



# **Donahue Institute**

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The Massachusetts Regional Benchmarking Project:

## **Berkshire 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 *MassBenchmarks*, 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<sup>1</sup> 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

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<sup>1</sup> 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*

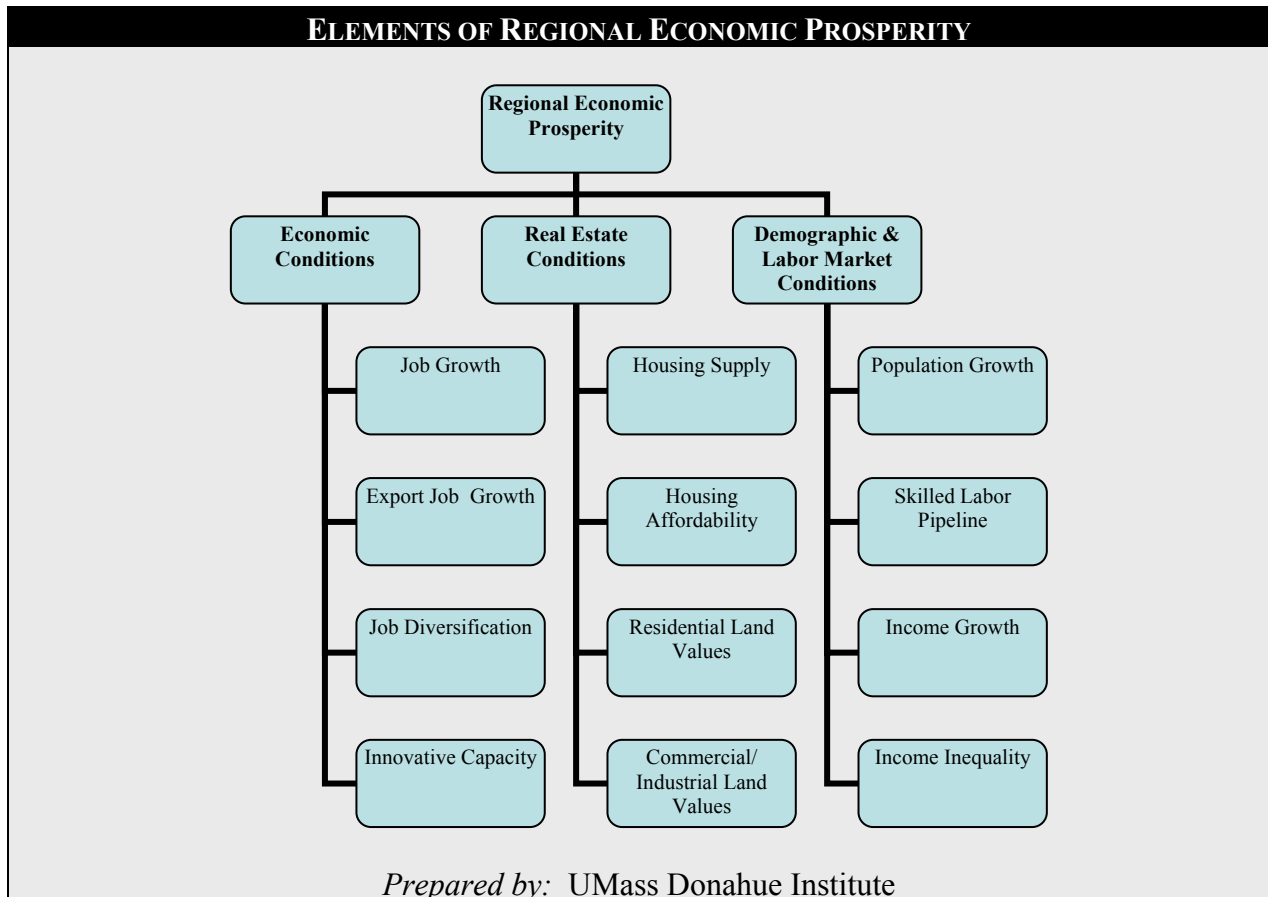
Land use and residential housing markets have significant economic implications for regional growth and prosperity. The seven indicators examined in this section are designed to measure housing supply, housing affordability, residential land values and commercial and industrial land values. These four “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

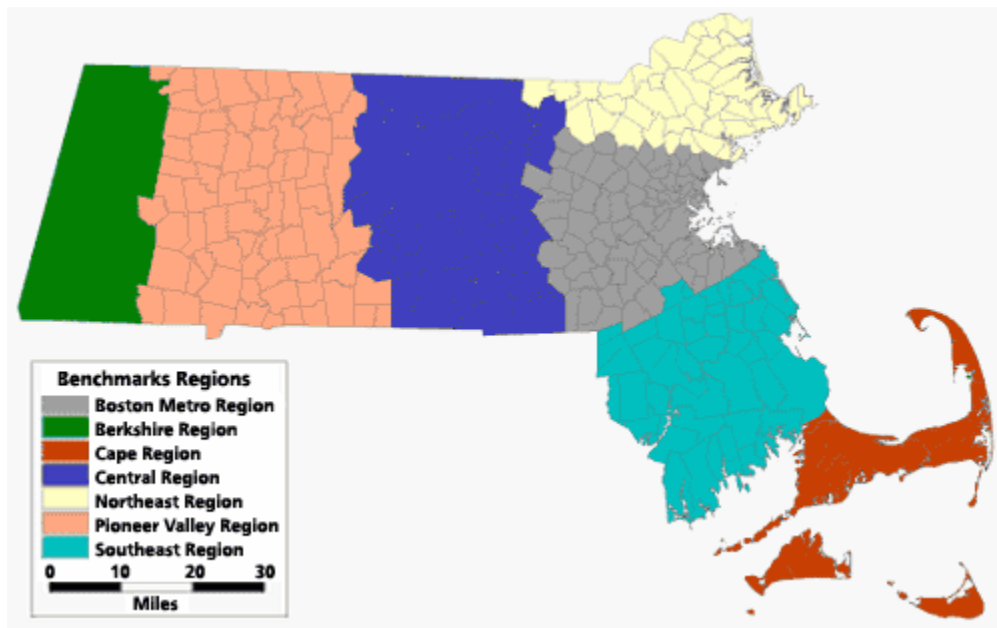


***About the Indicators***

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 *MassBenchmarks*.




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**

	<b>Berkshire</b>	<b>Pioneer Valley</b>	<b>Central</b>	<b>Northeast</b>	<b>Boston Metro</b>	<b>Southeast</b>	<b>Cape &amp; Islands</b>
<b>Economic Conditions</b>							
- Job Growth	Mixed	Negative	Negative	Negative	Negative	Mixed	Positive
- Export Job Growth	Negative	Negative	Negative	Negative	Negative	Negative	Mixed
- Job Diversification	Negative	Mixed	Positive	Positive	Positive	Negative	Negative
- Innovative Capacity	Negative	Negative	Positive	Positive	Positive	Negative	Negative
<b>Real Estate Conditions</b>							
- Housing Supply	Mixed	Mixed	Mixed	Negative	Negative	Positive	Negative
- Housing Affordability	Positive	Positive	Mixed	Negative	Negative	Negative	Negative
- Residential Land Values	Negative	Negative	Mixed	Positive	Positive	Positive	Positive
-Commercial/ Industrial Land Values	Negative	Negative	Negative	Positive	Positive	Mixed	Negative
<b>Demographic &amp; Labor Market Conditions</b>							
- Population Growth	Negative	Mixed	Mixed	Mixed	Negative	Positive	Positive
- Skilled Labor Pipeline	Negative	Mixed	Mixed	Positive	Positive	Negative	Mixed
- Income Growth	Negative	Negative	Positive	Positive	Mixed	Negative	Negative
- Income Inequality	Mixed	Negative	Positive	Positive	Negative	Negative	Positive

-  - 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”<sup>2</sup>.

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

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<sup>2</sup> 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.

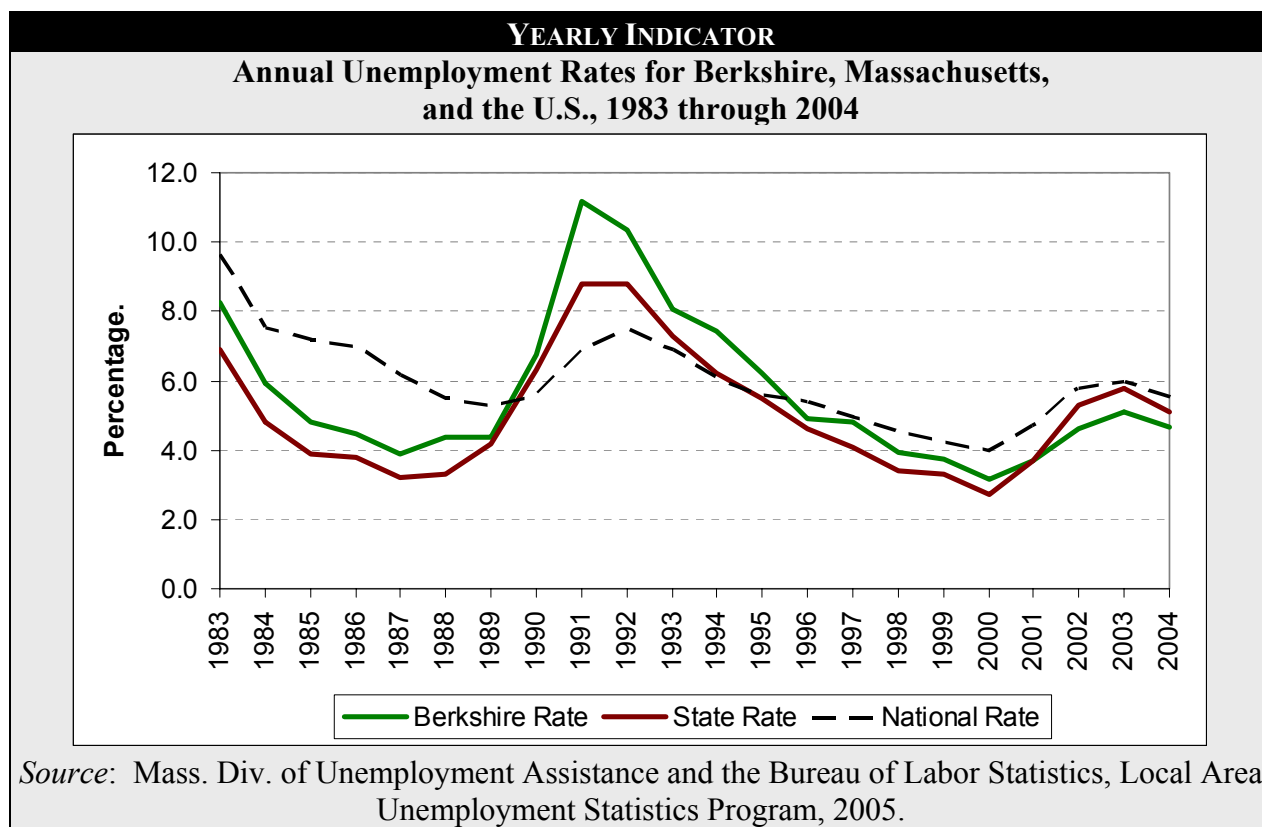
## Economic Conditions: Job Growth

### Regional Unemployment Rate

#### *Why It's Important*

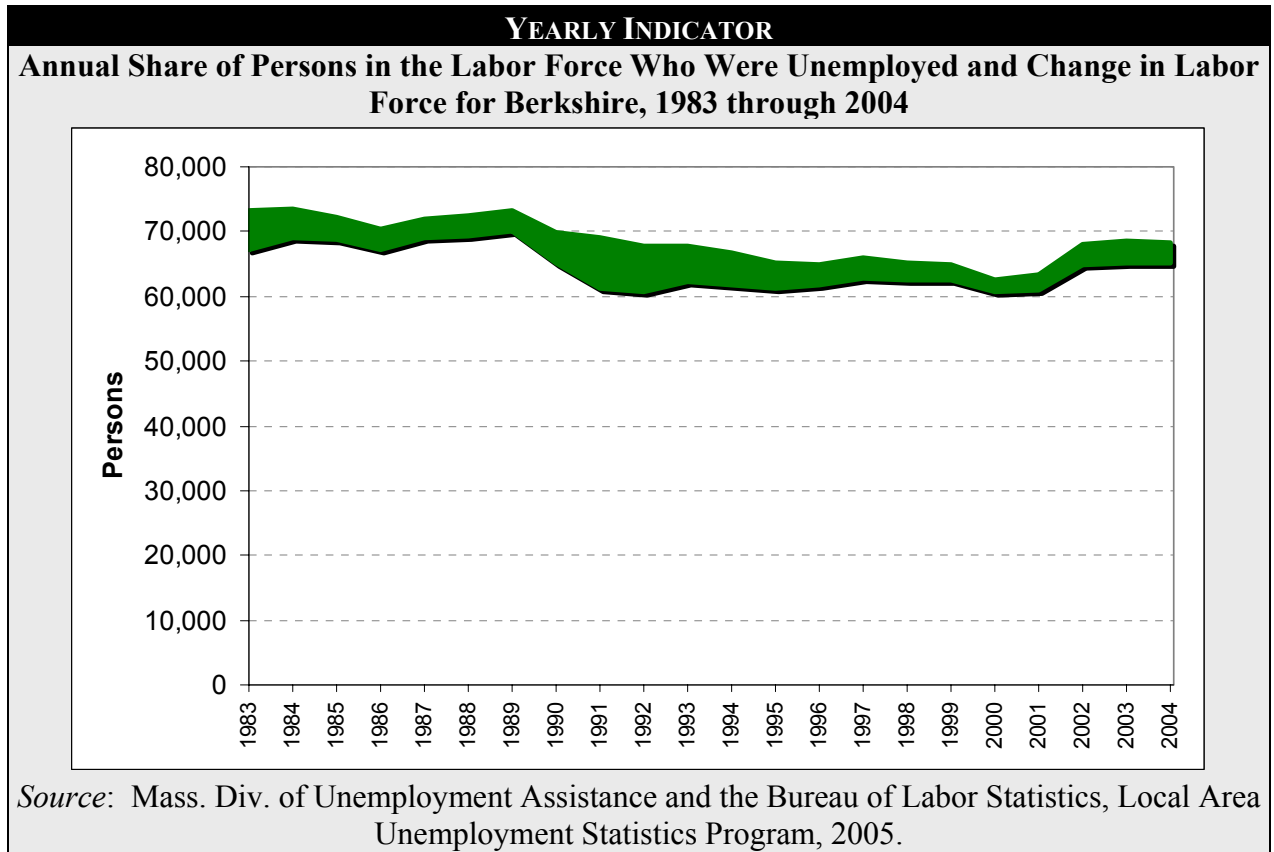
This time-series of the unemployment rate and labor force size offers a straightforward measure of economic performance at the regional level. These data provide a comparative perspective on regional economic performance during the peaks and valleys of recent business cycles. It also highlights the extent 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*



Between 1983 and 2000, the unemployment rate in the Berkshire region has been somewhat higher than that of the state but has generally tracked the cyclical behavior of the Massachusetts labor market. The region was hit especially hard by the state recession of the early 1990s, but fared better in the more recent state recession (2001-2003).

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.



While the size of regional labor force gradually declined during the 1990s (including during several years in which the state economy was growing robustly), both the labor force and the regional unemployment rate increased in 2000 at the very peak of the tech boom.

## 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*

YEARLY INDICATOR							
Location Quotient & Employment by Industry for the Berkshire 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
<b>Total, all industries</b>	<b>108,505,334</b>	<b>3,107,023</b>	<b>61,330</b>	<b>61,093</b>	<b>-237</b>	<b>-0.4%</b>	<b>100%</b>
Advanced Technology Manufacturing	0.54	0.38	719	669	-50	-7.0%	1%
All Other Sectors	0.81	0.93	20,513	21,366	853	4.2%	35%
Arts, Tourism & Recreation	1.24	1.50	8,666	8,758	92	1.1%	14%
Financial Services	0.60	0.58	1,948	1,955	7	0.4%	3%
Healthcare	1.24	1.12	9,250	9,769	519	5.6%	16%
Knowledge Creation	1.53	0.91	12,680	12,840	160	1.3%	21%
Traditional Manufacturing	0.84	1.31	7,554	5,736	-1,818	-24.1%	9%

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

Compared to the state, the Berkshire region has a high concentration of employment in the Arts, Tourism & Recreation sector and the Traditional Manufacturing sector. To date, the Berkshire 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, the Berkshire region does have a relatively high concentration of employment in education.

## ***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 appendix for more information on how industries have been defined).

#### *Regional Status*

Going forward, the region faces a significant challenge in diversifying its export industry employment base and managing the decline of its manufacturing sector.

#### *Traditional Manufacturing*

Traditional manufacturing -- primarily paper, plastics and rubber and fabricated metal manufacturing -- represents a declining share of regional employment, but remains a major presence in the Berkshire region. Between 2001 and 2004, the region lost nearly one in four of its traditional manufacturing jobs (24.1%).

#### *Advanced Technology Manufacturing*

The Berkshire region has not developed a significant base in high technology manufacturing (including computer equipment and related products).

#### *Arts, Tourism & Recreation*

The Berkshire region is one of the premier vacation and cultural destinations in the United States. In 2004, this sector was responsible for 8,758 jobs in such diverse fields as museums, cultural institutions, restaurants and accommodations and outdoor recreation. With the substantial decline of manufacturing employment, Tourism is presently the dominant export industry in the region.

### *Healthcare*

The Healthcare cluster is a major employer in the Berkshires, as it is throughout Massachusetts. Just-under 10,000 people are employed in healthcare-related firms in the Berkshire region. The Healthcare cluster gained jobs between 2001 and 2004 even as regional employment growth declined modestly. The Healthcare cluster principally serves the needs of Berkshire residents and is not, therefore, as export intensive an industry in the Berkshires as it is in the regions of eastern Massachusetts.

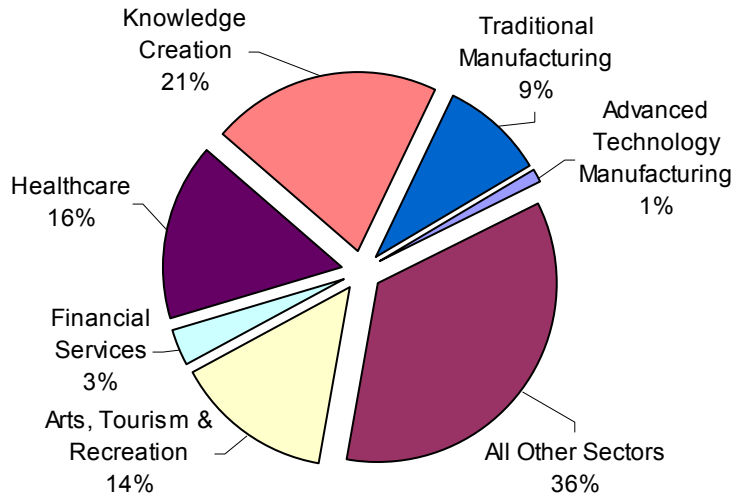
### *Knowledge Creation*

The Knowledge Creation cluster in the Berkshire region is dominated by education employment. Education employers in the Berkshire region account for 60 percent of Knowledge Creation employment, with colleges and universities accounting for 18 percent of the cluster's employment.

**YEARLY INDICATOR**

**Employment by Industry for the Berkshire Region, 2004**

**Employment in Clusters in Berkshire, 2004**

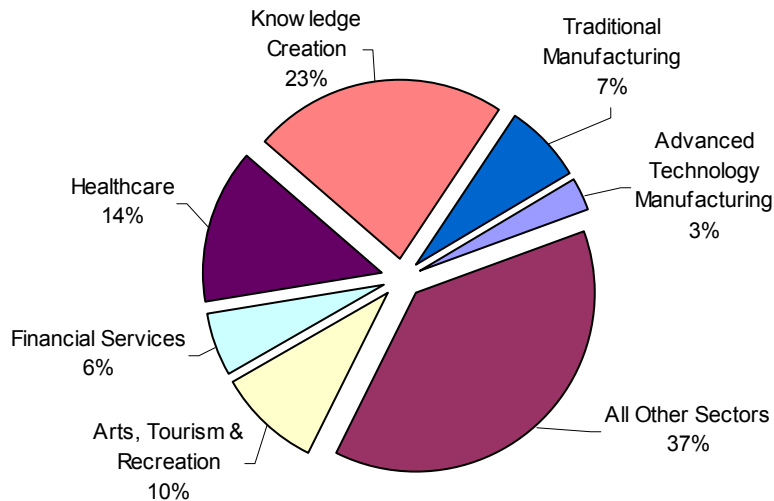


*Source:* Mass. Div. of Unemployment Assistance; calculations by UMass Donahue Institute, 2005.

**YEARLY INDICATOR**

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

**Employment in Clusters in MA, 2004**



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



## **Technology Audit**

A firm is thought of 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 Berkshire 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.

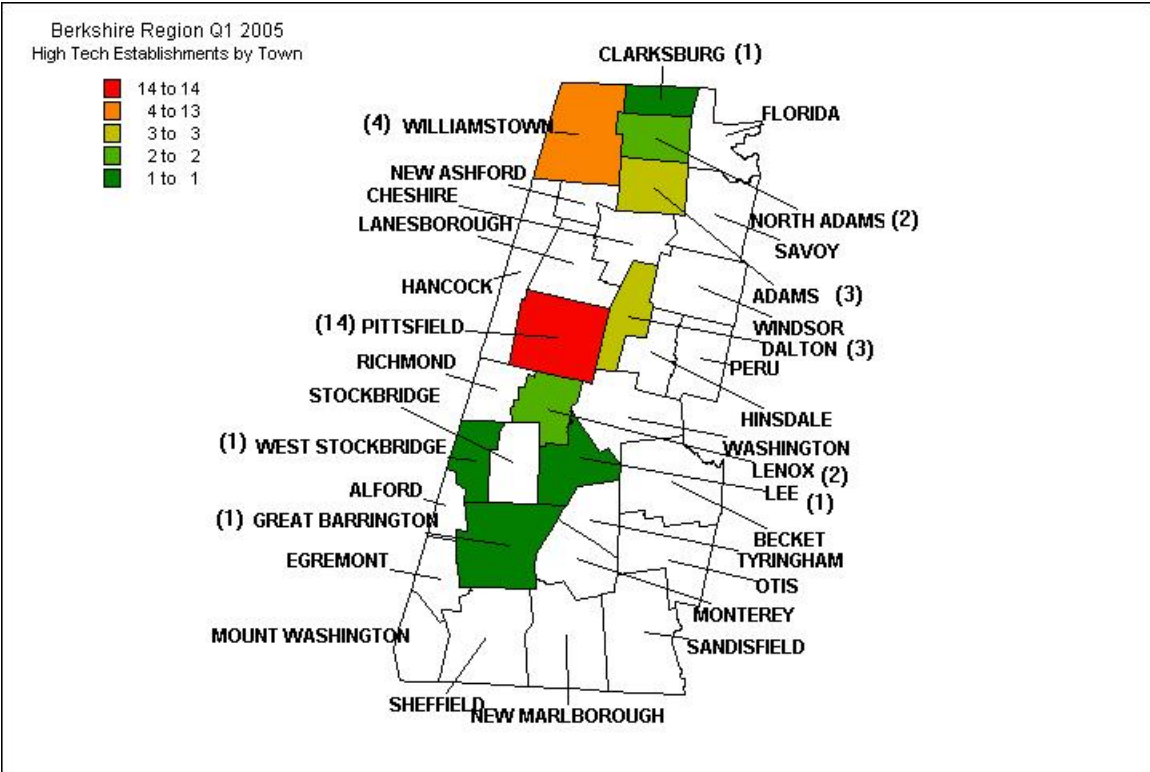
The technology audit complements the data presented in the preceding section. The NAICS-based data presented in that section should be viewed as authoritative in terms of employment and firms, as that section relies on official data from the Commonwealth of Massachusetts' Division of Unemployment Assistance. 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.

## **BERKSHIRES**

### **High Technology Establishments and Employment**

#### *Regional Status*

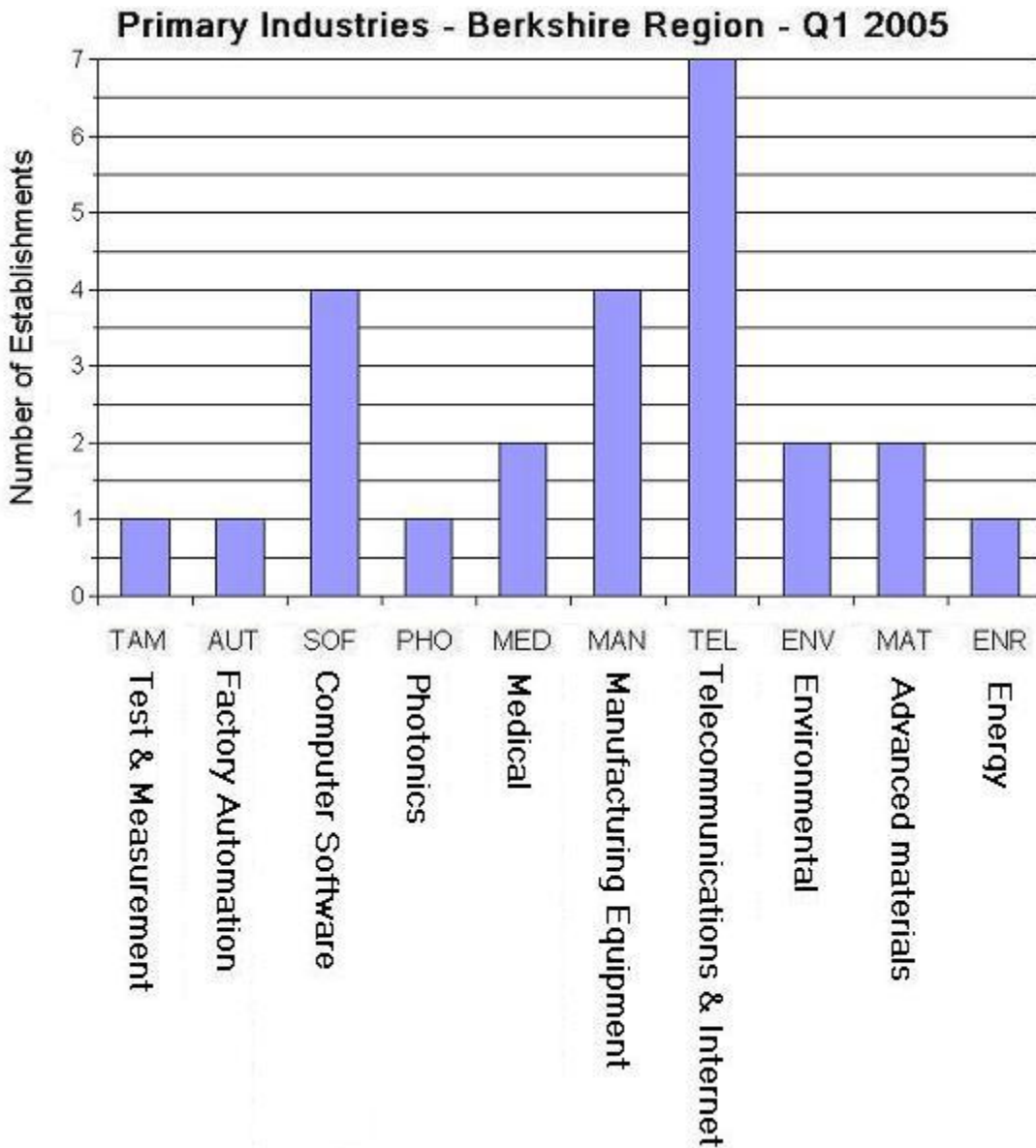
The Berkshire region has the smallest population and, not surprisingly, the fewest number of high tech firms in the state. However, since 1997 the Berkshire region has experienced the steadiest and largest rate of increase of high tech firms of any region in the state. From a base of 13 high tech firms in 1997, the number of high tech firms expanded to 23 in 2001 and, despite the recession, continued to expand to 32 in 2005.



However, the relative concentration of high tech firms in the Berkshires remains considerably lower than the state average although this gap has begun to close. Beginning with a high tech firm LQ of only .73 in 1997 this measure rose to 1.37 by 2005.

Year	2000			2005			2001			1997		
Benchmark Region	Population (%)	Establishments	Establishments (%)	Location Quotient	Establishments	Establishments (%)	Location Quotient	Establishments	Establishments (%)	Location Quotient		
Berkshire	2.10%	32	0.90%	1.37	23	0.60%	1.04	13	0.40%	0.72		
MA Totals	100.00%	3405	100.00%	3.1	3674	100.00%	3.55	3111	100.00%	3.69		

The chart below indicates the number of establishments in the primary technology industries tracked by Corp Tech. An increasing number of establishments since 1997 were in Computer Software (5 firms) and Telecommunications & Internet (7 firms) while a relatively stable number of Advanced Manufacturing firms increased from three to four. Of these Primary Industries the most disproportionate number of firms relative to the national pattern was in Advanced Manufacturing with a regional Location Quotient of 2.37.



The most significant major industries in Telecommunications were in segments identified in the table below.

<b>Telecommunications &amp; Internet Establishments, 2005, Q1</b>		
<b>Major Segment</b>	<b>Establishments</b>	<b>Location Quotient</b>
Internet Data Aggregation Services	1	2.40
Internet Transaction/Security Services	3	1.93
Internet Infrastructure Services	2	2.46
Internet Multimedia Services	3	3.07
Internet Web-Site-Related Services	5	2.04

## ***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*

Like many small regions of the country, the Berkshire region gets little venture capital investment when compared to large urban areas like Boston. As measured by PriceWaterhouseCoopers, only the media and entertainment industry in the Berkshire region received venture capital funding in the first three quarters of 2005. The limited amount of private venture capital funds in the period tracked by this indicator suggests an overall lack of regional innovative capacity.

<b>YEARLY INDICATOR</b>			
<b>Venture Capital by Industry for the Berkshire Region, Massachusetts, and the United States, Q1-Q3 2005</b>			
<b>Industry</b>	<b>Berkshire</b>	<b>Massachusetts</b>	<b>US</b>
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	\$5,649,000	\$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
<b>Total Venture Capital Investment</b>	<b>\$5,649,000</b>	<b>\$1,648,569,300</b>	<b>\$16,309,859,100</b>

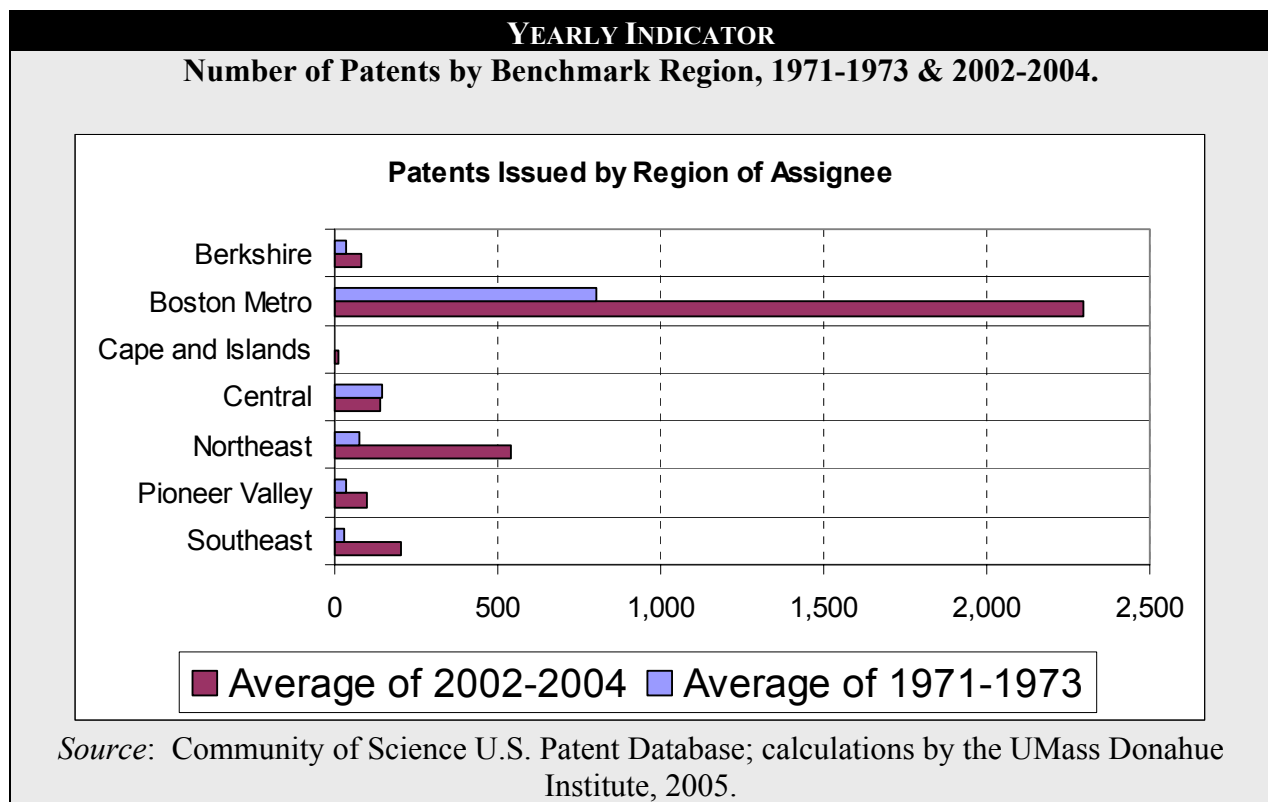
*Source:* PriceWaterhouseCoopers MoneyTree Survey; calculations by the UMass Donahue Institute, 2005.

## 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 Berkshire region has historically been home to a small number of companies that receive patents. This has resulted in poor regional patent generation overall and a lack of patent diversity. Presently, General Electric (GE) is responsible for over 80% of the patents generated in Berkshire County. While the presence of GE clearly enhances the region's innovative output as measured by this indicator, the lack of other innovative institutions suggests weak regional innovative capacity.

**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.

**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	Shiple 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*

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.

Over the past ten years, in absolute terms the Berkshire region has added the fewest number of new residential land parcels to its inventory. This, in part, reflects the declining demand for housing in a region that has been steadily losing population in recent years.



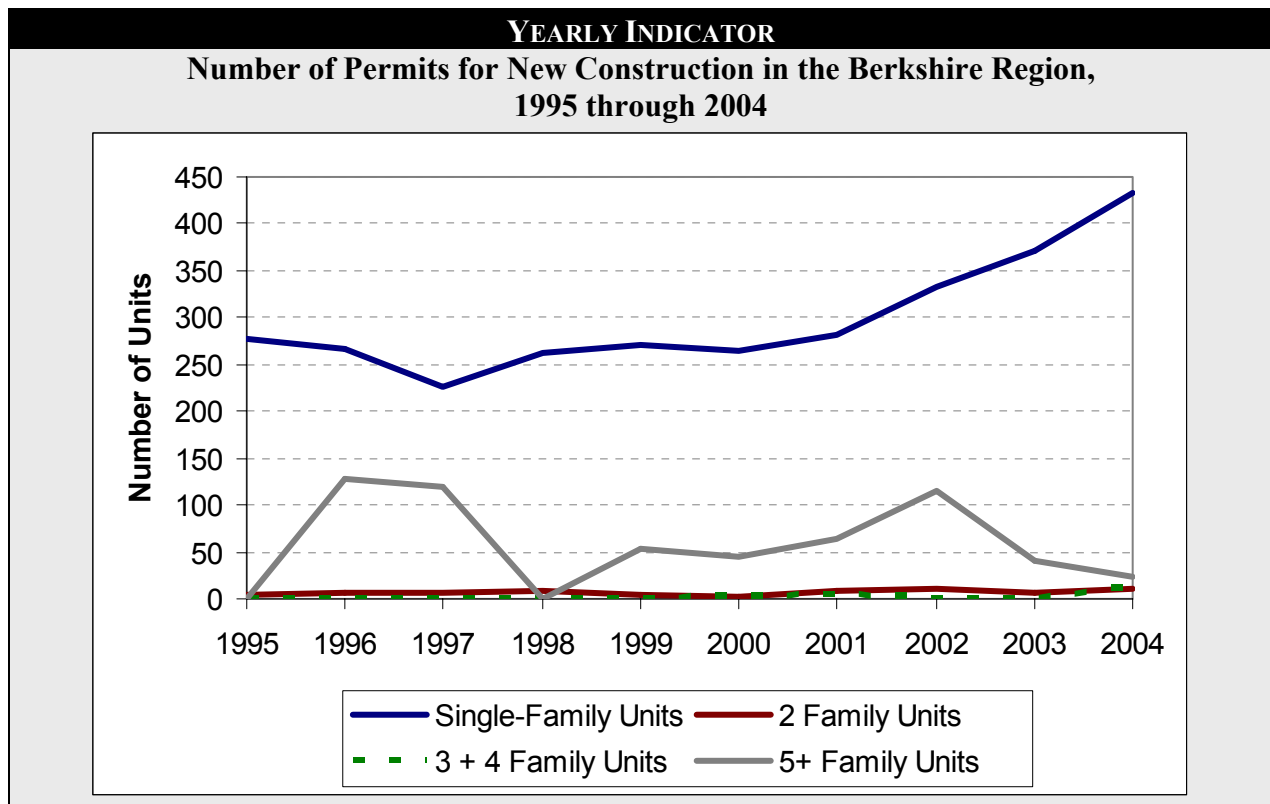
## Number of Permits for New Construction

### *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*

Since 1997, the number of building permits for single-family units have grown steadily in the Berkshires, in part driven by the demand for second homes in the southern portion of the region. However, in absolute terms, the number of permits granted remains quite modest.



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

## **Supply of Chapter 40B Units by municipality**

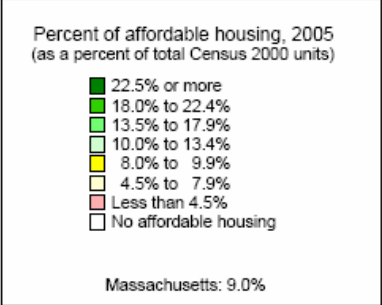
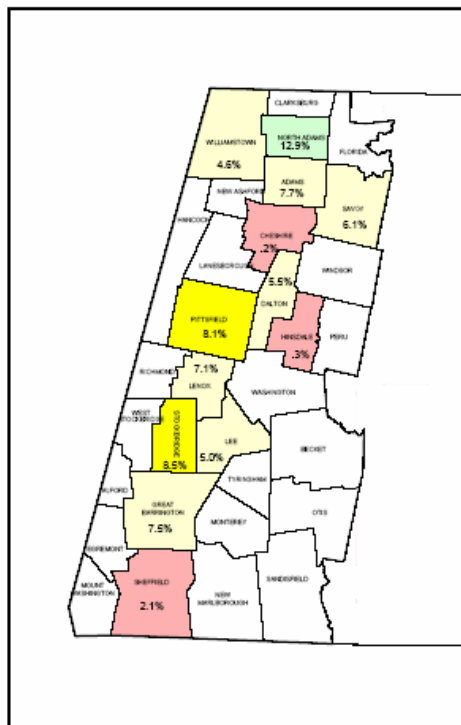
### *Why It's Important*

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 Berkshire region has the second lowest percentage of affordable housing units of any region in the state. In 2005, the Berkshires had a rate of 6.5 percent affordable housing compared to a rate of 9 percent for the state. The Berkshire region experienced a modest increase in its supply of affordable housing between 2002 and 2005. Great Barrington led the region in affordable housing production, with an increase of 62 units. Pittsfield and Stockbridge followed with increases of 38 and 30 affordable housing units respectively. Williamstown and North Adams were the only other towns in the Berkshire region to increase their supply of affordable housing units. In contrast, five communities lost between 2 and 7 units each of affordable housing. The majority of Berkshire region communities experienced no change in the supply of affordable housing between 2002 and 2005. These patterns are likely due to both the rural character of much of the region, as well as to the gentrification of many communities in southern Berkshire county.

## 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*

In 1999, households in the Berkshire region had generally lower housing cost burdens than comparable households in Massachusetts. The most significant exception was households with incomes below 30 percent of the area median income, who faced slightly higher housing cost burdens than the state.

### HISTORICAL INDICATOR

#### Percentage of Households with High Housing Costs (> 30% of income) in the Berkshire Region, 1999

Very Low Income	Berkshire Region		Massachusetts	
	Renters	Owners	Renters	Owners
Elderly Households	50.4%	77.3%	54.1%	80.7%
Family Households	76.0%	85.9%	72.3%	82.6%
All Other Households	75.2%	77.4%	66.2%	76.6%
Total	65.8%	79.2%	63.9%	80.5%

Low Income	Berkshire Region		Massachusetts	
	Renters	Owners	Renters	Owners
Elderly Households	41.2%	48.9%	38.8%	43.8%
Family Households	48%	51.0%	56.8%	65.5%
All Other Households	50.7%	57.7%	60.2%	65.5%
Total	46.8%	53.9%	47.9%	54.4%

Middles and Above	Berkshire Region		Massachusetts	
	Renters	Owners	Renters	Owners
Elderly Households	14.4%	5.2%	11.9%	8.6%
Family Households	2.4%	7.6%	3.0%	10.9%
All Other Households	0.7%	15.9%	6.7%	18.4%
Total	3.1%	8.0%	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

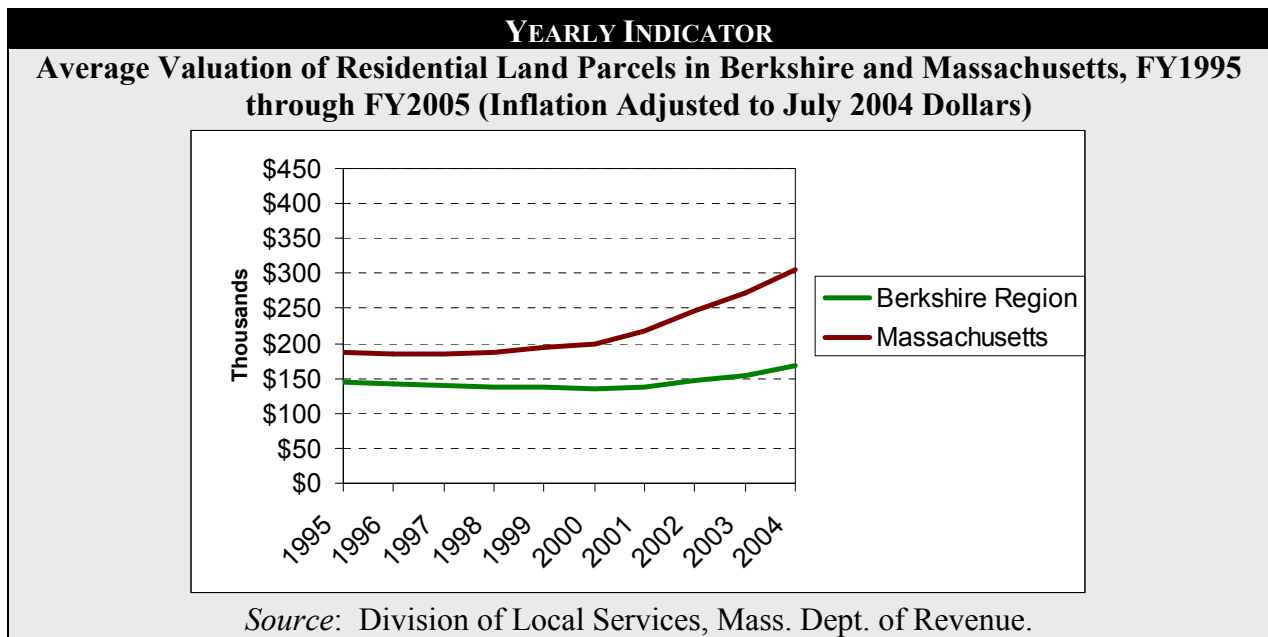
### Average Assessed Value of Single Family Homes

#### *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*

The average assessed value of single family homes in the Berkshires has been consistently lower and has increased much more slowly than in the Commonwealth as a whole since the late 1990s. The FY 2004 average assessed value of a home in the Berkshires was \$167,001, while the Massachusetts average was \$307,361. While this does suggest that housing is relatively more affordable in the region, it also highlights the fact that the region has not shared in the recent housing boom, a source of substantial wealth creation in most regions of the state.



## Real Estate Conditions: Commercial and Industrial Land Values

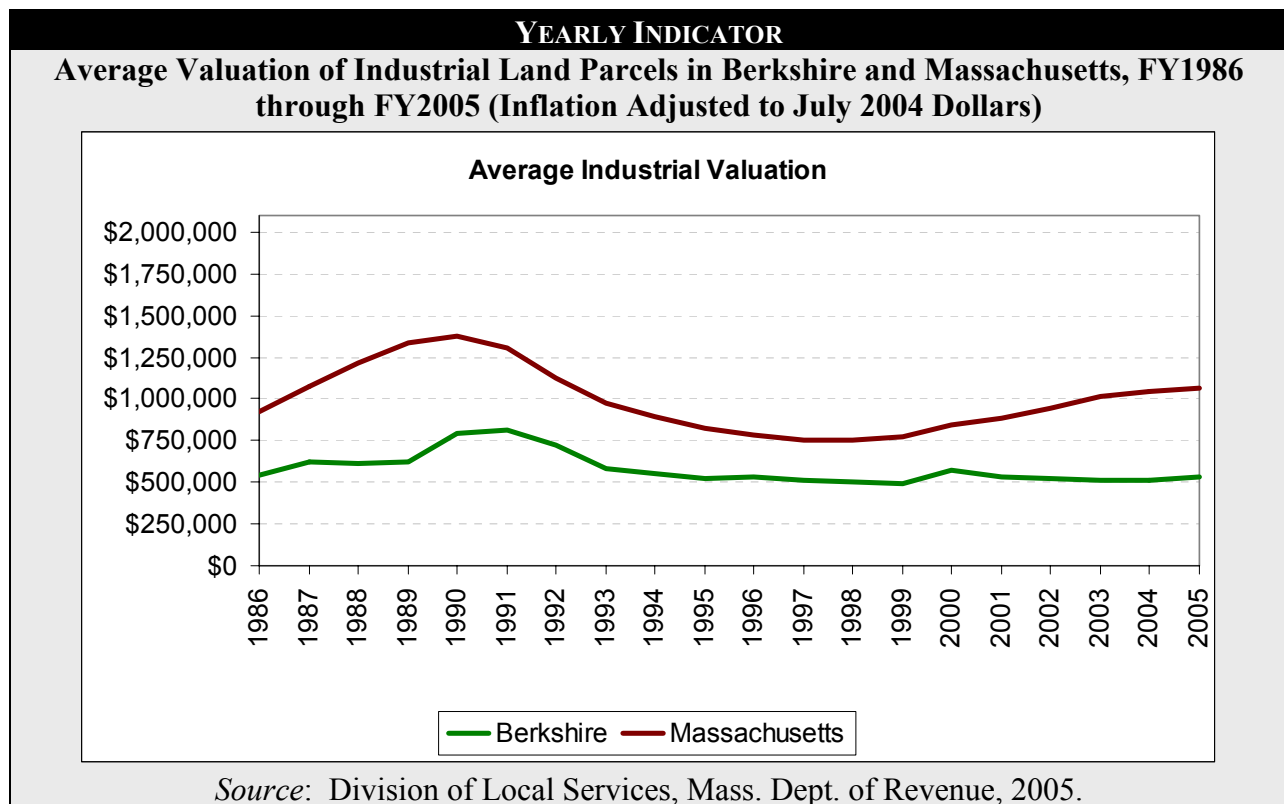
### Average Assessed Value of Industrial and Commercial Land Parcels

#### *Why It's Important*

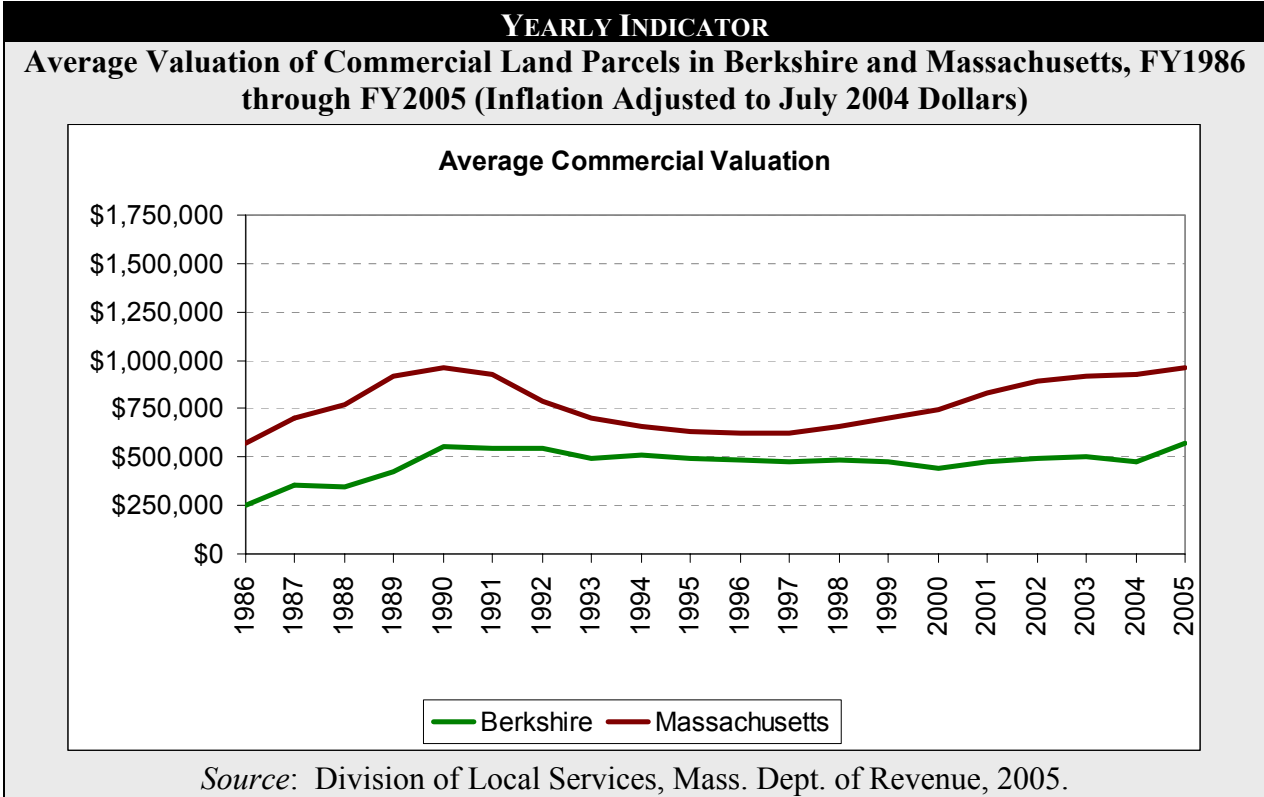
This time-series of the average assessed value of real industrial and commercial property, adjusted for inflation, provides an indicator of economic growth through changes in the demand for types of non-residential property at the regional level. In Massachusetts, property is assessed at the town level 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*

The value of the average industrial land parcel in the Berkshire region has been consistently lower than the state average and, despite a modest recent recovery, is less valuable today than it was in 1990. This same trend has taken place statewide. However, in 2004, the average industrial parcel was worth 26% less than its 1990 value, while the average parcel in the Berkshires was worth 40% less.



As with industrial property, commercial land in the Berkshires has consistently been valued less than the state average for the past two decades. Both the region and the state experienced significant declines in commercial land values during the recession of the early 1990s and have slowly recovered in the years since.





## 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 *MassBenchmarks* 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 an 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.

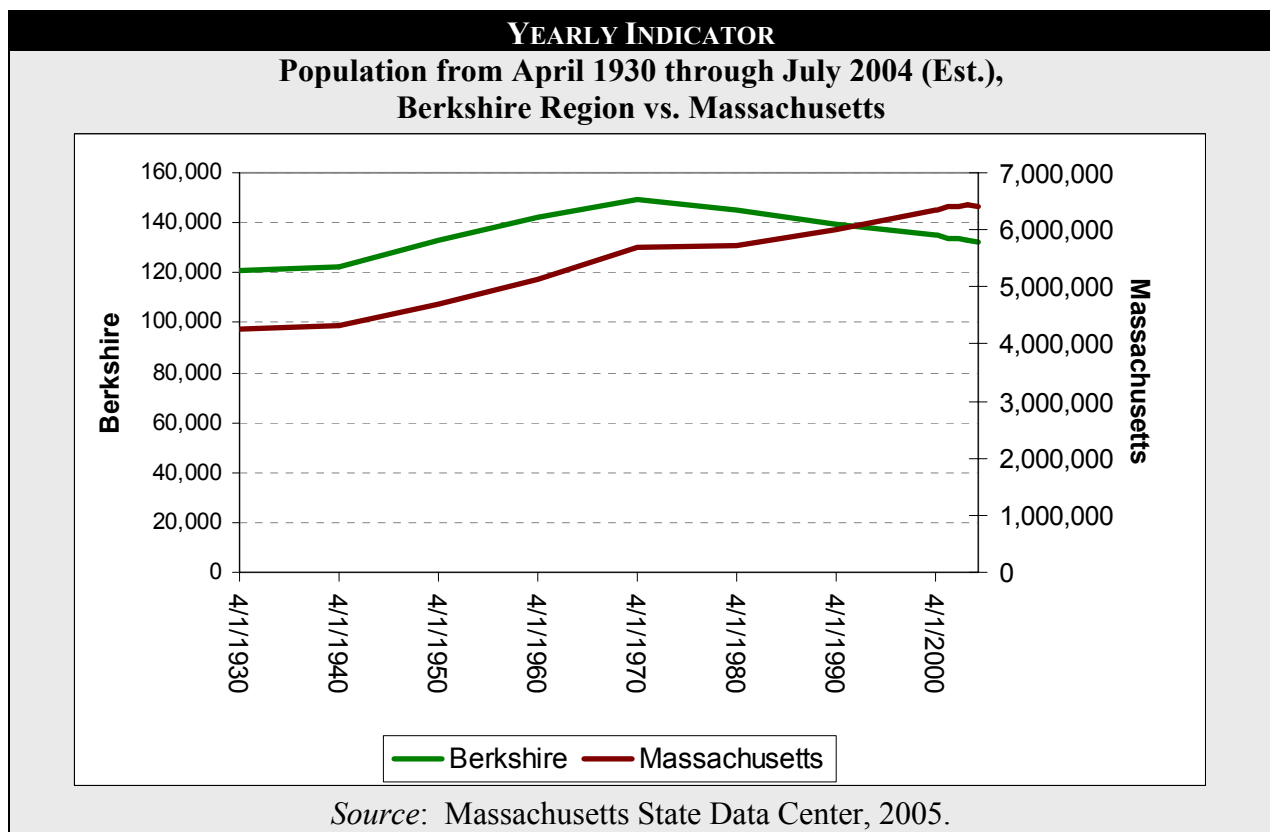
## Demographic and Labor Market Conditions: Population Growth

### 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.

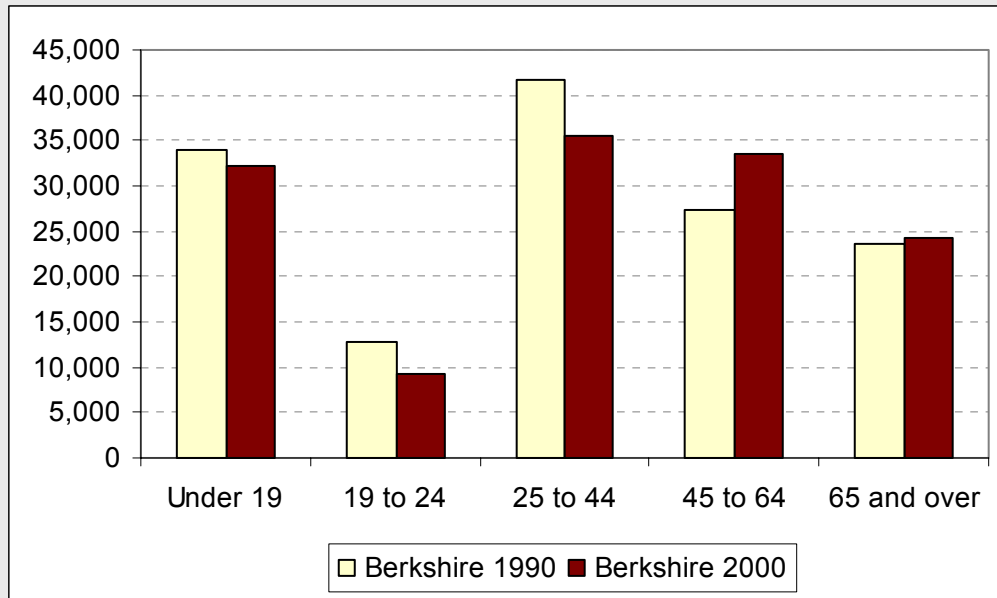
#### *Regional Status*



For the past three decades the population of the Berkshire region has declined steadily. After peaking in 1970, in recent years it has fallen to levels not seen since 1930. This long term trend of population decline shows no sign of abating. The steady erosion of the region's traditional manufacturing jobs base has contributed to its difficulty in attracting new residents and retaining the existing population, particularly younger residents (as the charts below illustrate).

**HISTORICAL INDICATOR**

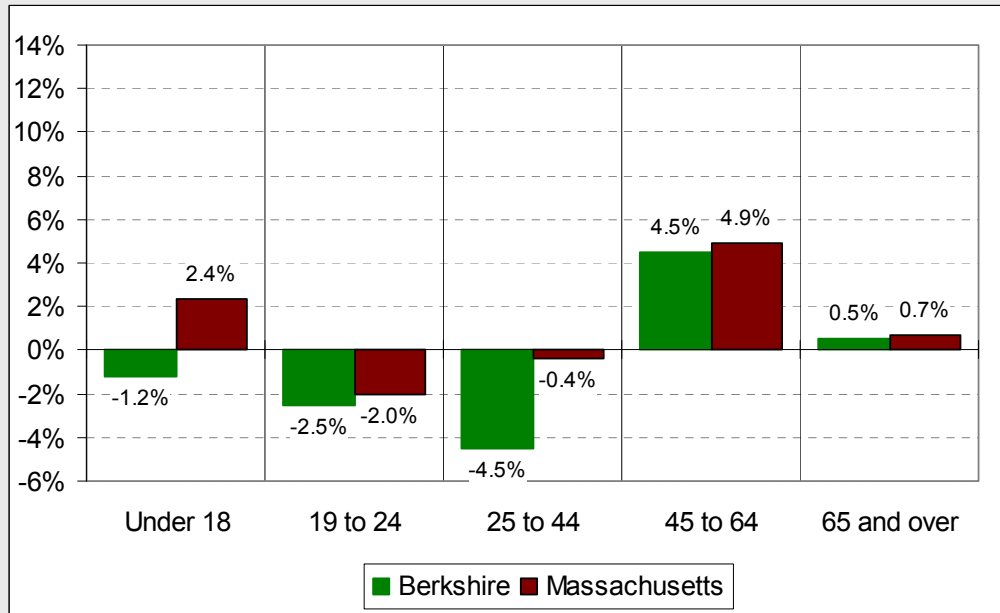
**Berkshire Region Population by Age, 1990 and 2000**



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

**HISTORICAL INDICATOR**

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



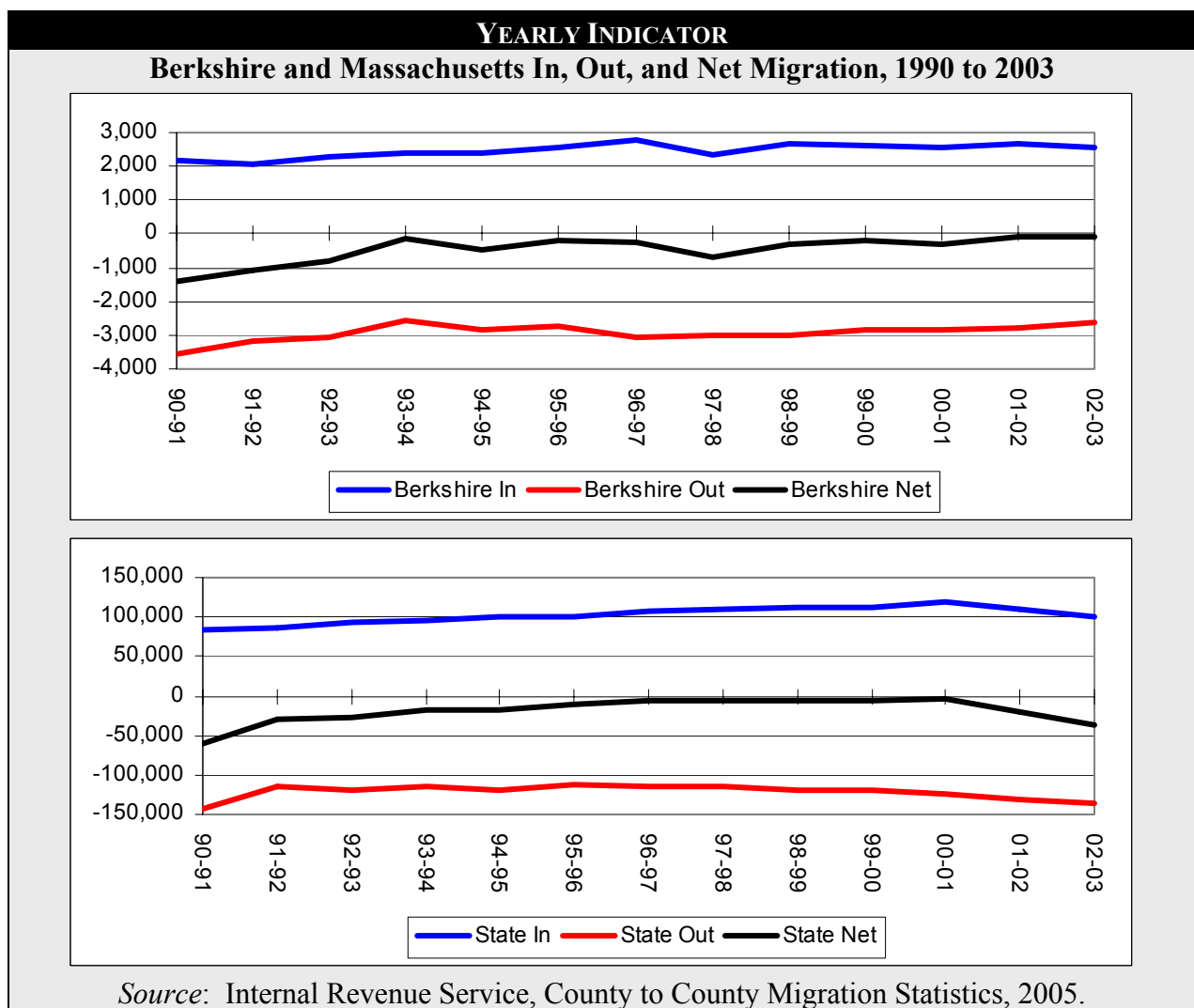
Source: Decennial Census, U.S. Census, 1990 and 2000.

## 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*



Like the state as a whole, the Berkshire region has experienced net negative domestic out-migration for the past decade. However, these patterns combined with the region's declining birth-rate and aging population have resulted in a demographic catch-22 that is present both in the Berkshires and in many regions of the state. This trend is, however, much more pronounced and troubling for the Berkshires than for the state as a whole. As its younger generation moves out, some of these residents are being replaced by new residents who on average are older and have to date not produced enough children to compensate for the loss of their mostly younger and more fertile predecessors.

## Demographic and Labor Market Conditions: Skilled Labor Pipeline

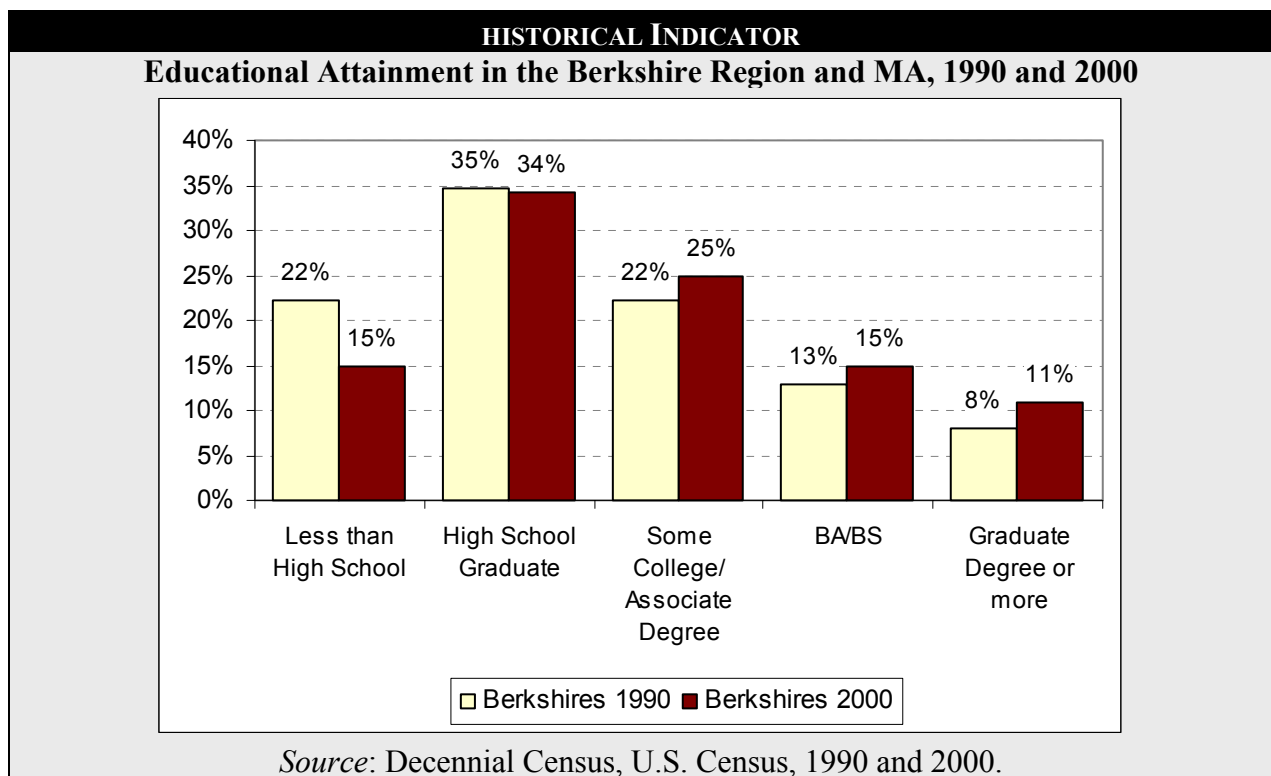
### Educational Attainment

#### *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.

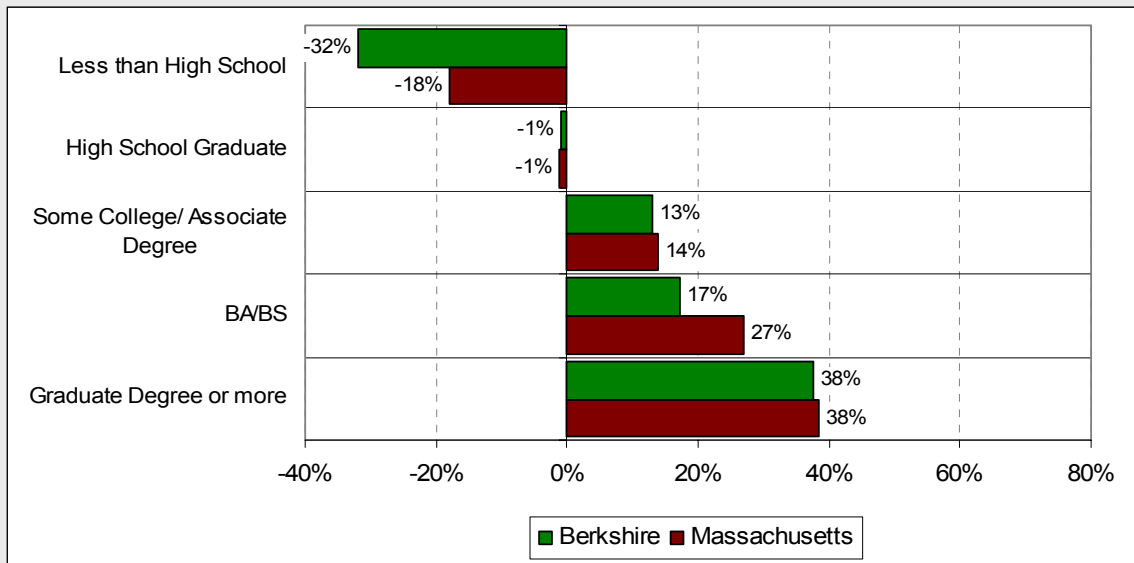
#### *Regional Status*

The population in the Berkshire region over the age of 25 became more educated between 1990 and 2000, mainly as the result of a decrease in the share of persons without a high school education and an increase in those with postsecondary education. The proportion of persons with a high school education declined modestly. The regional improvement in educational attainment may, in part, be due to an influx of retired persons with college educations.



**HISTORICAL INDICATOR**

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



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

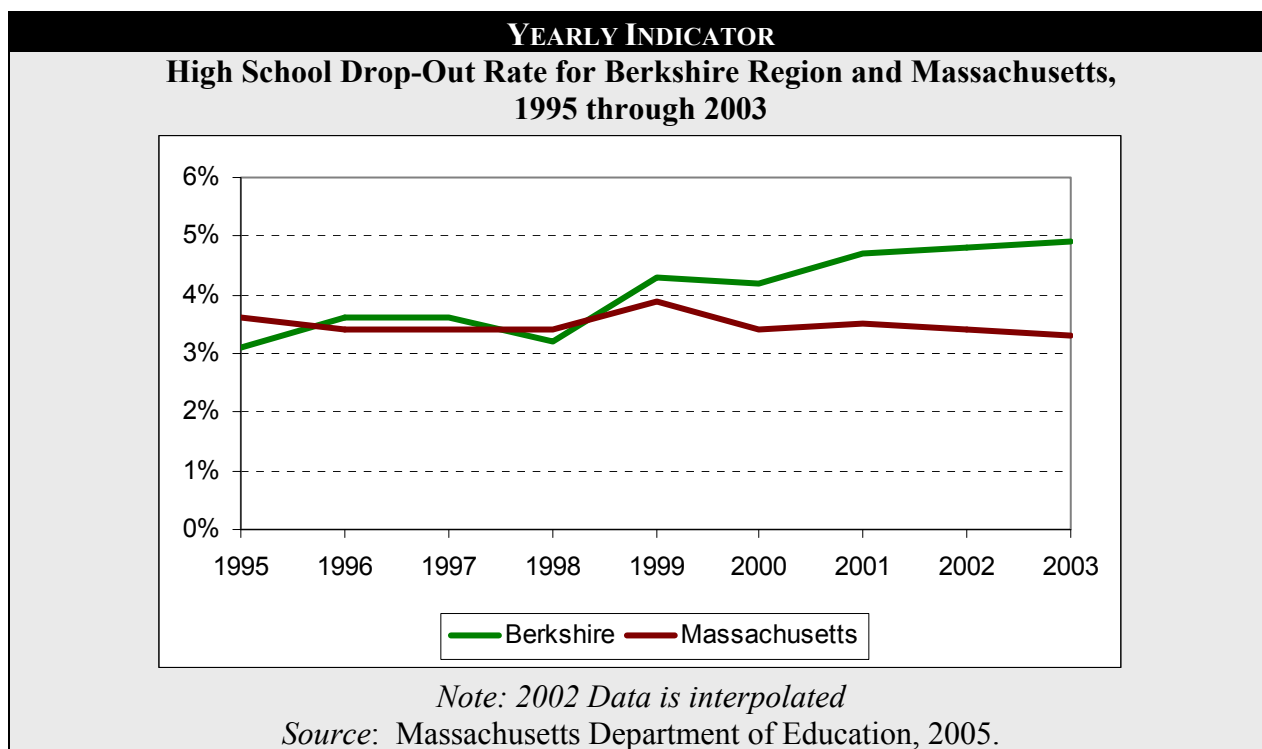
## Dropout Rate

### *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 Berkshire region has increased markedly since 1999 when it diverged sharply from the Massachusetts rate (which began a steady decline). The decennial census data presented along with the preceding indicator documents that the regional share of residents with less than a high school education declined by 32% during the 1990s, while the state's share declined by 18%. This reflects both the out-migration and natural decrease of the less well educated population over 25, and a growing regional high school dropout problem.





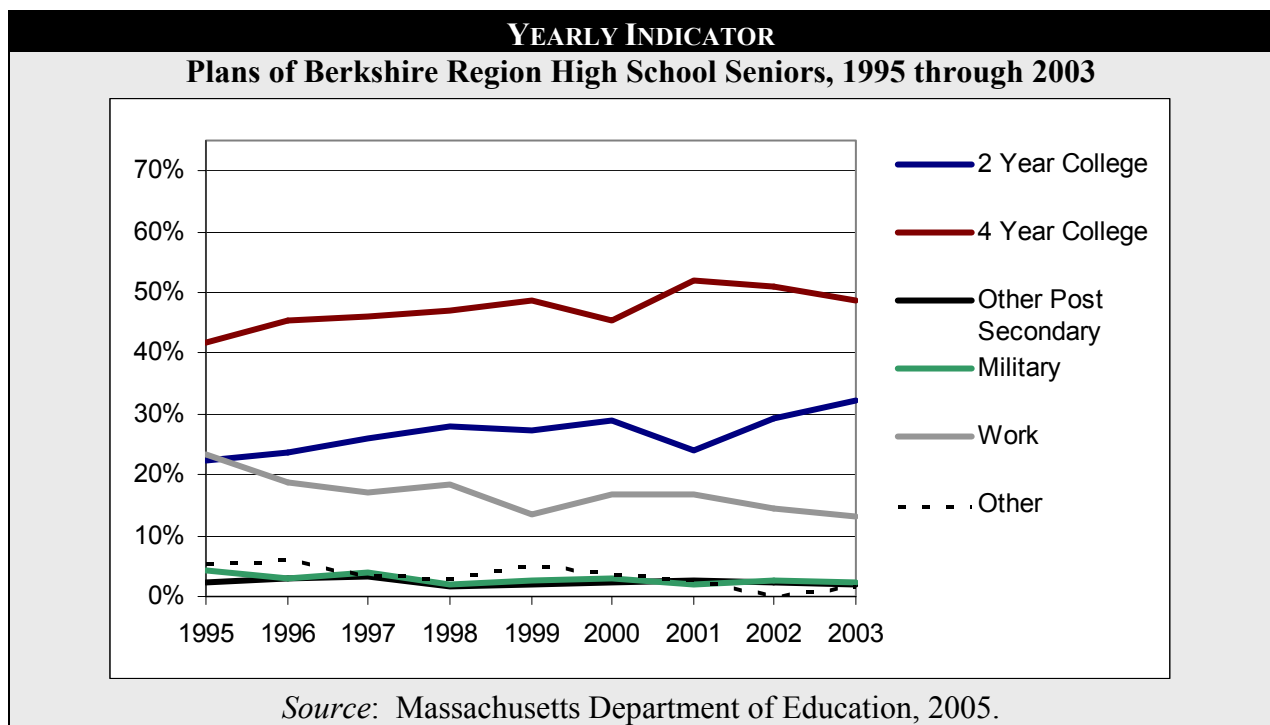
## Plans of High School Seniors

### *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*

While the majority of the region's high school seniors surveyed report plans to attend a four year college, a significant and rising share of these students have declared their intention to enter a two year college program. While a growing interest in higher education is laudable, demographic data (discussed above) that document a net loss of younger residents in the 1990s suggests that many of the nearly 50% of high school seniors intending to attend a four year college may be leaving the region to do so, and not returning upon receiving their degree. The declining share of seniors intending to enter the workforce may put additional pressure on the region's seasonal labor market.



## Demographic and Labor Market Conditions: Income Growth

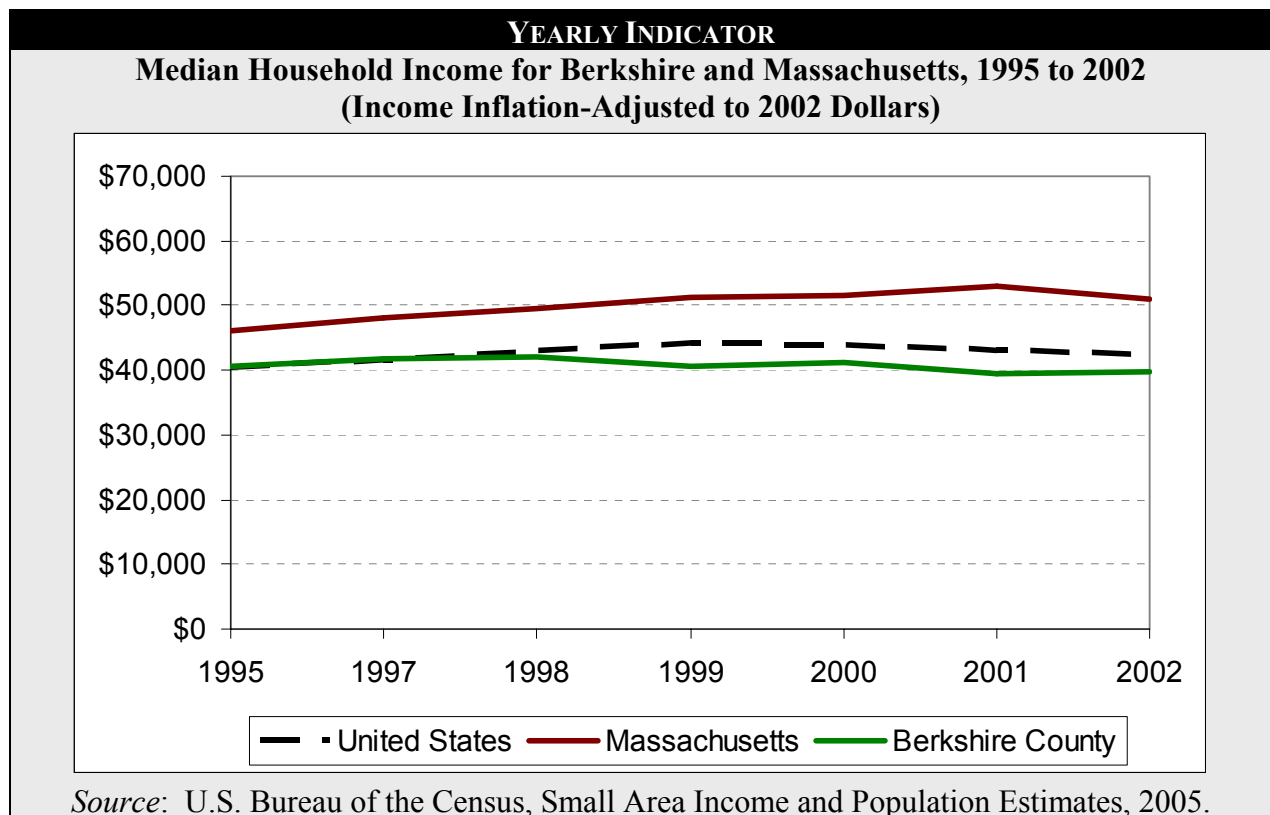
### Household Income Growth

#### *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*

Between 1995 and 2002, the median household income in the Berkshire region has begun to lag the US median. While the state experienced no discernible real income growth between 2000 and 2002, regional incomes actually declined slightly (in real terms).



## Demographic and Labor Market Conditions: Income Inequality

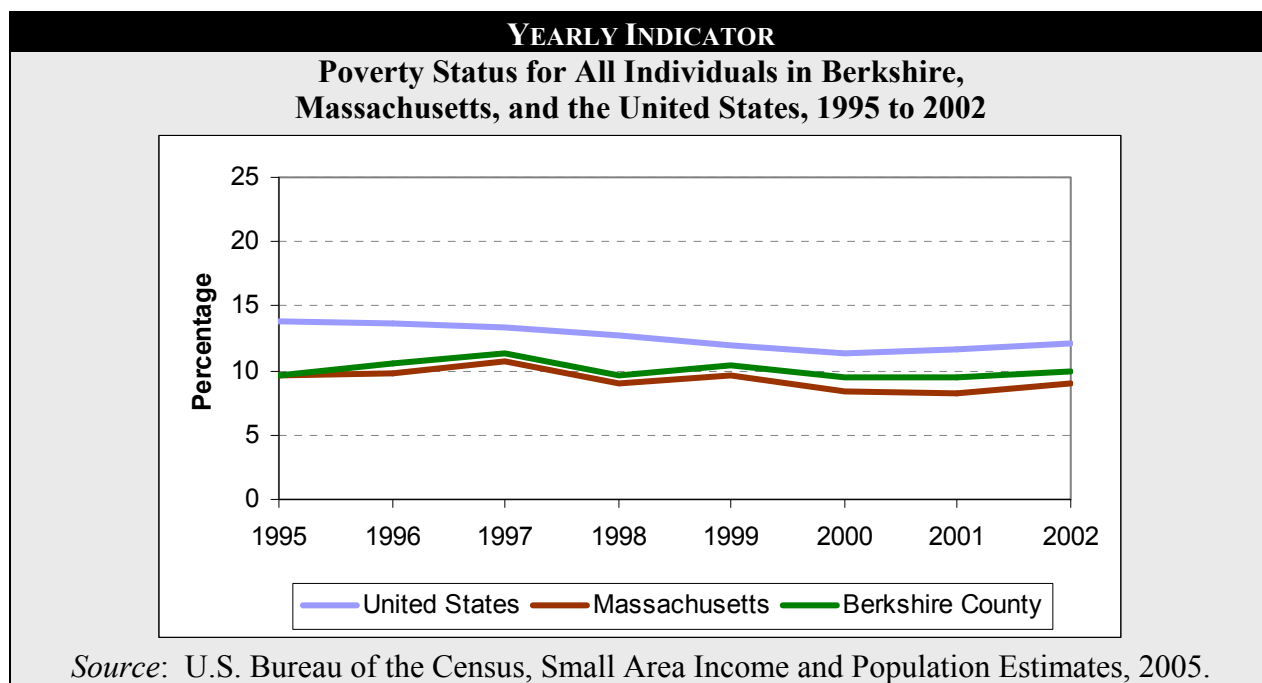
### Number of Persons in Poverty

#### *Why It's Important*

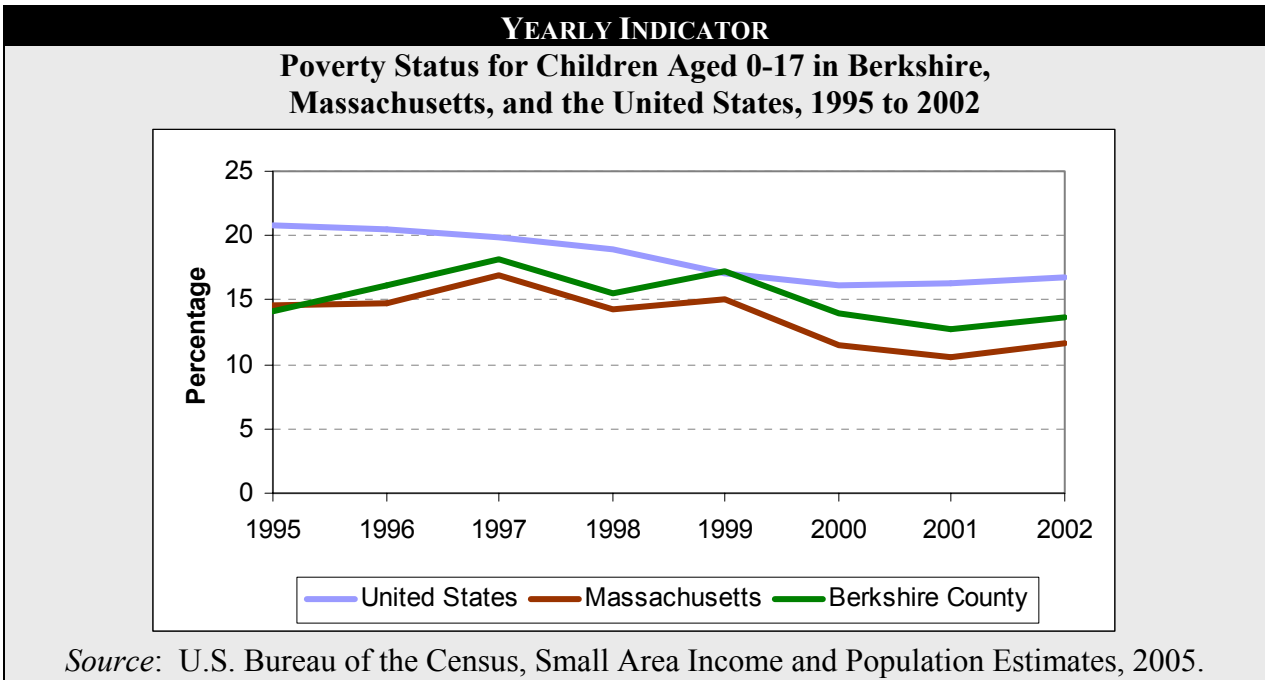
In 2004, the U.S. Bureau of the Census defined the poverty threshold for a family of four as a total household income of \$19,157. In Massachusetts in 2004, a family of four at the poverty line would have an income that is 28 percent of the estimated median family income of \$68,563. A time-series of 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 share of regional residents in poverty in the Berkshires has been consistently lower than in the U.S. and slightly higher than in the state as a whole. Between 1995 and 2002, the regional poverty rate changed little and tracked that of the Commonwealth. This is not surprising given the lack of growth in regional and statewide median income (see previous indicator) during this same period.



After several years of general decline, the share of children in poverty in both the state and the region leveled off and began to increase slightly in 2001. This pattern mirrors both the experience of the US and the timing of the recent state (and US) recession.

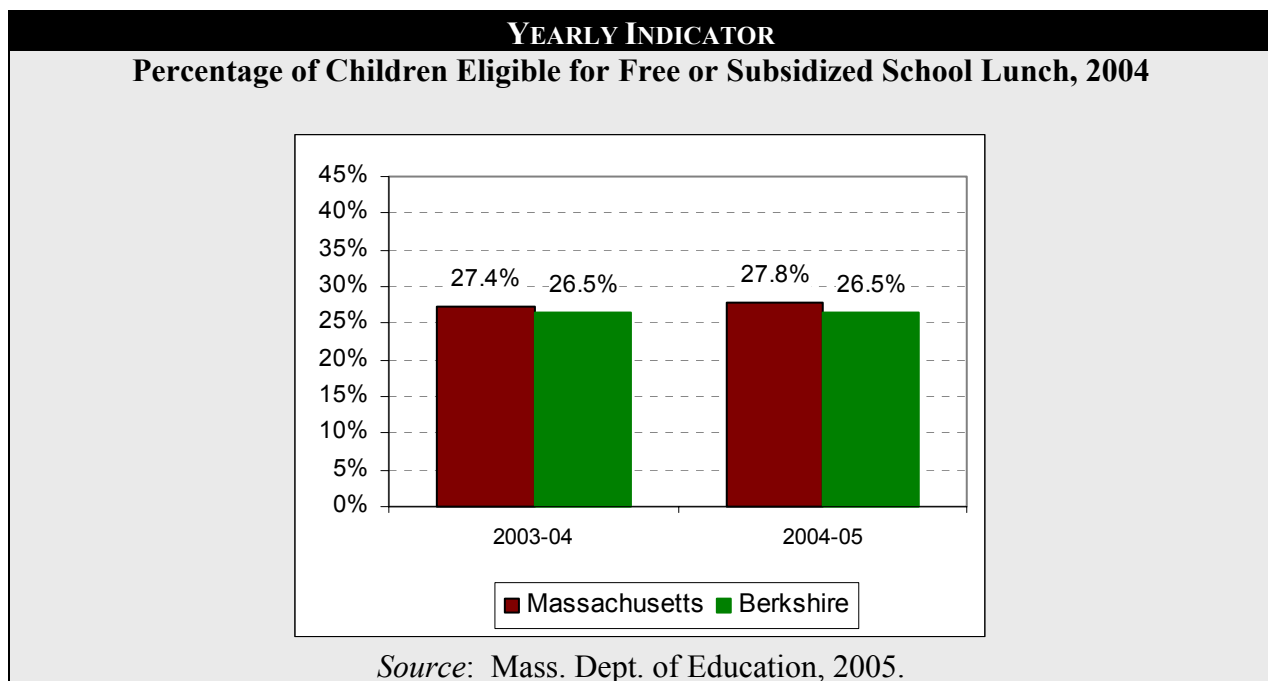


## Share of Students Eligible for the Free and Reduced School Lunch Program

### *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 share of students eligible for in the free or subsidized lunch program remained constant between 2003 and 2004 in the Berkshire region. The region has a relatively smaller share of low income students than the state, although the difference is not particularly meaningful.

## 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 Farrant, 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 PriceWaterhouseCoopers MoneyTree survey. Data is updated quarterly; no time-series data is available.

*Data Source:* PriceWaterhouseCoopers MoneyTree survey.

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**EDA Regional Benchmarking Export Cluster Definitions**

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**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 for 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.

## **References and Notations**

Atlanta Regional Commission. (2002). *Community Choices Quality Growth Toolkit: Jobs-Housing Balance*. Atlanta, GA: The Atlanta Regional Commission. From [http://www.atlreg.com/qualitygrowth/Planning/Toolkits/JOBS\\_HOUSING\\_BALANCE\\_TOOL.PDF](http://www.atlreg.com/qualitygrowth/Planning/Toolkits/JOBS_HOUSING_BALANCE_TOOL.PDF)

Bay Area Alliance for Sustainable Communities. (2004). *Bay Area Indicators: Measuring Progress Toward Sustainability*. Oakland, CA: Bay Area Alliance for Sustainable Communities.

Briem, Christopher. (2001). *Population Migration in the Pittsburgh Region*. Pittsburgh, PA: Center for Social and Urban Research, University of Pittsburgh, from <http://www.ucsur.pitt.edu/migration.pdf>

Catalytix, Inc. (2002). *Regional Creativity Benchmarks, Providence Region*. Catalytix, Inc.

Centre for Local Government, University of New England. (2002). *National Regional Benchmarking System Discussion paper, April 2002*, from <http://www.une.edu.au/clg/Manning.htm>

Cortright, Joseph and Andrew Reamer. (1998). *Socioeconomic Data for Understanding Your Regional Economy: A User's Guide*. Washington, DC: United States Economic Development Administration.

Farrant, Robert, Philip Moss, and Chris Tilly. (2001). *Knowledge Sector Powerhouse: Reshaping Massachusetts industries and employment during the 1980s and 1990s*. Amherst, MA: UMass Donahue Institute.

Gibson, Lay, and Erik Glenn. (2000). Benchmarking and Benchmarks: Regional Benchmarking and Economic Base Analysis. *Economic Development Review*, Summer 2000, 57-64.

Goodman, Michael, Dana Ansel, and Robert Nakosteen. (2004). *MASS.commuting*. Boston, MA: The Massachusetts Institute for a New Commonwealth.

Goodman, Micheal and James Palma. (2004). *Winners and Losers in the Massachusetts Housing Market: Recent Changes in Housing Demand, Supply and Affordability*. Boston, MA: Citizen's Housing and Planning Association.

Koellreuter, Christoph. (2002). *Regional Benchmarking and Policymaking*, from [http://www.bakbasel.ch/downloads/bak/publications\\_papers/regional\\_benchmarking\\_and\\_policy\\_making.pdf](http://www.bakbasel.ch/downloads/bak/publications_papers/regional_benchmarking_and_policy_making.pdf)

Mass. Dept. of Economic Development. (2002). *Massachusetts – Towards a New Prosperity: Building Regional Competitiveness Across the Commonwealth*. Boston, MA: Mass. Dept. of Economic Development.

Nakosteen, Robert, Michael Goodman, and Dana Ansel. (2003). *MASS.migration*. Boston, MA: The Massachusetts Institute for a New Commonwealth.

Spiezia, Vincenzo. (2003). Measuring Regional Economies. *OECD Statistics Brief*, October 2003, 1-8.

United Nations Centre for Human Settlements. (2004). *Urban Indicators Toolkit Guide*, from the UNCHS Web Site: [http://www.unchs.org/programmes/guo/guo\\_guide.asp](http://www.unchs.org/programmes/guo/guo_guide.asp)

## **Data Sources**

Bureau of Labor Statistics. (2005). *Local Area Unemployment Statistics (LAUS)*, from the LAUS Web Site: <http://www.bls.gov/lau/home.htm>

Bureau of Labor Statistics. (2005). *Quarterly Survey of Employment and Wages (QCEW)*, from the QCEW Web Site: <http://www.bls.gov/cew/>

Community of Science. (2005). *U.S. Patents Database*, from <http://patents.cos.com/>

Division of Local Services. (2005). *Municipal Data Bank*. Boston, MA: Mass. Dept. of Revenue, Division of Local Services.

Federal Deposit Insurance Corporation, *Regional Economic Conditions (Recon) database*. <http://www2.fdic.gov/recon/index.asp>

Internal Revenue Service. (2005) *County to County Migration Data*. Washington, DC: Internal Revenue Service, Statistics on Income (SOI) Statistical Information Services (SIS) Office.

Mass. Dept. of Education. (2005). *Free and Subsidized School Lunch Program Data*. Boston, MA: Mass. Dept. of Education.

Mass. Dept. of Education. (2005). *Plans of High School Graduates*. Boston, MA: Mass. Dept. of Education.

Mass. Dept. of Education. (2005). *Grade Retention Reports*. Boston, MA: Mass. Dept. of Education.

Mass. Dept. of Housing and Community Development. (2005). *Chapter 40B Subsidized Housing Inventory List*. Boston, MA: Mass. Dept. of Housing and Community Development

Mass. Division of Unemployment Assistance. (2005). *Employment and Wages by Industry and Area (ES-202)*. Boston, MA: Mass. Division of Unemployment Assistance.

Mass. Division of Unemployment Assistance. (2005). *Labor Force and Unemployment Data*. Boston, MA: Mass. Division of Unemployment Assistance.

Mass. Executive Office of Environmental Affairs. (2005) *Community Preservation Initiative Community Build Out Analysis*. Boston, MA: Mass. Executive Office of Environmental Affairs.

Massachusetts State Data Center. (2005). *U.S. Census Bureau Building Permit Estimates*. Amherst, MA: The Massachusetts State Data Center.

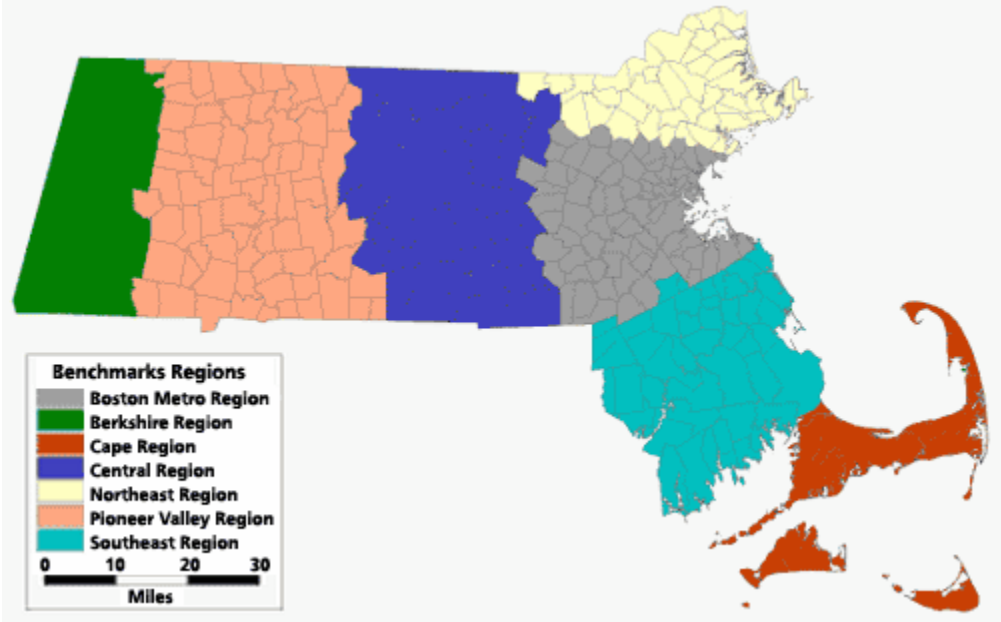
PriceWaterhouseCoopers. (2005). *PriceWaterhouseCoopers MoneyTree Survey*, from <http://www.pwcmoneytree.com/moneytree/index.jsp>

U.S. Bureau of the Census. (2005) *The Small Area Health Insurance Estimates (SAHIE) program*, from the SAHIE web site: <http://www.census.gov/hhes/www/sahie/index.html>

U.S. Bureau of the Census. (2005). *1990 Decennial Census of Population and Housing*. Washington, DC: U.S. Bureau of the Census.

U.S. Bureau of the Census. (2005). *2000 Decennial Census of Population and Housing*. Washington, DC: U.S. Bureau of the Census.

# The Benchmark Regions<sup>3</sup>



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.

<sup>3</sup> 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 benchmark 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:**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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:**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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.):**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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.):**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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:**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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.):**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
West Tisbury	Dukes	MVC
Nantucket	Nantucket	Nantucket Planning & Economic Development Commission

**The Central Region:**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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.):**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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:**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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.):**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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:**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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.):**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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.):**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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:**

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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
		Southeast Regional Planning & Economic Development
Acushnet	Bristol	District (SRPEDD)
Attleborough	Bristol	SRPEDD
Berkley	Bristol	SRPEDD
Carver	Plymouth	SRPEDD
Dartmouth	Bristol	SRPEDD
Dighton	Bristol	SRPEDD



## The Southeast Region:

<b>Town</b>	<b>County</b>	<b>Regional Planning Agency</b>
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