

GREATER METROWEST Economic Profile 2017[®]

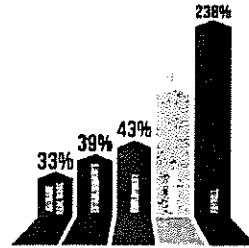
25TH ANNUAL CONFERENCE
Celebrating 25 Years of MERC: Growth in Greater MetroWest
Friday, May 12, 2017



Cost of living in MW has increased by 90% during the 25-year period.



Estimated median price for single family homes sold in Greater MetroWest was up 250% from about \$186,100 to about \$465,200



PERCENT CHANGE IN GREATER METROWEST EMPLOYMENT BY SECTOR



MetroWest Economic Research Center
at Framingham State University

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May 2017



Framingham
State University

MetroWest Economic
Research Center



Framingham State University

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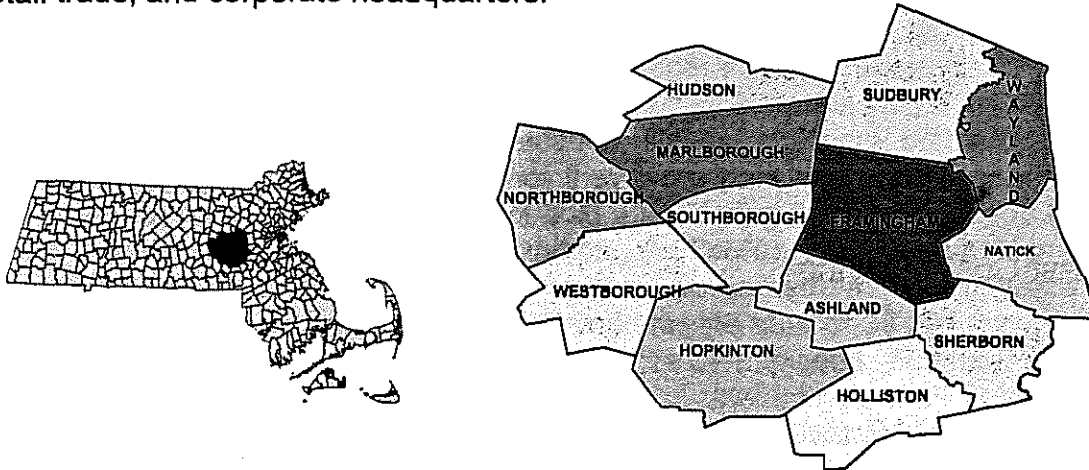


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INTRODUCTION

Greater MetroWest (GMW) includes thirteen communities located between Boston and Worcester: the nine towns of the MetroWest Cohesive Commercial Statistical Area (CCSA), and the four communities of the Greater Marlborough Region. With a population of over 296,000, the region hosts a well educated and highly skilled labor force of more than 162,000 individuals who reside in households with high incomes when compared to the state and the nation. Strategically located between Boston and Worcester, GMW benefits from four major highways serving the region's residents and businesses: Interstate 495, Interstate 90 (Massachusetts Turnpike) and U.S. routes 9 and 20.

Greater MetroWest businesses generated more than 189,000 jobs and a payroll exceeding \$14.0 billion in 2015. The region provided 4.5% of the Massachusetts labor force, 5.5% of Massachusetts employment, and 6.1% of Massachusetts payroll. Home to thousands of small and medium sized businesses as well as large national firms like Astra Zeneca, Bose, Boston Scientific, Cumberland/Gulf, Dell/EMC, Genzyme, Intel, Mathworks, Raytheon, Staples, TJX, and the internationally known U.S. Army Natick Laboratories, GMW is a recognized center of research and development, wholesale and retail trade, and corporate headquarters.



The *2017 Greater MetroWest Economic Profile* includes the most recent economic data for the region and its individual communities, and trends over several years as well as comparisons with the state and the nation. This comprehensive publication provides economic data and analyses of labor force and unemployment, employment (including payroll, wages and establishments), housing permits, existing home sales, cost of living, municipal revenue, municipal taxes, and K-12 public school enrollment.

The MetroWest Economic Research Center (MERC) at Framingham State University creates and maintains economic databases on a number of regional economies in the state. For more information on the data and analyses in this report, please contact MERC.

2017 Greater MetroWest Economic Profile

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GREATER METROWEST – UNEMPLOYMENT

UNEMPLOYMENT¹

Each month the MetroWest Economic Research Center (MERC) at Framingham State University calculates a composite unemployment rate for the Greater MetroWest region, which includes MetroWest and the Greater Marlborough Region. The unemployment rate is household-based and reflects the labor market status of the **residents** of the regions. The information for the rate is obtained from the Massachusetts Executive Office of Labor and Workforce Development (MA EOLWD) which provides monthly estimates of the size of the local labor force, the number of employed and unemployed residents, and the unemployment rates for all Massachusetts cities and towns.

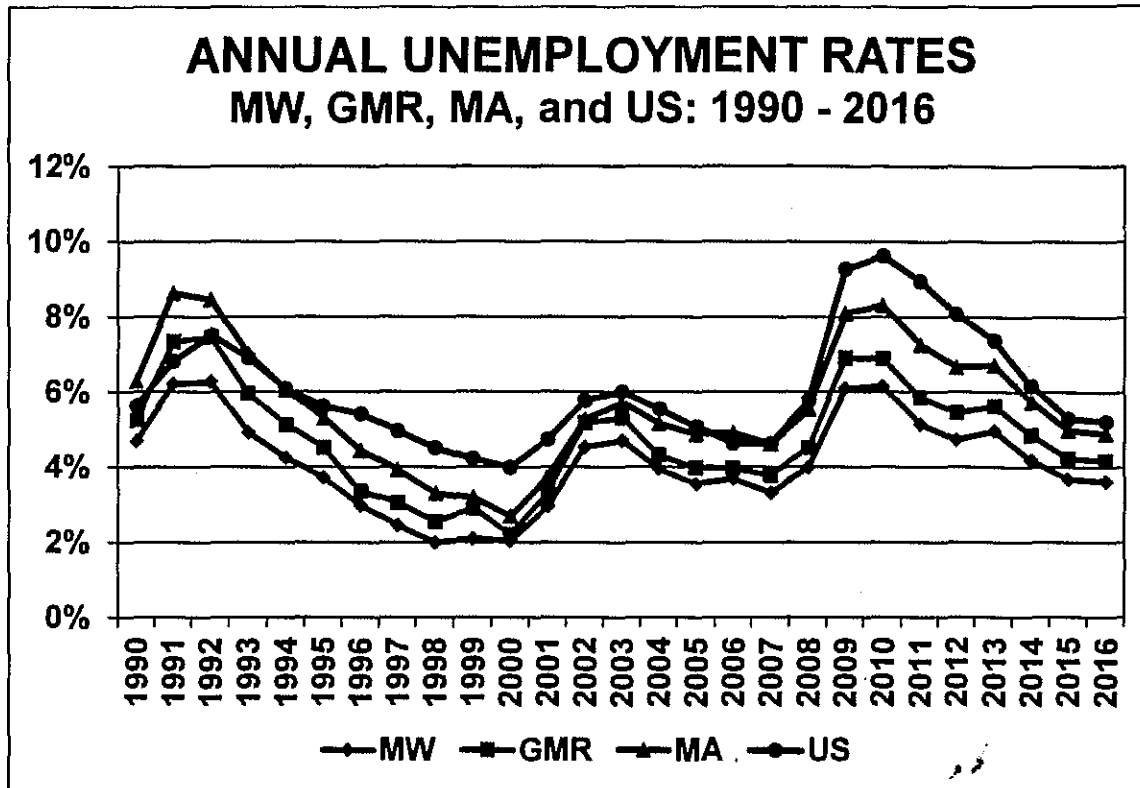
The unemployment rate is a measure of the amount of unutilized labor in the economy. The rate represents the proportion of unemployed individuals in the labor force. The **labor force** is defined as all civilian non-institutionalized persons age 16 and over who are either employed or unemployed. The **employed** are those individuals who work as paid employees, are self-employed, or who work 15 hours or more as unpaid workers in a family-operated enterprise. Also included as employed are people who did not work but who had a job from which they temporarily were absent due to vacation, illness, childcare problems, or other personal obligations, whether or not they were paid during their absence. The **unemployed** are those who did not hold a job during the survey period but were actively seeking employment. For example, the February 2017 unemployment rate in Framingham of 3.2% was based on the following information: the size of the labor force was **estimated** at 39,666 workers, the sum of 38,391 residents who were employed and 1,275 residents who were unemployed. The rate, expressed as a percentage, was obtained by dividing the unemployed (1,275) by the labor force (39,666) and multiplying by 100 to get the unemployment rate of 3.2%.

Not everyone in the working age population is included in the labor force. Individuals who were in the working age population but who could not be classified as employed or unemployed (a fulltime homemaker, for example) would not be counted in the labor force.

The local area unemployment rates for the cities and towns are not seasonally adjusted and are subject to periodic revision and re-benchmarking. For purposes of comparison, the state and national unemployment rates shown in this report are likewise not seasonally adjusted.

¹The definition of terms such as labor force, employed, and unemployed are based on those in *The BLS Handbook of Methods*, U.S. Bureau of Labor Statistics, 2015.

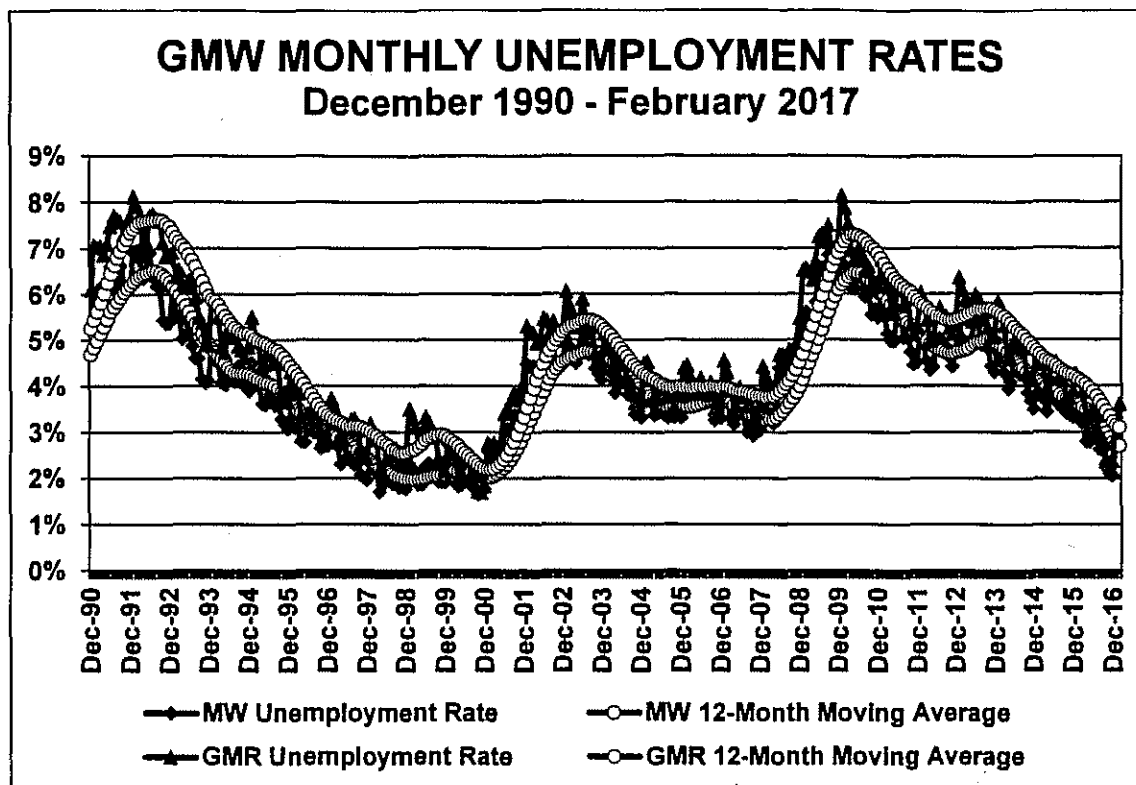
GREATER METROWEST – UNEMPLOYMENT



Source: MA EOLWD and MERC

- The annual unemployment rates for MetroWest (MW), the Greater Marlborough Region (GMR), Massachusetts (MA), and the United States (US) from 1990 to 2016 are calculated by averaging the monthly unemployment rates for each year.
- MetroWest posted an unemployment rate of 3.6% in 2016, while the Greater Marlborough Region's unemployment rate during this same year was 4.2%. Both MW's and GMR's rates were lower than Massachusetts' and the United States' rates of 4.9% and 5.2%, respectively.
- All regions experienced a decrease in unemployment rates of -0.1% from 2015 to 2016 except GMR. GMR displayed no change in its unemployment rate from 2015 to 2016. In 2016, MW posted its lowest rate since 2008.
- MetroWest and the Greater Marlborough Region have consistently posted annual unemployment rates lower than both Massachusetts and the United States except in 1991 when GMR recorded higher annual unemployment rates than the nation.

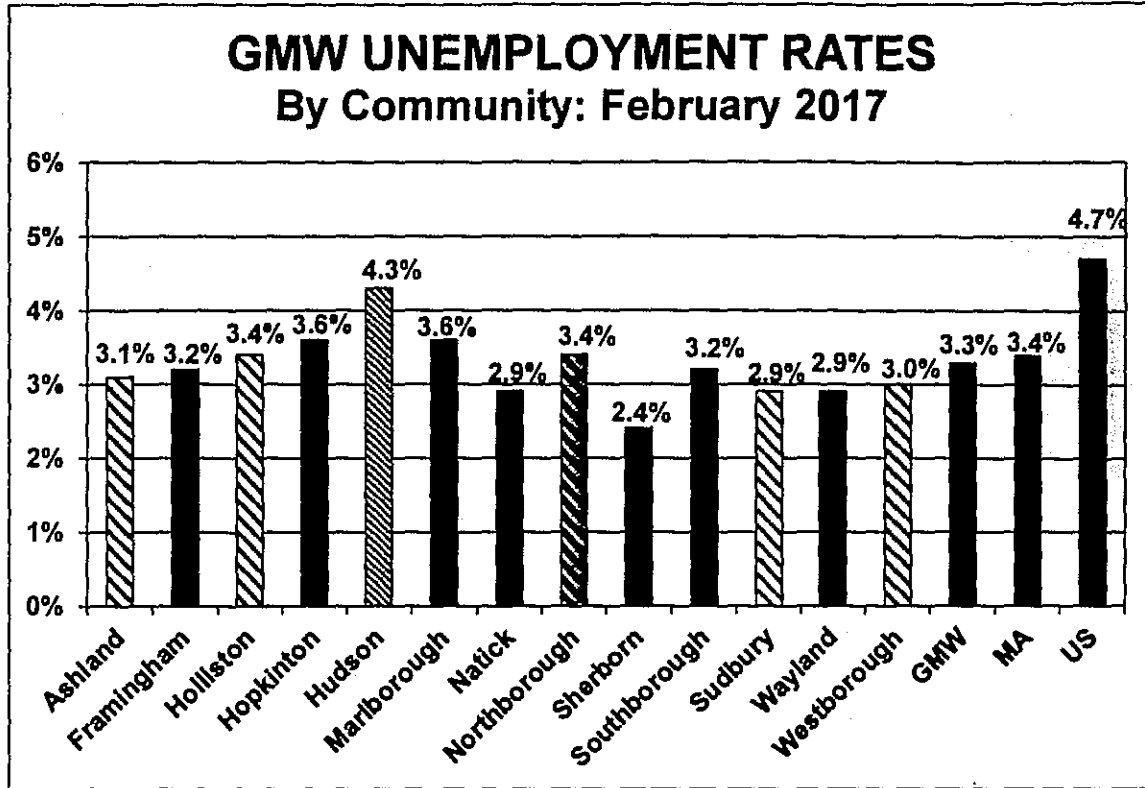
GREATER METROWEST – UNEMPLOYMENT



Source: MA EOLWD and MERC

- This graph examines the monthly unemployment rates and the 12-month moving average rates for MetroWest (MW, shown in green) and the Greater Marlborough Region (GMR, shown in orange) from December 1990 to February 2017. The 12-month moving average evens out the month-to-month variation of the data.
- During this time period, MetroWest reached its peak unemployment rate of 7.0% in February 1992, while the Greater Marlborough Region reached its peak rate of 8.1% in January 1992. MW and GMR reached their lowest unemployment rates of 1.7% in April 1998 and October 2000, respectively.
- In February 2017, MW had an unemployment rate of 3.1%, an increase of 0.2% from the previous month's rate of 2.9%. Similarly, GMR's unemployment rate rose by 0.2% from 3.4% in January 2017 to 3.6% in February 2017.
- The 12-month moving averages in both MW and GMR followed a similar pattern with their monthly rates from December 1990 through February 2017.

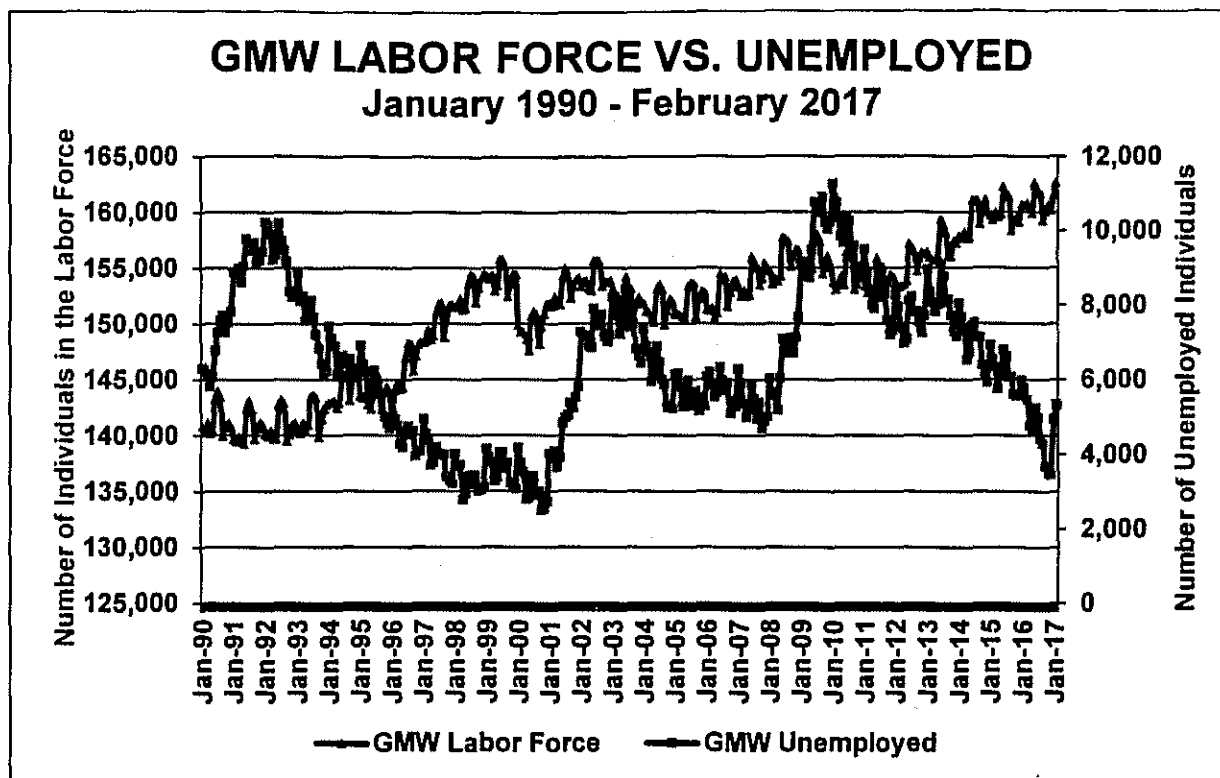
GREATER METROWEST – UNEMPLOYMENT



Source: MA EOLWD and MERC

- In February 2017, each of the thirteen communities in Greater MetroWest (GMW) posted unemployment rates lower than the nation's rate of 4.7%.
- Holliston, Hopkinton, Hudson, Marlborough, and Northborough were the five communities in the region that posted unemployment rates higher than Greater MetroWest's rate of 3.3%.
- Among the thirteen communities in Greater MetroWest, Hudson posted the highest unemployment rate in February 2017 at 4.3%. Hopkinton and Marlborough posted the next highest unemployment rates in the region with 3.6%.
- Sherborn recorded the lowest unemployment rate in February 2017 at 2.4%, followed by Natick, Sudbury, and Wayland. All three of these communities posted rates of 2.9%.

GREATER METROWEST – UNEMPLOYMENT



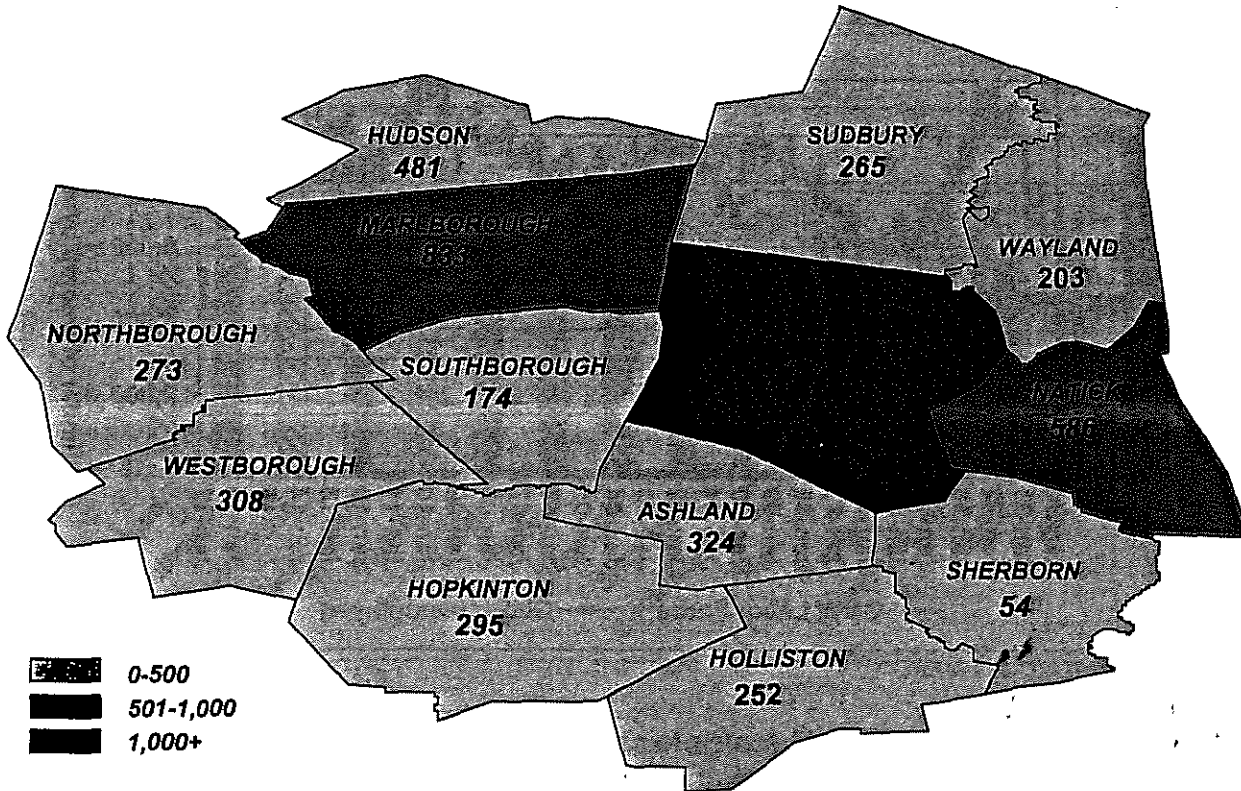
Source: MA EOLWD and MERC

- This graph uses two different scales to compare the labor force, shown in blue on the left-hand scale, to the number of unemployed individuals, shown in red on the right-hand scale, in Greater MetroWest (GMW) from January 1990 to February 2017. The labor force includes individuals aged 16 years and older who were either employed or unemployed. An individual is unemployed if he or she did not have a job, but was actively seeking employment.
- In February 2017, GMW recorded 162,634 individuals in the labor force, the highest number the region had in the last 28 years. The lowest number of individuals in the labor force in GMW was posted in May 1991 at 139,225 individuals.
- GMW reported 5,323 unemployed individuals in February 2017. The number of unemployed individuals reached its peak in January 2010 at 11,258 individuals. The region's smallest number of unemployed individuals of 2,498 was recorded in October 2000.

GREATER METROWEST – UNEMPLOYMENT

GMW NUMBER OF UNEMPLOYED

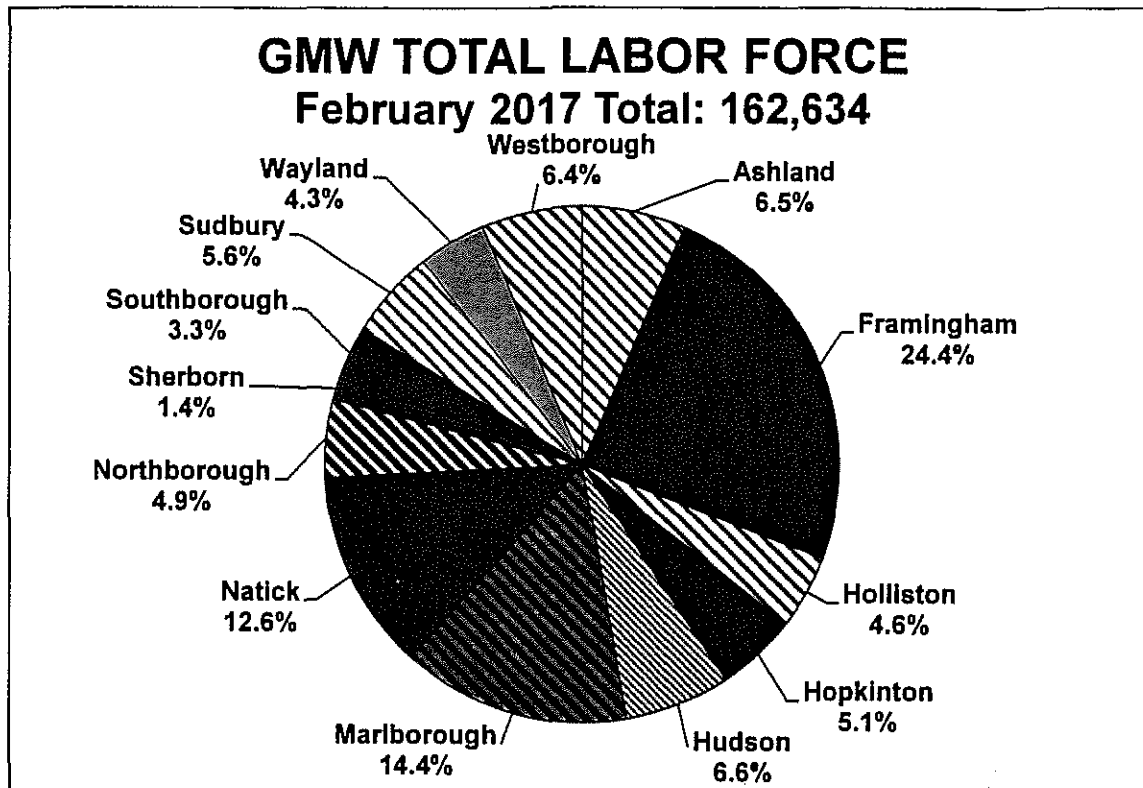
February 2017 Total: 5,323



Source: MA EOLWD and MERC

- The total number of unemployed individuals in Greater MetroWest (GMW) in February 2017 was 5,323.
- Framingham had the largest number of unemployed individuals in the entire GMW with 1,275 individuals. Marlborough and Natick followed Framingham with 833 and 586 unemployed individuals, respectively. These three communities accounted for more than half of the total unemployed individuals in Greater MetroWest.
- Among the thirteen communities in the region, Sherborn had the lowest number of unemployed individuals with 54 individuals, followed by Southborough with 174 individuals and Wayland with 203 individuals.

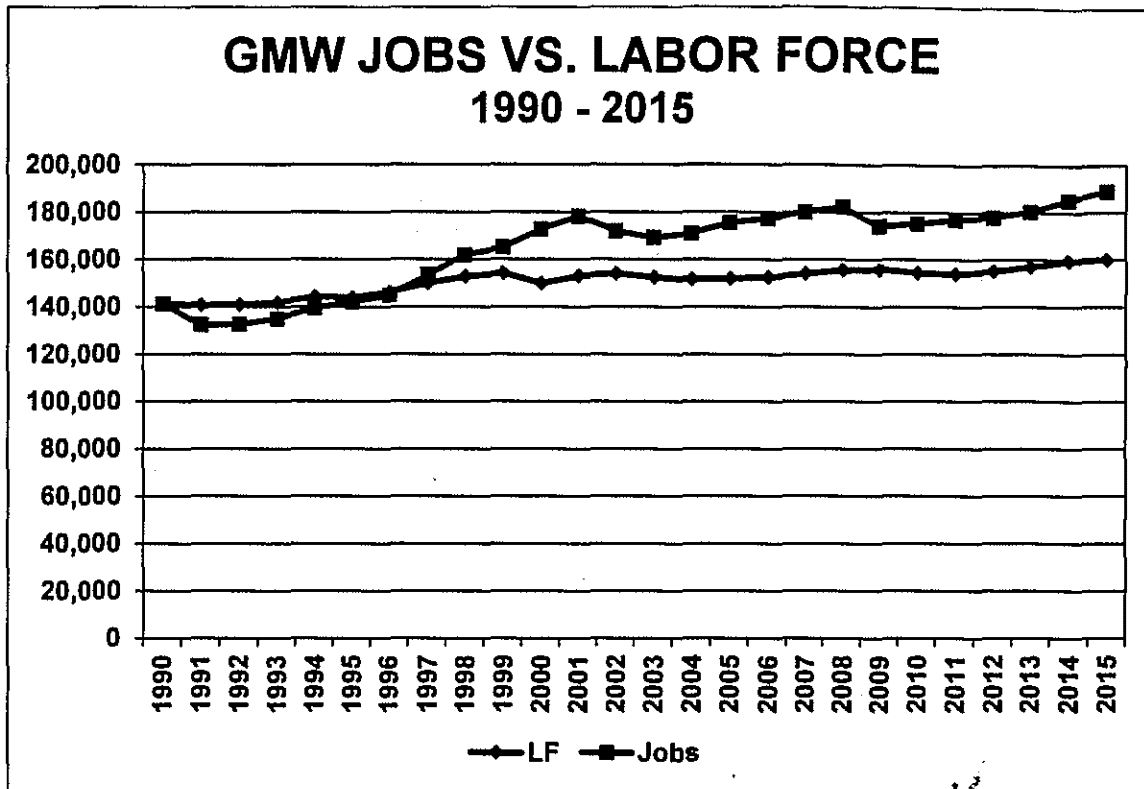
GREATER METROWEST – UNEMPLOYMENT



Source: MA EOLWD and MERC

- In February 2017, the total number of individuals in the labor force in Greater MetroWest (GMW) was 162,634 individuals.
- The nine communities that make up MetroWest (MW) accounted for 110,150 individuals or about two-thirds of the total labor force in GMW. The four communities that make up the Greater Marlborough Region (GMR), on the other hand, accounted for 52,484 individuals or about one-third of the total labor force in GMW.
- Among the communities in GMW, Framingham was the largest contributor to the total labor force in the region with 24.4% or 39,666 individuals. Marlborough and Natick were the next largest contributors with 14.4% or 23,433 individuals and 12.6% or 20,414 individuals, respectively. Together, the labor force in these three communities represented about half of the total labor force in GMW.
- Sherborn was the smallest contributor to the total labor force in GMW with only 1.4% or 2,207 individuals. Southborough followed Sherborn with a contribution of 3.3% or 5,394 individuals, and then came Wayland with a contribution of 4.3% or 6,944 individuals. These three communities altogether accounted for 9% of the total labor force in the region.

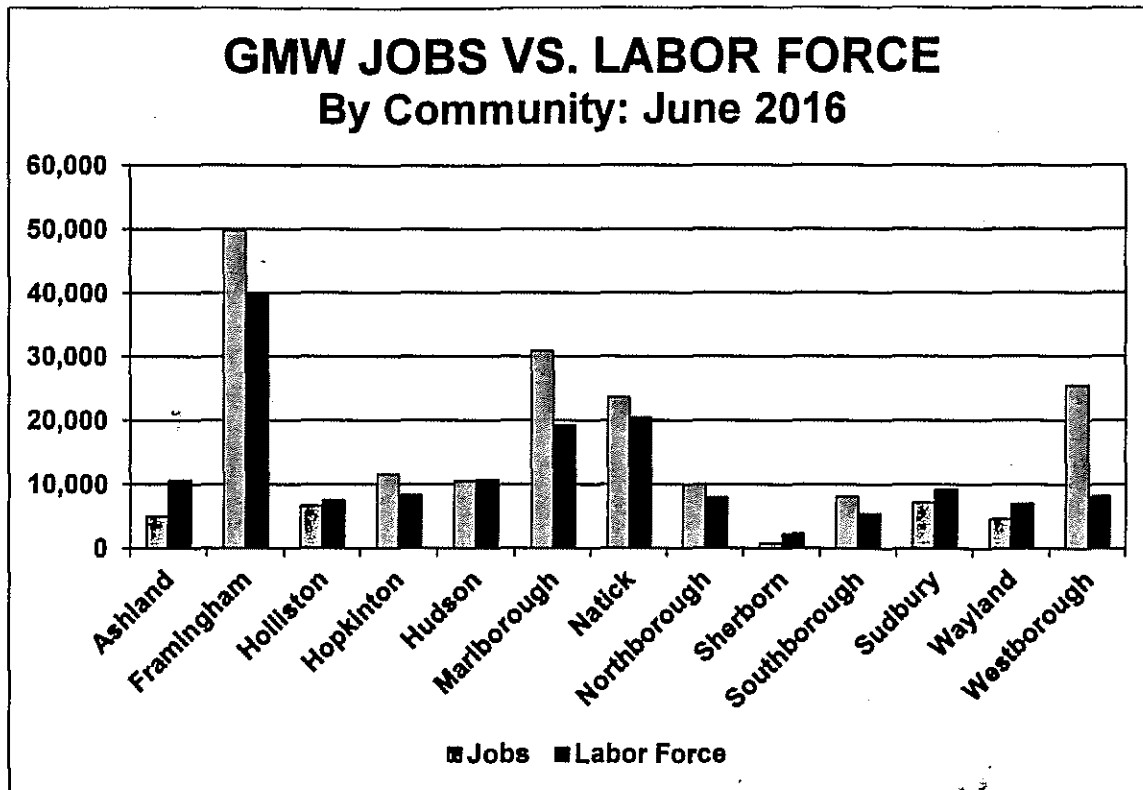
GREATER METROWEST – UNEMPLOYMENT



Source: MA EOLWD and MERC

- The total number of jobs, depicted in green, refers to the total number of jobs in establishments located in Greater MetroWest (GMW). The total number of individuals in the labor force, depicted in purple, consists of residents in GMW that are currently employed or unemployed.
- From the years 1990 through 1996, the number of jobs in GMW was less than the number of individuals in the labor force, indicating that the region was a net exporter of labor during this seven-year period. From 1997 to 2015, however, the number of jobs in GMW was greater than the number of individuals in the labor force, indicating that the region was a net importer of labor.
- From 1990 through 2015, both the total number of jobs and individuals in the labor force reached their respective peaks in 2015.
- In 2015, the total number of jobs in GMW was 189,078, and the total number of individuals in the labor force was 159,955. During this year, there were 29,123 more jobs than individuals in the labor force.

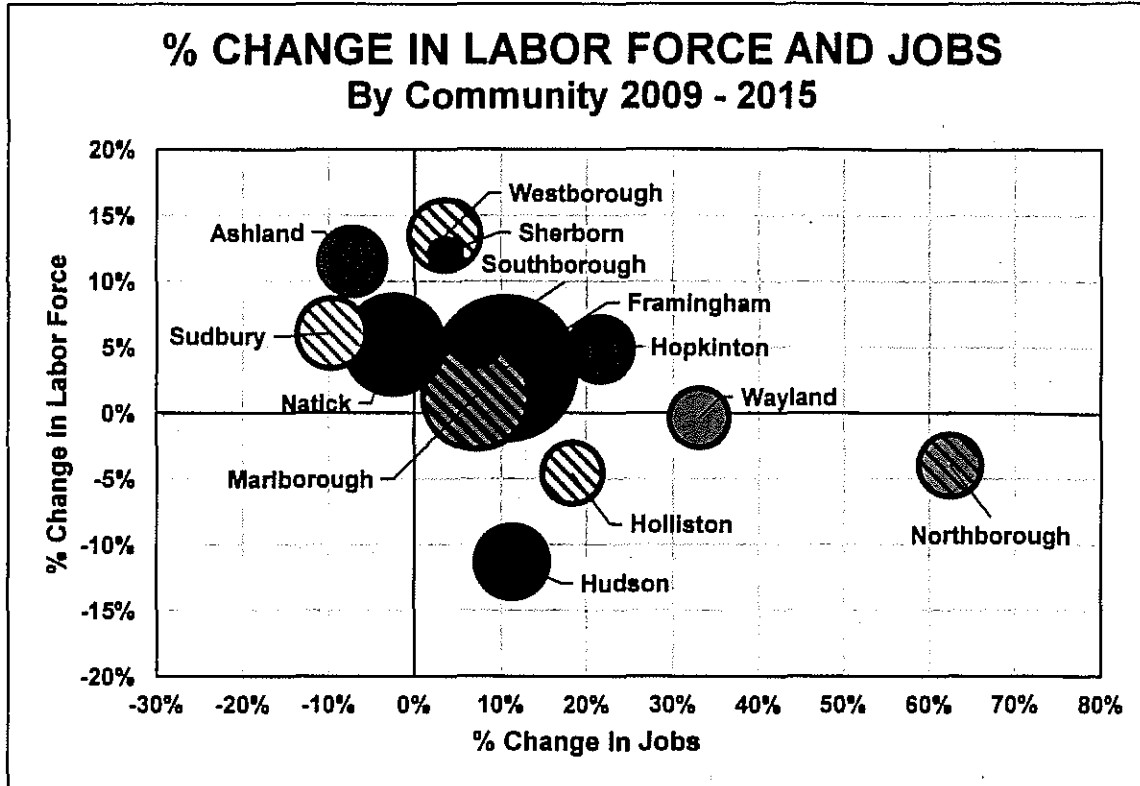
GREATER METROWEST – UNEMPLOYMENT



Source: MA EOLWD and MERC

- The total number of jobs, shown in yellow, is compared to the total number of jobs in the labor force, shown in blue, for each community in Greater MetroWest (GMW). Jobs refer to the number of jobs in the establishments that are located in each community while the labor force consists of all residents in each community who are either currently employed or unemployed.
- As of June 2016, there was a total of 193,571 jobs in GMW. Framingham had the highest number of jobs available during this month with 49,751 jobs. Marlborough followed Framingham with 30,872 jobs available. Westborough and Natick came next with 25,422 and 23,577 available jobs, respectively. These four communities combined were responsible for two-thirds of the total available jobs in the region.
- Framingham, Hopkinton, Marlborough, Natick, Northborough, Southborough, and Westborough had more jobs available than individuals in the labor force, indicating that these seven communities were net importers of labor.
- The remaining six communities, however, had more individuals in the labor force than number of jobs available, implying that these six communities were net exporters of labor.

GREATER METROWEST – UNEMPLOYMENT



Source: MA EOLWD, US Census Bureau, MERC

- The above graph compares the percentage change in the Greater MetroWest (GMW) annual employment by community from 2009 to 2015 (x-axis) with the percentage change in the labor force of each community (y-axis). In 2015 GMW employment reached a record of 189,100 jobs. Circle size reflects the population of each community in 2015.
- Northborough, Holliston, Hudson and Wayland experienced an increase in employment, but saw a decrease in their labor force. Northborough, for instance, increased its employment by 62.4% over the period, the highest in the region, but saw a 4% decrease in its labor force.
- Ashland, Natick and Sudbury experienced an increase in labor force, but saw a decrease in employment. Of the three communities, Ashland experienced the largest increase in labor force at 11.5%, but decreased its employment by 7.2%.
- Framingham, Hopkinton, Natick, Sherborn, Southborough, and Westborough each experienced an increase in both employment and labor force. Of the six communities, Hopkinton experienced the highest growth in employment at 21.6% while increasing its labor force by 4.8%.

GREATER METROWEST – EMPLOYMENT

EMPLOYMENT¹

The MetroWest Economic Research Center (MERC) at Framingham State University maintains an employment database for the MetroWest CCSA™, the Greater Marlborough Region, the South Shore CCSA™, the 495/MetroWest Region, the Blackstone Valley Region, and other substate economies. MERC has documented major changes in regional employment, industrial structure and wages since 1980. For this 2017 publication, MERC has developed data for Greater MetroWest (GMW).

MERC research relies on the Massachusetts Executive Office of Labor and Workforce Development (MA EOLWD), ES-202 series to develop time series for employment, payroll, wages and establishments in the Greater MetroWest region. ES-202 data are derived from quarterly census reports filed by all employers subject to unemployment laws, both state and federal, and cover 98% of all U.S. jobs. More than 150,000 MA employers subject to unemployment compensation laws participate in the quarterly census.

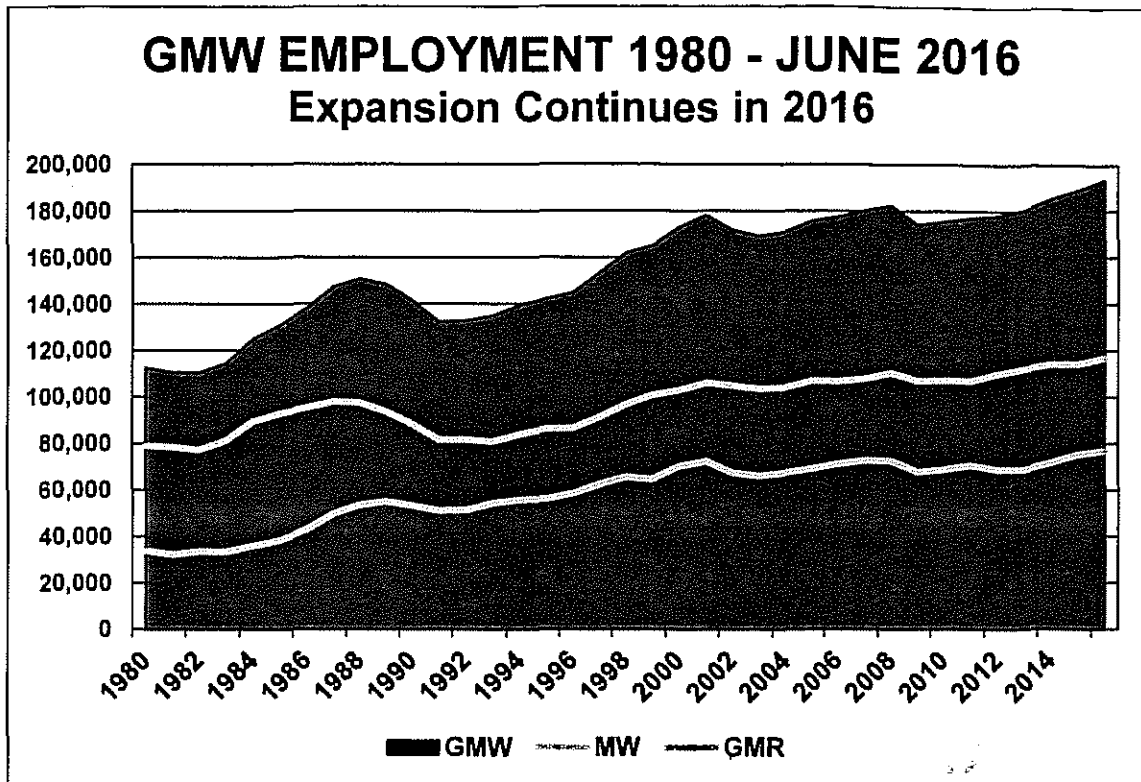
For the first time in 2002, employers were classified by industry solely in accordance with the North American Industry Classification System (NAICS). NAICS groups together establishments that use the same processes to produce goods and services. NAICS permanently replaced the Standard Industrial Classification (SIC) system, which was in use for the previous 70 years. Because the criteria for the classification of establishments differs between NAICS and the SIC system, time series data for industrial sectors prior to 2001 cannot be provided. For a more detailed description of NAICS categories as used in this publication, please see the Appendix.

In the ES-202 series **employment** refers to the count of all persons on the payroll of establishments subject to the law, who worked full-time or part-time within the 13 communities of Greater MetroWest. Annual **payroll** includes all wages and salaries paid to covered employees including commissions, bonuses, stock options, overtime and sick pay. The **average annual wage** is derived by dividing the gross annual payroll by the average annual employment. **Establishment** or place of work refers to an economic that produces goods or services at a single location and is engaged in one type of economic activity. A firm therefore may have one or more establishments where work is produced. More complete definitions are included in the Appendix.

Please note that all data and analysis included in this section (*Greater MetroWest - Employment*) refer to business establishments, *not* residents, located within the 13 communities. Please also note that totals may not always add due to rounding.

¹The definitions of terms are based on those in the *Handbook of U.S. Labor Statistics (1998)*, *Employment and Wages in Massachusetts and the Major Metropolitan Statistical Areas Annual Averages 1993-1996*, the *North American Industry Classification System - United States, 2002*, www.bls.gov/cew, and MA EOLWD, *Employment and Wages by Industry and Area (ES202)*.

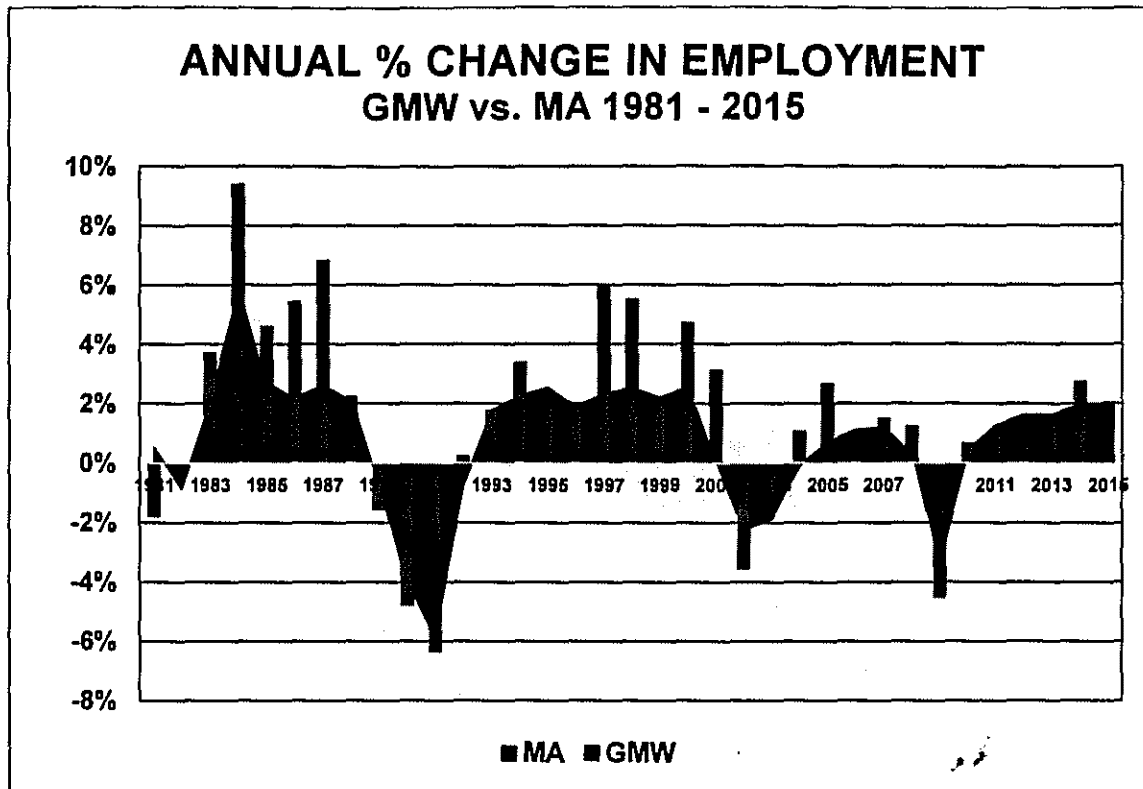
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- In 2015 Greater MetroWest (GMW) annual employment reached a record 189,100, up 3,800 jobs or 2% since 2014. By June 2016 monthly GMW employment had climbed to 193,600.
- In 1980 GMW employment totaled 112,400 jobs. By 2015 GMW employment had reached 189,100 jobs, a gain of 76,700 or 68.2% over the 36-year period. During this period employment rose at average annual rate of 1.5%.
- Since 1980 GMW experienced three business cycles with peaks in 1988, 2001, and 2008, a new high in 2015, and troughs in 1982, 1991, 2003 and 2009.
- In the Great Recession of 2008 GMW lost 8,200 jobs. Since that downturn, the region steadily recovered, exceeding its 2008 peak in employment in 2014.
- In 2015 both the MetroWest and Greater Marlborough Region reached historical highs of 114,100 and 75,000 jobs, respectively.

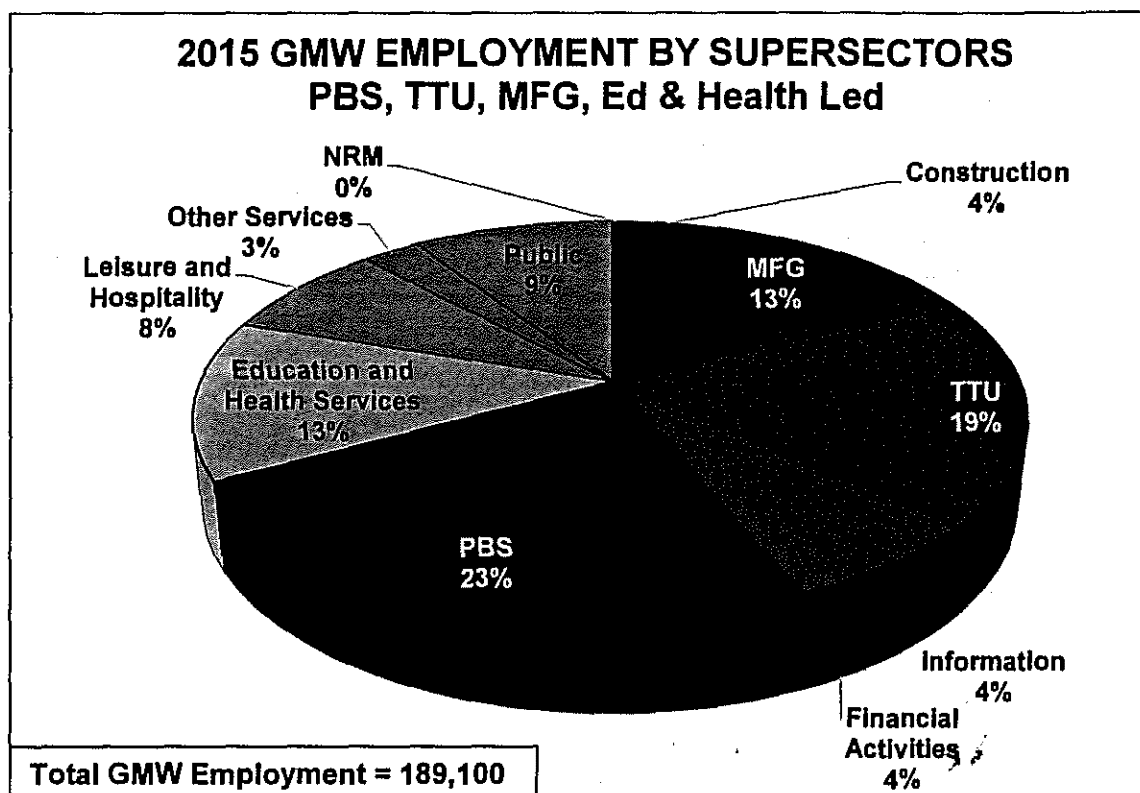
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- Over the past thirty-six years, the Greater MetroWest (GMW) and Massachusetts has faced four recessions and four expansions.
- The annual percentage net change in GMW employment ranged from a high of 9.4% in 1984 to a low of -6.3% in 1991. The annual percentage net change in MA employment ranged from a high of 5.8% in 1984 to a low of -5.9% in 1991.
- Since 1980 GMW employment rose at an average annual growth rate of 1.5%, nearly twice the annual rate of increase for Massachusetts, 0.8%.
- However, since 2001, employment in both the region and state struggled. Declines during two recessions offset growth so that the average annual percentage net change in employment for 2001 to 2015 was just 0.6% for GMW and 0.3% for Massachusetts. Alternatively, we can interpret these changes in average growth rates as a moderation of the business cycle in both the state and the GMW region, with less fluctuation in employment.

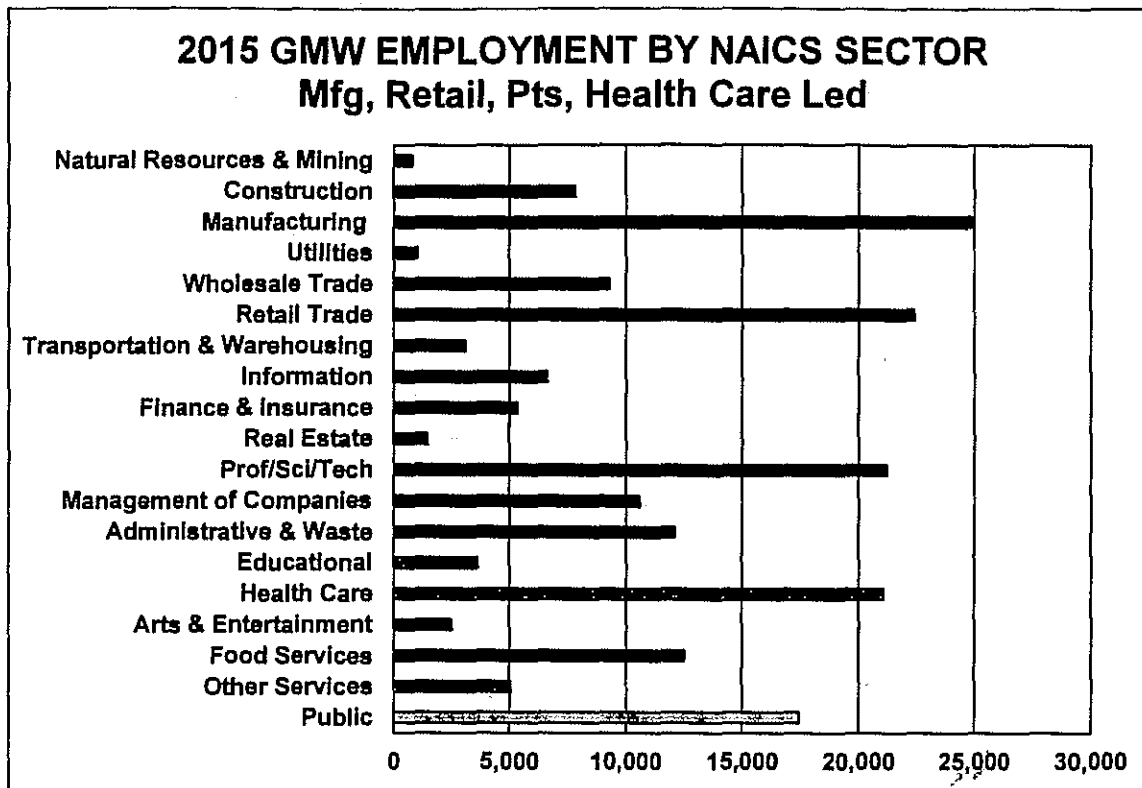
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- In 2015, Greater MetroWest (GMW) employment reached a record high of 189,100 jobs, an increase of 3,800, or 2% from 2014.
- Professional and Business Services (PBS) continued to produce the largest share of GMW employment at 43,900 jobs or 23% of the regional total. Trade, Transportation and Utilities (TTU) produced the second largest share at 35,800 jobs or 19%. Manufacturing (24,900) and Education & Health Services (24,700) each produced 13% of jobs in the region.
- Together four supersectors: PBS, TTU, Manufacturing and Education & Health combined to produce 129,000 jobs, over two-thirds of GMW employment.
- Two supersectors provided between 5% and 10% of regional employment: Public (17,500 or 9%) and Leisure & Hospitality (15,000 or 8%).
- The five remaining supersectors: Financial Activities, Information, Construction, Other Services, and Natural Resources and Mining (NRM) each contributed less than 5% of regional employment in 2015.

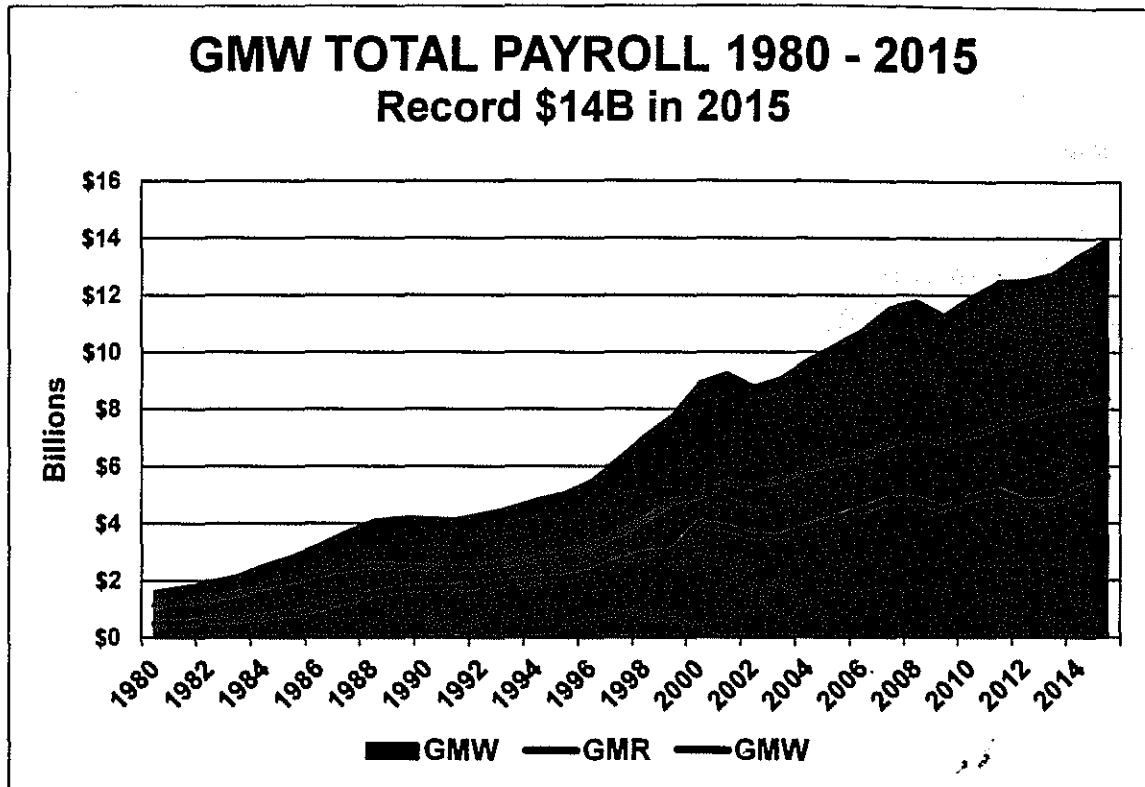
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- In 2015, Greater MetroWest (GMW) employment reached a record high 189,100 jobs, a 2% gain from 2014.
- Manufacturing, the largest NAICS sector, generated 24,900 jobs or 13% of GMW jobs. Retail Trade, GMW's second largest NAICS sector, produced 22,400 jobs or 12%, followed by Professional, Scientific and Technical Services (PST) at 21,200 jobs or 11%, Health Care at 21,000 jobs or 11%, and Public with 17,500 jobs or 9% of GMW jobs.
- Five sectors generated between 7,000 and 13,000 jobs: Food Services (12,500 or 7%), Administrative & Waste Services (12,100 or 6%), Management of Companies (10,600 or 5%), Wholesale Trade (9,300 or 5%) and Construction (7,900 or 4%).
- The remaining sectors each produced fewer than 7,000 jobs in GMW in 2015.

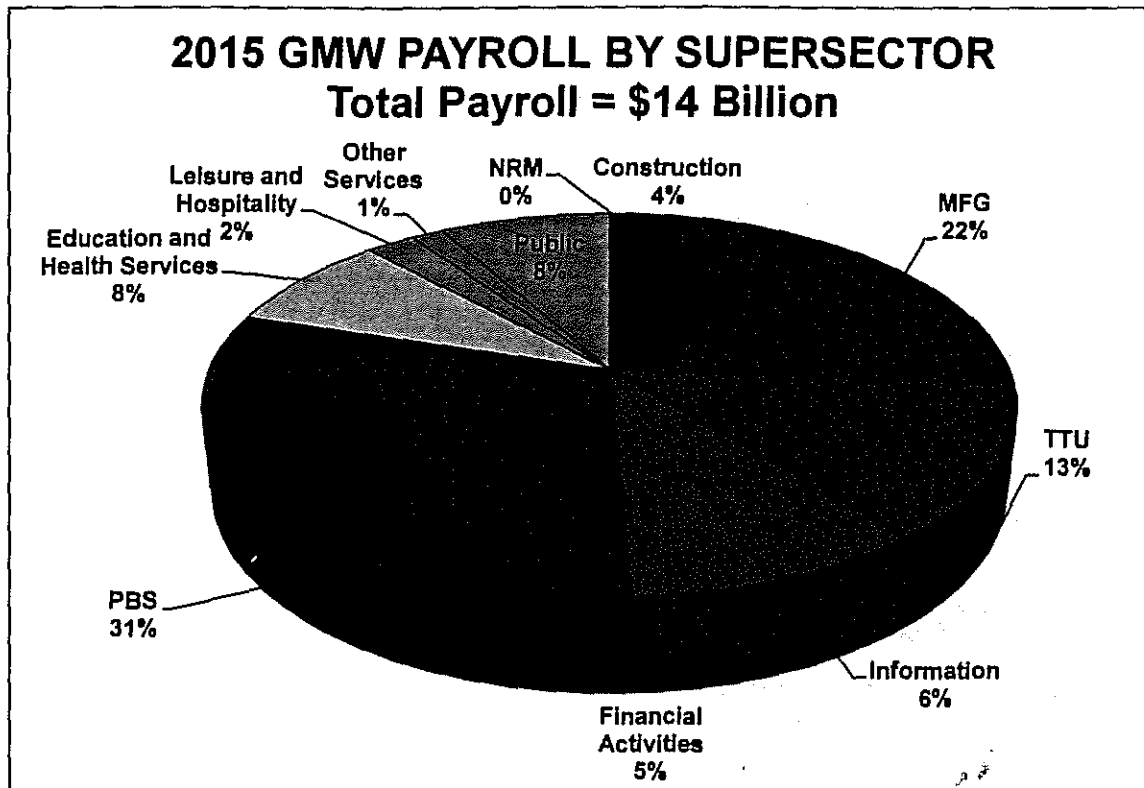
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- The Greater MetroWest (GMW) total payroll reached a historical high of \$14 billion in 2015, up 4% since 2014.
- GMW total payroll rose eightfold increasing by \$12 billion, or 764%, from \$1.6 billion in 1980 to \$14 billion in 2015. The region maintained an average annual growth rate of 6.5% over the period.
- Since 1980 total GMW payroll has climbed steadily, declining only three times during recessions.
- During the dot-com recession of 2001-02, the region's total payroll declined by \$466 million, or -5%. The Great Recession of 2008 resulted in a loss of \$504 million in total payroll, or -4.3%.
- In 2015 MetroWest (MW) payroll totaled a record \$8.3 billion while the Greater Marlborough Region payroll reached a record \$5.6 billion.

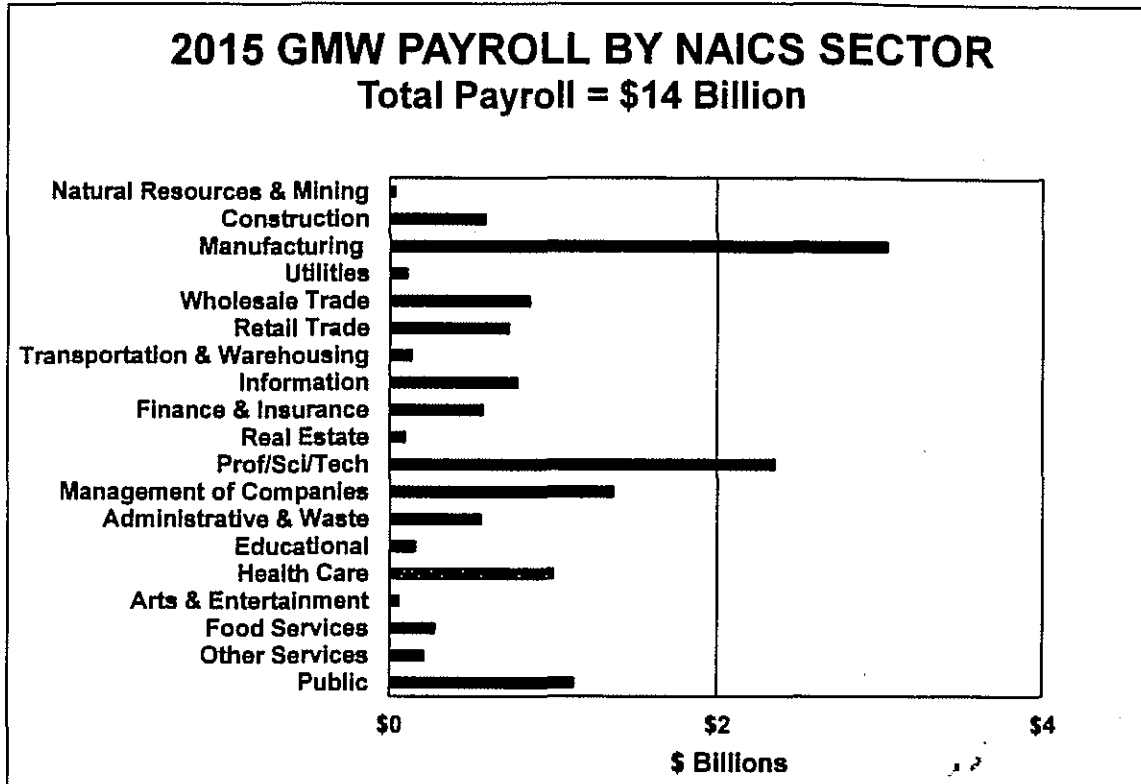
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- In 2015 total payroll in Greater MetroWest (GMW) reached a historical high of \$14 billion, increasing by \$541 million, or 4% from 2014.
- Three supersectors dominated GMW payroll in 2015. Professional and Business Services (PBS), the largest supersector in employment, also generated nearly one-third of regional payroll, \$4.3 billion or 31%. Manufacturing, the region's third largest employer, produced \$3 billion or 22%. Trade, Transportation & Utilities (TTU), second in employment, ranked third in payroll with \$1.8 billion or 13% of regional payroll. These three supersectors combined generated \$9.1 billion, or two-thirds of GMW payroll.
- Two supersectors which ranked fourth and fifth in employment each produced 8% of the region's total payroll: Education & Health Services, \$1.2 billion, and Public, \$1.1 billion.
- The remaining supersectors: Information, Financial Activities, Construction, Leisure and Hospitality, Other Services, and Natural Resources & Mining (NRM) each contributed less than 5% of total regional payroll.

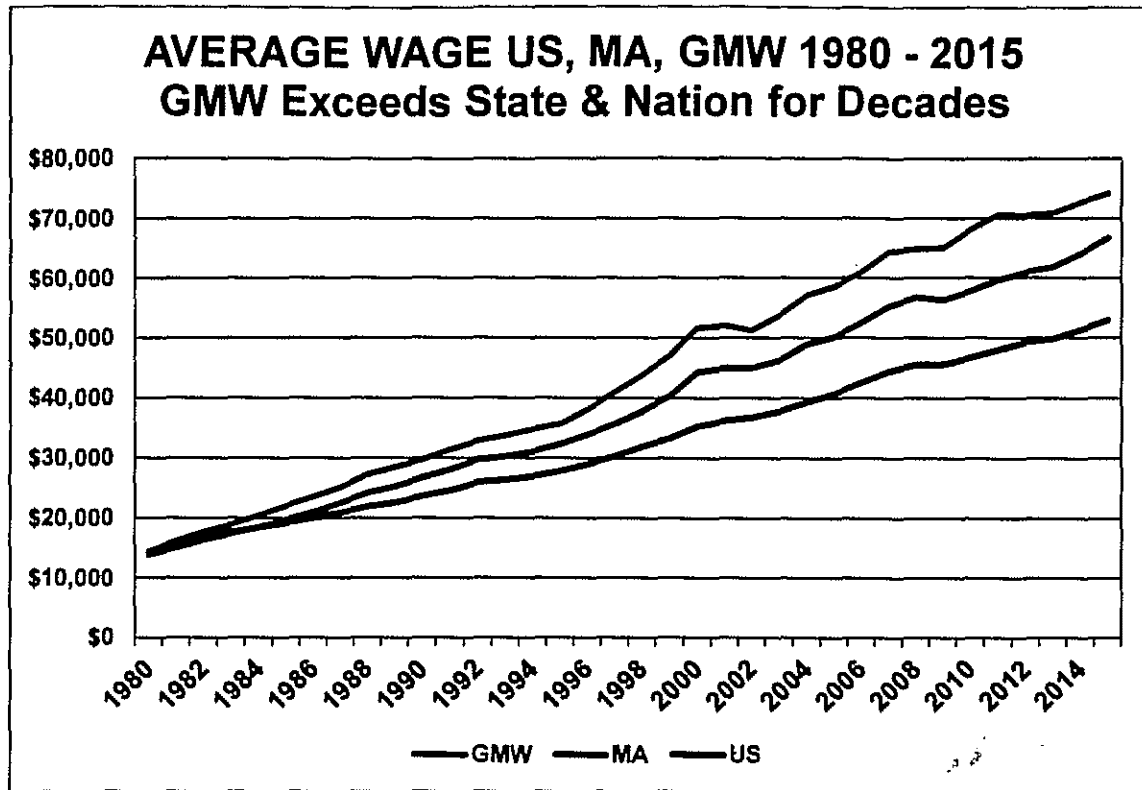
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- In 2015 Greater MetroWest (GMW) payroll totaled a record \$14 billion, up 4% from 2014.
- Among the NAICS sectors, Manufacturing produced the largest share of payroll in the region at 21.7% or \$3 billion. Professional, Scientific and Technical Services produced the second largest share, 16.8% or \$2.3 billion followed by Management of Companies and Enterprises at 9.7% or \$1.3 billion and Public with 8% or \$1.1 billion.
- The top four payroll sectors: Manufacturing, Professional and Technical Services, and Management of Companies and Enterprises produced a combined payroll of \$7.8 billion, over half of the region's total payroll.
- Seven sectors: Health Care and Social Assistance, Wholesale Trade, Information, Retail Trade, Construction, Finance and Insurance, and Administrative and Waste Services each contributed between \$500 million and \$1.1 billion in payroll.
- Real Estate & Rental and Leasing, Arts and Entertainment, and Natural Resources & Mining each produced less than \$100 million in payroll.

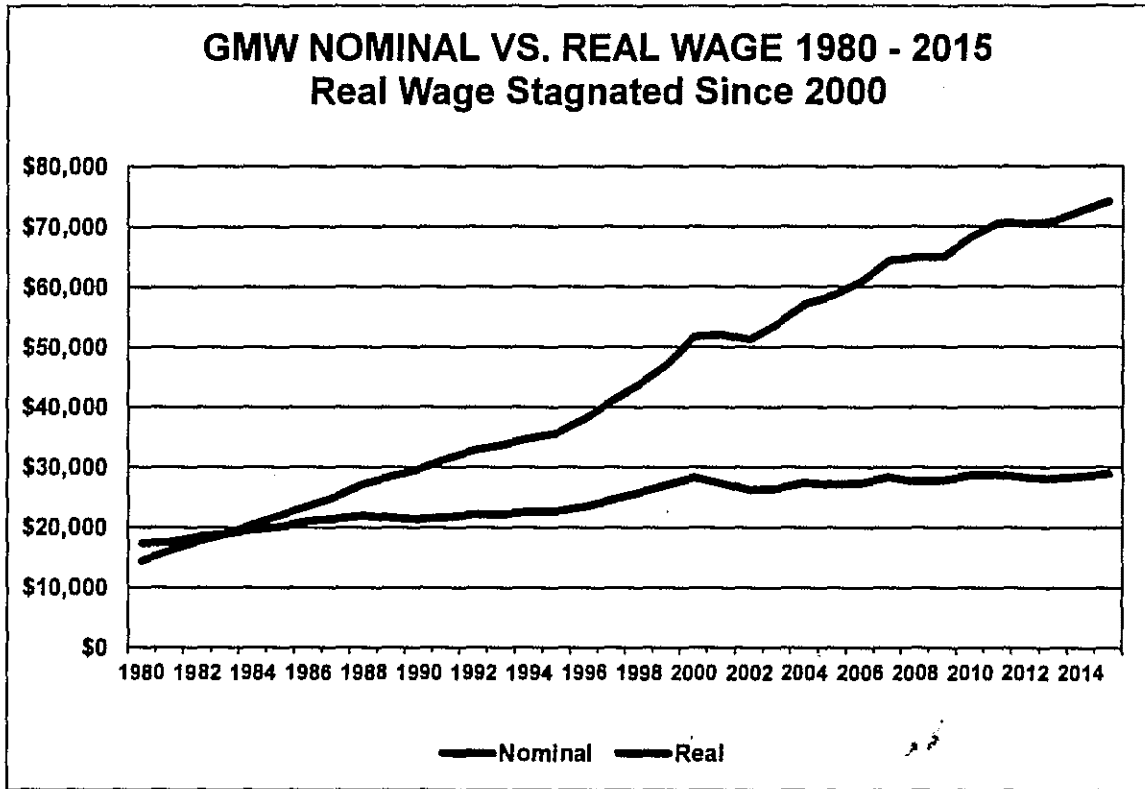
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- In 2015, the Greater MetroWest (GMW) average annual wage reached a historical high of \$74,100, up \$1,400 or 1.9% from 2014.
- In 2015 the GMW average annual wage exceeded the Massachusetts' average wage of \$66,700 by \$7,400, or 11%, and the United States' average wage of \$53,000 by \$21,000, or 39.9%.
- Over the 36-year period from 1980 to 2015 the GMW average annual wage increased by 413.7%. The average annual rate of increase of the GMW average wage was 4.8%.
- In 1980 the average wages for GMW, Massachusetts, and the U.S. were very similar, around \$14,000. Over the next 36 years the wage gap between the region, state and nation widened substantially. The one exception occurred when the wage gap between the region and state narrowed slightly during the 2001-03 dot-com recession.

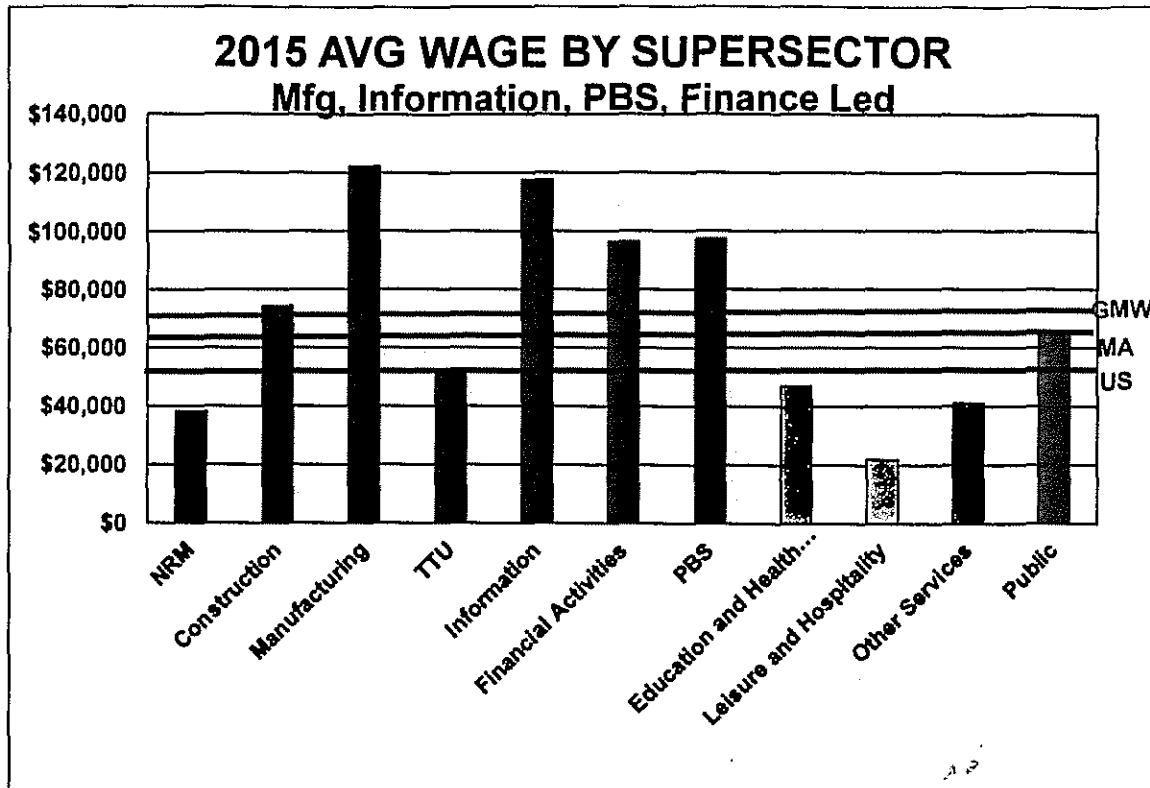
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- In 2015, the Greater MetroWest (GMW) nominal wage (green) reached a record \$74,100, up 1.9% from 2014. The nominal wage is measured in current dollars and not corrected for inflation.
- The GMW nominal average annual wage climbed by 413.7% from \$14,400 in 1980 to \$74,100 in 2015.
- The GMW real wage (purple) is the average annual nominal wage corrected for inflation using the Boston Consumer Price Index (CPI) for all Urban Wage Earners and Clerical Workers.
- The GMW average annual real wage increased by 66.5% from 1980 to 2015 reaching \$28,950. However, the increase in real wage occurred largely in the first two decades of the period (1980-2000).
- From 2000 to 2015 the GMW average annual real wage rose by only \$600, a gain of only 2.2% over 15 years.

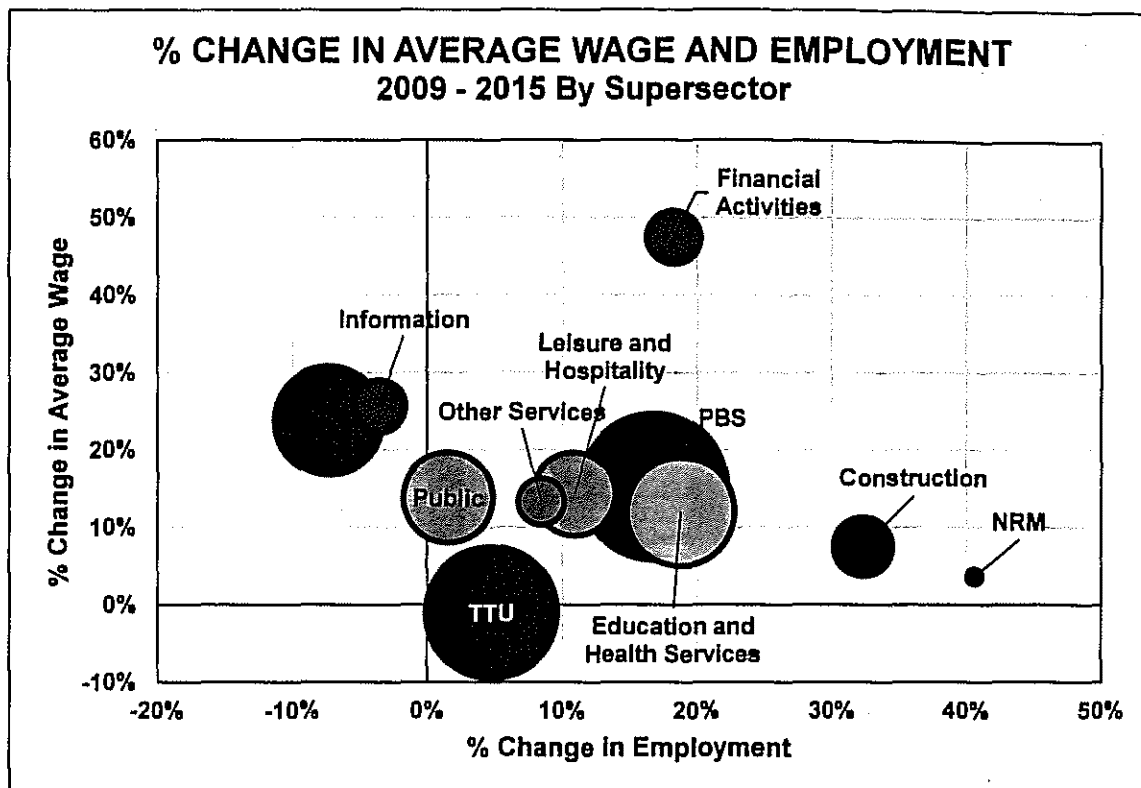
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- In 2015 the average annual wage for Greater MetroWest (GMW) was a record \$74,100, 11% higher than the Massachusetts average annual wage of \$66,700, and 39.9% higher than the United States average annual wage of \$52,900.
- Among all supersectors Manufacturing generated the region's highest annual average wage, \$122,000, followed by Information (\$117,000), PBS (\$97,000), and Financial Activities (\$96,400).
- The average wage in five supersectors in GMW: Construction, Manufacturing, Information, Financial Activities and PBS exceeded both the state and U.S. average annual wage.
- However, the average annual wage in five supersectors: Natural Resources & Mining, Trade, Transportation & Utilities, Education and Health, Leisure and Hospitality, and Other Services was lower than both the state and U.S. average annual wage.
- Leisure and Hospitality posted the lowest annual average wage at \$22,000. The average wage in the Leisure and Hospitality supersector was less than one-fifth of the average wage in the Manufacturing supersector.

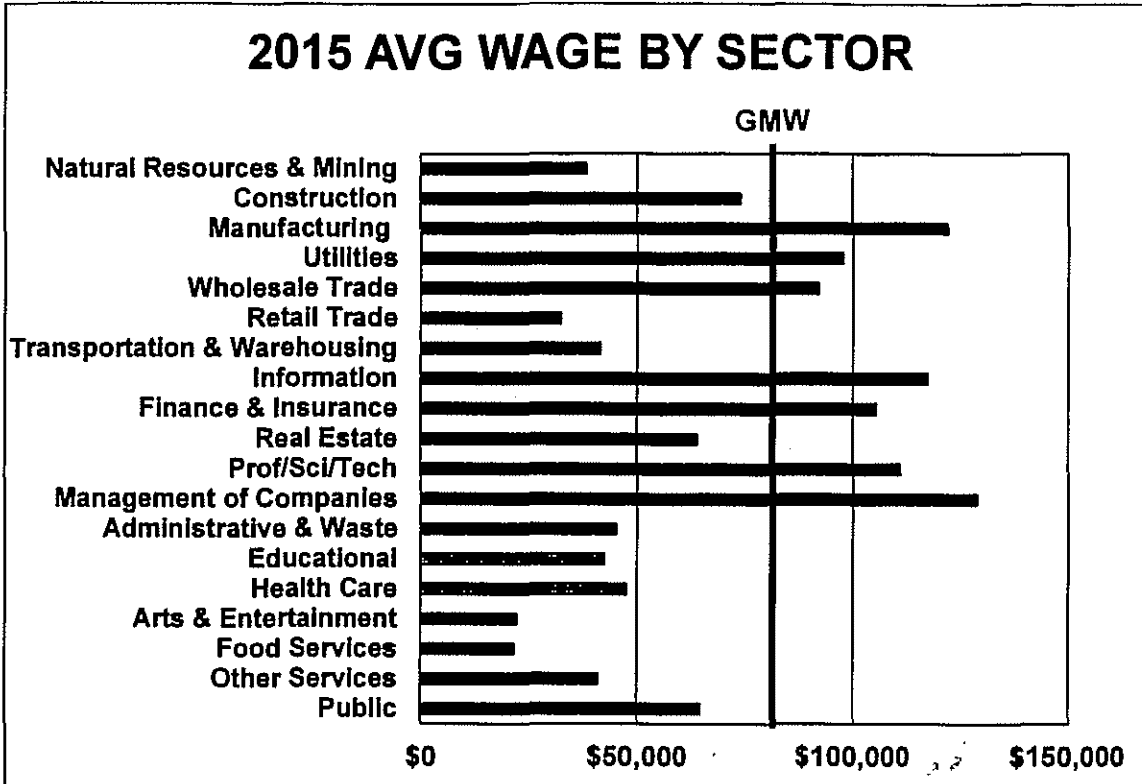
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- The graph above compares percent change in Greater MetroWest (GMW) annual employment by supersector from 2009 to 2015 (x-axis) with the percent change in the average wage of each supersector (y-axis). In 2015 the GMW average wage reached a record \$74,100. Circle size reflects the number of jobs in each supersector.
- Financial Activities had the highest percent change in average wage in GMW at 47.5% while also increasing its employment by 18.3%.
- Just two supersectors, Manufacturing (-7.3%) and Information (-3.6%), lost jobs over the period, however, both supersectors increased their average annual wage by 23.8% and 25.6%, respectively.
- Natural Resources & Mining (40.6%) and Construction (32.3%) added jobs at the highest rate in the region, yet they saw relatively low growth rates in average wage at 3.5% and 7.5%.
- Professional and Business Services, the region's largest producer of jobs, increased its average annual wage and number of jobs by 15.2% and 16.8%. The region's second largest producer of jobs, Trade, Transportation and Utilities, decreased its average annual wage by 1% and increased jobs by 4.7%.

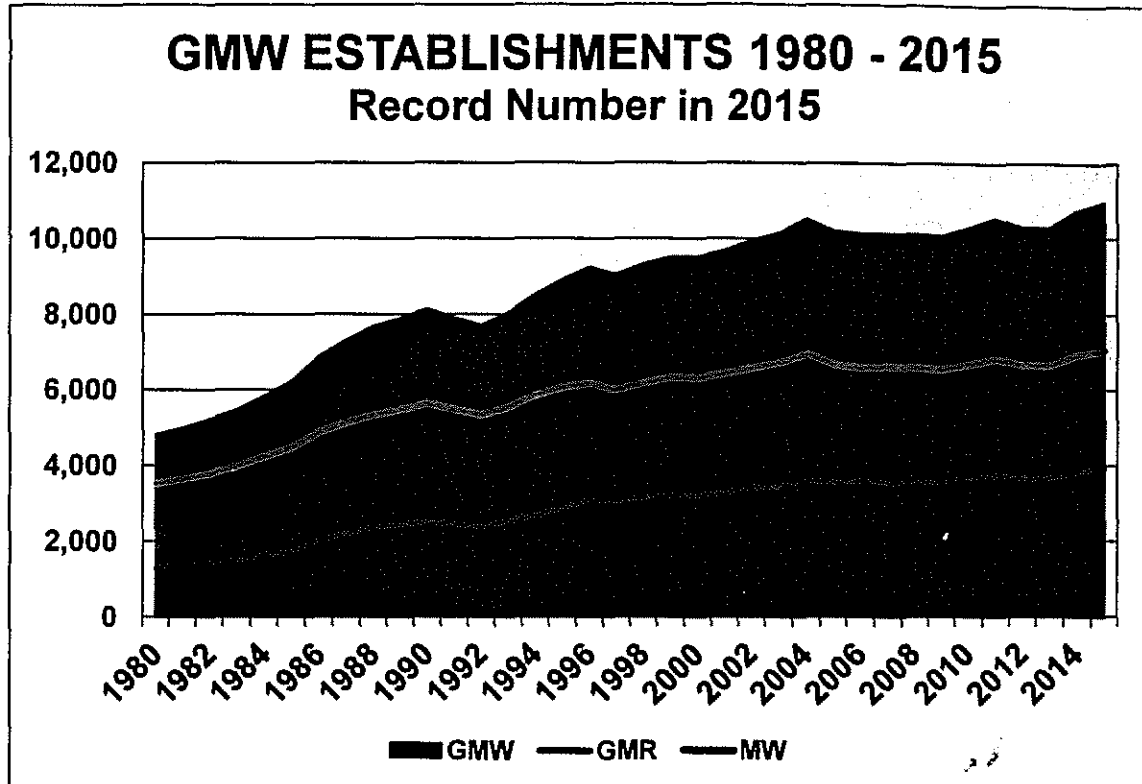
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- In 2015 the average annual wage in Greater MetroWest (GMW) was \$74,100.
- Among the NAICS sectors, Management of Companies produced the highest average annual wage at \$128,900. Manufacturing offered the second highest average annual wage at \$122,200, followed by Information at \$117,600.
- Average annual wages in five sectors: Management of Companies (\$128,900), Manufacturing (\$122,200), Information (\$117,600), Professional, Scientific & Technical Services (\$111,100), and Finance & Insurance (\$105,400) exceeded \$100,000.
- Eight sectors: Health Care (\$47,700), Administrative & Waste (\$45,400) Education (\$42,600), Other Services (\$41,100), Natural Resources & Mining (\$38,300), Retail Trade (\$32,300), Arts & Entertainment (\$22,400), and Food Services (\$21,700) offered an average annual wage of less than \$48,000.

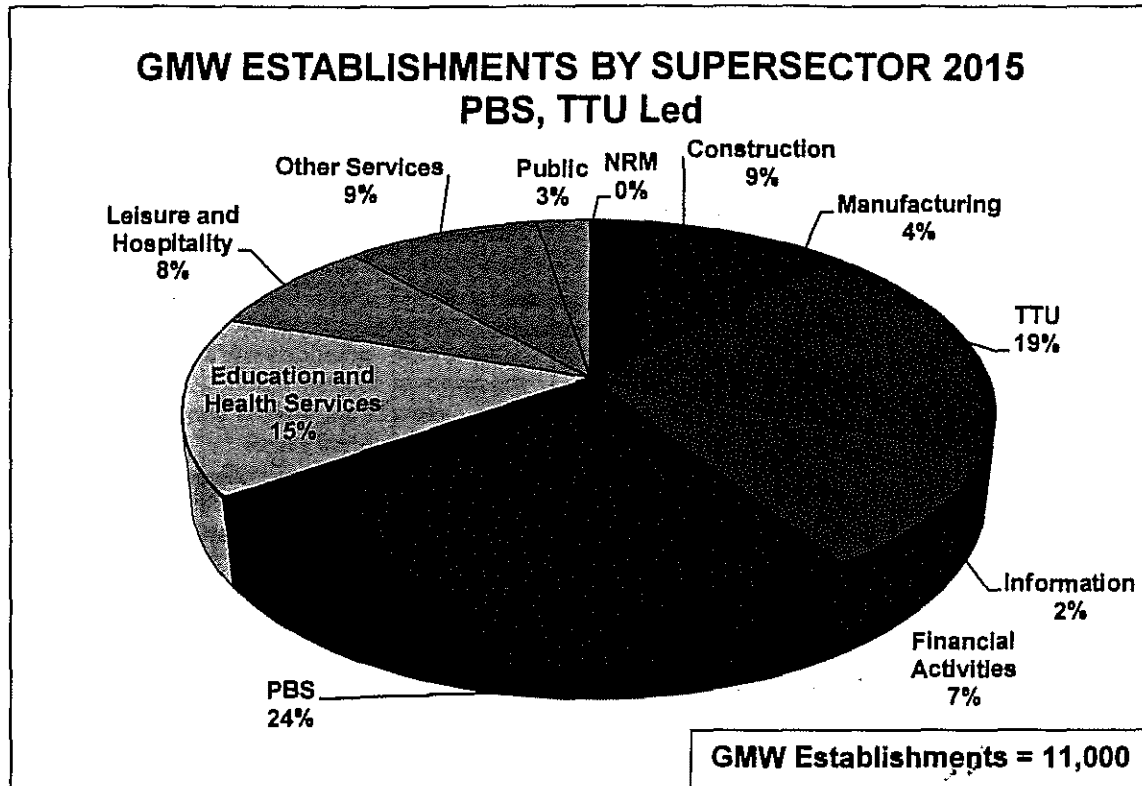
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- The number of establishments or separate places of work in Greater MetroWest (GMW) totaled a record high of 10,990 in 2015, up 230 establishments, or 2.1%, from 2014.
- The region's total number of establishments more than doubled between 1980 and 2015 rising by 6,170, or 128%, over the 36-year period.
- Since 2014 Massachusetts' number of establishments increased since 2014 by 6,800, or 3%, and the United States rose by 161,500, or 2%.
- It is interesting to note that the number of GMW establishments remained relatively stable during the Great Recession of 2008 despite the loss of 8,000 jobs in the region.
- The region's sharpest decline in total establishments occurred between 1990 and 1992, when GMW lost 430 places of work, a 5.3% decline.

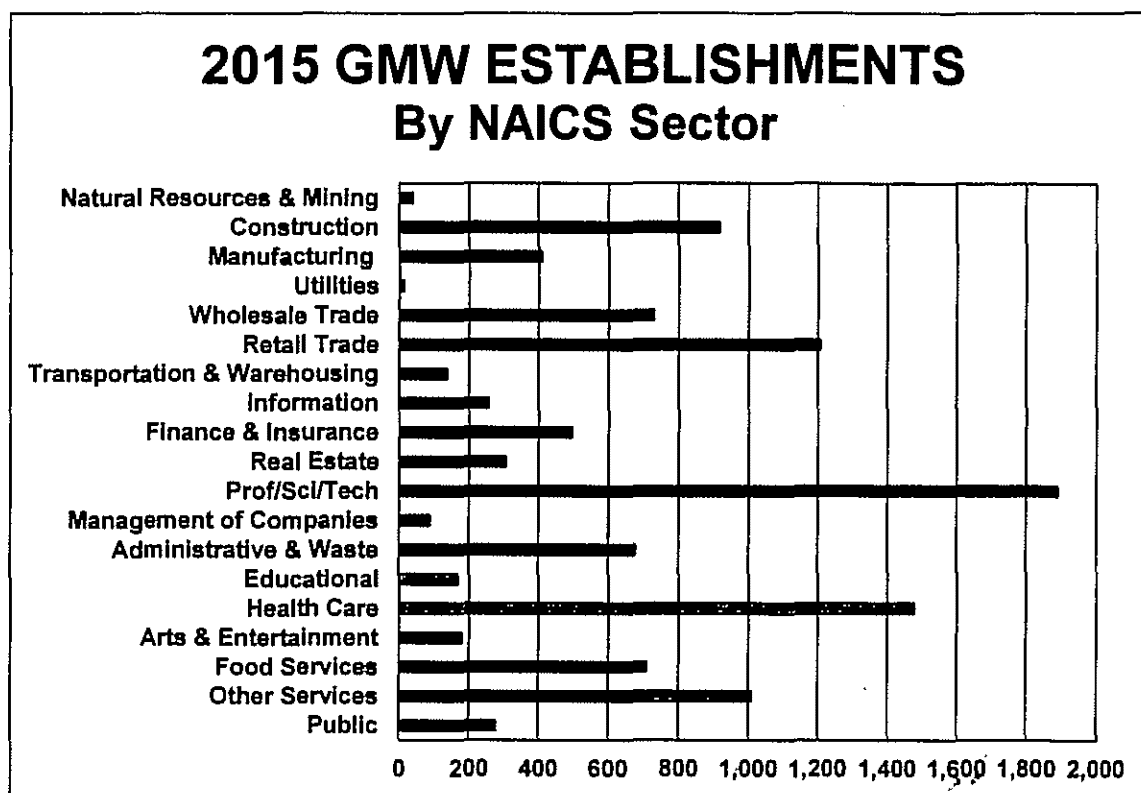
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- In 2015 the number of Greater MetroWest (GMW) establishments or separate places of work reached 11,000, up 2.1% from 2014. Three supersectors dominated the region contributing more than 6,400 or 58% of all GMW establishments.
- Professional and Business Services (PBS) led with the most establishments in the region, 2,650, or 24% of the region's total establishments. Trade, Transportation and Utilities (TTU) followed with 2,090, or 19% of the region's establishments. Education and Health Services had 1,640 separate places of work or 15% of the region's establishments.
- Four supersectors: Construction, Other Services, Leisure and Hospitality, and Financial Activities contributed between 5% and 10% of all establishments.
- Four supersectors contributed 5% or less to the regional establishments: Manufacturing (MFG), Public, Information, and Natural Resources & Mining (NRM).

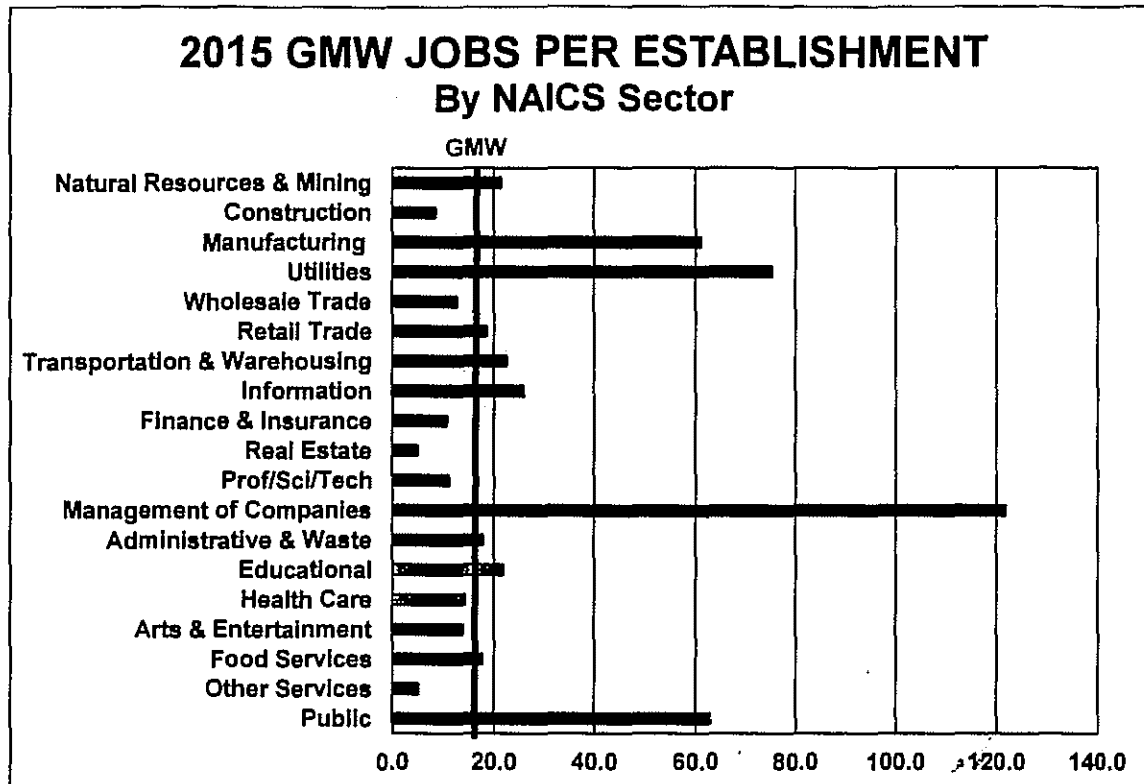
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- In 2015 the number of establishments or separate places of work in the Greater MetroWest region (GMW) totaled 11,000, up 230 or 2.1% from 2014.
- Among the NAICS sectors Professional and Technical Services (Prof/Sci/Tech) contributed the largest number of establishments (1,890), or 17.2% of all regional establishments.
- Health Care provided the second largest number of establishments with 1,480 or 13.5%, followed by Retail Trade with 1,210 or 11%, Other Services with 1,010 or 9.2%, Construction at 920 or 8.4%, Wholesale Trade with 730 or 6.6%, and Food Services with 710 or 6.5%.
- Seven sectors: Professional and Technical Services (Prof/Sci/Tech), Health Care, Retail Trade, Other Services, Construction, Wholesale Trade, and Food Services combined produced 7,940 establishments or 72% of GMW establishments.
- Six sectors: Administrative & Waste Services, Finance & Insurance, Manufacturing, Real Estate, Public, and Information each provided between 200-700 GMW establishments.

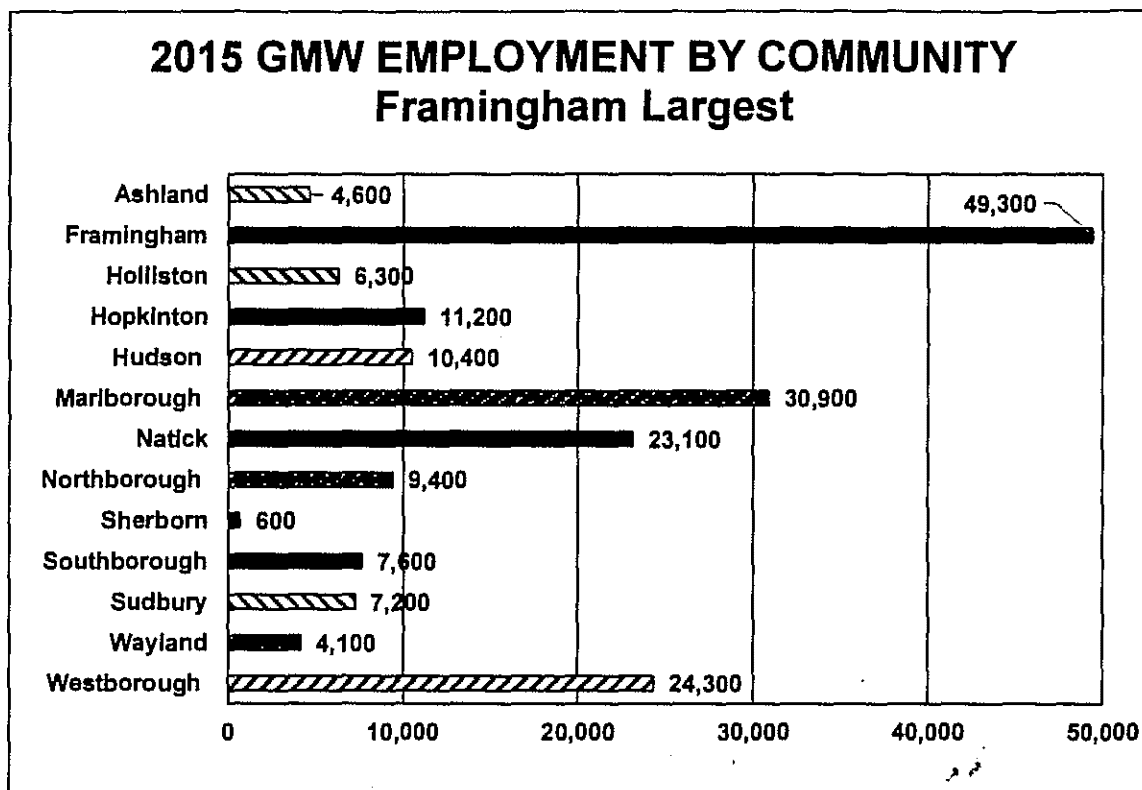
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- The number of jobs per establishment is calculated by dividing the total number of jobs by the total number of establishments in each NAICS sector. The region averaged 17.2 jobs per establishments in 2015 (green vertical line), higher than Massachusetts (14.2) and the United States (14.6).
- Among the NAICS sectors, Management of Companies and Enterprises led with 122 jobs per establishment in Greater MetroWest (GMW).
- Utilities had the second largest number of jobs per establishment (75), followed by Public (63), Manufacturing (61), Information (26), Transportation and Warehousing (23), Educational Services (22), and Natural Resources & Mining, or NRM (21).
- Eight Sectors: Retail Trade, Administrative & Waste Services, Food Services, Health Care, Arts & Entertainment, Wholesale Trade, Professional, Scientific & Technical Services (PST) and Finance & Insurance each generated between 10-20 jobs per establishment.
- The remaining three sectors: Construction, Other Services and Real Estate each produced fewer than 10 jobs per establishment.

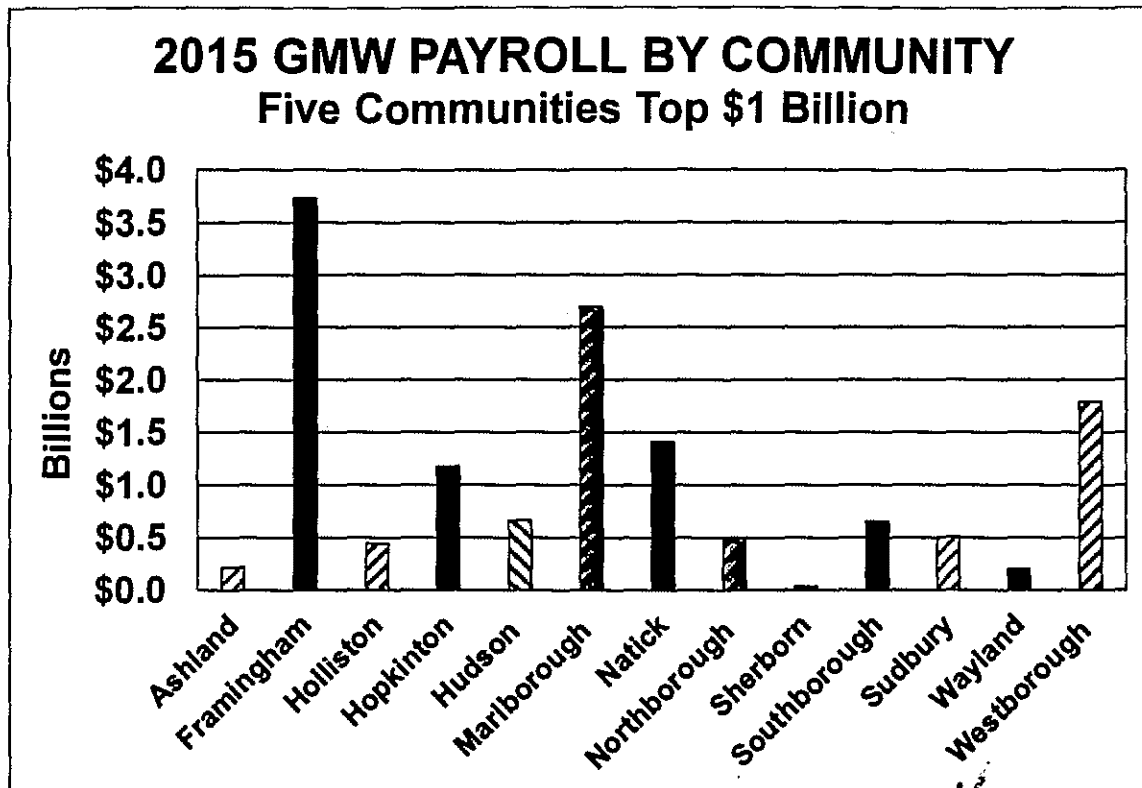
GREATER METROWEST - EMPLOYMENT



Source: MA EOLWD, MERC

- In 2015 Greater MetroWest (GMW) employment totaled 189,100 jobs, up 3,800 jobs or 2% from 2014.
- Among the thirteen GMW communities in 2015, Framingham produced the greatest number of jobs, 49,400 or 26% of regional employment. Marlborough produced the second largest share of jobs in the region at 30,900 or 16%, followed by Westborough (24,300) and Natick (23,100).
- Four communities: Framingham, Marlborough, Westborough, and Natick each generated more than 20,000 jobs. Together, these four communities accounted for 127,600 jobs, or two-thirds of regional employment.
- Six communities (Northborough, Southborough, Sudbury, Holliston, Ashland and Wayland) contributed between 5,000 and 12,000 jobs. The remaining communities had fewer than 5,000 jobs.

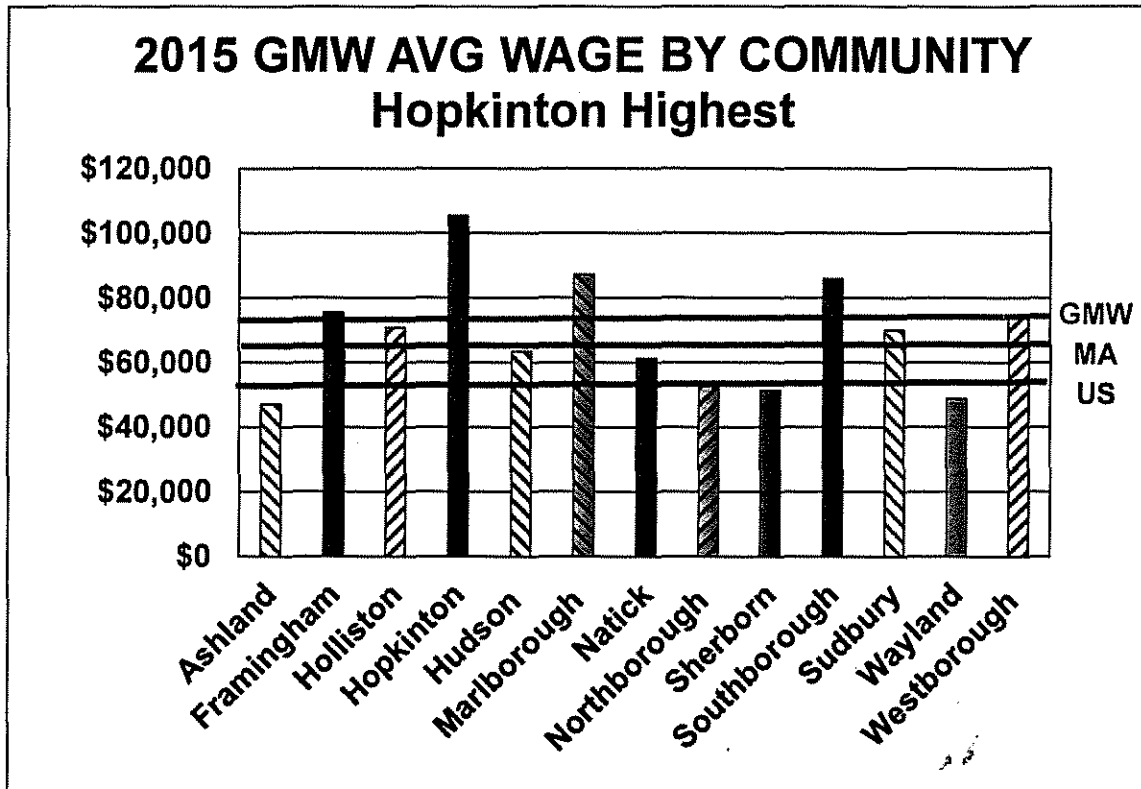
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- Greater MetroWest (GMW) businesses produced a total payroll of \$14 billion in 2015, up 4% since 2014.
- Five communities: Framingham (\$3.7 billion), Marlborough (\$2.7 billion), Westborough (\$1.8 billion), Natick (\$1.4 billion), and Hopkinton (\$1.2 billion) each produced payrolls over \$1 billion. Combined, these five communities generated a payroll of \$10.8 billion or 77% of the total GMW payroll.
- Three GMW communities: Hudson (\$662 million), Southborough (\$654 million), and Sudbury (\$506 million) each generated between \$500 million and \$1 billion in total payroll.
- Five towns each had total annual payrolls under \$500 million: Ashland, Holliston, Northborough, Sherborn, and Wayland.

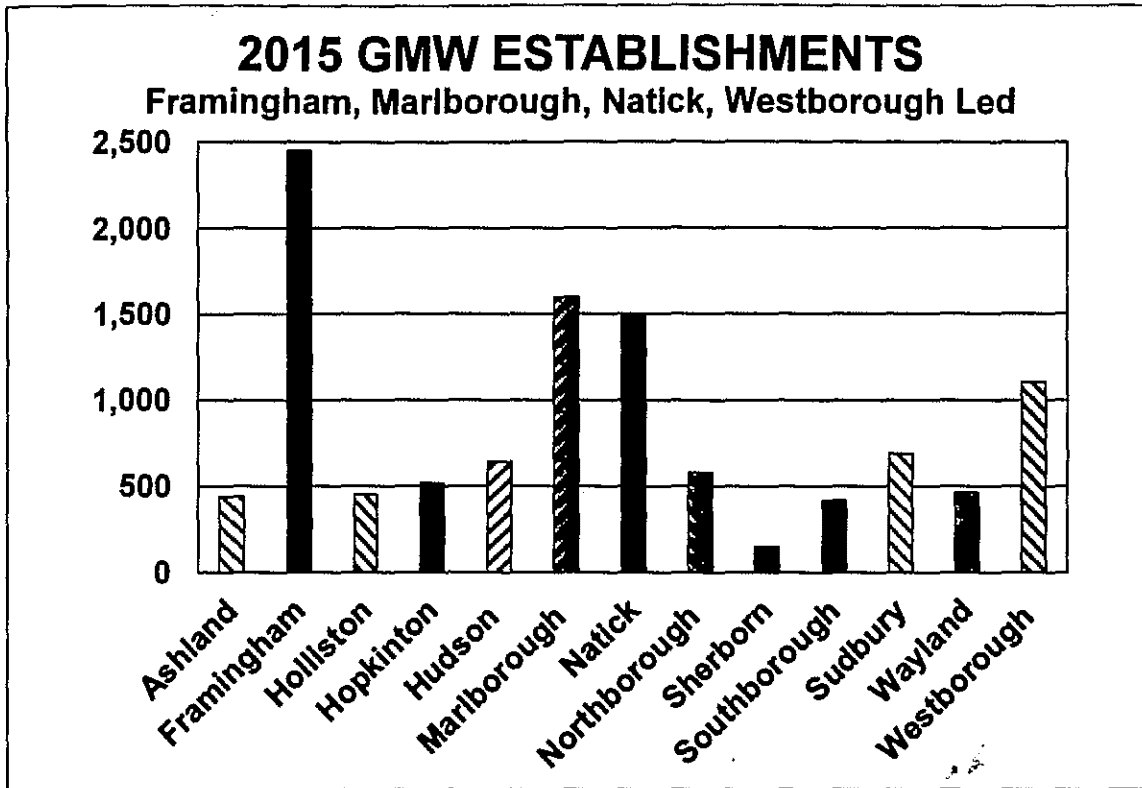
GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- The Greater MetroWest (GMW) average annual wage reached a historical high of \$74,100 in 2015, 11% higher than the Massachusetts average annual wage of \$66,700, and 39.9% higher than the United States average annual wage of \$52,900.
- Four communities: Hopkinton (\$105,300), Marlborough (\$87,100), Southborough (\$85,800) and Framingham (\$75,600) offered an average annual wage exceeding that of the region, state and nation.
- Five communities: Ashland (\$47,100), Northborough (\$52,600), Sherborn (\$51,400), Wayland (\$48,800) each had a lower average annual wage than the region, state, and nation.
- Holliston (\$70,700), Sudbury (\$70,100), and Westborough (\$73,700) had an average annual wage higher than the nation (\$52,900), and the state (\$66,700), but lower than the GMW average annual wage of \$74,100.

GREATER METROWEST – EMPLOYMENT



Source: MA EOLWD, MERC

- The number of establishments or separate places of work in Greater MetroWest (GMW) totaled a record high of 10,900 in 2015, up 230 establishments, or 2.1%, from 2014.
- Framingham led the region with 2,450 establishments in 2015, up 3.9% from 2014. Marlborough and Natick followed with 1,600 and 1,480 establishments, respectively.
- Four communities: Framingham, Marlborough, Natick and Westborough each produced over 1,000 establishments or separate places of work. The four communities combined made up 60% of the establishments in the region.
- Five communities: Ashland, Holliston, Sherborn, Southborough, and Wayland each had fewer than 500 establishments.

GREATER METROWEST – EMPLOYMENT

Employment Comparison Greater MetroWest Region By Community 2015

Community/ Region	Number of Jobs*	Average Wage	Total Payroll* (millions)	Number of Establishments*	Largest Supersector (Employment)
Ashland	4,600	\$47,100	\$218	440	TTU **
Framingham	49,400	\$75,500	\$3,727	2,450	PBS ***
Holliston	6,300	\$70,700	\$443	450	PBS
Hopkinton	11,200	\$105,300	\$1,176	520	Manufacturing
Hudson	10,400	\$63,400	\$662	640	Manufacturing
Marlborough	30,900	\$87,000	\$2,691	1,600	PBS
Natick	23,100	\$61,300	\$1,414	1,500	TTU
Northborough	9,400	\$52,600	\$492	580	TTU
Sherborn	600	\$51,400	\$33	150	Public
Southborough	7,600	\$85,800	\$654	420	Education & Health
Sudbury	7,200	\$70,000	\$506	690	Public
Wayland	4,100	\$48,800	\$201	460	Leisure & Hospitality
Westborough	24,300	\$73,700	\$1,790	1,100	PBS
MetroWest CCSA	114,100	\$73,400	\$8,370	7,100	PBS
Greater Marlborough Region	75,000	\$75,200	\$5,636	3,920	PBS
Greater MetroWest	189,100	\$74,100	14,000	10,990	PBS
Massachusetts	3,430,000	\$66,700	\$228,650	242,000	Education & Health

Source: MA EOLWD, MERC

*Rounded

**Trade, Transportation and Utilities (TTU)

***Professional and Business Services (PBS)

GREATER METROWEST – JOB CHURNING

JOB CREATION AND DESTRUCTION

The statistic most commonly used to measure changes in economic activity in any region is net job change: the increase or decrease in the number of jobs in the region over a period of time. This number, however, often conceals a significant amount of underlying economic activity. Firms and labor markets, are constantly responding to changes in many different forces, some of which increase employment in new or existing firms while others eliminate existing jobs. This turnover, also known as job churning, is hidden behind the net job change figures.

To gain insight into the dynamic nature of the Greater MetroWest (GMW) economy, MERC at Framingham State University calculates year-to-year employment changes in each of the NAICS sectors and supersectors in each of the thirteen GMW communities. From this information we calculate three measures of job change: job creation, job destruction and net job change. By working with these figures, MERC is able to decompose the net employment change over any given time period into its two components: job creation and job destruction.

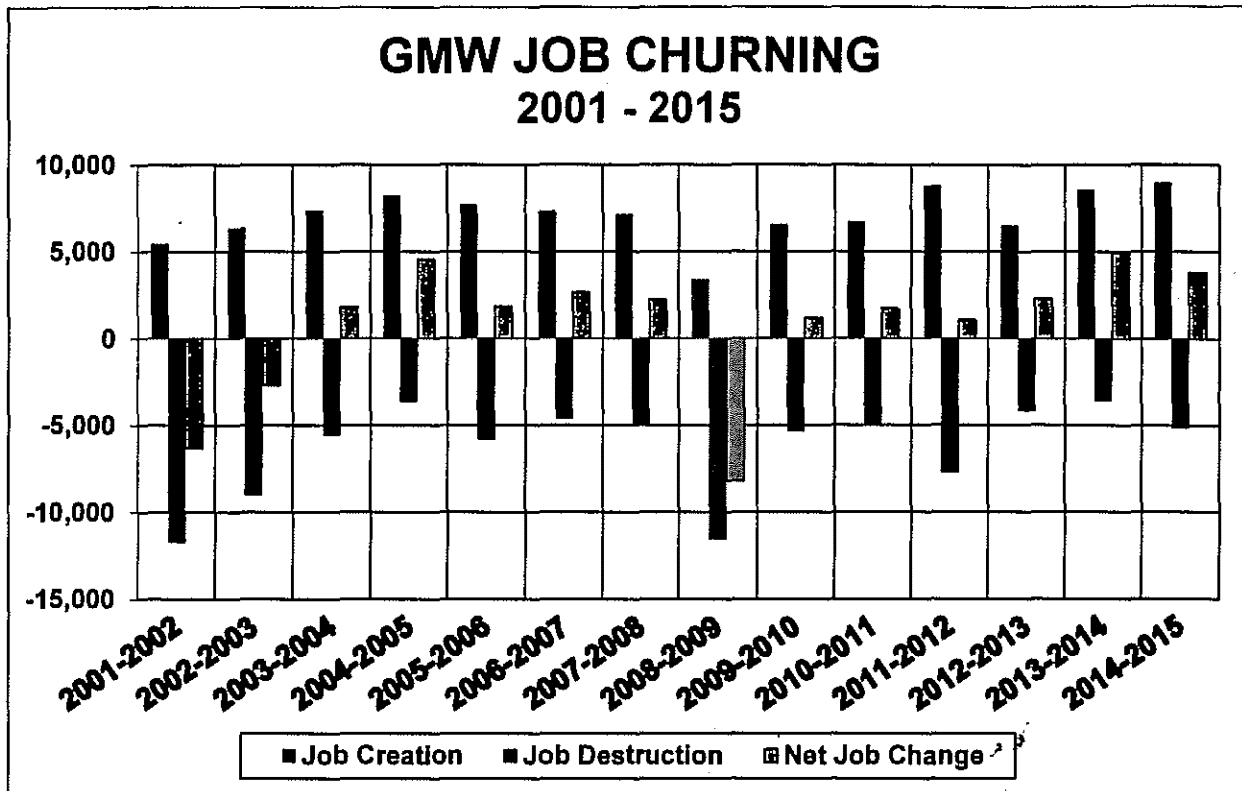
Job creation is the sum, across GMW communities and industries, of employment gains at new and growing establishments. **Job destruction** equals the sum of employment losses at closing and shrinking establishments. **Net job change** is a measure of the *net* change in total employment from one year to the next. It is also equal to the difference between job creation and job destruction.

For example, in 2012, there were 1,058 more jobs in GMW than one year earlier. This net job change figure, however, concealed a large amount of underlying labor market activity. Between 2011 and 2012 at least* 8,809 new jobs were created while at least* 7,751 existing jobs were destroyed resulting in the net job change figure of 1,058 jobs. Decomposing the net job change into its components of job creation and job destruction reveals a higher level of job market activity, job churning of more than 16,000 jobs, than is revealed by the net change number alone.

Estimation of job creation and job destruction relies on the NAICS employment database for Greater MetroWest maintained by MERC. Please see Appendix II for more detailed information about NAICS.

*NOTE: Although reference is made to gross job creation and destruction, or gross job flows, what is actually being looked at is the tip of an iceberg and is missing several levels of activity that would result in even greater rates of churning. For example, in a given year, one manufacturing plant in Marlborough may lay off a worker and another manufacturing plant in Marlborough may hire a worker – same town, same industrial category – so this change would not be caught. Also, within a single establishment, one job might be created while another is destroyed. This job destruction and creation would also not be captured. Finally, our data looks only at annual job flows. Quarterly or monthly data would allow us to capture more of the job creation and job destruction which is ongoing in a dynamic economy.

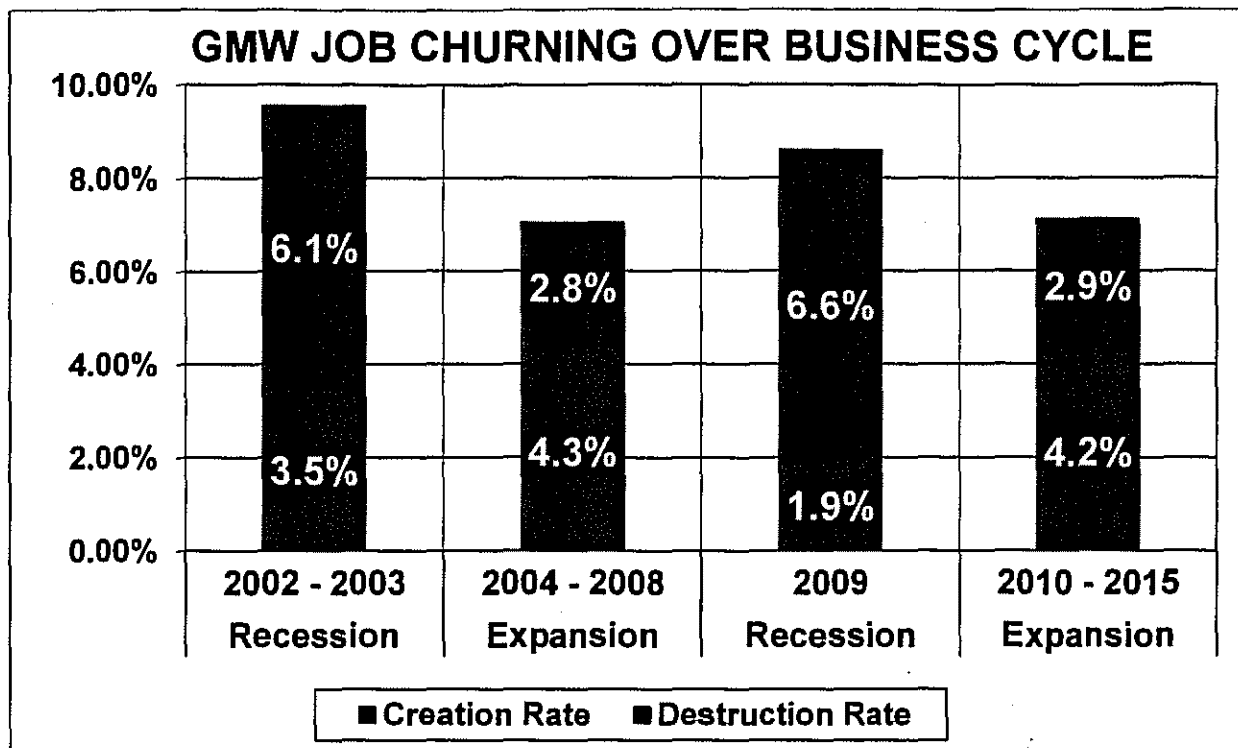
GREATER METROWEST – JOB CHURNING



Source: MA EOLWD, MERC

- Over the period from 2001 to 2015, 98,980 jobs were created in Greater MetroWest (GMW), and 88,080 jobs were destroyed, a net increase of 10,900 jobs. This graph shows how those numbers break down by year.
- In every year, jobs were created and jobs were destroyed. In some years the number of jobs created (green bars) exceeded the number destroyed (red bars), resulting in positive net job change (yellow bars). The largest net job increase occurred in 2013-2014, an increase of 4,940 jobs on net.
- There were 3 periods of net job loss: 2001-2002 (-6,300 jobs), 2002-2003 (-2,700 jobs) and 2008-2009 (-8,190 jobs). In these years job destruction was greater than job creation.
- The greatest amount of job creation occurred in 2014-2015, with 8,970 jobs created; slightly more than the 8,810 jobs created in 2011-2012. The highest job destruction, -11,720 jobs, occurred in 2001-2002. The next highest figure was -11,550 jobs destroyed in 2008-2009.

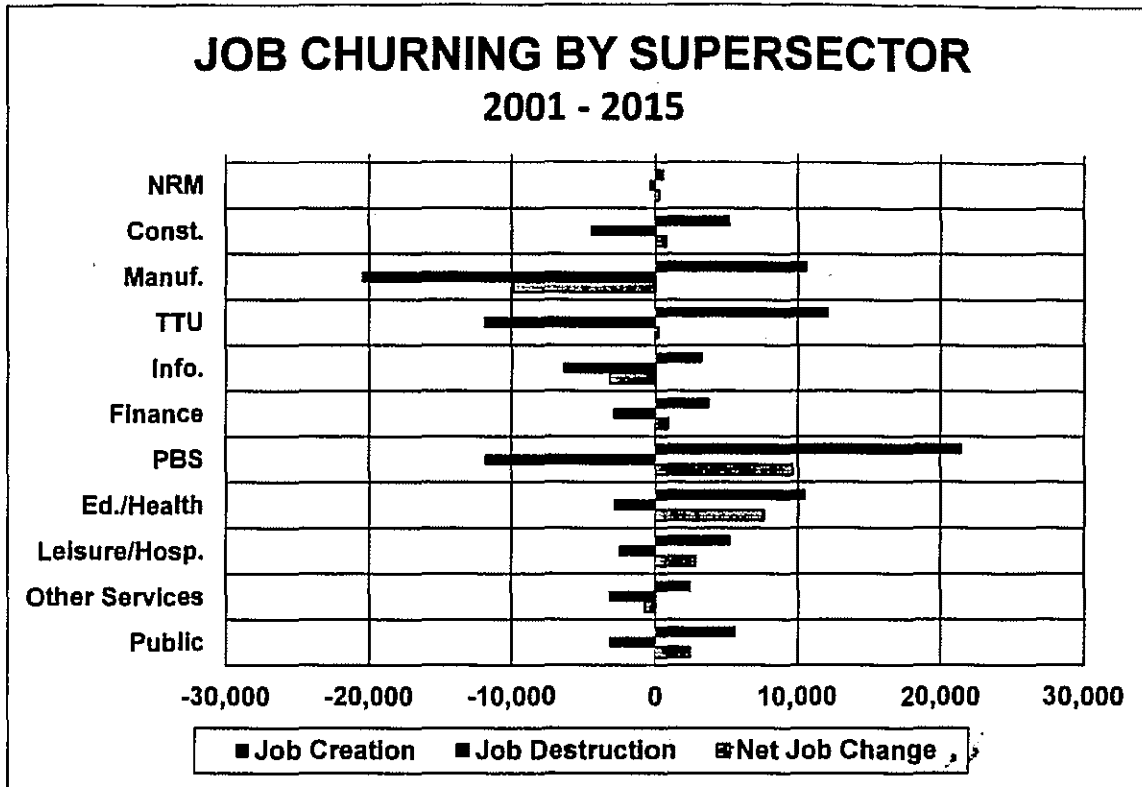
GREATER METROWEST – JOB CHURNING



Source: MA EOLWD, MERC

- This graph shows rates of job creation and job destruction during recent expansions, years when Greater MetroWest (GMW) experienced net job increases, and recessions, years of net job loss. The rate is the total number of jobs created or destroyed as a percentage of total GMW employment.
- Regardless of whether total GMW employment was growing or shrinking, both job creation (in green) and job destruction (in red) were occurring. The rates of job creation were higher during expansions (4.3% and 4.2%) than in recessions (3.5% and 1.9%). Conversely, job destruction rates were higher in the two recessions (6.1% and 6.6%) than they were in both expansionary periods (2.8% and 2.9%).
- The total rate of churning, the sum of the rates of creation and destruction, was greater in both recessionary periods (9.6% and 8.5%) than it was during the two expansions (7.1% in both). This suggests that there was a greater amount of labor market activity during the two recessions than in the periods of economic expansion.

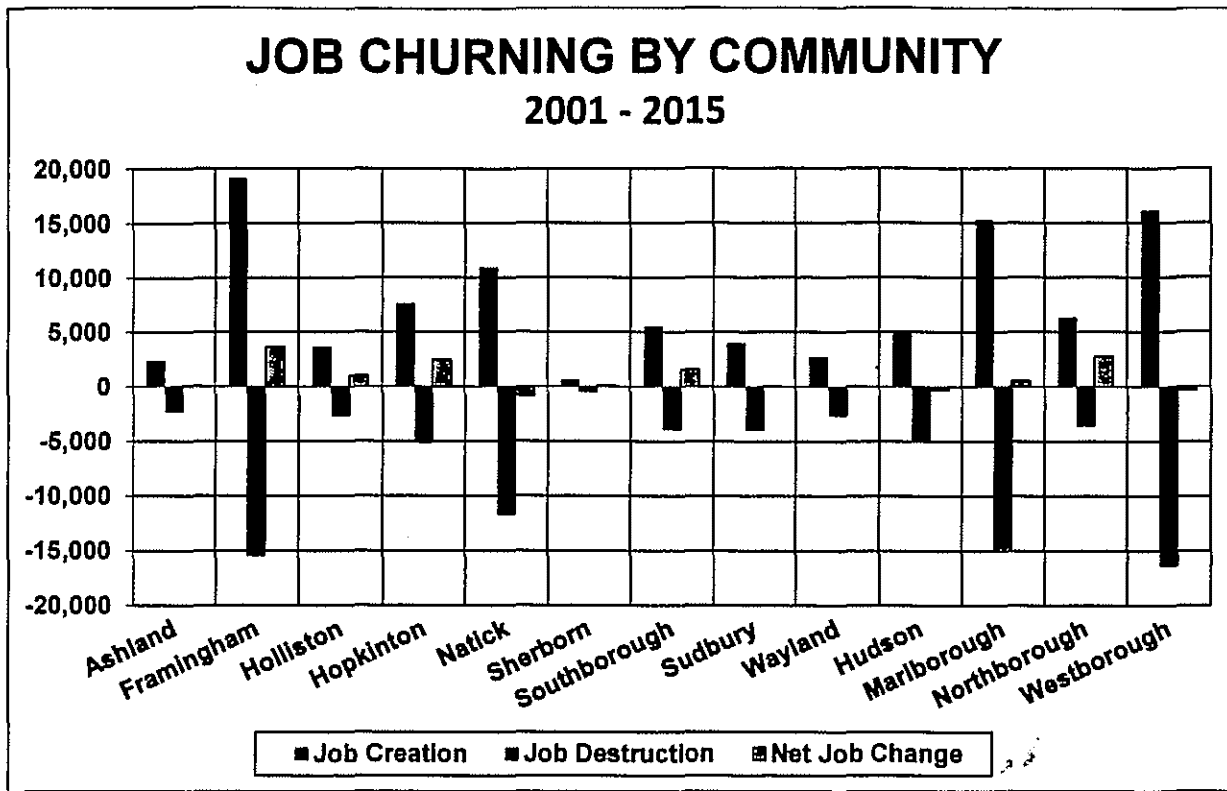
GREATER METROWEST – JOB CHURNING



Source: MA EOLWD, MERC

- Both job creation (green bars) and job destruction (red bars) occurred in every GMW supersector between 2001 and 2015. Net job change (yellow bars) is the number of jobs created minus the number of jobs destroyed.
- Only 3 supersectors suffered net job losses over this period: Manufacturing (-9,900 jobs), Information (-3,160 jobs) and Other Services (-700 jobs). The largest net job increase in the region occurred in Professional and Business Services, PBS, (+9,640 jobs) followed by Education and Health Services with an increase of 7,620 jobs.
- Among all 11 supersectors, Natural Resources and Mining (NRM) had the smallest amount of both job creation (+620 jobs) and job destruction (-350 jobs). PBS led all supersectors with 21,520 jobs created, which was only partially offset by -11,880 jobs destroyed.
- Manufacturing had the largest amount of job destruction with -20,540 jobs destroyed. The net job loss in Manufacturing resulted from the fact that only 10,640 jobs were created, not enough to offset the number destroyed.

GREATER METROWEST – JOB CHURNING



Source: MA EOLWD, MERC

- All 13 Greater MetroWest (GMW) communities experienced both job creation and job destruction between 2001 and 2015. This activity resulted in net job losses (yellow bars) in only 3 communities: Natick (-800 jobs), Westborough (-270 jobs) and Hudson (-260 jobs).
- The other 10 communities gained jobs on net over the period. Framingham led the way with an increase of 3,635 jobs, followed by Northborough (+2,750 jobs) and Hopkinton (+2,430 jobs).
- Total job creation (green bars) was greatest in Framingham (+19,130 jobs), Westborough (+16,130 jobs) and Marlborough (+15,280 jobs). Westborough (-16,400 jobs) and Framingham (-15,500 jobs) also led in job destruction (red bars), followed by Marlborough (-14,760 jobs) and Natick (-11,700 jobs). These 4 communities had by far the largest amount of total job churning (jobs created plus jobs destroyed) in the region.

GREATER METROWEST – HOUSING

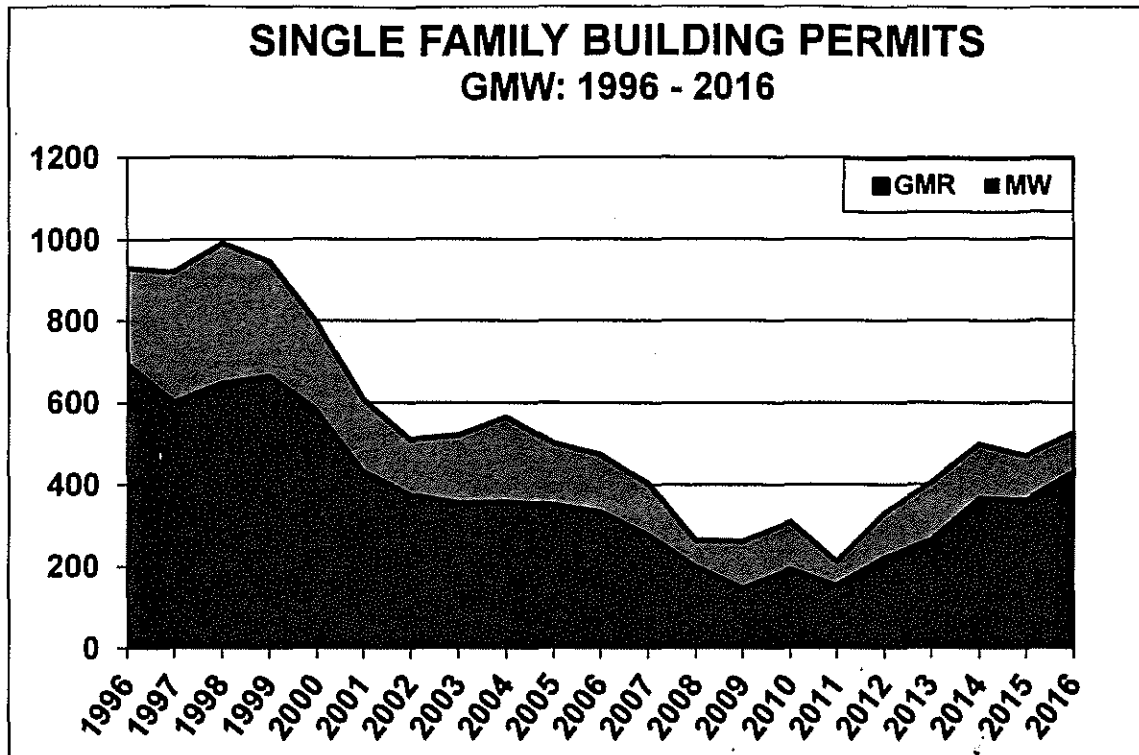
HOUSING

The MetroWest Economic Research Center (MERC) at Framingham State University collects and analyzes data on housing permits issued and existing home sales for Greater MetroWest (GMW), the aggregated MetroWest CCSA™ and Greater Marlborough Region. The MetroWest CCSA™ includes Ashland, Framingham, Holliston, Hopkinton, Natick, Sherborn, Southborough, Sudbury and Wayland. The Greater Marlborough Region includes Hudson, Marlborough, Northborough, and Westborough. MERC gathers housing data for these thirteen communities from several sources.

Data on new building permits issued for single family homes are collected by MERC using information from the U.S. Census. Annual data for permits issued in the cities and towns for 2016 are estimated using the December year-to-date values, and information provided by the city or town building departments. Building permits data for Massachusetts and the United States are based on estimates published by the Federal Reserve Bank of Boston (FRBB).

Information on existing home sales is based on data published by The Warren Group for *Banker & Tradesman*. Most of these data are available from 1987 forward, and were significantly revised in the spring of 2008 in order to better capture market activity. Hence some of the housing figures in this report are not directly comparable to the values reported in previous MERC publications. Data are collected on single and multi-family residences sold in the thirteen communities. Median house price is measured at the 50th percentile in each town; that is, half the homes sold for more than the median price and half sold for less than the median price. Median prices for the regions are estimated. It is important to remember that a change in median price does not reflect appreciation or depreciation in the value of individual homes. Rather, there is a different mix of homes sold each year.

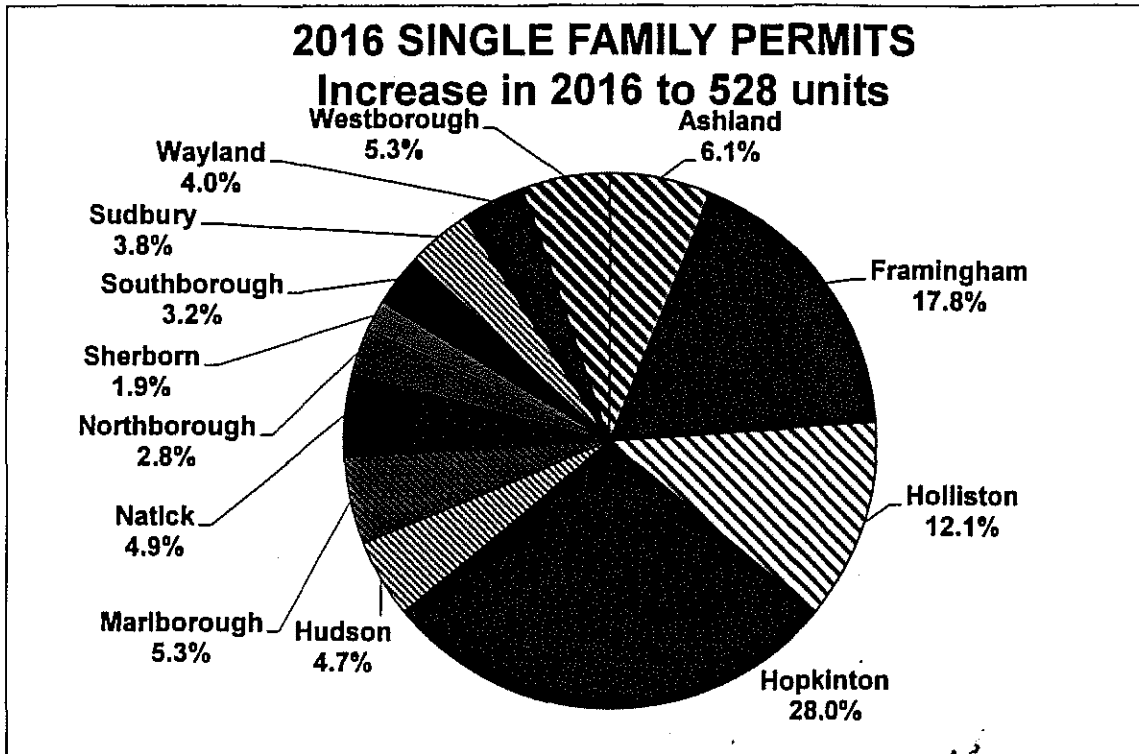
GREATER METROWEST – HOUSING



Source: U.S. Census Bureau and MERC

- New residential housing permits issued each year for single family homes, in Greater MetroWest (GMW), indicated by the height of the graph above, peaked at nearly 1,000 units in 1998. After increasing in 2010 for the first time since 2004, the number of permits issued in Greater MetroWest fell again in 2011, and then rose again in 2012, 2013 and 2014. In 2015, Greater MetroWest experienced a decrease, however, there was an increase in 2016 of about 57 units from 2015.
- MetroWest (MW), depicted in green, accounts for about 82% of the total permits issued in Greater MetroWest in 2016 while Greater Marlborough (GMR), depicted in orange, accounted for the remaining 18%. These proportions vary over the full time period with average values of 70% for MW to 30% for GMR.
- From 2015 to 2016, MetroWest permits issued increased by about 19%, while Greater Marlborough permits issued decreased by about 12%. Overall, Greater MetroWest experienced an increase in permits issued by about 12%.

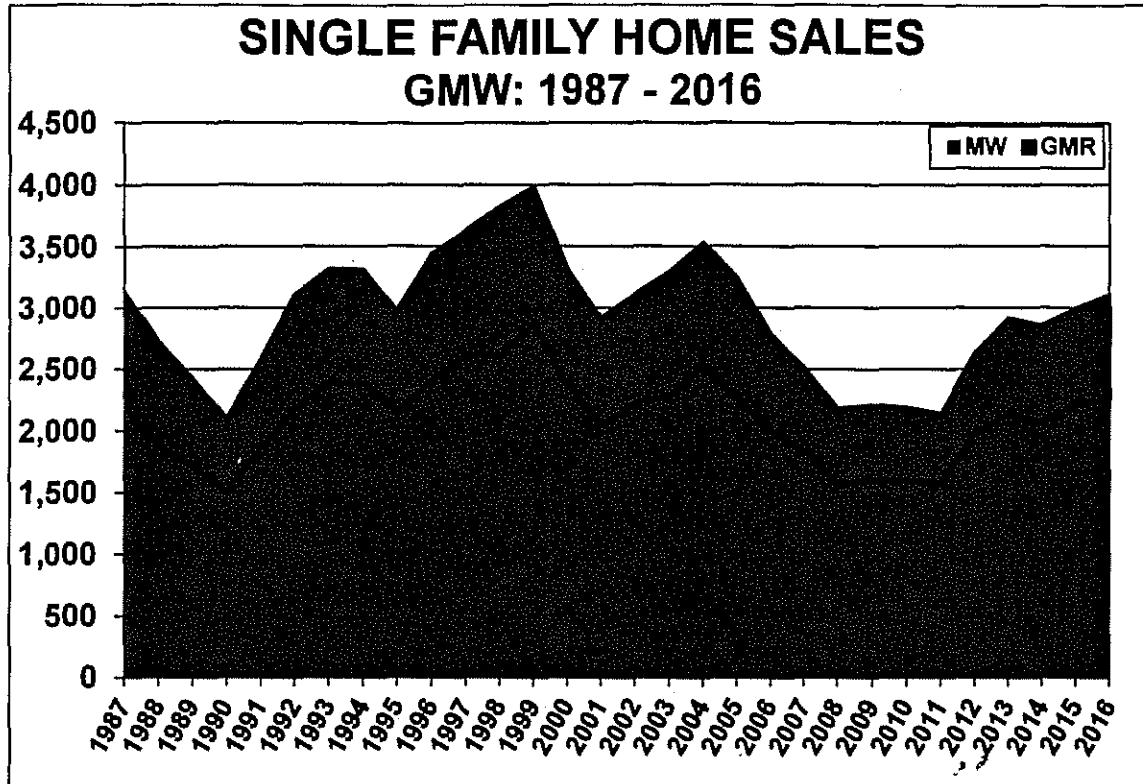
GREATER METROWEST – HOUSING



Source: U.S. Census Bureau and MERC

- In 2016, building permits issued for new single family homes in Greater MetroWest increased by about 57 units from the year before to an estimated 528 permits.
- MetroWest towns issued 432 permits in 2016, while communities in the Greater Marlborough Region issued 96 permits.
- Hopkinton and Framingham were the largest two contributors of permits issued, accounted for 28.0% and 17.8% of the region, respectively. Together, they account for 45.8% of permits issued in the region. Holliston contributed another 12.1%.
- Sherborn contributed the smallest number of housing permits with an estimated 10 permits, or 1.9% of the regional total. Therefore, Sherborn accounts for fewer than two out of every 100 permits issued in Greater MetroWest.
- The other nine communities each contributed to the regional total between 2.8% in Northborough and 6.1% in Ashland.

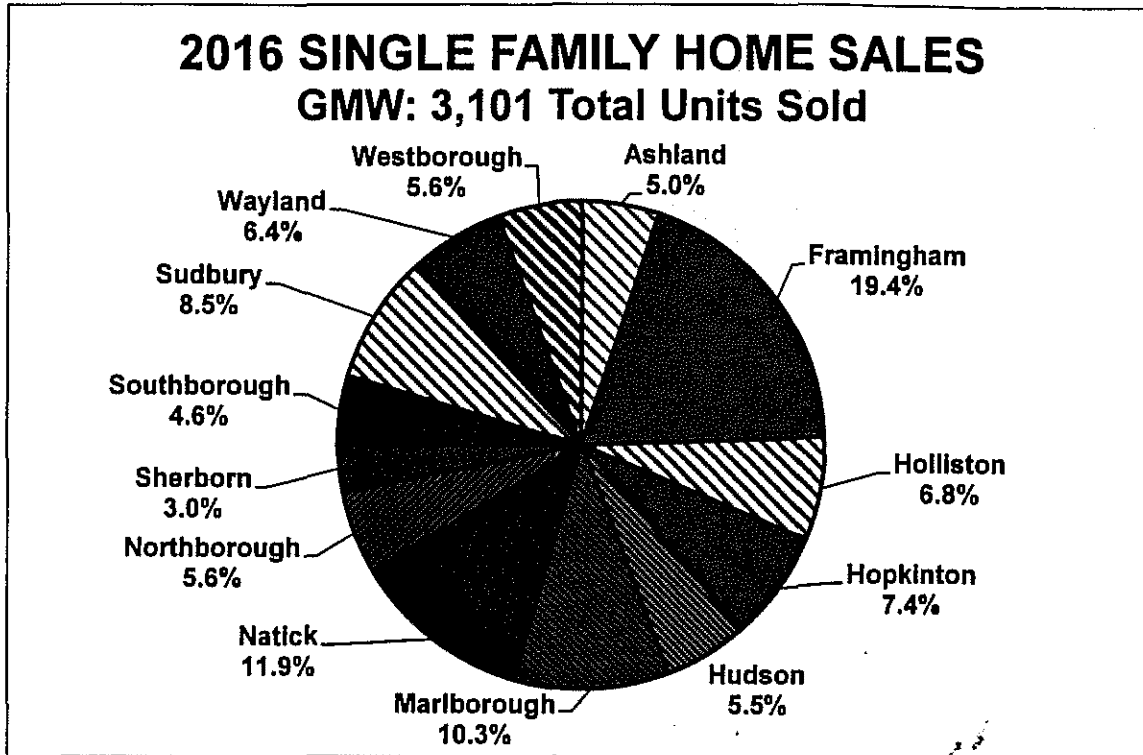
GREATER METROWEST - HOUSING



Source: The Warren Group and MERC

- Sales of existing single family homes are shown for Greater MetroWest (GMW) by the height of the graph depicted above. The data is shown for a 30-year period from 1987 to 2016. These sales consist of a different mix of homes sold each year, and do not represent a change in value of the homes. The green area shows the sales of existing homes in the nine towns of MetroWest (MW) while the orange area refers to the four communities of the Greater Marlborough Region (GMR). Comparably, MW has a greater number of single family home sales than GMR.
- The largest number of single family homes sold annually in Greater MetroWest occurred in 1999 at 3,986 units sold. The smallest number of single family homes sold annually occurred in 1990 at 2,099 units sold.
- Single family home sales in GMR were lowest in 2011 at 567 units sold. Single family home sales in MW were lowest in 1990 at 1,504 units sold.
- From 2015 to 2016, MW experienced an increase of 46 units sold, representing a 2.1% increase. GMR experienced an increase of 58 units sold, representing a 7.4% increase in the same period.

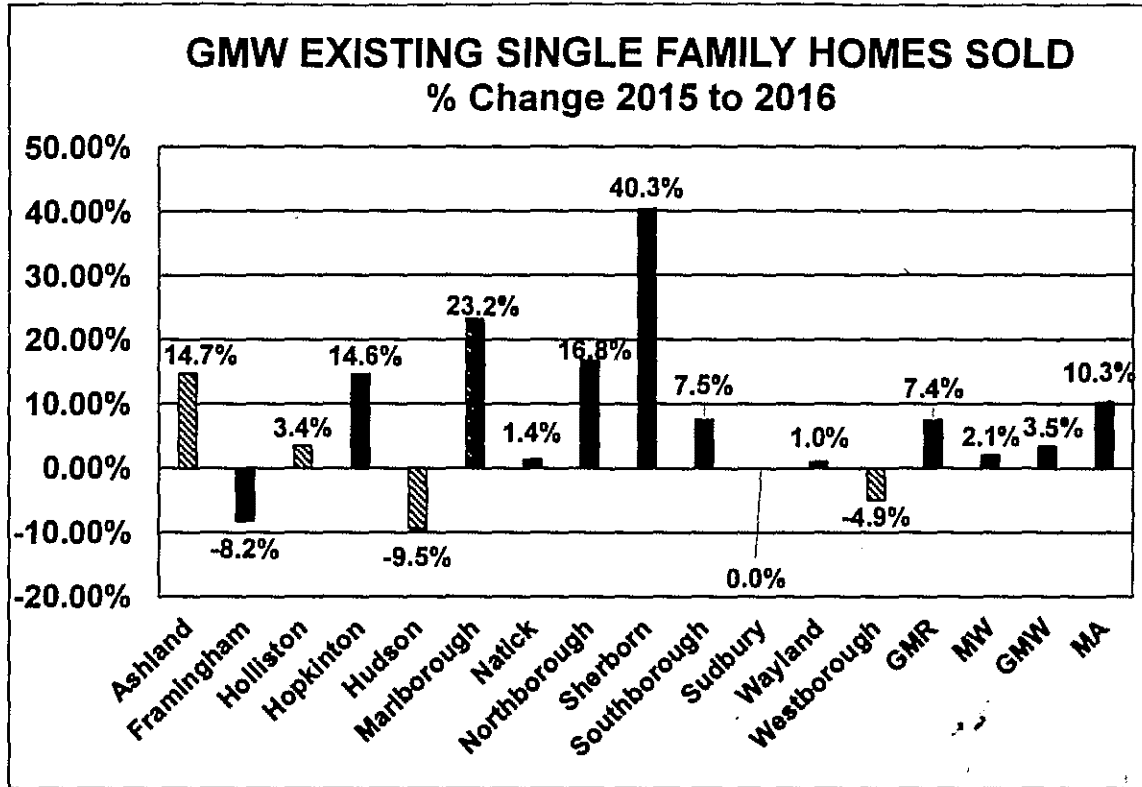
GREATER METROWEST – HOUSING



Source: The Warren Group and MERC

- In 2016, 3,101 existing single family homes were sold in Greater MetroWest (GMW). This represents a one-year increase of about 104 homes from the previous year.
- Together, Framingham and Natick made up 31.3% of the region's existing homes sold. This was about one out of every three homes sold in the region. Framingham had the largest proportion with 19.4% or 605 units sold, followed by Natick with 11.9% or 368 units sold.
- Southborough and Sherborn contributed less than 5% each to existing single family home sales in GMW in 2016. In Sherborn, only 94 single family homes were sold in this particular year.
- In 2016, there were 917 more single-family homes sold than in 2010. This represents a 41.9% increase from the 2010 total to the 2016 total homes sold.

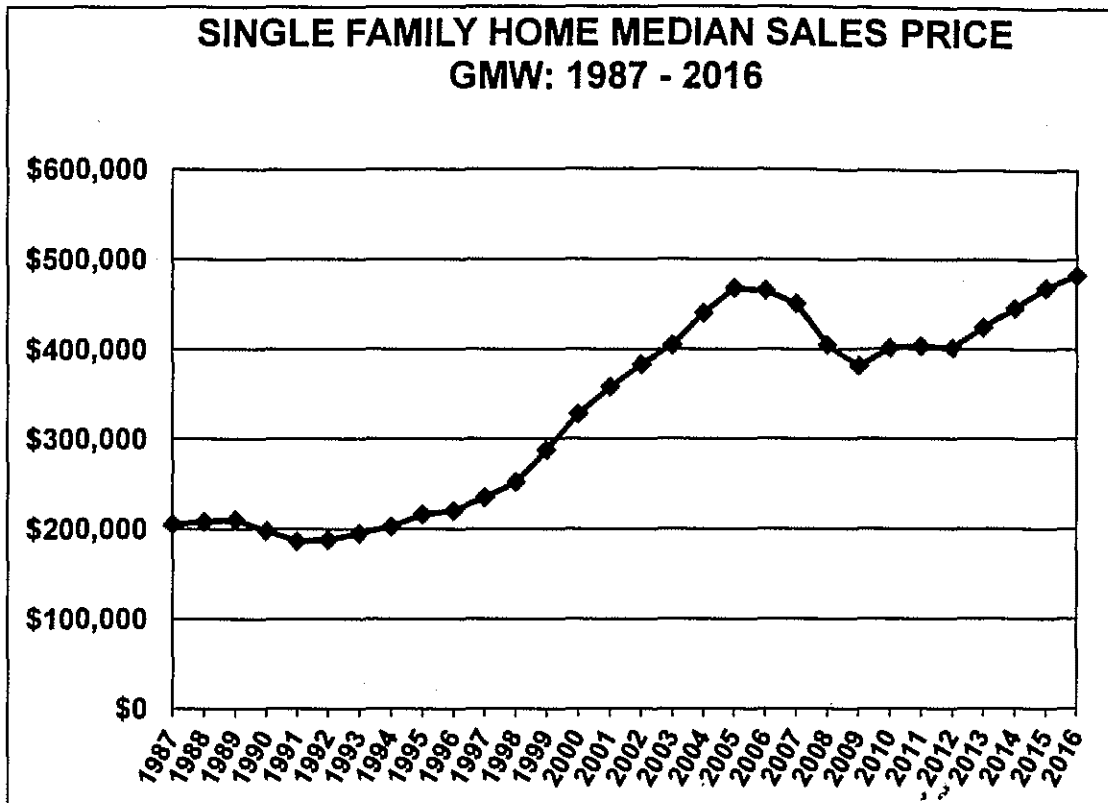
GREATER METROWEST – HOUSING



Source: The Warren Group and MERC

- The above graph shows the percent change in existing single family home sales from 2015 to 2016 in Greater MetroWest (GMW) and in each of its thirteen communities, as well as MetroWest (MW), the Greater Marlborough Region (GMR) and Massachusetts (MA).
- In 2016 there were 104 more units sold in GMW than in 2015, a 3.5% increase. From 2015 to 2016, MW, GMR and MA all recorded increases in units sold as follows: up 46 units in MW, 58 in GMR, and 5,684 units in MA.
- Marlborough, Sherborn and Northborough registered the largest percentage increases in units sold. Sherborn had an increase of 27 units sold, a 40.3% increase. Marlborough had an increase of 60 units sold, a 23.2% increase. Northborough had an increase of 25 units sold, a 16.8% increase.
- Framingham, Hudson, and Westborough each had a percentage decrease in existing units sold, recording -8.2%, -9.5% and -4.9%, respectively.
- In Sudbury, there was no change in units sold from 2015 to 2016; in both years 263 single family units were sold.

GREATER METROWEST – HOUSING

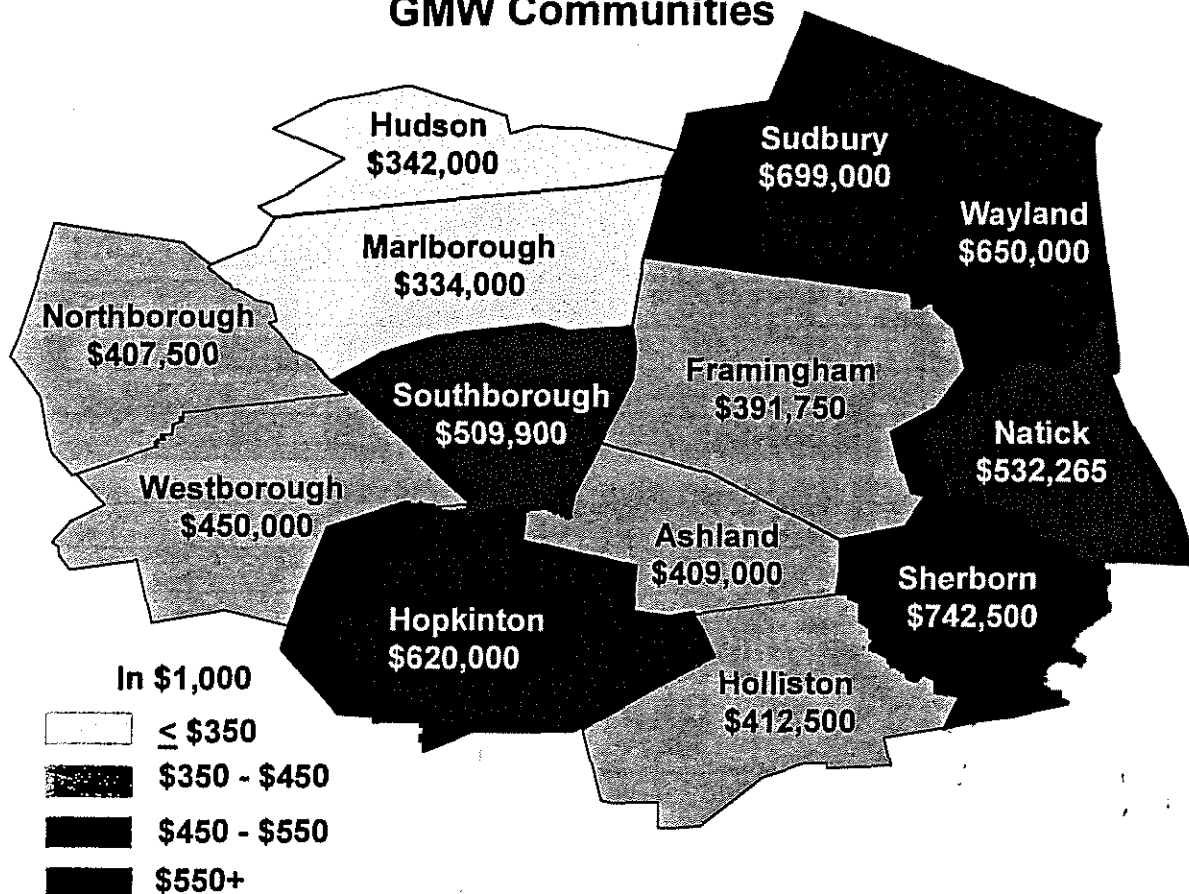


Source: The Warren Group and MERC

- The graph above shows the estimated median sale price of existing single family homes in Greater MetroWest (GMW) during the 30-year period from 1987 to 2016. Please note that these sales represent a different mix of homes sold each year and, therefore, do not reflect the changes in the values of individual homes.
- The data series reached a peak in 2016 with an estimated median sales price of \$481,477, representing a 135% increase from the 1987 median sales price of \$204,758.
- The pre-recession peak estimated median sales price of \$467,723 in GMW in 2005 was surpassed in 2015 and is about 3% lower than the most recent peak in 2016 of \$481,477.
- Beginning in 2012, the estimated median price increased every year by at least \$10,000. The biggest increase from 2012 to 2016 occurred between 2012 and 2013, when prices were \$400,992 and \$423,908, respectively. This increase of nearly \$23,000 represents a 5.7% gain.
- The most recent low point for estimated median sales price in this region occurred in 2009 at \$381,180. There was a 26.3% increase from 2009 to 2016, during which the estimated median sales price increased by more than \$100,000.

GREATER METROWEST – HOUSING

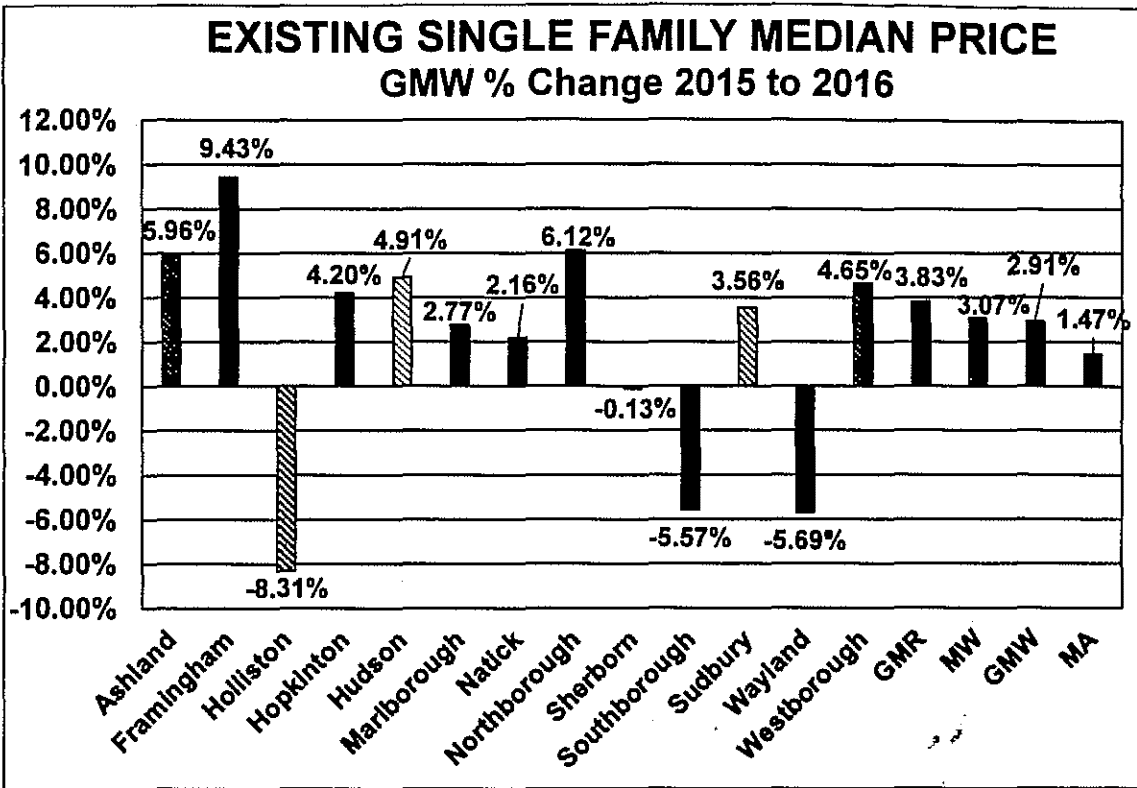
2016 EXISTING SINGLE FAMILY HOME PRICES GMW Communities



Source: The Warren Group and MERC

- The map above shows the 2016 median sales prices for existing single family homes in the 13 communities of Greater MetroWest (GMW). Median sales prices ranged from a low of \$334,000 in Marlborough to a high of \$742,500 in Sherborn.
- Seven of the thirteen communities had median sales prices at or below \$450,000. Among these communities, only Hudson and Marlborough posted median sales prices below \$350,000 while Ashland, Framingham, Holliston, Northborough, and Westborough all registered median sales prices between \$350,000 and \$450,000.
- Six communities had median sales prices above \$450,000. Southborough had a median sales price of \$509,900 and Natick had a median sales price of \$532,265. Hopkinton, Sherborn, Sudbury and Wayland posted the highest median sales price at \$620,000, \$742,500, \$699,000, and \$650,000, respectively.

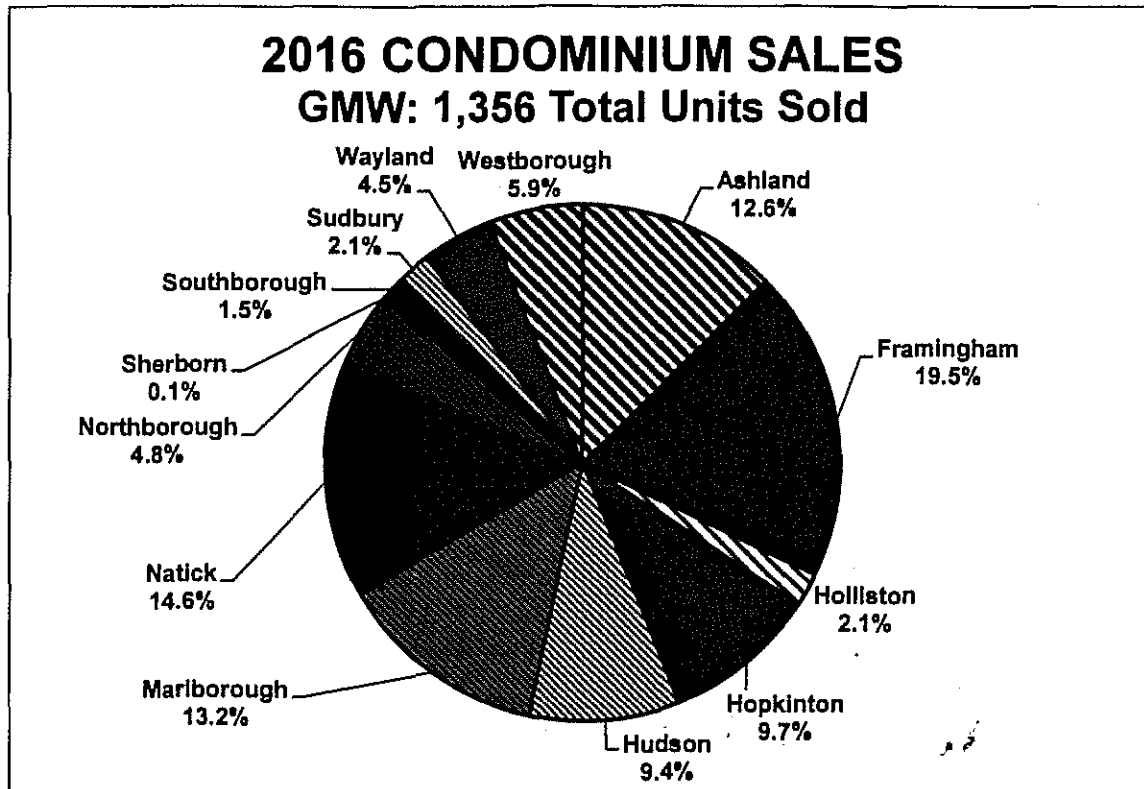
GREATER METROWEST – HOUSING



Source: Banker & Tradesman and MERC

- The estimated median price for existing single family homes in Greater MetroWest (GMW) increased 2.9% from \$467,848 in 2015 to \$481,477 in 2016. Comparably, the median price in Massachusetts increased 1.47% from the 2015 median sale price of \$340,000 to the 2016 median price of \$345,000.
- Within the region, Holliston, Sherborn, Southborough and Wayland experienced a decrease in median price. Holliston registered the largest percentage decrease in median price, falling -8.3% from \$449,900 in 2015 to \$412,500 in 2016.
- The remaining nine communities experienced median price increases. Framingham recorded the largest percentage median price increase of 9.4% from \$358,000 in 2015 to \$391,750 in 2016. Northborough had the second largest percentage increase of 6.1% from \$384,000 in 2015 to \$407,500 in 2016.
- Both MetroWest (MW) and the Greater Marlborough Region (GMR) experienced an increase in estimated median sale price. Five out of the nine towns in MW experienced median sale price increases and all four communities in GMR registered a median price increase in 2016.

GREATER METROWEST – HOUSING



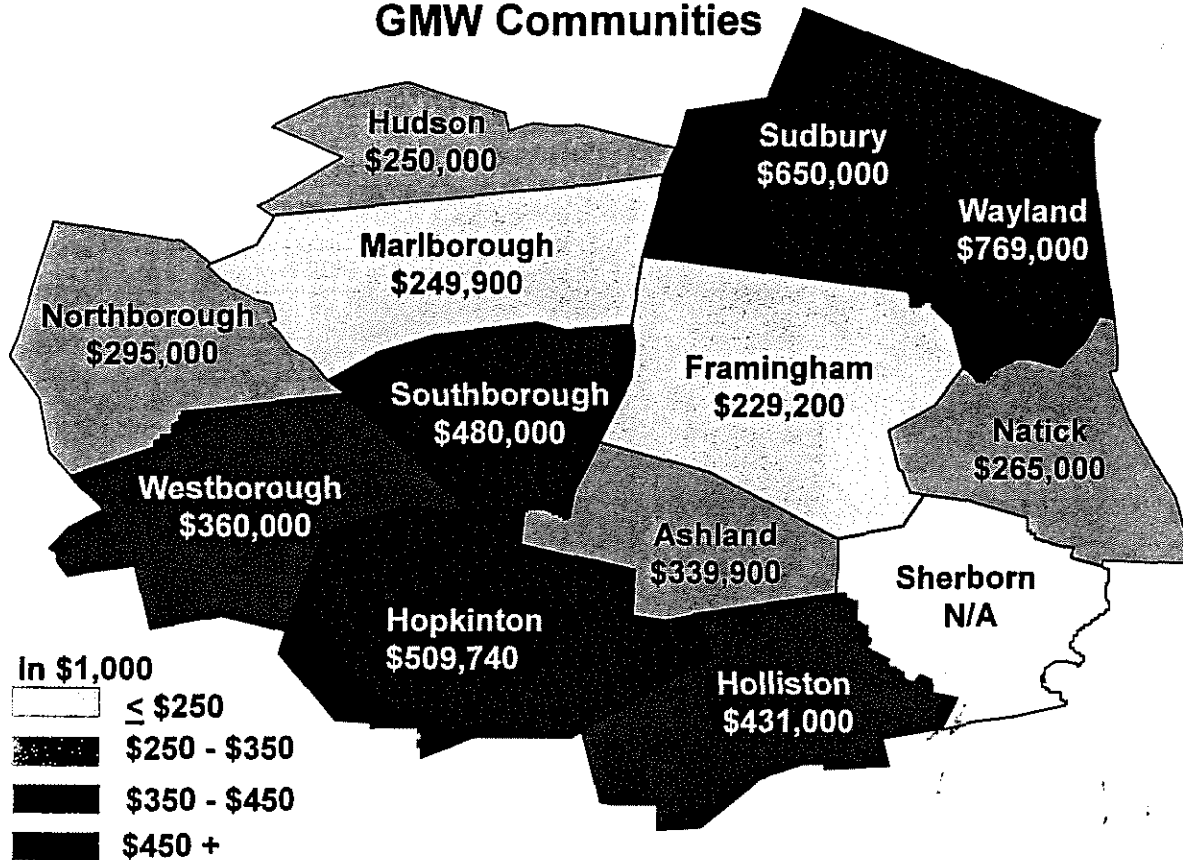
Source: The Warren Group and MERC

- In 2016, 1,356 condominiums were sold in the thirteen communities of Greater MetroWest (GMW).
- Condo sales in four of the communities, Ashland, Framingham, Marlborough and Natick dominated the region making up more than half, or 59.9%, of the total units sold in GMW. Framingham alone contributed 19.5% to the region's sales. Ashland, Marlborough and Natick contributed 12.6%, 13.2% and 14.6%, respectively.
- Holliston, Northborough, Sherborn, Southborough, Sudbury and Wayland each contributed less than 5%. Sherborn contributed the smallest number of sales with only one condominium sold, which was about 0.1% of total regional condominium sales.
- Hopkinton, Hudson and Westborough each contributed between 5% and 10% to the regional condominium sales. Hopkinton contributed 9.7%, whereas Hudson and Westborough contributed 9.4% and 5.9%, respectively.

GREATER METROWEST – HOUSING

2016 CONDOMINIUM PRICES

GMW Communities



Source: The Warren Group and MERC

- In 2016, the estimated median price for condominium sales in Greater MetroWest (GMW) was about \$332,250, a 3.8% increase from the 2015 value.
- Two communities, Framingham and Marlborough, had median condominium prices under \$250,000. Framingham had the lowest median price in the region at \$229,200. Four communities: Ashland, Hudson, Natick and Northborough had median sales prices ranging between \$250,000 and \$350,000. Holliston and Westborough ranged between \$350,000 and \$450,000.
- Four communities had median condominium prices over \$450,000. Hopkinton, Southborough, and Sudbury had median condo prices at \$509,740, \$480,000, and \$650,000, respectively. In 2016, Wayland had the highest median condominium price within the region at \$769,000.
- Sherborn did not record a median sales price for condominiums in 2016.

GREATER METROWEST – COST OF LIVING

MEASURING THE COST OF LIVING IN METROWEST

The MetroWest Economic Research Center (MERC) tracks the cost of living in the MetroWest¹ CCSA area by calculating the average cost of a “market basket” of 57 items that are representative of the items typically purchased by professional and executive households. The items in this “market basket” were selected by The Council for Community and Economic Research (C2ER - formerly ACCRA) based on a survey of consumer spending patterns done by the U.S. Bureau of Labor Statistics. The 57 items are grouped into six categories: grocery items, housing, utilities, transportation, health care and miscellaneous goods and services.

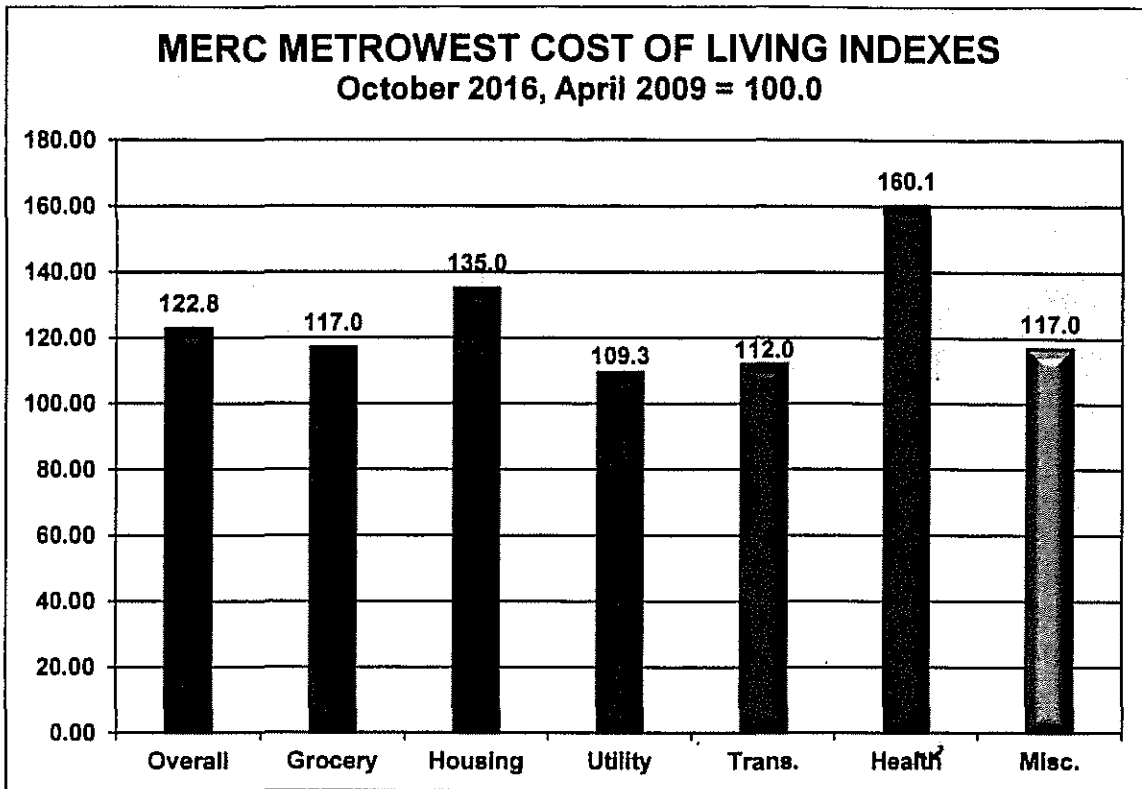
During each survey period, MERC gathers data on the prices of these items from over 100 businesses in the MetroWest area and calculates the average price of each item. These average prices are then used to calculate an index for each of the six categories mentioned above and, from them, the overall cost of living index for the area. When calculating each sub-index, every item is assigned a weight that reflects the relative importance of the item in that category of goods and services. The overall cost of living index is then a weighted average of the six sub-indexes, with the weights here reflecting the relative importance of each of the six sub-groups in the overall cost of living. The weights, like the items in the “market basket”, are also determined by C2ER based on the information obtained in the Bureau of Labor Statistics survey mentioned previously. Please note that the MERC indexes have been revised since last year's conference.

In addition to using this data to track the cost of living in MetroWest over time, MERC also sends its survey results to C2ER to be included in that group's survey of living costs across the nation. The data from MetroWest are combined with the same data from approximately 300 other U.S. communities to calculate the overall average cost of the “market basket” of goods and services. C2ER calls this the “national average” and then calculates a cost of living index (still called the ACCRA index) for each community as a percentage of this national average. The overall index for each city or town is also broken down into the same six sub-indexes described above and is calculated using the same weighting process. These results make it possible to compare living costs in different areas across the country.

Because these indexes are calculated from the prices of a relatively small sample of the many goods and services which middle-management households actually purchase, they are only estimates of the true cost of living in any given area. As with any figure calculated from sample data, there is a margin of error in the estimate. Since the items in the market basket were not randomly chosen, however, it is not possible to calculate exactly what that margin of error is. In its literature, C2ER suggests that small differences in these indexes (up to 3 or 4 percentage points) do not necessarily mean that differences in the true cost of living actually exist.

¹ MetroWest CCSA includes the towns of Ashland, Framingham, Holliston, Hopkinton, Natick, Sherborn, Southborough, Sudbury, and Wayland.

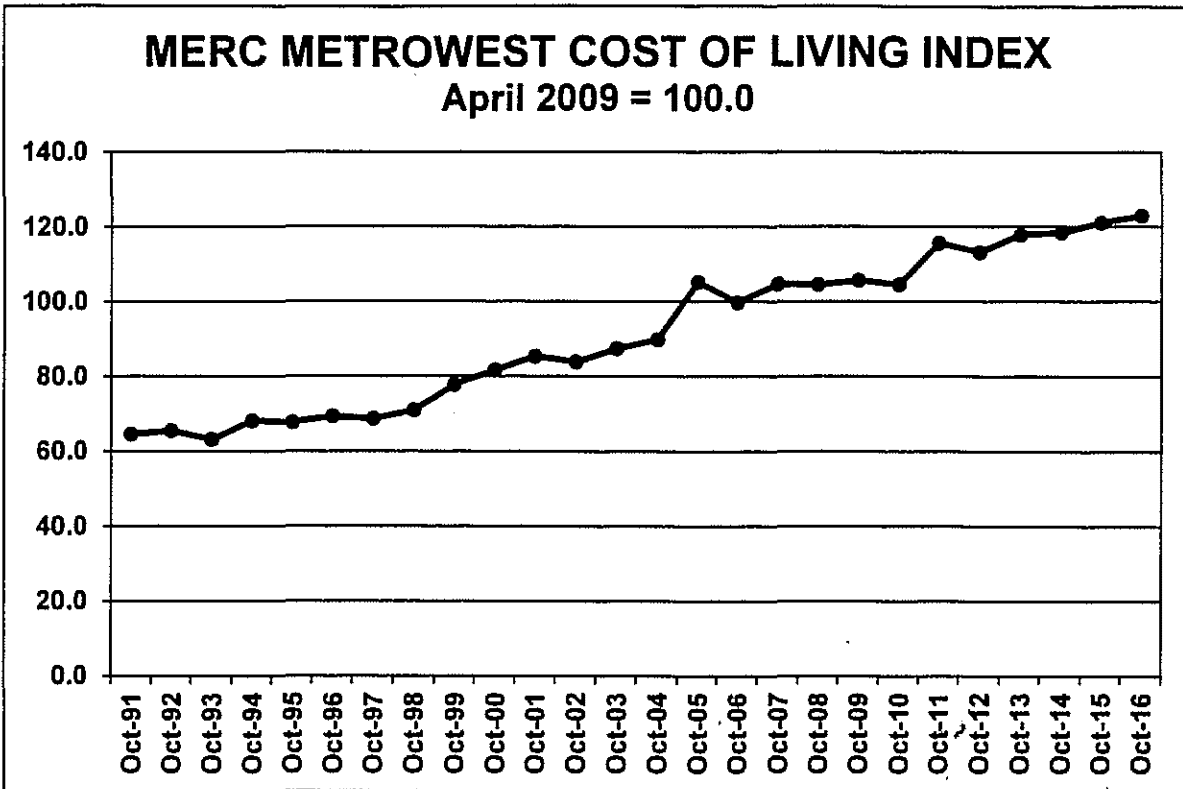
GREATER METROWEST – COST OF LIVING



Source: MERC

- The MERC Overall Cost of Living Index for MetroWest was 122.8 in October 2016. This indicated that the Cost Of Living in MetroWest was roughly 23% higher in October 2016 than it was in April 2009. This is about a 1.4% increase from October of 2015.
- The Health Care Index had a significantly higher value than the other Indexes, 160.1, in October 2016. This implies that in October 2016 health care costs were about 60% higher than they were in April 2009. This Index was, on the other hand, up about 12% from its value only a year earlier in October 2015.
- The Index with the lowest value was the Utilities Index, with a value of 109.3 about 9% higher than in April 2009.
- Not one of the Indexes in MetroWest fell below the April 2009 base year of 100.0.

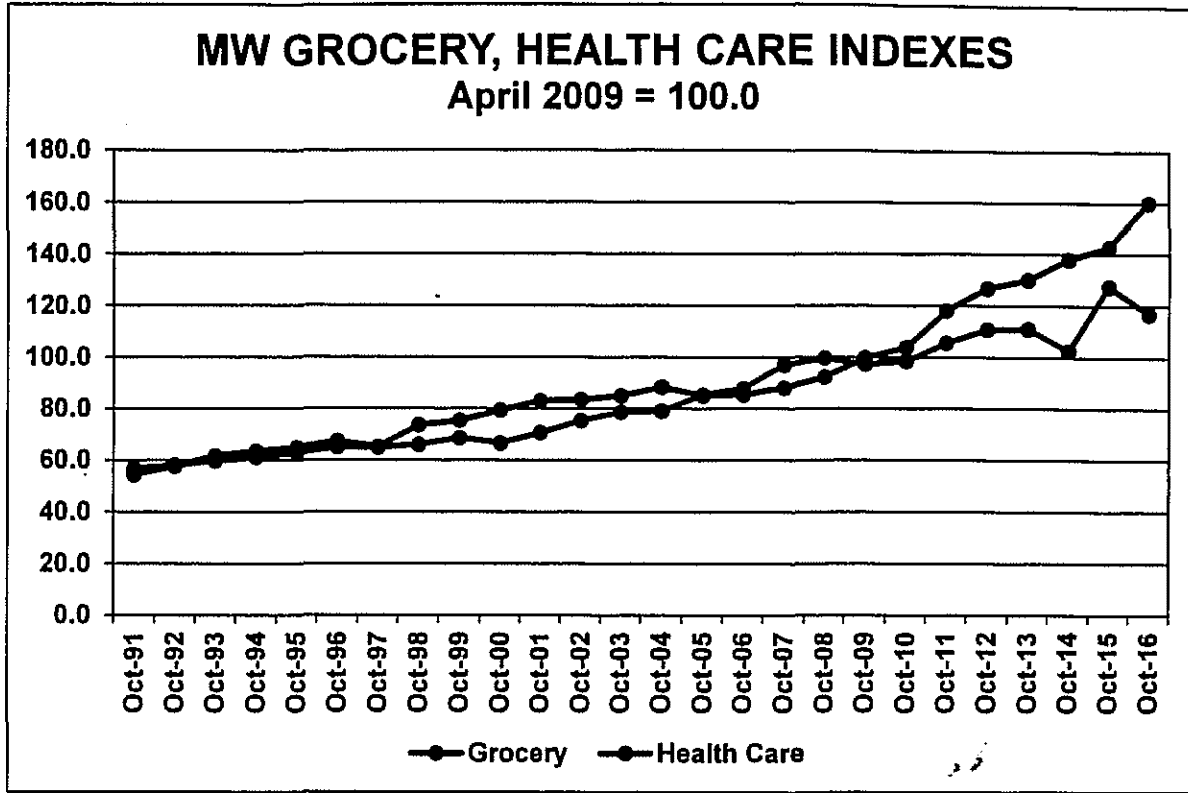
GREATER METROWEST – COST OF LIVING



Source: MERC

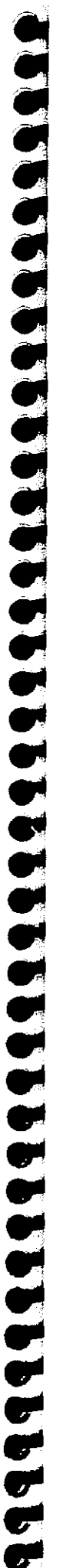
- This graph shows the values of the MERC Overall Cost of Living Index from October 1991 to October 2016. April 2009 is the base period for the Index. Its value in April 2009 was 100.0.
- From October 2015 to October 2016, the MERC MetroWest Cost of Living Index rose by 1.4% to a value of 122.8. This is the highest Overall Index value the region has experienced since the first survey in October 1991.
- The Overall Index had an average annual increase of about 2.5% from October 1991 to October 2016.
- The largest 12-month increase was a 17% rise in the index between October 2004 and October 2005. The largest 12-month fall in the Index was immediately following the greatest rise between October 2005 and October 2006, a 5% decrease.
- The MERC Cost of Living Index increased steadily from when MERC began collecting the data in 1991 to October 2004. After October 2004, the Index experienced increased volatility.

GREATER METROWEST – COST OF LIVING

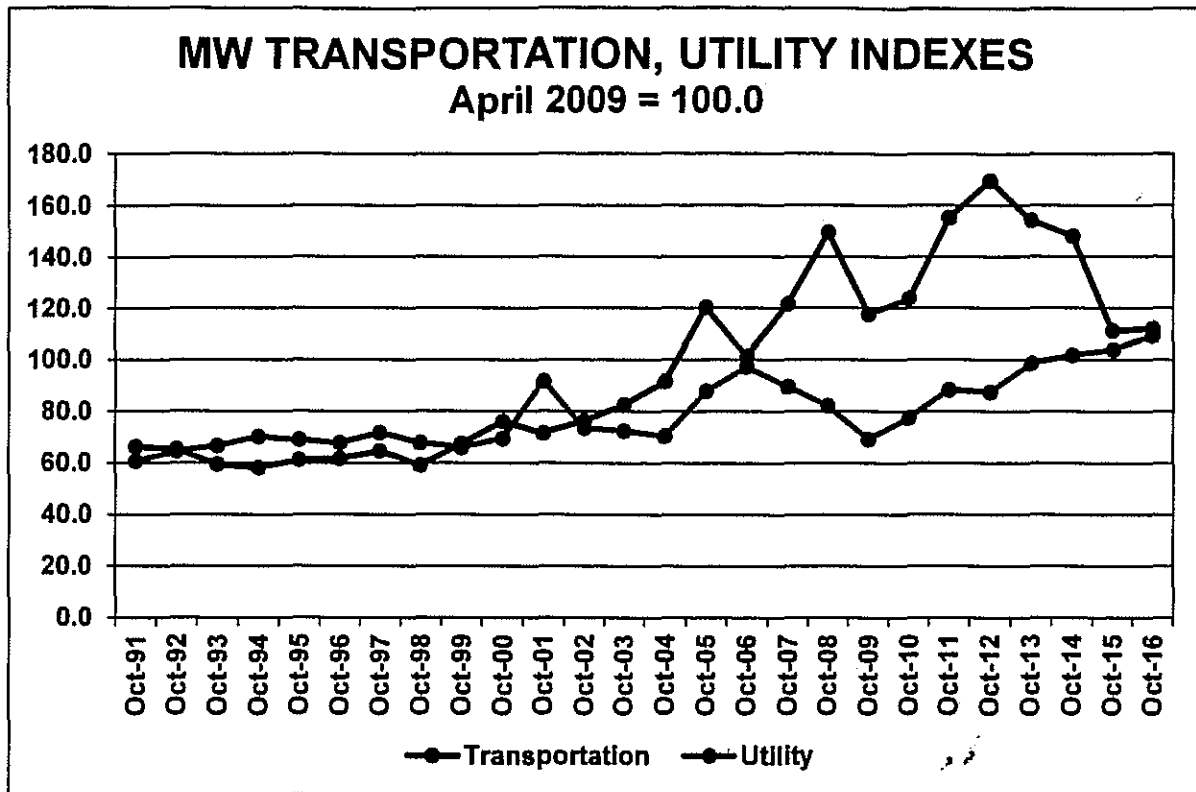


Source: MERC

- Over the 26 years between October 1991 and October 2016, the Health Care Index rose at a steady rate and had less volatility than almost all of the other Indexes.
- In October 2016, the Health Care Index was the highest of the six sub-indexes with a value of 160.1. The third highest was the Grocery Items Index at 117.0. These values are referenced to the base period of April 2009, when the index equaled 100.0
- The Health Care Index had the largest overall increase among the six indexes from October 2015 to October 2016 when it grew about 12%.
- The Grocery Items Index saw the largest decrease among the six indexes between October 2015 and October 2016, falling by about 8%. With this decrease, the Grocery Items Index ranked third highest among the sub-indexes. In the previous year, it recorded the second highest of the sub-indexes.
- From 1991 to 2016, the Grocery Items Index saw an average annual increase of approximately 2.8% while the Health Care Index saw an average annual increase of approximately 4.2%.



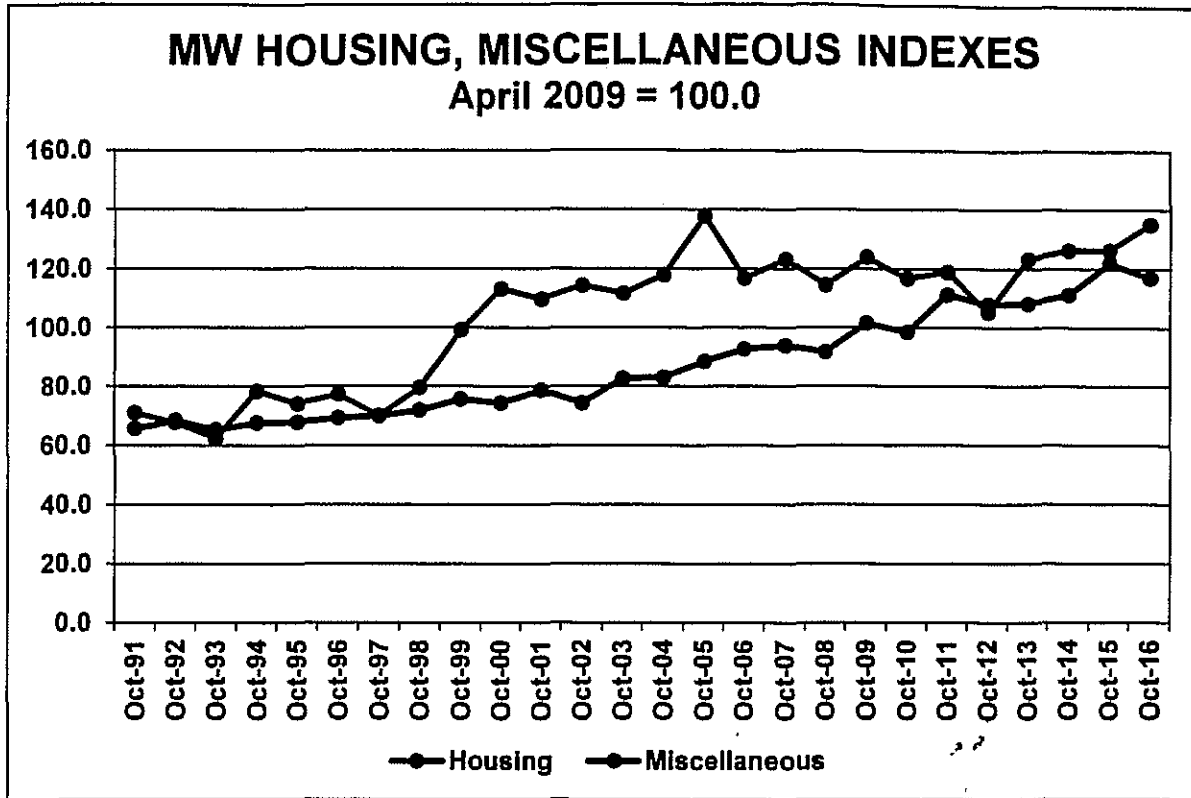
GREATER METROWEST – COST OF LIVING



Source: MERC

- For the first 16 years until October 2006, the Transportation Index and the Utility Index fluctuated in similar patterns. After 2006, the Index fluctuations began to intensify; the Transportation Index experienced a trough in 2006 and a peak in 2008, while the Utility Index experienced a peak in 2006 and a trough in 2008. This volatility continued for 8 more years.
- The Transportation Index was the most volatile of all Indexes. However, it had the smallest average annual increase at 2.0%
- Between October 1991 and October 1999, the Transportation Index only rose about 1.8 points. After that, the Index more than doubled, reaching an all-time high of 174.4 in April 2012; April 2009 being the base period with a value of 100.0.
- Since the all-time high of 174.4 in April 2012, the Transportation Index fell to a value of only 112.0 in October 2016; a decrease of approximately 36% in 4 years.

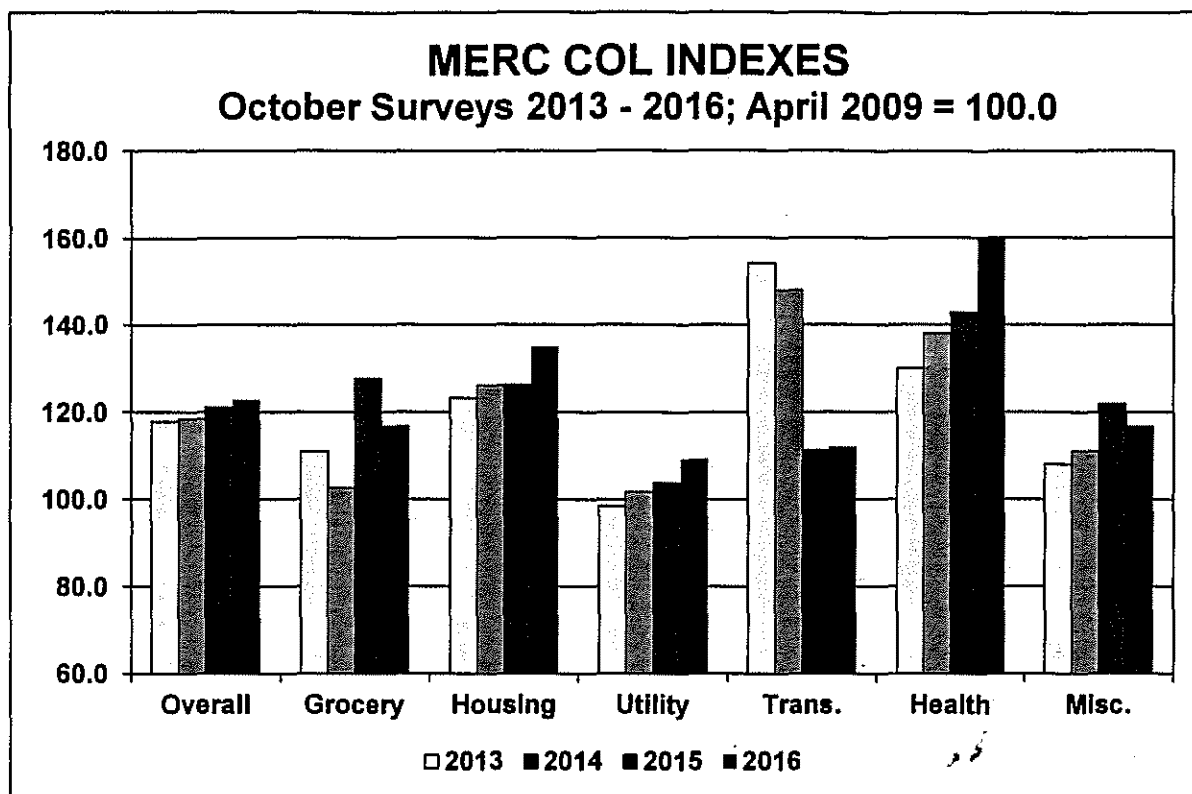
GREATER METROWEST – COST OF LIVING



Source: MERC

- The Housing Index had a value of 135.0 in October 2016. This means that housing costs in MetroWest were approximately 35% higher in October of 2016 than in the base period in April 2009.
- The Housing Index reached its peak in October 2005 with a value of 137.7. The Miscellaneous Goods and Services Index reached its peak in October 2015 with a value of 121.9.
- From October 1991 to October 2016, the average annual increase for the Housing Index was 2.5%, while the Miscellaneous Goods and Services Index saw a 2.2% average annual increase.
- The Miscellaneous Goods and Services Index has reached new peaks in 7 of the last 8 surveys. However, during the most recent October 2016 survey the Index experienced a 4.1% decrease.

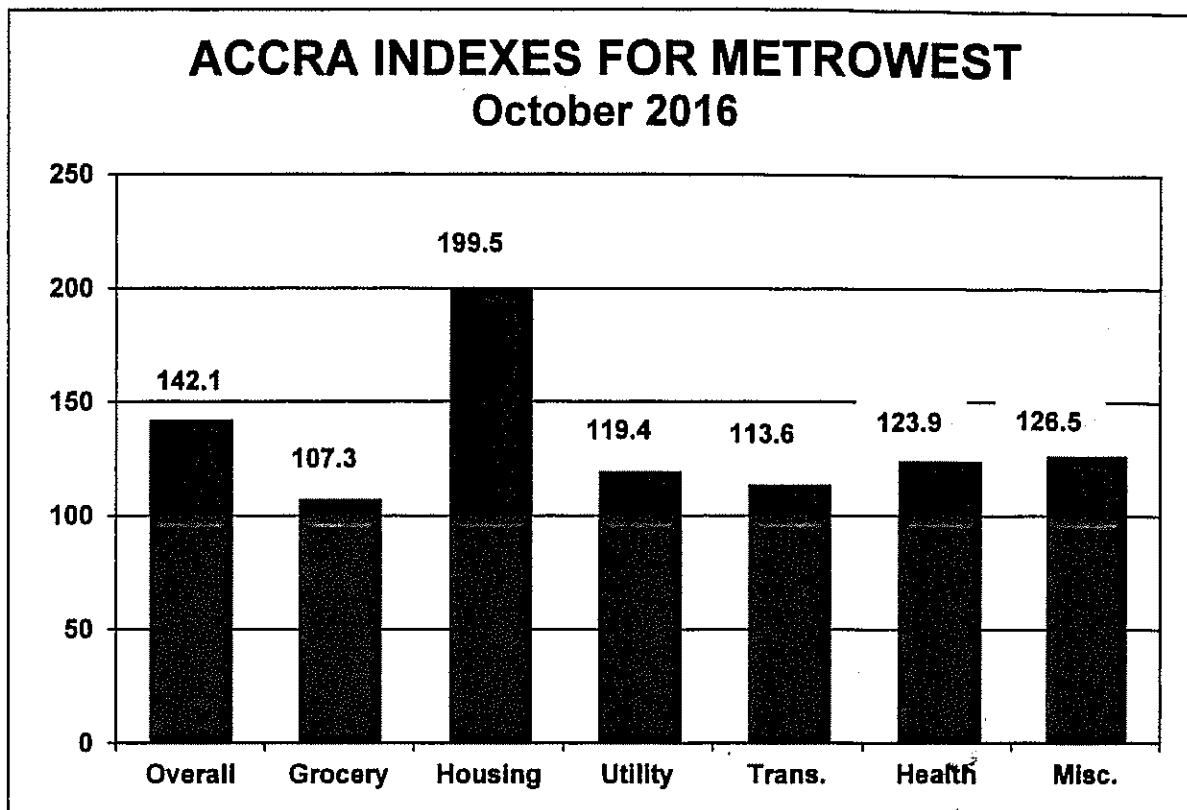
GREATER METROWEST – COST OF LIVING



Source: MERC

- The graph shows all of the indexes from the October surveys of each year, from 2013 to 2016. The base period for all the indexes is April 2009, at which time each index had a value of 100.0.
- The general trend is that the indexes grow larger each year. However, the Transportation Index was the exception; it was the only index to show any decrease for more than two consecutive surveys.
- From the four most recent October surveys, gasoline prices were \$3.46, \$3.36, \$2.33 and \$2.37 per gallon, respectively. Gas prices are currently above the previous price of \$2.37 per gallon. Therefore, the Transportation Index may begin to rise.
- In October 2013, the Transportation Index had a value of 154.1. When comparing the Index to its October 2016 value of 112.0, the Index decreased by 27%.

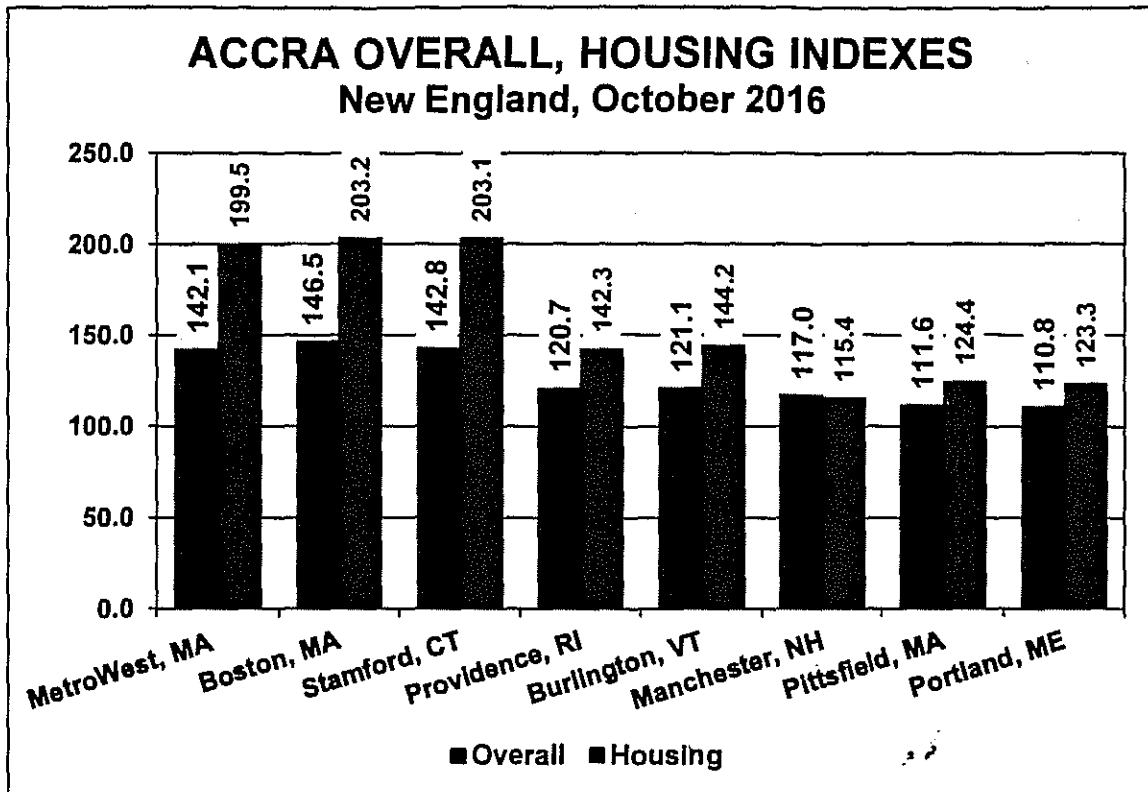
GREATER METROWEST – COST OF LIVING



Source: C2ER and MERC

- In the graph above, the green segment of each bar represents the national average cost of living, which has a value of 100.0. In October 2016, the ACCRA Overall Cost of Living Index for MetroWest was 142.1; about 42% above the national average.
- All of the sub-indexes were higher than the national average; this has been consistent throughout almost every ACCRA report since MERC began participating in 1991.
- The Housing Index was the highest of six sub-indexes with a value of 199.5. This means that the price of housing in MetroWest was nearly double the national average this past October.
- The Grocery Items Index had the lowest value of all six sub-indexes with a value of 107.3, still 7% higher than the national average. It was followed closely by the Utility Index at a value of 113.6.
- Housing was the only sub-index greater than the Overall Index.

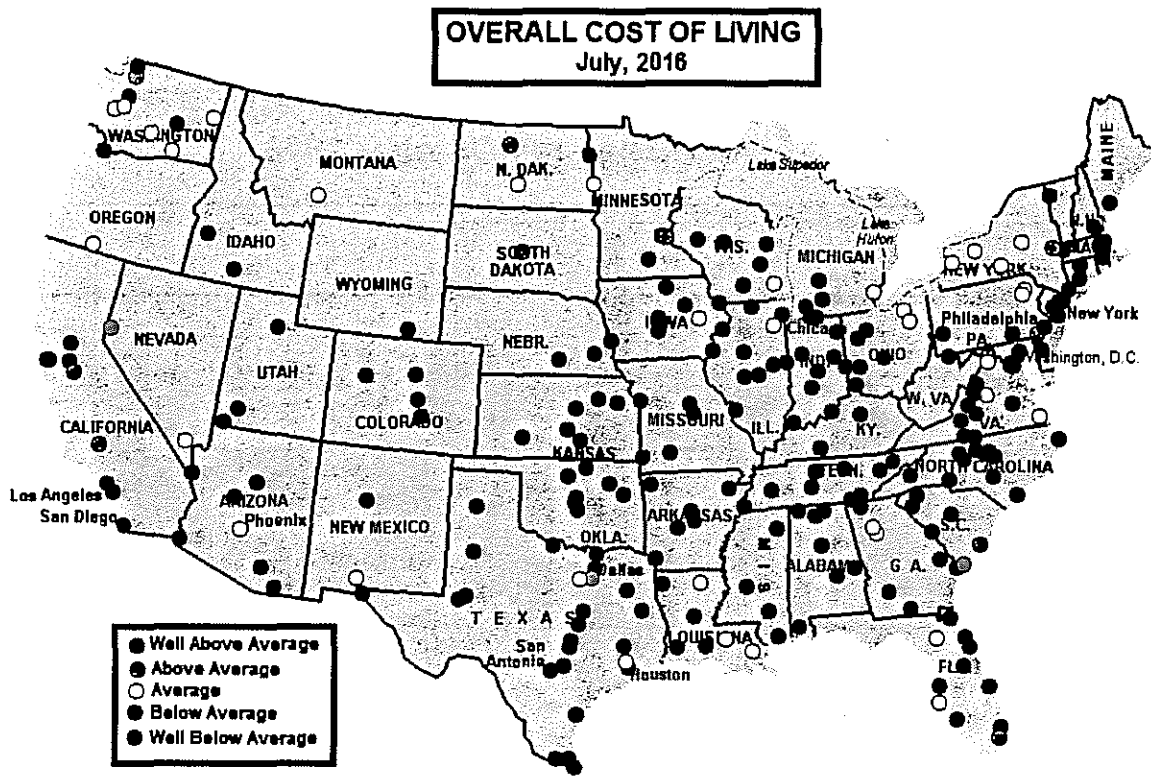
GREATER METROWEST – COST OF LIVING



Source: C2ER and MERC

- The graph above shows the Overall Cost of Living Indexes (in blue) and the Housing Indexes (in green) for MetroWest, Boston, and six other New England communities that participated in the October 2016 C2ER survey. Every area had both Overall and Housing Indexes greater than the national average.
- Among the eight areas studied in the graph above, Boston, MA had the highest Overall Index and the highest Housing Index in October 2016. The Overall index had a value of 146.5, signifying that living in Boston, MA was roughly 46% more expensive than the national average. Boston's Housing Index had a value of 203.2; housing costs in Boston were more than double the national average.
- The lowest Overall Index value belonged to Portland, ME. However, even having the lowest value of the eight areas, it still recorded a value 10% greater than the national average.
- In all of the New England communities surveyed, aside from Manchester, NH, the Housing Index was higher than the Overall Index; suggesting that the cost of housing is a significant contributor to the high cost of living in the region.

GREATER METROWEST – COST OF LIVING



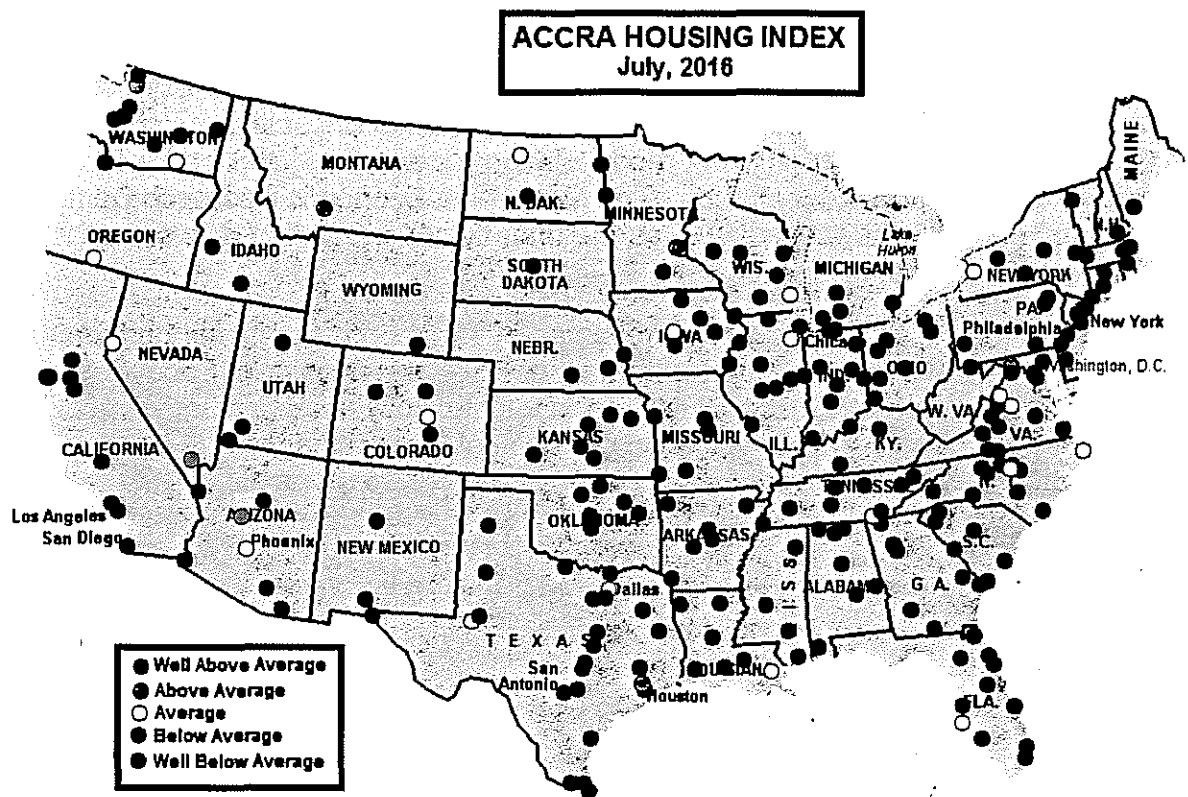
Source: C2ER and MERC

- In July of 2016, the participating communities with the highest living costs (red dots) were mostly located in the Northeast. Manhattan, NY (232.0) had the highest Overall Index, nearly 2.3 times the national average. It was followed by Honolulu, HI (188.5) and San Francisco, CA (181.9). Boston ranked 9th at 146.4 and MetroWest ranked 14th at 142.1.
- McAllen, TX had the lowest Overall Index in July 2016 with a value of 76.4, implying that the overall cost of living in McAllen was around 23% below the national average. The next two lowest Overall Indexes were observed in Harlingen, TX (78.5) and Richmond, IN (80.4).
- Sixty-three of the 261 communities (21.9%) had Overall Indexes below 90.0 (represented by blue dots), while 42 of 261 communities (16.1%) had Overall Indexes greater than 110.0 (represented by red dots).

Note: The Overall ACCRA Index was used for this classification. Average means that the index was between 97.0 and 103.0; Above Average is an index between 103.1 and 110.0; Well Above Average is an index higher than 110.0. A community with an index below 90.0 is classified as Well Below Average, while Below Average is an index between 90.0 and 96.9.



GREATER METROWEST – COST OF LIVING



Source: C2ER and MERC

- The Housing Indexes from the July 2016 survey exhibited a similar pattern to that seen in the Overall Indexes. The highest housing costs are mostly seen in the Northeast and on the West Coast, with some scattered in the Midwest.
- The highest Housing Index was 482.3 in Manhattan, NY, implying that housing costs in Manhattan are roughly five times the national average. The next highest indexes were San Francisco, CA (334.4) and Brooklyn, NY (315.1). Boston ranked 13th at 203.2, and MetroWest ranked 15th at 199.5.
- The lowest Housing Index was found in Florence, AL (61.2), nearly 39% lower than the national average. The next two lowest Housing Indexes were Tulsa, OK (62.6) and Kalamazoo, MI (63.6).
- Fifty-one of 261 communities (19.5%) had indexes greater than 110.0; well above the national average. Majority of the communities in the survey had indexes well below the national average: 153 of 261 communities (58.6%) had Housing Indexes below 90.0 (represented by the blue dots).

Note: The Overall ACCRA Index was used for this classification. Average means that the index was between 97.0 and 103.0; Above Average is an index between 103.1 and 110.0; Well Above Average is an index higher than 110.0. A community with an index below 90.0 is classified as Well Below Average, while Below Average is an index between 90.0 and 96.9.

GREATER METROWEST – MUNICIPAL REVENUE

MUNICIPAL REVENUE

Municipalities report budgeted revenue, actual revenue and actual expenditures to the Massachusetts Department of Revenue (DOR), Division of Local Services (DLS) on form Schedule A which includes a tax recapitulation report. The DLS of the DOR prepares many analyses from these reports. The MetroWest Economic Research Center (MERC) at Framingham State University uses the underlying information as well as DLS reports to prepare analyses for the local region.

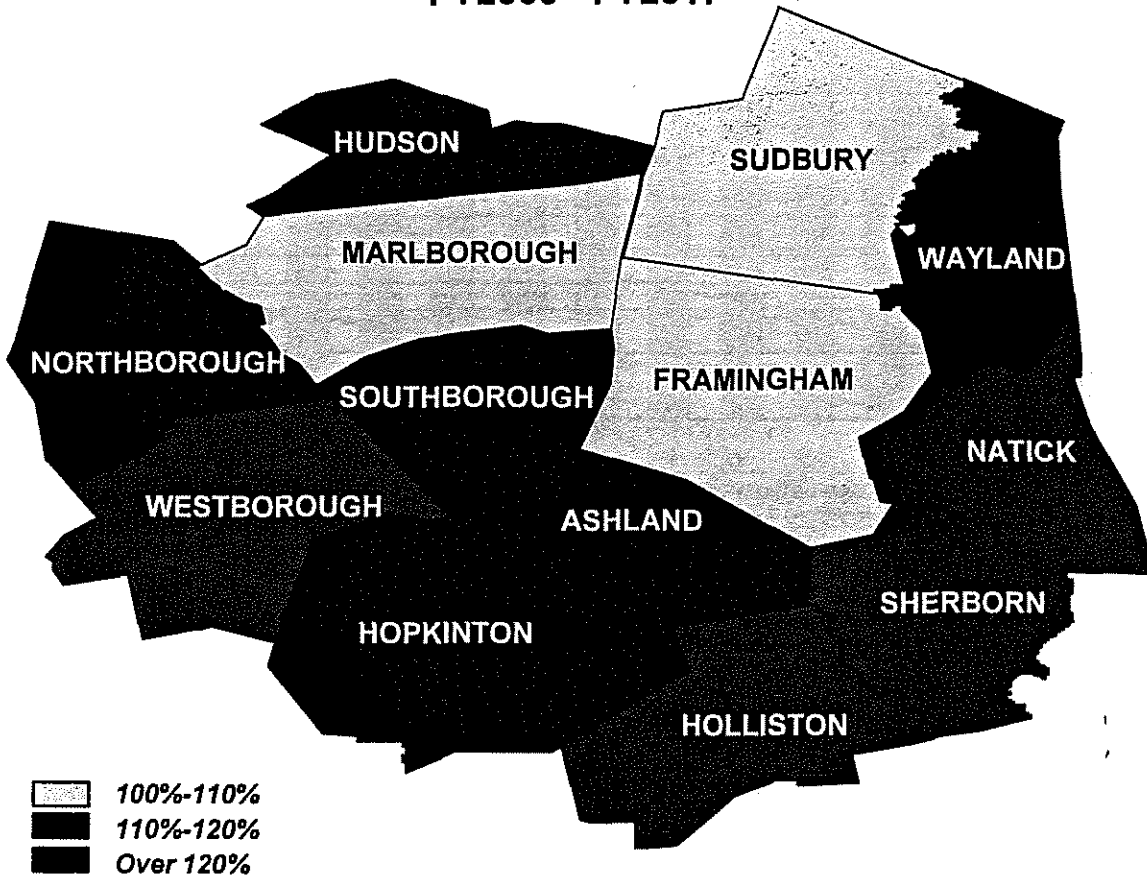
Unless otherwise stated, revenue presented in this report represents budgeted revenue reported to the Massachusetts Department of Revenue, Division of Local Services by the respective municipalities. It consists of the total tax levy, state aid, local receipts and an "all other" category. The tax levy consists of assessments on personal property, industrial, commercial, open space and residential real estate. Personal property includes furnishings of second homes and some inventories and equipment of unincorporated businesses. On-site vehicles of utility companies are generally included in this category as well. State aid is earmarked as state aid for education and state aid for general government. Local receipts include motor vehicle excise taxes, licenses and charges for services. The "all other" category includes free cash and other available funds. Budgeted revenue and actual revenue differ very little.

Tax levies are subject to limitations imposed by related legislation. In any given year, the tax levy cannot exceed 2½ percent of the total assessed value of the property of the community. In addition, the tax levy cannot increase by more than 2½ percent of the prior year tax levy limit plus new growth without voter approval of an operating budget override or a debt exclusion override. An operating budget override constitutes a permanent adjustment to the tax levy base that is used for subsequent year calculation limits while a debt exclusion override is in effect only for the life of the bond for which it was approved. It does not become a permanent adjustment to the tax levy base. Individual communities are also able to determine the extent to which property taxes will be borne by residential taxpayers or commercial and industrial (C&I) taxpayers. Some communities choose to tax residential, commercial and industrial property at the same rate while others use split rates. Personal property is generally taxed at C&I rates imposed by the respective community.

With the residential exemption, the tax burden shifts within the residential class from owner-occupied, and relatively lower valued properties, to relatively higher valued ones and to those not eligible for the exemption, such as vacant land, rental properties and seasonal homes. The small commercial exemption is a similar shift within the class in that it excludes a percentage of the assessed value of each eligible parcel. It covers commercial real property valued at less than \$1 million that is occupied by certified small business (10 or fewer employees).

GREATER METROWEST – MUNICIPAL REVENUE

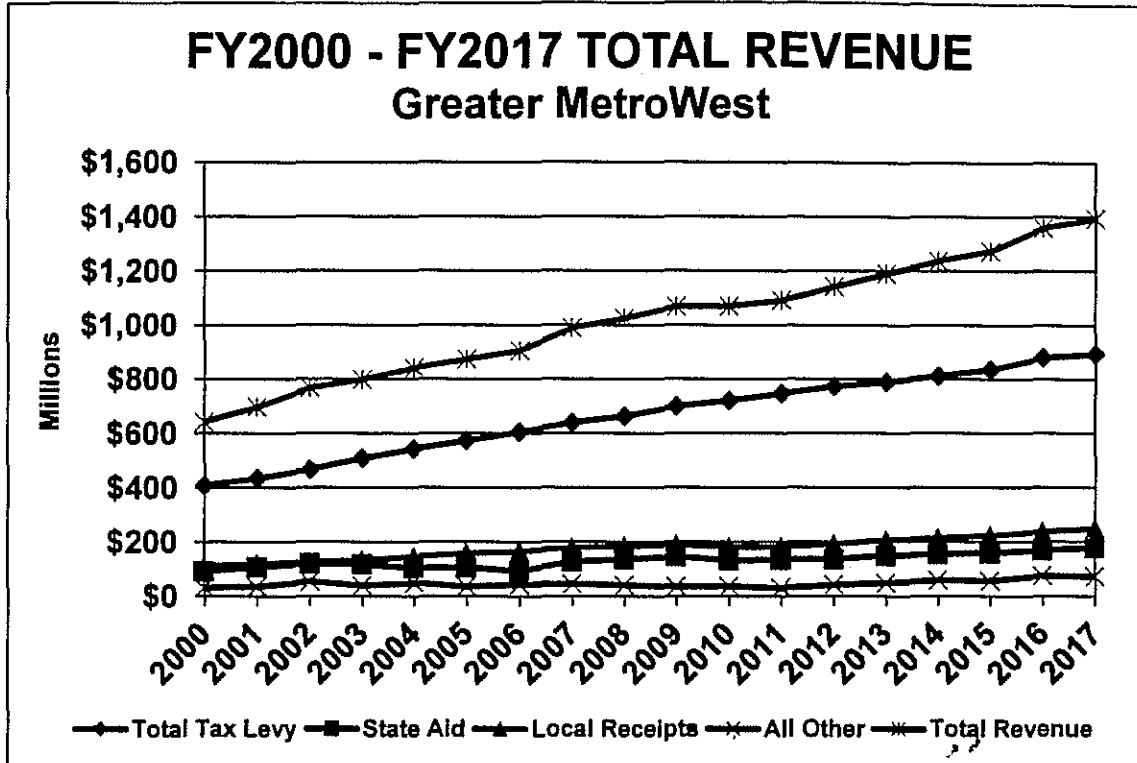
GMW GROWTH IN MUNICIPAL REVENUE FY2000 - FY2017



Source: MA Department of Revenue, DLS, and MERC

- The municipal revenue percentage growth from FY2000 to FY2017 in Greater MetroWest (GMW) is divided into three intervals: 100% to 110%, 110% to 120%, and greater than 120%.
- From FY2000 to FY2017, total GMW municipal revenue increased from \$641.3 million to approximately \$1.4 billion, a gain of 117.2%.
- The three communities of Framingham, Marlborough, and Sudbury experienced growth in municipal revenue in the 100% to 110% range. Holliston, Natick, Sherborn, and Westborough all experienced growth between 110% and 120%. The remaining six communities all grew more than 120%.
- Hopkinton and Northborough experienced the largest percentage growth throughout the period, 155.5% and 138.3% increases, respectively. Southborough grew 135.6%, Hudson 128.7%, Wayland 127.3% and Ashland 126.2% over the period.

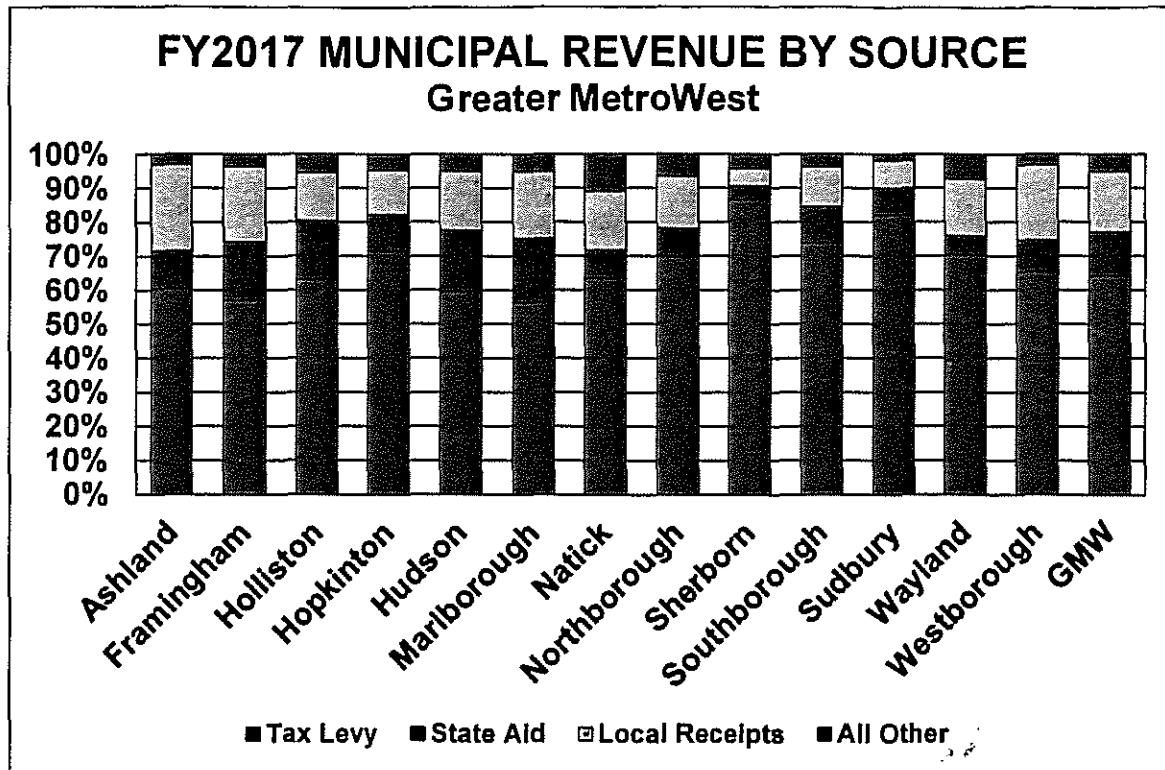
GREATER METROWEST – MUNICIPAL REVENUE



Source: Department of Revenue, DLS, MERC

- Total municipal revenue for Greater MetroWest (GMW) rose from \$641.3 million in FY2000 to \$1,392.9 million in FY2017, an increase of 117.2%.
- The tax levy for the region grew every year for an overall increase of 115.6%; the tax levy increased from \$407.8 million in FY2000 to \$893.7 million in FY2017. The tax levy rose by 4.1% from FY2016 to FY2017.
- Local receipts reached the highest value in FY2017 at \$248.5 million, an increase of 5.4% from FY2016 and an increase of 125.9% since FY2000.
- State aid for GMW was one of the lowest contributors to Total Revenue, rising from \$91.8 million in FY2000 to \$178.9 million in FY2017, an increase of 94.8%. State aid increased 6.0% from FY2016 to FY2017.
- The “all other” category was the lowest contributor in the period. In FY2000 “all other” stood at \$31.7 million. By 2016 it reached its peak of \$74.5 million, an increase of 135.1% from the start of the period in FY2000, falling to \$71.8 million in 2017.

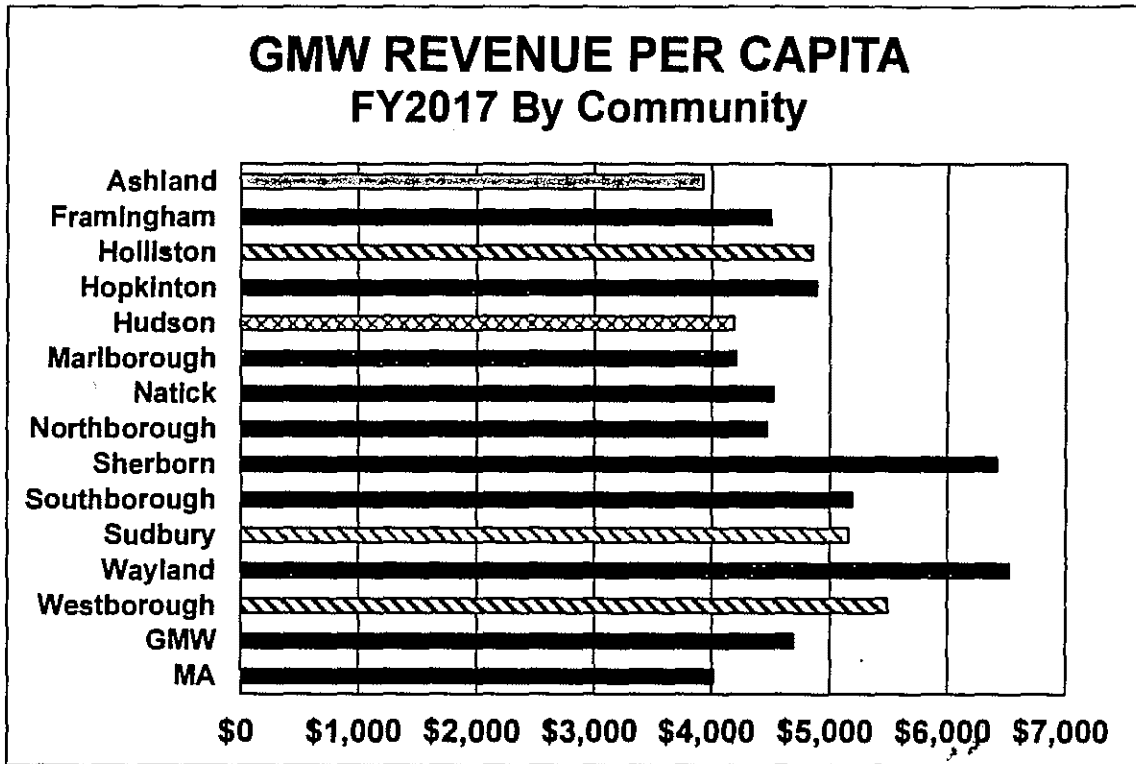
GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Revenue, DLS, and MERC

- In FY2017 the municipal revenue components for Greater MetroWest (GMW) varied by community. The total tax levy represented the largest contributor in each of the thirteen communities and the region. The percent of revenue contributed by the tax levy ranged from a low of 56.2% in Marlborough to a high of 86.6% in Sherborn.
- State aid as a percentage of total revenue varied from a low of 4.0% in Sherborn to its highest percentage in Marlborough at 18.9%.
- Local receipts ranged from 5.1% in Sherborn to a high of 25.2% in Ashland, a difference of 20.1 percentage points.
- “All other” had the smallest contribution to municipal revenue with a low of just 1.9% in Sudbury. The highest percentage was in Natick where 11.0% of municipal revenue came from the “all other” category.

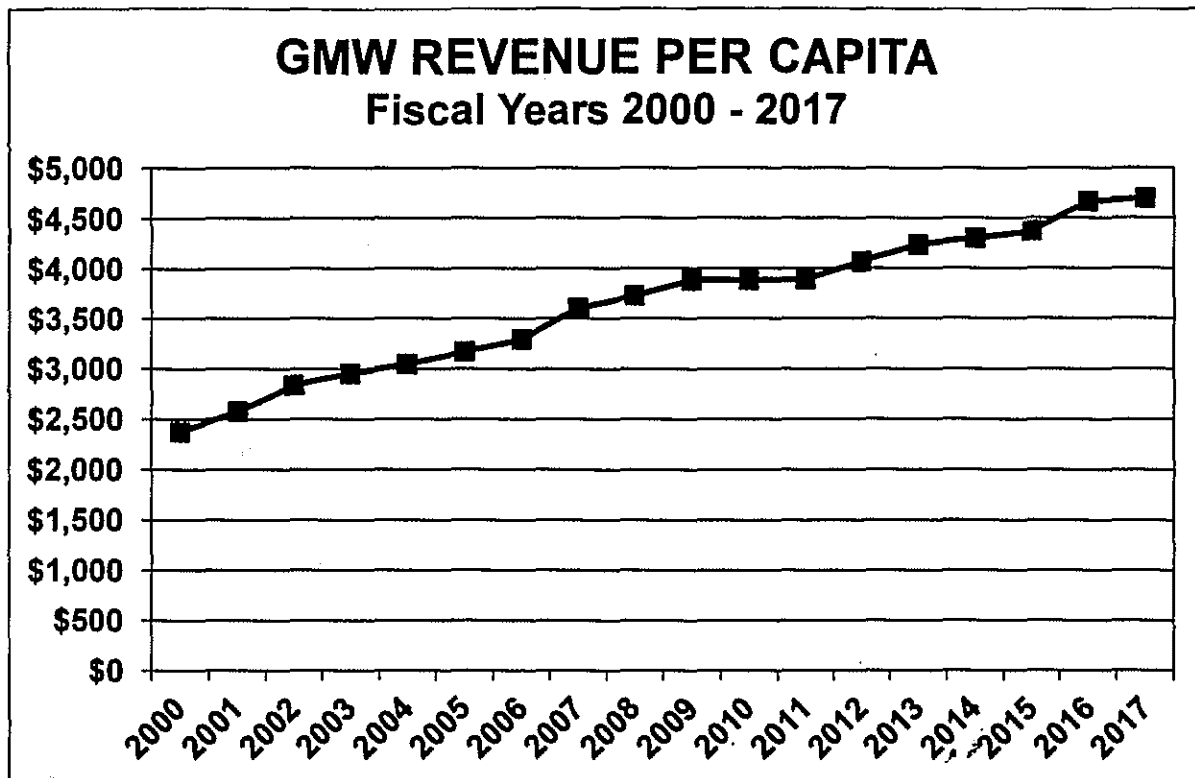
GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Revenue, DLS, and MERC

- Municipal revenue per capita for Greater MetroWest (GMW) communities, the region, and the state for FY2017 can be viewed as spending per capita as communities are required to balance their budgets.
- Of the thirteen GMW communities, Wayland had the highest revenue per capita at \$6,520; this was higher than Sherborn which had the second highest municipal revenue per capita at \$6,417. Westborough followed with the third largest revenue per capita at \$5,491. Ashland had the lowest with \$3,919, just slightly below the state per capita revenue of \$4,013, and slightly below Hudson at \$4,187. In this graph the number used for the Massachusetts per capita average is estimated based on the population and total revenue of the towns available.
- Six of the thirteen communities fell below the GMW municipal revenue per capita average of \$4,693: Ashland, Framingham, Hudson, Marlborough, Natick, and Northborough.
- Each of the remaining seven communities was above the GMW municipal revenue per capita average.

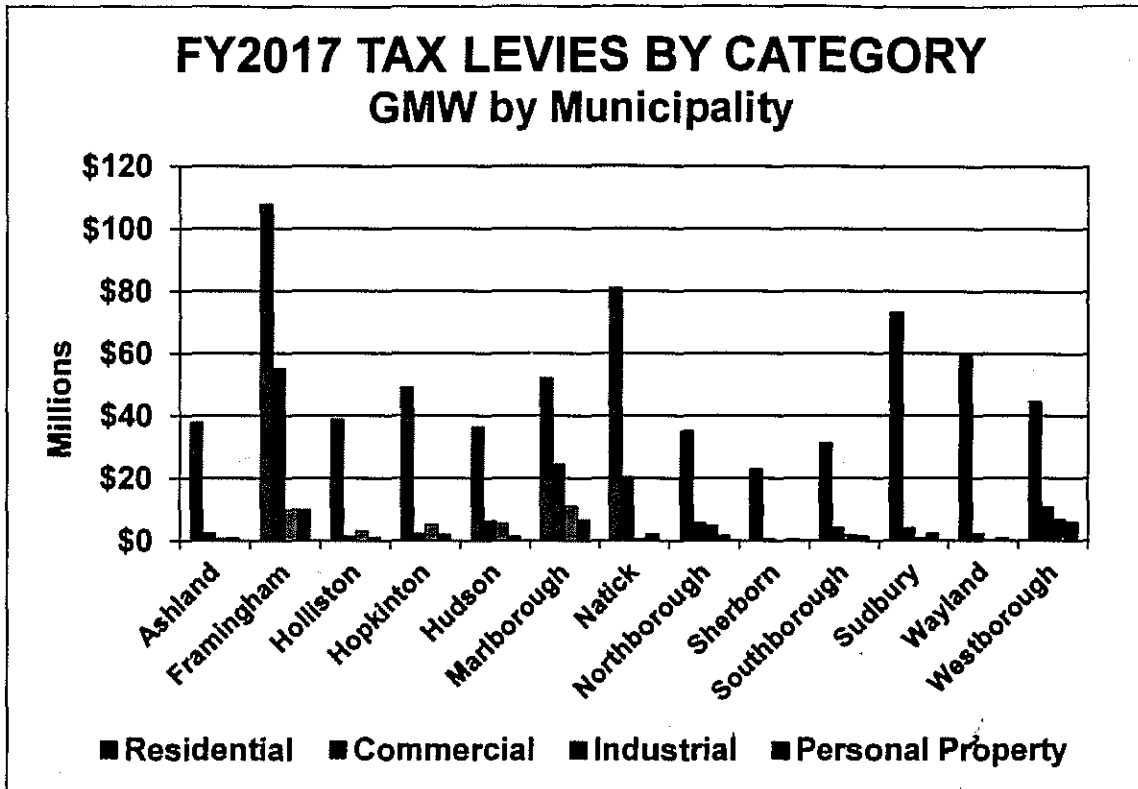
GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Revenue, DLS, and MERC

- Municipal revenue per capita for Greater MetroWest (GMW) increased from \$2,373 in FY2000 to \$4,693 in FY2017. This represented an average annual rate of increase of approximately 4.1% over the 18-year period.
- This statistic can also be viewed as spending per capita as communities work with balanced budgets.
- An increase of 0.1% occurred twice between FY2009 and FY2010 as well as between FY2010 and FY2011. These were the smallest percentage increases seen for the region within the period.
- The largest percentage increase of 10.2% occurred between FY2001 and FY2002 when municipal revenue per capita rose from \$2,576 to \$2,838.
- Between FY2016 and FY2017, the municipal revenue per capita rose from \$4,593 to \$4,693, or an increase of about 2.2% for the one year period.

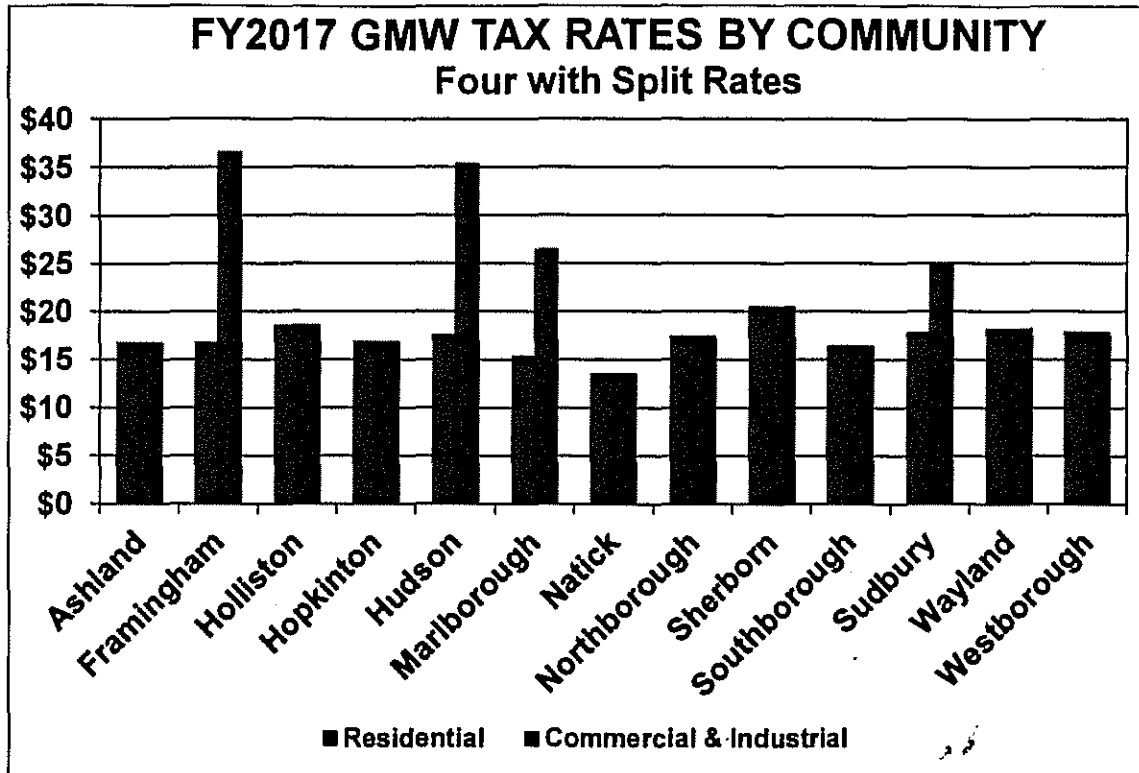
GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Revenue, DLS, and MERC

- Residential taxes produced the largest portion of the tax levy for all communities in the Greater MetroWest region. Absolute amounts varied considerably, ranging from \$108 million in Framingham to \$23 million in Sherborn. The total tax levy for the region was \$894 million.
- The commercial tax levy fell between \$55 million in Framingham and \$0.5 million in Sherborn. Marlborough had the second highest commercial tax levy at \$24 million.
- The industrial tax levy was the highest in Marlborough and Framingham at \$11 and \$10 million, respectively. Sherborn and Wayland had the lowest industrial tax levy at \$58,820 and \$77,549, respectively.
- The personal property tax levy was \$10 million in Framingham followed by \$6 million in Marlborough and \$6 million in Westborough, the third highest in the region.
- The total tax levy rose by \$35 million in FY2017, from its previous year in FY2016, increasing from \$858 million to \$894 million.

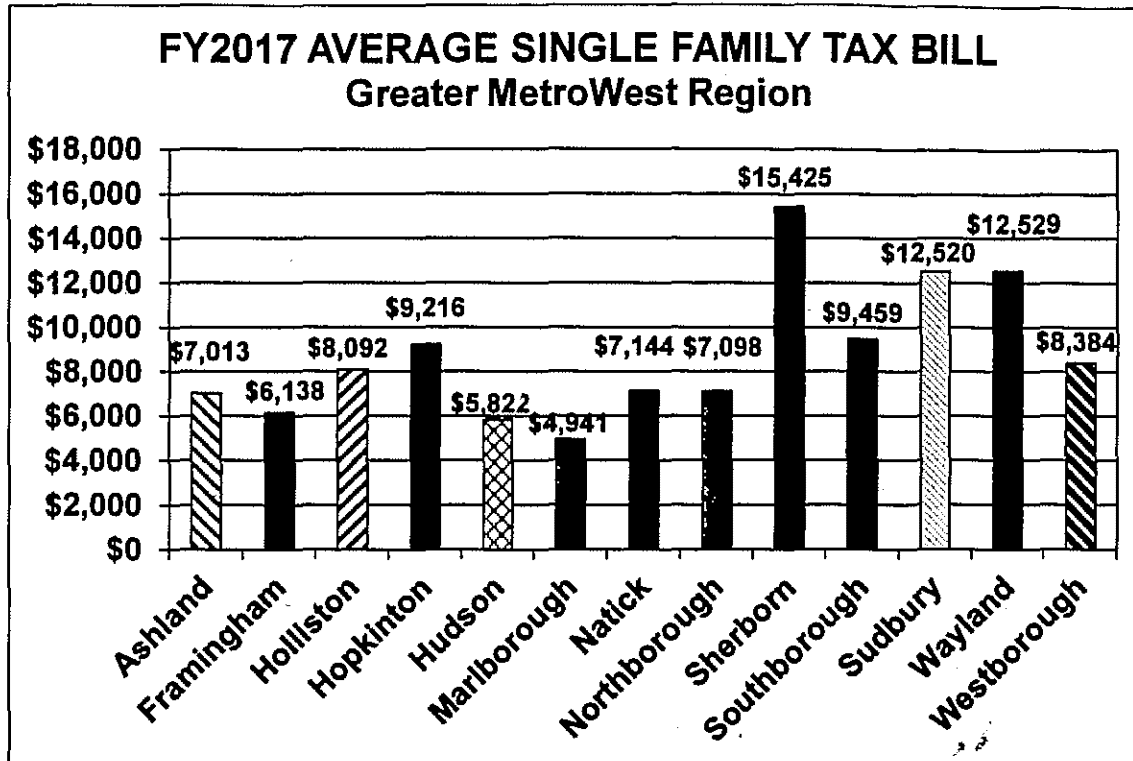
GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Revenue, DLS, and MERC

- The graph above compares the FY2017 residential and commercial & industrial tax rates per \$1,000 of assessed value for the thirteen Greater MetroWest (GMW) communities.
- In the region, nine of the thirteen communities had the same rates for both residential and commercial & industrial property. These communities include: Ashland, Holliston, Hopkinton, Natick, Northborough, Sherborn, Southborough, Wayland, and Westborough.
- The four communities with split rates in GMW were Framingham, Hudson, Marlborough, and Sudbury. These four communities had the highest commercial and industrial rates at \$36.52, \$35.35, \$26.41, and \$25.01, respectively.
- Natick had the lowest rates for both residential and commercial & industrial property at \$13.49.
- Residential rates ranged from Sherborn at \$20.46, which was the highest among the thirteen communities, to the lowest residential tax rate in GMW at \$13.49 in Natick.

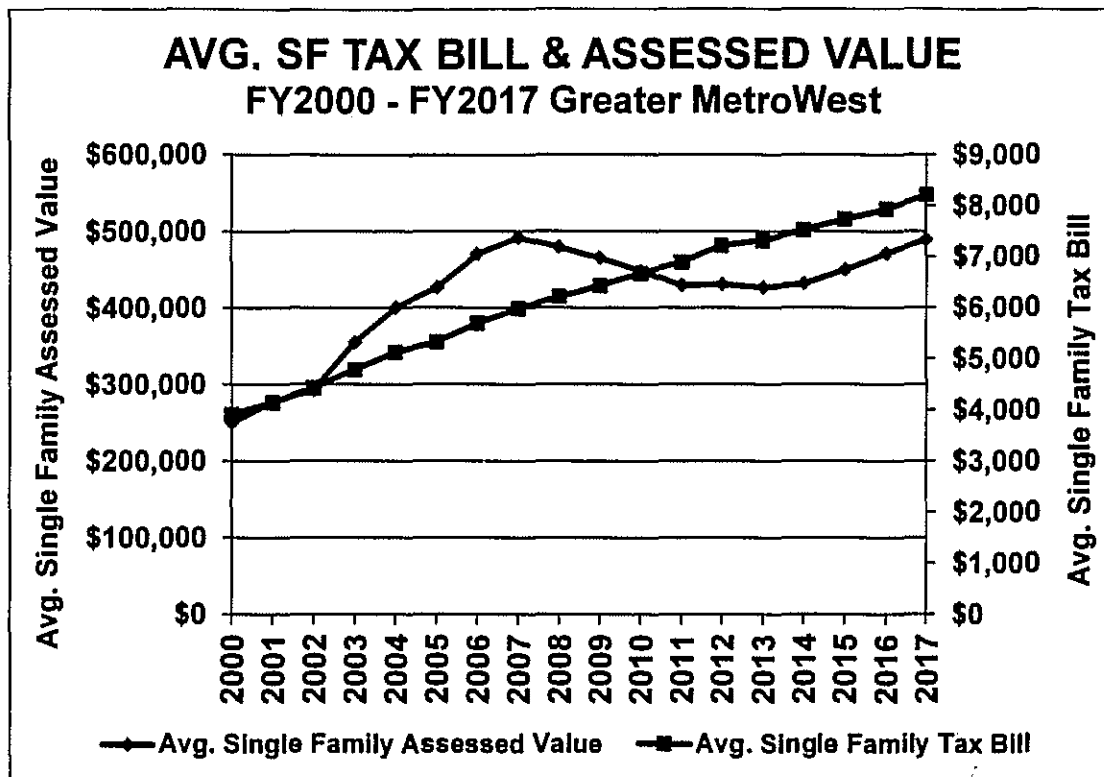
GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Revenue, DLS, and MERC

- The average single family residential tax bill in FY2017 differed by community from a low of \$4,941 in Marlborough to a high of \$15,425 in Sherborn.
- Sherborn's average single family tax bill was more than triple the average single family tax bill in Marlborough.
- Among the remaining eleven communities, the average single family tax bill ranged from \$5,822 in Hudson to \$12,529 in Wayland with communities such as Southborough (\$9,459), Hopkinton (\$9,216), Westborough (\$8,384), and Holliston (\$8,092) all falling in the middle.
- The average assessed value for single family homes is arrived at by dividing the total single family assessed value for each community by the number of single family parcels in that community.
- The average single family tax bill is determined by applying the respective residential tax rate to the average single family assessed value for each community.

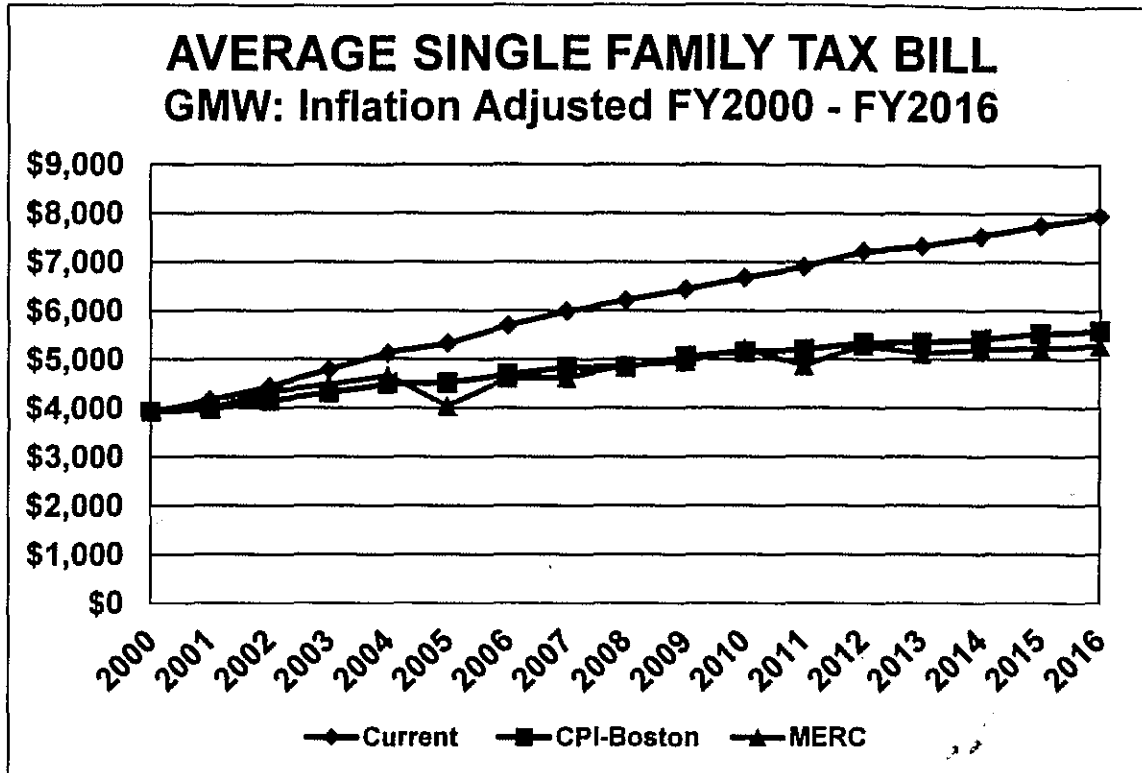
GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Revenue, DLS, and MERC

- The average single family assessed value for Greater MetroWest (GMW), excluding Marlborough, is shown in blue on the left vertical axis. The average single family tax bill is shown in red and on the right vertical axis.
- The average single family tax bill increased from a low of \$3,915 in FY2000 to a high of \$8,208 in FY2017. An increase of 109.7% over the period. Each year on the graph the average single family tax bill increased.
- From FY2000 to FY2017, the average single family assessed value fluctuated. The lowest value occurred in FY2000 at \$249,490 while the highest value was \$491,631 in FY2007. From there it fell until FY2011, increasing marginally in FY2012, and dipping again in FY2013. The average single family assessed value experienced an increase of 3.8% from FY2016 to \$488,873 in FY2017.
- The average single family tax bill for the region was determined by calculating a residential tax rate for the region and applying this to the average single family assessed value. The rate was determined by dividing the residential tax levy by the residential assessed value for the region. The average single family assessed value of the region was determined by dividing the total single family assessed value for the region by the total single family dwellings.

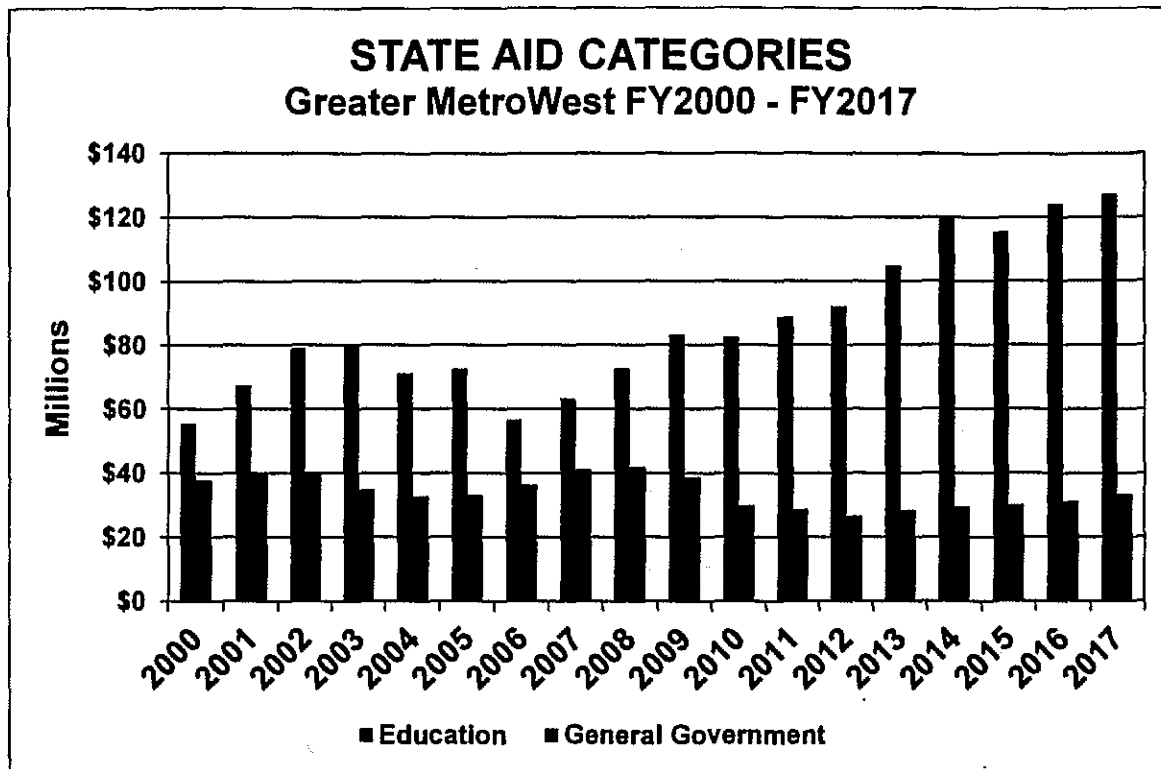
GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Revenue, DLS, and MERC

- This graph depicts the average single family tax bill in Greater MetroWest (GMW), excluding Marlborough, for FY2000 to FY2016. The values are measured in nominal or current dollars and also adjusted for inflation.
- The actual single family tax bill, shown in blue, increased every year during this time period from \$3,915 in FY2000 to \$7,938 in FY2016, an increase of \$3,820 or 102.75%.
- Two different price indexes were used to calculate the inflation-adjusted real dollar value of the average single family tax bill: MERC's MetroWest Cost of Living Index and the Boston Consumer Price Index (CPI).
- Each of the two inflation adjustments yielded higher total tax bills in FY2016 than in FY2000. The Boston CPI produced a larger increase in the tax bill over the period, an increase of \$1,670 to a tax bill of \$5,585, while the MERC index generated an increase of \$1,364 to \$4,961.

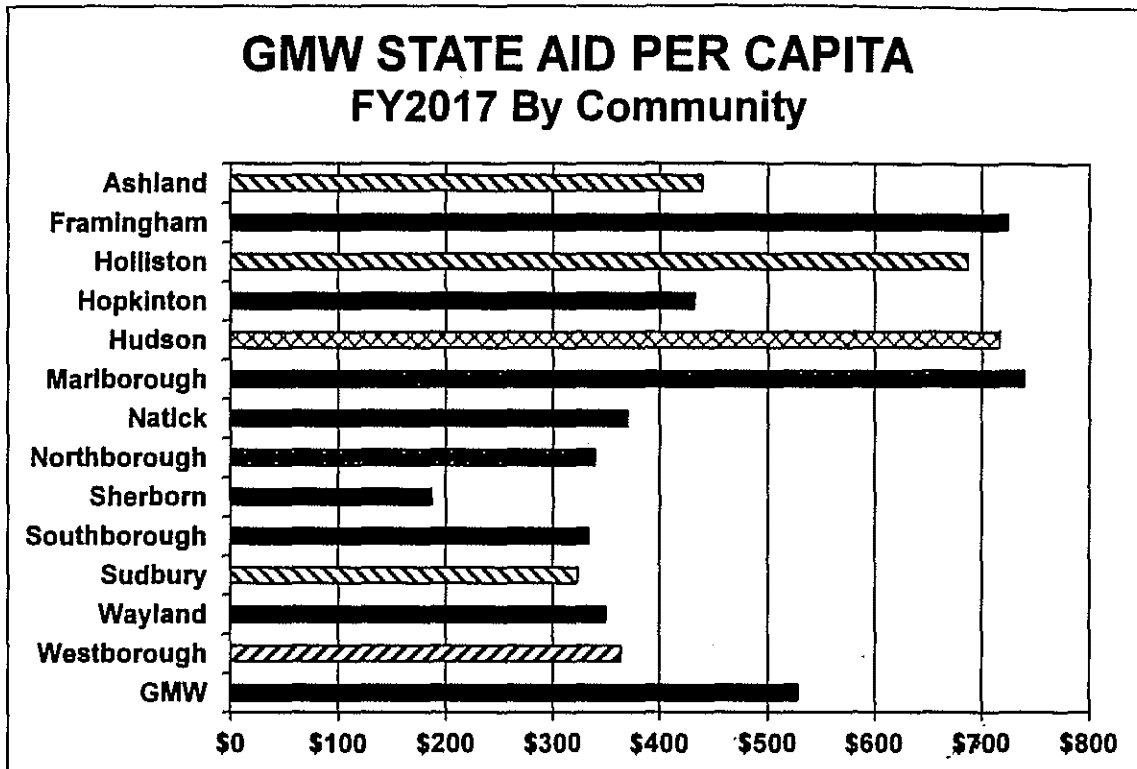
GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Revenue, DLS, and MERC

- State aid for education in Greater MetroWest (GMW) increased from \$55.5 million in FY2000 to \$123.4 million in FY2017, more than doubling. Over the period, there were five cases where state aid for education decreased while the remaining years showed an increase. State aid for education increased steadily from FY2010 through FY2014 and decreased slightly in FY2015, before increasing again in FY2016 and in FY2017 to \$127.2 million.
- Note that the amount from FY2006 forward does not include estimated continuing school construction aid that is now accounted for separately by the Massachusetts School Building Authority (MSBA). State aid for education on this page is comprised of Chapter 70, charter tuition assessment reimbursement, school lunch and school choice receiving tuition programs.
- State aid for general government in the GMW communities for the same period had a much lower range with a high of \$42 million to a low of \$26 million. State aid for general government in GMW for FY2017 was \$33.4 million, an increase of 7.3% from FY2016.
- Total state aid has varied over time with periods of increase then decline. Total state aid has increased each year from FY2010 through FY2014, and decreased in FY2015 to \$146.6 million, increasing to \$155.2 million in FY2016 and \$160.6 in FY2017.

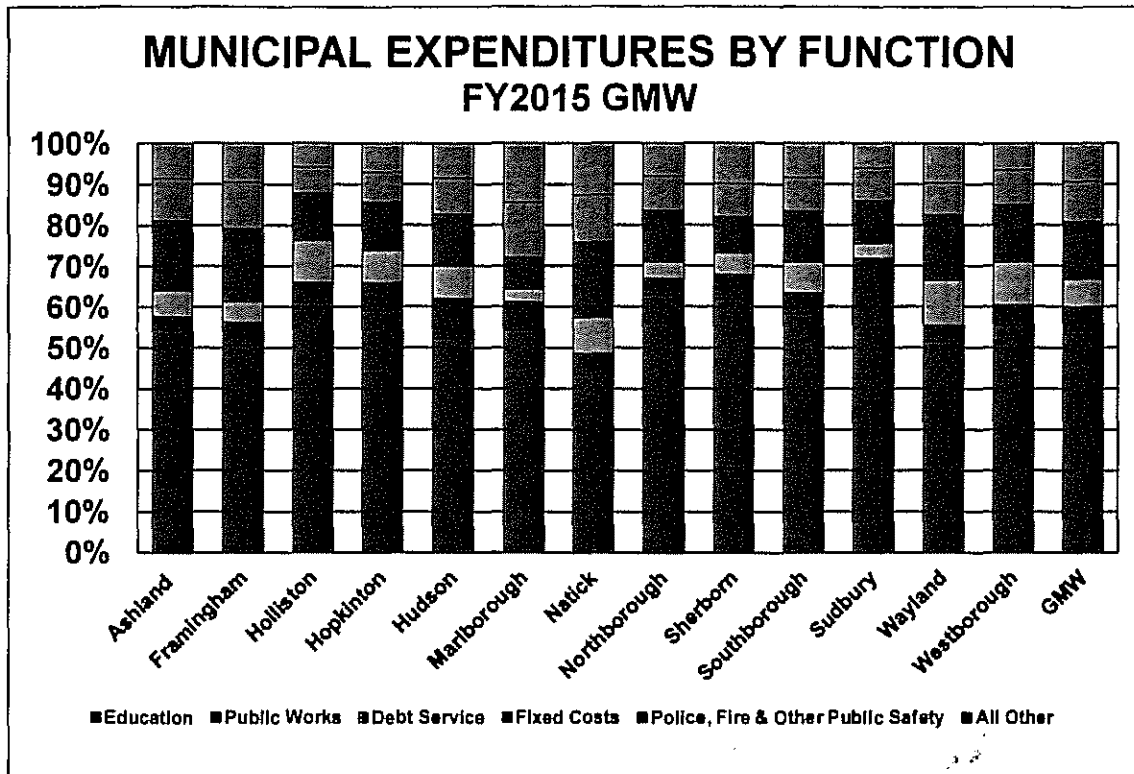
GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Revenue, DLS, and MERC

- The graph shows per capita state aid given directly to each of the thirteen communities in Greater MetroWest as well as the region for FY2017. State aid per capita is calculated by dividing the sum of the aid given to a community by the population of the community.
- Per capita state aid given to the communities ranged from a low of \$187 in Sherborn to a high of \$740 in Marlborough, followed closely by Framingham at \$724 and Hudson at \$717. Communities in the region received an average of \$462 per capita in state aid for FY2017.
- State aid reflected in this graph consists of both state aid for education as well as state aid for general government given directly to the respective communities. Total state aid given to all of the communities shown above was \$156,847,397.
- Note that the communities of Northborough and Southborough belong to a regional school district as do Sudbury (with Lincoln) and Sherborn (with Dover). State aid given directly to those regional school districts is not included in the above calculations.

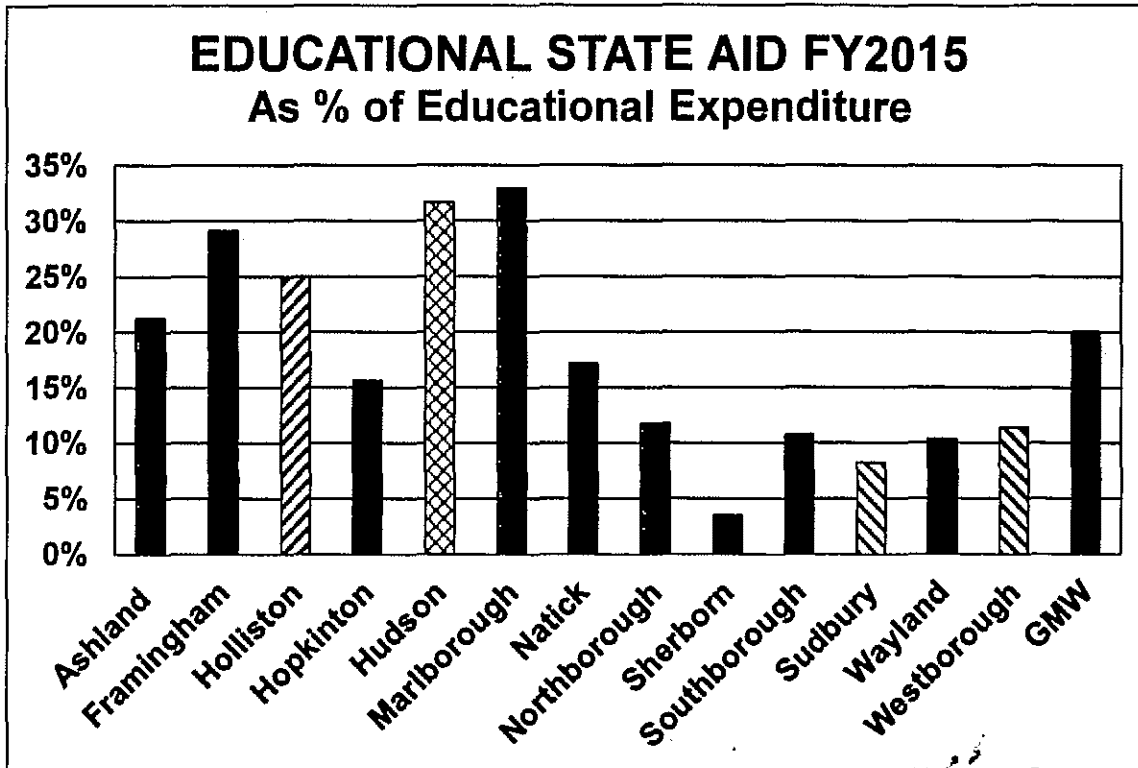
GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Revenue, DLS, and MERC

- Municipal expenditures are classified into six main categories: education, public works, debt service, fixed costs, police, fire & other public safety and “all other.” Fixed employee benefits for all municipal employees are included in fixed costs. Total general fund expenditures in FY2015 in Greater MetroWest (GMW) were over a billion dollars.
- Of the thirteen communities, only Natick had less than 50% of their municipal expenditures go to education with 43.5%. The other twelve communities had education shares ranging from 50.5% in Wayland to 65.9% in Sudbury with a GMW average of 54.3%.
- The remaining categories varied by community. Marlborough had the lowest fixed cost expenditures at 7.7%, compared to a GMW average of 14.1%. Public works was the lowest expenditure percentage in Ashland at 3.1% with a GMW average of 5.6%. Westborough had the highest debt services expenditure at 10.6%. Police, fire & other public safety and “all other” had percentages of 9.8% and 9.3% respectively for the region.

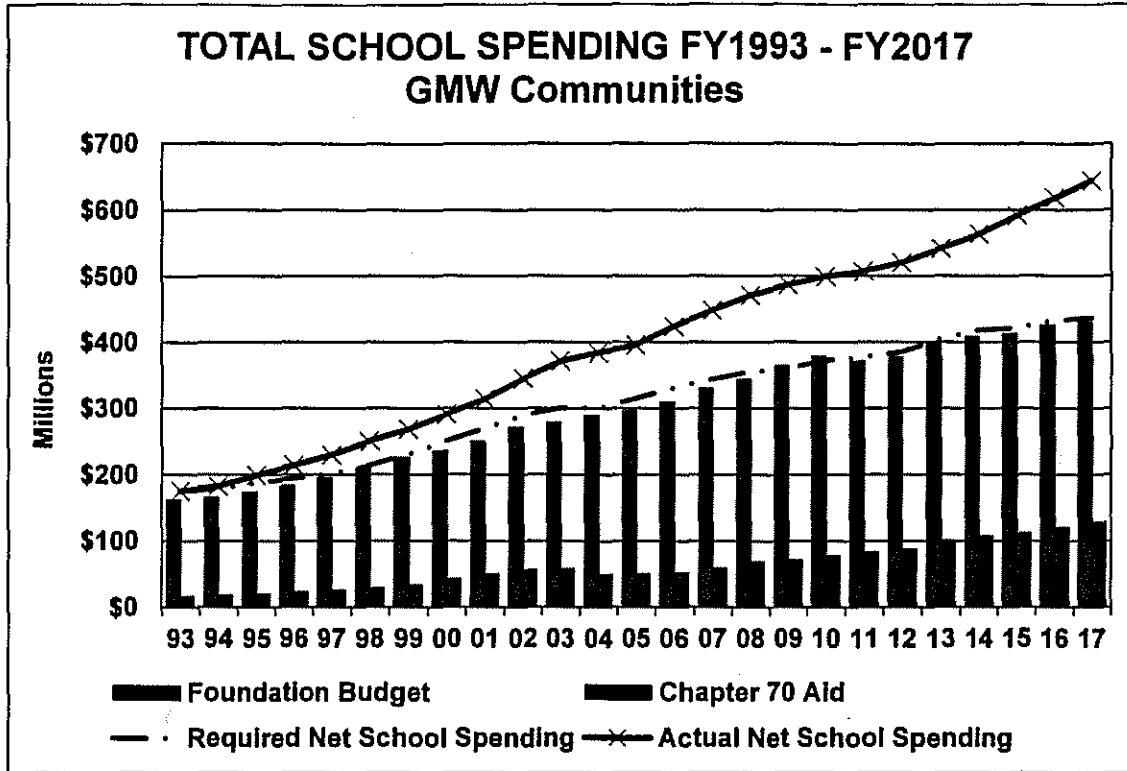
GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Revenue, DLS, and MERC

- Marlborough had the largest educational state aid as a percentage of educational expenditure at 32.9%. Hudson (31.7%), Framingham (29.1%), and Holliston (24.9%) followed closely behind Marlborough. These four communities and Ashland, were the only communities to surpass the GMW average of 20.1%.
- Sherborn had the lowest percentage at 3.5% while Sudbury had the second lowest with 8.2% which was more than double the percentage for Sherborn. Noteworthy, Sherborn is a part of a regional middle school and high school district. Northborough and Southborough, as well as Sudbury (with Lincoln) also belong to regional school districts which means state aid given directly to these regional schools is not included in this calculation.
- The remaining communities of Natick, Northborough, Southborough, Wayland, and Westborough had percentages ranging from a low of 10.3% in Wayland to a high of 17.1% in Natick.
- Educational expenditures in this graph are those reported in the general fund. State aid for education in this graph includes Chapter 70 state aid for education, charter tuition assessment reimbursement, and school lunch programs.

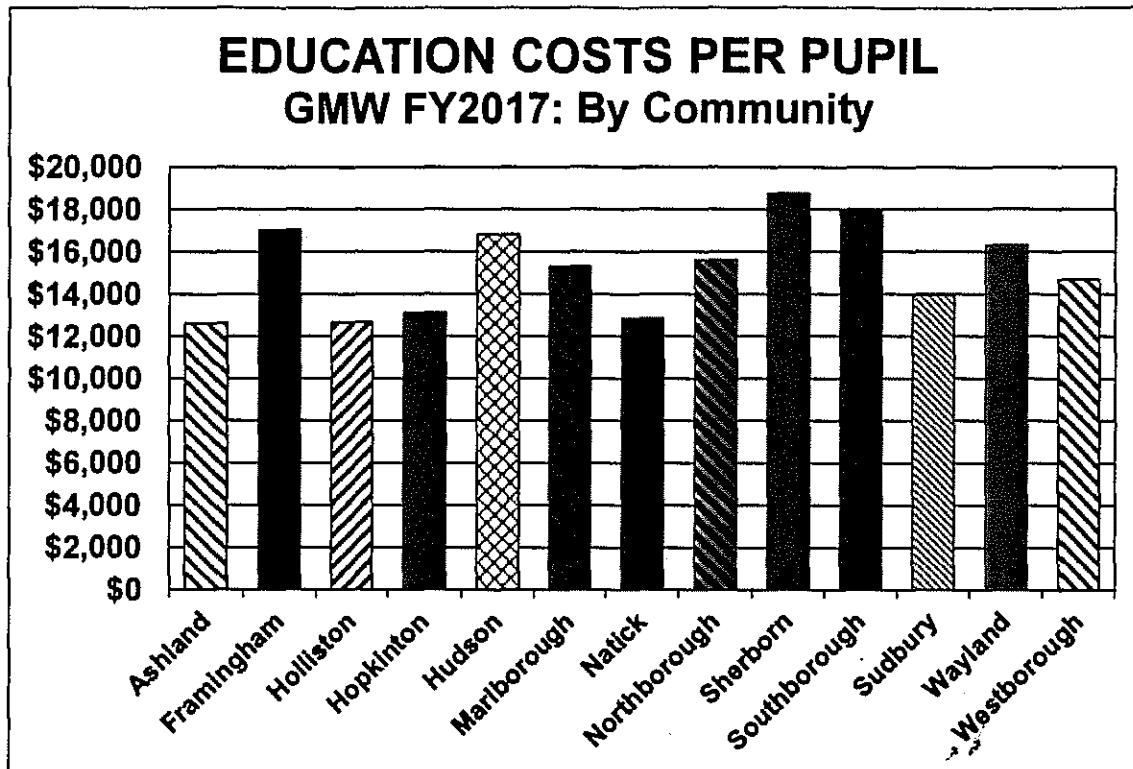
GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Revenue, DLS, DOE and MERC

- This chart shows school spending totals over time for the thirteen communities in Greater MetroWest (GMW). Amounts are indicated for the foundation budget, required net school spending, Chapter 70 state aid for education and actual net school spending. Required net school spending is defined as the sum of a district's minimum contribution(s) plus Chapter 70 aid.
- The red bars represent the foundation budget, a measure of the amount needed to provide the students in any given community an adequate, but not excessive, education. The foundation budget is determined by student enrollment classification categories and related costs. For FY2017 the total foundation budget for GMW was \$429 million, while the required net school spending (green line), which includes some additional items, was \$436 million.
- The blue bars represent Chapter 70 state aid educational assistance given to the communities. FY2017 Chapter 70 state aid educational assistance provided to the region totaled approximately \$128 million. The difference between the height of the dashed and blue bars represents the required local contributions to school spending of \$308 million for FY2017 for the region. Actual net spending (purple line) is comprised of the required local contribution, Chapter 70 state aid and additional amounts communities choose to spend on education. FY2017 actual net spending totaled \$644 million. The communities in GMW actually spent \$208 million more educating their students than required.

GREATER METROWEST – MUNICIPAL REVENUE



Source: MA Department of Education and MERC

- The graph on this page shows the thirteen municipalities that make up the Greater MetroWest (GMW) region, and amounts spent per K-12 student in FY2017. The graph shows education costs per pupil for public schools as reported by the Massachusetts Department of Elementary and Secondary Education (DESE).
- Spending on education ranged from \$12,620 per pupil in Ashland to \$18,768 per pupil in Sherborn. Eight municipalities spent between \$12,000 and \$16,000 per pupil while Wayland, Hudson, Framingham, Southborough, and Sherborn spent \$16,301, \$16,812, \$17,020, \$17,999, and \$18,768, respectively.
- The education costs on this graph represent actual net school spending per pupil. To find the cost per pupil, the actual net spending amount is divided by the number of students enrolled for each community.
- Framingham had the largest student enrollment of the GMW communities and had the third highest cost per pupil. Sherborn, the community with the highest education cost per pupil had the smallest student enrollment. Regional and vocational schools are accounted for separately and are not included on this graph.

GREATER METROWEST – K-12 PUBLIC SCHOOL ENROLLMENT

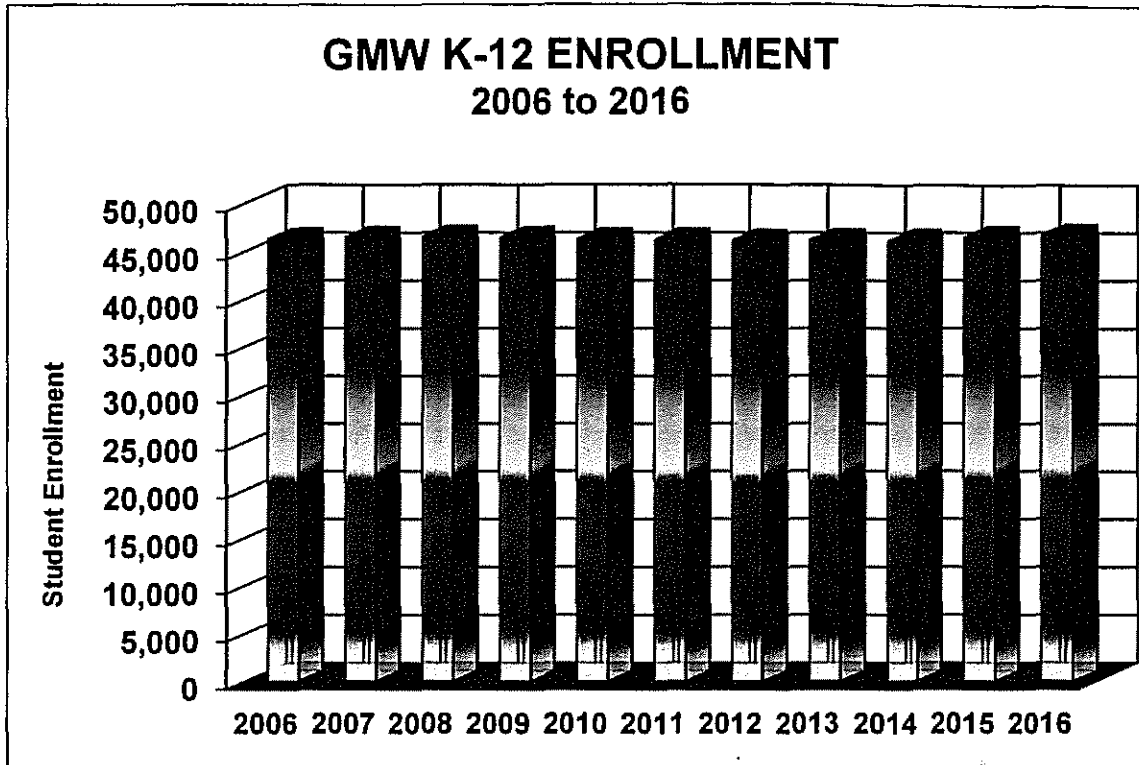
K-12 PUBLIC SCHOOL ENROLLMENT

The MetroWest Economic Research Center (MERC) at Framingham State University annually collects data on K-12 public school enrollment for several sub-state regions. Greater MetroWest public school enrollment is calculated for kindergarten through grade 12 using the annual state student census conducted in October of each year. Included in the data are all public school students in regular education, special education, ELL (English Language Learners), regional charter schools and regional vocational high schools. MERC contacts the region's charter schools, McAuliffe Regional Charter School and the Advanced Math and Science Academy, to obtain their enrollment figures.

In many communities, kindergarten enrollment typically increases 3.3% upon entry into the first grade.

The Massachusetts Department of Elementary and Secondary Education implemented a student enrollment database, the Student Information Management System (SIMS) in 2000. The MERC K-12 data presented in this report are obtained from both the October 2016 SIMS student census and data provided directly to MERC by the local school districts.

GREATER METROWEST – K-12 ENROLLMENT

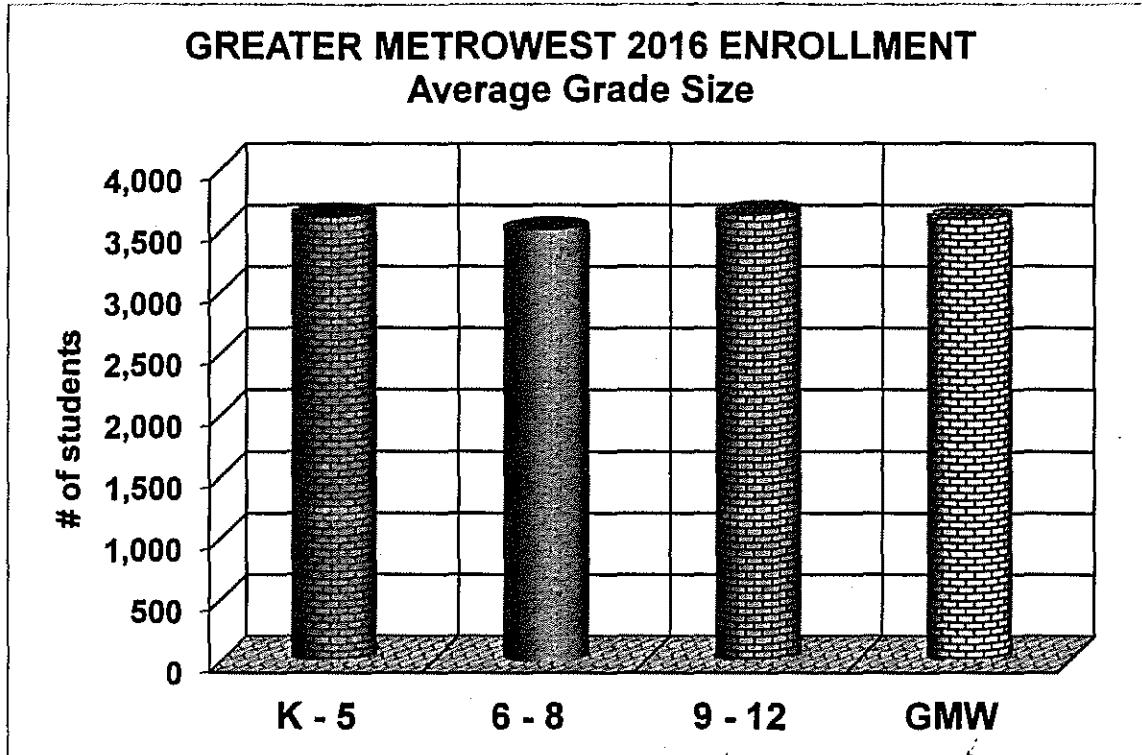


Source: MA Department of Elementary and Secondary Education and MERC

- Public school student enrollment in Greater MetroWest (GWM) experienced an increase from 2006 to 2016. The student enrollment in 2006 was 46,270 students, and rose to 46,685 in 2016.
- The Greater MetroWest vocational school enrollment value is included in the above graph; however, charter school enrollment is not included.
- Vocational school enrollment rose from 1,318 students to 1,473 in the eleven year period, or an increase of 11.7%.
- The charter school student enrollment rose from 689 students in 2006 to 1,347 in 2016, an increase of 105%.



GREATER METROWEST – K-12 ENROLLMENT

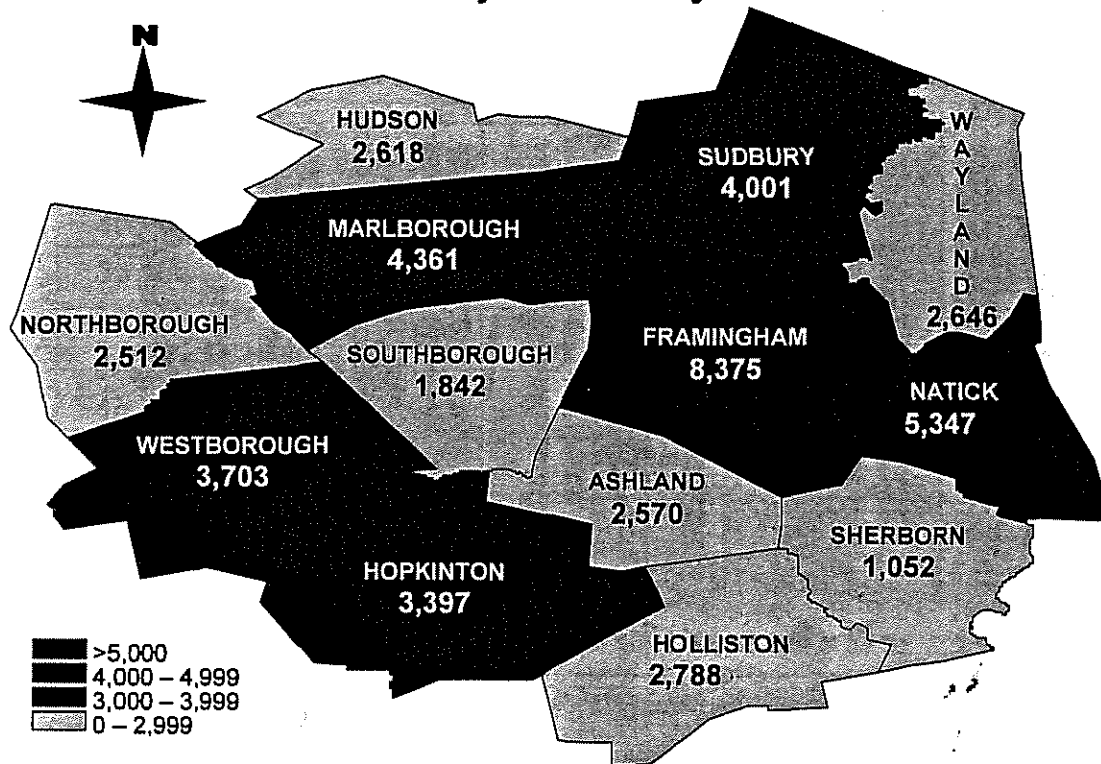


Source: MA Department of Elementary and Secondary Education and MERC

- The 2016 Greater MetroWest (GMW) K-12 public school enrollment averaged 3,591 students per grade. The regional average grade enrollment increased 0.39% from 2015.
- In 2016 the average number of students per grade at the elementary school level, kindergarten through fifth grade, was 3,614. This represents an increase of 0.64% from 2015.
- At the middle school level, grades 6 through 8, the average number of students per grade was 3,501, an increase of 0.17% compared to 2015.
- The average number of students per grade at the high school level was 3,625, an increase of 0.28% from 2015.
- Charter school enrollment is not included in the average grade size calculations.

GREATER METROWEST – K-12 PUBLIC SCHOOL ENROLLMENT

GMW 2016 PUBLIC SCHOOL ENROLLMENT By Community

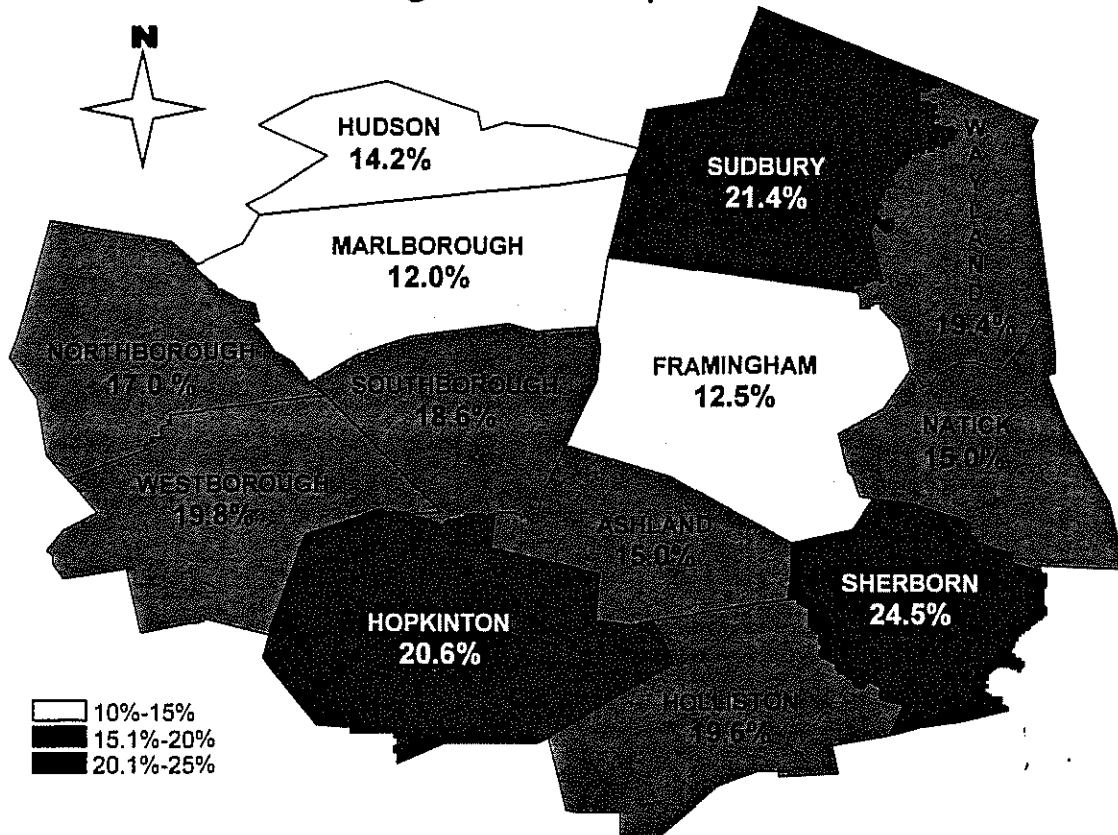


Source: MA Department of Elementary and Secondary Education and MERC

- K-12 public school enrollment in Greater MetroWest (GMW) totaled 45,212 students. This figure does not include students enrolled in charter schools or vocational schools.
- The community reporting the highest enrollment was Framingham with a student enrollment of 8,375. The communities of Marlborough, Natick and Sudbury had enrollments between 4,000 and 6,000 students, while Hopkinton, and Westborough recorded between 3,000 and 4,000 students.
- Ashland, Holliston, Hudson, Northborough, and Wayland had enrollments between 2,000 and 3,000 students. Sherborn and Southborough were the only towns with under 2,000 students. Sherborn reported the smallest enrollment at 1,052 students.
- Enrollment in vocational high school for Greater MetroWest totaled 1,473 students in 2016. Vocational student enrollment has increased by 4.5% from 2015. Enrollment in the charter schools totaled 1,347 students in 2016, down by 3.2% from 2015.

GREATER METROWEST – K-12 PUBLIC SCHOOL ENROLLMENT

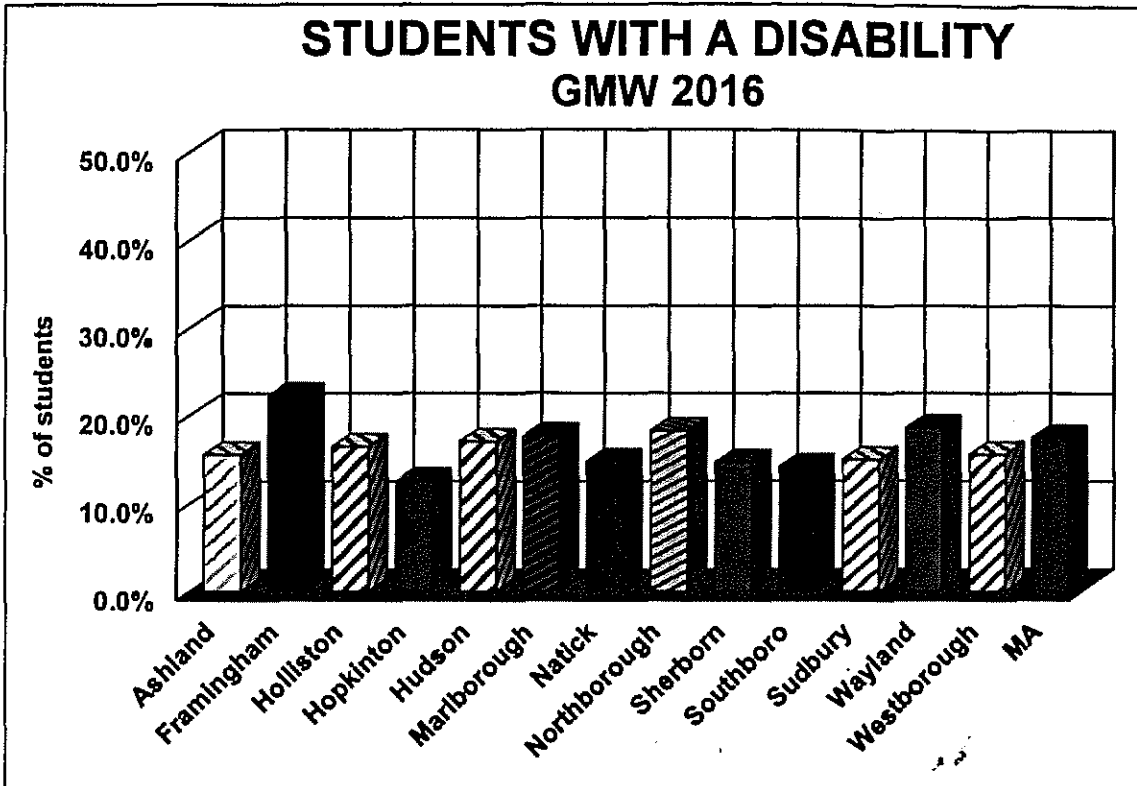
GMW PUBLIC SCHOOL ENROLLMENT As Percentage of 2015 Population



Source: U.S. Census and MERC

- K-12 public school enrollment in Greater MetroWest (GMW) for 2016 was 46,685 students. This figure does not include students enrolled in charter schools.
- This map measures the percentage of the community enrolled in public school in 2016 given as a percentage of estimated 2015 population. The highest enrollment as a percentage of population occurred in Sherborn, followed by Sudbury and Hopkinton. In these communities, more than 1 in 5 population members were in public schools.
- Between 15% and 20% of the population attended public school in Ashland, Holliston, Natick, Northborough, Southborough, Wayland and Westborough.
- Framingham and Marlborough, the communities with the largest population and public school enrollment, also report the smaller percentage of the population in school. These two communities and Hudson had between 10% and 15% in public school.

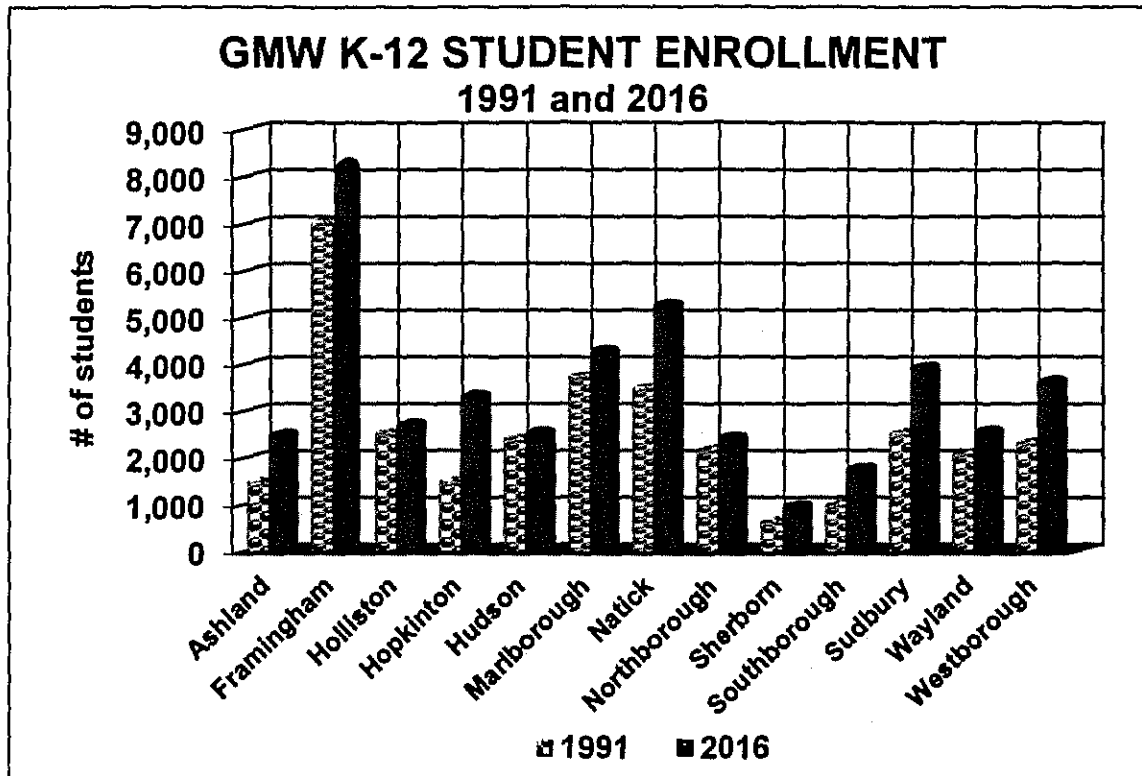
GREATER METROWEST – K-12 ENROLLMENT



Source: MA Department of Elementary and Secondary Education and MERC

- The graph shows the percentage of students with disabilities. This is calculated by dividing the number of students with disabilities by the number of students enrolled in the community.
- According to the Massachusetts Department of Elementary and Secondary Education (DESE) students with disabilities include the following populations: autism, communicational impairment, development delay, emotional impairment, health impairment, intellectual impairment, neurological impairment, physical impairment and sensory impairment.
- Framingham had the highest percentage of students with disabilities at 22.2%. Hopkinton has the smallest percentage at 12.5%.
- Natick, Sherborn, Southborough and Sudbury had around 14.0% of their students with disabilities as percentage of total student enrollment.
- Ashland, Holliston, Hudson, Marlborough, Northborough, Wayland and Westborough had between 15.0% and 18.0% of students with disabilities as a percentage of total student enrollment.

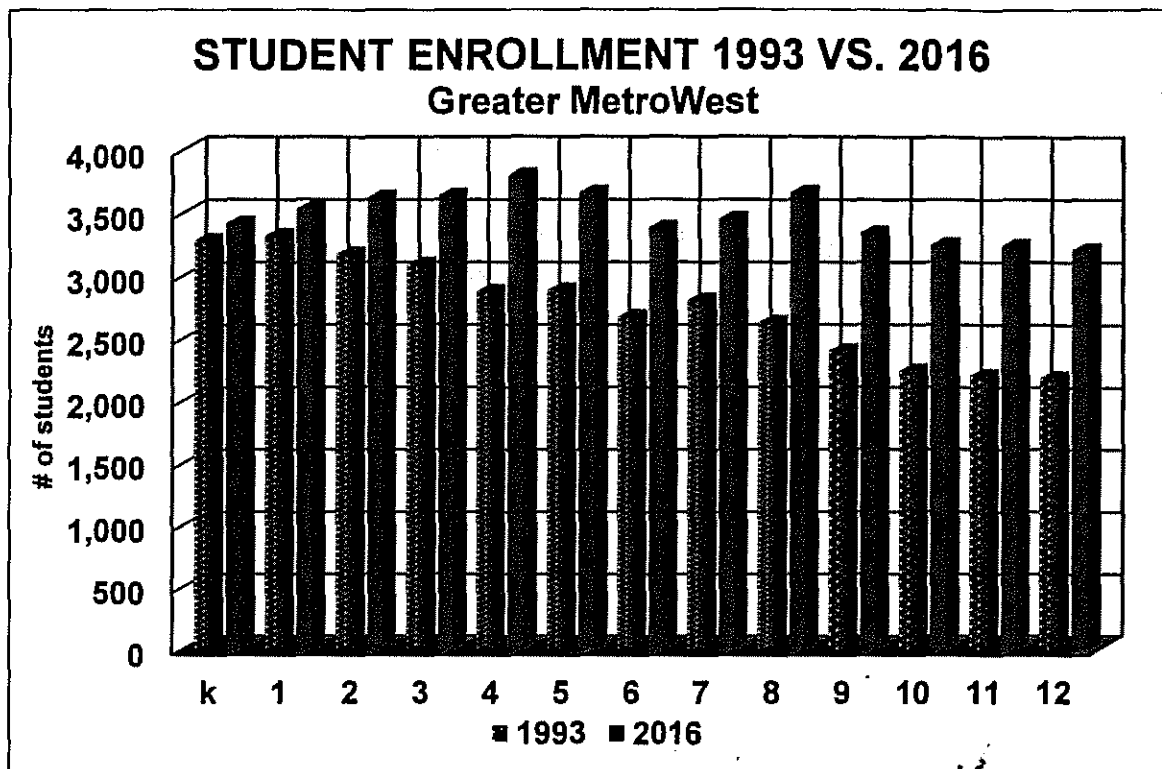
GREATER METROWEST – K-12 ENROLLMENT



Source: MA Department of Elementary and Secondary Education and MERC

- This graph compares student enrollment in Greater MetroWest in 1991 and 2016 by community and captures the related percentage growth rates.
- Public school enrollment in Greater MetroWest (GMW) in 1991 was 33,692 and increased to 45,212 in 2016. Student enrollment for vocational schools and charter schools are not included in the above numbers.
- Hopkinton had the largest percentage growth in school enrollment with 1,547 students in 1991 which increased by 119.6% in 2016.
- Southborough had the next largest growth rate in school enrollment from 1,064 students to 1,842 student; an increase of 73.1%
- Hudson had the smallest percentage school enrollment growth from 2,467 students in 1991 to 2,618 in 2016, an increase of 6.1% over the time period.
- Framingham had the next smallest growth rate of student enrollment, 18.2%, during the same time period.

GREATER METROWEST – K-12 PUBLIC SCHOOL ENROLLMENT



Source: MA Department of Elementary and Secondary Education and MERC

- This graph compares student enrollment in Greater MetroWest in 1993 and 2016 by grade and captures grade to grade changes for each year.
- Student enrollment in 1993 was 35,761 and by 2016 the enrollment grew to 45,212, a 26.4% increase. The enrollment does not include the vocational or charter schools.
- From 1993 to 2016, grades 8 through 12 all experienced increases of around 1,000, as did grade 4. The largest increase was in grade 8, an increase of 1,037 students or 39.5%. Grade 11 enrollment increased by 1,036 students and had the largest percentage increase at 47.1%.
- Grades K through 3 had the smallest increases in enrollment, with the addition of 135 or 4.1% in K and 550 more or 17.8% in grade 3.
- In 2016, K to grade 12 student enrollment fell by 214 students. The largest decreases were from grade 8 to grade 9, a decrease of 323 students, and grade 5 to grade 6, a decrease of 281 students. Grade 7 to grade 8 had the largest increase in enrollment, adding 210 students. Grade 3 to grade 4 had the second largest increase of 160 students.

GREATER METROWEST – EMPLOYMENT

APPENDIX

North American Industry Classification System (NAICS)

In 2001 the North American Industry Classification System (NAICS) permanently replaced the Standard Industrial Classification (SIC) system in use for seventy years. NAICS is an industrial classification system that groups establishments into industries based on the activities in which they are primarily engaged. It is a comprehensive system covering the entire field of economic activities, both producing and non-producing. NAICS has twenty separate industrial sectors that are described in this appendix. These twenty sectors are grouped into eleven supersectors. NAICS data used in this publication are presented by supersectors and by sectors.

NAICS Supersectors*

Goods-Producing Domain (GPD)

Natural Resources and Mining Supersector (NRM)

- 11 Agriculture, Forest, Fishing and Hunting
- 21 Mining

Construction Supersector

- 23 Construction

Manufacturing Supersector

- 31-33 Manufacturing

Service Producing Domain (SPD)

Trade, Transportation and Utilities Supersector (TTU)

- 22 Utilities
- 42 Wholesale Trade
- 44-45 Retail Trade
- 48-49 Transportation and Warehousing

Information Supersector

- 51 Information

Financial Activities Supersector

- 52 Finance and Insurance
- 53 Real Estate and Rental and Leasing

Professional and Business Services Supersector ** (PBS)

- 54 Professional, Scientific and Technical Services
- 55 Management of Companies and Enterprises
- 56 Administrative and Support and Waste Management and Remediation Services

Education and Health Services Supersector

- 61 Educational Services
- 62 Health Care and Social Assistance

Leisure and Hospitality Supersector

- 71 Arts, Entertainment, and Recreation
- 72 Accommodation and Food Services

Other Services Supersector

- 81 Other Services (except Public Administration)

Public Supersector* as used in this publication, includes the Public Administration NAICS sector defined below, plus all other jobs in federal, state and local government.

GREATER METROWEST – EMPLOYMENT

NAICS Sectors

Natural Resources and Mining Supersector:

11-Agriculture, Forestry, Fishing and Hunting comprises establishments primarily engaged in crop growing, animal raising, and timber and fish harvesting.

21-Mining comprises establishments that extract naturally occurring mineral solids, liquid minerals, and gases.

Construction Supersector:

23-Construction comprises establishments primarily engaged in the construction of buildings or engineering projects.

Manufacturing Supersector:

31-33-Manufacturing comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products.

Trade, Transportation and Utilities Supersector:

22-Utilities comprises establishments engaged in the provision of the following utility services: electric power, natural gas, steam supply, water supply, and sewage removal, through a permanent infrastructure of lines, mains, and pipes.

42-Wholesale Trade comprises establishments engaged in wholesaling merchandise, generally without transformation, and rendering services incidental to the sale of merchandise, including the outputs of agriculture, mining, manufacturing, and certain information industries, such as publishing. The wholesaling process is an intermediate step in the distribution of merchandise.

44-45-Retail Trade comprises establishments engaged in retailing merchandise, generally without transformation, and rendering services incidental to the sale of merchandise. The retailing process is the final step in the distribution of merchandise; retailers are, therefore, organized to sell merchandise in small quantities to the general public. This sector comprises two main types of retailers: store and nonstore retailers.

48-49-Transportation and Warehousing comprises industries providing transportation of passengers and cargo, warehousing and storage for goods, scenic and sightseeing transportation, and support activities related to modes of transportation (air, rail, water, road, and pipeline).

Information Supersector:

51-Information comprises establishments engaged in producing and distributing information and cultural products, providing the means to transmit these products, and processing data.

GREATER METROWEST – EMPLOYMENT

Financial Activities Supersector:

52-Finance and Insurance comprises establishments primarily engaged in financial transactions (transactions involving the creation, liquidation, or change in ownership of financial assets) and/or in facilitating financial transactions.

53-Real Estate and Rental and Leasing comprises establishments primarily engaged in renting, leasing, or otherwise allowing the use of tangible or intangible assets.

Professional and Business Services Supersector:**

54-Professional, Scientific, and Technical Services comprises the performing of professional, scientific, and technical activities for others. These activities require a high degree of expertise and training. Some activities performed include: legal advice and representation, accounting, engineering services, computer services, research services, advertising services, and veterinary services.

55-Management of Companies and Enterprises comprises establishments that either hold the securities of companies for the purpose of owning a controlling interest or influencing management decisions, or establishments that administer, oversee, and manage establishments of the company and that normally undertake the organizational planning and decision making role of the company.

56-Administrative and Support and Waste Management and Remediation Services include establishments performing routine support activities for the day-to-day operations of other organizations. Activities performed include: office administration, hiring and placing of personnel, document preparation and similar clerical services, solicitation, collection, security and surveillance services, cleaning, and waste disposal services.

Education and Health Services Supersector:

61-Educational Services comprises establishments that provide instruction and training to a wide variety of subjects. This instruction and training provided by specialized establishments, such as schools, colleges, universities, and training centers.

62-Health Care and Social Assistance comprises establishments that provide health care and social assistance for individuals.

Leisure and Hospitality Supersector:

71-Arts, Entertainment, and Recreation comprises a wide range of establishments that operate facilities or provide services to meet varied cultural, entertainment, and recreational interests of their patrons.

72-Accommodation and Food Services comprises establishments providing customers with lodging and/or preparing meals, snacks, and beverages for immediate consumption.

Other Services Supersector:

81-Other Services (except Public Administration) comprises establishments engaged in providing services not specifically provided for elsewhere in the classification system. Establishments in this sector are primarily engaged in activities, such as equipment repairing, administering religious activities, grantmaking, advocacy, and providing laundry services, personal care services, death care services, pet care services, photofinishing services, temporary parking services, and dating services.

GREATER METROWEST – EMPLOYMENT

Public Supersector* as used in this publication, includes the Public Administration NAICS sector defined below, plus all other jobs in federal, state and local government.

Public Administration The Public Administration sector consists of establishments of federal, state, and local government agencies that administer, oversee, and manage public programs and have executive, legislative, or judicial authority over other institutions within a given area.

****Professional and Business Services Supersector:** In this and other MERC publications MERC uses the acronyms **PBS** and **BPS** interchangeably to refer to this NAICS supersector.

SOURCES

- The Council for Community and Economic Research (C2ER) (formerly ACCRA)
- *Banker & Tradesman*; The Warren Group
- Bureau of Labor Statistics, U. S. Department of Labor (USBLS)
- Federal Reserve Bank of Boston (FRBB)
- Massachusetts Department of Elementary and Secondary Education (DESE)
- Massachusetts Department of Revenue, Division of Local Services (DLS)
- Massachusetts Executive Office of Labor and Workforce Development (MA EOLWD)
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- United States Census Bureau, U. S. Department of Commerce

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