	0.76	-
2	2035	1	5	9	8	L_New_Road_EEB	CO	0.83	-
2	2035	1	5	9	9	L_New_Road_EWB	CO	1.86	-
2	2035	1	5	9	10	L_New_Road_W	CO	2.01	-
2	2035	1	5	9	11	L_SB_On_Ramp_W	CO	1.39	-
2	2035	1	5	9	12	L_SB_Off_Ramp	CO	1.02	-
2	2035	1	5	9	13	L_SB_On_Ramp_E	CO	1.34	-
2	2035	1	5	9	14	R_New_Road_W	CO	1.75	-
2	2035	1	5	9	15	R_New_Road_EEB	CO	1.10	-
2	2035	1	5	9	16	R_New_Road_EWB	CO	1.36	-
2	2035	1	5	9	17	R_New_Road_to_NB_On	CO	1.43	-
2	2035	1	5	9	18	R_NB_On_Ramp	CO	0.91	-
2	2035	1	5	9	19	R_NB_Off_Ramp_W	CO	1.02	-
2	2035	1	5	9	20	R_NB_Off_Ramp_E	CO	0.94	-
2	2035	1	5	9	21	Idle Link	CO	-	5.67
2	2035	1	5	9	22	I293_NB_On_Ch_Right	CO	1.02	-
2	2035	1	5	9	23	I293_SB_On_Ch_Right	CO	1.02	-
2	2035	1	5	9	24	I293_SB_Off_Ch_Right	CO	1.93	-

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# Appendix D – Floodplain Volume Calculations

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Project: I-293 Exit 6/7	Project #: 52392.01
Location: Manchester, NH	Sheet: 1
Calculated by: DHH	Date: 4/25/2019
Checked by: FMK	Date: 5/14/2019
Title: Quantity Calculations	

Total = 7000 CY

### FLOODPLAIN VOLUMES

CY

## SUMMARY SHEET

PAGE NO.	DESCRIPTION	Item - Sheet Totals (CY)	Item - Sheet Totals (Acre-Feet)
2	<b>NH I-293</b> Sta. 23885+00 to Sta. 23915+00	1074.10	0.67
3	<b>NH I-293</b> Sta. 23921+00 to Sta. 23961+00	310.10	0.19
4	<b>NH I-293</b> Sta. 23960+00 to Sta. 23981+00	5528.60	3.43
5	<b>Exit 6</b> Sta. 611+00 to Sta. 614+23	84.60	0.05

<b>Watershed</b>	<b>CY</b>	<b>Ac-Ft</b>
<i>Merrimack</i>	6354.4	3.9
<i>Black Brook</i>	643.0	0.4
<i>Total</i>	7000.0	4.3

Subtotal:	6997.4	
Rounding:	<u>2.6</u>	
<b>TOTAL:</b>	7000.0	CY
<b>TOTAL:</b>	4.3	AC-FT



<b>Project:</b> I-293 Exit 6/7	Project #: 52392.01
<b>Location:</b> Manchester, NH	Sheet: 2
<b>Calculated by:</b> DHH	Date: 10/3/2018
<b>Checked by:</b> FMK	Date: 5/14/2019
<b>Title:</b> Quantity Calculations	

### FLOODPLAIN VOLUMES

CY

RT					RT				
Station	ft²	Length (FT)	yd³	X-Section Sheet Totals	Station	ft²	Length (FT)	yd³	X-Section Sheet Totals
23885+00	0.00				23907+00	-4.60			
	5.96	100.00	22.10			-8.23	100.00	-30.50	
23886+00	11.91				23908+00	-11.86			
	39.72	100.00	147.10			-12.45	100.00	-46.10	
23887+00	67.52				23909+00	-13.05			
	29.46	100.00	109.10			6.38	100.00	23.60	
23888+00	-8.60				23910+00	25.81			
	-13.81	100.00	-51.20			14.40	100.00	53.30	
23889+00	-19.03				23911+00	2.99			
	-17.58	100.00	-65.10			6.14	100.00	22.70	
23890+00	-16.13				23912+00	9.28			
	-10.56	100.00	-39.10			30.30	100.00	112.20	
23891+00	-4.99				23913+00	51.33			
	-4.59	100.00	-17.00			39.94	100.00	147.90	
23892+00	-4.20				23914+00	28.55			
	21.94	100.00	81.20			14.28	100.00	52.90	
23893+00	48.07				23915+00	0.00			
	42.86	100.00	158.70			0.00	100.00	0.00	
23894+00	37.65				23916+00	0.00			
	19.59	100.00	72.60						
23895+00	1.53								
	0.77	100.00	2.80						
23896+00	0.00								
	0.00	100.00	0.00						
23897+00	0.00								
	0.00	100.00	0.00						
23898+00	0.00								
	5.85	100.00	21.70						
23899+00	11.70								
	5.85	100.00	21.70						
23900+00	0.00								
	1.84	100.00	6.80						
23901+00	3.67								
	11.50	100.00	42.60						
23902+00	19.32								
	25.13	100.00	93.10						
23903+00	30.93								
	26.23	100.00	97.20						
23904+00	21.54								
	18.20	100.00	67.40						
23905+00	14.86								
	0.33	100.00	1.20						
23906+00	-14.19								
	-9.40	100.00	-34.80						
Sheet Subtotal:					1074.1				



Project #: 52392.01  
Sheet: 3  
Date: **10/3/2018**  
Date: **5/14/2019**

## FLOODPLAIN VOLUMES

CY

[illegible]

<b>Sheet Subtotal:</b>	<b>310.1</b>
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Project #: 52392.01  
Sheet: 4  
Date: **4/25/2019**  
Date: **5/14/2019**

### FLOODPLAIN VOLUMES

CY

RT									
Station	ft²	Length (FT)	yd³	X-Section Sheet Totals	Station	ft²	Length (FT)	yd³	X-Section Sheet Totals
23960+00	0.00								
	62.26	100.00	230.60						
23961+00	124.51								
	98.30	100.00	364.10						
23962+00	72.08								
	64.45	100.00	238.70						
23963+00	56.81								
	79.59	100.00	294.80						
23964+00	102.37								
	110.60	100.00	409.60						
23965+00	118.83								
	114.62	100.00	424.50						
23966+00	110.41								
	115.01	100.00	426.00						
23967+00	119.61								
	135.04	100.00	500.20						
23968+00	150.47								
	163.44	100.00	605.30						
23969+00	176.41								
	158.08	100.00	585.50						
23970+00	139.75								
	148.22	100.00	548.90						
23971+00	156.68								
	92.53	100.00	342.70						
23972+00	28.39								
	25.72	100.00	95.30						
23973+00	23.06								
	29.90	100.00	110.70						
23974+00	36.74								
	38.76	100.00	143.60						
23975+00	40.78								
	55.05	100.00	203.90						
23976+00	69.32								
	48.39	100.00	179.20						
23977+00	27.47								
	43.11	100.00	159.70						
23978+00	58.75								
	45.10	100.00	167.00						
23979+00	31.45								
	20.41	100.00	75.60						
23980+00	9.38								
	4.69	100.00	17.40						
23981+00	0.00								
Sheet Subtotal:					5528.6				

Sheet Subtotal:	5528.6
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**FLOODPLAIN VOLUMES** **CY**

\\vhb\gb\proj\Bedford\52392.01\reports\Environmental Assessment\Appendices\Appendix D - Floodplain Volume Calculations\20190515\_Floodplain\_Volumes

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# Appendix E - Fisheries Data

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Matras, Lindsay

**From:** Chapman, Andrew <Andrew.Chapman@des.nh.gov>  
**Sent:** Thursday, August 30, 2018 9:20 AM  
**To:** Matras, Lindsay  
**Cc:** Walker, Peter  
**Subject:** [External] RE: I-293 (F.E. Everett Turnpike) Exit 6 & 7 - Manchester DOT Project #16099

Hi Lindsay,

No addition fish data for Black Brook. Thanks for the inquiry.

Good luck, Andy

**From:** Matras, Lindsay [mailto:lmtras@vhb.com]  
**Sent:** Wednesday, August 29, 2018 1:07 PM  
**To:** Chapman, Andrew  
**Cc:** Walker, Peter  
**Subject:** RE: I-293 (F.E. Everett Turnpike) Exit 6 & 7 - Manchester DOT Project #16099

Hi Andy,

VHB is preparing to compile the final Environmental Assessment for the I-293 Exits 6 & 7 Improvement Project this fall. I was wondering if you had any additional fish data for Black Brook or the Merrimack River in Manchester since the data you sent us in the email below (June 22, 2016).

Thanks for any information you may be able to provide!

**Lindsay Matras**  
Environmental Scientist

P 603.391.3916  
www.vhb.com

**From:** Chapman, Andrew <Andrew.Chapman@des.nh.gov>  
**Sent:** Wednesday, June 22, 2016 3:54 PM  
**To:** Jones, Lindsay <lmtras@vhb.com>  
**Cc:** Walker, Peter <PWalker@VHB.com>  
**Subject:** RE: I-293 (F.E. Everett Turnpike) Exit 6 & 7 - Manchester DOT Project #16099

Hi Lindsay (and Pete!)-

Three sites sampled on Black Brook in Manchester. No other fish data for Merrimack, Milestone.

See attached xls file for data collected in 2000.

I have also attached field sheets from two Black Brook sites sampled today (good timing!). One reach extends from the Front st Bridge down 150 meters. The other reach extended 200 meters upstream of the Maxwell Pond Dam. Specific site IDs still need to be generated. This data isn’t typically entered into our dbase until fall/winter, so thought you would want this data now, even if in rough field sheet form! Let me know if you can’t decipher the hand writing.

F&G has fish data from Black Brook (likely from yrs 2009, 2010, 2012, 2014).

Thanks.

Andy  
\*\*\*\*\*

Andy Chapman  
Biomonitoring Program  
NHDES Watershed Management Bureau  
PO Box 95, Concord, NH 03302-0095  
(603) 271- 5334

**From:** Jones, Lindsay [mailto:LGJones@VHB.com]  
**Sent:** Tuesday, June 21, 2016 2:45 PM  
**To:** Chapman, Andrew  
**Cc:** Walker, Peter  
**Subject:** I-293 (F.E. Everett Turnpike) Exit 6 & 7 - Manchester DOT Project #16099

Hello Andy,

VHB is compiling information to include in an Environmental Assessment for the I-293 (F.E. Everett Turnpike) Exit 6 & 7 Project (NHDOT Project #16099), and recently contacted John Magee of NH Fish & Game regarding available fisheries data for Milestone Brook, Black Brook, and the reach of the Merrimack River that is included within the study area (see the attached figure). John mentioned to me that the NH Fish & Game fisheries database may not include NHDES biomonitoring data. Is this information that you may be able to provide for our inclusion in the Environmental Assessment? Please let me know if you have any questions or need any further information.

Thank you,

**Lindsay Jones**  
Environmental Scientist



2 Bedford Farms Drive  
Suite 200  
Bedford, NH 03110-6532  
P | M 603.391.3916 | F 603.518.7495  
lgjones@vhb.com

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CollDate	WaterbodyName	Town	StationID	CollMeth	Common Name	FinalID	Individuals	NumYOY
6/22/2016	Black Brook	Manchester	Upstream of Maxwell Pond Dam	Backpack	Fallfish (FF)	Semotilus corporalis	28	
6/22/2016	Black Brook	Manchester	Upstream of Maxwell Pond Dam	Backpack	Margined Madtom	Noturus insignis	5	
6/22/2016	Black Brook	Manchester	Upstream of Maxwell Pond Dam	Backpack	Common White Sucker (CWS)	Catostomus commersoni	4	
6/22/2016	Black Brook	Manchester	Upstream of Maxwell Pond Dam	Backpack	Smallmouth Bass	Micropterus dolomieu	7	
6/22/2016	Black Brook	Manchester	Upstream of Maxwell Pond Dam	Backpack	Redbreasted Sunfish (RBS)	Lepomis auritus	4	
6/22/2016	Black Brook	Manchester	Upstream of Maxwell Pond Dam	Backpack	Yellow Bullhead (YB)	Ameiurus natalis	1	
6/22/2016	Black Brook	Manchester	Upstream of Maxwell Pond Dam	Backpack	Common Shiner (CS)	Luxilus cornutus	1	
6/22/2016	Black Brook	Manchester	Downstream of Front Street	Backpack	Fallfish (FF)	Semotilus corporalis	11	6
6/22/2016	Black Brook	Manchester	Downstream of Front Street	Backpack	Common White Sucker (CWS)	Catostomus commersoni	3	
6/22/2016	Black Brook	Manchester	Downstream of Front Street	Backpack	Smallmouth Bass	Micropterus dolomieu	5	
6/22/2016	Black Brook	Manchester	Downstream of Front Street	Backpack	Margined Madtom	Noturus insignis	23	
6/22/2016	Black Brook	Manchester	Downstream of Front Street	Backpack	Redbreasted Sunfish (RBS)	Lepomis auritus	1	
6/22/2016	Black Brook	Manchester	Downstream of Front Street	Backpack	Yellow Bullhead (YB)	Ameiurus natalis	3	
6/22/2016	Black Brook	Manchester	Downstream of Front Street	Backpack	American Eel	Anguilla rostrata	1	

Date: 6-22-16		Electrofishing Info		Data Entry	
Site ID: upstream of old dam	Equipment: M12 LR24 Raft/1.5 KVA Boat/GPP5		Data entered/ QC into EMD		
	Back-pack Setting: ES		Initials:                      Date:		
	Hz (pulse/sec):				
Waterbody: Black Brook	Pulse width (sec):		Data entered/ QC in EDAS		
	Duty Cycle : = (pulse width (ms) / (1/ #Hz)*1000)*100		Initials:                      Date:		
Town: Manch	Volts: 700    Amps:                      Watts:		Comments:		
	Pass #:                      Shock Time (s): 1050				
Visit #:	Stream Width(m): 6m    Reach Length(m): 150				
	Fishing Crew/Notes: A. Chapman, S. Landey, J. Sherman, C. Denison				
Size Categories for SALMONIDS: Less than 90 mm (3.5 inches) = YOY, wild. 90 mm (3.5 inches) - 180 mm (7 inches) = adult, wild. All salmonids > 180 mm (7 inches) = stocked, unless noted otherwise.					
Size Categories for NON-SALMONIDS: 0-6 inches, 6-12 inches, 12-18 inches, 18-24 inches					
Species: Fall Fish	Min 0	Max 6	Live <del>    </del> <del>    </del> <del>    </del> <del>    </del> <del>    </del>		Dead
Hatchery/Native Info.					
Species: Margined Madtom	Min 0	Max 6	Live 		Dead
Hatchery/Native Info.					
Species: CWS	Min 0	Max 6	Live 		Dead
Hatchery/Native Info.					
Species: Small Mouth	Min 0	Max 6	Live 		Dead
Hatchery/Native Info.					



Species: <i>Red-breasted Sunfish</i>	Min	Max	Live	Dead
	0	6		
Hatchery/Native Info.				

Species: <i>Yellow Bull</i>	Min	Max	Live	Dead
	0	6	1	
Hatchery/Native Info.				

Species: <i>Common Shiner</i>	Min	Max	Live	Dead
	0	6	1	
Hatchery/Native Info.				

Species:	Min	Max	Live	Dead
Hatchery/Native Info.				

Species:	Min	Max	Live	Dead
Hatchery/Native Info.				

Species:	Min	Max	Live	Dead
Hatchery/Native Info.				

Date: <i>6-22-16</i>	Electrofishing Info		Data Entry
Site ID: <i>down stream of Front St</i>	Equipment:	M12 LR24 Raft/1.5 KVA Boat/GPP5	Data entered/ QC into EMD
	Back-pack Setting:	<i>E5</i>	Initials: Date:
	Hz (pulse/sec):		
Waterbody: <i>Black Brk</i>	Pulse width (sec):		Data entered/ QC in EDAS
Town: <i>Manchester</i>	Duty Cycle :		Initials: Date:
	= (pulse width (ms) / (1/ #Hz)*1000)*100		
Visit #: <i>1</i>	Volts: <i>500</i> Amps: Watts:		Comments: <i>1165 sec/</i>
	Pass #: Shock Time (s): <i>1165</i>		
Stream Width(m): <i>6m</i> Reach Length(m): <i>150</i>			

Fishing Crew/Notes: *A. Chapman, S. Landry, J. Sheeman, C. Denison*

Size Categories for SALMONIDS: Less than 90 mm (3.5 inches) = YOY, wild. 90 mm (3.5 inches) - 180 mm (7 inches) = adult, wild. All salmonids > 180 mm (7 inches) = stocked, unless noted otherwise.

Size Categories for NON-SALMONIDS: 0-6 inches, 6-12 inches, 12-18 inches, 18-24 inches

Species: <i>Fallfish</i>	Min	Max	Live	Dead
	0	6		
Hatchery/Native Info.				

Species: <i>CWS</i>	Min	Max	Live	Dead
	0	6	11	
Hatchery/Native Info.	6	12	1	

Species: <i>Smallmouth Bass</i>	Min	Max	Live	Dead
	0	6	11	
Hatchery/Native Info.	6	12	11	<i>27cm(1)</i>

Species: <i>Margined Madtom</i>	Min	Max	Live	Dead
	0	6		
Hatchery/Native Info.				



Species: <i>Red-breasted Sunfish</i>	Min	Max	Live	Dead
	0	6	1	
Hatchery/Native Info.				

Species: <i>Yellow Bullhead</i>	Min	Max	Live	Dead
	0	6	111	
Hatchery/Native Info.				

Species: <i>American Eel</i>	Min	Max	Live	Dead
	6	12	1	
Hatchery/Native Info.				

Species:	Min	Max	Live	Dead
Hatchery/Native Info.				

Species:	Min	Max	Live	Dead
Hatchery/Native Info.				

Species:	Min	Max	Live	Dead
Hatchery/Native Info.				

## Matras, Lindsay

**From:** Carpenter, Matthew <Matthew.Carpenter@wildlife.nh.gov>  
**Sent:** Tuesday, September 04, 2018 8:48 AM  
**To:** Magee, John; Matras, Lindsay  
**Cc:** Tuttle, Kim; Walker, Peter  
**Subject:** [External] RE: I-293 (F.E. Everett Turnpike) Exit 6 & 7 - Manchester DOT Project #16099

Hi Lindsay,  
 We did do some survey work in that area in 2017, but there were no new species found that would be different than what was recorded through 2016. If you would like to see the data, I can copy the specific surveys from 2017 onto a new spreadsheet and attach it to an email. Let me know if you are interested.  
 Thanks,  
 Matt

---

**From:** Magee, John  
**Sent:** Friday, August 31, 2018 7:23 AM  
**To:** Matras, Lindsay; Carpenter, Matthew  
**Cc:** Tuttle, Kim; Walker, Peter  
**Subject:** Re: I-293 (F.E. Everett Turnpike) Exit 6 & 7 - Manchester DOT Project #16099

Hi Lindsay. I will check on that for you. Please note I will not be in the office till September 10.

Matt: were any fish data collected in those streams or nearby in 2017? The 2017 updates to the fish survey database have not been distributed yet. I can check the database for any 2016 survey data there (since my email below was dated June 2016), but not till Sept 10.

Thank you,

John

John Magee, M.S., Certified Fisheries Professional  
 Fish Habitat Biologist  
 New Hampshire Fish and Game Department  
 11 Hazen Drive  
 Concord, NH 03301  
 p 603-271-2744  
 f 603-271-5829

---

**From:** Matras, Lindsay <lmatras@vnb.com>  
**Sent:** Wednesday, August 29, 2018 1:14 PM  
**To:** Magee, John  
**Cc:** Tuttle, Kim; Carpenter, Matthew; Walker, Peter  
**Subject:** RE: I-293 (F.E. Everett Turnpike) Exit 6 & 7 - Manchester DOT Project #16099

Hello John,



VHB is preparing to compile the final Environmental Assessment for the I-293 Exits 6 & 7 Improvement Project this fall. I was wondering if there are any changes or updates to the fish data you provided below (June 28, 2016) for Black Brook or the Merrimack River in Manchester.

Thanks for any information you may be able to provide!

**Lindsay Matras**  
Environmental Scientist

P 603.391.3916  
[www.vhb.com](http://www.vhb.com)

**From:** Magee, John <[john.magee@wildlife.nh.gov](mailto:john.magee@wildlife.nh.gov)>  
**Sent:** Tuesday, June 28, 2016 1:21 PM  
**To:** Jones, Lindsay <[lmatras@vhb.com](mailto:lmatras@vhb.com)>  
**Cc:** Tuttle, Kim <[Kim.Tuttle@wildlife.nh.gov](mailto:Kim.Tuttle@wildlife.nh.gov)>; Carpenter, Matthew <[Matthew.Carpenter@wildlife.nh.gov](mailto:Matthew.Carpenter@wildlife.nh.gov)>  
**Subject:** RE: I-293 (F.E. Everett Turnpike) Exit 6 & 7 - Manchester DOT Project #16099

Hi Lindsay. I checked our database, and found we have no fish records for Milestone Brook. We do have data for Black Brook and for the Merrimack River in the project area. The species known to be there are below. – John

Black Brook: blacknose dace, brown bullhead, bluegill, commons sunfish (pumpkinseed), common shiner, chain pickerel, fallfish, golden shiner, largemouth bass, longnose dace, margined madtom, redbreast sunfish, smallmouth bass, sea lamprey, tessellated darter, spottail shiner, yellow bullhead and white sucker. We suspect there are also American eel in Black Brook.

Merrimack River: American eel, Atlantic salmon, alewife, bluegill, brown bullhead, common sunfish (pumpkinseed), chain pickerel, golden shiner, largemouth bass, redbreast sunfish, rock bass, smallmouth bass, tessellated darter, yellow bullhead, yellow perch and white sucker.

John

John Magee  
Fish Habitat Biologist  
New Hampshire Fish and Game Department  
11 Hazen Drive  
Concord, NH 03301  
P 603-271-2744  
F 603-271-5829



**From:** Jones, Lindsay [<mailto:LGJones@VHB.com>]  
**Sent:** Tuesday, June 21, 2016 2:11 PM  
**To:** Magee, John  
**Cc:** Tuttle, Kim; Walker, Peter  
**Subject:** I-293 (F.E. Everett Turnpike) Exit 6 & 7 - Manchester DOT Project #16099

Hi John,

Thank you for your assistance with gathering fisheries data for Milestone Brook, Black Brook, and the Merrimack River. This will assist VHB in compiling an Environmental Assessment report for the I-293 (F.E. Everett Turnpike) Exit 6 & 7 Project, (NHDOT Project #16099). Attached is the NHB report you requested for reference. Please let me know if you need any further information.

Thank you,

**Lindsay Jones**  
Environmental Scientist



2 Bedford Farms Drive  
Suite 200  
Bedford, NH 03110-6532  
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Appendix F - Essential Fish Habitat

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EFH ASSESSMENT WORKSHEET FOR FEDERAL AGENCIES (modified 3/2016)

PROJECT NAME: I-293 Improvement Project, Exits 6 & 7

DATE: 09/13/2018

PROJECT NO.: NHDOT #16099

LOCATION (Water body, county, physical address):

The proposed project is located along a 3.5-mile portion of I-293 beginning north of Exit 5 (Granite Street) and ending north of Exit 7 (Front Street). The project also includes Exits 6 and 7 and their associated connecting roads.

PREPARER: Lindsay Matras, VHB

**Step 1:** Use [NOAA's EFH Mapper](#) to generate the list of designated EFH for federally-managed species and life stages for the geographic area of interest. Use this list as part of the initial screening process to determine if EFH for those species occurs in the vicinity of the proposed action. The list can be included as an attachment to the worksheet. Make a preliminary determination on the need to conduct an EFH consultation.

1. INITIAL CONSIDERATIONS		
EFH Designations	Yes	No
<div>Is the action located in or adjacent to EFH designated for eggs?</div> <div>List the species:</div> <div>Atlantic salmon</div>	<div></div>	<div></div>
<div>Is the action located in or adjacent to EFH designated for larvae?</div> <div>List the species:</div> <div>Atlantic salmon</div>	<div></div>	<div></div>
<div>Is the action located in or adjacent to EFH designated for juveniles?</div> <div>List the species:</div> <div>Atlantic salmon</div>	<div></div>	<div></div>

<div>Is the action located in or adjacent to EFH designated for adults or spawning adults? List the species:</div> <div>Atlantic Salmon</div>	<div></div>	<div></div>
<div>If you answered ‘no’ to all questions above, then an EFH consultation is not required - go to Section 5.</div> <div>If you answered ‘yes’ to any of the above questions, proceed to Section 2 and complete the remainder of the worksheet.</div>		

**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. Identify the sources of the information provided and provide as much description as available. These should not be yes or no answers. Please note that there may be circumstances in which new information must be collected to appropriately characterize the site and assess impacts. Project plans that show the location and extent of sensitive habitats, as well as water depths, the HTL, MHW and MLW should be provided.

2. SITE CHARACTERISTICS	
Site Characteristics	Description
<div>Is the site intertidal, sub-tidal, or water column?</div>	<div>The I-293 Improvement, Exits 6 &amp; 7 Project is located along the freshwater portion of the Merrimack River within the vicinity of the Amoskeag Dam in Manchester, NH. No work is anticipated to occur within the bed of the Merrimack River, with some work occurring along the bank of the river within select areas.</div>
<div>What are the sediment characteristics?</div>	<div>The Merrimack River within the vicinity of the project area is comprised of large rocks mixed with coarse sand along the shoreline and is classified as Riverine, Lower Perennial, Unconsolidated Bottom, Sand (R2UB2) in accordance to the "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al., 1979, rev. 1985). The Amoskeag Dam is located east of the project in the middle of the project length along I-293, therefore the substrate is influenced by the restricted movement of sediment and debris from upstream areas to downstream of the dam. Fine sediments settle out of the impounded part of the river upstream of the dam, and faster flows influence sediment deposits downstream of the dam.</div>
<div>Is there submerged aquatic vegetation (SAV) at or adjacent to project site? If so describe the SAV species and spatial extent.</div>	<div>Planning for the proposed project did not include a survey for SAV within the Merrimack River. However, no SAV was observed during the field work conducted as part of project planning.</div>
<div>Are there wetlands present on or adjacent to the site? If so, describe the spatial extent and vegetation types.</div>	<div>Black Brook outlets into the Merrimack River within the vicinity of the project area. Black Brook is classified as Riverine, Upper Perennial, Unconsolidated Bottom, Cobble-Gravel (R3UB1). The outlet of Black Brook into the Merrimack River is impounded due to the presence of the Amoskeag Dam downstream. A small wetland is located directly adjacent to this impounded area. Otherwise, no other wetlands are located directly adjacent to the Merrimack River, however several wetlands have been delineated within 0.5 miles of the river, and all eventually drain into the Merrimack River.</div>

<b>Is there shellfish present at or adjacent to the project site? If so, please describe the spatial extent and species present.</b>	Brook floater is known to occur within the Merrimack River downstream of the Amoskeag Dam in the vicinity of the project footprint. This species is state endangered, and is known to occur along segments of the Merrimack River, Connecticut River, and coastal (Lamprey River) watersheds. According to the NH Natural Heritage Bureau records, the last observance of this species within this portion of the Merrimack River was in 2004. It is unknown whether any additional shellfish are present with the river.
<b>Are there mudflats present at or adjacent to the project site? If so please describe the spatial extent.</b>	No tidal mudflats occur within or adjacent to the project footprint. Sand bars of varying sizes are known to occur along the portion of the Merrimack River downstream of the Amoskeag Dam. The presence of these sand bars are varying depending on the controlled water levels downstream of the dam.
<b>Is there rocky or cobble bottom habitat present at or adjacent to the project site? If so, please describe the spatial extent.</b>	There is a cobble-gravel substrate near the shoreline of the Merrimack River, however the main channel of the river downstream of the Amoskeag Dam is a mixture of an unconsolidated substrate with a mix of cobble. The proposed project is not anticipated to impact the bed of the Merrimack River where the cobble and unconsolidated substrate is located. Impacts to the Merrimack River would be limited to segments of the bank of the Merrimack River.
<b>Is Habitat Area of Particular Concern (HAPC) designated at or near the site? If so for which species, what type habitat type, size, characteristics?</b>	According to NOAA's EFH Mapper, no Habitat Areas of Particular Concern (HAPC) were identified near the proposed project. Additionally, the HAPC for Atlantic salmon are all located in Maine, according to the Essential Fish Habitat Description for Atlantic salmon. Therefore, no HAPC would be impacted by the proposed project.
<b>What is the typical salinity, depth and water temperature regime/range?</b>	The reach of the Merrimack River that is located adjacent to the project area is a freshwater river. Water depth of the river varies within the vicinity of the Project Footprint depending on the time of year and the presence of the Amoskeag Dam. The average temperature of the Merrimack River during the month of September averages about 20-22 degrees Celsius based on temperature data taken over the last 10-15 years (obtained from the NHDES Environmental Monitoring Database; likely surface water temperatures; no October or November temperature data available).
<b>What is the normal frequency of site disturbance, both natural and man-made?</b>	Since the project area is located along I-293 and is surrounded by an urbanized area, the project area and surrounding landscape is highly developed. The Granite Street Bridge crosses the Merrimack River within the southern portion of the project area, and the Amoskeag Dam is located east of the project area in the middle of the project area along I-293. Man-made disturbances along this segment of the Merrimack River are related to businesses and residences located within close proximity to the river, as well as various construction projects that occasionally occur along I-293. Natural disturbances are related to large storms or spring snow melt which cause the river to swell.
<b>What is the area of proposed impact (work footprint &amp; far afield)?</b>	<p>No impacts are anticipated within the bed of the Merrimack River. Approximately 0.5 acres of bank impact are currently estimated to occur along the river based on preliminary calculations.</p> <p>The proposed project has a large footprint that is located west of and alongside the Merrimack River. The proposed project would mainly occur along I-293, beginning north of Exit 5 and continuing approximately 0.5 miles north of Exit 7. The project also includes the Exit 6 interchange (including Amoskeag Street and Front Street) as well as the Exit 7 interchange, which would be relocated north of the current Exit 7 location. Finally, a new connector road would be constructed within the vicinity of the relocated Exit 7, which would connect Front Street with Dunbarton Road.</p>

**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.

3. DESCRIPTION OF IMPACTS			
Impacts	Y	N	Description
<b>Nature and duration of activity(s). Clearly describe the activities proposed and the duration of any disturbances.</b>			Construction activities that are proposed to occur as part of the project include widening I-293 within the project footprint from two lanes in each direction (northbound and southbound) to three. Work within the vicinity of Exit 6 includes changing the configuration of the interchange from a roundabout to a Single Point Urban Interchange. Reconfiguring this exit would require some roadway adjustments where the interchange connects to Amoskeag Street and Front Street. Work at Exit 7 would involve the removal of the current Exit 7 interchange, which is a partial interchange consisting of one southbound on-ramp and one northbound off-ramp. Exit 7 is proposed to be relocated approximately 0.5 miles to the north and would be a full interchange. A new connecting road would be constructed underneath I-293 within the vicinity of the interchange and would connect Dunbarton Road to Front Street. The existing connections to Exit 7 would be removed. The project would be built in two phases. The first phase would involve the construction of Exit 7, which is anticipated to take 3 years, and the second phase would involve the construction of Exit 6, which is anticipated to take a little over 3 years.
<b>Will the benthic community be disturbed? If no, why not? If yes, describe in detail how the benthos will be impacted.</b>	<div></div>	<div>✓</div>	No work is anticipated to occur within the bed of the Merrimack River, therefore no impacts to the benthic community would occur. Project work within the vicinity of the Merrimack River would be limited to the bank of the river.
<b>Will SAV be impacted? If no, why not? If yes, describe in detail how the SAV will be impacted. Consider both direct and indirect impacts. Provide details of any SAV survey conducted at the site.</b>	<div></div>	<div>✓</div>	No formal SAV survey was completed during project planning. However, no SAV was observed during the field work conducted as part of project planning. Additionally, no SAV is anticipated to be impacted by the proposed project since the project work would be limited to the bank of the Merrimack River.
<b>Will salt marsh habitat be impacted? If no, why not? If yes, describe in detail how wetlands will be impacted. What is the aerial extent of the impacts? Are the effects temporary or permanent?</b>	<div></div>	<div>✓</div>	No salt marsh habitat is located within the vicinity of the project, therefore this habitat type would not be impacted.



<b>Will mudflat habitat be impacted? If no, why not? If yes, describe in detail how mudflats will be impacted. What is the aerial extent of the impacts? Are the effects temporary or permanent?</b>	<div><div></div></div>	<div><div>✓</div></div>	No mudflat habitat is located within the vicinity of the project, therefore this habitat type would not be impacted. Occasionally sand bars are exposed within the portion of the Merrimack River located downstream of the Amoskeag Dam, depending on the time of year and level of the dam.
<b>Will shellfish habitat be impacted? If so, provide in detail how the shellfish habitat will be impacted. What is the aerial extent of the impact? Provide details of any shellfish survey conducted at the site.</b>	<div><div></div></div>	<div><div>✓</div></div>	Brook floater is sensitive to flooding, sedimentation, and pollution. Brook floater is not anticipated to be impacted by the proposed project since the project would use applicable Best Management Practices to protect the Merrimack River from erosion and sedimentation. Additionally, measures would be taken to protect the Merrimack River from pollutants and other contaminants throughout the duration of the project.
<b>Will hard bottom (rocky, cobble, gravel) habitat be impacted at the site? If so, provide in detail how the hard bottom will be impacted. What is the aerial extent of the impact?</b>	<div><div></div></div>	<div><div>✓</div></div>	While the Merrimack River exhibits cobble-gravel sediment along the shoreline within the river, no impacts to this type of habitat is anticipated to be impacted as part of the project since no work is anticipated to occur within the Merrimack River. Project work would be limited to the western bank of the Merrimack River in select areas where the project work comes within close proximity to the river, particularly within the southern portion of the project footprint.
<b>Will sediments be altered and/or sedimentation rates change? If no, why not? If yes, describe how.</b>	<div><div></div></div>	<div><div>✓</div></div>	Sediments and the sedimentation rates within the Merrimack River are not anticipated to change as part of the proposed project. No work is anticipated to occur within the bed of the Merrimack River; impacts within the vicinity of the river would be limited to the banks of the river within select areas where the project work comes within close proximity to the river. Additionally, appropriate Best Management Practices would be used throughout the duration of the proposed project to protect the Merrimack River from erosion and sedimentation. For long-term sedimentation and erosion control measures, stormwater BMPs (detention basins, vegetated swales) are proposed to be constructed as part of the project to capture stormwater runoff from around the project area in order to treat the water before it discharges into the Merrimack River.
<b>Will turbidity increase? If no, why not? If yes, describe the causes, the extent of the effects, and the duration.</b>	<div><div></div></div>	<div><div>✓</div></div>	Turbidity is not anticipated to increase within the Merrimack River as part of the proposed project. Best management practices would be used throughout the duration of the proposed project in order to protect the Merrimack River and wetlands located within the vicinity of the project area from sedimentation or erosion.

<b>Will water depth change? What are the current and proposed depths?</b>	<div><div></div></div>	<div><div>✓</div></div>	The water depth would not change since the proposed project would not occur within the channel of the Merrimack River. All work would be conducted outside of the river and along the banks of the river to the west.
<b>Will contaminants be released into sediments or water column? If yes, describe the nature of the contaminants and the extent of the effects.</b>	<div><div></div></div>	<div><div>✓</div></div>	The project would use appropriate Best Management Practices to protect the Merrimack River and additional surface waters and wetlands occurring within the vicinity of the project from erosion, sedimentation, pollutants, and contaminants to the maximum extent practicable. The addition of lanes along I-293 is also anticipated to increase the amount of deicing materials used along the roadway during winter months. NHDOT would continue to practice deicing Best Management Practices and methods to reduce the amount of salt used within the vicinity of the Merrimack River.
<b>Will tidal flow, currents, or wave patterns be altered? If no, why not? If yes, describe in detail how.</b>	<div><div></div></div>	<div><div>✓</div></div>	Tidal flow, currents, and wave patterns would not be altered since the proposed project does not occur within coastal areas. Additionally, no work is proposed to occur within the bed of the Merrimack River; work is limited to the bank of the river.
<b>Will water quality be altered? If no, why not? If yes, describe in detail how. If the effects are temporary, describe the duration of the impact.</b>	<div><div></div></div>	<div><div>✓</div></div>	The water quality of the Merrimack River is not anticipated to be decreased as a result of the proposed project due to the construction of stormwater Best Management Practices (BMPs) that would be installed as part of the proposed project. While the project would increase the amount of paved areas within the vicinity of the Merrimack River, the use of stormwater BMPs (detention basins, vegetated swales) would decrease the amount of pollutant loading to surface waters than existing conditions. VHB modeled pollutant loading scenarios which estimated the existing and proposed pollutant loading conditions for nitrogen, phosphorus, and total suspended solids. Based on the modeling, pollutant loading for all three pollutants would be expected to decrease as a result of the proposed project work.
<b>Will ambient noise levels change? If no, why not? If yes, describe in detail how. If the effects are temporary, describe the duration and degree of impact.</b>	<div><div></div></div>	<div><div>✓</div></div>	The ambient noise levels within the waters of the Merrimack River are not anticipated to change as a result of the proposed intersection improvement work. No work would be conducted within the water of the Merrimack River since the work would be limited to the banks of the river. The only noise or vibrations associated with the project work would take place outside of the Merrimack River along the I-293 roadway in areas where the work is located within close proximity to the river.
<b>Does the action have the potential to impact prey species of federally managed fish with EFH designations?</b>	<div><div></div></div>	<div><div>✓</div></div>	No impacts are anticipated to occur within the bed of the Merrimack River, therefore no impacts to Atlantic salmon prey species are anticipated to be impacted by the proposed project. Water flows, water quality, benthic habitat, and other functions of the river are anticipated to remain unchanged and/or improved as a result of the proposed project.

**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 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. NOAA's [EFH Mapper](#) should be used during this assessment to determine the ecological parameters/ preferences associated with each species listed and the potential impact to those parameters.

4. EFH ASSESSMENT			
Functions and Values	Y	N	Describe habitat type, species and life stages to be adversely impacted
Will functions and values of EFH be impacted for:			
<u>Spawning</u> If yes, describe in detail how, and for which species. Describe how adverse effects will be avoided and minimized.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No direct impacts are anticipated within the bed of the Merrimack River. Negligible changes to water quality, hydrology, and benthic communities are anticipated as part of the proposed project, therefore functions and values for spawning habitat would not be impacted.
<u>Nursery</u> If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No direct impacts are anticipated within the bed of the Merrimack River. Negligible changes to water quality, hydrology, and benthic communities are anticipated as part of the proposed project, therefore functions and values for nursery habitat would not be impacted.
<u>Forage</u> If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No direct impacts are anticipated within the bed of the Merrimack River. Negligible changes to water quality, hydrology, and benthic communities are anticipated as part of the proposed project, therefore functions and values for forage habitat would not be impacted.
<u>Shelter</u> If yes, describe in detail how and for which species. Describe how adverse effects will be avoided and minimized.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No direct impacts are anticipated within the bed of the Merrimack River. Negligible changes to water quality, hydrology, and benthic communities are anticipated as part of the proposed project, therefore functions and values for shelter habitat would not be impacted.

F-7

Will impacts be temporary or permanent? Please indicate in description box and describe the duration of the impacts.			No temporary or permanent impacts are proposed to occur within the bed of the Merrimack River. Permanent impacts would occur along segments of the Merrimack River where the roadway improvements come within close proximity to the river, as a result of grading and slope shaping along the edge of roadways. The proposed project would be constructed in two phases, with a duration of approximately 3 years per phase.
Will compensatory mitigation be used? If no, why not? Describe plans for mitigation and how this will offset impacts to EFH. Include a conceptual compensatory mitigation plan, if applicable.		<input checked="" type="checkbox"/>	Compensatory mitigation for EFH is not anticipated at this time since no direct impacts are anticipated to occur within the bed of the Merrimack River. The proposed project would take place along and up to the western bank of the Merrimack River within various segments along the project footprint's length. Additionally, no indirect impacts are anticipated to occur due to the use of Best Management Practices throughout the duration of the project that would protect the Merrimack River and adjacent surface waters and wetlands from sedimentation, erosion, pollution, and contaminants.

**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 NOAA Fisheries.

Please note: if information provided in the worksheet is insufficient to allow NOAA Fisheries to complete the EFH consultation additional information will be requested.

5. DETERMINATION OF IMPACT		
Federal Agency’s EFH Determination		
Overall degree of adverse effects on EFH (not including compensatory mitigation) will be:  (check the appropriate statement)	<input checked="" type="checkbox"/>	There is no adverse effect on EFH or no EFH is designated at the project site.  EFH Consultation is not required.
	<input type="checkbox"/>	The adverse effect on EFH is not substantial. This means that the adverse effects are either no more than minimal, temporary, or that they can be alleviated with minor project modifications or conservation recommendations.  This is a request for an abbreviated EFH consultation.
	<input type="checkbox"/>	The adverse effect on EFH is substantial.  This is a request for an expanded EFH consultation.



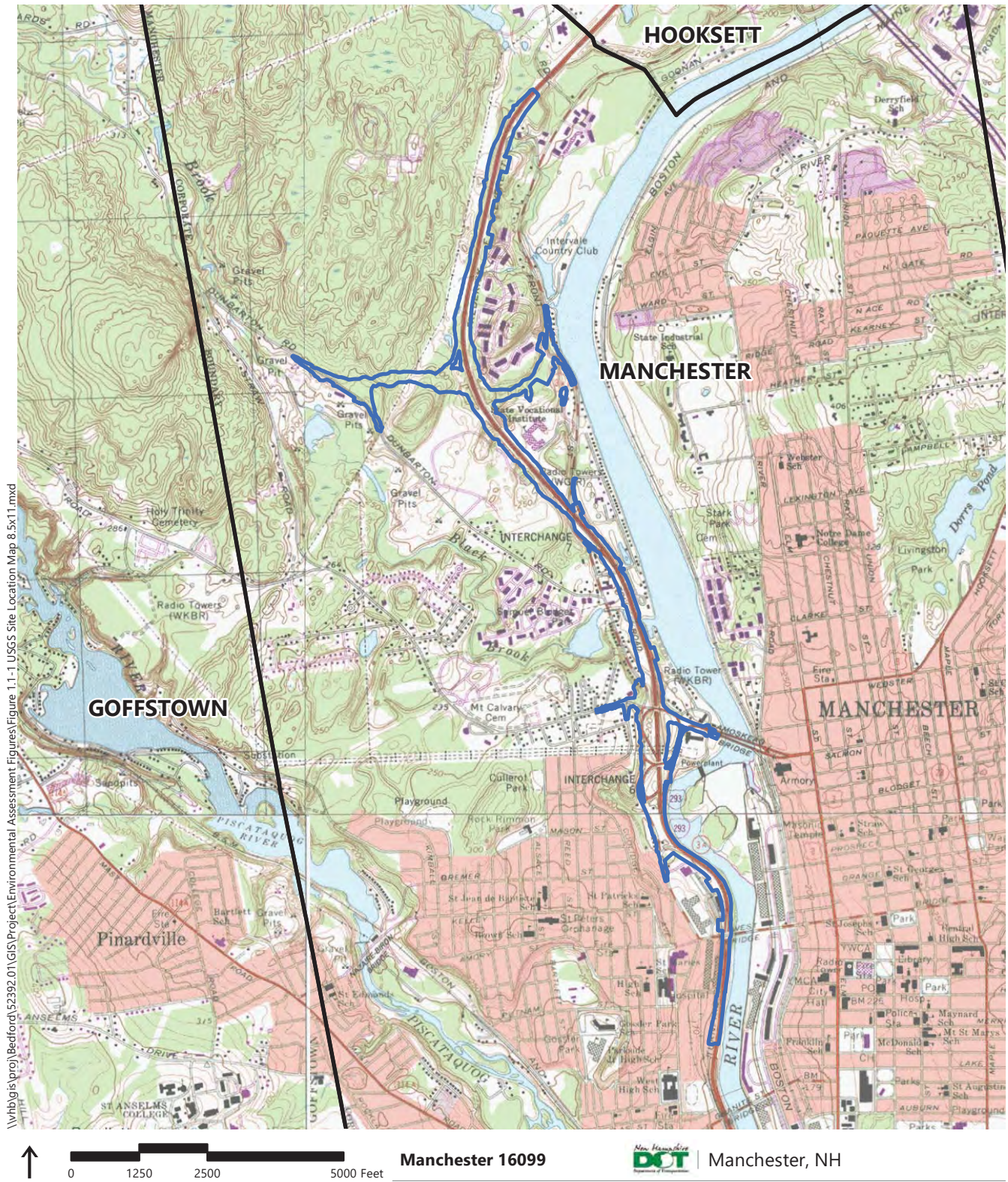
**Step 6:** Consultation with NOAA Fisheries may also be required if the proposed action results in adverse impacts to other NOAA-trust resources, such as anadromous fish, shellfish, crustaceans, or their habitats as part of the Fish and Wildlife Coordination Act Some examples of other NOAA-trust resources are listed below. Inquiries regarding potential impacts to marine mammals or threatened/endangered species should be directed to NOAA Fisheries’ Protected Resources Division.

6. OTHER NOAA-TRUST RESOURCES IMPACT ASSESSMENT	
Species known to occur at site (list others that may apply)	Describe habitat impact type (i.e., physical, chemical, or biological disruption of spawning and/or egg development habitat, juvenile nursery and/or adult feeding or migration habitat). Please note, impacts to federally listed species of fish, sea turtles, and marine mammals must be coordinated with the GARFO Protected Resources Division.
alewife	Yes*
American eel	Yes*
American shad	No
Atlantic menhaden	No
blue crab	No
blue mussel	No
blueback herring	No
F-9	

Eastern oyster	No
horseshoe crab	No
quahog	No
soft-shell clams	No
striped bass	No
other species:	Smallmouth bass, largemouth bass, rock bass, bluegill, brown bullhead, common sunfish, chain pickerel, golden shiner, redbreast sunfish, tessellated darter, yellow bullhead, common white sucker, yellow perch.*  *Data regarding existing species along the Merrimack River was obtained from the NH Fish and Game Department (see attached).
	F-10



FIGURE 1



**Matras, Lindsay**

**From:** Walker, Peter  
**Sent:** Tuesday, October 09, 2018 10:06 AM  
**To:** Matras, Lindsay  
**Subject:** FW: [External] Re: Manchester 16099 - EFH Worksheet

For the project records

**Peter J. Walker**  
Principal, Environmental Services

P 603.391.3942  
[www.vhb.com](http://www.vhb.com)

**From:** Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov>  
**Sent:** Tuesday, October 09, 2018 10:02 AM  
**To:** Crickard, Ronald <Ronald.Crickard@dot.nh.gov>  
**Cc:** Walker, Peter <PWalker@VHB.com>; Laurin, Marc <Marc.Laurin@dot.nh.gov>  
**Subject:** [External] Re: Manchester 16099 - EFH Worksheet

Ron,

Based on the information you provided in the worksheet, I concur that there should be no adverse affects to EFH for Atlantic salmon from this project. Since the banks of the river will be affected by the project, in order to ensure adverse affects to EFH are avoided best management practices to avoid/minimize sedimentation and turbidity in the water should be an important component of this project.

Thanks,

Mike

On Mon, Oct 8, 2018 at 9:45 AM Crickard, Ronald <[Ronald.Crickard@dot.nh.gov](mailto:Ronald.Crickard@dot.nh.gov)> wrote:

Good morning Mike, I'm sending you this EFH worksheet and determination on behalf of Marc Laurin. Marc has been out on extended medical leave and will return by October 22. In order to keep this project moving forward Marc has asked that I coordinate with in his absence.

The Department is proposing improvements to I-293 in Manchester. The proposed project is located along a 3.5-mile portion of I-293 beginning north of Exit 5 (Granite Street) and ending north of Exit 7 (Front Street). The project also includes Exits 6 and 7 and their associated connecting roads. The I-293 Improvement, Exits 6 & 7 Project is located along the freshwater portion of the Merrimack River within the vicinity of the Amoskeag Dam in Manchester, NH. No work is anticipated to occur within the bed of the Merrimack River, with some work occurring along the bank of the river within select areas. The Merrimack river is Essential Fish Habitat (EFH) for Atlantic Salmon.

The Department on behalf of the FHWA has determined that there is no adverse effect on EFH or no EFH is designated at the project site. A EFH worksheet has been prepared and is attached for your use. We



respectfully request your concurrence with this determination. Please let me know if you have any questions or need any additional information.

Thank you,  
Ron

*Ronald Crickard*  
Chief, Project Management  
NH Department of Transportation  
Bureau of Environment  
7 Hazen Drive, Concord, NH 03302  
Ph: (603) 271-7966  
Fax: (603) 271-7199  
[Ronald.Crickard@dot.nh.gov](mailto:Ronald.Crickard@dot.nh.gov)

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Michael R. Johnson  
U.S. Department of Commerce  
NOAA Fisheries  
Greater Atlantic Regional Fisheries Office  
Habitat Conservation Division  
55 Great Republic Drive  
Gloucester, MA 01930  
978-281-9130  
[mike.r.johnson@noaa.gov](mailto:mike.r.johnson@noaa.gov)  
<http://www.greateratlantic.fisheries.noaa.gov/>



Web [www.nmfs.noaa.gov](http://www.nmfs.noaa.gov)  
Facebook [www.facebook.com/usnoaafisheriesgov](https://www.facebook.com/usnoaafisheriesgov)  
Twitter [www.twitter.com/noaafisheries](https://www.twitter.com/noaafisheries)  
YouTube [www.youtube.com/usnoaafisheriesgov](https://www.youtube.com/usnoaafisheriesgov)

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# Appendix G - Natural Resource Agency Correspondence

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Memo

To: Lindsay Matras, VHB  
2 Bedford Farms Drive Suite 200  
Bedford, NH 03110-6532

From: Amy Lamb, NH Natural Heritage Bureau  
Date: 9/5/2018 (valid for one year from this date)  
Re: Review by NH Natural Heritage Bureau

NHB File ID: NHB18-2770

Town: Manchester

Location: Roadway ROW: Exits 6 & 7 along I-293/F.E. Everett Turnpike

Description: The New Hampshire Department of Transportation (NHDOT) has begun preparation of an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) for proposed improvements at the Exit 6 and 7 interchanges along I-293/F.E. Everett Turnpike in Manchester, New Hampshire. The proposed project (NHDOT Project #16099) is necessary to improve traffic flow, address safety concerns, and improve connectivity within the City of Manchester and surrounding areas.

cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

**Comments: Please note: a record for Northern Black Racer was recently added to the database in the vicinity of the project area. Additionally, two riverine natural communities were omitted from the first letter but have been added to this memo: *acidic riverbank outcrop* and *high-gradient rocky riverbank system*. Contact NHB if there will be impacts to these natural communities. This site is within an area flagged for possible impacts to the state-listed *Alasmidonta varicosa* (brook floater) in the Merrimack River. (This memo is a follow-up to NHB16-1844.)**

Invertebrate Species	State <sup>1</sup>	Federal	Notes
Brook Floater ( <i>Alasmidonta varicosa</i> )	E	--	Contact the NH Fish & Game Dept (see below).
Pine Barrens Zanclognatha Moth ( <i>Zanclognatha martha</i> )	SC	--	Contact the NH Fish & Game Dept (see below).
Rapids Clubtail ( <i>Gomphus quadricolor</i> )	SC	--	Contact the NH Fish & Game Dept (see below).
Skillet Clubtail ( <i>Gomphus ventricosus</i> )	SC	--	Contact the NH Fish & Game Dept (see below).
Natural Community	State <sup>1</sup>	Federal	Notes
Acidic riverbank outcrop*	--	--	Threats to these natural communities are changes in the river’s hydrology and human disturbance of the riverbank (e.g., through recreational use).
High-gradient rocky riverbank system*	--	--	Threats are primarily changes to the hydrology of the river, land conversion and fragmentation, introduction of invasive species, and increased input of nutrients and pollutants.

Department of Natural and Cultural Resources  
Division of Forests and Lands  
(603) 271-2214 fax: 271-6488

DNCR/NHB  
172 Pembroke Rd.  
Concord, NH 03301



Memo

Rich red oak rocky woods\*

Plant species

clasping milkweed (*Asclepias amplexicaulis*)

downy false foxglove (*Aureolaria virginica*)

golden heather (*Hudsonia ericoides*)\*

licorice goldenrod (*Solidago odora ssp. odora*)

Sensitive species

wild lupine (*Lupinus perennis ssp. perennis*)

State<sup>1</sup>

T

E

E

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Federal

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Notes

This species grows in sandplains and disturbed openings, and is sensitive to disturbances that eliminate its habitat.

This species occurs in rocky ridges and woodlands, dry forests, and thin woods. Threats would include development of its habitat or recreational use that directly impacted the plants.

Probably sensitive to trampling. Shade-intolerant.

This species occurs in dry forests, thin woods, sandplains, and disturbed openings. Threats would include development of its habitat or recreational use that directly impacted the plants.

Please contact NH Natural Heritage (271-2215 x 323) if project impacts could occur in the area shown on the map.

This wildflower grows in extremely dry, sandy openings and is easily identified in the field (see any wildflower guide) between early May and August. It is tolerant of surrounding disturbance and depends upon periodic mowing (or, historically, wildfire) to eliminate trees that would otherwise shade it out. It does not transplant well due to a tap root that can be more than three feet long.

Vertebrate species	State <sup>1</sup>	Federal	Notes
American Eel ( <i>Anguilla rostrata</i> )	SC	--	Contact the NH Fish & Game Dept (see below).
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	SC	--	Contact the NH Fish & Game Dept (see below).
Blanding’s Turtle ( <i>Emydoidea blandingii</i> )	E	--	Contact the NH Fish & Game Dept (see below).
Eastern Meadowlark ( <i>Sturnella magna</i> )	T	--	Contact the NH Fish & Game Dept (see below).
Grasshopper Sparrow ( <i>Ammodramus savannarum</i> )	T	--	Contact the NH Fish & Game Dept (see below).
New England Cottontail ( <i>Sylvilagus transitionalis</i> )	E	--	Contact the NH Fish & Game Dept (see below).
Northern Black Racer ( <i>Coluber constrictor constrictor</i> )	T	--	Contact the NH Fish & Game Dept (see below).
Peregrine Falcon ( <i>Falco peregrinus anatum</i> )	T	--	Contact the NH Fish & Game Dept (see below).
Redfin Pickerel ( <i>Esox americanus americanus</i> )	SC	--	Contact the NH Fish & Game Dept (see below).
Wood Turtle ( <i>Glyptemys insculpta</i> )	SC	--	Contact the NH Fish & Game Dept (see below).

Department of Natural and Cultural Resources  
Division of Forests and Lands  
(603) 271-2214 fax: 271-6488

DNCR/NHB  
172 Pembroke Rd.  
Concord, NH 03301

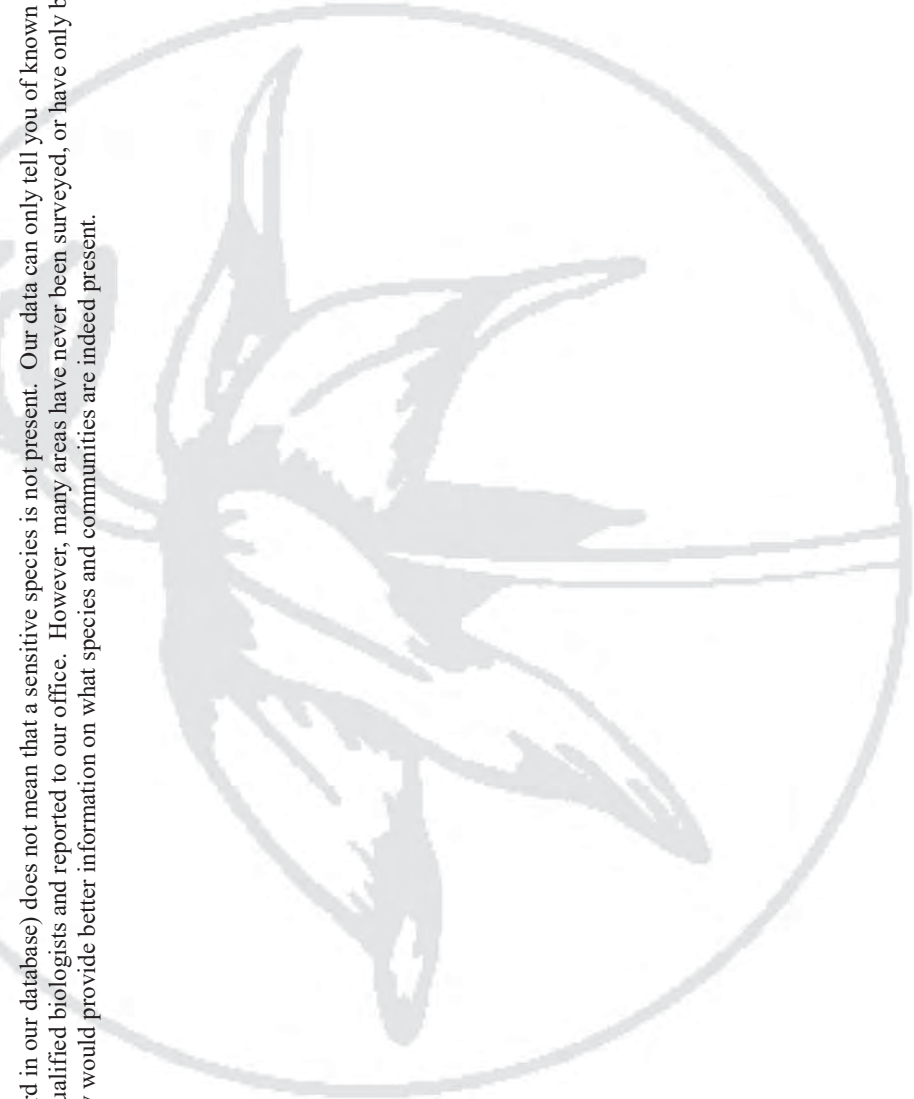


Memo

<sup>1</sup>Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "-" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (\*) indicates that the most recent report for that occurrence was more than 20 years ago.

Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

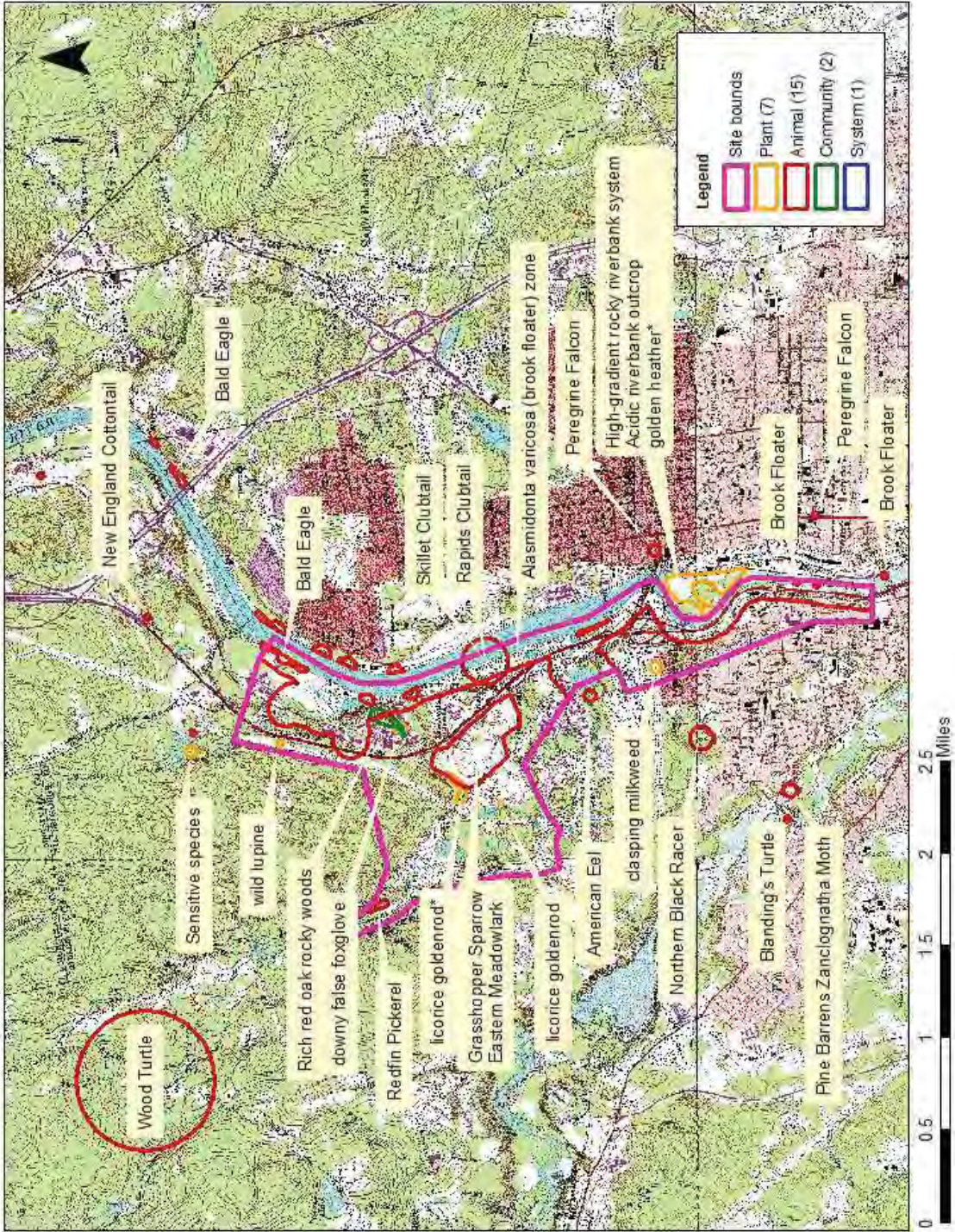
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.



Department of Natural and Cultural Resources  
Division of Forests and Lands  
(603) 271-2214 fax: 271-6488

DNCR/NHB  
172 Pembroke Rd.  
Concord, NH 03301

NHB18-2770







## Phone Notes

Person Contacted: Amy Lamb

Title: Ecological Information  
Specialist

Company: NH Natural Heritage Bureau

VHB Rep: Lindsay Jones

Telephone #: 603-271-2215 x323

Project # 52392.01

Email Address: amy.lamb@dred.nh.gov

Date: August 24, 2016



**Victoria F. Sheehan**  
**Commissioner**

**THE STATE OF NEW HAMPSHIRE**  
**DEPARTMENT OF TRANSPORTATION**



**William Cass, P.E.**  
**Assistant Commissioner**

April 8, 2019

Amy Lamb  
NH Natural Heritage Bureau  
172 Pembroke Road  
Concord, NH 03301

RE: I-293 Improvements Project, Exits 6 & 7 (NHDOT Project #16099)  
Manchester, New Hampshire

Dear Ms. Lamb:

The NH Department of Transportation, with our consultant VHB, is preparing an Environmental Assessment pursuant to the National Environmental Policy Act in support of the reconfiguration of the portion of I-293 (FE Everett Turnpike). The Project is located in Manchester, New Hampshire, beginning north of Exit 5 (Granite Street) and ending north of Exit 7 (Front Street). Refer to **Figure 1**, USGS Location Map, attached.

The purpose of the proposed Project is to address capacity, safety, and access related deficiencies along a 3.5-mile portion of I-293. The Study Area comprises the urban, four-lane, median divided limited access I-293 highway, the full interchange at Exit 6 and the partial interchange at Exit 7, as well as some connecting roadways to these segments. The Proposed Action was chosen based upon an extensive evaluation of several alternatives along the various segments of the project. The Proposed Action, depicted in **Figure 2**, consists of widening the I-293 mainline from two lanes to three lanes in either direction, as well as reconfiguring the Exit 6 interchange to a Single Point Urban Interchange, and relocating Exit 7 approximately 0.5 miles to the north and constructing an interchange connector road which will connect the relocated interchange with Dunbarton Road on the west and Front Street on the east. Construction of the project is currently anticipated to begin in 2024.

Several NH Natural Heritage Bureau (NHNHB) reports have been generated during various planning stages of the Project, including NHB12-1122, NHB16-1844, and the most recent, NHB18-2770, generated by VHB on September 5, 2018 (see attached). The most recent report identified the following rare plants and natural communities as occurring within the vicinity of the Study Area:

- Acidic riverbank outcrop
- High-gradient rocky riverbank system
- Rich red oak rocky woods
- Claspig milkweed (*Asclepias amplexicaulis*)
- Downy false foxglove (*Aureolaria virginica*)
- Golden heather (*Hudsonia ericoides*)
- Licorice goldenrod (*Solidago odora* spp. *odora*)
- Sensitive species (Small whorled pogonia *Isotria medeoloides* – coordination with USFWS in process)
- Wild lupine (*Lupinus perennis* spp. *perennis*)

Of the list above, acidic riverbank outcrop, high-gradient rocky riverbank system, golden heather, and small whorled pogonia are not anticipated to be impacted by the proposed project. The high-gradient rocky riverbank system, acidic riverbank outcrop, and golden heather are located on the rocky outcrops along the eastern bank of

the Merrimack River below the Amoskeag Dam. These areas will not be impacted by the proposed Project, and this specialized habitat type does not occur anywhere else in the Study Area.

Initial correspondence with you regarding the project was conducted in a phone conversation on August 24, 2016 during which VHB coordinated on available data for the licorice goldenrod populations found within the vicinity of the Study Area. VHB conducted a plant survey in August 2016 for the following species:

- Small Whorled Pogonia (not identified within the Study Area during survey)
- Licorice goldenrod (identified in known locations within the Study Area during survey)

The “sensitive species” listed in the NHNHBB report referred to small whorled pogonia. Field surveys conducted by VHB in 2016 found that small whorled pogonia populations were not present in the Study Area. Coordination with the US Fish and Wildlife Service is on-going to verify no impacts to this species. The following is a discussion of the remaining plant species known to occur near the Project Footprint.

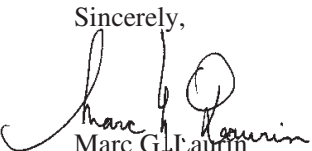
During the survey, the known occurrence of licorice goldenrod north of the Manchester Landfill and south of the powerline right-of-way (ROW) near Dunbarton Road to still contain a large population of viable plants. This area would not be impacted by the Proposed Action; however, since the population may extend north of the powerline ROW into the Project Footprint, a segment of this population may be impacted by the Proposed Action. We suggest that another plant survey be conducted prior to construction to verify the exact location of this plant species with respect to the final Project Footprint.

Minimal impact, if any, would occur in the forested area around Country Club Drive, which the NHNHBB report identifies as a rich oak rocky woods natural community and also contains an occurrence of downy false foxglove. Minimal permanent impact would occur at the intersection of Country Club Drive with Front Street where intersection reconfiguration is proposed, which is just outside of the identified natural community and occurrence of downy false foxglove. Therefore, these resources are not expected to be negatively impacted by the proposed project. Downy false foxglove was not included in the plant survey conducted by VHB in 2016, therefore we suggest that a survey for this plant be conducted within the Project Footprint near Country Club Drive to verify the location of this species prior to construction.

Clasping milkweed is known to occur along the powerline ROW west of the Exit 6 interchange and south of Fieldcrest Road. The Project Footprint near this area is limited to the area around the existing Exit 6 interchange and I-293 roadway corridor, therefore it is unlikely that the habitat for clasping milkweed would be impacted by the proposed construction work (refer to **Figure 2**). However, we suggest that a survey for clasping milkweed within this area be completed prior to construction to verify the extent of this species.

The NHNHBB report identified occurrences of wild lupine along the powerline ROW near Hackett Hill in 2011. Wild lupine prefers dry and sandy soils and open areas, which makes the powerline ROW suitable habitat for this species. This area was not included in the plant survey conducted in 2016, and we suggest additional surveys be conducted prior to construction where the Project crosses the powerline ROW.

To manage potential impacts to protected plant species, we propose additional plant surveys be conducted for licorice goldenrod, downy false foxglove, clasping milkweed, and wild lupine in 2022-2023 (closer to the anticipated construction phase). These future surveys would account for annual and seasonable population variations, ensuring an accurate population location prior to construction. Additionally, we would like to know if you concur that no impacts are anticipated to occur to the three listed natural communities or golden heather. Thank you for your input, and please let me know if you have any questions or require any further information.

Sincerely,  
  
Marc G. Laurin  
Senior Environmental Manager  
Room 109 – Tel (603) 271-4044  
E-mail – marc.laurin@dot.nh.gov

Attachments:  
Figure 1 – USGS Location Map  
Figure 2 – Proposed Action  
NHB Datacheck Results Letter (NHB18-2770)  
August 2016 Phone Notes

cc: Peter Walker, VHB  
Lindsay Matras, VHB





## NEW HAMPSHIRE NATURAL HERITAGE BUREAU

DIVISION OF FORESTS & LANDS - DNCR  
172 PEMBROKE ROAD, CONCORD, NH 03301  
(603) 271-2214 [WWW.NHDFL.ORG](http://WWW.NHDFL.ORG)

**To:** Marc G. Laurin, Senior Environmental Manager,  
NHDOT Bureau of Environment

**Cc:** Peter Walker and Lindsay Matras, Vanasse Hangen Brustlin, Inc. (VHB)

**From:** Amy Lamb, Ecological Information Specialist, NH Natural Heritage Bureau

**Date:** April 25, 2019

**Subject:** RE: I-293 Improvements Project, Exits 6 & 7 (NHDOT Project #16099)  
Manchester, New Hampshire

Thank you for your April 8, 2019 letter regarding the preparation of a National Environmental Policy Act (NEPA) Environmental Assessment for the above referenced project. NHB appreciates NHDOT's and VHB's efforts to survey for rare plant species that may be impacted by the project.

NHB has reviewed this letter and the provided attachments, and is in support of NHDOT's recommendation to conduct additional rare plant surveys for the following species in 2022-2023, prior to the anticipated construction phase:

clasping milkweed (*Asclepias amplexicaulis*)  
downy false foxglove (*Aureolaria virginica*)  
wild lupine (*Lupinus perennis*)  
licorice goldenrod (*Solidago odora*)

NHB also concurs with NHDOT's assessment that there are no anticipated impacts to the following rare plant species, exemplary natural communities and natural community system:

golden heather (*Hudsonia ericoides*)  
**Acidic riverbank outcrop**  
**Rich red oak rocky woods**  
**High-gradient rocky riverbank system**

**NHB recommends:** Provide NHB with a detailed map or plan showing the proposed rare plant survey extents. Please provide at least 3 months prior to initiating the surveys in 2022-2023.

Thank you for your coordination on this project. If you have any questions, please contact me at [Amy.Lamb@dn-cr.nh.gov](mailto:Amy.Lamb@dn-cr.nh.gov) or (603) 271-2834.



## THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION



Victoria F. Sheehan  
Commissioner

William Cass, P.E.  
Assistant Commissioner

April 8, 2019

Kim Tuttle  
NH Fish and Game Department  
11 Hazen Drive  
Concord, NH 03301

RE: I-293 Improvements Project, Exits 6 & 7 (NHDOT Project #16099)  
Manchester, New Hampshire

Dear Ms. Tuttle:

The NH Department of Transportation, with our consultant VHB, is preparing an Environmental Assessment pursuant to the National Environmental Policy Act in support of the reconfiguration of the portion of I-293 (FE Everett Turnpike). The Project is located in Manchester, New Hampshire, beginning north of Exit 5 (Granite Street) and ending north of Exit 7 (Front Street). Refer to **Figure 1**, USGS Location Map, attached.

The purpose of the proposed Project is to address capacity, safety, and access related deficiencies along a 3.5-mile portion of I-293. The Study Area comprises the urban, four-lane, median divided limited access I-293 highway, the full interchange at Exit 6 and the partial interchange at Exit 7, as well as some connecting roadways to these segments. The Proposed Action was chosen based upon an extensive evaluation of several alternatives along the various segments of the project. The Proposed Action, depicted in **Figure 2**, consists of widening the I-293 mainline from two lanes to three lanes in either direction, as well as reconfiguring the Exit 6 interchange to a Single Point Urban Interchange, and relocating Exit 7 approximately 0.5 miles to the north and constructing an Interchange Connector roadway which will connect the relocated interchange with Dunbarton Road on the west and Front Street on the east. Construction of the project is currently anticipated to begin in 2024.

Several NH Natural Heritage Bureau (NHNHB) reports have been generated for the proposed Project during various planning stages of the Project, including NHB12-1122, NHB16-1844, and the most recent, NHB18-2770, generated by VHB on September 5, 2018 (see attached). The most recent report identified the following invertebrate and vertebrate species as occurring within or near the Study Area:

- American eel (*Anguilla rostrata*)
- Bald eagle (*Haliaeetus leucocephalus*)
- Blanding's turtle (*Emydoidea blandingii*)
- Eastern meadowlark (*Sturnella magna*)
- Grasshopper sparrow (*Ammodramus savannarum*)
- New England cottontail (*Sylvilagus transitionalis*)
- Northern black racer (*Coluber constrictor constrictor*)
- Peregrine falcon (*Falco peregrinus anatum*)
- Redfin pickerel (*Esox americanus americanus*)
- Wood turtle (*Glyptemys insculpta*)
- Brook floater (*Alasmodonta varicosa*)
- Pine barrens Zanclognatha moth (*Zanclognatha martha*)
- Rapids clubtail (*Comphus quadricolor*)
- Skillet clubtail (*Gomphus ventricosus*)

Of the species listed in the report, brook floater, American eel, and redbfin pickerel are not anticipated to be impacted by the Proposed Action since no work is anticipated to occur within the bed of the Merrimack River. Work will occur within Black Brook to replace the existing bridge structure carrying I-293 over the brook. This area has been previously impacted by bridge construction, including a recent stabilization project (NHDOT Project #40367). For this project, a freshwater mussel survey was conducted within Black Brook by Biodrawiversity on September 13, 2015, during which no freshwater mussels including brook floater were observed. The segment of Black Brook surveyed by Biodrawiversity includes the area proposed to be impacted by the I-293 Improvements Project. Therefore, proposed work within Black Brook is not anticipated to impact freshwater mussels. Erosion and sediment control BMPs will be used, particularly within the vicinity of surface waters, to protect the water quality of adjacent wetlands and waterbodies from indirect impacts.

Additionally, New England cottontail, peregrine falcon, Blanding’s turtle, wood turtle, northern black racer, and Zanclognatha moth are known only from areas well outside of the Project Footprint, and the habitat for these species is unlikely to be impacted. For example, Blanding’s turtle was found along Piscataquog River, which is not included in the Project Footprint, and the northern black racer was found near Rock Rimmon Park, which is also located well outside of the Project Footprint. Peregrine falcon is known to occur east of the Merrimack River from the Project Footprint, however this species is known to roost on man-made structures in this area and is not known to occur on the western side of the Merrimack River near the Project Footprint. Since these species are known to occur outside of the Project Footprint, they are not anticipated to be impacted by the Proposed Action.

The following is a discussion of anticipated impacts proposed to species known to occur within or near the Study Area.

Avian Species

Bald eagles are known to be present along the Merrimack River within the northern section of the Project Footprint. Individual birds or multiple individuals at a time have been observed along the river numerous times as recorded from 2002 to 2012. According to the NHNHB report for this project, bald eagle occurrences along the western side of the Merrimack River within or near the Project Footprint was identified along Front Street near the intersection with the proposed relocated Exit 7 interchange connector road, and along the I-293 corridor near the confluence of Black Brook with the Merrimack River (refer to **Figure 2**). The Project Footprint also extends into the bank of the Merrimack River south of Exit 6, however no known occurrences of bald eagle have been recorded in this area.

Project work includes reconfiguring the existing three-way intersection of Front Street with Country Club Drive to a four-way intersection of Front Street, Country Club Drive, and the proposed Exit 7 interchange connector road. Repaving would occur along Front Street to tie the reconfigured intersection into the existing roadway. The reconfigured intersection would require tree removal in this area, as well as slope impacts that extend beyond the existing road shoulder to the north and south of the intersection. Although no bald eagle perch or roost trees have been identified within this portion of the Project Footprint, this tree clearing may impact bald eagle perch or roost trees within this area. Similarly, temporary construction noise impacts may also affect bald eagles that would use any perch and roosting trees along the Merrimack River in the vicinity of the Project Footprint.

Some tree clearing will also be required along the I-293 corridor near the confluence of Black Brook with the Merrimack River. Tree clearing will be limited to the I-293 corridor and will not extend to trees that are located along the edge of the Merrimack River near Riverside Drive, where there are documented occurrences of bald eagles. This tree clearing is required to widen the I-293 corridor as well as to construct a stormwater BMP (such as a stormwater detention basin) along the highway.

The Project Footprint extends south along the Merrimack River between the Granite Street Bridge just north of Exit 5 to the Exit 6 interchange. The I-293 mainline would be widened within this area to the west toward the Cotton Duck Mill Building located at 195 Front Street to avoid more impacts along the bank of the Merrimack River. Shrub and tree clearing would be required along the river bank for slope grading beyond the existing

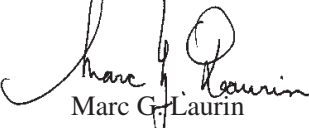
highway shoulder, however most of the trees along this corridor are hardwood and unlikely to be used by bald eagles due to the close proximity to the roadway.

Grasshopper sparrow and Eastern meadowlark are known to occur around the Manchester Landfill. The Project Footprint runs east of the Manchester Landfill where the I-293 mainline would be widened, and to the north where the Exit 7 southbound on- and off-ramps and associated new interchange connector road are proposed. Tree clearing would occur between I-293 and the Manchester Landfill, and slope grading would extend toward the Landfill within this area. To the north, a buffer of trees would remain between the Manchester Landfill and the interchange connector road. Due to the close proximity of the Project Footprint to the Manchester Landfill, grasshopper sparrow and eastern meadowlark using the grassland habitat within this area may be temporarily disturbed due to construction activities, such as noise.

Dragonfly & Moth Species

Rapids clubtail and skillet clubtail are two dragonfly species of special concern that were observed along the Merrimack River north of Black Brook near Stark Lane. Both species prefer habitats near mud or silt-bottomed, slow-moving rivers. Adults are often found in forested habitats adjacent to these kinds of rivers. Under the Proposed Action, limited work is anticipated near known occurrences of these dragonflies, as work in this area would include improving the entrance of Delia Drive where it intersects Front Street and connecting Delia Drive with the condominiums located to the north. This area is heavily developed and previously disturbed by residences and condominiums. Construction disturbance would occur to the north where the intersection of Front Street and the Exit 7 interchange connector road would be constructed. Therefore, no direct, permanent impacts to these dragonfly species are anticipated by the Proposed Action. Temporary indirect impacts due to noise and construction may occur within areas of known occurrences of these species.

We would like to know if you concur with our assessment that impacts to grasshopper sparrow, eastern meadowlark, rapids clubtail, and skillet clubtail would only be temporary from construction noise impacts, or if you have any concerns regarding potential project impacts to these species. We would also like to know if you have any concerns regarding tree clearing and construction noise impacts to bald eagles that may occur in or near the Project Footprint. Finally, we would like to know if you concur that no substantial impacts are anticipated to occur to all other vertebrate and invertebrate species listed on the NHNHB report which are known to occur outside of the Project Footprint. Thank you for your input, and please let me know if you have any questions or require any further information.

Sincerely,  
  
Marc G. Laurin  
Senior Environmental Manager  
Room 109 – Tel (603) 271-4044  
E-mail – marc.laurin@dot.nh.gov

Attachments:  
Figure 1 – USGS Location Map  
Figure 2 – Proposed Action  
NHB Datacheck Results Letter (NHB18-2770)

cc: Peter Walker, VHB  
Lindsay Matras, VHB



**Matras, Lindsay**

**From:** Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>  
**Sent:** Thursday, April 11, 2019 8:52 AM  
**To:** Laurin, Marc  
**Cc:** Walker, Peter; Matras, Lindsay; Doperalski, Melissa  
**Subject:** [External] RE: Manchester, 16099 - Special Concern, Threatened and Endangered Species Assessment NHB18-2770

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Marc,

We would like to see aerials that delineate areas where trees would be removed along the bank of the Merrimack River or Black Brook as well as aerials and a few photos of any proposed impacts to the banks of the Merrimack River so that we may determine if brook floater mussel surveys will be required. If Merrimack River banks will be disturbed, we would like to know what kind of river substrate is in the immediate area. We would like see a discussion of the extent of bank impacts and types of habitat that will be cleared and how bank impacts will be stabilized including the use of erosion control materials that are wildlife safe as river and brook riparian habitat serve as important wildlife corridors. What will remain as far as riparian buffers along this stretch? I didn't see anything on the types or extent of wetland impacts. Have vernal pool surveys been conducted yet? The next couple of weeks in April into early May would be a good time to get out there and get those done.

Melissa Doperalski from this office will attend any pre- application meetings that you will be having with DES so include her in all emails regarding this project.

Thanks,

Kim Tuttle  
Wildlife Biologist  
NH Fish and Game  
11 Hazen Drive  
Concord, NH 03301  
603-271-6544

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**From:** Laurin, Marc  
**Sent:** Monday, April 8, 2019 2:34 PM  
**To:** Tuttle, Kim  
**Cc:** Peter Walker; Lindsay Matras  
**Subject:** Manchester, 16099 - Special Concern, Threatened and Endangered Species Assessment

Kim,

Attached for your review is information on the assessment of potential impacts to Special Concern, Threatened and Endangered Species of the proposed project, the reconfiguration of portions of I-293 in Manchester from North of Exit 5 to the relocation of Exit 7 approximately 0.5 miles north of the existing.



**United States Department of the Interior**



**FISH AND WILDLIFE SERVICE**  
New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
Phone: (603) 223-2541 Fax: (603) 223-0104  
<http://www.fws.gov/newengland>

In Reply Refer To: August 29, 2018  
Consultation Code: 05E1NE00-2016-SLI-1655  
Event Code: 05E1NE00-2018-E-06851  
Project Name: Improvements to I-293 (F.E. Everett Turnpike), Exits 6 & 7 (NHDOT #16099)

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

**To Whom It May Concern:**

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
(603) 223-2541



Project Summary

Consultation Code: 05E1NE00-2016-SLI-1655

Event Code: 05E1NE00-2018-E-06851

Project Name: Improvements to I-293 (F.E. Everett Turnpike), Exits 6 & 7 (NHDOT #16099)

Project Type: TRANSPORTATION

Project Description: The New Hampshire Department of Transportation (NHDOT) has begun preparation of an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) for proposed improvements at the Exit 6 and 7 interchanges along I-293/F.E. Everett Turnpike in Manchester, NH. The proposed project (NHDOT Project #16099) is necessary to improve traffic flow, address safety concerns, and improve connectivity within the City of Manchester and surrounding areas.

Project Location:  
Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/43.013114328146315N71.49526482559243W>



Counties: Hillsborough, NH

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

Flowering Plants

NAME	STATUS
Small Whorled Pogonia <i>Isotria medeoloides</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1890">https://ecos.fws.gov/ecp/species/1890</a>	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.





THE STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION



Victoria F. Sheehan  
Commissioner

William Cass, P.E.  
Assistant Commissioner

LETTER OF TRANSMITTAL

Date: 10/09/2018

TO: Susi von Oettingen  
Endangered Species Biologist  
US Fish and Wildlife Service  
70 Commercial Street, Suite 300  
Concord, NH 03301

Bureau: Environment  
Project: Manchester, I-293 Exits 6 & 7  
Project No.: 16099  
Consultation Code: 05E1NE00-2016-SLI-1655

Susi:

WE ARE SENDING YOU

☒ Attached

☐ Under separate cover via  
the following items:

COPIES	DATE	DESCRIPTION
1	10/9/18	NLEB 4(d) Rule Streamlined Consultation Form
1	10/9/18	Project Location Map
1	10/9/18	USFWS Official Species List
1	10/9/18	Connector Road Location Map

THESE ARE TRANSMITTED as checked below:

- ☒ For approval  
☐ For your use  
☐ As requested  
☐ For review and comment

- ☐ Approved as submitted  
☐ Approved as noted  
☐ Returned for corrections  
☐ Returned for your use

REMARKS: Enclosed is the NLEB 4(d) Rule Streamlined Consultation Form and backup information for the above referenced project which proposes to address primary concerns within the project area by reconfiguring the Interstate 293 (I-293) Exit 6 interchange, moving the I-293 Exit 7 interchange approximately 0.5 miles to the north, and expanding the northbound and southbound I-293 mainline from two lanes to three in the city of Manchester, NH. The NHDOT has determined that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule. The lead Federal Agency is the Federal Highway Administration. The project does include tree clearing for a connector road which will be located more than 300 feet from road surfaces.

Your concurrence with this determination is requested. Please contact me if you have any questions.

Rebecca Martin  
Senior Environmental Manager  
Bureau of Environment, NHDOT  
Room 160 - Tel. (603) 271-6781  
Rebecca.martin@dot.nh.gov

Enc.

JOHN O. MORTON BUILDING • 7 HAZEN DRIVE • P.O. BOX 483 • CONCORD, NEW HAMPSHIRE 03302-0483  
TELEPHONE: 603-271-3734 • FAX: 603-271-3914 • TDD: RELAY NH 1-800-735-2964 • INTERNET: WWW.NHDOT.COM

G-19

Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Federal agencies should use this form for the optional streamlined consultation framework for the northern long-eared bat (NLEB). This framework allows federal agencies to rely upon the U.S. Fish and Wildlife Service's (USFWS) January 5, 2016, intra-Service Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiation of consultation is required per 50 CFR 402.16.

This form is not necessary if an agency determines that a proposed action will have no effect to the NLEB or if the USFWS has concurred in writing with an agency's determination that a proposed action may affect, but is not likely to adversely affect the NLEB (i.e., the standard informal consultation process). Actions that may cause prohibited incidental take require separate formal consultation. Providing this information does not address section 7(a)(2) compliance for any other listed species.

IPaC Official Species List Consultation Code: 05E1NE00-2016-SLI-1655

Information to Determine 4(d) Rule Compliance:

	YES	NO
1. Does the project occur wholly outside of the WNS Zone <sup>1</sup> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Have you contacted the appropriate agency <sup>2</sup> to determine if your project is near known hibernacula or maternity roost trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Could the project disturb hibernating NLEBs in a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Could the project alter the entrance or interior environment of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

You are eligible to use this form if you have answered yes to question #1 **or** yes to question #2 **and** no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the BO.

Agency and Applicant<sup>3</sup> (Name, Email, Phone No.): Rebecca Martin, NH DOT,  
Rebecca.martin@dot.nh.gov , (603) 271-6781

Project Name: Manchester 16099

Project Location (include coordinates if known): Interstate 293 Exits 6 & 7

Basic Project Description (provide narrative below or attach additional information): The proposed project is located along a 3.5-mile portion of I-293 beginning north of Exit 5 (Granite Street) and ending north of Exit 7 (Front Street). The project also includes Exits 6 and 7 and their associated connecting roads. The proposed project will address primary concerns within the project area by reconfiguring the

<sup>1</sup> <http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/WNSZone.pdf>

<sup>2</sup> See <http://www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html>

<sup>3</sup> If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.

G-20



Exit 6 interchange, moving the Exit 7 interchange approximately 0.5 miles to the north, and expanding the northbound and southbound I-293 mainline from two lanes to three.

General Project Information	YES	NO
Does the project occur within 0.25 miles of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project occur within 150 feet of a known maternity roost tree?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project include forest conversion <sup>4</sup> ? (if yes, report acreage below)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Estimated total acres of forest conversion	20 acres	
If known, estimated acres <sup>5</sup> of forest conversion from April 1 to October 31		
If known, estimated acres of forest conversion from June 1 to July 31 <sup>6</sup>		
Does the project include timber harvest? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of timber harvest		
If known, estimated acres of timber harvest from April 1 to October 31		
If known, estimated acres of timber harvest from June 1 to July 31		
Does the project include prescribed fire? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of prescribed fire		
If known, estimated acres of prescribed fire from April 1 to October 31		
If known, estimated acres of prescribed fire from June 1 to July 31		
Does the project install new wind turbines? (if yes, report capacity in MW below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated wind capacity (MW)		

Agency Determination:

By signing this form, the action agency determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, the action agency may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 5, 2016, Programmatic BO. The action agency will update this determination annually for multi-year activities.

The action agency understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the appropriate USFWS Field Office. The action agency will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. Involved parties will promptly notify the appropriate USFWS Field Office upon finding a dead, injured, or sick NLEB.

Signature: [Signature] Date Submitted: 10/9/2018

<sup>4</sup> Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 48 of the BO).  
<sup>5</sup> If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.  
<sup>6</sup> If the activity includes tree clearing in June and July, also include those acreage in April to October.



THE STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION



Victoria F. Sheehan  
Commissioner

William Cass, P.E.  
Assistant Commissioner

April 8, 2019

Susi von Oettingen  
Endangered Species Biologist  
New England Field Office  
70 Commercial Street  
Concord, NH 03301

RE: I-293 Improvements Project, Exits 6 & 7 (NHDOT Project #16099)  
Manchester, New Hampshire

Dear Ms. von Oettingen:

The NH Department of Transportation, with our consultant VHB, is preparing an Environmental Assessment pursuant to the National Environmental Policy Act in support of the reconfiguration of the portion of I-293 (FE Everett Turnpike). The Project is located in Manchester, New Hampshire, beginning north of Exit 5 (Granite Street) and ending north of Exit 7 (Front Street). Refer to **Figure 1**, USGS Location Map, attached.

The purpose of the proposed Project is to address capacity, safety, and access related deficiencies along a 3.5-mile portion of I-293. The Project Area consists of the urban, four-lane, median divided limited access I-293 highway, the full interchange at Exit 6 and the partial interchange at Exit 7, as well as some connecting roadways to these segments. The Proposed Action was chosen based upon an extensive evaluation of several alternatives along the various segments of the project. The Proposed Action, depicted in **Figure 2**, consists of widening the I-293 mainline from two lanes to three lanes in either direction, as well as reconfiguring the Exit 6 interchange to a Single Point Urban Interchange, and relocating Exit 7 approximately 0.5 miles to the north and constructing an interchange connector road which will connect the relocated interchange with Dunbarton Road on the west and Front Street on the east. Construction of the project is currently anticipated to begin in 2024.


The report generated from the US Fish and Wildlife Service’s (USFWS) Information for Planning and Conservation (IPaC) tool on August 29, 2018 (05E1NE00-2016-SLI-1655) identified the presence of two species within the project area: northern long-eared bat (*Myotis septentrionalis*) and small whorled pogonia (*Isotria medeoloides*).

Construction of the Proposed Action will involve tree clearing both within and outside of the tree clearing time-of-year restriction for NLEB in Manchester (April 15<sup>th</sup> – September 30<sup>th</sup>). This tree clearing would be greater than 300 feet away from existing roadways, therefore the Project does not qualify under the FHWA Programmatic Agreement. In accordance with the procedures contained in the *FHWA/FRA Range-wide Programmatic Informal Consultation for Indiana Bat and Northern Long-eared Bat*, December 2016, a Streamlined Consultation Form was submitted to the USFWS on October 9, 2018 with a determination that the Proposed Action is “likely to adversely affect” NLEB, but any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule. NHDOT did not receive a response to this submittal within the 30-day review period, and therefore we assume that our determination was based on the best information possible and that the Department has met the requirements of Section 7 of the Endangered Species Act. Section 7(a)(2) requirements state that “At least 30 days in advance of funding, authorizing, or carrying out an action, the federal agency must provide written notification of their determination to the appropriate Service Field Office.”<sup>1</sup>

<sup>1</sup> US Fish and Wildlife Service. *Optional Framework to Streamline Section 7 Consultation for the Northern Long-Eared Bat*. Revised February 17, 2016. <https://www.fws.gov/midwest/endangered/mammals/nleb/pdf/S7FrameworkNLEB17Feb2016.pdf>  
JOHN O. MORTON BUILDING • 7 HAZEN DRIVE • P.O. BOX 483 • CONCORD, NEW HAMPSHIRE 03302-0483  
TELEPHONE: 603-271-3734 • FAX: 603-271-3914 • TDD: RELAY NH 1-800-735-2964 • INTERNET: WWW.NHDOT.COM

The Proposed Action is not anticipated to negatively impact small whorled pogonia. Small whorled pogonia grows in mature hardwood forests composed of birch/beech/maple/oak/hickory with acidic soils and an open understory. Habitat for the small whorled pogonia is present in the northeastern portion of the Project near Hackett Hill, as well as around Country Club Drive. However, a systematic survey for small whorled pogonia was conducted by VHB in August 2016, during which no small whorled pogonia plant populations were observed. Based on the results of this field survey, NHDOT believes the project will not result in impacts to this species.

The Department is currently compiling a draft Environmental Assessment for the project and intends to issue a public draft and hold a hearing in the next few months. Please let us know at your earliest convenience if you concur with our determinations or whether you have any comments or concerns. Thank you for your input, and please let me know if you have any questions or require any further information.

Sincerely,  
  
Marc G. Laurin  
Senior Environmental Manager  
Room 109 – Tel (603) 271-4044  
E-mail – marc.laurin@dot.nh.gov

- Attachments:
- Figure 1 – USGS Location Map
  - Figure 2 – Proposed Action
  - USFWS IPaC Report
  - USFWS Streamlined Consultation Form

cc: Rebecca Martin, NHDOT  
Peter Walker, VHB  
Lindsay Matras, VHB

**Matras, Lindsay**

**From:** Laurin, Marc <Marc.Laurin@dot.nh.gov>  
**Sent:** Tuesday, April 9, 2019 9:56 AM  
**To:** Matras, Lindsay  
**Cc:** Martin, Rebecca; Walker, Peter  
**Subject:** FW: [EXTERNAL] Manchester, 16099 - Threatened Species Concurrence

FYI

**From:** vonOettingen, Susi [mailto:susi\_vonoettingen@fws.gov]  
**Sent:** Tuesday, April 09, 2019 9:37 AM  
**To:** Laurin, Marc  
**Subject:** Re: [EXTERNAL] Manchester, 16099 - Threatened Species Concurrence

Hi Marc,

Thank you for clarifying your request regarding the consultation for this project during this morning's telephone conversation. The 4(d) streamlined consultation form that was submitted last October was reviewed and is in compliance with the 4(d) rule. Any incidental take resulting from the project is not prohibited under the 4(d) rule. No further consultation under section 7 of the ESA is required unless project plans change.

Please call me at 603-227-6418 if you need further assistance.

Sincerely,

Susi von Oettingen

\*\*\*\*\*  
Susi von Oettingen  
Endangered Species Biologist  
New England Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301  
(W) 603-227-6418  
(Fax) 603-223-0104

[www.fws.gov/newengland](http://www.fws.gov/newengland)

On Mon, Apr 8, 2019 at 2:37 PM Laurin, Marc <Marc.Laurin@dot.nh.gov> wrote:

Susi,



Attached for your concurrence is information on the assessment of potential impacts to Threatened Species of the proposed project, the reconfiguration of portions of I-293 in Manchester from North of Exit 5 to the relocation of Exit 7 approximately 0.5 miles north of the existing.

Please contact me if you have any questions.

Thanks,

Marc



Peter Walker  
VHB, Inc.  
2 Bedford Farms Drive, Suite 200  
Bedford, NH 03110



September 16, 2015

**REPORT**  
**Freshwater Mussel Survey in Black Brook for the I-293 Bridge Replacement Project**  
**(Manchester, New Hampshire)**

Biodrawiversity LLC conducted a freshwater mussel survey in Black Brook upstream and downstream of the Interstate 293 Bridge in Manchester, New Hampshire (Figure 1). The survey was conducted as part of the environmental review and permitting for proposed bridge replacement. Although no state-listed mussels had been previously documented in this stream, the project is a short distance upstream from Merrimack River where the Brook Floater (*Alasmodonta varicosa*) has been documented. The primary objectives of the proposed study were:

- Determine if state-listed mussels occur in the project area, which includes a 225-meter reach of the Black River from 100 meters upstream of the I-293 Bridge to its confluence with the Merrimack River.
- Collect information on population size and habitat quality/availability to determine the possible effects of proposed construction on state-listed mussel species, if found.
- Based on survey results, recommend steps to avoid or minimize "take" during construction, such as a relocation and monitoring plan for mussels.

**METHODS**

The survey was conducted on September 15, 2015, when water levels, water temperature, and water clarity were conducive for finding mussels with visual searches. The mussel survey was conducted in all areas under both bridges, and included a 100-meter upstream and a 75-meter downstream buffer to the confluence with the Merrimack River. The survey did not extend into the Merrimack River itself, although the cove at the outlet of Black Brook is essentially a backwater of the Merrimack River and impounded by the



Black Brook underneath the Interstate 293 Bridge in Manchester, New Hampshire.





**Figure 1.** Mussel survey area in Black Brook upstream and downstream from the I-293 Bridge in Manchester, New Hampshire.

hydroelectric facility at Amoskeag Falls a short ways downriver. The survey included visual surveys while snorkeling, and also looking for shells along the shorelines and in shallow water upstream and downstream from the bridge. Biologists intended to record the shell length, shell condition, microhabitat (depth, substrate), and location of each state-listed mussel that was encountered, or of significant mussel beds where mussels were numerous.

## RESULTS

**Mussels:** No state-listed or federally listed mussel species were found during the survey. In fact, no live mussels of any species were found.

**Habitat:** Habitat was variable in the survey area. Water depth ranged from a few inches to six feet, with deepest water in the constricted channel underneath the bridge and in the cove downstream. Substrate was mostly sand, gravel, and cobble upstream from the southbound bridge. Underneath the bridges, substrate was mostly riprap, sand, and gravel. Substrate was mostly silt and sand in the cove at the mouth of Black Brook. Aquatic vegetation was sparse or absent under and upstream from the bridge, but common in sunny areas downstream from the bridge. Flow was moderate upstream from the bridge but diminished to zero under and downstream from the bridges due to impoundment influence.

## RECOMMENDATION

No state-listed mussel species, or common mussel species, were found during the survey. Habitat is entirely unsuitable for the Brook Floater, the only state-listed mussel species documented anywhere near this project. Based on these results, we do not recommend any further mussel surveys, relocation, or monitoring. Standard construction best management practices should be adequate to protect water quality and downstream mussel habitat during construction.



# Appendix H - Conservation Lands Correspondence

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Matras, Lindsay

**From:** Paula Bellemore <pbellemore@lchip.org>  
**Sent:** Thursday, September 20, 2018 3:38 PM  
**To:** Matras, Lindsay  
**Subject:** [External] RE: Request for Review - I-293 Exits 6 & 7, Manchester

Hi Lindsay,  
Sorry to have taken so long getting back to you. LCHIP has not supported the conservation or preservation of historic, natural or cultural resources in the project area described.

Best,

Paula Bellemore  
Natural Resource Specialist

**NH Land and Community Heritage Investment Program**  
13 West Street, Suite 3  
Concord, NH 03301  
(603) 224-4113

**From:** Matras, Lindsay <lmatras@vhb.com>  
**Sent:** Thursday, September 20, 2018 3:25 PM  
**To:** Paula Bellemore <pbellemore@lchip.org>  
**Cc:** Walker, Peter <PWalker@VHB.com>; Kennedy, Marty <mkennedy@VHB.com>; Laurin, Marc <Marc.Laurin@dot.nh.gov>; keith.cota@dot.nh.gov; Chabot, Trey <tchabot@VHB.com>  
**Subject:** RE: Request for Review - I-293 Exits 6 & 7, Manchester

Hi Paula,

Just checking to see if you received the email below and have any concerns regarding LCHIP properties that may occur within the project area.

Thanks!

**Lindsay Matras**  
Environmental Scientist

P 603.391.3916  
[www.vhb.com](http://www.vhb.com)

**From:** Matras, Lindsay  
**Sent:** Friday, September 14, 2018 2:23 PM  
**To:** Paula Bellemore <[pbellemore@lchip.org](mailto:pbellemore@lchip.org)>  
**Cc:** Walker, Peter <[PWalker@VHB.com](mailto:PWalker@VHB.com)>; Kennedy, Marty <[mkennedy@VHB.com](mailto:mkennedy@VHB.com)>; Laurin, Marc <[Marc.Laurin@dot.nh.gov](mailto:Marc.Laurin@dot.nh.gov)>; [keith.cota@dot.nh.gov](mailto:keith.cota@dot.nh.gov); Chabot, Trey <[tchabot@vhb.com](mailto:tchabot@vhb.com)>  
**Subject:** Request for Review - I-293 Exits 6 & 7, Manchester

Hi Paula,

Please refer to the attached letter regarding the I-293 Exits 6 & 7 Project in Manchester (NHDOT #16099). Don't hesitate to contact me if you have any questions.

Thank you!

**Lindsay Matras, WSA**  
Environmental Scientist



2 Bedford Farms Drive  
Suite 200  
Bedford, NH 03110-6532  
P 603.391.3916 | F 603.518.7495  
lmatras@vhb.com

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Matras, Lindsay

**From:** Hollenbeck, Amanda <Amanda.Hollenbeck@osi.nh.gov>  
**Sent:** Friday, September 21, 2018 8:43 AM  
**To:** Matras, Lindsay  
**Subject:** [External] Re: Request for Review - I-293 Exits 6 & 7, Manchester

Hi Lindsay,

There are no LCIP properties within the project (#16099) area.

Thank you,

Amanda

Amanda Hollenbeck  
Stewardship Specialist  
Office of Strategic Initiatives  
107 Pleasant St, Johnson Hall  
Concord, NH, 03301  
(603)-271-6809  
[Amanda.Hollenbeck@osi.nh.gov](mailto:Amanda.Hollenbeck@osi.nh.gov)

**From:** Matras, Lindsay <[lmatras@vhb.com](mailto:lmatras@vhb.com)>  
**Sent:** Friday, September 14, 2018 2:26:43 PM  
**To:** Walker, Steve  
**Cc:** Walker, Peter; Kennedy, Marty; Laurin, Marc; Cota, Keith; Chabot, Trey  
**Subject:** Request for Review - I-293 Exits 6 & 7, Manchester

Hello Steve,

Please refer to the attached letter regarding the I-293 Exits 6 & 7 Project in Manchester (NHDOT #16099). Don't hesitate to contact me if you have any questions.

Thank you!

**Lindsay Matras, WSA**  
Environmental Scientist



2 Bedford Farms Drive  
Suite 200  
Bedford, NH 03110-6532  
P 603.391.3916 | F 603.518.7495  
[lmatras@vhb.com](mailto:lmatras@vhb.com)

Matras, Lindsay

**From:** DNCR: Land & Water Conservation Fund <LWCF@dncr.nh.gov>  
**Sent:** Wednesday, September 26, 2018 11:55 AM  
**To:** Matras, Lindsay  
**Cc:** Walker, Peter; Kennedy, Marty; Laurin, Marc; Cota, Keith; Chabot, Trey  
**Subject:** [External] RE: Request for Review - I-293 Exits 6 & 7, Manchester

Hi Lindsay,

Based on the information provided there should be no impacts to any property encumbered through the Land and Water Conservation Fund State and Local Assistance Program as a result of this project.

Thank you for checking.

Bill Gegas  
LWCF Program Specialist  
NH Department of Natural and Cultural Resources  
Division of Parks and Recreation  
172 Pembroke Road  
Concord, NH 03301-5767  
(603) 271-3556 p  
(603) 271-3553 f  
[bill.gegas@dncr.nh.gov](mailto:bill.gegas@dncr.nh.gov)  
[www.nhstateparks.org](http://www.nhstateparks.org)

**From:** Matras, Lindsay [<mailto:lmatras@vhb.com>]  
**Sent:** Tuesday, September 25, 2018 12:26 PM  
**To:** DNCR: Land & Water Conservation Fund  
**Cc:** Walker, Peter; Kennedy, Marty; Laurin, Marc; Cota, Keith; Chabot, Trey  
**Subject:** RE: Request for Review - I-293 Exits 6 & 7, Manchester

Hi Bill,

I believe I sent this original email (below) to your former email address. Please refer to the attached letter and map and let us know if you have any concerns regarding LWCF properties within the vicinity of the project footprint.

Thank you!

**Lindsay Matras**  
Environmental Scientist

P 603.391.3916  
[www.vhb.com](http://www.vhb.com)

**From:** Matras, Lindsay  
**Sent:** Friday, September 14, 2018 2:25 PM  
**To:** 'Gegas, Vasilios (Bill)' <[Vasilios.Gegas@dred.nh.gov](mailto:Vasilios.Gegas@dred.nh.gov)>  
**Cc:** Walker, Peter <[PWalker@VHB.com](mailto:PWalker@VHB.com)>; Kennedy, Marty <[mkennedy@VHB.com](mailto:mkennedy@VHB.com)>; 'Laurin, Marc' <[Marc.Laurin@dot.nh.gov](mailto:Marc.Laurin@dot.nh.gov)>; 'keith.cota@dot.nh.gov' <[keith.cota@dot.nh.gov](mailto:keith.cota@dot.nh.gov)>; Chabot, Trey <[tchabot@vhb.com](mailto:tchabot@vhb.com)>  
**Subject:** Request for Review - I-293 Exits 6 & 7, Manchester



Hello Bill,

Please refer to the attached letter regarding the I-293 Exits 6 & 7 Project in Manchester (NHDOT #16099). Don't hesitate to contact me if you have any questions.

Thank you!

**Lindsay Matras, WSA**  
Environmental Scientist



2 Bedford Farms Drive  
Suite 200  
Bedford, NH 03110-6532  
P 603.391.3916 | F 603.518.7495  
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# Appendix I - Cultural Resources Information

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Please mail the completed form and required material to:

Cultural Resources Staff  
Bureau of Environment  
NH Department of Transportation  
7 Hazen Drive  
Concord, NH 03302

RECEIVED

DEC 04 2012

DHR Use Only	4370
R&C #	
Log In Date	___/___/___
Response Date	___/___/___
Sent Date	___/___/___

**Request for Project Review by the  
New Hampshire Division of Historical Resources  
for Transportation Projects**

- ☒ This is a new submittal.  
☐ This is additional information relating to DHR Review and Compliance (R&C):

RECEIVED

DEC 11 2012

VHB, INC.

**GENERAL PROJECT INFORMATION**

DOT Project Name & Number I-293 Exits 6 & 7 Transportation Planning Study (Manchester #16099)

Brief Descriptive Project Title This project involves addressing transportation needs along approximately three (3) miles of the F.E. Everett Turnpike [F.E.E.T]/Interstate Route 293, extending northerly from the overpass of the West Bridge Street to approximately one (1) mile north of the NH Route 3A interchange (Exit 7) in the City of Manchester, New Hampshire.

Project Location I-293 Exits 6 & 7

City/Town Manchester

Lead Federal Agency and Contact (if applicable) Not Yet Identified, but Likely FHWA  
(Agency providing funds, licenses, or permits)

Permit Type and Permit or Job Reference #

DOT Environmental Manager (if applicable) Marc Laurin

**PROJECT SPONSOR INFORMATION**

Project Sponsor Name Keith Cota  
Chief Project Manager  
Bureau of Highway Design  
NHDOT

Mailing Address JOM Building | PO Box 482 | 7 Hazen Drive Phone Number 603-271-1615

City Concord State NH Zip 03302-048 Email kcota@dot.state.nh.us.gov

**CONTACT PERSON TO RECEIVE RESPONSE**

Name/Company Dale E. Abbott

Mailing Address 6 Bedford Farms Drive Phone Number 603-644-0888

City Bedford State NH Zip 03110 Email dabbott@vhb.com

This form is updated periodically. Please download the current form at <http://www.nh.gov/DHR/review>. Please refer to the Request for Project Review for Transportation Projects Instructions for direction on completing this form. Submit one copy of this project review form for each project for which review is requested. **Include a self-addressed stamped envelope** to expedite review response. Project submissions will not be accepted via facsimile or e-mail. This form is required. Review request form must be complete for review to begin. Incomplete forms will be sent back to the applicant without comment. Please be aware that this form may only initiate consultation.

**PROJECTS CANNOT BE PROCESSED WITHOUT THIS INFORMATION**

Project Boundaries and Description

- ☒ Attach the relevant portion of a 7.5' USGS Map (photocopied or computer-generated) **indicating the proposed area of potential effect (APE)**. (See RPR for Transportation Projects Instructions and R&C FAQs for guidance. Note that the APE is subject to approval by lead federal agency and SHPO.)  
☒ Attach a detailed narrative description of the proposed project.  
☐ Attach current engineering plans with tax parcel, landscape, and building references, and areas of proposed excavation, if available.  
☒ Attach photos of the project area/APE with photo key (overview of project location and area adjacent to project location, and specific areas of proposed impacts and disturbances.) (Blank photo logs are available on the DHR website. Informative photo captions can be used in place of a photo log.)  
☒ A DHR file review must be conducted to identify properties within or adjacent to the APE. Provide file review results in **Table 1**. (Blank table forms are available on the DHR website.)  
File review conducted on 7/20/2012.\*

\*The DHR recommends that all survey/National Register nomination forms and their Determination of Eligibility (green) sheets are copied for your use in project development.

Architecture

Are there any buildings, structures (bridges, walls, culverts, etc.) objects, districts or landscapes within the APE? ☒ Yes ☐ No

If no, skip to Archaeology section. If yes, submit all of the following information:

- ☒ Attach completed **Table 2**.  
☐ Photographs of **each** resource or streetscape located within the APE. Add to the photo key and photo log noted above. (Digital photographs are accepted. All photographs must be clear, crisp and focused.)  
☒ Copies of National Register boundary (listed or eligible) mapping, and add National Register boundaries for listed and eligible properties to the 7.5' USGS project map (if applicable).

Archaeology


Does the proposed undertaking involve ground-disturbing activity? ☐ Yes ☐ No  
If yes, submit all of the following information:

- ☒ Description of current and previous land use and disturbances.  
☒ Available information concerning known or suspected archaeological resources within the project area (such as cellar holes, wells, foundations, dams, etc.)

Please note that for many projects an architectural and/or archaeological survey or other additional information may be needed to complete the Section 106 process.

**AGENCY COMMENT**

*This Space for DOT and Division of Historical Resources Use Only*

Sent to DHR; Authorized DOT Signature:  Date: 11/30/12

☐ Insufficient information to initiate review.

☒ Additional information is needed in order to complete review.

Comments: *Area considered archaeologically sensitive. Continue development of APE. Consult with DOT's comments. Also keep in mind that visual impacts would be encompassed by the APE to the east side of the river would probably be included.*

If plans change or resources are discovered in the course of this project, you must contact the Division of Historical Resources as required by federal law and regulation.

Authorized DHR Signature:  Date: Dec 6, 2012



Property Matrix - Manchester 16099

Street #	Street Name	Property Name	Time Period	NHDHR #	Designation	Resource Type	Rec. for further study	Parcel
	Amoskeag Dam	Amoskeag Dam	1919-1945			Industrial	Y	
		Amoskeag Hydroelectric Station	1919-1945			Industrial	Y	105-7
		Amoskeag Millyard Historic District	c.1790-1962		certified district (2012)	Industrial/Commercial		
37	Amoskeag St	Ultimate Bath	1946-1970			Commercial		105-1
49	Amoskeag St	Sunoco	1971-present			Commercial		890-2C
55	Amoskeag St	Amoskeag Chiropractic	1919-1945			Commercial		105-3A
	Amoskeag St	Amoskeag Bridge	1946-1970			Bridge/Culvert		TPK6-13
8	Chauncey Ave		1946-1970			Residential		563-9
18	Chauncey Ave		1946-1970			Residential		563-8
24	Chauncey Ave		1946-1970			Residential		563-7
48	Chauncey Ave		1971-present			Residential		563-6
60	Chauncey Ave		1946-1970			Residential		563-4
80	Chauncey Ave		1919-1945			Residential		563-2
88	Chauncey Ave		1971-present			Residential		563-3
90	Chauncey Ave		1971-present			Residential		563-1
96	Chauncey Ave		1971-present			Residential		739-3
675	Coolidge Ave		1946-1970			Residential	Y	105-12A,12J
685	Coolidge Ave		1946-1970			Residential		774-8
703	Coolidge Ave		1946-1970			Residential		TPK6-4
723	Coolidge Ave		1946-1970			Residential		TPK6-3
737	Coolidge Ave		1946-1970			Residential	Y	TPK6-2
748	Coolidge Ave		1946-1970			Residential	Y	838-1
763	Coolidge Ave		1946-1970			Residential	Y	TPK6-1
770	Coolidge Ave		1946-1970			Residential		764-3
796	Coolidge Ave		1871-1918			Residential	Y (district)	764-4
2	Country Club Dr	Hilltop Highlands	1971-present			Apartment/ Condo		890-5B
3	Country Club Dr	Regency Condominiums	1971-present			Apartment/ Condo		890-5C
26	Delia Dr		1919-1945			Residential		890-6A
50	Delia Dr		1919-1945			Residential		890-7B
54	Delia Dr		1919-1945			Residential		890-7A
490	Dunbarton Rd	Manchester Animal Shelter	1971-present			Institutional		789-20
100	Eddy Rd	Dunkin' Donuts	1971-present			Commercial		838-42
146	Eddy Rd	Andrade Mgmt Group	1971-present			Commercial		838-44
160	Eddy Rd		1919-1945			Residential		838-45
175	Eddy Rd	Hot Stone Pizzeria	1971-present			Commercial		838-35
210	Eddy Rd	Mobil	1971-present			Commercial		TPK6-7
225	Eddy Rd	Amoskeag Federal House	Pre-1831	(none assigned)	NR form drafted 1974, never listed	Residential		TPK6-7A
245	Eddy Rd	Shell	1971-present			Commercial		TPK6-6
	Fletcher St	Amoskeag Fishways Visitors Center	1971-present			Industrial		TPK6-13
21	Front St	La Quinta Inn	1971-present			Commercial		105-12
111	Front St	Sierra Pacific Mortgage	1919-1945			Commercial		105-4
121	Front St	Melanson Heath (formerly Amoskeag School)	1871-1918			Commercial (formerly Institutional)	Y	890-10
155	Front St	Molly Sound and Video	1946-1970			Commercial		105-2
254	Front St		1971-present			Residential	Y (district)	764-2
260	Front St		1971-present			Residential	Y (district)	774-12
272	Front St		1871-1918			Apartment/ Condo	Y (district)	774-12A
275	Front St	Amoskeag Market	1919-1945			Mixed Use	Y (district)	TPK7-40
282	Front St		1871-1918			Residential	Y (district)	TPK6-5
312	Front St		1831-1870			Residential	Y (district)	774-16
329	Front St		1831-1870			Residential	Y (district)	TPK7-39
333	Front St		1831-1870	MAN1089	Not NR-eligible (1995)	Residential	Y (district; individual form update)	TPK7-38
349	Front St		1831-1870			Residential	Y (district)	TPK7-37
367	Front St	Martin-Stearns House	1831-1870	MAN1088	NR-eligible (1999)	Residential	Y (district; individual form update)	TPK7-36
381	Front St		1831-1870			Residential	Y (district)	TPK7-35
389	Front St		1831-1870			Residential	Y (district)	TPK7-34
405	Front St		1971-present			Residential	Y (district)	TPK7-33
411	Front St		1831-1870			Residential	Y (district)	TPK7-32
421	Front St		1831-1870			Residential	Y (district)	TPK7-31A
443	Front St		1971-present			Residential	Y (district)	TPK7-30
459	Front St		1919-1945			Residential	Y (district)	TPK7-29
461	Front St		1871-1918			Residential	Y (district)	TPK7-28
491	Front St		1919-1945			Residential		TPK7-27

Property Matrix - Manchester 16099

Street #	Street Name	Property Name	Time Period	NHDHR #	Designation	Resource Type	Rec. for further study	Parcel
495	Front St	Cedar Station Gas	1971-present			Commercial		TPK7-26A
497	Front St		1946-1970			Residential		TPK7-26A
531	Front St	Armstrong Hearth and Home	1946-1970			Commercial		TPK7-25
575	Front St	Oakwood Realty	1831-1870			Commercial (former residence)	Y	TPK7-24
613	Front St	Nolan/ Fat Cat	1831-1870			Commercial (former residence)		TPK7-23
639	Front St		1919-1945			Residential		TPK7-22
647	Front St		1946-1970			Residential		890-3B
673	Front St		1971-present			Residential		890-3
687	Front St		1946-1970			Residential		890-8
692	Front St		1946-1970			Residential		766-12
1066	Front St	Manchester Community College	1971-present			Institutional		890-7
1119	Front St		1919-1945			Residential		768-36
1157	Front St		1919-1945			Residential		789-19
1164	Front St		1919-1945			Residential		739-2A
1369	Front St		1919-1945			Residential		768-35
1385	Front St		1946-1970			Residential		767B-1,24
1400	Front St	Regency Place	1971-present			Apartment/ Condo		890-5D
1407	Front St		1919-1945			Residential		769-2
1427	Front St		1919-1945			Residential		769-3
1439	Front St		1946-1970			Residential		769-4
1451	Front St		1946-1970			Residential		769-5
1790	Front St		1971-present			Residential		
1800	Front St		1946-1970			Residential		890-6
1824	Front St		1946-1970			Residential	Y	766-11
117-119	Front St		1871-1918			Residential		105-5
298-302	Front St		1871-1918			Residential	Y (district)	774-14
597-605	Front St	Denton Plumbing	1946-1970			Commercial		TPK7-24
	Front St	Front Street culvert over Black Brook	1971-present			Bridge/Culvert		
51	Goffstown Rd	Northern New England Benefit Trust	1971-present			Commercial		774-11
53	Goffstown Rd	Teamsters Local 633	1971-present			Commercial		774-10
97	Goffstown Rd		1871-1918			Residential	Y (district)	774-9
109	Goffstown Rd		1871-1918			Residential	Y (district)	774-8A
110	Goffstown Rd		1871-1918			Residential	Y (district)	789-14
126	Goffstown Rd		1871-1918			Residential	Y (district)	764-5
140	Goffstown Rd		1971-present			Apartment/Condo	Y (district)	764-6
145	Goffstown Rd		1871-1918			Residential	Y (district)	103-27
151	Goffstown Rd		1946-1970			Residential	Y (district)	103-26
160	Goffstown Rd		1871-1918			Residential	Y (district)	764-13
161	Goffstown Rd		1919-1945			Residential	Y (district)	103-21
170	Goffstown Rd		1946-1970			Residential	Y (district)/ indiv. if not contrib.	764-7
179	Goffstown Rd		1919-1945			Residential	Y (district)	764-8
1179	Goffstown Rd		1831-1870			Residential		789-20C
1191	Goffstown Rd		1971-present			Residential		775-2
1198	Goffstown Rd		1871-1918			Residential	Y	775-3A
1207	Goffstown Rd		1831-1870			Residential	Y	789-16B
1241	Goffstown Rd		1971-present			Residential		769-6
1246	Goffstown Rd		1971-present			Residential		775-4
1270	Goffstown Rd		1946-1970			Residential		775-5
1280	Goffstown Rd		1971-present			Residential		789-17
1297	Goffstown Rd		1946-1970			Residential		789-164
25	Legacy Dr		1971-present			Residential		789-16A
60	Old Hackett Hill Rd		1971-present			Apartment/ Condo		738-12
17	Omega St		1971-present			Residential	Y (district)	103-28
6	Riverfront Dr		1946-1970			Residential		774-17
17	Riverfront Dr		1971-present			Apartment/ Condo		TPK7-42A
55	Riverfront Dr	The Pointe	1971-present			Apartment/ Condo		768-29
60	Riverfront Dr	The Meetinghouse	1971-present			Apartment/ Condo		563-5
21	Stark Ln		1919-1945			Residential		TPK7-13A
45	Stark Ln		1971-present			Residential		TPK7-13
57	Stark Ln		1919-1945			Residential		TPK7-11
59	Stark Ln		1946-1970			Residential		TPK7-10B
77	Stark Ln		1919-1945			Residential		
115	Stark Ln		1971-present			Residential		TPK7-10C
129	Stark Ln		1971-present			Residential		TPK7-10D
141	Stark Ln		1971-present			Residential		769-1
177	Stark Ln		1971-present			Residential		TPK7-10A

Property Matrix - Manchester 16099

Street #	Street Name	Property Name	Time Period	NHDHR #	Designation	Resource Type	Rec. for further study	Parcel
183	Stark Ln		1919-1945			Residential		TPK7-10E
207	Stark Ln		1919-1945			Residential		TPK7-7
240	Stark Ln		1971-present			Residential		TPK7-4
252	Stark Ln		1946-1970			Residential		TPK7-3B
271	Stark Ln		1919-1945			Residential		738-11
285	Stark Ln		1919-1945			Residential		774-13
299	Stark Ln		1971-present			Residential		738-8
305	Stark Ln		1919-1945			Residential		TPK7-1B
317	Stark Ln		1919-1945			Residential	Y	738-10
390	Stark Ln	WGIR station/ signal towers	1946-1970			Commercial	Y	TPK7-1
515	Stark Ln		1971-present			Residential		738-14
541	Stark Ln		1971-present			Residential		739-10
554	Stark Ln		1946-1970			Residential		739-7
589	Stark Ln		1946-1970			Residential		739-28
603	Stark Ln		1971-present			Residential		739-1
	Stark Ln		1946-1970			Bridge/Culvert		276-5
10	Stark Way		1946-1970			Residential		TPK7-16
35	Stark Way		1946-1970			Residential		890-9A
165	Stark Way		1971-present			Residential		TPK7-14
	Stoneyview Way	Stoneyview Apartments	1971-present			Apartment/ Condo		TPK7-4
222	Straw Rd		1971-present			Residential		105-3
245	Straw Rd		1946-1970			Residential		105-6
275	Straw Rd		1971-present			Residential		890-9B
305	Straw Rd		1971-present			Residential		890-9A
308	Straw Rd		1971-present			Residential		TPK7-17
312	Straw Rd		1971-present			Mixed Use		TPK7-21
379	Straw Rd		1971-present			Residential		TPK7-19
407	Straw Rd		1919-1945			Residential		TPK7-18
451	Straw Rd		1971-present			Residential		768-39
457	Straw Rd		1971-present			Residential		768-33
461	Straw Rd	Frederickseal	1946-1970			Industrial		768-31
463	Straw Rd		1971-present			Residential		766-11A
475	Straw Rd		1971-present			Residential		768-30
477	Straw Rd		1971-present			Residential		768-34
479	Straw Rd		1971-present			Residential		766A-206
483	Straw Rd		1971-present			Residential		766-25
497	Straw Rd		1871-1918			Residential		890-5A
629	Straw Rd		1946-1970			Residential	Y	890-5
655	Straw Rd		1946-1970			Residential	Y	789-15
675	Straw Rd		1971-present			Residential		789-15A
797	Straw Rd		1946-1970			Residential		789-19A
809	Straw Rd		1946-1970			Residential		789-163
	West Bridge St	Notre Dame Bridge	1971-present			Bridge/Culvert		TPK6-10



NEW HAMPSHIRE DIVISION OF HISTORICAL RESOURCES

State of New Hampshire, Department of Cultural Resources 603-271-3483  
19 Pillsbury Street, Concord, NH 03301-3570 603-271-3558  
TDD Access: Relay NH 1-800-735-2964 FAX 603-271-3433  
[www.nh.gov/nhdhr](http://www.nh.gov/nhdhr) [preservation@dcr.nh.gov](mailto:preservation@dcr.nh.gov)

March 6, 2018

Jillian Edelmann  
Bureau of Environment  
NH Department of Transportation  
Hazen Drive  
Concord NH 03302-0483

Re: DOT/FHWA X-A000(490), RPR 4370

Dear Jill:

Thank you for requesting determinations of National Register eligibility for the areas listed below. As requested, the Division of Historical Resources' Determination of Eligibility Committee has reviewed the *DHR Area Forms* prepared by Vanesse Hangen Brustlin; based on the information available, the DOE Committee's evaluations of National Register eligibility are:

TOWN/CITY	AREA	DETERMINATION
Manchester	Goffstown Road Historic District Area Form	Not Eligible
Manchester	Front Street Historic District Area Form	Not Eligible

Copies of the DHR evaluation forms are attached for your use. Please refer to the "Follow-up" section for an explanation of the additional data needed. The inventory data and the evaluations will also be added to the statewide survey database for historic properties in New Hampshire.

Please contact Megan Rupnik at 271-6435 or [Megan.Rupnik@DNCR.NH.gov](mailto:Megan.Rupnik@DNCR.NH.gov) if you have questions  
Sincerely,

*Chris*

Christina St.Louis  
Program Specialist

Enclosure

cc: Elizabeth Muzzey / State Historic Preservation Officer  
Jamison Sikora, FHWA  
Vanesse Hangen Brustlin, Inc.





NH Division of Historical Resources  
Determination of Eligibility (DOE)

Date received: 2/13/18 Inventory #:  
Date of group review: 2/28/18 Area: MAN-FSHA  
DHR staff: Nadine Miller Town/City: Manchester  
Property name: Front Street Historic Area County: Hillsborough  
Address: various  
Reviewed for: ☒R&C ☐PTI ☐NR ☐SR ☐Survey ☐Other  
FHWA/DOT

Individual Properties		Districts	
NR	SR	NR	SR
<input type="checkbox"/>	<input type="checkbox"/> Eligible	<input type="checkbox"/>	<input type="checkbox"/> Eligible
<input type="checkbox"/>	<input type="checkbox"/> Eligible, also in district	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Not eligible
<input type="checkbox"/>	<input type="checkbox"/> Eligible, in district	<input type="checkbox"/>	<input type="checkbox"/> More information needed
<input type="checkbox"/>	<input type="checkbox"/> Not eligible	<input type="checkbox"/>	<input type="checkbox"/> Not evaluated @ district
<input type="checkbox"/>	<input type="checkbox"/> More information needed		
<input type="checkbox"/>	<input type="checkbox"/> Not evaluated for individual eligibility		

Integrity: ☒Location ☐Design ☐Setting ☐Materials  
☐Workmanship ☐Feeling ☐Association

Criteria: ☐A. Event ☐B. Person ☐C. Architecture/Engineering  
☐D. Archaeology ☐E. Exception

Level: ☐Local ☐State ☐National

**STATEMENT OF SIGNIFICANCE:**  
☐ IF THIS PROPERTY IS REVIEWED IN THE FUTURE, ADDITIONAL DOCUMENTATION WILL BE NEEDED.

The proposed Front Street Historic District is a remnant of the once larger Amoskeag Village, located on the west side of Manchester. Developed in the mid-to-late nineteenth century (1830-1900), the village represents early settlement in Manchester prior to the Amoskeag Mill Company's arrival on the east side of the City. While there is a compelling story to be told in the neighborhood of immigrant settlement, industry, commercial endeavors, and vernacular residential housing, Front Street has been significantly altered by the 1956 construction of the Everett Turnpike which removed industrial and commercial buildings as well as late twentieth century alterations to the extant residences. Front Street no longer retains integrity sufficient for eligibility as a historic district, therefore it is not eligible for listing in the National Register of Historic Places.

☒ ENTERED INTO DATABASE  
ACREAGE: 7.91 acres  
PERIOD OF SIGNIFICANCE: N/A  
AREA OF SIGNIFICANCE: N/A  
BOUNDARY: see survey boundary on form  
SURVEYOR: Nicole Benjamin-MA, VHB  
FOLLOW-UP: Notify appropriate parties. Thank you for including a thorough and well-written history of the area.

Final DOE approved by:

MR



NEW HAMPSHIRE DIVISION OF HISTORICAL RESOURCES  
State of New Hampshire, Department of Cultural Resources 603-271-3463  
19 Pillsbury Street, Concord, NH 03301-3570 603-271-3558  
TDD Access: Relay NH 1-800-735-2964 FAX 603-271-3433  
www.nh.gov/nhdhr preservation@dcr.nh.gov

August 2, 2018

Jillian Edelmann  
Bureau of Environment  
NH Department of Transportation  
Hazen Drive  
Concord NH 03302-0483

Re: DOT/FHWA X-A000(490), RPR 4370

Dear Jill:

Thank you for requesting determinations of National Register eligibility for the Properties listed below. As requested, the Division of Historical Resources' Determination of Eligibility Committee has reviewed the *DHR Individual Inventory Forms* prepared by Vanesse Hangen Brustlin; based on the information available, the DOE Committee's evaluations of National Register eligibility are:

TOWN/CITY	PROPERTY	DETERMINATION
Manchester	Amoskeag School, 121 Front Street, MAN0507	Eligible
Manchester	Martin-Stearns House, 367 Front Street, MAN1088	Not Eligible
Manchester	Rachel Laflamme House, 333 Front Street, MAN1089	Not Eligible

Copies of the DHR evaluation forms are attached for your use. The inventory data and the evaluations will also be added to the statewide survey database for historic properties in New Hampshire.

Please contact Megan Rupnik at 271-6435 or [Megan.Rupnik@DNCR.NH.gov](mailto:Megan.Rupnik@DNCR.NH.gov) if you have questions  
Sincerely,

Chris

Christina St.Louis  
Program Specialist

Enclosure

cc: Elizabeth Muzzey / State Historic Preservation Officer  
Jamison Sikora, FHWA  
Vanesse Hangen Brustlin, Inc.





New Hampshire Division of Historical Resources

Determination of Eligibility (DOE)

Inventory #: MAN1089

DOE Review Date: 7/25/2018

Date Received: 7/16/2018

☒ Final DOE Approved  
MK

Property Name: Rachel Laflamme House

Area: Manchester, Amoskeag Village W2

Address: 333 Front Street

Town: Manchester

County: Hillsborough

Reviewed For: R&C

DOE Program(s): DOT Department of Transportation

DETERMINATION OF ELIGIBILITY

Not eligible for NR

Integrity: No

Level: Local

Criteria: A: No B: No C: No  
D: Unknown E:

STATEMENT OF SIGNIFICANCE:

7/25/18: Since this property was first inventoried in 1995, it has had changes that further diminish its integrity, including the replacement of 2/2 windows with 4/4 vinyl windows and the demolition of an attached garage. The updated inventory form provides a nice, concise historical context and more detailed architectural description. The property remains ineligible for the National Register.  
11/8/1995: Lacks significance.

AREAS OF SIGNIFICANCE(S)

Does Not Apply

Period of Significance: to  
☐ Period not applicable

Boundary: Tax parcel

Follow Up:

7/25/18: Notify appropriate parties.  
11/8/1995: Notify agency.

Comments:

New Hampshire Division of Historical Resources

Determination of Eligibility (DOE)

Inventory #: MAN1088

DOE Review Date: 7/25/2018

Date Received: 7/16/2018

☒ Final DOE Approved  
MK

Property Name: Martin-Stearns House

Area: Manchester, Amoskeag Village W2

Address: 367 Front Street

Town: Manchester

County: Hillsborough

Reviewed For: R&C

DOE Program(s): Manchester Neighborhood Housing Service  
DOT Department of Transportation

DETERMINATION OF ELIGIBILITY

Not eligible for NR

Integrity: Partial

Level:

Criteria: A: No B: No C: No  
D: Unknown E:

STATEMENT OF SIGNIFICANCE:

7/16/2018:updated form  
Although there are some historic attributes remaining within the Martin-Stearns House, alterations to the building have occurred since the resource was last review by the DOE Committee in 1999. The most prominent change is the introduction of a new porch along the main façade and further loss of integrity with the property's setting. The Committee agreed that the Martin-Stearns House was no longer eligible for listing in the National Register of Historic Places due to a loss of integrity. Further, a field visit was conducted in 2018 and noted that a potential historic district does not exist in the area.  
  
4/21/99: The Martin-Stearns House is individually eligible for the National Register under criterion C as the best preserved example of a vernacular Downing type of workman's cottage in an area where the Amoskeag Mills had their beginnings. The question of whether the district exists (to which this structure would contribute) remains to be answered.

AREAS OF SIGNIFICANCE(S)

Architecture

Period of Significance: to  
☐ Period not applicable

Boundary: Map/parcel

Follow Up:

7/25/18: Notify appropriate parties.  
4/21/99: Notify MNHS and consultant.

Comments:



## Determination of Eligibility (DOE)

Inventory #: MAN0507

DOE Review Date: 7/25/2018

Date Received: 7/16/2018

☒ Final DOE Approved

MR

Property Name: Amoskeag School

Area:

Address: 121 Front Street

Town: Manchester

County: Hillsborough

Reviewed For: R&amp;C

DOE Program(s):

Federal Highway, NH Dept. of Transportatio

## DETERMINATION OF ELIGIBILITY

National Register eligible, individu

Integrity: Partial

Level: Local

Criteria: A: Yes B: No C: Yes  
D: Unknown E:

## STATEMENT OF SIGNIFICANCE:

This schoolhouse replaced an earlier one in an area on the West side known as Amoskeag Village. It was built in 1898 during a period of population expansion and changing educational laws and expectations. The form includes concise histories of Amoskeag Village, the build-up of the Amoskeag Manufacturing Company, and educational history (i.e. laws regarding child labor, illiteracy, and sanitation) for context. The history continues into the mid-to late 20th century, explaining the extensive changes to the setting of the school, diminishment of Amoskeag Village with the 1950s construction of Everett Turnpike, and than later construction of Riverfront Dr. and associated building development along the river. The school was a primary and grammar school, becoming a school for the deaf for a short time, and later commercial offices.

The school was designed by Chickering & O'Connell, an architecture firm with offices in Boston, Springfield, MA and Manchester. The 2.5 story Colonial Revival 4-room schoolhouse with c. 1907 cupola is relatively intact, and more so than other similar schools in Manchester. Changes to setting, windows, doors, and application of modern signage are "minimally invasive" and the building still reads as a historic schoolhouse.

The resource is eligible for listing in the National Register under Criterion A, for its association with education in the city, and under Criterion C for architecture.

The period of significance begins in 1891, the year of construction, and ends in 1968, the last year the building functioned in its original capacity as a primary/grammar school.

## AREAS OF SIGNIFICANCE(S)

Education  
Architecture

Period of Significance: 1891  
to 1968

☐ Period not applicable

Boundary: tax parcel 105-2

## Follow Up:

Notify appropriate parties.

Comments:



## NEW HAMPSHIRE DIVISION OF HISTORICAL RESOURCES

State of New Hampshire, Department of Cultural Resources  
19 Pillsbury Street, Concord, NH 03301-3570  
TDD Access: Relay NH 1-800-735-2964  
[www.nh.gov/nhdhr](http://www.nh.gov/nhdhr)

603-271-3483  
603-271-3558  
FAX 603-271-3433  
[preservation@dcr.nh.gov](mailto:preservation@dcr.nh.gov)

September 13, 2018

Jillian Edelmann  
Bureau of Environment  
NH Department of Transportation  
Hazen Drive  
Concord NH 03302-0483

Re: DOT/FHWA X-A000(490), RPR 4370

Dear Jill:

Thank you for requesting determinations of National Register eligibility for the Properties listed below. As requested, the Division of Historical Resources' Determination of Eligibility Committee has reviewed the *DHR Individual Inventory Forms* prepared by Vanesse Hangen Brustlin; based on the information available, the DOE Committee's evaluations of National Register eligibility are:

TOWN/CITY	PROPERTY	DETERMINATION
Manchester	Mailloux House, 763 Coolidge Ave, MAN0513	Not Eligible
Manchester	House, 737 Coolidge Ave, MAN0514	Eligible

Copies of the DHR evaluation forms are attached for your use. The inventory data and the evaluations will also be added to the statewide survey database for historic properties in New Hampshire.

Please contact Megan Rupnik at 271-6435 or [Megan.Rupnik@DNCR.NH.gov](mailto:Megan.Rupnik@DNCR.NH.gov) if you have questions

Sincerely,

Christina St. Louis  
Program Specialist

Enclosure

cc: Elizabeth Muzzey / State Historic Preservation Officer  
Jamison Sikora, FHWA  
Vanesse Hangen Brustlin, Inc.





DOE Review Date: 9/12/2018

Date Received: 9/5/2018

☒ Final DOE Approved

Property Name: Mailloux House

Area:

Address: 763 Coolidge Ave

Town: Manchester

County: Hillsborough

Reviewed For: R&C

DOE Program(s):  
Federal Highway, NH Dept. of Transportatio

DETERMINATION OF ELIGIBILITY			
Not evaluated as a district Not eligible for NR		Integrity: Yes	Level:
Criteria:	A: No	B: No	C: No
	D: Unknown	E:	

STATEMENT OF SIGNIFICANCE:

Built in 1960, the Ranch-style dwelling is located in West Manchester and has been under the same ownership since its construction. Although it has had limited alterations, the DOE Committee agrees that the the dwelling is not eligible for listing to the National Register of Historic Places. It is not a particularly good example of its type, as it does not have sufficient distinctive feautres of a Ranch-style dwelling that would elevate it to individual eligibility.

Period of Significance:

to

☐ Period not applicable

Boundary: Tax parcel TPK6-1.

Follow Up:

Comments:  
The inventory form provides a very thorough context, particularly on Ranch house design.

DOE Review Date: 9/12/2018

Date Received: 9/5/2018

☒ Final DOE Approved

Property Name: Langlois House

Area:

Address: 737 Coolidge Ave

Town: Manchester

County: Hillsborough

Reviewed For: R&C

DOE Program(s):  
Federal Highway, NH Dept. of Transportatio

DETERMINATION OF ELIGIBILITY			
National Register eligible, individu Not evaluated as a district		Integrity: Yes	Level: Local
Criteria:	A: No	B: No	C: Yes
	D: Unknown	E:	

STATEMENT OF SIGNIFICANCE:

Despite minor alterations, the Langlois House is individually eligible for listing in the National Register of Historic Places for its architectural significance as a distinctive example of a Ranch-style dwelling.

Period of Significance: 1952

to 1952

☐ Period not applicable

AREAS OF SIGNIFICANCE(S)

Architecture

Boundary: tax parcel TPK6-2

Follow Up:  
Notify appropriate parties.

Comments:



NEW HAMPSHIRE DIVISION OF HISTORICAL RESOURCES

State of New Hampshire, Department of Cultural Resources  
19 Pillsbury Street, Concord, NH 03301-3570  
TDD Access: Relay NH 1-800-735-2964  
www.nh.gov/nhdhr  
603-271-3483  
603-271-3558  
FAX 603-271-3433  
preservation@dcr.nh.gov

RECEIVED  
FEB 07 2019  
VHB

January 30, 2019

Jillian Edelmann  
Bureau of Environment  
NH Department of Transportation  
Hazen Drive  
Concord NH 03302-0483

Re: DOT/FHWA X-A000(490), 16099, RPR 4370

Dear Jill:

Thank you for requesting a determination of National Register eligibility for the property listed below. As requested, the Division of Historical Resources' Determination of Eligibility Committee has reviewed the *DHR individual Inventory Form* prepared by Vanesse Hangen Brustlin; based on the information available, the DOE Committee's evaluation of National Register eligibility is:

TOWN/CITY	PROPERTY	DETERMINATION
Manchester	1829 Front Street, MAN1274	Eligible

A copy of the DHR evaluation form is attached for your use. The inventory data and the evaluation will also be added to the statewide survey database for historic properties in New Hampshire.

Please contact Megan Rupnik at 271-6435 or [Megan.Rupnik@DNCR.NH.gov](mailto:Megan.Rupnik@DNCR.NH.gov) if you have questions.

Sincerely,

*Chris*

Christina St.Louis  
Program Specialist

Enclosure

cc: Elizabeth Muzzey / State Historic Preservation Officer  
Jamison Sikora, FHWA  
Vanesse Hangen Brustlin, Inc.



New Hampshire Division of Historical Resources  
Determination of Eligibility (DOE)

Inventory #: MAN1274

DOE Review Date: 1/23/2019

Date Received: 1/10/2019

☒ Final DOE Approved

*MR*

Property Name: Landry House

Area:

Address: 1824 Front Street

Town: Manchester

County: Hillsborough

Reviewed For: R&C

DOE Program(s):  
Federal Highway, NH Dept. of Transportatio

DETERMINATION OF ELIGIBILITY

National Register eligible, individu

Integrity: Yes

Level: Local

Criteria:	A:	B:	C: Yes
	D:	E:	

STATEMENT OF SIGNIFICANCE:

The Landry House is a late example of a Tudor Revival style dwelling in the Manchester area. The DOE committee agrees that the house is eligible for the National Register under Criterion C for its architecture as a highly intact dwelling mixing Tudor Revival details with some more mid-20th century building elements.

AREAS OF SIGNIFICANCE(S)

Architecture

Period of Significance: 1948  
to 1948

☐ Period not applicable

Boundary: tax parcel 766/12

Follow Up:

Comments:





Victoria F. Sheehan  
Commissioner

THE STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION



William Cass, P.E.  
Assistant Commissioner

Manchester  
16099  
RPR 4370

**Adverse Effect Memo**

Pursuant to meetings and discussions on December 13, 2012, July 11, 2013, June 8, 2017, October 11, 2018, and July 11, 2019, and for the purpose of compliance with regulations of the National Historic Preservation Act, as amended, and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of the Federal Highway Administration (FHWA) and the NH Division of Historical Resources (NHDHR) have coordinated the identification and evaluation of historic and archeological properties with plans to reconfigure a portion of Interstate 293 (I-293 FE Everett Turnpike) in Manchester, New Hampshire. The Area of Potential Effects (APE) begins approximately 1,400 feet north of Exit 5 (Granite Street) and ends approximately 2,000 feet north of Exit 7 (Front Street). The eastern limits are the Merrimack River, and the western boundary limits encompass Main Street, Coolidge Avenue, Omega Street, Front Street, Dunbarton Road, and Straw Road from its intersection with Goffstown Road to its intersection with Dunbarton Road.

FHWA is the lead federal agency for this consultation. FHWA must approve the modification of Exit 6 and the relocation of Exit 7, requiring a break in the existing Limited Access Right-of-Way of I-293, pursuant to 23 USC 111 and FHWA's policy entitled Policy on Access to the Interstate System, dated May 22, 2017, which requires federal approval of new or revised access points to the Interstate System. Additionally, FHWA funds may be applied to the construction of the proposed project.

**Project Description:**

**Highway Widening**

Project work on I-293 Northbound and Southbound would include widening the existing highway from two lanes to three lanes in each direction. This lane expansion would begin at the northern limit of Exit 5 (approximately 1,400 feet north of Granite Street) and continue northward, though the Exit 6 and Exit 7 interchanges, to a point approximately 2,000 feet north of Exit 7. The mainline widening effort was previously known as Alternative 3C in the planning phase.

**Exit 6 Reconstruction: Single Point Urban Interchange**

The project proposes to replace the existing Exit 6 interchange with a Single Point Urban Interchange (SPUI) providing full north and southbound access to and from Goffstown Road and Amoskeag Street. The SPUI will be controlled by one signalized intersection, with the I-293 Exit 6 ramps beginning or ending at this signalized intersection. The SPUI would be elevated above the I-293 mainline. Right-turn movements exiting I-293 would be stop-controlled. The SPUI will be designed to accommodate pedestrians and bicyclists with sidewalks and crosswalks, and 5-foot wide roadway shoulders. Front

Street would no longer have direct access to Exit 6 or Goffstown Road, but would instead function as a local roadway, with a connection to Eddy Road to the south. Two bridges would be constructed under this alternative: Goffstown Road/Amoskeag Street over I-293 (i.e., the SPUI), and Goffstown Road over Front Street. The preferred action for Exit 6 was previously listed at Alternative 4A in the planning phase.

**Exit 7 - Relocated Interchange with Connector Road**

The Proposed Action would involve relocating the Exit 7 interchange approximately 0.5 miles to the north and would provide full on- and off-ramp access for both the northbound and southbound travel ways. The relocated interchange would connect to a new roadway, providing access to Front Street and Dunbarton Road. A new roadway would be created from the interchange to Front Street to the east between the Manchester Community College and Country Club Drive. The new roadway would extend to the west through the new interchange, north of the Manchester Landfill, connecting to Dunbarton Road. The interchange could provide improved access to potentially developable land consistent with the City of Manchester's Hackett Hill area master plan. The preferred action for Exit 7 was previously listed as Alternative 9C in the planning phase.

**Identification:**

**Above-Ground Resources**

In November 2012, a Request for Project Review (RPR) was submitted to NHDHR for the I-293 Exits 6 & 7 Transportation Planning Study (Manchester 16099), and was reviewed by NHDHR on December 6, 2012. A Project Area Form was completed in February 2017 for the approximately 590-acre APE. The APE generally includes the area surrounding I-293, approximately between Granite Street and Hackett Hill Road. Multiple alternatives and elements of the proposed project were narrowed down by 2018 and inventory forms were completed for the following individual properties and districts:

- Front Street Historic District – determined not eligible
- Goffstown Road Historic District – determined not eligible
- 333 Front Street (MAN1089) – determined not eligible
- 367 Front Street (MAN1088) – determined not eligible
- 763 Coolidge Avenue (MAN0513) – determined not eligible
- Amoskeag School, 121 Front Street (MAN0507) – determined eligible
- Langlois House, 737 Coolidge Avenue (MAN0514) – determined eligible
- Landry House, 1824 Front Street (MAN1274) – determined eligible

The Amoskeag Millyard Historic District was previously certified as an eligible historic district by the U.S. Department of the Interior on May 31, 2012.

Based on a review pursuant to 36 CFR 800.4 and 36 CFR 67.8 of the architectural and/or historical significance of above-ground resources in the project area, one (1) district and three (3) individual properties in the APE are currently identified as eligible for listing on the National Register of Historic Places (NRHP). Inventory and National Register forms are on file at the New Hampshire Division of Historical Resources in Concord, New Hampshire.



### **Archaeological Sites**

IAC conducted Phase IB Intensive Archaeological Investigations in 2016, 2017, and 2018, discovering 15 sites, of which 13 comprise Pre-Contact archaeological resources. These include the McGregor Street I Site, the McGregor Street II Site, the Country Club I Site, the Country Club II Site, the Country Club III Site, the Narrow Camp Site, Milestone Brook Site, Milestone Brook II Site, Milestone Brook III Site, Milestone Brook IV Site, Milestone Brook V Site, new loci at the Eddy Site, and the Front Street Overlook Site. The Exit 6 Site contains both Pre- and Post-Contact archaeological resources, while the Straw Road Mill Site contains a Post-Contact Euroamerican feature. Of the 15 sites, at least nine are located within or directly adjacent to the project footprint. Due to the presence of these potentially eligible sites within or adjacent to the project footprint, Phase II Determination of Eligibility investigations will be completed to define site limits and establish eligibility for the NRHP prior to project construction. Subsequently all necessary phases of archaeology will be completed, following consultation with the Consultant, NHDOT, NHDHR and FHWA. A plan will also be developed to have procedures in place for unanticipated discoveries, including previously unidentified archaeological resources, sites or human remains.

### **Public Consultation:**

Public informational meetings were held on the following dates: August 10, 2016, June 7, 2017, and June 13, 2018. During these meetings, information regarding the Section 106 process and the role of consulting parties was included in the presentation and take-home materials. No consulting parties have been identified. The Manchester Historic Association and the Manchester Heritage Commission were contacted concerning project impacts in 2019. The Manchester Heritage Commission never responded, and the Manchester Historic Association noted that depending on the relocation of the valve house they would likely have no concerns.

### **Determination of Effect:**

#### **Amoskeag School**

The 1898 Amoskeag School property at 121 Front Street in Manchester, New Hampshire is eligible for listing in the National Register of Historic Places under Criterion A for its association with education in the city and Criterion C for architecture.

Indirect visual effects to the Amoskeag School, due to the reconfiguration and reconstruction of the access ramps west of the property boundary, are not considered adverse effects because the setting has been previously compromised by the original construction of I-293 and other infrastructure. In the 1950s, construction of I-293 and the Exit 6 rotary eliminated a section of Front Street, severing the connection between the area surrounding the Amoskeag School and the rest of the Amoskeag Village, most of which is not extant. Buildings located opposite the school were demolished for the construction of the rotary, which the school building presently overlooks. The indirect visual impacts result in a no adverse effect to the property, as the Amoskeag School does not retain integrity of setting or association.

#### **Langlois House, 737 Coolidge Avenue**

The property at 737 Coolidge Avenue in Manchester, New Hampshire, a single dwelling ranch built in 1952, is eligible for listing in the NRHP under Criterion C, architecture.

Indirect effects to the property at 737 Coolidge Avenue will result from the removal of trees at the bottom of the slope located behind the property, approximately 100 feet of the rear property boundary. The property is located within a suburban residential neighborhood set on a hill, with a densely-wooded slope marking the separation between the neighborhood and the Exit 6 interchange below. Viewshed and other atmospheric impacts due to the removal of a portion of the trees from the slope behind the property at 737 Coolidge Avenue has been minimized through project design. There will only be negligible impacts to this visual barrier resulting in a finding of no adverse effect.

#### **Landry House, 1824 Front Street**

The property at 1824 Front Street in Manchester, New Hampshire, a ca. 1950 late Tudor Revival style house, is eligible for listing in the NRHP under Criterion C, architecture.

A stormwater management area proposed for the property through late 2018 has been subsequently removed from the project design, resulting in no effects to the property.

#### **Amoskeag Millyard Historic District**

The Amoskeag Millyard Historic District is eligible for listing on the NRHP under Criterion A, Industry, and under Criterion C, Architecture and Planning. Parts of the district may also be significant under Criterion D, Archaeology.

The proposed project will require relocation of the ca. 1890 Valve House and acquisition of approximately 20,500 square feet of the property adjacent to the American Cotton Duck and Stark Mills Cotton Storehouse buildings (also collectively known as the "Cotton Duck Building") for the creation of two water quality treatment basins and highway widening. There will be no physical impacts to the Cotton Duck Building. The Valve House was previously moved c. 2000 to its present location at the request of the Manchester Heritage Commission to prevent its likely demolition, however the move shifted the building from one corner of the storehouses to the other, retaining the building within its historic setting in the millyard. The 2012 certification for the NRHP included the Valve House, in its new location, as a contributing building to the Amoskeag Millyard Historic District. The current plan is to move the Valve House within the Historic District and retain its association and spatial awareness to the Cotton Duck Building, resulting in a no adverse effect on the Amoskeag Millyard Historic District. The NHDOT will work with the property owner on the location and will ensure that prior to and following the move the building is structurally stable and weather tight.

There are two proposed water quality treatment basins located adjacent to the Cotton Duck Building. The treatment basins would be placed adjacent to the highway and would likely be grassed over swales that are ideally mowable. The layout and specifications for the swales are still under design, however given the low impact to the already disturbed millyard setting the addition of the treatment basins will not adversely effect the Amoskeag Millyard Historic District.

Applying the criteria of effect at 36 CFR 800.5, we have determined that the project will result in a finding of No Historic Property Affected for 1824 Front Street, and No Adverse Effect to the Amoskeag School, 737 Coolidge Avenue, and the Amoskeag Millyard Historic District.

**Archaeology**

As noted above, potentially eligible archaeological sites were identified in the project APE during Phase I studies. Phase II studies will be conducted to determine eligibility for the NRHP. All necessary phases of archaeology will be completed.

Based on the proposed project plans and the known locations of highly sensitive archaeological sites, it is assumed that the project will result in an adverse effect to archaeological resources.

The result of identification and evaluation for the proposed Manchester I-293 Exits 6 & 7 Improvements Project is a finding of *Adverse Effect*.

**Mitigation Measures:**

All mitigation will be recorded in a Memorandum of Agreement. Following Phase II investigations a Phase III Data Recovery Plan will be developed and implemented in consultation with NHDHR, and all necessary phases of archaeology will be completed. Some of the proposed mitigation may include the following:

- Phase III investigations
- Development of archaeological context/report
- Educational outreach

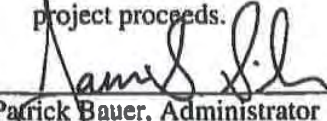

**Section 4(f) Evaluation Concerning Historic Resources:**

No 4(f) applies to the adverse effect on archaeological resources. While the archaeological sites that will be impacted may be eligible for or listed in the National Register of Historic Places, they likely will not warrant preservation in place, therefore exempting them from Section 4(f) under 23 CFR 774.13 (b).

A finding of de minimis 4(f) impact applies to the Amoskeag Millyard Historic District as proposed easements and ROW acquisition would result in no adverse effects under Section 106.

NHDHR's signature represents concurrence with Section 4(f) impacts outlined in this memorandum, and in accordance with 23 CFR 774.3. Parties to the Section 106 process have been consulted and their concerns have been taken into account. Therefore, the requirements of Section 4(f) have been satisfied.

In accordance with the Advisory Council's regulations, consultation will continue, as appropriate, as this project proceeds.

 Patrick Bauer, Administrator Federal Highway Administrator	8/12/2019 Date	 Jill Edelmann Cultural Resources Manager	8/9/2019 Date
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Concurred with by the NH State Historic Preservation Officer:

 Nadine Miller Deputy State Historic Preservation Officer NH Division of Historical Resources	8/13/19 Date
---	-----------------

cc:     Jamie Sikora, FHWA                     Keith Cota, NHDOT                     Peter Walker, VHB  
         Marika Labash, NHDHR                     Marc Laurin, NHDOT

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# Appendix J - Hazardous Materials Reference Documents



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**Table J-1**  
**Summary of Hazardous Materials Review**  
**I-293, Exits 6-7, NHDOT Contract 16099**  
**Manchester, New Hampshire**

Parcel ID	Address	Site Name	NHDES Master ID(s)	Regulatory Listings	Regulatory Status	File Review Notes	Site Reconnaissance Notes	VHB Review Findings	Location in Relation to Project Area
TPK5-2	195 McGregor Street	Mill West Fmr Elbes Associates	<a href="#">3351</a>	HW GEN, LUST, GMP, UST, HAZWASTE PROJECT, Air Stationary Source	Active Hazardous Waste Project	Groundwater PCE Contamination from former PCE AST is located within Project Area. Indoor Air Concern. Listed as CERCLIS No Further Action Planned and Brownfields, 9 former USTs on property.	Historical mill building; currently good exterior housekeeping, transformers present.	Based on the current regulatory status this site is a concern	Project Area (Partial)
768-38	513 (625) Dunbarton Road	Manchester Municipal Landfill	<a href="#">3593</a>	Landfill, Solid waste Facility, GMP, LUST,AST	Landfill Closed - Ongoing Monitoring	Metals and 1,4 Dioxin measured above GW-1 within Project Area. One former AST and 1 former UST.	Landfill is covered in grass, fenced.	Based on the current regulatory status this site is a concern	Abuts to the West
TPK7-26A	493 Front Street	Cedar Station (Gasoline Station)	<a href="#">3488</a>	UST, LUST, GMP, HW GEN	Active Remediation Site and Active USTs	Existing gas station with two active gasoline USTs and petroleum release. Petroleum constituents impacting groundwater within the Project Area.	Active gas station with minor surface staining on asphalt, stream abutting property	Based on the current regulatory status this site is a concern	Project Area (Partial)
TPK6-6	245 Eddy Road	Shell Gasoline Station #100013	<a href="#">3651</a>	LUST, UST, GMP	Active Remediation Site and Active USTs	Petroleum compounds measured above AGQS wihtin the Project Area. Active Gas Station with 4 active, 7 former USTs all located within Project Area.	Active gas station with minor pavement staining, swale noted.	Based on the current regulatory status this site is a concern	Project Area
N/A	Highway ROW	Route 3A over I-293	42714, 42713	HW GEN	Inactive	Bridge surface contained lead-based paint removed during maintenance	Unable to observe - located on active highway.	Based on the former regulatory status this property is a potential concern.	Project Area
768-30	26 Delia Drive	Boisvert Property	3237	LUST, UST	"Regulatory Action Completed - DES File Closed" and No Active USTs	Two USTs and soil removed in 1993, AGQS were met.	Good condition, one 55-gal drum and 5-gallon buckets stored next to shed	Based on the former regulatory status this property is a potential concern.	Abut to South
TPK 5-1	345 McGregor Street	Carol Cable Company	3253	LUST, AST, UST, RCRA SQG	"Regulatory Action Completed - DES File Closed" and No Active USTs	Two 15,000-gal No. 2 fuel oil tanks removed, contaminated soil excavated. Three Existing ASTs (transformers)	Good exterior housekeeping, transformers.	Based on the former regulatory status this property is a potential concern	Abuts to the West
TPK5-6	99 Eddy Road	Planet Fitness and Commercial Business Park	3275	LUST, UST	"Regulatory Action Completed - DES File Closed" and No Active USTs	One 4,000-gallon diesel UST and soil removed, Phase I Site Assessment performed on behalf of City, no RECs found.	May have historical uses of concern; transformers present.	Based on the former regulatory status this property is a potential concern	Project Area
TPK4-11	Chagnon St	Alpha Bits Learning Center	None	N/A	N/A	N/A	Appears to be historical mill building, which likely indicates former commercial/industrial usage.	Based on historical use and abutting industrial properties this property is a potential concern.	Abuts to West
838-40	74 Eddy Road	Don's Auto Sales	64633	HW GEN	Active HW Gen	RCRA SQG(CESQG) for spent solvents and metals. Use of an oil-burner on the property	Good condition, minor asphalt staining, bulk chemical storage	Based on the current site usage this site is a potential concern	Project Area
105-6	49 Amoskeag Street	Amoskeag Sunoco	3205	LUST, UST, HW GEN, IRSPILL	"Regulatory Action Completed - DES File Closed" Active USTs	LUST case closed in 1994 and AGQS met according to NHDES. 5 Active USTs.	Gas station, minor asphalt staining, monitoring well noted	Based on the former regulatory status, current Site use and the presences of USTs this property is a potential concern	Project Area
890-20	888 Dunbarton Road	Aggregate Industries Manchester (Formerly Coastal Materials Corp. and Lane Construction Company)	3336, 3653, 3274	AST, UST, LUST, IRSPILL, Air Stationary Source, RCRA-CESQG	"Regulatory Action Completed - DES File Closed" No Active USTs	Release of liquid asphalt, soil excavation. Unrelated NPDES Permit NH0021008. Release of 25-gallons of diesel in 2000. Three Current ASTs (9 Former) and 9 former USTs, waste oil generator	Sand and gravel construction, large fill piles and AST noted, multiple water bodies on-Site	Based on industrial usage and regulatory listings there is a potential for concern.	Project Area
890-21	Dunbarton Road	Aggregate Industries	None	N/A	N/A	Associated with operations at parcel 890-20	Fair condition, wetlands and large pond on-site	Based on the fact that this parcel is associated with operations conducted at 890-20, it is a potential concern	Project Area
766-173	833 Dunbarton Road	PSNH Dunbarton Rd Substation	16849	AST	Active AST (Transformer)	Transformer with 922-gallon capacity at this location. SPCC in place.	Large pad-mounted transformers likely contain OHM	Based on industrial usage there is a potential for concern	Project Area
TPK6-7	210 Eddy Road (157 Eddy Road)	Mobil 15021	3502	UIC, UST, LUST	UIC Registered 2007, "Regulatory Action Completed - DES File Closed"	Gas Station with 4 active USTs (6 former), LUST closed in 2009 and AGQS met according to NHDES, UIC for drywell connected to canopy roof drains	Minor staining, groundwater monitoring wells noted on-Site.	Based on the current Site use there is a potential for concern	Project Area
TPK7-24	575-599 Front Street	Amoskeag European Auto Specialists	51379	HW GEN	Active	RCRA SQG(CESQG) since 1999, Oil burner on-Site.	Automotive repair noted.	Based on the Site use there is a potential for concern	Abuts to the West
TPK6-10	21 Front Street	La Quinta Hotel	16747	HAZWASTE	"Regulatory Action Completed - DES File Closed"	UST closure in 2007, with evidence of a release. Site characterization determined NFA required. Also listed on FTTS Database for PCB Inspection	Good Condition	Based on the past regulatory status this site is a potential concern	Abuts to South
TPK5-5B	149 Eddy Street	PSNH Notre Dame Substation	16853	AST	Active AST	Oil associated with transformers stored at this property (1,340 gallons).	Large pad-mounted transformers contain OHM. Staining noted.	Site is in Fair condition, Based on industrial usage there is a potential for concern	Project Area
768-35	1164 Front St	Sullivan Property	61375	IRSPILL	"Regulatory Status - DES File Closed"	100-gallon fuel oil release from AST in basement, closed and AGQS achieved in 2007	AST still on-Site, adjacent to Merrimack River	Based on the past regulatory status this site is a potential concern	Project Area
768-39	1066 FRONT ST	Community College	3529, 65778	UST, HW GEN, RCRA-CESQG FINDS, Air Stationary Source	No Active USTs, Active RCRA CESQG	7 Closed USTs on-Site, No. 2 and No. 4 heating oil	Active automotive repair shop on-site, aboveground generator noted	Based on the current regulatory status this site is a potential concern	Project Area
105-6	49 AMOSKEAG ST	Sunoco Station	3205	UST, LUST, IRSPILL	"Regulatory Status - DES File Closed"	4 Active USTs, 12 Former USTs, Spill at pump island in 2005, achieved AGQS and closed,	Fair condition, minor staining on asphalt	Based on the current regulatory status this site is a potential concern	Project Area
TPK6-13	4 Fletcher St	PSNH Amoskeag Hydro Station	16845	IRSPILL	"Regulatory Action Completed - DES File Closed"	Small spills into River and at transformer. Unsure of exact location. Sampling requested	Good Condition	Based on the past regulatory status this site is a potential concern	Abuts to the East
TPK6-12	6 Fletcher Street	PSNH Eddy Substation	16787	IRSPILL, HW GEN, AST	"Regulatory Status - DES File Closed"	Release of PCB oil from transformer. Two Transformers (ASTs) associated with substation.	Large pad-mounted transformers contain OHM	Although the Regulatory Status of the Site is closed, based on the Site usage there is a potential for concern	Abuts to the East
105-1	155 FRONT ST (155 RIVERFRONT DR)	Sound and Video Contact (Former WKBR Studio)	3690, 42336	HW GEN, UST	No Active USTs, Inactive HW Gen	1 former UST, closed in 1992 no evidence of a release, HW Gen inactive since 1999	Good condition	Based on the past regulatory status this site is a potential concern	Project Area





Table J-1  
Summary of Hazardous Materials Review  
I-293, Exits 6-7, NHDOT Contract 16099  
Manchester, New Hampshire

Parcel ID	Address	Site Name	NHDES Master ID(s)	Regulatory Listings	Regulatory Status	File Review Notes	Site Reconnaissance Notes	VHB Review Findings	Location in Relation to Project Area
105-2	121 FRONT ST (121 RIVERFRONT DR)	Accountants and Auditors, Amoskeag School	3204	HW GEN, UST	No Active USTs, Inactive HW Gen	One UST removed in 1993, soil contamination associated with UST, HW Gen inactive since 1999	Good condition	Based on the analytical results collected subsequent to the USTs removal, this is a concern	Project Area
764-3	770 COOLIDGE AVENUE	Steve Racing	None	RCRA NonGen	Not active	Inactive since March 1999	Fair Condition	Based on the past regulatory status this site is a potential concern	Project Area
TPK5-1	345 MCGREGOR ST	General Cable	3253	HW Gen, UST, LUST, AST, Air Stationary Source	Active HW Gen, no active USTs, active ASTs, no air permit required	LUST case closed, 3 ASTs on-site	Good condition	Based on the past regulatory status this site is a potential concern	Abuts to the West
TPK5-5	97 EDDY RD	Printing Company, Gym, Self Storage, Offices	62984, 42266, 42267, 55060, 57924	HW Gen, RCRA SWG-CESQG, IR SPILL	Active SQG(CESQG) HW Gen	Illegal dumping of 20 to 30 gallons of transmission fluid, closed and achieved AGQS in 2001. 5 gallon release of hydraulic fluid closed and achieved AGQS in 2001.	Fair condition	Based on the active HW Gen at the site and the former spills, this site is a potential concern	Project Area
TPK6-7A	225 EDDY RD	Landscape Supply	None	N/A	N/A	N/A	Property contains fill materials of unknown origin.	Due to the unknown fill materials on the site, this site is a potential concern	Project Area
738-14	390 STARK LANE	Communication Towers	None	N/A	N/A	Downgradient of Manchester Landfill.	Good condition, possible storage of oils	Based on the potential oil storage and location in relation to the Manchester Landfill, this site is a potential concern	Project Area
TPK7-23	613 FRONT ST	Select Energy Contracting	61329, 55266	HW Gen	Inactive	Formerly waste oil HW Gen, inactive since 2006	Good condition	No concern	Project Area
TPK7-24	575 FRONT ST	Automotive Repair	42337	SQG-CESQG, HW Gen	Active	Large quantities of oil generated since 1999	Good condition	Based on the active industrial operations, this site is a potential concern	Project Area
TPK7-29	459 FRONT ST	Residence	None	N/A	N/A	N/A	Fair condition, storage of materials in rear of lot	Due to the storage of materials on the site, this is a potential concern	Project Area
TPK7-30	443 FRONT ST	Residence	None	N/A	N/A	N/A	Fair condition, storage of materials in rear of lot	Due to the storage of materials on the site, this is a potential concern	Project Area
TPK7-25	531 FRONT ST	Hearth & Home, Formerly JBM Electronic Inc.	42338	HW Gen	Inactive	Formerly a RCRA CESQG for spent solvents.	Fair condition, wetlands present	Due to former solvent usage, this site is a potential concern	Project Area
768-18	DUNBARTON ROAD	Vacant Land	None	N/A	N/A	Abuts Manchester Landfill.	Could not be accessed.	Groundwater at the property may be impacted by the Manchester Landfill.	Project Area
TPK6-11	AMOSKEAG ST	Parking Lot	None	N/A	N/A	N/A	Good condition	No concern	Project Area
105-3	117 FRONT ST	Apartments	None	N/A	N/A	N/A	Good condition	No concern	Project Area
105-3A	111 FRONT ST	Financial/Mortgage	None	N/A	N/A	N/A	Fair condition, minor debris present	No concern	Project Area
105-4	60 RIVER FRONT DRIVE	Apartments	None	N/A	N/A	N/A	Good condition	No concern	Project Area
105-4A	RIVER FRONT DRIVE	Vacant Land	None	N/A	N/A	N/A	N/A	No concern	Project Area
105-5	55 AMOSKEAG ST	Chiro-Practice	None	N/A	N/A	N/A	Good condition	No concern	Project Area
105-6	6 RIVER FRONT DRIVE	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
105-12	37 AMOSKEAG ST	The Ultimate Bath	None	N/A	N/A	N/A	Good condition	No concern	Project Area
105-12A:12J	17 RIVER FRONT DRIVE	Condominium Complex	None	N/A	N/A	N/A	Good condition	No concern	Project Area
738-13	FRONT ST	Vacant Land	None	N/A	N/A	N/A	N/A	No concern	Project Area
766-11	1800 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
766-15M	943 DUNBARTON RD	Jobs Corps Center	None	N/A	N/A	N/A	Good condition	No concern	Project Area
766-25	2 COUNTRY CLUB ROAD	Hilltop Apartments LLC	None	N/A	N/A	N/A	Good condition	No concern	Project Area
766-26	23 COUNTRY CLUB ROAD	Hilltop Apartments LLC	None	N/A	N/A	N/A	Good condition	No concern	Project Area
766-27	23 COUNTRY CLUB ROAD	Hilltop Apartments LLC	None	N/A	N/A	N/A	Good condition	No concern	Project Area
766-28	23 COUNTRY CLUB ROAD	Hilltop Apartments LLC	None	N/A	N/A	N/A	Good condition	No concern	Project Area
766-29	23 COUNTRY CLUB ROAD	Hilltop Apartments LLC	None	N/A	N/A	N/A	Good condition	No concern	Project Area
766-30	23 COUNTRY CLUB ROAD	Hilltop Apartments LLC	None	N/A	N/A	N/A	Good condition	No concern	Project Area
766-31	23 COUNTRY CLUB ROAD	Hilltop Apartments LLC	None	N/A	N/A	N/A	Good condition	No concern	Project Area
766-172	HACKETT HILL RD	Undeveloped	None	N/A	N/A	N/A	Good condition	No concern	Project Area
768-17	1 DUNBARTON ROAD	Vacant Land	None	N/A	N/A	N/A	N/A	No concern	Project Area
768-29	692 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
768-31	50 DELIA DR	Residence	None	N/A	N/A	N/A	Fair condition, potential AST/UST based on heat source (oil) identified in Assessor's database	Although potential residential heating oil stored on-site, this property is not a concern	Project Area
768-33	54 DELIA DR	Residence	None	N/A	N/A	N/A	Fair condition, potential AST/UST based on heat source (oil) identified in Assessor's database	Although potential residential heating oil stored on-site, this property is not a concern	Project Area
768-34	1370 FRONT ST	Residential Apts Regency Place	None	N/A	N/A	N/A	Good condition	No concern	Project Area
768-36	FRONT ST	Undeveloped forested	None	N/A	N/A	N/A	Good condition	No concern	Project Area
890-23	DUNBARTON ROAD	Vacant Land	None	N/A	N/A	N/A	N/A	No concern	Project Area



Table J-1  
Summary of Hazardous Materials Review  
I-293, Exits 6-7, NHDOT Contract 16099  
Manchester, New Hampshire

Parcel ID	Address	Site Name	NHDES Master ID(s)	Regulatory Listings	Regulatory Status	File Review Notes	Site Reconnaissance Notes	VHB Review Findings	Location in Relation to Project Area
774-10	77 GOFFSTOWN RD	Office Building	None	N/A	N/A	N/A	Good condition	No concern	Project Area
774-12	254 FRONT STREET	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
774-12A	260 FRONT STREET	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
789-19	1205 GOFFSTOWN RD	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
789-19A	808 STRAW RD	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
838-1	675 COOLIDGE AVE	Residence	None	N/A	N/A	N/A	Fair condition, potential AST/UST based on heat source (oil) identified in Assessor's database	Although potential residential heating oil stored on-site, this property is not a concern	Project Area
838-42	100 EDDY RD	Dunkin Donuts	None	N/A	N/A	N/A	Good condition	No concern	Project Area
838-46	276 EDDY RD	Vacant Land	None	N/A	N/A	N/A	N/A	No concern	Project Area
838-47	COLE ST	Vacant Land	None	N/A	N/A	N/A	N/A	No concern	Project Area
890-3A	STRAW RD	Undeveloped	None	N/A	N/A	N/A	N/A	No concern	Project Area
890-3B	308 STRAW RD	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
890-3C	STRAW RD	Undeveloped	None	N/A	N/A	N/A	N/A	No concern	Project Area
890-3D	STRAW RD	Undeveloped	None	N/A	N/A	N/A	N/A	No concern	Project Area
890-4	GOFFSTOWN RD	Undeveloped forested	None	N/A	N/A	N/A	N/A	No concern	Project Area
TPK5-7	EDDY RD	Wetlands	None	N/A	N/A	N/A	N/A	No concern	Project Area
TPK6-1	763 COOLIDGE AVE	House	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK6-2	737 COOLIDGE AVE	Residence (with pool)	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK6-3	723 COOLIDGE AVE	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK6-4	703 COOLIDGE AVE	Residence	None	N/A	N/A	N/A	Fair condition, potential AST/UST based on heat source (oil) identified in Assessor's database	Although potential residential heating oil stored on-site, this property is not a concern	Project Area
TPK6-5	685 COOLIDGE AVE	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-10A	165 STARK WAY	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-10B	115 STARK LN	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-10C	129 STARK LN	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-10D	141 STARK LN	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-15A	STARK LN	Vacant Land	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-16	10 STARK WAY	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-17	35 STARK WAY	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-18	687 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-19	673 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-20	FRONT ST	Undeveloped	None	N/A	N/A	N/A	N/A	No concern	Project Area
TPK7-21	647 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-27	491 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-31	421 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-32	411 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-33	405 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-34	389 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-35	381 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-36	367 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-37	349 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-38	333 FRONT ST	Residence	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-39	329 FRONT ST	Antique Shop/Apartment	None	N/A	N/A	N/A	Good condition	No concern	Project Area
TPK7-40	275 FRONT ST	Abandoned Store	None	N/A	N/A	N/A	Building in poor condition, deteriorating	No concern	Project Area
TPK7-41	FRONT ST	Wetlands	None	N/A	N/A	N/A	N/A	No concern	Project Area
TPK7-42	55 RIVER ST	Condominium Complex	None	N/A	N/A	N	Good condition	No concern	Project Area

Notes:  
NFA = No Further Action Recommended  
IRSPILL = Initial Response Spill  
LUST Leaking Underground Storage Tank  
UST = Underground Storage Tank  
AST = Aboveground Storage Tank  
UIC = Underground Injection Control  
GMZ = Groundwater Management Zone  
OPUF = On-Premise-Use Facility  
N/A = Not Applicable

Findings Summary:

Likely to impact the Project

Potential to impact the Project

Unlikely to impact the Project



Table J-2  
Site Reconnaissance Summary  
I-293, Exits 6-7, NHDOT Contract 16099  
Manchester, New Hampshire



Parcel ID	Street Address	Property Owner	Abutter?	Current Property Use	AST Present/Number of ASTs	UST Present/Number of USTs	Bulk Chemical Storage	Inspection Notes	House-keeping?	Stained Media?	Monitoring wells?	Stressed Veg	Evidence of Landfill/Solid Waste	Wetlands	Sensitive Receptors/Notes
105-1	155 FRONT ST	MOLLOY, ROBERT F	No	Commercial	No	No	No	Sound and Video Contact	Good	No	No	No	No	No	N/A
105-12	37 AMOSKEAG ST	GPP PROPERTIES 1995-2 LLC	Yes	Commercial	Potential (vent/fill pipe)	No	No	Bath Show Room, The Granite Group	Good	No	No	No	No	No	N/A
105-12A:12J	17 RIVER FRONT DR #1	MILLER, JAMES K	Yes	Residential	No	No	No	Condominiums	Good	No	No	No	No	No	N/A
105-2	121 FRONT ST	AMOSKEAG SCHOOL LLC	Yes	Commercial	No	No	No	Accountants and Auditors	Good	No	No	No	No	No	N/A
105-3	117 FRONT ST	GODBOUT, AIMEE S	Yes	Residential	No	No	No	Apartments	Good	No	No	No	No	No	N/A
105-3A	111 FRONT ST	GODBOUT, PAUL E	No	Commercial	No	No	No	Financial/Mortgage	Fair	No	No	No	No	No	Minor Debris
105-4	60 RIVER FRONT DR	AHI RIVERFRONT, LLC	Yes	Commercial	No	No	No	Senior Living	Good	No	No	No	No	No	N/A
105-4A	RIVER FRONT DR	AMOSKEAG CHIROPRACTIC INC	Yes	Undeveloped	No	No	No	Wooded, overgrown	N/A	No	No	No	No	No	N/A
105-5	55 AMOSKEAG ST	AMOSKEAG CHIROPRACTIC INC	No	Commercial	No	No	No	Chiro-Practic	Good	No	No	No	No	No	N/A
105-6	49 AMOSKEAG ST	ARANOSIAN OIL COMPANY INC	No	Industrial	No	Yes, 5	Yes	Sunoco Station	Fair	Yes, minor asphalt	Yes	No	No	No	N/A
105-7	6 RIVER FRONT DR	RUSHER, EDWARD J	Yes	Residential	No	No	No	House	Good	No	No	No	No	No	N/A
738-13	FRONT ST	IHEARTMEDIA TOWER CO I AM LLC	Yes	Undeveloped	No	No	No	Telecommunication Tower	Good	No	No	No	No	No	N/A
738-14	390 STARK LN	IHEARTMEDIA TOWER CO I AM LLC	Yes	Commercial	No	No	No	Commercial Office Building	Good	No	No	No	No	Yes	Pond on-Site
739-26	STARK LN	IHEARTMEDIA TOWER CO I AM LLC	Yes	Undeveloped	No	No	No	Undeveloped forested	Good	No	No	No	No	Yes	N/A
739-27	STARK LN	COTE, MARCEL	Yes	Residential/Undeveloped	No	No	No	Residence/Forested	Good	No	No	No	No	Yes	N/A
739-29	FRONT ST	RHEULT, GERALD O REVOC TR	Yes	Undeveloped	No	No	No	Undeveloped forested	Good	No	No	No	No	No	N/A
764-2	748 COOLIDGE AVE	MERCIER, ALFRED & CECILE RT	Yes	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
764-3	770 COOLIDGE AVE	PRICE, JOHN	Yes	Residential	No	No	No	Residence	Good	No	No	No	No	No	N/A
764-4	796 COOLIDGE AVE	HAMILTON, SAM &PRISCILLA FM TR	Yes	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
766-11	1800 FRONT ST	DESROSIER, RAYMOND S	Yes	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
766-11A	1790 FRONT ST	DESROSIER, HENRY L	Yes	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	Yes	Stream on-Site
767B-2	60 OLD HACKETT HILL RD	NEVEU, ROBERT	Yes	Residential	No	No	No	Condominiums	Good	No	No	No	No	No	N/A
767-7A	59 OLD HACKETT HILL RD	REGENCY HEIGHTS LLC	Yes	Residential	No	No	No	Apartments	Good	No	No	No	No	No	N/A
766-25	2 COUNTRY CLUB DR	HILLTOP APARTMENTS LLC	Yes	Residential	No	No	No	Hilltop Apartments	Good	No	No	No	No	No	N/A
766-26	6 COUNTRY CLUB DR	HILLTOP APARTMENTS LLC	Yes	Residential	No	No	No	Hilltop Apartments	Good	No	No	No	No	No	N/A
766-27	10 COUNTRY CLUB DR	HILLTOP APARTMENTS LLC	Yes	Residential	No	No	No	Hilltop Apartments	Good	No	No	No	No	No	N/A
766-28	12 COUNTRY CLUB DR	HILLTOP APARTMENTS LLC	Yes	Residential	No	No	No	Hilltop Apartments	Good	No	No	No	No	No	N/A
766-29	18 COUNTRY CLUB DR	HILLTOP APARTMENTS LLC	Yes	Residential	No	No	No	Hilltop Apartments	Good	No	No	No	No	No	N/A

Table J-2  
Site Reconnaissance Summary  
I-293, Exits 6-7, NHDOT Contract 16099  
Manchester, New Hampshire



Parcel ID	Street Address	Property Owner	Abutter?	Current Property Use	AST Present/Number of ASTs	UST Present/Number of USTs	Bulk Chemical Storage	Inspection Notes	House-keeping?	Stained Media?	Monitoring wells?	Stressed Veg	Evidence of Landfill/Solid Waste	Wetlands	Sensitive Receptors/Notes
766-30	COUNTRY CLUB DR	HILLTOP APARTMENTS LLC	Yes	Residential	No	No	No	Hilltop Apartments	Good	No	No	No	No	No	N/A
766-31	22 COUNTRY CLUB DR	HILLTOP APARTMENTS LLC	Yes	Residential	No	No	No	Hilltop Apartments	Good	No	No	No	No	No	Stream/Pond on-Site
766-9	STONEVIEW WAY	STONEVIEW WAY LLC	Yes	Residential	No	No	No	Stoneyview Way Apartments	Good	No	No	No	No	No	N/A
766A-206	3 COUNTRY CLUB DR #101	JANA PROPERTIES LLC	Yes	Undeveloped	No	No	No	Undeveloped	Good	No	No	No	No	No	N/A
768-17	1 DUNBARTON RD	BUKOWSKI, THOMAS E	Yes	Undeveloped	No	No	No	Undeveloped forested	Good	No	No	No	No	No	N/A
768-18	DUNBARTON RD	STATESIDE PROPERTIES, LLC	Yes	Undeveloped	No	No	No	Undeveloped forested	Good	No	No	No	No	No	N/A
768-29	692 FRONT ST	BUKOWSKI, ROBERT J	Yes	Residential	No	No	No	Residence	Good	No	No	No	No	No	N/A
768-31	50 DELIA DR	VILLIARD, DENNIS M	Yes	Residential	Potential (oil heat)	No	No	Residence	Fair	No	No	No	No	No	N/A
768-33	54 DELIA DR	REAGAN, KIMBERLY A	Yes	Residential	Potential (oil heat)	No	No	Residence	Fair	No	No	No	No	No	N/A
768-34	1370 FRONT ST	RVA PROPERTY LLC	No	Residential	No	No	No	Residential Apts Regency Place	Good	No	No	No	No	No	N/A
768-35	1164 FRONT ST	SULLIVAN, EUGENE FAMILY TR	No	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	Adjacent to Merrimack
768-36	FRONT ST	GOULET, PAUL R	No	Undeveloped	No	No	No	Undeveloped forested	Good	No	No	No	No	No	N/A
768-38	DUNBARTON RD	CITY OF MANCHESTER HIGHWAY DEPARTMENT	Yes	Undeveloped	No	No	No	Landfill	Good	No	No	No	Yes (Landfill)	No	N/A
768-39	1066 FRONT ST	NH TECHNICAL COLLEGE	No	Commercial	Yes	No	No	Community College	Good	No	No	No	No	No	Possible fill, garage, backup generator
774-10	77 GOFFSTOWN RD	NORTHERN NEW ENGLAND BENEFIT TRU	Yes	Commercial	No	No	No	Office Building	Good	No	No	No	No	No	N/A
774-11	51 GOFFSTOWN RD	NORTHERN NEW ENGLAND BENF T	No	Commercial	No	No	No	Office Building	Good	No	No	No	No	No	N/A
774-12	254 FRONT ST	LYNCH, ANDREW B	No	Residential	No	No	No	Residence	Good	No	No	No	No	No	N/A
774-12A	260 FRONT ST	SIMONEAU, MICHAEL J	No	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
774-13	272 FRONT ST	ERMITANO, JULIET C	No	Residential	No	No	No	Residence	Good	No	No	No	No	No	N/A
817-25	FIELDCREST RD	PUBLIC SERVICE CO OF NH	Yes	Undeveloped	No	No	No	Undeveloped forested	Good	No	No	No	No	No	N/A
838-33	ADELINE ST	DUPONT, GERALD G	Yes	Undeveloped	No	No	No	Undeveloped forested	Good	No	No	No	No	No	N/A
838-34	EDDY RD	BERUBE, GERALD A	Yes	Undeveloped	No	No	No	Undeveloped forested	Good	No	No	No	No	No	N/A
838-35	174 EDDY RD	PANAONE LLC	No	Commercial	No	No	No	Pizzeria	Good	No	No	No	No	No	N/A
838-40	74 EDDY RD	DESMARAIS, DORIS MJ REV TR	No	Commercial	Potential (oil heat)	Potential	Yes	Don's Auto Sales	Good	Yes, minor	No	No	No	No	Likely OHM storage
838-42	100 EDDY RD	ANDRADE, CARLOS & MARIA TR1996	No	Commercial	No	No	No	Dunkin Donuts	Good	No	No	No	No	No	N/A
838-44	146 EDDY RD	ANDRADE FMLY TR 1996	No	Commercial	No	No	No	Andrade Management Group	Good	No	No	No	No	No	N/A
838-45	160 EDDY RD	MAROTTO, DAVID J	No	Residential	No	No	No	Residence	Good	No	No	No	No	No	N/A
838-46	276 EDDY RD	BERUBE, GERALD A	Yes	Undeveloped	No	No	No	Undeveloped forested	Good	No	No	No	No	No	N/A
890-20	888 DUNBARTON RD	F & S TRANSIT MIX CO INC	No	Industrial	No	No	No	Sand & Gravel/Construction	Fair	No	No	No	No	No	N/A
890-21	DUNBARTON RD	AGGREGATE INDUSTRIES NORTHEAST	No	Industrial	No	No	No	Aggregate Industries	Fair	No	No	No	No	Yes	Multiple water bodies on-Site
890-23	DUNBARTON RD	CITY OF MANCHESTER PARKS & REC	Yes	Undeveloped	No	No	No	Undeveloped Forested	Good	No	No	No	No	No	Stream on-Site



Table J-2  
Site Reconnaissance Summary  
I-293, Exits 6-7, NHDOT Contract 16099  
Manchester, New Hampshire



Parcel ID	Street Address	Property Owner	Abutter?	Current Property Use	AST Present/Number of ASTs	UST Present/Number of USTs	Bulk Chemical Storage	Inspection Notes	House-keeping?	Stained Media?	Monitoring wells?	Stressed Veg	Evidence of Landfill/Solid Waste	Wetlands	Sensitive Receptors/Notes
TPK4-11	CHAGNON ST	CATHOLIC MEDICAL CENTER	Yes	Commercial	No	No	No	Day Care	Good	No	No	No	No	No	N/A
TOK4-4A	201 ALLARD DRIVE	ALLARD FAMILY L.C.	No	Commercial	No	No	No	Warehouse	Good	No	No	No	No	No	N/A
TPK5-1	345 MCGREGOR ST	CAROL CABLE CO INC	No	Commercial/ Industrial	No	No	No	General Cable	Good	No	No	No	No	No	Daycare abutting, on-Site residential units, medical office abutting, compactors and transformers
TPK5-2	195 MCGREGOR ST	BRADY SULLIVAN MILLWORKS, LLC	No	Commercial	No	No	No	Moore Center Services	Good	No	Yes (1)	No	No	No	
TPK5-2A:2AG	195 MCGREGOR ST #120	THE MAESTRO FUND III-BEL CANTO LLC	Yes	Commercial	No	No	No	Commercial Units	Good	No	No	No	No	No	
TPK5-2AH:2AP	70 FOUNDRY ST #A420	BRADY SULLIVAN MILLWORKS III	No	Residential	No	No	No	Residential Units	Good	No	No	No	No	No	
TPK5-5	97 EDDY RD	COOLIDGE MILL BUSINESS PARK CONDO	No	Commercial	No	No	No	Printing Gym Storage	Fair	No	No	No	No	No	N/A
TPK5-5B	EDDY RD	PUBLIC SERVICE CO OF NH	No	Commercial/ Industrial	Maybe	No	No	Electric Substation	Poor	Yes, old pad with staining	No	No	Yes (Debris)	Yes	Debris, Swale
TPK5-6	99 EDDY RD	99 EDDY RD LLC	No	Commercial	No	No	No	Planet Fitness	Good	No	No	No	No	No	N/A
TPK5-7	EDDY RD	STATE OF NH	No	Undeveloped	No	No	No	Wetlands	Poor	No	No	No	No	Yes	Debris, Swale
TPK6-1	763 COOLIDGE AVE	MAILLOUX, EDMOND&LUCILLE IR T	No	Residential	No	No	No	House	Good	No	No	No	No	No	N/A
TPK6-10	21 FRONT ST	GERMANIA FRONT LLC	No	Commercial	No	No	No	La Quinta Hotel	Good	No	No	No	No	No	N/A
TPK6-11	AMOSKEAG ST	PUBLIC SERVICE CO OF NH	No	Commercial	No	No	No	Parking Lot	Good	No	No	No	No	No	N/A
TPK6-12	15 FLETCHER ST	PUBLIC SERVICE CO OF NH	No	Commercial	No	No	No	Learning and Visitors Center	Good	No	No	No	No	No	N/A
TPK6-13	FLETCHER ST	PUBLIC SERVICE CO OF NH	No	Industrial	Yes	No	No	Eversource Substation	Good	No	No	No	No	No	N/A
TPK6-2	737 COOLIDGE AVE	JOHNSON, COLIN L	No	Residential	No	No	No	Residence with pool	Good	No	No	No	No	No	N/A
TPK6-3	723 COOLIDGE AVE	UWAMUNGO, JEANNE	No	Residential	No	No	No	Residence	Good	No	No	No	No	No	N/A
TPK6-4	703 COOLIDGE AVE	MORRILL, BARBARA ANN	No	Residential	Yes, one suspected (heat)	No	No	Residence	Good	No	No	No	No	No	Vent/fill pipes
TPK6-5	685 COOLIDGE AVE	BERUBE, GERALD A	No	Residential	No	No	No	Residence	Good	No	No	No	No	No	Dense forest
TPK6-6	245 EDDY RD	GTY MA/NH LEASING, INC	No	Industrial	No	Yes, 4	Yes	Shell Gas	Good	Yes, minor	Yes	No	No	No	Swale
TPK6-7	157 EDDY RD	GEORGOPOULOS, APHRODITE REV TR	No	Industrial	No	Yes, 4	No	Mobil & Landscaping	Good	Yes, minor	Yes	No	No	No	House abuts
TPK6-7A	225 EDDY RD	GEORGOPOULOS, APHRODITE REV TR	No	Residential	No	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-10A	165 STARK WAY	DIXON, DOUGLAS E	Yes	Residential	Potential (oil heat)	No	No	Residence	Moderate	No	No	No	No	No	Small brook on-Site
TPK7-10B	115 STARK LN	TERRIO, TRACY L	Yes	Residential	No	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-10C	129 STARK LN	BEAUDIN, JEFFREY	Yes	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-10D	141 STARK LN	ROBICHAUD, JOHN	Yes	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-11	87 STARK LN	HARRINGTON, DAVID	Yes	Residential	Potential (oil heat)	No	No	Multiple Residences	Good	No	No	No	No	No	N/A
TPK7-13	57 STARK LN	PELLETIER, SHEILA	Yes	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-13A	45 STARK LN	SCIUTO, JOSEPH R	Yes	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-14	21 STARK LN	AUBIN, DAVID M REVOCABLE TR	Yes	Residential	Potential (oil heat)	No	No	Residence with pool	Good	No	No	No	No	No	Adjacent to Merrimack
TPK7-15	FRONT ST	REDDINGTON, PAUL R	Yes	Undeveloped	No	No	No	Undeveloped/Paved	N/A	No	No	No	No	No	N/A

Table J-2  
Site Reconnaissance Summary  
I-293, Exits 6-7, NHDOT Contract 16099  
Manchester, New Hampshire



Parcel ID	Street Address	Property Owner	Abutter?	Current Property Use	AST Present/Number of ASTs	UST Present/Number of USTs	Bulk Chemical Storage	Inspection Notes	House-keeping?	Stained Media?	Monitoring wells?	Stressed Veg	Evidence of Landfill/Solid Waste	Wetlands	Sensitive Receptors/Notes
TPK7-15A	STARK LN	DUVAL, VIVIAN REVOCABLE TRUST	Yes	Undeveloped	No	No	No	Undeveloped Forested	N/A	No	No	No	No	No	N/A
TPK7-16	10 STARK WAY	OLMEDA, ANGEL	No	Residential	No	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-17	35 STARK WAY	605 FRONT ST ASSOCIATES LLC	No	Residential	No	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-18	687 FRONT ST	BATISTA, WILLIE	No	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-19	673 FRONT ST	KILAR, ROBERT M	No	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-20	FRONT ST	STEVENS, KAREN	No	Undeveloped	No	No	No	Undeveloped	N/A	No	No	No	No	No	N/A
TPK7-21	647 FRONT ST	FARLEY, DONNA L	Yes	Residential	Potential (oil heat)	No	No	Residence	N/A	No	No	No	No	No	N/A
TPK7-22	639 FRONT ST	REDDINGTON, PAUL R	Yes	Residential	Potential (oil heat)	No	No	Residence	N/A	No	No	No	No	No	N/A
TPK7-23	FRONT ST	MORRISSETTE, MARILYN	Yes	Commercial	No	No	No	Lawyer, Spa, Screen printing	Good	No	No	No	No	No	N/A
TPK7-24	575 FRONT ST	605 FRONT ST ASSOCIATES LLC	No	Commercial	No	No	No	Denron Plumbing & HVAC, LLC.	Good	No	No	No	No	No	N/A
TPK7-25	531 FRONT ST	531 FRONT ST LLC	No	Commercial	No	No	No	Hearth & Home	Fair	No	No	No	No	Yes	N/A
TPK7-26A	493 FRONT ST	CEDAR STATION, LLC	No	Commercial	No	Yes	Yes	Gas & Auto Repair	Fair	Yes, Minor asphalt	Yes	No	No	No	Abutting stream
TPK7-27	491 FRONT ST	DUBOIS, JEFFREY S	No	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-29	459 FRONT ST	PERRY, BERNADETTE REV TR	No	Residential	No	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-30	443 FRONT ST	BRIMLOW, SCOTT	No	Residential	Potential (oil heat)	No	No	Residence	Fair	No	No	No	No	No	N/A
TPK7-31	421 FRONT ST	421 FRONT ST CONDO ASSC	No	Residential	No	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-32	411 FRONT ST	WONDERLAND CONST LLC	No	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-33	405 FRONT ST	EAMES, SAMUEL E	Yes	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-34	389 FRONT ST	NEW WAVE DIVERSIFIED LLC	Yes	Residential	No	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-35	381 FRONT ST	CRANDALL GARTMAN, PENNY	Yes	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-36	367 FRONT ST	ST LAURENT TRUST	Yes	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-37	349 FRONT ST	DAM, OAHN	Yes	Residential	Potential (oil heat)	No	No	Residence	Good	No	No	No	No	No	N/A
TPK7-38	333 FRONT ST	GAUDREAU, WILLIAM A	Yes	Residential	Potential (oil heat)	No	No	Residence with pool	Good	No	No	No	No	No	N/A
TPK7-39	329 FRONT ST	GRIJALVA, ADAM	Yes	Commercial	Potential (oil heat)	No	No	Antique Shop	Good	No	No	No	No	No	N/A
TPK7-41	FRONT ST	CITY OF MANCHESTER	No	Undeveloped	No	No	No	Wetlands	Good	No	No	No	No	Yes	N/A
TPK7-42	55 RIVER FRONT DR	THE POINT AT RIVER FRONT	Yes	Residential	No	No	No	The Pointe	Good	No	No	No	No	No	N/A

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# Appendix K - Environmental Justice Evaluation

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STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION  
INTER-OFFICE COMMUNICATION

RECEIVED  
BUREAU OF ENVIRONMENT  
MAR 27 2018  
NH DEPARTMENT OF  
TRANSPORTATION

DATE: March 26, 2018

FROM: Jay Ankenbrock, Chief of Labor Compliance, Executive Office

TO: Marc Lauren, Senior Environmental Manager

RE: Environmental Justice Population Analysis, Project: Manchester Turnpikes 16099; I-293 Reconstruction and Expansion

The attached analysis and recommendations are provided pursuant to Title VI of the Civil Rights Act of 1964 and Executive Orders 12898 & 13166. The intent of these statutes is to ensure fair and full participation and the equal receipt of benefits under Federally-assisted programs. Your efforts to accommodate and encourage participation by traditionally underserved groups, where significant, will ensure program access and minimize the potential for disproportionate project impacts on protected groups.

The table entitled “EJ Population Analysis” shows the presence of protected groups that might be impacted by the project. Personnel responsible for project planning/design and the coordination of public meetings/hearings should use this analysis to guide their outreach efforts under Title VI and in support of developing a context sensitive solution. Based on the availability of information and where appropriate, we have included specific outreach recommendations to facilitate public comment from underrepresented groups.

Please note that US Census Bureau, American Community Survey (ACS) 2011-2015 data is used to provide to an EJ Population analysis for the project. If you have questions regarding this analysis, please contact me at (603)271-2467.

Encls: EJ Population Analysis

Cc: Michael O'Donnell, Bureau of Traffic  
Kevin Nyhan, Administrator, Bureau of Environment  
Paul Coddington, Bureau of Right-of-Way

EJ Population Analysis for Project: Manchester Turnpikes 16099;  
I-293 Reconstruction and Expansion

STUDY AREA	AVG% Elderly Population	AVG % Minority Population	AVG % Low-income Population	AVG% LEP
Impacted Area – Hillsborough County, 1 mile radius of project area.	12.60%	16.59%	29.72%	4.47%
Surrounding Area – Hillsborough County, 3 mile radius of project area.	14.26%	10.51%	17.07%	2.35%
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.  ** Low-income population for this analysis is defined as household income of less than \$25,000.  LEP Definition: Where there is a population of people who speak English as a second language less than well (as indicated by the U.S. Census data). When a particular LEP language group constitutes 5% of the impacted population, the Department is required to translate public information meeting notices and take appropriate measures to ensure language access. If this requirement exists, the Project Manager should contact the Title VI Coordinator for further assistance.				

Impacted Area: The impacted area was defined by the project limits and a 1 mile radius the immediate vicinity.

Surrounding Area: The surrounding area was defined by a 3 mile radius (excluding the impact area) of the project area.



**Special Considerations:** Special consideration should be given to any project features that affect pedestrian accessibility. This project constitutes an alteration in accordance with Title II of the Americans with Disabilities Act. As such, minimum ADAAG accessibility requirements apply, unless deemed technically infeasible.

ADAAG was adopted as the 2010 Standards for Accessible Design on July 23, 2010 by the DOJ. Additional information is located at <http://www.ada.gov/reg3a.html#Anchor-Appendix-52467>

For more information, I have also provided a link to the Draft Public Rights-of-Way Guidelines: <http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/background/revised-draft-guidelines>  
The Draft PROWAG (Revised Draft Guidelines for Accessible Public Rights-of-Way) was released in November 2005 and has not been adopted by DOJ or FHWA. In 2006, FHWA issued a statement that the Draft PROWAG is to be considered best practice for making public rights-of-way accessible.  
The Draft PROWAG includes specifications for detectable warnings and gives detailed information regarding their installation on curb ramps and on blended curbs, including at street corners, at cut-through islands and medians, and in front of buildings. It also has sections on accessible pedestrian signals (APS), roundabouts, channelized turn lanes, protruding objects, channelizing devices and barriers, and tactile and print signs.

**Outreach Recommendations:** The Study area shows high rates for Low-Income, Minorities, and Elderly populations. In consideration of these impacted populations, we are providing contact information for all known agencies and subsidized housing units serving the above groups within the project area. These contacts should be included in your notification list for public information meetings and hearings related to this project.

<u>Resident/Agency Address</u>	<u>Organization/Housing Type</u>	<u>Contact Information</u>
AARP New Hampshire 900 Elm St Suite 702 Manchester, NH 03101	Senior Services	(866)542-8168 <a href="mailto:nh@aarp.org">nh@aarp.org</a>
Amoskeag Millyard 3 Newell Street Manchester, NH 03101	Low-Income and Family Housing	Mary Crowley (603)778-6300 x106 <a href="mailto:MaryC@cpmanagement.com">MaryC@cpmanagement.com</a>
Amoskeag Residences Group Home 34 Brown Ave Manchester, NH 03101	Low-Income Housing	(603)668-4111
Carpenter Center 323 Franklin Street Manchester, NH 03101	Low-Income and Elderly Housing	(603)625-5422
City of Manchester One City Hall Plaza Manchester, NH 03101	Municipal	(603)624-6455

EngAGING NH 9 Eagle Drive Bedford, NH 03110	Senior Services	<a href="mailto:engagingnh@yahoo.com">engagingnh@yahoo.com</a>
FaithBridge Church 301 South Main St Manchester, NH 03102	Community (Religious)	Rich Clegg (603)623-5292 <a href="mailto:rich@FaithBridgeNH.org">rich@FaithBridgeNH.org</a>
Families in Transition 122 Market Street Manchester, NH 03101	Low-Income Housing	(603)641-9441 <a href="mailto:info@fitnh.org">info@fitnh.org</a>
Greater Manchester Chamber of Commerce 54 Hanover St Manchester, NH 03101	Community (Business)	Charlene Courtemanche (603)792-4104
Holy Cross Family Learning Ct 438 Dubuque St Manchester, NH 03102-3546	Community	Sr. Jacqueline Verville <a href="mailto:jrv2871@gmail.com">jrv2871@gmail.com</a> 603-622-9250
Liberty House 75 West Baker St Manchester, NH 03103	Homeless Veteran's Services	Bill Zarakotas, Director (603)669-0761
Manchester City Library 405 Pine Street Manchester, NH 03104	Community	Denise van Zanten, Director (603)624-6550
Manchester Community Health Center 145 Hollis Street Manchester, NH 03101	Community	Kris McCracken <a href="mailto:kmccracken@mchc-nh.org">kmccracken@mchc-nh.org</a> (603)626-9500
Manchester Head Start West 435 South Main Street Manchester, NH 03102	Low-Income Families	(603)666-5982 x16
Manchester Housing & Redevelopment Authority 198 Hanover Street Manchester, NH 03104-6125	Low Income Housing	Dick Webster (603)624-2118
Manchester TV 1045 Elm Street #300 Manchester, NH 03101	Community	Jason Cote (603)628-6099
Manchester Young Professionals Network PO Box 651 Manchester, NH 03105	Community (Business)	<a href="mailto:info@myvpn.org">info@myvpn.org</a>



Mental Health Center of Greater Manchester Merrimack Street, Manchester Street Amoskeag Residences Group Homes SHINE	Community Resources for all impacted demographics (Disperses Public Notices)	Rick Cornell V.P. and Community Relations (603)206-8574
St. Mathew's Church 7 North Mast Rd Goffstown, NH 03045	Senior Services	Rev. William Exner 603-497-2003
Southern NH Services 40 Pine St PO Box 5040 Manchester, NH 03108	Services for Elderly & Low-Income	(603)668-8010
Stay Work Play NH 235 Hanover St Suite 1 Manchester, NH 03104	Community (Business)	Kate Luczko (603)860-2245
United States Post Office 1000 Elm St Suite 15104 Manchester, NH 03101-9715	Federal Government	(603)623-3681
United States Post Office 955 Goffs Falls Road Suite 998 Manchester, NH	Federal Government	(603)626-6887

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# Appendix L - Scoping Letter Responses

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**CITY OF MANCHESTER**  
**PLANNING AND COMMUNITY DEVELOPMENT**

Planning & Land Use Management  
 Building Regulations  
 Code Enforcement Division  
 Community Improvement Program  
 Zoning Board of Adjustment

Leon L. LaFreniere, AICP  
 Director

Pamela H. Goucher, AICP  
 Deputy Director Planning & Zoning

Michael J. Landry, PE, Esq.  
 Deputy Director Building Regulations

April 22, 2016

Peter Walker, Principal  
 Environmental Services  
 Vanasse Hangen Brustlin, Inc  
 2 Bedford Farms Drive, Suite 200  
 Bedford, NH 03110

**RECEIVED**

APR 27 2016

**VHB**

Re: Your March 28, 2016 Notice of Preparation of a NEPA Environmental Assessment  
 I-293/F.E. Everett Turnpike, Exits 6 & 7

Dear Mr. Walker:

At the meeting of the Manchester Planning Board on April 21, 2016, the Board discussed your request for "information or concerns regarding the proposed project and its consistency with local planning efforts."

The I-293 / F.E. Everett Turnpike, Exits 6 & 7 project is of great importance to the City of Manchester and our planning efforts. In general, we ask that you carefully consider the 2009 Master Plan for the City of Manchester in evaluating the benefits and impacts of various project alternatives.

In addition to the key findings of Part A Planning Study, we ask that you pay particular attention to the impacts on historic resources, Amoskeag Street as a key gateway to the City, streetscape and aesthetics, trails and walkability, green spaces, public facilities and utilities, nearby neighborhoods, access to downtown, and economic vitality, especially in regards to the northwest business park.

Please feel free to contact Bill Klubben of Planning and Community Development for copies of the Master Plan, regulations, or other documents. Feel free to contact me with additional questions.

Sincerely,

Michael Harrington, Chairman  
 Manchester Planning Board

CC: Keith Cota, NHDOT  
 Keith Hirschmann, Alderman  
 Bill Klubben, PCD TAC representative

One City Hall Plaza, Manchester, New Hampshire 03101  
 Phone: (603) 624-6450 Fax: (603) 624-6529  
 E-Mail: [pcd@manchesternh.gov](mailto:pcd@manchesternh.gov)  
[www.manchesternh.gov](http://www.manchesternh.gov)

**Jones, Lindsay**

**From:** Klubben, William <[wklubben@manchesternh.gov](mailto:wklubben@manchesternh.gov)>  
**Sent:** Monday, July 25, 2016 1:34 PM  
**To:** Jones, Lindsay; Goucher, Pamela  
**Cc:** Walker, Peter  
**Subject:** RE: Manchester 16099 - I-293 Exit 6 & 7 Project

Lindsay,

I understand that shortly after you sent the below email, you spoke with Jeff Belanger from this office. He told me that he pointed out that state projects are exempt from local zoning and land use regulations.

If it is needed for the environmental assessment, we could have a discussion of the regulations that could apply on a parcel by parcel basis once we know where and what improvements are proposed.

It may be that once property takings are identified, we could provide feedback on the impact of the project on property remainders.

Thank you for your inquiry. If you need further clarification, please do not hesitate to contact me.

Bill

Bill Klubben, City Planner  
 Planning and Community Development  
 City of Manchester  
 One City Hall Plaza  
 Manchester NH 03101  
 603 624 6450  
 FAX 624 6529  
[wklubben@manchesternh.gov](mailto:wklubben@manchesternh.gov)  
[www.manchesternh.gov](http://www.manchesternh.gov)

**From:** Jones, Lindsay [<mailto:LGJones@VHB.com>]  
**Sent:** Monday, July 11, 2016 10:04 AM  
**To:** Goucher, Pamela  
**Cc:** Walker, Peter; Klubben, William  
**Subject:** Manchester 16099 - I-293 Exit 6 & 7 Project

Hello Pamela,

I am contacting you regarding the Manchester DOT #16099 Project along I-293 between Exits 6 & 7, as Bill Klubben is currently out of the office until July 20<sup>th</sup>. VHB is currently working on an Environmental Assessment for the NH Department of Transportation, and would like to include information regarding local permitting requirements within the City of Manchester. Any information regarding local permitting requirements you may be able to provide that may pertain to the proposed project would be included in the Environmental Assessment. A map of the proposed project is attached. Please let me know if you have any questions or need any further information.

Thank you for your assistance,





REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS  
696 VIRGINIA ROAD  
CONCORD, MASSACHUSETTS 01742-2751

April 6, 2016

Regulatory Division  
CENAE-R-NAE-2016-00708

Peter Walker, Principle, Environmental Service  
Vanasse Hangen Brustlin, Inc.  
2 Bedford Farms Drive, Suite 200  
Bedford, NH 03110 pwalker@vhb.com

RECEIVED

APR 11 2016

VHB

Dear Mr. Walker:

This letter is in response to your March 28, 2016 letter to the Corps formally requesting any relevant environmental data, concern, or comments, specifically, information or concerns regarding wetlands and other aquatic environments, as regulated under Section 404 of the Federal Water Pollution Control Act Amendments of 1971 (PL 92500, the "Clean Water Act") regarding the I-293/F.E. Turnpike Exit 6 & 7 Project.

As you are aware, we have discussed this project twice at the NHDOT Monthly Natural Resource Agency Coordination Meetings, on December 19, 2012 and on June 19, 2013. Our concerns at those meetings included: the Front Street/Dunbarton Road connection, direct and secondary impacts to natural resources in the Hackett Hill area; with regards secondary impacts, how the City was looking to build a commercial/industrial park at Hackett Hill; the planned development of Hackett Hill would need to be evaluated; the need to extend the project study area north to include all of Hackett Hill area; the need to keep the road away from the Merrimack River at the Coca Cola curve; the need to evaluate secondary impacts for Exit 6, including how that would impact impervious area calculations. These comments/concerns may have been addressed or are being addressed but I do not have a record, as such. Our major concerns in this projects include isolated wetlands, vernal pools and the Merrimack River (a navigable and Section 10 river in that stretch), as well protection of all other trust resources, Endangered/Threatened species, Cultural Resources, etc. After talking to the NHDOT, I was ensured a follow-up meeting would be scheduled soon, probably within a few months, where many of these comments/concerns can be re-visited, if necessary, as well as any new issues that may come to our attention. The Federal Highway Administration (FHWA) is the lead Federal agency for this project.

If you have any additional questions or comments regarding the above, please contact me at (978) 318-8157.

*Michael C. Hicks*  
Michael C. Hicks

PM, Permits and Enforcement Branch C  
Regulatory Division

Copies Furnished:

NH Department of Transportation, Attn: Marc Laurin, P.O. Box 483, Concord, NH 03302

New Hampshire Department of Environmental Services, Wetlands Bureau, Attn: Mr. Collis Adams, P.O. Box 95, 29 Hazen Drive, Concord, New Hampshire 03302-0095





UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
GREATER ATLANTIC REGIONAL FISHERIES OFFICE  
55 Great Republic Drive  
Gloucester, MA 01930-2276

Peter Walker  
Principal, Environmental Services  
VHB  
2 Bedford Farms Drive, Suite 200  
Bedford, New Hampshire 03110

APR 12 2016

RECEIVED

APR 15 2016

VHB

Re: NHDOT Project #16099

Dear Mr. Walker:

We received your letter dated March 28, 2016, regarding New Hampshire Department of Transportation (NHDOT) Project #16099, which includes proposed improvements at Exit 6 and 7 interchanges along I-293/F.E. Everett Turnpike in Manchester, New Hampshire. In your letter, you requested information on the presence of Endangered Species Act (ESA) threatened and endangered species and critical habitat listed under the jurisdiction of NOAA's National Marine Fisheries Service (NMFS). We offer the following comments.

#### Endangered Species Act

##### *Atlantic Sturgeon*

Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) are present in the Merrimack Bay and River. The New York Bight, Chesapeake Bay, South Atlantic and Carolina DPS of Atlantic sturgeon are endangered; the Gulf of Maine DPS is threatened. However, Atlantic sturgeon are not known to exist upstream of the Essex Dam (Lawrence, MA), which represents the first significant impediment to the upstream migration of sturgeon in this system.

##### *Shortnose Sturgeon*

There is a small population of the federally endangered shortnose sturgeon (*Acipenser brevirostrum*) in the Merrimack River. Shortnose sturgeon in the Merrimack River are not known to exist upstream of the Essex Dam (Lawrence, MA), which represents the first significant impediment to the upstream migration of shortnose sturgeon in this system.

##### *Atlantic Salmon*

The Gulf of Maine (GOM) DPS of Atlantic salmon (*Salmo salar*) is listed as endangered under the ESA. The GOM DPS includes all anadromous Atlantic salmon whose freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River. This project is not located within the range of the GOM DPS of Atlantic salmon.

After reviewing the study area, we have concluded that no federally listed or proposed threatened or endangered species under our jurisdiction exist in the vicinity of your proposed project, and thus no direct or indirect effects will occur. Should project plans change or new information



L-5

become available that changes the basis for this determination, further coordination should be pursued.

Please be aware that we have recently provided on our website guidance and tools to assist action agencies with their description of the action and analysis of effects to support their determination. See -

<http://www.greateratlantic.fisheries.noaa.gov/Protected/section7/index.html>. If you have any questions regarding these comments, please contact Ainsley Smith (978-281-9291; [Ainsley.Smith@noaa.gov](mailto:Ainsley.Smith@noaa.gov)).

#### Magnuson-Stevens Fishery Conservation and Management Act

The proposed project areas may contain essential fish habitat (EFH) for a federally managed species. For a listing of EFH and further information, please go to our website at: <http://www.nero.noaa.gov/habitat>. If you have any questions regarding EFH, please contact Alison Verkade (978-281-9266 or [Alison.Verkade@noaa.gov](mailto:Alison.Verkade@noaa.gov)).

Sincerely,

Mark Murray-Brown  
Section 7 Coordinator  
for Protected Resources Division

EC: Smith, Verkade

File Code: Non-Fisheries\Tech Assist\_States\_Private Firms\2016\VHB NHDOT Merrimack River

L-6

Jones, Lindsay

**From:** Walker, Peter  
**Sent:** Friday, April 08, 2016 11:57 AM  
**To:** mlaurin@dot.state.nh.us  
**Cc:** Jones, Lindsay  
**Subject:** FW: I-295/FE Everett Turnpike, Manchester, NH

Another response to the scoping letters.

**Peter J. Walker**  
Principal, Environmental Services

P 603.391.3942  
www.vhb.com

**From:** Mike R Johnson - NOAA Federal [mailto:mike.r.johnson@noaa.gov]  
**Sent:** Friday, April 08, 2016 10:41 AM  
**To:** Walker, Peter <PWalker@VHB.com>  
**Subject:** I-295/FE Everett Turnpike, Manchester, NH

Pete,

We received your letter dated March 28 regarding the subject project and development of an EA. The Merrimack River is designated as Essential Fish Habitat for Atlantic salmon. If the proposed project may adversely affect EFH, a consultation with NMFS will be necessary including preparation of an EFH assessment.

Information regarding EFH consultations can be accessed at: <http://www.greateratlantic.fisheries.noaa.gov/habitat/index.html>  
Information specific to Atlantic salmon can be accessed at: <http://www.greateratlantic.fisheries.noaa.gov/hcd/salmon.pdf>

Feel free to contact me if you have any questions.

Thanks,

Mike

--  
Michael R. Johnson  
U.S. Department of Commerce  
NOAA Fisheries  
Greater Atlantic Regional Fisheries Office  
(formerly, Northeast Regional Office)  
Habitat Conservation Division  
55 Great Republic Drive  
Gloucester, MA 01930  
978-281-9130

Matras, Lindsay

**From:** Paula Bellemore <pbellemore@lchip.org>  
**Sent:** Thursday, September 20, 2018 3:38 PM  
**To:** Matras, Lindsay  
**Subject:** [External] RE: Request for Review - I-293 Exits 6 & 7, Manchester

Hi Lindsay,  
Sorry to have taken so long getting back to you. LCHIP has not supported the conservation or preservation of historic, natural or cultural resources in the project area described.

Best,

Paula Bellemore  
Natural Resource Specialist

**NH Land and Community Heritage Investment Program**  
13 West Street, Suite 3  
Concord, NH 03301  
(603) 224-4113

**From:** Matras, Lindsay <lmatras@vhb.com>  
**Sent:** Thursday, September 20, 2018 3:25 PM  
**To:** Paula Bellemore <pbellemore@lchip.org>  
**Cc:** Walker, Peter <PWalker@VHB.com>; Kennedy, Marty <mkennedy@VHB.com>; Laurin, Marc <Marc.Laurin@dot.nh.gov>; keith.cota@dot.nh.gov; Chabot, Trey <tchabot@VHB.com>  
**Subject:** RE: Request for Review - I-293 Exits 6 & 7, Manchester

Hi Paula,

Just checking to see if you received the email below and have any concerns regarding LCHIP properties that may occur within the project area.

Thanks!

**Lindsay Matras**  
Environmental Scientist

P 603.391.3916  
www.vhb.com

**From:** Matras, Lindsay  
**Sent:** Friday, September 14, 2018 2:23 PM  
**To:** Paula Bellemore <[pbellemore@lchip.org](mailto:pbellemore@lchip.org)>  
**Cc:** Walker, Peter <[PWalker@VHB.com](mailto:PWalker@VHB.com)>; Kennedy, Marty <[mkennedy@VHB.com](mailto:mkennedy@VHB.com)>; Laurin, Marc <[Marc.Laurin@dot.nh.gov](mailto:Marc.Laurin@dot.nh.gov)>; [keith.cota@dot.nh.gov](mailto:keith.cota@dot.nh.gov); Chabot, Trey <[tchabot@vhb.com](mailto:tchabot@vhb.com)>  
**Subject:** Request for Review - I-293 Exits 6 & 7, Manchester

Hi Paula,



Please refer to the attached letter regarding the I-293 Exits 6 & 7 Project in Manchester (NHDOT #16099). Don't hesitate to contact me if you have any questions.

Thank you!

**Lindsay Matras, WSA**  
Environmental Scientist



2 Bedford Farms Drive  
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**Jones, Lindsay**

---

**From:** Walker, Peter  
**Sent:** Monday, April 04, 2016 2:59 PM  
**To:** Jones, Lindsay  
**Subject:** Fwd: Manchester 16099

Begin forwarded message:

**From:** "Walker, Steve" <[Steve.Walker@nh.gov](mailto:Steve.Walker@nh.gov)>  
**Date:** April 4, 2016 at 12:46:37 PM EDT  
**To:** "[pwalker@vhb.com](mailto:pwalker@vhb.com)" <[pwalker@vhb.com](mailto:pwalker@vhb.com)>  
**Subject:** Manchester 16099

Hi Peter, There are no LCIP / CLS properties in the project areas of exits 6 & 7 on I 293. Thanks steve

Steve Walker  
Office of Energy and Planning  
Stewardship Specialist  
603-271-6834

Jones, Lindsay

**From:** Gegas, Vasilios (Bill) <Vasilios.Gegas@dred.nh.gov>  
**Sent:** Tuesday, July 12, 2016 3:38 PM  
**To:** Jones, Lindsay  
**Cc:** Walker, Peter; Bryce, Philip; Feldbaum, Eric  
**Subject:** RE: Request for Review - Manchester 16099

Hi Lindsay,

I was able to comb through the City of Manchester’s LWCF project files. Based on the information you have provided there should be no impacts to any 6(f) property as a result of the I-293 Exits 6&7 project, the South Manchester Rail Trail project, and the Downtown Rail Trail Connection project.

Please let me know if you have any other questions.

Thanks!

Bill

**From:** Jones, Lindsay [mailto:LGJones@VHB.com]  
**Sent:** Tuesday, July 12, 2016 8:20 AM  
**To:** Gegas, Vasilios (Bill)  
**Cc:** Walker, Peter; Bryce, Philip  
**Subject:** RE: Request for Review - Manchester 16099

Thanks Bill! I’ve been sending you a number of review requests lately for projects in Manchester – the ones I sent you a few weeks ago were for two rail trail projects; the South Manchester Rail Trail and the Downtown Rail Trail Connection Project. Thanks for taking the time to review these! A response anytime this week is fine.

Thank you,

**Lindsay Jones**  
Environmental Scientist

P 603.391.3916  
[www.vhb.com](http://www.vhb.com)

**From:** Gegas, Vasilios (Bill) [mailto:Vasilios.Gegas@dred.nh.gov]  
**Sent:** Monday, July 11, 2016 4:18 PM  
**To:** Jones, Lindsay <LGJones@VHB.com>  
**Cc:** Walker, Peter <PWalker@VHB.com>; Bryce, Philip <Philip.Bryce@dred.nh.gov>; Feldbaum, Eric <Eric.Feldbaum@dred.nh.gov>  
**Subject:** RE: Request for Review - Manchester 16099

Hi Lindsey,  
I apologize for the delay. I don’t anticipate any “hits”, but just need to check a few more project files to confirm. I should have a response ready for you tomorrow.  
Thanks.  
Bill

Bill Gegas, Program Specialist  
NH Department of Resources and Economic Development  
Division of Parks and Recreation  
172 Pembroke Road  
Concord, NH 03301-5767  
Tel: 603-271-3556  
Fax: 603-271-3553  
[bill.gegas@dred.nh.gov](mailto:bill.gegas@dred.nh.gov)  
[www.nhstateparks.org](http://www.nhstateparks.org)

**From:** Jones, Lindsay [mailto:LGJones@VHB.com]  
**Sent:** Monday, July 11, 2016 3:42 PM  
**To:** Gegas, Vasilios (Bill)  
**Cc:** Walker, Peter; Bryce, Philip  
**Subject:** Request for Review - Manchester 16099

Hello Bill,

Attached is a letter that was submitted to Jeffery Rose of NHDRED in March 28, 2016 regarding the NHDOT I-293/F.E. Everett Turnpike, Exits 6 & 7 Project in Manchester, NH. No response has yet been received from NHDRED regarding Land and Water Conservation Fund (LWCF) properties within the study area of the proposed project. Any data or information supplied by your office will be incorporated into the Environmental Assessment that is being prepared for the proposed project (see attached letter).

Please don’t hesitate to contact me if you have any questions.

Thank you,

**Lindsay Jones**  
Environmental Scientist



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MARGARET WOOD HASSAN  
GOVERNOR

**STATE OF NEW HAMPSHIRE**  
**OFFICE OF ENERGY AND PLANNING**  
107 Pleasant Street, Johnson Hall  
Concord, NH 03301-3834  
Telephone: (603) 271-2155  
Fax: (603) 271-2615



## MEMORANDUM

**TO:** Pete Walker  
VHB

**FROM:** Jennifer Gilbert  
NH Floodplain Management Coordinator  
State NFIP Coordinator

**DATE:** April 29, 2016

**SUBJECT:** I-293/F.E. Everett Turnpike, Exits 6 & 7, Manchester, NH

---

I am writing in reference to your letter dated March 28, 2016 regarding the above-referenced project's impact on floodplain areas.

Since Manchester is a participating community of the National Flood Insurance Program (NFIP), any development in a special flood hazard area should meet the community's floodplain management regulations. Development is defined under the NFIP as "any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials."

I reviewed the Flood Insurance Rate Maps for the proposed area. It appears special flood hazards areas including the floodway portion of the Merrimack River are located within or near the project area.

If the proposed project will impact the regulatory floodway, the following regulation contained in Manchester's floodplain regulations would apply:

Along watercourses with a designated Regulatory Floodway no encroachments, including fill, new construction, substantial improvements, and other development are allowed within the floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practices that the proposed encroachment would not result in any increase in flood levels within the community during the base flood discharge.

In summary, any encroachment, fill, or development that occurs within the floodway (white hatched area on map) requires hydrologic and hydraulic analyses to determine if the proposed work will cause any increase in the base flood elevation. If any increase in the base flood elevation is anticipated, coordination with FEMA through the Conditional Letter of Map Revision process is required.

If you need further assistance, please contact me at 271-2155 or [jennifer.gilbert@nh.gov](mailto:jennifer.gilbert@nh.gov).



Jones, Lindsay

---

**From:** Black, Laura <Laura.Black@dcr.nh.gov>  
**Sent:** Friday, April 08, 2016 1:21 PM  
**To:** Walker, Peter  
**Cc:** Keith Cota; Marc Laurin; Jillian Edelmann; Jamie.Sikora@dot.gov  
**Subject:** Manchester 16099; I-293 Exits 6 and 7

Dear Pete:

In response to your request for comments related to gathering of information for the project’s NEPA study, the DHR refers the project team to the Section 106 studies that your letter mentions. The in-progress Project Area Form and the archaeological Phase 1a report will advance the process of identifying historic resources for both Section 106 and NEPA. We look forward to further consultation when those documents are submitted.

*Laura S. Black*  
Special Projects and Compliance Specialist  
New Hampshire Division of Historical Resources  
19 Pillsbury Street, Concord, NH 03301  
603-271-6438 Fax: 603-271-3433

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Find out more about the 2016-2020 5-Year Statewide Preservation Plan: <http://www.nh.gov/nhdhr/programs/plan.htm>