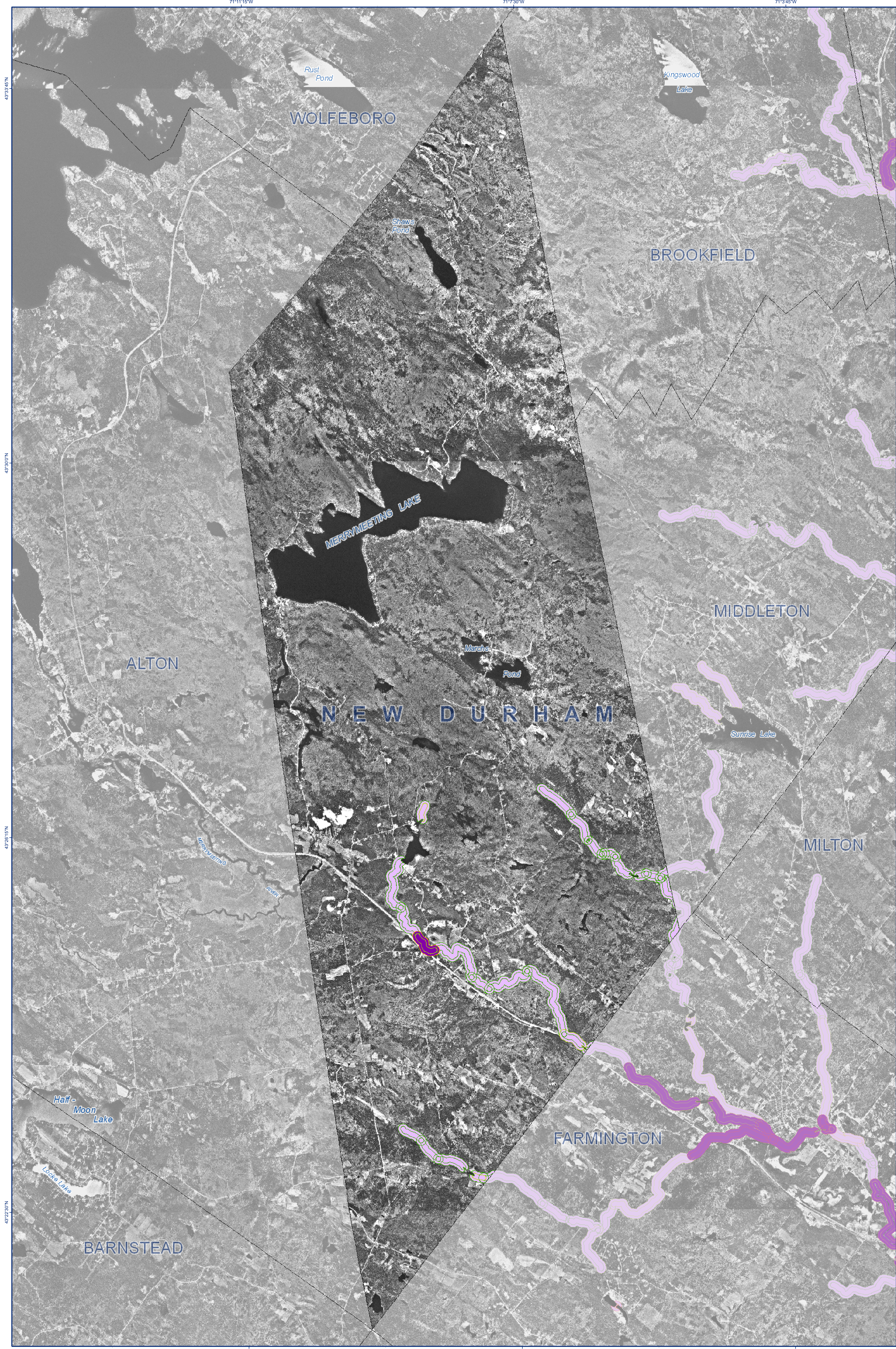


# STREAM BUFFER CHARACTERIZATION STUDY



## Town of New Durham, NH

**Project Description:**  
The Complex Systems Research Center at the University of New Hampshire conducted a characterization of 2<sup>nd</sup> order and higher streams within the Piscataqua/Coastal Basin of coastal New Hampshire. Existing GIS and remote sensing data were used to map a suite of anthropogenic factors, including land use, impervious surface coverage, and transportation infrastructure, within standard buffers around each stream segment. These factors were then analyzed to produce a categorical indicator representing the status of each stream.

Processing began using the GRANIT hydrography data to identify perennial streams/rivers of order 2 or higher. Each stream segment was buffered by 150' to support water quality analyses and by 300' to support habitat analyses, and the buffers were then combined with land use data derived from 1998 USGS Digital Orthophotographs (DOGs). Finally, the buffer/land use composites were categorized

based on the degree to which each buffer was impacted by human activity. Specifically, the buffer categories reflect the percent of land area within each buffer mapped as either developed, transportation, or agriculture, and include:

The buffer characterizations are depicted on the map and summarized by town in the tables below. The map also displays the 300' buffers based on the degree of imperviousness in 2005, and the townwide conservation lands data. Impervious surface coverage by town for 1990, 2000, and 2005, as well as conservation lands acreage by town, are also reported.

**Stream Buffer Characterization**

- Intact
- Mostly Intact
- Somewhat Modified
- Altered

**Percent Impervious by 300-ft Buffer Segment**

- Less Than 10%
- Greater Than 10%

**Conservation Lands**

- Level 1, 2, or 2A

### 150-ft Buffer Stream Characterization Data Summary

Town Name	Land Area		Surface Water Area		150' Buffer Area		Percent of Town Buffer Acreage Categorized as:		
	Total Acres	% of Town	Total Acres	% of Town	Total Acres	% of Town	Intact	Somewhat Modified	Altered
Alton	5323	4929	78.3	1202	23.7	0	0.0	0.0	0.0
Barrington	3113	2919	93.8	1399	45	150	2.3	2.1	0.1
Brentwood	1083	1074	98.9	122	1.1	481	4.5	2.2	0.1
Brookfield	1490	1493	99.1	287	1.9	223	2.2	0.8	0.1
Canada	1957	1940	98.9	217	1.1	489	2.5	2.1	0.2
Chester	1678	1608	96.4	131	0.9	59	0.3	0.9	0.2
Derry	7599	7439	98.3	131	0.9	59	0.3	0.9	0.2
Deerfield	3348	3284	97.7	754	2.3	1038	3.2	2.5	0.2
Dover	2326	2286	97.7	546	0	0	0.0	0.0	0.0
Dunham	1852	17100	92.0	1492	8.0	1086	6.3	2.3	2.0
East Kingston	1676	1470	88.2	806	4.8	1011	6.1	1.7	1.5
Exeter	6381	6318	99.0	63	1.0	209	3.3	2.3	0.7
Farmington	23640	23218	98.2	422	1.8	773	3.3	1.6	1.1
Fremont	1142	11035	99.0	108	1.0	1035	5.1	2.2	1.7
Greenland	8524	8391	79.5	1143	26.5	309	4.9	2.1	2.2
Hampstead	9014	8543	94.8	471	5.2	0	0.0	0.0	0.0
Harrison	9073	8287	91.3	786	8.7	866	11.2	9.8	0.7
Hampson Falls	8078	7719	95.6	359	4.4	774	10.0	8.9	1.0
Kingston	13450	12494	92.9	957	7.1	224	1.8	1.5	0.1
Lee	12927	12592	98.1	335	2.6	19	0.1	0.1	0.0
Madbury	7799	7400	94.9	400	5.1	387	5.2	3.2	1.9
Middleton	11843	11559	97.6	284	2.4	407	3.5	3.0	0.5
Milton	21936	21989	99.1	647	3.9	853	4.0	3.0	0.8
New Castle	1348	506	37.6	841	62.4	269	53.2	5.7	0.0
New Durham	28954	28345	98.0	1709	6.1	323	1.2	1.1	0.1
Newfields	4647	4541	97.7	106	2.3	253	6.5	4.4	1.4
Newington	7917	5216	65.9	2700	34.1	178	3.4	0.4	0.5
North Hampton	9000	8038	89.3	1015	11.3	426	5.7	2.8	1.2
Northwood	19307	17974	92.9	1383	7.1	285	1.6	1.4	0.1
Nottingham	30997	29892	96.4	1105	3.6	1408	4.7	3.1	0.9
Pittsfield	15559	15190	97.6	369	2.4	0	0.0	0.0	0.0
Portsmouth	10793	10002	92.9	791	7.3	431	4.1	1.8	1.9
Raymond	18844	18459	97.4	485	2.6	1052	5.6	2.6	2.3
Rollisford	29891	28321	94.8	1570	5.3	1069	6.5	1.8	1.9
Rye	4843	4682	96.7	161	3.3	296	6.3	3.2	0.0
Sandwich	9232	8888	96.3	343	3.7	290	3.3	2.6	0.4
South Hampton	6181	5844	94.5	337	5.4	721	12.7	10.4	1.4
Somersworth	6398	6219	97.2	179	2.8	280	4.5	2.1	0.4
Stratford	5147	5044	98.0	102	2.0	0	0.0	0.0	0.0
Stratham	32779	31151	95.0	1628	5.0	691	2.2	2.1	0.0
Sturrah	1892	1874	98.7	18	0.9	4.8	0.3	0.1	0.0
Wakefield	28717	25264	88.0	3453	12.0	461	1.6	1.2	0.2
Wolfboro	37406	33693	90.1	3713	17.9	0	0.0	0.0	0.0
<b>Total</b>	<b>79673</b>	<b>78144</b>	<b>93.2</b>	<b>5129</b>	<b>6.8</b>	<b>2579</b>	<b>3.6</b>	<b>2.3</b>	<b>0.7</b>

### Townwide Conservation Lands Data Summary

Town Name	Acres	% of Town	% of Land
Alton	3768	7.1	9.3
Barrington	2460	15.6	20.0
Brentwood	1387	12.8	12.9
Brookfield	1877	12.7	12.8
Canada	2008	10.3	10.4
Chester	1312	7.8	7.9
Derry	540	7.1	7.3
Deerfield	5562	16.7	17.1
Dover	1116	4.8	4.9
Dunham	4321	27.3	20.2
East Kingston	670	10.5	10.6
Exeter	1271	1.6	2.1
Farmington	3498	27.3	27.9
Fremont	181	1.6	1.8
Greenland	883	10.5	13.2
Hampstead	1006	16.7	17.6
Harrison	408	4.5	4.9
Hampson Falls	633	7.8	8.2
Kingston	1576	10.2	11.0
Lee	2399	17.8	18.1
Madbury	1328	17.0	17.9
Middleton	488	4.1	4.2
Milton	2853	11.6	12.1
New Castle	92	6.8	6.8
New Durham	1791	6.2	6.8
Newfields	753	16.2	16.8
Newington	1307	16.5	25.1
North Hampton	1331	14.7	16.6
Northwood	709	6.0	6.0
Nottingham	2281	12.3	13.2
Pittsfield	728	4.7	4.8
Portsmouth	1099	10.2	11.0
Raymond	728	4.1	5.3
Rollisford	431	1.6	2.5
Rye	409	8.4	8.7
Sandwich	1488	12.7	18.6
South Hampton	470	5.1	5.3
Statham	142	7.3	7.3
Somersworth	221	3.5	3.6
Stratford	284	5.5	5.6
Stratham	5281	16.1	16.9
Sturrah	1033	5.3	10.7
Wakefield	380	1.4	1.5
Wolfboro	2408	6.0	7.3
<b>Total</b>	<b>75096</b>	<b>10.0</b>	<b>10.7</b>

### 300-ft Buffer Stream Characterization Data Summary

Town Name	Land Area		Surface Water Area		300' Buffer Area		Percent of Town Buffer Acreage Categorized as:		
	Total Acres	% of Town	Total Acres	% of Town	Total Acres	% of Town	Intact	Somewhat Modified	Altered
Alton	5323	4929	78.3	1202	23.7	0	0.0	0.0	0.0
Barrington	3113	2919	93.8	1399	45	3010	10.8	7.2	2.6
Brentwood	1083	1074	98.9	122	1.1	568	8.9	2.2	5.0
Brookfield	1490	1493	99.1	287	1.9	647	4.4	4.1	0.3
Canada	1957	1940	98.9	217	1.1	1005	5.4	4.2	0.4
Chester	1678	1608	96.4	131	0.9	66	0.3	2.3	1.5
Derry	7599	7439	98.3	131	0.9	66	0.3	0.6	0.7
Deerfield	3348	3284	97.7	754	2.3	2161	6.6	4.0	1.8
Dover	2326	2286	97.7	546	0	0	0.0	0.0	0.0
Dunham	1852	17100	92.0	1492	8.0	2139	12.5	3.0	3.3
East Kingston	1676	1470	88.2	806	4.8	1980	12.0	4.0	3.3
Exeter	6381	6318	99.0	63	1.0	416	6.6	2.4	2.1
Farmington	23640	23218	98.2	422	1.8	1568	6.7	2.5	2.0
Fremont	1142	11035	99.0	108	1.0	1127	10.2	5.3	1.6
Greenland	8524	8391	79.5	1143	26.5	670	8.8	2.0	5.6
Hampstead	9014	8543	94.8	471	5.2	0	0.0	0.0	0.0
Harrison	9073	8287	91.3	786	8.7	2242	27.1	2.7	2.4
Hampson Falls	8078	7719	95.6	359	4.4	1752	22.7	16.9	4.4
Kingston	13450	12494	92.9	957	7.1	488	3.7	0.7	0.5
Lee	12927	12592	98.1	335	2.6	1501	12.1	5.7	2.9
Madbury	7799	7400	94.9	400	5.1	740	9.7	6.2	0.9
Middleton	11843	11559	97.6	284	2.4	843	7.3	6.2	0.9
Milton	21936	21989	99.1	647	3.9	1739	8.3	6.1	0.9
New Castle	1348	506	37.6	841	62.4	269	53.2	5.7	0.0
New Durham	28954	28345	98.0	1709	6.1	702	2.5	2.5	0.1
Newfields	4647	4541	97.7	106	2.3	596	13.1	8.8	0.4
Newington	7917	5216	65.9	2700	34.1	116	1.2	1.1	0.1
North Hampton	9000	8038	89.3	1015	11.3	524	11.6	3.2	2.9
Northwood	19307	17974	92.9	1383	7.1	612	3.4	2.3	0.9
Nottingham	30997	29892	96.4	1105	3.6	259	0.9	0.8	0.1
Pittsfield	15559	15190	97.6	369	2.4	0	0.0	0.0	0.0
Portsmouth	10793	10002	92.9	791	7.3	80	0.8	0.1	0.7
Raymond	18844	18459	97.4	485	2.6	2188	11.9	3.4	3.4
Rollisford	29891	28321	94.8	1570	5.3	1162	14.0	2.4	2.1
Rye	4843	4682	96.7	161	3.3	582	12.4	3.1	3.0
Sandwich	9232	8888	96.3	343	3.7	599	6.7	4.2	1.7
South Hampton	6181	5844	94.5	337	5.4	1697	28.3	24.3	1.5
Somersworth	6398	6219	97.2	179	2.8	569	9.1	3.1	1.3
Stratford	5147	5044	98.0	102	2.0	0	0.0	0.0	0.0
Stratham	32779	31151	95.0	1628	5.0	1445	4.6	4.3	0.2
Sturrah	1892	1874	98.7	18	0.9	3.2	0.2	2.2	2.2
Wakefield	28717	25264	88.0	3453	12.0	948	3.8	2.2	0.8
Wolfboro	37406	33693	90.1	3713	17.9	0	0.0	0.0	0.0
<b>Total</b>	<b>79673</b>	<b>78144</b>	<b>93.2</b>	<b>5129</b>	<b>6.8</b>	<b>5207</b>	<b>7.3</b>	<b>3.</b>	