

Appendix C:

Demographic & Economic Base Analysis

N² INNOVATION CORRIDOR ECONOMIC DEVELOPMENT STRATEGY & MARKETING PLAN

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Prepared for:

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About Camoin Associates

Camoin Associates has provided economic development consulting services to municipalities, economic development agencies, and private enterprises since 1999. We specialize in real estate market analysis to evaluate the feasibility and impacts of proposed projects. Through the services offered, Camoin Associates has had the opportunity to serve EDOs and local and state governments from Maine to California; corporations and organizations that include Lowes Home Improvement, FedEx, Volvo (Nova Bus) and the New York Islanders; as well as private developers proposing projects in excess of \$600 million. Our reputation for detailed, place-specific, and accurate analysis has led to projects in over twenty states and garnered attention from national media outlets including *Marketplace* (NPR), *Forbes* magazine, and *The Wall Street Journal*. Additionally, our marketing strategies have helped our clients gain both national and local media coverage for their projects in order to build public support and leverage additional funding. The firm currently has offices in Saratoga Springs, NY, Portland, ME, and Brattleboro, VT. To learn more about our experience and projects in all of our service lines, please visit our website at www.camoinassociates.com. You can also find us on Twitter [@camoinassociate](https://twitter.com/camoinassociate) and on [Facebook](https://www.facebook.com/camoinassociates).

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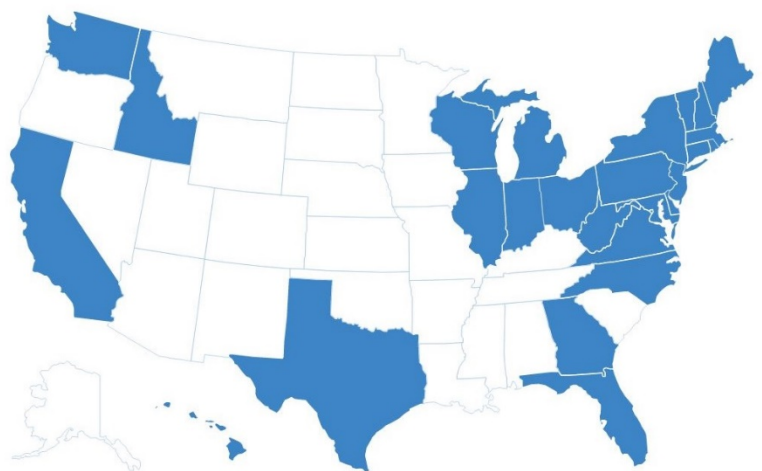


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Executive Summary

As part of the initial research for the N² Innovation Corridor Economic Development Strategy & Marketing Plan, Camoin Associates gathered data to fully understand the existing conditions in Newton and Needham in terms of demographics and the economic base. This information will be used to inform the subsequent steps of the analysis including identifying targeted clusters, potential economic development initiatives, and opportunities for economic growth. The following report includes a socioeconomic characterization and an economic base analysis.

Demographic Analysis

There are a number of significant demographic and socioeconomic trends that are shaping the context in which Newton and Needham strive to become a hub of innovation within the Boston region. The demographic composition of these communities impacts the types of firms and employees that choose to locate within them.

- After a decade of relatively flat population growth during the 2000s, both Newton and Needham have experienced an uptick in growth since 2014, with growth rates surpassing the state and nation.
- Newton and Needham both exhibit bimodal age distributions, with a high share of population within the adolescent/young adult and later middle-age cohorts. Both communities have a significant lack of young adults (25 to 40 year olds) relative to the MSA and state overall. This bimodal age distribution is, in part, a function of the communities' housing market, which is skewed toward single-family homes and has limited affordable options for young adults.
- Incomes and educational attainment in the two communities are very high. Median household income stands at \$118,000 in Newton and \$131,000 in Needham, compared to \$75,000 in the Boston MSA. Almost half of all residents over age 25 in Newton and Needham have a graduate or professional degree. This points to the high desirability of the two communities and the availability of amenities sought by high-income, highly educated residents.
- Newton and Needham have proportionately more white and Asian residents, and fewer black and Hispanic residents, when compared to the Boston MSA, Massachusetts, and the nation.
- Relative to the comparison geographies, Newton has a high share of foreign-born residents, with 21% of the city's population born abroad. Newton is perceived as an attractive location for foreign entrepreneurs seeking to start and expand businesses in the Boston region.
- Twenty-two percent (22%) of Newton and Needham workers also live in the two municipalities. This means that 78% of workers are commuting in from other cities and towns. Fifteen percent (15%) live in Boston. This highlights the crucial role of efficient transportation connections between Newton and Needham and the surrounding region. In order for innovative businesses to be successful in these communities, they must be accessible to the skilled workforce they employ.

Economic Base Analysis

An analysis of Newton and Needham's economic composition points to several key industries that have recently driven growth within the two communities. These sectors will be of primary importance as Newton and Needham seek to attract and support entrepreneurs and innovators.

- Small firms are driving employment growth in the Boston region. Mirroring national trends, small firms accounted for the highest employment growth in the Boston MSA between 2003 and 2013. Firms with between 2 and 9 employees accounted 59% of all job growth over that period. Meanwhile, firms with 500 or more employees were the only category to lose jobs.

- Job growth in Newton and Needham has lagged slightly behind the Boston region, but is on par with Massachusetts. The Newton and Needham economies added 4,600 jobs between 2005 and 2015, an increase of 6%. This compared to growth of 8% in Boston MSA and 6% in Massachusetts, and 5% nationally. The most significant growth sectors in Newton and Needham include:
 - ◆ Health Care and Social Assistance (+4,900 jobs, +43%)
 - ◆ Professional, Scientific, and Technical Services (+1,880 jobs, +21%)
 - ◆ Information (+450 jobs, +16%)
- The sectors with the largest contractions included:
 - ◆ Manufacturing (-2,500 jobs, -54%)
 - ◆ Finance and Insurance (-600 jobs, -16%)
 - ◆ Retail and Wholesale Trade (-800 jobs, -9%)
- The communities' most highly concentrated sectors include Educational Services; Real Estate; Information; and Professional, Scientific, and Technical Services. These sectors all have national location quotients over 2, indicating that employment in these sectors as a share of Newton and Needham economy-wide employment is more than double their share nationally.
- A formal analysis of Newton's and Needham's sources of innovation follows in a subsequent task. However, from the economic base analysis, interviews, and other information collection, it is clear that the communities are home to a number of higher education institutions, companies in technology and life sciences, and entrepreneurial companies. Camoin Associates will build on the economic base analysis by performing a more detailed set of analyses on the following broad industry categories: healthcare; real estate; professional, scientific, and technical services; the information industry; and biotechnology and life sciences. This will inform the prioritization of more specific industries for expansion and attraction efforts, and the development of strategies to leverage and build on innovation assets to help foster that growth.

Introduction

As part of the initial research for the N² Innovation Corridor Strategic Plan, Camoin Associates gathered data to fully understand the existing conditions in Newton and Needham in terms of demographics and the economic base. This information will be used to inform the subsequent steps of the analysis including identifying targeted clusters, potential economic development initiatives, and opportunities for economic growth. The following report includes a socioeconomic characterization and an economic base analysis.

Data Sources

Much of the data in this report was acquired from ESRI Business Analyst Online (ESRI) and Economic Modeling Specialists Intl. (EMSI). ESRI's base data are the 2000 and 2010 Census. It uses proprietary statistical models and updated data from the U.S. Census Bureau, the U.S. Postal Service, and various other sources to project current statistics and future trends. ESRI data are often used for economic development, marketing, site selection, and strategic decision making. For more information, visit www.esri.com.

EMSI's data are compiled from several sources, including the U.S. Census Bureau and U.S. Departments of Health and Labor using specialized proprietary processes and models to estimate current statistics and predict future trends. Visit www.economicmodeling.com for additional information. The data used are from EMSI's "complete employment" data set, which includes both covered and uncovered jobs.¹ In other words, it includes both traditional employment and non-traditional employment such as the self-employed (self-employed includes sole proprietorships and partnerships). As traditional jobs have been replaced or augmented by freelance work, consulting, and self-employment, these non-covered jobs have become much more important to the economy, and EMSI provides researchers with a way to track the trends over time.

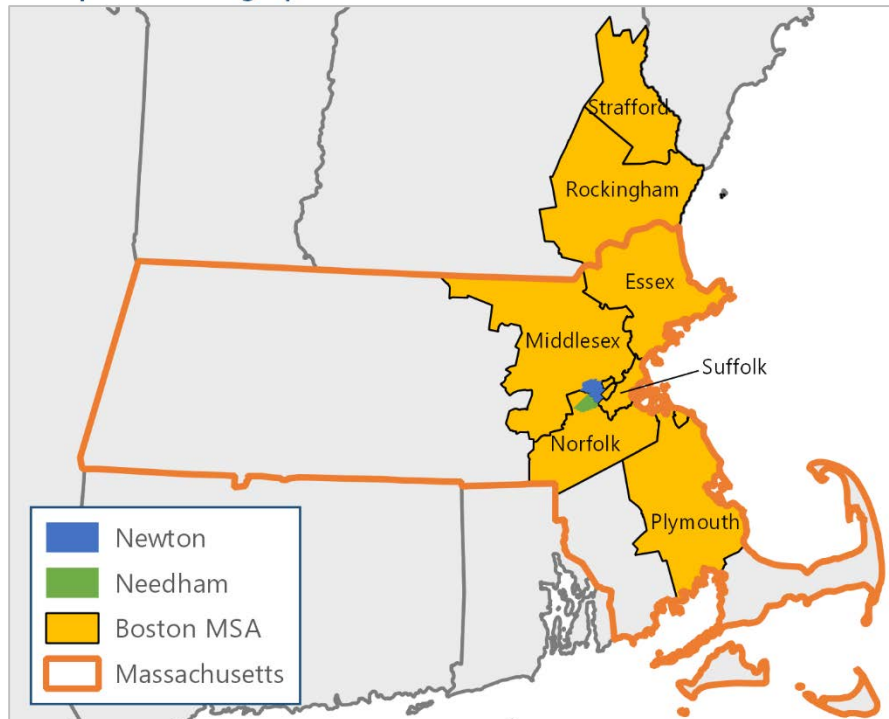
Other sources include the American Community Survey for demographic and socioeconomic data and YourEconomy.org for data on establishments by stage of growth.

¹ Jobs covered by unemployment insurance are tracked by the Bureau of Labor Statistics' Quarterly Census of Employment and Wages, but EMSI uses EMSI Complete Employment uses Bureau of Economic Analysis data (www.bea.gov/bea/regional/) as its primary benchmark. In addition to jobs covered by QCEW, BEA data attempt to count all types of paid employment.

Comparison Geographies

This data analysis was conducted to identify existing conditions and trends within industry sectors that make up the Newton/Needham economy in comparison to the regional and state economies. Data was collected for the following geographies: The municipalities of Newton and Needham, the Boston metropolitan statistical area (MSA),² and the Commonwealth of Massachusetts.

Comparison Geographies



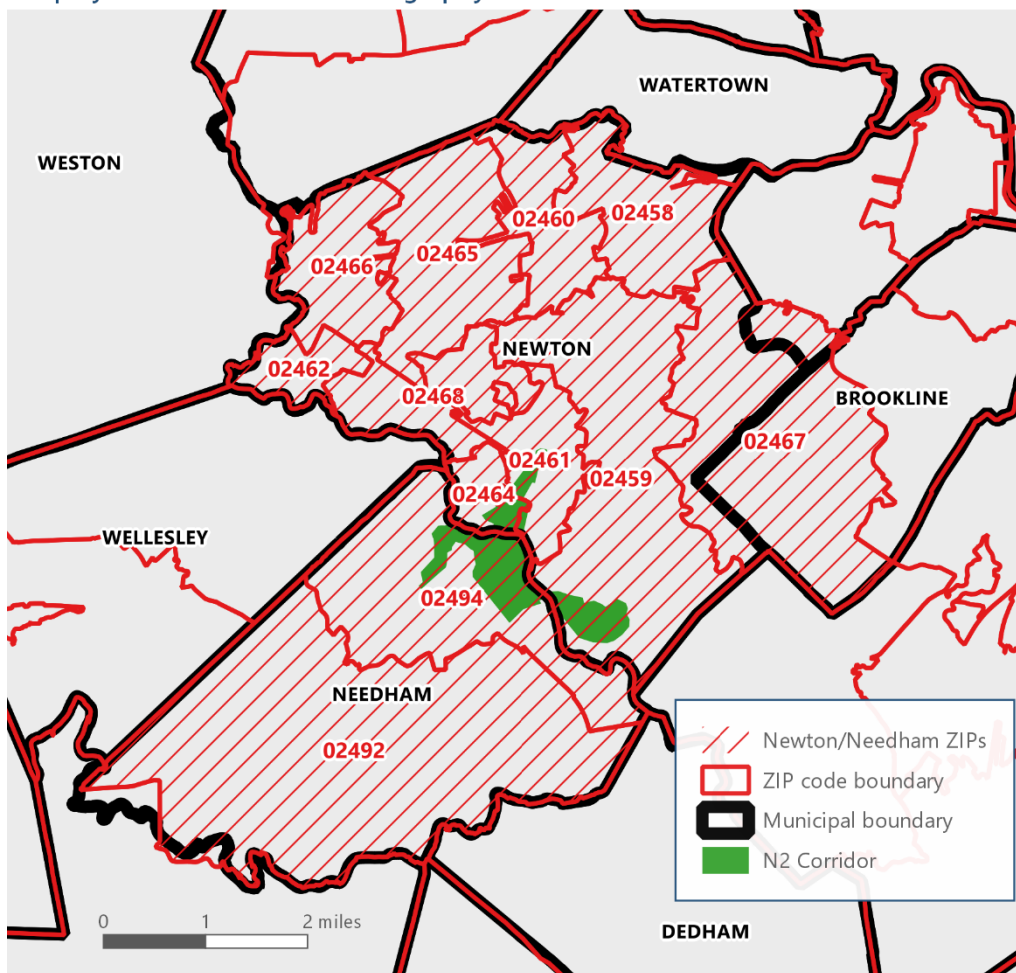
² As defined by the U.S. Office of Management and Budget, the Boston MSA (officially, the Boston–Cambridge–Newton MSA) is comprised of seven counties in Massachusetts and New Hampshire that have a high degree of social and economic cohesion with the Boston urban core. These counties include Essex, Middlesex, Norfolk, Plymouth, and Suffolk counties in Massachusetts; and Rockingham and Strafford counties in New Hampshire.

Most demographic and socioeconomic data analyzed for this report is available at the county subdivision level, i.e. tabulated for the municipalities of Newton and Needham. The exception is the employment data gathered from EMSI, for which the smallest available geography is the ZIP code. For the purpose of presenting employment data for Newton and Needham, the municipal boundaries were approximated using 12 ZIP codes. These ZIP codes are listed in the table at right. As shown in the map below, the 12 ZIP codes used align fairly well with municipal boundaries, with the exception of 02467 – Chestnut Hill, which encompasses a large part of the Town of Brookline, as well as a small piece of the City of Boston. It is important to note that jobs located in these other municipalities are included in the EMSI employment data.

Newton/Needham ZIP Codes

ZIP Code	Postal Area Name
02458	Newton
02459	Newton Center
02460	Newtonville
02461	Newton Highlands
02462	Newton Lower Falls
02464	Newton Upper Falls
02465	West Newton
02466	Auburndale
02467	Chestnut Hill
02468	Waban
02492	Needham
02494	Needham Heights

Employment Data ZIP Code Geography



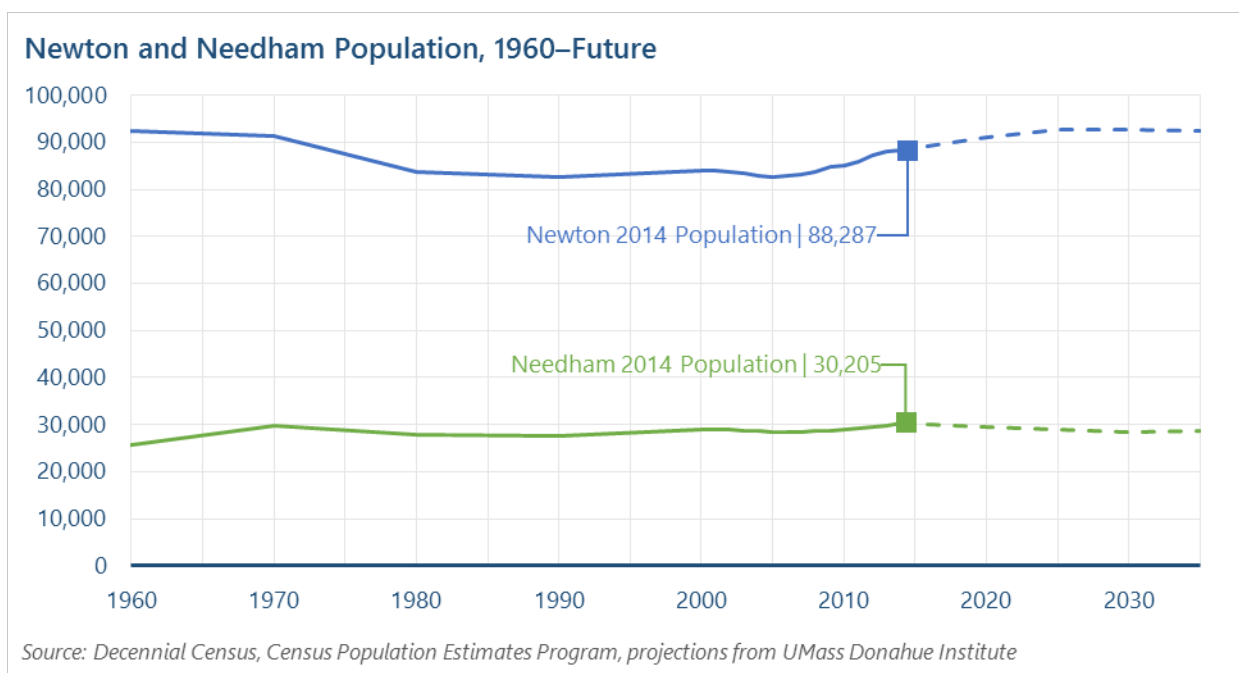
Demographic Analysis

As part of the planning process, it is important to understand the current socioeconomic conditions in the communities in order to identify challenges and opportunities for future economic development initiatives. The following section highlights some important demographic and socioeconomic characteristics of Newton and Needham.

Population Change

The resident population of both Newton and Needham has remained relatively stable over the past 50 years. Newton reached its all-time peak population of over 92,000 in 1960, from which it declined by almost 10% through 1980. From 1980 through the mid-2000s, the population remained flat, hovering around 83,000. After decades of almost no growth, the city's population has increased significantly in the last ten years. Census population estimates for 2014 place Newton's population at 88,287, its highest point since the 1970s. The population is projected to continue to increase over the next ten years.³

Needham has experienced minimal population change since 1970, with population fluctuating by no more than 1,300 residents over that period. Like Newton, there has been a slight upward trend since the mid-2000s, though growth in Needham is more moderate. The 2014 estimate for Needham's population is 30,205, the highest it has ever been.



Newton and Needham have both added more population between 2010 and 2014 than they did over the entire 2000s decade. Needham has grown by 4.6% since 2010, outpacing both the MSA and Massachusetts, while Newton has outpaced Massachusetts with an increase of 3.7%. Collectively, the two communities have added close to 4,500 residents since 2010.

³ UMass Donahue Institute

While Newton and Needham experienced practically flat population growth between 2000 and 2010, growth in the U.S. as a whole was almost 10%. Since 2010, however, the rate of growth in each of the two communities has been higher than that of the nation, as shown in the following table.

Comparison of Population Growth

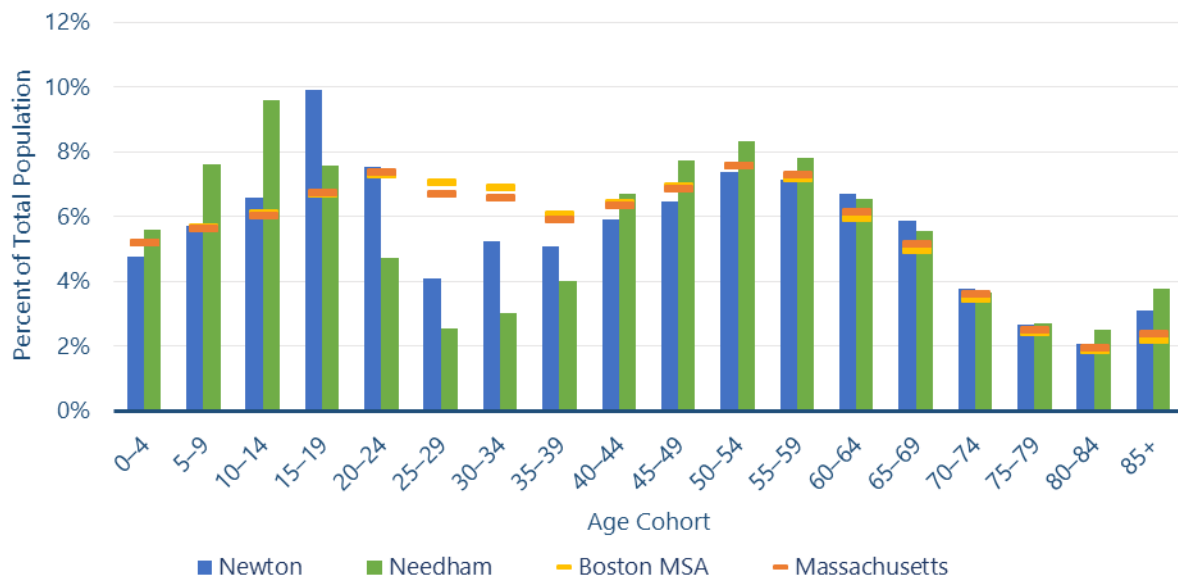
	2000	2010	2014	Pct. Change 2000–2010	Pct. Change 2010–2014
Newton	83,829	85,146	88,287	1.6%	3.7%
Needham	28,911	28,886	30,205	-0.1%	4.6%
MSA	4,355,960	4,552,402	4,732,161	4.5%	3.9%
Massachusetts	6,349,097	6,547,629	6,745,408	3.1%	3.0%
United States	281,421,906	308,746,065	318,857,056	9.7%	3.3%

Source: Decennial Census, Census Population Estimates Program

Age

Newton and Needham both exhibit bimodal age distributions, with a high share of population within the adolescent/young adult and later middle-age cohorts. Newton's largest age cohort is made up of 15 to 19 year olds, while in Needham it is 10 to 14 year-olds. Both communities have a significant lack of young adults (25 to 40 year olds) relative to the MSA and state overall, though this pattern is less extreme in Newton, likely due to the presence of Boston College and other colleges. This bimodal age distribution is, in part, a function of the communities' housing market, which is skewed toward single-family homes and has limited affordable options for young adults.

Share of Population by Age Cohort, 2015

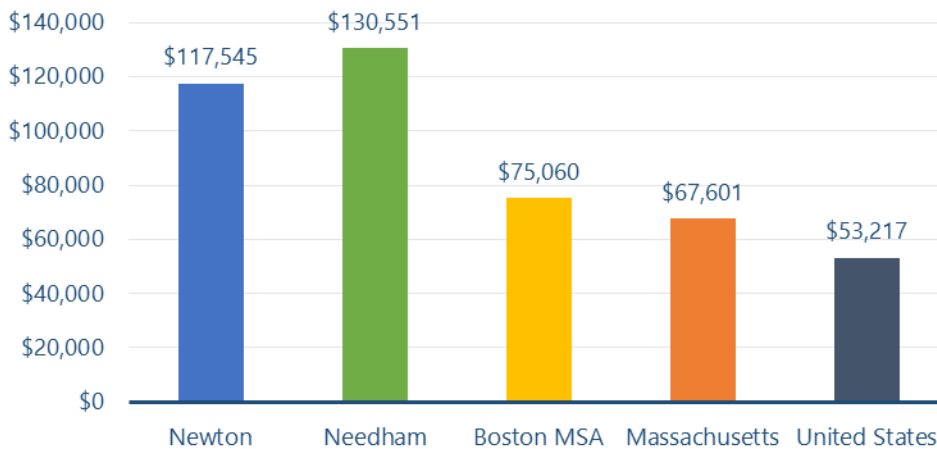


Source: Esri

Income

Median household income in both Newton and Needham is very high. In 2015, Newton median household income stands at almost \$118,000, which is 57% higher than the Boston MSA median of \$75,000. In Needham, the median household has an income of \$131,000, 74% higher than that of the Boston MSA.

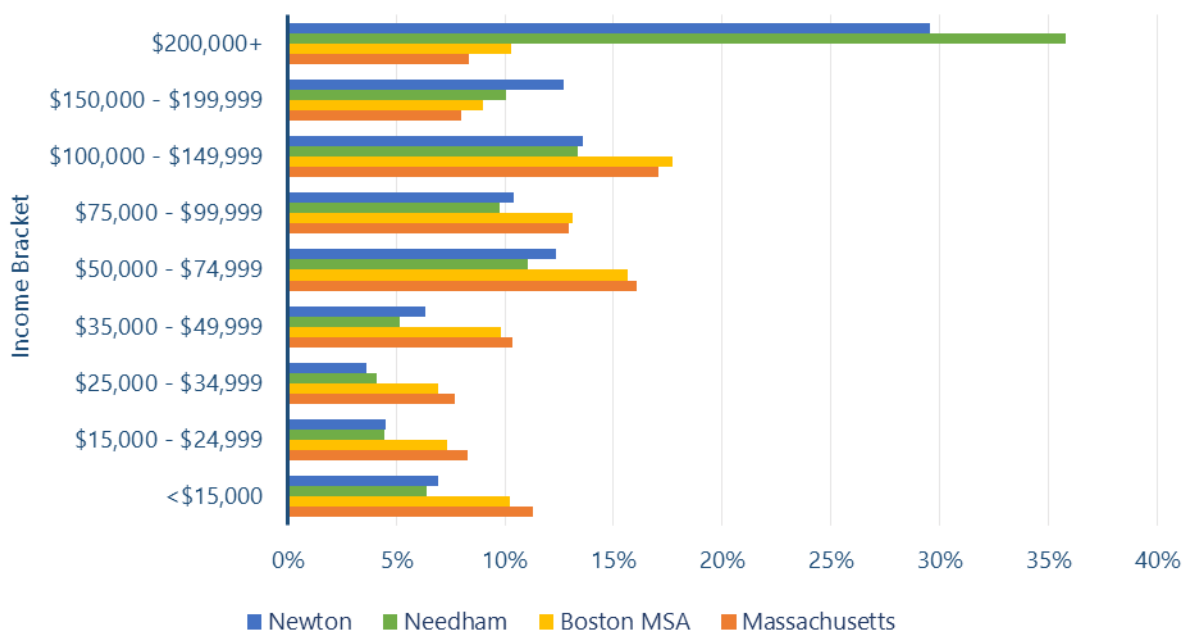
Median Household Income, 2015



Source: Esri

Household incomes in both communities are greatly skewed toward the highest income bracket, with 30% of Newton households and 36% of Needham households earning at least \$200,000 annually. This compares to just 10% of households in the Boston MSA and 8% in Massachusetts.

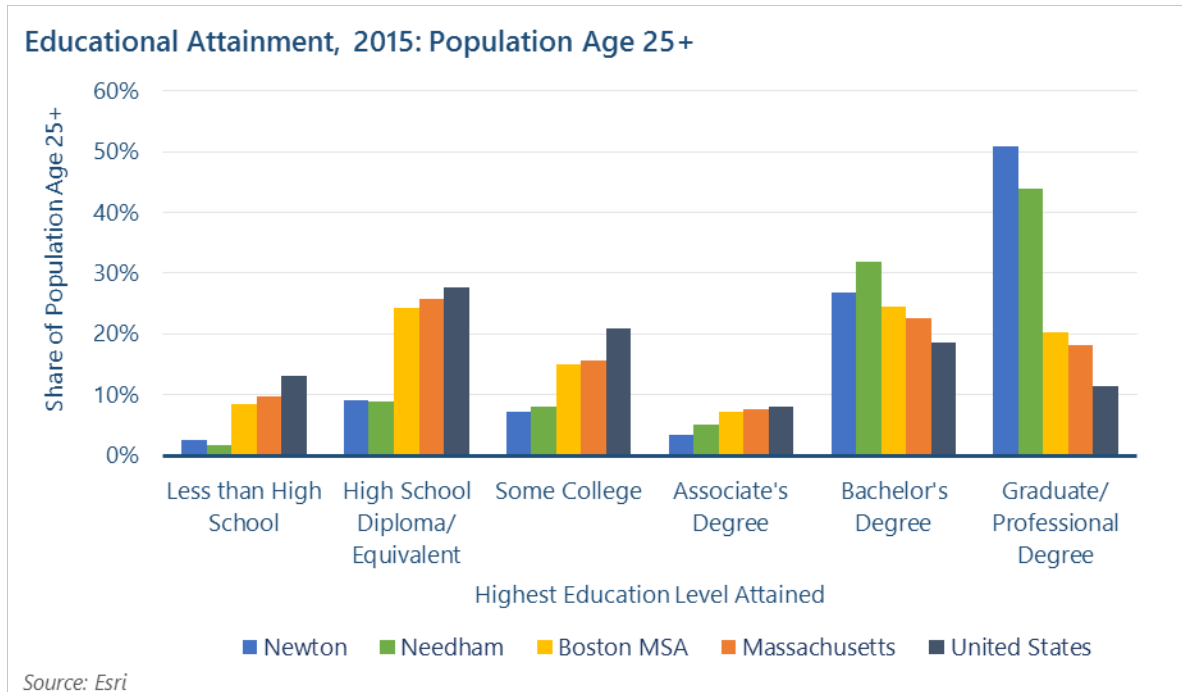
Share of Households by Income, 2015



Source: Esri

Educational Attainment

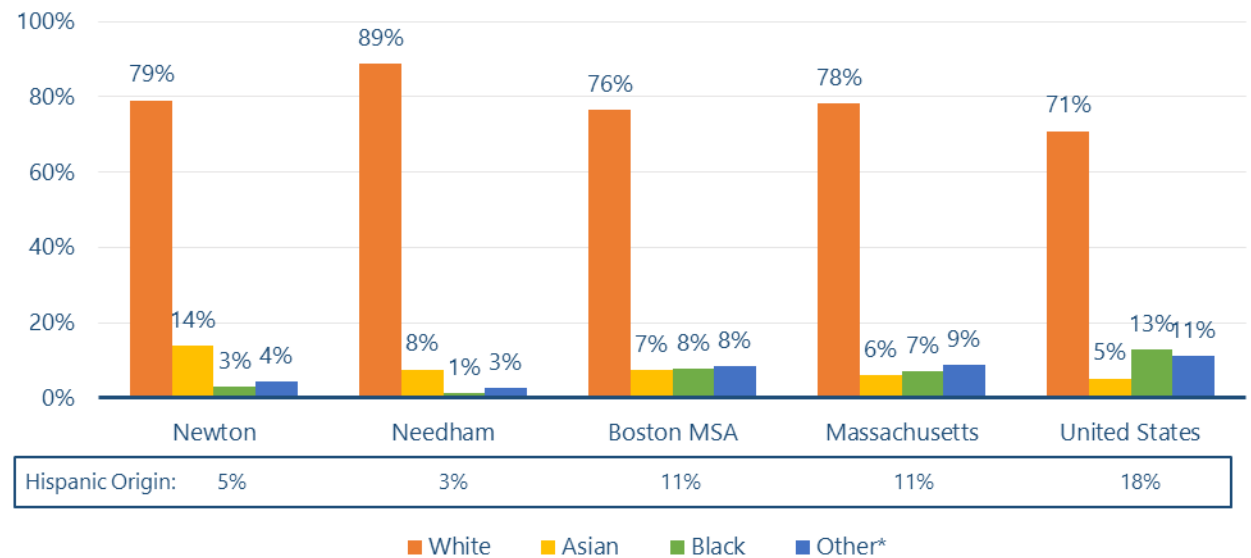
Newton and Needham residents have a very high level of education. Seventy-eight percent (78%) of Newton's 25-and-up population, and 76% of Needham's, have at least a bachelor's degree. This compares to 45% in the Boston MSA and 41% in Massachusetts. Just over half (51%) of Newton residents and 44% of Needham residents have a graduate or professional degree.



Race/Ethnicity

Non-white residents comprise about 21% of Newton's population and 11% of Needham's population, compared to 24% and 22%, respectively, in the Boston MSA and Massachusetts. Newton has a significant Asian population, with 14% of residents self-identifying their race as Asian, compared to 8% in Needham, 7% in the MSA, and 6% in the state overall. Both communities have disproportionately small black and Hispanic populations. Note that people who identify their origin as Hispanic can be of any race.

Share of Population by Race and Hispanic Origin, 2015



*Includes the following responses: American Indian, Pacific Islander, Some Other Race, Two or More Races

Source: Esri

Nativity

Relative to the comparison geographies, Newton has a high share of foreign-born residents, with 21% of the city's population born abroad. By contrast, only 12% of Needham's population is foreign-born. This compares to figures of 17% and 15% for the MSA and state, respectively, and 13% for the U.S.

Nativity of Population

	Native-Born		Foreign-Born		Total
	Population	Pct. of Total	Population	Pct. of Total	
Newton	69,119	79%	17,899	21%	87,018
Needham	25,841	88%	3,584	12%	29,425
Boston MSA	3,856,545	83%	786,826	17%	4,643,371
Massachusetts	5,637,682	85%	1,010,456	15%	6,648,138
United States	272,943,892	87%	40,917,831	13%	313,861,723

Source: 2013 ACS 3-Year Estimates

Foreign-born residents of Newton and Needham hail from around the globe. Residents born in China account for 20% of the foreign-born population in the two communities, the most of any country. Russia occupies the number two slot, with 8.2% of all residents. India, Korea, and Ukraine round out the top five.

Top 10 Countries of Origin of the Foreign-Born Population, Newton and Needham

Place of Birth	Foreign-Born Population	Pct. of All Foreign-Born
China	4,382	20.0%
Russia	1,809	8.2%
India	1,318	6.0%
Korea	1,317	6.0%
Ukraine	951	4.3%
U.K.	834	3.8%
Iran	711	3.2%
Canada	650	3.0%
Germany	568	2.6%
Israel	542	2.5%
Total (Top 10)	13,082	59.6%
Total (All Foreign-Born)	21,953	100%

Source: 2014 ACS 5-Year Estimates

Commute Patterns

The following tables show the top 10 places of work for Newton and Needham residents, as well as the top 10 places of residence for Newton and Needham workers. Boston is the most common commute destination for Newton and Needham residents, with 28% of residents traveling to Boston for work. 22% of the municipalities' residents work in Newton. Together, Boston and Newton account for about half of residents' commute destinations, and the top 10 places of work account for 77% of all work destinations, indicating that jobs held by Newton and Needham residents are heavily concentrated in a small number of cities and towns.

Twenty-two percent (22%) of Newton and Needham workers also live in the two municipalities, and 15% are residents of Boston: This points to a substantial number of workers who are "reverse commuting" from the regional core (Boston) out to suburban Newton and Needham. Collectively, the top 10 places of residence for Newton and Needham workers account for 54% of all workers, indicating that the commute shed for in-commuters is geographically more dispersed than that of out-commuters. This pattern can be seen in the maps that follow.

**Top 10 Places of Work for
Newton and Needham Residents**

Place of Work	Number of Residents	Percent of Residents
Boston	15,937	28%
Newton	12,276	22%
Needham	4,182	7%
Cambridge	3,365	6%
Waltham	2,365	4%
Wellesley	1,747	3%
Brookline	1,187	2%
Framingham	1,159	2%
Watertown	898	2%
Burlington	646	1%
Total (Top 10)	43,762	77%
Total (All Places of Work)	56,699	100%

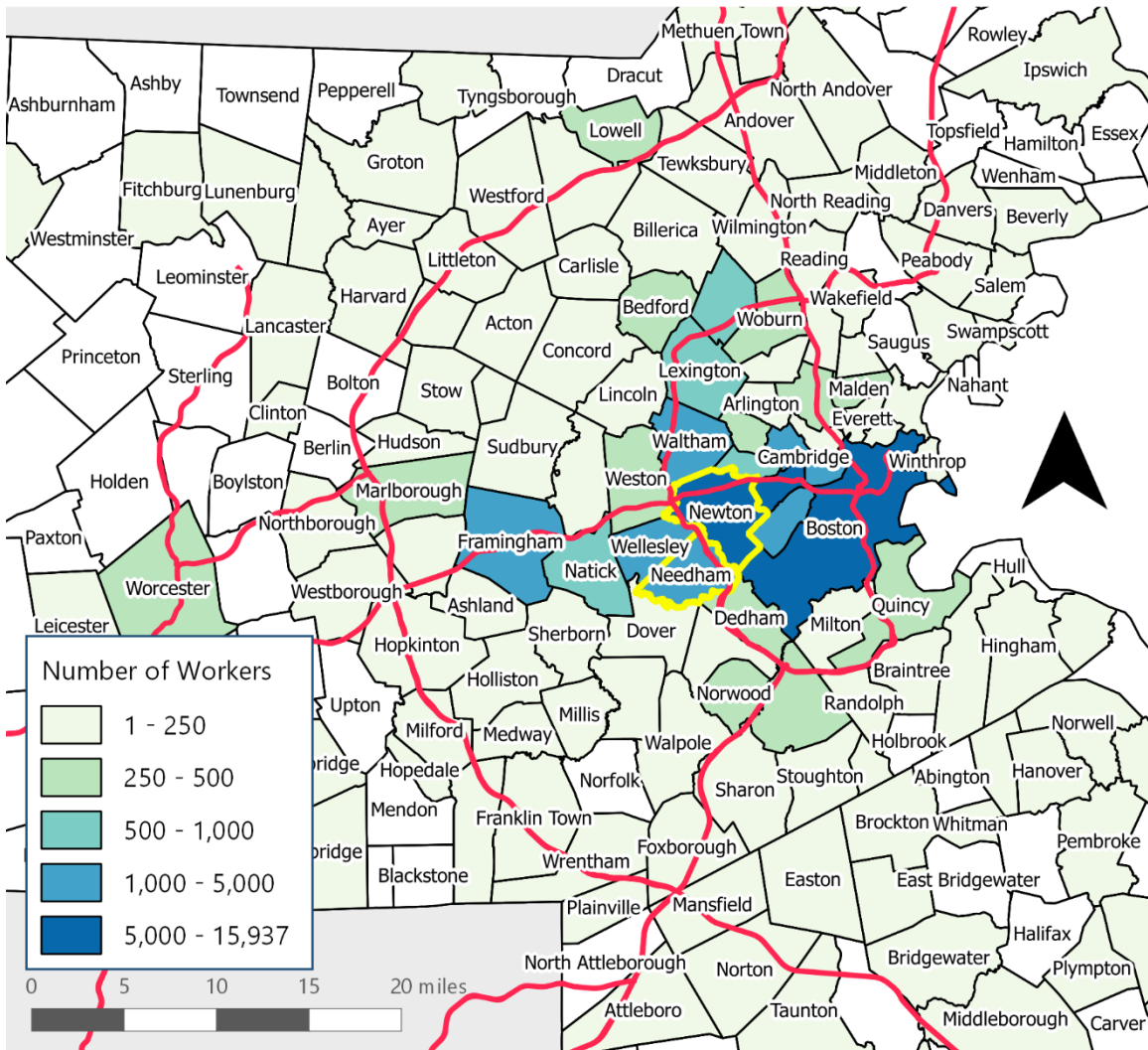
Source: ACS 2009-2013 MCD Commuting Flows

**Top 10 Places of Residence for
Newton and Needham Workers**

Place of Residence	Number of Workers	Percent of Workers
Newton	11,866	16%
Boston	10,675	15%
Needham	4,592	6%
Waltham	2,856	4%
Framingham	2,105	3%
Watertown	1,534	2%
Natick	1,502	2%
Somerville	1,438	2%
Brookline	1,327	2%
Cambridge	1,313	2%
Total (Top 10)	39,208	54%
Total (All Places of Residence)	72,564	100%

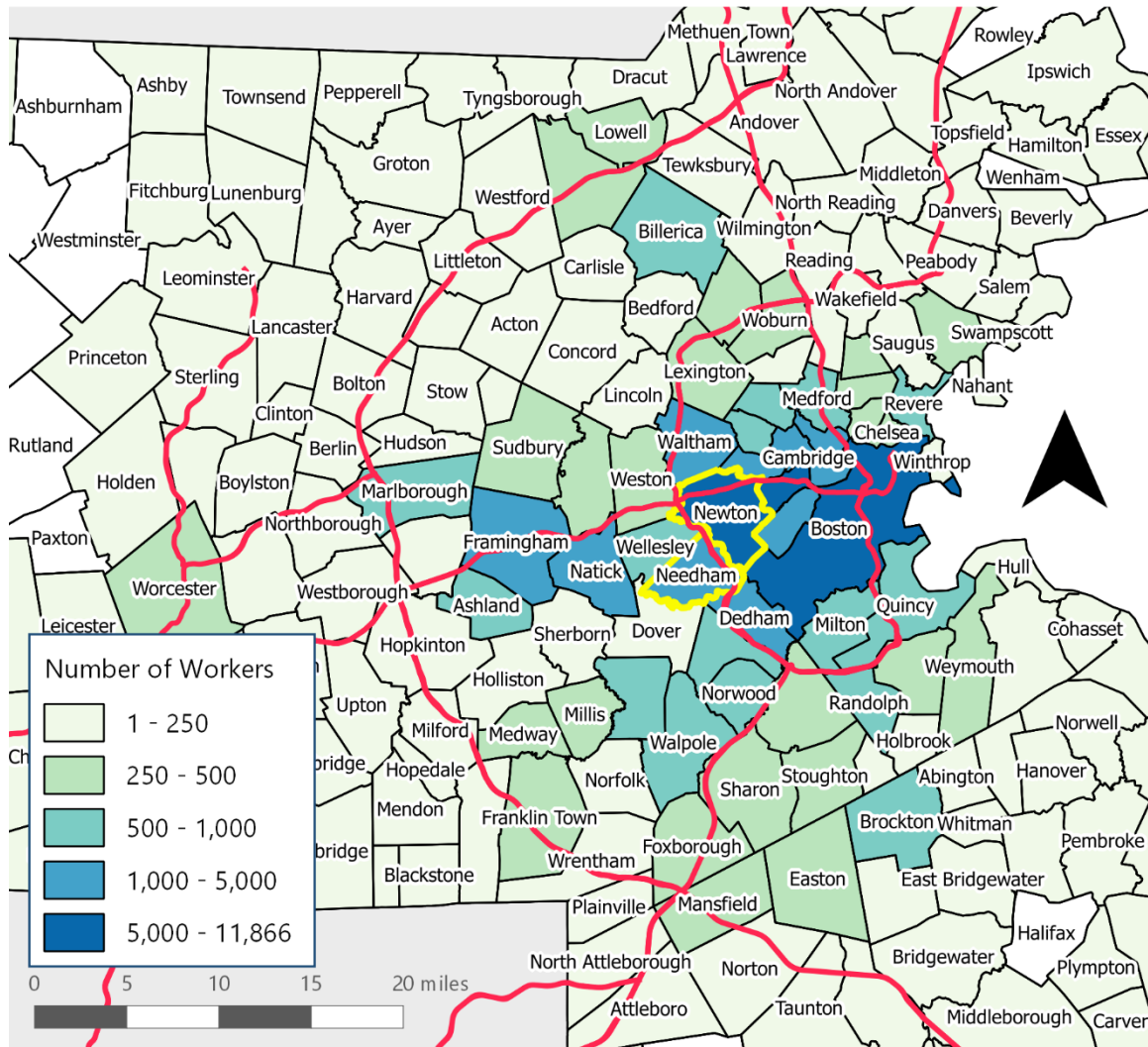
Source: ACS 2009-2013 MCD Commuting Flows

Place of Work for Newton and Needham Residents



Source: ACS 2009-2013 MCD Commuting Flows

Place of Residence for Newton and Needham Workers



Source: ACS 2009-2013 MCD Commuting Flows

Economic Base Analysis

Establishment and Job Growth by Stage

Between 2003 and 2013, the number of establishments in the Boston MSA increased by 2.7%, compared to 2.9% nationally. Stage 1 firms—firms with between 2 and 9 employees—constituted the vast majority of this growth, growing by 67,100 and accounting for 90% of the overall increase in number of establishments. This trend was mirrored at the national level. Establishments in this stage represented 62% of all establishments in 2013, up from 55% ten year prior. Stage 4 firms—those with 500 or more employees—were the only group to lose establishments over this period, declining by just under 1%.

Establishments by Stage, Boston MSA

Establishment Stage (No. of Employees)	2003	2013	2013 Pct. of Total	2003–13 Change	2003–13 Pct. Change
Self-Employed (1)	77,614	83,060	24%	5,446	0.70%
Stage 1 (2-9)	150,149	217,249	62%	67,100	4.50%
Stage 2 (10-99)	41,074	42,744	12%	1,670	0.40%
Stage 3 (100-499)	4,125	4,375	1%	250	0.60%
Stage 4 (500+)	605	552	0%	(53)	-0.90%
Total	273,567	347,980	100%	74,413	2.70%

Source: YourEconomy.org

Establishments by Stage, United States

Establishment Stage (No. of Employees)	2003	2013	2013 Pct. of Total	2003–13 Change	2003–13 Pct. Change
Self-Employed (1)	5,189,939	5,616,142	25%	426,203	0.80%
Stage 1 (2-9)	9,671,681	14,116,860	63%	4,445,179	4.60%
Stage 2 (10-99)	2,360,146	2,546,841	11%	186,695	0.80%
Stage 3 (100-499)	206,261	219,441	1%	13,180	0.60%
Stage 4 (500+)	26,877	24,813	0%	(2,064)	-0.80%
Total	17,454,904	22,524,097	100%	5,069,193	2.90%

Source: YourEconomy.org

Stage 1 firms also contributed the largest growth in number of jobs over the ten-year period, adding close to 163,000 jobs and making up 63% of all job growth. Stage 2 firms (10 to 99 employees) continued to account for the greatest share of jobs of all stages, about one third. Stage 4 firms were the only group to shed jobs over the period, pointing to a regional shift in which job growth is occurring mostly at small and medium sized firms. These trends were similar nationally, with Stage 1 firms accounting for 59% of all job growth, and Stage 4 firms being the only category to lose jobs.

Jobs by Stage of Establishment, Boston MSA

Establishment Stage (No. of Employees)	2003	2013	2013 Pct. of Total	2003–13 Change	2003–13 Pct. Change
Self-Employed (1)	77,614	83,060	2%	5,446	0.70%
Stage 1 (2-9)	513,191	676,053	20%	162,862	3.20%
Stage 2 (10-99)	1,050,028	1,108,034	33%	58,006	0.60%
Stage 3 (100-499)	730,119	775,030	23%	44,911	0.60%
Stage 4 (500+)	704,560	692,750	21%	(11,810)	-0.20%
Total	3,075,512	3,334,927	100%	259,415	0.80%

Source: YourEconomy.org

Jobs by Stage of Establishment, United States

Establishment Stage (No. of Employees)	2003	2013	2013 Pct. of Total	2003–13 Change	2003–13 Pct. Change
Self-Employed (1)	5,189,939	5,616,142	3%	426,203	0.80%
Stage 1 (2-9)	32,753,928	43,540,000	24%	10,786,072	3.30%
Stage 2 (10-99)	59,604,389	64,929,469	35%	5,325,080	0.90%
Stage 3 (100-499)	36,620,447	38,702,153	21%	2,081,706	0.60%
Stage 4 (500+)	32,461,842	32,000,515	17%	(461,327)	-0.10%
Total	166,630,545	184,788,279	100%	18,157,734	1.10%

Source: YourEconomy.org

Employment by Sector (2-digit NAICS)

Newton and Needham are home to approximately 79,800 jobs, having added about 4,600 jobs over the last ten years, an increase of 6%. There were vast differences in the way various economic sectors performed, with some sectors exhibiting tremendous growth and others shedding large numbers of jobs, significantly shifting the communities' economic composition.

Growing and Shrinking Sectors

Between 2005 and 2015, Health Care and Social Assistance sector employment far outpaced that of any other sector in both absolute and percentage terms, adding 4,900 jobs for an increase of 43%. This sector alone added more jobs than did the entire economy (on net). Professional, Scientific, and Technical Services also showed significant growth, expanding by 1,880 jobs, or 21%. Other notable growth sectors included Accommodation and Food Services (+620 jobs, +12%) and Information (+450 jobs, +16%).

Manufacturing saw the biggest contraction, shedding almost 2,500 jobs, or 54% of its workforce. Finance and Insurance lost 600 jobs (-16%) and Retail and Wholesale Trade each contracted by over 400 positions.

Employment by Sector, 2-digit NAICS – Newton and Needham

NAICS	Description	2005 Jobs	2015 Jobs	2005–15 Change	2005–15 % Chg.	2015 Nat'l LQ	2015 Avg. Earnings*
11	Crop and Animal Production	63	80	17	27%	0.08	\$49,391
21	Mining, Quarrying, and Oil and Gas Extraction	21	26	5	24%	0.06	\$27,758
22	Utilities	16	0	(16)	(100%)	0.00	\$0
23	Construction	3,053	2,830	(223)	(7%)	0.66	\$76,741
31	Manufacturing	4,527	2,064	(2,463)	(54%)	0.32	\$96,593
42	Wholesale Trade	2,843	2,430	(413)	(15%)	0.78	\$103,832
44	Retail Trade	6,442	6,022	(420)	(7%)	0.73	\$39,271
48	Transportation and Warehousing	870	1,008	138	16%	0.38	\$50,639
51	Information	2,819	3,267	448	16%	2.19	\$114,880
52	Finance and Insurance	3,627	3,029	(598)	(16%)	0.95	\$128,600
53	Real Estate and Rental and Leasing	2,905	3,175	270	9%	2.41	\$79,370
54	Professional, Scientific, and Technical Services	9,003	10,883	1,880	21%	2.16	\$116,923
55	Management of Companies and Enterprises	1,762	1,834	72	4%	1.64	\$161,479
56	Administrative and Support	3,383	3,563	180	5%	0.71	\$54,054
61	Educational Services	9,543	9,472	(71)	(1%)	4.75	\$61,395
62	Health Care and Social Assistance	11,563	16,509	4,946	43%	1.67	\$58,596
71	Arts, Entertainment, and Recreation	1,915	2,003	88	5%	1.52	\$26,920
72	Accommodation and Food Services	5,287	5,910	623	12%	0.88	\$27,234
81	Other Services (except Public Administration)	3,665	3,797	132	4%	1.00	\$32,256
90	Government	1,846	1,887	41	2%	0.15	\$69,584
99	Unclassified Industry	0	0	0	0%	0.00	\$0
Total		75,157	79,791	4,634	6%		\$72,148

*Includes wages and supplements

Source: EMSI Complete Employment 2015.2

Highly Concentrated Sectors

Location quotient (LQ) is a measure of industry concentration, indicating how concentrated a certain sector in a given area of study, relative to the nation as a whole. It can reveal what makes a particular region "unique" in

comparison with the national average. An LQ greater than 1 indicates that sector employment in the study area is more concentrated than it is as the national level. In Newton and Needham, the sector with highest concentration is Educational Services with an LQ of 4.75, meaning that the share of Educational Services employment in these communities relative to total employment is almost 5 times greater than its share nationally. Other highly concentrated sectors include Real Estate (LQ = 2.41), Information (LQ = 2.19), and Professional, Scientific, and Technical Services (LQ = 2.16).

Earnings

Average earnings per job (including wages and supplements) in Newton and Needham were about \$72,000 in 2015. Sectors with the highest average earnings included Management of Companies and Enterprises (\$161,000), Finance and Insurance (\$128,600), and Professional, Scientific, and Technical Services (\$117,000). Arts, Entertainment, and Recreation (\$27,000) and Accommodation and Food Services (\$27,000) were at the low end of the earnings spectrum.

Regional Comparison

The following charts tabulate the same data for the Boston MSA and Massachusetts.

Employment by Sector, 2-digit NAICS – Boston MSA

NAICS	Description	2005 Jobs	2015 Jobs	2005–15 Change	2005–15 % Chg.	2015 Nat'l LQ	2015 Avg. Earnings*
11	Crop and Animal Production	6,029	7,526	1,497	25%	0.22	\$46,104
21	Mining, Quarrying, and Oil and Gas Extraction	1,220	638	(582)	(48%)	0.04	\$71,929
22	Utilities	6,447	6,661	214	3%	0.67	\$153,096
23	Construction	136,994	122,870	(14,124)	(10%)	0.82	\$70,983
31	Manufacturing	211,415	181,837	(29,578)	(14%)	0.81	\$107,486
42	Wholesale Trade	97,115	87,165	(9,950)	(10%)	0.80	\$101,172
44	Retail Trade	258,428	258,985	557	0%	0.89	\$36,788
48	Transportation and Warehousing	57,262	58,778	1,516	3%	0.64	\$56,332
51	Information	76,184	79,688	3,504	5%	1.52	\$125,721
52	Finance and Insurance	155,552	148,152	(7,400)	(5%)	1.33	\$163,821
53	Real Estate and Rental and Leasing	46,042	44,762	(1,280)	(3%)	0.97	\$78,011
54	Professional, Scientific, and Technical Services	234,039	288,134	54,095	23%	1.63	\$124,582
55	Management of Companies and Enterprises	52,825	53,568	743	1%	1.37	\$160,677
56	Administrative and Support	139,827	149,834	10,007	7%	0.85	\$50,323
61	Educational Services	149,508	161,621	12,113	8%	2.31	\$58,235
62	Health Care and Social Assistance	330,032	434,939	104,907	32%	1.25	\$66,311
71	Arts, Entertainment, and Recreation	42,067	46,379	4,312	10%	1.00	\$40,885
72	Accommodation and Food Services	177,467	217,747	40,280	23%	0.93	\$25,782
81	Other Services (except Public Administration)	116,533	124,699	8,166	7%	0.94	\$35,304
90	Government	300,931	322,718	21,787	7%	0.75	\$85,654
99	Unclassified Industry	79	28	(51)	(65%)	0.01	\$53,349
Total		2,595,996	2,796,731	200,735	8%		\$78,295

*Includes wages and supplements

Source: EMSI Complete Employment 2015.2

Employment by Sector, 2-digit NAICS – Massachusetts

NAICS	Description	2005 Jobs	2015 Jobs	2005–15 Change	2005–15 % Chg.	2015 Nat'l LQ	2015 Avg. Earnings*
11	Crop and Animal Production	11,730	12,759	1,029	9%	0.28	\$47,042
21	Mining, Quarrying, and Oil and Gas Extraction	1,890	1,032	(858)	(45%)	0.05	\$71,019
22	Utilities	9,610	10,581	971	10%	0.78	\$145,786
23	Construction	195,971	174,935	(21,036)	(11%)	0.86	\$66,757
31	Manufacturing	311,448	253,703	(57,745)	(19%)	0.84	\$100,396
42	Wholesale Trade	136,233	126,518	(9,715)	(7%)	0.86	\$98,679
44	Retail Trade	370,296	363,312	(6,984)	(2%)	0.92	\$35,980
48	Transportation and Warehousing	77,867	83,212	5,345	7%	0.67	\$54,258
51	Information	90,834	91,883	1,049	1%	1.30	\$118,936
52	Finance and Insurance	186,601	177,168	(9,433)	(5%)	1.18	\$152,657
53	Real Estate and Rental and Leasing	58,802	55,196	(3,606)	(6%)	0.89	\$71,763
54	Professional, Scientific, and Technical Services	275,164	334,950	59,786	22%	1.40	\$119,196
55	Management of Companies and Enterprises	65,618	64,998	(620)	(1%)	1.23	\$150,593
56	Administrative and Support	182,148	194,254	12,106	7%	0.82	\$47,098
61	Educational Services	186,241	204,915	18,674	10%	2.17	\$54,965
62	Health Care and Social Assistance	466,692	622,035	155,343	33%	1.33	\$62,098
71	Arts, Entertainment, and Recreation	58,236	62,156	3,920	7%	1.00	\$37,920
72	Accommodation and Food Services	251,330	297,254	45,924	18%	0.94	\$24,587
81	Other Services (except Public Administration)	175,575	171,764	(3,811)	(2%)	0.95	\$33,295
90	Government	434,025	472,531	38,506	9%	0.81	\$81,869
99	Unclassified Industry	0	0	0	0%	0.00	\$0
Total		3,546,310	3,775,161	228,851	6%		\$72,631

*Includes wages and supplements

Source: EMSI Complete Employment 2015.2

Regional Comparison of Employment Share by Sector

The next table summarizes the each sector's share of total employment in Newton/Needham, the Boston MSA, and Massachusetts. Notably, the share of educational services jobs in Newton and Needham is more than double that of the comparison geographies. In addition, almost 21% of Newton and Needham jobs are in the Health Care and Social Assistance sector, compared to 16% and 17% in the comparison regions. Manufacturing jobs comprise a comparatively smaller portion of the Newton/Needham economy, as do Government jobs.

2015 Employment Share by Sector, Regional Comparison

NAICS	Description	Newton/ Needham	Boston MSA	Mass.	U.S.
11	Crop and Animal Production	0.1%	0.3%	0.3%	1.2%
21	Mining, Quarrying, and Oil and Gas Extraction	0.0%	0.0%	0.0%	0.6%
22	Utilities	0.0%	0.2%	0.3%	0.4%
23	Construction	3.5%	4.4%	4.6%	5.4%
31	Manufacturing	2.6%	6.5%	6.7%	8.0%
42	Wholesale Trade	3.0%	3.1%	3.4%	3.9%
44	Retail Trade	7.5%	9.3%	9.6%	10.4%
48	Transportation and Warehousing	1.3%	2.1%	2.2%	3.3%
51	Information	4.1%	2.8%	2.4%	1.9%
52	Finance and Insurance	3.8%	5.3%	4.7%	4.0%
53	Real Estate and Rental and Leasing	4.0%	1.6%	1.5%	1.7%
54	Professional, Scientific, and Technical Services	13.6%	10.3%	8.9%	6.3%
55	Management of Companies and Enterprises	2.3%	1.9%	1.7%	1.4%
56	Administrative and Support	4.5%	5.4%	5.1%	6.3%
61	Educational Services	11.9%	5.8%	5.4%	2.5%
62	Health Care and Social Assistance	20.7%	15.6%	16.5%	12.4%
71	Arts, Entertainment, and Recreation	2.5%	1.7%	1.6%	1.7%
72	Accommodation and Food Services	7.4%	7.8%	7.9%	8.4%
81	Other Services (except Public Administration)	4.8%	4.5%	4.5%	4.8%
90	Government	2.4%	11.5%	12.5%	15.5%
99	Unclassified Industry	0.0%	0.0%	0.0%	0.1%
Total		100.0%	100.0%	100.0%	100.0%

Source: EMSI Complete Employment 2015.2

Historic Employment Growth by Sector

Economy-wide, employment in Newton and Needham expanded by 6% over the last decade. Massachusetts grew at the same rate, while the Boston MSA increased by 8%. The U.S. lagged slightly behind, growing by 5%. Sectors in which employment growth in Newton and Needham significantly outpaced that of the comparison geographies include Information, Transportation and Warehousing, Health Care, and Real Estate. Newton and Needham significantly underperformed in Manufacturing, in which they lost 54% of jobs, compared to reductions of 14%, 19%, and 13% in the MSA, state, and nation, respectively.

2005–2015 Percent Change in Employment, Regional Comparison

NAICS	Description	Newton/ Needham	Boston MSA	Mass.	U.S.
11	Crop and Animal Production	27%	25%	9%	(2%)
21	Mining, Quarrying, and Oil and Gas Extraction	24%	(48%)	(45%)	50%
22	Utilities	(100%)	3%	10%	1%
23	Construction	(7%)	(10%)	(11%)	(13%)
31	Manufacturing	(54%)	(14%)	(19%)	(13%)
42	Wholesale Trade	(15%)	(10%)	(7%)	2%
44	Retail Trade	(7%)	0%	(2%)	1%
48	Transportation and Warehousing	16%	3%	7%	8%
51	Information	16%	5%	1%	(9%)
52	Finance and Insurance	(16%)	(5%)	(5%)	(2%)
53	Real Estate and Rental and Leasing	9%	(3%)	(6%)	(6%)
54	Professional, Scientific, and Technical Services	21%	23%	22%	18%
55	Management of Companies and Enterprises	4%	1%	(1%)	25%
56	Administrative and Support	5%	7%	7%	9%
61	Educational Services	(1%)	8%	10%	23%
62	Health Care and Social Assistance	43%	32%	33%	25%
71	Arts, Entertainment, and Recreation	5%	10%	7%	13%
72	Accommodation and Food Services	12%	23%	18%	18%
81	Other Services (except Public Administration)	4%	7%	(2%)	2%
90	Government	2%	7%	9%	1%
99	Unclassified Industry	0%	(65%)	0%	(23%)
Total		6%	8%	6%	5%

Source: EMSI Complete Employment 2015.2

Average Earnings by Sector

Average earnings per job were on par with the state average (about \$73,000), and slightly lower than average earnings for the MSA (\$78,000). This compares to average earnings of \$59,000 nationally. Notably, earnings for Finance and Insurance workers were somewhat lower in Needham and Newton (\$129,000 compared to upwards of \$150,000 for the MSA and Commonwealth). Earnings for other significant industries were generally comparable across the local, regional, and state geographies.

2015 Average Earnings,* Regional Comparison

NAICS	Description	Newton/ Needham	Boston MSA	Mass.	U.S.
11	Crop and Animal Production	\$49,391	\$46,104	\$47,042	\$32,073
21	Mining, Quarrying, and Oil and Gas Extraction	\$27,758	\$71,929	\$71,019	\$117,269
22	Utilities	\$0	\$153,096	\$145,786	\$132,070
23	Construction	\$76,741	\$70,983	\$66,757	\$55,900
31	Manufacturing	\$96,593	\$107,486	\$100,396	\$76,958
42	Wholesale Trade	\$103,832	\$101,172	\$98,679	\$80,626
44	Retail Trade	\$39,271	\$36,788	\$35,980	\$34,013
48	Transportation and Warehousing	\$50,639	\$56,332	\$54,258	\$58,839
51	Information	\$114,880	\$125,721	\$118,936	\$106,178
52	Finance and Insurance	\$128,600	\$163,821	\$152,657	\$108,648
53	Real Estate and Rental and Leasing	\$79,370	\$78,011	\$71,763	\$54,099
54	Professional, Scientific, and Technical Services	\$116,923	\$124,582	\$119,196	\$91,469
55	Management of Companies and Enterprises	\$161,479	\$160,677	\$150,593	\$133,177
56	Administrative and Support	\$54,054	\$50,323	\$47,098	\$39,676
61	Educational Services	\$61,395	\$58,235	\$54,965	\$44,819
62	Health Care and Social Assistance	\$58,596	\$66,311	\$62,098	\$54,354
71	Arts, Entertainment, and Recreation	\$26,920	\$40,885	\$37,920	\$36,853
72	Accommodation and Food Services	\$27,234	\$25,782	\$24,587	\$21,480
81	Other Services (except Public Administration)	\$32,256	\$35,304	\$33,295	\$29,884
90	Government	\$69,584	\$85,654	\$81,869	\$69,657
99	Unclassified Industry	\$0	\$53,349	\$0	\$57,629
Total		\$72,148	\$78,295	\$72,631	\$59,240

*Includes wages and supplements

Source: EMSI Complete Employment 2015.2

Top Industries (4-digit NAICS)

“Eds and meds”—that is educational and healthcare professions—make up ten of the top 25 4-digit NAICS industries in Newton and Needham. Colleges, Universities, and Professional Schools top the list, with close to 5,700 jobs in 2015, though down 11% over the last ten years. Restaurants and Computer Systems Design round out the top three. Various professional services industries are also well represented.

Top 25 Industries by Employment, 4-digit NAICS – Newton and Needham

NAICS	Description	2005 Jobs	2015 Jobs	2005–15 Change	2005–15 % Chg.	2015 Nat'l LQ	2015 Avg. Earnings*
6113	Colleges, Universities, and Professional Schools	6,365	5,681	(684)	(11%)	5.95	\$71,639
7225	Restaurants and Other Eating Places	3,091	3,824	733	24%	0.75	\$22,661
5415	Computer Systems Design and Related Services	2,065	3,102	1,037	50%	3.04	\$165,378
6241	Individual and Family Services	1,065	2,990	1,925	181%	2.61	\$32,575
6221	General Medical and Surgical Hospitals	2,410	2,762	352	15%	1.20	\$83,387
6111	Elementary and Secondary Schools	2,111	2,344	233	11%	4.35	\$53,660
6213	Offices of Other Health Practitioners	1,422	2,115	693	49%	4.43	\$52,078
5511	Management of Companies and Enterprises	1,762	1,834	72	4%	1.64	\$161,479
6211	Offices of Physicians	1,557	1,794	237	15%	1.35	\$119,352
5416	Management, Scientific, and Technical Consulting Services	1,433	1,672	239	17%	2.06	\$103,699
6216	Home Health Care Services	748	1,622	874	117%	2.30	\$42,715
7223	Special Food Services	1,710	1,584	(126)	(7%)	3.88	\$35,351
5313	Activities Related to Real Estate	1,224	1,469	245	20%	3.72	\$98,264
6231	Nursing Care Facilities (Skilled Nursing Facilities)	1,372	1,424	52	4%	1.68	\$47,401
4451	Grocery Stores	1,113	1,360	247	22%	0.99	\$27,992
5411	Legal Services	1,406	1,341	(65)	(5%)	1.94	\$80,297
5311	Lessors of Real Estate	1,017	1,265	248	24%	3.11	\$63,771
7139	Other Amusement and Recreation Industries	1,094	1,250	156	14%	1.89	\$26,661
5417	Scientific Research and Development Services	958	1,194	236	25%	3.50	\$146,169
6244	Child Day Care Services	969	1,178	209	22%	1.85	\$27,958
6116	Other Schools and Instruction	697	1,071	374	54%	3.95	\$27,711
5419	Other Professional, Scientific, and Technical Services	488	1,030	542	111%	2.62	\$66,353
5413	Architectural, Engineering, and Related Services	1,099	1,021	(78)	(7%)	1.32	\$110,036
2382	Building Equipment Contractors	943	1,011	68	7%	0.91	\$85,930
5112	Software Publishers	717	983	266	37%	6.03	\$130,976

*Includes wages and supplements

Source: EMSI Complete Employment 2015.2



Over half of the industries in the Newton/Needham top 25 overlap with those on the Boston MSA list; however, there are several industry groupings that are unique to Newton and Needham. Educational industries, including (private) Elementary and Secondary Schools, Child Day Care Services, and Other Schools and Instruction are key employers in Newton and Needham, but less important in the MSA overall. Real estate industries—including Activities Related to Real Estate and Lessors of Real Estate—are also unique to Newton and Needham's top 25.

Top 25 Industries by Employment, 4-digit NAICS – Boston MSA

NAICS	Description	2005 Jobs	2015 Jobs	2005–15 Change	2005–15 % Chg.	2015 Nat'l LQ	2015 Avg. Earnings*
7225	Restaurants and Other Eating Places	132,491	167,011	34,520	26%	0.93	\$22,629
6221	General Medical and Surgical Hospitals	105,305	123,211	17,906	17%	1.53	\$89,016
9036	Education and Hospitals (Local Government)	105,442	116,404	10,962	10%	0.77	\$81,230
6113	Colleges, Universities, and Professional Schools	108,972	112,182	3,210	3%	3.35	\$64,152
5415	Computer Systems Design and Related Services	43,497	70,251	26,754	62%	1.96	\$147,620
9039	Local Government, Excluding Education and Hospitals	64,077	65,926	1,849	3%	0.66	\$94,320
4451	Grocery Stores	52,225	62,186	9,961	19%	1.28	\$26,973
6241	Individual and Family Services	19,818	54,399	34,581	174%	1.35	\$32,409
5511	Management of Companies and Enterprises	52,825	53,568	743	1%	1.37	\$160,677
5617	Services to Buildings and Dwellings	46,171	52,318	6,147	13%	1.07	\$34,873
9029	State Government, Excluding Education and Hospitals	49,339	52,020	2,681	5%	1.28	\$104,594
5613	Employment Services	45,936	49,999	4,063	9%	0.77	\$53,553
5417	Scientific Research and Development Services	34,513	49,119	14,606	42%	4.10	\$162,332
5416	Management, Scientific, and Technical Consulting Services	37,143	47,982	10,839	29%	1.68	\$120,929
6211	Offices of Physicians	37,055	45,137	8,082	22%	0.97	\$125,895
9026	Education and Hospitals (State Government)	28,439	37,871	9,432	33%	0.70	\$59,119
2382	Building Equipment Contractors	39,043	37,601	(1,442)	(4%)	0.96	\$77,086
5221	Depository Credit Intermediation	38,231	36,620	(1,611)	(4%)	1.20	\$117,401
9011	Federal Government, Civilian	39,403	35,593	(3,810)	(10%)	0.70	\$106,408
5241	Insurance Carriers	33,572	35,572	2,000	6%	1.53	\$123,121
5413	Architectural, Engineering, and Related Services	36,654	34,688	(1,966)	(5%)	1.28	\$106,918
6231	Nursing Care Facilities (Skilled Nursing Facilities)	34,502	33,797	(705)	(2%)	1.14	\$46,168
6216	Home Health Care Services	14,231	31,227	16,996	119%	1.26	\$44,133
5239	Other Financial Investment Activities	23,350	31,151	7,801	33%	3.39	\$268,498
5411	Legal Services	33,820	30,914	(2,906)	(9%)	1.28	\$113,558

*Includes wages and supplements

Source: EMSI Complete Employment 2015.2

Newton and Needham's educational and real estate industries also stand out when compared against Massachusetts. Notably, no government industries makes these communities' top 25 list, while five of the top industries for Massachusetts (and also the Boston MSA) fall within Local, State, or Federal Government.

Top 25 Industries by Employment, 4-digit NAICS – Massachusetts

NAICS	Description	2005 Jobs	2015 Jobs	2005–15 Change	2005–15 % Chg.	2015 Nat'l LQ	2015 Avg. Earnings*
7225	Restaurants and Other Eating Places	187,445	228,199	40,754	22%	0.94	\$21,828
9036	Education and Hospitals (Local Government)	158,150	171,409	13,259	8%	0.84	\$79,267
6221	General Medical and Surgical Hospitals	141,227	162,945	21,718	15%	1.50	\$86,031
6113	Colleges, Universities, and Professional Schools	130,332	137,330	6,998	5%	3.04	\$60,946
9039	Local Government, Excluding Education and Hospitals	93,161	96,242	3,081	3%	0.72	\$88,555
6241	Individual and Family Services	29,075	90,441	61,366	211%	1.67	\$29,655
4451	Grocery Stores	73,888	85,084	11,196	15%	1.30	\$27,452
5415	Computer Systems Design and Related Services	50,171	80,165	29,994	60%	1.66	\$143,512
9029	State Government, Excluding Education and Hospitals	64,124	70,964	6,840	11%	1.29	\$102,732
5617	Services to Buildings and Dwellings	61,823	70,414	8,591	14%	1.07	\$34,047
9026	Education and Hospitals (State Government)	47,993	67,276	19,283	40%	0.92	\$57,996
5613	Employment Services	61,123	66,913	5,790	9%	0.77	\$48,177
5511	Management of Companies and Enterprises	65,618	64,998	(620)	(1%)	1.23	\$150,593
6211	Offices of Physicians	50,161	59,763	9,602	19%	0.95	\$119,053
5416	Management, Scientific, and Technical Consulting Services	43,176	55,408	12,232	28%	1.44	\$116,291
6231	Nursing Care Facilities (Skilled Nursing Facilities)	56,318	55,317	(1,001)	(2%)	1.38	\$44,983
5417	Scientific Research and Development Services	39,053	54,168	15,115	39%	3.35	\$158,677
2382	Building Equipment Contractors	52,633	50,891	(1,742)	(3%)	0.96	\$73,941
5221	Depository Credit Intermediation	48,382	47,345	(1,037)	(2%)	1.15	\$107,202
9011	Federal Government, Civilian	50,849	46,427	(4,422)	(9%)	0.68	\$102,031
5241	Insurance Carriers	42,763	44,949	2,186	5%	1.43	\$121,497
6216	Home Health Care Services	20,680	42,306	21,626	105%	1.27	\$44,676
5413	Architectural, Engineering, and Related Services	42,766	40,549	(2,217)	(5%)	1.10	\$103,047
5411	Legal Services	40,956	36,853	(4,103)	(10%)	1.13	\$105,918
6244	Child Day Care Services	31,868	36,222	4,354	14%	1.20	\$25,189

*Includes wages and supplements

Source: EMSI Complete Employment 2015.2

Self-Employment

A significant proportion of Newton and Needham jobs are held by self-employed workers—over 9%. Professional, Scientific, and Technical Services jobs account for more than a quarter (26.9%) of all self-employed positions, with Health Care and Social Assistance and Arts, Entertainment, and Recreation jobs also comprising significant shares—12.1% and 12.9%, respectively.

Almost half (47.9%) of all Arts, Entertainment, and Recreation jobs are self-employed positions. The comparable figure for Professional, Scientific, and Technical Services is 18.4%.

Average earnings for self-employed positions are low relative to earnings for all jobs. Across industries, average self-employed earnings are \$34,705, compared to \$72,148 for all jobs.

Self-Employment by Sector, 2-digit NAICS – Newton and Needham, 2015

NAICS	Description	Self-Emp. Jobs	Total Jobs	% Self-Emp. in Industry	% of All Self-Emp. Jobs	Avg. Earnings, Self-Emp.*	Avg. Earnings, All Jobs*
11	Crop and Animal Production	0	80	0.0%	0.0%	--	\$49,391
21	Mining, Quarrying, and Oil and Gas Extraction	25	26	93.2%	0.3%	\$10,859	\$27,758
22	Utilities	0	0	--	0.0%	--	--
23	Construction	561	2,830	19.8%	7.5%	\$31,548	\$76,741
31	Manufacturing	37	2,064	1.8%	0.5%	\$31,339	\$96,593
42	Wholesale Trade	27	2,430	1.1%	0.4%	\$39,929	\$103,832
44	Retail Trade	200	6,022	3.3%	2.7%	\$33,491	\$39,271
48	Transportation and Warehousing	78	1,008	7.7%	1.0%	\$21,270	\$50,639
51	Information	207	3,267	6.4%	2.8%	\$10,386	\$114,880
52	Finance and Insurance	154	3,029	5.1%	2.1%	\$68,556	\$128,600
53	Real Estate and Rental and Leasing	629	3,175	19.8%	8.5%	\$36,055	\$79,370
54	Professional, Scientific, and Technical Services	2,002	10,883	18.4%	26.9%	\$46,918	\$116,923
55	Management of Companies and Enterprises	0	1,834	0.0%	0.0%	--	\$161,479
56	Administrative and Support	347	3,563	9.7%	4.7%	\$26,163	\$54,054
61	Educational Services	473	9,472	5.0%	6.4%	\$23,917	\$61,395
62	Health Care and Social Assistance	902	16,509	5.5%	12.1%	\$54,328	\$58,596
71	Arts, Entertainment, and Recreation	959	2,003	47.9%	12.9%	\$17,918	\$26,920
72	Accommodation and Food Services	71	5,910	1.2%	1.0%	\$18,141	\$27,234
81	Other Services (except Public Administration)	767	3,797	20.2%	10.3%	\$16,200	\$32,256
90	Government	0	1,887	0.0%	0.0%	--	\$69,584
99	Unclassified Industry	0	0	--	0.0%	--	--
Total		7,439	79,791	9.3%	100.0%	\$34,705	\$72,148

*Includes wages and supplements

Source: EMSI Complete Employment 2015.2

Examining self-employment at the 4-digit NAICS level, Independent Artists, Writers, and Performers represent 11.1% of self-employed positions, the most of any industry. Management, Scientific, and Technical Consulting Services follows at 7.5%, and Legal Services occupies the third place slot, at 7.4%.

Top 25 Industries by Self-Employed Jobs, 4-digit NAICS – Newton and Needham, 2015

NAICS	Description	Self-Emp. Jobs	Total Jobs	% Self-Emp. in Industry	% of All Self-Emp. Jobs	Avg. Earnings, Self-Emp.*	Avg. Earnings, All Jobs*
7115	Independent Artists, Writers, and Performers	824	886	93.0%	11.1%	\$17,702	\$20,302
5416	Management, Scientific, and Technical Consulting Services	560	2,119	26.4%	7.5%	\$37,037	\$100,956
5411	Legal Services	549	1,400	39.2%	7.4%	\$73,972	\$80,723
8141	Private Households	402	591	68.0%	5.4%	\$9,628	\$16,669
6116	Other Schools and Instruction	315	1,126	28.0%	4.2%	\$19,816	\$30,365
6213	Offices of Other Health Practitioners	310	1,598	19.4%	4.2%	\$52,870	\$54,791
5311	Lessors of Real Estate	288	1,071	26.8%	3.9%	\$49,924	\$65,364
5313	Activities Related to Real Estate	237	1,638	14.5%	3.2%	\$27,375	\$101,067
8121	Personal Care Services	229	1,039	22.0%	3.1%	\$20,618	\$26,630
5415	Computer Systems Design and Related Services	228	3,707	6.1%	3.1%	\$40,324	\$155,823
2361	Residential Building Construction	209	615	33.9%	2.8%	\$44,307	\$65,810
6244	Child Day Care Services	197	1,146	17.2%	2.6%	\$15,719	\$28,925
5419	Other Professional, Scientific, and Technical Services	189	701	27.0%	2.5%	\$27,698	\$61,831
5414	Specialized Design Services	185	290	63.6%	2.5%	\$21,987	\$43,532
5617	Services to Buildings and Dwellings	158	811	19.4%	2.1%	\$19,832	\$41,829
5121	Motion Picture and Video Industries	151	373	40.6%	2.0%	\$930	\$39,846
2383	Building Finishing Contractors	148	433	34.2%	2.0%	\$20,311	\$58,703
5614	Business Support Services	137	691	19.8%	1.8%	\$28,947	\$51,551
6211	Offices of Physicians	131	1,674	7.8%	1.8%	\$131,933	\$118,235
6241	Individual and Family Services	120	3,350	3.6%	1.6%	\$37,788	\$34,370
6111	Elementary and Secondary Schools	102	2,354	4.3%	1.4%	\$31,455	\$53,546
5312	Offices of Real Estate Agents and Brokers	101	303	33.3%	1.4%	\$17,923	\$57,510
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	98	1,010	9.7%	1.3%	\$54,295	\$96,537
5413	Architectural, Engineering, and Related Services	91	966	9.4%	1.2%	\$39,034	\$108,832
5239	Other Financial Investment Activities	81	502	16.1%	1.1%	\$66,993	\$186,027

*Includes wages and supplements

Source: EMSI Complete Employment 2015.2

Top Occupations (SOC)

Top occupations in Newton and Needham include Health Diagnosing and Treating Practitioners (which includes doctors and nurses), Computer Occupations, Retail Sales Workers, and Food and Beverage Serving Workers.

Top 25 Occupations by Employment, 3-digit SOC – Newton and Needham

NAICS	Description	2005 Jobs	2015 Jobs	2005–15 Change	2005–15 % Chg.	2015 Nat'l LQ	Med. Hrly Earnings
29-1000	Health Diagnosing and Treating Practitioners	3,154	3,928	774	25%	1.47	\$50
15-1100	Computer Occupations	3,324	3,797	473	14%	1.84	\$45
41-2000	Retail Sales Workers	3,977	3,614	(363)	(9%)	0.79	\$11
35-3000	Food and Beverage Serving Workers	2,829	3,225	396	14%	0.88	\$10
43-6000	Secretaries and Administrative Assistants	2,796	2,862	66	2%	1.33	\$22
39-9000	Other Personal Care and Service Workers	1,770	2,778	1,008	57%	1.39	\$14
13-1000	Business Operations Specialists	2,497	2,738	241	10%	1.12	\$36
43-4000	Information and Record Clerks	2,685	2,611	(74)	(3%)	0.88	\$18
43-9000	Other Office and Administrative Support Workers	2,556	2,403	(153)	(6%)	1.04	\$18
11-9000	Other Management Occupations	2,086	2,298	212	10%	1.33	\$38
13-2000	Financial Specialists	2,121	2,086	(35)	(2%)	1.40	\$35
31-1000	Nursing, Psychiatric, and Home Health Aides	1,267	1,962	695	55%	1.48	\$14
43-3000	Financial Clerks	1,887	1,848	(39)	(2%)	1.03	\$20
29-2000	Health Technologists and Technicians	1,470	1,796	326	22%	1.17	\$26
37-2000	Building Cleaning and Pest Control Workers	1,592	1,706	114	7%	0.80	\$13
47-2000	Construction Trades Workers	1,801	1,693	(108)	(6%)	0.60	\$25
11-1000	Top Executives	1,552	1,635	83	5%	1.26	\$62
25-2000	Preschool, Primary, Secondary, and Special Education School Teachers	1,394	1,615	221	16%	0.76	\$27
21-1000	Counselors, Social Workers, and Other Community and Social Service Specialists	991	1,585	594	60%	1.51	\$22
25-1000	Postsecondary Teachers	1,469	1,513	44	3%	1.98	\$43
11-3000	Operations Specialties Managers	1,429	1,477	48	3%	1.67	\$56
35-2000	Cooks and Food Preparation Workers	1,302	1,472	170	13%	0.88	\$13
53-3000	Motor Vehicle Operators	1,340	1,459	119	9%	0.68	\$17
43-5000	Material Recording, Scheduling, Dispatching, and Distributing Workers	1,643	1,439	(204)	(12%)	0.70	\$17
41-3000	Sales Representatives, Services	1,636	1,436	(200)	(12%)	1.23	\$33

Source: EMSI Complete Employment 2015.2



Top occupations were generally similar across the comparison geographies. Occupations for which Newton and Needham showed high concentrations relative to the Boston MSA and Massachusetts as a whole included Postsecondary Teachers, Computer Occupations, and Health Diagnosing and Treating Practitioners.

Top 25 Occupations by Employment, 3-digit SOC – Boston MSA

NAICS	Description	2005 Jobs	2015 Jobs	2005–15 Change	2005–15 % Chg.	2015 Nat'l LQ	Med. Hrly Earnings
41-2000	Retail Sales Workers	145,259	142,881	(2,378)	(2%)	0.89	\$11
35-3000	Food and Beverage Serving Workers	99,182	121,996	22,814	23%	0.95	\$10
29-1000	Health Diagnosing and Treating Practitioners	98,864	118,950	20,086	20%	1.27	\$50
15-1100	Computer Occupations	95,035	115,221	20,186	21%	1.59	\$46
13-1000	Business Operations Specialists	91,276	101,739	10,463	11%	1.19	\$36
43-4000	Information and Record Clerks	89,939	90,061	122	0%	0.87	\$18
43-6000	Secretaries and Administrative Assistants	83,008	87,734	4,726	6%	1.16	\$22
47-2000	Construction Trades Workers	88,707	81,412	(7,295)	(8%)	0.83	\$24
43-9000	Other Office and Administrative Support Workers	79,025	78,476	(549)	(1%)	0.97	\$18
25-2000	Preschool, Primary, Secondary, and Special Education School Teachers	67,322	77,002	9,680	14%	1.04	\$31
37-2000	Building Cleaning and Pest Control Workers	70,327	75,675	5,348	8%	1.01	\$14
13-2000	Financial Specialists	70,761	74,543	3,782	5%	1.43	\$37
39-9000	Other Personal Care and Service Workers	49,465	67,579	18,114	37%	0.96	\$13
43-5000	Material Recording, Scheduling, Dispatching, and Distributing Workers	72,434	67,567	(4,867)	(7%)	0.94	\$17
11-9000	Other Management Occupations	60,695	66,794	6,099	10%	1.10	\$41
29-2000	Health Technologists and Technicians	53,070	64,649	11,579	22%	1.20	\$25
43-3000	Financial Clerks	60,683	62,213	1,530	3%	0.99	\$20
53-3000	Motor Vehicle Operators	56,221	60,653	4,432	8%	0.80	\$17
11-1000	Top Executives	52,448	56,213	3,765	7%	1.24	\$61
11-3000	Operations Specialties Managers	49,862	54,118	4,256	9%	1.74	\$56
21-1000	Counselors, Social Workers, and Other Community and Social Service Specialists	39,763	53,556	13,793	35%	1.45	\$22
35-2000	Cooks and Food Preparation Workers	42,806	51,750	8,944	21%	0.89	\$12
31-1000	Nursing, Psychiatric, and Home Health Aides	36,577	49,327	12,750	35%	1.06	\$14
53-7000	Material Moving Workers	48,473	46,891	(1,582)	(3%)	0.56	\$14
49-9000	Other Installation, Maintenance, and Repair Occupations	41,100	41,914	814	2%	0.76	\$23

Source: EMSI Complete Employment 2015.2

Top 25 Occupations by Employment, 3-digit SOC – Massachusetts

NAICS	Description	2005 Jobs	2015 Jobs	2005–15 Change	2005–15 % Chg.	2015 Nat'l LQ	Med. Hrly Earnings
41-2000	Retail Sales Workers	204,979	198,226	(6,753)	(3%)	0.92	\$11
35-3000	Food and Beverage Serving Workers	141,337	167,689	26,352	19%	0.97	\$10
29-1000	Health Diagnosing and Treating Practitioners	135,180	160,522	25,342	19%	1.27	\$49
15-1100	Computer Occupations	113,433	135,968	22,535	20%	1.39	\$44
13-1000	Business Operations Specialists	115,862	127,858	11,996	10%	1.11	\$34
47-2000	Construction Trades Workers	127,634	116,712	(10,922)	(9%)	0.88	\$23
43-4000	Information and Record Clerks	116,537	115,990	(547)	(0%)	0.83	\$18
43-6000	Secretaries and Administrative Assistants	109,073	115,294	6,221	6%	1.13	\$21
25-2000	Preschool, Primary, Secondary, and Special Education School Teachers	99,262	110,832	11,570	12%	1.11	\$30
43-9000	Other Office and Administrative Support Workers	102,995	102,354	(641)	(1%)	0.93	\$17
39-9000	Other Personal Care and Service Workers	74,796	100,545	25,749	34%	1.06	\$13
37-2000	Building Cleaning and Pest Control Workers	96,907	100,005	3,098	3%	0.99	\$13
43-5000	Material Recording, Scheduling, Dispatching, and Distributing Workers	100,956	94,173	(6,783)	(7%)	0.97	\$16
13-2000	Financial Specialists	87,494	91,407	3,913	4%	1.30	\$36
11-9000	Other Management Occupations	82,210	89,175	6,965	8%	1.09	\$39
29-2000	Health Technologists and Technicians	74,349	89,155	14,806	20%	1.23	\$25
53-3000	Motor Vehicle Operators	80,453	87,162	6,709	8%	0.85	\$17
21-1000	Counselors, Social Workers, and Other Community and Social Service Specialists	58,383	82,299	23,916	41%	1.66	\$21
43-3000	Financial Clerks	79,458	80,805	1,347	2%	0.95	\$19
11-1000	Top Executives	71,418	75,393	3,975	6%	1.23	\$59
31-1000	Nursing, Psychiatric, and Home Health Aides	54,704	73,641	18,937	35%	1.18	\$14
35-2000	Cooks and Food Preparation Workers	60,140	70,162	10,022	17%	0.89	\$12
11-3000	Operations Specialties Managers	64,607	69,228	4,621	7%	1.65	\$53
53-7000	Material Moving Workers	69,683	67,061	(2,622)	(4%)	0.60	\$14
49-9000	Other Installation, Maintenance, and Repair Occupations	56,681	56,912	231	0%	0.76	\$23

Source: EMSI Complete Employment 2015.2

Over 9 percent of jobs in Newton and Needham are in STEM (science, technology, engineering, and math) occupations. This is a considerably higher percentage than the national figure of 5.5%. There has been 10% job growth in STEM occupations in Newton and Needham over the past ten years, which is higher than the growth nationally for this group of occupations.

Jobs in STEM Occupations

	Newton & Needham	United States
STEM Occupation Jobs	7,645	8,609,364
Percentage of All Jobs	9.3%	5.5%
STEM Occupation Job Growth, 2010-2015	10%	7%

Source: 2015.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed. Group of 99 STEM occupations, as defined by the US Census.

The table below shows the breakdown of those STEM jobs in Newton and Needham by occupation category. Computer occupations are the most prevalent STEM occupation in Newton and Needham. Of note with respect to the biotech industry, there are a total of approximately 500 workers in the categories of life scientists and life, physical, and social science technicians.

STEM Jobs in Newton and Needham by Occupation Category

Description	2005 Jobs	2015 Jobs	2005 - 2015 Change	2005 - 2015 % Change
Computer and Information Systems Managers	395	479	84	21.4%
Engineering and Natural Sciences Managers	172	154	(19)	-10.9%
Computer Occupations	3,832	4,613	781	20.4%
Mathematical Science Occupations	139	173	34	24.4%
Cartographers and Surveyors	21	22	0	2.2%
Engineers	934	819	(115)	-12.3%
Drafters, Engineering Technicians, and Mappir	395	315	(80)	-20.2%
Life Scientists	270	298	28	10.5%
Physical Scientists	149	150	1	0.5%
Social Scientists and Related Workers	331	361	30	9.0%
Life, Physical, and Social Science Technicians	249	233	(16)	-6.5%
Sales Engineers	87	89	3	2.9%
Total	6,920	7,645	725	10.5%

Source: 2015.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed. Group of 99 STEM occupations.

At a more granular level, we see that the most common STEM occupations in Newton and Needham are a variety of computer occupations, including software developers, programmers, and support specialists.

Specific STEM Occupations With Over 100 Jobs in Newton and Needham

SOC	Description	2010 Jobs	2015 Jobs	2005 - 2015 Change	2005 - 2015 % Change	2015 Location Quotient
15-1132	Software Developers, Applications	786	1,030	244	31.0%	2.65
15-1133	Software Developers, Systems Software	819	926	107	13.1%	4.30
15-1151	Computer User Support Specialists	544	635	91	16.7%	1.85
15-1121	Computer Systems Analysts	439	550	111	25.3%	1.81
11-3021	Computer and Information Systems Managers	395	479	84	21.3%	2.58
15-1131	Computer Programmers	296	347	51	17.2%	1.98
15-1142	Network and Computer Systems Administrators	261	289	28	10.7%	1.44
19-3031	Clinical, Counseling, and School Psychologists	217	225	8	3.7%	2.73
15-1134	Web Developers	133	217	84	63.2%	2.50
19-1042	Medical Scientists, Except Epidemiologists	133	150	17	12.8%	2.73
15-1143	Computer Network Architects	125	138	13	10.4%	1.78
15-1199	Computer Occupations, All Other	125	137	12	9.6%	1.11
15-1152	Computer Network Support Specialists	133	128	-5	-3.8%	1.26
17-2061	Computer Hardware Engineers	163	127	-36	-22.1%	3.02
17-2141	Mechanical Engineers	144	122	-22	-15.3%	0.83
17-2051	Civil Engineers	102	115	13	12.7%	0.77
17-2071	Electrical Engineers	139	114	-25	-18.0%	1.20
11-9041	Architectural and Engineering Managers	133	113	-20	-15.0%	1.15
15-1141	Database Administrators	93	110	17	18.3%	1.78
17-3023	Electrical and Electronics Engineering Technicians	140	101	-39	-27.9%	1.36

Source: 2015.4 – QCEW Employees, Non-QCEW Employees, and Self-Employed. Group of 99 STEM occupations.

It is worth noting that for the industries examined in the Priority Industry Analysis appendix—particularly information technology and biotech & life sciences—businesses often cluster geographically near top universities that produce their employment pools. For example, companies with locations near the campuses of the best universities and in attractive locations are better positioned to compete for the best software programmers. Massachusetts is already home to 5.6% of the software publishing industry workforce—the third highest percentage after California and Texas—as well as several prestigious schools for the field, including Harvard and the Massachusetts Institute of Technology.⁴

Newton and Needham, and the N² Corridor, benefit from proximity to Boston metro higher education assets, to the extent that these graduates and their more experienced cohorts can be attracted to work and potentially live in these western suburbs. The Peer Set Analysis appendix examines STEM training program completions and STEM occupation concentration for the larger Boston metro region in comparison to several peer metros. The Boston metro area compares well to the other metros in terms of these indicators. Only the Washington, DC metro area has a comparable number of STEM related completions—33,072 compared to the Boston metro's 30,519. The Boston metro does have a higher concentration of STEM occupations compared to occupations nationwide, for a location quotient of 1.60, which exceeds that of the Denver and Baltimore metros. However, the Washington DC and Seattle metros had even higher location quotients (with Washington DC's being 2.02).

⁴ IBISWorld Industry Report 51121: Software Publishing in the U.S., December 2015.

Top Employers

The following is a non-definitive list of major employers in Newton and Needham, collected from municipal and area websites as well as the interviews to give context to Camoin Associates' understanding of the economic trends described in this base analysis.

- Boston College
- City of Newton
- Newton–Wellesley Hospital
- Jewish Community Centers of Greater Boston
- Bloomingdale's
- Clarks Companies North America
- EMC Corporation
- Lasell College
- Boston Marriott Newton
- Questex Media Group LLC
- Tech Target Inc.
- Upromise Inc.
- Wegmans
- TripAdvisor
- Coca-Cola Bottling Co
- Beth Israel Deaconess Hospital–Needham
- GateHouse Media Inc.
- PTC Inc.
- Charles River Center

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