

Appendix A – Existing and Future Land Use

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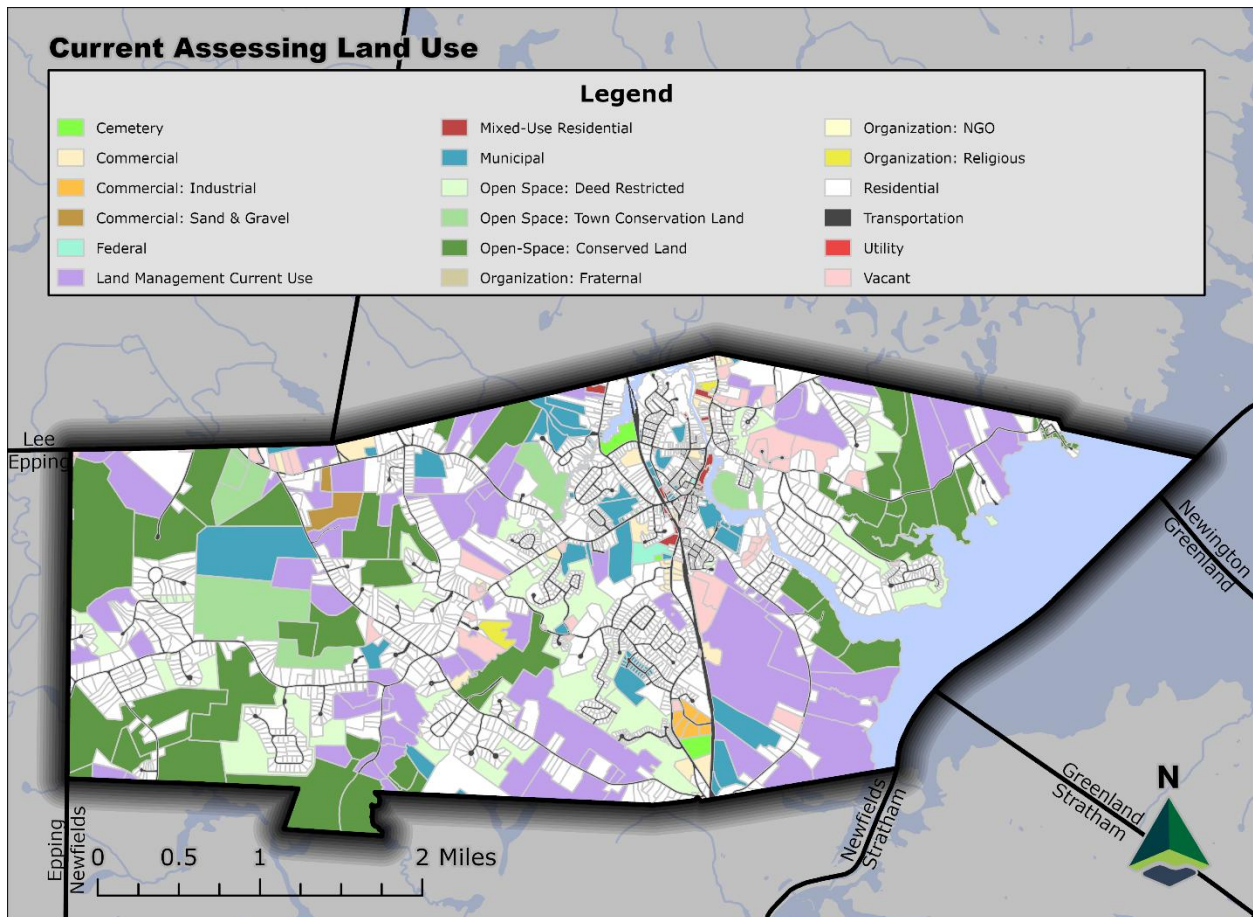
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Existing Land Use

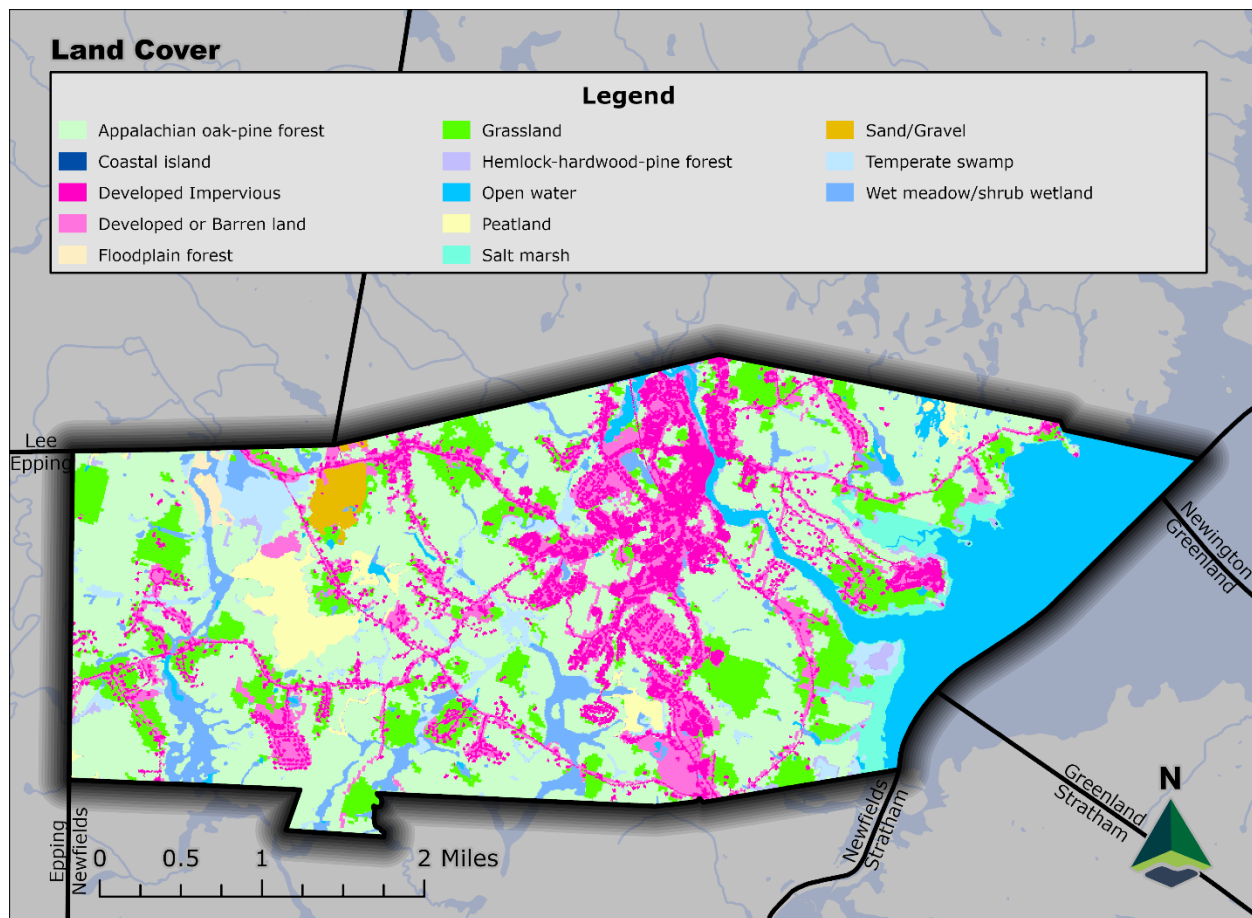
Land Use Type	Acres	% of Town
All Residential	1,951.73	21.44%
Multi-Family	132.04	1.45%
Single Family	1,787.31	19.63%
Mobile Home Parks	32.38	0.36%
Commercial, Services, Institutional	164.69	1.81%
Commercial Retail	14.31	0.16%
Services	15.44	0.17%
Government	10.56	0.12%
Institutional	16.56	0.18%
Educational	21.88	0.24%
Indoor Cultural/Public Assembly	1.11	0.01%
Mining	77.25	0.85%
Other Commercial	7.57	0.08%
Industrial	40.43	0.44%
Transportation, Communication, Utilities	207.75	2.28%
Rail Transportation	7.81	0.09%
Road Right-of-Way	148.35	1.63%
Parking Structure/Lot	6.03	0.07%
Auxiliary Transportation	5.12	0.06%
Electric, Gas, and Other Utilities	21.24	0.23%
Water and Wastewater Utilities	3.60	0.04%
Solid Waste Utilities	15.60	0.17%
Mixed Developed Uses	3.60	0.04%
Outdoor and Other Urban and Built-Up Land	201.83	2.22%
Outdoor Recreation	67.73	0.74%
Cemeteries	22.19	0.24%
Maintained Open Areas	111.91	1.23%
Vacant Land	1.38	0.02%
Agricultural Land	652.34	7.17%
Transitional Land	98.74	1.08%

Forest Land	3,560.04	39.11%
Water	1,028.10	11.29%
Wetlands	1,120.13	12.31%
Barren Land	72.20	0.79%
Total Land and Water Area	9,102.95	100.00%

Source: Strafford Regional Planning Commission, Land Use Database, 2022



Existing Land Use, 2024, Newmarket Assessing Parcel Data



Existing Land Cover, 2020, NH Wildlife Action Plan

Zoning and Developable Land Area Analysis

To assist in determining recommendations to meet the goals of the land use chapter, an analysis of existing zoning and natural constraints was conducted to determine land availability. A lack of land availability does not preclude future development where there is redevelopment potential.

Summary of Land Availability in Each Zoning District

Mixed Use Districts: The M-2 District (26 acres, 80% developed or constrained) provides for a mix of high density uses in the downtown village area, provides public access to the Lamprey River, and design compatible with the pedestrian scale and historic nature of the area. The M-3 District (124.18 acres, 90% developed or constrained) provides for the development of professional office space and health care related uses compatible with the existing nature and character of this predominantly residential neighborhood. Lastly, the M-4 District (143.6 acres, 65% developed or constrained) allows for the ongoing use of the golf course and adjacent commercial and residential development.

Business Districts: The B-1 District (72.4 acres, 34% developed or constrained) allows for business development along Route 108. The B-2 district (348.9 acres, 21% developed or constrained) provides the largest area available for commercial, business and industrial development within the town to broaden the tax base and provide employment opportunities for residents of the town and region. The B-3 District, (260.5 acres, 74% developed or constrained), has a similar objective to the B-2 district and is designed to enable the redevelopment of the Newmarket Sand and Gravel site.

Residential Districts: The largest, R-1 Rural Residential District (5,714.5 acres, 59% developed or constrained) protects the rural, unspoiled character of open spaces in the outlying areas of Newmarket, while allowing low density, 2-acre, single-family residential development. The R-2 and R-3 Districts provide a higher density transition zone between rural residential and the more intensively developed districts in and around the village area. The R-2 District (890.4 acres, 78% developed or constrained) and the R-3 district (124.2 acres, 90% developed or constrained), while still single-family like the R-1 district, allow a smaller 0.5-acre minimum lot size. The R-4 District (7.9 acres, 86% developed or constrained), characterized by steep slopes and narrow roads, accommodates high-density single-, two-, and multi-family residential immediately adjacent to the village area (0.25-acre minimum lots).

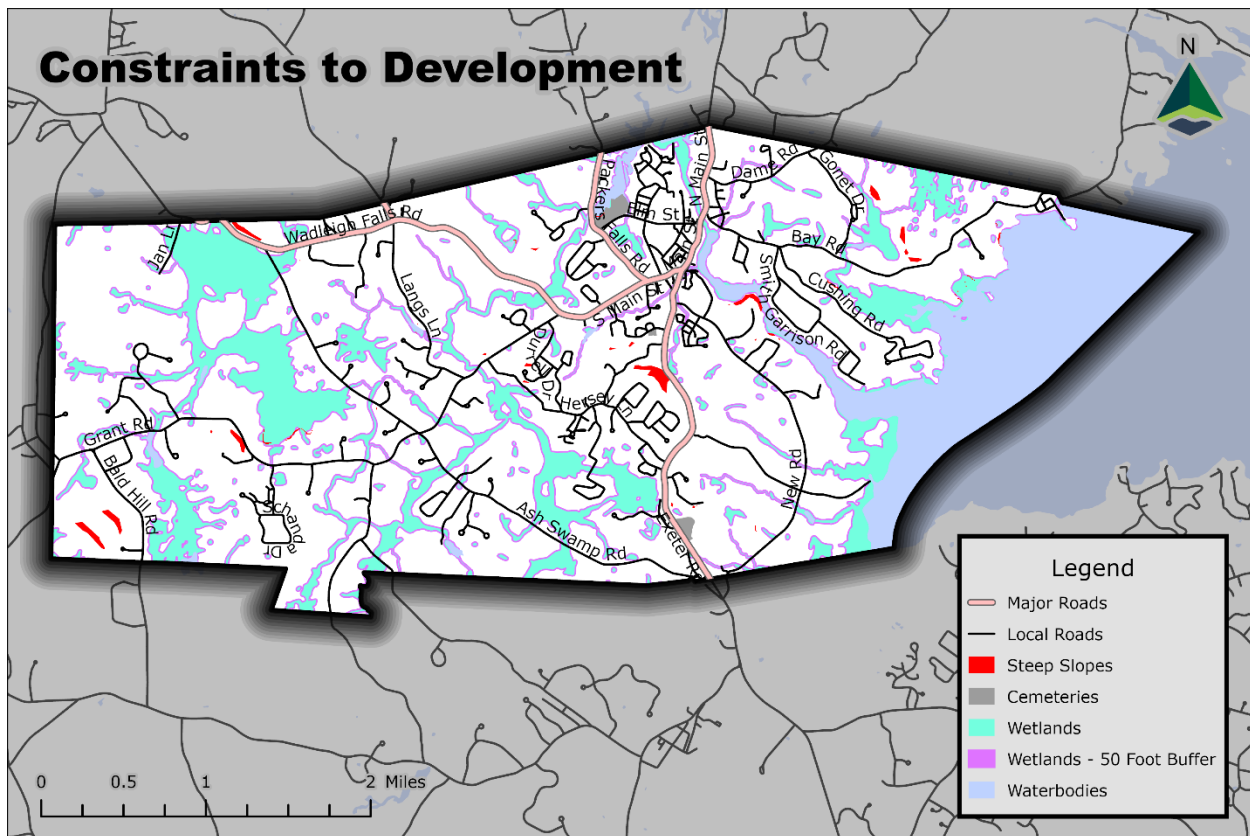
Village Center Districts: The VC-North District (65 acres, 72% developed or constrained), VC-Central (31.8 acres, 100% developed), and VC-South District (51.3 acres, 85% developed or constrained) provide for a broad mix of uses including single-, two-, and multi-family residential; commercial development including office, retail, services, and restaurants; cultural uses; institutional uses such as education and places of assembly; and light industrial uses.

Analysis Methodology

Buildable areas are those that are not permanently conserved, constrained by natural resources, or developed.

Naturally constrained areas in Newmarket total to 36.82% of all area, or 3,343.3 acres, and include:

- Waterbodies, Wetlands, and 50-foot Wetland Buffer: 2899.7 acres, 31.94% of total area
- Roads (Major and Local): 384.6 acres, 4.24% of total area (assumes 50-ft right of way)
- Steep Slopes: 35.9 acres, 0.40% of total area
- Cemeteries: 22.2 acres, 0.24% of total area



Buildable Lots by Zoning District

Zone	Total # of Lots	# of Undeveloped Lots	# of Buildable Lots	% of Lots Buildable
B-1 (Route 108 Business)	15	9	9	60.0%
B-2 (Commercial, Business)	16	5	5	31.3%
B-3 (Route 152 Commercial, Business)	30	14	11	36.7%
M-2 (Downtown Office Village)	88	5	5	5.7%
M-3 (Office)	28	2	2	7.1%
M-4 (Golf Course)	62	9	6	9.7%
R-1 (Rural Residential)	1,130	402	324	28.7%
R-2 (Low-Density Residential)	886	100	77	8.7%
R-3 (Medium-Density Residential)	160	8	6	3.8%
R-4 (High-Density Residential)	36	3	3	8.3%
VC-North (Village Center North)	63	5	5	7.9%
VC-Center (Village Center Center)	118	2	0	0.0%
VC-South (Village Center South)	30	3	3	10.0%
Grand Total	2,664	568	456	17.1%

Buildable Land Area by Zoning District

	Total Acreage	Built or Constrained Acres	Land Acres Buildable	% of Land Buildable
B-1 (Route 108 Business)	72.41	24.56	47.85	66.1%
B-2 (Commercial, Business)	348.87	73.75	275.12	78.9%
B-3 (Route 152 Commercial, Business)	260.47	192.53	67.95	26.1%
M-2 (Downtown Office Village)	26.08	20.94	5.15	19.7%
M-3 (Office)	61.09	42.59	18.50	30.3%
M-4 (Golf Course)	143.60	94.05	49.56	34.5%
R-1 (Rural Residential)	5,714.53	3,398.62	2,315.90	40.5%
R-2 (Low-Density Residential)	890.43	691.45	198.98	22.3%
R-3 (Medium-Density Residential)	124.18	111.41	12.76	10.3%
R-4 (High-Density Residential)	7.90	6.83	1.07	13.5%
VC-North (Village Center North)	65.01	46.68	18.32	28.2%
VC-Center (Village Center Center)	31.76	31.62	0.14	0.4%
VC-South (Village Center South)	51.34	43.39	7.95	15.5%
Grand Total	18,069.95	12,029.92	6,040.04	33.4%

Outreach Findings

How should the Town prioritize its planning for land use development over the next 10 years? Select your top three of the options below.		
Answer Choices	Responses	
Residential development opportunities	22.48%	58
Commercial development opportunities	18.99%	49
Mixed-use development opportunities	40.31%	104
Transportation infrastructure improvements (all types - pedestrian, bike, pedestrian, rail , vehicular)	58.91%	152
Renewable energy and resiliency infrastructure improvements	45.35%	117
Protection of conservation and recreation spaces	70.93%	183
Something else (please describe)	9.69%	25
	Answered	258
	Skipped	54

Appendix B: Housing Chapter Supporting Data

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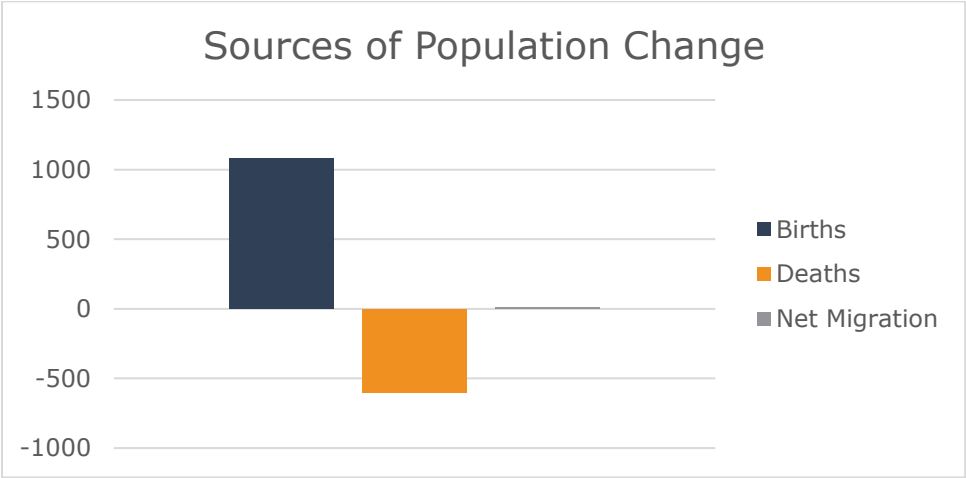
Demographics

Figure 1: Population Estimates and Projections

	Year	Population
Estimates	2010	8,936
	2011	8,950
	2012	8,942
	2013	9,173
	2014	9,149
	2015	9,170
	2016	9,172
	2017	9,359
	2018	9,455
	2019	9,460
	2020	9,430
Projections	2021	9,496
	2025	9,833
	2030	10,183
	2035	10,429
	2040	10,522
	2045	10,515
	2050	10,448

Sources: Census, NHOPD 2010-2050

Figure 2: Sources of Population Change



Sources: Census, NH Vital Stats 2010-2020

Figure 3: Population by Race and Ethnicity

Race and Ethnicity		Newmarket	Rockingham County
Total Population		9,400	315,169
	Hispanic	149	10,933
	Not Hispanic	9,251	304,236
White		8,754	290,277
	Hispanic	78	5,011
	Not Hispanic	8,676	285,266
African American		90	2,814
	Hispanic	-	269
	Not Hispanic	90	2,545
American Indian		-	155
	Hispanic	-	127
	Not Hispanic	-	28
Asian		130	6,466
	Hispanic	-	34
	Not Hispanic	130	6,432
Native Hawaiian or Pacific Islander		-	67
	Hispanic	-	-
	Not Hispanic	-	67
Some Other Race		63	3,363
	Hispanic	61	2,138
	Not Hispanic	2	1,225
Two or More Races		363	12,027
	Hispanic	10	3,354
	Not Hispanic	353	8,673

Source: ACS 2018-2022

Figure 4: Population with any Disability

	Newmarket	Rockingham County
Total Population	9,400	315,169
With a Disability	766	34,171
Without	8,634	280,998

Source: ACS 2018-2022

Figure 5: Median Age

Year	Newmarket	Rockingham County	NH
2012	36.6	42.3	41.1
2017	37	44.1	42.7
2022	38.5	44.7	43.1

Source: ACS 2007-2022

Figure 6: Population by Age

Age Group	Newmarket			Rockingham County			NH		
	2012	2017	2022	2012	2017	2022	2012	2017	2022
Under 10 Years	1,116	773	851	33,329	30,785	30,466	146,225	137,198	131,479
10 - 19 Years	1,110	823	833	40,423	36,923	35,596	179,567	165,328	162,096
20 - 29 Years	1,435	1,896	1,657	29,942	34,155	35,366	157,656	168,844	174,497
30 - 39 Years	1,199	1,419	1,610	33,152	33,784	39,425	153,433	153,029	171,144
40 - 49 Years	1,370	1,047	1,219	52,809	43,438	38,149	209,414	176,952	164,337
50 - 59 Years	1,274	1,257	941	49,420	53,596	51,119	208,367	217,925	207,906
60 - 69 Years	415	479	765	18,801	21,352	25,515	82,309	93,279	106,402
70 - 79 Years	535	831	959	21,671	29,588	36,588	98,760	129,717	158,814
Over 80 Years	330	230	495	11,729	13,338	16,724	57,678	61,133	73,391

Source: ACS 2007-2022

Figure 7: Fall School Enrollment

School Enrollment	Fall Enrollment				
	2019	2020	2021	2022	2023
Kindergarten	84	58	83	70	85
Elementary	419	391	363	379	367
Middle	259	246	241	226	227
High School	295	318	277	274	291
Total	1,057	1,013	964	949	970

Source: NH Department of Education 2019-2023

Income

Figure 8: Median Household Income By Tenure

Households	Newmarket			Rockingham County		
	2012	2017	2022	2012	2017	2022
All Households	\$60,398	\$70,057	\$98,002	\$77,939	\$85,619	\$110,225
Owner	\$86,772	\$97,841	\$116,467	\$91,252	\$101,330	\$127,256
Renter	\$41,812	\$47,728	\$77,715	\$43,700	\$48,704	\$62,998

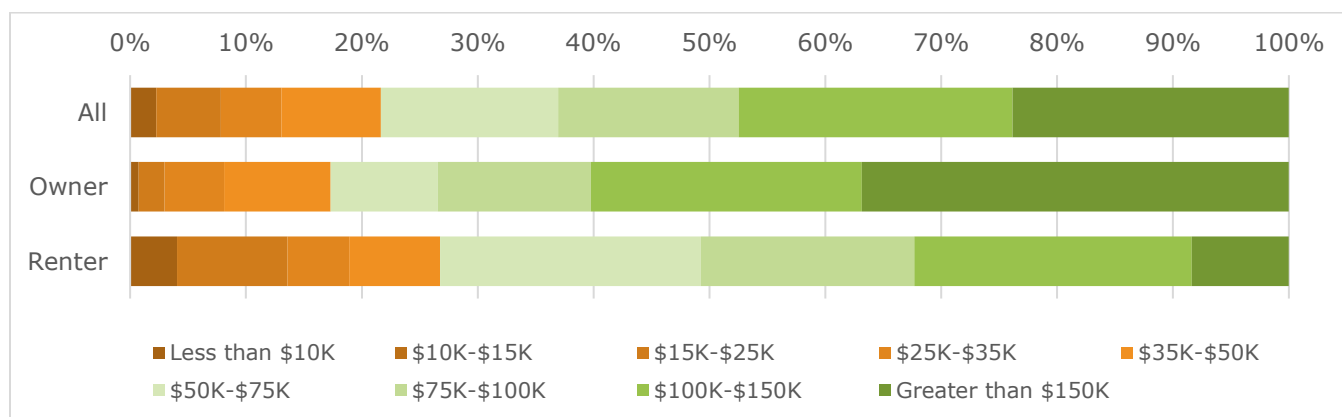
Source: ACS **2007-2022**

Figure 9: Households by Income Bracket and Tenure

Income	Newmarket			Rockingham County		
	All	Owner	Renter	All	Owner	Renter
<\$10K	4,203	2,282	1,921	125,464	98,479	26,985
\$10K-\$15K	95	17	78	2,878	1,730	1,148
\$15K-\$25K	0	0	0	2,371	1,063	1,308
\$25K-\$35K	234	51	183	5,317	3,021	2,296
\$35K-\$50K	219	117	102	5,236	2,928	2,308
\$50K-\$75K	361	210	151	8,551	5,094	3,457
\$75-\$100K	643	211	432	16,736	11,068	5,668
\$100K-\$150K	655	301	354	16,112	11,988	4,124
>\$150K	994	534	460	26,348	22,193	4,155

Source: ACS 2018-2022

Figure 10: Households by Income Bracket and Tenure and Relationship to Median Income



Source: ACS 2018-2022

Figure 11: Households by Cost Burden Status

Householder Age	Total			Cost Burdened			Not Cost Burdened		
	All	Owner	Renter	All	Owner	Renter	All	Owner	Renter
15-24	223	0	223	122	0	122	101	0	101
25-34	932	234	698	283	66	217	649	168	481
35-64	2,080	1,400	680	444	241	203	1,636	1,159	477
Over 65	919	638	281	483	281	202	436	357	79
Not computed	49	10	39						

Source: ACS 2018-2022

Households

Figure 12: Households by Tenure

Households	Newmarket			Rockingham County			NH		
	2012	2017	2022	2012	2017	2022	2012	2017	2022
All	3,693	4,077	4,203	115,552	119,955	125,464	516,845	526,710	545,116
Owner	2,055	2,154	2,282	89,320	92,025	98,479	372,021	372,304	393,945
Renter	1,638	1,923	1,921	26,232	27,930	26,985	144,824	154,406	151,171

Source: ACS 2007-2022

Figure 13: Average Household Size by Tenure

Households	Newmarket			Rockingham County			NH		
	2012	2017	2022	2012	2017	2022	2012	2017	2022
All	2.41	2.20	2.23	2.54	2.50	2.49	2.47	2.45	2.46
Owner	2.65	2.44	2.57	2.68	2.64	2.64	2.60	2.57	2.60
Renter	2.11	1.93	1.84	2.05	2.05	1.95	2.14	2.15	2.08

Source: ACS 2007-2022

Figure 14: Households by Size

	Newmarket			Rockingham County			NH		
	2012	2017	2022	2012	2017	2022	2012	2017	2022
Size = 1	990	1,248	1,225	26,167	27,864	29,747	130,449	134,536	147,474
Size = 2	1,383	1,614	1,722	42,288	44,010	48,134	193,222	200,911	209,739
Size = 3	601	591	768	19,849	20,584	20,603	81,457	85,961	82,528
Size = 4	514	416	330	18,108	18,319	17,634	73,431	68,544	68,169
Size = 5	95	167	103	6,585	6,759	6,887	26,487	25,317	25,524
Size = 6	65	41	55	1,829	1,614	1,572	8,012	7,328	7,677
Size >= 7	45	-	-	726	805	887	3,787	4,113	4,005

Source: ACS 2007-2022

Figure 15: Households by Type

Households	Newmarket			Rockingham County		
	2012	2017	2022	2012	2017	2022
Family Households	2,144	2,090	2,350	81,230	83,861	86,122
Married Couples	1,602	1,745	1,861	67,256	68,130	71,104
with Unmarried Female Householder	251	135	204	4,406	5,221	4,897
with Unmarried Male Householder	291	210	285	9,568	10,510	10,121
Non-Family Households	1,549	1,987	1,853	34,322	36,094	39,342
One Person	990	1,248	1,225	26,167	27,864	29,747
Multiple People	559	739	628	8,155	8,230	9,595

Source: ACS 2007-2022

Figure 16: Households with Children

Households	Newmarket			Rockingham County		
	2012	2017	2022	2012	2017	2022
Households with "own" children	1,025	794	957	37,598	36,399	35,129
Married Parents	669	604	583	29,424	27,205	26,390
Single Parents	356	190	374	8,174	9,194	8,739
Unmarried Female Parent	122	27	186	2,300	2,946	2,528
Unmarried Male Parent	234	163	188	5,874	6,248	6,211

Source: ACS 2007-2022

Figure 17: People Living Alone

Households	Newmarket			Rockingham County		
	2012	2017	2022	2012	2017	2022
Under 65 Years Old	690	761	797	16,499	15,869	15,583
Over 65 Years Old	300	487	428	9,668	11,995	14,164

Source: ACS 2007-2022

Newmarket Housing Stock

Figure 18: Permitted New Buildings

Year	Residential			Other		Total
	Single Family	Multifamily	Manufactured Housing	Commercial	Other	
2008	6	0	1	0	0	7
2009	0	3	0	0	0	3
2010	0	0	0	0	0	0
2011	2	0	0	0	0	2
2012	6	0	0	0	0	6
2013	1	4	0	0	0	5
2014	10	0	0	0	0	10
2015	21	14	0	0	0	35
2016	36	45	0	0	0	81
2017	24	4	0	0	0	28
2018	25	4	0	0	0	29
2019	19	19	0	0	0	38
2020	8	2	0	0	0	10
2021	2	0	1	0	0	3
2022	19	8	0	21	0	48

Source: SRPC's Building Permit Database 2008-2021

Figure 19: Buildable Land with Access to Utilities

Buildable Land with Access to...	Land Acres	% of Land
Water and Sewer Infrastructure	1,635.99	20%
Water Infrastructure Only	491.47	6%
Sewer Infrastructure Only	296.97	4%
All Buildable Land	2,548.95	32%

Source: City Data 2023

Figure 20: Potential and Existing Density

Infrastructure	Potential Density		Existing Density Range
	Low	High	
Water and Sewer	4 units/acre	6 units/acre	0.05 - 26.49 units/acre
Water or Sewer	1 unit/acre	1.5 units/acre	0.05 - 7.42 units/acre
None	0.5 unit/acre	1 unit/acre	(DES Septic Prevails)

Source: City Data 2023

Figure 21: Newmarket Zoning Districts that Allow Any Residential Uses

Housing Type	Land Acres	% of Land
All Land	8,034.51	100%
All Residential	7,309.91	91%
Single Family (Allowed + Conditional)	7,300.23	91%
Single Family (Allowed)	7,300.23	91%
Single Family (Conditional)	-	0%
Two-Family (Allowed + Conditional)	229.70	3%
Two-Family (Allowed)	229.70	3%
Two-Family (Conditional)	-	0%
Multi-Family (Allowed + Conditional)	177.23	2%
Multi-Family (Allowed)	144.51	2%
Multi-Family (Conditional)	32.72	0%

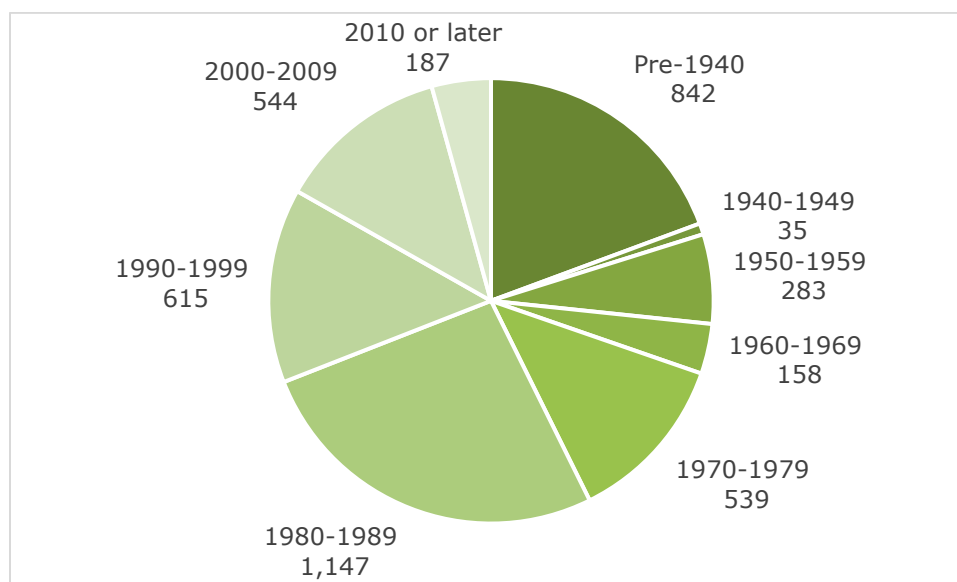
Source: City Data 2023

Figure 22: Number of Units in Structures

	Newmarket		Rockingham County	
	2012	2022	2012	2022
1 Unit	2,107	2,470	98,563	105,666
2 Units	148	247	6,464	5,692
3-9 Units	789	495	10,316	10,007
10-49 Units	805	903	9,484	11,491
50+ Units	26	235	1,781	2,678
Total Households	3,875	4,350	126,644	135,585

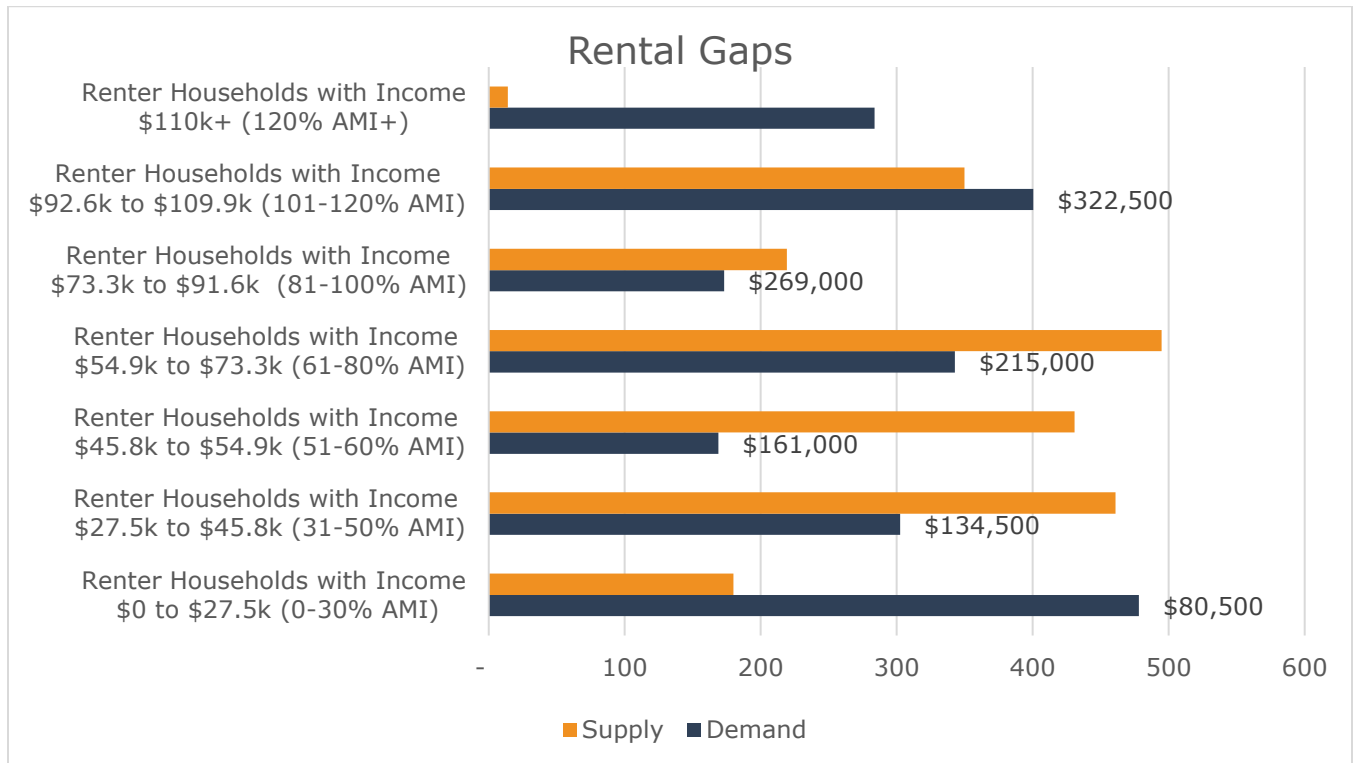
Source: ACS 2007-2022

Figure 23: Age of Housing Structure



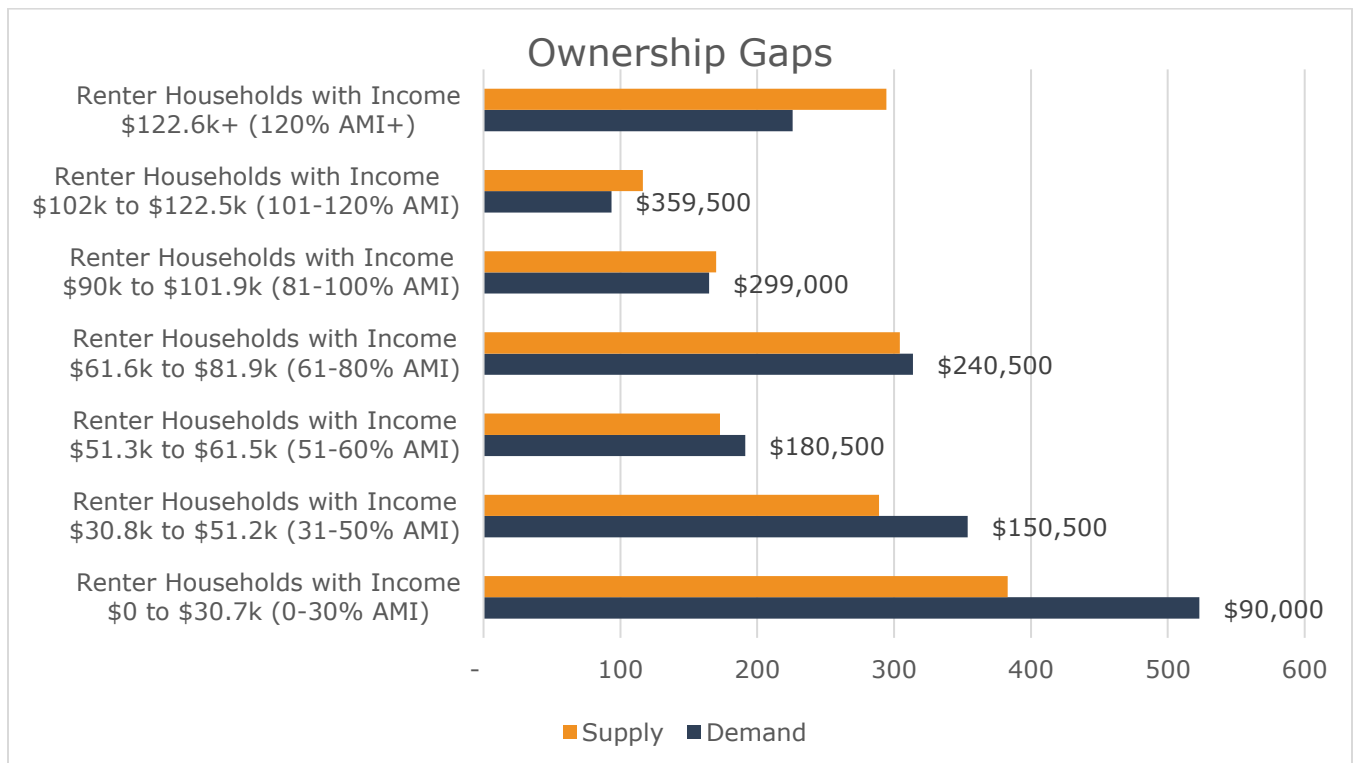
Source: ACS 2018-2022

Figure 24: Housing Gaps for Rental Housing



Source: *Regional Housing Needs Assessment 2021*

Figure 25: Housing Gaps for Home Ownership



Source: *Regional Housing Needs Assessment 2021*

Figure 26: Housing Production Needs for Newmarket

New Units Needed by		2025	2030	2035	2040
Total		278	511	668	756
Owner Occupied		189	347	451	506
	Below 100% AMI	70	129	168	188
	Above 100% AMI	119	218	284	318
Renter Occupied		89	164	217	249
	Below 100% AMI	24	44	58	66
	Above 100% AMI	65	120	159	183

Source: Regional Housing Needs Assessment 2021

Affordability

Figure 27: Median Home Purchase and Rental Costs

Year	Median Purchase Prices			Median Rent (All Units)		
	Newmarket	Rockingham County	NH	Newmarket	Rockingham County	NH
2005	\$273,519	\$307,000	\$250,000	\$988	\$973	\$901
2006	\$270,000	\$303,750	\$249,900	\$815	\$994	\$928
2007	\$283,000	\$300,000	\$252,500	\$844	\$1,031	\$946
2008	\$245,000	\$285,000	\$240,000	\$918	\$1,042	\$969
2009	\$229,400	\$247,000	\$210,000	\$1,197	\$1,047	\$969
2010	\$207,500	\$259,000	\$215,000	\$1,146	\$1,099	\$980
2011	\$220,000	\$250,000	\$207,000	\$1,268	\$1,051	\$983
2012	\$242,400	\$255,000	\$205,000	\$1,451	\$1,070	\$1,005
2013	\$233,000	\$269,000	\$220,000	\$1,267	\$1,099	\$1,018
2014	\$250,000	\$268,000	\$219,000	\$1,218	\$1,123	\$1,037
2015	\$227,500	\$275,000	\$221,000	\$1,328	\$1,163	\$1,069
2016	\$250,000	\$294,000	\$230,000	\$1,321	\$1,241	\$1,113
2017	\$280,000	\$312,500	\$240,000	\$1,409	\$1,268	\$1,143
2018	\$288,900	\$330,000	\$254,000	\$1,456	\$1,245	\$1,177
2019	\$320,000	\$349,000	\$270,000	\$1,481	\$1,467	\$1,251
2020	\$345,000	\$395,000	\$302,300	\$1,548	\$1,548	\$1,283
2021	\$375,000	\$449,900	\$350,000	\$1,566	\$1,556	\$1,373
2022	\$494,900	\$501,300	\$400,000	\$1,634	\$1,578	\$1,510
2023	\$500,000	\$530,000	\$418,000	\$1,914	\$1,911	\$1,644

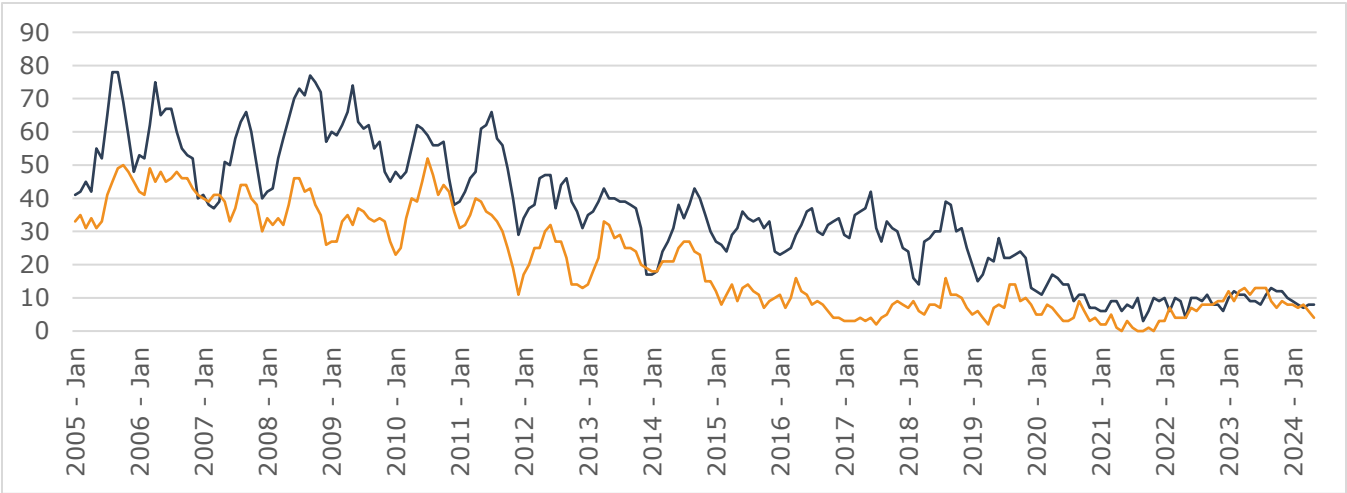
Source: New Hampshire Housing Finance Authority 2005-2022

Figure 28: Portsmouth-Rochester Metro Area Fair Market Rents

Unit Size	2020	2021	2022	2023
Studio/0 Bedroom	\$1,000	\$969	\$977	\$1,112
1 Bedroom	\$1,029	\$1,033	\$1,092	\$1,232
2 Bedroom	\$1,315	\$1,330	\$1,399	\$1,563
3 Bedroom	\$1,795	\$1,803	\$1,871	\$2,034
4 Bedroom	\$2,212	\$2,226	\$2,295	\$2,488
5 Bedroom	\$2,544	\$2,560	\$2,639	\$2,861
6+ Bedroom	\$2,876	\$2,894	\$2,984	\$3,234

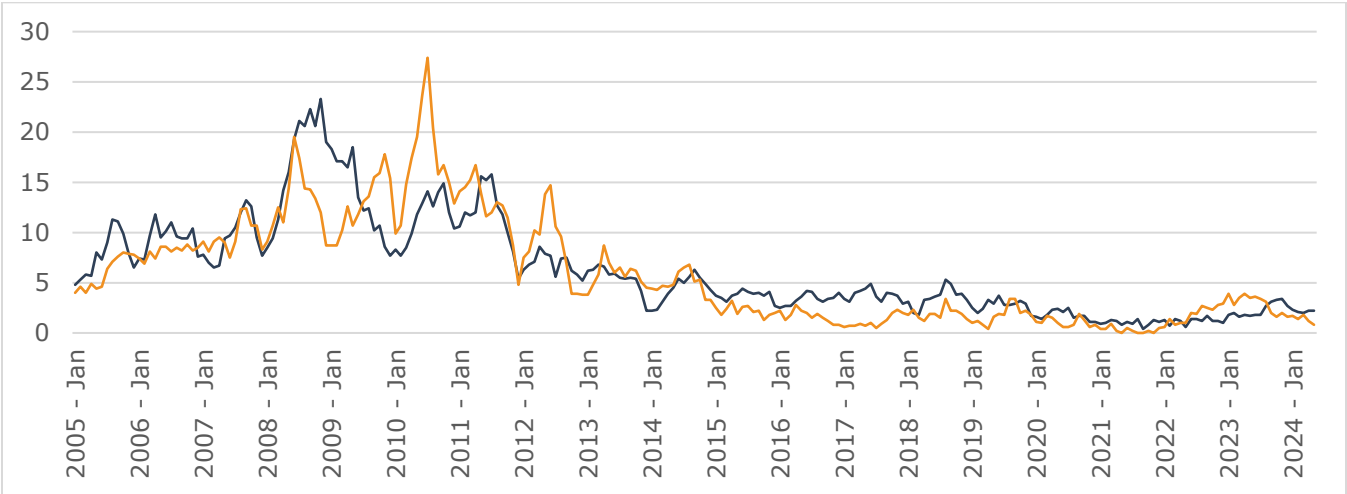
Source: HUD 2020-2023

Figure 29: Homes for Sale Each Month



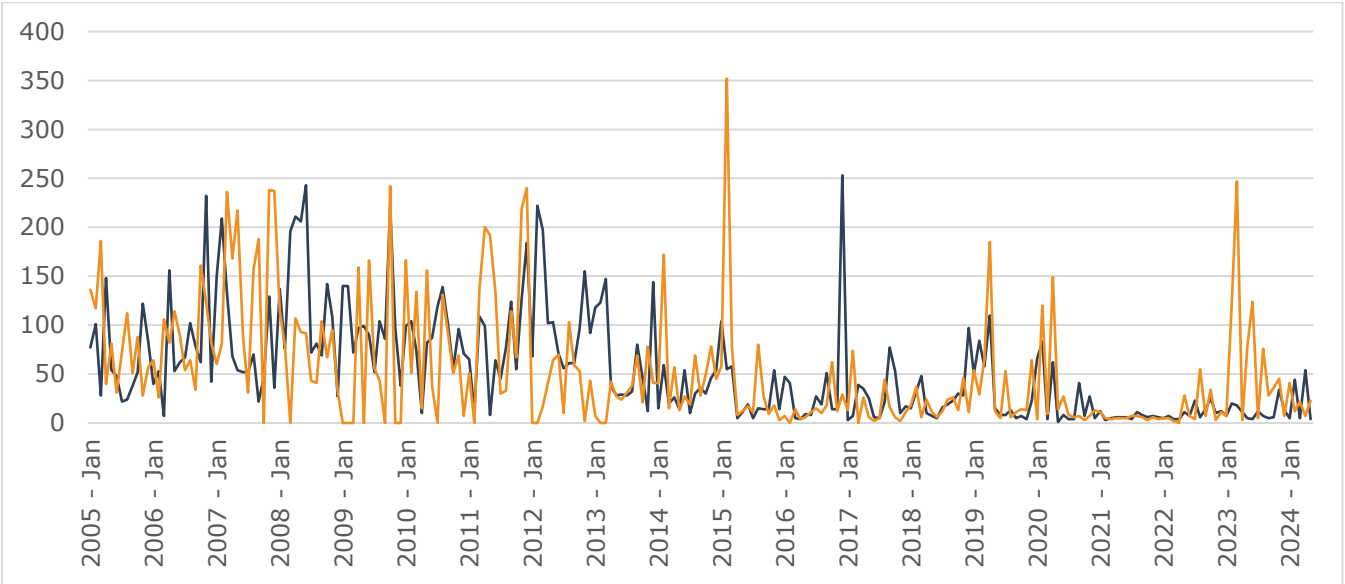
Source: NH Association of Realtors 2005-2024

Figure 30: Months' Supply of Housing Inventory



Source: NH Association of Realtors 2005-2024

Figure 31: Average Days on Market



Source: NH Association of Realtors 2005-2024

Figure 32: Newmarket Housing Choice Vouchers

Housing Choice Vouchers (2021)	
Number of Households	13
Average rent	\$1,315
Median rent	\$1,914
Applicants	23
Actively looking for units	4

Source: Regional Housing Needs Assessment 2021

Figure 33: Subsidized Housing Units

Subsidized Units	Newmarket
LIHTC Units	Yes
Special Needs Units	No
Age-Restricted Units	Yes
% Age-Restricted Units	63%
% Units within 1/2 mile of Transit	62%
Total Subsidized Units	134

Source: Regional Housing Needs Assessment 2021

Figure 34: Employment and Wages for Rockingham County's Top Occupations

Occupations	Employees	Wages			
		Entry	Mean	Experience	Median
Total, All Occupations	153,900	\$32,654	\$64,590	\$80,557	\$49,475
Retail	5,710	\$27,678	\$39,495	\$45,403	\$35,204
Health Care Practitioners	7,960	\$54,178	\$108,465	\$135,339	\$88,519
Health Care Support	4,180	\$32,529	\$44,166	\$49,985	\$43,128
Food Service and Preparation	15,090	\$24,994	\$36,756	\$42,637	\$34,760
Teachers	8,630	\$35,839	\$59,020	\$70,611	\$56,567
Elementary Teachers	1,250	\$49,945	\$68,578	\$77,895	\$66,028
Protective Services	2,890	\$36,451	\$57,638	\$68,231	\$57,559
Police (Patrol Officers)	580	\$54,808	\$65,934	\$71,496	\$63,940
Firefighters	650	\$36,417	\$53,368	\$61,844	\$54,742
Construction and Extraction	5,800	\$42,818	\$62,179	\$71,860	\$58,566

Source: NH Employment Security 2023

Figure 35: Maximum Affordable Rent for Rockingham County's Top Occupations

Occupations	Employees	Max Rent Affordable				Median Rent
		Entry	Mean	Experience	Median	
Total, All Occupations	153,900	\$816	\$1,615	\$2,014	\$1,237	\$1,914
Retail	5,710	\$692	\$987	\$1,135	\$880	\$1,914
Health Care Practitioners	7,960	\$1,354	\$2,712	\$3,383	\$2,213	\$1,914
Health Care Support	4,180	\$813	\$1,104	\$1,250	\$1,078	\$1,914
Food Service and Preparation	15,090	\$625	\$919	\$1,066	\$869	\$1,914
Teachers	8,630	\$896	\$1,476	\$1,765	\$1,414	\$1,914
Elementary Teachers	1,250	\$1,249	\$1,714	\$1,947	\$1,651	\$1,914
Protective Services	2,890	\$911	\$1,441	\$1,706	\$1,439	\$1,914
Police (Patrol Officers)	580	\$1,370	\$1,648	\$1,787	\$1,599	\$1,914
Firefighters	650	\$910	\$1,334	\$1,546	\$1,369	\$1,914
Construction and Extraction	5,800	\$1,070	\$1,554	\$1,797	\$1,464	\$1,914

Source: NH Employment Security 2023

Figure 36: Maximum Affordable Home Purchase Price for Rockingham County's Top Occupations

Occupations	Employees	Max Mortgage Affordable				Median Price
		Entry	Mean	Experience	Median	
Total, All Occupations	153,900	\$95,500	\$189,500	\$236,500	\$145,000	\$500,000
Retail	5,710	\$81,000	\$115,500	\$133,000	\$103,000	\$500,000
Health Care Practitioners	7,960	\$159,000	\$318,500	\$397,000	\$259,500	\$500,000
Health Care Support	4,180	\$95,500	\$129,500	\$146,500	\$126,500	\$500,000
Food Service and Preparation	15,090	\$73,500	\$108,000	\$125,000	\$102,000	\$500,000
Teachers	8,630	\$105,000	\$173,000	\$207,000	\$166,000	\$500,000
Elementary Teachers	1,250	\$146,500	\$201,000	\$22,850	\$193,500	\$500,000
Protective Services	2,890	\$107,000	\$169,000	\$200,000	\$168,500	\$500,000
Police (Patrol Officers)	580	\$106,500	\$156,500	\$181,500	\$160,500	\$500,000
Firefighters	650	\$160,500	\$193,500	\$209,500	\$187,500	\$500,000
Construction and Extraction	5,800	\$125,500	\$182,500	\$210,500	\$171,500	\$500,000

Source: NH Employment Security 2023

Living Wage

The MIT Living Wage Calculator estimates the cost of living in a county and determines the necessary living wage and the poverty wage based on those costs. The table below represents the Rockingham County Living Wages.

Figure 37: Living Wages for Rockingham County

Household Type		Poverty Wage	Poverty Salary	Poverty Salary per month	Living Wage	Living Salary	Living Salary per month
1 Adult	0 Children	\$7.24	\$15,059	\$1,255	\$25.73	\$53,518	\$4,460
	1 Child	\$9.83	\$20,446	\$1,704	\$45.80	\$95,264	\$7,939
	2 Children	\$12.41	\$25,813	\$2,151	\$58.10	\$120,848	\$10,071
	3 Children	\$15.00	\$31,200	\$2,600	\$75.92	\$157,914	\$13,159
2 Adults (1 Working)	0 Children	\$9.83	\$20,446	\$1,704	\$34.54	\$71,843	\$5,987
	1 Child	\$12.41	\$25,813	\$2,151	\$42.32	\$88,026	\$7,335
	2 Children	\$15.00	\$31,200	\$2,600	\$47.37	\$98,530	\$8,211
	3 Children	\$17.59	\$36,587	\$3,049	\$50.83	\$105,726	\$8,811
2 Adults (both working)	0 Children	\$4.91	\$10,213	\$851	\$17.27	\$35,922	\$2,993
	1 Child	\$6.21	\$12,917	\$1,076	\$25.24	\$52,499	\$4,375
	2 Children	\$7.50	\$15,600	\$1,300	\$31.53	\$65,582	\$5,465
	3 Children	\$8.79	\$18,283	\$1,524	\$37.40	\$77,792	\$6,483

Source: MIT Living Wage Calculator 2022

Income vs Mortgages

Figure 38: Down Payment, Mortgages, and Salaries Needed to Afford Median Priced Homes

Loan Assumptions			Down Payment			Monthly Mortgage Payment				Monthly Mortgage Payment + Utilities, Tax, PMI, and Insurance				Median Rents	Salary Needed				
Year	Average 30-year rate	Median Price	20% Down	10% Down	3.5% Down	20% Down	10% Down	3.5% Down	0% Down	20% Down	10% Down	3.5% Down	0% Down	All Units	20% Down	10% Down	3.5% Down	0% Down	Median Rent
2000	8.05	\$165,000	\$33,000	\$16,500	\$5,775	\$973	\$1,034	\$1,095	\$1,156	\$1,174	\$1,217	\$973	\$1,500	\$1,588	\$1,676	\$1,703	\$1,764	Unknown	\$38,940
2001	6.97	\$185,000	\$37,000	\$18,500	\$6,475	\$981	\$1,043	\$1,104	\$1,165	\$1,184	\$1,227	\$981	\$1,512	\$1,601	\$1,690	\$1,717	\$1,779	Unknown	\$39,258
2002	6.54	\$241,000	\$48,200	\$24,100	\$8,435	\$1,223	\$1,300	\$1,376	\$1,453	\$1,476	\$1,529	\$1,223	\$1,885	\$1,996	\$2,106	\$2,140	\$2,217	Unknown	\$48,934
2003	5.83	\$236,000	\$47,200	\$23,600	\$8,260	\$1,111	\$1,180	\$1,250	\$1,319	\$1,340	\$1,389	\$1,111	\$1,712	\$1,812	\$1,913	\$1,943	\$2,014	Unknown	\$44,441
2004	5.84	\$255,000	\$51,000	\$25,500	\$8,925	\$1,202	\$1,277	\$1,352	\$1,427	\$1,450	\$1,503	\$1,202	\$1,852	\$1,961	\$2,070	\$2,103	\$2,179	Unknown	\$48,083
2005	5.87	\$273,519	\$54,704	\$27,352	\$9,573	\$1,293	\$1,374	\$1,455	\$1,536	\$1,560	\$1,617	\$1,293	\$1,992	\$2,110	\$2,227	\$2,262	\$2,344	\$988	\$51,729
2006	6.41	\$270,000	\$54,000	\$27,000	\$9,450	\$1,353	\$1,438	\$1,522	\$1,607	\$1,632	\$1,691	\$1,353	\$2,084	\$2,207	\$2,330	\$2,366	\$2,452	\$815	\$54,119
2007	6.34	\$283,000	\$56,600	\$28,300	\$9,905	\$1,407	\$1,495	\$1,583	\$1,671	\$1,697	\$1,759	\$1,407	\$2,167	\$2,295	\$2,422	\$2,461	\$2,550	\$844	\$56,275
2008	6.03	\$245,000	\$49,000	\$24,500	\$8,575	\$1,179	\$1,252	\$1,326	\$1,400	\$1,422	\$1,473	\$1,179	\$1,816	\$1,923	\$2,029	\$2,061	\$2,136	\$918	\$47,142
2009	5.04	\$229,400	\$45,880	\$22,940	\$8,029	\$989	\$1,051	\$1,113	\$1,175	\$1,193	\$1,237	\$989	\$1,524	\$1,614	\$1,703	\$1,730	\$1,793	\$1,197	\$39,571
2010	4.69	\$207,500	\$41,500	\$20,750	\$7,263	\$860	\$914	\$967	\$1,021	\$1,037	\$1,075	\$860	\$1,325	\$1,403	\$1,481	\$1,504	\$1,559	\$1,146	\$34,397
2011	4.45	\$220,000	\$44,000	\$22,000	\$7,700	\$886	\$942	\$997	\$1,053	\$1,069	\$1,108	\$886	\$1,365	\$1,446	\$1,526	\$1,550	\$1,606	\$1,268	\$35,453
2012	3.66	\$242,400	\$48,480	\$24,240	\$8,484	\$888	\$943	\$999	\$1,054	\$1,071	\$1,110	\$888	\$1,368	\$1,448	\$1,529	\$1,553	\$1,609	\$1,451	\$35,517
2013	3.98	\$233,000	\$46,600	\$23,300	\$8,155	\$887	\$943	\$998	\$1,054	\$1,070	\$1,109	\$887	\$1,367	\$1,447	\$1,528	\$1,552	\$1,608	\$1,267	\$35,491
2014	4.17	\$250,000	\$50,000	\$25,000	\$8,750	\$974	\$1,035	\$1,096	\$1,157	\$1,175	\$1,218	\$974	\$1,501	\$1,589	\$1,678	\$1,704	\$1,766	\$1,218	\$38,976
2015	3.85	\$227,500	\$45,500	\$22,750	\$7,963	\$853	\$907	\$960	\$1,013	\$1,029	\$1,067	\$853	\$1,315	\$1,392	\$1,469	\$1,492	\$1,547	\$1,328	\$34,132
2016	3.65	\$250,000	\$50,000	\$25,000	\$8,750	\$915	\$973	\$1,030	\$1,087	\$1,104	\$1,144	\$915	\$1,410	\$1,493	\$1,576	\$1,601	\$1,659	\$1,321	\$36,615
2017	3.99	\$280,000	\$56,000	\$28,000	\$9,800	\$1,068	\$1,135	\$1,202	\$1,268	\$1,288	\$1,335	\$1,068	\$1,646	\$1,742	\$1,839	\$1,868	\$1,936	\$1,409	\$42,724
2018	4.54	\$288,900	\$57,780	\$28,890	\$10,112	\$1,177	\$1,251	\$1,324	\$1,398	\$1,420	\$1,471	\$1,177	\$1,814	\$1,920	\$2,027	\$2,059	\$2,134	\$1,456	\$47,087
2019	3.94	\$320,000	\$64,000	\$32,000	\$11,200	\$1,213	\$1,289	\$1,364	\$1,440	\$1,463	\$1,516	\$1,213	\$1,868	\$1,978	\$2,088	\$2,121	\$2,198	\$1,481	\$48,509
2020	3.11	\$345,000	\$69,000	\$34,500	\$12,075	\$1,180	\$1,254	\$1,328	\$1,402	\$1,424	\$1,475	\$1,180	\$1,818	\$1,925	\$2,032	\$2,064	\$2,139	\$1,548	\$47,213
2021	2.96	\$375,000	\$75,000	\$37,500	\$13,125	\$1,258	\$1,337	\$1,415	\$1,494	\$1,517	\$1,572	\$1,258	\$1,938	\$2,052	\$2,166	\$2,200	\$2,280	\$1,566	\$50,319
2022	5.34	\$494,900	\$98,980	\$49,490	\$17,322	\$2,209	\$2,347	\$2,486	\$2,624	\$2,665	\$2,762	\$2,209	\$3,404	\$3,604	\$3,804	\$3,864	\$4,005	\$1,634	\$88,376
2023	6.81	\$500,000	\$100,000	\$50,000	\$17,500	\$2,610	\$2,774	\$2,937	\$3,100	\$3,149	\$3,263	\$2,610	\$4,022	\$4,258	\$4,495	\$4,566	\$4,731	\$1,914	\$104,415

Source: US Federal Reserve and NHHFA 2000-2023

Base Assumptions used in the table above:

- Median Purchase Prices are for Rockingham County
- 30-year interest rates are annual averages for each year
- “Mortgage + PMI” accounts for utilities, tax, PMI and mortgage insurance and assumes that these cost 45% of the original mortgage payment.
- Salary needed to afford each mortgage is the salary at which Mortgage + PMI is less than 30% of the monthly income.
- Down payments used are:
 - 20% to avoid needing PMI and Mortgage Insurance
 - 10% as an easier to attain high percentage down
 - 3.5% as a common minimum for many assistance programs
 - 0% as the minimum for veteran assistance and other programs

Appendix C – Transportation

1. Complete Streets and Safety Improvements.....	1
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4. 2025 Parking Study Summary of Findings.....	10

1. Complete Streets and Safety Improvements

The Strafford Regional Planning Commission and Rockingham Planning Commission are completing a pedestrian stress analysis. You may know of sidewalks that feel “unsafe” despite being separated from the road, and you may know of shoulders that feel “safe” due to very low traffic or traveling speed of vehicles. This study will expand on these notions throughout the Seacoast. The table here includes questions that may be asked as part of such an analysis or a similar “walk audit.”¹

The New Hampshire Department of Transportation defines Complete Streets² as “roadways that are designed and operated to prioritize safety, comfort, and access to destinations for all road users, including motorists, pedestrians, bicyclists, and transit users.” Across all definitions and implementations, complete streets are context-sensitive and no two will look the same when completed.

Sidewalks	Curb Ramps
• Is a sidewalk present? • Is the sidewalk continuous • Is the sidewalk wide enough? • Is the sidewalk well-maintained? • What is the sidewalk made of? • Are there any obstructions?	• How wide is the curb ramp? • Where are utilities placed in relation to the sidewalk? • Does the drainage system keep the base of the ramp clear of water, ice, and debris? • Are the crosswalks and curb ramps aligned?
Crossings	Bes Stops
• Is there a marked crosswalk? • What is the crossing distance? • How long does it take to cross? • How long is the wait time for a signal or a gap in traffic? • Are there pedestrian crossing signals?	• Is the stop convenient to origins and destinations? • Is the stop clearly marked? • Are there any obstacles near the stop? • Is there shelter? • Is there lighting?

¹ Howard County Pedestrian Master Plan. Howard County, Maryland. December 2019. walkhoward.org/wp-content/uploads/2019/12/walkhoward_county_council_version_2019_12_18_compressed_for_web.pdf

² See this map of Complete Streets efforts across New Hampshire from the New Hampshire Municipal Association: storymaps.arcgis.com/stories/952fc598a56c46f588227de59adfe652

Examples of this comes from the City of Portsmouth where, due to the adoption of a city-wide policy, the city was able to incrementally design Complete Streets specific to each street and neighborhood's context and limitations.³ The City of Lebanon⁴ provides standards and guidelines for complete streets. Also, along NH 108 between Rochester, Somersworth, and Dover, the first state level complete streets project will be constructed. The purpose of the project is to increase visibility of pedestrians and cyclists and modify driver behavior. Currently, this corridor hosts many major local employers, dense housing, shopping, and recreation opportunities and inadequately accommodates pedestrian and bicycle traffic by only providing a shoulder to travel on and access to several isolated COAST bus stops.

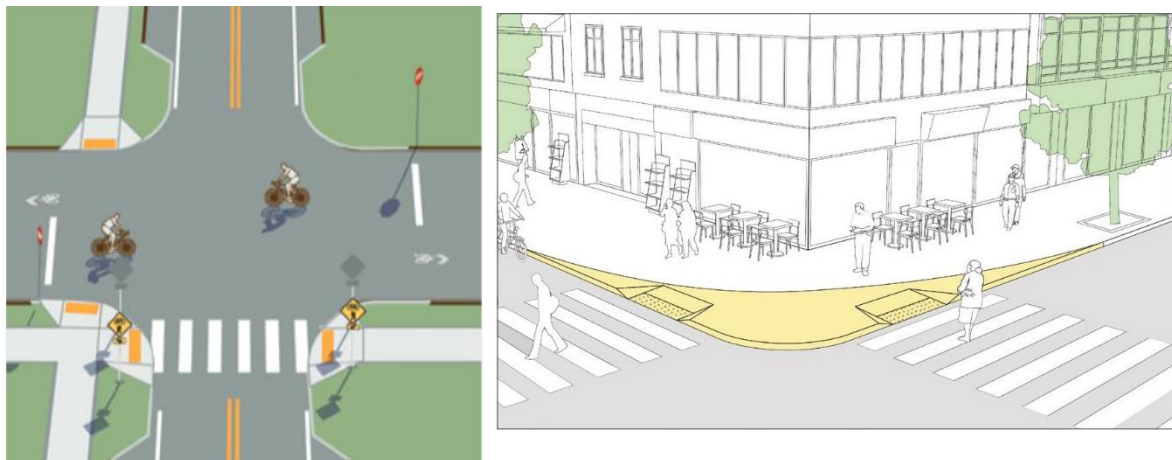
Below are examples of traffic calming techniques that may be applicable in Newmarket. These and other improvements should be repeated as the village core expands. There are many traffic calming techniques that have been catalogued by the U.S. Department of Transportation: "Proven Safety Countermeasures" that apply to multiple modes, and "Safe Transportation for Every Pedestrian" which focuses on non-motorized users.

Proven Safety Counter Measures

Safe Transportation for Every Pedestrian (STEP)

Curb Extensions

Curb extensions reduce traffic exposure and increase visibility of crossing users. Curb extensions should not be used within shoulders where they interfere with bicycle travel along the major roadway.



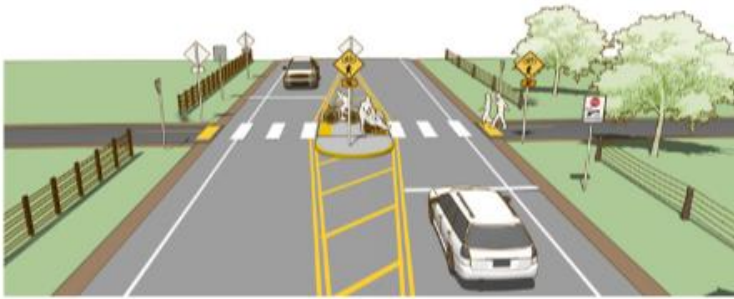
Source: Federal Highway Administration

³ City of Portsmouth Complete Streets Design Guidelines. City of Portsmouth, New Hampshire. June 2017. files.cityofportsmouth.com/files/planning/CompleteStreetsGuideJuly2017.pdf

⁴ Design & Construction Standards for Streetscapes. City of Lebanon, New Hampshire. June 2012. lebanonnh.gov/DocumentCenter/View/191/Design-and-Construction-Standards-for-Streetscapes-PDF

Median Enhanced Crosswalks

Median islands visually narrow vehicle travel lanes and allow users to cross one lane of traffic at a time. They are particularly beneficial for people who may travel slower, such as children, older adults, and people with disabilities. Median islands are beneficial on roadways with high volumes and/or high speeds, and on roadways with three or more travel lanes.



Source: Federal Highway Administration

Roundabouts

Roundabouts are an alternative to traditional 90-degree intersections. There are many reasons why Newmarket should consider converting intersections to roundabouts when the opportunity or need arises:

- They have a proven track record of reducing or eliminating fatal crashes.
- They reduce vehicle traffic speeds.
- They can double as an attractive “gateway” point approaching the village core.
- They reduce congestion because they create a continuous flow of traffic.
- They can reduce emissions from vehicles waiting at traffic signals.

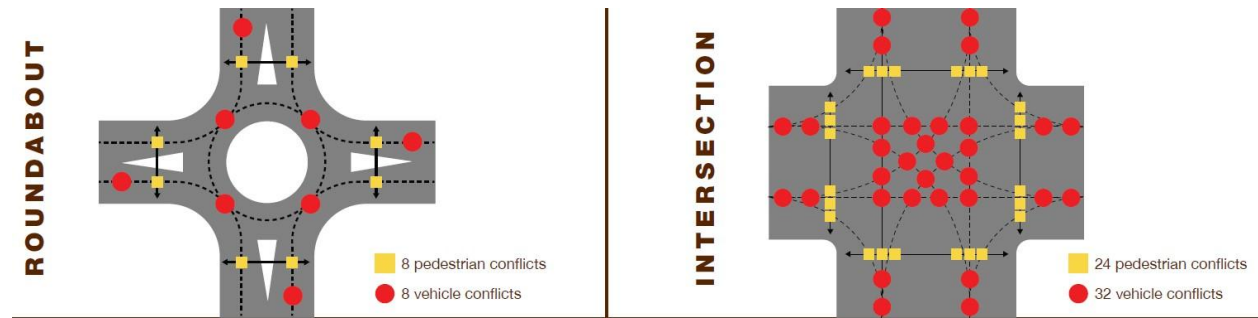
Important design considerations:

- Roundabouts have fewer “conflict points” for pedestrians, but require specific design elements like lighting and splitter median islands.
- Roundabout can be any size but may require more right-of-way than a standard four-way stop-controlled or signalized intersection.



Sources: Left image – Massachusetts DOT; Right image – Federal Highway Administration

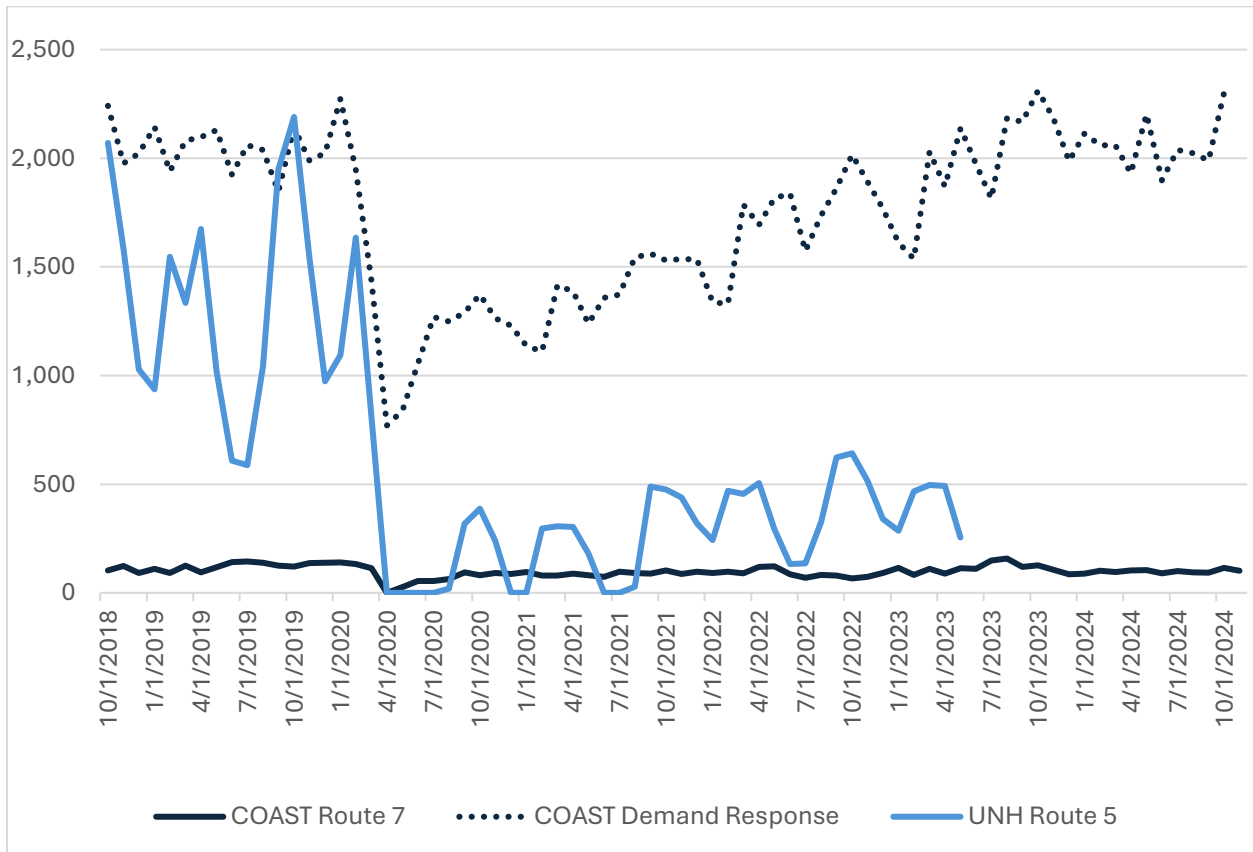
Roundabouts reduce potential conflict points compared to a stop-controlled or signalized intersection.



Source: Montana DOT

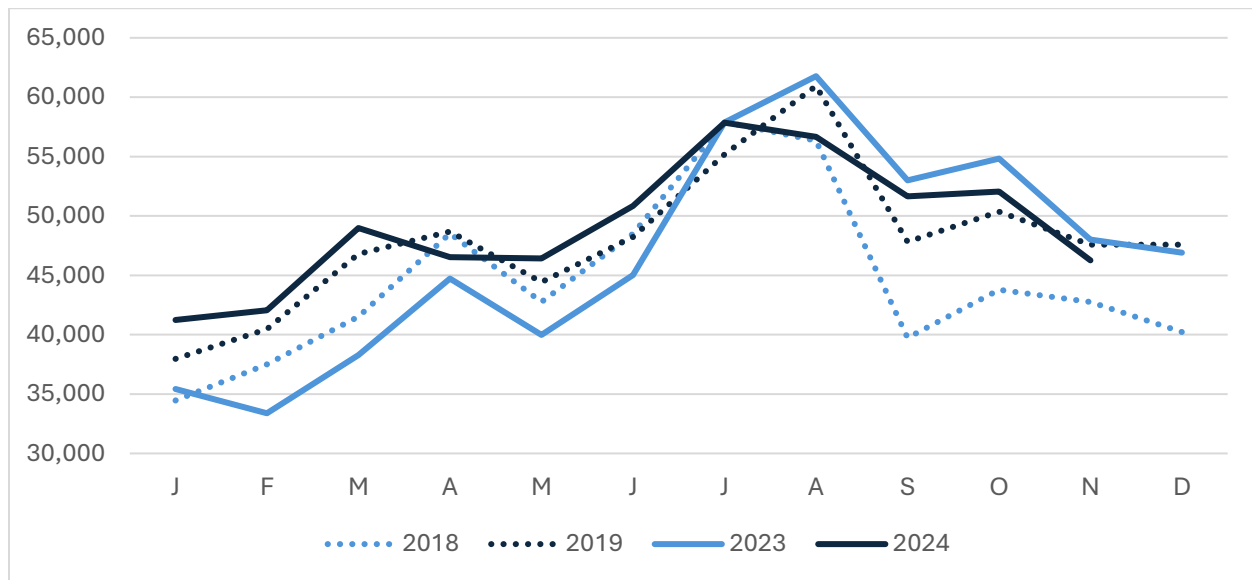
2. Demographics and Ridership Data

Figure 1 – Monthly Transit Ridership on Routes that Serve Newmarket October 2018 to Present



Sources: Federal Transit Administration (FTA), COAST, UNH

Figure 2 – Amtrak Downeaster Monthly Ridership 2018, 2019, 2023, 2024



Source: Northern New England Passenger Rail Authority (n.d. December 2024)

Figure 3 - Potentially "Vulnerable" Transportation Users in Newmarket

	Under 18	65 over	Experiencing a Disability
2013	1,966	903	758
2018	1,572	1,322	981
2023	1,541	1,574	855

Source: American Community Survey 5-year Estimates

Figure 4 - Households without Access to a Vehicle in Newmarket

	Households without Access to a Vehicle
2013	187
2018	284
2023	91

Source: American Community Survey 5-year Estimates

Figure 5 - Commuting Modes in Newmarket

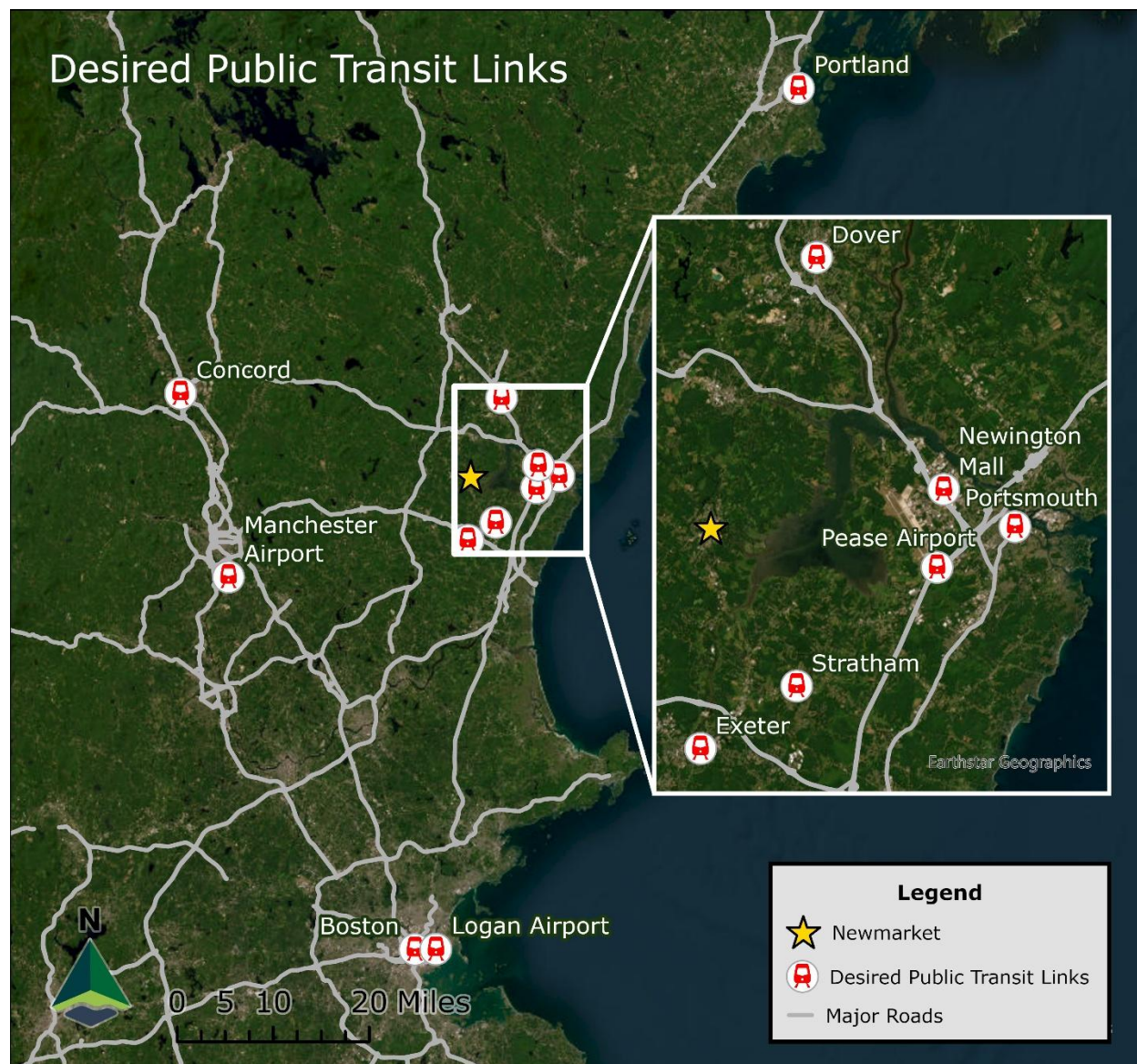
Mode	2023	5-year change
Drove Alone	74%	-12%
Worked from Home	17%	13%
Carpooled	5%	-1%
Walked	4%	3%
Public Transit	0%	-1%
Biked	0%	0%
Other	0%	-2%

Source: American Community Survey 5-year Estimates

Top Commuting Origins and Destinations to and from Newmarket (2022)					
Live in Newmarket and commute to...	Number	Change since 2017	Work in Newmarket and commute from...	Number	Change since 2017
Portsmouth	946	9%	Dover	100	32%
Exeter	446	11%	Rochester	82	95%
Dover	266	-14%	Portsmouth	61	5%
Durham	219	-3%	Exeter	55	-17%
Manchester	185	19%	Durham	46	-16%
Boston, Mass.	150	-4%	Epping	41	58%
Stratham	138	-7%	Hampton	40	111%
Hampton	129	-17%	Barrington	39	-11%
Seabrook	126	19%	Nottingham	36	44%
374 workers live and work in Newmarket, a 5-year increase of 14%					
All others	2,585	4%	All others	766	4%

3. Public Transit Options

Public Transit Options In and Around Newmarket							
Provider	Destination type	Accessible vehicle/ seating?	Reservation required?	Availability	Trip Purpose	Destinations or Areas Served	Cost (one-way)
COAST Route 7	Fixed stop or station	Yes	Yes	Mo, We, Th, Fr, Sa	Any purpose	Multiple stops along NH108 between Newmarket and Exeter	\$1.50 to \$3.00
Community Rides	Exact, curb-to-curb	Yes	Yes	Mo, We, Th, Fr, Sa	Non-emergency Medical	38 towns throughout Strafford, Rockingham, and Carrol Counties	Free
C&J Bus	Fixed stop or station	On request	Yes	Weekdays and weekends	Any purpose	Stations in Dover, Portsmouth, Seabrook, Boston, MA, Portland, ME	\$17.00+
Amtrak Downeaster	Fixed stop or station	Yes	No	Weekdays and weekends	Any purpose	Stations in Dover, Durham, Exeter	\$10.00+
Ready Rides	Exact, curb-to-curb	On request	Yes	Weekdays	Medical appointments	Serves residents of Barrington, Deerfield, Durham, Epping, Lee, Madbury, Newfields, Newmarket, Northwood, Nottingham, Strafford	Free
Meals on Wheels of R'ham Co.	Exact, door-to-door	On request	Yes	Mo, Fr	Meals, shopping, medical	Newmarket Senior Shuttle	Free
Future in Sight	Exact, curb-to-curb	No	Yes	Weekdays and weekends	Medical appts., some shopping	Throughout the state (need to be an active member)	Free



4. 2025 Parking Study Summary of Findings

In the spring of 2025, Strafford Regional Planning Commission conducted a parking study in Newmarket's village core. The study results supported feedback heard during public outreach for the master plan – that downtown parking is at capacity. Local committees developed multiple recommendations and actions for improving parking. Newmarket should balance the need for additional parking with other priorities in the downtown village core, such as pedestrian safety. A range of options should be considered for parking, including parking garages, and satellite lots.

“Very few of the wonderful business in the downtown area are accessible to wheelchair users. Combined with the difficulty parking near businesses, Newmarket is difficult to access for people with mobility impairments. A master plan must improve access for all.”

-2024 Master Plan Survey Respondent

The parking study findings include:

- The average overall occupancy for all zones is around 50% on weekdays, and over 60% on Saturday. However, distribution is not even, with concentrations at the small Weavers Row lot, Old Brick Bank Lot, and Library lot.
 - Note that some analysis zones have one or two spaces, so may appear to have deceptively high occupancy rates.
- 71% of Main street spaces were occupied on weekdays, and peaked near 100% after 5pm. On Saturday, the Main Street zone was over 90% occupied for the entire study period.
- The former Bank lot was also popular throughout the study period and near full capacity on Saturday. In addition to the marked spaces, additional cars were parked in the drive through bays. Data was only collected on the marked spaces, but up to 24 vehicles might be in this lot at one time. The Town should consider where those 24 vehicles might park when the building is leased again.
- The highest rates of turnover were along Main Street on weekdays. Main Street analysis zones saw an average of 6 new vehicles during the weekday study periods. Average Main Street turnover on Saturday was slightly lower, but still highest of all zones.
- The Beech St, Dame Rd, Railroad, and Bay Rd satellite lots all had the lowest occupancy rates of all analysis zones on all days. They shared the lowest turnover rates with some sections nearer the village core (such as the post office, Water St, and South Main St.
- People may be confused by the variety of parking regulations and lack of clear signage.
- Wayfinding signs for the satellite lots could be improved, as well as the sidewalk infrastructure to the Railroad St lot.

There are isolated areas where people are parking longer than the posted time limit: the post office lot, some sections of Main Street and side streets, and in the Weaver St lot adjacent to the Library. SRPC Staff saw parking enforcement officers out all three days,

Appendix D – Energy Chapter

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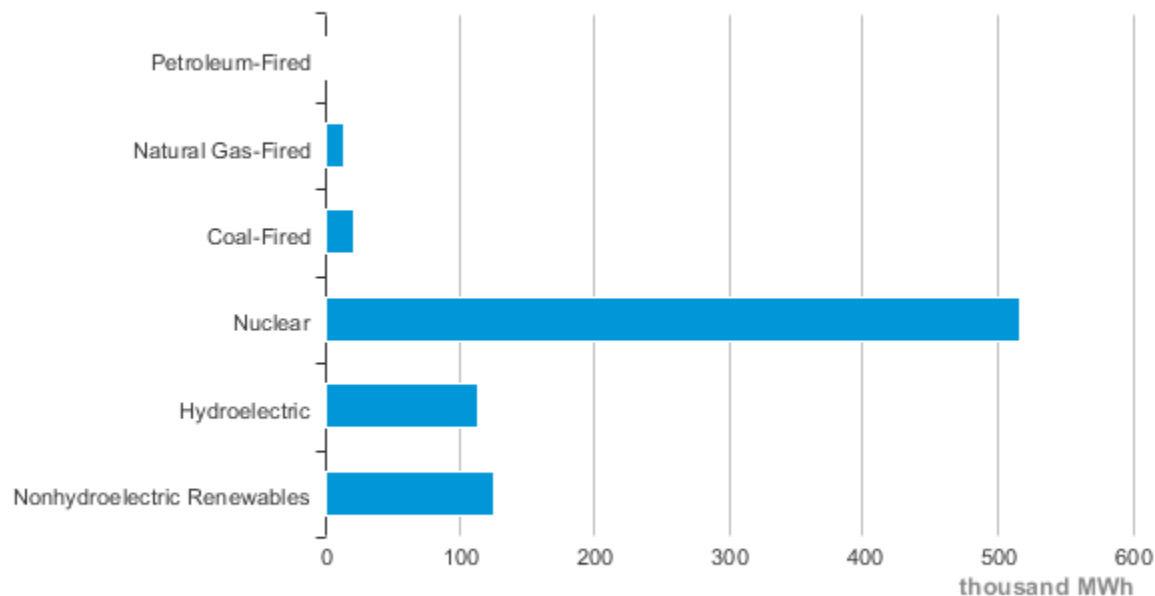
Energy Profiles

State of New Hampshire

1. Sources of Electricity Generation

The U.S. Energy Information Administration (www.eia.gov) collects, analyzes and reports on statewide and national energy data. The most recent New Hampshire State Energy Profile (November 2024) provides a summary of New Hampshire’s net electricity generation.

New Hampshire Net Electricity Generation by Source, Nov. 2024



Source: Energy Information Administration, Electric Power Monthly

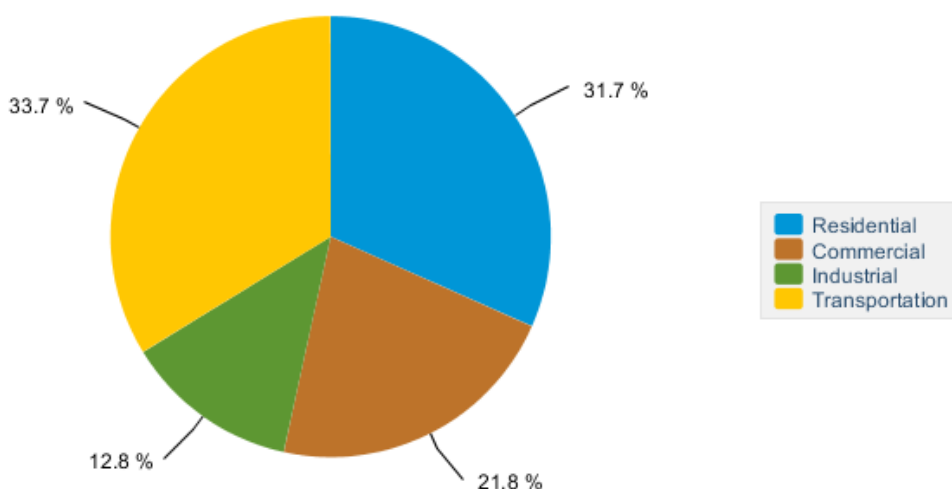
Key points from the NH State Profile include:

- Seabrook, one of two nuclear power plants in New England and New Hampshire's largest power plant, provides approximately 56% of New Hampshire's total in-state net electricity generation.
- Although NH has no natural gas reserves, two natural gas-fired plants provided nearly 25% of the state's total electricity generation.
- In 2023, renewables, including hydroelectric power, biomass (primarily from wood and wood-derived fuels), wind, and solar supplied 18% of the state's total generation.
- The rest of the state's generation was fueled by small amounts of petroleum and coal.
 - Petroleum, which is used primarily to generate power when demand is highest, fueled less than 1% of the state's generation.
 - Coal's contribution declined from 25% of New Hampshire's total in-state generation in 2001 to less than 1% in 2023, while the contribution from natural gas increased from less than 1% to nearly 25% during the same period.

2. Consumption by Sector

The NH State Energy Profile shows that the residential and transportation sectors make up nearly equal shares of New Hampshire's total energy consumption, followed by the commercial and industrial sectors.

New Hampshire Energy Consumption by End-Use Sector, 2022



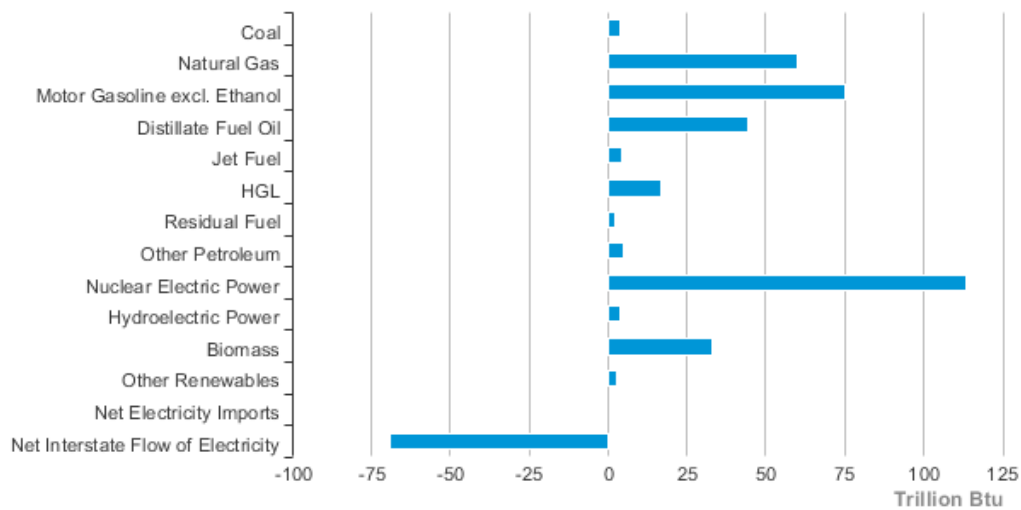
Source: Energy Information Administration, State Energy Data System

Key points about New Hampshire's consumption include:

- The commercial sector accounts for about one-fifth of state energy consumption and the industrial sector uses only slightly more than one-eighth.
- Only 1 in 10 New Hampshire households use electricity as their primary heating source, but in part because of fewer winter daylight hours than in many other states, the residential sector accounted for about 44% of the state's electricity use in 2023.
- About three-fifths (59%) of New Hampshire households use petroleum products as their primary heating fuel, the second-largest share among the states.
- Wood is used as a primary heating source for 1 in 16 New Hampshire households, almost 5 times the national average.

New Hampshire highest consumption is of nuclear power, motor gasoline, natural gas and distillate fuel oil. Renewables make up a small percentage of energy consumed with biomass the largest portion of renewables consumed.

New Hampshire Energy Consumption Estimates, 2022



Source: Energy Information Administration, State Energy Data System

3. Demand Projections

ISO New England is an independent, not-for-profit corporation authorized by the Federal Energy Regulatory Commission (FERC) to be responsible for keeping electricity flowing across the six New England states and ensuring that the region has reliable, competitively priced wholesale electricity today and into the future. ISO operates the New England electric grid, administers the markets, and manages the regional power system planning process. ISO's most recent energy outlook shows net electricity use for New Hampshire to grow from 12,510,000 MWh in 2021 to 14,757,000 MWhs in 2030, a compound annual growth rate of 1.9%

ISO New England anticipates that over the next 20 years, renewable resources will displace natural gas as the main source of electricity generation in the region—just as natural gas displaced coal and oil generation beginning 20 years ago. <https://www.iso-ne.com/about/where-we-are-going/regional-electricity-outlook> The ISO predicts that continued electrification of the heating and transportation sectors will result in a sharp increase in the region's demand for electricity just as the grid is incorporating huge amounts of intermittent, weather-dependent resources. The technology to power the New England grid solely through carbon-free resources has not yet been fully realized so the need for other resources, including carbon-emitting, will continue to play a role in filling supply gaps and ensuring the reliable flow of electricity. <https://www.iso-ne.com/system-planning/system-forecasting>

Town of Newmarket

1. Electric Usage Profile of Residential and Commercial Property

The technology, equipment, and techniques to drastically reduce energy use and source energy more cleanly and sustainably are becoming more readily available at a rapid rate. Understanding current energy consumption in the private sector will help the Town of Newmarket effectively plan for sourcing clean and renewable energy in the future and for choosing which of the emerging technologies and methods are most appropriate for Newmarket's expected growth. The table below shows the average annual number of accounts and annual electricity usage of Newmarket customers who receive electricity delivered by Eversource for the years ending 2020 and 2022.

Table 1 – Baseline Account Data

Type Account	Calendar Year Ending	Average Number Of Accounts	Net MWh	Net Metered Accounts
Commercial	2020	628	9,728	Not Available
Residential	2020	4,864	29,014	Not Available
Outdoor Lighting	2020	Not Available	Not Available	Not Available
Commercial	2022	555	11,150	15
Residential	2022	4,959	30,085	139
Outdoor Lighting	2022	47	39	0
Commercial*	2024	294	2,198	16
Residential*	2024	4,089	20,001	175
Outdoor Lighting*	2024	63	26	0
Totals	2020	5,492	38,742	N/A
Totals	2022	5,561	41,274	154
Totals*	2024	5,571		

2020 and 2022 data supplied by Eversource, includes other energy source supplier data collected by Eversource.

**2024 data is for Newmarket Community Power accounts, approximately 73% of all electric meters in Newmarket*

The baseline data in Table 1 is information that the Town obtained from Eversource through the process of implementing Community Power (see the Resiliency Section of the Energy Chapter for more details). Through the program the Town tracks residential, commercial and other types of accounts opting to participate. As of December 2024, there were 5,571 accounts (73% of all accounts) participating in the Newmarket Community Power program.

2. Municipal Facilities

Tables 2 and 3 below show the most recent electricity usage from select town and school facilities. Town should continue to track electricity usage at these and other facilities to monitor the effectiveness of implementing energy efficiency measures. For the school facilities, in addition to electric usage, we have included propane and oil usage as this information was readily available. The goal being to eventually reduce the need for non-renewable energy sources.

Table 2 – Town Municipal Facility Electric Usage

	2023	2024
DPW/Fire & Rescue		
Total Net (kWh)	53,360	59,440
Total Purchases (kWh)	20,400	78,640
Total Sales (kWh)	\$ 2,800.00	\$ 19,200.00
Annual Electricity Cost	\$ 14,531.38	\$ 17,130.96
Police Department		
Total Net (kWh)	72,400	70,040
Annual Electricity Cost	\$ 15,689.22	\$ 15,983.17
Town Hall		
Total Net (kWh)	51,040	48,120
Annual Electricity Cost	\$ 12,367.73	\$ 12,614.22
Community Center		
Total Net (kWh)	58,560	64,920
Annual Electricity Cost	\$ 14,243.85	\$ 16,382.65
Sunrise-Sunset Center		
Total Net (kWh)	14,508	13,262
Annual Electricity Cost	\$ 4,029.36	\$ 4,057.71
All Facilities		
Total Net (kWh)	249,868	255,782
Annual Electricity Cost	\$ 60,861.54	\$ 66,168.71

Table 3 - Newmarket School Facilities Electric, Propane and Oil Usage 2023-2024

Newmarket School Facilities Electric Usage

Facility		2023	2024
HS Parking Lot	Total Net (kWh)	2,478.70	2,461.20
	Total Cost	\$639.32	\$676.96
JSHS	Total Net (kWh)	777,000.00	812,250.00
	Total Cost	\$131,694.57	\$154,700.11
NES	Total Net (kWh)	329,423.30	309,321.70
	Total Cost	\$123,457.94	\$70,855.81
SAU	Total Net (kWh)	28,219.50	26,179.20
	Total Cost	\$5,540.50	\$5,575.50
Annex	Total Net (kWh)	9,865.10	9,357.10
	Total Cost	\$1,894.66	\$1,913.02
District Totals	Total Net (kWh)	1,146,986.60	1,159,569.20
	Total Cost	\$263,226.99	\$233,721.40

Newmarket School District Propane Usage 2021-2024

		2023	2024
	Total Gallons	84,569.30	76,359.10
	Total Cost	\$1,833,657.12	\$149,092.00

Newmarket School District Oil Usage 2021-2024

		2023	2024
	Total Gallons	412.8	417.8
	Total Cost	\$1,289.21	\$1,266.77

Tables 4 and 5 Summarize the results of the 2021 Audit of the Water and Wastewater Treatment Facilities

Table 4- Summary of Water System Measures

Summary of Water System Measures					
No	Cost Saving Measures	Annual Energy Savings (kWh)	First Year Annual Savings (\$)	Initial Cost (\$)	Simple Payback (yrs)
ENERGY MANAGEMENT PRACTICES					
EMP 1	Benchmark Energy Use with Operational Data	--	--	--	--
Total for EMPs		--	--	--	--
OPERATIONAL MEASURES					
OM 1	Sewell Well Impeller Clearance Adjustment	7,183	\$1,755	\$1,000	<1
OM 2	Investigate Macintosh Well Propane Vaporizer	9,600	\$1,430	\$500	<1
OM 3	Install Well Thermostat for Folsom Booster Electric Heater	2,100	\$313	\$300	<1
Total for OMs		18,883	\$3,498	\$1,800	<1
ENERGY CONSERVATION MEASURES					
ECM 1	Bennett Well Pump Replacement	10,057	\$2,575	\$28,000	10.9
ECM 2	Replace Electric Heaters with Heat Pumps	12,050	\$2,272	\$19,000	8.4
Total for ECMs		22,107	\$4,847	\$47,000	9.7
Electric Energy Cost Savings		40,990	\$8,345	\$48,800	5.8
Total		40,990	\$8,345	\$48,800	5.8
The proposed measures are expected to reduce system energy costs by \$8,345 annually which is 16% of the 2020 electric energy costs					
Click here to reveal comments and reactions					

Table 5 – Summary of Wastewater System Measures

Summary of Measures

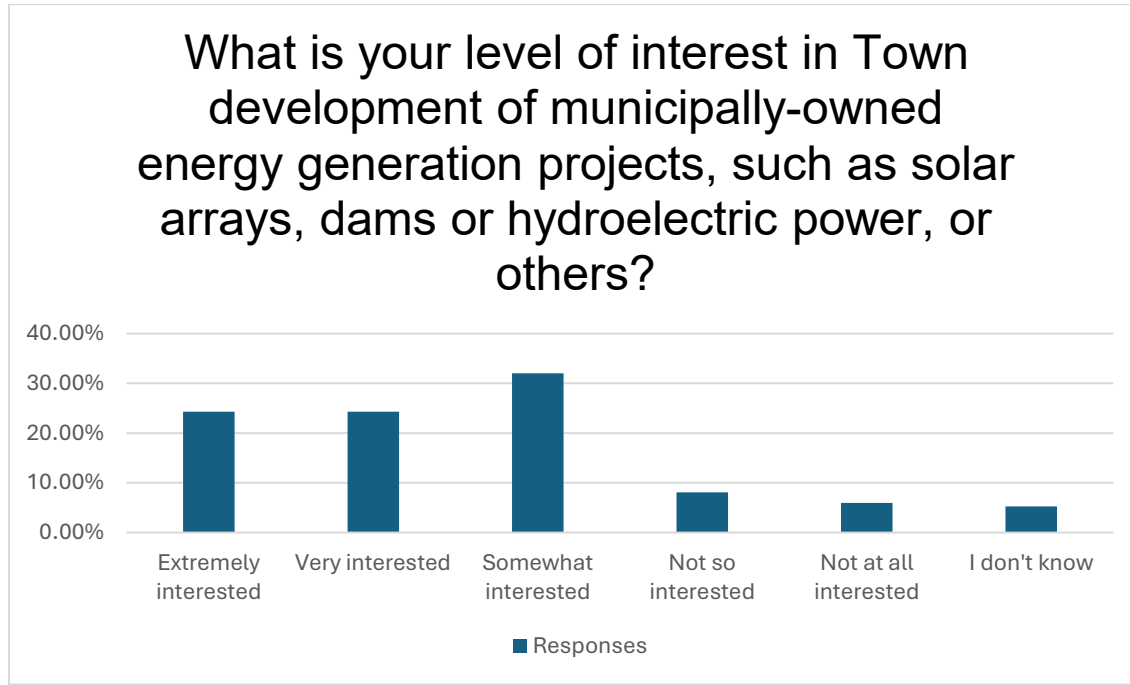
No	Cost Saving Measures	Annual Energy Savings (kWh)	First Year Annual Savings (\$)	Initial Cost (\$)	Simple Payback (yrs)
ENERGY MANAGEMENT PRACTICES					
EMP 1	Benchmark Energy Use with Process Data	--	--	\$3,000	--
Total for EMPs		--	--	--	--
OPERATIONAL MEASURES					
OM 1	Creighton Street Electric Heat Thermostats	8,300	\$1,145	\$1,000	<1
OM 2	Creighton Street Ventilation System Cycling	21,836	\$3,750	\$3,000	<1
OM 3	Operate Plant with Primary Treatment (<i>start initiative in 2021</i>)	18,315	\$2,527	--	--
OM 4	Cycle WAS Holding Tank Blower (<i>start initiative in 2021</i>)	12,147	\$1,676	--	--
OM 5	Adjust Maintenance Building Thermostats	--	\$574	--	--
Total for OMs		60,598	\$9,672	\$4,000	<1
ENERGY CONSERVATION MEASURES					
ECM 1	Install VFDs for Zone A Mixers	13,544	\$2,183	\$5,600	2.6
Total for ECMs		13,544	\$2,183	\$5,600	2.6
WWTF Propane/Fuel Oil Energy and Cost Savings		--	\$574	--	--
WWTF Electric Energy and Cost Savings		74,142	\$11,281	\$12,600	1.1
Total		74,142	\$11,855	\$12,600	1.1

The proposed cost saving measures are expected to reduce system energy costs by \$12,600 annually which is 8% of the 2020 electric energy costs

or reveal comments and reactions

Master Plan Survey Results

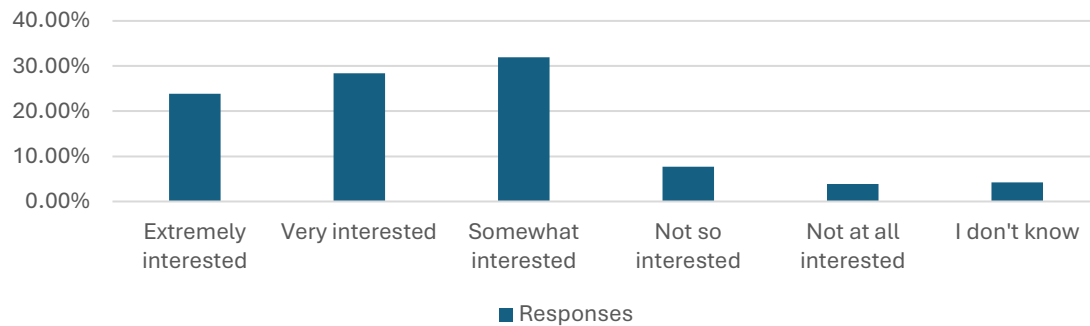
2024 Newmarket Master Plan Survey Question 7



Answer Choices	Responses	
Extremely interested	24.30%	69
Very interested	24.30%	69
Somewhat interested	32.04%	91
Not so interested	8.10%	23
Not at all interested	5.99%	17
I don't know	5.28%	15
Answered		284

2024 Newmarket Master Plan Survey Question 8

What is your level of interest in a partnership of the Town with energy professionals who would offer energy efficiency audits to residents and businesses and future tax incentive programs for energy efficiency improvements and renewable energy systems?



Answer Choices	Responses	
Extremely interested	23.86%	68
Very interested	28.42%	81
Somewhat interested	31.93%	91
Not so interested	7.72%	22
Not at all interested	3.86%	11
I don't know	4.21%	12
Answered	285	

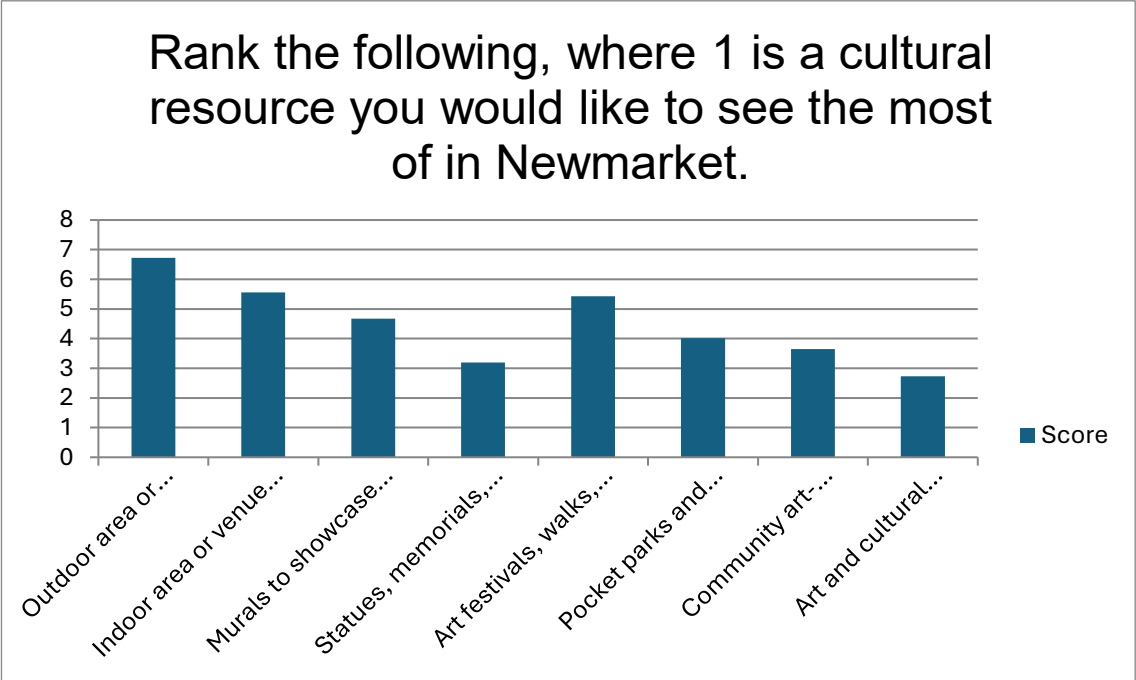
Appendix E – Arts, Culture & Historic Resources

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1. Survey Input

Town of Newmarket 2024 Master Plan Survey – Question 9

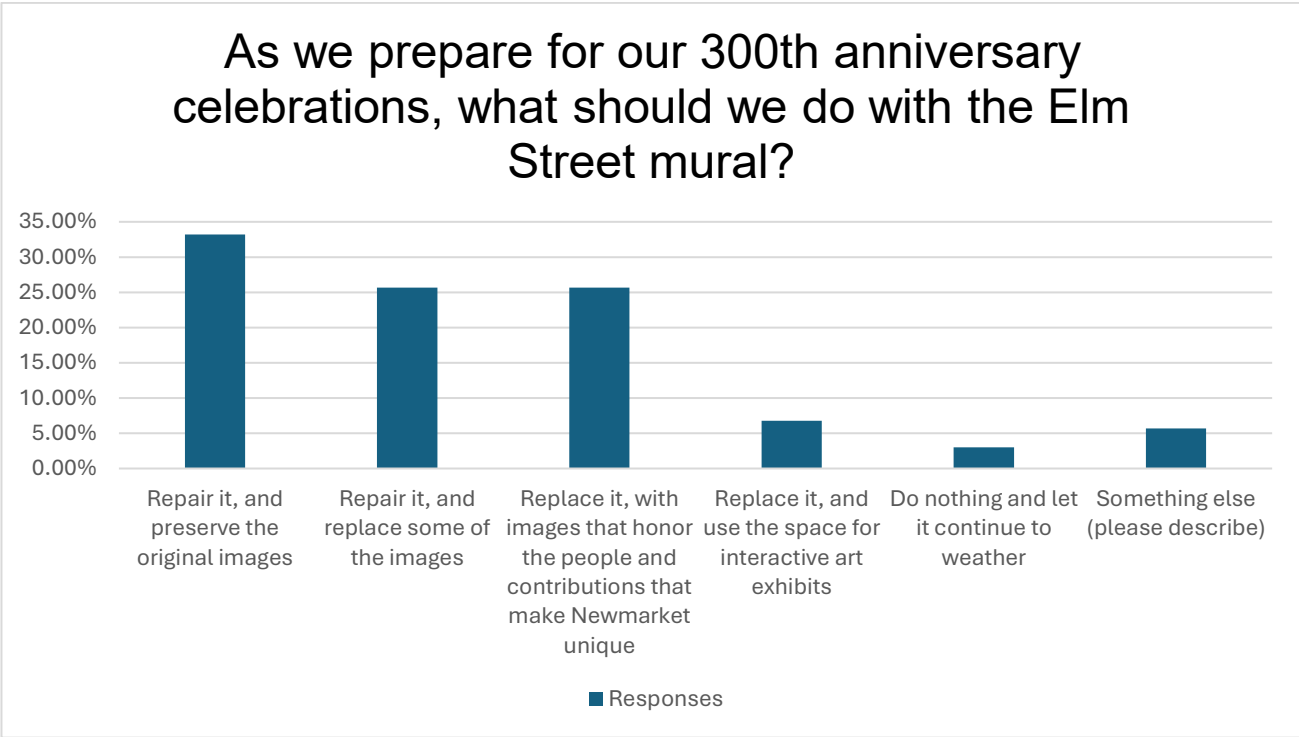


Rank the following, where 1 is a cultural resource you would like to see the most of in Newmarket.	Weighted Score
Outdoor area or venue for performing arts (play, theater, dance, poetry, stand-up, etc.)	6.73
Indoor area or venue for performing arts	5.56
Art festivals, walks, showcases, or tours	5.43
Murals to showcase Newmarket history and culture	4.67
Pocket parks and mini-art galleries	4.02
Community art-making activities and workshops	3.65

Statues, memorials, fountains, etc.	3.2
Art and cultural education	2.73

Source: Town of Newmarket Master Plan Survey. Summer 2024.

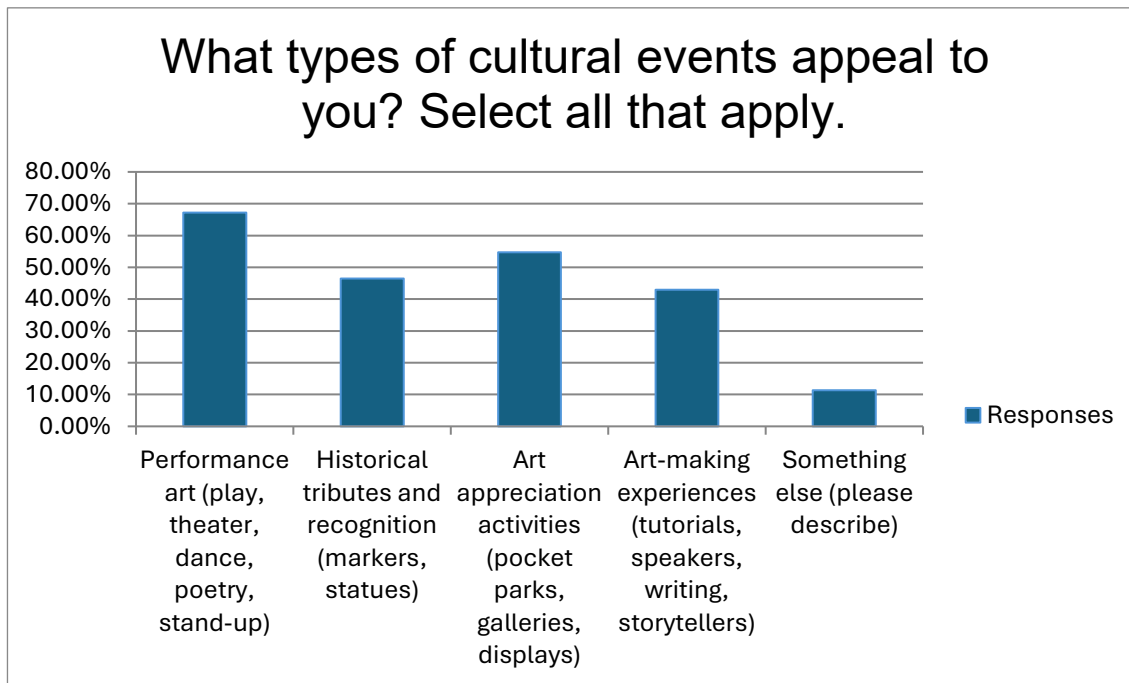
Town of Newmarket 2024 Master Plan Survey – Question 10



As we prepare for our 300th anniversary celebrations, what should we do with the Elm Street mural?		
Answer Choices	Responses	
Repair it, and preserve the original images	33.21%	88
Repair it, and replace some of the images	25.66%	68
Replace it, with images that honor the people and contributions that make Newmarket unique	25.66%	68
Replace it, and use the space for interactive art exhibits	6.79%	18
Do nothing and let it continue to weather	3.02%	8
Something else (please describe)	5.66%	15
	Answered	265
	Skipped	47

Source: Town of Newmarket Master Plan Survey. Summer 2024.

Town of Newmarket 2024 Master Plan Survey – Question 11



What types of cultural events appeal to you? Select all that apply		
Answer Choices	Responses	
Performance art (play, theater, dance, poetry, stand-up)	67.19%	172
Art appreciation activities (pocket parks, galleries, displays)	54.69%	140
Historical tributes and recognition (markers, statues)	46.48%	119
Art-making experiences (tutorials, speakers, writing, storytellers)	42.97%	110
Something else (please describe)	11.33%	29

Summary of “Something else” responses

Something Else Responses
Music
Music (6)
Music included in performance art
Open Acoustic Music Jams
Outdoor live music in a location where more people can gather.
Contemporary music concerts and public performance spaces
Festivals, Family Days, Outdoor Music (waterfront is not a good place for this, too small not family friendly)
Nature/Gardens
Gardens (4)
nature workshops

Miscellaneous
Sharing regional/international foods as a means of introducing culture; breaking bread to break the ice
nothing except lowering property taxes
Museum
I don't believe Newmarket can compete with the experiences we can easily travel to in Durham, with the UNH offerings, or Portsmouth or Dover. I would keep things here simple and not try and compete. The Word Barn, Vernon Farm and other Dover venues satisfy these other needs. Newmarket could focus on its own historical markers, from the choices above.
Public exotic dance class
Street fair and theme events (ie: Fall festival)
I think we have those things already.
Bike repair station(s)
Markers only
No preference
Honestly none of these appeal to me and would not motivate me to come downtown any more than I already do.
Kid-friendly activities
There's only so much "art this and art that" we can handle... coming from a former Los Angeles and Chicago resident, it just gets old. Potlucks are a much better way to foster community, and the history of the town is strong and worth sharing.

Source: Town of Newmarket Master Plan Survey. Summer 2024.

2. Organizations and Activities

Organizations

The **New Market Historical Society** was formed to tell Newmarket's story, preserve its local artifacts, and sponsor historical events and educational opportunities. Its primary collection is housed in the Stone School Museum, built in 1841 as a two-room schoolhouse. The Historical Society's long-standing outreach and education program is multi-faceted and includes partnerships with Newmarket schools, bringing the annual third-grade field trip to the Stone School Museum as well as facilitating specialized displays at the elementary (loan of indigenous artifacts) and high schools (100th anniversary display) (see nahnms.com).

The **Arts, Culture and Tourism Commission** is charged by the Town Council to study, consider, and make recommendations to the Town Council and Town Manager, about general policies for the arts and tourism in the Town of Newmarket. The Commission is also charged with developing and promoting programs, forums, and exhibits that highlight local talent and active art-related venues currently existing within the Town. The Commission serves as a hub for information and resources and facilitates communication between Town organizations to maximize the impact and reach for individual organizations (see www.newmarketnh.gov/171/Arts-Culture-Tourism-Commission).

The Millspace, located in the lower level of the restored Newmarket Mills, was developed as part of the mill redevelopment project. The interior art space as well as live-work spaces are designed to encourage affordable and accessible housing, work and public spaces. The Millspace is a civic gathering space offering opportunities for educational and community-oriented programs in the form of round table discussions, workshops, panels, lectures, visual and audio gallery installations, historical engagement, music, education, and live theater. It also serves as a workspace for musicians, entrepreneurs, designers, programmers, writers, freelancers, and technologists to interact and collaborate in the exploration of history, technology, art, business, film, photography, theater, community, and the web (see www.millspace.org/). It is operated by the Lamprey Arts and Cultural Alliance (LACA) a 501c3 "DBA as Millspace."

Dedicated to celebrating Newmarket's story, the mission of the nonprofit **Newmarket Main Street Corporation (NMSC)** is to strengthen the historic and cultural characteristics of the community, preserving the legacy of Newmarket for future generations. For 15 years, the NMSC produced the annual Newmarket Heritage Festival, a vibrant celebration of the arts, culture, history, and community spirit that drew people from around the region. The NMSC also led the Newmarket Engine House restoration effort, completed in 2010, forging a private-public partnership to preserve this historic treasure. Ongoing projects include History in Bronze, a project that highlights snippets of Newmarket's past on historic markers designed and installed on buildings throughout the downtown village area. A display of the town's shipbuilding era and

a statue commemorating the Timberland era in the mills are both in the works. Committed to collaborating with others, the NMSC is proud to foster the civic engagement and vibrant downtown that make Newmarket an inviting place to live and visit (see newmarketnhmainstreet.org/).

Other organizations and groups that contribute to Newmarket's sense of place and wellbeing include the **Newmarket Public Library** provides educational programming for all ages and organizes community cultural events throughout the year (see newmarketlibrary.org/index.html). **Friends of the Newmarket Library** is a group of people who work cooperatively with the library to develop, maintain, and enhance facilities, resources and services to the public. They support and volunteer for Library programs, fundraise, provide materials not covered by the library budget such as museum passes and special events. They encourage community support and hold a variety of special public events (arts, educational, community building), and focus on the importance of Newmarket having a vital public library (see newmarketlibrary.org/friends-of-the-library.html).

Bloomin' Newmarket is a NH non-profit sprung from the ashes of the former Newmarket Gardeners, formed in 1997 by a group of public-spirited citizens who wished to improve the appearance of Newmarket's public spaces. Bloomin' Newmarket's mission is to care for Newmarket's public gardens and cultivate an appreciation for the landscape (see [Blooming Newmarket | Growing Community Through Gardening & Sustainability](#)). This entirely volunteer-run gardening group plants and maintains public gardens in Newmarket in an effort to help Newmarket bloom. Their annual plant sale, held in late May or early June, is their sole fundraiser and provides the funds for purchasing plants and necessary supplies for maintaining the various public gardens around Newmarket. Blooming Newmarket's dedicated volunteers maintain five beautiful public gardens across town: The Wall, The Cannon, Ash Swamp, Gerry Ave, and the gardens surrounding the Newmarket Public Library.

Events and Activities

- **Riverside Cemetery Reveal** – This annual event showcases local actors telling the stories of some of those who are buried at Riverside Cemetery.
- **Flax to Linen Project** - In cooperation with UNH, the project features a flax garden at the Stone School Museum along with demonstrations on the historical processing of flax (with public participation encouraged). The summer of 2025 will be the second year of this effort.
- **Interweave-** a multi-generational community art-making series, which centered on demonstrating the value and impact of the Lamprey River on life in Newmarket. The results are permanently on display at the Town Hall, Sunrise Sunset Center & Library.

- Unveiling of **Newmarket Mural** featuring students from the Russian Ballet School performing on the Bandstand.
- **New Market Historical Society** – programming focusing on town history (2025 schedule includes Newmarket during World War II, the Newmarket Manufacturing Company 1823-1932, and The Elm St. Mural).
- **Trolley Tours** – focusing on Halloween-season stories of Newmarket.
- **Art in the Heart of the Garden** – The Arts, Culture and Tourism Commission and Newmarket Parks & Recreation work in partnership on this event which promotes diverse local artists and economically supports their work and the work of the Commission. The accompanying Art Walk, hosted simultaneously downtown in local businesses and at the MillSpace, engages people of all ages in the creation and appreciation of local art.
- **Events at the Millspace** – The Millspace is a civic space that serves as a community living room - a place for people to gather, share ideas and enjoy each other’s company. It offers live performances and hosts a dynamic art gallery. It provides opportunities for a variety of educational and community-oriented programs located in a corner of a historic mill, honoring its legacy of historical significance to the Town (see www.millspace.org/).
- **Newmarket's 300th anniversary book Portraits of Newmarket: 103 People, Places and Things** - featuring 103 stories written from the perspective of nearly 70 local authors, with research and support of the New Market Historical Society. This effort began in 2023 with outreach to numerous town and regional groups soliciting topics. In 2024, authors were engaged with writing, editing, formatting and designing in 2025 and publication expected in 2026.
- **Timberland Boot Sculpture (in-work – expected 2025 unveiling)** - The iconic Timberland boot, launched in 1973, was cut and stitched right here in the Newmarket mills—where Timberland announced its commitment to building the finest outdoor footwear in the world. Today, the NMSC is partnering with the company to install a sculpture memorializing this chapter in Newmarket’s industrial era.
- **Library Mural Project** – This project aims to capitalize on the central location of the library to attract and promote town’s history and events through six changing mural inserts on the exterior of the library’s turret.
- **Elm Street Mural Renovation** - The Elm Street mural is painted on the original Mill foundation making it historically significant. It should first be repaired to stabilize its structure then elevated to a unique community pathway which celebrates the people, places and things which have shaped the Town we are today. Respondents to the Master Plan Survey favored repairing the mural and preserving the images.
- **REC Connect** - The Recreation Department brings together other organizations, businesses, Town staff, volunteers and the community annually to celebrate, connect, and foster the sharing of ideas and new initiatives

- **Backyard Bash** - The Recreation Department and other Newmarket Organizations host the Annual Backyard Bash Community Night, a community night event under the lights at the Rec Center.
- The **New Market Historical Society's downtown self-guided walking tour** consists of a detailed map accompanied by an audio narrative as well as additional details and stories (see nhnmhs.com/the-walking-tour/).
- Since 2012, the **Newmarket Main Street Corporation (NMSC)** has been commemorating Newmarket's history through their **Historic Plaque Project**, which recognizes key people and places along Main Street with bronze historic markers. NMSC maintains an interactive map on its website that includes a photo and description of each marker along with directions to find it (see newmarketnhmainstreet.org/historic-plaques/).
- The **Sunrise-Sunset 55+ Adult Activity Center** serves as an affordable and accessible resource for Newmarket and the surrounding areas. The Center runs regular social, education, health programs, hosts a lending library, and a place to drop in for coffee (see www.newmarketnh.gov/340/Sunrise-Sunset-Center).
- **The Millspace** – The Millspace is a volunteer run community civic space located in the historic Newmarket Mills committed to bringing art, theater, music, and history to the town of Newmarket. www.millspace.org/

3. Historic Resources

INTRODUCTION

One of Newmarket's most valuable attributes is its historic character. The town is filled with landmarks representing past rural and industrial eras. These landmarks include historic residences, stores, mills, schools, old roadways, farms, graveyards, and stone walls. The remaining tangible evidence of Newmarket's past contributes greatly to the town's current character and composition.

The identification and preservation of Newmarket's historic landmarks is an important goal. It is also an important consideration when evaluating and shaping community development. The preservation of noteworthy architectural and significant historical resources from Newmarket's rich past keeps the town's heritage in clear view when new development proposals are introduced that may negatively impact the historic resources. To encourage the continued preservation and viability of Newmarket's significant historic structures, the town should provide information about the business values that can be realized from restoration and thoughtful adaptive re-use.

This Appendix provides an overview of Newmarket's heritage, exemplified by the numerous sites and structures that remain today.

HISTORIC OVERVIEW

In the 16th century, members of the Squamscot tribe had a settlement here, below the Lamprey First Falls (east bank). An indigenous gravesite existed on the west side of the river. Newmarket's one remaining weir (as of 2025) is a lone reminder of their earlier culture.

The Squamscot found their world changing in the early 17th century as Europeans began settling here. People from Dover moved south and others from Exeter headed north to this area, attracted by the tumbling waters of the First Falls. Known as Lamprey River Village, this early settlement straddled the boundary of those two towns.

By the 1640s, John Goddard had a garrison in the oldest section of Lubberland (Doe's Neck), and John Smart had moved from Exeter Village onto Bayside lands south of the Lamprey. Grants were made at the First Falls of the Lamprey and the First Falls of the Piscassic River for sawmills and grist mills. As farms gradually spread up the rivers, settlers made use of the falls further upstream.

By 1657 the boundary between the two older towns was settled on the Lamprey River and Goddard's Creek. Ships were built beside the Lamprey below the First Falls. Remnants of our shipbuilding past include the Town Landing and old rings at the Lower Narrows and beneath Picked Rock Bridge. Further documentation (maps and published accounts) indicates names and locations of workshops and wharves, as well as a rope walk down beneath the ledges of Zion Hill.

By 1670 residents of the peaceful Squamscot settlement on Heron Point had left the area and headed west. They were never part of the massacres and kidnappings that terrorized the New England colonies during the early 1700s. It was other tribes that carried out those attacks—usually as a

strategy the French (in Quebec) used against their English neighbors to the south. Colonists responded by forming militias and building garrisons.

In 1727 the northern portion of Exeter separated and became the new township of Newmarket. The area that is now Newfields was part of Newmarket until 1849, and the first geographical center was approximately at the site of the present Rockingham Junction. The First and Second Meeting Houses were there, as was the home (still standing) of the first long-time minister Rev. John Moody (1730).

Newmarket entered into the industrial era when the Newmarket Manufacturing Company (NMCo) was established in 1822. This Salem, Massachusetts-based company purchased vast tracts of land in and around the First Falls and upriver as well. Thus did the old Lamprey River Village become a company town, with simultaneous development of factories, homes, shops, and institutions. The new mills, built with local granite, used waterpower for cotton textile production based on practices brought from England by Samuel Slater.

NMCo dominated the town for over a century, but increasing labor unrest in the 1920s culminated in a strike in 1929. This, followed by the stock market crash that same year, was the beginning of the end. NMCo abandoned Newmarket in 1932, and economic vitality all but vanished from Newmarket.

Limping through the Great Depression, Newmarket slowly attracted new businesses to populate the old mill buildings. In 1939 the Sam Smith Shoe Co. came to Newmarket and stayed for nearly 30 years. A variety of industries followed, including other shoe companies, a distillery, the Macallen Co. (mica insulation products), Pioneer Mfg., and Timberland Boots.

Another exodus from the old mill buildings started in the 1980s. Fortunately, by the turn of the century, another regeneration had begun. Eric Chinburg took on redevelopment of Newmarket's old stone and brick mills, transforming them into spaces for commercial and residential use.

Many other historic buildings—both rural and downtown—survive here as well. They are but one of the topics that keep volunteers busy at the New Market Historical Society. Maps, documents, and many artifacts are maintained in the Stone School Museum. The Historical Society website is another repository that provides information on town history and announces educational programming.

HISTORIC SITES & STRUCTURES

Types and Styles of Architecture

Newmarket's six surviving textile mills are an integral part of the town's history, and they strongly impact the downtown layout. Water powered their machinery.

The first three mills were built of great granite blocks and dominate the handsome setting at the Lamprey First Falls.

- Mill No. 1 (1824) originally had a clerestory, but it was lost in rebuilding after a fire.
- Mill No. 2 (1825) retains its impressive bell tower.
- Mill No. 3 (1827), across the river, was linked by a covered footbridge to Mill No. 2.

- Mill No. 4 (1869) was the last stone building, built of trap rock and situated farther away from the river.
- Mills No. 5 (1881) and No. 6 (1892) were the first brick mills; attached to Mill No. 4, they make a continuous structure along Main Street.
- Mill No. 7 (1901), also of brick, was across the river and crammed in close to Mill No. 3. It was removed during the latest mill redevelopment.
- Mill No. 8 (1918), the “great weave shed,” was torn down as the U.S. entered WWII, with metal going to the war effort.
- Also part of the NMCo complex are stone sheds north of the river and a brick machine shop at the Falls.

Other stone buildings in town include the two on either side of Tenney's Corner (lower Main St.), and on Zion's Hill the Stone Church (1834) and the Stone School (1841).

Other brick buildings include:

- The small late Federal brick building just north of the old wooden "Willey Hotel" (1822).
- Newmarket Public Library (1884), with its slate roof and unique tower room; its benefactor was retired Mill Agent John Webster.
- Mill Agent's House (1825-1830) is across the street from the Library.
- New Village duplexes (1918) are of brick and of stucco—also a mill housing project.

There are a number of older wooden buildings in the downtown area, some of which may date back to the 18th century:

- A 3-story wooden structure on Main St. (built with balloon construction) was at one time a tailoring shop, with an upstairs office providing space for Newmarket's first public library collection.
- "Steamboat Block" on Spring St. still provides housing--an unusual relic of early wooden mill housing.
- Duplex mill housing remains in use in and around Nichols Ave. and across the Lamprey River bridge.
- The Caswell Mansion (196 South Main St.) is an example of a fine Victorian home, built in 1885. It was never mill housing but has been converted to several townhouses.
- Many other fine old 18th and early 19th century wooden town homes and farms survive as well.

Inventory of Historic Structures

For more than a decade, the Newmarket Main Street Corporation has been designing and installing historic markers, each one a carefully researched glimpse of the past, cast in bronze. This list shows the plaques already affixed, as well as several that are being developed:

Plaque No.	Plaque Name
1	Engine House – 1853 (Old Fire Dept - Main & South Streets)
2	Kingman's – 1873 (86 Main St.)
3	Mathes Building – c. 1830 (154 Main St.)
4	Durgin Block - 1894 (110 Main St.)
5	No. 4 Mill - 1869 (55 Main St.)
6	No. 5 Mill - 1886 (125 Main St.)
7	John Webster Hall - 1884 (1 Elm St.)
8	Cheswell's Store – pre-1817 (117 Main St.)
9	No. 1 Mill - 1824 (Penstock Way)
10	No. 2 Mill - 1825 (Penstock Way)
11	Edward Smith Building – c. 1830 (98 Main St.)
12	Willey Hotel – c. 1822 (100 Main St.)
13	Branscomb's Tavern – c. 1800 (80 Main St.)
14	Griffin Hardware – c. 1847 (165-169 Main St.)
15	Newmarket National Bank - 1855 (112 Main St.)
16	No. 8 Mill (Foundation along Main St. - building torn down)
17	Tenney's Corner – c. 1830 (170 Main St.)
18	Mill Overview Plaque (40"w x 30"h) - All mill buildings 1824-1918
19	Barnard Block - 1891 (102 Main Street)
20	Brooks Block - 1826 (72-78 Main Street)
21	Macallen Dam - 1887 (awaiting installation)
22	Ship Building Plaque - In progress
23	Timberland Tribute Plaque - In progress

Appendix 2 lists other historic structures.

Historic Graveyards

The New Market Historical Society has compiled a list of public and private graveyards of historical significance. Many of the sites have as few as one tombstone or marker but provide a major link to Newmarket's past. There is a renewed effort to clean up some of the private graveyards during 2025.

The map of the historic graveyards in town is available on the Historical Society website at:

<https://nhnmhs.com>

New Hampshire Historic Markers in Newmarket

The Wentworth Cheswill Cemetery: Route 152; 206-208 South Main St. Raised in an era known for the trade of sugar and slaves, Wentworth Cheswill (1746-1817) became the first African American elected to public office. Like Paul Revere, he rode as a messenger for the patriotic cause. He was also an early archeologist and historian.

Henry “Hammerin’ Hank” Wajda (1934-1973): Route 108, Calvary Cemetery. A descendant of Newmarket’s Polish immigrant community, Henry was a jockey who ranked fifth in the nation. He set a world record in 1958. He died in 1973 following an accident at Rockingham Park, Salem, NH.

NEWMARKET INDUSTRIAL & COMMERCIAL HISTORIC DISTRICT

On December 1, 1980, the town established and identified structures in the Newmarket Industrial & Commercial Historic District, which is located in an irregular pattern along Main and Exeter Streets, bounded roughly on the north and east by the Lamprey River, on the west by Granite Street, and on the south by Gerry Ave.

The district is listed in the National Register of Historic Places.

Appendix 1: Bibliography

Lamprey River Village, the Early Years, Sylvia Fitts Getchell, 1976. The history of the early settlement along the Lamprey River

Newfields, NH, 1638-1911, James Hill Fitts, 1912.

Newmarket Downtown Walking Tour. New Market Historical Society, 2022 Walkable online tour of 50 downtown sites at: <https://www.newmarketnhhistoricalsociety.org/the-walking-tour/>

"Newmarket Revisited: Looking at the Era of Industrial Growth (1820-1920)," Richard Candee. (Traces the period of rapid expansion in Newmarket when the town was dominated by the Newmarket Manufacturing Company. Published as part of the NHCH-funded "Newmarket Revisited" project.)

Old Newmarket, Nellie Palmer George, 1932. The history of early Newmarket.

The Tide Turns on the Lamprey...a History of Newmarket, S.F. Getchell, 1984.

Appendix 2: Historical Sites

The following is a general guide of the most historically significant and noteworthy structures in Newmarket, including the approximate age and location. This list is updated to March 2025. "WT" indicates that it's a stop on the Walking Tour.

Businesses

- Charles Doe Tailoring Shop, 145 Main St.
- Filion's Stables, WT, 1 Beech St. Extension
- Stackpole Blacksmith Shop, 8 Exeter St.
- Lang's Blacksmith Shop (1891), WT, National Registry of Historic Places
- Rockingham Country Club, (Neal House), 200 Exeter Rd.
- Benjamin Brooks House, WT, 72 Main St.
- New Creighton Block, WT, 141 Main St.
- Doe-Folsom-Bouras House, WT, 156 Main St.

Cemeteries

- Old Town Cemetery, Terrace Drive

Churches

- Stone Church, WT, 5 Granite St.
- Newmarket Community Church, WT, 137 Main St.
- St. Mary Church, WT, 184 South Main St.

Private Homes

- Durell House, 1 Grant Road
- Caswell Mansion, WT, 196 Main St.
- Benjamin Tuttle House (c. 1833), 14 Exeter St.
- French House, 15 Exeter St.
- Meserve Place House (1833), 18 Exeter St.
- Day-Priest House (1833), 20 Exeter St.
- French House, 23 Exeter St.
- Z. Dow & Susan Creighton House (1832), 12 Exeter St.
- The Ledges, 5 Chapel St.
- Baillargeon House (c. 1840), 6 Chapel St.
- James Brackett Creighton House (c. 1837), 310 Wadleigh Falls Rd.
- Loiselle House, 272 Wadleigh Falls Rd.
- Wiggin-Walker-Nelson House, 288 Wadleigh Falls Rd.
- Chapman-Sewall House, 351 Wadleigh Falls Rd.
- Thomas Bennett House, 297 Wadleigh Falls Rd.
- Watson-McDaniel House, 2 Langs Lane.
- Doe-Perkins-Chesley House, 29 Ash Swamp Rd.
- Pendergast-Hamel House, 191 Ash Swamp Rd.
- Walter Bryant Smith House (c. 1790-1810), WT, 6-10 Central St.
- Moody Parsonage (1730), 15 Ash Swamp Rd.
- Deacon Paul Chapman House (1764), WT, 198 South Main St.
- Mill Agent's House WT (c. 1825-1830), 2 Elm St.
- Dave Legault House, 11 North Main St.
- Captain Benjamin Smith House, WT, 51 North Main St.
- John Smart House (c. 1867; moved in 1912), 3 Packers Falls Rd.
- Varney House, 10 Packers Falls Rd.
- Metcalf House, 13 Water St.

Schools

- Stone School, National Registry of Historic Places, WT, 3 Granite St.
- South Side Primary School (1848-1946) & Fire Station (1949-2004), WT, 178 Main St.
- Plains Road School (John Stevens), 386 Wadleigh Falls Rd.
- North Side Primary School, WT, 48 North Main St.

Town Buildings

- Bandstand War Memorial, 1920, WT, across from 100 Main St.
- Rockingham Junction Railroad Station, Ash Swamp Rd.

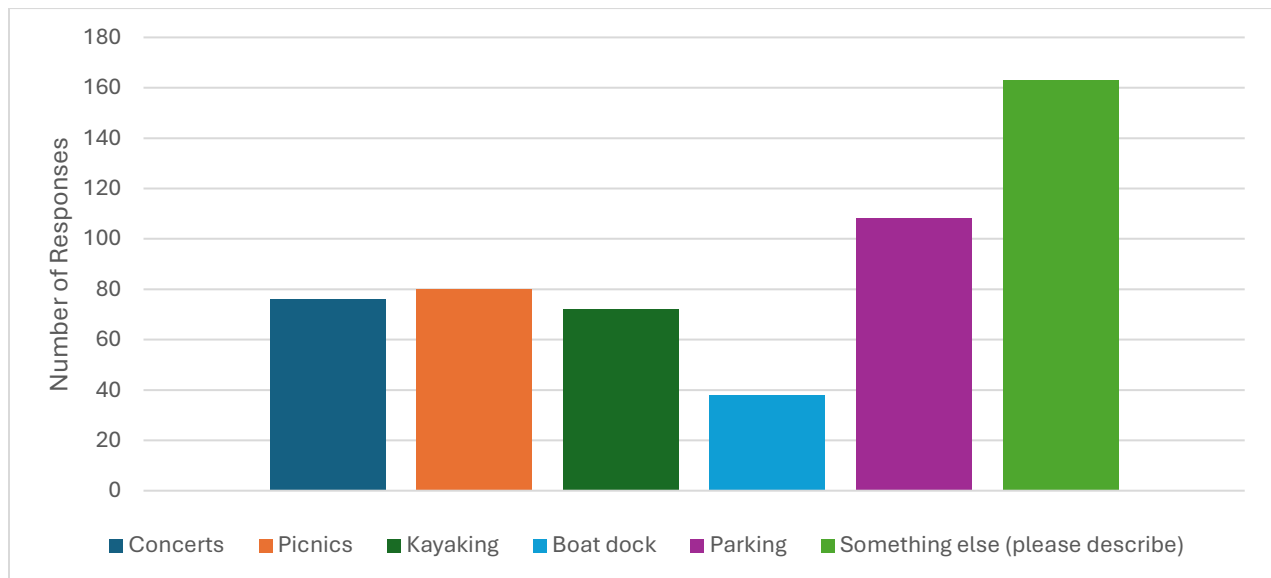
Appendix F: Downtown Riverfront Chapter Supporting Data

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Master Plan Survey Input

Figure 1: How do you currently use the Downtown Riverfront area? Select all that apply

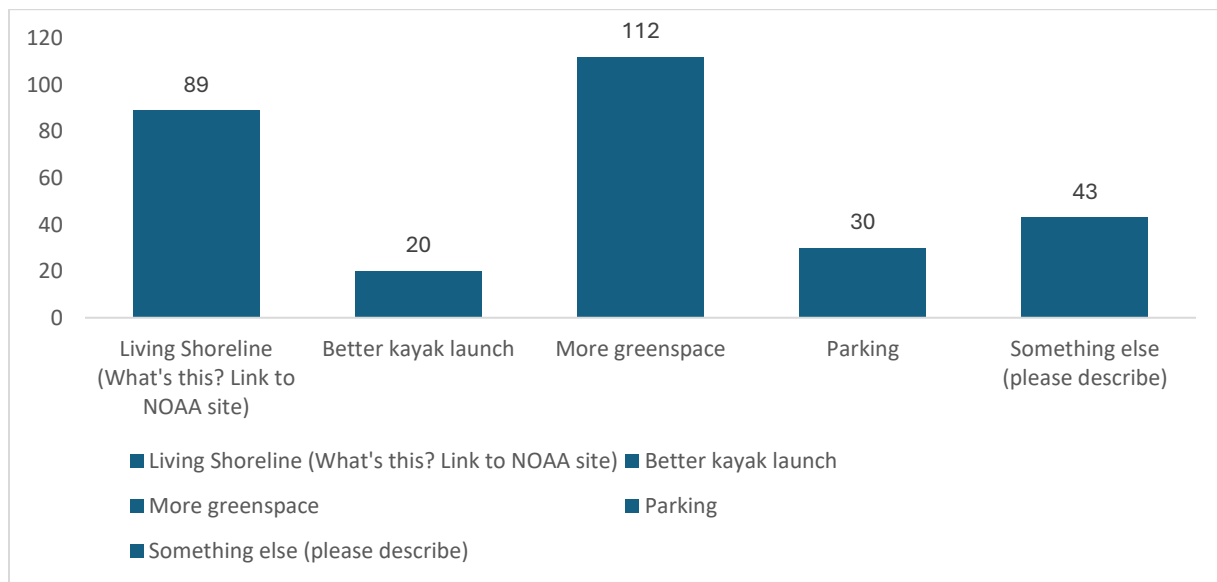


Summary of “Something else” responses

Comments	Number of Responses
Walking	100
N/A, don't use it	16
Shopping, restaurants, dining, ice cream	15
Sitting, relaxing, reading, gardens, contemplation, quiet	14
Taking in natural surroundings, views, river, greenery	11
Bird/Duck Watching	9
Dog Walking	8
Playing, Exploring, Relaxing with Kids	6
Access issues, a lot of private property, condos block access	6
Meeting up with others and socializing	5
Boat trailer parking, ramp/launch	4
EV charging station	3
My home	1
Fishing	1
Biking	1
Concerns about condos, development, rent, and potential contamination from condo dumpsters	1

Source: Town of Newmarket Master Plan Survey. Summer 2024.

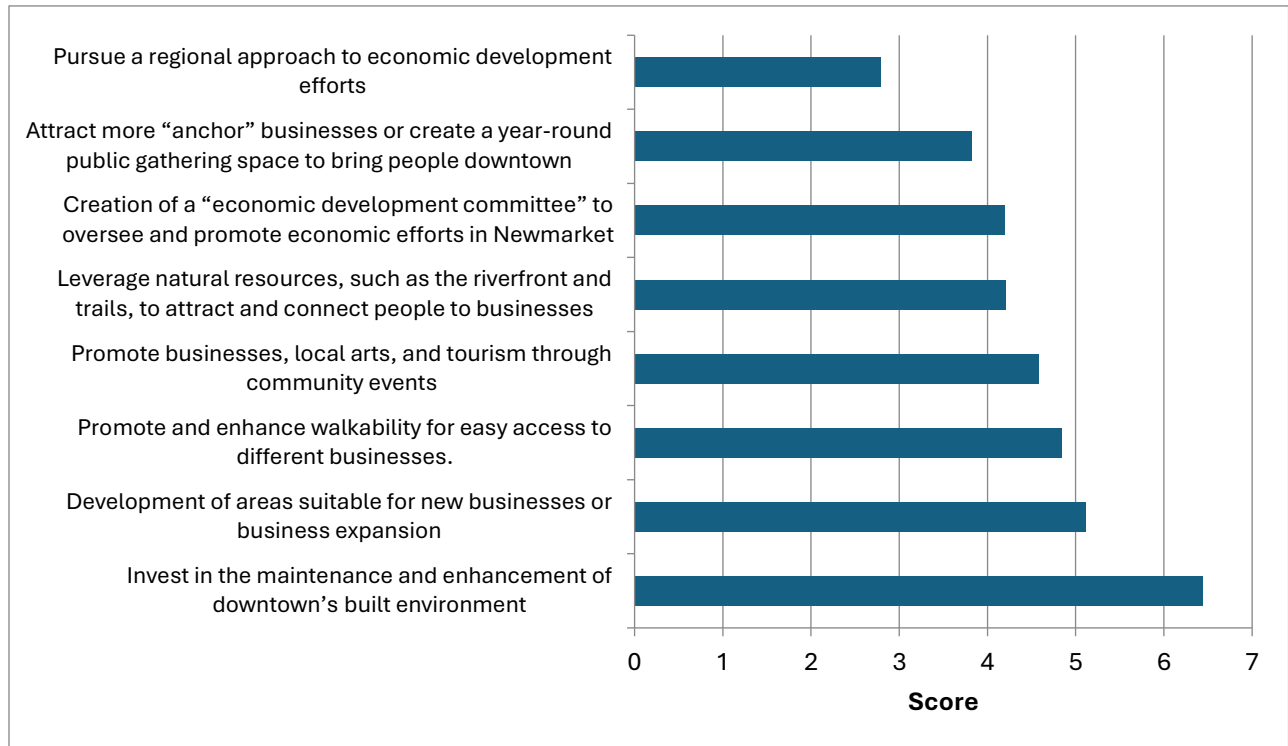
Figure 2: Select Your Top Priority for What You Would Like to See in the Downtown Riverfront Area?



Summary of “Something else” responses

Comments	Number of Responses
Repair boat launch/ all tide boat and kayak launch (6)	6
Restaurant with deck on river (5)	5
Make a cohesive river walk that is fully accessible by public, purchase or seize land (5)	5
Public day boat dock, more boat slips, public moorings and permanent docks (4)	4
Parking, parking for trailers (3)	3
Natural playground, kids programs/playground (3)	3
Nothing/no opinion (3)	3
Concerts (2)	2
safe swimming area, better water quality (2)	2
café table/chairs, more seating (2)	2
Greenspace/living shoreline (2)	2
Walking trails/trail connectivity (2)	2
Pave walkway next to red dumpsters near Rivermoor, paint the outside concrete of parking garage with a mural (1)	1
Better historical signage (1)	1
Picnic/park (1)	1
community activities (1)	1
Nude beach (1)	1
Nothing (1)	1
DC fast charger (1)	1
Building repair, uniformity of buildings (1)	1

Figure 3: Which Actions Do You Believe Will Promote Growth and the Enhancement of Newmarket's Downtown Businesses? Please Rank, Where 1 Will Help Promote the Most Growth and Enhancement



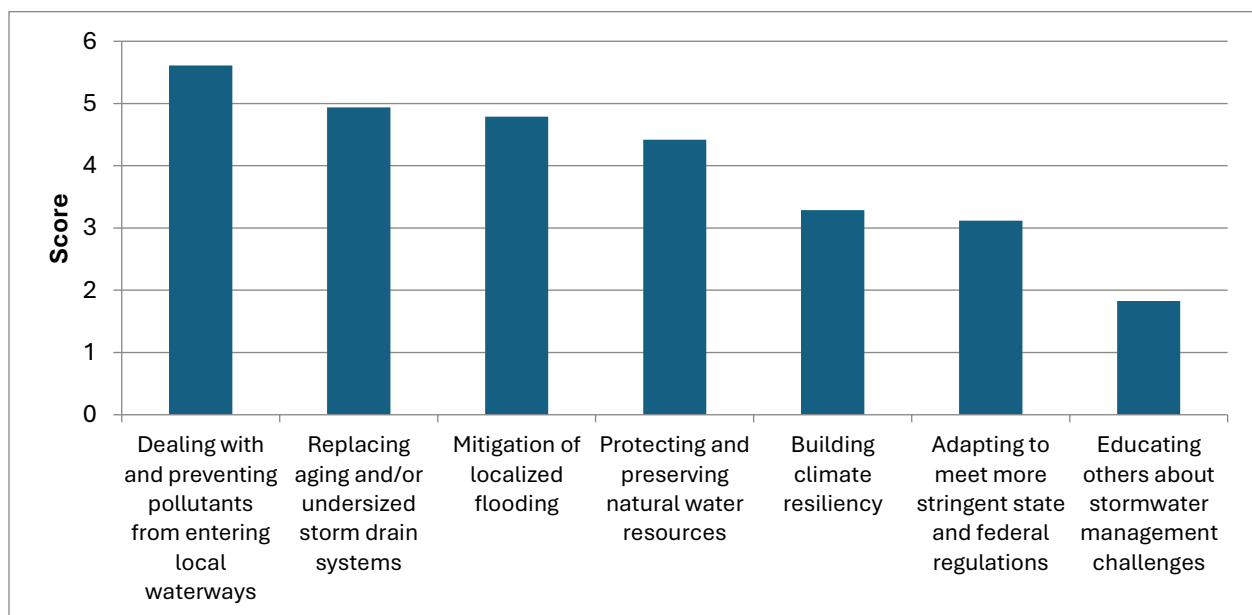
Source: Town of Newmarket Master Plan Survey. Summer 2024.

Figure 4: Where should the Town of Newmarket prioritize investment in its recreation facilities? How much?

Option	Weighted Score
Nature-based recreation opportunities (bike trails, pump track, disc golf)	2.24
Improved public water access opportunity (swimming, boat, kayak, dock)	2.23
Rec Center general facilities upgrades as needed (playground, volleyball and basketball courts)	2.13
Multi-use community gym (adjacent to Community/Rec Center)	2.11
Community/Rec Center expansion and upgrades, such as adding multi-use rooms and parking lot improvement	2.07
Upgrade Beech St. Ext. Center into an affordable multi-generational Health & Wellness Center	2.05
Additional community outdoor sport courts (pickleball, basketball)	1.94
Add additional community multi-use athletic field(s) (soccer, lacrosse, track, etc.)	1.87
Sunrise Sunset Center for 55+ smart development upgrades	1.79
New residential playground (open community access)	1.78
Outdoor ice-skating rink	1.78
Aqua Land Splash Pad & Gazebo expansion and/or future upgrade	1.72
Public dog park	1.72
Upgrade outdoor stage at Leo Landroche to create a covered performance location	1.7
Skate park	1.48

Source: Town of Newmarket Master Plan Survey. Summer 2024.

Figure 5: Rank the following stormwater management challenges in Newmarket, where 1 should be addressed the soonest.



Downtown Riverfront Design Charrette (Oct 18-19, 2024)

Figure 6: Summary of public input during small group discussions at the Design Charrette

What do you see?	What do you want to see?
• Recreation • Sewage • Accessible • Wildlife • Close-knit • Vandalism • Weir • Vibrant • Dogs • Charming • Nature • Walkable • Concerts	• Parking • Maintenance • Lighting • Bridge • Docks • Trails • Access • Wayfinding • Playgrounds • One-way travel

Schanda Park Recreation Programs & Events

Figure 7: Overview of the Arts in the Park Concert Series at Schanda Park

Arts in the Park is fully funded through sponsorships from local businesses and donations at the concert itself. Arts in the Park began when Kennebunk Saving Bank (KSB) moved into Newmarket. KSB offered to sponsor a concert series and contributed \$1,500 the first year. Another \$1,500 was sponsored by the Newmarket Business Association (NBA). Since KSB recently moved out of Newmarket, it is possible that their annual sponsorship may disappear. Additionally, the NBA is no longer able to sponsor the total of \$1,500, so the Recreation Department relies on individual businesses to make up the difference. The last two years, the line up has had to be cut from eight to five shows due to funding. It is estimated that 40 to 80 people attend each concert.

Source: Aimee Gigandet, Director of Parks and Recreation, via email dated 12/20/24

Figure 8: Challenges with the Arts in the Park Concert Series

Arts in the Park Concert Series Challenges	
Location	The lack of parking and seating space is a challenge for growing the program. The lack of a proper stage and cover for inclement weather and lighting when it starts to get dark earlier in the evening at the end of the summer are ongoing challenges.
Sponsorship	Securing sponsors for the series is a challenge.

Source: Aimee Gigandet, Director of Parks and Recreation, via email dated 12/20/24

Figure 9: Opportunities for the Arts in the Park Concert Series

Arts in the Park Concert Series Opportunities	
Location	Moving to the Recreation Department/Leo Landroche and upgrading the stage could draw more patrons, which may attract more sponsors. However, the Recreation Department initially wanted the concert to be held downtown to help promote foot traffic and support of local restaurants.
Collaboration	Collaborate with other organizations and local artists to enhance the program.

Source: Aimee Gigandet, Director of Parks and Recreation, via email dated 12/20/24

Figure 10: Number of Kayak Rentals at Schanda Park over the last Five Years

Year	Rentals	Revenue ^b
2020	95 ^a	Unknown
2021	57	\$ 1,575
2022	49	\$ 1,445
2023	31	\$ 885
2024	36	\$ 1,060
TOTAL	268	\$ 4,965
2021-2024 Average	43.25	\$ 1,241

^a Total for 2020 may be inflated due to coding errors

^b Revenue from rentals to the general public. Kayaks were originally purchased with a grant for the free program “Club Chameleon,” which catered to middle and high school age “at risk” youth.

Source: Aimee Gigandet, Director of Parks and Recreation, via email dated 12/20/24

Figure 11: Challenges with the Kayak Rental Program at Schanda Park

Kayak Rental Program Challenges at Schanda Park	
Open Hours	The Recreation Department is only able to rent kayaks during the hours that the Department is open. Renters pick up equipment (keys, paddles, life vests) from the Recreation Department prior to their rental during business hours. This limits multiple rental per weekend. It also limits potential revenue to the program because weekend rentals are only charged one day. Additionally, it may impact people without the ability to drive to the Recreation Department during business hours to rent a kayak.
Lock System	The Department uses a lock system for each kayak. On occasion, renters will either not lock the kayaks back up correctly or can mix up the local if they are renting multiple kayaks.
Accessibility	There is no designated kayak launching dock at Schanda Park. This can pose difficulty for renters with mobility issues and kayak beginners, particularly when the tide is out and the water level is low.
Start of Season	The start of the rental season occurs when the Recreation Department is preparing for summer camp. Getting the rental season started is often not prioritized during this time. Residents have expressed interest in renting kayaks earlier in the spring/summer.

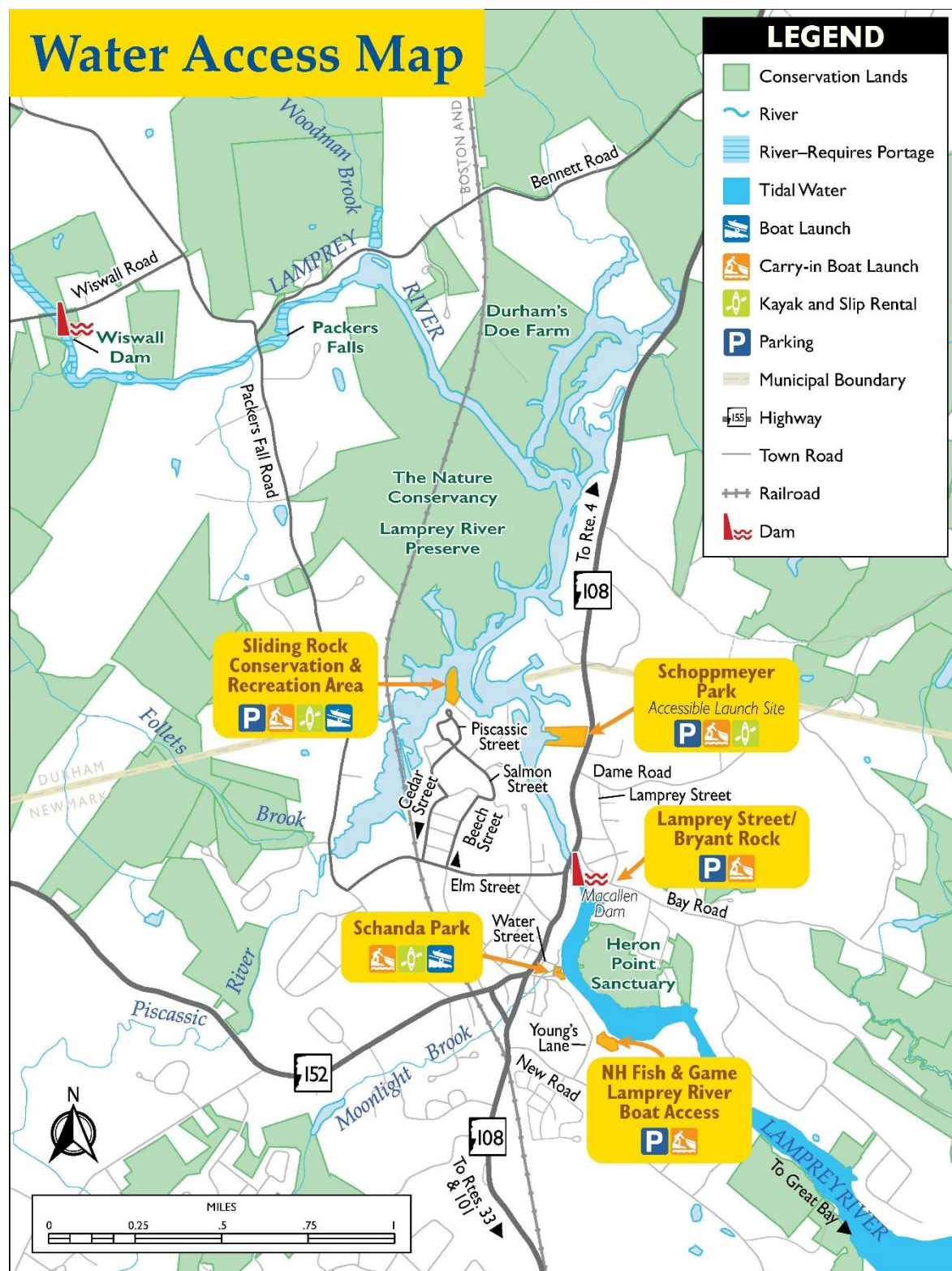
Source: Aimee Gigandet, Director of Parks and Recreation, via email dated 12/20/24

Figure 12: Opportunities for the Kayak Rental Program at Schanda Park

Kayak Rental Program Opportunities at Schanda Park	
Staffing or Rental Automation	Staffing the rental program at Schanda Park for limited hours or automating the rental process so that renters can access the paddles and life vests at Shanda Park rather than at the Recreation Department would allow for more rental opportunities. There may also be potential to rent kayaks/kayak equipment from the Slash Pad concession stand on weekends with sufficient staffing at the concession stand.
Marketing	Once the Recreation Department has more capacity to efficiently rent kayaks and to rent to multiple parties each weekend, the program could be more widely advertised.
Accessibility	Add an ADA accessible kayak launch either at the Town dock or to the boat launch if possible. If the kayak launch is added to the Town dock the dock size should be increased.
Storage	The ability to store the kayaks year-round at Schanda park would alleviate the logistics of hauling the kayaks in and out of the park each season. This may enable an earlier start to the season.
Town Dock	Increasing the Town dock se would likely encourage more kayak travel to paddle to the downtown Newmarket area.

Source: Aimee Gigandet, Director of Parks and Recreation, via email dated 12/20/24

Figure 13: Map of Water Access Points



Source: Town of Newmarket Conservation Commission

Figure 14: Matrix of structural runoff control measures by land use

CATEGORY	COVER TYPE	STRUCTURAL NUTRIENT MANAGEMENT MEASURES									
		Wet Pond	Gravel Wetland	Subsurface Infiltration	Sand Filter	Biofiltration	High Efficiency Biofiltration	Tree Pits	Raingarden	Dry Well	Permeable Pavement
LAND USE	Residential	Pervious					•		•	•	
		Impervious					•		•	•	
		Roof					•		•	•	
	Residential Subdivision	Pervious				•	•				
		Impervious				•	•				•
		Roof				•	•			•	
	Commercial/Industrial/Institutional	Pervious	•	•	•	•	•	•			
		Impervious	•	•	•	•	•	•			•
		Roof			•	•	•			•	
	Road/Freeway	Impervious	•	•		•					
	Outdoor/Other Urban Land	Pervious		•	•	•	•	•			
		Impervious		•	•	•	•	•			•

Source: Waterstone Engineering

Figure 15: Sea-level rise projections

- Coastal New Hampshire is likely (67% probability) to experience RSLR of 0.5 to 1.3 feet between 2000 and 2050. There is a 1-in-20 chance that RSLR will exceed 1.6 feet, a 1-in-100 chance that RSLR will exceed 2.0 feet, a 1-in-200 chance that RSLR will exceed 2.3 feet, and a 1-in-1000 chance that RSLR will exceed 2.9 feet by 2050.
- Coastal New Hampshire is likely (67% probability) to experience RSLR of 1.0 to 2.9 feet between 2000 and 2100. There is a 1-in-20 chance that RSLR will exceed 3.8 feet, a 1-in-100 chance that RSLR will exceed 5.3 feet, a 1-in-200 chance that RSLR will exceed 6.2 feet, and a 1-in-1000 chance that RSLR will exceed 8.7 feet by 2100.
- Coastal New Hampshire is likely (67% probability) to experience RSLR of 1.2 to 4.6 feet between 2000 and 2150. There is a 1-in-20 chance that RSLR will exceed 6.4 feet, a 1-in-100 chance that RSLR will exceed 9.9 feet, a 1-in-200 chance that RSLR will exceed 11.7 feet, and a 1-in-1000 chance that RSLR will exceed 18.1 feet by 2150

Source: New Hampshire Coastal Flood Risk Summary, Part II: Guidance for Using Scientific Projections

Figure 16: Current and Predicted Tidal Datum for Schanda Park

	2002 ¹	2050 ²
Highest Observable Tide (HOT)³	3.9'	5.5'
Mean Higher High Water (MHHW)	3.7'	5.3'
Mean High Water (MHW)	3.4'	5.0'
Mean Sea Level (MSL)	0.2'	1.8'
NAV88⁴	0.0'	0.0'
Mean Low Water (MLW)	-3.3'	-1.7'
Mean Lower Low Water (MLLW)	-3.4'	-1.8'

Based on analysis of pressure transducer data collected on site between 9/2/21 and 11/16/21 and projected sea level rise from *New Hampshire Coastal Flood Risk Summary, Part II: Guidance for Using Scientific Projections (2020)*.

1. Water levels based on pressure transducer data gathered between 9/2/21 and 11/16/21.
2. Based on 1.6' of sea level rise according to Intermediate-High scenario.
3. Highest Observable Tide Based on highest water level recorded during data collection period.
4. Water level data tied to NAVD88 by surveying water surface elevation at 6:25 PM on 10/11/21.

Source: Great Bay Living Shoreline Project, Design Memo for Schanda Park

<https://www.nhcaw.org/wp-content/uploads/2022/05/SchandaParkDeliverables.pdf>

Figure 17: Scoping of Five Priority Projects

1. Stormwater treatment Best Management Practice (BMP) at the Schanda Park parking area.
2. Upgrade the existing boat launch at Schanda Park.
3. Address water quality issues and channel stabilization in Moonlight Brook.
4. Shoreline stabilization at the existing Creighton Street Pump Station and/or at Shanda Park.

Maps

Figure 18 Flood Zones map

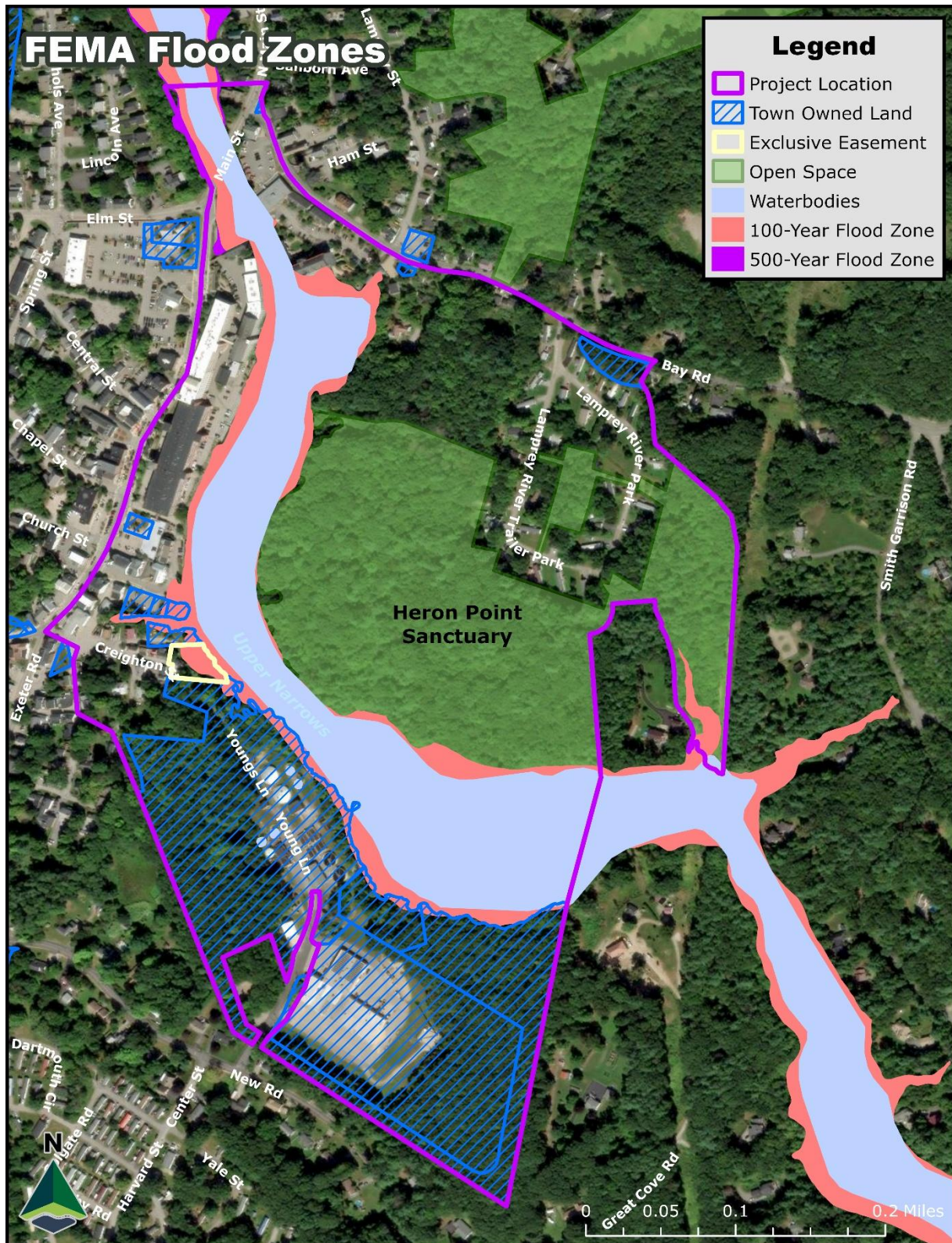


Figure 19 Salt Marsh migration map

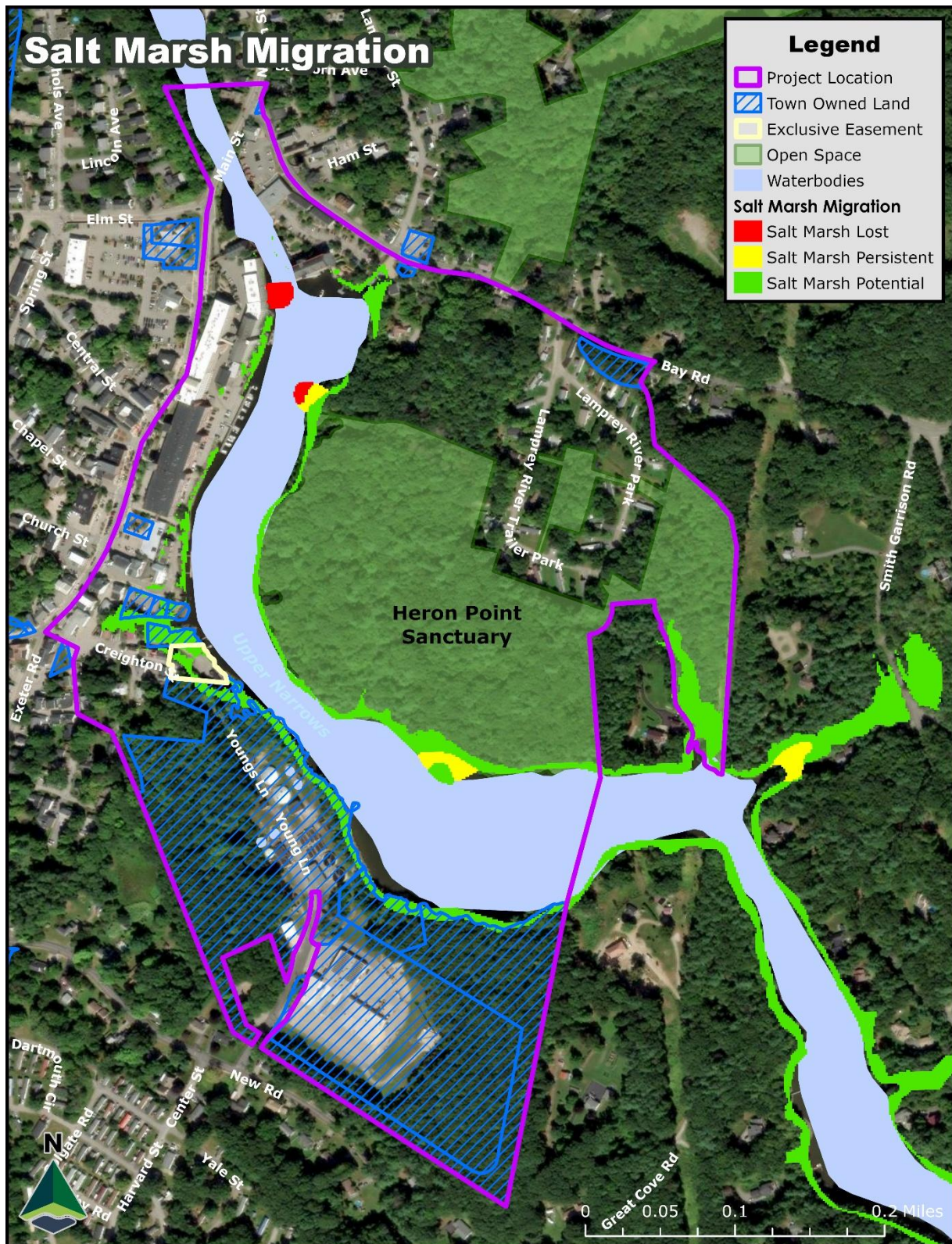


Figure 20 Sea Level Rise(SLR) map

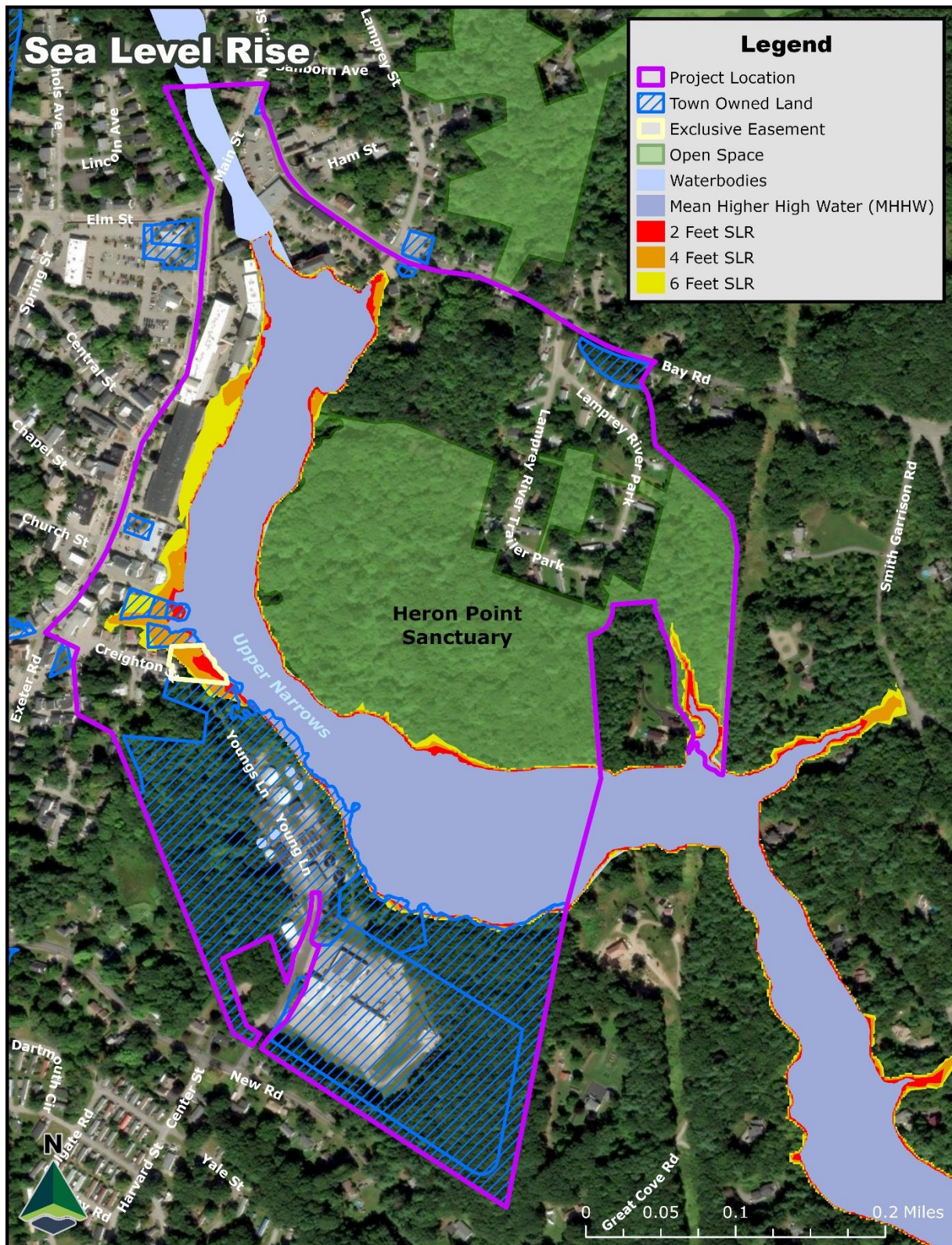
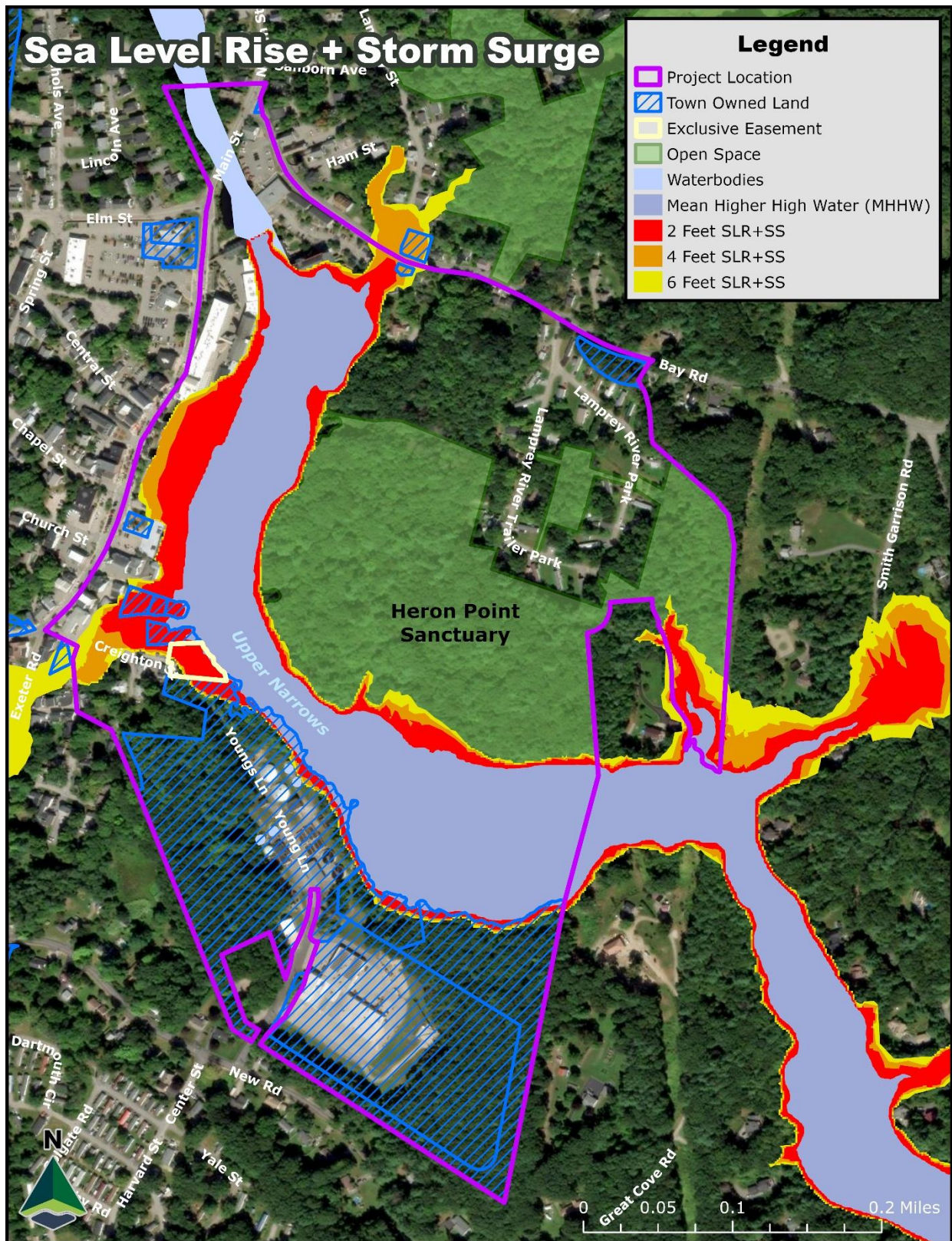


Figure 21 Sea Level Rise (SLR) and Storm Surge (SS) Map



Endnotes

1. New Market Historical Society. Audio Text Transcript. Accessed December 2024. <https://www.newmarketnhhistoricalsociety.org/the-walking-tour/site-no.21-main-st-waterfront-landing-shanda-park/>
2. Gigandet, Aimee, Recreation Director, Town of Newmarket. Email correspondence. December 20, 2024.
3. Plan NH Design Charrette for Newmarket's Downtown Riverfront. October 18-19, 2024. [link to report to be added]
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Newmarket, NH

2024 Open Space Plan

May 24, 2024

Land Acknowledgement

We are located on **N'dakinna**, which is the traditional ancestral homeland of the Abenaki, Pennacook, and Wabanaki Peoples, past and present. We acknowledge and honor with gratitude the land and waterways and the **alnobak** (people) who have stewarded **N'dakinna** throughout the generations. Today, we draw on the wisdom of the indigenous cultures and our current understanding of the ecology of place to care for and respect these lands and waters.

Cover Photo: View of the Lamprey River from Heron Point Sanctuary. Photo by Ellen Snyder.

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Introduction

This Open Space Plan (“OSP”) purpose is to serve as a guide for the Town of Newmarket (“Town”) to advance conservation and management strategies that promote resiliency, stewardship, and stability between the needs of the environment, wildlife, and the community. The decisions made today will affect the essence of the town for generations to come. Given this premise, it is vital that a network of distinct and multifunctional open spaces are secured and properly maintained to enhance the character and well-being of the community. The Town values the protection of its drinking water and fresh and saltwater wetlands; maintaining and restoring the natural shoreline along the Lamprey and Piscassic Rivers; sustaining critical natural habitats, healthy ecosystems, and connectivity for wildlife on land and in water; revitalizing the downtown riverfront; creating trail connectivity across Town and between our neighboring communities; and stewarding our conservation lands for people and nature.

The environmental and geographic attributes of this region of New Hampshire make it attractive for people to live, work, and enjoy. Demographic trends indicate that Rockingham and Strafford counties have some of the highest population growth rates in the state. As a result, development pressures are amplifying to accommodate this population influx to a degree that is exacerbating the features and functionality the region’s valuable natural resources and ecological systems. Nevertheless, the Town recognizes the necessity to develop a strategy to increase its housing supply and economic development opportunities in an environmentally sound manner. Accordingly, the goals and actions within this plan are intended to enrich our community, foster a healthy ecology, and advance a more economically sustainable Newmarket.

The development of the 2024 Newmarket OSP update was led by the Newmarket Conservation Commission, in partnership with the Strafford Regional Planning Commission (SRPC), and reviewed by the Master Plan Subcommittee and Planning Board. The OSP incorporated several community engagement activities to seek public input. Specifically, through the Fall of 2023, a community wide survey was conducted which focused on both housing and open space topics and received 429 responses. In March of 2024, a community workshop was held on the topics of housing and open space and garnered 48 participants. Visioning sessions were held at local board meetings in April of 2024 as a part of the larger update process for the Master Plan.

Residents vision for the community is diverse, friendly, green, and sustainable, embracing community, connectivity, and natural spaces. It is clear community members value their open spaces – more than half of survey respondents visit parks,

recreation, and conservation spaces at least weekly and 62% said it's extremely important to enhance the riverfront's natural environment. When asked to how residents prioritize open space and housing needs, foremost the consensus was to balance the two. However, more people prioritize open space protection over housing development. Ultimately, residents and community boards see Newmarket as a leader and a partner within the region to protect and enhance natural resources for the future.

The Newmarket Open Space Plan update was also supported by the [Connect to Protect Technical Assistance](#) program, where partners helped to develop a Land Acquisition Criteria Evaluation tool for the Conservation Commission to use in evaluating new conservation land opportunities. This is an update to the 2007 Newmarket Open Space Conservation Plan, which was adopted into the Town Master Plan in XXXX.

Newmarket's Natural Landscape

Situated in New Hampshire's coastal plain on the western shore of Great Bay, the Town of Newmarket boasts a rich diversity of natural habitats. The ecological importance of Newmarket is represented by the [NH Wildlife Action Plan](#) classification of Newmarket: 30% (2,714 acres) is identified as Highest Ranked Habitat in the State, 30% (2,721 acres) is considered Highest Ranked Habitat in this biological region of the State, and 16% is Supporting Landscape (Figure 1). Looking down from a small airplane at the broad sweep of Newmarket you would notice that the town is about 42% forested, 23% water and wetlands, 23% developed, and 12% grassland/farmland (Figure 2). In addition to hosting a rich biodiversity, this natural landscape provides open spaces that help people reduce stress and improve mental and physical health.

The Piscassic River winds through the central region of Town, reaching the confluence with the Wild & Scenic Lamprey River at the Town's Sliding Rock Conservation and Recreation Area. Natural floodplains along these two major rivers provide enormous benefits in controlling and slowing floodwaters and preventing erosion and runoff that can degrade water quality. Salt marsh along Great Bay and the large Tuttle Swamp/Ash Swamp wetlands system in the western region of Town provide myriad benefits to plants and animals. These waters and wetlands offer habitat for rare turtles, freshwater mussels, and plants; nesting and resting areas for migratory birds; safe movement corridors for wildlife, and much more.

Newmarket is relatively flat. However, if you explore the topography of the community, you will find rock outcrops, hilltops, rolling fields, undulating woods, and other subtle but interesting variations in the land. Elevations in Newmarket range from near sea level along the downtown and Great Bay waterfront to 276 feet atop Bald Hill in the southwest corner of Town. Other high points include Grapevine Hill (235'), Great Hill (222'), Long Hill (171'), and Jeff's Hill (138').

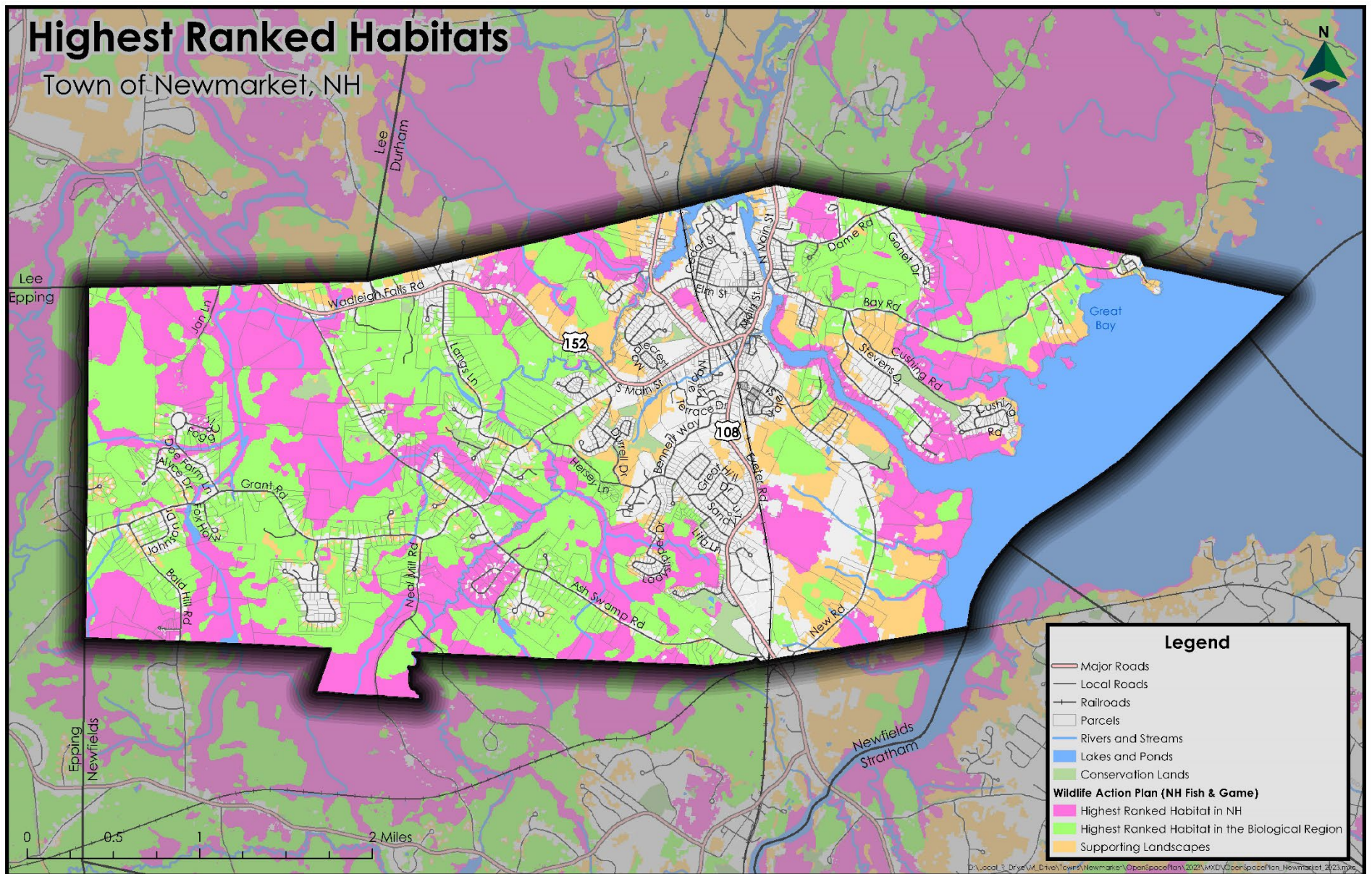


Figure 1: Highest Ranked Habitats

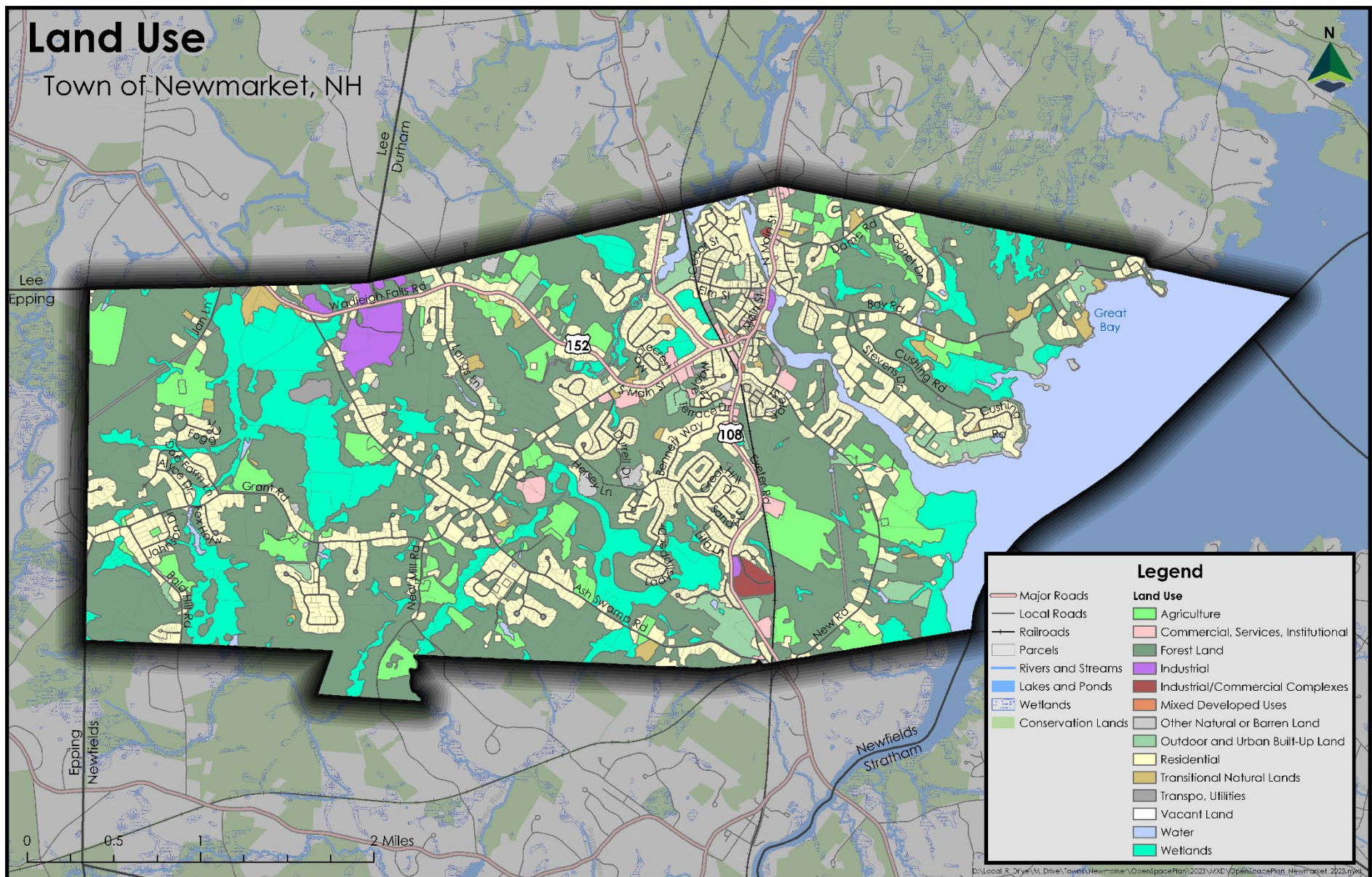


Figure 2: Existing Land Use, 2023

Our Watersheds

We all live in a watershed; actually, many watersheds at different scales. A watershed is an area of land bounded by mountains, hills, or ridges (the highest points of elevation), where all the surface water within drains into the same river, lake, or pond. Watersheds can be large or small; smaller watersheds, or sub-watersheds, are subsets of larger watersheds.

Newmarket lies within the 1,085 square mile coastal watershed (Figure 3). New Hampshire's coastal watershed encompasses many of the diverse and complex habitats that the New England region has to offer. Despite the rapid population growth and development pressures in this region, many areas of ecological significance remain within our community.

Watersheds connect us to our neighbors and to people living upstream and downstream. Protecting water quality, preventing erosion, and avoiding flooding is largely dependent on land use practices within the watershed. Activities on the land, such as malfunctioning septic systems, excessive fertilizers on lawns, or oils and other pollutants in stormwater runoff, can affect the health of groundwater and surface water. Keeping river corridors naturally vegetated within any watershed helps maintain a healthy land and water for people and nature.

All the surface water in Newmarket flows toward the Great Bay Estuary. The pathway of this flow falls within one of four coastal sub-watersheds or drainages: Lamprey River, Piscassic River, Squamscott River, and Great Bay drainage. The Piscassic River is a tributary to the Lamprey River: thus, most of Newmarket is within the larger Lamprey drainage. Only portions of the Bay Road area drain directly into Great Bay and lands mostly east of Route 108 south of downtown flow into the Squamscott River or Great Bay (Figure 4).

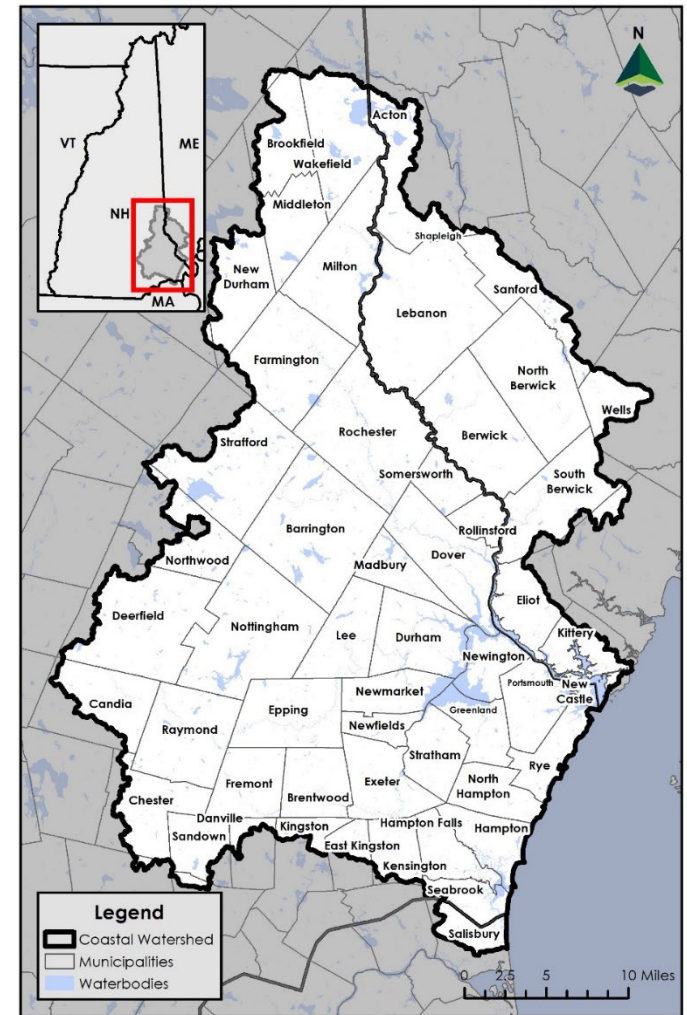


Figure 3: NH's Coastal Watershed

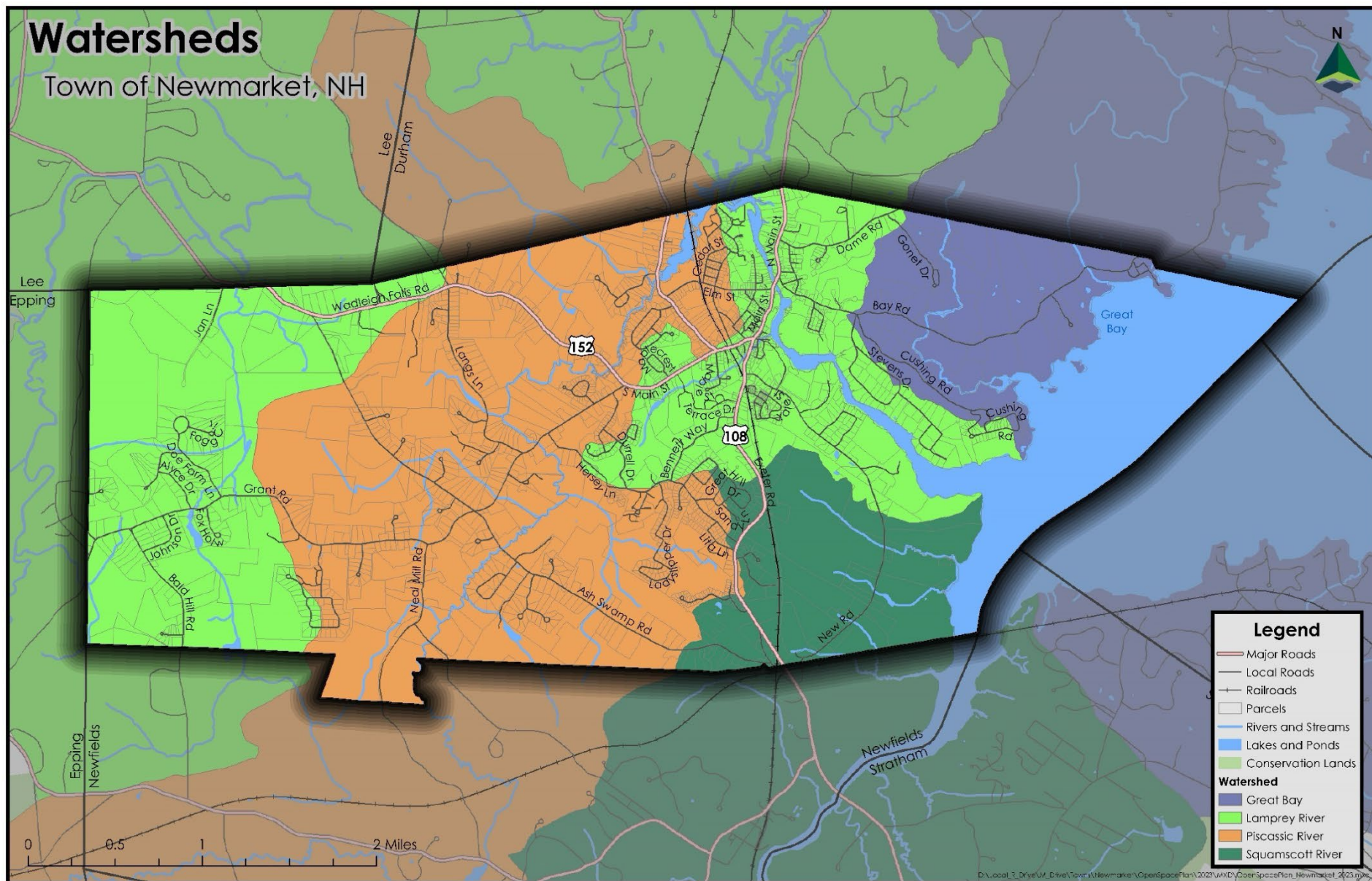


Figure 4: Sub-Watersheds within Newmarket, NH

Lamprey River Watershed

The Lamprey River begins in Northwood Meadows State Park and meanders 47 miles through seven towns before it reaches the Macallen Dam at the Mills in Newmarket (Figure 5). Below the dam, the Lamprey continues as a tidal river to Great Bay. From there, the waters flow down the Piscataqua River to the Gulf of Maine.

Of the eight rivers flowing to Great Bay, the Lamprey River watershed contributes the greatest volume of freshwater, playing a major role in maintaining the overall health of the economically and ecologically important Great Bay Estuary. This connectivity, between the fresh and salty parts of this coastal watershed, is exemplified by river herring, fish that are born in the freshwater reaches, migrate down to the estuary to feed, then out to the ocean to spend a few years, and then back again to breed and spawn. A remarkable journey that requires clean freshwater, estuarine habitats such as saltmarshes, eel grass beds and oyster reefs, and a healthy ocean.

Twenty-three miles of the Lamprey—from West Epping to the confluence with the Piscassic River—are designated as a National Wild & Scenic River to preserve the river's "outstandingly remarkable values" including clean and abundant water; habitat for fish and wildlife; paddling, fishing, birding, and other outdoor recreation; history of people and place. The entire

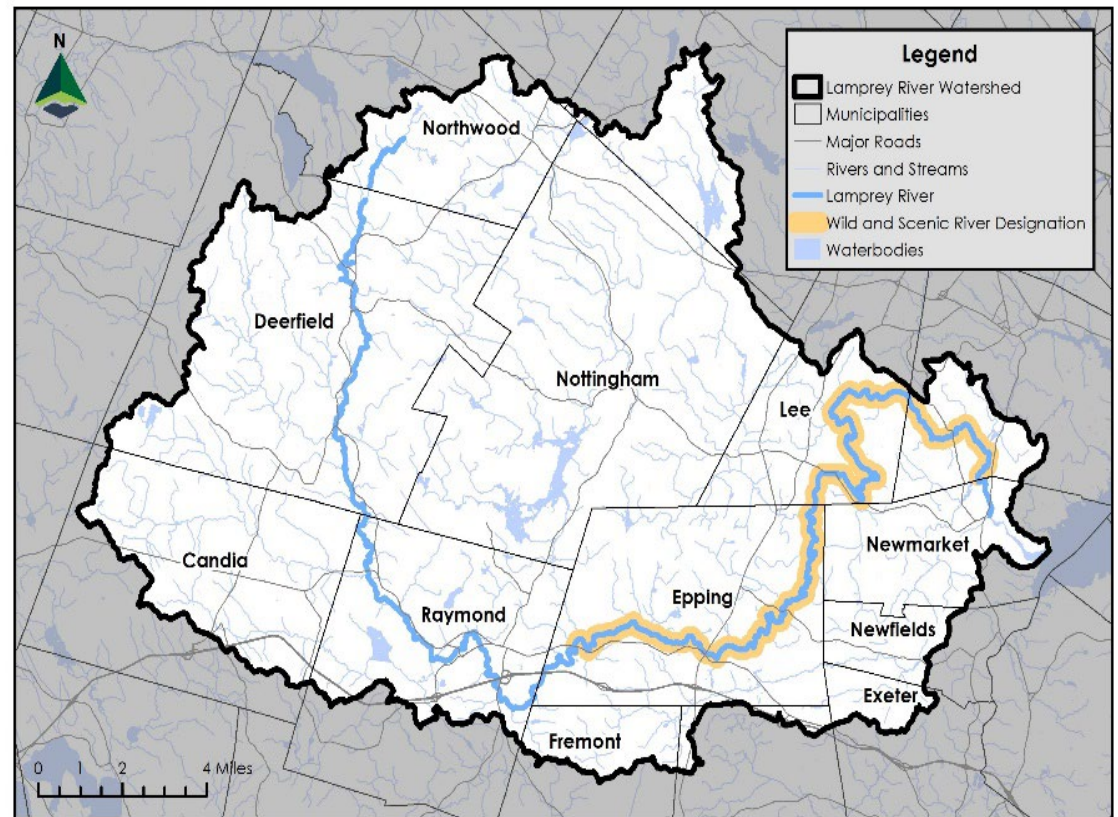


Figure 5: Lamprey River Wild and Scenic Designated Reaches

Lamprey River and its five major tributaries--Little, North, North Branch, Pawtuckaway, and Piscassic--are also recognized by the State of New Hampshire for outstanding natural and cultural values.

“Outstandingly Remarkable Values”

Historically the Lamprey River supported large populations of river herring, sea lamprey, American shad, American eel, and Atlantic salmon. Dams constructed for industrial and commercial purposes have long blocked or limited fish passage upstream. The McCallen Dam, site of the first natural falls on the Lamprey, separates the tidal portion of the river from the freshwater portion. A Denil fish ladder on this dam enables alewives, American eels, sea lamprey, and American shad to move upriver. Blueback herring do not use the ladder and have been seen spawning below the dam. Three and a half miles upstream of McCallen is the Wiswall Dam in Durham, originally constructed in 1835. This dam has no fish passage creating a barrier to fish movement farther upriver. A project to install a nature-like bypass channel around the dam has been proposed. A third dam at Wadleigh Falls in Lee has been breached, but under typical flow conditions, its remnants still constitute a barrier.

The Lamprey River was one of the first rivers designated into the New Hampshire Rivers Management and Protection Program in 1990, and the full river and five major tributaries were designated into the program in 2011 with unanimous support from the 14 corridor communities. The Lamprey River Advisory Committee (LRAC), with members from all 14 municipalities along the river corridor, has the principal responsibility for development and implementation of a long-range River Management Plan and reviews and comments on projects that could impact the river. The LRAC is working on a 2024 Management Plan update. You can learn much more about the Lamprey River at <https://www.lampreyriver.org/>.

Piscassic River Watershed

Piscasssic is an Abenaki expression meaning “at the branch.” The Piscassic River is the largest “branch” or tributary to the Lamprey River. This river meanders 15 miles from its beginning in the northeast corner of Fremont, through Brentwood, Epping, Newfields, then Newmarket where it flows through the heart of Newmarket into the Lamprey River near the Newmarket/Durham town line.

Along the way, three smaller streams or tributaries join the Piscassic: Brown River in the headwaters, Fresh River above the ice pond in Newfields, Follet’s Brook near the confluence with the Lamprey River in Newmarket. Numerous other small unnamed streams flow into the Piscassic River. Together these waterways—year-round and seasonal flows-- encompass the Piscassic River Watershed.



Figure 6: The Piscassic River viewed from Old Lee Class A Trail in Newmarket.

The lower Piscassic River, below the dam at Packers Falls Road, is often thought to be part of the Lamprey River. However, the waters in this area are an extension of the impounded waters of the Lamprey behind the McCallen Dam. The Piscassic River is the only waterway within the entire Lamprey River watershed classified as Class A – the highest water quality standard in New Hampshire.

Water from the Piscassic River (below the dam) was used as a drinking water source until 2004, until the water treatment plant was shut down. Since then, the Town has relied solely on groundwater from four municipal wells, three of which are in the Piscassic River watershed.

Squamscott River Watershed

The Squamscott River is the downstream, tidally influenced portion of this river system and the Exeter River is the upstream, freshwater portion. The Squamscott River begins in the Town of Exeter and flows into Newmarket, where it drains into Great Bay. In Newmarket, this watershed includes several unnamed tributaries that flow into the Bay, east of Route 108 and New Road. This area harbors some of the best ecologically important salt marsh in the Town.

Great Bay Watershed

The northeast corner of Newmarket's land area flows directly into Great Bay. This area includes The Nature Conservancy's 400-acre Lubberland Creek Preserve that features a unique salt marsh, a rich upland forest community hosting vernal pools, wetlands, and rocky outcrops. The 4-mile [Sweet Trail](#) begins here and extends into Durham. Where Lubberland Creek flows under Bay Road is the site of a successful partnership with TNC and the Town of Newmarket to install a new open bottom box culvert, allowing unrestricted stream flow and aquatic passage for fish, and safe crossing for other wildlife. Indeed, one of the first images captured on a wildlife camera after the work was completed was of a bobcat using the new passage.

Water and Wetlands

The most significant body of open water in Newmarket is the 875 acres of Great Bay within the Town bounds (Figure 7). Although the Town has no other great ponds or lakes, there is significant water associated with waterways and wetlands. The [2020 Water Resources Chapter of the Master Plan](#) provides description of this topic; we provide a summary below of key elements.

Flowing Waters: Perennial and Intermittent Streams

The major rivers of Newmarket—Lamprey and Piscassic—were described earlier under their respective watersheds. Several smaller brooks and creeks are imbedded in these watersheds throughout Town, including Lubberland Creek and Follet's Brook. We often recognize the importance of these large waterways; however, smaller streams are an integral and important part of the hydrology of a watershed. All along the length of a river, small streams gather water from higher up in a watershed and flow into what is called the main stem. These small headwater streams are often unnamed and unmapped and sometimes intermittent, drying up in summer. They may begin as trickles, seeps, small wetlands, or depressions in the hillside. The health of larger downstream rivers, streams, ponds, and bays—such as the Piscassic or Lamprey Rivers and Great Bay—are dependent on the health of these smaller streams farther up in the headwaters of a watershed.

The upper reaches of a watershed store water, recharge groundwater, and reduce the intensity and frequency of downstream flooding. Small streams are a critical link between land and water. Not only are they linked to upstream and downstream portions of the watershed, but water flowing from the land into the stream carries insects, leaves, branches, and other material that are the start of a food chain. This exchange between land and water occurs in a transition zone along the edges of stream channels, called a riparian area. Connectivity between stream channels, stream bottoms and banks, and the riparian area is important to protect water quality and aquatic habitats. Maintaining a natural stream channel and associated riparian habitat of tangled roots, fallen tree limbs, shrub, trees, and herbs is key to sustaining the health of these waters.

Wetlands

Wetlands are rich habitats with immense benefits for nature and people: absorb and slow floodwaters, filter sediments and pollutants; recharge groundwater; host myriad uncommon plants, animals, and aquatic life; serve as scenic backdrops and

sites for recreation and education. Wetlands come in a variety of types, but all have three things in common: soils that are saturated sometime during the growing season; most of the vegetation is adapted to these saturated soils; and the soils in the area are periodically or permanently inundated with water during the growing season.

Newmarket is 23 percent water or wetlands. In addition to the waters associated with Great Bay and the rivers and streams, the Town hosts several other wetland types of significance as described in the NH Wildlife Action Plan.

Marsh & Shrub Wetlands

These wetlands cover 430 acres or 4.7% of the Town and come in three flavors. *Wet meadows* are typically dominated by sedges and grasses and are found at the upper edges of a wetland or lower edges of fields. *Emergent Marshes* contain plants that grow out of water, but whose roots are wet, such as cattails, pickerelweed, and water lilies. Shrub wetlands are thickets of shrubs and young trees growing out of wet soils, including red maple, dogwoods, alders, viburnums, and highbush blueberry. The Tuttle Swamp/Ash Swamp wetlands complex in the western region in Newmarket contains the largest, best, and intact examples of marsh and shrub wetlands in Newmarket. Notable wildlife species living in this wetland ecosystem include five species of turtles, American woodcock, beaver, great-blue heron, yellow warbler, dragonflies, and hundreds of other aquatic and wetland-adapted species.

Beavers are key stewards of these lands, as they play a critical role in supporting the well-being of the marshlands while facilitating the creation of habitat that aids the rest of the wetland community. They are most active at night so you might not see them, but you can easily find their industrious tell-tale signs: a chewed stick; a gnawed tree; a lodge; or a dam. You might hear a loud slap of their tail, warning other beavers of your (or your dog) presence. A beaver-modified wetland will cycle through a series of changes over time from ponded water (marsh) to abandoned/drained when they run out of food (wet meadow), and re-growth (shrub wetland). The highest quality wetlands are those that are isolated from development, surrounded by intact vegetation, and in remote areas where beaver activity doesn't damage roads or other infrastructure—as represented best by Tuttle Swamp.

Wooded Wetlands

Floodplain forests, swamps, and vernal pools are all wooded wetlands, and occur on 336 acres or 3.7% of Newmarket. Floodplain forests occur primarily along the Lamprey and Piscassic Rivers. River floodplains are dynamic environments

affected by periodic, temporary flooding. As water levels rise during heavy rainfall, sediment is carried downstream, and deposited where water slows and spreads out across a floodplain next to the river channel. Silver maple is the best adapted tree for life in a floodplain. Depending on the periodicity and intensity of flood events other species are often common, such as red maple, American elm, musclewood, hornbeam, wild grapes, tall meadow-rue, cardinal flower, and ferns. A swamp white oak floodplain forest in Tuttle Swamp is the largest such example in the entire Lamprey River Watershed. Historically, floodplain forests were cleared for development due to their proximity to rivers and plowed for agriculture due to their rich and productive soils. The remaining Intact floodplain forests contain uncommon plants and animals and are important reservoirs of our biodiversity.

Swamps are distinguished from marshes, in part, due to the presences of trees, which marshes lack. Seasonal water fluctuation is typical in swamps, and they usually occur in stagnant basins with saturated, organic soils. Depending on the location and soils the following plants may be common: red maple, black gum, black ash, sphagnum moss, ferns, and a diversity of shrubs, including speckled alder, male berry, northern spicebush, winterberry, nannyberry, and highbush blueberry. Red-shouldered hawk, veery, Blanding's turtle, bats, four-toed salamander, and occasionally moose occur in the swamps of Newmarket.

Vernal pools are ephemeral (temporary) wetlands that fill in spring from rainfall, snowmelt, or rising groundwater. Some pools also fill in the fall after autumnal rains. These pools are typically small, ranging from less than 1/10th acre to more than 2 acres. Size, however, is not always an indicator of the importance of a vernal pool to the animals that live there. Most vernal pools completely dry out by the end of summer and therefore cannot support fish populations, which makes these pools safe for breeding amphibians.

These small wetlands typically harbor fairy shrimp, wood frogs, and spotted salamanders. Smaller organisms such as bacteria, fungi, zooplankton, caddisfly and other insect larvae, crustaceans, and insects are all food for the larger animals. Wood frogs and spotted salamanders travel to vernal pools in the spring to breed, and then spend the rest of the year (11+ months) in the uplands, typically within 1,000 feet of the pool. Canopy shade, deep leaf litter, and fallen trees and stumps are used by frogs and salamanders as cover and therefore are important habitat features in the upland surrounding a vernal pool. Spotted and Blanding's turtles, great blue herons, raccoons, and predatory insects travel to vernal pools to feed on amphibian eggs, tadpoles, insects and crustaceans in the pools.

Some sunnier vernal pools may contain sphagnum moss, sedges, ferns, and shrubs such as high-bush blueberry or buttonbush. Red maple and eastern hemlock commonly grow on the edges of vernal pools, although pools may be found in many different forest types. Given their small size, vernal pools are easy to overlook. They are best observed and mapped when they are filled with water. Dry vernal pools can sometimes be identified by the presence of dark, matted leaves within a depression in the ground. Newmarket has not mapped vernal pools. Scouting for vernal pools before commencing work using heavy machinery, will help protect these valuable wetlands. Ruts, roads, and similar disturbance can change the hydrology and ability of the pool to hold water.

Peatlands

Peatlands cover 242 acres or 2.6% of Newmarket, most of which is in one large complex in the Tuttle Swamp/Ash Swamp wetland complex. The water in peatlands has low nutrient content and typically high acidity caused by limited groundwater input and surface runoff. These environmental conditions are such that plant and animal material take a very long time to decompose. This organic material contains carbon and other nutrients, storing it away and slowly releasing it into the atmosphere, providing an important place for carbon sequestration.

The vegetation in a peatland—more specifically called a bog or fen--depends on site conditions, although Sphagnum and other mosses are typically present. Newmarket's peatlands would benefit from a more detailed assessment of the animal and plant community.

Salt Marsh

Salt marshes are intertidal wetlands typically located in low energy environments such as estuaries. They exist both as expansive meadow marshes and as narrow fringing marshes along shorelines. Salt marshes are considered one of the most productive ecosystems in the world due to high rates of plant growth. They provide important ecological functions,

including shoreline stabilization, wildlife habitat, and nutrient cycling, and serve as important breeding, refuge, and forage habitats for many species of crustaceans and other invertebrates, and fish.

Salt marshes are a scarce habitat type, occupying only about 0.1% of the land area of New Hampshire (Figure 8). Rising sea levels will likely have the greatest impacts on current salt marsh habitats; however, many scientists believe these systems can keep pace with sea level rise by migrating landward if there is an adequate supply of sediment or peat build up and no natural, or human-made, barriers present. Future sea level rise scenarios predict that, if not able to migrate, much of today's low marsh will be mostly submerged and transformed into mudflats or sub-tidal bays. According to the Sea-Level Affecting Marsh Migration (SLAMM) model, Newmarket is a community within the coastal watershed where current conditions allow for potential salt marsh growth as sea levels rise. In fact, upwards of 170.7 acres of potential salt marsh will have the opportunity to migrate into surrounding upland areas as sea levels rise, but the Town may, lose some salt marsh habitat due to coastal inundation.

Prime Wetlands

Under NH State Statute, municipalities may elect to designate wetlands as “prime-wetlands” if, after thorough analysis, it is determined that high-quality wetlands are present. Typically, a wetland receives this designation because of its large size, unspoiled character, and ability to sustain populations of rare or threatened plant and animal species. In 2000, the Newmarket Conservation Commission spearheaded such an analysis. West Environmental Inc. completed a final list and map of these high value wetlands following extensive field research and other data collection, wherein 16 wetlands (totaling 908.94 acres) were identified as prime wetlands. These prime wetlands are afforded additional protection within the Newmarket Zoning Ordinance. The Conservation Commission and Planning Department received a grant in 2024 from the Piscataqua Region Estuaries Project (PREP) to update the prime wetlands

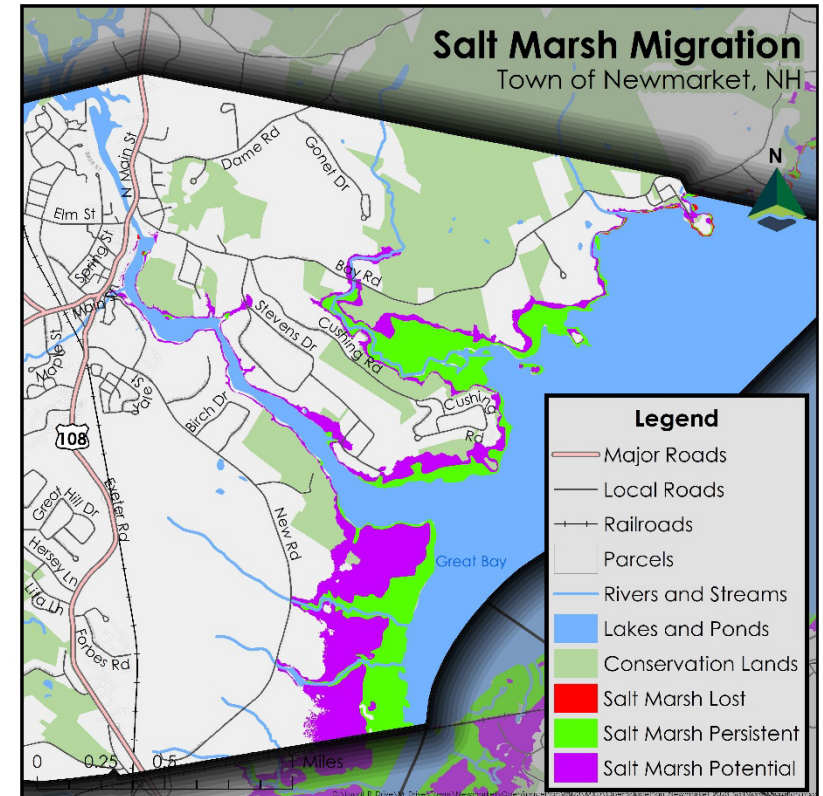


Figure 8 Lost, Persistent, and Potential Salt Marshes

maps, utilizing more accurate mapping tools now available as well as to reflect changes in hydrology. Our goal is to ensure maximum protection of the prime wetlands and to ensure that they are mapping accurately in fairness to property owners.

The Forests of Newmarket



Figure 9: Appalachian Oak-Pine Forest

New Hampshire is the most heavily forested state after Maine; Newmarket is about 43% forested. Two broad upland forest types occur in Town: Appalachian oak-pine (A-O-P). hemlock-hardwood-pine (H-H-P).

Most of Newmarket is the Appalachian oak-pine forest type (Figure 9), which is found primarily in central and Appalachian states, only extending into southern and coastal New Hampshire. The dominate trees are a mix of red, black, and white oaks, shagbark hickory, and white pine. Historically, Appalachian oak-pine forests were influenced by frequent fires, which periodically modified the age structure of the forest. The diverse age and structure of the forest helps to promote wildlife diversity. In the absence of fire, more fire-intolerant species increase, such as red maple, American beech, and birches.

The abundance of nut-bearing oaks and hickories provides a high-protein, carb, and fat source for wildlife, such as squirrels, chipmunks, mice, black bear, white-tailed deer, wild turkey, ruffed grouse, blue jay, and wood duck. In turn, fishers, bobcats, great-horned owls, and raptors prey on the abundance of small mammals and birds. Tall white pines in the oak-pine forests, especially near water, offer nest and perch sites for bald eagles, ospreys, and great blue herons.

Intense development pressure particularly in southeast New Hampshire has dramatically reduced naturally occurring fires and increased fragmentation of this forest type. Land conservation is critical to protecting large forest blocks (>500 acres) of Appalachian oak-pine habitat. These large forest blocks are rare and are critical to protect wide-ranging species such as bobcat, black bear, and moose.

Hemlock-hardwood-pine forest is the most widespread habitat in New Hampshire but is found in only a few small patches in Newmarket. White pine and eastern hemlock are the dominant trees. On sites where this forest type was historically

subjected to pasturing or timber harvesting, the dominant early and mid-successional species are red oak, white pine, red maple, black birch, and paper birch. Hemlock and American beech typically increase in dominance as the forest ages. Mostly pure hemlock stands occur in ravines and steep, rocky north-facing slopes. Hemlock is shade-tolerant and blocks out light for any other species, creating a mostly barren understory. The ground cover and understory are slightly richer in the mixed forest of oak, beech, and pine, but not greatly so. The presence of Hemlock Woolly Adelgid and other non-native insects may affect the trajectory of plant succession in these forests.

There is life in dead trees and cavities are good.

Dead or partially dead trees (“snags”) and live and decaying trees with cavities and dens are an essential part of our forests and provide essential habitat to more than 40 birds and mammals. Tree cavities serve as a nest, den, and roost site, providing protection from harsh weather and temperature extremes and safety from predators. Tree dens are used by raccoon, porcupine, gray fox, fisher, and black bear. Bats and brown creeper (a bird) roost or nest under loose or shaggy bark. Dead and dying trees are often full of bark- and wood-boring beetles, carpenter ants, and other native insects, which are important food sources for woodpeckers and other birds that glean food from the tree bark. Rotting wood helps recycle nutrients, serves as nurse logs for tree seedlings, and provides habitat. Leaving fallen trees, branches, and overturned roots in the woods is good for wildlife and the health of a forest.

Agriculture and Grasslands

Farming is part of New Hampshire’s scenic landscape and cultural heritage. For more than 300 years New Hampshire’s agricultural community has adapted to changing landscape conditions and markets. The agricultural sector in the State remains vibrant and diverse and shows growth in small-scale farms based on retail markets. In Newmarket, approximately 648 acres, or 7% of Newmarket is considered potential for agriculture—land that is currently field, pasture, or cropped. Some active farms remain and are already conserved including the Clarke Farm on Camp Lee Road and Nostrom Farm on Doe Farm Lane. Other landowners retain fields as pasture or other uses.

The 2020 NH Wildlife Action Plan identified 1,046 acres of grassland habitat in Newmarket. Some of those acres are included in the potential agricultural land above; however, many of these “fields” are conserved as habitat for rare plants

and animals. For example, the 15-acre meadow at Wiggin Farm Conservation Area was conserved, in part, with grant funds from NH Fish and Game and the Land and Community Heritage Investment Program (LCHIP) to protect grassland and shrub nesting birds, such as bobolinks and American woodcock, nesting turtles, insect pollinators, and other wildlife. The Nature Conservancy maintains natural grasslands as habitat at their Lubberland Creek Preserve.

Whether active farmland or grassland habitat, these openings in our largely forested community also provide scenic backdrops along roads and trails.

Sand and Gravel and other “Barren” Lands

Newmarket has 77 acres or less than 1% of the Town in sand and gravel operations. While these areas are often considered ecologically “barren,” they can provide some remarkably interesting habitat once the sites are closed. Sand and gravel excavation areas are usually dry and lack the soil organic layers needed to regrow vegetation, and thus plant succession is slow. They often have brushy edges, bare ground, few tall trees, leftover boulder piles, and are nutrient poor, thus requiring little effort to maintain.

Reclamation of closed “pits” typically involves adding topsoil and leveling slopes, but this can diminish its value as unique wildlife habitat. But if left mostly as is when closed (except for safety procedures), these areas can offer habitat: bare ground for nesting common nighthawks and rare turtles, steep sand banks for nesting bank swallows, basking areas for snakes, exposed sandy areas for tiger beetles and other ground insects, shrub habitats for New England cottontails and songbirds. NH Audubon’s Smith Sisters Sanctuary off Route 152 has a great example of this transition from active sand and gravel pit to habitat.

Wildlife Corridors

Wildlife need to move, to find food and shelter, to find mates, to migrate seasonally, to disperse to new territories. A [wildlife corridor](#) of suitable habitat allows wildlife to move safely from one area to another. A corridor can be through an intact forest, along rivers or streams, or even along a field edge. As our landscape becomes more fragmented by roads and other development, maintaining a network of connected habitats is important to allow safe passage for individual animals and

gene flow between populations. Protecting wildlife corridors provides other benefits too, such as healthy forests and clean water and air. Most of Newmarket's important wildlife corridors are through intact forests, wetlands, and along watercourses.

Road Crossings

Many of the roads in Newmarket have been here for a long time; the network of streams and wetlands even longer. The two are often intertwined. Wherever a road crosses a stream, a bridge or culvert makes that crossing possible. That road crossing can sever the natural pathway or corridor for fish, turtles, and other wildlife or in some cases cause excessive road mortality, such as for turtles. Incorrectly sized, poorly placed, or damaged bridges and culverts prevent fish and wildlife from moving up and downstream to find food, breeding areas, and other habitats.

Degraded crossings also cause excessive flooding, road washouts, and expensive maintenance, and they can be a safety hazard.

Culverts that are undersized relative to the natural width and depth of a stream tend to cause higher velocity stream flows. These high flows cause scouring immediately downstream of the culvert, which leads to "perching," where the culvert ends up higher than the streambed, preventing passage by many fish and wildlife. Fortunately, new designs for stream crossings are available that are safe, stable, reduce expensive erosion and washouts, and are fish and wildlife friendly. The ideal stream crossings are bridges and open-bottomed arches rather than pipe culverts.

A significant upgrade to the Bay Road crossing over Lubberland Creek in Newmarket has greatly improved safe aquatic and upland wildlife passage as well as minimized maintenance issues and flooding hazards. The Town has identified several other such road crossings that would benefit from improved crossings. One site is the Ash Road crossing over a significant wetland drainage where rare and common turtles are killed on the road annually. The Conservation Commission, along with Planning, Engineering, and Public Works Staff are working with NH Fish and Game to find and fund a sustainable option for this location. Other sites that may need road crossing improvements are shown on the [NH Aquatic Restoration Mapper](#). Encouraging drivers to slow down using signage and traffic calming techniques is also being explored.

INSERT photo of the Lubberland Creek culvert

Newmarket's Conservation Areas

Conserved Lands

Newmarket's 9,080 acres support a population of 9,430 residents (2020 Census), with most of the population concentrated in the downtown region. In 1998, 516 acres or 6 percent of Newmarket was in permanent conservation. By 2023, 2,792 acres (or 31%) of the Town was conserved in some form (Figure 10). See Appendix B for details on each parcel under conservation in each of the categories listed in Table 1.

Table 1: Conserved Lands Summary

Conservation Land Type	Acres	% of Conservation Lands
Town-Owned Conservation Land	416	15%
Town-Held Conservation Easement	368	13%
Town-Held Executory Interest	232	8%
Subdivision Open Space	511	18%
Other Public or Private Conservation Lands	1,265	45%
Total	2,792	31% of Total Town Area

The community has benefited from a strong partnership with public and private conservation entities, including NH Fish and Game, Land and Community Heritage Investment Program, NH DES Drinking Water Protection Program, Great Bay Resource Protection Partnership, The Nature Conservancy, NH Audubon, and the Southeast Land Trust. In addition, the Town of Newmarket has contributed to land conservation projects through the Conservation Fund, Drinking Water Fund, and Open Space Bond. Also, many private individuals have contributed funds or land value. A few properties were conveyed to the Town as part of a subdivision project and others via tax liens. From 2003 to 2022, the Town of Newmarket assisted with the conservation of 1,016 acres in which the Town holds some interest in the land: fee ownership (416 acres), conservation easement (368 acres), and executory interest (232 acres). The costs of these conservation projects totaled

more than \$4.4 million with Town leveraging its contribution of \$2.1 million with more than \$2.5 million in grants and funds from conservation partners.

Trails

One of the benefits of open spaces is the opportunity for people of all ages to use nature trails that wander through forests and fields or across boardwalks. Several conservation areas in Town have trails: Wiggin Farm, Piscassic River-Loiselle (with connectivity to NH Audubon Sanctuary), Heron Point Sanctuary, and Sliding Rock (Piscassic Boat Launch) (Figure 11). You can learn more about these and other conservation areas on the [Conservation Commission website](#).

We are fortunate to also have several other trails in Newmarket and nearby towns. These include the Sweet Trail from Newmarket to Durham. The SELT's Piscassic Greenway trail network accessible from Newmarket, Newfields, and Lee. Both Newmarket and Newfields reclassified their respective sections of Old Lee and Neal Mill/Halls Mill Class VI Roads as Class A Trails. This heightens the value of these pathways for public recreation and enables the communities to invest in their upkeep.

Newmarket continues to seek ways to enhance the trail network to connect town conservation areas and parks, provide safe pathways from downtown to other regions of town, and connectivity between towns. As development continues to consume more land and the remaining areas are often wet or rocky, the opportunities to create new pathways becomes more of a challenge. We will look for creative ways and partnerships to find ways to achieve this vision.

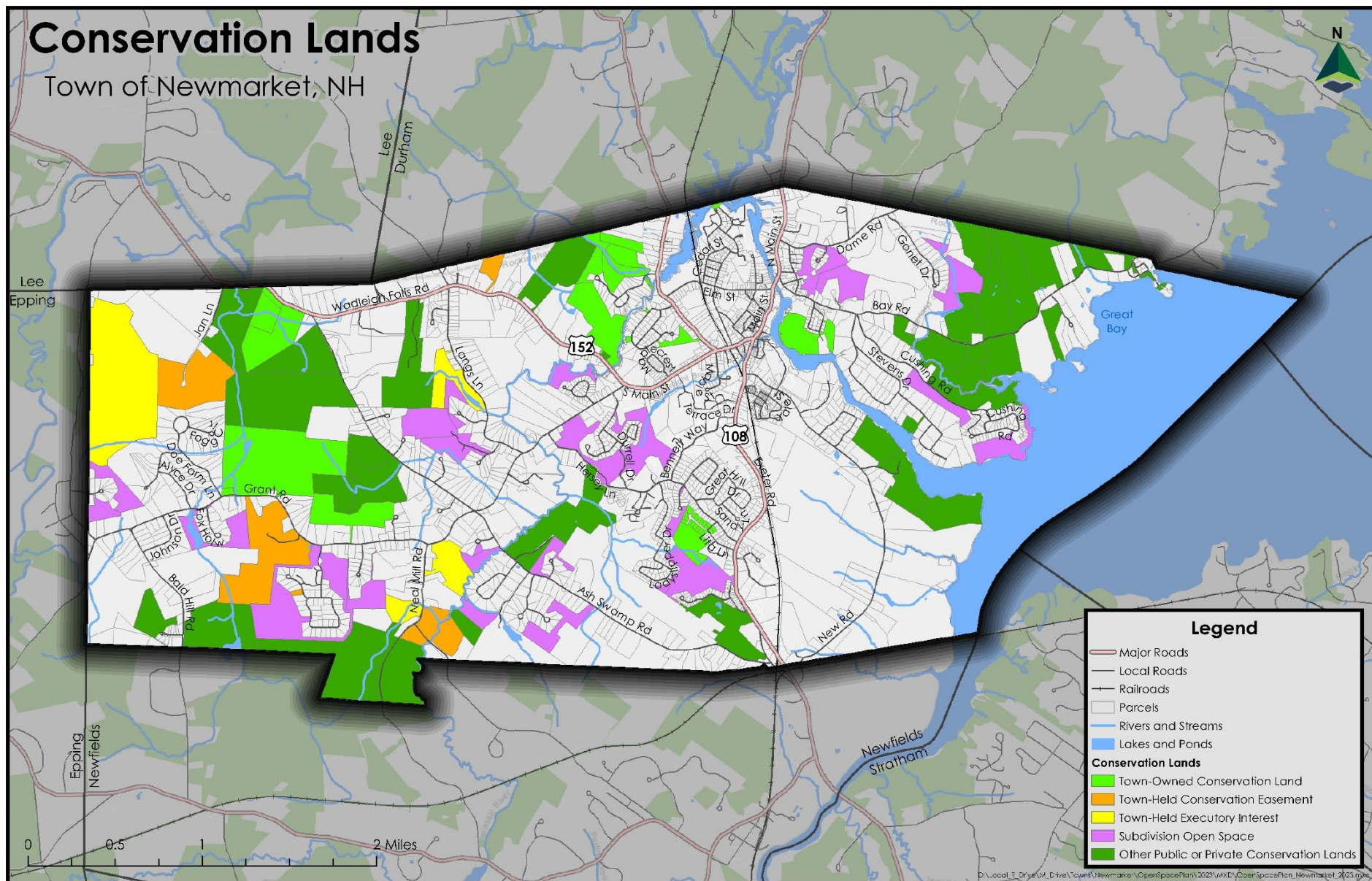


Figure 10: Conservation Lands by Ownership Type

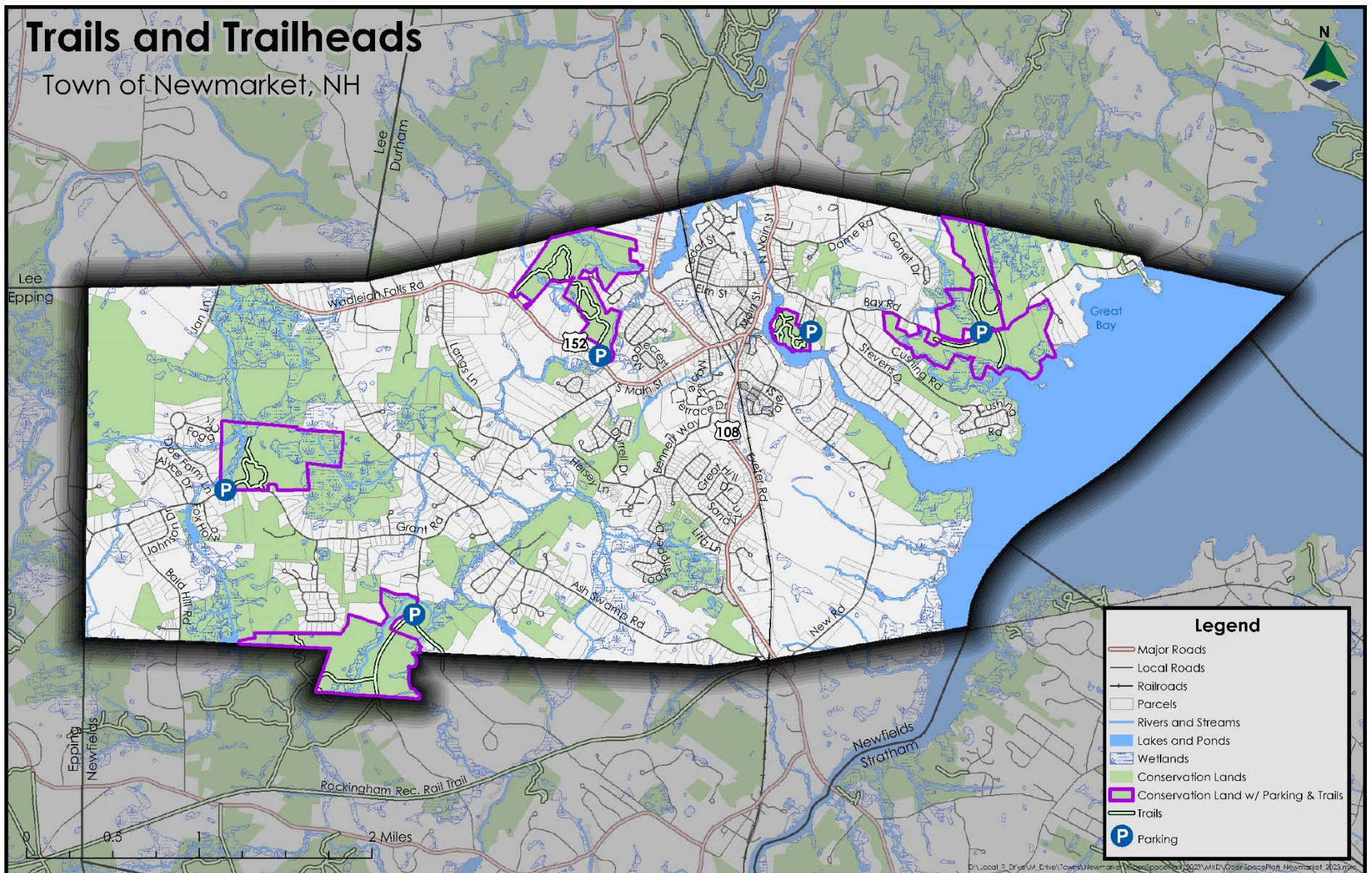


Figure 11: Trails, Trailheads, and Parking Locations within Newmarket's Conservation Areas

Town Funding Sources

The Conservation Fund

The Conservation Fund is a specific fund authorized by RSA 36-A; it is non-lapsing and can accumulate from year to year. This enables the Conservation Commission to plan for projects such as the acquisition of land, building of trails and associated infrastructure, educational programs, and other stewardship-related projects. For most expenditures, the Conservation Commission spends the money by a majority vote of the Commission at its public meetings. Prior to using these funds for the purchase of any interest in real property, the Conservation Commission must hold a public hearing and the Town Council must approve the acquisition. The Conservation Fund can hold public and private funds from different sources. The primary source of funding since its approval in 1989 has been 50% of the Land Use Change Tax (LUCT). This is money paid to the municipality when land that was enrolled in the Current Use assessment program is removed from current use to be developed. From 2003 to 2023, \$405,562 was deposited into the Conservation Fund from the LUCT. With less land in current use, the amount of LUCT deposited into the Conservation Fund in the next 10 years will be much less than in past decades.

Richard Schanda Park Fund

In 2020, the Masonic Lodge contributed \$4,000 to the Richard Schanda Fund, which the Conservation Commission uses to help steward Schanda Park, located near the boat landing on the Lamprey River.

General Fund Allocation

The Conservation Commission receives an annual appropriation from the General Fund that is included in the annual town budget, which is approved at the March Town Meeting. These funds are used for operating expenses such as part-time salary for the recording secretary, annual dues to the NH Association of Conservation Commissions, contracts for easement monitoring, and miscellaneous supplies. In recent years, the annual appropriation has been approximately \$4,500.

At the 2009 Newmarket Town Meeting, voters passed a warrant article that "...adopts the provisions of RSA 36-A: 4-a, I (b) allowing the Conservation Commission to expend funds for contributions to qualified organizations (such as land trusts) for the purchase of property interests, or facilitating transactions related to thereto, where the property interest is to be held by

the qualified organization and the town will retain no interest in the property.” At the same town meeting, voters did not approve provisions related to RSA 36-A: 4-a, I (a), which would have authorized the Conservation Commission to expend funds to purchase interest in land outside the boundaries of Newmarket.

In 2002, the residents of Newmarket passed a \$2 million Land Acquisition Bond, which has been used to protect several significant parcels in Town, including the Wiggin Farm, Nostrom Farm, Piscassic River-Loiselle, Hilton Tree Farm, among others.

Drinking Water Protection Fund

Newmarket voters, through warrant article, initially established this as an Aquifer Protection Easement Fund in 1999, approving allocations to this fund in 1999, 2000 and 2001. In 2003 voters approved enhancing the purpose of the aquifer fund to include fee simple acquisitions as well as easements and to include potential surface water sources. Most of this fund was expanded for conservation easement along the Piscassic River (a potential drinking water source), although additional allocations could be made to this fund through future warrant articles.

Conservation Tools

Municipalities have a range of tools and options available to conserve important open spaces. These include voluntary tools such as land protection and education, and regulatory measures such as overlay districts in the zoning ordinance that protect key features such as wetlands and floodplains. Some of these measures (e.g., land acquisition) depend on funding, whereas others require no financial outlays by the community. Most importantly, towns (and landowners) have access to many conservation partners to assist with all options, including state and federal funding sources, technical assistance, educational programs, and more.

We describe a suite of such tools that have been used successfully in Newmarket, in the areas of land conservation, land use planning, education, and land stewardship.

Land Conservation

Fee Ownership

Newmarket has a diversity of town-owned conservation areas that range in size from small pocket parks (less than 1 acre) near downtown to the 160-acre Wiggin Farm Conservation Area on the west side of town. The Town of Newmarket has full ownership of these lands (called “fee simple” ownership). These lands were acquired through a variety of methods that include town bond and conservation funds (land use change tax), state and federal grants, conservation partner contributions, tax liens, and other sources. Each offers different opportunities for public use based on size, location, natural features, purpose, and source of conservation funds. Some areas were acquired to protect specific resources such as drinking water or wetlands and some were acquired to provide public access to Great Bay or the Lamprey River. The Town owns these lands, and the Conservation Commission is responsible for overseeing their stewardship and managing of public uses, in partnership with Town Department of Public Works. See Appendix B for details about these fee-owned parcels.

The town holds many other special places that are while are not conservation areas, they are valued open spaces for residents and visitors to enjoy. The new Willey House Central Park is a new arts centric pocket park created by the Newmarket Arts, Culture and Tourism Commission with funds from the town, local organizations and a grant from the State Arts Council. The park will feature a “Welcome to Newmarket” mural and celebrate its location on the Lamprey River and mill history. Schoppmeyer Memorial Park, on the banks of the Lamprey River provides 3 acres of green space, a boat launch, and on-site kayak rentals from the Newmarket Recreation Department. The park was purchased with funding from the Lamprey River Advisory Committee (LRAC). The Newmarket Community Garden received a small grant from the Grass Roots Fund in 2009 to improve garden infrastructure and its 33 plots.

These unique and cherished locations across Newmarket also the Riverwalk and Town Landing, Riverside Cemetery, Piscassic and Lamprey Rivers, Piscassic Boat Launch and surroundings, Great Hill Trails, Elm Street playground, Aqua Land Splash Pad, benches along Main Street, and many ballfields and trails. Explore Newmarket’s recreation sites through the SRPC [Promoting Outdoor Play](#) interactive viewer.

Conservation Easements

A landowner has a bundle of rights to use and modify the property that they own. A conservation easement is a legal agreement between a landowner and a conservation organization, agency, or municipality that transfers some of these rights (typically the “development rights”) to the organization that holds the easement. Typically, a conservation easement is granted in perpetuity and therefore the development rights are extinguished forever, preserving the land as open space. The easement conveyed through a deed, applies to the land regardless of who may own it in the future.

Land under easement is still privately owned and managed in accordance with the terms of the easement. (Some publicly owned lands also have easements held by another entity.) Each easement is crafted to fit the features of the property to be protected, the needs of the landowners, and the goals of the entity accepting the easement. Easements are used to provide permanent protection from subdivision or other development or uses that could degrade or destroy ecological, scenic, or other natural resources. Easements often provide for continued farming, forestry, wildlife management, and recreation. Easements don’t always require public access; although often landowners allow this access, and some grant sources require public access as part of funding a conservation easement project.

A landowner who conveys a conservation easement is the grantor and the recipient organization is the grantee. Easements can be donated or sold for full or partial value. The easement document outlines the procedures for enforcing the easement, which typically lie with the grantee. In some transactions, another organization is given “back-up” or Executory Interest in the easement in case the grantee is unable to carry out its easement responsibilities. A Third Party Right of Enforcement is another instrument that can be used to provide some level of “interest” in the land being put into conservation. In addition to these conservation easements, some landowners and developers of subdivisions convey easements to the Town that provide some protection to natural features on the property. The provisions in these easements are usually driven more by the landowner’s interests than those of the grantee (e.g., Town or conservation organization).

The Conservation Commission helps oversee the annual monitoring of seven Conservation Easements held by the Town. The State of New Hampshire monitors two Town conservation areas over which they hold easements: Wiggins Farm and Dearborn Conservation Areas. The Town of Newmarket also holds Executory Interests on four conservation properties. See Appendix B for details about properties with conservation easements or executory interests.

Zoning Ordinance Protections

There are a variety of land use planning tools that can be used to both acquire and protect natural resources. These typically are designed as zoning overlay districts that may apply town wide or to select areas. A zoning overlay district is a zone that imposes additional restrictions to the underlying district. Newmarket has chosen to apply overlay zones in specific areas that need additional protection to protect the public health and welfare as well as town resources. The following overlay districts and open space subdivision ordinance have been established to protect our natural resources.

Open Space Subdivisions

The Newmarket Zoning Ordinance includes [Article 6: Residential Open Space Design Development by Special Use Permit](#). The intent of this provision is to allow an alternative residential development option that preserves larger areas of open space than conventional subdivisions. The open space design subdivisions are currently allowed in zoning districts R1, R2, and M-4 and require a special use permit. The open space must be designated as such on the approved and recorded subdivision plan. More than 510 acres have been designated as open space associated with these subdivisions. Most of these lands are owned by a homeowner's association and are only open to the residents of that subdivision. See Appendix B for details about the existing subdivisions with open space.

Aquifer Protection Overlay District

The [Aquifer Protection Overlay District](#) adds a layer of protection for groundwater supplies and recharge areas critical to drinking water supplies. The ordinance operates by restricting uses and the intensity of development that could introduce harmful contaminants into groundwater supplies. While the overlay district does not create or set aside open space land, it does ensure natural resources are protected for public benefit. The aquifer protection area includes all land identified as stratified drift aquifer near Newmarket Plains (along NH Route 152, Lee Hook Road, Langs Lane, and Ash Swamp Road) as well as designated wellhead protection areas.

Shoreland Protection Overlay District

The companion to the Aquifer Protection Overlay District, the [Shoreland Protection Overlay District](#), aims to conserve and protect surface water quality. Newmarket, home to the Great Bay, Lamprey and Piscassic Rivers, and other water bodies,

adopted this overlay district to reduce pollution, prevent degradation, and protect fisheries, among other water resource protection goals. It also aims to ensure the surrounding land uses are complementary to the water's health, by maintaining and improving adjacent forests, habitat, and buffers. The ordinance applies to all tidal waters of Great Bay, the Lamprey River and Lubberland Creek, the non-tidal portion of the Lamprey River, the impoundment above the Macallen Dam, and the Piscassic River. To create these protections, primary structures must be at least 125' away from the shoreline and uses such as salt storage sheds, junkyards, and hazardous waste facilities, and chemicals are prohibited within 250' of the shoreline.

Wetland Protection Overlay District

Wetlands provide a host of ecological and water resource benefits, natural beauty, and recreation opportunities for the community. They help to filter contaminants before they reach water supplies, retain water during floods, and prevent shoreline erosion from stormwater. The [Wetland Protection Overlay District](#) sets no-disturbance buffers around wetlands and poorly drained soils with a goal of protecting their many functions and qualities. These buffers range from 25 to 100 feet for buildings and an additional distance for septic systems.

Class A Watershed Protection Overlay District

This [overlay district](#) originally adopted in 1996 and last updated in 2017, requires septic systems to be set back 150 feet from the Piscassic River and Follett's Brook, protecting these Class A surface waters.

Steep Slope Protection Overlay District

The [Steep Slope Protection Overlay District](#) requires additional protections be put in place prior to construction where slopes are equal to or in excess of 25 percent to minimize erosion and runoff that could be exacerbated by disturbance. Construction of new roads is also discouraged on steep slopes.

Floodplain Protection Overlay District

The [Floodplain Protection Overlay District](#), safeguards floodplains from development that could "aggravate flooding," residents from building in high risk areas that could require emergency rescue during a flood, and maintains wildlife habitats.

Newmarket's ordinance exceeds the minimum requirements of the National Flood Insurance Program. Throughout most all of Newmarket, new buildings or expansions to existing buildings may not occur within the floodplain, protecting these valuable lands. The exception is within the M-1 or M-2 zoning districts, the mills and downtown, where construction must be "floodproofed" and approved by the town's building official.

Transfer Development Rights

This innovative zoning tool can be used to generate conservation funds, protect natural resources and balance the need for conservation and development. A Transfer of Development Rights (TDR) Ordinance works by selling development rights in a "sending zone" or area designated for protection to a "receiving zone" where development is preferred. Locally, Dover, NH has a TDR that could serve as a model for Newmarket. Dover has designated zones where development is better suited and those where there are sensitive natural resources ideal for conservation. Developers can either directly conserve land in these "sending zones" or they may purchase credits in exchange for increased density allowances in the "receiving zones." This latter option is used as a funding mechanism for the Conservation Commission to make strategic land purchases in support of their open space goals.

Subdivision and Site Plan Review Standards

In addition to Zoning Ordinances provisions and Transfer of Development Rights, municipalities have a third land use tool to encourage private development of recreation and open space. State Statute, RSA 674:36 provides the framework for subdivision regulations. Through this mechanism planning boards can adopt regulations that call for open spaces, parks, and playgrounds that fit within a larger development proposal. RSA 674:44 that governs site plan review regulations is not as specific and therefore planning boards are limited to providing open spaces that meet needs for the health, safety, convenience, and prosperity of the community.

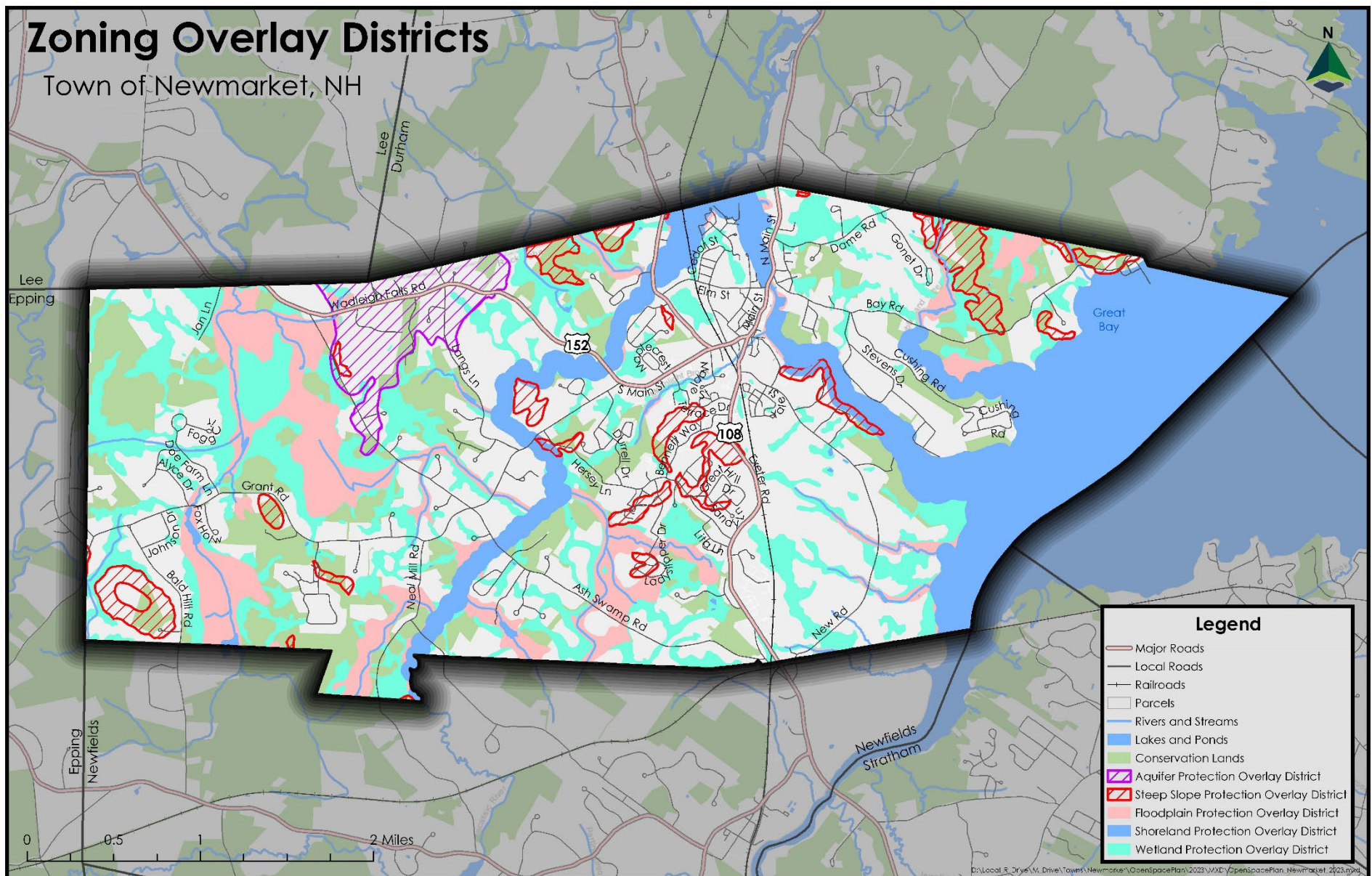


Figure 12: Aquifer, Steep Slopes, Floodplain, Shoreland, and Wetland Protection Zoning Overlay Districts

Education

Educational programs on conservation and environmental topics are important and helpful in sharing information, building support, receiving input, and engaging volunteers in Newmarket's open space conservation goals. Most people support conservation and might be interested in volunteering their time or doing things differently if they knew what to do. Inviting residents to learn about the natural features, conservation lands, public trails, and other conservation efforts is important in building an ecologically and economically sustainable community.

Newmarket is fortunate in having multiple ways for people to learn about our open spaces and conservation. All monthly meetings of town boards and commissions are broadcast live and can be viewed later. A weekly electronic newsletter offers space to highlight events, news, and other helpful tips and information about current issues and activities. We host workshops and field trips and invite guest speakers to monthly meetings. Larger community events—such as the Backyard Bash and OysterFest—provide opportunities to reach people of all ages. The Conservation Commission webpages include information on town conservation areas, trails, and other open space and related environmental information.

Land Stewardship

The Newmarket Conservation Commission and Department of Public Lands steward the town conservation areas with the help of volunteers. This includes managing habitats (e.g., mowing fields, controlling invasive plants), maintaining trails, installing welcome kiosks, creating interpretive signage, caring for parking areas, and other maintenance. We encourage people to access and enjoy Town conservation areas. As more people seek to get outside, it is important to care for these lands for the benefit of nature, to keep them safe and accessible for visitors.

Newmarket continues to benefit from volunteers and conservation partners. Local Scout Troops have helped build and re-route trails and install signs, benches, and other infrastructure. Residents from Newmarket and neighboring towns have participated in volunteer stewardship workdays to clean up trails, parking areas, and roadsides, repair bridges, and related projects. Recently we've partnered with the Newmarket High School as part of Newmarket Cares Day to spend a morning fixing up town conservation areas. The UNH Nature Groupie program has provided summer interns, an online calendar for posting volunteer workdays, and a stewardship toolshed where we can borrow hand tools for our volunteer workdays. Newmarket DPW and the Conservation Commission work closely on stewardship-related tasks as needed.

Newmarket's Conservation Fund, Schanda Park Fund, and General Fund have been used to fund various land stewardship projects on town lands. We have also benefited greatly from a partnership with the Lamprey River Advisory Committee (LRAC), which has funded several projects including kiosks and interpretive signs at Schanda Park, Heron Point Sanctuary, Sliding Rock, and Wiggin Farm. The NH Fish and Game Small Grants Program has helped with stewardship on the Wiggin Farm Conservation Area.

Conservation Focus Areas -- 2024

Coastal Watershed Conservation Plan

The [2021 Coastal Watershed Conservation Plan](#) produced by The Nature Conservancy, identified priority conservation focus areas for all the towns in the coastal watershed. The Plan utilized several spatial datasets from existing state and regional plans, representing the following categories: wildlife and habitat, water resources, climate adaptation, and agricultural resources. Thus, the resulting recommendations represent a comprehensive regional vision for a balanced network of conservation focus areas that seeks to protect natural systems and create resilient communities, recognizing that a coordinated regional approach is necessary to protect ecosystems and associated habitats that cross political boundaries. The Plan also considered the need for economic development and growth across the watershed, integrating this delicate balance into its results. Figure 14 shows the Coastal Conservation Plan Focus Areas for Newmarket.



Figure 13: Conservation Commission members work with volunteers to improve trail access at Wiggin Farm

Photo by Ellen Snyder

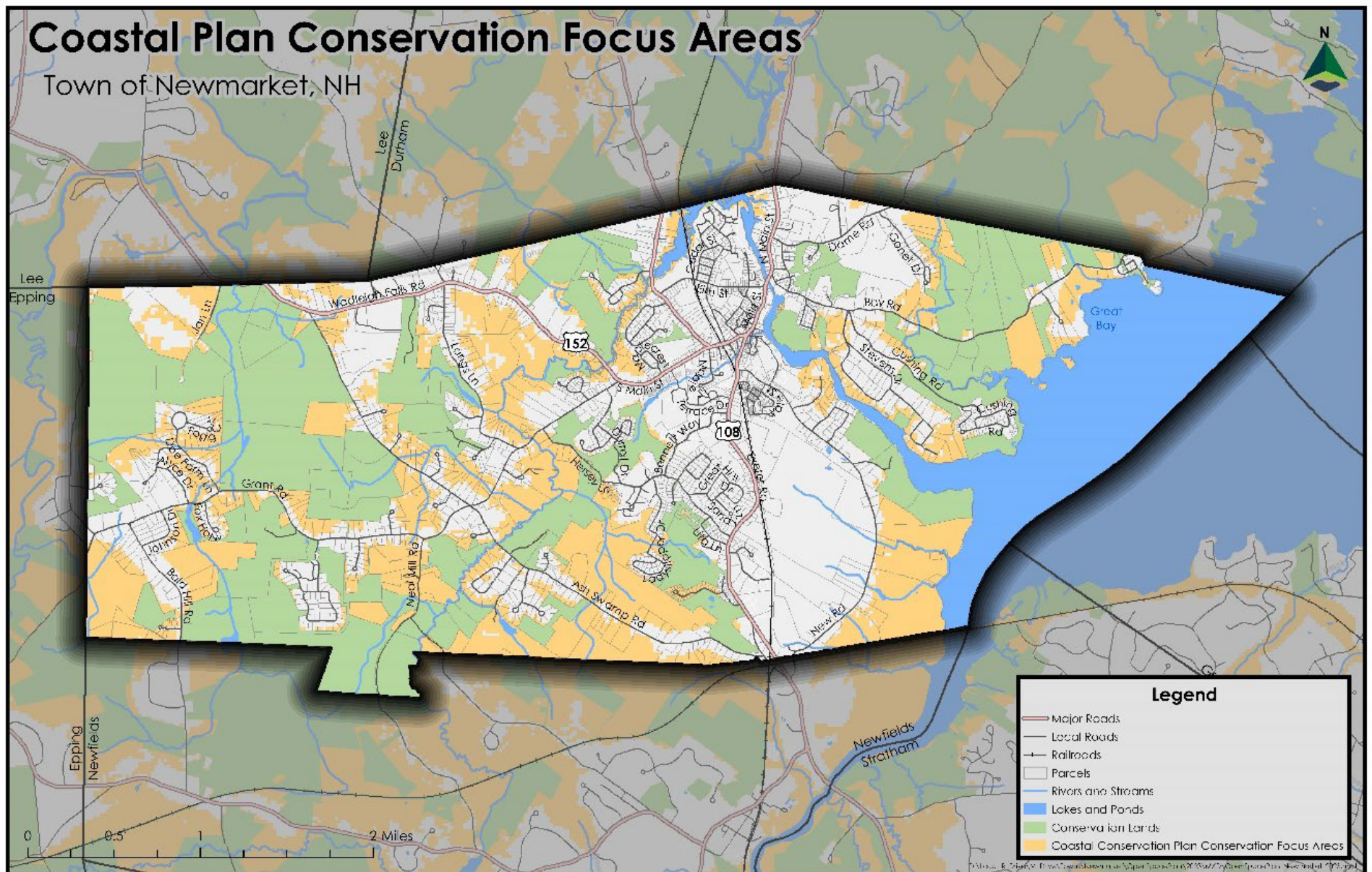


Figure 14: Conservation Focus Areas, NH's 2021 Coastal Conservation Plan, The Nature Conservancy

Cooccurrence Mapping

Similar to the Watershed Conservation Plan, the co-occurrence mapping analysis identified locations where several natural resources were present. In the following maps, the darker the color gradients indicate resource rich areas. Two different analyses were prepared to help identify high value natural resource (Figure 15) and drinking water areas. Each incorporates the following resources:

Land Resources

- Agricultural Lands
- Forest Lands
- Conservation Lands
- Conservation Focus Areas
- Farmland Soils
- Flood Zones
- Poorly Drained Soils
- Wetlands
- Prime Wetlands
- Prioritized Habitat Blocks
- Wildlife Corridors
- Rivers and Streams
- Waterbodies
- Unfragmented Lands
- Wildlife Action Plan Habitat Tiers

Water Resources

- Rivers and Streams
- Waterbodies
- Wetlands
- Prime Wetlands
- Designated Rivers
- Groundwater Reclassified Areas
- Source Water Protection Areas
- Stratified Drift Aquifers
- Wellhead Protection Areas
- Flood Zones
- Shoreland Protection Areas

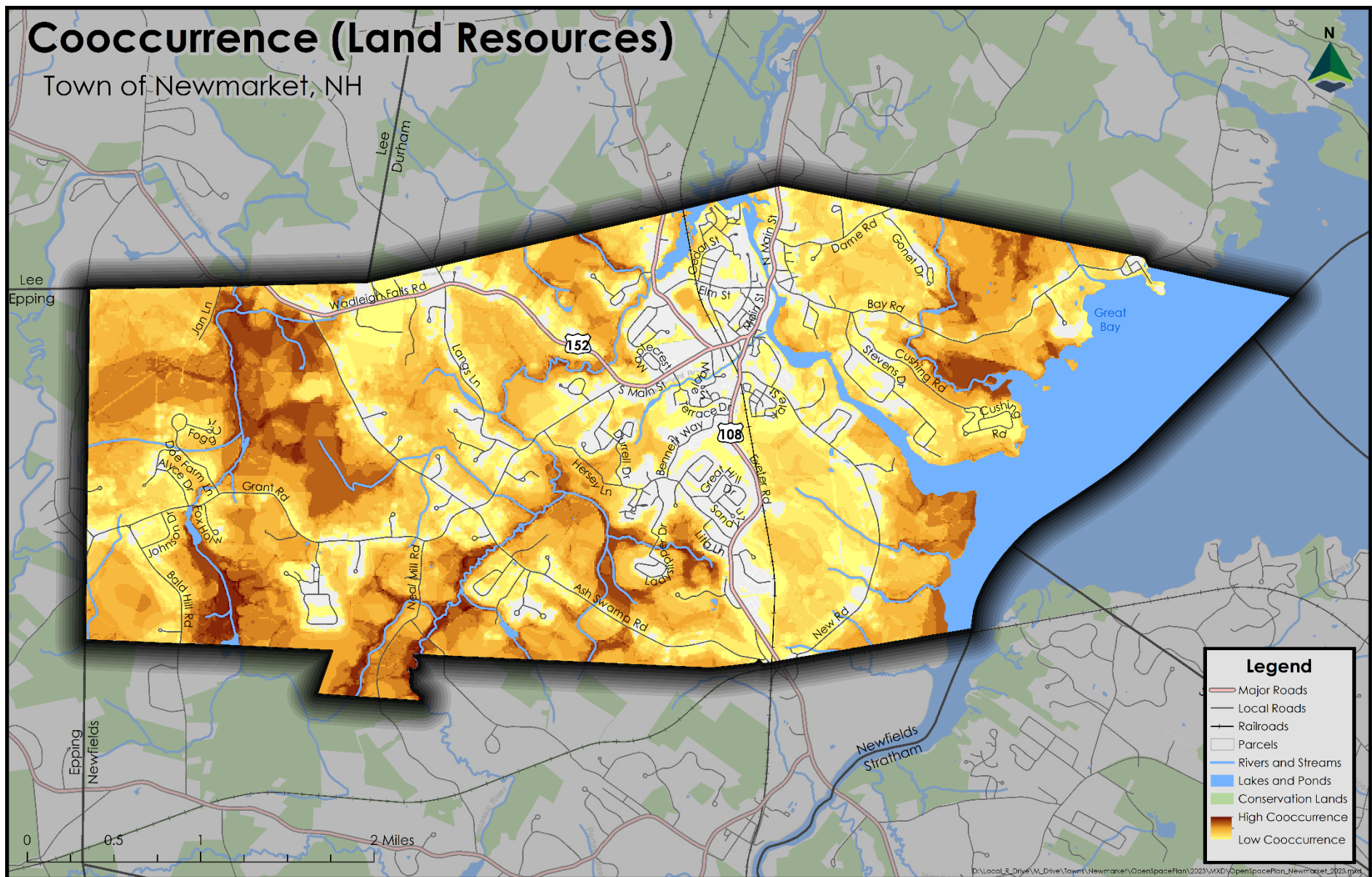


Figure 15: Cooccurrence of Natural Resources

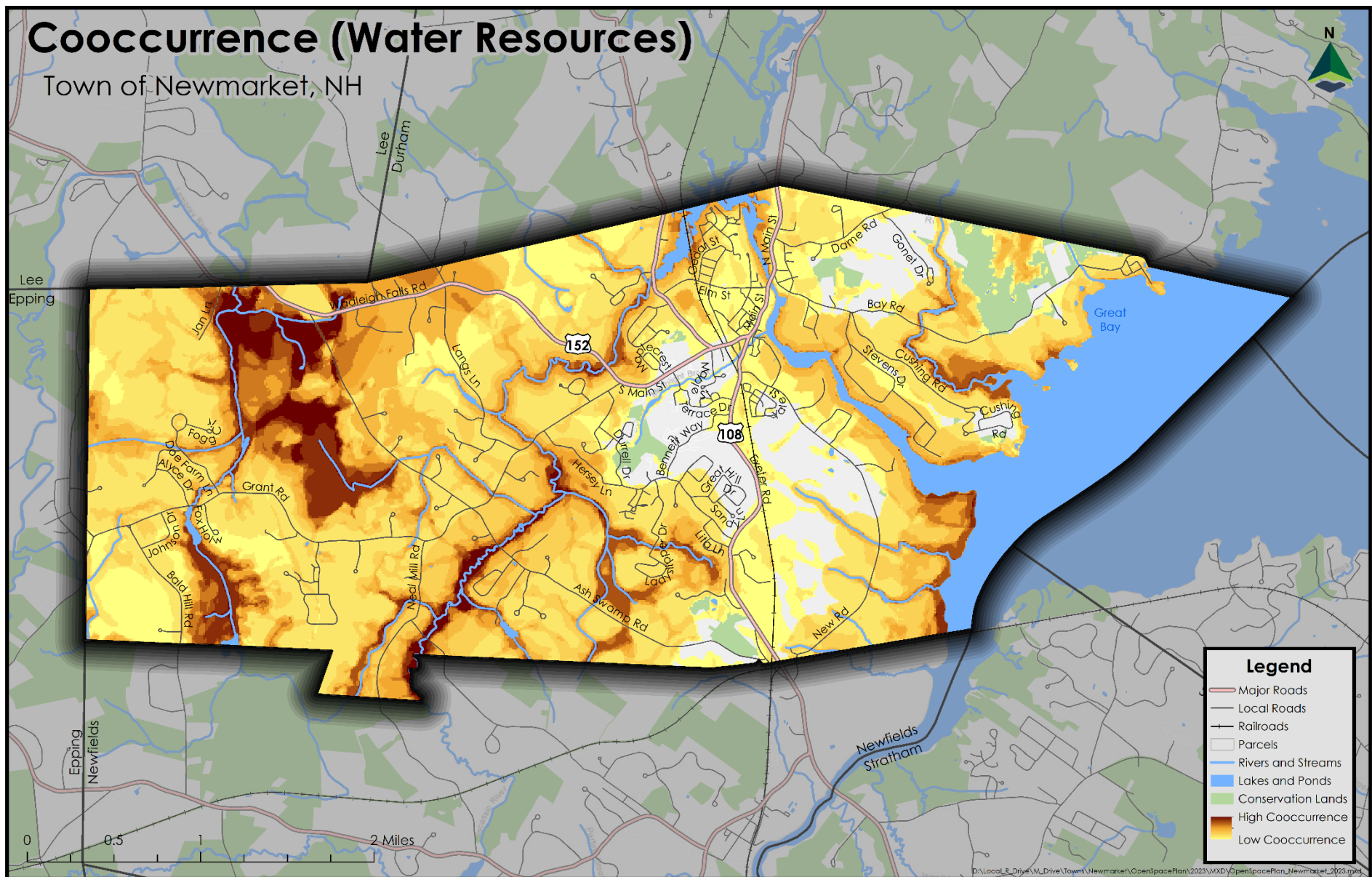


Figure 16: Cooccurrence of Water Resources

The Benefits of Open Space

There are many reasons for our community to continue to work with interested landowners and conservation partners to protect important natural places. These include:

- **Recreation and Health:** Exposure to nature reduces stress, anxiety, and depression. Spending time in the outdoors—hiking, birding, snowshoeing, running, dog-walking, or other ways to enjoy natural places—improves our mental and physical health. Conserved lands such as Wiggin Farm offer places for respite and relaxation. Public and private conservation lands in Newmarket offer trails for outdoor enthusiasts including the Sweet Trail, Piscassic Greenway, Follet's Brook, Wiggin Farm.
- **Clean Drinking Water:** Every resident in Newmarket depends on groundwater for their drinking water supply. The Town maintains four municipal wells serving approximately 50 percent of Newmarket's residents. Spanning approximately 410 acres, the Town's most productive groundwater resource and primary drinking water source is a stratified drift aquifer known as the Newmarket Plains Aquifer. The remainder of the town relies on private wells or small community wells. Land uses on the surface impacts our ability to protect the quality and safety of our drinking water. Conserving land around the municipal wells and over aquifers throughout town is still one of the best strategies for protecting current and future water supplies.
- **Flood Control and Storage:** Maintaining natural areas, especially wetlands and floodplains, helps absorb flood waters and slow the release of water to minimize excessive runoff. Several conservation areas, with frontage along rivers or encompassing large wetlands, are especially critical for flood storage: Piscassic River-Loiselle Conservation Area and the Silverman-Schneer Conservation Easements along the Piscassic River and the Wiggin Farm Conservation Area at Tuttle Swamp.
- **Minimizes Impervious Surfaces:** Development Increases the amount of impervious surfaces (rooftops, sidewalks, roads, and parking lots), contributing to higher volumes and rates of stormwater runoff. Currently, Newmarket has 599.95 acres or 6.61% of the Town covered by impervious surfaces; natural systems begin to degrade at 10% impervious. The increased flows from impervious surfaces can carry excess nutrients, heavy metals, oils, and other pollutants into our waterways. Increased runoff also exacerbates sedimentation and erosion. Green spaces--

including natural riverfronts, in-town parks and gardens, and larger conservation areas—integrated into developed spaces, helps minimize the impact of developed spaces.

- **Habitat and Connectivity for Plants and Animals:** Large tracts of habitat, unbroken by roads, houses, or other development, are becoming increasingly rare in southeastern New Hampshire. In the larger blocks with a diversity of interconnected woods and wetlands provides secure travel corridors for wide-ranging wildlife such as bobcat, fisher, bear, and moose. Songbirds, small mammals, and other wildlife are less susceptible to mid-sized predators that do well in human landscapes, including fox, raccoon, skunk, and domestic cats. Fewer fragmenting roads also means fewer road-killed snakes, turtles, small mammals, and deer. Newmarket's remaining large tracts still harbor some rare plants and unusual plant communities.
- **Healthy Forests:** Forests offer shade and cooler temperatures for people in the heat of summer, [combating the urban heat island effect](#), and provide similar benefits to aquatic life. Forests provide lumber, firewood, and other products; offer watershed protection by purifying air and water and preventing erosion; serve as carbon sinks, critical in efforts to confront the impacts of anthropogenic climate change.
- **Local Food:** People are interested in buying or growing fresh, local foods. Farmstands, community gardens, community-supported agriculture (CSAs), and farmers markets all depend on local or regional open space. Conserving lands with good farm soils and farming opportunities provides many of the other benefits listed here.
- **Coastal Resilience:** Relative sea level (RSL) is rising in coastal New Hampshire. Tide gauges off the coast indicate relative sea level in southern New Hampshire rose 8 inches from 1912 to 2018, and this trend is expected to continue. Coastal and inland impacts from storm surge will increase with relative sea level rise. As extreme weather events increase in frequency and intensity, storm surge will also increase, causing rising groundwater levels and the potential for saltwater intrusion. Protecting our salt marshes along Great Bay, as well as the ability for salt marsh migration, builds coastal resiliency in our community.

Our Priority Conservation Areas

As presented in the NH Coastal Watershed Conservation Plan Focus Area Map for Newmarket (Figure 14), many areas of ecological significance remain unprotected from future development or other land use changes. This is a testament to both the biologically rich Newmarket landscape and water supplies, and that many landowners have continued to steward their land as open space. As development pressure continues apace, the Conservation Commission identified five focus areas that warrant dedicated efforts to ensure that they continue to provide the benefits critical to Newmarket's sustainability and economic and environmental health. These five regions encompass areas identified in the Coastal Plan and all support significant wildlife habitat values as shown in the NH Wildlife Action Plan Map (Figure 1) and vital drinking water resources. Of paramount importance in seeking opportunities to conserve additional lands within these focus areas, is the willingness and interest among landowners within these areas in partnering on conservation options.

Bald Hill Region

Bald Hill, at 276 feet, is the highest point in Newmarket. Located in the southwest corner of Town, the Bald Hill region hosts upland forests, hayfields, large wetlands that flow toward Tuttle Swamp, important wildlife corridors, connectivity to other conserved lands, and habitat for hundreds of rare and common animals and plants. Successful land conservation projects have been completed—with more ongoing—through partnerships with landowners, the Southeast Land Trust, NH Fish and Game, and the Town of Newmarket, among other funding entities. Bald Hill Road is one of the most scenic drives in this area and it is popular with runners, cyclists, dog-walkers, and others that enjoy the scenic backdrop of forests and fields.

Ash Swamp Road East

A large wetland system and tributary to the Piscassic River is located on either side of Ash Swamp Road between Grant Road and Route 108. This ecologically significant area extends into Newfields. It supports populations of rare and common turtles, among other wildlife. The connectivity along this tributary is severed by Ash Swamp Road, leading to significant mortality of turtles annually. The Newmarket Conservation Commission, Public Works and Engineering, and Planning Department are collaborating with NH Fish and Game to implement an improvement aquatic passage that would provide a safer crossing for wildlife, including the turtles. Conserving the lands and waters in this region with interested landowners would complement the efforts to create a better road/wetland interface.

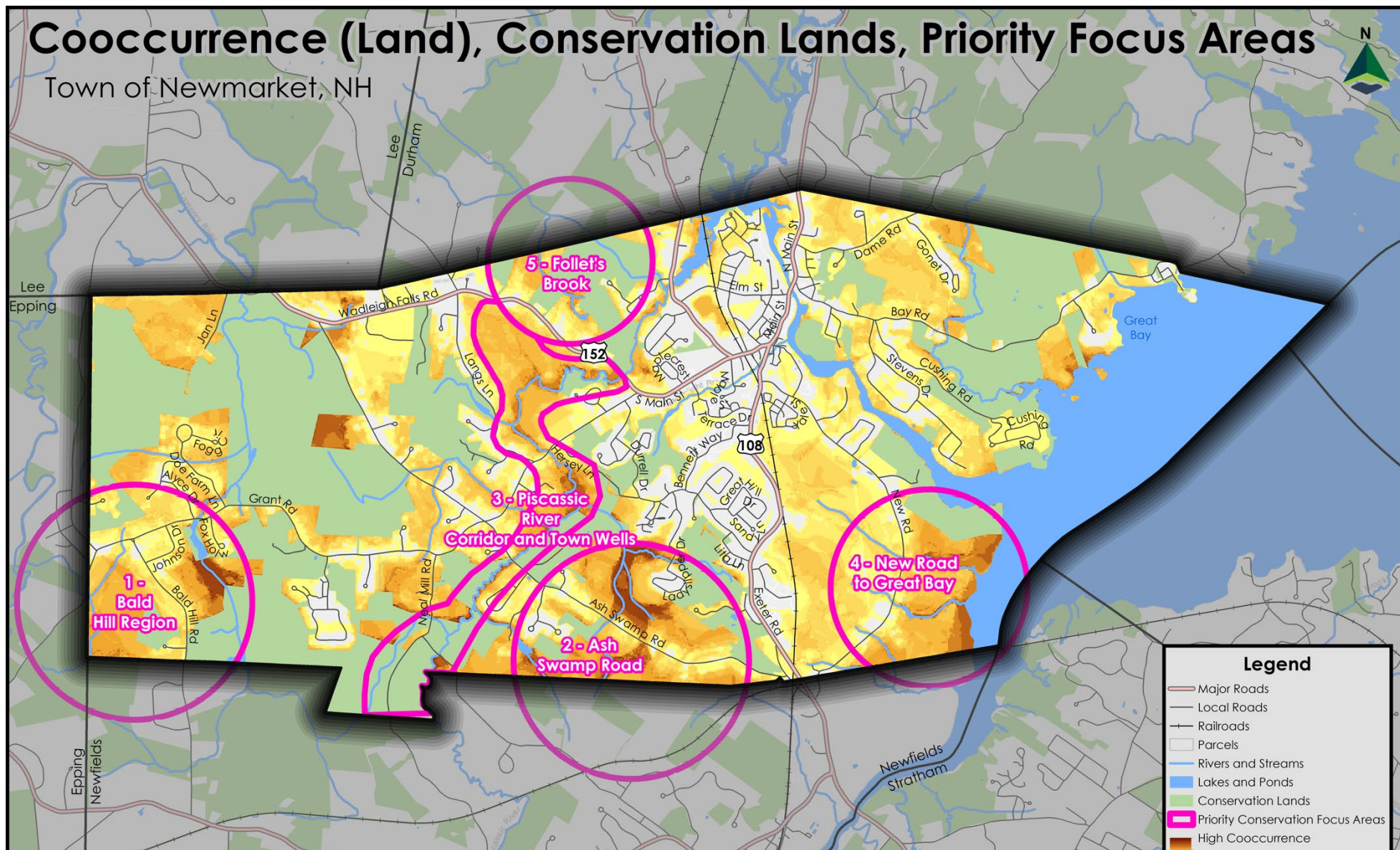


Figure 17: Priority Areas, Land Resources Cooccurrence Conservation Land

New Road to Great Bay

The Great Bay Estuary is nationally recognized and designated as the Great Bay National Estuarine Research Reserve. The region of Newmarket between New Road and the Bay is still one of the largest blocks of undeveloped land in Town and on the Bay. It also harbors the largest contiguous stretch of salt marsh in Newmarket and offers opportunities for salt marsh migration landward as sea levels rise. This area connects ecologically with conserved lands located across the Squamscott River and Great Bay in Stratham. Several unnamed tributaries flow under New Road and into the Bay, highlighting the importance of protecting the ecological health of these small streams to protect the health of the Bay.

Piscassic River Corridor and Town Wells

The Piscassic River is the largest tributary that flows into the Lamprey River and the lower portion of the watershed is entirely within Newmarket except at the point where it flows into the Lamprey in Durham. The Southeast Land Trust and the Town of Newmarket have protected significant Piscassic River frontage and associated riparian areas and floodplains in the Neal Mill Road region of Newmarket. The entire river corridor is important for protecting water quality, easing floodwaters, preventing runoff and erosion, maintaining wildlife connectivity, maintaining water temperatures and habitat for aquatic life. The river corridor and intersecting large blocks of undeveloped land also help protect Newmarket municipal wells.

Follett's Brook

Follett's Brook flows southeasterly from Durham and joins up with the Piscassic River just above the Packers Falls Road dam. The lower third of Follett's Brook watershed is within Newmarket. Prior to 1990, this brook was the principal municipal water supply source with treatment provided at the Packers Falls Road Water Treatment Plant. In the 1990s, Newmarket ceased withdrawing from Follett's Brook and now relies entirely on groundwater wells for public drinking water. Follett's Brook remains a largely intact waterway with significant natural buffers and much of the watershed in Durham and Newmarket is conserved. Several critical parcels, if conserved, would provide additional protection to the water and wildlife in this watershed. Additionally, the Conservation Commission is evaluating opportunities to create trail connectivity between Newmarket and Durham through this region.

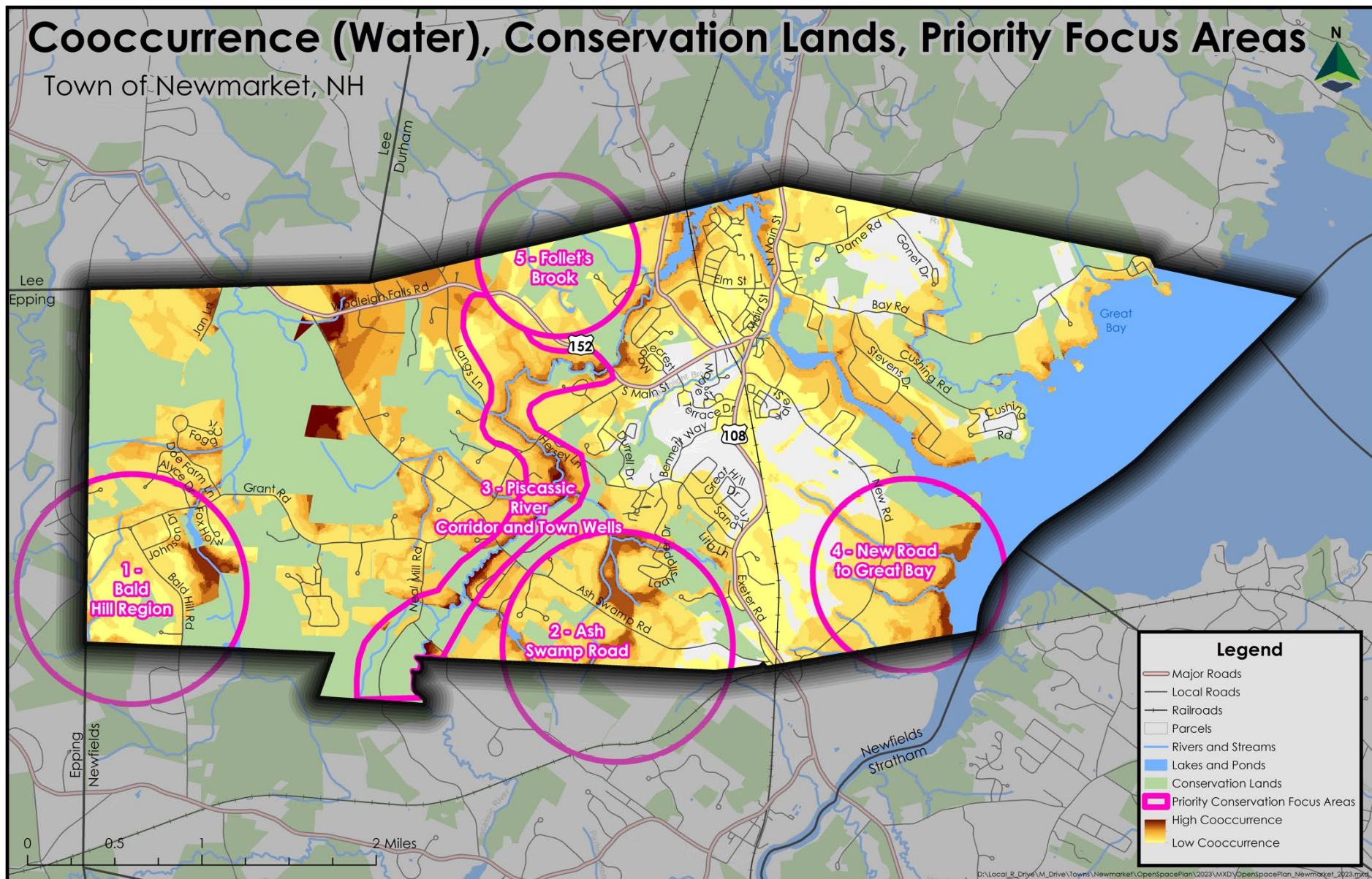


Figure 18: Priority Areas, Water Resources Cooccurrence Conservation Land

Newmarket Plains Aquifer

One area of Town not included in one of the five focus areas above is the Newmarket Plains Aquifer. This area includes the Municipal Bennett Well and the Sand and Gravel Operations in the Route 152 northwest region of Newmarket. This is a major gateway to Town and although town sewer and water don't currently reach that far, this area will likely be a prime development area in the future. Given its location over Newmarket's largest aquifer and proximity to the ecologically significant Tuttle Swamp ecosystem and the Lamprey River, this area will require careful and creative development. The Aquifer Overlay District affords some protections to this sensitive area. Additional attention to incorporating green space, trail connectivity, water quality protection, and other measures is warranted for this area.

Land and Water Conservation Goals and Actions

Key components in this Open Space Plan will be incorporated into the Land and Water Conservation Chapter as part of the Master Plan Update. The Master Plan includes an Implementation Guide that describes goals, actions, timeline, responsible party, partners, and potential funding sources as needed. The goals and actions related to land and water conservation are summarized below and relate to the information presented in the above sections.

Protect Drinking Water

- Educate community members on ways to protect drinking water sources and source water protection areas from harmful land uses and contamination.
- Utilize innovative use planning and conservation tools to provide additional protection to the Aquifer Overlay District and Wellhead Protection Areas.

Protect Surface Waters and Wetlands

- Restore the water quality and natural conditions (where feasible) of Moonlight Brook. Utilize living shoreline and other green infrastructure to the maximum extent practicable.
- Maintain, and restore where needed, natural buffer areas along the Lamprey and Piscassic Rivers, Follett's Brook, Lumberland Creek, and other unnamed tributaries.
- Protect freshwater wetlands including buffers and floodplains using land use planning tools such as the Wetlands and Floodplain Overlay Districts and educational materials and outreach.
- Update Newmarket's prime wetlands maps and maintain a higher degree of protection on prime wetlands.
- Protect salt marsh along Great Bay and explore opportunities for salt marsh migration amid sea-level rise.
- Maintain involvement in committees related to the Wild & Scenic Lamprey River and its Watershed.
- Work with surrounding towns to update maps of vernal pools.

Restore Aquatic Passage and Stream Connectivity

- Building on the success of the Lubberland Creek culvert upgrade on Bay Road, collaborate among Town Departments and Boards and conservation partners, to improve stream crossings and restore aquatic connectivity where needed throughout Newmarket.
- Use the NH Aquatic Restoration Mapper to assess all road crossings/culverts and town roads. Set priorities for restoring/upgrading aquatic passage.
- Create safe turtle crossings by improving stream flow and passage at Ash Swamp Road by replacing existing culverts, adding fencing, and other infrastructure including highway speed slowing techniques.

Protect and Connect Priority Lands

- Dedicate 100% of the Land Use Change Tax (LUCT) to the Conservation Fund.
- Work with interested landowners and conservation partners to conserve the lands and waters within the Newmarket Priority Conservation Focus Areas.
- Protect habitat corridors and enhance connectivity of open spaces and priority lands across Newmarket and abutting municipalities.
- Utilize innovative use planning, education, and conservation tools to protect lands and waters within the NH Coastal Watershed Conservation Focus Areas.
- Dedicate tax lien properties abutting existing conservation lands or within conservation focus areas as conservation areas to enhance existing network of conservation land.

Steward Town Conservation Lands

- Implement (and update as needed) Management Plans for Town conservation areas, including Wiggin Farm Conservation Area, Piscassic River-Loiselle, Heron Point Sanctuary.
- Maintain accurate records of all town-owned conservation areas, town-held conservation easements and town-held executory interests.

- Monitor town-held conservation easements annually and participate in annual monitoring by State of NH of Wiggan Farm and Dearborn Conservation Areas.
- Update the NH GRANIT conservation lands layer as needed; ensure that new subdivision open space is similarly updated when created.
- Maintain property and educational information on the Newmarket Conservation Commission webpages.
- Maintain infrastructure at town conservation areas including parking areas, entrance signs, information kiosks, interpretive signage, and related features.
- Review the Town Ordinances and Resolutions that pertain to use of conservation lands to ensure that the ordinances are consistent with the purposes for which the land was conserved.
- For town conservation areas with multiple tax parcels, work with the Planning Department to merge lots to create one tax parcel. This includes Tuttle Swamp Conservation Area, Lita Lane, and Follett's Brook.
- Work with the Riverbend and Mastin Road neighborhoods to identify ways to manage the pocket parks in these neighborhoods and evaluate opportunities for trail connectivity.
- Conduct a Natural Resource Inventory of the Town's Follett's Brook properties to assess ecological significance and opportunities for expanded trail network. Partner with NH Audubon and their Follett's Brook sanctuaries.

Promote Sustainable Land Use

- Promote Pollinator-Friendly Habitats, especially native plants, and notably such habitat improvements that can be made to public spaces such as schoolyards, traffic islands, and pocket parks.
- Incorporate lists of recommended and prohibited plant species into Newmarket's Site Plan & Subdivision regulations.
- Implement all feasible stormwater management practices to prevent and minimize runoff that contains contaminants and causes erosion.
- Require open space design development for residential subdivisions.
- Continue to support a balance between affordable housing needs and conservation priorities. Support housing in-fill and other locations that are not ecologically significant or within Conservation Focus Areas. Encourage inclusion of sidewalks, green pathways, pocket parks as part of new developments or redevelopments.
- Consider adopting a roadside Japanese knotweed control plan, to reduce the environmental and safety issues with this invasive plant.

Revitalize Downtown Riverfront

- Enhance Newmarket's waterfront. Evaluate ways to improve the Newmarket riverfront for people, restore a living shoreline to prevent further erosion, and restore the health of Moonlight Brook as it flows into the Lamprey River at Schanda Park.
- Maintain safe and accessible boat access to the Piscassic and Lamprey Rivers while maintaining scenic quality.
- Educate residents and visitors on best practices along riverfront, such as not feeding wildlife, respecting private property, etc.

Create Trail Networks

- Create safe routes and connectivity, where feasible, for hiking, biking, horseback riders, and other trail users, within Newmarket and between neighboring communities.
- Develop policy that requires integration of trails and green spaces into new developments and ensures maintenance of existing and proposed natural amenities.
- Explore opportunities to develop trail connectivity among Follet's Brook properties, connecting Newmarket and Durham.
- Explore ways to create safe pathways for pedestrians and cyclists from downtown to conservation areas such as Heron Point Sanctuary and Piscassic River-Loiselle Conservation Area.
- Utilize Strafford Regional Planning Commission's (SRPC) pedestrian counters and traffic counters to monitor usage of trails and town parks and conservation areas.

Appendix A: Land Acquisition Criteria Evaluation

(follows)



Town of Newmarket Conservation Commission Land Acquisition Criteria Evaluation (LACE)

Tax Map and Lot: _____ Parcel Size: _____

Property Owner: _____

Property Address: _____

Financial Considerations: ☐ Parcel or Conservation Easement (CE) to be donated by owner
☐ Significant bargain sale
☐ Owner needs full appraised value

Purpose: The Newmarket Conservation Commission has adopted the following evaluation criteria for protecting and preserving important parcels of land for the future benefit of the residents of Newmarket.

Potential Benefit	Reference	Condition
1. Abuts existing Conservation Land	Newmarket GIS; Open Space Plan Map 2	☐ Directly abuts existing Conservation Land
		☐ Does not abut existing Conservation Land
2. Conservation Focus Areas (CFA)	Open Space Plan Map 1	☐ Includes land identified as a CFA
		☐ Does not include land identified as a CFA
3. Agricultural Resources	NH Coastal Watershed Conservation Plan	☐ Includes a Priority Agricultural Resource (PAR)
		☐ Adjacent to a PAR
		☐ Meets none of the above
	Discussion with Property Owner	☐ Currently a working farm
4. Drinking Water Protection (groundwater)	Newmarket GIS; NHDES; Open Space Plan Map 3 & 6	☐ Parcel within Aquifer Protection Overlay
		☐ Parcel within Source Water Protection Area
		☐ Parcel within Wellhead Protection Area
		☐ Meets none of the above
5. Surface Water Quality	Newmarket GIS; NH Coastal Watershed Conservation Plan; Open Space Plan Map 6	☐ Area has river frontage
		☐ Area has surface water or wetland present
		☐ Area has vernal pools present
		☐ Area has Prime Wetland present
		☐ Area has salt marsh present
		☐ Area has salt marsh migration potential
		☐ Area is within 100 year floodplain

Potential Benefit		Reference	Condition
			☐ Project does not have surface waters
6.	Wildlife Habitat Quality	Wildlife Action Plan; Open Space Plan Map 4	☐ Area contains Highest Ranked Habitat in NH
			☐ Area contains Highest Ranked Habitat in Region
			☐ Area contains Supporting landscape
			☐ None
7.	Wildlife Corridor	Connect the Coast	☐ Area contains a Wildlife Corridor
			☐ Area close to a Wildlife Corridor
			☐ No Wildlife Corridor identified
8.	Public Access	Discussion with Stakeholders	☐ Unlimited public access to project area
			☐ Gain of public access to project area
			☐ Improvement to trail connectivity
			☐ No public access to project area
9.	Scenic Views (visible from public roadways, public trails or waterways)	Site Walk	☐ Parcel features extensive Scenic Views
			☐ Parcel exhibits some Scenic Views
			☐ No Scenic Views
10.	Unique Ecological & Cultural Features	(vernal pools, exemplary natural communities)	☐ Unique ecological features present
			☐ Area has New Hampshire Heritage Bureau rare species present
			☐ Unique cultural features present
			☐ Unique historical features or values present
			☐ No unique features
11.	Funding Leverage	Discussion with Stakeholders	☐ Funding leverage associated with project
			☐ Potential funding leverage with project
			☐ Donation associated with project
			☐ No funding leverage with project
12.	Development Threat	Discussion with Stakeholders	☐ Project under immediate development threat
			☐ Project under potential development threat
			☐ Project not under immediate development threat
13.	Property Size	Newmarket GIS	☐ Conservation value would not be diminished if adjacent properties are developed.

Potential Benefit		Reference	Condition
			☐ Conservation values would be diminished if adjacent properties are developed.
14.	Aligns with Open Space or Master Plan Goals	Open Space Plan; Land & Water Conservation Master Plan	☐ Project aligns with goals or does not conflict with Plans
			☐ Project does not align with goals
15.	Stewardship	Discussion with Stakeholders	☐ Project does not present stewardship or land management challenges
			☐ Project presents stewardship or land management challenges

Appendix B: Conservation and Open Space Lands

Table 2: Town Owned Conservation Land

Conservation Area	Size (Acres)	Date Acquired	Tax Map Lot #	Location	Recorded Deeds	Recorded Plans (Surveys)
Dearborn	38.09	2016-11-14	R6, Lot 27	206 Grant Rd	Quitclaim Deed Dearborn to Town: BK 5772 PG 2831 (11/14/2016) CE Deed Dearborn to NHFG: BK 3466 PG 378 (4/10/2000) Driveway ROW Deed Newmarket to Hyland: BK 6492 PG 1355 (7/3/2023)	D-27921 (3/22/2000)
Follet's Brook-Leary	10	2004-05-14	U1, Lot 17-1	57 Packers Falls Rd	Warranty Deed Leary to Town: BK 4291 PG 2483 (5/14/2004)	D-31597 (4/1/2004)
Follet's Brook-Rousseau	9.4	2005-02-03	U1, Lot 20	67R Packers Falls Rd	Warranty Deed Rousseau to Town: BK 4433 PG 1818 (2/3/2005) Warranty Deed Town to Casella, Lot 20-1 BK 4633 PG 2614 (3/27/2006)	D-33023 (9/8/2005)
Follet's Brook-Szacik	0	2005-12-16	originally part of U1, Lot 21	Packers Falls Rd	Warranty Deed Szacik to Town: BK 4596 PG 0242 (12/16/2005)	D-33023 (12/16/2005)
Follet's Brook - Trotter Park	0.63	1990-02-01	U1, Lot 88	0 Mastin Drive	Warranty Deed VMJ Enterprises to Town: BK 2825 PG 1418 (2/1/1990)	D-16753 (7/30/1987)
Follet's Brook - Trotter Park (Carolyn Drive)	8.49	1993-04-15	U1, Lot 96	12 Carolyn Dr	Warranty Deed VMJ to Town: BK 2977 PG 0372 (4/15/1993)	D-20528 (6/1/1989) D-20287 (12/1/1988)
Follet's Brook - Waterworks	9	1915-11-10	U1, Lot 97	2 Carolyn Drive	Deed Green to Newmarket Water Works: BK 700 PG 32 (1915-11-10)	D-16753 (7/30/1987)
Follet's Brook - Waterworks	14	1894 to 1938	U1, Lot 16	Follet's Brook	Deed Mathes to Newmarket Water Works: BK 940 PG 87 (1938-02-12) Deed Knight to Newmarket Water Works: BK 719 PG 224 (1918-01-30) Deed Wiggin to Newmarket Water Works: BK 636 PG 382 (1908-02-26) Deed Green to Newmarket Water Works: BK 700 PG 32 (1915-11-10) Deed Wiggin to Newmarket Water Works: BK 543 PG 272 (1894-09-01)	Oct 1946 Plan by Weston and Sampson Engineers

Conservation Area	Size (Acres)	Date Acquired	Tax Map Lot #	Location	Recorded Deeds	Recorded Plans (Surveys)
Piscassic River-Loiselle Conservation Area	45.3	2003-07-28	R5, Lot 91-2	270 Wadleigh Falls Rd	Warranty Deed Loiselle to Town: BK 4100 PG 2110 and BK 4100 PG 2114 (7/28/2003) LCHIP Executory Interest Deed: BK 4100 PG 2123 (7/28/2003)	D-30811 (7/1/2003)
Heron Point Sanctuary	32	1996-12-31	R2, Lot 119	14 Heron Point Dr	Quitclaim Deed and Conservation Restrictions Klein and Parker to Town: BK 3193 PG 1697; Town merged lot lines: BK 3289 PG 2637 (5/5/1998)	D-19531 (7/1/1989)
Lita Lane	19.5	1984-01-23	R3, Lot 30-47	1 Pembroke Drive	Confirmatory Warranty Deed from Gouchberg to Town: BK 2477 PG 20 (1/23/1984)	D-7938 (5/1/1978) and D-7939 (9/1/1977)
Lita Lane	~8.5	1999-11-04	R3, Lots 30-9, 30-10, 30-19 through 30-36	Pembroke Dr, Brandon Dr, Lita Lane	Tax Collector Deed from Gouchberg to Town: BK 3435 PG 1587 (11/4/1991)	D-7938 (5/1/1978) and D-7939 (9/1/1977)
Riverbend	5.46	1988-03-29	U1, Lot 1-1P	7 Packers Falls Rd	Deed from American Land Development Corp to Town: BK 2732 PG 2207 (3/29/1988) Deed from American Land Development Corp to Town: BK 2684 PG 1722 (6/8/1987)	D-10912 (11/1/1981)
Riverbend	19,602 sq ft	1988-03-29	U1, Lot 1-4P	Riverbend Rd	Deed from American Land Development Corp to Town: BK 2732 PG 2206 (3/29/1988)	D-10912
Riverbend	1.12	Unknown	U1, Lot 1-46	24 Riverbend Rd	Unknown	D-10912
Schanda Park	15,246 sq ft	1954-01-18	U3, Lots 5, 6, 7	8, 10, and 12 Water Street	Tax forfeiture Deed Doucette of U3, Lot 5 to Town: BK 1306 PG 117 (1/18/1954) Deed Gallant of U3, Lot 7 to Town: BK 2518 PG 1332 (11/1/1984)	D-10736 (2/1/1982)
Sliding Rock Recreation and Conservation Area	2.5	1975-09-10	U2, Lot 124	32 Piscassic Street	Warranty Deed from Cheney to Town: BK 2243 PG 784 (9/1/1975)	Plan of Lots, Sliding Rock, House Lots and Apt Complex, Newmarket, NH for Walter Cheney, Inc Jan 1973
Tuttle Swamp	42	1990-06-11	R6, Lot 38	481 Wadleigh Falls Rd	Quit Claim Deed Growth Mortgage Co, Inc to Town: Book 2840 Page 2061 (6/11/1990)	no boundary survey
Tuttle Swamp	2.8	1996-04-18	R6, Lot 39	471 Wadleigh Falls Rd	Warranty Deed Currier to Town: Book 3150 Page 0661 (4/18/1996)	no boundary survey

Conservation Area	Size (Acres)	Date Acquired	Tax Map Lot #	Location	Recorded Deeds	Recorded Plans (Surveys)
Tuttle Swamp	14	1996-04-18	R6, Lot 40	479 Wadleigh Falls Rd	Warranty Deed from Currier and Walker to Town: Book 3150 Page 0663 (4/18/1996)	no boundary survey
Wiggin Farm	160	2003-09-05	R6, Lot 21	280 Grant Road	Warranty Deed Falzone to Town: BK 4142 PG 1801 (9/5/2003) Acquired by Town as conservation land; NHFG Easement: BK 4142 PG 1825 (9/5/2003) LCHIP Executory Interest: BK 4142 PG 1813 (9/5/2003)	D-32876 (5/1/2004)
Wiggin Farm	2	2003-06-01	R6, Lot 21-1	290 Grant Road	Creation of 2-acre lot for parking area	D-30810 (6/1/2003)

Table 3: Easements Held by the Town of Newmarket

Site Name	Current Landowner	Easement Monitoring	Executory Interest	Size (acres)	Date Acquired	Tax Map Lot#	Location	Recorded Documents
Bald Hill Reservation	SELT	Newmarket Conservation Commission	none	21	2015-11-18	R7, Lot 24-21	Hayden Place	Warranty Deed and Conservation Restrictions from Chinburg Developers to SELT and Town of Newmarket, respectively: BK 5671 PG 496 (11/18/2015) Plan D-38917 (6/1/2015)
Hilton	George "Win" Hilton	Town contracted with SELT	none	96	2004-08-30	R7, Lot 15	233 Grant Road	Conservation Easement Deed Hilton to Town: BK 4354 PG 448 (8/30/2004) Easement monitoring MOA with SELT: BK 4354 PG 470 (8/30/2004) Plan D-31934 (8/1/2004)
Smith Sisters Sanctuary	NH Audubon	Newmarket Conservation Commission	none	115	2008-12-18	R5, Lot 78-1	356 Wadleigh Falls Rd	Conservation Easement Deed from The Nature Conservancy to Town: BK 4968 PG 1330 (12/18/2008); Plan D-35746 (9/1/2008) Warranty Deed Smith Sisters to TNC: BK 4968 PG 1322, Deed TNC to NH Audubon: BK 5102 PG 380 (4/9/2010)

Site Name	Current Landowner	Easement Monitoring	Executory Interest	Size (acres)	Date Acquired	Tax Map Lot#	Location	Recorded Documents
Nostrom Farm	Jeff Cantara	Town contracted with SELT	none	65.6	2006-02-24	R6, Lot 42	31 Doe Farm Lane	Conservation Easement Deed from Nostrom to Town: BK 4621 PG 2589 (2/24/2006) Grant Agreement Town to USFWS: BK 4621 PG 2622 (2/24/2006) Plan D-33538 (2/1/2006)
Piscassic Greenway - Gaziano Tract	SELT	Newmarket Conservation Commission	LCHIP (State of NH)	32	2022-06-15	R7, Lot 1	75 Neal Mill Rd	Warranty Deed from Gaziano to SELT: BK 2105 PG 5159 (8/30/2021) Conservation Restriction Deed from SELT to Town, LCHIP, State: BK 6416 PG 561 (6/15/2022)
Schneer	Jean Silverman Estate	Newmarket Conservation Commission	none	5.6	2006-03-03	R4, Lot 55	55 Neal Mill Road	Conservation Easement Deed from Schneer to Town: BK 4625 PG 1116 (3/3/2006) Plan D-33470 (1/1/2006)
Silverman	Joffree Barnett	Newmarket Conservation Commission	none	32.8	2006-03-03	R4, Lots 51, 53, 55A	41 Neal Mill Road	Conservation Easement Deed from Silverman to Town: BK 4625 PG 1131 (3/3/2006) Grant Agreement Town to USFWS: BK 4609 PG 2518 (1/23/2006) Plan D-33470 (1/1/2006) Affidavit for corrected survey error: BK 4625 PG 1113 (3/3/2006)

Table 4: Easements on Town Land Held by Other Entities

Site Name	Easement Holder	Easement Monitoring	Executory Interest	Size (acres)	Date Acquired	Tax Map Lot#	Location	Recorded Documents
Dearborn	NHFG (State of NH)	NH Conservation Land Stewardship Program	none	38.1	2016-11-14	R6, Lot 27	206 Grant Rd	Quitclaim Deed Dearborn to Town: BK 5772 PG 2831 (11/14/2016) CE Deed Dearborn to NHFG: BK 3466 PG 378 (4/10/2000) Plan D-27921 (3/22/2000) Driveway ROW Easement to abutter: BK 6492 PG 1355(7/3/2023)

Site Name	Easement Holder	Easement Monitoring	Executory Interest	Size (acres)	Date Acquired	Tax Map Lot#	Location	Recorded Documents
Piscassic River-Loiselle Conservation Area	None	Newmarket Conservation Commission	LCHIP (State of NH)	45.3	2003-07-28	R5, Lot 91-2	270 Wadleigh Falls Rd	Warranty Deed Loiselle to Town: BK 4100 PG 2110 and BK 4100 PG 2114 (7/28/2003) Plan D-30811 (7/1/2003) LCHIP Eexecutory Interest Deed: BK 4100 PG 2123 (7/28/200#0
Wiggin Farm	NHFG (State of NH)	NH Conservation Land Stewardship Program	LCHIP (State of NH)	160	2003-09-05	R6, Lot 21	280 Grant Rd	Warranty Deed Falzone to Town: BK 4142 PG 1801 (9/5/2003) NHFG Easement: BK 4142 PG 1825 (9/5/2003) LCHIP Executory Interest: BK 4142 PG 1813 (9/5/2003) Plan D-32876 (5/1/2004)

Table 5: Town Held Executory Interests

Conservation Area	Size (acres)	Date Acquired	Tax Map Lot#	Location	Current Landowner	Easement Holder	Recorded Documents
Richmond	26	2003-10-10	R5, Lot 50	Lang's Lane	Amanda Richmond	SELT	Conservation Easement Deed from Richmond to SELT: BK 4170 PG 1050 (10/10/2003) Plan D-31045 (10/1/2003)
Dodds	30.5	2008-04-18	R4, Lot 47	151 Grant Road	Dodds	SELT	Conservation Easement Deed from Dodds to SELT and Executory Interest to Town of Newmarket: BK 4908 PG 1017; Plan D-21057 (3/1/1991)
Clarke Farm	175	2021-05-04	R6, Lot 43	134 Camp Lee Rd	Linda Clarke	SELT	Conservation Easement Deed from Clarke to SELT: BK 6274 PG 673 (5/4/2021) Plan D-42735 (4/26/2021)
Piscassic Greenway -Tucker Tract	15 and 1	2020-05-08	R7, Lot 4-5 R4 Lot 52	Neal Mill Rd and Old Lee Rd	SELT	USDA NRCS WRE	Warranty Easement Deed from Tucker to USDA: BK 6111 PG 2953 (5/8/2020) Fiduciary Deed from Tucker to SELT: BK 6111 PG 2969 (5/8/2020) Plan D-42110 (5/8/2020) Plan D-41270 (1/16/2019)

* No easement monitoring required by Conservation Commission

Table 6: Subdivision Open Space

Name	Tax Map Lot #
Blackhawk (Schultz Place)	R2-19-3
Briallia Circle (Piscassic River Village)	R5-37-40
Boulder Subdivision	U2-297
Channing Way	R4-43-3 and OPEN SPACE
Durrell Woods	R5-40 and R5-130
Fox Hollow	R7-17
Gonet Drive (Bayfields)	OPEN SPACE LOT A AND LOT B
Hamel Farm	R4-42-22
Harvest Way	OPEN SPACE
Harvest Way	R6-14-17
Hilton Drive	R7-10
Ladyslipper Drive	R4-134
Madison	R4-40-11
Mockingbird Lane	OPEN SPACE and OPEN SPACE B
Moody Point	R2-36-4 and R2-36-11
Norton Woods	portions of R6-13 and R5-47-10
Rockingham Green	R3-23-54
Schanda Farm	R7-14
Stonewall Way	R4-25
Winslow Drive	R5-49-13

Table 7: Other Public and Private Conservation Lands

Name	Tax Map Lot #
Bald Hill Forest (SELT)	R7-24-21
Follett's Brook (NHAudubon-Kwaks)	R5-84
Great Bay WMA	R3-36-1, R3-36-3, R1-6, R1-7, R1-17, R1-22, R1-24, R1-28, R1-29, R1-31, R1-32, R1-33, U3-51
Lubberland Creek (TNC)	R2-29-5, R2-28-1, R2-28-2, R2-25, R2-10, R2-26, R2-27, R2-36-13 and R1-38-8
Piscassic Greenway SELT)	R7-31 and R7-1
Piscassic River WMA (NHFG)	R7-23
Tuttle Swamp WMA (NHFG)	R6-41-1, R6-37, R6-31-1 and R6-32
Conservation Easements	R2-50, R6-1, R3-36, R4-24, R1-1, R1-5, R1-4-1, R6-31
Bennett Well	
Sewall Well	R5-91-1
Tucker Well	R4-50-1
Landfill/Transfer Station	R6-36

Appendix C: Implementation Matrix

Goals & Actions	Feasibility	Timeline	Responsible Parties	Partners	Potential Funding Sources
GOAL 1: Protect Drinking Water					
Educate community members on ways to protect drinking water sources and source water protection areas from harmful land uses and contamination.					
Utilize innovative use planning and conservation tools to provide additional protection to the Aquifer Overlay District and Wellhead Protection Areas.					
GOAL 2: Protect Surface Waters and Wetlands					
Restore the water quality and natural conditions (where feasible) of Moonlight Brook. Utilize living shoreline and other green infrastructure to the maximum extent practicable.					
Maintain, and restore where needed, natural buffer areas along the Lamprey and Piscassic Rivers, Follett's Brook, Lubberland Creek, and other unnamed tributaries.					
Protect freshwater wetlands including buffers and floodplains using land use planning tools such as the Wetlands and Floodplain Overlay Districts and educational materials and outreach.					
Update Newmarket's prime wetlands maps and maintain a higher degree of protection on prime wetlands.					

Protect salt marsh along Great Bay and explore opportunities for salt marsh migration amid sea-level rise.					
Maintain involvement in committees related to the Wild & Scenic Lamprey River and its Watershed.					
Work with surrounding towns to update maps of vernal pools.					
Implement all feasible stormwater management practices to prevent and minimize runoff that contains contaminants and causes erosion.					
GOAL 3: Restore Aquatic Passage and Stream Connectivity					
Building on the success of the Building on the success of the Lubberland Creek culvert upgrade on Bay Road , collaborate among Town Departments and Boards and conservation partners, to improve stream crossings and restore aquatic connectivity where needed throughout Newmarket.					
Create safe turtle crossings by improving stream flow and passage at Ash Swamp Road by replacing existing culverts, adding fencing, and other infrastructure and highway traffic speed slowing techniques.					
Use the NH Aquatic Restoration Mapper to assess all road crossings/culverts and town roads. Set priorities for restoring/upgrading aquatic passage.					
GOAL 4: Protect and Connect Priority Lands and Waters					
Dedicate 100% of the Land Use Change Tax to the Conservation Fund.					

Work with interested landowners, conservation partners, and grant programs to conserve the lands and waters within the Newmarket Priority Conservation Focus Areas.					
Protect habitat corridors and enhance connectivity of open spaces and priority lands across Newmarket and abutting municipalities.					
Utilize innovative use planning, education, and conservation tools to protect lands and waters within the NH Coastal Watershed Conservation Focus Areas, including active farms and prime farm soils.					
Dedicate tax lien properties abutting existing conservation lands or within conservation focus areas as conservation areas to enhance existing network of conservation land.					
GOAL 5: Steward Town Conservation Lands					
Implement (and update as needed) Management Plans for Town conservation areas, including Wiggan Farm Conservation Area, Piscassic River-Loiselle, Heron Point Sanctuary.					
Maintain accurate records of all town-owned conservation areas, town-held conservation easements and town-held executory interests.					
Monitor town-held conservation easements annually and participate in annual monitoring by State of NH of Wiggan Farm and Dearborn Conservation Areas.					
Update the NH GRANIT conservation lands layer as needed; ensure that new subdivision open space is similarly updated when created.					

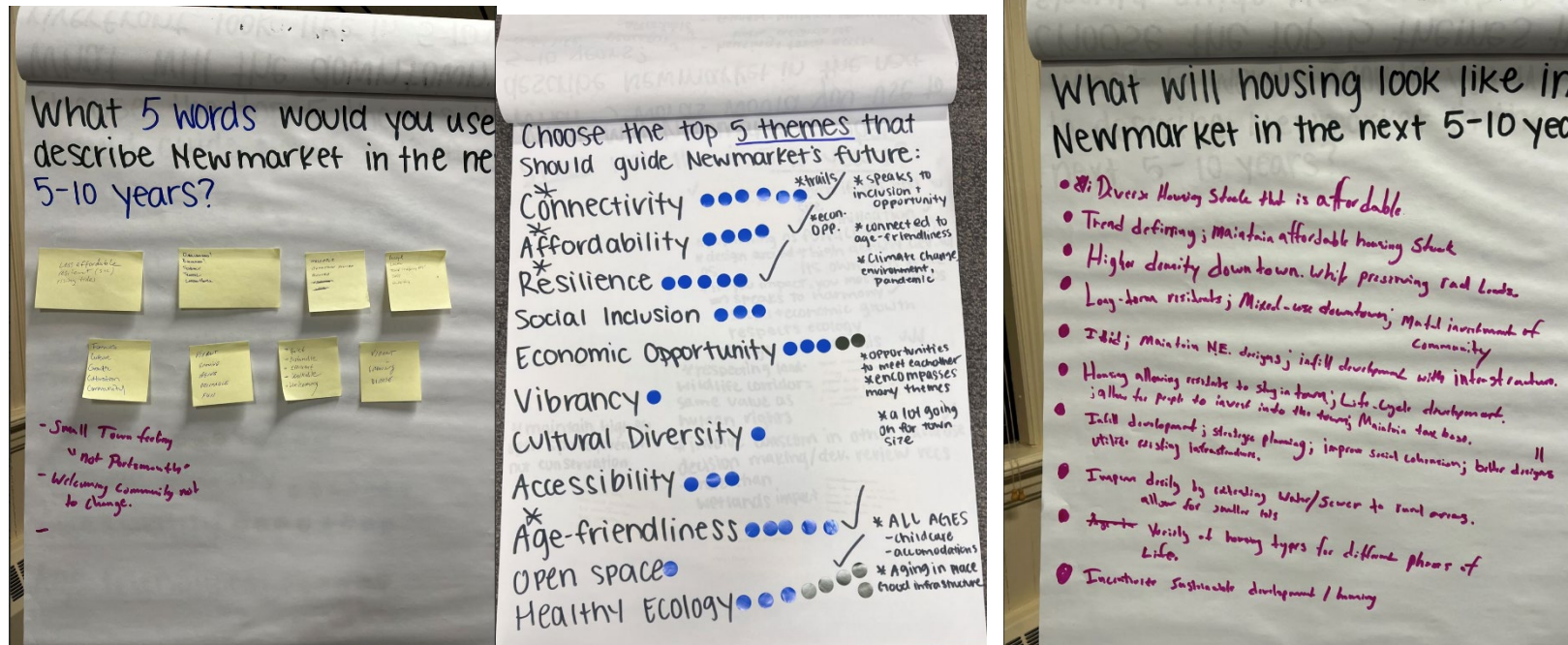
Maintain property and educational information on the Newmarket Conservation Commission webpages.					
Maintain infrastructure at town conservation areas including parking areas, entrance signs, information kiosks, interpretive signage, and related features.					
Review the Town Ordinances and Resolutions that pertain to use of conservation lands to ensure that the ordinances are consistent with the purposes for which the land was conserved.					
For town conservation areas with multiple tax parcels, work with the Planning Department to merge lots to create one tax parcel. This includes Tuttle Swamp Conservation Area, Lita Lane, and Follet's Brook.					
Work with the Riverbend and Mastin Road neighborhoods to identify ways to manage the pocket parks in these neighborhoods and evaluate opportunities for trail connectivity.					
Conduct a Natural Resource Inventory of the Town's Follett's Brook properties to assess ecological significance and opportunities for expanded trail network. Partner with NH Audubon and their Follett's Brook sanctuaries.					
GOAL 6: Promote Sustainable Land Use					
Promote Pollinator-Friendly Habitats, especially native plants, and notably such habitat improvements that can be made to public spaces such as schoolyards, traffic islands, and pocket parks.					

Incorporate lists of recommended and prohibited plant species into Newmarket's Site Plan & Subdivision regulations.					
Implement all feasible stormwater management practices to prevent and minimize runoff that contains contaminants and causes erosion.					
Require open space design development for residential subdivisions.					
Continue to support a balance between affordable housing needs and conservation priorities. Support housing in-fill and other locations that are not ecologically significant or within Conservation Focus Areas. Encourage inclusion of sidewalks, green pathways, pocket parks as part of new developments or redevelopments.					
Consider adopting a roadside Japanese knotweed control plan, to reduce the environmental and safety issues with this invasive plant.					
GOAL 7: Revitalize Downtown Riverfront					
Enhance Newmarket's waterfront. Evaluate ways to improve the Newmarket riverfront for people, restore a living shoreline to prevent further erosion, and restore the health of Moonlight Brook as it flows into the Lamprey River at Schanda Park.					
Maintain safe and accessible boat access to the Piscassic and Lamprey Rivers while maintaining scenic quality.					

Educate residents and visitors on best practices along riverfront, such as not feeding wildlife and respecting private property.					
GOAL 8: Create Trail Networks					
Create safe routes and connectivity, where feasible, for hiking, biking, horseback riders, and other trail users, within Newmarket and between neighboring communities.					
Develop policy that encourages integration of trails and green spaces into new developments and ensures maintenance of existing and proposed natural amenities.					
Explore opportunities to develop trail connectivity among Follet's Brook properties, connecting Newmarket and Durham.					
Explore ways to create safe pathways for pedestrians and cyclists from downtown to conservation areas such as Heron Point Sanctuary and Piscassic River-Loiselle Conservation Area.					
Seek to provide on trails seating areas at intervals appropriate for users living with mobility challenges.					
Utilize Strafford Regional Planning Commission's (SRPC) pedestrian counters and traffic counters to monitor usage of trails and town parks and conservation areas.					

Appendix D: Outreach Summaries

Visioning Week



SRPC and the Town of Newmarket conducted a visioning week on April 8th -11th, 2024 with the Riverfront Committee, Planning Board, Master Plan Steering Committee, and the Conservation Commission. The sessions were centered on the answering three questions that aimed to identify an overall vision for Newmarket as well as for individual master plan chapter. The Conservation Commission focused on the Open Space Plan, which was only a portion of what the other boards and committees discussed. The following summarizes Open Space visioning predominantly from that Conservation Commission meeting and supplemented with feedback from the other three boards and committees.

Question 1: What 5 words would you use to describe Newmarket in the next 10 years?

- A great place to live
- Aesthetically attractive
- Balanced
- Caring
- Coastal
- Connected
- Conservation connections
- Culture
- **Diverse (4)**
- Efficient
- **Evolving (2)**
- **Friendly (2)**
- **Growing (4)**
- **Historical (3)**
- Interesting
- Less growth
- **Natural (2)**
- **Pedestrian friendly (3)**
- Proud
- Recreational
- Rising Tides
- Small-town feel
- Town “Mayberry RFD”
- United
- **Welcoming (5)**
- Accessible
- **Affordable (4)**
- Beautiful
- Charm
- **Community (3)**
- Connected trails
- Cultivation
- Desirable
- **Downtown focused (2)**
- Energy efficient
- Experience
- Fun
- Happy
- Housing
- Leading
- Local
- Original
- Planned
- Quaint
- **Regional leader (2)**
- Rural Character
- **Sustainable (3)**
- Traffic
- **Vibrant (7)**
- Well-planned
- Accessible trails
- Aging
- Carbon neutral
- Clean/better water
- Community involvement
- **Connectivity (2)**
- Cultural Development
- Destination
- Dynamic
- Envied
- Families
- **Green (2)**
- Heritage
- Innovative
- Less Affordable
- Multi-Generational
- **Peaceful (2)**
- Progressive
- Quiet
- **Resilient (4)**
- Safe
- Thriving
- Transit
- **Walkable (3)**

Question 2: What 5 themes that should guide Newmarket's future?

- Connectivity (12)
 - Newmarket cannot do everything by itself. Newmarket needs to be connected with other communities in the region such as Durham and Newfields and those communities that share access to The Lamprey River.
 - Tied to regional communities including economic opportunity and education systems
 - In terms of infrastructure and resources, trail connectivity is important
 - Connectivity also speaks to inclusion and opportunity
- Vibrancy (11)
 - encompass accessibility, age friendliness, cultural diversity, economic opportunities
 - parks and recreation areas
 - accessibility for all to enjoy these amenities
 - Riverfront is a gathering place and an enhancement
- Healthy Ecology (8)
- Accessibility (8)
- Affordability (7)
- Vibrancy (6)
- Resilience, Economic Opportunity, Accessibility and Age-Friendliness (5)
 - Opportunities to meet each other, connect
 - Consider needs of all ages
 - Ensure community needs are met such as child care and ability to age in place
 - Good infrastructure
- Social Inclusion (3)
 - All races, ages and economic tiers are included
 - Riverfront brings the riverfront together
 - Is related to connectivity

Question 3: what will Newmarket's open space look like in 5-10 years?

Resilient connected healthy ecology where the town is prepared for the effects of climate change and extreme weather and our biodiversity is prioritized and protected. **Restored aquatic passages, clean water for people, connected and protected open spaces, trail connectivity, wildlife- friendly flora and fauna** level of respect on par with economic and social growth.

- Respect land and wildlife corridor as we value as human rights
- Involve the Conservation Commission in other land use decision making beyond wetlands impacts

An **environmentally healthy riverfront** is the first and most important to achieve and would have the most immediate impact. This includes:

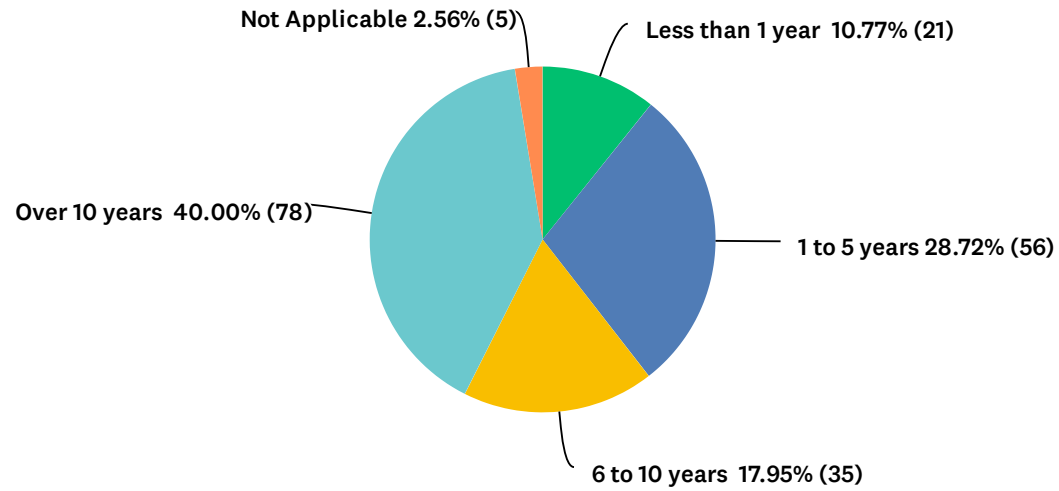
- Undertake needed maintenance
- Address contamination of Moonlight Brook
- Make sure residents know about the importance of a healthy riverfront/river, including create opportunities for education

Survey Results

The following pages include Open Space related questions from the Housing and Open Space survey conducted in the fall of 2023.

Q4 How long have you lived in Newmarket?

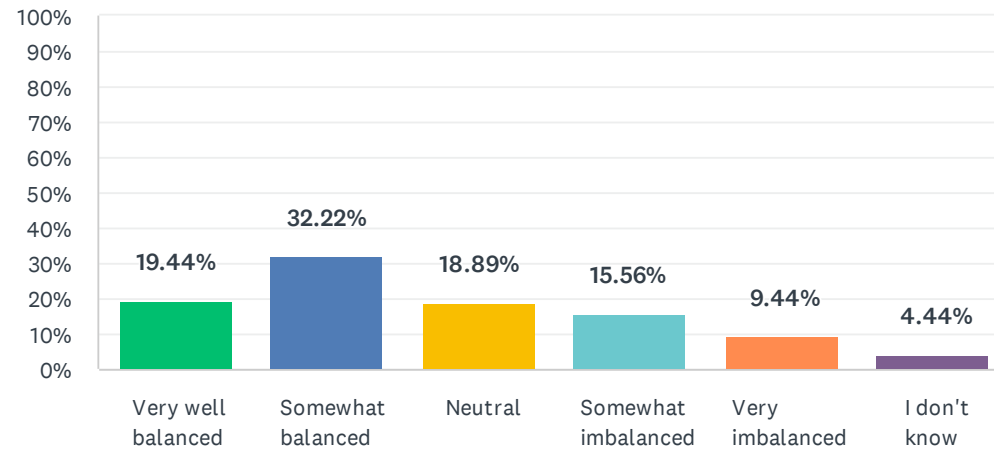
Answered: 195 Skipped: 1



ANSWER CHOICES	RESPONSES	
Less than 1 year	10.77%	21
1 to 5 years	28.72%	56
6 to 10 years	17.95%	35
Over 10 years	40.00%	78
Not Applicable	2.56%	5
TOTAL		195

Q14 How well do you think the balance between housing development and open space conservation is currently being maintained in our community?

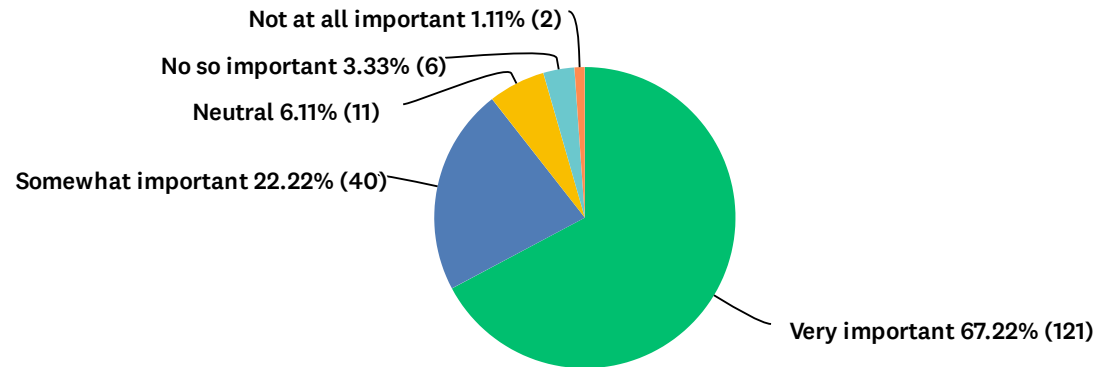
Answered: 180 Skipped: 16



ANSWER CHOICES	RESPONSES	
Very well balanced	19.44%	35
Somewhat balanced	32.22%	58
Neutral	18.89%	34
Somewhat imbalanced	15.56%	28
Very imbalanced	9.44%	17
I don't know	4.44%	8
TOTAL		180

Q15 How important is it for new housing developments to incorporate sustainable design practices?

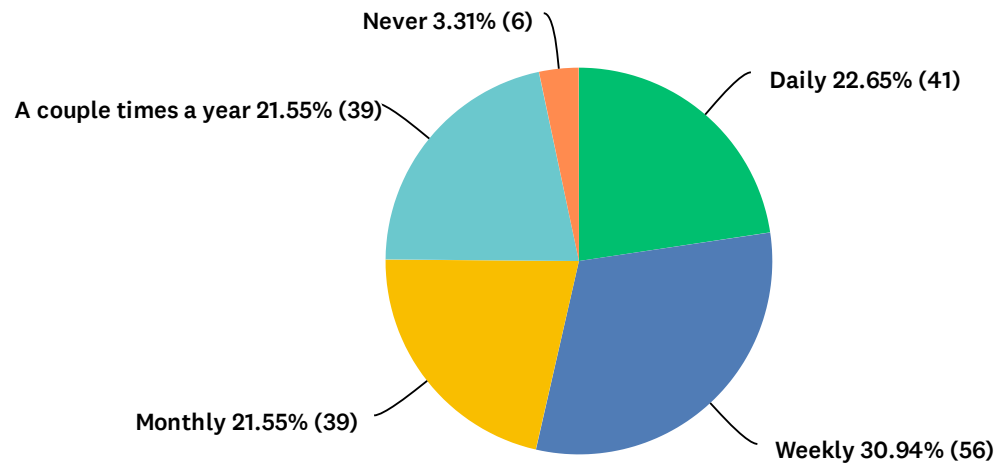
Answered: 180 Skipped: 16



ANSWER CHOICES	RESPONSES	
Very important	67.22%	121
Somewhat important	22.22%	40
Neutral	6.11%	11
No so important	3.33%	6
Not at all important	1.11%	2
TOTAL		180

Q16 How frequently do you and your family utilize local parks, recreational areas, or conservation land for outdoor activities?

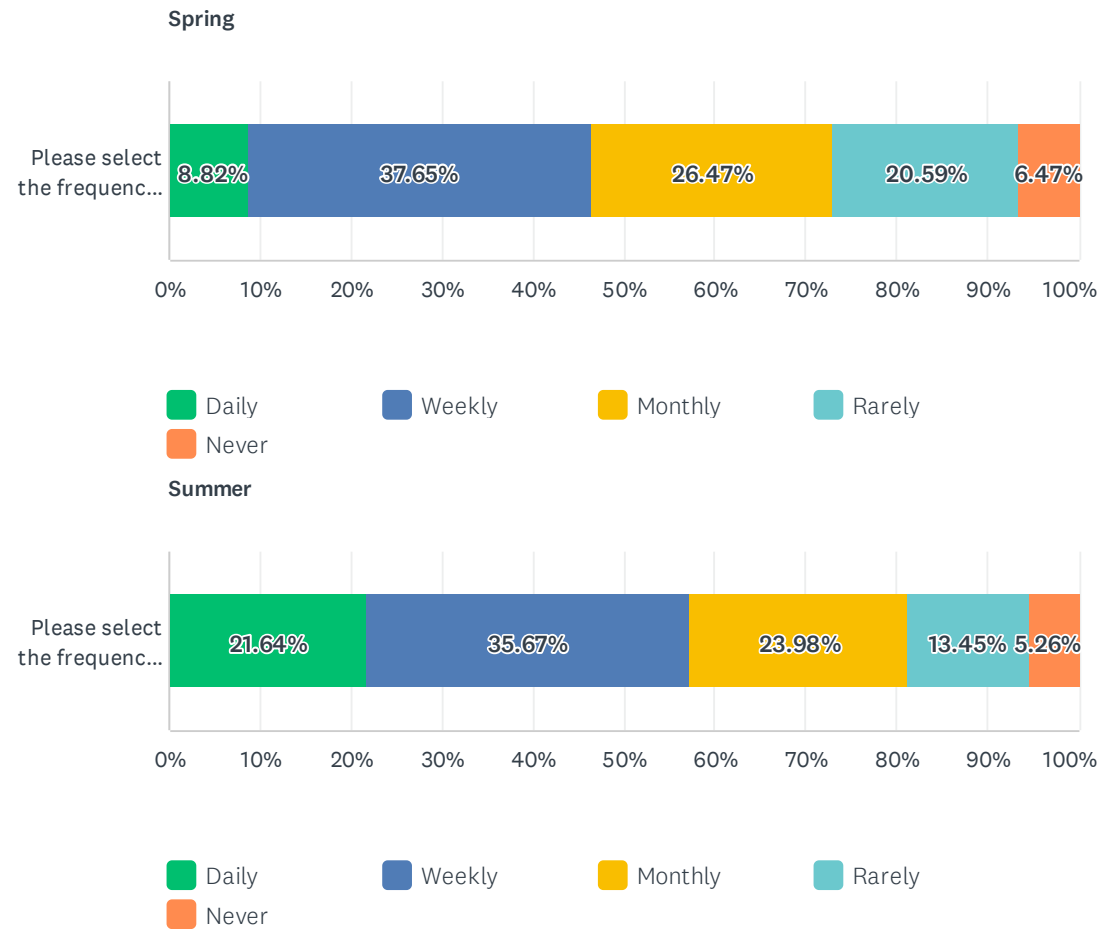
Answered: 181 Skipped: 15



ANSWER CHOICES	RESPONSES	
Daily	22.65%	41
Weekly	30.94%	56
Monthly	21.55%	39
A couple times a year	21.55%	39
Never	3.31%	6
TOTAL		181

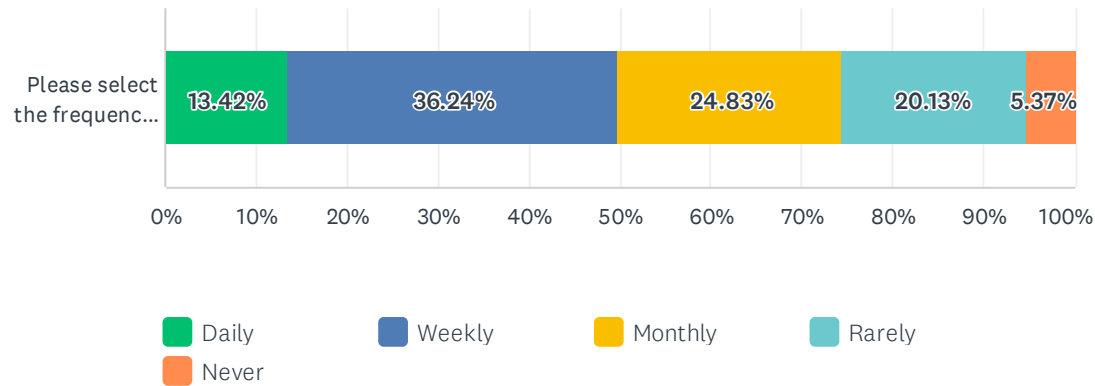
Q17 How often do you visit the downtown riverfront area (including Heron Point)?

Answered: 172 Skipped: 24

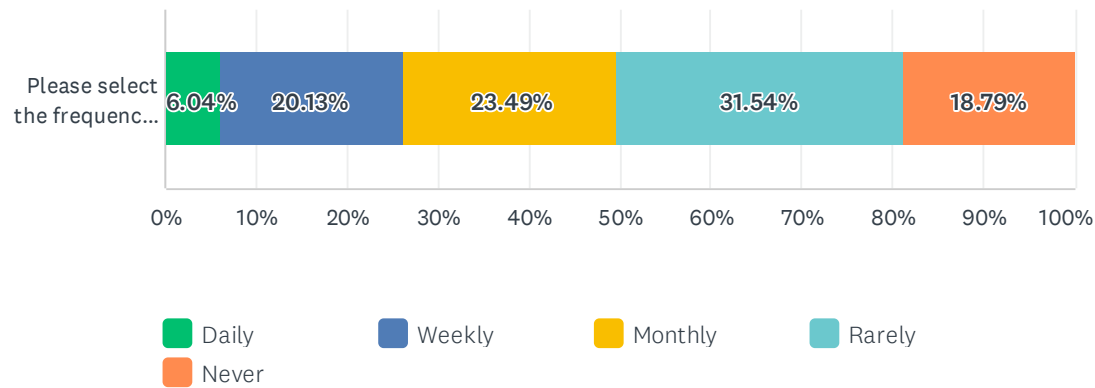


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Fall



Winter



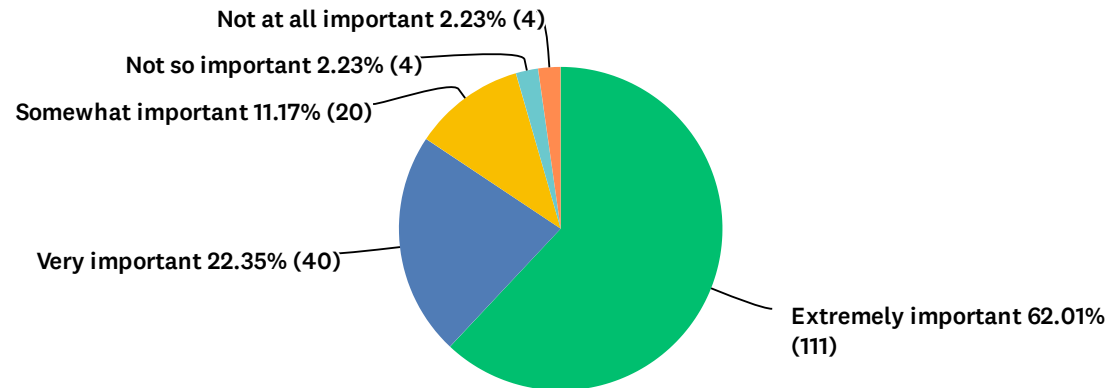
Spring						
	DAILY (1)	WEEKLY (2)	MONTHLY (3)	RARELY (4)	NEVER (5)	TOTAL
Please select the frequency for each season	8.82%	37.65%	26.47%	20.59%	6.47%	
	15	64	45	35	11	170
BASIC STATISTICS						
	MINIMUM	MAXIMUM	MEDIAN	MEAN	STANDARD DEVIATION	
Please select the frequency for each season	1.00	5.00	3.00	2.78		1.07

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Summer						
	DAILY (1)	WEEKLY (2)	MONTHLY (3)	RARELY (4)	NEVER (5)	TOTAL
Please select the frequency for each season	21.64% 37	35.67% 61	23.98% 41	13.45% 23	5.26% 9	171
BASIC STATISTICS	MINIMUM	MAXIMUM	MEDIAN	MEAN	STANDARD DEVIATION	
Please select the frequency for each season	1.00	5.00	2.00	2.45	1.12	
Fall						
	DAILY (1)	WEEKLY (2)	MONTHLY (3)	RARELY (4)	NEVER (5)	TOTAL
Please select the frequency for each season	13.42% 20	36.24% 54	24.83% 37	20.13% 30	5.37% 8	149
BASIC STATISTICS	MINIMUM	MAXIMUM	MEDIAN	MEAN	STANDARD DEVIATION	
Please select the frequency for each season	1.00	5.00	3.00	2.68	1.10	
Winter						
	DAILY (1)	WEEKLY (2)	MONTHLY (3)	RARELY (4)	NEVER (5)	TOTAL
Please select the frequency for each season	6.04% 9	20.13% 30	23.49% 35	31.54% 47	18.79% 28	149
BASIC STATISTICS	MINIMUM	MAXIMUM	MEDIAN	MEAN	STANDARD DEVIATION	
Please select the frequency for each season	1.00	5.00	4.00	3.37	1.17	

Q18 How important is preserving and enhancing the natural environment of the riverfront to you?
Please feel free to add why this is or is not important to you in the comments section.

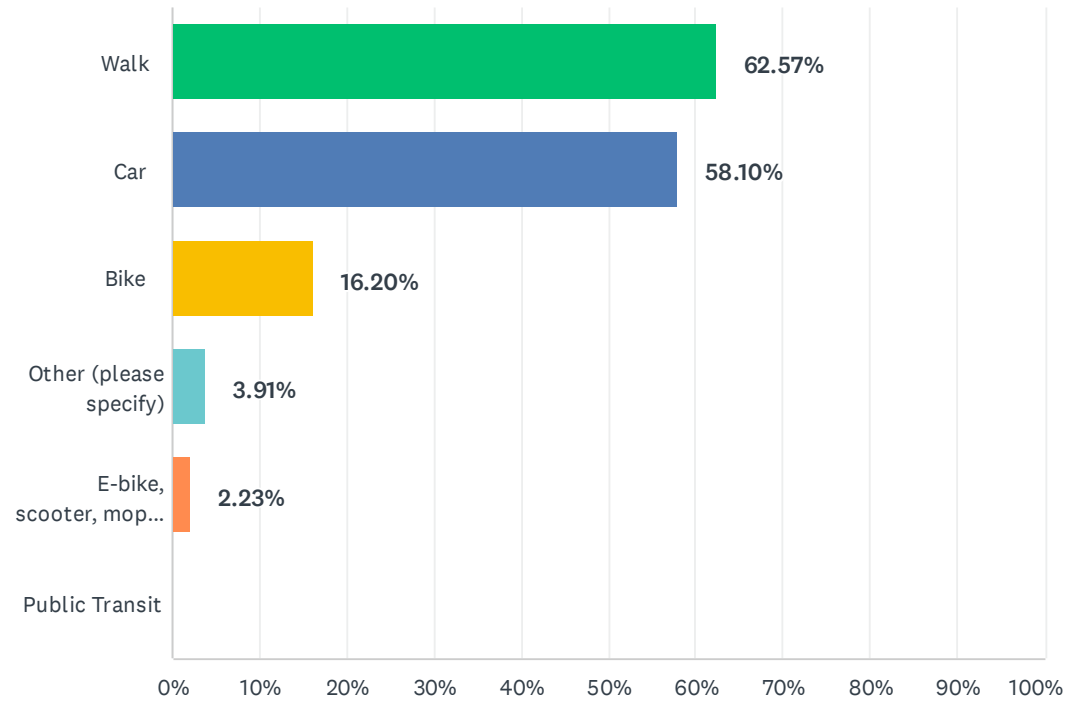
Answered: 179 Skipped: 17



ANSWER CHOICES	RESPONSES	
Extremely important	62.01%	111
Very important	22.35%	40
Somewhat important	11.17%	20
Not so important	2.23%	4
Not at all important	2.23%	4
TOTAL		179

Q19 How do you currently commute to the downtown riverfront?

Answered: 179 Skipped: 17

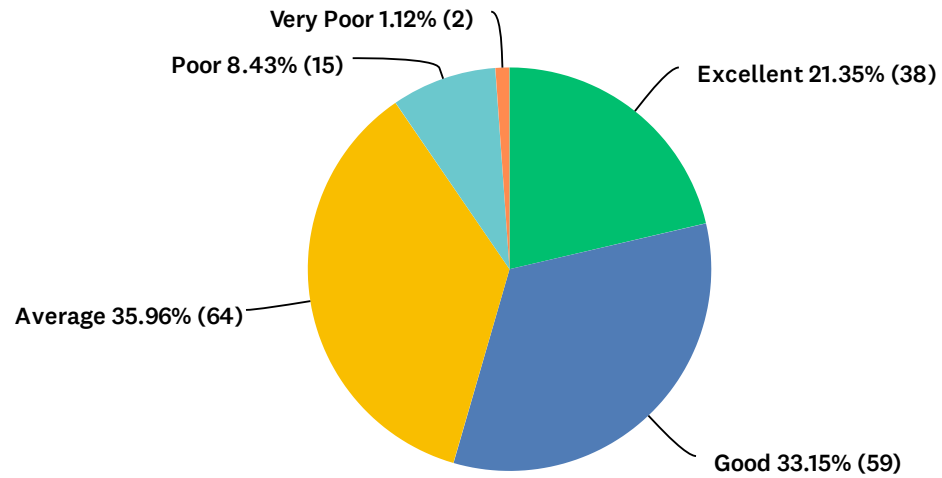


Newmarket Master Plan Update: Housing and Open Space Chapters

ANSWER CHOICES	RESPONSES	
Walk	62.57%	112
Car	58.10%	104
Bike	16.20%	29
Other (please specify)	3.91%	7
E-bike, scooter, moped, etc.	2.23%	4
Public Transit	0.00%	0
Total Respondents: 179		

Q20 How would you rate the accessibility of the downtown riverfront for pedestrians and cyclists?

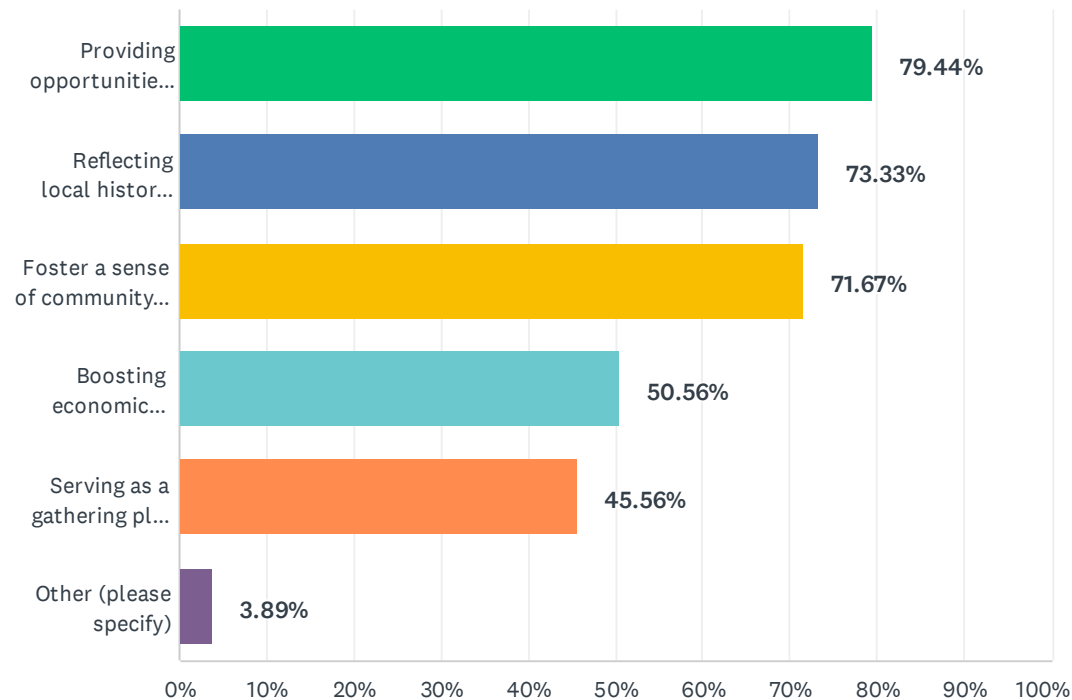
Answered: 178 Skipped: 18



ANSWER CHOICES	RESPONSES	
Excellent	21.35%	38
Good	33.15%	59
Average	35.96%	64
Poor	8.43%	15
Very Poor	1.12%	2
TOTAL		178

Q21 How do you envision the downtown riverfront contributing to the overall identity and character of the community? Check all that apply.

Answered: 180 Skipped: 16

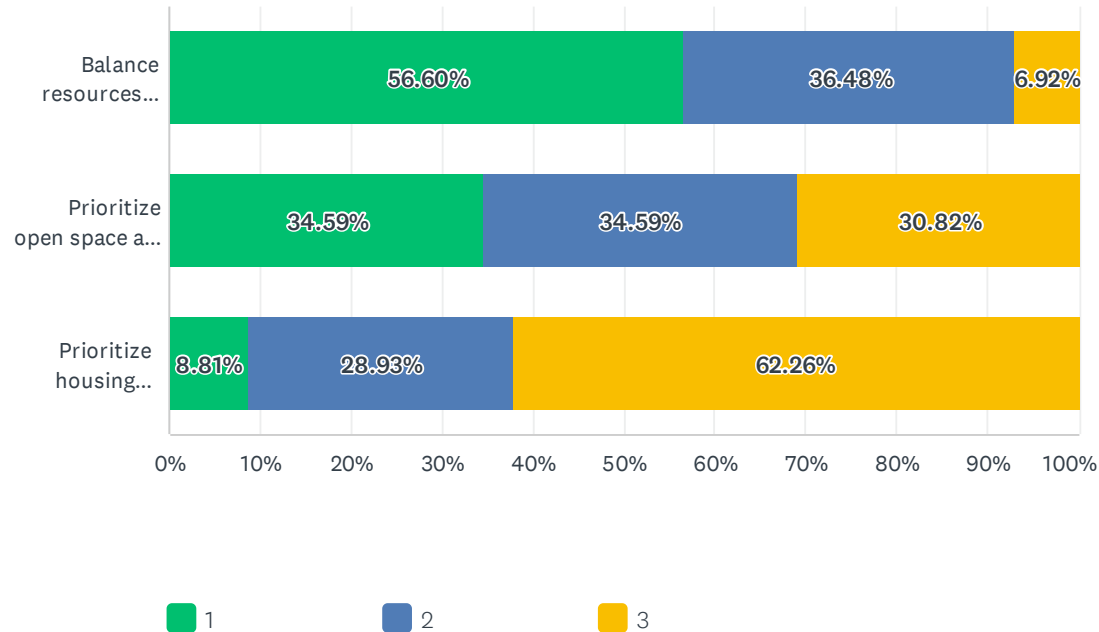


Newmarket Master Plan Update: Housing and Open Space Chapters

ANSWER CHOICES	RESPONSES	
Providing opportunities to observe the natural environment (views of the river, wildlife observation areas, etc.)	79.44%	143
Reflecting local history and culture	73.33%	132
Foster a sense of community pride	71.67%	129
Boosting economic vitality	50.56%	91
Serving as a gathering place for diverse groups	45.56%	82
Other (please specify)	3.89%	7
Total Respondents: 180		

Q22 How would you prioritize allocating community resources between housing development, and open space conservation and water resource protection initiatives? Please rank these 1 through 3, with 1 being the top priority.

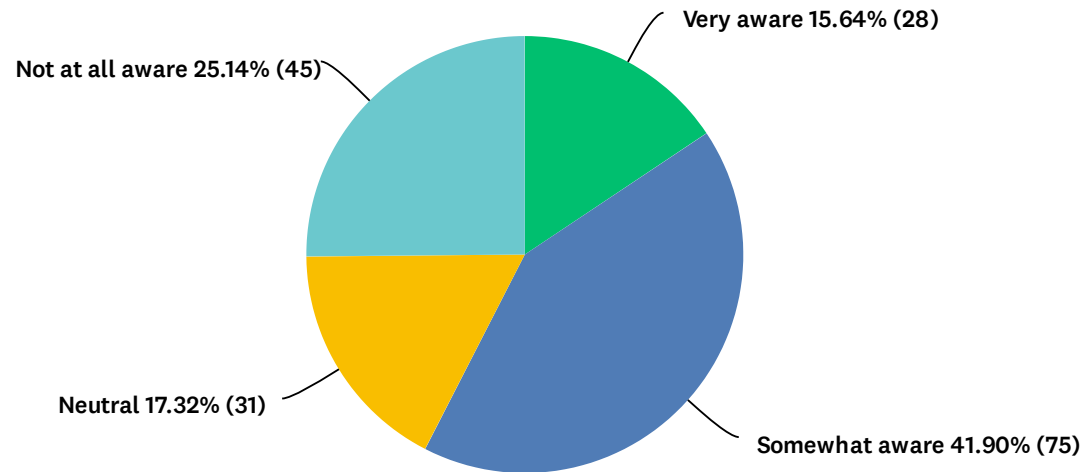
Answered: 159 Skipped: 37



	1	2	3	TOTAL	SCORE
Balance resources equally among housing, open space conservation and water resource protection	56.60% 90	36.48% 58	6.92% 11	159	2.50
Prioritize open space and water resource protection	34.59% 55	34.59% 55	30.82% 49	159	2.04
Prioritize housing development	8.81% 14	28.93% 46	62.26% 99	159	1.47

Q23 How aware are you of educational programs or information about Newmarket's conservation areas and water resources (e.g., drinking water, wetlands, rivers)?

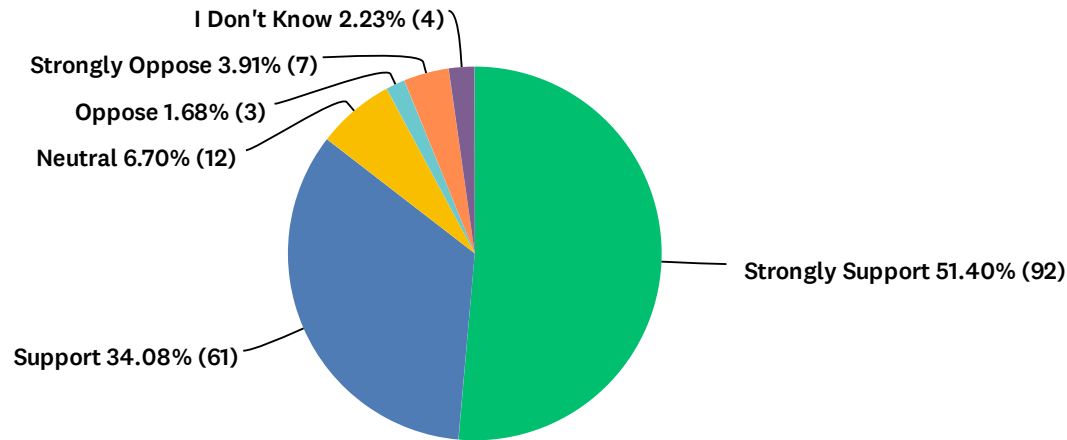
Answered: 179 Skipped: 17



ANSWER CHOICES	RESPONSES	
Very aware	15.64%	28
Somewhat aware	41.90%	75
Neutral	17.32%	31
Not at all aware	25.14%	45
TOTAL		179

Q24 Would you support protecting our water resources from potential contamination through additional local regulations?

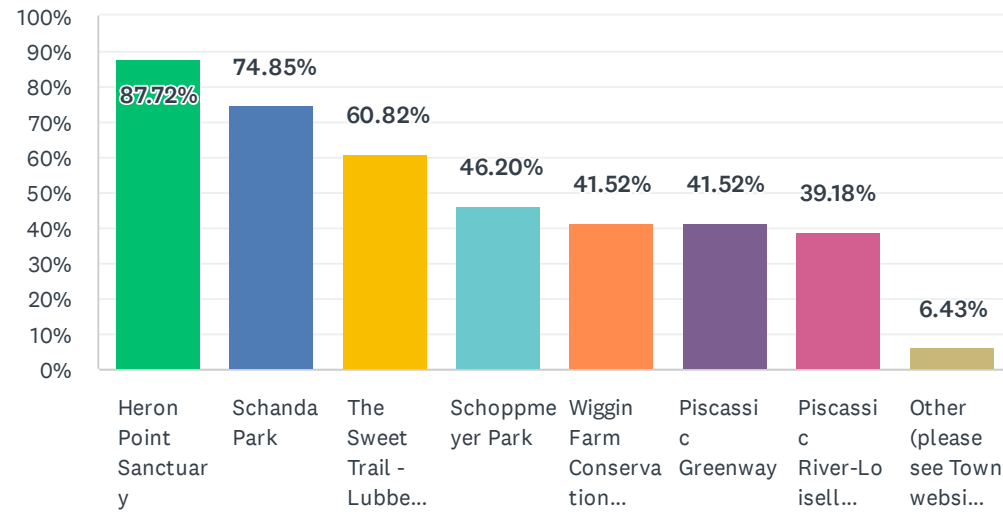
Answered: 179 Skipped: 17



ANSWER CHOICES	RESPONSES	
Strongly Support	51.40%	92
Support	34.08%	61
Neutral	6.70%	12
Oppose	1.68%	3
Strongly Oppose	3.91%	7
I Don't Know	2.23%	4
TOTAL		179

Q25 Which of the following conservation areas and parks are you aware of and/or visit?

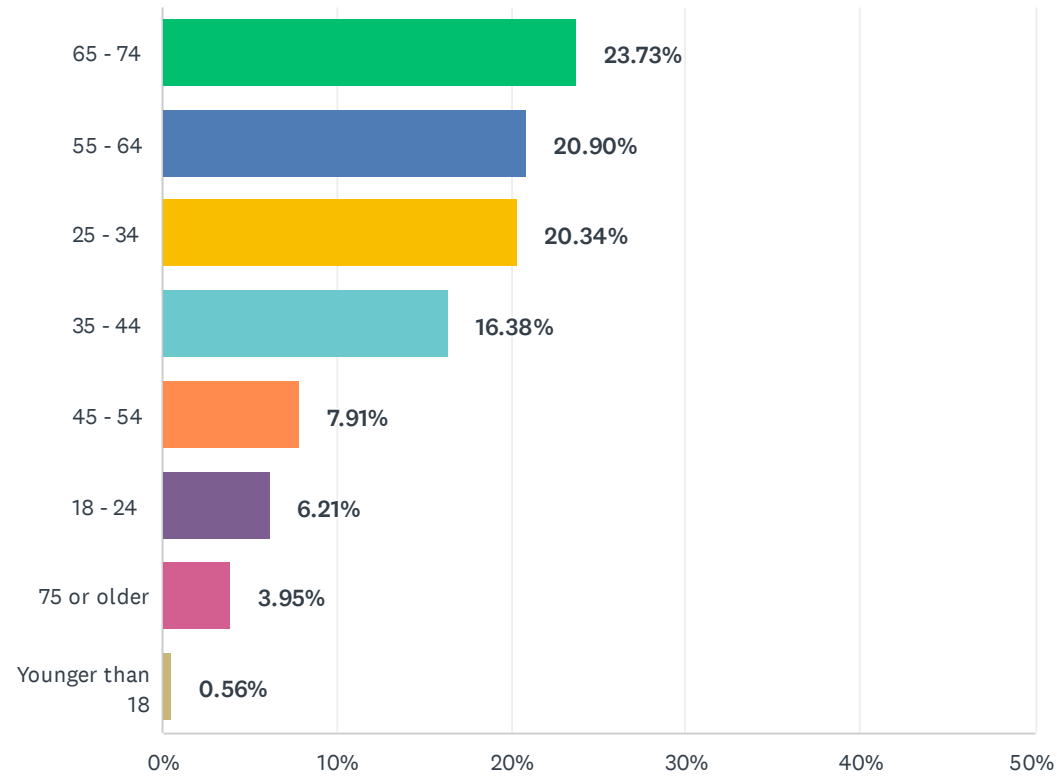
Answered: 171 Skipped: 25



ANSWER CHOICES	RESPONSES	
Heron Point Sanctuary	87.72%	150
Schanda Park	74.85%	128
The Sweet Trail - Lubberland Creek Preserve	60.82%	104
Schoppmeyer Park	46.20%	79
Wiggins Farm Conservation Area	41.52%	71
Piscassic Greenway	41.52%	71
Piscassic River-Loiselle Conservation Area	39.18%	67
Other (please see Town website with other choices: https://www.newmarketnh.gov/conservation-commission/pages/conservation-areas-and-parks)	6.43%	11
Total Respondents: 171		

Q26 Please select your age.

Answered: 177 Skipped: 19



Newmarket Master Plan Update: Housing and Open Space Chapters

ANSWER CHOICES	RESPONSES	
65 - 74	23.73%	42
55 - 64	20.90%	37
25 - 34	20.34%	36
35 - 44	16.38%	29
45 - 54	7.91%	14
18 - 24	6.21%	11
75 or older	3.95%	7
Younger than 18	0.56%	1
TOTAL		177

Water Resources

Town of Newmarket Master Plan

Adopted unanimously by the Newmarket Planning Board following a Public Hearing on November 10, 2020.







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Acknowledgements

The Town of Newmarket is greatly indebted to all who participated either directly or indirectly in the process of developing the 2020 Water Resources chapter. From service on municipal boards to professional technical assistance the input and guidance from so many individuals helped to shape the recommendations and vision presented herein. The town extends a thank you in advance to all who will work to implement this plan and its recommendations in the future.

A special acknowledgement should be offered to chapter's primary funder, the New Hampshire Department of Environmental Services (NHDES) Drinking Water Source Protection Program. This program has been essential in providing technical and financial assistance, and to enforce state regulations that serve to protect the state's sources of drinking water.

The contributions of those identified below are particularly noteworthy.

Master Plan Steering Committee

Bill Arcieri, Member At-Large
Gretchen Kast, Town Council
Michal Zahorik, Planning Board Alternate
Patrick Reynolds, Conservation Commission
Val Shelton, Planning Board

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Front Cover:

Photograph by Bill Doucet

A special thanks to Bill Doucet and Mike Hickey for all the local photos.



Introduction

The protection and use of water resources are critical concerns to the Town of Newmarket. With virtually all residents dependent upon wells for domestic use, the quantity and quality of available groundwater must be protected from depletion and contamination. Other Town water resources, such as swamps, ponds, streams, and wetlands are important because they are hydrologically related to groundwater, and provide ecological, scenic, and recreational value to residents.

In general, there is a direct relationship between land use and water quality. It is the responsibility of the Town to take reasonable and prudent precautions to protect all water resources from incompatible uses, thus protecting the health and general welfare of the community. Appropriate steps should be taken by the Town to ensure that enough water supply exists for use by Newmarket residents, as well as native wildlife and plant communities. The Town needs to examine and address water supply issues, watershed management, pollution, and potential aquifers/gravel areas.

Vision Statement

Protect all water resources in Newmarket from threats that include but are not limited to contamination, depletion, alteration, and degradation through appropriate policies, regulations, and actions.

Guidance for policies, regulations, and actions that affect Newmarket's water resources derives from the following water resources management objectives and conservation measures.

- a) *Protect public health, safety, and welfare*
- b) *Maintain high environmental quality*
- c) *Ensure that growth minimizes impacts to environmental quality*
- d) *Direct development to environmentally suitable areas*
- e) *Assure adequate water supply for residents*
- f) *Preserve water quality and quantity for future residents*
- g) *Educate residents about water resource issues*
- h) *Participate in inter-municipal water resources management efforts*
- i) *Comply with applicable local, state, and federal regulations*

Overview

The Town of Newmarket covers a total area of 14.2 square miles (9,080.3 acres), with a land area of 12.6 square miles (8,053.5 acres) and a water area of 1.6 square miles (1,026.8 acres). With a population of 8,977 (according to the [2013-2017 American Community Survey 5-year estimates](#)), Newmarket has experienced roughly a 10.6% increase in total population since 2000 (8,027).

The topography of Newmarket is gently rolling, and elevations range from sea level along tidal areas to greater than 280 feet on Bald Hill in the westernmost area of town. Great Bay and the Lamprey River are the town's most significant waterbodies. The Town has many acres and types of water resources, which are summarized in the table below. These resources provide valuable functions and services that benefit the public health and welfare and the environment.



Table 1: Water Resource Statistics

Resource Type	Total Area	% Municipal Area
Freshwater Surface Waters	656.1 Acres	7.2%
Coastal/Tidal Waters	1,061.9 Acres	11.7%
Streams and Rivers (miles)	31.4 Miles	N/A
Freshwater Wetlands	979.3 Acres	10.8%
Prime Wetlands	908.9 Acres	10.0 %
Floodplain (2005)	512.9 Acres	5.7%
Floodplain (2014)	529.9 Acres	5.8%
Stratified Draft Aquifer	657.5 Acres	7.2%

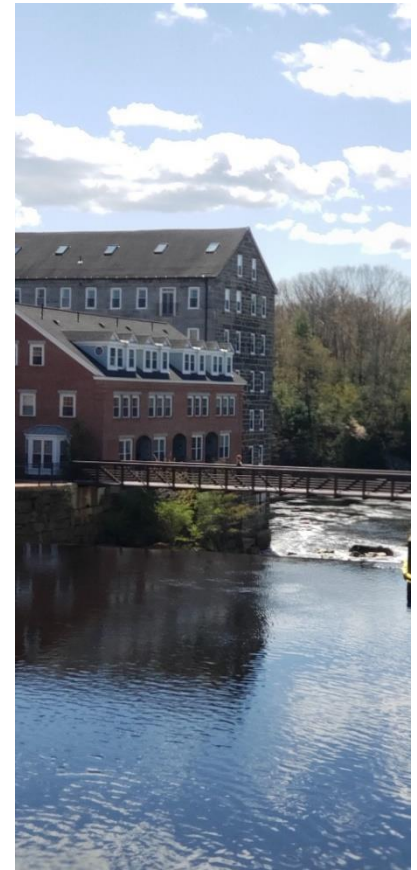
[Sources: NH Hydrography Dataset, National Wetland Inventory, FEMA DFIRMs, NH GRANIT]

Newmarket is positioned in the lowermost reaches of the Coastal Watershed, and within portions of the Lamprey River, Exeter River, and the Great Bay watersheds. It contains both freshwater and tidal rivers and estuarine ecosystems. Tidal influence on the Lamprey River extends to Macallen Dam in downtown near the NH Route 108 crossing. Tidal influence of the Great Bay extends up Lubberland Creek and the Squamscott River, as well as several unnamed tributaries in the southern areas of town.

Water Resource Chapter Update

The original Water Resources Chapter of the Master Plan was developed and adopted by the Planning Board in 2001; an update was completed in 2009. Since that time, social and environmental conditions have changed, including shifts in local development patterns, increases in population, and impacts from changing climate conditions, all of which have placed additional stress on the Town's water resources. As a result, Newmarket has compiled a series of recommendations from multiple reports on the town's water system into one comprehensive Capital Improvement Plan (CIP). The Town is improving their stormwater management through compliance with the EPA's [Municipal Separate Storm Sewer System](#) (MS4) program. Newmarket has been a part of several climate adaptation projects, including updates to their [hazard mitigation plan](#), a [flooding study](#) in the Moonlight Brook watershed, a [climate vulnerability study](#), and an [infrastructure project](#) to replace an undersized culvert on Lubberland Creek. In addition, the Town has collaborated with regional land conservation agencies to protect land containing critical water resources including wetlands, floodplain, streams and rivers, and riparian habitat.

Federal, state, and local non-governmental partners have also conducted significant research, inventories, and evaluation of water resources in the Coastal and Great Bay watersheds. These efforts have produced valuable scientific information about the status, health, and viability of water resources in these watersheds. The results of these efforts have sparked much discussion about future management and sustainability of ecosystems, natural resource functions and benefits, emerging contaminants that are a risk to human health, and drinking water supplies in many communities in the Seacoast.



Lamprey River north of the Dam
[Photo Credit: Mike Hickey]

In 2019, the Town of Newmarket, in partnership with the Strafford Regional Planning Commission, applied for and received funding to update the existing Water Resources Chapter of the Master Plan by incorporating new information to better plan for the management and sustainability of the Town's water resources.

Surface Water Policy Statement

[illegible]

Map 1. Newmarket's Surface Water Resources [Source: US Geological Survey (USGS), NH Hydrography Dataset (NHHD)]

According to the New Hampshire hydrography dataset, Newmarket has a total of 24.6 linear miles of streams and rivers, including 23 miles of perennial creeks, streams and rivers and 1.6 miles of intermittent streams and creeks, that provide a myriad of benefits for residents and visitors to the region.

The portion of the Lamprey River in Newmarket is located at the confluence of the Piscassic River at the Sliding Rock Conservation Area. The river flows south towards the Macallen Dam –where it is tidally influenced— and the downtown waterfront, where there are major access points for boaters and other recreational enthusiasts using



the Great Bay. The total drainage area of the watershed covers almost 214 square miles and includes fourteen towns, making it one of the largest watersheds in New Hampshire. The Lamprey River supports a variety of recreational uses including boating, fishing, swimming in certain areas, and ice fishing and skating in the winter. It is considered to have significant ecological value, supporting some of the most important anadromous fishery habitat in the state, as well as providing aquatic habitat for numerous wildlife and waterfowl species.

The Lamprey River is recognized on both the state and federal levels as a river with outstanding resources, and for that reason, it is afforded protections not normally provided to other rivers. On the federal level, certain sections of the Lamprey are designated as a Wild and Scenic River by the National Park Service and the US Congress. At the state level, the Lamprey and its main tributaries are in the New Hampshire Rivers Management and Protection Program.



Lamprey River at the Macallen Dam
[Photo Credit: Bill Doucet]

Piscassic River

The Piscassic River is a major tributary to the Lamprey River and flows northerly from Newfields through much of the area around Ash Swamp Road, Grant Road and Lang's Lane. The river then flows beneath Route 152, spills over the dam at Packers Falls Road and then joins up with the Lamprey River about one half mile downstream. The lower Piscassic River, below the dam at the former Water Treatment Plant on Packers Falls Road, is often mistakenly considered to be part of the Lamprey River because it is an extension of the impounded waters behind the Macallen Dam that is located downstream. The confluence with the Lamprey River is located just north of the Durham and Newmarket town boundary.

Follett's Brook

Follett's Brook flows southeasterly from Durham and joins up with the Piscassic River just above the Packers Falls Road dam. Only the lower third of Follett's Brook watershed is within Newmarket. Prior to 1990, Follett's Brook was used as the principal municipal water supply source with treatment provided at the Packers Falls Road Water Treatment Plant. The Piscassic River was used as a backup water supply source. In the last ten years, the Town has principally relied on groundwater from several municipal wells for drinking water.

Moonlight Brook

The main channel of Moonlight Brook runs for approximately 1.5 miles from its headwaters to its outlet into the Lamprey River. It is routed under three road crossings before passing under a railroad track near downtown Newmarket. Downstream of this point, Moonlight Brook is routed through a series of culverts and pipes before emerging back into its natural channel just upstream of its outlet to the Lamprey River. During large storm events, Moonlight Brook receives significant inflow from the Piscassic River, which connects to Moonlight Brook at its headwaters. During the 100-year storm event, inflows from the Piscassic River reach an estimated 307 cubic feet per second (cfs), almost doubling the peak flow within Moonlight Brook.¹

¹ Waterstone Engineering & Horsley Witten Group (2016). *Climate Adaptation Plan for the Moonlight Brook Watershed: Building Resilience to Flooding and Climate Change in the Moonlight Brook Watershed*. [online] Available at: <https://www.nhcaw.org/wp-content/uploads/2018/05/13-306-21-Newmarket-Final-Report.pdf> [Accessed 27 Dec. 2019].



Lubberland Creek

Lubberland Creek, which runs under Bay Road, is one of several smaller tributaries that drain directly to Great Bay. Lubberland Creek originates in wetlands along Dame Road in Durham and then drains southerly crossing beneath Bay Road and enters the Great Bay along the north side of Moody Point. The lower portions of the Creek contain extensive salt and freshwater wetlands. Much of the watershed associated with this drainage system remains as either open fields or forested areas with sparsely located homes, including a portion of the Gonet Drive subdivision.



Lubberland Creek

[Photo Credit: Bill Doucet]

Significant Unnamed Tributaries

There are several other unnamed tributaries of significance, including the following:

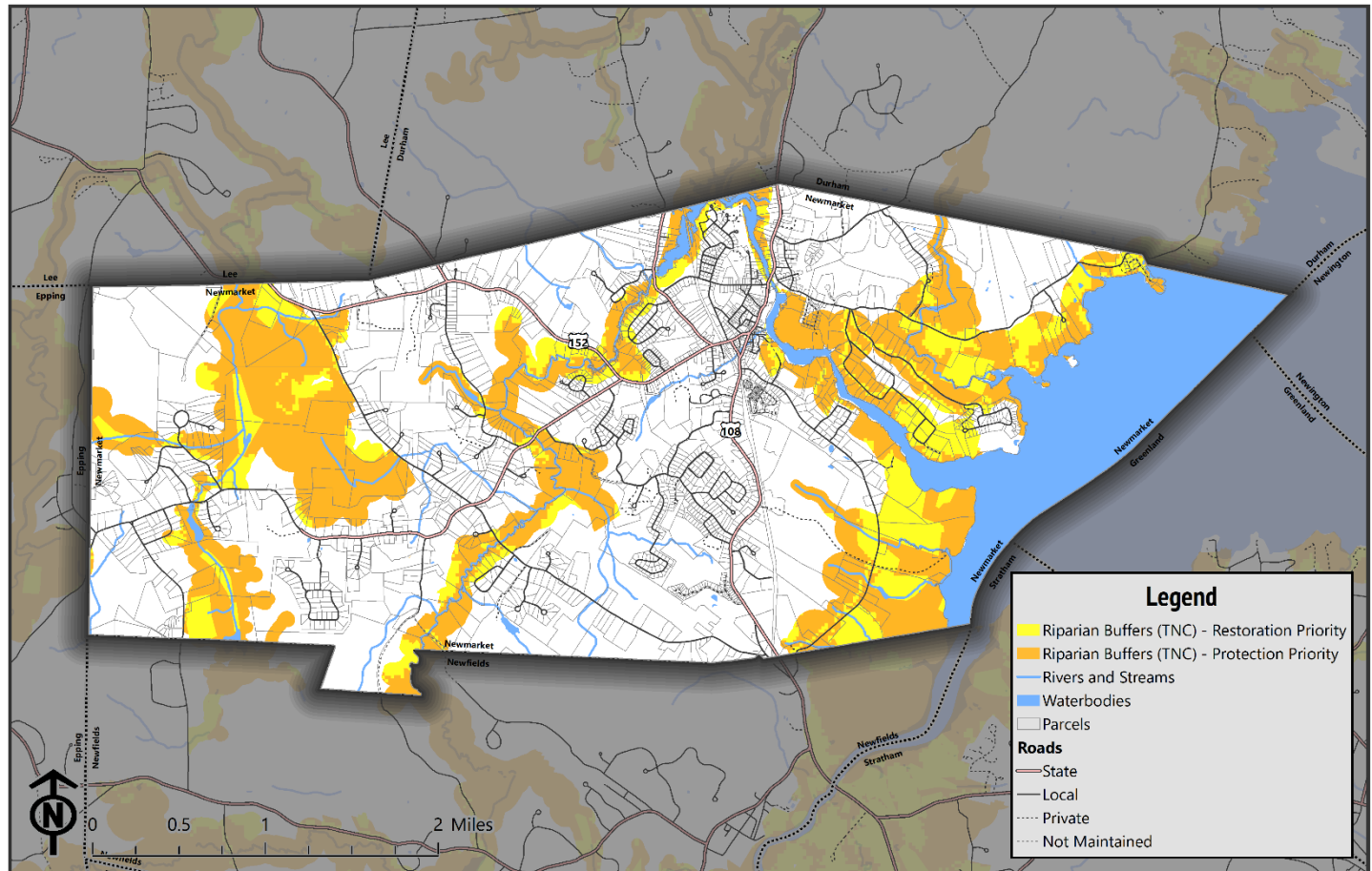
- 1) Piscassic River Tributary (1): Draining from a large wetland west of Hall's Mill Road in Newfields, this stream flows northeasterly before crossing underneath Neal Mill Road and emptying into the Piscassic River.
- 2) Piscassic River Tributary (2): Draining from several wetlands southeast of the Wadleigh Falls Road in the vicinity of the gravel pits, this stream flows easterly before crossing Langs Lane just north of Winslow Drive and emptying into the Piscassic River.
- 3) Lamprey River Tributary: Draining from a series of a large wetlands east of Bald Hill Road, this stream flows northerly before crossing Grant Road, then Doe Farm Lane, and into the Wiggan Farm Conservation Area. It continues north towards the Tuttle Swamp Conservation Area before crossing Wadleigh Falls Road and emptying into the Lamprey River.
- 4) Great Bay Tributaries: There are two relatively significant unnamed perennial streams that originate behind Newmarket Storage on Route 108 and flow easterly crossing beneath New Road and into Great Bay.

Buffer Functions and Benefits

Buffer Options for the Bay (BOB)² defines a buffer as a "naturally vegetated segment of land directly upslope of a water resource, such as a lake, stream, river, pond, estuary, or other wetland type." The value of buffers is diverse; they support wildlife capacity, enhance water views, and help meet water quality standards for municipalities. In New Hampshire, decisions involving buffer lands around waterbodies are often made by communities and individual landowners.

According to GIS data developed by the Nature Conservancy, which was created as part of the 2016 update to the Land Conservation Plan for New Hampshire's Coastal Watersheds, there are several locations identified as priority riparian buffer areas suitable for restoration and/or protection. These locations include: 1) the unnamed Lamprey River tributary (see above for description) and areas surrounding Tuttle Swamp, 2) the mainstem of the Piscassic River, 3) the Lamprey River (both the freshwater portion and tidal portions), 4) Lubberland Creek, and 5) the shoreline of Great Bay.

² [Buffer Options for the Bay](#) is an informational resource intended to support policy and land use decisions in NH's Great Bay region that involve buffers.



Map 2. Newmarket's Surface Water Resources [Source: US Geological Survey (USGS), NH Hydrography Dataset (NHHD)]

BOB'S "Exploring the Trends, Science, & Options for Buffer Management in the Great Bay Watershed"³—an analysis of local factors influencing buffer-related decision-making in the Great Bay watershed—revealed these top four findings:

- Buffer-related decisions are inherently complex, requiring municipalities to balance many factors including property rights, community character, natural resource protection, abutters' concerns, and economic growth.
- People may not understand the individual and social benefits of buffers.
- Buffer oversight and enforcement can be logistically difficult and lack capacity.
- Developers want consistent regulations, flexibility in the review process, and not a 'one-size-fits-all' rule.

Did you know?

Research has shown that the effectiveness of green infrastructure (natural areas like buffers that provide ecosystem services) in reducing pollution is not only comparable to that achieved by gray infrastructure (e.g., constructed stormwater interventions), but that green infrastructure typically costs markedly less.

³ Flanagan, Shea E.; Patrick, David A.; Leonard, Dolores J.; and Stacey, Paul, "Buffer Options for the Bay: Exploring the Trends, the Science, and the Options of Buffer Management in the Great Bay Watershed Key Findings from Available Literature" (2017). PREP Reports & Publications. 380. <https://scholars.unh.edu/prep/380>



BOB's "[Navigating Regulations: What regulatory options do towns have?](#)" and their "[Regulatory options for buffer action](#)" are available to help communities navigate regulations and show different options for buffer action. One other additional resource is the minimum recommended buffer widths for various buffer functions (see Figure 1). These widths are a result of a synthesis of many sources. For more specific information about how these widths were generated, please reference the [Coastal Science Literature Review](#).

As Newmarket continues to grow, increased priority should be placed on increasing buffers for all waterbodies and aquifers with additional steps taken to address septic systems to ensure water quality and shoreland protection.

Water Quality Impairments

According to the [DRAFT 2018, Section 303\(d\)](#) list of impaired waterbodies⁴, which is produced by the NHDES Surface Water Quality Assessment Program every two years as a federal mandate under the Clean Water Act, Newmarket has several waterbodies with water quality impairments, including the Lamprey River, Great Bay, Piscassic River, and Moonlight Brook.

Local Water Quality Monitoring

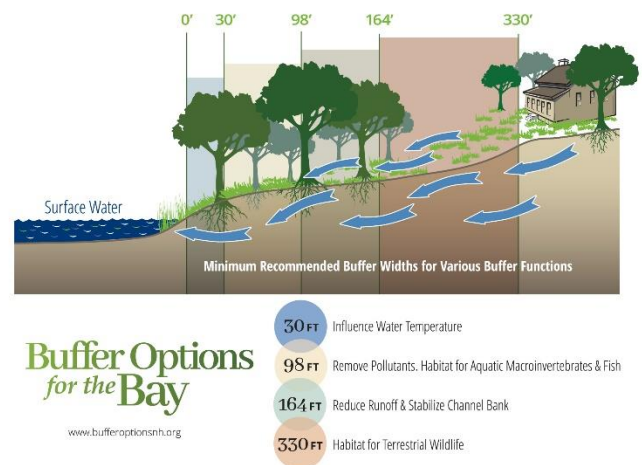
The NH Department of Environmental Services through its Volunteer River Assessment Program (VRAP) maintains a water quality-monitoring program for the Lamprey River and its tributaries. The Lamprey River Watershed Association has undertaken this role and has been doing so since 1999. Long-term monitoring provides a basis for understanding the river's dynamics, or variations on a station-by-station and year-to-year basis. The data also serves as a baseline from which to determine any water pollution problems in the river and/or watershed.

In Newmarket, there are four sampling locations, including the Piscassic River at the Grant Road Bridge, Piscassic River at the Route 152 Bridge, Piscassic River at the Packers Falls Bridge, and the Lamprey River at the Route 108 Bridge. According the 2017 Lamprey River Watershed VRAP Data report, the only measurements not meeting New Hampshire surface water quality standards were dissolved oxygen and pH. Dissolved oxygen is essential for bottom-dwelling organisms and pH affects chemical and biological processes in the water and different organisms flourish within a range of pH levels⁵.

Lakes, Ponds, and Great Bay

Lakes, ponds, freshwater/tidal rivers, and Great Bay comprise 1,046.2 acres in Newmarket. This includes Great Bay, which is a 6,000+ acre tidal estuary and represents roughly 84% of the total water area in town, that acts as

Figure 1. BOB Buffer Width Recommendations



⁴ Identified waterbodies that are impaired or threatened; not expected to meet water quality standards within a reasonable time even after application of best available technology standards for point sources or best management practices for nonpoint sources; or requires a comprehensive water quality study (total maximum daily load) in order to meet water quality standards.

⁵ NH Volunteer River Assessment Program. (Revised 2011). Interpreting VRAP Water Quality Monitoring Parameter: Chemical Parameters. [online] [Accessed 27 Aug. 2020]. Available at: https://www.des.nh.gov/organization/commissioner/pip/publications/wd/documents/vrap_parameters.pdf



the Town's easterly border and is home to upland forest, salt marsh, mudflats, tidal creek, rocky intertidal, eelgrass beds, channel bottom/subtidal and upland field habitats.⁶

Table 2: Surface Waterbodies by Type and Acreage

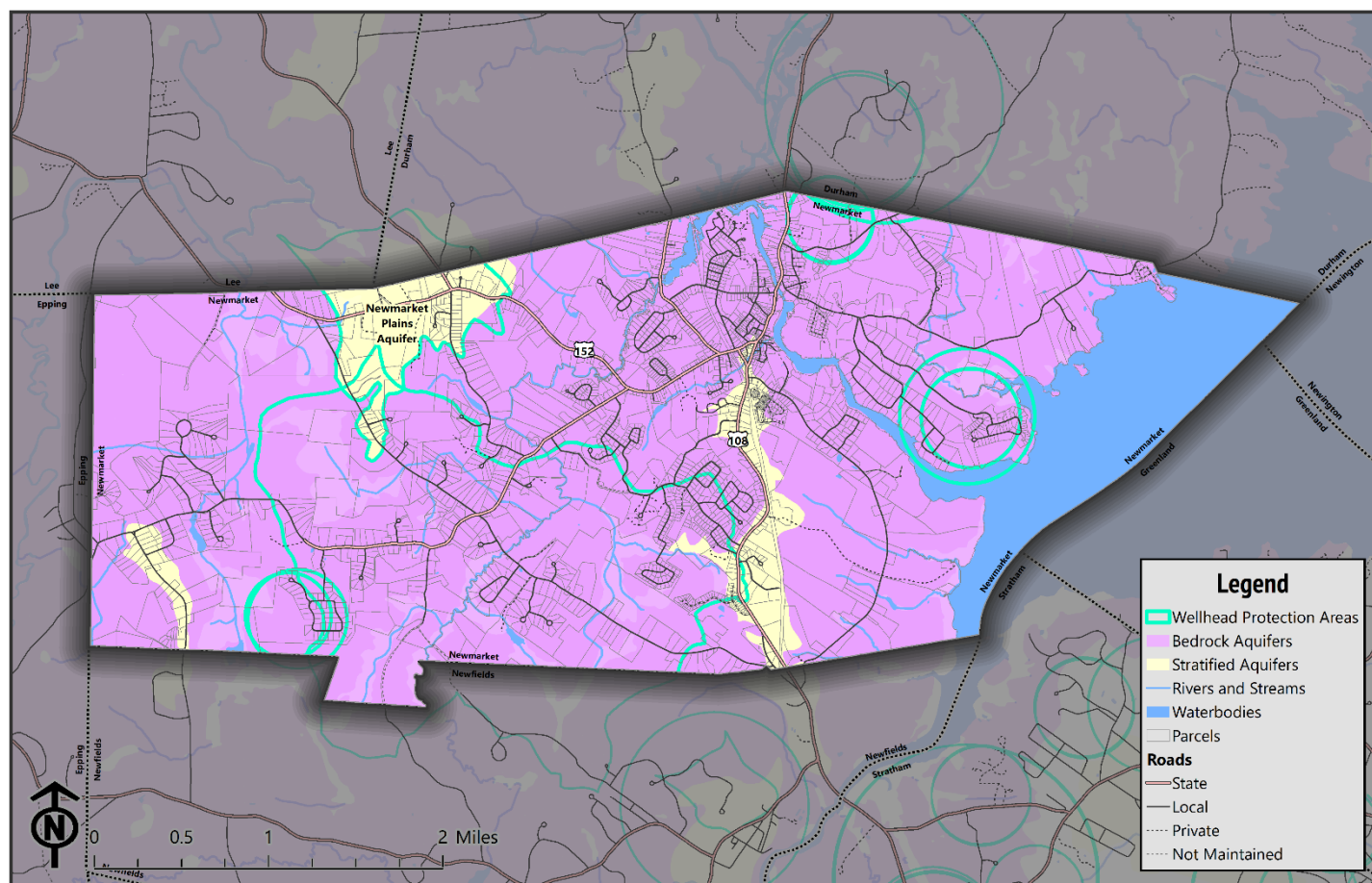
Surface Water	Acreage	% Total Water Area
Lamprey River (Freshwater)	16.8	1.6
Lamprey River (Tidal)	23.1	2.2
Lakes (Impoundments)	33.4	3.2
Ponds	95.2	9.1
Great Bay	877.7	83.9
Total	1,046.2	100

[Source: NH Hydrography Dataset]

Newmarket's many small ponds and other unnamed surface water bodies are typically located within large wetland complexes in low lying areas through which rivers, streams, and small unnamed tributaries flow.

Groundwater Policy Statement

Protect the volume and quality of groundwater resources for current and future sources of drinking water, and to sustain downstream surface waters and wetlands through appropriate policy and regulatory measures.



Map 3. Newmarket's Groundwater Resources [Source: USGS, NHDES]

⁶ Great Bay Stewards. (2019). Great Bay Map, NH & ME. [online] Available at: <https://greatbaystewards.org/home-page-great-bay-stewards-supporting-great-bay-estuary-greenland-nh/great-bay-map/> [Accessed 27 Dec. 2019].



Stratified Drift Aquifers

Stratified drift aquifers consist of well-sorted sand and gravel deposits that are typically laid out in layers by historic glacial outwash streams and rivers. Depending on the depth and the coarseness of the material, these deposits generally provide good sources of groundwater because of their high capacity to store groundwater over large areas.

Table 3: Acres of Stratified Drift and Bedrock Aquifers

Type	Acres	% of Total Municipal Area
Stratified Drift	657.5	7.2
Bedrock Aquifers	8,127	89.5
Total	8,784.5	96.7

[Source: NH GRANIT]

Newmarket Plains Aquifer

The Town's most productive groundwater resource is a stratified drift aquifer generally referred to as the Newmarket Plains Aquifer located in the northwest part of town along Route 152 near Lee Hook Road. The surficial area of the aquifer is approximately 410 acres (0.64 square miles) and is about 60 to 80 feet deep at its deepest point.⁷ The Newmarket Plains Aquifer represents the Town's primary source of drinking water from two municipal wells, the Bennett and Sewall Wells. The Bennett Well was installed in 1974 and is 48 feet deep. The Sewall Well was installed in 1985 and is 83 feet deep. Historically, these two wells were thought to produce a safe yield of 200 and 260 gallons per minute (gpm) of high-quality drinking water that requires minimal treatment. The drought conditions in 2016 resulted in revised safe yield estimates of 110 and 155 gpm, respectively. This is a major reduction in the Town's water supply capabilities.

There are only two other identified stratified-drift aquifer deposits in Newmarket. One exists along Bald Hill Road in the western portion of the town, and the other deposit is situated directly beneath Route 108 and extends from about the Rockingham Golf Course area north to about the railroad crossing. Neither of these deposits are considered to have high water supply potential because these deposits are relatively shallow with depths of less than 20 feet and are also narrow extending out only 300 to 400 feet in width. In addition, the existing development along Route 108 presents a risk of contamination.

Bedrock Aquifers

Bedrock aquifers are composed of fractured bedrock or ledge. Groundwater is stored in voids that are created by these fractures. On average, bedrock aquifers tend to yield smaller volumes of groundwater than wells drilled in stratified drift and finding one sizable enough void or fracture can be a costly procedure. Areas of Newmarket not covered by stratified drift deposits are underlain by bedrock. Typically, most bedrock has variable water yield depending on subsurface conditions (i.e. type of bedrock and the degree of fracturing and connectivity).

In 2016, the Town put the MacIntosh Well on-line. This well has a safe yield of 300 gpm, but due to water quality issues, this well must be blended with water from the other two wells. As a result, Bennett and Sewall Wells must be operating at 100% of their safe yield to pump MacIntosh at 300 gpm. The Town has permitted a fourth well (Tucker Well) but has not developed this well or tied it into the distribution system. This well has a permitted

⁷ Richard B. Moore, *Geohydrologic and Groundwater Quality Data for Stratified-drift Aquifers in the Exeter, Lamprey and Oyster River Basins, Southeastern New Hampshire*, USGS, 1990. Available at <https://pubs.usgs.gov/wri/1988/4128/report.pdf>.



capacity of 275 gpm, but like the Macintosh Well, will likely be limited by water quality issues to less than this capacity unless the water is treated.

Federal/State Protection Measures

Shoreland Water Quality Protection Act

The Shoreland Water Quality Protection Act, originally named the Comprehensive Shoreland Protection Act (CSPA), was enacted into law in the 1991 session of the Legislature. The act establishes minimum standards for the subdivision, use, and development of shorelands adjacent to the state's public water bodies. During the 2011 legislative session, the CSPA was renamed to the Shoreland Water Quality Protection Act and included changes to vegetation requirements within the natural woodland and waterfront buffers, the impervious surface limitations and included a new shoreland permit by notification process.

Alteration of Terrain Permit

The NHDES has jurisdictional review and a permitting process for all land development activities that will disturb an area of more than 100,000 square feet, or 50,000 square feet in locations within 250 feet of a designated public water body, to ensure that adequate erosion control and storm water management measures will be implemented to treat runoff before it leaves the proposed site.

Groundwater Protection Act

The Groundwater Protection Act (RSA 485-C) was passed in 1991. This legislation recognized that a variety of activities involve the use of materials that can, if not properly handled, contaminate groundwater. There have been numerous instances of groundwater contamination in New Hampshire from leaking storage facilities, improper waste disposal, accidental spills, and from normal use of these materials. The Groundwater Protection Act directed the New Hampshire Department of Environmental Services (NHDES) to adopt rules specifying best management practices (BMPs) for the Potential Contamination Sources (PCSs) as defined by RSA 485-C.

NHDES 2015 Model Groundwater Protection Ordinance

This model was created in response to municipal officials requesting more local tools to protect stratified-drift aquifers. The model provides an example of an ordinance that complies with state laws and is consistent with current approaches to groundwater protection.

NH Code of Administrative Rules Part Env-Wq 401 Best Management Practices for Groundwater Protection

These rules apply to all potential contamination sources in the state. The BMPs within the rules are essentially common-sense operating practices that are simple and economical to implement. The purpose of the BMPs is to help prevent a release of regulated substances, as defined under this rule. Regulated substances include oil, as defined under RSA 146-A, III, regulated contaminants established pursuant to RSA 485-C:6, and hazardous substances listed under the Code of Federal Regulation (CFR), within 40 CFR § 302. Cleaning up the release of a regulated substance can be very expensive. Following the BMP rules reduces environmental liability and minimizes potential cleanup costs.

NH Code of Administrative Rules Part Env-Dw 302 Large Production Wells and Wells for Large Community Water Systems

The purpose of these rules is to implement portions of RSA 485, the New Hampshire Safe Drinking Water Act, pertaining to the department's obligation to approve public water systems, by establishing procedures and standards for the development of large production wells for community water systems (CWS) in order to ensure that such wells will be capable of producing an adequate supply of water that meets drinking water quality standards.



Existing Local Protection Measures

Shoreline Protection Overlay District

The Shoreland Protection Overlay District shall include all land within 250 feet of the reference line. The applicable water bodies are designated on the Newmarket Shoreland Protection Overlay District Map, as amended. In Newmarket, these include all tidal waters of Great Bay, the Lamprey River and Lubberland Creek, the non-tidal portion of the Lamprey River, the impoundment above the Macallen Dam, and the Piscassic River. General requirements outline that all primary structures be setback 125 feet from the reference line, while accessory structures shall be setback at least 20 feet from the reference line.

Class A Watershed Protection Overlay District

Septic systems shall be set back a minimum of 150 feet from the reference line of all Class A surface waters. The definition of "reference line," pursuant to RSA 483-B:4(XVII)(d), shall be the ordinary high-water mark. Class A surface waters in Newmarket include the Piscassic River and Follett's Brook. Septic systems shall be setback a minimum of 150 feet from the reference line of all Class A surface waters.

Aquifer Protection Overlay District

The Aquifer Protection Overlay District shall include all land identified as stratified drift aquifer (of any kind) in the vicinity of Newmarket Plains (along NH Route 152, Lee Hook Road, Langs Lane, and Ash Swamp Road) on Plate 6 of the report entitled "Geohydrology and Water Quality of Stratified Drift Aquifers in the Exeter, Lamprey, and Oyster River Basins, Southeastern New Hampshire" ([USGS, Water Resources Investigations Report 88-4128, 1990 revised](#)); as well as the wellhead protection area designated by the map: Wellhead Protection Area - WHPA Delineation Map, as contained in a letter report dated October 3, 2006 to the Town of Newmarket entitled "Delineation of Newmarket Plans Aquifer Wellhead Protection Area" (Comprehensive Environmental Incorporated (CEI)).

Recommendations

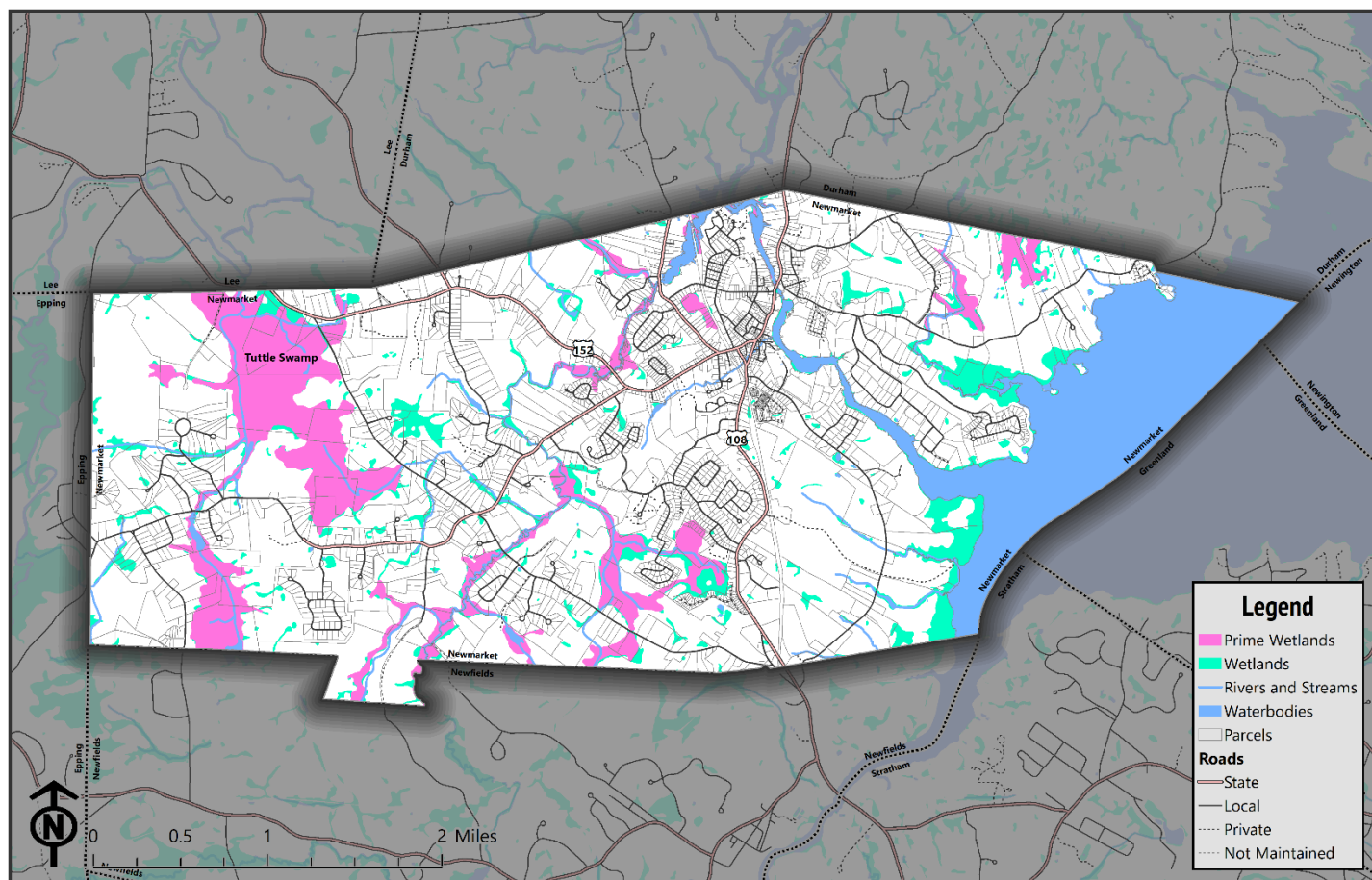
1. Review the current Aquifer Protection Overlay District with the state's updated model ordinance to recommend any necessary revisions.
2. Review all permitted uses within the base zoning districts to ensure that high intensity uses are consistent and in sync with the goals and objectives outlined in the Master Plan.
3. Evaluate the current regulations and ordinances with regards to septic system setbacks to ensure all waterbodies are adequately protected.
4. Continue to support local watershed groups and organizations.
5. Investigate funding opportunities to help pay for the development of watershed-based plans to recommend methods to address specific impairments identified in the 303(d) list.
6. Use resources, such as the NH [Statewide Asset Data Exchange System](#) (SADES) crossing database, [Resilient Tidal Crossing Assessment](#), and the C-RiSe climate ready culvert analysis, to identify infrastructure projects for inclusion in the Capital Improvements Plan that would assist with long-term planning decisions regarding the placement, design, and size of new culverts or when upgrades and repairs are being made to existing culverts. Site specific projects include the replacement of the Grant Road and Ash Swamp Road crossings over the Piscassic River to help restore surface waters to natural, free flowing systems, and the replacement of the Route 108 crossing over the northernmost unnamed perennial stream behind the Newmarket Storage that flows easterly beneath New Road into Great Bay to improve wetland function.



Wetlands

Wetlands Policy Statement

Implement comprehensive protection of wetlands, particularly prime wetlands, and their buffers through regulatory, educational, and voluntary efforts to maintain and protect their critical functions and values.



Map 4. Newmarket's Wetland Resources [Source: National Wetlands Inventory]

Overview of Wetlands

New Hampshire State Statute RSA 482-A:2 (X) defines wetlands as an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. According to the [New Hampshire Water Resources Primer](https://www.des.nh.gov/organization/divisions/water/dwgb/wrpp/primer.htm)⁸, wetlands share three characteristics:

- 1) standing water or water at or near the ground surface during some portion of the growing season;
- 2) soils with characteristics that show they are saturated some of the time; and
- 3) plants adapted to growing in saturated soils.

⁸ All, or individual chapters, of the Water Resources Primer can be accessed and downloaded at the following website: <https://www.des.nh.gov/organization/divisions/water/dwgb/wrpp/primer.htm>



State jurisdiction of wetlands is found in NHDES Administrative Rules Chapter [Env-Wt 100](#), and states that a jurisdictional area is subject to regulation under RSA 482-A, including but not limited to surface waters, streams, lakes, rivers, ponds, wetlands, banks, flats, shores, sand dunes, upland tidal buffer zones, and duly-established 100-foot buffers.

There is tremendous diversity in the types of wetlands found in the state. Tidal marshes and mud flats, freshwater red maple swamps, bogs, vernal pools, Atlantic white cedar swamps and wet meadows are all wetland types found in New Hampshire.

Wetlands in Newmarket

Wetlands identified by the U.S. Fish & Wildlife Service, National Wetlands Inventory (NWI) are summarized below by major wetland type and acreage. The total area of NWI wetlands mapped in Newmarket is 2,185.84 acres or nearly 24.07% of the Town's total area.

Table 4: Wetlands in Newmarket

Wetland Type	Acres	% of Total Municipal Area
Estuarine and Marine Deepwater	573.71 Acres	6.32%
Estuarine and Marine Wetland	533.34 Acres	5.87%
Freshwater Emergent Wetland	176.81 Acres	1.95%
Freshwater Forested/Shrub Wetland	783.34 Acres	8.63%
Freshwater Pond	78.87 Acres	0.87%
Lake	20.61 Acres	0.23%
Riverine	19.12 Acres	0.21%
Total	2,185.84 Acres	24.07%

[Source: National Wetlands Inventory]

Most wetlands in Newmarket are in coastal transition zones, where tidal seawater meets freshwater rivers. A large wetland area, known locally as Tuttle Swamp, extends from Lee into Newmarket along the western side of Ash Swamp Road with a smaller area on the eastern side of Ash Swamp Road. This wetland is a major groundwater discharge area that receives drainage from the surrounding upland areas. The northern half of Tuttle Swamp discharges to the Lamprey River in Lee while the southern half and eastern areas of the wetland system discharge to the Piscassic River. This wetland, combined with others in the area, provide flood control during high flow periods.

In addition to Tuttle Swamp, there are extensive wetlands within the Piscassic River and Follett's Brook drainage areas. These wetlands provide for flood control during high flow periods. Other wetland areas of note include the extensive salt marshes along the Great Bay shoreline near New Road and in the north near Lubberland Creek. Aside from water-related issues, these wetlands provide an extensive network of habitat for a variety of flora and fauna.

Did you know?

Given the important functions and values of wetlands described above, there have been several attempts to place an economic value on wetland resources. In 2002, a study by the Clean Water Network estimated the economic value of New Hampshire's remaining wetlands to be approximately \$1.2 billion.

[Source: New Hampshire Water Resources Primer: Chapter 5 Wetlands]



Unique and Important Wetland Habitats

Wetlands are important for removing excess nutrients and sediment from the water, slowing and storing floodwaters, promoting groundwater infiltration, and providing habitat for a variety of vegetation and wildlife. In addition, wetlands provide recreational, educational and research opportunities.

Salt Marsh

Salt marshes (*Spartina patens* and *Spartina alterniflora*) are intertidal wetlands typically located in low energy environments such as estuaries. They exist both as expansive meadow marshes and as narrow fringing marshes along shorelines. Salt marshes are considered one of the most productive ecosystems in the world due to high rates of plant growth. They provide important ecological functions, including shoreline stabilization, wildlife habitat, and nutrient cycling, and serve as important breeding, refuge, and forage habitats for many species of crustaceans and other invertebrates, and fish.



View of Great Bay salt marsh
[Photo Credit: Bill Doucet]

Salt marshes are important components of the food web base that support all estuarine invertebrates, fish, and birds, and provide important, often essential, habitat for hundreds of other species. The ecological services provided by eelgrass and salt marshes include protection from shoreline erosion, nutrient and sediment trapping, and pollution filtration. Salt marshes are a scarce habitat type, occupying only about 0.1% of the land area of New Hampshire.

The following information was extracted from the [Wildlife Action Plan: Appendix B](#), rising sea levels will likely have the greatest impacts on current salt marsh habitats; however, many scientists believe these systems can keep pace with sea level rise by migrating landward if there is an adequate supply of sediment or peat build up and no natural, or human-made, barriers present. Future sea level rise scenarios predict that, if not able to migrate, much of today's low marsh will be mostly submerged and transformed into mudflats or sub-tidal bays. Current high marsh will change to low marsh, and high marsh will likely migrate upland several feet (if allowed).

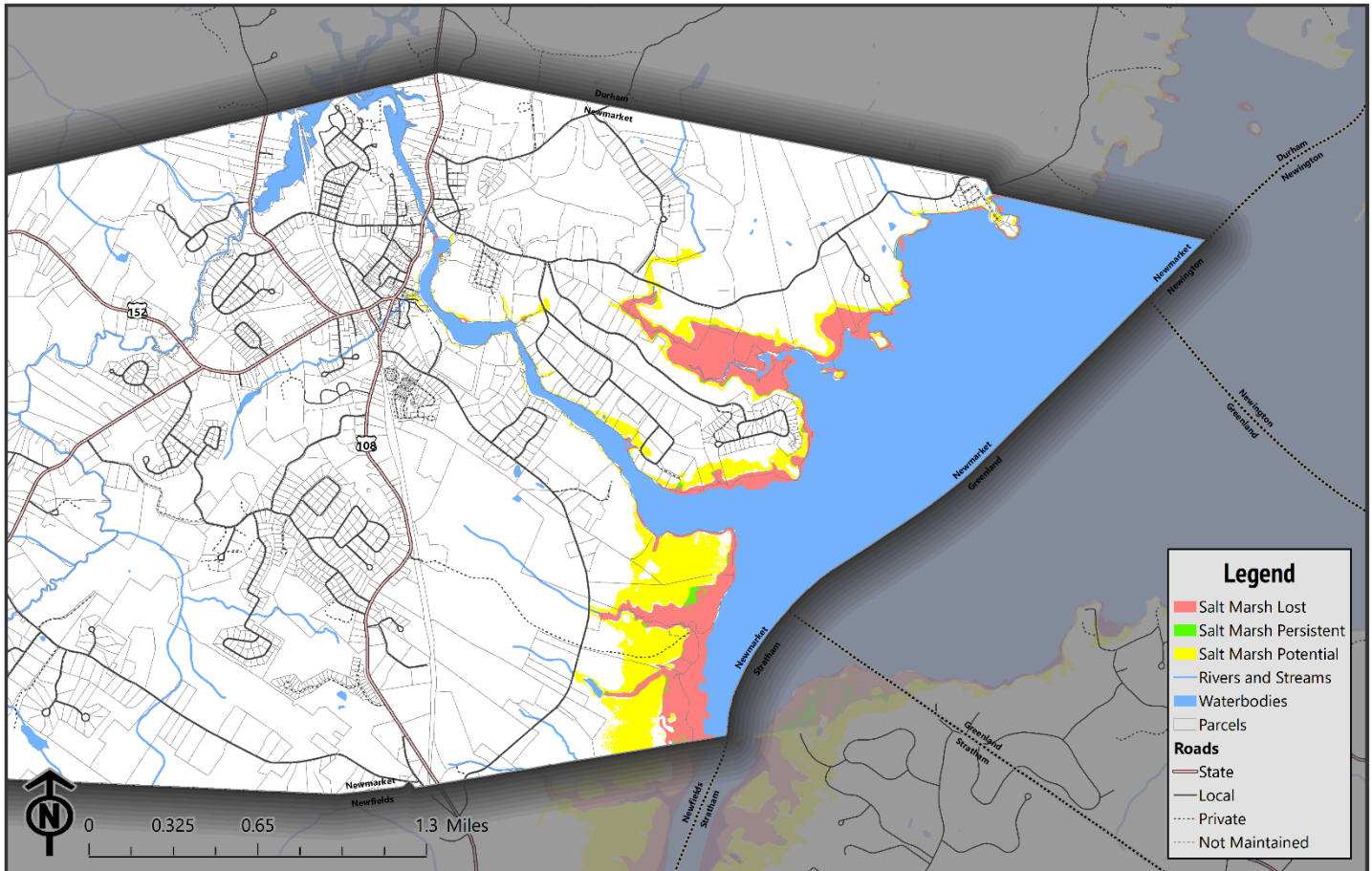
According to the Sea-Level Affecting Marsh Migration (SLAMM) model⁹, Newmarket is a community within the coastal watershed where current conditions allow for potential salt marsh growth as sea levels rise. In fact, upwards of 170.7 acres of potential salt marsh will have the opportunity to migrate into surrounding upland areas as sea levels rise. The Town may, however, lose approximately 169.9 acres of salt marsh habitat due to coastal inundation (see Table 5).

Table 5: SLAMM Results for Newmarket	
2100 Timeframe with 6.6 feet of SLR	Total Acreage
Salt marsh lost	169.9
Salt marsh persistent	5.7
Salt marsh potential	170.7
[Source: New Hampshire Fish & Game, 2014]	

⁹ This model simulates the dominant processes involved in wetland conversion and shoreline modification under different scenarios of sea level rise. SLAMM tracks the rise of water levels and the salt boundary in 25-year time steps and predicts changes to wetland habitat based on known relationships between wetland types and tide ranges. This information is available [here](#).



Tidal areas with the highest potential for salt marsh migration are found along the outskirts of the existing marsh system around Lubberland Creek, the tidal portion of the Lamprey River, and the shoreline of Great Bay east of New Road and north of the Squamscott River confluence. Protecting riparian areas through living shoreline efforts and best management practices is likely to retain the functions of these natural systems.



Map 5. Potential Salt Marsh Migration in Newmarket [Source: NH Fish and Game]

Did you know?

In 2019, the Town of Newmarket, in partnership with The Nature Conservancy and NH Coastal Program, completed a tidal culvert replacement project on Bay Road over Lubberland Creek that will support fish passage, salt marsh migration, and reduce ongoing flooding issues in the area.

In May 2019, a report titled "[Resilient Tidal Crossing: An Assessment and Prioritization to Address New Hampshire's Tidal Crossing Infrastructure for Coastal Resilience](#)"¹⁰ was published with a focus on enhancing coastal resilience for both human and natural communities. The report identified a culvert on New Road as a high priority for replacement due to the crossing being in poor condition, restrictive, and exhibiting high erosion; however, offers little potential for salt marsh migration.

¹⁰ Weblink here: <https://www.des.nh.gov/organization/divisions/water/wmb/coastal/documents/r-wd-19-20-compiled.pdf>



Prime Wetlands

Prime wetlands are designated by a municipality according to the requirements of RSA 482-A: 15 and Chapter Env-Wt 700 of the NHDES Administrative Rules. The designation of these wetlands must then be adopted by the municipality by vote of the residents after undertaking a process comparable to the adoption of zoning ordinances. Prime wetlands that were designated between September 11, 2009 and August 17, 2012 are subject to an additional 100-foot buffer; however, Newmarket's prime wetlands were designated in 2006, a period in which no additional buffers were required.

Vernal Pools

Vernal pools are temporary bodies of water that flood each year for a limited time during wet months, typically early spring to mid- or late summer months. Their common characteristics are the absence of fish, temporary flooding regime, and the presence of vernal pool species. The hydrology of vernal pools is maintained primarily by runoff from melting snow and precipitation, and in some cases groundwater flow. Vernal pools usually dry up by mid- to late summer, depending upon climate factors such as the amount of rain and temperature. Species typically found in vernal pools in New Hampshire include: Wood Frog, Spring Peeper, Green Frog or Bullfrog, Spotted Salamander, Jefferson Salamander, Blue-spotted Salamander, Marbled Salamander, Eastern Spotted Newt, Four-toed Salamander, Fairy Shrimp, Spotted Turtle, Blanding's Turtle and Wood Turtle.¹¹ Except for the Marbled Salamander, these species are present in some of Newmarket's wetlands. The [Identifying and Documenting Vernal Pools in New Hampshire](#) is a useful tool that can be used to help train the public to identify and document vernal pool habitat.

Federal/State Protection Measures

NHDES Fill and Dredge in Wetlands

The mission of the Wetlands Bureau is to protect, maintain and enhance the environmental quality in New Hampshire through the powers set forth in RSA 482-A to regulate impacts to those areas wherever the tide ebbs and flows or freshwater flows or stands by requiring a permit for dredge or fill or construction of structures in wetlands or other waters of the state. The law also protects sand dunes and upland tidal buffer zones. RSA-482-A and the rules promulgated under that law require that projects be designed to avoid and minimize impacts to wetlands and other jurisdictional areas.

Existing Local Protection Measures

Wetland Protection Overlay District

The wetlands protection overlay district shall include all areas of land that meet the criteria of the NHDES Wetlands Bureau rules for determination of wetlands, poorly drained and very poorly drained soils (as amended), prime wetlands, as delineated by the Newmarket Conservation Commission and approved in accordance with RSA 482-A:15 (as amended) and associated buffers. Current regulations include:

- 1) Prime wetlands: There shall be no disturbance of any kind (including but not limited to construction, filling, dredging and the removal of vegetation) within a prime wetland or within a buffer area within 75 feet around the prime wetland. Structures shall be set back a minimum of 100 feet from prime wetlands. On-site septic systems shall be set back a minimum of 125 feet from prime wetlands.
- 2) Very poorly drained soils (hydric A):¹² Such wetlands shall not be included in the minimum lot size or as part of any lot density calculation as required by any provision of this chapter. There shall be no

¹¹ New Hampshire Audubon Society, *Conservation Fact Sheet: Vernal Pools*, 1998.

¹² A map (Map #6) of very poorly and poorly drained soils can be found in the Appendix of this chapter.



disturbance of any kind (including but not limited to construction, filling, dredging and the removal of vegetation unless in accordance with the provisions of this chapter) within such wetlands or within a buffer area 50 feet around such wetlands.

- 3) Poorly drained soils (hydric B): Such wetlands may be used to fulfill up to 25 percent of the area of the minimum lot size or 25 percent of any lot density requirement as part of any section of this chapter. There shall be no disturbance of any kind (including but not limited to construction, filling, dredging and the removal of vegetation unless in accordance with the provisions of this chapter) within such wetlands or within a buffer area 25 feet around such wetlands.

Recommendations

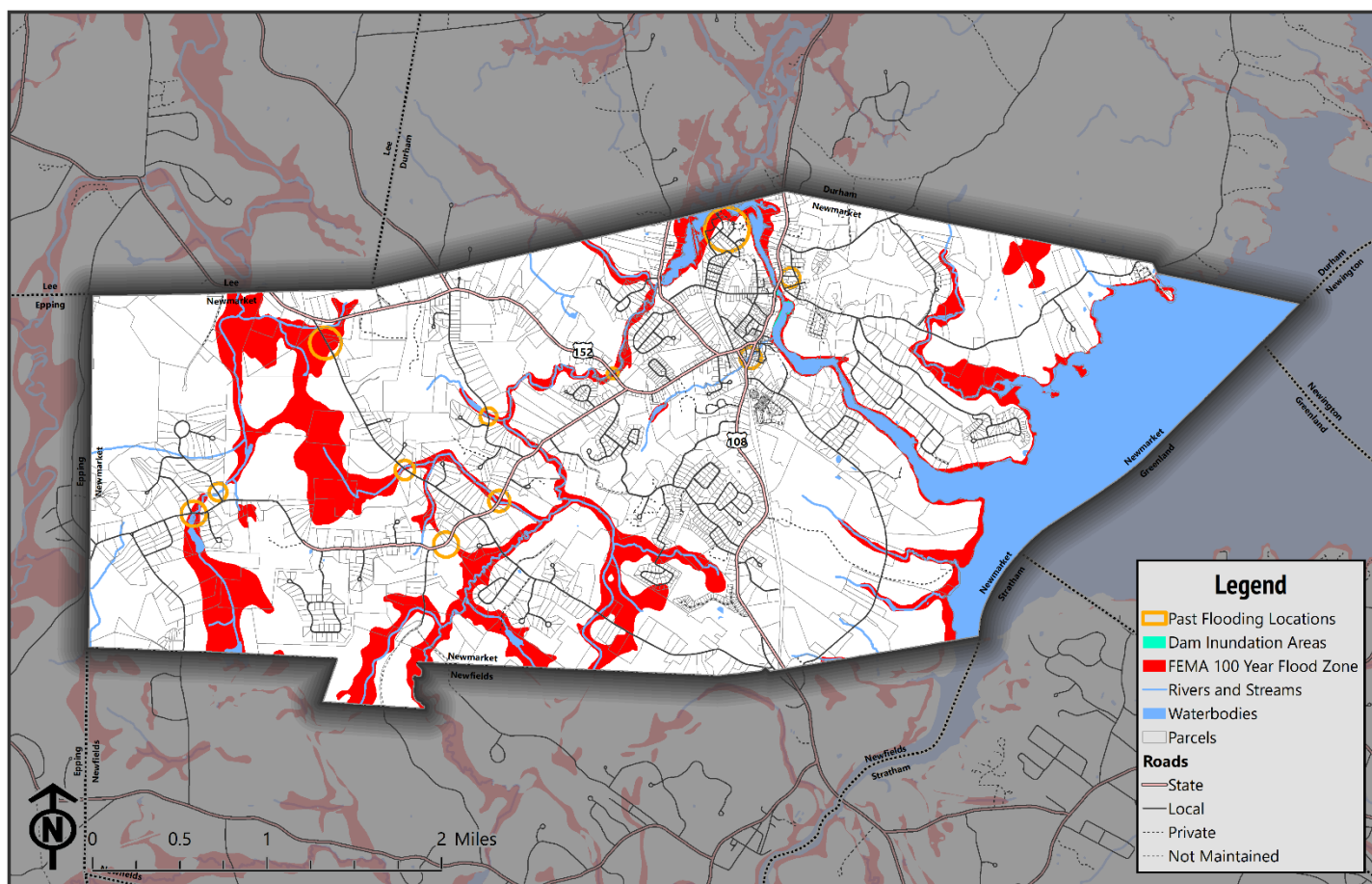
1. Explore funding opportunities to conduct a town-wide vernal pool inventory to locate, document, and map vernal pools in Newmarket.
2. Update the Town's Prime Wetland Maps and associated GIS layers that were completed in 2006 using new available GIS and Lidar data.
3. Compare the existing Wetland Protection Overlay District with new state rules and make necessary revisions to be consistent with jurisdictional areas and other state-level changes.
4. Collaborate with local, regional, and statewide partners to identify other wetland mitigation projects or restoration opportunities.
5. Consider adopting stricter buffer requirements for setbacks to wetlands that include consideration of climate change in order to protect land that allows coastal habitats and populations to adapt to changing conditions and also provides ecosystem services that protect people, structures, and facilities.



Floodplains

Floodplain Management Policy Statement

Implement regulatory, educational, and voluntary measures that incorporate the latest science on climate change to improve resiliency against future events, maintain the natural functions of floodplains, and minimize damage to municipal and private property.



Map 7. Newmarket's Existing Floodplains [Source: FEMA Digital Flood Insurance Rate Map (DFIRM) 2005]

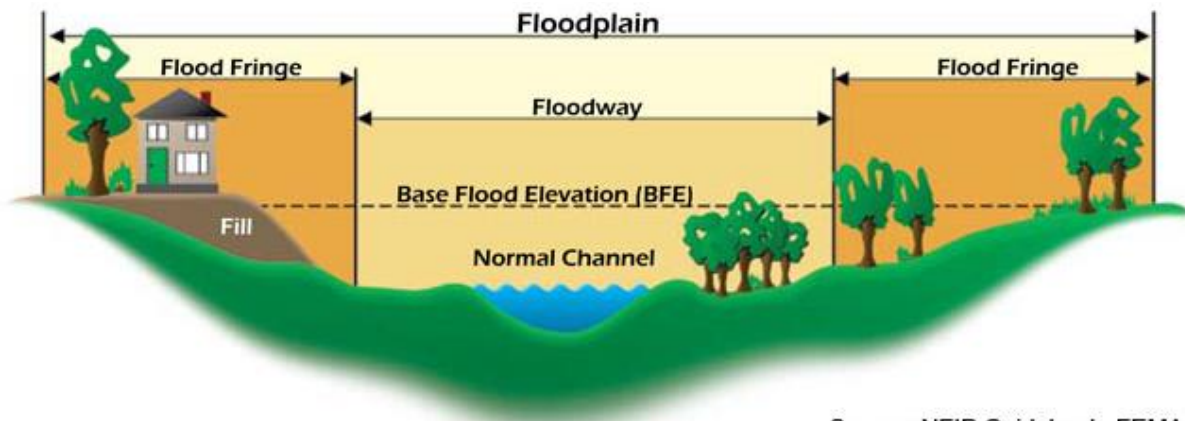
Overview of Floodplains

Floodplains are generally low-lying areas adjacent to rivers, streams, and other surface water bodies, which are susceptible to flooding. Floodplains perform an important water storage function during storm events and periods of excessive water run-off, by storing water temporarily and gradually releasing it back into the drain system or infiltrating floodwater into the subsurface where it is discharged to streams and recharge groundwater.

Refer to the diagram below for the components of a floodplain: normal channel, floodway, fringe, and flood hazard area or 100-year floodplain. The floodway and flood fringe serve as critical floodwater storage areas, and the floodplain vegetation acts to slow the velocity of floodwaters and reduce erosion of the floodplain and adjacent lands.



Figure 2. Characteristics of a Floodplain



Although the flood mitigation capacity of floodplains is relatively well protected by federal and local regulations, other factors can contribute to increased flooding. These factors include: increases in impervious surface coverage, filling of wetlands in the upper watersheds, stormwater management practices that increase peak flow rates, inadequate infrastructure to accommodate current storm flow volumes, beaver dams and less natural dissipation of flood flows through infiltration and interception by trees and vegetation.

Special Flood Hazard Areas

According to the Federal Emergency Management Agency (FEMA), flood hazard areas identified on the Flood Insurance Rate Map are identified as a Special Flood Hazard Area (SFHA). SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of flooding being equaled or exceeded in any given and a 26% chance of flooding over the life of a 30-year mortgage. In communities that participate in the National Flood Insurance Program, mandatory flood insurance purchase requirements apply to all high-risk zones.

Riverine and Coastal Flooding and Flood Prone Areas in Newmarket

Riverine flooding is the most common natural disaster to impact New Hampshire. Riverine flooding occurs when surface water runoff introduced into streams and rivers exceeds the capacity of the natural or constructed channels to accommodate the flow. As a result, water overflows the river banks and spills out into adjacent low lying areas.¹³ Floods are most likely to occur in the spring due to the increase in rainfall and the melting of snow; however, floods can occur at any time of the year because of heavy rains, hurricane, or a Nor'easter.

According to the [2018 Hazard Mitigation Plan Update](#), Newmarket has approximately 24.0% (2,183.4 acres) of its area in 100-yr. floodplain. It should be noted that this estimation is likely overstated since the FEMA floodplain contains open water. If the tidal portions along the Lamprey River and Great Bay were removed, the approximate acreage may be more accurately depicted as 12.6%. Based on extent of the floodplain, the Town has flooding potential along the Lamprey River and the Piscassic River. The Lubberland Creek, Follett Brook and Tuttle Swamp area, as well as along the tributaries to the Great Bay, also have an expansive floodplain area (1,144.1 acres). Newmarket has no existing man-made flood control measures. The Macallen Dam, originally built in 1887, does have floodgates; however, the dam's primary function is for recreation not for flood control.

¹³ [FEMA Training Chapter 2 Types of Floods and Floodplains](#)



Coastal flooding is often associated with storm surge, extreme precipitation events, and sea-level rise, and can be devastating to human health and safety, public and private structures and facilities, and the economies of coastal and inland coastal communities. Results of the [2017 C-RiSe](#) assessment report state that the inland coastal portion of Newmarket that is most susceptible to coastal flooding are those areas located south of the Macallen Dam on the west side of the Lamprey River near the downtown, low-lying areas around Lubberland Creek, and low-lying land south of the Lamprey River along Great Bay.



King Tide flooding at pump station on Creighton St.
Photo Credit: Kyle Pimental

Past Flooding Events

During extreme flood events, floodwaters from the Lamprey River overflow NH Route 108 upstream in Durham and are diverted into the Oyster River basin. This diversion of floodwaters reduces peak flood discharges of the Lamprey River by approximately 20 percent before it reaches the town.¹⁴ Between 2016-2018, NHDOT completed major roadway construction on Route 108, which included grade changes and drainage improvements, to construct 4-foot bike shoulders and other miscellaneous safety improvements. According to the Town's consultants, these alterations had little impact on improving or worsening flooding problems along this stretch of roadway; however, a separate project in a similar location in Durham was determined, if built, would negatively impact downstream systems and was redesigned. The Oyster River drainage basin remains an important flood protection and mitigation function for the Town, and regional projects within this sub-watershed should be carefully planned to reduce impacts upstream and down.

Numerous floods have been recorded on the Lamprey River since the U.S. Geological Survey (USGS) installed a gauging station near Packers Falls in Durham in July 1934. Historically, the two largest flood events since 1934 occurred in March 1936 (peak discharge of 5,490 cubic feet per second) and April 1987 (peak discharge of 7,500 cubic feet per second). These events had estimated frequencies of 25 and 100 years, respectively. In recent years, these historical flood events were exceeded in spring 2006 and 2007.



Overturned Jeep on Exeter Street during flooding
Photo Credit: Town of Newmarket

May 2006 Mother's Day Flood Event

From May 11-15 2006, central and southern New Hampshire experienced severe flooding caused by as much as 14 inches of rainfall. In addition to the precipitation volume being exceptional, the month of May 2006 was the second wettest May in New Hampshire on record (based on NOAA data). The U.S. Geologic Survey Lamprey River gauging station located near Packers Falls Road Bridge measured the highest flow ever recorded of approximately 8,970 cubic feet per second (CFS) on May 16. This flood level was estimated to be a flood event with a recurrence interval between 100 and 500 years. The Piscassic River rose to a level that exceeded its normal drainage basin, entered Moonlight Brook, and was impounded behind the PanAm Railways culvert at the intersection of Gerry Avenue and Exeter Street. The earthen embankment at the railroad arch culvert

¹⁴ Federal Emergency Management Agency, Flood Insurance Study, Town of Newmarket, New Hampshire, Rockingham County, 1991.



subsequently failed and storm flows flooded Route 108, in the "Exeter Street Bowl." During this flood event, floodwaters in Exeter Street were approximately four feet deep, vehicles were submerged, oil tanks and dumpsters displaced and silt from eroded roadways and foundations was discharged into the Lamprey River. As a result of the flood damage, a presidential disaster declaration was made on May 25, 2006 for seven New Hampshire counties, including Rockingham County.

Patriot's Day 2007 Flood Event

On April 15 and 16, 2007 nearly seven inches of rain fell in Newmarket. The U.S. Geologic Survey Lamprey River gauging station located near the Packers Falls Road Bridge measured a peak flow of approximately 8,450 cubic feet per second on April 18, 2007, the second highest flow. This flood level was estimated to have a recurrence interval of just below 100 years. Normal flows for this date would be 654 cubic feet per second. While there was flooding in the "Exeter Street Bowl" again, the damage was not as severe as occurred with the 2006 flood. Flooding in the New Road area extending to Exeter Street was significant necessitating temporary road closures.



Major flooding on Exeter Street "the Bowl" during flooding event
Photo Credit: Town of Newmarket

Both floods resulted in significant damage to public and personal property in Newmarket. Roads were impassable for days and severely damaged, and residential areas were evacuated due to high water levels and inundation of homes by floodwaters.

Other Localized Events of Significance

Data gathered from the [2018 Hazard Mitigation Plan Update](#) identified three additional flooding events of consequence, including the spring of 1996, February 2010, and October 2016. The February storm impacted parts of Route 152. The October storm impacted parts of Route 108 and Gerry Ave; however, the issues at Gerry Ave were attributed to beaver damage in a local manhole that backed up water from Moonlight Brook and has not happened since. The Committee could not recall the specifics of this storm other than it caused damage in the "bowl" area on Exeter Street. According to the Flood Insurance Study for Rockingham County (2014), this event had a recurrence interval of approximately 100 years and recorded a peak discharge of 3,060 cubic feet per second (cfs) on parts of the Exeter River in Brentwood.

Compliance with the National Flood Insurance Program

According to FEMA's Community Status Book Report, Newmarket has been a member of the National Flood Insurance Program (NFIP) since May 2, 1991. In order to remain in NFIP compliance, Newmarket has implemented several floodplain management actions, including: providing education materials to homeowners, participating in a FEMA Community Assistance Visit, updating Master Plan Chapters with a focus on climate adaptation and resilience, replacing an undersized culvert over Lubberland Creek, completing a climate study in the Moonlight Brook watershed, and improving drainage at the Middle/High School.

On July 29, 2020, FEMA issued a Letter of Final Determination (LFD) finalizing the preliminary coastal Rockingham County Flood Insurance Rate Maps (FIRMs) and Flood Insurance Study (FIS) report that were originally issued in



Additional Studies, Plans, and Initiatives

New Hampshire Coastal Flood Risk Summary Part 1: Science

The New Hampshire Coastal Flood Risk Summary – Part 1: Science provides a synthesis of the state of the science relevant to coastal flood risks in New Hampshire. Specifically, this document provides updated projections of sea-level rise, coastal storms, groundwater rise, precipitation, and freshwater flooding for coastal New Hampshire. This information is intended to serve as the scientific foundation for the companion New Hampshire Coastal Flood Risk Summary - Part II: Guidance for Using Scientific Projections and is intended to inform coastal land use planning and decision-making

New Hampshire Coastal Flood Risk Summary Part II: Guidance for Using Scientific Projections

The primary purpose of the 2019 New Hampshire Coastal Flood Risk Summary, Part II: Guidance for Using Scientific Projections (NHCFR Guidance) is to help decision-makers assess and incorporate best available projections for relative sea-level rise (RSLR), coastal storms, RSLR-induced groundwater rise, and extreme precipitation into state and local land use planning and decision-making.

Gomez & Sullivan and GZA GeoEnvironmental, Inc.: Macallen Dam Findings

Gomez and Sullivan Engineers (GSE) were originally contracted by the Town to conduct a dam removal feasibility study. However, as the study progressed the Town broadened the focus of the project to identify other potential alternatives, other than dam removal, to address NHDES requirements to pass the 100-year flood with one foot of freeboard based on past studies and the information gained from the study. Subsequent to that, final design and engineering services related to the rehabilitation of the Macallen Dam were prepared by GZA GeoEnvironmental to provide the Town with conceptual alternatives to choose from in meeting the NHDES letter of deficiency relative to the Macallen Dam. Construction, involving renovations to the dam, is moving forward at the time of this chapter revision, with a completion date of December 2020.

Climate Adaptation Plan for the Moonlight Brook Watershed

In 2016, Newmarket, in partnership with the Horsley Witten Group, participated in a resiliency to flooding and climate change project in the Moonlight Brook watershed. This project was a two part effort to: 1) study flood risk associated with climate change as well as how future development and build out of the community affect these risks, and 2) design robust green infrastructure practices within the Moonlight Brook watershed to help reduce risk of flooding while reducing pollutant load into the Brook and further downstream into the Lamprey River and ultimately Great Bay. Current erosion at Schanda Park, as witnessed by members of the Conservation Commission, indicates increased tidal flooding, as well as impacts from severe rain events at this location.

Coastal Risk in the Seacoast: Vulnerability Assessment

The Climate Risk in the Seacoast (C-RiSe) vulnerability assessment project produced maps and statistical data about the potential impacts to New Hampshire's ten inland coastal municipalities from sea-level rise and storm surge to infrastructure, critical facilities transportation systems, and natural resources. The project also assessed both aquatic organism passage capacity and hydraulic flow capacity of twelve road crossings in each of the ten inland coastal municipalities.



King Tide Flooding at the fishing weir at Schanda Park
Photo Credit: Kyle Pimental



New Hampshire Flood Hazard Handbook: A Guide for Municipal Officials

The Flood Hazards Handbook was developed and released in 2019 by the New Hampshire Silver Jackets, a unified team of individuals from federal and state agencies. The Silver Jackets work collaboratively on the state's flood risk management priorities and provide technical expertise to help reduce flood risk in New Hampshire communities.

A Guide to Assessing Green Infrastructure Costs and Benefits for Flood Reduction

The purpose of this guide is to provide a process that communities can use to assess the costs and benefits of green infrastructure to reduce flooding. The guide takes a step-by-step, watershed-based approach to documenting the costs of flooding; projecting increased flooding and associated costs under future land use and climate conditions; and calculating benefits and costs of reducing flooding with green infrastructure over the long term.

Federal/State Protection Measures

National Flood Insurance Program

The National Flood Insurance Program (NFIP), administered by the Federal Emergency Management Agency (FEMA), is designed to manage floodplains, and restrict development in floodplains to reduce flood hazards and structural damage. Under this program, flood hazard areas are mapped and studied in participating communities.

Existing Local Protection Measures

Floodplain Overlay District

Section 32-158 of the Town's Zoning Ordinance (as revised June 21, 2017) outlines the Town's floodplain development regulations (last updated August 4, 2010). The purposes of the floodplain protection overlay district are to: protect floodplains from development and construction activities which would aggravate flooding; prevent development in locations which would place occupants at risk or which would likely require rescue of occupants by emergency services personnel during floods; protect the floodplains for use as habitat and for the aesthetic qualities; and ensure town compliance with the National Flood Insurance Program. The regulations shall apply to all lands designated as areas of special flood hazard by FEMA in its "Flood Insurance Study for the County of Rockingham, N.H." dated May 17, 2005. The Town has recently received word from FEMA that new modified and flood hazard information and revised map panels will become effective as of January 29, 2021.

Recommendations

1. Review the updated floodplain model ordinance from NH Office of Strategic Initiatives and update the Town's floodplain ordinance, once FEMA maps are approved and adopted. An outreach campaign targeting existing property owners shall accompany this update.
2. Explore options to develop a creative outreach campaign to educate the public on future coastal flood risk (i.e. high-water mark initiative, participation in the king tide photo contest, etc.) at public spaces such as Schanda Park and Heron Point.
3. Use the New Hampshire Living Shoreline Site Suitability Assessment¹⁶ to identify sites in Newmarket that may be suitable for specific living shoreline approaches to address erosion issues along the tidal shoreline.
4. Incorporate impacts to municipal infrastructure identified in the C-RiSe project into current and future capital infrastructure projects, including water access at Schanda Park, the pump station on Creighton

¹⁶ Download report here: <https://www.des.nh.gov/organization/commissioner/pip/publications/documents/r-wd-19-19.pdf>



Street, and flooding on critical roads such as Treatment Plant Road. This also includes evaluating the extent of sea-level rise and storm surge flooding on individual facilities such as sewer pipes located at the end of Water Street, Creighton Street, and Lamprey Street and the intersection of Bay Road.

5. Revisit the Climate Resiliency in Moonlight Brook report to accomplish the two remaining ICLEI Climate Resilient Communities milestones identified in the plan. Site specific projects include: alleviate flooding in re-occurring areas by redirecting stormwater flows away from downtown in the "bowl " area on Route 108; installing a new drainage system with a gravel wetlands to provide water quality treatment on New Road and a stormwater outfall on Young Lane; and assess impacts upstream in the watershed at the new drainage system at the Elementary School.
6. Identify and implement green infrastructure and nature-based approaches to improve flood resilience and stormwater management throughout the Town referenced in the New Hampshire Flood Hazard Handbook.
7. Review Appendix C in the Town's 2018 Multi-Hazard Mitigation Plan to identify riverine flooding mitigation approaches, including prevention, property protection, natural resource protection, emergency services, structural projects, and public education.
8. Update the Town's Open Space Plan to strategically identify high value land for future land conservation. Incorporate climate resilience benefits, such as future flood storage salt marsh migration, etc., into scoring criteria to ensure the Town considers climate adaptation benefits when evaluating land for conservation purposes.
9. Integrate climate adaptation measures into all future master plan updates.



Potential Threats to Water Resources

Potential Threats to Water Resources Policy Statement

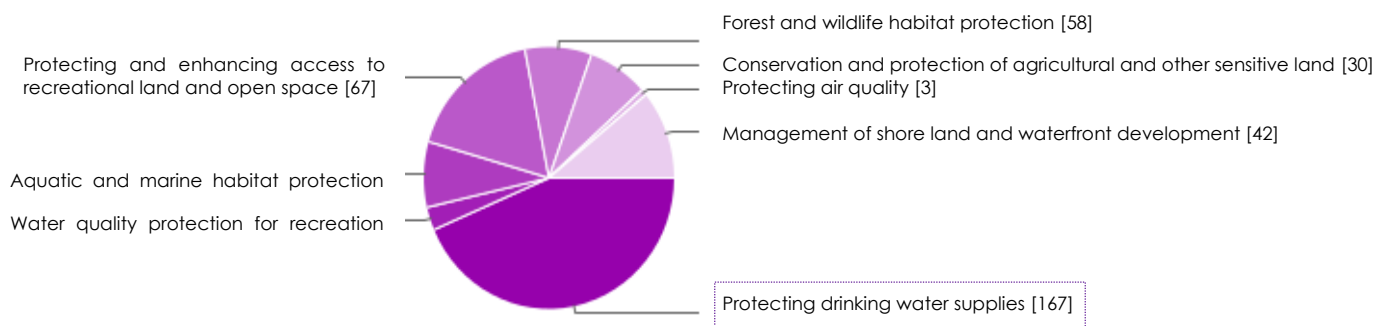
Protect water quality for drinking water sources and wildlife habitat from current and potential threats to preserve critical functions, benefits, and the ecological integrity of these resources.

Overview

In previous iterations of the Water Resources Chapter, Newmarket has approached potential threats to water resources through a point and non-point source threats lens. Based on available data, this worked; however, Newmarket's revised [Vision Chapter of the Master Plan \(2015\)](#) encourages vigorous protection of **ALL** water resources. This chapter update includes a summary of local upgrades and efforts, as well as potential threats based on new information about contaminants, degradation, and climate change impacts.

Figure 3. Results from Visioning Showing the Public's Prioritization of Protecting Drinking Water Supplies

Which of the following would you place the highest priority on in Newmarket over the next 10 years?



Source: 2015 Master Plan Visioning Public Input

Local Upgrades and Efforts

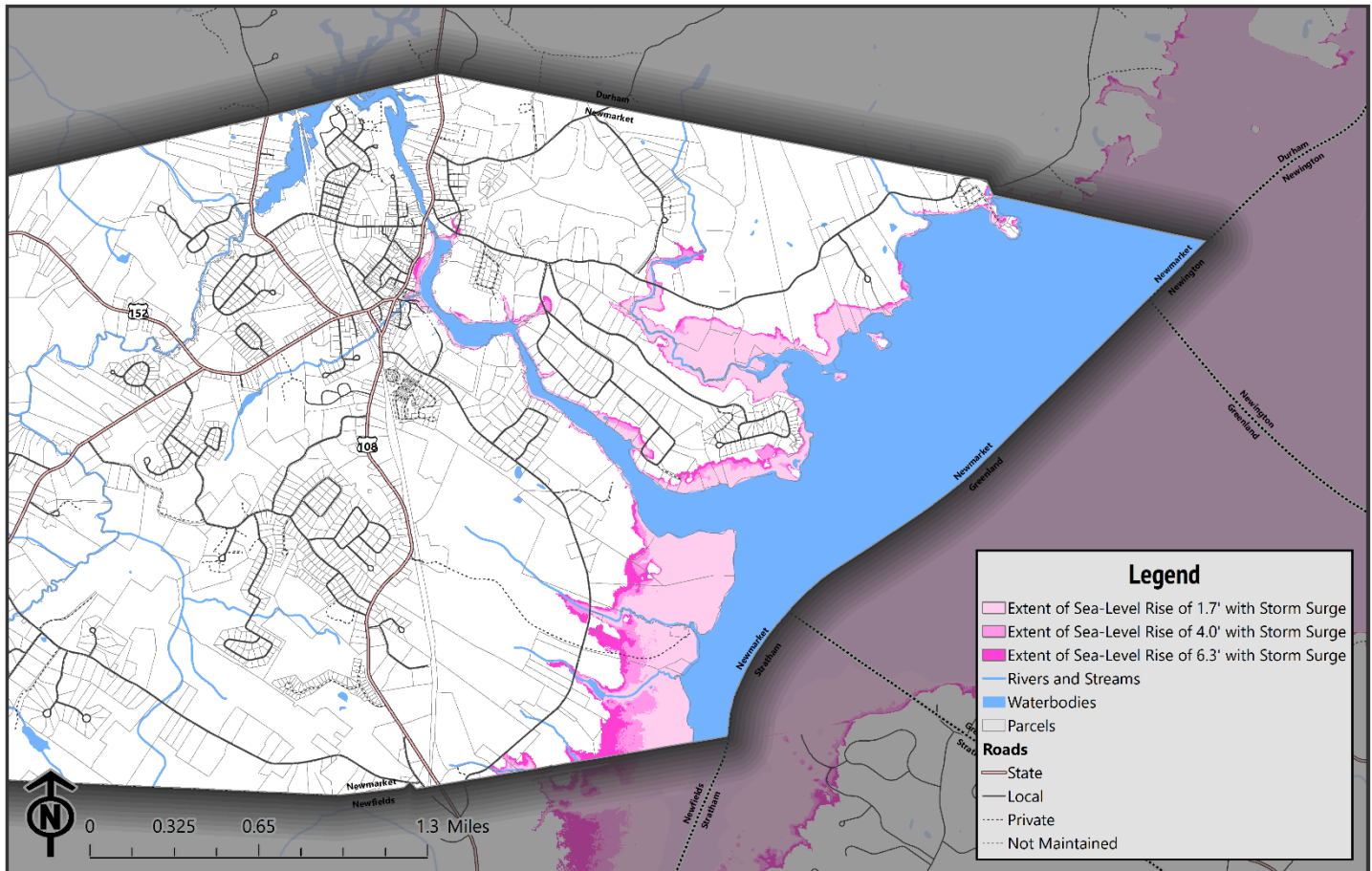
Historically, much of Newmarket's attention on threats to water resources has been focused on addressing challenges with the Town's wastewater system and exploring ways to improve it to minimize pollution. The Town's most recent [National Pollution Discharge Elimination System \(NPDES\) Permit](#), which was originally authorized in 2000 and extended in 2011 to 2016, allows the Town to discharge from their Young Lane Wastewater Treatment Plant to the Lamprey River below the Macallen Dam. The most current upgrade to the facility was completed in 2017 and included a 4-Stage Bardenpho process for nitrification and denitrification. This upgrade was given national recognition when the Town was awarded the 2019 PISCES Exceptional Project for Region 1, a first in New Hampshire, and will help the Town meet nitrogen effluent limits and improve the water quality of the Lamprey River and Great Bay Estuary.

Newmarket has also honed in on stormwater runoff, pollution, erosion, and sedimentation. The Town has been proactive in making substantial efforts to reduce the total nitrogen load to the Lamprey River. Strategies include infrastructure maintenance, organic waste and leaf litter collection, enhanced street and pavement cleaning, and stormwater structural BMPs. Lastly, during the development of this chapter, the Town was actively working to develop and implement a water quality program to monitor the effectiveness and in-stream quality response of implementing the 2018 Nitrogen Control Plan as part of the EPA's Administrative Order of Consent.



Groundwater Threats

While New Hampshire is a relatively water rich state, NHDES [recommends](#) that surface waters are not used as a source for drinking water for private homes because of their risk to contamination. Instead, they suggest groundwater through bedrock wells or wells installed in sand and gravel. The Town withdraws water primarily from the Sewall Well and the Bennett Well (the MacIntosh Well facility was constructed and put into operation in 2016 and the Tucker well is permitted but has yet to be developed).



Map 9. Sea-Level Rise Scenarios in Newmarket [Source: NH GRANIT]

Impacts from Sea Level Rise (Groundwater Rise and Saltwater Intrusion)

In 2017, Strafford Regional Planning Commission (SRPC), in partnership with the University of New Hampshire (UNH) implemented a [groundwater modeling study](#) to “identify existing and potential future locations where public water systems may be vulnerable to sea-level rise impact on groundwater” in Newmarket. The analysis identified one contamination hazard site, one local potential contamination site, one sewer pump station, as well as 30 private drinking water suppliers that have a potential to be impacted by groundwater rise. In addition, the study found that the Moody Point development is projected to experience saltwater intrusion.

Did you know?

In March 2019, Newmarket voters approved up to \$12.2 million in municipal bonds for seven water system upgrade and extension projects, including construction plans to extend a public watermain to the Moody Point development in response to the groundwater rise threat. The project ranked #10 (out of 72) in the 2019 NHDES drinking water SRF project priority list and is scheduled for construction in the summer of 2021.



As a coastal community, Newmarket will have to explore opportunities to combat salinity concentrations with new water treatment technology, replacement of underground pipes that corrode faster under salt water, and possibly the extension of municipal water infrastructure to locations with high salt concentrations. Homeowners may need to site new private drinking wells and relocate septic systems.

Public Water Supply Susceptibility

Drinking water can be contaminated through natural or man-made causes. Man-made contamination can happen because of failing septic systems, animal waste, plumbing fixture leaching, leaking storage facilities, or improper waste disposal. Public health standards are in place to protect water sources, and New Hampshire currently tracks four man-made contaminants: atrazine, Di (2-ethylhexyl) Phthalate (DEHP), Tetrachloroethylene (PCE), and Trichloroethylene (TCE) to protect community water systems.

In 2007, NHDES assessed the vulnerability of [every source of public water in Newmarket](#). Each source is ranked according to several criteria. According to the report, of greatest concern in Newmarket are confirmed detections of certain contaminants, the presence of numbered state highways or active railroads, the presence or density of septic systems and sewer lines.

Aquifers

As mentioned in the Surface and Groundwater Section, there are four identified stratified-drift aquifers deposits in Newmarket encompassing a total of 657.5 acres. While these are extremely important from a biological standpoint, they are at risk due to the combination of inland droughts and floods, increased surface water components and diversions, increased groundwater withdrawals, sea level rise, and increased storm surges. The Sewall Well and the Bennett Well produce high quality drinking water that requires minimal treatment. However, recent studies indicated that the rate of withdrawal from this source and several years of drought conditions resulted in the lowering of the groundwater levels in the aquifer. Recovery of the aquifer after the drought years of the early 2000's has continued, reaching nearly expected capacity with careful management of water withdrawals. Since the drought, the Town has initiated a water management program, allowing better control of water use during times of drought or other periods of high demand on the water system.

Land Use Discharges into Groundwater

In Newmarket, groundwater usually flows from areas of high groundwater altitude toward natural discharge areas in the Lamprey River and Great Bay. While groundwater is naturally cleaned of particulate matter, both natural and human-induced chemicals can still be found in it. Industrial discharges, groundwater intrusion, urban activities, agriculture, groundwater pumping, and disposal of waste can all affect the groundwater quality. Any commercial activity using regulated substances or contaminants that discharges into the ground, or any activity that releases a chemical having a groundwater standard without approval from NHDES is a violation of state law (See NH Code of Administrative Rules Part Env-Ws 421 and Newmarket Code of Ordinances CH. 32 Art. V Sect. 32-153 "Aquifer Protection Overlay District").

Arsenic, Radon, and other Natural Contaminants Levels

According to survey data from the [Spring 2018 Granite State Poll](#), NH resident's top concerns about their drinking water include bacteria, PFC, lead, arsenic, radon, taste, and odor.

Arsenic occurs naturally in groundwater across New Hampshire. When present above the drinking level standard, it is important to reduce the concentration as it has negative long-term consequences on human health. In October 2019, the State of NH lowered the Maximum Contaminant Level for arsenic in drinking water from 10



parts per billion (ppb) to 5 ppb.¹⁷ Currently, the Town water system levels are at 6 ppb. To become compliant by July 1, 2021, Newmarket is designing a new facility to treat water from the Macintosh and Tucker Wells to lower arsenic levels to 2 ppb.

Radioactive elements (radon, radium 226, radium 228, uranium, and gross alpha emitting particles) are naturally present in New Hampshire rock, soil, and water. When dissolved in water, radionuclides are colorless, tasteless, odorless, and cannot be detected by our senses, but are a health concern regarding such as cancer, kidney damage, and tumors with long-term exposure.¹⁸ All drinking water radionuclides can be treated at the kitchen sink or point-of-use as they are not volatile and cannot be absorbed through the skin. Newmarket's water system is in compliance with the Safe Drinking Water Act requirements.

Most radon exposure is through the air because it is a gas. A smaller amount of exposure happens through water because water use (shower and water use) exposes the radon. Radon concentrations in both air and water are measured in picocuries per liter (pCi/L) and [NHDES recommends](#) a general rule of thumb that for every 10,000 pCi/L of radon in a home's water supply, the radon concentration in indoor air is increased by 1 pCi/L.

Higher sodium and chloride levels imply contamination of groundwater sources by human activities, including the use and storage of road salt, discharges from water softeners, human or animal waste disposal, leachate from landfills, and other activities.¹⁹ Chloride, in the form of salt, is imported to local watersheds from several major sources: roadway deicing, snow removal, food waste, water softeners, atmospheric deposition, and roadway salt pile runoff. Chloride is most transported within a watershed through stormwater runoff and groundwater flow to surface waters. Year to year variations in chloride contributions are primarily due to differences in the severity of any given winter. Currently, the Town is not required to have a Chloride TMDL²⁰, as it is not on the [3030D List](#) for Newmarket, but the Town might need to address it as part of NH-MS4 in the future.

According to the Groundwater Modeling study, high levels of sodium and chloride can result in increased treatment costs for water providers and may render groundwater wells unusable. This may require the development of new well locations or alternative sources of freshwater. Sodium and chloride levels in the seacoast area typically reach up to 75 mg/L sodium and 150 mg/L chloride. While the EPA does not identify a maximum contamination level, advisory drinking water standards for these two contaminants are 250 mg/L (a concentration level at which drinking water can taste salty). Higher levels of sodium and chloride can also indicate that surface water is reaching wells and is potentially bringing in other contaminants with it. While public water sources are regulated, private wells are not and could be more prone to contamination. Newmarket's water system is in compliance with the Safe Drinking Water Act requirements.

PFAS

PFAS stands for "Per- and Polyfluoroalkyl Substances." These are synthetic chemicals that have historically been used in a variety of household and commercial products from non-stick cookware and microwave popcorn bags, to shampoo and dental floss. Outside of the home, they have been used in firefighting foams and other industrial processes. While studies do not clearly show whether PFAS causes cancer and further study is needed, several studies suggest that PFAS may have various harmful impacts on human health.

¹⁷ <https://www.newmarketnh.gov/water-wastewater/pages/arsenic-levels-october-2019>

¹⁸ [NHDES Radionuclides in Drinking Water Fact Sheet](#)

¹⁹ [NHDES Sodium and Chloride in Drinking Water Fact Sheet](#)

²⁰ Total Maximum Daily Load refers to pollutant reduction a water body needs to meet [NH's water quality standards](#).



In July 2016, New Hampshire Department of Environmental Services emailed and/or mailed a letter requesting that all community and non-transient, non-community water systems voluntarily sample for PFOA, PFOS, and four other per fluorinated chemicals (PFCs) totaling nine samples. Results from this effort led to NHDES deciding that Newmarket did not need to continue monitoring on a regular basis.

In July 2018, the Water Department made the decision to resample for PFOA and PFOS because technology made it possible to detect a greater number of per fluorinated chemicals. Again, Newmarket came back well under accepted levels according to New Hampshire Department of Environmental Services. The Town of Newmarket Water Department plans to continue to sample for PFOA/PFOS as science and technology improves making it possible to detect different variations of per fluorinated chemicals to try and stay ahead of this emerging contaminant. In July 2020, a NH law set new standards were set and require local water systems, landfills, and wastewater plants to routinely test and treat for four PFAS chemicals. These include PFOA, PFOS, PFHxS, and PFNA. These will take effect in October 2020.²¹

Offline Wells

Bennett and Sewall Well pump stations are essential to the overall supply capacity for Newmarket's drinking water system, and yet have undergone only minor upgrades since their installation. If one of these wells were to go offline line, Macintosh's well supply would need to be reduced because this water currently needs to be blended with the Sewall and Bennett wells. Improvements, according to recommendations by Underwood Engineers²², include replacing the chemical feed, electric, heating, ventilation, and some structural improvements.

Surface Water Threats

Newmarket currently does not use any surface waters as a source for public drinking water and there are no plans to charge aquifers with surface water from the Lamprey River; however, there are several important surface water resources that play a vital ecological role in the community. As mentioned in surface and groundwater section, the Lamprey River, Great Bay, Piscassic River, Moonlight Brook are all identified waterbodies that are impaired or threatened. This means they are not expected to meet water quality standards within a reasonable time even after the application of best available technology standards or best management practices; or they require a comprehensive water quality study (total maximum daily load) in order to meet water quality standards.



Lamprey River Winding Through the Downtown Mills
Photo Credit: Bill Doucet

Stormwater Runoff

Studies conducted in the northeast have documented that by converting as little as ten (10) percent of a watershed to impervious surfaces, stream water quality, stream channel structure, and species habitat begins to deteriorate. As of 2015, Newmarket's land based (excluding open water) impervious coverage²³ was estimated to be 8% and will likely rise as Newmarket continues to grow.

²¹ More information is available [here](#).

²² [Macintosh and Tucker Wells Treatment Evaluation](#)

²³ An updated GIS impervious coverage dataset for 2020 will likely be available sometime in 2021.



According to data collected during the development of the 2015 Vision Chapter, residents expressed their concern with this population growth and the impacts it could have on water quality. Development associated with rapid population growth changes the natural water balance on a site by increasing impervious area and reducing the amount of ground area capable of infiltration, converting naturally vegetated areas to impervious or manicured areas, and compacting natural soils.

On July 1, 2018, Newmarket officially became subject to the United States Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) program. This is a national program aimed at improving New Hampshire's water quality, with improved stormwater management as well as an array of training and implementation tools to assist communities with implementation, commonly referred to as the MS4 program.

Increased Flooding Impacts

In New Hampshire, there are many types of flooding: riverine, flash flooding, coastal flooding, and shallow flooding. Riverine flooding is produced by a river or stream and has potential to last for longer periods of time. Flash flooding can occur when large amount of rain falls in a short amount of time, and usually rise and recedes quickly. This allows little or no warning time to evacuate and can be destructive and hazardous. Coastal flooding occurs in low-lying areas in NH's coast due to major storms in combination of full moon tides causing storm surge and wave effects. Shallow flooding occurs in flat areas where water is prevented from draining easily due to inadequate channels. One type of shallow flooding, urban drainage, occurs when man-made drainage structures, meant to handle 10 year-storm water levels, are overloaded by larger storms and result in backed-up sewers and overloads ditches.



Roadway Damage from Flooding
Photo Credit: Town of Newmarket

Although the flood mitigation capacity of floodplains is relatively well protected by federal and local regulations, other factors can contribute to increased flooding. These factors include: increases in impervious surface coverage, filling of wetlands, stormwater management practices that increase peak flow rates, inadequate infrastructure to accommodate current storm flow volumes, beaver dams and less natural dissipation of flood flows through infiltration and interception by trees and vegetation.

Other identified flood risks include the inability of culvert stream crossings to withstand storm flows (see [C-RiSe](#) report for hydraulic ratings and assessments), loss of tidal wetlands and salt marsh habitat from sea level rise.²⁴ Current threats to salt marshes include reduced tidal flow due to undersized culverts under roadways and train beds, loss of the upland buffer due to coastal development, saltwater intrusion, and colonization by invasive species such as *Pinus strobus* (northern white pine) and *Lythrum salicaria* (purple loosestrife).

Erosion and Sedimentation

The erosion and sedimentation development processes typically involve the removal of vegetation, the alteration of topography, and the covering of some previously vegetated surfaces with impervious cover such as roads, driveways, and buildings. These changes to the landscape may result in the erosion of soil and the sedimentation of water bodies as soil travels to streams, rivers, and lakes in water runoff during storms at an increased velocity due to the lack of vegetative cover. The removal of vegetative cover and its roots system

²⁴ [NH Wildlife Action Plan Appendix B Habitats](#)



compromise the ability of vegetation to stabilize soil, reduce the velocity of runoff, shield the soil surface from rain, and maintain the soil's ability to absorb water.

Increased Extreme Temperatures and Drought

Over the past two decades, Newmarket has experienced several significant periods of drought (2001-2002; 2015-2016; and most recently 2020). According to the NH Drought Management Program, the drought that impacted the state in the early 2000's was the third worst on record. Locally, during the dry summer months, the capacity of Newmarket Plains Aquifer, which was the Town's primary source of drinking water, was significantly reduced to critical levels; however, with careful management the aquifer recovered within a few years. To accomplish this, the Town started implementing a Water Management Program in 2002 (see Figure 4.) that requires all users to adhere to restrictions during these critical dry periods.

NEWMARKET WATER DEPARTMENT WATER MANAGEMENT PROGRAM			
STAGE 1	STAGE 2	STAGE 3	STAGE 4
Voluntary Water Conservation The public is requested to refrain voluntarily from watering lawns and encouraged to conserve water in all practical ways.	Mandatory Odd/Even Outside Watering The public is required to restrict lawn watering to every other day based on address and calendar day. EXAMPLE Even address Even calendar day Odd address Odd calendar day	Mandatory Two-Day Restrictions on Lawn Watering by Address. Each address is to restrict watering to two (2) days per week between the hours of 5-8 am and 6-9 pm on the following schedule: Allowed Days Street Address Monday, Wednesday Odd Number Tuesday, Thursday Even Number No washing driveways, sidewalks, autos, or boats.	Mandatory Outside Water Ban. The public is required to restrict the following. NO OUTSIDE WATER USE
Water Conservation Ordinance #2002-05 is available at town office.	NOTICE Hand held hoses may be used for flower and vegetable gardens plus shrubbery without hour and day restrictions. (STAGE 2 and 3 ONLY)		For additional information on water saving ideas check these web sites: www.awwa.org www.cpa.gov www.des.state.nh.us www.waterwise.org
How will you know what Stage is in affect? Stage in effect will be posted at locations entering town, on the Town Hall marquee, and in local newspapers.	WATER SAVING TIPS		
Why Do We Need Levels? To ensure adequate pressure and fire protection, storage tank must be 3/4 full. If this amount cannot be replenished during non-watering times, more restrictive hours must be established by going to the next Stage.	1. Check your toilet for leaks. 2. Install water-saving shower heads or flow restrictors. 3. Check faucets and pipes for leaks. 4. Use your automatic dishwasher only for full loads. 5. Use your automatic washing machine only for full loads. 6. Keep a bottle of drinking water in the refrigerator. 7. Water your lawn only when it needs it. 8. Water during cool parts of the day. 9. Don't wash down driveways or gutters. 10. Plant drought-resistant trees and plants. 11. Put a layer of mulch around trees and plants. 12. Cover swimming pools to reduce evaporation.		

Figure 4. Newmarket's Water Management Program

For many years, the Town has operated at a Stage 2 level. More recently in September 2020, that warning was upgraded to a Stage 3 level. The upgraded warning was a result of severe drought conditions along with the decision to remove the MacIntosh well off-line temporary to install treatment for arsenic. Capacity at both the Bennett and Sewall wells appear to be in good condition. This is largely because when the MacIntosh well came online in 2016, it allowed the Town to operate the Bennett and Sewall wells at lower pumping rates for 4 years.



As the 2020 drought continues, 100% of New Hampshire's population is experiencing abnormally dry conditions. According to the [United States Drought Monitor](#), it is estimated that 16.7% of the State is facing extreme drought conditions, categorized by major crop or pasture losses and widespread water restrictions and shortage. Figure 5 depicts the most up-to-date drought conditions in New Hampshire (at the time this plan was developed) and indicates that Newmarket is in an area experiencing the most severe conditions in the State.

The NHDES Drought Management Program has stated that the drought was due to a combination of a below average snowpack in the spring, little precipitation to recharge the groundwater, and the inability of watersheds to store large volumes of water due to their geology.

More extreme heat in New Hampshire, because of climate change, not only causes a rise in electricity demand and urban heat effects, but also increases the demand for water. Additionally, as air temperatures rise, so do ocean, lake, and river temperatures. This can lower water quality and affect fish populations (such as causing them to migrate and loose suitable habitat) and the deaths of other aquatic organisms. The [2014 National Climate Assessment](#) states that increasing air and water temperatures, paired with increases precipitation and runoff, and intensifying droughts can decrease water quality in several ways. These potential threats include increases in sediment, nitrogen, and other pollutant loads and other climate change triggers such as declining water levels, greater flood risk, and altered precipitation patterns.²⁵

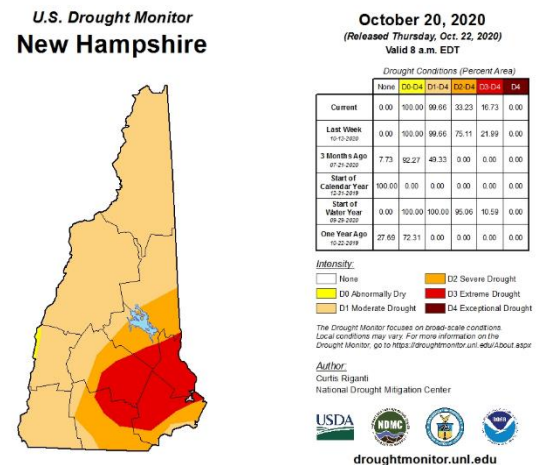
Often paired with increases in extreme heat are increase in drought across the U.S. Droughts are natural events that are part of the cyclical fluctuations of the climate; they can last anywhere from several months to years but there is not reliable method to accurately predict a drought.²⁶ Even in New England, where water is comparably abundant to the rest of the U.S., recent droughts—paired with NH's limited long-term water storage—have serious consequences on human demand for freshwater resources.²⁷ Compounding on these issues are increased demand for drinking water, saltwater intrusion, and rapidly development in watersheds, more extreme temperatures because of climate change.

Regulatory and Conservation Challenges

Regulatory

Current water regulations, which are based around preservation and restoration, assume that natural systems “fluctuate within an unchanging envelope of variability (stationarity)”.²⁸ Climate change is projected to impact water supplies in wide-ranging and pervasive ways and may reveal weaknesses in current water regulations.

Figure 5. US Drought Monitor: New Hampshire (10/20/20)



²⁵ More information can be found on the Conservation in a Changing Climate [website](#).

²⁶ [NHDES Water Resources Primer](#)

²⁷ Analysis of Drought Conditions in New Hampshire. J.M. Davis and M. Stampone. University of New Hampshire. December 2014. Available [here](#).

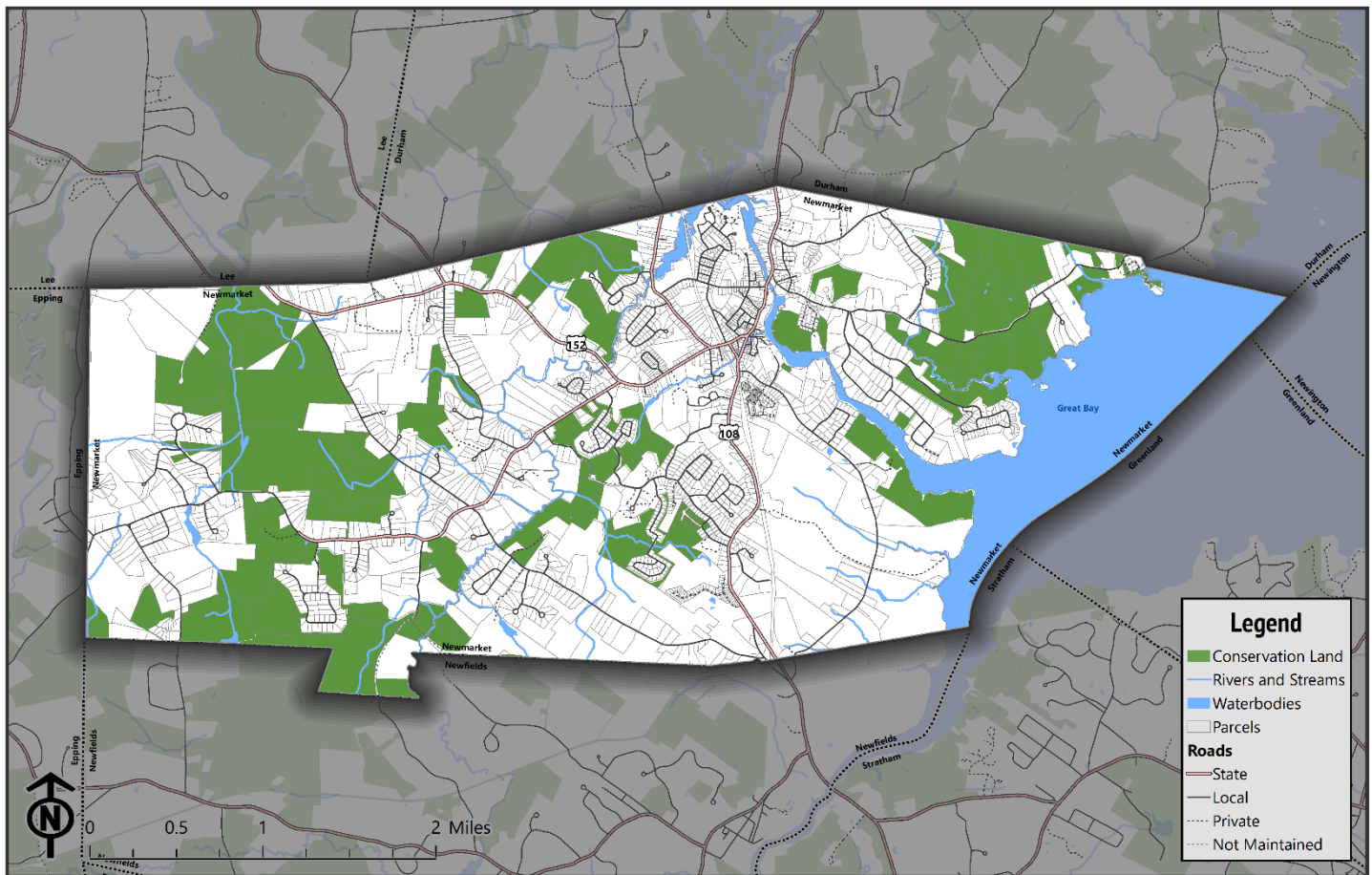
²⁸ [Ibid](#)



Therefore, assumptions about stationarity are unhelpful when writing and using water regulations. Agencies may need to seek flexibility in regulations and laws to achieve the best use of limited water resources and capacity.

Conservation Challenges

New Hampshire watersheds rank among the most highly threatened watersheds in the nation because of the high potential for conversion of private forests to residential development. In fact, three of the four most threatened watersheds in the US (which could experience the largest change in water quality because of increased residential development in private forests) occur at least partially in New Hampshire.²⁹ The long-term impacts of this rapid population growth and the associated changes in land use on New Hampshire's surface waters are uncertain. Of concern are the impacts of pollution such as septic systems, urban runoff, stormwater, application of road salt and fertilizers, deforestation, and wetland conversion.



Map 10. Conservation Lands in Newmarket [Source: NH GRANIT]

Newmarket's [Vision for the Future](#) emphasizes the importance of numerous environmental protection measures, including conservation of land and preservation of open spaces for the town's ongoing drinking water goals to be met. The 2015 Master Plan Visioning Public Input Session revealed that the public values the Town's emphasis on conservation and want to see it continue to be a priority.

²⁹ Stein et al. Private Forests, Public Benefits: Increased Housing Density and Other Pressures on Private Forest Contributions. USDA. 2009. Available [here](#).



The Newmarket Open Space Plan reports identifies areas with key natural resources and a high priority for protection through land conservation efforts, including the Town's drinking water sources (Newmarket Plains Aquifer and surrounding wellhead protection areas); floodplains of the Lamprey and Piscassic Rivers; prime wetlands; the Great Bay Estuary; highest quality wildlife habitat (NH Fish and Game, Wildlife Action Plan); ecologically significant areas (NH Coastal Program, The Nature Conservancy, and partners); and large unfragmented blocks of forests and farmland.

Federal/State Protection Measures

Refer to Surface and Groundwater Resources section.

Existing Local Protection Measures

Refer to Surface and Groundwater Resources section.

Recommendations

1. Ensure that the sanitary protective radius around the four (4) existing wells (Tucker, MacIntosh, Bennett, and Sewall) are all protected and controlled by the Town through ownership or easements.
2. Continue to explore grant opportunities to secure funding for existing and future drinking water protection efforts.
3. Finalize DRAFT stormwater regulations and adopt at the Planning Board.
4. Ensure that land use regulations protect environmentally sensitive resources including drinking water aquifers, tidal wetlands, and salt marsh that are subject to potential saltwater intrusion or other negative impacts associated with groundwater rise.
5. Collaborate with NHDES to update 2007 assessment of public water supply sources for susceptibility criteria including well proximity to septic, highways, and agriculture. Use this assessment to identify threats and target protection management (such as education for landowners, an inspection program, or emergency response planning) techniques.
6. Encourage better management of activities that add salt into or onto the ground (i.e. using newer technologies, equipment upgrades, good housekeeping measures, and inspection of storage sites on commercial areas such as Bennett Way).
7. Consider requiring advanced treatment for septic systems to reduce pollution often associated with traditional systems.
8. Increase awareness of radon levels and protection practices for Newmarket residents by posting NHDES information on the Building Department's webpage.
9. Work with state, federal regulators, and the Seacoast PFAS Commission to minimize PFAS contamination in the Town. This may including exploring water and land uses that could mitigate PFAS use and release; obtaining the latest inventory of (Tier II) data collection for facilities that have the potential to discharge PFAS using guidance from NHDES (SWP Grant 301).
10. Increase coordination with other watershed towns, higher-level collaboration with water-related organizations and stakeholders, and encourage a greater involvement of Newmarket's Conservation Commission in leading public education programs on water resources management and efforts to ensure compliance with stormwater requirements.
11. Prioritize buffer and floodplain protection based on Buffer Options for the Bay's regulatory options and suggestions.
12. Review appropriate zoning for activities that use chemicals or processes that could affect drinking water to proactively protect these resources.



13. Research effective education and outreach efforts to strengthen Newmarket's community values around water resources. Create community dialog around water resource stewardship for future generations.
14. Ensure that Planning and Zoning Board members are aware and have access to relevant land use trainings (e.g. OSI conferences, NHMA lectures, regional planning workshops) so that participants fully understand local ordinances, regulations, and state laws when making important decisions.
15. Continue to appropriate adequate funding to enable the Town to implement recommendations set forth in Newmarket's "Twenty-Year Water and Wastewater System Build-Out Study."
16. Continue efforts in implementing the Water Management Plan and educating the public of what they can do to complement these local actions.



Implementation Key

Action Type:

There are three action types, including:

- Regulatory
- Operations, Policies, and Procedures
- Outreach, Engagement, and Partnerships

Action Item:

Various recommendations for the Town to consider implementing to protect water resources over the lifespan of the chapter.

Chapter Topic:

There are five water resource topics:

- SW: Surface Water
- GW: Groundwater
- WET: Wetlands
- FLD: Floodplains
- THR: Potential Threats

Protection Type:

- RP: Resource Protection
- DWP: Drinking Water Protection
- WQP: Water Quality Protection

Priority:

There are four priority rankings, including:

- Ongoing: Actions which are continuous or already being carried out
- High: Actions which should be undertaken in 1–2 years
- Moderate: Actions which should be undertaken in 3–5 years
- Low: Actions which will take more than 5 years to initiate and complete

Responsible Party:

The identified party or municipal department that is the acting or responsible body to implement that action item.



Implementation Matrix

Action Items		Chapter Topics	Protection Type	Priority	Timeframe	Responsible Party
Regulatory						
1.	Review the current Aquifer Protection Overlay District with the state's updated model ordinance to recommend any necessary revisions.	GW	DWP	High	1–2 years	Planning Board & Conservation Commission
2.	Review all permitted uses within the base zoning districts to ensure that high intensity uses are consistent and in sync with the goals and objectives outlined in the Master Plan.	SW/GW	RP/DWP	High	1–2 years	Planning Board & Conservation Commission
3.	Evaluate the current regulations and ordinances with regards to septic system setbacks to ensure all waterbodies are adequately protected.	SW	RP	High	1–2 years	Planning Board & Conservation Commission
4.	Compare the existing Wetland Protection Overlay District with new state rules and make necessary revisions to be consistent with jurisdictional areas and other state-level changes.	WET	RP	High	1–2 years	Planning Board & Conservation Commission
5.	Review the updated floodplain model ordinance from NH Office of Strategic Initiatives and update the Town's floodplain ordinance once FEMA maps are approved and adopted. An outreach campaign targeting existing property owners shall accompany this update.	FLD	RP	High	1–2 years	Planning Board, Conservation Commission, Building Official
6.	Ensure that the sanitary protective radius around the four (4) existing wells (Tucker, Macintosh, Bennett, and Sewall) are all protected and controlled by the Town through ownership or easements.	THR	WQP	High	1–2 years	Town Council, Conservation Commission, Water Department
7.	Finalize DRAFT stormwater regulations and adopt at the Planning Board.	THR	WQP	High	1–2 years	Planning Board
8.	Review appropriate zoning for activities that use chemicals or processes that could affect drinking water to proactively protect these resources.	THR	WQP	Moderate	3-5 years	Fire Department & Town Council
9.	Consider adopting stricter buffer requirements for setbacks to wetlands that include consideration of climate change in order to protect land that allows coastal habitats and populations to adapt to changing conditions and also provides ecosystem services that protect people, structures, and facilities.	WET	RP	Low	5+ years	Planning Board & Conservation Commission
10.	Ensure that land use regulations protect environmentally sensitive resources including drinking water aquifers, tidal wetlands, and salt marsh that are subject to potential saltwater intrusion or other negative impacts associated with groundwater rise.	THR	WQP	Low	5+ years	Regional Planning Commissions (Strafford/Rockingham)
11.	Consider requiring advanced treatment for septic systems to reduce pollution often associated with traditional systems.	THR	WQP	Low	5+ years	Building Official
12.	Prioritize buffer and floodplain protection based on Buffer Options for the Bay's regulatory options and suggestions.	THR	WQP	Low	5+ years	Planning Board & Conservation Commission

Master Plan: Water Resources Chapter

Town of Newmarket, New Hampshire



Action Items		Chapter Topics	Protection Type	Priority	Timeframe	Responsible Party
Operations, Policies, and Procedures						
13.	Incorporate impacts to municipal infrastructure identified in the C-RiSe project into current and future capital infrastructure projects, including water access at Schanda Park, the pump station on Creighton Street, and flooding on critical roads such as Treatment Plant Road. This also includes evaluating the extent of sea-level rise and storm surge flooding on individual facilities such as sewer pipes located at the end of Water Street, Creighton Street, and Lamprey Street and the intersection of Bay Road.	FLD	RP	Ongoing	-	Town Department of Environmental Services
14.	Encourage better management of activities that add salt into or onto the ground (i.e. using newer technologies, equipment upgrades, good housekeeping measures, and inspection of storage sites on commercial areas such as Bennett Way).	THR	WQP	Ongoing	-	MS4 Coordinator, Town Planner, Town Engineer, and Public Works
15.	Continue to appropriate adequate funding to enable the Town to implement recommendations set forth in Newmarket's "Twenty-Year Water and Wastewater System Build-Out Study."	THR	WQP	Ongoing	-	Town Engineer & Town Department of Environmental Services
16.	Continue efforts in implementing the Water Management Plan and educating the public of what they can do to complement these local actions.	THR	WQP	Ongoing	-	
17.	Revisit the Climate Resiliency in Moonlight Brook report to accomplish remaining ICLEI Climate Resilient Communities milestones identified in the plan. Site specific projects include:	FLD/THR	RP/WQP	Ongoing/ High	1–2 years	MS4 Coordinator, Public Works, Town Department of Environmental Services
	Alleviate flooding in re-occurring areas by redirecting stormwater flows away from downtown in the "bowl " area on Route 108; installing a new drainage system with a gravel wetlands to provide water quality treatment on New Road and a stormwater outfall on Young Lane; and assess impacts upstream in the watershed at the new drainage system at the Elementary School.		RP/WQP			
			RP/WQP			
18.	Update the Town's Prime Wetland Maps and associated GIS layers that were completed in 2006 using new available GIS and Lidar data.	WET	RP	High	1–2 years	Conservation Commission & Planning Department
19.	Update the Town's Open Space Plan to strategically identify high value land for future land conservation. Incorporate climate resilience benefits, such as future flood storage salt marsh migration, etc., into scoring criteria to ensure the Town considers climate adaptation benefits when evaluating land for conservation purposes.	FLD	RP	High	1–2 years	Conservation Commission

Master Plan: Water Resources Chapter

Town of Newmarket, New Hampshire



Action Items		Chapter Topics	Protection Type	Priority	Timeframe	Responsible Party
20.	Identify and implement green infrastructure and nature-based approaches to improve flood resilience and stormwater management throughout the Town referenced in the New Hampshire Flood Hazard Handbook.	FLD	RP	High	1–2 years	Planning Department, MS4 Coordinator, Planning Board
21.	Use resources, such as the NH Statewide Asset Data Exchange System (SADES) crossing database, Resilient Tidal Crossing Assessment, and the C-RiSe climate ready culvert analysis, to identify infrastructure projects for inclusion in the Capital Improvements Plan that would assist with long-term planning decisions regarding the placement, design, and size of new culverts or when upgrades and repairs are being made to existing culverts. Site specific projects include:	SW/WET/FLD	RP	High	1–2 years	Conservation Commission & Public Works
	*Replacement of the Grant Road and Ash Swamp Road crossings over the Piscassic River to help restore surface waters to natural, free flowing systems.		RP			
	*Replacement of the Route 108 crossing over the northernmost unnamed perennial stream behind the Newmarket Storage that flows easterly beneath New Road into Great Bay to improve wetland function.		RP			
*Projects should include hydraulic analyses and survey data on channel dimensions to determine appropriate bridge sizing as part of a larger Town-wide infrastructure capacity assessment.						
22.	Integrate climate adaptation measures into all future master plan updates.	FLD	RP	Moderate	3-5 years	Planning Board & SRPC
Data, Studies, and Research Needs						
23.	Explore funding opportunities to conduct a town-wide vernal pool inventory to locate, document, and map vernal pools in Newmarket.	WET	RP	Ongoing	-	Conservation Commission
24.	Review Appendix C in the Town's 2018 Multi-Hazard Mitigation Plan to identify riverine flooding mitigation approaches, including prevention, property protection, natural resource protection, emergency services, structural projects, and public education.	FLD	RP	Ongoing	-	Emergency Management Director, Public Works, Town Engineer
25.	Continue to explore grant opportunities to secure funding for existing and future drinking water protection efforts.	THR	WQP	Ongoing	-	Town Department of Environmental Services
26.	Collaborate with NHDES to update 2007 assessment of public water supply sources for susceptibility criteria including well proximity to septic, highways, and agriculture. Use this assessment to identify threats and target protection management (such as education for landowners, an inspection program, or emergency response planning) techniques.	THR	WQP	Ongoing	-	Town Department of Environmental Services
27.	Use the New Hampshire Living Shoreline Site Suitability Assessment to identify sites in Newmarket that may be suitable for specific living shoreline approaches to address erosion issues along the tidal shoreline.	FLD	RP	Low	1–2 years	Conservation Commission, Riverfront Committee, Lamprey River Advisory Committee, SRPC

Master Plan: Water Resources Chapter

Town of Newmarket, New Hampshire



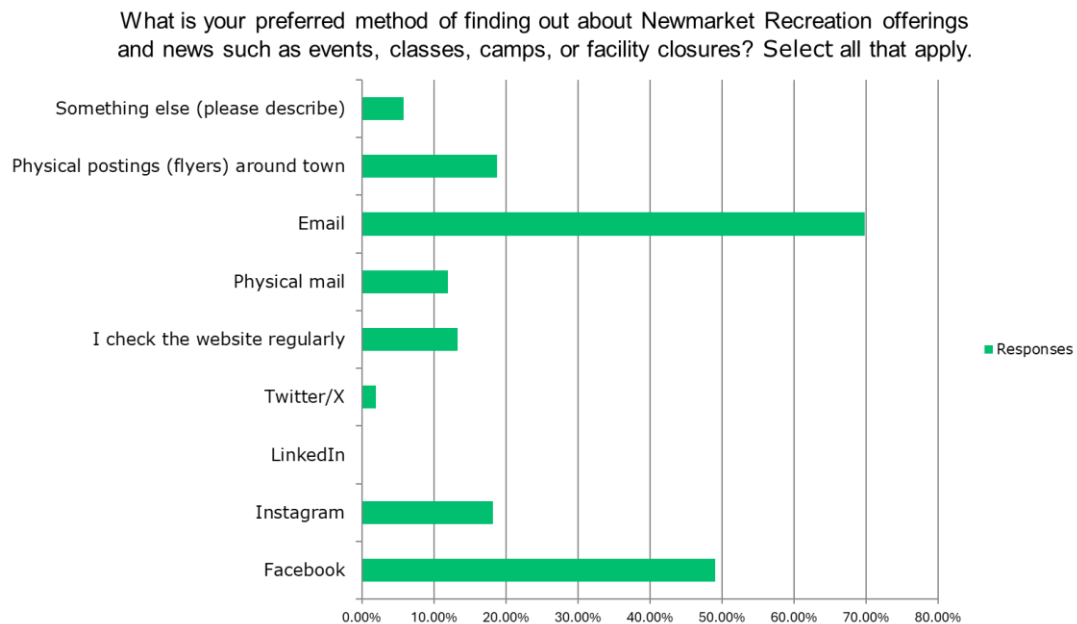
Action Items		Chapter Topics	Protection Type	Priority	Timeframe	Responsible Party
28.	Work with state, federal regulators, and the Seacoast PFAS Commission to minimize PFAS contamination in the Town. This may include exploring water and land uses that could mitigate PFAS use and release; obtaining the latest inventory of (Tier II) data collection for facilities that have the potential to discharge PFAS using guidance from NHDES (SWP Grant 301).	THR	WQP	Low	1–2 years	Water Department & Town Department of Environmental Services
29.	Investigate funding opportunities to help pay for the development of watershed-based plans to recommend methods to address specific impairments identified in the 303(d) list.	SW	RP	Moderate	3-5 years	MS4 Coordinator, Town Engineer, Town Department of Environmental Services, and Conservation Commission
Outreach, Engagement, and Partnerships						
30.	Continue to support local watershed groups and organizations.	SW/GW	RP/DWP	Ongoing	-	All Town Boards, Commissions, and Departments
31.	Collaborate with local, regional, and statewide partners to identify other wetland mitigation projects or restoration opportunities.	WET	RP	Ongoing	-	Conservation Commission
32.	Explore options to develop a creative outreach campaign to educate the public on future coastal flood risk (i.e. high-water mark initiative, participation in the king tide photo contest, etc.) at public spaces such as Schanda Park and Heron Point.	FLD	RP	Ongoing	-	Conservation Commission & Historical Society
33.	Increase coordination with other watershed towns, higher-level collaboration with water-related organizations and stakeholders, and encourage a greater involvement of Newmarket's Conservation Commission in leading public education programs on water resources management and efforts to ensure compliance with stormwater requirements.	THR	WQP	Ongoing	-	Conservation Commission
34.	Research effective education and outreach efforts to strengthen Newmarket's community values around water resources. Create community dialog around water resource stewardship for future generations.	THR	WQP	Ongoing	-	MS4 Coordinator
35.	Ensure that Planning and Zoning Board members are aware and have access to relevant land use trainings (e.g. OSI conferences, NHMA lectures, regional planning workshops) so that participants fully understand local ordinances, regulations, and state laws when making important decisions.	THR	WQP	Ongoing	-	Planning & Zoning Boards
36.	Increase awareness of radon levels and protection practices for Newmarket residents by posting NHDES information on the Building Department's webpage.	THR	WQP	Low	1-2 years	Building Department

Appendix I – Recreation

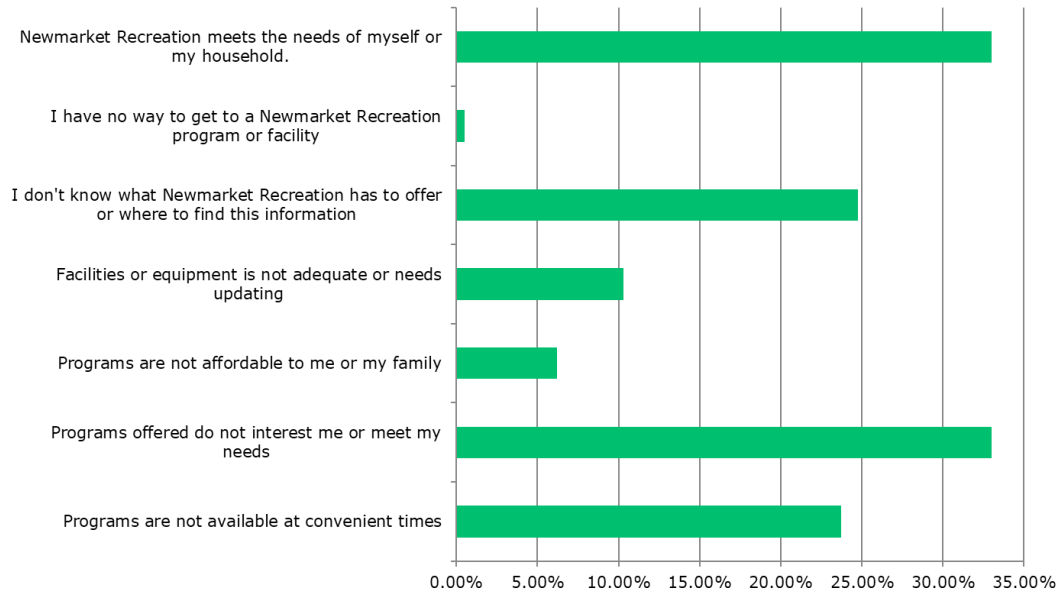
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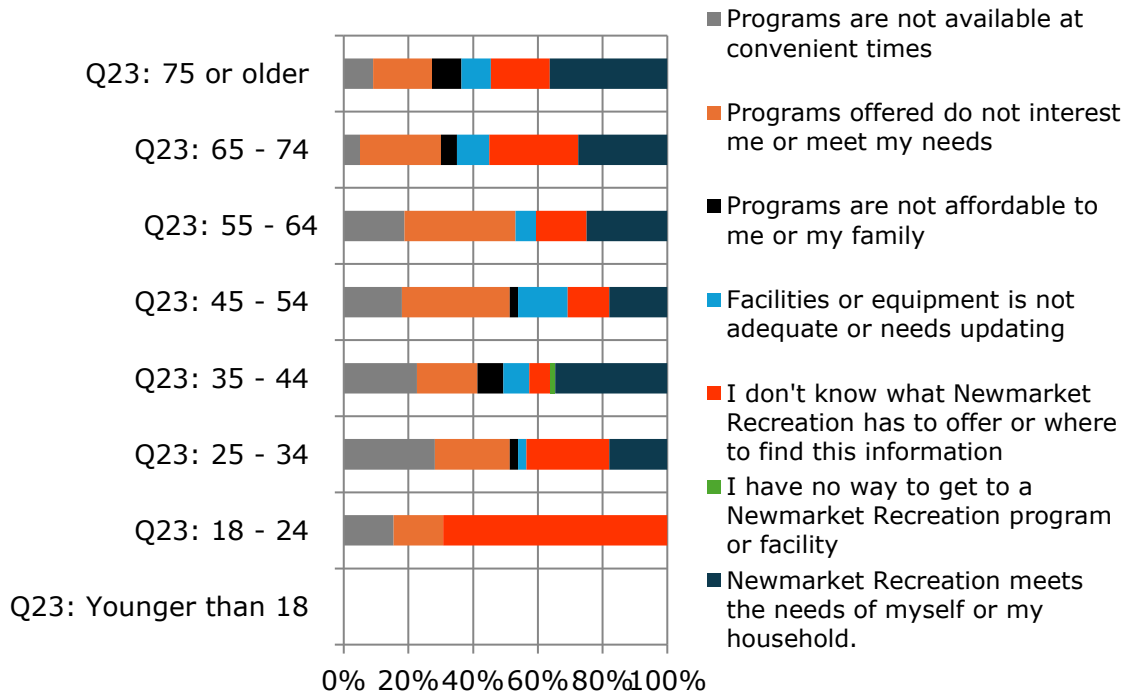
1. Community Engagement



What are barriers that prevent you or your household from participating in Newmarket Recreation programming? Select all that apply and feel free to use the comment box below to elaborate.



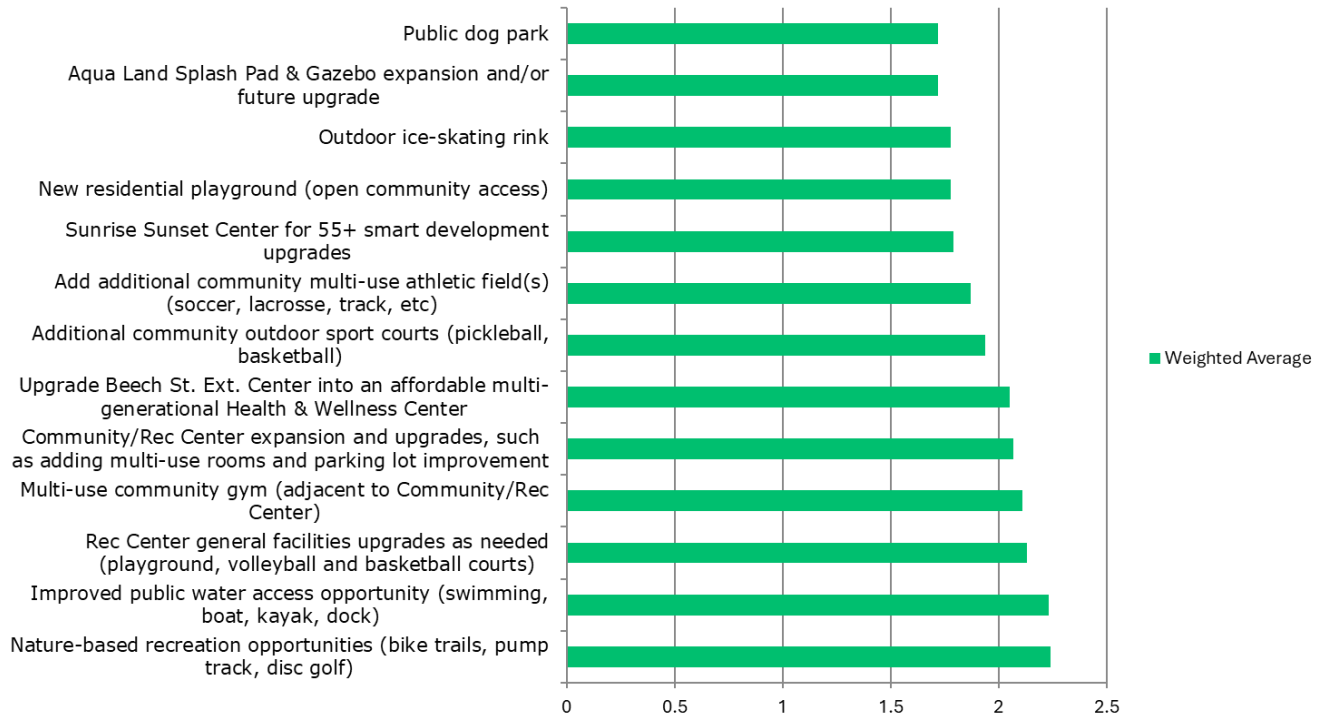
What are barriers that prevent you or your household from participating in Newmarket Recreation programming (by Age)



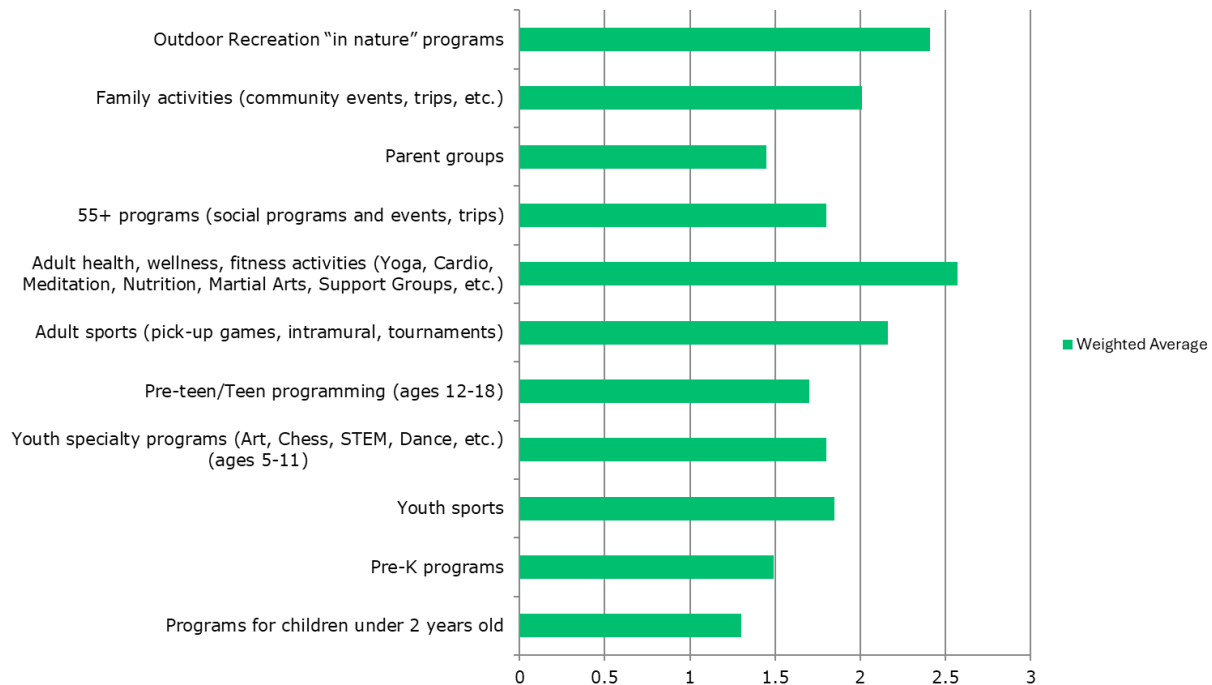
The primary barriers for adults ages 25-64 were “programs offered do not interest me or meet my needs” and “programs are not available at convenient times” with nearly 50% responding in that adult age group. Meanwhile, around 25% adults aged 25-64 said that Newmarket Recreation met their needs or their household’s needs. The primary barriers for the senior population (65+) were spread out amongst all options with nearly 40% responding that Newmarket Recreation met their needs or their household’s needs. Young adult ages 18-24 had a primary barrier of not knowing what is offered or where to find information. There were no respondents from ages <18 for this question. Age groups 55+ and 35-44 (parents) scored the highest for recreation that meets their or their household’s needs. The Newmarket Recreation department will continue to attempt to meet their community needs by targeting specific age groups for potential growth of programs or events.

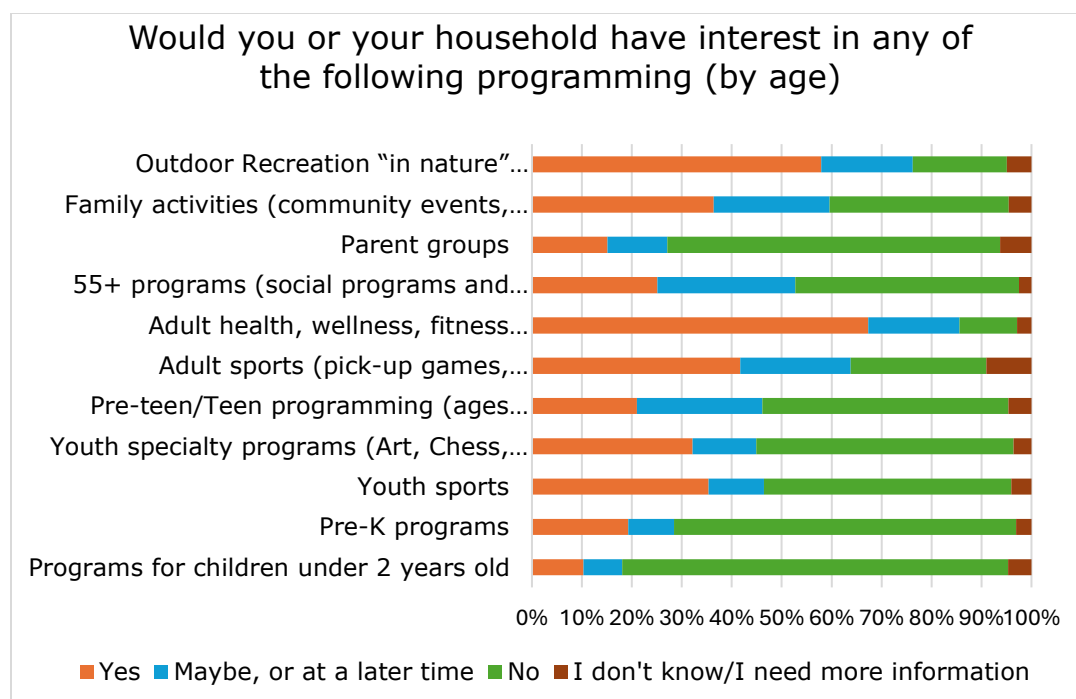
To determine the type of programming to address each age group’s potential expansion to reach as many people as possible, the survey also included a question asking what program interests’ residents have.

Where should the Town of Newmarket prioritize investment in its recreation facilities? How much?



Would you or your household have interest in any of the following programming?





As seen above, the two programming categories with the most interest were outdoor recreation “in nature” programs, and adult health, wellness, and fitness activities with over 50% of respondents choosing “yes”. This both speaks to the desires of the community and the gaps of programming currently available through the recreation department around these program categories. Both categories are potential avenues of gaining more traction with the adult population. A possible health, wellness, and fitness facility has been discussed, but site identification must occur first. Working congruently with the Recreation Department, Conservation Commission, and the School District, additional outdoor nature-based programming could be created to support a multitude of age groups, interests, and capabilities.

The lowest scoring programs were with Pre-K programs, programs under 2-year-old, and parent programs with 20 percent or less responding that they would be interested in those types of programming. This is likely due to a smaller population that has children at pre-k and under 2 or those families did not respond to the survey, however 60% of survey respondents had at least one minor in their household.

2. Bicycle Level of Traffic Stress

Inputs include the number of traffic lanes in each direction, posted and prevailing speed, type and width of bicycle infrastructure, presence and width of on-street parking, frequency of bike lane blockage, presence and characteristics of turning lanes, and presence and characteristics of unsignalized crossings.

LTS Rating	LTS Rating Description	Population Class	Population Class Description
LTS 1	Strong separation from all automobiles, except low speed, low volume traffic. Simple-to-use crossings. Suitable for children.	Unsteady and nervous	Children and other first-time riders
LTS 2	Except in low speed / low volume traffic situations, cyclists have their own place to ride that keeps them from having to interact with traffic. Physical separation from higher speed and multilane traffic. Crossings that are easy for an adult to negotiate. Limits traffic stress to what the mainstream adult population can tolerate	Interested but concerned	Uncomfortable negotiating fast, high volume traffic
LTS 3	Interaction with moderate speed or multilane traffic, or proximity to higher speed traffic.	Enthused and Confident	Willing to ride with minimal bicycle accommodations
LTS 4	Forced to mix with moderate speed traffic or proximity to high-speed traffic.	Strong and Fearless	Willing to ride under any condition

3. Recreation Department Facility Needs

The following recreation facility needs were identified by the current Recreation Department staff. They are subject to change as improvements are made or conditions change with time or have been reevaluated.

1. Renovate or Expand Community Center

1. Create ADA accessible doorways and restrooms.
2. Establish phase 3 of the community center for Indoor Gym Expansion.
3. Identify potential users of kitchen area in center.
4. Reorient Reception and establish security barrier to protect public in center.
5. Expand upon or renovate existing rooms or rooms that no longer serve their original purpose.

2. Renovate or Expand Sunrise Sunset Center

1. Identify existing areas to create additional storage or create their own.
2. General renovation of the activity center and/or specific program areas.
3. Research options to gain additional parking spaces:
 1. Build sidewalks on both sides of Terrace Drive:
 1. Side street parking for participants is safer
 2. Allows for possibility cross walk to be added in front of Center if additional parking can be made available across the street on HUD land.
 2. Establish parking agreement with police station to allow for additional parking for programs.

3. Renovate Beech Street Facility:

1. Only after proper mitigation and thorough assessment of property will any major renovations of Beech Street Extension Center be made for expanding health and wellness programs.

4. Revitalize Leo Landroche Field Complex

1. Fix Drainage issues on fields and establish use agreement with School to reduce traffic on fields during mud season.
2. Build outdoor multi-use performance venue (repeat)
3. Identify locations for additional shading structures or natural assets.
4. Renovate outdoor volleyball area. (if not repurposed - repeat)
5. Renovate outdoor basketball courts.(if not repurposed - repeat)
6. Install Emergency Intercom to communicate with all field users during emergencies. (repeat)
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8. Work with HUD to determine land potential for parking or recreation.
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10. Replace large playground and/or surrounding play equipment with new play equipment that is equal to or better when safety concerns arise due to years of wear and tear.

5. Improve Beanie Howcroft Field

1. Fix Irrigation issues on field
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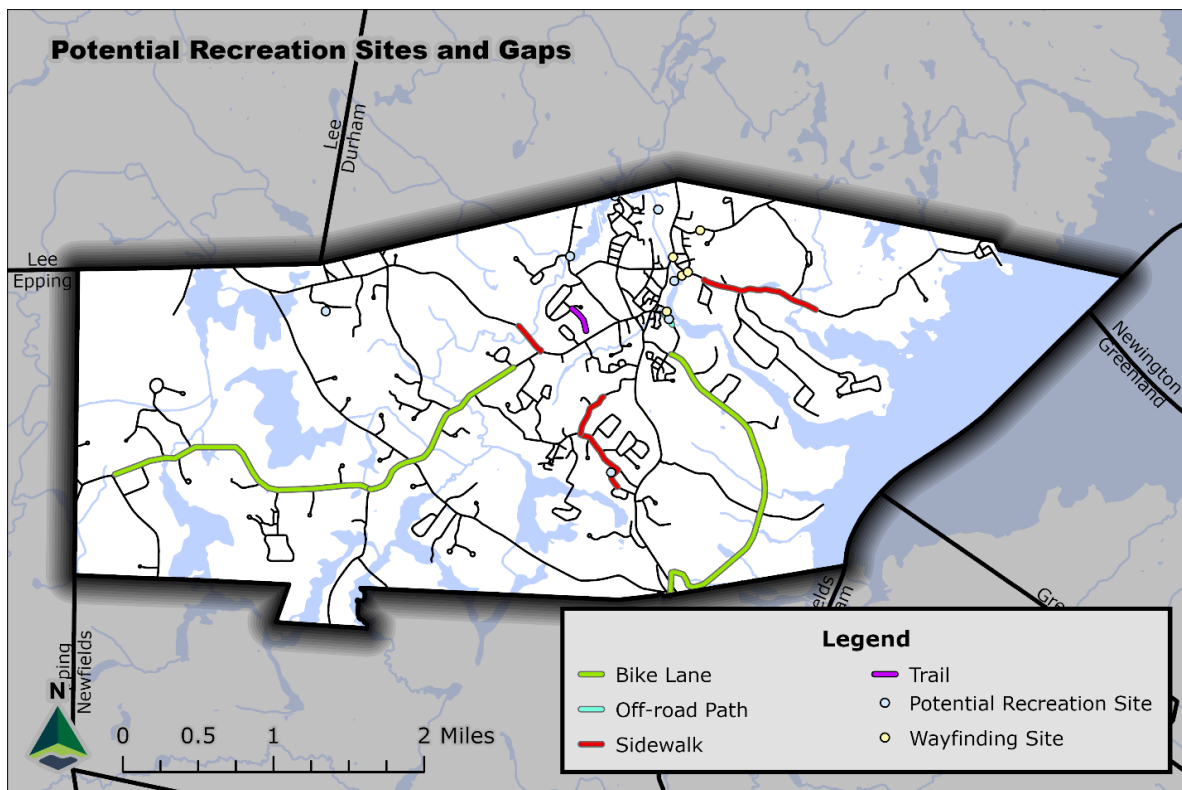
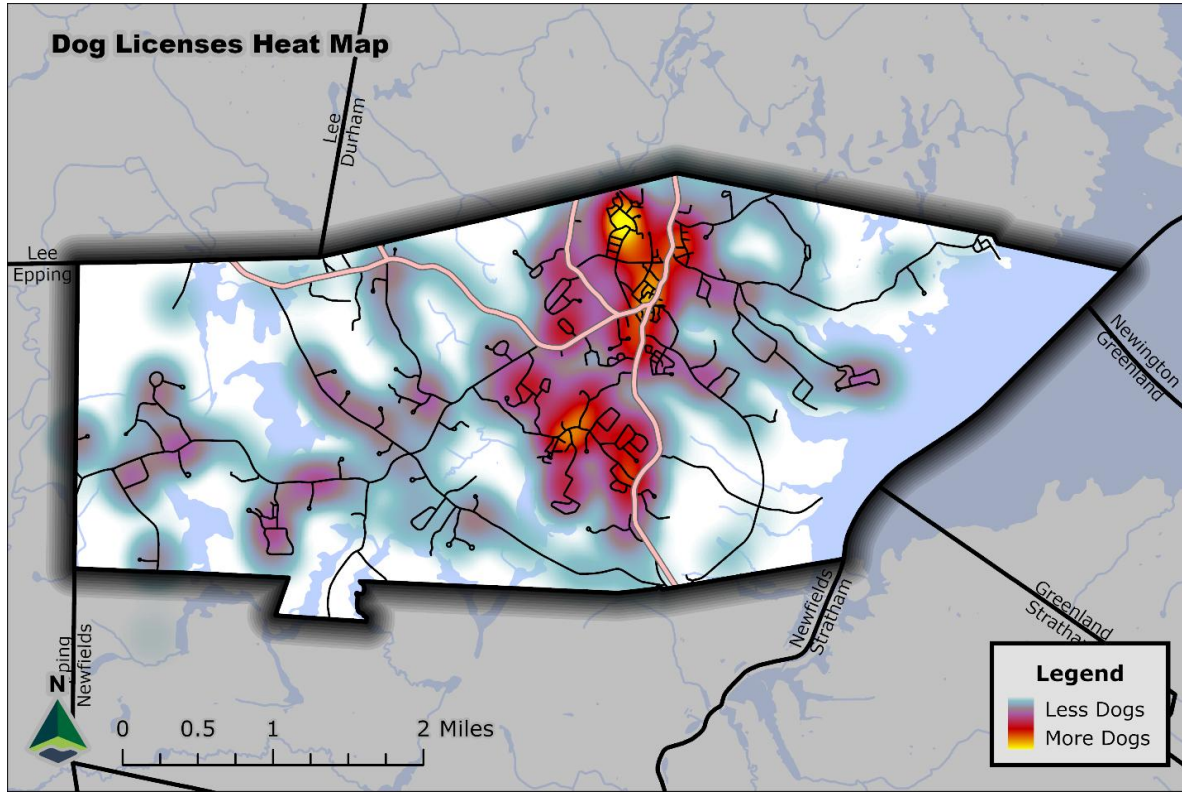
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1. Improve awareness of site with wayfinding assets.
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3. Identify additional parking with agreement with Church.
4. Establish an outdoor education opportunity or activity.
5. Resolve potential contamination at site.

7. Renovate Schanda Park

1. Dock expansion with Accessible Kayak Launch
2. Expand footprint of park for more people friendly green space.
3. Establish potential bike paths from Young's Lane.
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4. Additional Recreation Maps

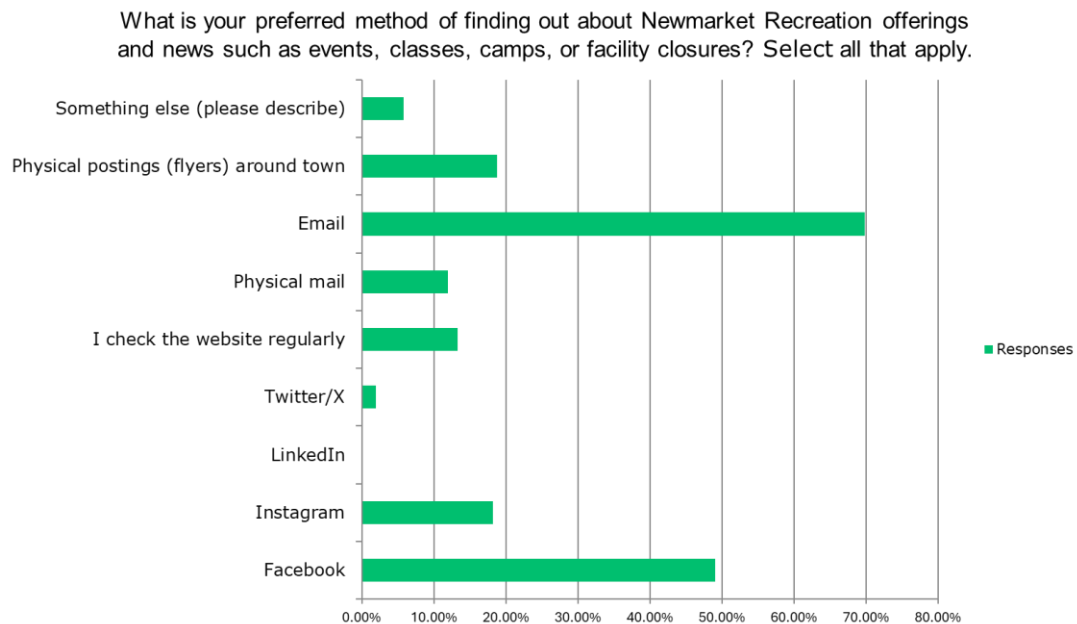


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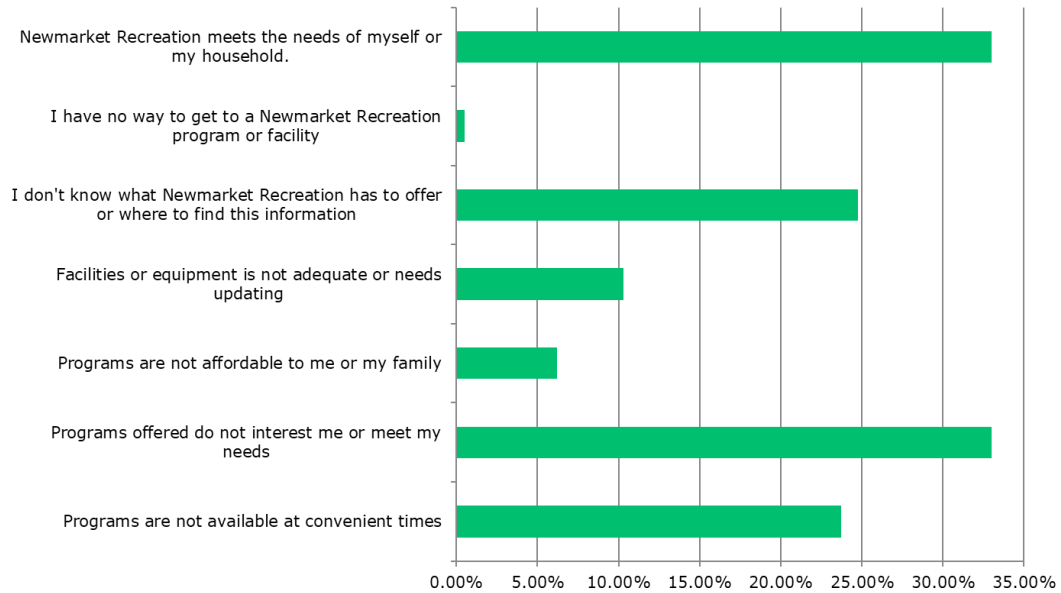
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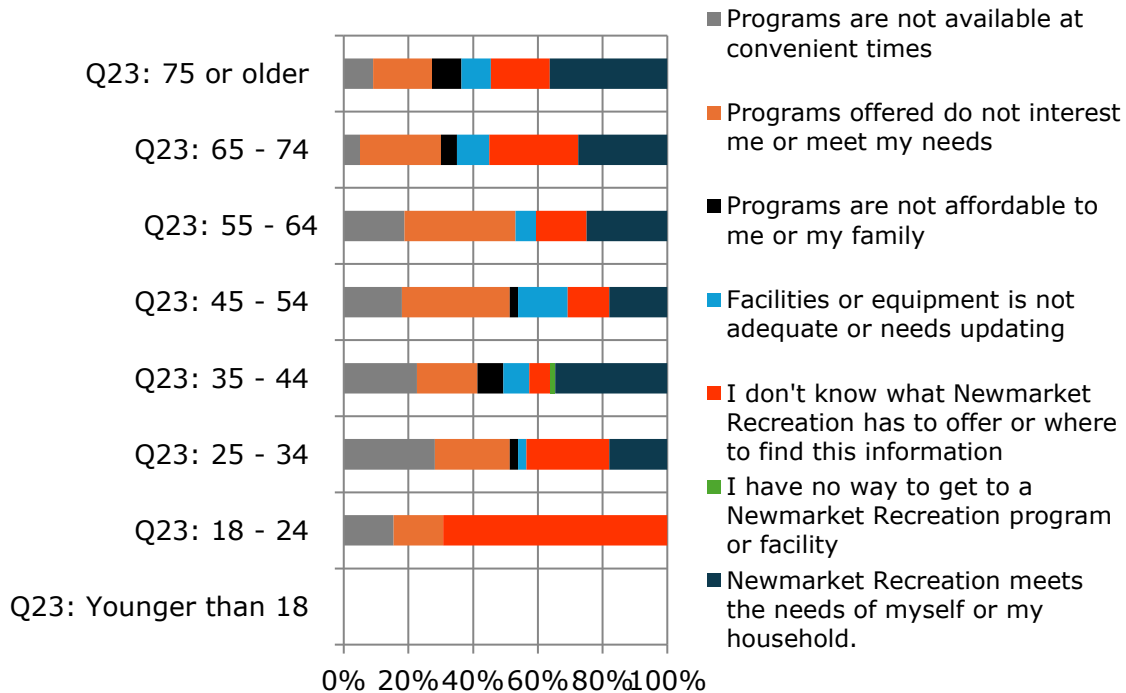
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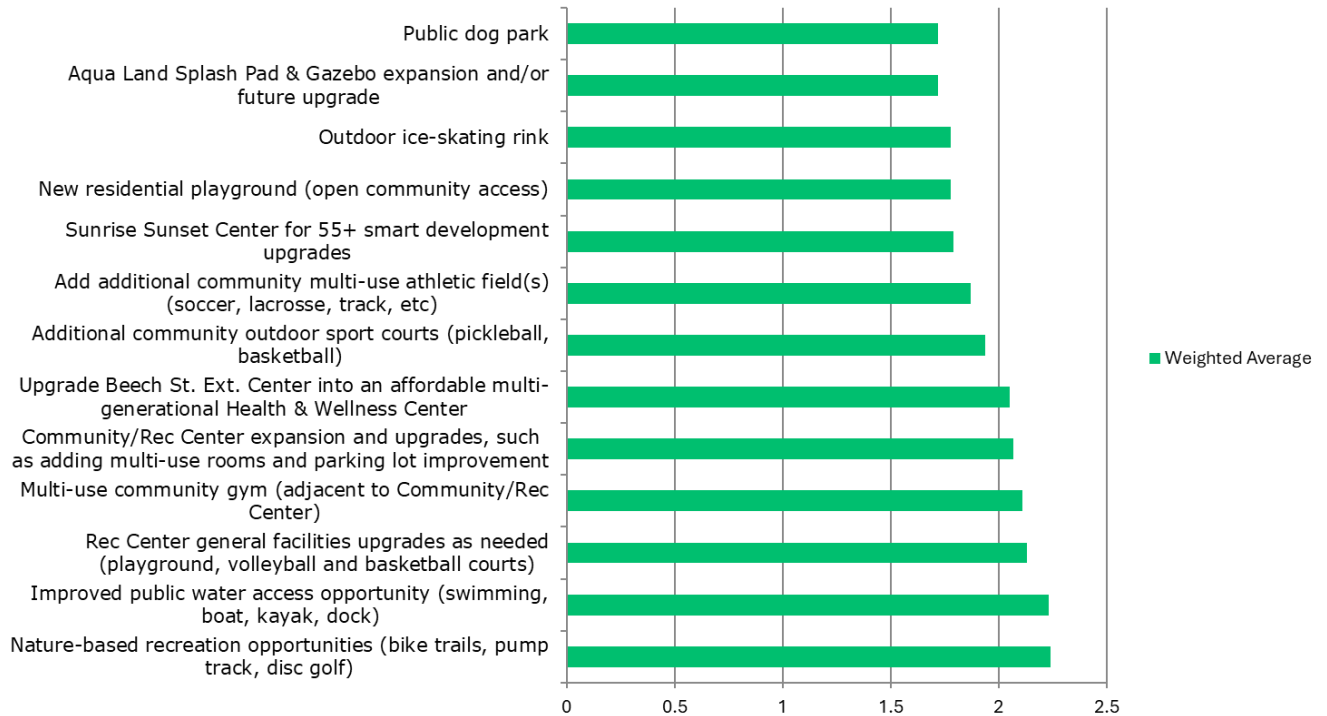
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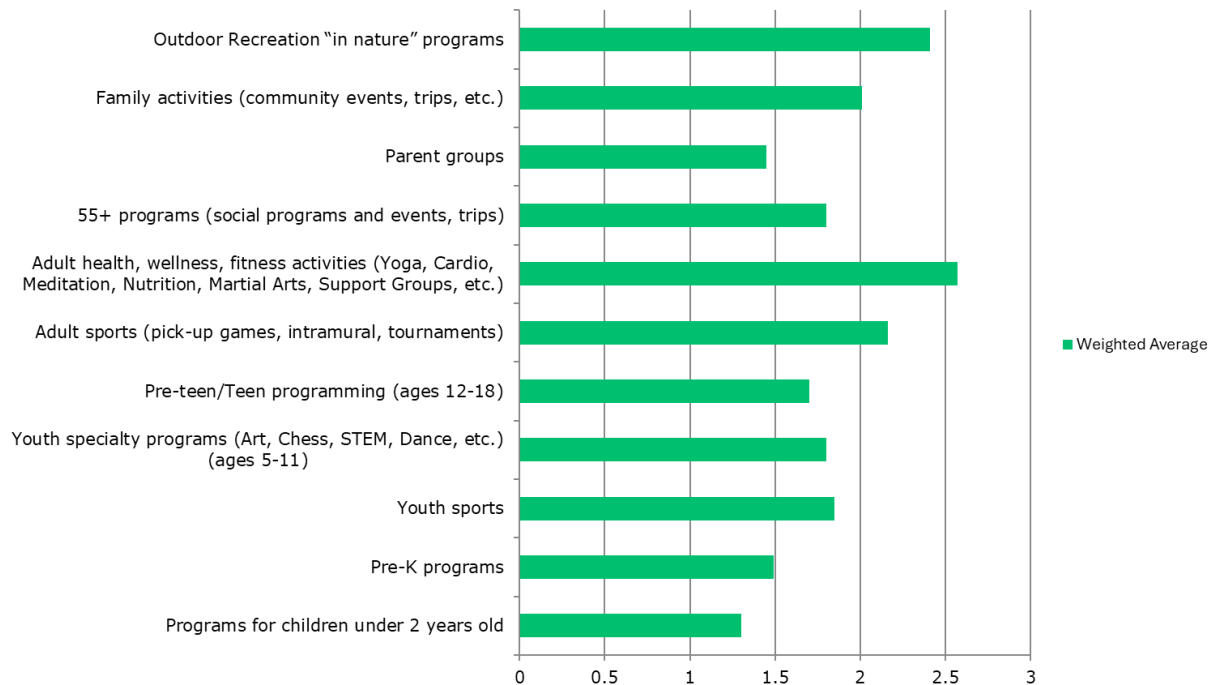
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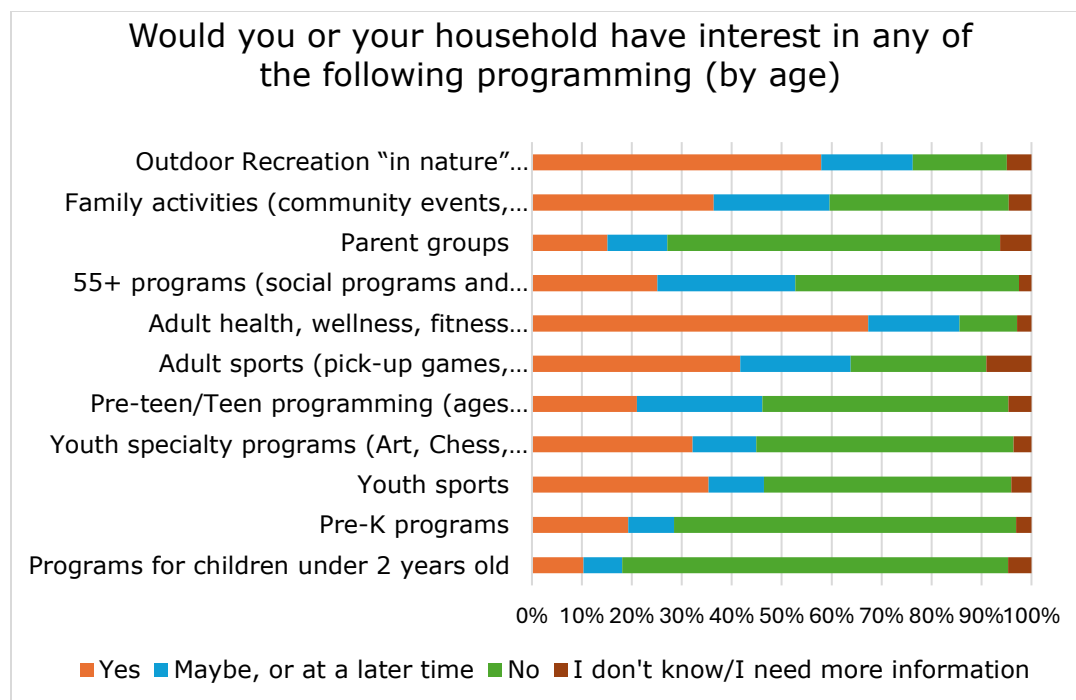
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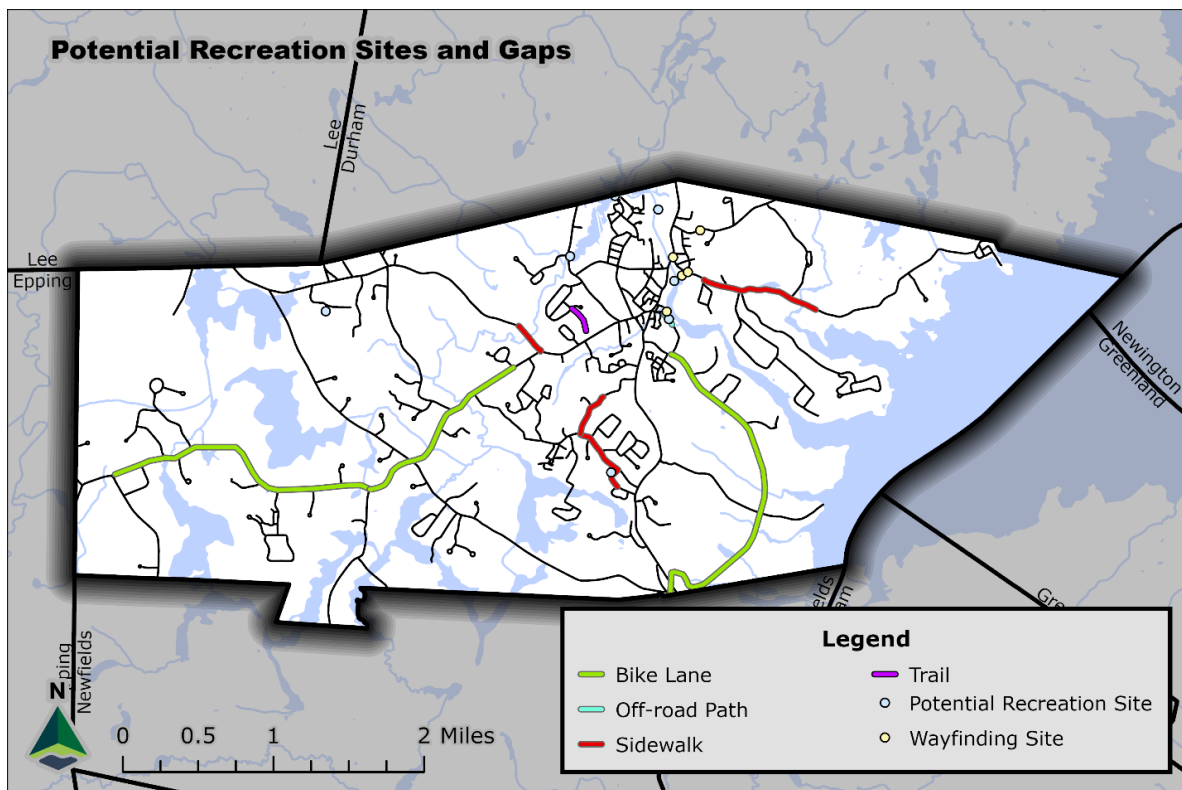
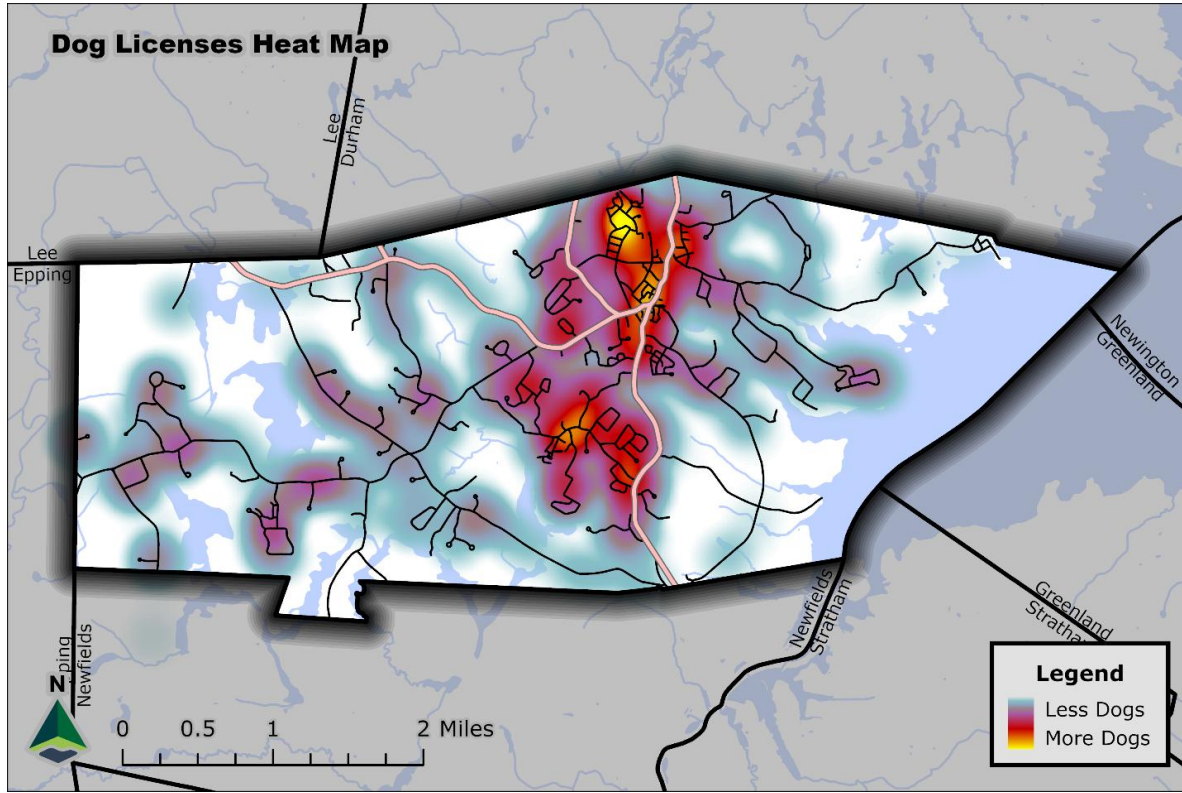
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4. Additional Recreation Maps



Appendix A – Economic Development

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Appendix A: Data, Trends, and Additional Discussion

Summary of Notable Economic and Demographic Trends Since Last Chapter Update

Similar to the rest of the state and region, the Town of Newmarket has experienced substantial shifts in economic trends since the time of its last Economic Development chapter update in 2011, particularly in the recent years since Covid-19. The beginning of the prior decade was characterized by a relatively steady economic recovery after the serious economic downturn seen in 2008-2009. However, this trend shifted as a result of the pandemic in 2020, where similar to the rest of the country and world, the economy experienced a sudden economic downturn that resulted in high unemployment rates, sudden business closures, the shift to remote work, and disruption of global supply chains, among other things. In response to the fiscal policies implemented to help mitigate the impacts of the pandemic, including historically low interest rates, coupled with the benefits of remote work which allowed people to relocate more easily in search of better quality of life and more affordability, there was an astonishing increase in housing demand in the region. This was no different for Newmarket, where the median purchase price for a home in Newmarket rose by over 56% from 2019 to 2023 (\$320,000 to \$500,000).ⁱ Similarly, rents have increased by 67% during the same time period.ⁱⁱ This rapid increase in housing costs has impacted Newmarket's workforce, making it unaffordable for many in the community, including families, students, and essential workers. Moreover, the rapid incline in housing costs has also resulted in a sudden increase in property taxes, which has highlighted the importance of attracting new economic activity to Town to help offset the residential tax burden.

Shifts in workforce and business operations also led to changes in the demand for retail, commercial, industrial, and office spaces. Remote work led to a decrease in the need for office space, seen in the historically high office vacancy rates data in the Dover subregionⁱⁱⁱ, which includes Newmarket. Meanwhile, manufacturing and e-commerce businesses experienced growth, leading to more demand for industrial and warehouse and distribution spaces.

Once a strong manufacturing center, Newmarket lost much of its industrial base between 1960 and 1990, with the closure of several manufacturing operations resulting in the loss of significant jobs. This, along with the sudden impacts experienced as a result of the pandemic, highlight the importance of having a resilient and diverse economic base to help weather unforeseen changes in the economy.

Population and Demographic Trends

The population in Newmarket has increased by 6.5% from 2010 to 2022, which is slower than Strafford and Rockingham Counties, but faster than New Hampshire's, with the 70-79 age group experiencing the sharpest growth during this same period. Meanwhile, the population of Newmarket is highly skilled, providing a workforce available to fill professional and technical jobs, with 98.4% of individuals over 25 holding a high school diploma or higher and about half of those individual holding a bachelor's degree or higher in 2022.

Newmarket's population is highly educated, and is comprised of people of all ages. In 2022, 98.4% of individuals over 25 years held a high school diploma or higher, of that number 49.6% had a bachelor's degree, Master's, or PhD. According to 2022 Census Bureau Data, the Town's median age of 37.7 is significantly lower than the median

age for Rockingham County and the figure for the state as a whole. While the largest age group in Newmarket in 2022 was the 20-29 group closely followed by the 30-39 age group, the population ages 70-79 experienced the biggest increase from 2012 to 2022. Moreover, the largest employment fields that Newmarket residents participate in (meaning their job is in that sector, regardless of where the job might be located) included Health Care and Social Assistance, followed by Educational Services, Retail Trade, Manufacturing, and Professional, Scientific, and Technical Services.

Changes in Economic Indicators

Newmarket's labor force, jobs, employment base, private firms, and wages have all increased since the time of the last economic development chapter update. Newmarket's labor force increased by 7.57% from 2010 to 2023, growing at a faster pace than Strafford County's (4.29%) and New Hampshire's (2.74%) during the same period. Based on Census Bureau LODES data, there were 1,640 jobs in Newmarket in 2022 (vs. 1,305 in 2015). The major industries included Education Services and Health Care and Social Assistance, each with over 200 employees, with the largest employers in Town being the Newmarket Elementary and High Schools. Furthermore, after experiencing a decline in total employment of 26% from 2000 to 2009, Newmarket's total employment base grew by 27% (from 1,237 jobs to 1,576 jobs) from 2010 to 2023. This increase was seen in the private sector, while the number of total government employees decreased during this same period. The number of total private businesses grew by 22%, but the number of new employees in private businesses grew by 42%, representing a slower growth in the number of firms but more jobs. Wages in Newmarket increased as well. From 2010 to 2023, the average weekly wages for private business employees increased by 56% (from \$734 to \$1,146) and 54% for public entity employees (from \$734 to \$1,128).

Outreach



Figure 14: Newmarket Community Workshop, September 2024, SRPC

To help inform this chapter, several outreach efforts were conducted throughout 2024 and 2025. These included a community workshop, held at the Newmarket Jr/Sr High School on September 14, 2024, a community wide survey disseminated in the summer/fall of 2024, a business-specific survey, disseminated in early 2025, and one-on-one interviews with local businesses owners conducted in early 2025. The input received through these outreach and engagement efforts are integrated throughout the chapter and included in the Appendix.

Process

Pursuant to RSA 674:2, a Master Plan may include an “economic development section”, which proposes actions to suit the community's goals, given its economic strengths and weaknesses in the region. In 2024, the Town engaged the Strafford Regional Planning Commission (SRPC) to

update the Economic Development Chapter under the guidance of the Newmarket Master Plan Committee, Economic Development Subcommittee, and Town staff. Throughout this process, the Economic Development Subcommittee held 7 meetings where they collaborated on the vision, goals, action items, and overall content for this chapter.

Population Trends and Projections

The population in Newmarket from 2010 to 2020 has increased slower than Strafford and Rockingham Counties, but faster than New Hampshire's. Population projections, provided by the NH Office of Planning and Development show that Newmarket's population is expected to increase by 10.79% by 2050 to 10,448 people. By comparison Strafford County as a whole is expected to grow by 14.17% from 2020 to 2050 and New Hampshire by 9.05% over this same period.

	Year	Newmarket	Rockingham County	Strafford County	NH
Trend	2010	8,936	295,223	123,143	1,316,256
	2011	8,950	295,608	123,538	1,318,000
	2012	8,942	296,594	124,219	1,321,000
	2013	9,173	297,626	124,292	1,323,262
	2014	9,149	298,573	125,053	1,326,595
	2015	9,170	300,569	125,342	1,330,389
	2016	9,172	302,194	125,807	1,334,591
	2017	9,359	304,932	126,795	1,342,612
	2018	9,455	308,833	127,922	1,356,265
	2019	9,460	310,258	128,879	1,359,518
	2020	9,430	314,176	130,889	1,377,313
	2021	9,496	319,489	131,343	1,388,779
	2022	9,459	320,053	131,908	1,395,007
	2023	9,534	322,987	133,075	1,401,828
Projections	2025	9,833	327,586	136,162	1,430,601
	2030	10,183	339,248	140,565	1,473,286
	2035	10,429	347,444	144,214	1,501,045
	2040	10,522	350,560	146,813	1,511,770
	2045	10,515	350,316	148,384	1,509,955
	2050	10,448	348,082	149,435	1,501,909
Change	2010-2020	5.53%	6.42%	6.29%	4.64%
	2020-2050	10.79%	10.79%	14.17%	9.05%

Figure 15: Population Trends and Projections, 2010 – 2050, NH Office of Planning and Development

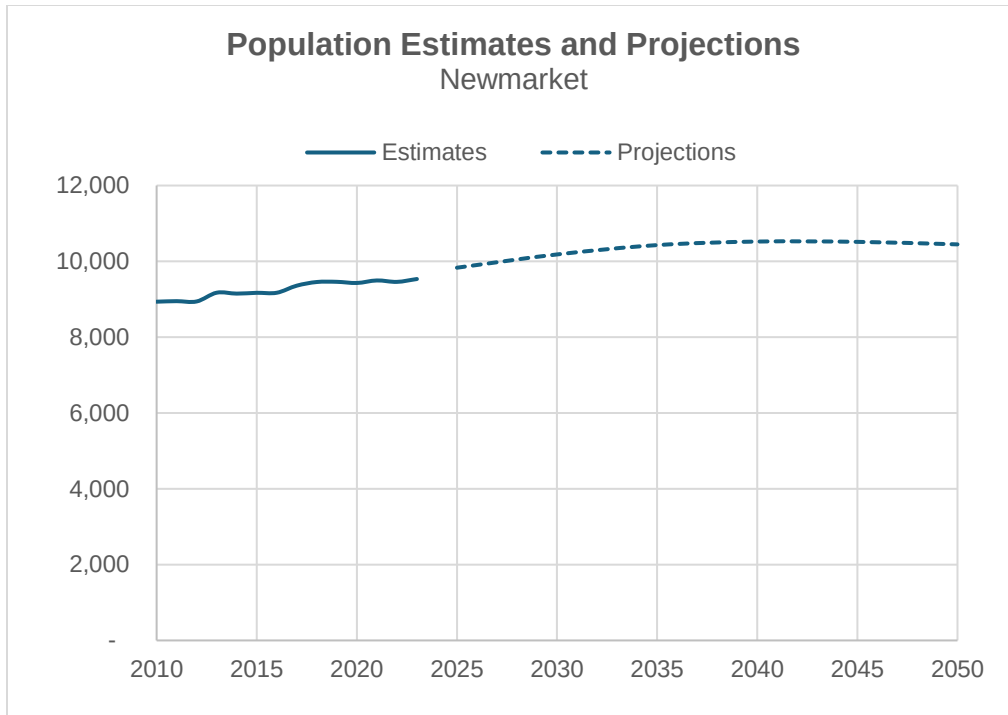


Figure 16: Population Estimates and Projections, 2010 – 2050, NH Office of Planning and Development

Population by Age

According to the US Census Bureau, the largest age group in Newmarket in 2022 was 20-29 closely followed by the 30-39 age group. The median age of Newmarket residents in 2022 was 38.5 years, which is slightly higher than Strafford County's median age (37.7) and significantly lower than Rockingham County's (44.7) and New Hampshire's (43.1). The age group that experienced the biggest increase compared to 2012 was the 70-79 age group, while the 0-9, 0-19, 40-49, and 50-59 age groups all experienced a decline.

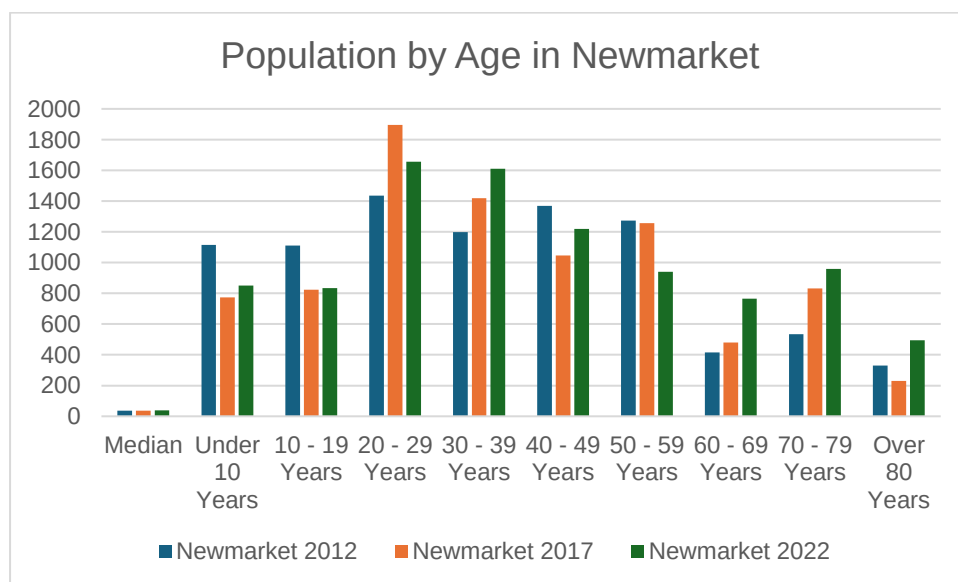


Figure 17: Population by Age in Newmarket, 2012, 2017, 2022, NH Employment Security

Labor Force

Based on estimates provided by the NH Department of Employment Security, the labor force in Newmarket increased by 7.57% from 2010 to 2023 (from 5,457 people in 2010 to 5,870 in 2023). While it has grown somewhat slower than Rockingham County's labor force (8.6% from 2010 to 2023), it has increased significantly compared to Strafford County's (4.29%) and NH's (2.74%).

The labor force in Newmarket remained steady from 2010 to 2014, when it started to increase consistently until 2020. It then experienced a decline due to the impacts of Covid-19 and has still not fully returned to pre-pandemic levels, though it has since returned to an upward trend.

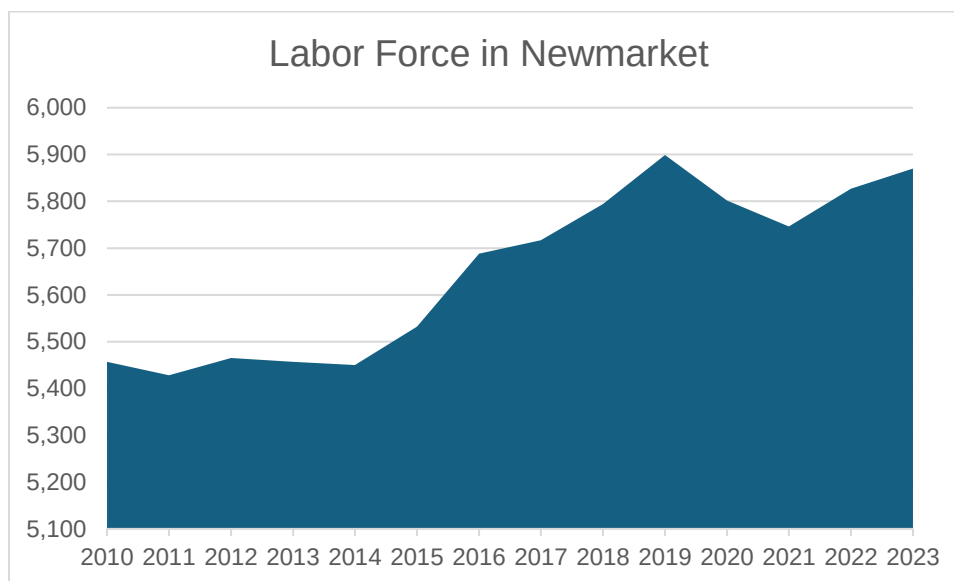


Figure 18: Labor Force in Newmarket, 2010 – 2023, New Hampshire Employment Security

Unemployment

Unemployment in Newmarket had been steadily declining since 2010 but saw a spike of 6.4% in 2020 due to business closures and furloughs that resulted from the Covid-19 pandemic. However, since then, the unemployment rate has continued to decline and is now lower than pre-pandemic levels (2.4% in 2019 vs. 1.7% in 2023). When looking at unemployment rates by month, the average monthly unemployment rate in 2023 dropped as low as 1.1% for the month of April.

The unemployment rate in Newmarket in 2023 (1.7%) was lower compared to NH's (2.2%), Rockingham County's (2.3%), and Strafford County's (2.1%).

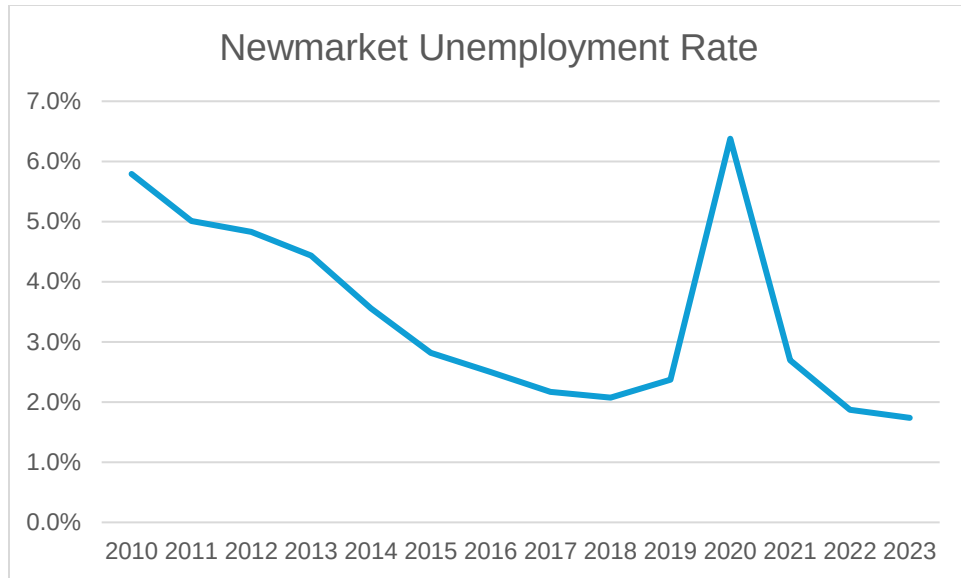


Figure 19: Newmarket Unemployment, 2010 - 2023, NH Employment Security

Labor Force Efficiency

According to Longitudinal Employer-Household Dynamics provided by the US Census Bureau, roughly three quarters of the labor force live in Newmarket and work elsewhere, about 6% both live and work in Newmarket, and about 18% live outside of Newmarket but work in Newmarket.

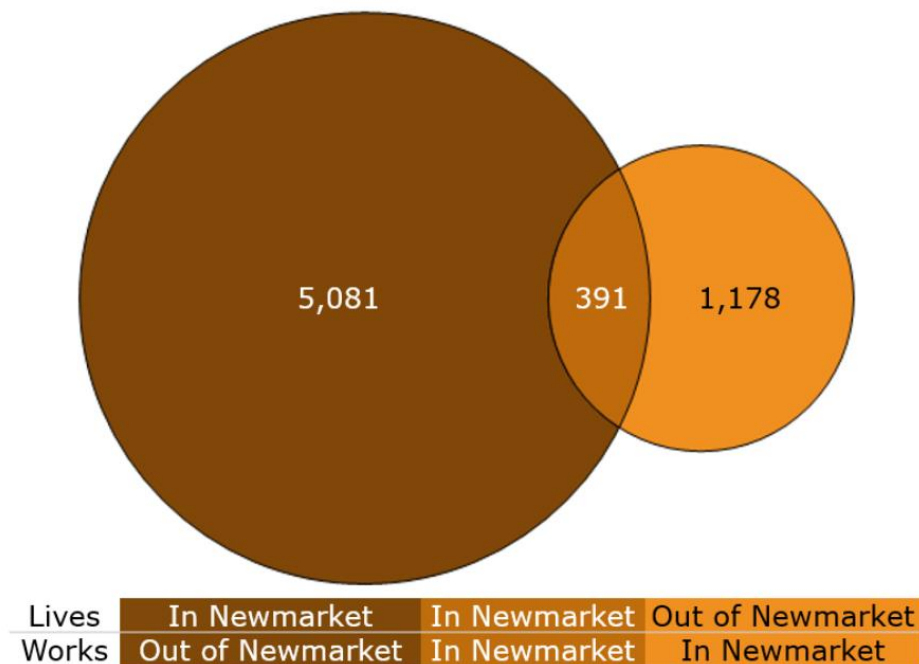


Figure 20: Newmarket Labor Force Efficiency, 2021, LEHD Origin-Destination Employment Statistics (LODES)

Lives	In Newmarket	In Newmarket	Out of Newmarket
Works	Out of Newmarket	In Newmarket	In Newmarket

Total	5,081	391	1,178
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Figure 21: Newmarket Labor Force Efficiency, 2021, LEHD Origin-Destination Employment Statistics (LODES)

Employment by Industry: Jobs and Job Holders by Sector

The table below shows the total number of jobs in Newmarket and Newmarket Resident's Fields, which indicates jobs held by Newmarket residents regardless of where they work. It represents Newmarket residents whose job is in each sector and might be in Newmarket or any other place in the country. The largest fields include Health Care and Social Assistance, followed by Educational Services, Retail Trade, Manufacturing, and Professional, Scientific, and Technical Services. The top 5 industries are highlighted in green.

		Jobs in Newmarket	Newmarket Resident's Fields
	Total	1640	5564
	NAICS sector 11 (Agriculture, Forestry, Fishing and Hunting)	0	9
	NAICS sector 21 (Mining, Quarrying, and Oil and Gas Extraction)	6	4
	NAICS sector 22 (Utilities)	0	29
	NAICS sector 23 (Construction)	197	223
	NAICS sector 31-33 (Manufacturing)	73	578
	NAICS sector 42 (Wholesale Trade)	40	276
	NAICS sector 44-45 (Retail Trade)	118	598
	NAICS sector 48-49 (Transportation and Warehousing)	5	143
	NAICS sector 51 (Information)	24	142
	NAICS sector 52 (Finance and Insurance)	22	278
	NAICS sector 53 (Real Estate and Rental and Leasing)	82	67

	NAICS sector 54 (Professional, Scientific, and Technical Services)	170	544
	NAICS sector 55 (Management of Companies and Enterprises)	0	99
	NAICS sector 56 (Administrative and Support and Waste	34	289
	NAICS sector 61 (Educational Services)	253	608
	NAICS sector 62 (Health Care and Social Assistance)	205	751
	NAICS sector 71 (Arts, Entertainment, and Recreation)	35	82
	NAICS sector 72 (Accommodation and Food Services)	188	455
	NAICS sector 81 (Other Services [except Public Administration])	75	170
	NAICS sector 92 (Public Administration)	113	219

Figure 22: Newmarket Employment by Industry, 2022, LODES Residential Area Characteristics and Workplace Area Characteristics

Jobs in Newmarket

Based on Census Bureau LODES data, there were 1,640 jobs in Newmarket in 2022. The major industries included Education Services and Health Care and Social Assistance, both with over 200 employees. Other large industries with 100-200 employees included Construction, Accommodation and Food Services, Professional, Scientific, and Technical Services, Retail Trade, and Public Administration.

Jobs in Newmarket				
Year	2010	2015	2020	2022
Total number of jobs	1305	1346	1418	1640
Number of jobs for workers age 29 or younger	351	336	314	411
Number of jobs for workers age 30 to 54	735	707	743	788
Number of jobs for workers age 55 or older	219	303	361	441

Number of jobs with earnings \$1250/month or less	388	416	322	354
Number of jobs with earnings \$1251/month to \$3333/month	471	453	387	368
Number of jobs with earnings greater than \$3333/month	446	477	709	918
Educational Services	239	206	194	253
Health Care and Social Assistance	180	194	216	205
Construction	46	134	156	197
Accommodation and Food Services	143	166	119	188
Professional- Scientific- and Technical Services	72	43	185	170
Retail Trade	117	82	85	118
Public Administration	79	77	100	113
Real Estate and Rental and Leasing	34	43	60	82
Other Services [except Public Administration]	45	55	76	75
Manufacturing	197	116	58	73
Wholesale Trade	19	54	39	40
Art	47	61	26	35
Administrative and Support and Waste Management and Remediation Services	41	90	67	34
Information	2	5	7	24
Finance and Insurance	23	12	26	22
Mining- Quarrying- and Oil and Gas Extraction	5	3	1	6
Transportation and Warehousing	6	5	3	5
Agriculture- Forestry- Fishing and Hunting	4	0	0	0
Utilities	4	0	0	0

Management of Companies and Enterprises	2	0	0	0
Number of jobs for workers with Race: White Alone	1248	1283	1336	1549
Number of jobs for workers with Race: Black or African American Alone	9	16	28	20
Number of jobs for workers with Race: American Indian or Alaska Native Alone	3	3	8	9
Number of jobs for workers with Race: Asian Alone	28	30	32	43
Number of jobs for workers with Race: Native Hawaiian or Other Pacific Islander Alone	0	0	1	1
Number of jobs for workers with Race: Two or More Race Groups	17	14	13	18
Number of jobs for workers with Ethnicity: Not Hispanic or Latino	1278	1320	1368	1583
Number of jobs for workers with Ethnicity: Hispanic or Latino	27	26	50	57
Number of jobs for workers with Educational Attainment: Less than high school	70	97	100	127
Number of jobs for workers with Educational Attainment: High school or equivalent - no college	231	277	269	305
Number of jobs for workers with Educational Attainment: Some college or Associate degree	325	309	329	372
Number of jobs for workers with Educational Attainment: Bachelors degree or advanced degree	328	327	406	425
Number of jobs for workers with Sex: Male	577	655	710	792
Number of jobs for workers with Sex: Female	728	691	708	848
Over 200	100-200	50-100	Less than 50	

Figure 23: Jobs in Newmarket, 2022, LODES Residential Area Characteristics and Workplace Area Characteristics

Employment Projections for the SRPC Region

Below are employment projections for different industries in the SRPC region. Changes are shown both in terms of number of jobs and as also as a percent change.

Code	Industry	2020 Estimated Employment	2030 Projected Employment	Numeric Change	Percent Change
000000	Total Employment	53,874	57,945	4,071	7.60%
101000	Goods-Producing Industries	7,207	7,377	170	2.40%
102000	Service-Providing Industries	43,784	47,730	3,946	9.00%
006010	Self-employed Workers	2,883	2,838	-45	-1.60%
110000	Agriculture, Forestry, Fishing and Hunting	417	454	37	8.90%
111000	Crop Production	329	359	30	9.10%
112000	Animal Production	56	61	5	8.90%
113000	Forestry and Logging	15	15	0	0.00%
115000	Agriculture and Forestry Support Activities	0	0	0	0
210000	Mining	16	16	0	0.00%
212000	Mining (except oil and gas)	16	16	0	0.00%
220000	Utilities	0	0	0	0
221000	Utilities	0	0	0	0
230000	Construction	1,881	2,060	179	9.50%
236000	Construction of Buildings	426	504	78	18.30%
237000	Heavy and Civil Engineering Construction	135	139	4	3.00%
238000	Specialty Trade Contractors	1,320	1,417	97	7.40%
310000	Manufacturing	4,893	4,847	-46	-0.90%
311000	Food Manufacturing	65	75	10	15.40%
312000	Beverage and Tobacco Product Manufacturing	25	49	24	96.00%
313000	Textile Mills	634	629	-5	-0.80%
314000	Textile Product Mills	10	9	-1	-10.00%
315000	Apparel Manufacturing	0	0	0	0

Code	Industry	2020 Estimated Employment	2030 Projected Employment	Numeric Change	Percent Change
321000	Wood Product Manufacturing	56	61	5	8.90%
322000	Paper Manufacturing	0	0	0	0
323000	Printing and Related Support Activities	224	177	-47	-21.00%
324000	Petroleum and Coal Products Manufacturing	0	0	0	0
325000	Chemical Manufacturing	19	25	6	31.60%
326000	Plastics and Rubber Products Manufacturing	785	708	-77	-9.80%
327000	Nonmetallic Mineral Product Manufacturing	51	56	5	9.80%
331000	Primary Metal Manufacturing	0	0	0	0
332000	Fabricated Metal Product Manufacturing	469	488	19	4.10%
333000	Machinery Manufacturing	443	430	-13	-2.90%
334000	Computer and Electronic Product Manufacturing	556	596	40	7.20%
335000	Electrical Equipment, Appliance, and Component Manufacturing	48	43	-5	-10.40%
336000	Transportation Equipment Manufacturing	792	776	-16	-2.00%
337000	Furniture and Related Product Manufacturing	47	43	-4	-8.50%
339000	Miscellaneous Manufacturing	473	479	6	1.30%
420000	Wholesale Trade	1,189	1,269	80	6.70%
440000	Retail Trade	7,211	7,049	-162	-2.30%
441000	Motor Vehicle and Parts Dealers	926	1,014	88	9.50%

Code	Industry	2020 Estimated Employment	2030 Projected Employment	Numeric Change	Percent Change
442000	Furniture and Home Furnishings Stores	0	0	0	0
443000	Electronics and Appliance Stores	61	35	-26	-42.60%
444000	Building Material and Garden Supply Stores	851	809	-42	-4.90%
445000	Food and Beverage Stores	2,279	2,191	-88	-3.90%
446000	Health and Personal Care Stores	311	296	-15	-4.80%
447000	Gasoline Stations	425	401	-24	-5.70%
448000	Clothing and Clothing Accessories Stores	141	171	30	21.30%
451000	Sporting Goods, Hobby, Book, and Music Stores	0	0	0	0
452000	General Merchandise Stores	1,128	1,031	-97	-8.60%
453000	Miscellaneous Store Retailers	328	291	-37	-11.30%
454000	Nonstore Retailers	501	549	48	9.60%
480000	Transportation and Warehousing	1,056	1,133	77	7.30%
481000	Air Transportation	0	0	0	0
482000	Rail Transportation	0	0	0	0
484000	Truck Transportation	190	206	16	8.40%
485000	Transit and Ground Passenger Transport	135	176	41	30.40%
488000	Support Activities for Transportation	0	0	0	0
491100	Postal Service, Federal Government	236	213	-23	-9.80%
492000	Couriers and Messengers	0	0	0	0
493000	Warehousing and Storage	187	204	17	9.10%
510000	Information	688	663	-25	-3.60%
511000	Publishing Industries	67	72	5	7.50%
512000	Motion Picture and Sound Recording Industries	0	0	0	0

Code	Industry	2020 Estimated Employment	2030 Projected Employment	Numeric Change	Percent Change
515000	Broadcasting (except Internet)	66	59	-7	-10.60%
517000	Telecommunications	0	0	0	0
518000	Data Processing, Hosting, and Related Services	0	0	0	0
519000	Other Information Services	31	34	3	9.70%
520000	Finance and Insurance	2,826	2,943	117	4.10%
522000	Credit Intermediation and Related Activities	647	626	-21	-3.30%
523000	Financial Investment and Related Activities	0	0	0	0
524000	Insurance Carriers and Related Activities	2,118	2,240	122	5.80%
530000	Real Estate and Rental and Leasing	395	414	19	4.80%
531000	Real Estate	307	332	25	8.10%
532000	Rental and Leasing Services	88	82	-6	-6.80%
541000	Professional, Scientific, and Technical Services	2,869	3,358	489	17.00%
541100	Legal Services	180	167	-13	-7.20%
541200	Accounting, Tax Prep., Bookkeeping, and Payroll Services	139	132	-7	-5.00%
541300	Architectural, Engineering, and Related Services	256	292	36	14.10%
541400	Specialized Design Services	7	17	10	142.90%
541500	Computer Systems Design and Related Services	1,648	2,019	371	22.50%
541600	Management, Scientific, and Technical Consulting Services	264	289	25	9.50%

Code	Industry	2020 Estimated Employment	2030 Projected Employment	Numeric Change	Percent Change
541700	Scientific Research and Development Services	21	21	0	0.00%
541800	Advertising and Related Services	25	27	2	8.00%
541900	Other Professional, Scientific, and Technical Services	329	394	65	19.80%
550000	Management of Companies and Enterprises	127	121	-6	-4.70%
551000	Management of Companies and Enterprises	127	121	-6	-4.70%
561000	Administrative and Waste Management Services	2,194	2,367	173	7.90%
561100	Office Administrative Services	428	469	41	9.60%
561200	Facilities Support Services	84	90	6	7.10%
561300	Employment Services	348	383	35	10.10%
561400	Business Support Services	163	134	-29	-17.80%
561500	Travel Arrangement and Reservation Services	0	0	0	0
561600	Investigation and Security Services	23	26	3	13.00%
561700	Services to Buildings and Dwellings	793	868	75	9.50%
561900	Other Support Services	0	0	0	0
562000	Waste Management and Remediation Services	248	272	24	9.70%
611000	Educational Services	7,892	8,342	450	5.70%
611100	Elementary and Secondary Schools	3,843	4,055	212	5.50%
611200	Junior Colleges	14	14	0	0.00%

Code	Industry	2020 Estimated Employment	2030 Projected Employment	Numeric Change	Percent Change
611300	Colleges, Universities, and Professional Schools	3,710	3,944	234	6.30%
611400	Business Schools and Computer and Management Training	0	0	0	0
611500	Technical and Trade Schools	0	0	0	0
611600	Other Schools and Instruction	114	166	52	45.60%
611700	Educational Support Services	0	0	0	0
620000	Health Care and Social Assistance	7,427	8,423	996	13.40%
621000	Ambulatory Health Care Services	2,934	3,421	487	16.60%
622000	Hospitals	2,427	2,593	166	6.80%
623000	Nursing and Residential Care Facilities	977	1,042	65	6.70%
624000	Social Assistance	1,089	1,367	278	25.50%
710000	Arts, Entertainment, and Recreation	562	669	107	19.00%
711000	Performing Arts, Spectator Sports, and Related Industries	33	63	30	90.90%
712000	Museums, Historical Sites, and Similar Institutions	25	27	2	8.00%
713000	Amusement, Gambling, and Recreation Industries	504	579	75	14.90%
720000	Accommodation and Food Services	4,129	5,360	1,231	29.80%
721000	Accommodation	302	404	102	33.80%
722000	Food Services and Drinking Places	3,827	4,956	1,129	29.50%
810000	Other Services (Except Government)	2,337	2,592	255	10.90%
811000	Repair and Maintenance	635	700	65	10.20%

Code	Industry	2020 Estimated Employment	2030 Projected Employment	Numeric Change	Percent Change
812000	Personal and Laundry Services	588	733	145	24.70%
813000	Religious, Grantmaking, Civic, Professional, and Similar Org	694	700	6	0.90%
814000	Private Households	420	459	39	9.30%
999100	Government, Federal (Excluding Postal Service)	144	131	-13	-9.00%
999200	Government, State (Excluding Education and Hospitals)	375	361	-14	-3.70%
999300	Government, Local (Excluding Education)	2,304	2,470	166	7.20%

Figure 24: Employment Projections in the SRPC Region, 2020 – 2030, NH Employment Security

Top Employers

According to data from Data Axle provided through NH Employment Security, the largest employers (those with 50-249 employees) in Newmarket include:

Employer	Business Description	Employer Size
NEWMARKET ELEMENTARY SCHOOL	Schools	100 to 249
NEWMARKET HIGH SCHOOL	Schools	100 to 249
PROMO CENTRIC	Promotions & Fund Raising	50 to 99

Figure 25: Newmarket Largest Employers, 2024, Data Axle and Town of Newmarket

Employees Under 18

Data is not available specifically for Newmarket alone, however, data for Strafford and Rockingham counties shows that historically, the number of employees under the age of 18 peaks around the third quarter every year, likely due to an increase in work taken by students during the summer break.

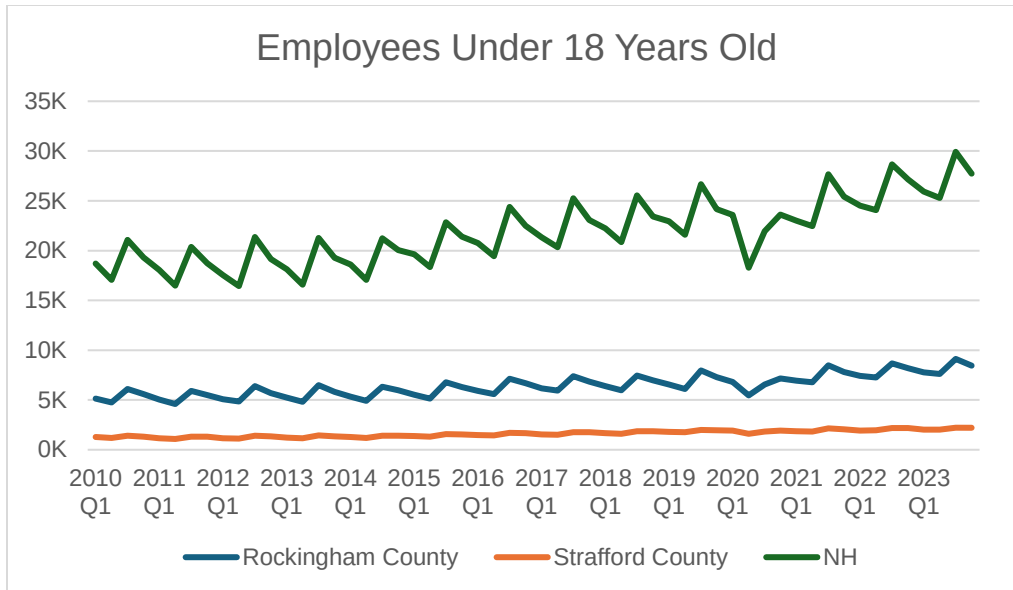


Figure 26: Employees Under 18 in NH and Rockingham and Strafford Counties, 2020 – 2023, Quarterly Workforce Indicators, US Census Bureau

Since 2010, the number of employees over the age of 65 has increased in Strafford and Rockingham Counties, though at a slower pace than the State.

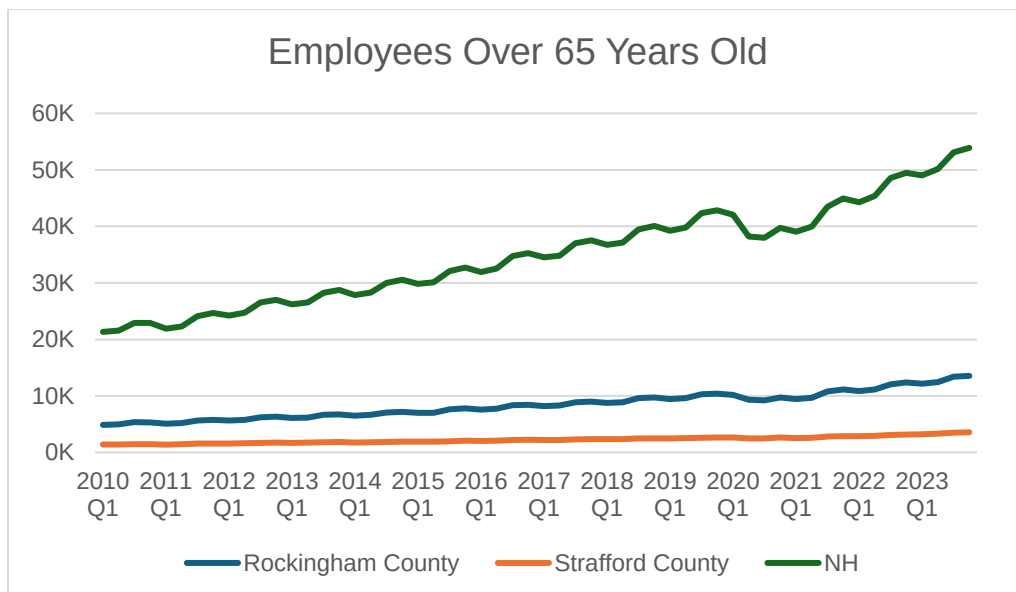


Figure 27: Employees Over 65 in NH and Rockingham and Strafford Counties, 2020 – 2023, Quarterly Workforce Indicators, US Census Bureau

Average Annual Covered Employment and Wages

After experiencing a decline in total employment of 26% from 2000 to 2009, Newmarket's total employment base grew by 27% (from 1,237 jobs to 1,576 jobs) from 2010 to 2023. This increase was seen in the private sector, which grew from 891 employees in 2010 to 1,266 employees in 2023, while the number of total government employees decreased during this same period.

The number of total private businesses grew by 22%, but the number of new employees in private businesses grew by 42%, representing a slower growth in the number of firms but more jobs.

	2010	2015	2020	2023
Total Private Businesses	134	145	163	163
Average Employees	891	1,020	1,165	1,266
Average Weekly Wage	\$734	\$802	\$1,018	\$1,146
Total Public Entities	6	6	6	6
Average Employees	345	311	300	310
Average Weekly Wage	\$734	\$844	\$1,012	\$1,128
Total Employment	1,237	1,331	1,466	1,576

Figure 28: Newmarket Average Annual Covered Employment and Wages, 2010, 2015, 2020, 2023, NH Employment Security

From 2010 to 2023, the average weekly wages for private business employees increased by 56% (from \$734 to \$1,146) and the average weekly wages for public entity employees increased by 54% (from \$734 to \$1,128).

Average Weekly Wages for Newmarket's Largest Industries

Below are the average weekly wages for the top 5 occupations in Newmarket as seen in the 2022 LODS Workplace Area Characteristics data (Jobs and Job Holders by Sector table)*. The number of jobs and average weekly wages displayed in the chart below are from NHES's 2021 Occupational Employment and Wage Statistics (OEWS) data. Annually, wages range from \$22,932 pre-tax for Accommodation and Food Services (#1 on the list of top 5 industries with a total of 207 jobs) to \$87,048 for Professional and Technical Services (#4 on the list of top 5 industries with a total of 169 jobs).

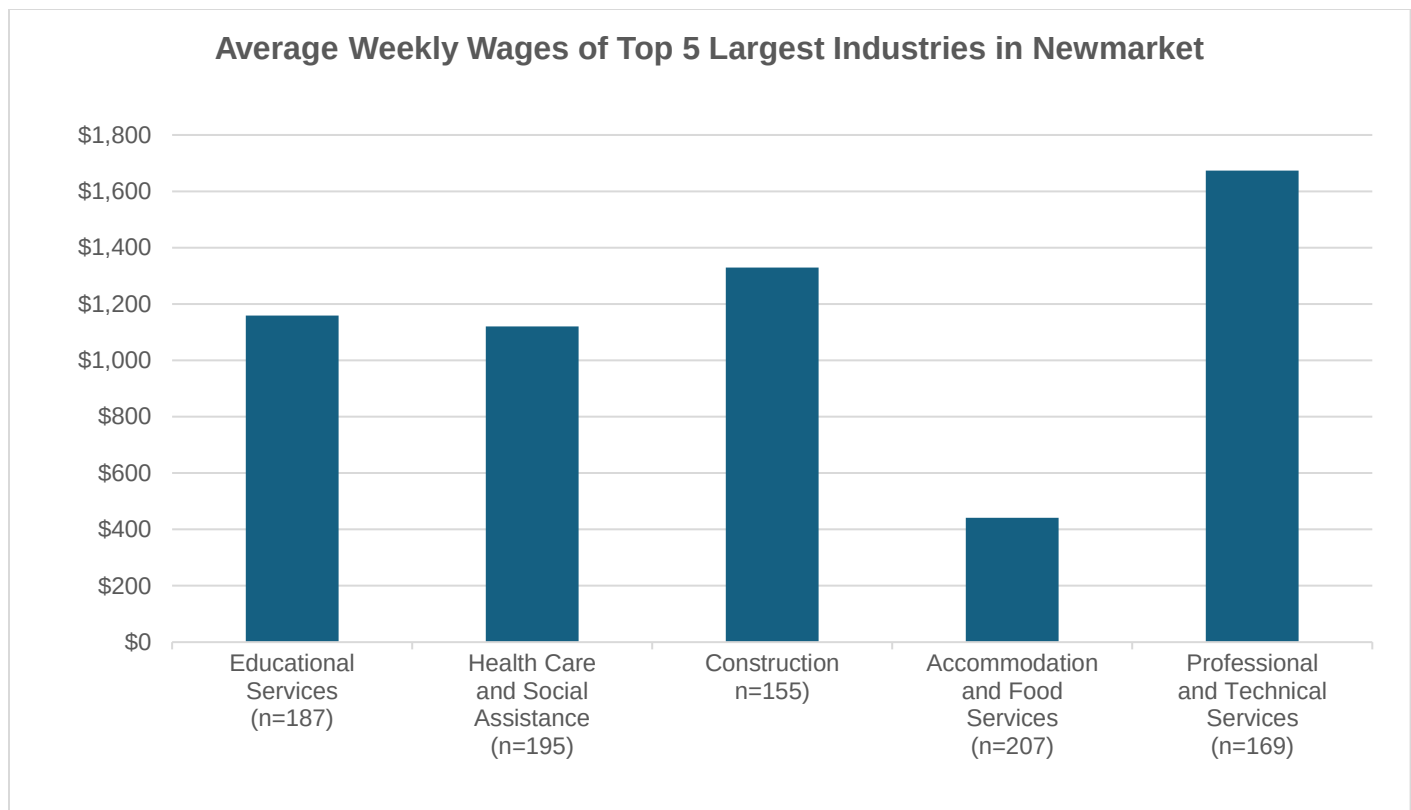


Figure 29: Average Weekly Wages in Newmarket's Largest Industries, 2021, NH Employment Security

*Note: NHES's data is from the Occupational Employment and Wage Statistics (OEWS) program which is a semiannual survey conducted by state employment security agencies in all 50 states. These values are from a different survey as the 2022 LODS Data, therefore show a different number of jobs, so they should not be discussed as though they are the same sample size or represent the same people.

The chart below shows trends in average weekly wages for the top 5 largest industries in Newmarket from 2016 to 2021.

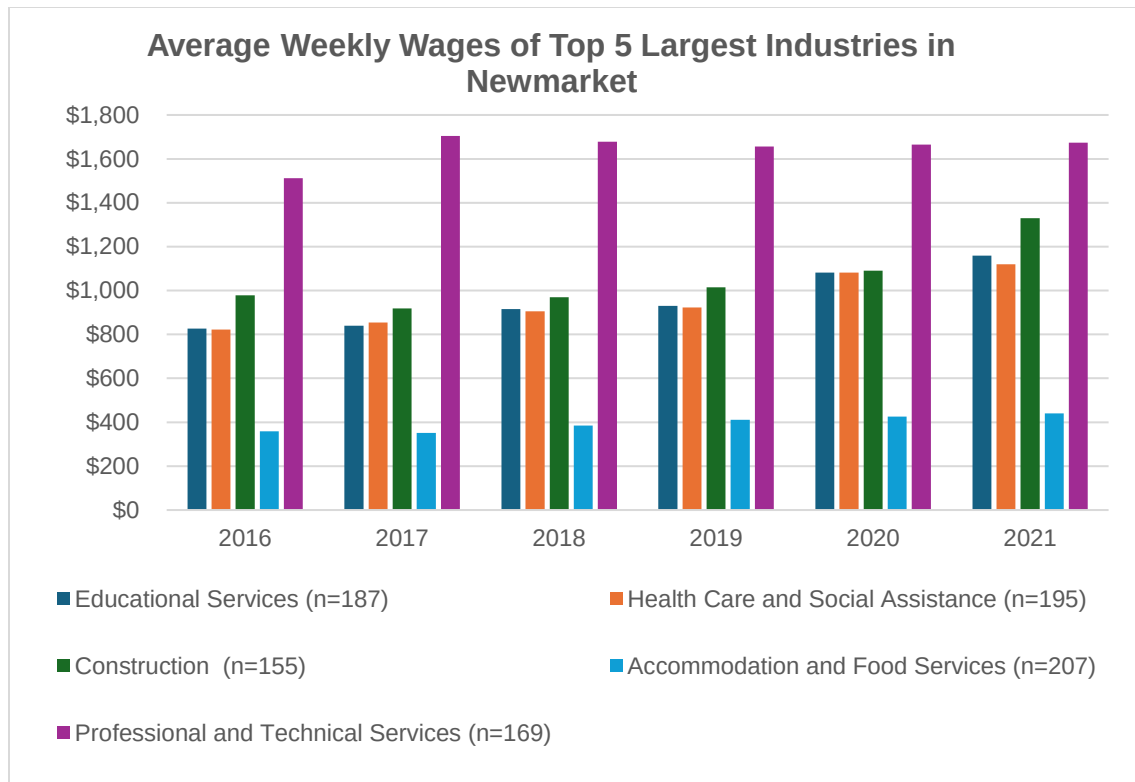


Figure 30: Average Weekly Wages in Newmarket's Largest Industries, 2016 - 2021, NH Employment Security

Median Household Income

The median household income (MHI) in Newmarket has increased steadily from 2013 to 2023. It is important to highlight that there is a large disparity in the median household income when broken down by household type (owners vs. renters), where the 2023 MHI for owner occupied households was \$123,750 compared to \$77,541 for renter occupied households.

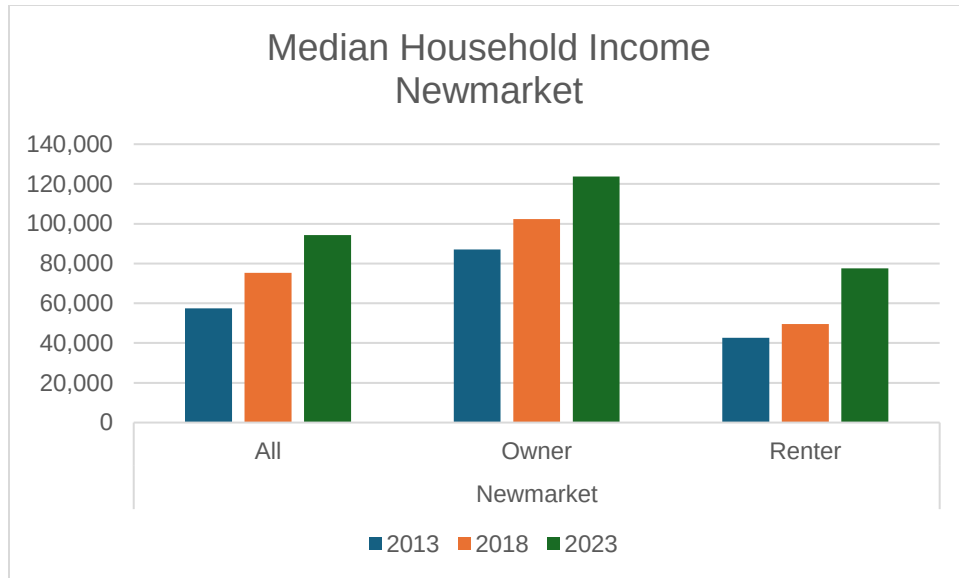


Figure 31: Newmarket Median Household Income, 2013, 2018, 2023 5-Year Estimates, Census American Community Survey

The table below shows how median household incomes in Newmarket compare to Rockingham County, Strafford County, and New Hampshire. In 2023, the Newmarket MHI of \$94,345 for all household types (owners and renters) was lower than Rockingham County's (\$113,927), about the same as New Hampshire's (\$95,628), and higher than Strafford County's (\$86,564).

Median Household Income				
		2013	2018	2023
Newmarket	All	57,429	75,290	94,345
	Owner	86,978	102,312	123,750
	Renter	42,575	49,628	77,541
Rockingham County	All	77,348	90,429	113,927
	Owner	90,316	106,355	132,238
	Renter	43,398	50,125	66,480
Strafford County	All	58,825	70,650	86,564
	Owner	75,720	87,654	114,593
	Renter	35,052	42,233	54,447
New Hampshire	All	64,916	74,057	95,628
	Owner	79,589	90,782	115,080
	Renter	37,326	42,486	56,305

Figure 32: Newmarket, Rockingham and Strafford Counties, and NH Median Household Income, 2013, 2018, 2023 5-Year Estimates, Census American Community Survey

Educational Attainment

The population in Newmarket has a high educational attainment. In 2023, 98.4% of individuals over 25 years held a high school diploma or higher, while 1.6% had no high school diploma. Of

that 98.4%, a little less than half (48.8%) had a high school diploma or higher, while 49.6% had a bachelor's degree, Master's, or PhD. Compared to Rockingham County, Strafford County, and NH, Newmarket's population has a smaller population with no high school diploma, and a higher population that is a high school graduate or higher.

Educational Attainment				
	Newmarket	Rockingham County	Strafford County	NH
	2023			
Population over 25	7,276	235,035	89,069	1,009,222
No High School Diploma	2.1%	3.9%	5.3%	5.9%
High School Graduate or Higher	97.9%	96.1%	94.7%	94.1%
High School or some college (less than 4-year degree)	48.2%	51.3%	56.2%	54.2%
Bachelor's or Higher	49.7%	44.8%	38.5%	39.8%

Figure 33: Educational Attainment in Newmarket, Rockingham and Strafford Counties, and NH, 2023, Census American Community Survey

79-E and TIF Districts

There are several tools that have been leveraged since then which have helped support community revitalization and provided opportunities for new businesses. In 2010, the Town approved a Community Revitalization Incentive Zone District under NH RSA 79-E, a state law that is designed to encourage investment in downtowns and village centers by providing a tax incentive for the redevelopment and rehabilitation of under-used buildings. Although it is a state law, the program must be adopted locally to go into effect. In Newmarket, this district included sections of the B-1, M-1 and M- 2 zoning districts along Route 108, from the Durham town line to New Road

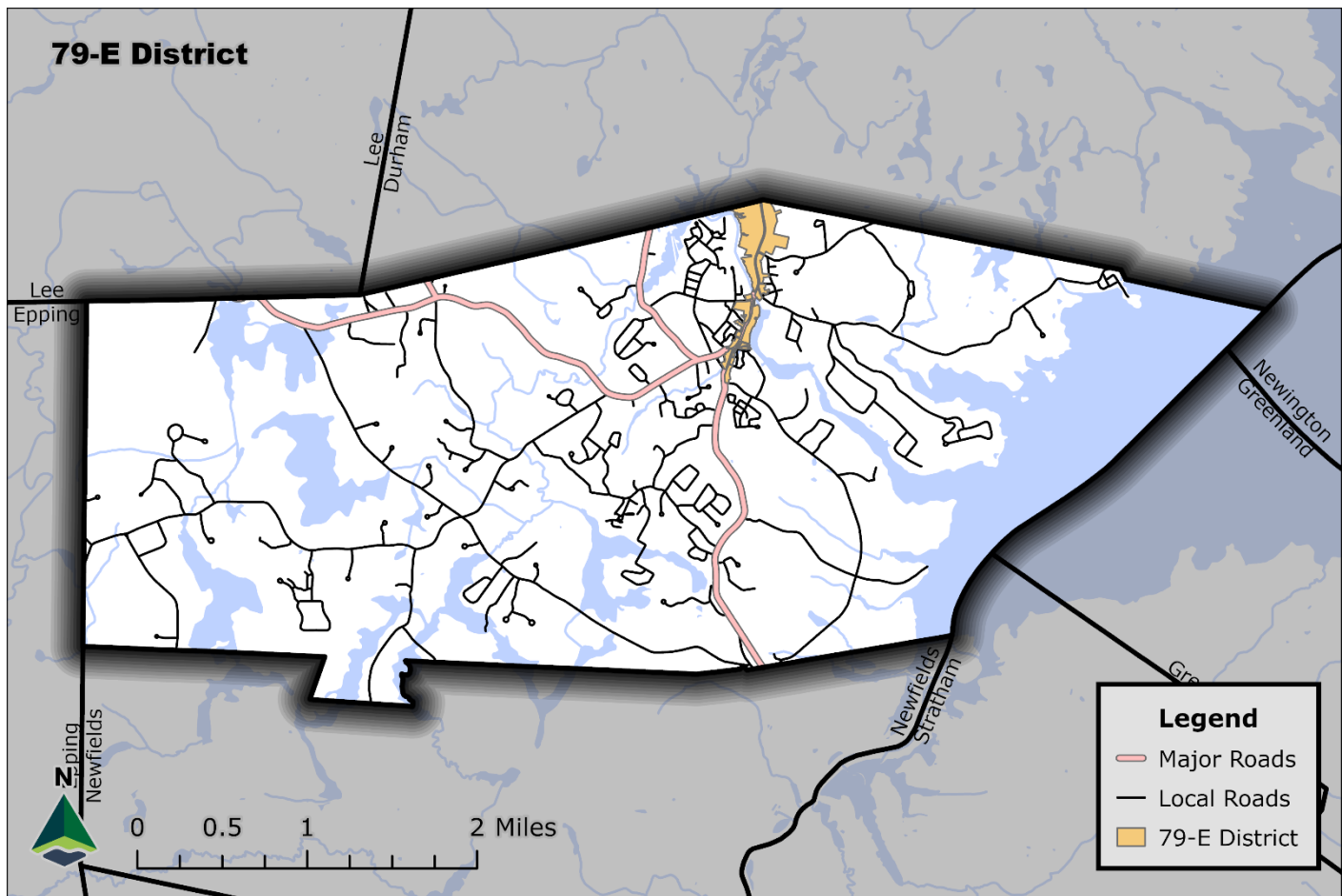


Figure 34: 79-E District, Newmarket. Source: SRPC and Town of Newmarket.

This incentive was key to promoting investment, providing improvements, and attracting economic activity in Town. Since its creation, projects that have been completed utilizing the 79-E in incentive in Newmarket include:

2012: 13 Water Street, Mixed-use development off from Water Street (7 residential units and office space)

2015: Newmarket Mills (112 residential units, 16 live/work lofts, 50,000-sf of commercial space, 5,400 sf- civic space)

2022: 4 Bay Road, Selectwood building (15 residential units)

2022: 86 Main Street, mixed-use building (with the addition of 6 residential units)



Furthermore, there were two Tax Increment Financing (TIF) districts in the Town of Newmarket, which have expired as of the time of this chapter update. One of these TIF Districts was the M-1 Mill Zone, located east of NH Route 108 in the downtown, incorporating what was known as the Downtown TIF District, which has been retired. As this zone was already built out before the TIF District was adopted and included all of the major mill structures, much of the work done included revitalizing mill space that went underutilized since the decline of the textile industry. This was a crucial component in turning this infrastructure around and helping shape the Town's once underutilized mill space, creating a unique space for residential and commercial activity. Since then, commercial spaces in the mill have welcomed various successful businesses. Implementing a TIF district proved to be a successful way to revitalize this key economic node in Town by making it financially attractive to developers to invest in an area that would've otherwise been overlooked, while preserving historic structures that are an integral part of Newmarket's character, historic town center, and main business district.

Beyond the Town Center/Village district, which is comprised of 76.16 acres, there are currently 842.89 acres (9.3% of Newmarket's total land) across Newmarket zoned for commercial, industrial, and mixed use, and looking for opportunities to utilize and/or enhance these areas are key to contributing to the Town's overall vibrancy. These include:

TIF Districts

A TIF district, or Tax Increment Financing district, is a specific geographic area where a municipality can use property tax revenue generated by development or redevelopment to finance public improvements within that area, thereby incentivizing development and revitalization. Typically, a TIF District will sunset at a pre-determined date, or once the development program is complete.

Zoning Categories	Acres	% of Town
Commercial	570.66	6.30%
Industrial/Commercial	262.54	2.90%
Mixed Use	9.69	0.10%
Recreation	148.23	1.60%
Residential	6,996.40	77.10%
Town Center / Village District	76.16	0.80%
Water	1,016.16	11.20%
Grand Total	9,079.84	100.00%

Major Transportation Corridors

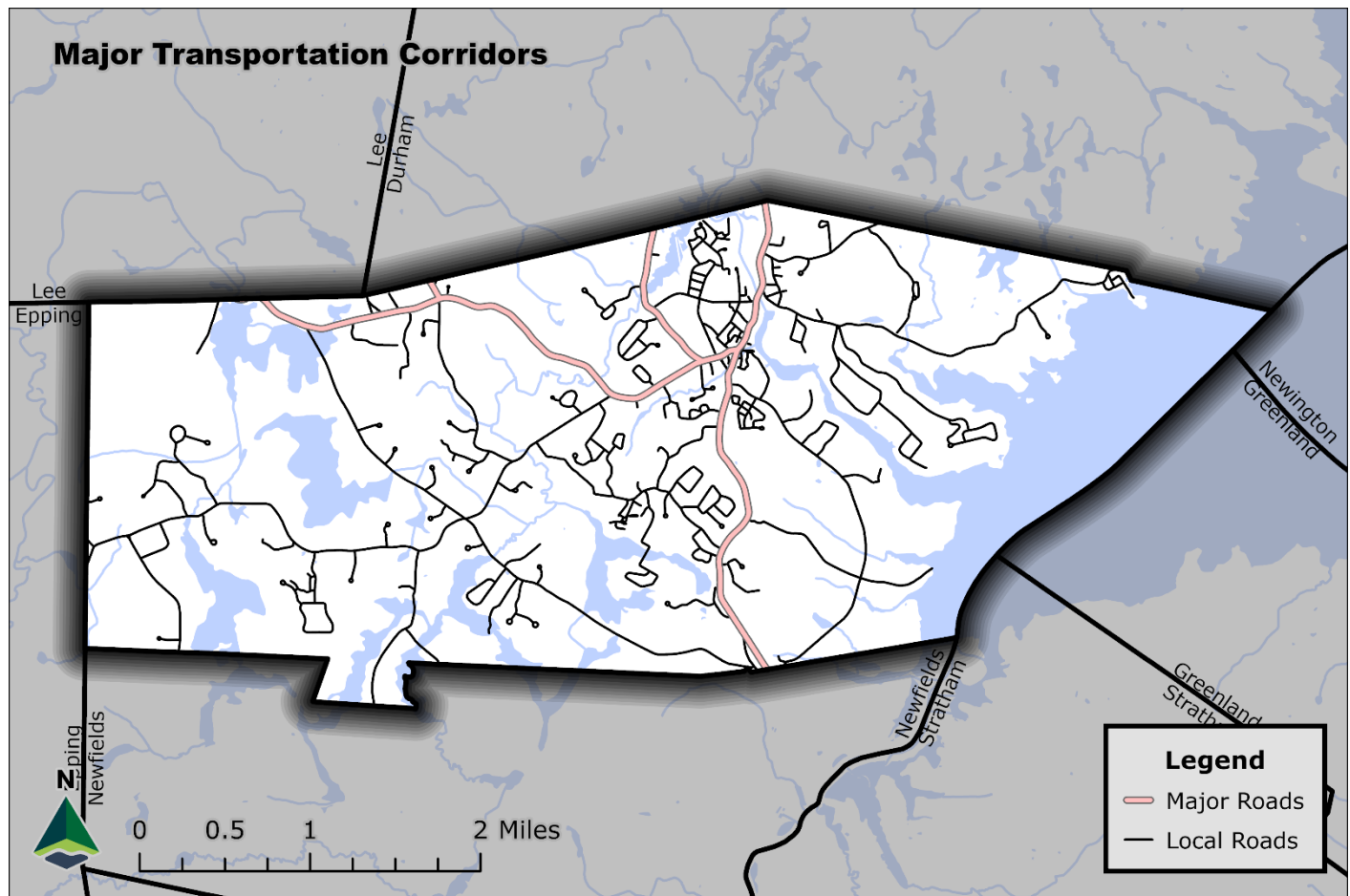


Figure 34: Major Transportation Corridors in Newmarket, 2025, SRPC

Travel Time to Work

In 2023, over half of Newmarket commuters (2,553 or 54%) were traveling 20-39 minutes to work, an increase from 2018 but slightly lower compared to 2013. About a third of Newmarket commuters (28%) traveled 0-19 minutes to work, and less than 20% had a commute of more than 40 minutes.

Newmarket Commuters		Percent of Commuters			Number of Commuters
		2013	2018	2023	
Commute time	0-19 min.	25%	31%	28%	1,331
	20-39 min.	57%	48%	54%	2,553
	40-59 min.	8%	11%	9%	409
	60-89 min.	7%	3%	7%	314
	90+ min.	3%	8%	3%	137

Figure 35: Average Travel Time to Work for Newmarket Commuters, 2013, 2018 2023 5-Year Estimates, Census American Community Survey

Partnerships to promote entrepreneurship, technology, and digital equity infrastructure

UNH Broadband Center of Excellence (BCoE) - Conducts research, provides consulting, shares information, and leverages UNH resources, research and technology expertise, and process and policy tools to support advances in broadband services and capabilities that will enable all – government, universities, communities and industry participants – to use broadband as a tool to create economic growth, societal improvements and business success

UNH Survey Center - Provides university researchers, government and business leaders, and private organizations with reliable information about public attitudes concerning important policy matters through clear, concise research

UNHInnovation - UNHInnovation manages, protects, and commercializes UNH's intellectual assets and serves as the first point of contact for companies looking to engage with UNH.

John Olson Center for Advanced Manufacturing - Focuses on advanced manufacturing technologies and a cross-curricular approach to engineering and manufacturing concepts

NH Small Business Development Center (NHSBDC) - Contributes to NH's economic vitality by providing its businesses and communities with the tools they need to reach their goals through confidential counseling, training programs, access to information and referral, and other specialized services

Center for Venture Research (CVR) - Conducts multidisciplinary research on early-stage equity financing for high growth ventures

Franklin Pierce Center for Intellectual Property - Brings together varied resources (including the only academic IP library in the United States), IP Center faculty, researchers, students, and partners to work at the intersections of law, business, and technology to improve the rate of innovation in the global economy

Center for Digital Health Innovation - Brings together faculty, staff, and students from across UNH with the shared goal of engaging cutting-edge technologies to enhance the health and well-being of individuals across the lifespan by serving as a hub providing support and coordination advancing research, practice, outreach and teaching activities

UNH InterOperability Laboratory (UNH-IOL) – Acting as a non-profit, independent test lab, UNH-IOL works with vendors of computer communication devices to resolve complex networking issues and to foster multi-vendor interoperability and/or conformance to standards while educating students for future employment.

Water and Sewer

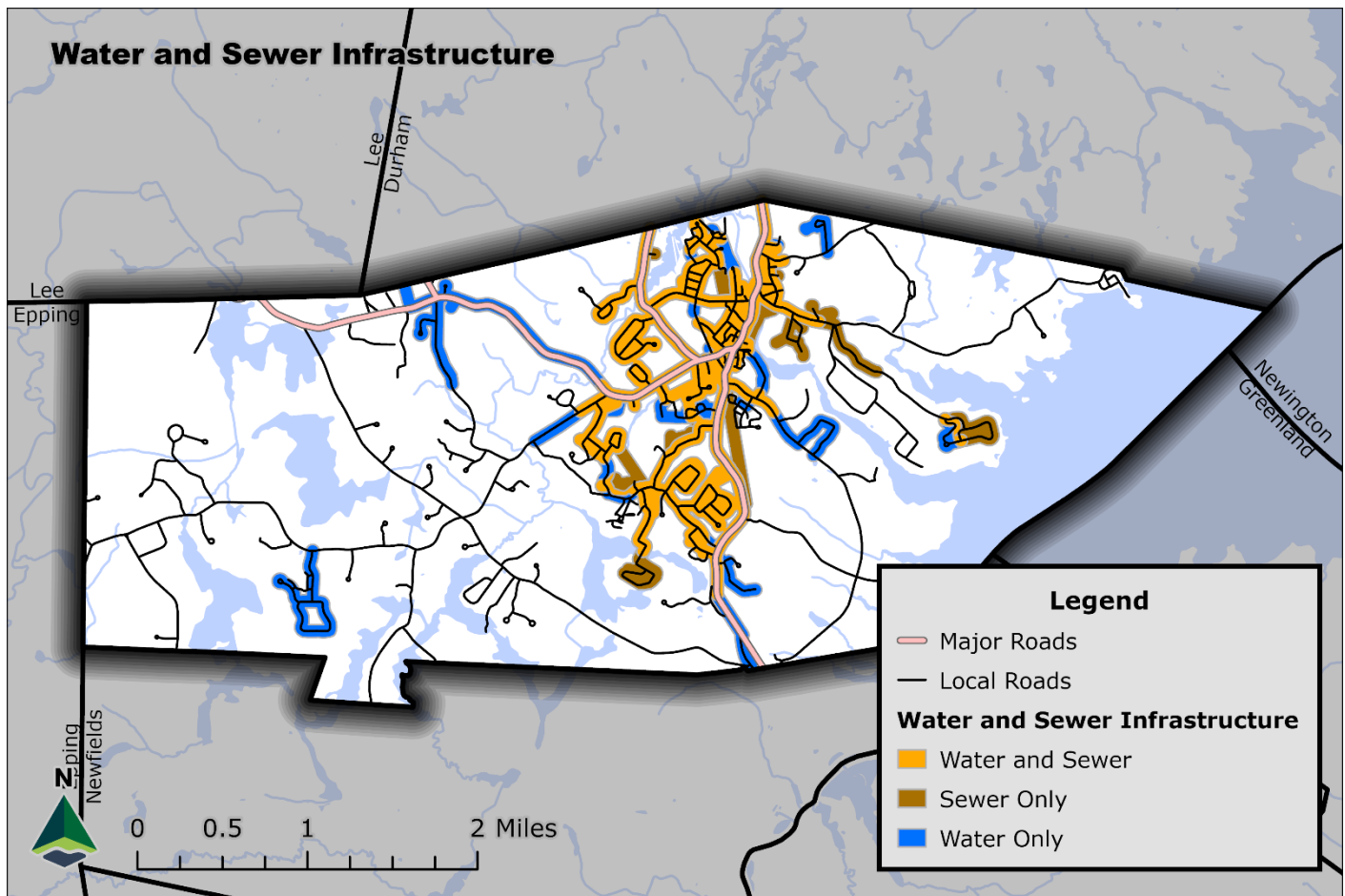


Figure 36: Water and Sewer Infrastructure in Newmarket, 2025, SRPC

Office Vacancy Rates

Land Use – Commercial, Industrial, and Mixed Use

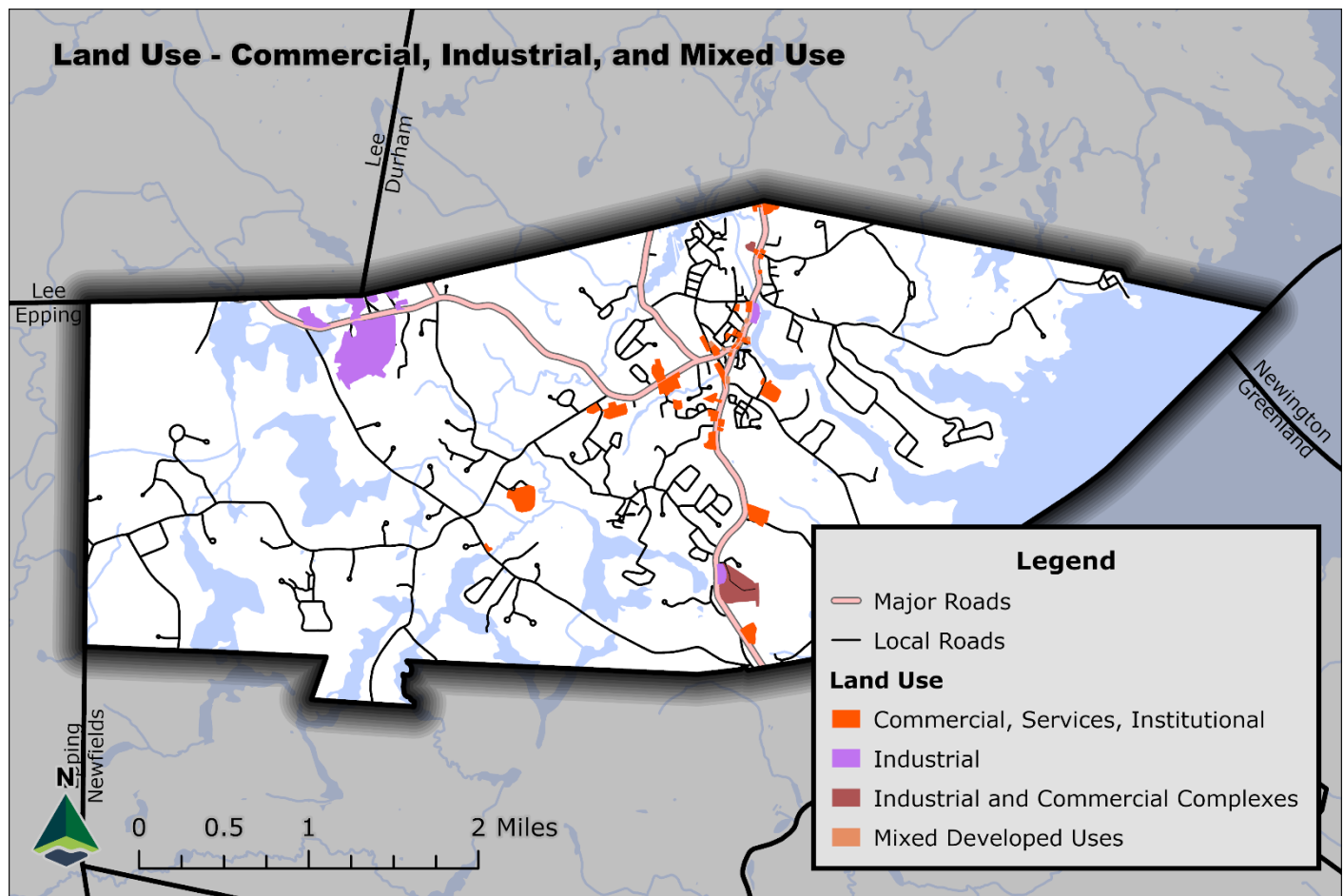


Figure 37: Land Use - Commercial, Industrial, Mixed Use, SRPC

Zoning – Commercial, Industrial, and Mixed Use

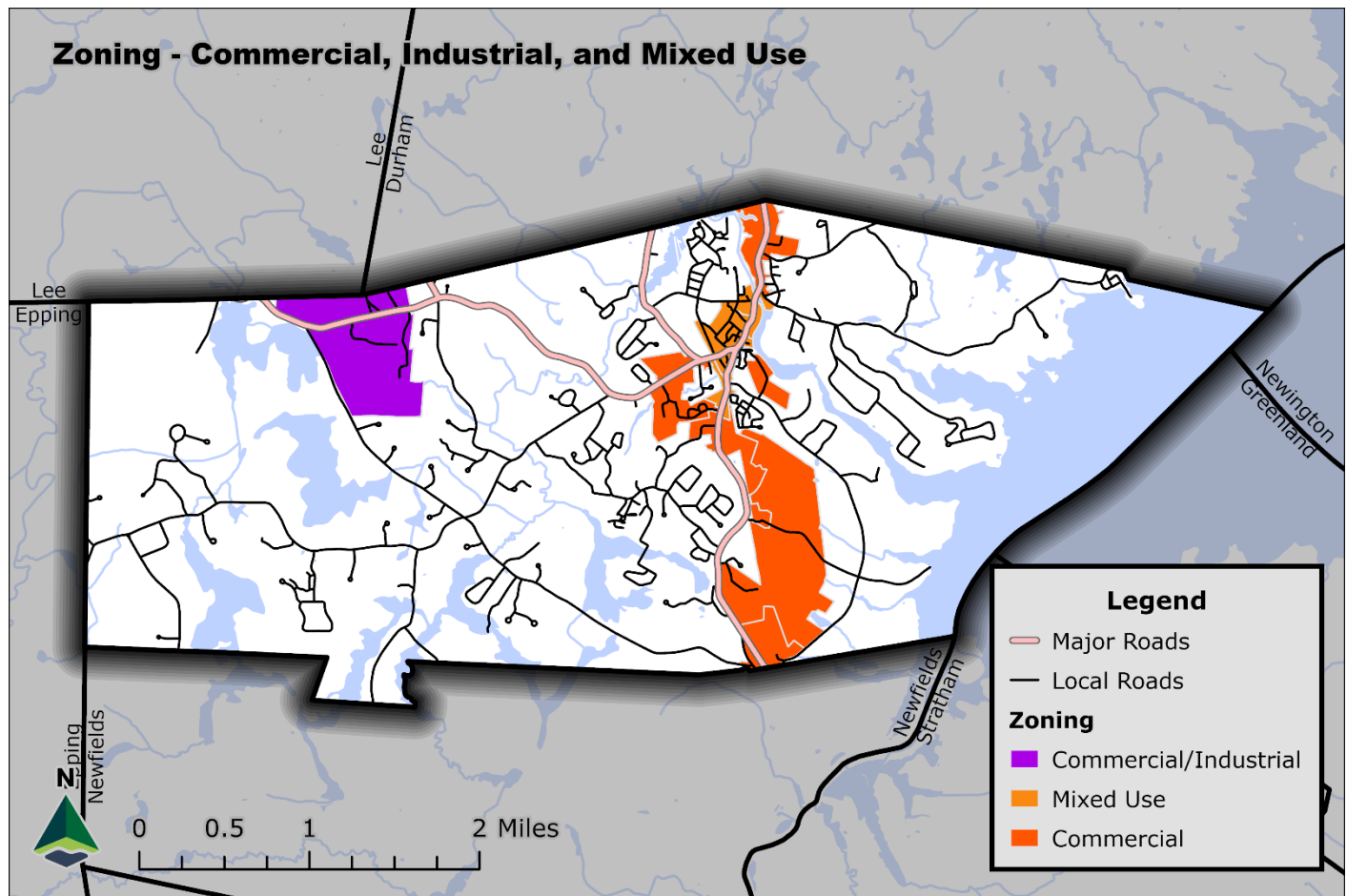


Figure 38: Zoning – Commercial/Industrial/Mixed Use, SRPC

Property Tax Rate

While New Hampshire has no personal income tax and no sales tax, it has one of the highest effective property tax rates in the country. The charts below show the changes in effective property tax rates from 2003 through 2022 and the comparison of Newmarket's 2022 rate to other neighboring communities, including Durham, Lee, and Newfields. Newmarket's total effective property tax rate, at \$26.99 in 2022, was lower than Durham's but higher than Lee's and Newfields'.

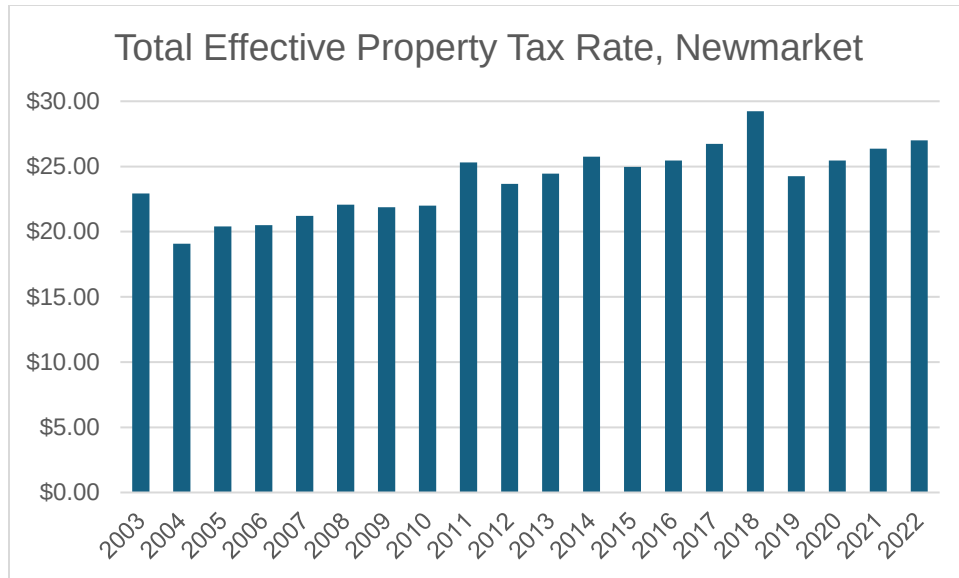


Figure 39: Total Effective Property Tax Rate in Newmarket, 2003 - 2022, NH Public Finance Consortium

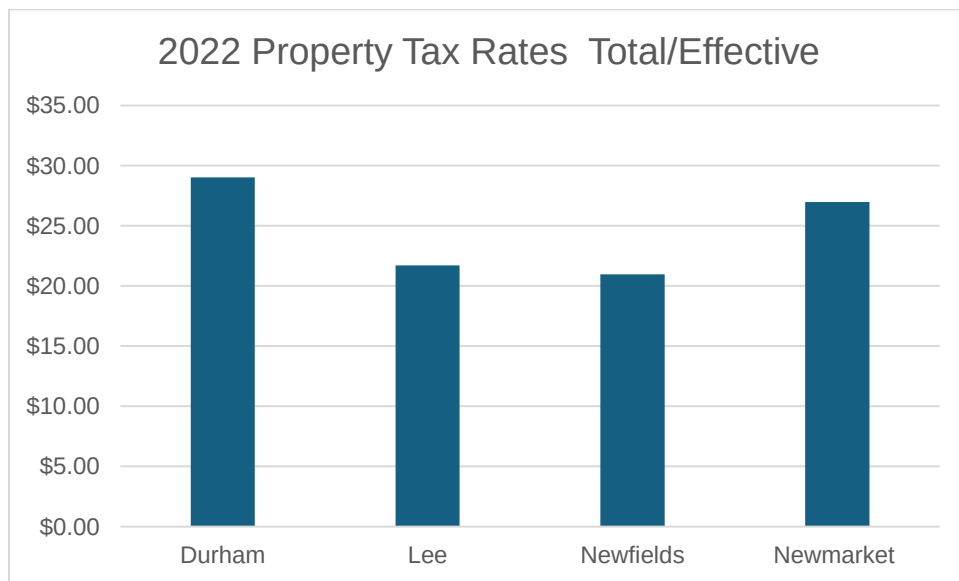


Figure 40: Total Effective Property Tax Rates in Newmarket and Neighboring Communities, 2022, NH Public Finance Consortium

Local and Regional Economic Development Organizations

- Newmarket Main Street Corporation
- Lamprey Arts and Cultural Alliance (LACA)
- Newmarket Community Development Corporation (NCDC)
- Newmarket Heritage and Cultural Center Committee, (NHCCC) – subcommittee of LACA
- Newmarket Business Association (NBA)
- Strafford and Rockingham Regional Planning Commissions
- UNH Cooperative Extension
- NH Department of Business and Economic Affairs

- Seacoast Small Business Development Center
- NH Small Business Administration
- Apprenticeship NH
- Regional Economic Development Center

Potential Footbridge Locations Connecting Heron Point to Downtown

A design charrette was conducted which led to the three following locations considered for a pedestrian bridge connecting downtown to Heron Point. Each has its advantages and disadvantages. Further outreach and a cost and feasibility study would be necessary as part of a continued discussion around this effort.

Option #1: Relatively few boats would be affected by this location. The large house on the hill owns most of the low-tide rock outcropping shown at the terminus of the measured line. The area on the downtown side is owned by Chinburg Properties, who has been amenable to collaborating with the Town to modify the pedestrian easement to allow for access.



Option #2: This would be the shortest span but is a little less central to the downtown area. Both sides of the river in this location are Town-owned and the topography lends itself to good clearances for boats.



Option #3: The final location is at Schanda Park. While the location is ideal, it's the biggest span and would take quite a bit of abutment structure to get the elevation needed for boats to pass under. Ideally, 15 feet of clearance was targeted to allow the larger style motorboats that use this portion of the water way. The length of the bridge could be slightly shorter if it began somewhere near the wastewater lift station paved area.



Figure 41: Potential Footbridge Locations, Downtown to Heron Point, Town of Newmarket

Sources

¹ https://strafford.org/uploads/documents/plans/rpc/masterplan_2024_newmarket_housing.pdf

¹ <https://www.nhhfa.org/wp-content/uploads/2020/10/NH-Urban3-Report-10.2020.pdf>

ⁱ NH Housing Finance Authority

ⁱⁱ NH Housing Finance Authority

ⁱⁱⁱ Colliers Q3 2024 NH Office Insight: <https://indd.adobe.com/view/0700e1a0-d58a-4222-a31e-d047dc7924f1>