

Indicator: Housing Permit ApprovalsQuestion

How many single and multi-family new housing permits were issued by communities in the Piscataqua Region from 2000 to 2015?

Short Answer

There were 19,483 multi-family and single-family new housing permits issued in the 42 New Hampshire towns in the watershed from 2000 to 2015. There were 331 new housing permits issued in the ten Maine towns in the watershed in 2015.

PREP Goal

No goal established yet.

Why This Matters

The Piscataqua Region is a desirable place to live, and as the population increases, so too do pressures. The number of housing permit approvals in the Piscataqua Region provides good context for considering an increase in population and the commensurate disturbance of the land to support that population. If not properly mitigated and planned for, construction can change the hydrology of the land and can lead to short-term soil erosion. New housing units increase impervious cover, which can lead to more stormwater and sediment runoff and nutrient loading. Since the U.S. Census is run every ten years, monitoring housing permit approvals gives us a more frequent indicator of increase in population, demand for development, and conversion of land to housing. Additionally, monitoring new housing permit approvals can shed light on economic development trends, migration patterns, shifting demographics, and overall pressure on our coastal and recreational resources. Furthermore, as development trends shift geographically, it can also help communities understand where development pressure is occurring and can prime conversations about smart growth and low-impact development practices that allow for an increase in population and economic development and the protection of sensitive, natural areas.

Explanation (from 2018 State of Our Estuaries Report)

Population pressure on the nation's 452 coastal shoreline counties has been continually on the rise. In 2010, 123.3 million people, or 39% of the nation's population lived in counties directly on the shoreline (called coastal shoreline counties) and 52% reside in coastal watershed counties (upriver and on tributaries from the shore). This population is expected to increase by 8%, or 10 million more people, by 2020. Not only are there more people living on the coast, the population density far outweighs the rest of the U.S. There are 446 persons per square mile in coastal shoreline counties and 319 persons per square mile in coastal watershed counties nationwide. This is in stark contrast to the rest of the U.S., which averages 105 persons per square mile. Nationwide, there were 1,355 building permits issued per day in coastal shoreline counties from 2000–2010 (NOAA 2013).

This trend rings true in the Piscataqua Region. There were 386,658 people living in our three coastal and estuarine counties in 2015—an increase of 126,453 people since 1980 (US Census Bureau 2015). There is also close alignment to the national density numbers, with 317 persons per square mile in NH watershed towns and 216 persons per square mile in Maine watershed towns in 2015 (Figure H-1). In 2015 more people moved into New Hampshire than moved out of it; ~53,000 residents moved into New Hampshire, and 42,000 left the state (NH Employment Security 2016).

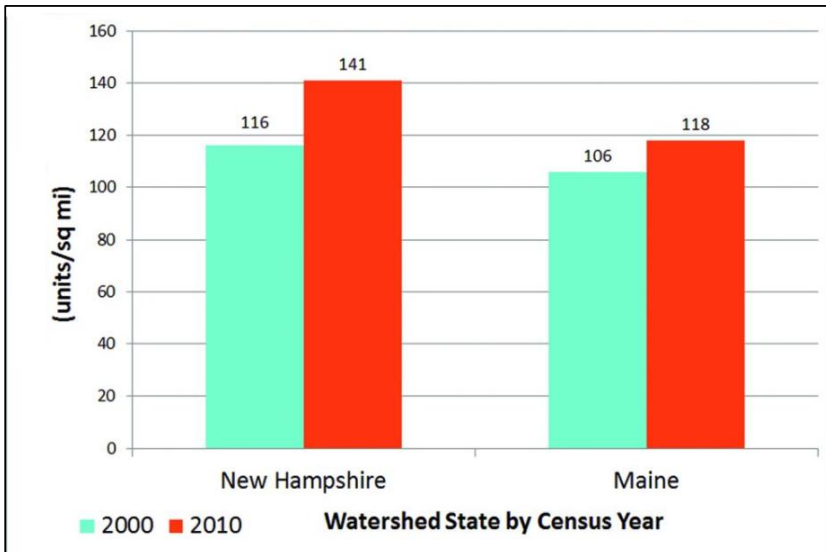
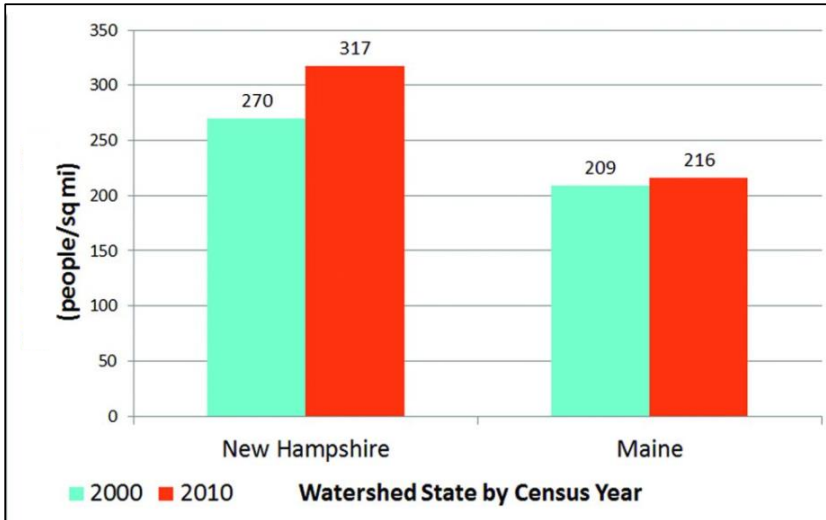


Figure H-1. Population & Housing Densities in the Piscataqua Region: Census Year 2000 & 2010. Data Source: US Census Bureau.

Population increases can bring many positive benefits to communities and the region, including:

- Increase in the tax base
- Enhanced tourist economy
- Additional people to enjoy and steward our lands (see “Stewardship Behavior” Indicator)
- Growth of local business and commerce
- Diversification of our socio-economic structure

However, more housing development also means more services for communities to provide such as schools, road maintenance, police, fire, public services, etc., all requiring more pull on already strained municipal budgets.

Historically, New Hampshire's population is among the most mobile in the nation (Johnson et al. 2016). Only a third of New Hampshire residents age 25 and older were born in the state (Figure H-2). This is an important consideration to reflect as this kind of demographic shift can mark how policy is made at the town level and can help inform outreach partners on the best engagement tactics for reaching a different type of taxpayer and resident who are more accustomed to state-level environmental policies.

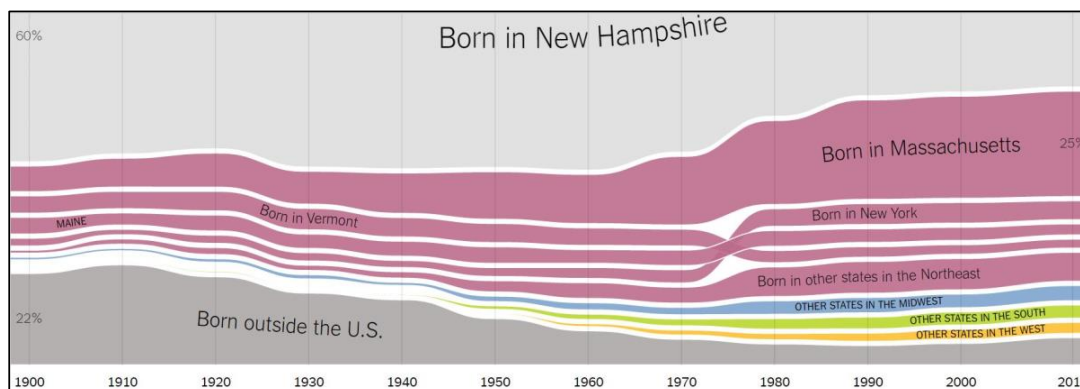


Figure H-2. Make-up of New Hampshire residents living in the state as of 2012. Graphic and Data Source: New York Times (Aisch et al. 2014).

As pressure on existing housing stock increases, so does the need for new units. An accepted indicator for new development is the number of approved new housing unit permits in each town. It is important to note that an approved permit does not always equate to the actual construction of the unit. Permits are often pulled but development can stall due to various factors. The construction sector in the 42 New Hampshire watershed towns experienced an all-time high in 2000 and an all-time low in 2009. Since then, it has been rising incrementally (Figure H-3). There are confounding factors as to why the construction sector has not bounced back as robustly since 2009, including loss of construction workers, limitations of local regulations and lack of buildable lots (NH Public Radio 2017).

Of particular note is the recent increase in multi-family unit permit approvals (dark blue bars in Figure H-3). In the last six years, these have steadily kept pace with single-family units. From a land use perspective this is encouraging, as multi-family units often have an overall smaller lot size per person than typical, single-family, one-acre lot zoning.

The NH Office of Energy and Planning provides a very useful statewide data clearinghouse for all NH housing data. Table H-1 shows the percent change, which gives a relative sense of growth as compared to the baseline of 2000. Absolute changes in housing units from 2000 to 2015 provide another interesting perspective. Table H-2 displays the 10 New Hampshire Piscataqua Region towns that have seen the largest absolute changes in housing units. Additionally, when looking at where the newest development is occurring (Tables H-1 and H-2), it is important to note that it is increasing in towns that are upwatershed from Great Bay and in communities that have been more traditionally rural. There can be negative impacts when converting land from open space to development, especially along smaller tributaries. Engaging the tenets of low impact development should become increasingly more important in these communities.

For the Piscataqua Region municipalities in Maine, data on new single-family housing permit approvals is available on a town-by-town basis (Table H-3). Each municipality publishes an annual Town Report that includes a chapter from the Town Code Enforcement Officer. PREP extracted the number of new single-family housing permits reported in each of the 10 Maine watershed communities from 2015 (the latest year all 10 communities had publically available data at the time of publication). PREP anticipates continuing to collect Maine municipalities data year-to-year and developing trend analyses for the next *State of Our Estuaries* Report.

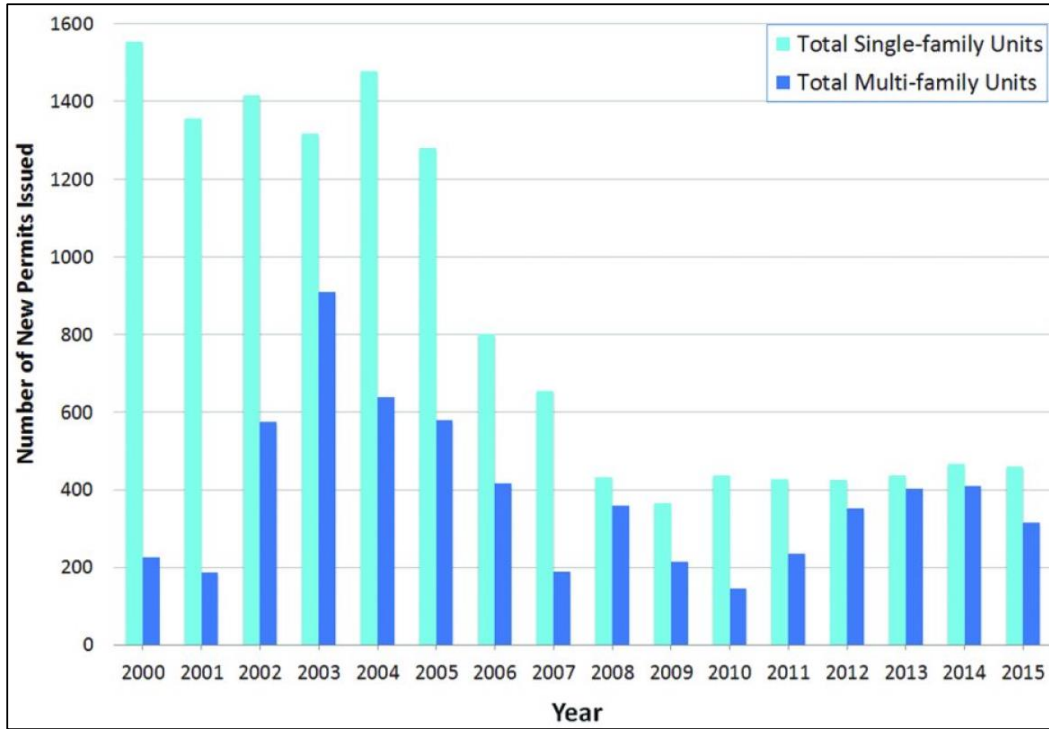


Figure H-3. New Building Permits in the Piscataqua Region watershed communities in New Hampshire. Data Source: NHOEP State Data Center.

Table H-1. Top 10 NH Piscataqua Region watershed communities with the largest % change in units (2000-2015). Data Source: NHOEP State Data Center & US Census Bureau.

Town	Total Housing Units 2000 (from Census)	Total Units 2015 (from 2010 Census & new permits)**	Change from 2000-2015	% change (change/total housing units in 2000)
Brentwood	920	1446	526	57.17%
Fremont	1201	1735	534	44.46%
East Kingston	648	935	287	44.29%
Chester	1247	1725	478	38.33%
Epping	2215	2959	744	33.59%
Sandown	1777	2345	568	31.96%
Deerfield	1406	1851	445	31.65%
Nottingham	1592	2093	501	31.47%
Greenland	1245	1603	358	28.76%
Hampton Falls	729	912	183	25.10%

**Because Census data is only collected every decade, the 2015 data from the NH Office of Energy and Planning is based on census data and the total number of permits issued from 2010-2015. Permits are not an exact measure of housing units as some permits issued never materialize into a new housing unit but this is the closest estimate available. This section has been reviewed by the NHOEP.

Table H-2: Top 10 NH Piscataqua Region watershed communities with the largest absolute changes in housing units. Data Source: NHOEP State Data Center & US Census Bureau.

Town	Absolute change in housing units from 2000-2015
Dover	2075
Rochester	1702
Hampton	795
Newmarket	763
Portsmouth	732
Exeter	698
Durham	683
Epping	645
Barrington	595
Raymond	582

While we have data for a longer time period for the NH Towns in the Watershed (2000-2015), we only have one year of housing permit data, 2015, for the Maine towns that are in the Great Bay Watershed. Both datasets are helpful for beginning to understand trends and we anticipate including more data on the Maine communities as it becomes available in future years.

Table H-3. Maine Piscataqua Region watershed communities housing permit data in 2015. Data Source: ME 2015 Town Reports***

Maine Municipality	New Single-Family Housing Permits Issued in 2015
Wells	113
York	68
Berwick	28
Kittery	27
Acton	22
Lebanon	18
Eliot	18
Sanford	17
South Berwick	10
North Berwick	10

***Maine municipalities record the number of new single-family housing permits issued annually on either a Fiscal Year or Calendar Year basis. This data can be found in each municipality's Annual Town Report under the Code Enforcement section.

Methods and Data Sources

The number of permits approved for new housing units for each New Hampshire municipality in the Piscataqua Region watershed was aggregated watershed-wide for both single and multi-family units. This aggregation was conducted year by year for the entire New Hampshire portion of the watershed using data from 2000 through 2015. Separate from the total number of permits issued annually across the entire New Hampshire portion of the watershed, the total number of new single and multi-family housing permits issued from 2000 through 2015 was calculated for each New Hampshire municipality using data collected by the New Hampshire Office of Energy and Planning (NHOEP). These 15-year total values were compared to the total number of housing units in each town calculated by the US Census Bureau during the 2000 Census. Data from each New Hampshire municipality was analyzed to determine percent change in total housing units from 2000 to 2015 and absolute change in total housing units from 2000 to 2015 (Tables H-4 and H-5).

The data necessary to perform the analyses conducted for each New Hampshire municipality were not readily available for the 10 Maine municipalities in the Piscataqua Region watershed. Each Maine municipality does keep records of new single family housing permits issued in the Code Enforcement section of each annual Town Report, however, these records were not uniformly accessible and did not span the 2000 to 2015 timeframe. Given these discrepancies in access and availability, PREP collected the latest available data on new single family housing permits from each Maine municipality's Town Report and reached out to each municipality to verify these values. Since each town collects its own data through its Code Enforcement Office, some towns report their data by Calendar Year while others report it based on Fiscal Year. Correspondence with individual Maine municipalities who report by Calendar Year indicated that re-calculating those data to fit into the Fiscal Year timeframe would not be feasible in the necessary timeframe for publication. Therefore, the data represented for 2015, while mostly by Fiscal Year, does contain two data points from a Calendar Year perspective.

Population and housing densities for each municipality in the watershed were readily accessible using the United States Census Bureau American FactFinder online data portal. Using the aggregation features available on the American FactFinder portal, data for each watershed municipality in both New Hampshire and Maine were extracted from the comprehensive state datasets and aggregated by state to calculate total watershed population and total number of housing units in both Census Year 2000 and Census Year 2010. These state totals were then divided by the total land area calculated by the Census Bureau during those Census Years to produce both population and housing density totals in both the New Hampshire and Maine portions of the Piscataqua Region watershed in 2000 and 2010.

Data Sources

For New Hampshire, data on new single and multi-family housing permits is collected, collated, and made available for download by the NHOEP. The State Data Center at NHOEP has been issuing a series of annual reports that show short- and long-term trends in housing construction and total housing supply in New Hampshire since the mid-1970s, and these records are available for outside analysis. According to NHOEP, the permit data in these reports update the 2010 Census and American Community Survey data and are collected via an annual mail survey of municipalities, which achieves a 100% response rate. Additionally, NHOEP devotes considerable time to checking and refining survey returns to ensure consistency. NHOEP does not conduct any field checks as part of the quality control process. The source data for these reports was refined to only include data for the 42 Piscataqua Region watershed municipalities from the year 2000 through 2015.

For the Piscataqua Region municipalities in Maine, data on new single family housing permit approvals is only available on a town-by-town basis.

References Cited

Aisch G, Gebeloff R, Quealy K. 2014. New York Times: The Upshot - Where We Came From and Where we Went State by State. https://www.nytimes.com/interactive/2014/08/13/upshot/where-people-in-each-state-were-born.html#New_Hampshire

Johnson KM, Scala DJ, Smith AE. 2016. Carsey Research National Issue Brief #96: First in the Nation, NH's Changing Electorate. <http://scholars.unh.edu/carsey/264/>

NH Employment Security. 2016. New Hampshire Economic Conditions: Migrations Ins & Outs. <https://www.nhes.nh.gov/elmi/products/documents/ec-1202-article-only.pdf>

NH Public Radio. 2017. In Tight N.H. Housing Market, Millennials & Empty Nesters Vie For Same Small Crop Of Homes. June 5, 2017. The Exchange. <http://nhpr.org/post/tight-nh-housing-market-millennials-empty-nesters-vie-same-small-crop-homes#stream/0>

NOAA. 2013. National Coastal Population Report: Population trends from 1970 to 2020. NOAA State of the Coast Report Series, partnership with the US Census Bureau. <https://aamboceanservice.blob.core.windows.net/oceanservice-prod/facts/coastal-population-report.pdf>

US Census Bureau. 2015. American FactFinder: Community Facts. <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>

Table H-4: Percent Change in Total Housing Units 2000-2015 Piscataqua Region watershed. The 10 New Hampshire Municipalities with the greatest % change are highlighted.

New Hampshire Municipality	Total Housing Units in 2000 (from Census)	Total Units 2015 (from 2010 Census & new permits)	Change in Total Units from 2000-2015	% change (change/total housing units in 2000)
Brentwood	920	1446	526	57.17%
Fremont	1201	1735	534	44.46%
East Kingston	648	935	287	44.29%
Chester	1247	1725	478	38.33%
Epping	2215	2959	744	33.59%
Sandown	1777	2345	568	31.96%
Deerfield	1406	1851	445	31.65%
Nottingham	1592	2093	501	31.47%
Greenland	1244	1603	359	28.86%
Hampton Falls	729	912	183	25.10%
Newmarket	3457	4301	844	24.41%
Stratham	2371	2949	578	24.38%
Durham	2923	3630	707	24.19%
Madbury	543	671	128	23.57%
Farmington	2337	2867	530	22.68%
Middleton	706	864	158	22.38%
Brookfield	280	340	60	21.43%
Barrington	3147	3817	670	21.29%
Kensington	672	814	142	21.13%
Milton	1815	2193	378	20.83%
Dover	11924	14176	2252	18.89%
Raymond	3710	4373	663	17.87%
Strafford	1564	1843	279	17.84%
Danville	1479	1734	255	17.24%
New Durham	1309	1528	219	16.73%
Lee	1534	1788	254	16.56%
Wakefield	3331	3866	535	16.06%
Seabrook	4066	4712	646	15.89%
Rochester	11836	13681	1845	15.59%
North Hampton	1782	2039	257	14.42%
Newfields	532	604	72	13.53%
Northwood	1905	2144	239	12.55%
Exeter	6107	6845	738	12.08%
Kingston	2265	2537	272	12.01%
Newington	305	339	34	11.15%
New Castle	488	541	53	10.86%
Rye	2645	2915	270	10.21%
Hampton	9349	10196	847	9.06%
Candia	1384	1509	125	9.03%
Somersworth	4841	5231	390	8.06%
Portsmouth	10186	10956	770	7.56%
Rollinsford	1060	1114	54	5.09%

Table H-5: Absolute Change in Total Housing Units 2000-2015 Piscataqua Region watershed. The 10 New Hampshire Municipalities with the greatest amount of change are highlighted.

New Hampshire Municipality	Total Housing Units in 2000 (from Census)	Total Units 2015 (from 2010 Census & new permits)	% change (change/total housing units in 2000)	Change in Total Units from 2000-2015
Dover	11924	14176	18.89%	2252
Rochester	11836	13681	15.59%	1845
Hampton	9349	10196	9.06%	847
Newmarket	3457	4301	24.41%	844
Portsmouth	10186	10956	7.56%	770
Epping	2215	2959	33.59%	744
Exeter	6107	6845	12.08%	738
Durham	2923	3630	24.19%	707
Barrington	3147	3817	21.29%	670
Raymond	3710	4373	17.87%	663
Seabrook	4066	4712	15.89%	646
Stratham	2371	2949	24.38%	578
Sandown	1777	2345	31.96%	568
Wakefield	3331	3866	16.06%	535
Fremont	1201	1735	44.46%	534
Farmington	2337	2867	22.68%	530
Brentwood	920	1446	57.17%	526
Nottingham	1592	2093	31.47%	501
Chester	1247	1725	38.33%	478
Deerfield	1406	1851	31.65%	445
Somersworth	4841	5231	8.06%	390
Milton	1815	2193	20.83%	378
Greenland	1244	1603	28.86%	359
East Kingston	648	935	44.29%	287
Strafford	1564	1843	17.84%	279
Kingston	2265	2537	12.01%	272
Rye	2645	2915	10.21%	270
North Hampton	1782	2039	14.42%	257
Danville	1479	1734	17.24%	255
Lee	1534	1788	16.56%	254
Northwood	1905	2144	12.55%	239
New Durham	1309	1528	16.73%	219
Hampton Falls	729	912	25.10%	183
Middleton	706	864	22.38%	158
Kensington	672	814	21.13%	142
Madbury	543	671	23.57%	128
Candia	1384	1509	9.03%	125
Newfields	532	604	13.53%	72
Brookfield	280	340	21.43%	60
Rollinsford	1060	1114	5.09%	54
New Castle	488	541	10.86%	53
Newington	305	339	11.15%	34