
# Donahue Institute

**The Massachusetts Regional Benchmarking Project:**

## Pioneer Valley Regional Report

**Prepared by the**

**University of Massachusetts Donahue Institute**
**Economic and Public Policy Research Unit**
**In collaboration with the UMass Lowell Center for Industrial Competitiveness**

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# Introduction

The Massachusetts Regional Benchmarking Project is designed to provide regional economic development stakeholders in Massachusetts with a set of indicators tailored to reveal regional progress toward the achievement of locally-established economic development goals. The Regional Benchmarking Project, funded in part through a grant by the U.S. Economic Development Administration, is the result of collaboration between the UMass Donahue Institute, the Center for Industrial Competitiveness at the University of Massachusetts at Lowell, and the input of UMass faculty located on campuses throughout the state.

The regional benchmarking indicators should prove useful to municipal officials, planners and regional stakeholders as they seek to evaluate their progress implementing priority projects in economic development districts. The indicators include measures of economic growth, industrial diversification, regional economic development, and regional factors that affect quality of life and opportunity, such as housing costs, personal income, education, and income inequality. The Regional Benchmarking Project supplements its analysis with Technology Audits that document the regional presence of knowledge intensive enterprises. Each project report focuses on one of the seven principal economic regions of the state as defined by *Mass*Benchmarks, the journal of the Massachusetts economy published by the University of Massachusetts in collaboration with the Federal Reserve Bank of Boston (See the appendix entitled "Benchmarks Regions" for detailed regional definitions).

The Commonwealth of Massachusetts has developed an impressive body of literature[1] that defines the competitive advantages and challenges of the state's regions. The UMass Donahue Institute, in partnership with the Massachusetts Executive Office of Economic Development has repeatedly documented both the state's transition to a knowledge economy, as well as, the uneven distribution of economic growth across the state's regions. The Commonwealth of Massachusetts and the U.S. E.D.A. support the state's regions in the process of planning for economic growth and prosperity. This project is an additional tool with which to track regional progress toward reaching those goals.

***Report Structure***

The Regional Benchmarking Project defines regional prosperity in terms of income and competitiveness. These dimensions of prosperity are measured as the product of three broad categories: economic conditions, real estate conditions and demographic and labor market

[1] The UMass Donahue Institute has researched differential development between regions in the Massachusetts economy in many different reports. Those most relevant ones to this project are the 1992 report *Choosing to Compete: A Statewide Strategy for Job Creation and Economic Growth* (a collaboration between the University of Massachusetts and the Executive Office of Economic Affairs), the follow-up 2002 report *Massachusetts: Toward a New Prosperity: Building Regional Competitiveness Across the Commonwealth* (a collaboration between the University of Massachusetts and the Department of Economic Development) and the 2001 report *Knowledge Sector Powerhouse: Reshaping Massachusetts Industries and Employment During the 1980's and 1990's* (another collaboration between the University of Massachusetts and the Department of Economic Development).

conditions. A series of indicators are presented to assess regional status and to provide a tool for evaluating progress towards achieving economic prosperity.

*Economic Conditions*
Sustained regional economic health requires growing employment opportunities, a strong and diversified export base, and innovation. Accordingly, the seven indicators presented in this section are designed to measure regional job growth, export job growth, job diversification and innovative capacity. These four "regional benchmarks" are intended as summaries of regional status and are based on the following specific indicators:

- Job Growth ( 2 indicators)
    - Regional unemployment rate
    - Growth in total employment

- Export Job growth (2 indicators)
    - Growth in regional employment in major export sectors
    - Regional location quotients in major export sectors (vs. MA and US)

- Job Diversification (1 indicator)
    - Distribution of employment by major export sector

- Innovative Capacity (2 indicators)
    - Regional patents granted
    - Regional venture capital funds received

*Real Estate Conditions*
Land use and residential housing markets have significant economic implications for regional growth and prosperity. The seven indicators examined in this section are designed to measure housing supply, housing affordability, residential land values and commercial and industrial land values. These four "regional benchmarks" are intended as summaries of regional status and are based on the following specific indicators:

- Housing Supply ( 3 indicators)
    - Change in residential parcels by type of building
    - Number of permits for new construction
    - Supply of Chapter 40B units by municipality

- Housing Affordability (1 indicator)
    - Housing cost burden by income and type of household

- Residential Land Values ( 1 indicator)
    - Average assessed value of single-family homes

- Commercial and Industrial Land Values (2 indicators)
    - Average assessed value of industrial land parcels
    - Average assessed value of commercial land parcels

*Demographic and Labor Market Conditions*

A skilled workforce is a prerequisite for regional income and competitiveness. Regional prosperity requires both rising household incomes and a balanced income distribution. The seven indicators presented in this section are designed to measure population growth, the pipeline of skilled labor and income growth and inequality. These four "regional benchmarks" are intended as summaries of regional status and are based on the following specific indicators:

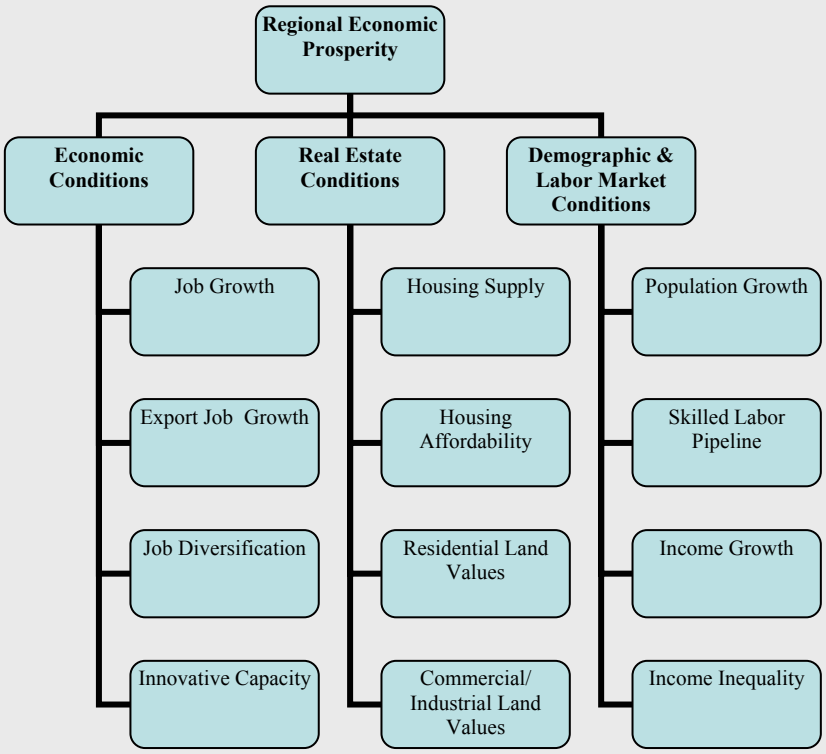
- Population growth (2 indicators)
  - Change in total population
  - Net domestic migration

- Skilled Labor Pipeline (2 indicators)
  - Dropout rate
  - Plans of high school seniors

- Income Growth (1 indicator)
  - Household income growth

- Income Inequality (2 indicators)
  - Number of persons in poverty
  - Share of students eligible for the free and reduced school lunch program

**ELEMENTS OF REGIONAL ECONOMIC PROSPERITY**



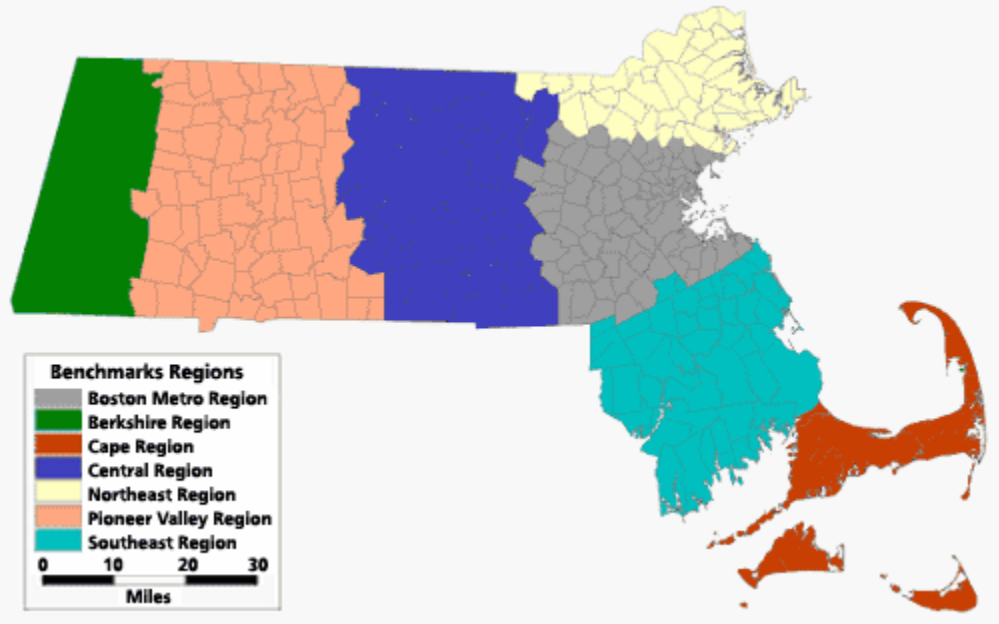

*Prepared by:* UMass Donahue Institute

***About the Indicators***

In preparing this report, the UMass Donahue Institute reviewed existing state and federal databases and consulted analysts at the University of Massachusetts and government agencies to seek the most comprehensive and relevant data to construct indicators for this project. The Regional Benchmarking Project emphasizes those indicators that can be updated on an annual basis and most closely conform to the regional boundaries used in *Mass*Benchmarks.

The indicators are introduced with an explanation of the relevance of the data for regional analysis, guidance about data interpretation and use, and a note on sources or calculations, as necessary. The appendices contain a full explanation of the methodologies and sources used in preparing the report, as well as a full list of cities and towns in each benchmark region.

**The Benchmark Regions**



## SUMMARY OF REGIONAL CONDITIONS

| | Berkshire | Pioneer Valley | Central | Northeast | Boston Metro | Southeast | Cape & Islands |
|---|---|---|---|---|---|---|---|
| **Economic Conditions** | | | | | | | |
| - Job Growth | | | | | | | |
| - Export Job Growth | | | | | | | |
| - Job Diversification | | | | | | | |
| - Innovative Capacity | | | | | | | |
| **Real Estate Conditions** | | | | | | | |
| - Housing Supply | | | | | | | |
| - Housing Affordability | | | | | | | |
| - Residential Land Values | | | | | | | |
| -Commercial/ Industrial Land Values | | | | | | | |
| **Demographic & Labor Market Conditions** | | | | | | | |
| - Population Growth | | | | | | | |
| - Skilled Labor Pipeline | | | | | | | |
| - Income Growth | | | | | | | |
| - Income Inequality | | | | | | | |

- Generally positive regional conditions
- Mixed regional conditions
- Generally negative regional conditions

Prepared by: The UMass Donahue Institute

# Economic Conditions

In order to benchmark regional progress towards the creation of broad economic prosperity, one must begin with an analysis of employment, industrial composition, innovation and overall competitiveness. Employment and labor force trends provide a baseline for measuring economic performance that is readily understood and comparable across regions. The growth of regional income requires a strong and diverse export base. This analysis pays particular attention to the innovation intensive export clusters known as the "knowledge sectors" [2].

Industrial competitiveness is composed of a set of factors that define a sector or firm's ability to adapt to changes in the marketplace, create new products or processes, incorporate new technologies, and attract financial capital. Much insight regarding competitiveness may be gleaned from a comparative analysis of sector employment. However, additional indicators are necessary to obtain a full understanding of a region's fundamental ability to grow and support high technology jobs in export-oriented clusters over time. To assess industrial competitiveness, the UMass Donahue Institute has chosen three measures of industrial innovation and competitiveness. The first two indicators measure regional performance in the competition for financial capital and product or process innovation. The most recent regional data on venture capital funding by industry is used as a proxy for access to financial capital. Data from the U.S. Patents Office is presented to indicate the level of regional innovation.

The third indicator of industrial competitiveness is derived from a technology audit conducted by with the Center for Industrial Competitiveness at the University of Massachusetts at Lowell. This indicator is based on information obtained from Corp Tech, a reliable industry database that includes establishment-level data for high technology companies in 18 export-oriented sectors. This data supplements the employment and industry data provided by the MA Division of Unemployment Assistance by presenting detailed information of the number of high technology firms at the regional level.

*The Massachusetts economy*

In the contemporary Massachusetts economy, net state income is primarily generated by the state's knowledge-intensive export industries: advanced technology manufacturing, higher education, healthcare, biomedical research and technologies, and professional and financial services. These industries compete in national and international markets over skilled labor, investment capital, product innovation and the price of intermediate goods and services. Massachusetts has the traditional advantages of high quality of life, world-class colleges and universities, and a sophisticated financial services industry. The state is located close to major east coast cities, with excellent access via highways, airports and seaports to markets throughout the eastern United States and Europe. The state suffers from one of the highest costs of living in

[2] The definitions of each "knowledge sector" were created for the 2001 report *Knowledge Sector Powerhouse: Reshaping Massachusetts Industries and Employment During the 1980's and 1990's* (a collaboration between the University of Massachusetts and the Department of Economic Development). For this report, these definitions were updated to the current North American Industrial Classification System (NAICS) from the outdated Standard Industry Classification (SIC).

the United States and, as a center of technological innovation, is particularly susceptible to market booms and busts. Thus, the state is challenged to attract and keep workers due to the cost of living and periodically experiences relatively large job losses in key high technology industries.

At the regional level, the economic story of late-twentieth and early-twenty first century Massachusetts is one of adjustment to an era that relies less on low-skilled manufacturing and more on innovation-driven products and services. Despite its relatively compact size, Massachusetts is a state with highly diverse regions. The state's employment is concentrated in the benchmark regions of Boston Metro and Northeast. These regions enjoy a heavy concentration of employment in advanced technology manufacturing, healthcare, financial services and higher education. The state's other regions enjoy local advantages of strong tourism, arts and culture, higher education and traditional manufacturing and marine industries. These regional benchmarking reports provide a detailed portrait of regions that have had differential success in gaining a competitive footing in the state's new knowledge-oriented export industries.

## *Economic Conditions: Job Growth*

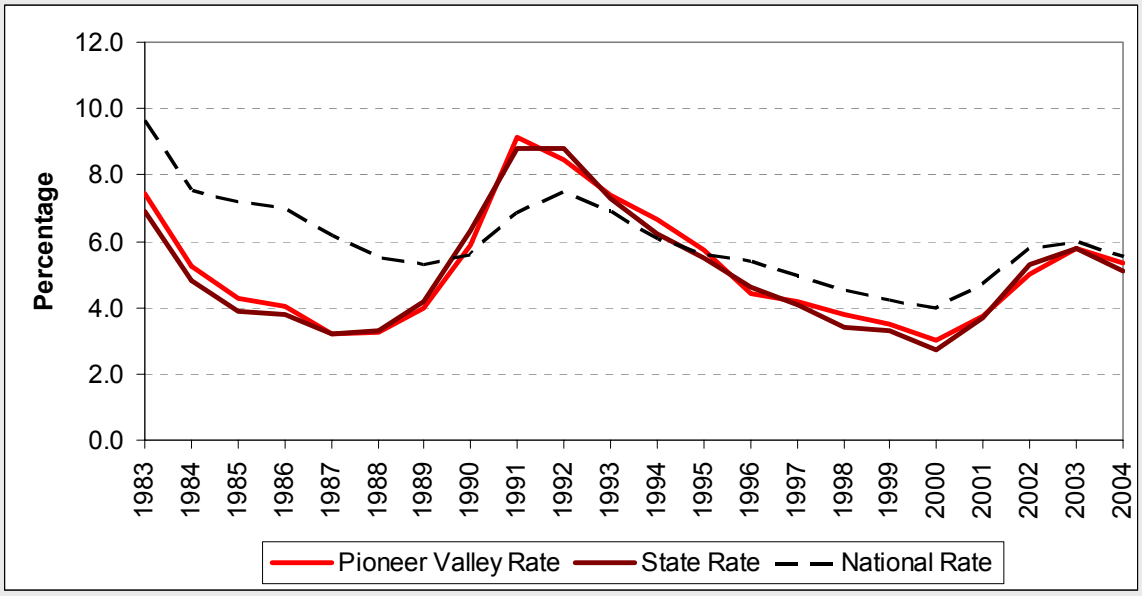
### Regional Unemployment Rate

*Why It's Important*
This time-series of the unemployment rate and labor force size offers a straightforward measure of economic performance at the regional level. These data provide a comparative perspective on regional economic performance during the peaks and valleys of recent business cycles. It also highlights the extent to which the regional economy is able to provide jobs for its residents seeking employment. The charts were prepared from data provided by the U.S. Bureau of Labor Statistics and the Massachusetts Division of Unemployment Assistance.

*Regional Status*
Since 1983, the Pioneer Valley's unemployment rate has closely followed the state rate. As with the state, the unemployment rate in the Pioneer Valley rose above the national rate in the early 1990s and has generally outperformed the nation during the past ten years.

**YEARLY INDICATOR**

**Annual Unemployment Rates for Pioneer Valley, Massachusetts, and the U.S., 1983 through 2004**



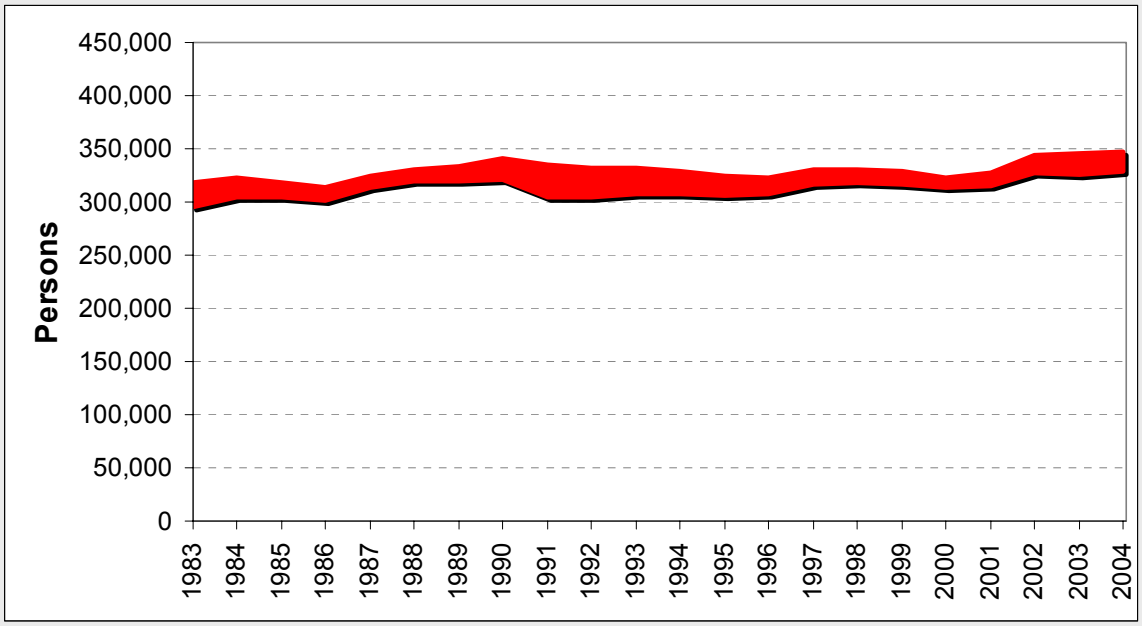

*Source*: Mass. Div. of Unemployment Assistance and the Bureau of Labor Statistics, Local Area Unemployment Statistics Program, 2005.

The size of the Pioneer Valley's labor force has been relatively stable over the past 20 years. While the number of unemployed persons has varied over business cycles, the total labor force has grown from approximately 320,000 to 350,000 from 1983 to 2004. The implication of this data is that the Pioneer Valley economy is relatively stable but does not feature the same level of job growth as other state regions.

In the following indicator, the colored band represents the number of unemployed persons in the labor force, with the upper line showing the total number of people in the labor force.

**YEARLY INDICATOR**

**Annual Share of Persons in the Labor Force Who Were Unemployed and Change in Labor Force for Pioneer Valley, 1983 through 2004**




*Source*: Mass. Div. of Unemployment Assistance and the Bureau of Labor Statistics, Local Area Unemployment Statistics Program, 2005.

## Growth in Employment by Industry

*Why It's Important*

The comparison of employment by industry between 2001 and 2004 presents a contemporary snapshot of the changing composition of industry at the regional level. Growing and declining sectors can be identified along with the relative strength of regional industry compared to the state and the nation. The following chart contains a series of indicators of job growth, export job growth and industrial diversity. The table shows location quotients for each industrial sector in 2004 as compared to the state and the nation. Location quotients (LQs) are used to measure the relative concentration of industries in a region. A LQ is a ratio of ratios, which means that the share of employment in an industry sector in a region is compared to the share of that sector's employment in the comparison geography (typically the state or nation). Industries with an LQ greater than 1.0 are more highly concentrated than the state and/or nation and are traditionally considered to be export industries. Industries with an LQ equal to or less than 1.0 are traditionally presumed to be serving the local market for goods and services within the region.

*Regional Status*

Compared to the state, the Pioneer Valley region has a high concentration of employment in the Traditional Manufacturing sector and the Healthcare sector. To date, the Pioneer Valley region has been unable to develop a competitive presence, relative to the state or the nation, in Advanced Technology Manufacturing or Financial Services. Though its overall concentration of Knowledge Creation employment falls below that of the state, 'average' for Massachusetts is fairly competitive when compared to the nation. Most of the Pioneer Valley's Knowledge Creation employment is in the region's institutions of higher education.

**YEARLY INDICATOR**

**Location Quotient & Employment by Industry for the Pioneer Valley Region, MA & U.S., 2001 to 2004**

| Sector/Description | LQ (US Base) | LQ (MA Base) | 2001 | 2004 | Change 2001 to 2004 | Percent Change | Share of Total Employment |
|---|---|---|---|---|---|---|---|
| **Total, all industries** | **108,505,334** | **3,107,023** | **284,827** | **280,107** | **-4,720** | **-1.7%** | **100%** |
| Advanced Technology Manufacturing | **0.30** | **0.21** | **1,678** | **1,700** | **22** | **1.3%** | **1%** |
| All Other Sectors | **0.87** | **1.00** | **106,682** | **105,676** | **-1,006** | **-0.9%** | **38%** |
| Arts, Tourism & Recreation | **0.82** | **0.99** | **25,428** | **26,337** | **909** | **3.6%** | **9%** |
| Financial Services | **0.74** | **0.72** | **11,719** | **11,170** | **-549** | **-4.7%** | **4%** |
| Healthcare | **1.22** | **1.10** | **42,146** | **43,968** | **1,822** | **4.3%** | **16%** |
| Knowledge Creation | **1.53** | **0.92** | **59,071** | **59,115** | **44** | **0.1%** | **21%** |
| Traditional Manufacturing | **1.03** | **1.61** | **38,103** | **32,141** | **-5,962** | **-15.6%** | **11%** |

*Source*: Mass. Div. of Unemployment Assistance; calculations by UMass Donahue Institute, 2005.

## *Economic Conditions: Export Job Growth and Job Diversification*

### Analysis of Export Clusters

*Why It's Important*
Export-oriented industries are the drivers of wealth creation and job growth within state and regional economies. Exports can be traditional goods produced locally and sold in other states and countries or can involve the sale of nonmaterial goods such as education, healthcare, tourism or cultural experiences. Exports are essential to regional economic prosperity as the production and sale of goods outside of the region produces income that can sustain well-paying jobs and provide for local investments.

In the late twentieth century, Massachusetts experienced a steep decline in its share of national employment in traditional manufacturing. The state's relatively competitive position in highly-skilled, highly-educated fields such as basic research, healthcare and education, has led to an appreciation of the importance of fostering high value-added, export oriented employment based on the state's knowledge industries. The Commonwealth of Massachusetts has refined its definition of the state's export clusters through a series of studies, beginning with *Choosing to Compete* in 1993 to the UMass Donahue Institute's analysis in *Toward a New Prosperity* in 2002. This report updates those definitions using the new North American Industrial Classification System (NAICS) definitions of industries (see "Methodology" in the appendix for more information on how industries have been defined).

*Regional Status*
The Pioneer Valley region has a competitive presence in Knowledge Creation and Healthcare export clusters and in some additional miscellaneous sectors. The Pioneer Valley maintains a significant base of Traditional Manufacturing employment, despite a significant erosion in employment during the past ten years.

*Advanced Technology Manufacturing*
The Pioneer Valley region has not developed a significant base in high technology manufacturing (including computer equipment and related products). It comprises only 1 percent of total employment in the Pioneer Valley region.

*Arts, Tourism & Recreation*
This export sector is moderately developed in the Pioneer Valley region. It yields 26,337 jobs or nine percent of total regional employment. It is one of the few sectors in the Pioneer Valley to show steady employment growth between 2001 and 2004.

*Financial Services*
The Financial Services cluster has a modest presence in the Pioneer Valley region, with four percent of region's employment and an LQ below 1.0 compared to the state or the nation. Despite the presence of Mass Mutual (a major industry leader) in the region, the Financial Services cluster is dominated by employers who serve the needs of the local market.

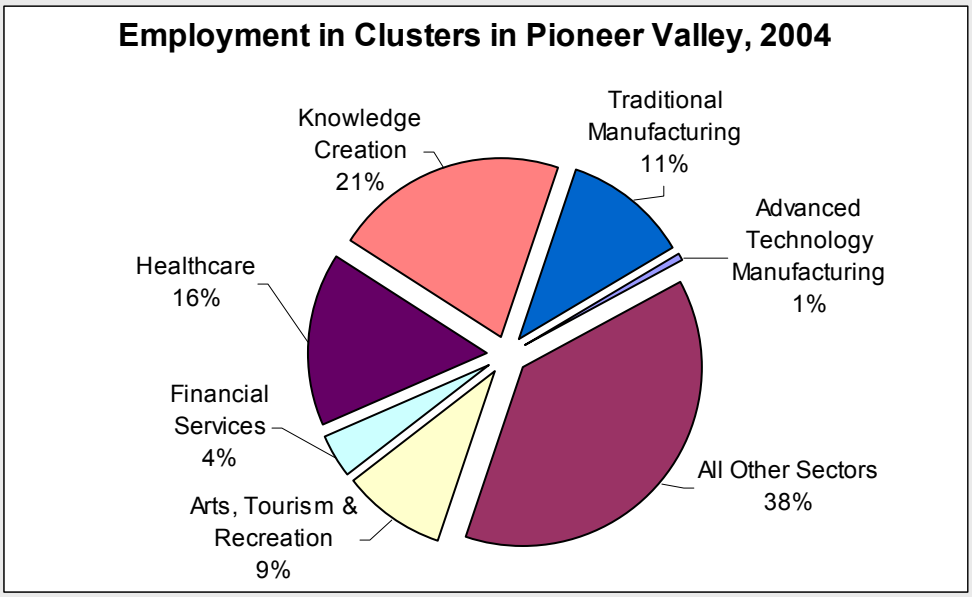
*Healthcare*
The Healthcare cluster is a major employer in the Pioneer Valley, as it is throughout Massachusetts. The Healthcare cluster had the highest level of regional growth, 4.3 percent, from 2001 to 2004. Within the region there is significant variation in healthcare employment. Springfield-based hospitals conduct medical research similar to institutions in Boston and Worcester, while Hampshire and Franklin County employers primarily provide services to area residents.

*Knowledge Creation*
Higher education is the largest export sector in the Pioneer Valley region and is competitive nationally. The region is also home to private secondary schools that attract students from throughout the U.S. and the world. The Pioneer Valley does not have as strong a presence as other regions in professional and technical Knowledge Creation jobs.

*Traditional Manufacturing*
Traditional Manufacturing retains a significant but declining presence in the Pioneer Valley region. Manufacturing accounts for 11 percent of the region's employment or 32,141 jobs. The Pioneer Valley region lost almost 16 percent of its traditional manufacturing jobs between 2001 and 2004.

**YEARLY INDICATOR**

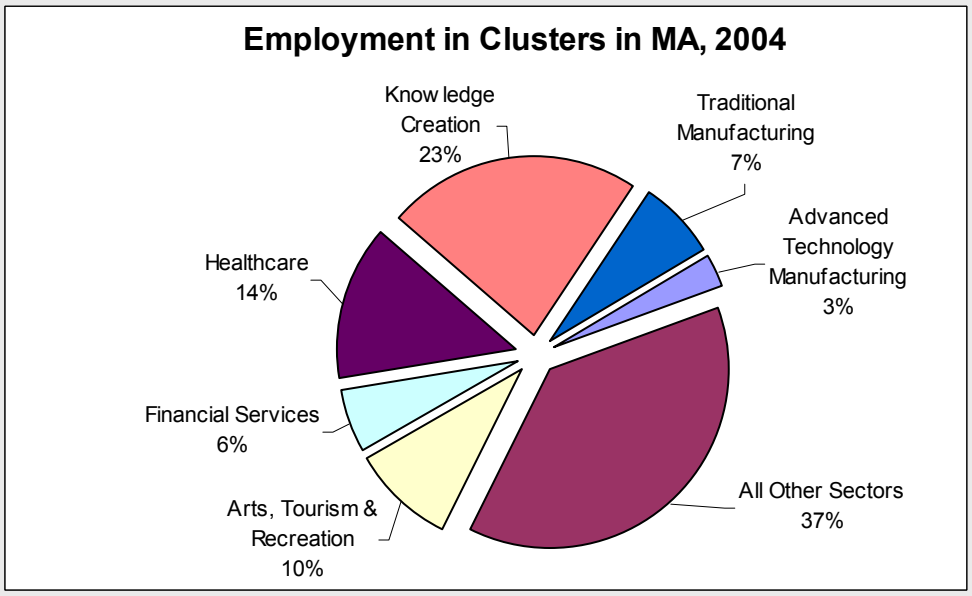
**Employment by Industry for the Pioneer Valley Region, 2004**




*Source*: Mass. Div. of Unemployment Assistance; calculations by UMass Donahue Institute, 2005.

**YEARLY INDICATOR**

**Employment by Industry for the Massachusetts, 2004**




*Source*: Mass. Div. of Unemployment Assistance; calculations by UMass Donahue Institute, 2005.

## Technology Audit

In this study, a firm is defined as high tech if it uses advanced technological knowledge to develop innovative products, processes or utilizes the latest technology in production. The growth or expansion of high technology firms in regional economies is associated with rapid and sustained employment growth, expanding markets, dense networks of linkages between firms and high rates of new business formation. High technology workforces tend to have a larger percentage of high-skilled, high-paying jobs. In short, the establishment of a cluster of high technology firms is one of the most highly-prized achievements in regional economic development.

The following analysis presents a technology audit of high technology clusters in the Pioneer Valley region. The analysis, conducted by the UMass-Lowell Center for Industrial Competitiveness, utilizes the Corp Tech database and its technology classification system. The data is at the establishment-level and classifies firms according to technology fields corresponding to eighteen Primary Industries: factory automation, biotechnology, chemicals, computer hardware, defense, energy, environmental, manufacturing equipment, advanced materials, medical, pharmaceuticals, photonics, computer software, subassemblies and components, test and measurement, telecommunications and internet, transportation, and holding companies.

While each firm is identified by a single Primary industry, most firms manufacture a range of products that are classified in more than one major specialization code. As a result, firms can and do appear in more than one category in the tables contained in this section. This analysis is designed to illustrate the range and scale of technological activity by sector in the region. These data should not be used to summarize total employment or industry in the region.

The technology audit complements the data presented in the preceding section. The NAICS-based data presented in that section should be viewed as authoritative in terms of employment and firms, as that section relies on official data from the Commonwealth of Massachusetts' Division of Unemployment Assistance. The Corp Tech database is a proprietary database composed of an estimated 99 percent of high tech companies employing more than 1,000 workers, 75 percent of companies with 250-1,000 employees, and 65 percent of companies with fewer than 250 employees. The Technology audit is most useful as a means of supplementing the growth in employment by industry indicator.

### PIONEER VALLEY

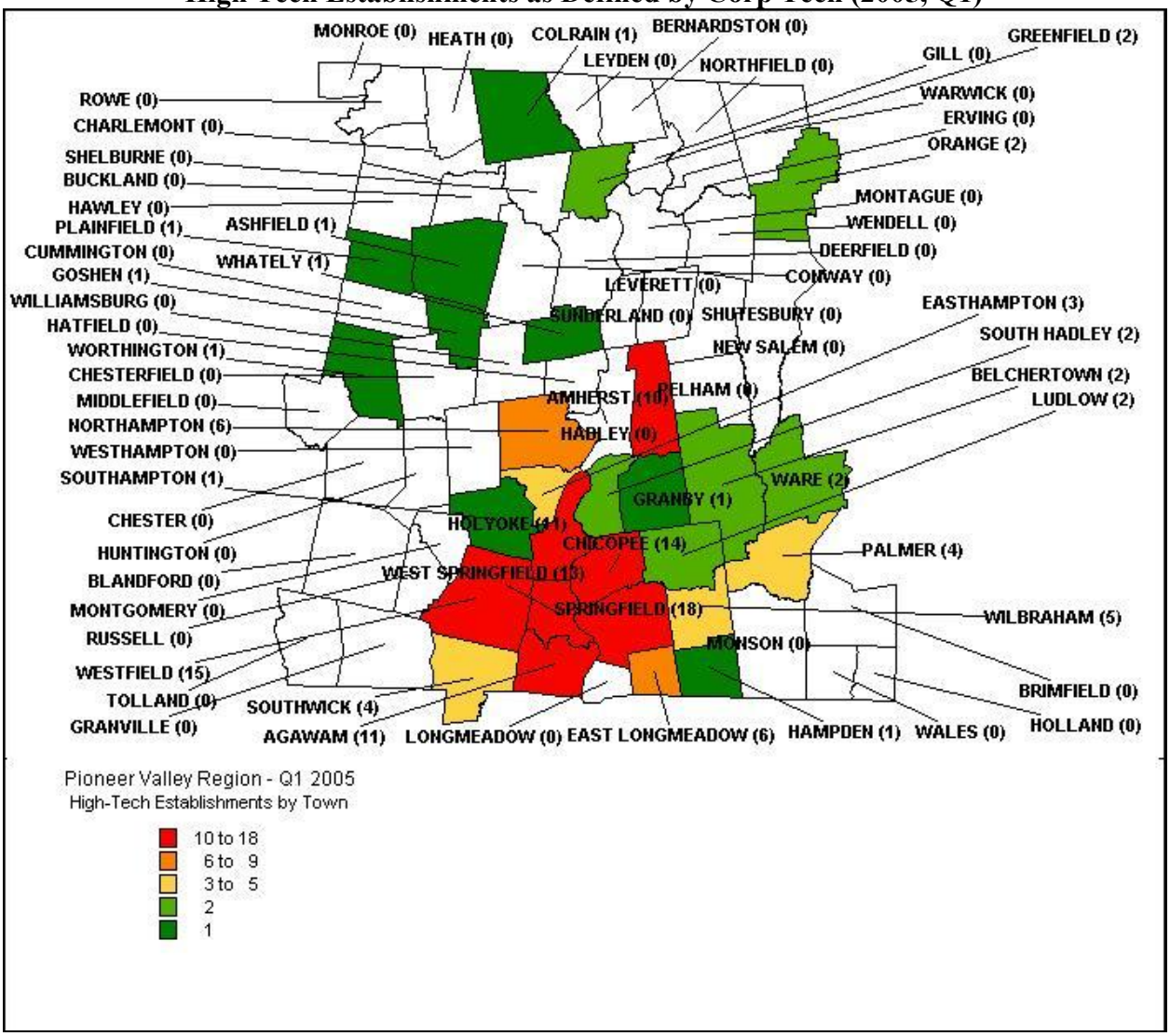
#### High Technology Establishments and Employment

*Regional Status*

The Pioneer region has 10.7% of the state's population, but contained only 5% of the Commonwealth's high tech firms in 2005. Unlike other regions, however, the Pioneer Valley did not lose any high tech firms after the recent recession. In 1997, there were 146 high tech

firms in the Corp Tech in the region, which increased to 162 in 2001 and then increased again to 169 firms in 2005. The high tech establishments in this region are geographically concentrated primarily in the Springfield-West Springfield-Chicopee-Agawam locale.

**High Tech Establishments as Defined by Corp Tech (2005, Q1)**

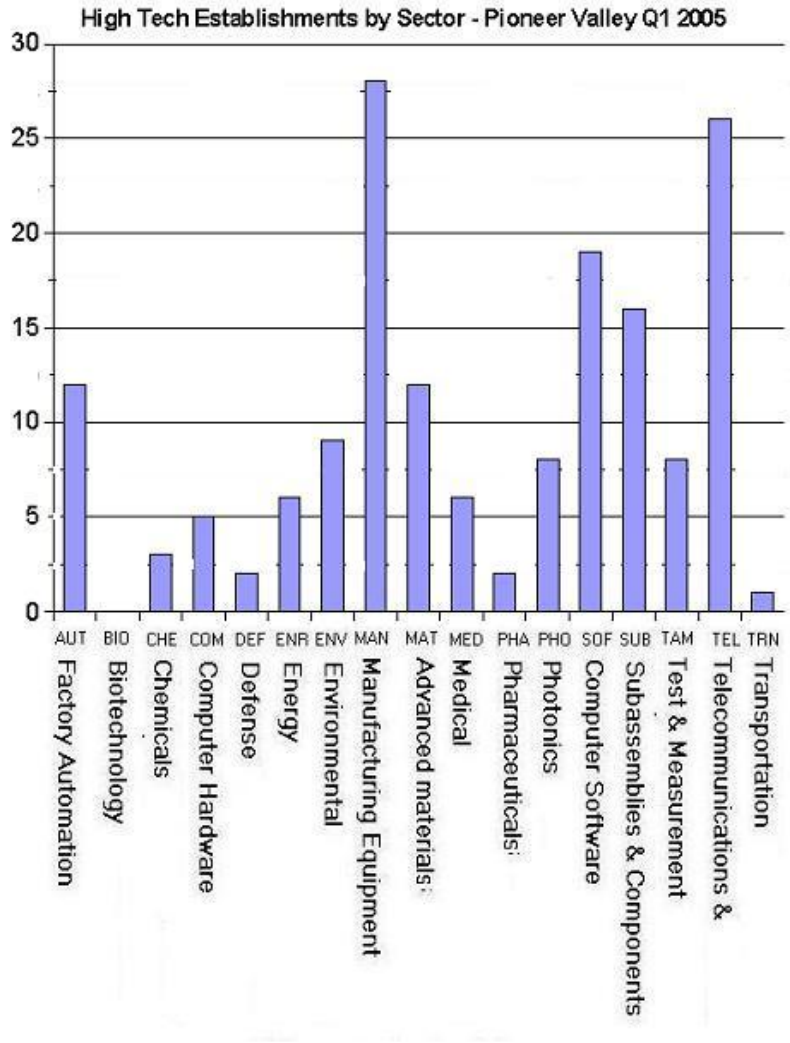



The high tech establishment LQ in the Pioneer region fell slightly from 1.63 to 1.44 between 1997 and 2005. This LQ measure indicates that, by 2005, the region was 44% more high tech establishment intensive than the country as a whole. Compared to the other regions outside of Metropolitan Boston, this LQ measure is comparable to the Berkshire region (LQ of 1.37) and higher than the Cape and Islands (LQ of 1.05).

## High Tech Firms, Pioneer & MA 2005 (First Quarter of Year)

| Year | 2000 | 2005 | | | 2001 | | | 1997 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Benchmark Region | Population (%) | Establish-ments | Establish-ments (%) | Location Quotient | Establish-ments | Establish-ments (%) | Location Quotient | Establish-ments | Establish-ments (%) | Location Quotient |
| **Pioneer** | 10.7% | 169 | 5.0% | 1.44 | 162 | 4.4% | 1.46 | 146 | 4.7% | 1.63 |
| **MA Totals** | 100.0% | 3405 | 100.0% | 3.10 | 3674 | 100.0% | 3.55 | 3111 | 100.0% | 3.69 |

The chart below indicates the number of establishments in the region by primary sectors in 2005. There was little change in the number of establishments in almost all of the primary sectors from 1997 to 2005.



The exceptions were increases in the number of establishments over this eight year period in *Telecommunications & Internet* (5 to 26) and *Manufacturing Equipment* (19 to 26). The sectors with significant decreases over this period were *Software* (26 to 19), *Subassembly & Components* (20 to 16), and *Factory Automation* (15 to 12). The decreases in these last categories were in part due to a shift in product orientation and classification to *Manufacturing Equipment* and *Telecommunications*.

A comparison of the location quotients for these primary sectors in the Pioneer Valley Region measures the relative concentration of establishments compared to the national average. The LQ in the *Defense* sector had the largest increase in its LQ although this was due to an increase in a small number of firms (2 from 0). Similarly the loss of two *Biotechnology* establishments in this sample was reflected in a decrease in the LQ from 1.0 to zero. For the most part, the LQs for the primary sectors in this region were relatively unchanged or changed to a small degree.

**High Tech Firms, Location Quotients for Primary Sectors, Pioneer (First Quarter of Year)**

| Year | Factory Automation | Biotechnology | Chemicals | Computer Hardware | Defense | Energy | Environmental | Manufacturing Equipment | Advanced Materials | Medical | Pharmaceuticals | Photonics | Computer Software | Subassemblies & Components | Test & Measurement | Telecommunications & Internet | Transportation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 | 1.8 | 0.0 | 1.2 | 0.8 | 2.0 | 1.8 | 1.9 | 3.3 | 2.4 | 1.3 | 1.0 | 3.3 | 1.0 | 1.5 | 1.4 | 1.1 | 0.5 |
| 2001 | 1.8 | 0.4 | 1.3 | 0.7 | 0.0 | 1.9 | 2.1 | 3.0 | 2.9 | 1.9 | 1.2 | 2.6 | 1.2 | 1.8 | 1.8 | 0.8 | 0.0 |
| 1997 | 2.1 | 1.0 | 0.8 | 0.7 | 0.0 | 1.8 | 1.8 | 3.3 | 2.5 | 1.5 | 0.8 | 2.6 | 1.4 | 1.9 | 1.3 | 1.1 | 0.0 |

The preceding table identifies the wide variation in relative concentration in 2005. Sectors with LQs that were below the national average were *Biotechnology*, *Computer Hardware*, and *Transportation*. The LQs ranged from equal to the national average to roughly double, from lowest to highest in *Pharmaceutical, Software, Telecommunications & Internet, Chemical, Medical, Test & Measurement, Subassembly & Components, Factory Automation, Energy, Environmental,* and *Defense*. The region's most intensive concentration of high tech firms was in the three sectors of *Advanced Materials* (LQ of 2.4) and *Manufacturing Equipment* and *Photonics*, both with LQs of 3.3 or over three-fold the national pattern.

A more detailed examination of the specialized industries with a notably higher LQ compared to the average for the Primary sector, and a relatively significant number of establishments, is provided in the table below. Among the 12 Major industry specializations identified for the Pioneer Valley there were some additional notable regional concentrations of activity in niche industries such as for *Electronic/Photonic Manufacturing Equipment* (5 establishment and a LQ of 3.4), *Composites* (three establishment and a LQ of 4.8), *Coating Materials* (five establishment and a LQ of 3.7), *Lasers and Related Equipment* (four establishments and LQ of 6.0), *Photonics Services* (six establishments and LQ of 3.6), and *Electronic Connectors* (nine establishments and LQ of 3.7).

**Pioneer Valley, Selected Major Specialized Industries, 2005, Q1**

| Major Segment | Establish-ments | Location Quotient |
|---|---|---|
| **AUT: Factory Automation** | **12** | **1.8** |
| AUT-MH: Materials Hndlg/Shpg Equipment | 27 | 5.1 |
| **ENV: Environmental** | **9** | **1.9** |
| ENV-SV: Environmental Services | 9 | 2.3 |
| **MAN: Manufacturing Equipment** | **26** | **3.3** |
| MAN-EP: Electronic/Photonic Mfg Equipment | 5 | 3.4 |
| MAN-SV: Manufacturing Related Services | 36 | 1.4 |
| **MAT: Advanced Materials** | **12** | **2.4** |
| MAT-CM: Composites | 3 | 4.8 |
| MAT-CO: Coating/Materials | 5 | 3.7 |
| **MED: Medical** | **6** | **1.3** |
| MED-DG: Medical Diagnostic Equipment | 4 | 2.1 |
| MED-SU: Surgical Equipment | 8 | 2.1 |
| **PHO: Photonics** | **8** | **3.3** |
| PHO-LA: Lasers and Related Equipment | 4 | 6.0 |
| PHO-SV: Photonics Services | 6 | 3.6 |
| **SUB: Subassembly & Components** | **16** | **1.5** |
| SUB-CL: Electrical Connectors | 9 | 3.7 |
| **TAM: Test & Measurement** | **8** | **1.4** |
| TAM-SC: Scientific/Laboratory Equipment | 9 | 3.1 |

## *Economic Conditions: Innovative Capacity*

### Venture Capital Funding

*Why It's Important*
The ability to attract competitive sources of funds, such as private investment or government grants, is a measure of a region's innovative capacity and of its potential to develop new high-growth firms. Venture capital funding is one of the primary means of facilitating the development of products and services from conception to marketing and production. The absence of venture capital funding in a region represents a lack of competitiveness of regional firms and industries or the absence of favorable conditions for developing new firms.

*Regional Status*
As measured by this indicator, the Pioneer Valley does not have a strong competitive presence in high-growth sectors that dominate current venture capital investments. The region did not receive any venture capital funding, as measured by the Price Waterhouse Coopers Money Tree Survey, during the first three quarters of 2005. The absence of venture capital funding in some sectors, such as Knowledge Creation or Traditional Manufacturing, may reflect the maturity of existing regional industries.

**YEARLY INDICATOR**

**Venture Capital by Industry for the Pioneer Valley Region, Massachusetts, and the United States, Q1-Q3 2005**

| Industry | Pioneer Valley | Massachusetts | US |
|---|---|---|---|
| Biotechnology | - | $342,558,900 | $2,754,074,600 |
| Business Products and Services | - | $31,370,000 | $377,268,900 |
| Computers and Peripherals | - | $28,659,000 | $340,725,300 |
| Consumer Products and Services | - | $12,063,200 | $284,204,500 |
| Electronics/Instrumentation | - | $26,964,500 | $254,721,000 |
| Financial Services | - | $5,200,000 | $598,210,400 |
| Healthcare Services | - | $4,575,000 | $338,652,100 |
| Industrial/Energy | - | $73,377,000 | $519,344,800 |
| IT Services | - | $58,560,100 | $714,984,900 |
| Media and Entertainment | - | $66,477,000 | $763,334,800 |
| Medical Devices and Equipment | - | $104,612,600 | $1,456,008,800 |
| Networking and Equipment | - | $106,185,000 | $1,179,400,300 |
| Retailing/Distribution | - | $900,000 | $212,537,800 |
| Semiconductors | - | $163,025,100 | $1,333,973,200 |
| Software | - | $455,506,700 | $3,535,257,600 |
| Telecommunications | - | $168,535,200 | $1,647,160,100 |
| **Total Venture Capital Investment** | **-** | **$1,648,569,300** | **$16,309,859,100** |

*Source*: PriceWaterhouseCoopers MoneyTree Survey; calculations by the UMass Donahue Institute, 2005.

## Patents

*Why It's Important*

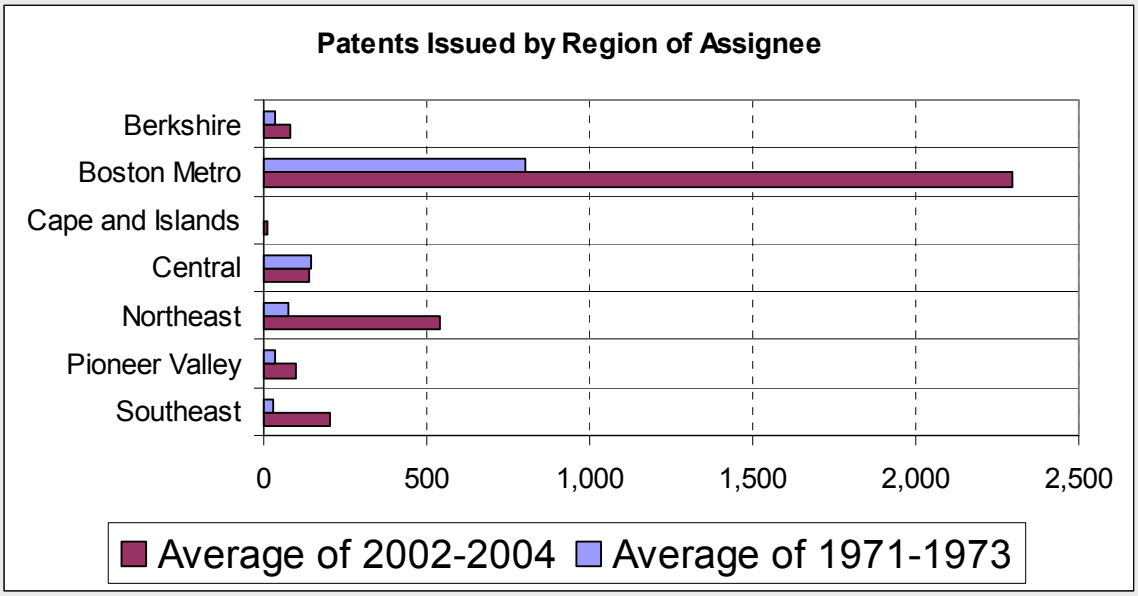
The grant of a patent represents official recognition of the development of a unique process, machine or product by the United States government. As such, the aggregate number of patents granted to inventors in a region is an excellent indicator of the level of innovation. A large number of patents is a direct measure of strong innovative performance. Patent diversity is the concentration of patents by company, an important indicator of the dispersion of knowledge workers and financial resources at the level of the firm in a region. In principle, a region with only one or two large firms receiving numerous patents is in a less competitive or dynamic position than a region with many patent-holders. Diverse regions have many innovative companies competing to bring products to market and attract the most talented employees. A less diverse region is reliant on the success of a relatively few actors in the marketplace for employment and investment.

*Regional Status*

The average annual number of patents issued in the Pioneer Valley in 2002-2004 is less than half the average of the period between 1971 and 1973. In general, the region has been unable to grow new innovative industries to replace the innovative, patent receiving companies of 30 years ago. Given the continued erosion in Traditional Manufacturing employment in the Pioneer Valley, the region is challenged to nurture the technologically competitive industries that are most likely to provide an export base in the future.

**YEARLY INDICATOR**

**Number of Patents by Benchmark Region, 1971-1973 & 2002-2004.**




*Source*: Community of Science U.S. Patent Database; calculations by the UMass Donahue Institute, 2005.

**YEARLY INDICATOR**

**Concentration of Patents by Largest Recipient, 1971-1973 & 2002-2004.**

| Benchmark Region | Average in 1971-1973 | | Average in 2002-2004 | |
|---|---|---|---|---|
| | Percent of Patents held by largest patent receiver | Largest Receiver | Percent of Patents held by largest patent receiver | Largest Receiver |
| Berkshire | 81% | Sprague Electric Company | 86% | General Electric Company |
| Boston Metro | 14% | Polaroid Corporation | 7% | Raytheon Company |
| Cape and Islands | 72% | Packaging Industries Incorporated | 21% | Excel Switching Corporation |
| Central | 37% | American Optical Corporation | 16% | American Superconductor Corporation |
| Northeast | 14% | GTE Sylvania Incorporated | 9% | Osram Sylvania Inc |
| Pioneer Valley | 11% | AMBAC Industries Incorporated | 33% | Spalding Sports Worldwide Inc |
| Southeast | 13% | Alden Research Foundation | 43% | Acushnet Company |
| State Total | 10% | Polaroid Corporation | 5% | Raytheon Company |

*Source*: Community of Science U.S. Patent Database; calculations by the UMass Donahue Institute, 2005.

Thirty years ago, the largest patent receiver in the Pioneer Valley region was a financial company, AMBAC Industries Incorporated. It received 11 percent of all patents in the region. Between 2002 and 2004, the largest share of patents in the Pioneer Valley was held by Chicopee-based Spalding Sports Worldwide Inc. Spalding traditionally manufactured golf and team sports equipment in the region; however, it has recently moved much of its operations out of the region.

**YEARLY INDICATOR**

**Top Ten Patent Receiving Companies in MA, 1971-1973 & 2002-2004.**

| Rank | 1971-1973 | | 2002-2004 | |
|---|---|---|---|---|
| | Company | Benchmark region | Company | Benchmark region |
| 1 | Polaroid Corporation | Boston Metro | Raytheon Company | Boston Metro |
| 2 | Raytheon Company | Boston Metro | M.I.T. | Boston Metro |
| 3 | American Optical Corporation | Central | EMC Corporation | Boston Metro |
| 4 | Itek Corporation | Boston Metro | Analog Devices Inc. | Boston Metro |
| 5 | Honeywell | Boston Metro | Acushnet Company | Southeast |
| 6 | Sprague Electric Company | Berkshire | Millennium Pharmaceuticals | Boston Metro |
| 7 | The Gillette Company | Boston Metro | General Electric Company | Berkshire |
| 8 | USM Corporation | Boston Metro | General Hospital Corporation | Boston Metro |
| 9 | M.I.T. | Boston Metro | Gillette Company | Boston Metro |
| 10 | The Kendall Company | Boston Metro | Shipley Company LLC | Boston Metro |

*Source*: Community of Science U.S. Patent Database; calculations by the UMass Donahue Institute, 2005.

# Real Estate Conditions

Regional economic development is geographically situated at the intersection of markets for commercial, industrial and residential real estate. As a factor of production, the value, cost and accessibility of commercial, industrial and residential real estate affects the competitiveness of firms seeking suitable land for expansion and the recruitment of qualified labor. Employers in the state tend to cluster close to the core of metropolitan Boston and along major highway routes in eastern Massachusetts. Real estate valuations for Northeast and Boston Metro generally reflect the strong demand for all types of land in those markets. The demand for real estate in regions far from Boston varies significantly.

Residents of Massachusetts confront one of the most expensive housing markets in the United States. Renters, particularly in eastern Massachusetts, face high housing costs and significant barriers of entry to homeownership. The cost of housing, while high, is not evenly distributed throughout the state. Housing costs are generally driven by demand from workers in eastern Massachusetts, with housing demand also strongly affected by the markets for retirement and second homes, particularly in the Berkshires and the Cape and Islands. The cost of housing or office space is typically viewed as a burden to be borne as a consumer good or business cost. However, land development is also an important economic activity in its own right and a major source of wealth creation, employment, and investment in Massachusetts.

High housing costs most deeply impact households with low and moderate incomes. The Commonwealth of Massachusetts, through state programs and state Chapter 40B, has set a high priority on the creation of affordable housing opportunities in communities throughout the state. However, new housing starts are typically a function of the economy as mediated through local planning and state and federal incentives. Regions with favorable real estate investment climates are most likely to be able to leverage private resources to create new housing opportunities.

The indicators in this section offer multiple perspectives on the interaction between economic growth, real estate development and housing markets in Massachusetts. The time-series analysis of the average assessed value of industrial and commercial properties serves as a proxy for market demand for these property-types. Numerous state and federal agencies produce data profiling housing costs and residential real estate development. This section includes data from the U.S. Bureau of the Census, U.S. Department of Housing and Urban Development and the Massachusetts Department of Housing and Community Development. Taken whole, the indicators provide benchmarks for regional performance as a location for investment, growth and homes for Massachusetts residents at all ranges of incomes and life stages.

## *Real Estate Conditions: Housing Supply*

### Change in Residential Parcels by Type of Building, 1995 to 2005

*Why It's Important*

Changes in residential parcel counts – typically through new construction or reclassification of property usage (condominium conversion) – provide a snapshot of the state's progress meeting the housing needs of its residents. Massachusetts has experienced steady growth in the availability of new single-family homes, the primary dwelling of homeowners in the state. Renters typically live in multi-unit buildings and apartment buildings; first-time homeowners often live in condominiums and duplexes. Policymakers are challenged to provide housing opportunities in all Massachusetts regions, given the conversion of apartments to condominiums and barriers to production of new affordable housing units. This indicator provides one measure of regional progress in meeting the state's diverse housing needs.

*Regional Status*

The Pioneer Valley region had the second lowest production of net new housing units of any Massachusetts region between 1995 and 2005. Housing production in the region was concentrated in single-family homes, which represented 90 percent of the net increase in housing. Unlike the neighboring Berkshire and Central regions, the Pioneer Valley has not experienced a decline in the net number of apartment buildings. This suggests that the region has done a better job, relatively speaking, of meeting the needs of its renter households than most regions of the state. However, a low-level of condominium conversion, compared to the state, may also reflect less market-demand for residential real estate in the Pioneer Valley region.

**YEARLY INDICATOR**

**Change in Residential Parcel Counts by Region and Type of Building, 1995 to 2005**

| Region | Single-Family | Multi-Family | Condos | Apts. | Misc. Residential | Total |
|---|---|---|---|---|---|---|
| Berkshire | 2,270 | -240 | 214 | -105 | 140 | 2,279 |
| Boston Metro | 21,001 | -2,065 | 24,106 | -217 | 129 | 42,954 |
| Cape & Islands | 13,546 | 312 | 1,983 | 111 | 2,202 | 18,154 |
| Central | 24,535 | -460 | 3,363 | -7 | -97 | 27,334 |
| Northeast | 16,851 | -292 | 5,627 | -180 | -33 | 21,973 |
| Pioneer Valley | 9,736 | -151 | 1,024 | 57 | 76 | 10,742 |
| Southeast | 27,275 | 639 | 3,355 | 121 | -233 | 31,157 |
| Massachusetts | 115,214 | -2,257 | 39,672 | -220 | 2,184 | 154,593 |

***Source***: Division of Local Services, Mass. Dept. of Revenue, 2005.

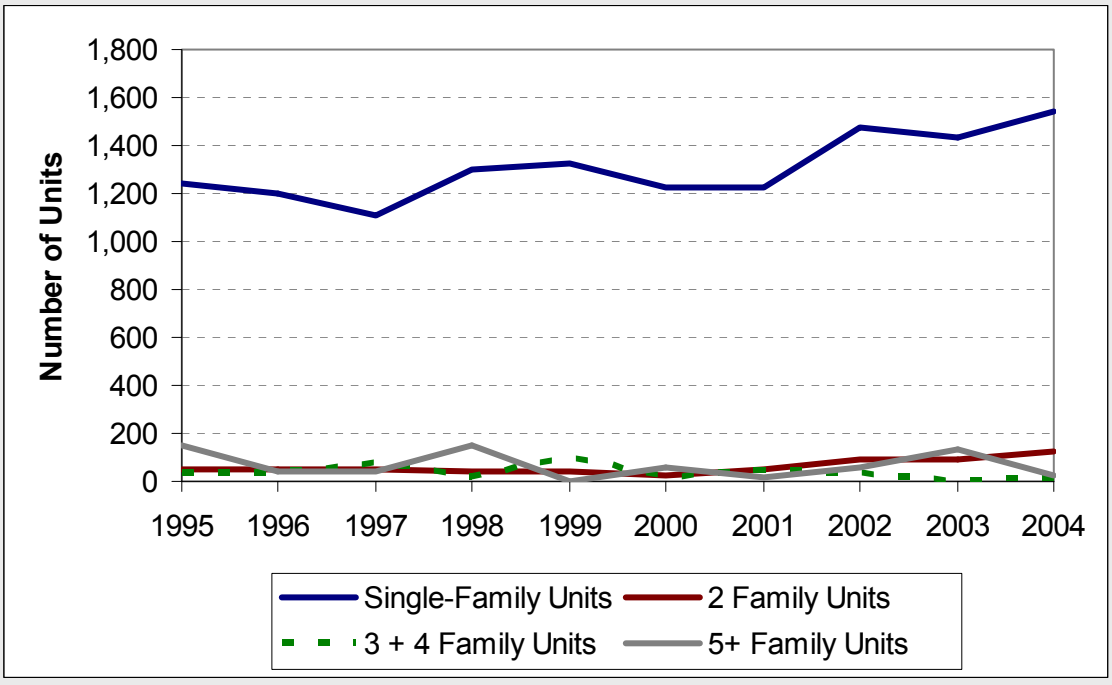
## Number of Permits for New Construction

*Why It's Important*
A time-series of the number of permits for new construction is the best measure of the actual production of new housing units. Housing construction is also a significant source of employment and economic activity. These data allow for the analysis of regional residential development patterns. Outside of the Interstate 495 beltway, some of the new construction of single-family homes is the result of increased demand for second homes. In Boston Metro, construction of multi-unit buildings includes luxury apartments as well as affordable housing units.

*Regional Status*
The distribution of building permits for new construction by type of housing unit reinforce the conclusion of the previous indicator that the region's net increase in housing is almost entirely concentrated in single-family units. This data reinforces the view that the stable level of apartments in the region is due to a low-level of condominium conversion and very little construction or demolition of the existing multi-family housing stock.

**YEARLY INDICATOR**

**Number of Permits for New Construction in the Pioneer Valley Region, 1995 through 2004**




*Source*: U.S. Bureau of the Census, Building Permit Estimate Program, 2005.

## Supply of Chapter 40B Units by municipality

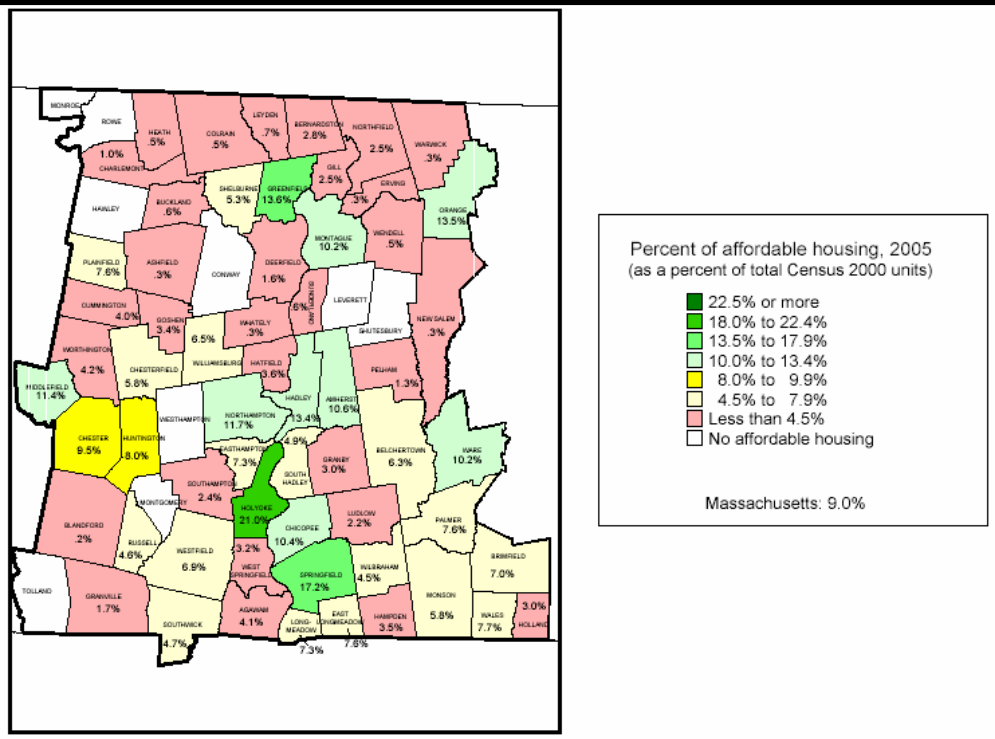
*Why It's Important*

Massachusetts state law Chapter 40B requires that a minimum of 10 percent of all housing units in a community must be permanently affordable. Under federal guidelines, affordable housing is priced at a level that is accessible to households earning 80 percent or less of an area's median income (AMI). An adequate supply of affordable housing ensures that households at all income levels can reside in their community, regardless of whether the households include low-income workers, young families or senior citizens. The availability of adequate affordable housing to low-income families affects both the individual family and the economy alike. A lack of affordable housing limits the ability of low-income workers to live in region in which they work, which can increase the cost of labor and create negative externalities such as traffic congestion or reduced utilization of healthcare.

*Regional Status*

The Pioneer Valley region has a relatively high percentage of affordable housing, with most of the affordable housing concentrated in region's college towns and urban areas. In 2005, the Pioneer Valley had a rate of 10.1 percent of affordable housing compared to 9 percent rate for the state. The Pioneer Valley region experienced a modest increase in its supply of affordable housing units between 2002 and 2005. Twelve communities in the region offer affordable housing at or above the state's average level. Nine rural communities in the region do not contain any Chapter 40B certified affordable housing units.

**YEARLY INDICATOR**




Source: D.H.C.D., 2005. Prepared by the Massachusetts State Data Center, UMass Donahue Institute

## *Real Estate Conditions: Housing Affordability*

### Housing Affordability Problems by Income and Household

*Why It's Important*
Housing affordability has complex implications for regional growth and prosperity, which vary based on whom the housing is intended to shelter. For elderly residents, whether renter or homeowner, high housing costs can significantly drain resources from other basic needs. Low and moderate income households may experience a barrier to homeownership or find other life opportunities diminished. Households at higher incomes may find that high housing costs reduce the desirability of living in the state. The U.S. Department of Housing and Urban Development publishes town-level data of households with high housing costs by income and type of household in 1999. Though the data are relatively old, they provide a reliable baseline for understanding housing affordability challenges at the regional level.

*Regional Status*
Very low income families have the highest level of housing burden of any households in the region. Among very low income families, seventy-five percent of renters and 84 percent of owners pay more than 30 percent of their income for shelter. The region is relatively more affordable for households earning 80 percent or more of the region's median income. In the Pioneer Valley, 2.2 percent of renter households with middle incomes and above have high housing cost burdens compared to a 5.4 percent of similar households statewide. Nine percent of the region's homeowners with middle incomes or above have high housing costs compared to 11.5 percent of similar homeowners statewide. Compared to a high cost region such as Boston Metro, the Pioneer Valley is substantially more affordable for households with middle-incomes.

## HISTORICAL INDICATOR

**Percentage of Households with High Housing Costs (> 30% of income) in the Pioneer Valley Region, 1999**

| Very Low Income | Pioneer Valley Region | | Massachusetts | |
|---|---|---|---|---|
| | Renters | Owners | Renters | Owners |
| Elderly Households | 53.5% | 78.0% | 54.1% | 80.7% |
| Family Households | 75.2% | 84.2% | 72.3% | 82.6% |
| All Other Households | 69.2% | 79.1% | 66.2% | 76.6% |
| Total | 67.4% | 79.5% | 63.9% | 80.5% |

| Low Income | Pioneer Valley Region | | Massachusetts | |
|---|---|---|---|---|
| | Renters | Owners | Renters | Owners |
| Elderly Households | 44.5% | 39.1% | 38.8% | 43.8% |
| Family Households | 52.6% | 62.7% | 56.8% | 65.5% |
| All Other Households | 55.6% | 64.0% | 60.2% | 65.5% |
| Total | 51.6% | 50.2% | 47.9% | 54.4% |

| Middle and Above | Pioneer Valley Region | | Massachusetts | |
|---|---|---|---|---|
| | Renters | Owners | Renters | Owners |
| Elderly Households | 7.5% | 5.6% | 11.9% | 8.6% |
| Family Households | 1.5% | 8.4% | 3.0% | 10.9% |
| All Other Households | 1.7% | 16.3% | 6.7% | 18.4% |
| Total | 2.2% | 9.0% | 5.4% | 11.5% |

Very Low Income: With income < 30% of the area's median income
Low Income: With income > 30% but < 80% of the area's median income
Middle and Above: With income > 80% of the area's median income

*Source*: CHAS Data, State of the Cities Database, U.S. Dept. of Housing and Urban Development; calculations by UMass Donahue Institute, 2005.

## *Real Estate Conditions: Residential Land Values*

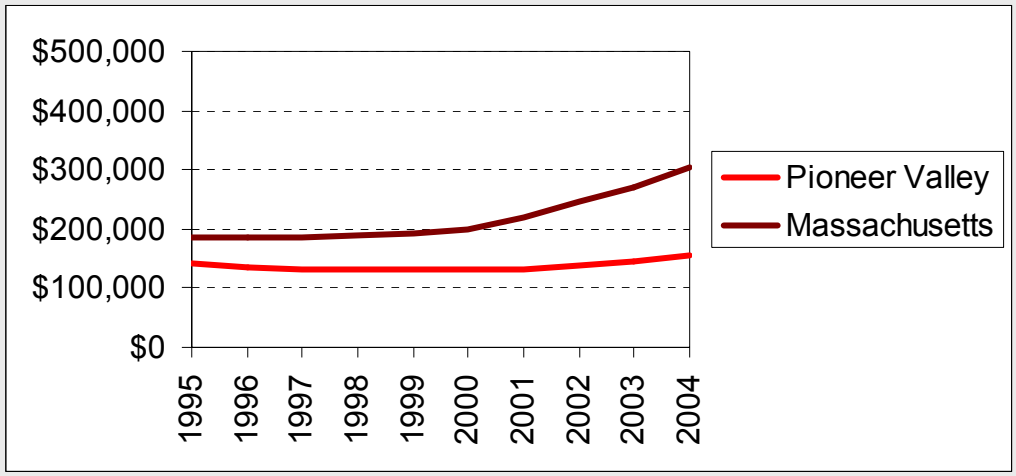
### Average Assessed Value of Single Family Homes

*Why It's Important*
A time-series of the average assessed value of real residential property, adjusted for inflation, provides an indicator of economic growth and wealth creation at the regional level. In Massachusetts, property is assessed at the town level at the full-market value each year. Housing has a dual economic function in the state's economy: it is primarily a form of shelter for workers and families who contribute to the prosperity and quality of life of their communities. Home ownership is also the most significant means of wealth creation and intergenerational transfer in the United States. Regions with higher assessed home values are, by definition, wealthier regions than those with lower average values.

*Regional Status*
Compared to the state, the Pioneer Valley has experienced very modest growth in real (inflation adjusted) residential property values during the past ten years. However, the stability of regional property values masks substantial sub-regional variation amongst Pioneer Valley communities. Since 2000, many communities have experienced substantial growth in residential property assessments. Large communities, such as Springfield, have not experienced the same level of increase. The Pioneer Valley region's relatively low residential property values make the region affordable to middle-income households; however, the significant gap between property values in eastern and western Massachusetts also highlights a lower level of household wealth among homeowners west of Worcester.

**YEARLY INDICATOR**

**Average Valuation of Residential Land Parcels in Pioneer Valley and Massachusetts, FY1995 through FY2004 (Inflation Adjusted to July 2004 Dollars)**




*Source*: Division of Local Services, Mass. Dept. of Revenue.

## *Real Estate Conditions: Commercial and Industrial Land Values*

### Average Assessed Value of Industrial and Commercial Land Parcels

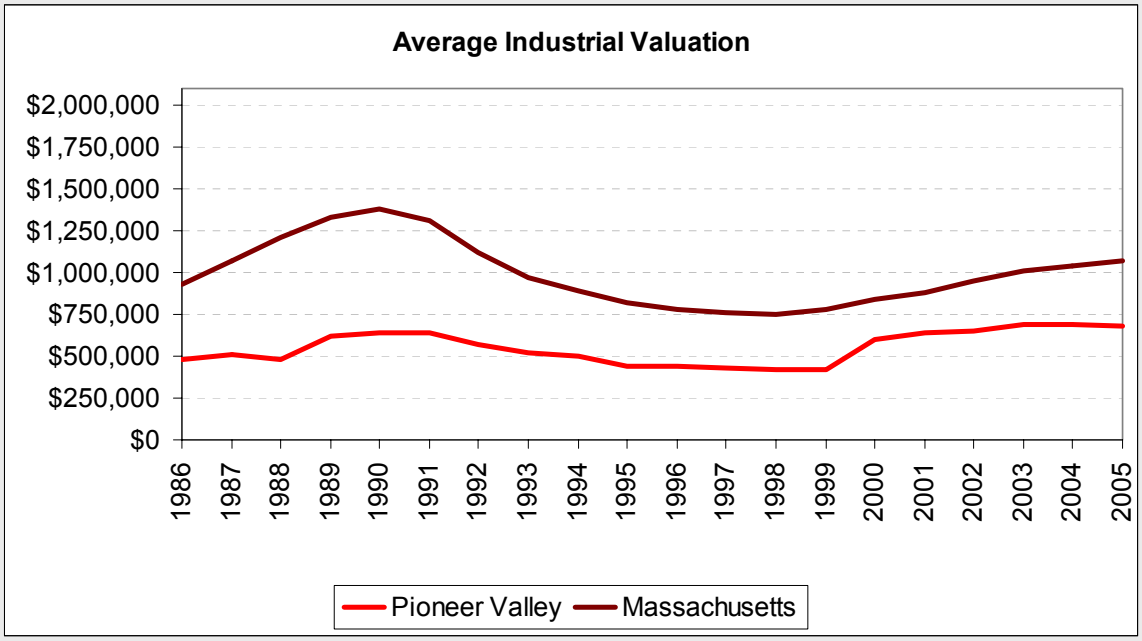
*Why It's Important*

This time-series of the average assessed value of real industrial and commercial property, adjusted for inflation, provides an indicator of economic growth through changes in the demand for types of non-residential property at the regional level. In Massachusetts, property is assessed at the town level at the full-market value each year. Fluctuations in average assessed values indirectly reflect changes in the fortunes of the regional economy (through demand for space), while also providing direct insight into the performance of the regional real estate market. As with residential real estate, commercial and industrial properties are both usable goods and sources of investment income and wealth.

*Regional Status*

**YEARLY INDICATOR**

**Average Valuation of Industrial Land Parcels in Pioneer Valley and Massachusetts, FY1986 through FY2005 (Inflation Adjusted to July 2004 Dollars)**

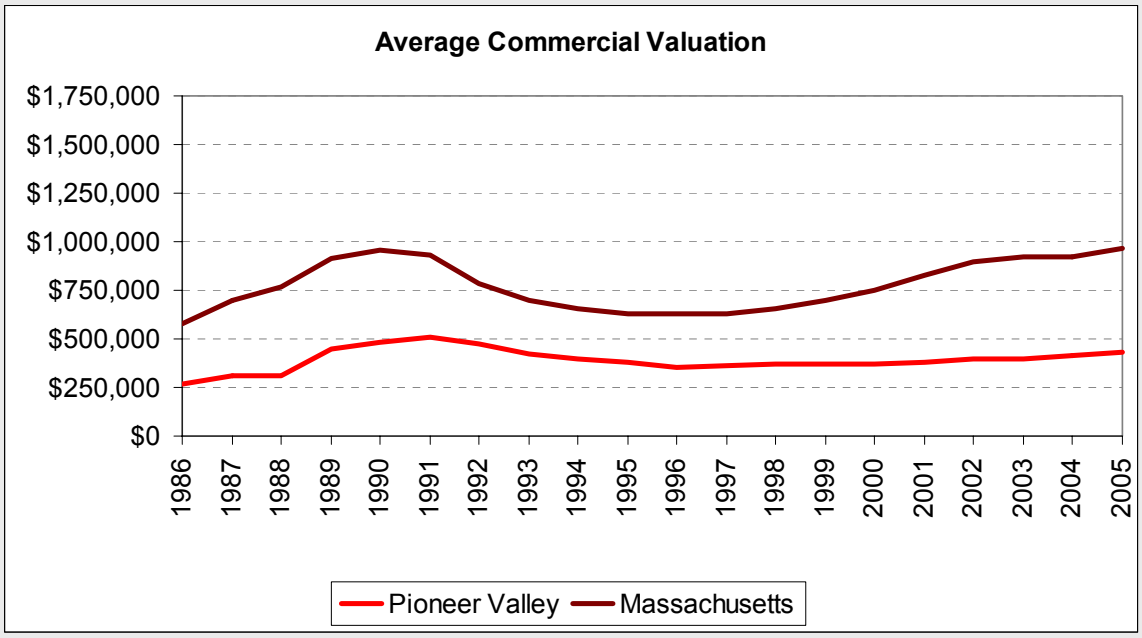



*Source*: Division of Local Services, Mass. Dept. of Revenue, 2005.

The value of industrial and commercial land parcels in the Pioneer Valley region has essentially stayed the same since 1990, with minor variations that follow state and national business cycles. The region has not experienced the same level of growth in industrial nor commercial properties as the Commonwealth. Since 1999, industrial properties in the Pioneer Valley have outperformed commercial properties in terms of growth in value.

**YEARLY INDICATOR**

**Average Valuation of Commercial Land Parcels in Pioneer Valley and Massachusetts, FY1986 through FY2005 (Inflation Adjusted to July 2004 Dollars)**




*Source*: Division of Local Services, Mass. Dept. of Revenue, 2005.

## Demographic and Labor Market Conditions

The people who live in Massachusetts' seven benchmark regions are the primary sources and beneficiaries of regional development and prosperity. The regions' population, whether longtime residents or recent immigrants, contribute to economic growth through their creativity, hard work, and entrepreneurial spirit. The economic potential of a region is indicated in part by the size of the working-age population and its education level. New labor market entrants, principally in the form of immigrants and young adults, are necessary to replace recent retirees and working-age residents who move outside the region.

More adult residents in Massachusetts and the nation have bachelor's degrees than in any previous era. Currently, Massachusetts can boast the highest percentage of adults age 25 and over with bachelor's degrees of any state in the country. However, educational attainment is not evenly distributed across regions of the state. Recent reports, including the UMass Donahue Institute/MassINC report *Mass: migration* (2003) and the *Mass*Benchmarks article "Migrants and the Massachusetts Economy: New Challenges and Questions" (Volume 6: Issue 4, 2004) document the challenge that Massachusetts faces maintaining a sufficient base of skilled labor in the state. Traditional social indicators such as drop-out rates, college plans or educational attainment, have a clear economic dimension in a era in which all children are not only valued but, in fact, may be needed to contribute to the state's prosperity.

The indicators in this section are intended to provide a portrait of current regional conditions and economic potential as understood through the prism of the residents who live there. U.S. Census data is used to show changes in population, age, and educational attainment. Calculations, based on information from the Internal Revenue Service, are used to track domestic in-and-out migration trends in each region of the state. Particular attention is paid to the future pipeline of skilled labor as reflected in drop-out rates and the future plans of high school seniors (using data provided by the Massachusetts Department of Education). Income trends are also examined. Median household incomes are a standard and readily understood means of comparing regional prosperity. The percentage of persons in poverty and the share of students eligible for the free and reduced school lunch program both provide insight into the extent to which prosperity is shared within each region and across the Commonwealth.

## *Demographic and Labor Market Conditions: Population Growth*

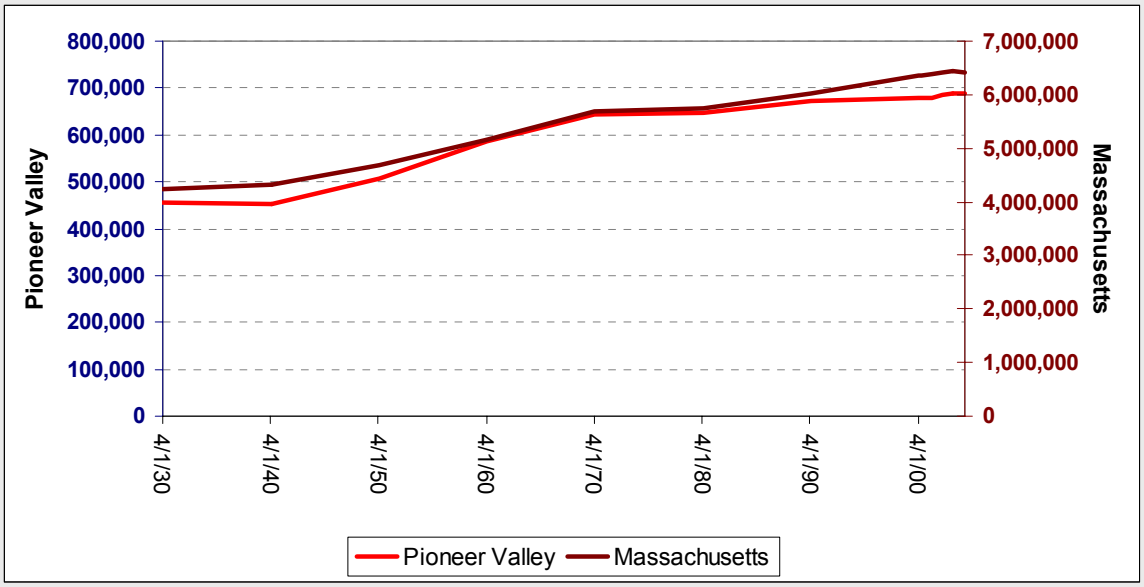
### Change in Total Population

*Why It's Important*
Population trends provide a window into the potential future workforce, the attractiveness of the region to outsiders, and the ability of the region to hold onto its population. Population can be tracked annually through estimates provided by the U.S. Bureau of the Census; the distribution of population by age is available through analysis of the decennial U.S. Census.

*Regional Status*

**YEARLY INDICATOR**

**Population from April 1930 through July 2004 (Est.), Pioneer Valley Region vs. Massachusetts**

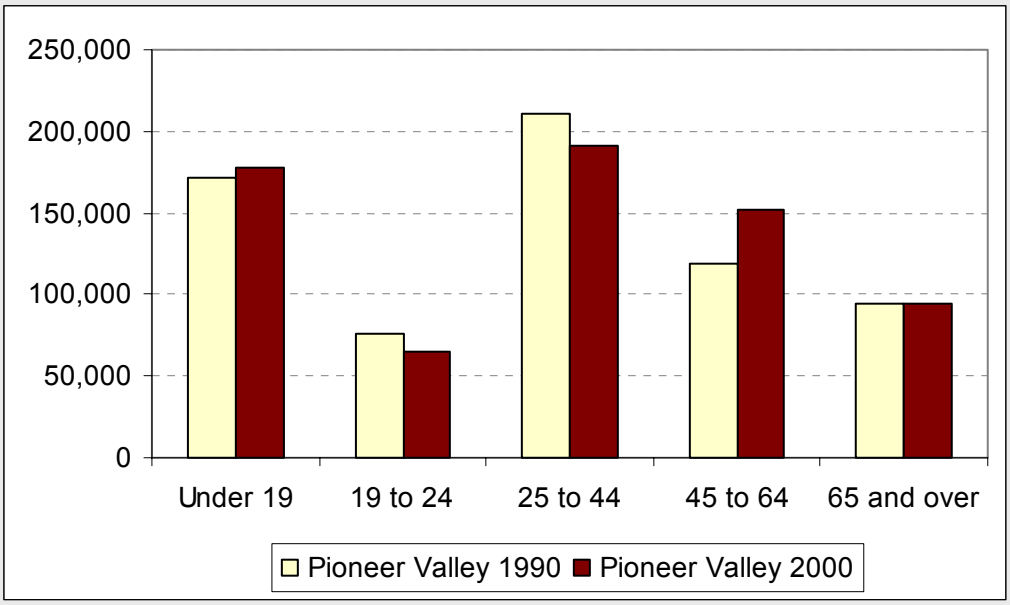



*Source*: Massachusetts State Data Center, 2005.

The population of the Pioneer Valley grew at virtually the same rate as the state up until the U.S. Census of 1990. Since 1990, the state population has grown faster than the Pioneer Valley, with relatively little population growth in the region.

**HISTORICAL INDICATOR**

**Pioneer Valley Region Population by Age, 1990 and 2000**

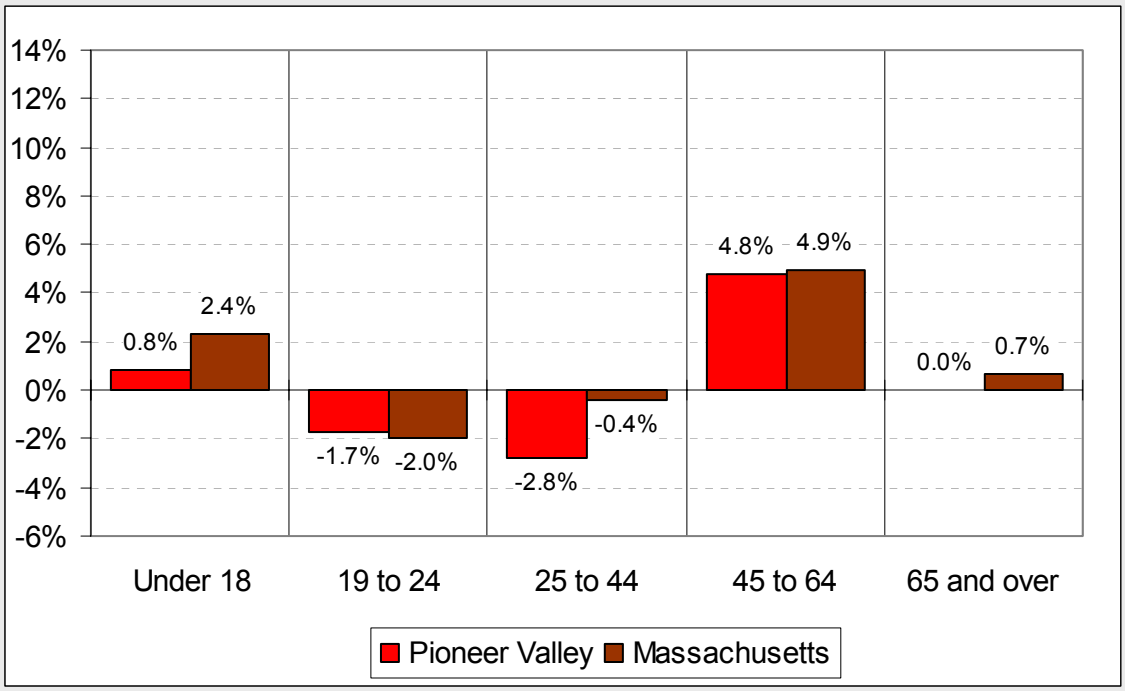



*Source*: Decennial Census, U.S. Census, 1990 and 2000.

Data from the 1990 and 2000 U.S. Census show that the population in the Pioneer Valley region is increasingly composed of households aged 45 to 64. This follows a national trend as the baby boom generation ages and approaches retirement. The Pioneer Valley has lost population between the ages of 19 and 44, with particularly steep declines (higher than the state as a whole) between the ages of 25 and 44 years. This may be the result of regional out-migration due to the relative absence of job opportunities in the region.

**HISTORICAL INDICATOR**

**Change in Population by Age in Pioneer Valley Region and MA, 1990 to 2000**




*Source*: Decennial Census, U.S. Census, 1990 and 2000.

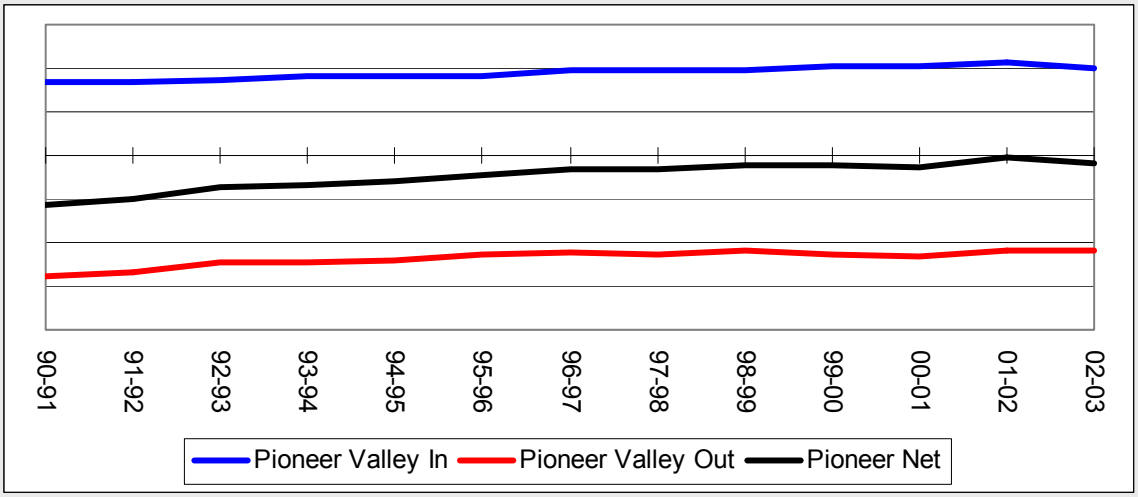
## Net Domestic Migration

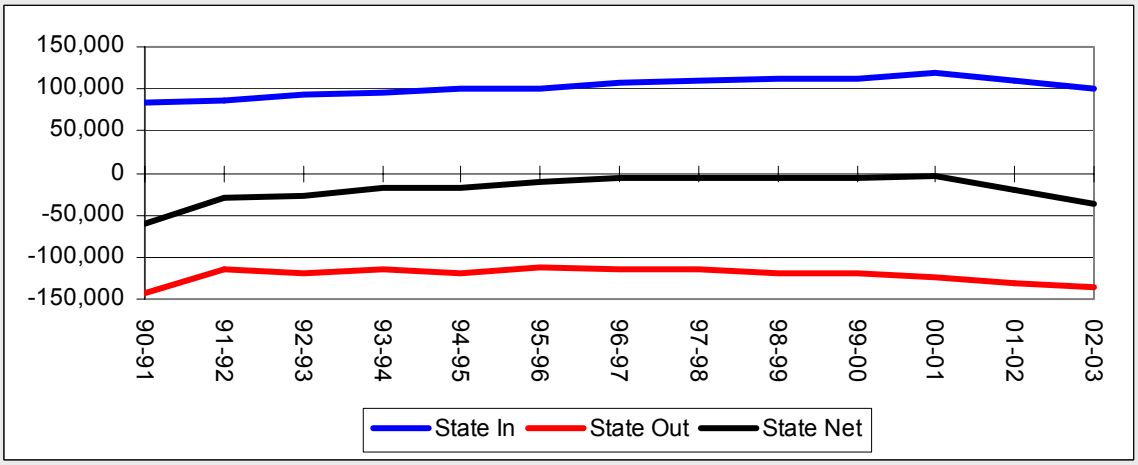
*Why It's Important*
Tracking migration patterns over time on a regional basis offers insight into whether a region is maintaining a sufficient base of skilled labor. As an economic principle, a region with strong in-migration will have a more sizable labor pool from which to draw qualified workers and entrepreneurial talent. A region with out-migration or a stable population may have difficulty supporting the need of companies for skilled employees. Net migration patterns also reflect the extent to which the region is successful in providing the quality of life and amenities necessary to attract and retain residents.

*Regional Status*
The Pioneer Valley has been a net-exporter of domestic migrants since 1990. The region has generally lost a higher proportion of its residents than the state as whole. In fact, during the economic boom of the 1990s the state maintained its population while the Pioneer Valley continued to lose residents. The region depends upon international immigration and the retention of its visiting college students to maintain its population.

## YEARLY INDICATOR

**Pioneer Valley and Massachusetts In, Out, and Net Migration, 1990 to 2003**




*Source*: Internal Revenue Service, County to County Migration Statistics, 2005.

## *Demographic and Labor Market Conditions: Skilled Labor Pipeline*

### Educational Attainment

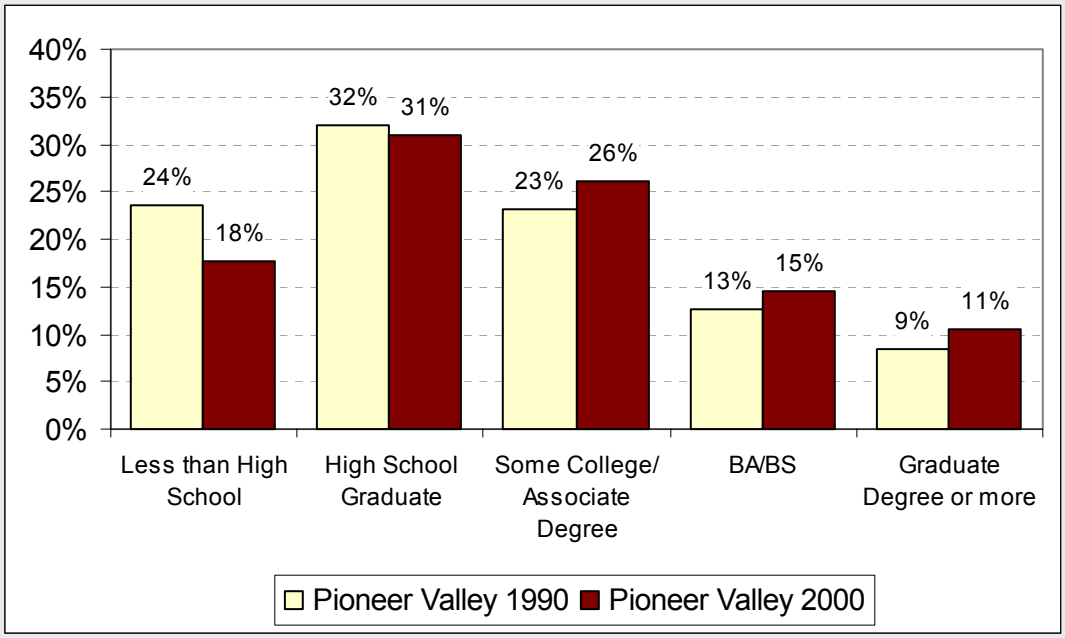
*Why It's Important*

Well-paying work in Massachusetts' contemporary economy typically requires a minimum of an associate degree: most good jobs require a B.A. or graduate-level education. Given the importance of education to individual career prospects, it should be no surprise that regional education levels are an important indicator of a region's baseline ability to absorb or support high-value added, export-oriented economic growth. Low education levels (relative to other regions or states) represent a lost opportunity to the region as well as the individuals precluded from gaining entry into occupations with good pay and career ladders.

*Regional Status*

**HISTORICAL INDICATOR**

**Educational Attainment in the Pioneer Valley Region and MA, 1990 and 2000**



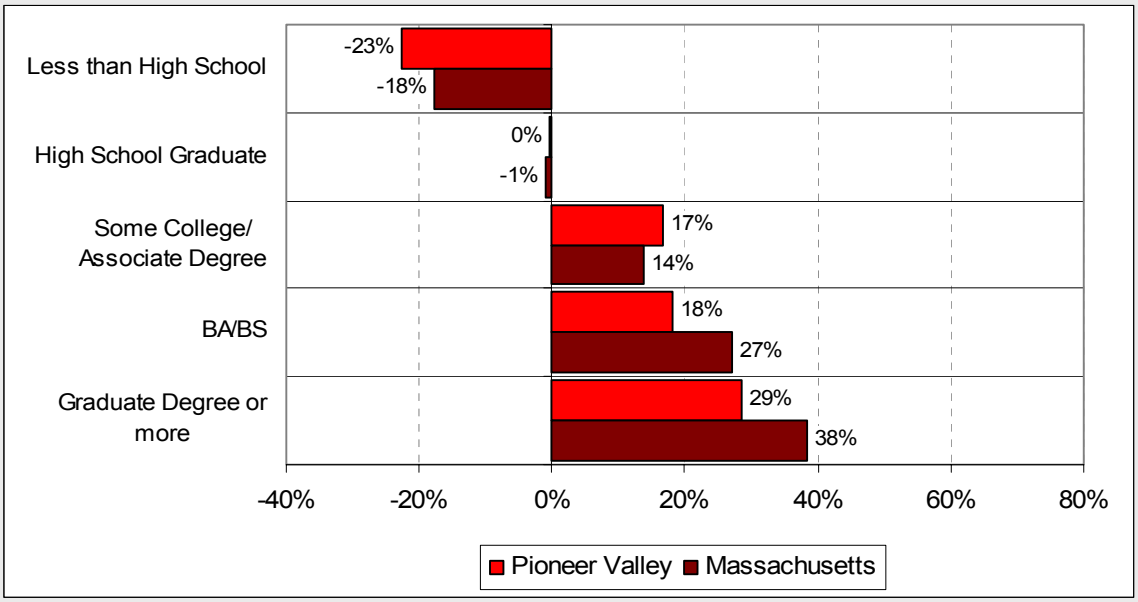

*Source*: Decennial Census, U.S. Census, 1990 and 2000.

Between 1990 and 2000, educational attainment levels increased in the Pioneer Valley region for adults 25 years of age and over. A higher percentage of adults in the Pioneer Valley have at least some college education, with fewer adults having no high school diploma.

Though Pioneer Valley residents are more highly educated than in the past, the rate of increase in educational attainment for the region is substantially less impressive than that of the state as a whole. Between 1990 and 2000, the number of adults in Massachusetts with a BA/BS grew by 27 percent, compared to 18 percent in the Pioneer Valley. The number of adults in the state with a graduate degree increased by 38 percent compared to only 29 percent in the Pioneer Valley.

**HISTORICAL INDICATOR**

**Change in Educational Attainment in the Pioneer Valley Region and MA, 1990 and 2000**




*Source*: Decennial Census, U.S. Census, 1990 and 2000.

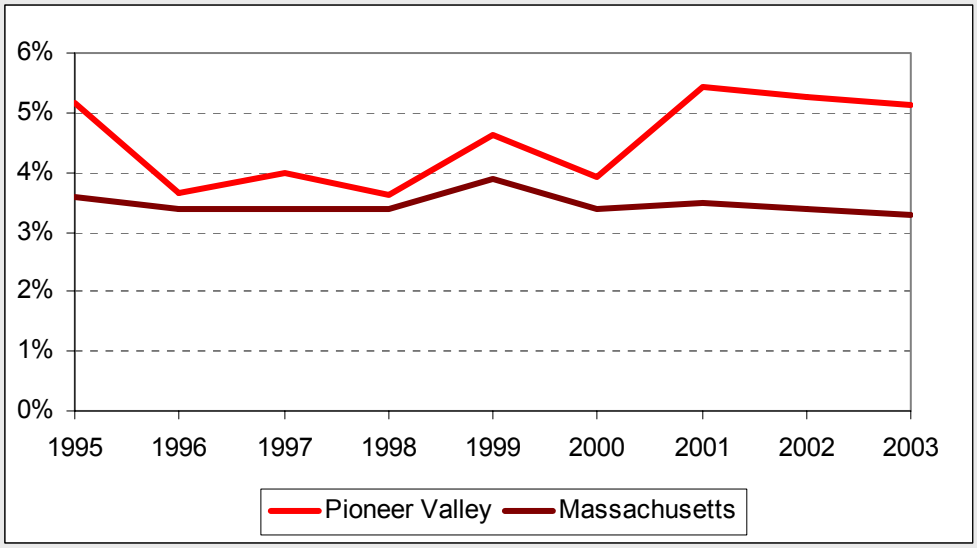
## Dropout Rate

*Why It's Important*
High school drop-out rates and college plans of graduating seniors (reported below) are sound indicators of how well regions are able to prepare all of its youth for college and post-graduate career opportunities. A region that suffers from high dropout rates is reducing the pool of well-educated workers and growing the number of residents who will likely need remedial education and job counseling services.

*Regional Status*
The drop-out rate in the Pioneer Valley region increased significantly between 2000 and 2003 and in 2003 was one-third higher than the state drop-out rate. This trend has troubling implications for many of the region's youth and the skill level of the region's future work force.

**YEARLY INDICATOR**

**High School Drop-Out Rate for Pioneer Valley Region and Massachusetts, 1995 through 2003**




*Note: 2002 Data is interpolated*
*Source*: Massachusetts Department of Education, 2005.

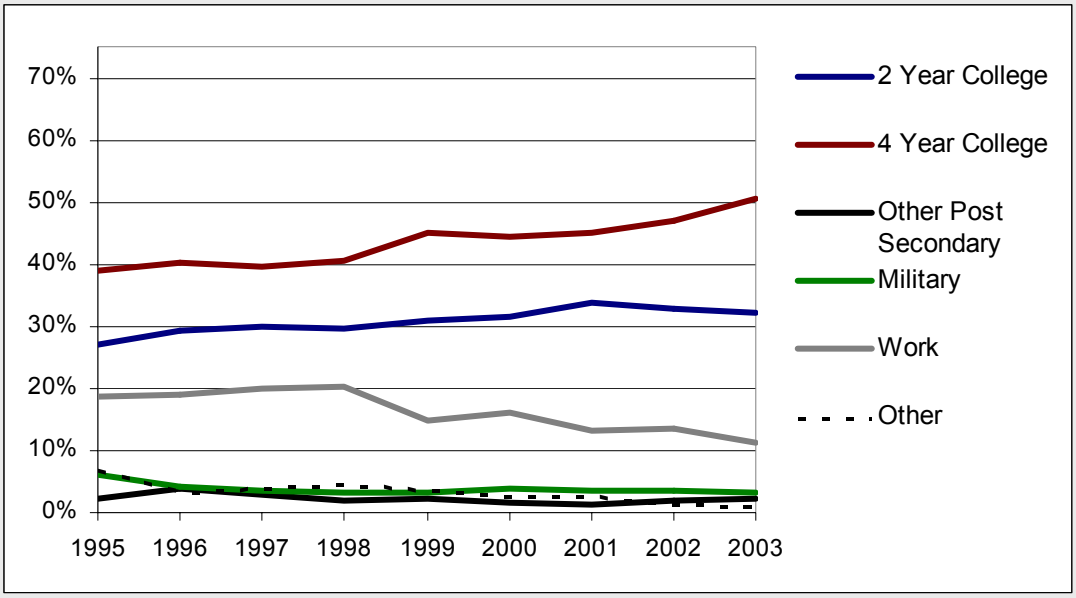
## Plans of High School Seniors

*Why It's Important*
School districts report the results of surveys of graduating high seniors to the Massachusetts Department of Education. The aspirations of young adults in the region provide insight into the near-term availability and future skill level of the workforce. It also indicates how well a region prepares its youth for career choices.

*Regional Status*
In 2003, over 80 percent of high school seniors in the Pioneer Valley region planned to attend an institution of higher education after graduating high school. Approximately 50 percent of high school seniors planned to attend a four-year college or university, while approximately 30 percent of seniors planned to attend a two-year college. The region has a lower percentage of students aspiring to attend a four-year college than Boston Metro, for example, but the overall level of students aspiring to attend a two or four-year institution is comparable to other regions in Massachusetts.

**YEARLY INDICATOR**

**Plans of Pioneer Valley Region High School Seniors, 1995 through 2003**




*Source*: Massachusetts Department of Education, 2005.

## *Demographic and Labor Market Conditions: Income Growth*

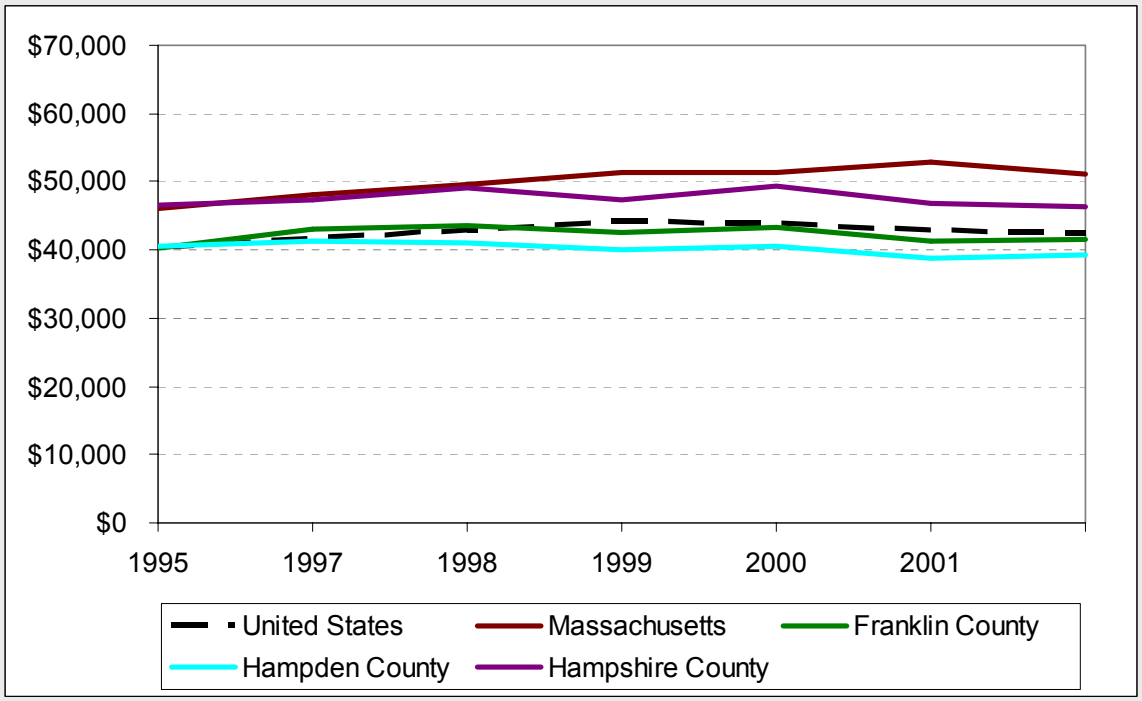
### Household Income Growth

*Why It's Important*
A time-series of median household income, adjusted to reflect 2002 dollars, is a solid indicator of the level of household prosperity in the region. Household income is not adjusted or weighted to reflect the differential cost of living in counties in Massachusetts or between Massachusetts and the nation. In principle, a dollar of income in a high-cost region (such as Massachusetts) is worth less, adjusted for the higher cost of basic goods, than a dollar in a low-cost region. However, beyond a certain basic level of necessary goods or services, a region with high median incomes is in an absolute sense more prosperous than a region with lower median incomes.

*Regional Status*
The median household income in the Pioneer Valley's three counties is substantially lower than for the state as a whole. Adjusted for inflation, incomes in the region have not grown since 1995, despite modest income growth in the state. Hampshire County boasts the highest median household incomes in the region, while Hampden County and Franklin County have median household incomes below the median household income of the US. Hampden County, which is the Pioneer Valley's most populous county, has the lowest median household income in the region. This reflects the region's difficulty expanding export-oriented and higher paying jobs.

**YEARLY INDICATOR**

**Median Household Income for Pioneer Valley and Massachusetts, 1995 to 2002**
**(Income Inflation-Adjusted to 2002 Dollars)**




*Source*: U.S. Bureau of the Census, Small Area Income and Population Estimates, 2005.

## *Demographic and Labor Market Conditions: Income Inequality*

### Number of Persons in Poverty

*Why It's Important*

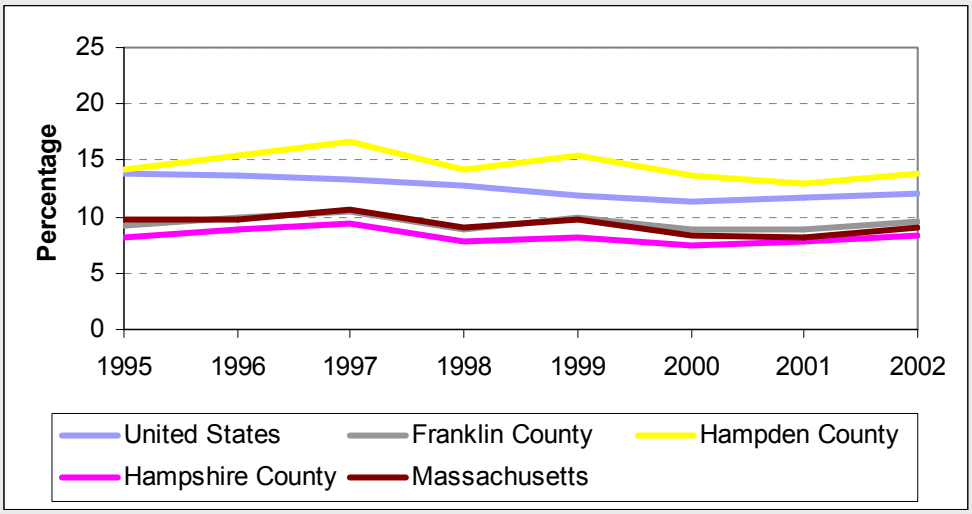
In 2004, the U.S. Bureau of the Census defined the poverty threshold for a family of four as a total household income of $19,157. In Massachusetts in 2004, a family of four at the poverty line would have an income that is 28 percent of the estimated median family income of $68,563. A time-series of the poverty rate provides a fundamental indicator of income inequality within a region. The number of children below the poverty level is an especially important measure, as these children are more likely to lack basic services and miss essential life opportunities that lead to career opportunities, personal fulfillment and contributions to the local economy.

*Regional Status*

The Pioneer Valley poverty rate is higher than in Massachusetts, except in Hampshire County. Hampden County has a poverty rate higher than that for the state and the nation for each year from 1995 to 2002. The child poverty rate for the region shows a similar distribution across the region's counties, with Hampden County having the highest rate (above the state and national rates) and Hampshire County below the state and national rates.

**YEARLY INDICATOR**

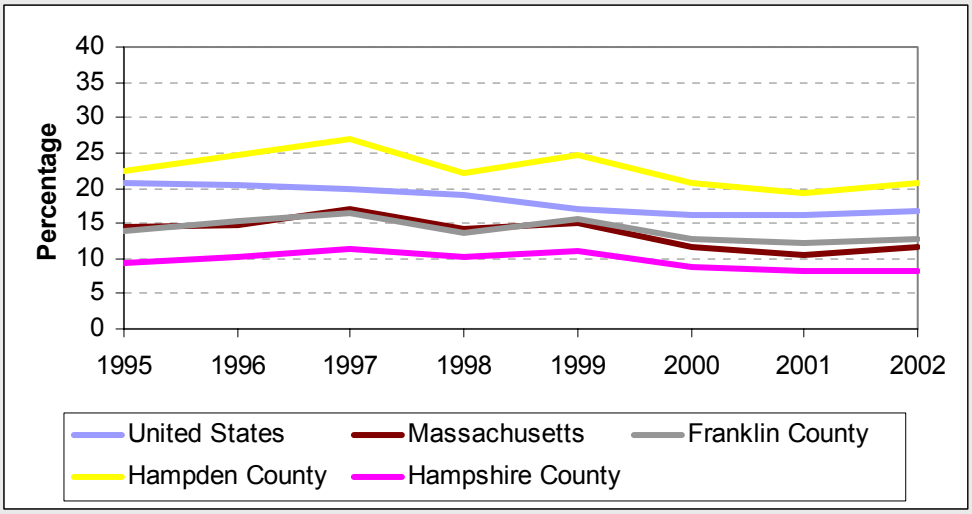
**Poverty Status for All Individuals in Pioneer Valley, Massachusetts, and the United States, 1995 to 2002**




*Source*: U.S. Bureau of the Census, Small Area Income and Population Estimates, 2005.

**YEARLY INDICATOR**

**Poverty Status for Children Aged 0-17 in Pioneer Valley, Massachusetts, and the United States, 1995 to 2002**




*Source*: U.S. Bureau of the Census, Small Area Income and Population Estimates, 2005.

## Share of Students Eligible for the Free and Reduced School Lunch Program

*Why It's Important*

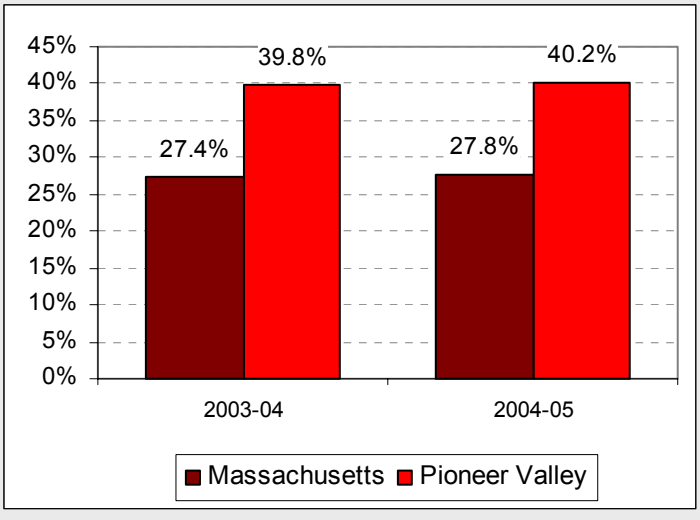
Measures of free and subsidized school lunch eligibility are an excellent indicator of the concentration of low-income youth in a region. The federal poverty level is too low to properly assess the number or proportion of children from low-income families. Federal school lunch subsidies cover children from families with incomes up to 185 percent of the poverty level. In addition, school lunch eligibility rates are most likely to underreport the actual need that exists in communities. Families must apply each year to receive the benefit and some eligible families decline to apply for the program due to the perceived stigma attached to program participation. A review of data from the Massachusetts Department of Education shows that low-income families are concentrated in the state's cities, with a high proportion of low-income students in many rural communities. However, significant variation exists between regions in the state.

*Regional Status*

The percentage of public school students eligible to receive reduced-price or free school lunches in the Pioneer Valley is alarming. In the 2003-2004 and 2004-2005 school years, 40 percent of public school students in the region resided in households with incomes no higher than 185 percent of the poverty level. No region in the state has a higher percentage of low income students. Public school systems in cities such as Boston or Worcester have comparable percentages of low-income students, but the regional concentration of low income students in the Pioneer Valley is approximately one-third higher than any other region in the state. The Pioneer Valley's low-income students are concentrated in the region's cities, Springfield, Holyoke and Chicopee; however, many of the region's rural school districts are also home to high concentrations of low income students.

**YEARLY INDICATOR**

**Percentage of Children Eligible for Free or Subsidized School Lunch, 2004**




*Source*: Mass. Dept. of Education, 2005.

# Appendices

## *Methodology*

***Estimated Employment and Unemployment Counts***
*Method*: The percentage and number of persons unemployed regionally is presented by year, with comparable data for the state and the nation.
*Data Source*: Local Area Unemployment Statistics (LAUS), as provided by the Massachusetts Division of Unemployment Assistance.

***Employment by Industry***
*Method*: The economic sector definitions used in this project are based on the work of Forrant, Moss and Tilly in the UMass Donahue Institute report, *Knowledge Sector Powerhouse* report (2001). Massachusetts industries were organized by export cluster, with a residual category for all other establishments, as follows: Advanced Technology Manufacturing; Arts, Tourism & Recreation; Financial Services; Healthcare; Knowledge Creation; Traditional Manufacturing; and, All Other Sectors. The *Knowledge Sector Powerhouse* sectors were organized according to the Standard Industrial Classification (SIC) definitions. This work reorganizes the sectors according to the North American Industrial Classification System (NAICS). Due to data suppression, the NAICS-based export clusters are organized and presented at the 'three-digit' level. The NAICS sector definitions appear on the next page.
*Data Source*: Quarterly Census of Employment and Wages (ES-202), as provided by the Massachusetts Division of Unemployment Assistance.

***Location Quotients by Industry***
*Method*: A location quotient is a ratio of ratios, which means that the share of employment in an industry sector in a region is compared to the share of that sector's employment in the comparison geography (typically the state or nation). The industry sectors defined above were used for these calculations.
*Data Source*: Quarterly Census of Employment and Wages (ES-202), as provided by the Massachusetts Division of Unemployment Assistance.

***Analysis of Export Clusters***
*Method*: The export cluster analysis presents each sector's share of total employment in the region. The export cluster definitions are defined in the entry "Employment by Industry."
*Data Source*: Quarterly Census of Employment and Wages (ES-202), as provided by the Massachusetts Division of Unemployment Assistance.

***Venture Capital Funding***
*Method*: Venture capital funding received by companies in each region was measured and compared using information provided by the PriceWaterhouseCooper MoneyTree survey. Data is updated quarterly; no time-series data is available.
*Data Source*: PriceWaterhouseCooper MoneyTree survey.

## EDA Regional Benchmarking Export Cluster Definitions

**Export Cluster**

**Advanced Technology Manufacturing**
NAICS 325 Chemical manufacturing
NAICS 334 Computer and electronic product manufacturing

**Arts, Tourism & Recreation**
NAICS 487 Scenic and sightseeing transportation
NAICS 711 Performing arts and spectator sports
NAICS 712 Museums, historical sites, zoos, and parks
NAICS 713 Amusements, gambling, and recreation
NAICS 721 Accommodation
NAICS 722 Food services and drinking places

**Financial Services**
NAICS 521 Monetary authorities - central bank
NAICS 522 Credit intermediation and related activities
NAICS 523 Securities, commodity contracts, investments
NAICS 524 Insurance carriers and related activities
NAICS 525 Funds, trusts, and other financial vehicles

**Healthcare**
NAICS 621 Ambulatory health care services
NAICS 622 Hospitals
NAICS 623 Nursing and residential care facilities
NAICS 624 Social assistance

**Knowledge Creation**
NAICS 511 Publishing industries, except Internet
NAICS 512 Motion picture and sound recording industries
NAICS 515 Broadcasting, except Internet
NAICS 516 Internet publishing and broadcasting
NAICS 517 Telecommunications
NAICS 518 ISPs, search portals, and data processing
NAICS 519 Other information services
NAICS 541 Professional and technical services
NAICS 551 Management of companies and enterprises
NAICS 611 Educational services
NAICS 813 Membership associations and organizations

**Traditional Manufacturing**
NAICS 311 Food manufacturing
NAICS 312 Beverage and tobacco product manufacturing
NAICS 313 Textile mills
NAICS 314 Textile product mills
NAICS 315 Apparel manufacturing
NAICS 316 Leather and allied product manufacturing
NAICS 321 Wood product manufacturing
NAICS 322 Paper manufacturing
NAICS 323 Printing and related support activities
NAICS 324 Petroleum and coal products manufacturing
NAICS 326 Plastics and rubber products manufacturing
NAICS 327 Nonmetallic mineral product manufacturing
NAICS 331 Primary metal manufacturing
NAICS 332 Fabricated metal product manufacturing
NAICS 333 Machinery manufacturing
NAICS 335 Electrical equipment and appliance mfg.
NAICS 336 Transportation equipment manufacturing
NAICS 337 Furniture and related product manufacturing
NAICS 339 Miscellaneous manufacturing

**All Other Sectors**
NAICS 111 Crop production
NAICS 112 Animal production
NAICS 113 Forestry and logging
NAICS 114 Fishing, hunting and trapping
NAICS 115 Agriculture and forestry support activities
NAICS 211 Oil and gas extraction
NAICS 212 Mining, except oil and gas
NAICS 213 Support activities for mining
NAICS 221 Utilities
NAICS 236 Construction of buildings
NAICS 237 Heavy and civil engineering construction
NAICS 238 Specialty trade contractors
NAICS 423 Merchant wholesalers, durable goods
NAICS 424 Merchant wholesalers, nondurable goods
NAICS 425 Electronic markets and agents and brokers
NAICS 441 Motor vehicle and parts dealers
NAICS 442 Furniture and home furnishings stores
NAICS 443 Electronics and appliance stores
NAICS 444 Building material and garden supply stores
NAICS 445 Food and beverage stores
NAICS 446 Health and personal care stores
NAICS 447 Gasoline stations
NAICS 448 Clothing and clothing accessories stores
NAICS 451 Sporting goods, hobby, book and music stores
NAICS 452 General merchandise stores
NAICS 453 Miscellaneous store retailers
NAICS 454 Nonstore retailers
NAICS 481 Air transportation
NAICS 482 Rail transportation
NAICS 483 Water transportation
NAICS 484 Truck transportation
NAICS 485 Transit and ground passenger transportation
NAICS 486 Pipeline transportation
NAICS 488 Support activities for transportation
NAICS 491 Postal service
NAICS 492 Couriers and messengers
NAICS 493 Warehousing and storage
NAICS 531 Real estate
NAICS 532 Rental and leasing services
NAICS 533 Lessors of nonfinancial intangible assets
NAICS 561 Administrative and support services
NAICS 562 Waste management and remediation services
NAICS 811 Repair and maintenance
NAICS 812 Personal and laundry services
NAICS 814 Private households
NAICS 999 Unclassified

***Patents***
*Method*: The number of patents issued to individuals or organizations in each region were compared over time. To remove yearly variations, three-year periods are used and averaged to create a yearly average number of patents. Two time periods were chosen, 1971 through 1973 (the earliest time period in the database) and 2002 through 2004. Unique individuals or organizations receiving patents (assignees) were identified through name and location. For patents with multiple assignees, the first assignee from Massachusetts was chosen as the primary recipient.
*Data Source*: Community of Science U.S. Patents Database.

***Residential Parcels by Building Type***
*Method*: Annual data are aggregated from town-level information for parcels of different building types: single-family homes, multi-unit buildings (2-4 units), apartments (5 or more units), condominiums, and residual "other" category.
*Data Source*: Decennial Census; U.S. Bureau of the Census.

***Number of Permits for New Construction***
*Method*: Data on building permits is collected and aggregated to the regional level by type of unit.
*Data Source*: U.S. Bureau of the Census; Division of Local Services, Massachusetts Department of Revenue.

***Supply of Chapter 40B-Defined Affordable Housing***
*Method*: The map graphically displays (via ArcView, and ESRI product) town-level data provided by the Massachusetts Department of Housing and Community Development. Chapter 40B housing units are those affordable housing units in municipalities that are certified as conforming to state guidelines for affordability (available at the Mass.gov website). The municipal affordable housing percentages are based on the number of housing units reported in the 2000 Decennial Census of the U.S. Bureau of the Census.
*Data source*: Massachusetts Department of Housing and Community Development.

***Housing Affordability Problems by Income and Household***
*Method:* Municipal-level data from the Comprehensive Housing Affordability Strategy (CHAS) database was summarized at the regional level, with in-house calculations of the regional percentage of households with high housing cost burdens (in excess of 30 percent of income). The CHAS data is based on information from the 2000 Census.
Data Source: Comprehensive Housing Affordability Strategy (CHAS) database, State of the Cities Database website, U.S. Department of Housing and Urban Development.

***Average Assessed Value of Single-Family Homes***
*Method*: The average assessed valuation for all single-family home residential property parcels is calculated for each region. As the dataset was incomplete for some years in certain municipalities, the missing data was interpolated from the available data.
*Data source*: Division of Local Services, Massachusetts Department of Revenue.

***Average Assessed Value of Industrial and Commercial Properties***
*Method*: The average assessed valuation for all industrial and commercial property parcels was calculated for each region for each fiscal year, starting in FY1986. As the data was incomplete for certain municipalities in certain years, missing data was imputed using the average yearly change of previous and subsequent years.
*Data source*: Division of Local Services, Massachusetts Department of Revenue.

***Population Change***
*Method*: The Massachusetts State Data Center prepared charts comparing population by region to the state and the nation. The Center used population data from the Decennial Census from 1930 to 2000, as well as recent population estimates from the Bureau's Population Estimates Program.
*Data Source*: The Decennial Census and the Population Estimates Program.; U.S. Bureau of the Census.

***In- and Out-Migration***
*Method*: The IRS collects yearly data on domestic migration, which can be used to track the yearly in- and out-flows of U.S. residents and to discover if the net flow is positive or negative. Because the data is available on the county level, Benchmarks regions that conform to county boundaries can be readily summarized; regions with overlapping counties cannot be exactly represented by the data. Specifically, the Greater Boston and Northeast regions must be measured together as large parts of Middlesex County are claimed by both regions.
*Data Source*: County to County Migration Data; Internal Revenue Service.

***Educational Attainment***
*Method*: Data from the 1990 and 2000 Decennial Census on educational attainment for persons over 25 years old was combined into the education categories of "less than high school," high school," "less than bachelor's degree," bachelor's degree," and "master's degree or higher." The change in numbers and percentages of each category is compared from 1990 to 2000.
*Data Source*: 1990 and 2000 Decennial Census; U.S. Bureau of the Census.

***School Dropout Numbers and Rates***
*Method*: Data published by the Mass. Dept. of Education on high school dropout rates ("grade retention reports") is aggregated to the regional level and tracked yearly.
*Data Source*: Grade Retention Reports; Massachusetts Department of Education.

***Plans of Graduating Seniors***
*Method*: Survey data of graduating high school students is aggregated to the regional level and tracked yearly in five categories for future plans: college, other post-secondary education, military, work, and other/no data.
*Data Source*: Plans of High School Graduates Survey; Massachusetts Department of Education.

***Median Household Income Growth by County***
*Method*: The estimated median income for each county from 1995 through 2002 was adjusted for inflation to 2002 levels, using the Boston Area Consumer Price Index for All Urban Consumers (U.S. Bureau of Labor Statistics). This adjusted-data was compared to the state and

national median income. As this data is reported on the county level, some minor geographic differences exist between the standard Benchmarks regions and county lines, and the Greater Boston and Northeast regions must be measured together as large parts of Middlesex County are claimed by both regions.
*Data Source*: Census Small Area Income and Poverty Estimates (SAIPE), U.S. Bureau of the Census.

***Individuals in Poverty***
*Method*: The percentage and number of persons living under the poverty level from 1995 through 2002 was aggregated to the regional level and compared to state and national trends. Two categories of persons were measured: children under 18, and all persons.
*Data Source*: Census Small Area Income and Poverty Estimates (SAIPE), U.S. Bureau of the Census.

***Free and Subsidized School Lunch***
*Method*: The number of public school children eligible in the free and subsidized school lunch program was aggregated to the regional level for the years 2003-2004 and 2004-2005. Eligible students as a percentage of all students are reported for the year 2004-2005.
*Data Source*: Free and Subsidized School Lunch Program, Massachusetts Department of Education.

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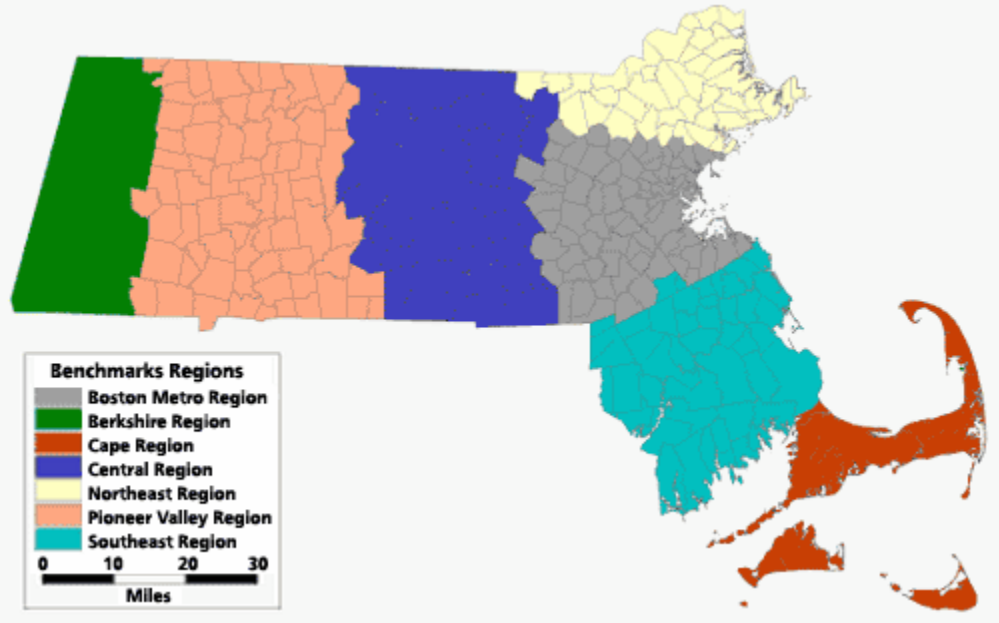
## *The Benchmark Regions*[3]




The benchmark regions used in this report were first announced in the second issue of Massachusetts Benchmarks, the quarterly economic journal that is published by the University of Massachusetts in cooperation with the Federal Reserve Bank of Boston (Volume 1, Issue 2: 1998). The effort to create coherent regional definitions followed widespread interest in regional analysis generated by the Commonwealth of Massachusetts report, *Choosing to Compete* (1992). The UMass Donahue Institute defined the seven benchmark regions through careful analysis of the geographies used by the Massachusetts Office of Business Development (MOBD) and the state's Regional Planning Agencies, with modifications based on reviews by regional experts and entities. The seven benchmark regions are: Berkshire, Boston Metro, Cape and Islands, Central, Northeast, Pioneer Valley and Southeast.

In drawing the lines of the benchmark regions, the UMass Donahue Institute sought to form regions that simultaneously 1) make economic sense 2) are easily recognizable 3) have a rich and current set of economic and social data available. The seven regions met those requirements.

The regions are a compromise between economic function and data availability. Each region is constructed using cities and towns as building blocks. In building the definitions, the UMass Donahue Institute considered the numerous federally-designated metropolitan statistical areas (MSA) and surrounding, non-metropolitan labor market areas (LMA). MSAs are established by the U.S. Bureau of the Census following each decennial census. The geographies utilized in the benchmarks analysis were issued by the U.S. Bureau of the Census in 1993.

[3] The language and information in this section are adapted from the *Massachusetts Benchmarks* Endnotes article, "Lines on the Map," featured *in Massachusetts Benchmarks*, Volume 1, Issue 2 (1998).

In 1998, Massachusetts had seven primary metropolitan statistical areas (PMSAs), four MSAs, and ten LMAs representing non-metropolitan areas. These divisions encompassed key cities and adjacent communities with a high degree of economic and social integration. Data, including employment and labor force information, is collected regularly for these statistical areas.

The U.S. Census and Massachusetts Division of Unemployment Assistance (DUA) derived data reported by labor market area or MSA offer important but limited perspectives on regional conditions. A comprehensive regional analysis should also provide insight into land use, demographic and social conditions, educational indicators and transportation conditions. To sift through the multitude of potential indicators requires reviewing the complex web of statistical, political and planning jurisdictions in the state and piecing together the accompanying data.

Three particular political jurisdictions offer rich insight into regional conditions and trends. The primary source of data for the benchmarks regions is the state's 351 cities and towns. Cities and towns comprise the basic geographic unit for collecting employment and labor force data. Information on local government expenditures and revenues is also collected and recorded by cities and towns. The second major jurisdiction is the 14 counties of the Massachusetts. Though there are no county governments in Massachusetts, state and federal data of all types is often reported at the county-level.

The final significant political jurisdiction that helps to define the benchmark regions is the thirteen Regional Planning Agencies (RPAs). The RPAs are legally defined as "special state districts" and conform to various regional dynamics including economic networks, employment and commuting patterns, transportation systems, newspaper circulation and natural boundaries. Many of the RPAs collect and maintain unique sets of data for their specific regions.

We are continually discovering new sources of valuable information and searching for ways to make data useful. The lines we've drawn allow us to report this information on a regular basis.

*Municipalities by Benchmark Regions*

## The Berkshire Region:

| Town | County | Regional Planning Agency |
|---|---|---|
| Adams | Berkshire | Berkshire Regional Planning Commission (BRPC) |
| Alford | Berkshire | BRPC |
| Becket | Berkshire | BRPC |
| Cheshire | Berkshire | BRPC |
| Clarksburg | Berkshire | BRPC |
| Dalton | Berkshire | BRPC |
| Egremont | Berkshire | BRPC |
| Florida | Berkshire | BRPC |
| Great Barrington | Berkshire | BRPC |
| Hancock | Berkshire | BRPC |
| Hinsdale | Berkshire | BRPC |
| Lanesborough | Berkshire | BRPC |
| Lee | Berkshire | BRPC |
| Lenox | Berkshire | BRPC |
| Monterey | Berkshire | BRPC |
| Mt. Washington | Berkshire | BRPC |
| New Ashford | Berkshire | BRPC |
| New Marlborough | Berkshire | BRPC |
| North Adams | Berkshire | BRPC |
| Otis | Berkshire | BRPC |
| Peru | Berkshire | BRPC |
| Pittsfield | Berkshire | BRPC |
| Richmond | Berkshire | BRPC |
| Sandisfield | Berkshire | BRPC |
| Savoy | Berkshire | BRPC |
| Sheffield | Berkshire | BRPC |
| Stockbridge | Berkshire | BRPC |
| Tyringham | Berkshire | BRPC |
| Washington | Berkshire | BRPC |
| West Stockbridge | Berkshire | BRPC |
| Williamstown | Berkshire | BRPC |
| Windsor | Berkshire | BRPC |

## The Boston Metro Region:

| Town | County | Regional Planning Agency |
|---|---|---|
| Acton | Middlesex | Metropolitan Area Planning Council (MAPC) |
| Arlington | Middlesex | MAPC |
| Ashland | Middlesex | MAPC |
| Bedford | Middlesex | MAPC |
| Bellingham | Norfolk | MAPC |
| Belmont | Middlesex | MAPC |
| Bolton | Worcester | MAPC |
| Boston | Suffolk | MAPC |
| Boxborough | Middlesex | MAPC |

**The Boston Metro Region (cont.):**

| Town | County | Regional Planning Agency |
|---|---|---|
| Braintree | Norfolk | MAPC |
| Brookline | Norfolk | MAPC |
| Burlington | Middlesex | MAPC |
| Cambridge | Middlesex | MAPC |
| Canton | Norfolk | MAPC |
| Carlisle | Middlesex | MAPC |
| Chelsea | Suffolk | MAPC |
| Cohasset | Norfolk | MAPC |
| Concord | Middlesex | MAPC |
| Dedham | Norfolk | MAPC |
| Dover | Norfolk | MAPC |
| Everett | Middlesex | MAPC |
| Foxborough | Norfolk | MAPC |
| Framingham | Middlesex | MAPC |
| Franklin | Norfolk | MAPC |
| Hingham | Plymouth | MAPC |
| Holbrook | Norfolk | MAPC |
| Holliston | Middlesex | MAPC |
| Hopkinton | Middlesex | MAPC |
| Hudson | Middlesex | MAPC |
| Hull | Plymouth | MAPC |
| Lexington | Middlesex | MAPC |
| Lincoln | Middlesex | MAPC |
| Littleton | Middlesex | MAPC |
| Lynn | Essex | MAPC |
| Malden | Middlesex | MAPC |
| Marlborough | Middlesex | MAPC |
| Maynard | Middlesex | MAPC |
| Medfield | Norfolk | MAPC |
| Medford | Middlesex | MAPC |
| Medway | Norfolk | MAPC |
| Melrose | Middlesex | MAPC |
| Milford | Worcester | MAPC |
| Millis | Norfolk | MAPC |
| Milton | Norfolk | MAPC |
| Nahant | Essex | MAPC |
| Natick | Middlesex | MAPC |
| Needham | Norfolk | MAPC |
| Newton | Middlesex | MAPC |
| Norfolk | Norfolk | MAPC |
| Norwood | Norfolk | MAPC |
| Quincy | Norfolk | MAPC |
| Randolph | Norfolk | MAPC |
| Revere | Suffolk | MAPC |
| Saugus | Essex | MAPC |
| Sharon | Norfolk | MAPC |

## The Boston Metro Region (cont.):

| Town | County | Regional Planning Agency |
|---|---|---|
| Sherborn | Middlesex | MAPC |
| Somerville | Middlesex | MAPC |
| Southborough | Worcester | MAPC |
| Stoneham | Middlesex | MAPC |
| Stow | Middlesex | MAPC |
| Sudbury | Middlesex | MAPC |
| Swampscott | Essex | MAPC |
| Wakefield | Middlesex | MAPC |
| Walpole | Norfolk | MAPC |
| Waltham | Middlesex | MAPC |
| Watertown | Middlesex | MAPC |
| Wayland | Middlesex | MAPC |
| Wellesley | Norfolk | MAPC |
| Weston | Middlesex | MAPC |
| Westwood | Norfolk | MAPC |
| Weymouth | Norfolk | MAPC |
| Winchester | Middlesex | MAPC |
| Winthrop | Suffolk | MAPC |
| Woburn | Middlesex | MAPC |
| Wrentham | Norfolk | MAPC |

## The Cape and Islands Region:

| Town | County | Regional Planning Agency |
|---|---|---|
| Barnstable | Barnstable | Cape Cod Commission (CCC) |
| Bourne | Barnstable | CCC |
| Brewster | Barnstable | CCC |
| Chatham | Barnstable | CCC |
| Dennis | Barnstable | CCC |
| Eastham | Barnstable | CCC |
| Falmouth | Barnstable | CCC |
| Harwich | Barnstable | CCC |
| Mashpee | Barnstable | CCC |
| Orleans | Barnstable | CCC |
| Provincetown | Barnstable | CCC |
| Sandwich | Barnstable | CCC |
| Truro | Barnstable | CCC |
| Wellfleet | Barnstable | CCC |
| Yarmouth | Barnstable | CCC |
| Chilmark | Dukes | Martha's Vineyard Commission (MVC) |
| Edgartown | Dukes | MVC |
| Gay Head | Dukes | MVC |
| Gosnold | Dukes | MVC |
| Oak Bluffs | Dukes | MVC |
| Tisbury | Dukes | MVC |

## The Cape and Islands Region (cont.):

| Town | County | Regional Planning Agency |
|---|---|---|
| West Tisbury | Dukes | MVC |
| Nantucket | Nantucket | Nantucket Planning & Economic Development Commission |

## The Central Region:

| Town | County | Regional Planning Agency |
|---|---|---|
| Ashburnham | Worcester | Montachusett Regional Planning Commission (MRPC) |
| Ashby | Middlesex | MRPC |
| Athol | Worcester | MRPC |
| Ayer | Middlesex | MRPC |
| Clinton | Worcester | MRPC |
| Fitchburg | Worcester | MRPC |
| Gardner | Worcester | MRPC |
| Groton | Middlesex | MRPC |
| Harvard | Worcester | MRPC |
| Hubbardston | Worcester | MRPC |
| Lancaster | Worcester | MRPC |
| Leominster | Worcester | MRPC |
| Lunenburg | Worcester | MRPC |
| Petersham | Worcester | MRPC |
| Phillipston | Worcester | MRPC |
| Royalston | Worcester | MRPC |
| Shirley | Middlesex | MRPC |
| Sterling | Worcester | MRPC |
| Templeton | Worcester | MRPC |
| Townsend | Middlesex | MRPC |
| Westminster | Worcester | MRPC |
| Winchendon | Worcester | MRPC |
| Auburn | Worcester | Central Massachusetts Regional Planning Commission (CMRPC) |
| Barre | Worcester | CMRPC |
| Berlin | Worcester | CMRPC |
| Blackstone | Worcester | CMRPC |
| Boylston | Worcester | CMRPC |
| Brookfield | Worcester | CMRPC |
| Charlton | Worcester | CMRPC |
| Douglas | Worcester | CMRPC |
| Dudley | Worcester | CMRPC |
| East Brookfield | Worcester | CMRPC |
| Grafton | Worcester | CMRPC |
| Hardwick | Worcester | CMRPC |
| Holden | Worcester | CMRPC |

## The Central Region (cont.):

| Town | County | Regional Planning Agency |
|---|---|---|
| Hopedale | Worcester | CMRPC |
| Leicester | Worcester | CMRPC |
| Mendon | Worcester | CMRPC |
| Millbury | Worcester | CMRPC |
| Millville | Worcester | CMRPC |
| New Braintree | Worcester | CMRPC |
| North Brookfield | Worcester | CMRPC |
| Northborough | Worcester | CMRPC |
| Northbridge | Worcester | CMRPC |
| Oakham | Worcester | CMRPC |
| Oxford | Worcester | CMRPC |
| Paxton | Worcester | CMRPC |
| Princeton | Worcester | CMRPC |
| Rutland | Worcester | CMRPC |
| Shrewsbury | Worcester | CMRPC |
| Southbridge | Worcester | CMRPC |
| Spencer | Worcester | CMRPC |
| Sturbridge | Worcester | CMRPC |
| Sutton | Worcester | CMRPC |
| Upton | Worcester | CMRPC |
| Uxbridge | Worcester | CMRPC |
| Warren | Worcester | CMRPC |
| Webster | Worcester | CMRPC |
| West Boylston | Worcester | CMRPC |
| West Brookfield | Worcester | CMRPC |
| Westborough | Worcester | CMRPC |
| Worcester | Worcester | CMRPC |

## The Northeast Region:

| Town | County | Regional Planning Agency |
|---|---|---|
| Billerica | Middlesex | Northern Middlesex Council Of Governments (NMCOG) |
| Chelmsford | Middlesex | NMCOG |
| Dracut | Middlesex | NMCOG |
| Dunstable | Middlesex | NMCOG |
| Lowell | Middlesex | NMCOG |
| Pepperell | Middlesex | NMCOG |
| Tewksbury | Middlesex | NMCOG |
| Tyngsborough | Middlesex | NMCOG |
| Westford | Middlesex | NMCOG |
| Amesbury | Essex | Merrimack Valley Planning Commission (MVPC) |
| Andover | Essex | MVPC |
| Boxford | Essex | MVPC |

## The Northeast Region (cont.):

| Town | County | Regional Planning Agency |
|---|---|---|
| Georgetown | Essex | MVPC |
| Groveland | Essex | MVPC |
| Haverhill | Essex | MVPC |
| Lawrence | Essex | MVPC |
| Merrimack | Essex | MVPC |
| Methuen | Essex | MVPC |
| Newbury | Essex | MVPC |
| Newburyport | Essex | MVPC |
| North Andover | Essex | MVPC |
| Rowley | Essex | MVPC |
| Salisbury | Essex | MVPC |
| West Newbury | Essex | MVPC |
| Beverly | Essex | Metropolitan Area Planning Council (MAPC) |
| Danvers | Essex | MAPC |
| Essex | Essex | MAPC |
| Gloucester | Essex | MAPC |
| Hamilton | Essex | MAPC |
| Ipswich | Essex | MAPC |
| Lynnfield | Essex | MAPC |
| Manchester | Essex | MAPC |
| Marblehead | Essex | MAPC |
| Middleton | Essex | MAPC |
| North Reading | Middlesex | MAPC |
| Peabody | Essex | MAPC |
| Reading | Middlesex | MAPC |
| Rockport | Essex | MAPC |
| Salem | Essex | MAPC |
| Topsfield | Essex | MAPC |
| Wenham | Essex | MAPC |
| Wilmington | Middlesex | MAPC |

## The Pioneer Valley Region:

| Town | County | Regional Planning Agency |
|---|---|---|
| Ashfield | Franklin | Franklin Council Of Governments (FRCOG) |
| Bernardston | Franklin | FRCOG |
| Buckland | Franklin | FRCOG |
| Charlemont | Franklin | FRCOG |
| Colrain | Franklin | FRCOG |
| Conway | Franklin | FRCOG |
| Deerfield | Franklin | FRCOG |
| Erving | Franklin | FRCOG |
| Gill | Franklin | FRCOG |
| Greenfield | Franklin | FRCOG |
| Hawley | Franklin | FRCOG |

**The Pioneer Valley Region (cont.):**

| Town | County | Regional Planning Agency |
|---|---|---|
| Heath | Franklin | FRCOG |
| Leverett | Franklin | FRCOG |
| Leyden | Franklin | FRCOG |
| Monroe | Franklin | FRCOG |
| Montague | Franklin | FRCOG |
| New Salem | Franklin | FRCOG |
| Northfield | Franklin | FRCOG |
| Orange | Franklin | FRCOG |
| Rowe | Franklin | FRCOG |
| Shelburne | Franklin | FRCOG |
| Shutesbury | Franklin | FRCOG |
| Sunderland | Franklin | FRCOG |
| Warwick | Franklin | FRCOG |
| Wendell | Franklin | FRCOG |
| Whately | Franklin | FRCOG |
| Agawam | Hampden | Pioneer Valley Planning Commission (PVPC) |
| Amherst | Hampshire | PVPC |
| Belchertown | Hampshire | PVPC |
| Blandford | Hampden | PVPC |
| Brimfield | Hampden | PVPC |
| Chester | Hampden | PVPC |
| Chesterfield | Hampshire | PVPC |
| Chicopee | Hampden | PVPC |
| Cummington | Hampshire | PVPC |
| East Longmeadow | Hampden | PVPC |
| Easthampton | Hampshire | PVPC |
| Goshen | Hampshire | PVPC |
| Granby | Hampshire | PVPC |
| Granville | Hampden | PVPC |
| Hadley | Hampshire | PVPC |
| Hampden | Hampden | PVPC |
| Hatfield | Hampshire | PVPC |
| Holland | Hampden | PVPC |
| Holyoke | Hampden | PVPC |
| Huntington | Hampshire | PVPC |
| Longmeadow | Hampden | PVPC |
| Ludlow | Hampden | PVPC |
| Middlefield | Hampshire | PVPC |
| Monson | Hampden | PVPC |
| Montgomery | Hampden | PVPC |
| Northampton | Hampshire | PVPC |
| Palmer | Hampden | PVPC |
| Pelham | Hampshire | PVPC |
| Plainfield | Hampshire | PVPC |

## The Pioneer Valley Region (cont.):

| Town | County | Regional Planning Agency |
|---|---|---|
| Russell | Hampden | PVPC |
| South Hadley | Hampshire | PVPC |
| Southampton | Hampshire | PVPC |
| Southwick | Hampden | PVPC |
| Springfield | Hampden | PVPC |
| Tolland | Hampden | PVPC |
| Wales | Hampden | PVPC |
| Ware | Hampshire | PVPC |
| West Springfield | Hampden | PVPC |
| Westfield | Hampden | PVPC |
| Westhampton | Hampshire | PVPC |
| Wilbraham | Hampden | PVPC |
| Williamsburg | Hampshire | PVPC |
| Worthington | Hampshire | PVPC |

## The Southeast Region:

| Town | County | Regional Planning Agency |
|---|---|---|
| Duxbury | Plymouth | Metropolitan Area Planning Council (MAPC) |
| Hanover | Plymouth | MAPC |
| Marshfield | Plymouth | MAPC |
| Norwell | Plymouth | MAPC |
| Rockland | Plymouth | MAPC |
| Scituate | Plymouth | MAPC |
| Abington | Plymouth | Old Colony Planning Council (OCPC) |
| Avon | Norfolk | OCPC |
| Bridgewater | Plymouth | OCPC |
| Brockton | Plymouth | OCPC |
| East Bridgewater | Plymouth | OCPC |
| Easton | Bristol | OCPC |
| Halifax | Plymouth | OCPC |
| Hanson | Plymouth | OCPC |
| Kingston | Plymouth | OCPC |
| Plymouth | Plymouth | OCPC |
| Plympton | Plymouth | OCPC |
| West Bridgewater | Plymouth | OCPC |
| Whitman | Plymouth | OCPC |
| Acushnet | Bristol | Southeast Regional Planning & Economic Development District (SRPEDD) |
| Attleborough | Bristol | SRPEDD |
| Berkley | Bristol | SRPEDD |
| Carver | Plymouth | SRPEDD |
| Dartmouth | Bristol | SRPEDD |
| Dighton | Bristol | SRPEDD |

## The Southeast Region:

| Town | County | Regional Planning Agency |
|---|---|---|
| Fairhaven | Bristol | SRPEDD |
| Fall River | Bristol | SRPEDD |
| Freetown | Bristol | SRPEDD |
| Lakeville | Plymouth | SRPEDD |
| Mansfield | Bristol | SRPEDD |
| Marion | Plymouth | SRPEDD |
| Mattapoisett | Plymouth | SRPEDD |
| Middleborough | Plymouth | SRPEDD |
| New Bedford | Bristol | SRPEDD |
| North Attleborough | Bristol | SRPEDD |
| Norton | Bristol | SRPEDD |
| Plainville | Norfolk | SRPEDD |
| Raynham | Bristol | SRPEDD |
| Rehoboth | Bristol | SRPEDD |
| Rochester | Plymouth | SRPEDD |
| Seekonk | Bristol | SRPEDD |
| Somerset | Bristol | SRPEDD |
| Swansea | Bristol | SRPEDD |
| Taunton | Bristol | SRPEDD |
| Wareham | Plymouth | SRPEDD |
| Westport | Bristol | SRPEDD |
| Pembroke | Plymouth | Belongs Both To MAPC & OCPC |
| Stoughton | Norfolk | Belongs Both To MAPC & OCPC |