STATE of the

PIONEER VALLEY REGION

2002

PVPC
Pioneer Valley Planning Commission
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State of the Pioneer Valley Region: 2002

Prepared by the
Pioneer Valley Planning Commission
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Acknowledgements

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The Pioneer Valley Planning Commission

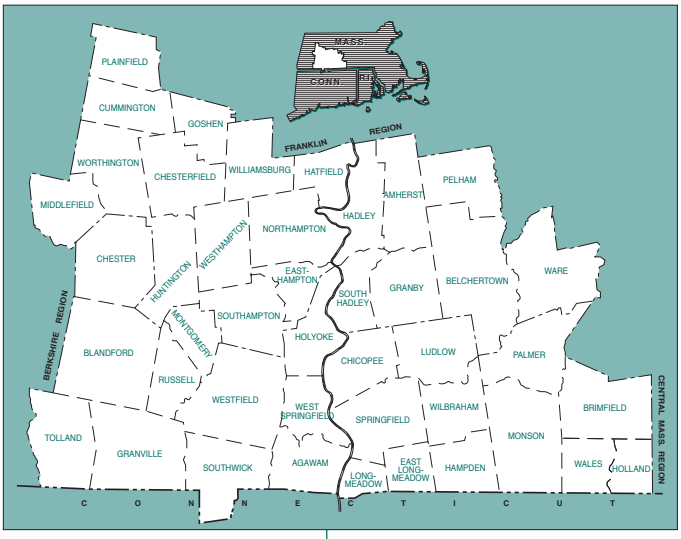
You may have seen us mentioned in news articles. You may have attended a meeting we organized. You may have participated in a survey we conducted. But if you are like most people, you probably don't know much about us—who we are, what we do, why we do it, and where we fit in the public policy picture.

The Pioneer Valley Planning Commission (PVPC) is the designated regional planning body for the Pioneer Valley region. Its focus is both local—for the good of individual communities—and regional—for the good of the area overall. Although PVPC is a public sector agency, it is not a direct arm of the federal or state governments. Rather, it is a consortium of local governments that have banded together under provisions of state law to address problems and opportunities that are regional in scope or that are too large for individual cities and towns to resolve on their own. We are the public agency with primary responsibility for increasing communication, cooperation, and coordination among all levels of government as well as the private business and civic sectors in order to benefit the region at large and to improve its residents' quality of life.

A staff of professional planners and other specialists serves as the hub of the commission's work. We advise local officials, business groups, legislators, and state and federal agencies. We do demographic and economic analysis. We provide research and analysis services in economic development, transportation and transit, environment and land use, community and rural development, and many other planning areas. We assist communities by performing traffic counts at busy intersections, writing grant proposals to build senior centers, reviewing zoning regulations governing land uses from residential homes to cell phone towers, and much more. On a broader scale, we promote and encourage regional collaboration among our member communities.

The Region We Serve

Pioneer Valley Region



The Pioneer Valley region encompasses 43 cities and towns in the Connecticut River Valley in western Massachusetts, an area framed on the west by the Berkshires and on the east by the central uplands. An estimated 608,000 people live in the nearly 1,200-square-mile region, which includes the fourth largest metropolitan area in New England.

The Pioneer Valley's diverse economic base, its renowned academic institutions, and its wealth of natural resources make it a unique and special place to live and work. The Connecticut River, its fertile agricultural valley, and the foothills of the Berkshire mountains wrap the region in scenic beauty and recreational opportunities. Residents live in downtown areas, suburban neighborhoods, quiet villages, historic areas, and rural homesteads. People work in downtown offices in Springfield, the region's cultural and economic center; in industrial plants and factories in Holyoke and Chicopee, the first planned industrial communities in the nation; in academic halls in Amherst, Northampton, and South Hadley, home to distinguished colleges and a flagship university; in tobacco fields in Hadley, where families have worked the land for generations; in distribution centers in Westfield, near the crossroads of two interstate highways; and in offices of Internet service providers throughout the region.

The Pioneer Valley is a region of contrasts, a meeting of ground for many cultures, and, above all, the place we call home.

A Note to the Reader

In 2000, the Pioneer Valley Planning Commission began an ongoing program to assess factors shaping the quality of life that we experience both as individuals and as members of our communities. First, we identified a set of indicators that measure these factors. Then, to gain a sense of how quality of life in our region may be evolving, we examined patterns of change in these indicators. Tracking data trends for our selected indicators enables us to gain some understanding about how we are shaping the future quality of life in our region.

In 2001 we continued and expanded this effort, as we do again this year. Focused on our region's quality of life, our task is ambitious and challenging, requiring a broad survey of issues.

What's the point? Ultimately, we would like to see this information inspiring citizens like you to shape the future of their communities for the benefit of both current and future generations. This is an achievable goal. Realistically, it is also a long-range one. We hope that this, our third edition of the State of the Region Report, becomes a catalyst for discussion about life in the Pioneer Valley region and what all of us can do to enhance it.

Where do you come in? In conducting our study and crafting this document, we focused on specific factors that we believe are important to life in the Valley. Our indicators are not necessarily the same indicators you would choose to track. You will likely find yourself amending our indicators, striking out those you consider comparatively unimportant, and writing in your own where you believe something important was overlooked. Please use the citizen feedback form at the end of this report to let us know what you think.

We hope your reactions will instigate a broad discussion wherein citizens articulate what they most love about the Pioneer Valley region and what they wish for its future. As we

continue to track life in the region, we will rely on broad-scale public input to shape future editions of the State of the Region Report, making them more relevant to everyone who shares our attachment to the Pioneer Valley and its communities.

About This Report

Any examination of the quality of life is complex and imprecise. There are numerous approaches to measuring and categorizing indicators. Nevertheless, some structure is necessary to perform the analysis and present the findings. Therefore, we categorize the indicators into five major subject areas that group related indicators. These subject areas reflect issues that affect us both individually and collectively.

People, Families, and Health—examines an assortment of issues affecting us in our non-working lives, such as poverty, health, and cultural opportunity.
Community Vitality—explores the strength of community bonds and how these bonds can be sustained over time.
Regional Economy – reviews the performance of the region's economy and the attributes of its greatest asset, the workforce.
Getting Around – examines automobile use patterns, the implications of our dependence on automobiles, and alternative modes of travel.
Resource Use and Environmental Quality – analyzes how we use and conserve our natural resources, and how the general public's health, enjoyment, and peace of mind are affected by the quality and benefits those resources provide.

In selecting indicators we have been guided by four principles:

1. We looked for indicators that measured factors important to our lives: health, wealth, mobility, and livability, among others.
2. We restricted the number of indicators we chose to track, making the report easily accessible to a public already overloaded with information choices.
3. We chose indicators according to the limitations of data that was either readily available or that we could derive within practical constraints on our resources.
4. We added and deleted indicators based on public feedback to prior editions of the report.

Finally, we have attached a shorthand rating to each indicator, depending on whether we see trends as improving, declining, a mix of the two, or remaining stable.

What's New In This Report

The 2002 edition of the State of the Region Report maintains the structure and concept of earlier editions, while incorporating some improvements suggested through internal PVPC review and public input.

Because the majority of new Census 2000 data has now been released, we have included it in this report where appropriate. Incorporation of this data has altered the time frame over which change is measured for some indicators. For example, in last year's report, median household income was reported at three- and four-year intervals based on the Census Bureau's Small Area Income and Poverty Estimates program; however, this year, median household income is reported at 10-year intervals based on data from the 1980, 1990, and 2000 U.S. Census. Therefore, although we lose the specificity of shorter time intervals, our examination is enhanced by using actual numbers (rather than estimates) and analyzing a longer time period. Beyond changes in time frame, very few indicators have changed in this year's edition. However, no indicators were included for which we did not have more recent data than was reported last year.

When dollar amounts are given anywhere in this report, we have tried in each case to provide both the nominal dollar amounts actually reported in the data and the "real" dollar amounts based on adjustments for inflation. We have adjusted for inflation using the Northeast region Consumer Price Index for all urban consumers (CPI-U). Gross regional product numbers were already adjusted into constant 1992 dollars in the data source from which we obtain the information; therefore, in the case of productivity, a different adjustment factor has been used.

Throughout this report, there are a number of indicators that are determined proportionate to population. We have chosen to use U.S. Bureau of Economic Analysis' Regional Economic Information System (REIS) population estimates, for several reasons. First, while many of our per capita indicators involve data reported annually, actual population counts are drawn from the federal decennial census and are available only for every ten years. Second, the REIS estimates appear to be fairly accurate, as their estimate for the population of our region in 2000 was different from the Census 2000 count by less than four one-hundredths of one percent. Finally, the per capita income numbers used in Indicator 20 come from REIS, which uses their own population estimates; therefore, for consistency we adopted their population estimates throughout the entire State of the Region Report.

The State of the Pioneer Valley Region—In Summary

The Pioneer Valley region continues to provide residents with an excellent quality of life. Numerous social, economic, and environmental improvements suggest that the region's residents and visitors can expect a promising future. In many respects, our community bonds are growing stronger, improving the quality of life today while enabling us to meet the challenges of tomorrow. The regional economy, having recovered from the hard economic times of the early 1990s, is poised for a strong performance. Environmental efforts to improve air and water quality have yielded significant results. Overall, regional efforts to unite, sustain, and enrich the Pioneer Valley have begun to take root and improve the quality of life.

This is not to say that we have no concerns for the future. Not all residents are sharing in the economic prosperity emanating from a strong economy. For example, despite income growth, poverty rates continue to rise. Our dependence on the automobile is increasing as the region's residents own more cars, drive more miles, and consume more fuel. This trend raises concerns about traffic congestion, air quality, and the need to adequately maintain roadway infrastructure. Further, land use sprawl continues to be a problem that only exacerbates these concerns.

The table below summarizes our findings. The top left box lists indicators whose trends are moving in a direction to enhance the quality of life in the region. The top right box lists indicators showing changes that diminish the quality of life. The remaining two boxes list indicators whose trends suggest that both enhancement and diminishment are occurring, and indicators with stable trends that preserve the quality of life in the region.

Snapshot of the Region's Performance

Quality-of-Life-Enhancing Trends	Quality-of-Life-Diminishing Trends
Childcare Facilities Capacity Deaths from Major Cardiovascular Disease Culture and Recreation Spending Community Involvement Crime Rates Net Domestic Migration Housing Affordability Number of Jobs Average Wage Per Capita Income Educational Attainment Miles of Dedicated Bike Paths and Lanes Number of Combined Sewer Overflows Air Quality Index Brownfield Sites	Median Household Income Poverty Rate Low-Weight Births Substance Abuse Cases Size of Youth Population Service Jobs per Manufacturing Job High School Dropout Rate Registered Motor Vehicles Per Capita Public Transportation Ridership Land Use Sprawl Acres of Farmland Motor Vehicle Fuel Consumption

Snapshot of the Region's Performance cont'd.

Mixed Trends	Stable Trends
Municipal Debt Unemployment Productivity Daily Miles Driven Average Daily Traffic at Key points MCAS Achievement Motor Vehicle Fatalities and Injuries Public Transportation Ridership per Service Mile	Voter Turnout Water Consumption Waste Generation and Recycling

People, Families, and Health

The indicators in this section measure factors that are among the most immediate and personal in how they affect us and our families. We examine indicators related to income, childcare, health, and cultural opportunities. These diverse issues provide a general understanding that is further explored in subsequent sections of this report.

What We See

Our findings in this section are mixed. On one hand, we are seeing increases in childcare capacity and cultural and recreational spending. The fatality rate from cardiovascular disease, which is heavily influenced by lifestyle choices, has been in decline. On the other hand, our findings regarding those at the lowest end of the economic spectrum are unsettling. Median household income, when adjusted for inflation, dropped in the 1990s, and poverty rates have been climbing in our region for three decades. The proportion of low-weight births in our region remains high, a direct result of rising poverty. Therefore, we have found that in some ways there are two Pioneer Valley regions—one experiencing increasing health and quality of life, the other experiencing diminishing health and quality of life.

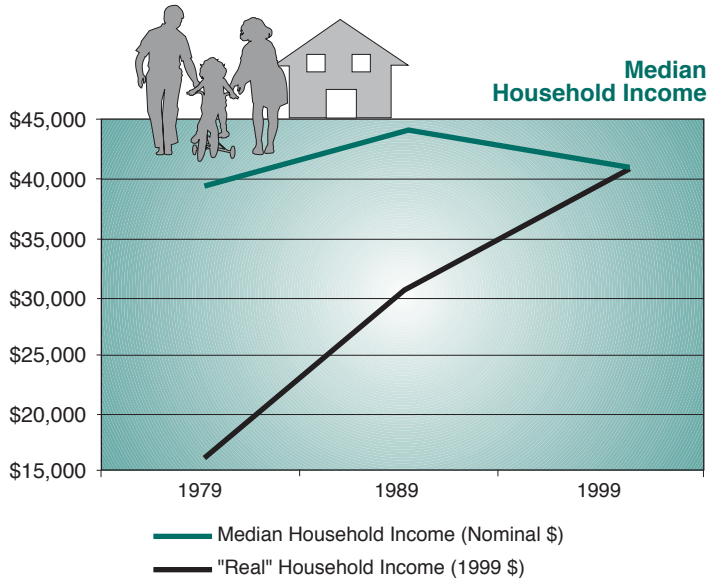
Trends At A Glance

Indicator Number	Indicator	Summary Description	Trend
1	Median Household Income	Real median household income (adjusted for inflation) dropped 3.8 percent from 1989 to 1999.	
2	Poverty Rate	The poverty rate continues to climb despite increases in employment and per capita income.	
3	Childcare Facilities Capacity	Capacity grew by 5.8 percent from 2000 to 2001.	
4	Low-Weight Births	The proportion of low-weight births dropped slightly since 1999, but remains above seven percent.	
5	Deaths from Major Cardiovascular Disease	The fatality rate continues to drop and remains low.	
6	Culture and Recreation Spending	Culture and recreation spending remains 10 percent higher than in 1990, but annual increases diminished substantially since 1997.	

Indicator 1: Median Household Income

Quality of life is closely related to income and other earnings. In order to understand how income levels are changing for a typical household, we examine median household income or the amount at which half the region's households have smaller incomes and half have larger incomes.

Though median household income began to rise in the second half of the 1990s, as was reported last year, the overall trend from 1990 to 2000 was a decline in median household income when adjusted for inflation. Specifically, median household income, in 1999 dollars, dropped by 3.8 percent between 1989 and 1999. However, median household income in 2000 remains 6.4 percent above the figures for 1979, indicating that declines in the 1990s did not cancel the gains realized during the 1980s.

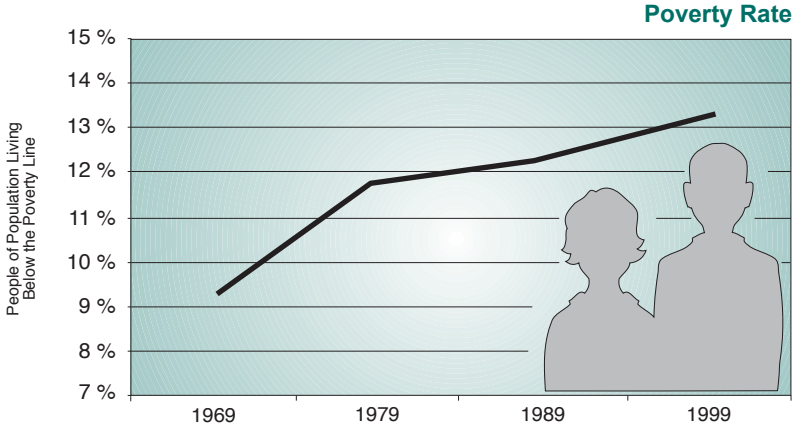


Source: U.S. Bureau of the Census, Decennial Census

Indicator 2: Poverty Rate

The poverty rate is the number of persons living in households with incomes less than the federal poverty line, or income threshold. The federal poverty line varies by family size and composition but not geography, is adjusted annually for inflation, counts money income before taxes, and does not include capital gains and non-cash benefits such as food stamps. In 1999, the average threshold was $17,029 for a family of four, $13,290 for a family of three, $10,869 for a family of two, and $8,501 for an individual.

Utilizing newly released Census 2000 data, we see that the poverty rate in the Pioneer Valley region has steadily increased over the last 30 years. In 1969, 9.4 percent of the region's population lived below the poverty line. This increased to 11.6 percent in 1979, 12.4 percent in 1989, and 13.4 percent in 1999. With increases of about one percent each decade, the growing numbers of people living below the poverty line remains a significant concern for the region.

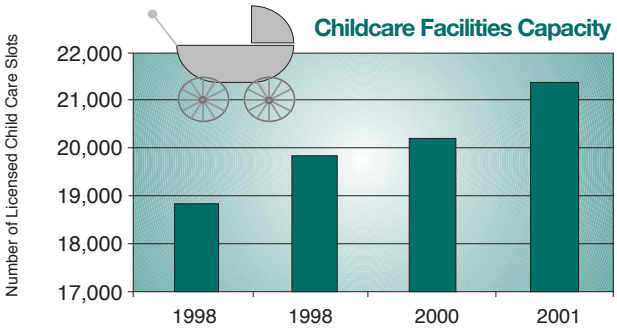


Source: U.S. Bureau of the Census, Decennial Census

Rising poverty rates for the region as a whole are a result of rapidly increasing poverty rates in the Pioneer Valley region's urban core, which includes the adjacent cities of Springfield, Chicopee, and Holyoke. Between 1989 and 1999 the number of people living below the poverty line in the communities in the Hampden County portion of the region increased by 7,746 persons, or 13.1 percent, even though their combined population changed by less than one tenth of one percent. Conversely, in the communities composing the Hampshire County portion of the region, poverty rates have actually been steadily declining since 1979 and, according to the U.S. Census Bureau, stood at 9.4 percent in 1999.

Indicator 3: Childcare Facilities Capacity

The Pioneer Valley region is experiencing a growing need for high quality childcare. According to Census 2000 figures, 60 percent of children under the age of six have both parents working, and single parents head more than one third of families with children. The decline of median household income in the last decade reinforces the need for childcare, because more and more families need the combined income provided by two wage earners.



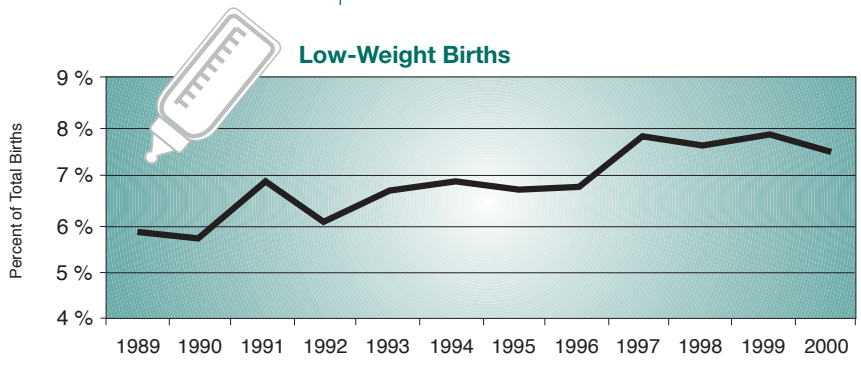
Source: Massachusetts Department of Public Health, Community Health Information Profile

Fortunately, childcare capacity in the Pioneer Valley region has increased rapidly. Between 1998 and 2001, the number of slots available in the region's licensed childcare facilities increased by 14.2 percent, from 18,802 slots to 21,467 slots. The 5.8 percent increase in childcare facility capacity between 2000 and 2001 is the largest annual increase experienced since 1998 when the data first became available.

Evidence suggests that the demand for childcare, often a household necessity for working parents of young children, is greater than the increasing capacity. Although it does not account for all childcare needs, the number of Pioneer Valley region children younger than six years of age whose custodial parents all worked outside of the home was 25,796. This number alone is more than 20 percent higher than the total number of licensed daycare slots available in 2001. Moreover, the cost of high-quality childcare services has been and remains a significant obstacle to many low-income households.

Indicator 4: Low-Weight Births

The percent of all births that are low-weight (less than 2,500 grams) is a significant measure of the degree to which children suffer the pains of poverty. Low birth weight can result in death, illness, difficulty feeding, lifelong physical disabilities, or chronic ill health. Often caused by inadequate prenatal care, undernourishment, and substance abuse, low-weight births occur far more often in low-income households. Thus, as poverty rates have risen, a corresponding rise in low-weight births can be expected.



Source: Massachusetts Department of Public Health, Community Health Information Profile

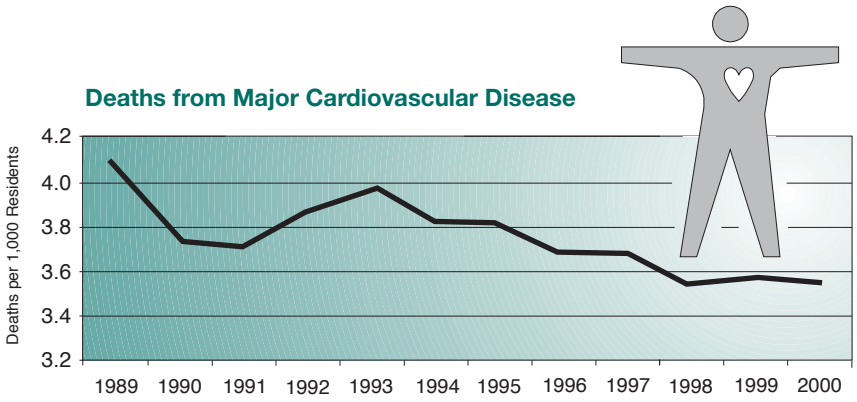
Unfortunately, this has been the case. Low-weight births as a percent of all births climbed from 5.8 percent in 1990 to 7.5 percent in 2000. While the number for 2000 reflects a drop of .3 percent from 1999. Since 1997, the percent of low-weight births has remained above seven percent.

Indicator 5: Deaths from Major Cardiovascular Disease

Deaths from major cardiovascular disease are a significant indicator of physical health in our region, because cardiovascular fitness is closely related to lifestyle choices such as diet and exercise.

Since 1993, the rate of major cardiovascular disease deaths, usually caused by heart attack and stroke, has steadily declined. From four deaths per 1,000 people in 1993, the rate dropped by 12 percent to 3.52 deaths per 1,000 people in 2000. This reflects an average annual decrease of 1.7 percent.

While this is undeniably good news, this information is limited in its usefulness. It is not possible to conclude from these findings that people are currently making positive lifestyle choices, because there is a substantial period of time between adopting poor lifestyle habits and the onset of cardiovascular disease.

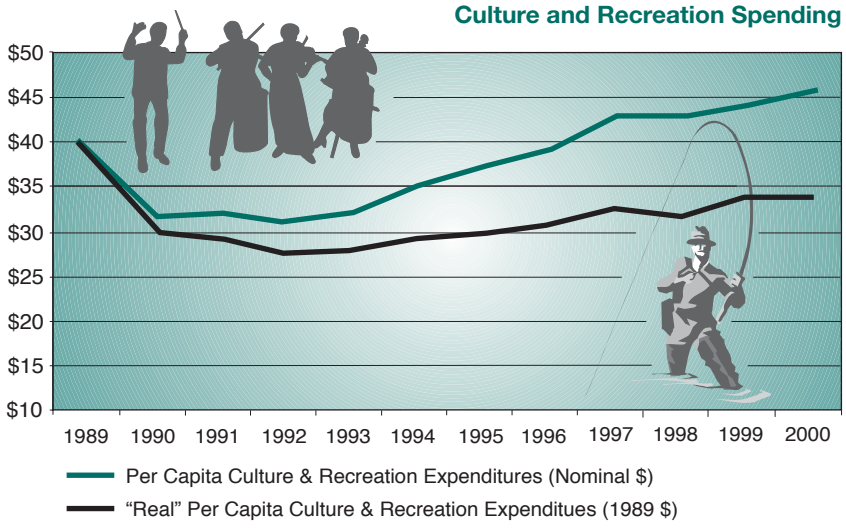


Source: Massachusetts Department of Public Health, Community Health Information Profile

Indicator 6: Culture and Recreation Spending

In an effort to develop an efficient and reliable means of gathering data on community participation in cultural and recreational events, we have adopted per capita municipal culture and recreation spending as a surrogate measure. The amount of money spent by local governments on cultural and recreational programs is a good indicator of trends in the total number of cultural and recreational opportunities available to residents.

According to available data, the number of cultural and recreational opportunities has continued to grow. After a decline in per capita spending on culture and recreation experienced between 1989 and 1992, spending steadily increased through 2000. From a decade low of $27 per capita spent in 1992, culture and recreation spending has increased by 22 percent to $33 per capita in 2000 (amounts have been adjusted for inflation to 1989 dollars). In the four years from 1997 to 2000, however, per capita spending has remained fairly steady, indicating that the trend of rising spending is either slowing or ending. The economic downturn, coupled with sharp declines in public sector tax revenues, is also likely to constrain or reduce per capita spending, especially at the local level.



Source: Massachusetts Department of Revenue, Municipal Data Bank

Community Vitality

Community vitality is, admittedly, a difficult concept to measure—but it would be hard to find anyone to disavow its reality. By community vitality, we refer to the social conditions that bond individuals together into a community and enable them to function as a cohesive unit to improve their lives. Our findings are reported in two subsections: "Sense of Community" and "Sustaining Our Communities."

The stronger our sense of community, the greater our capacity to deal effectively with the important issues that challenge us and constrain our quality of life. This increased capacity can, in turn, foster even greater improvement to our quality of life: after a community effectively meets a challenge, it gains confidence, thus empowering community members to rise to even greater challenges.

Equally important to a community's vitality is its ability to sustain itself and its bonds into the future. Future sustainability requires a balanced population base that provides leaders for today as well as for tomorrow, a housing market that encourages people to make long term investments in their community, and the capacity for effective self-government.

What We See

With respect to community vitality, our communities are in relatively good shape. Moreover, the sense of community that bonds residents is strong. Stable voter turnout, greater participation in community events, and declining crime rates suggest that the sense of community that bonds residents is strong. Additionally, it seems that our communities are improving their ability to sustain these bonds. Despite communities losing some important segments of their population base, there has been a substantial slowdown in the migration of residents out of our region. Further, housing is growing more affordable and local governments remain in fair to good fiscal condition despite a weak economy, job losses, and budget cuts at both the state and local levels.

Trends at a Glance

Indicator Number	Indicator	Summary Description	Trend
7	Voter Turnout	The number of people voting in elections has remained fairly constant.	
8	Community Involvement	Based on per capita charitable giving, community involvement has increased from 1995 to 2000.	
9	Crime Rates	Although crime rates have fluctuated throughout the 1990s, the decade ended with declining crime rates.	
10	Substance Abuse Cases	The number of substance abuse cases rose throughout most of the 1990s, continuing through 2000 and 2001.	
11	Size of Youth Population	The size of the youth population has gradually declined over the last three decades.	
12	Net Domestic Migration	While our region continues to lose residents to other parts of the state and country, out-migration has been steadily declining.	

Trends at a Glance cont'd.

Indicator Number	Indicator	Summary Description	Trend
13	Housing Affordability	Housing prices relative to household incomes declined during the past decade.	
14	Municipal Debt	While the amount of municipal debt has increased, the proportion of general fund expenditures used to pay off debt has remained fairly stable.	

Sense of Community

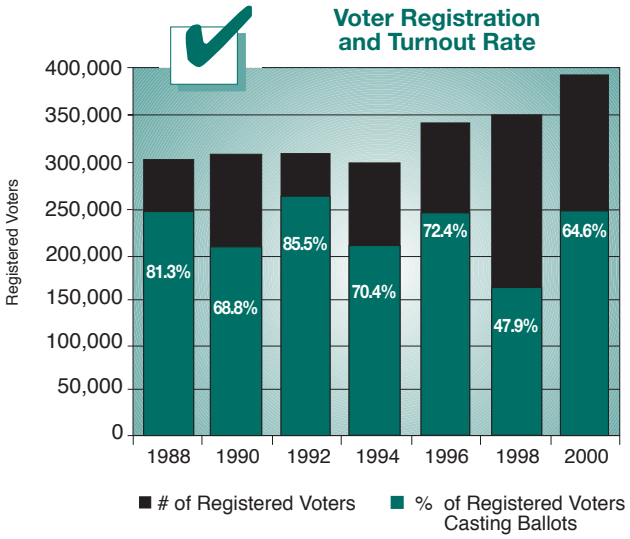
Even though there is no direct measure of a community's sense of cohesion, we can examine several surrogates that measure the amount of engagement in community activity (such as voter turnout and financial support of community organizations) and alienation (such as crime rates and substance abuse cases).

Indicator 7: Voter Turnout

When members of the community register to vote and cast their ballots, they have the ability to directly affect their communities. This fundamental form of civic participation strengthens people's ties to their communities and simultaneously helps to improve the quality of life in the Pioneer Valley region. An examination of voter turnout data leads us to believe that community bonds in the Pioneer Valley region are relatively stable.

Upon careful examination, it is evident that the declining voter turnout rate is not a result of less participation but of more registered voters. Most likely, voter registration has increased due to the passage of the 1994 "motor voter" bill, which allows citizens to register to vote at offices of the Registry of Motor Vehicles.

Aside from a peak in the 1992 presidential election, the number of votes cast in presidential elections from 1988 to 2000 has remained virtually unchanged. Unfortunately, during non-presidential election years, there are fewer registered voters who choose to cast ballots. However, a highly contested gubernatorial election coupled with the Commonwealth's intensifying fiscal crisis suggests that voters may turn out in record numbers for the 2002 elections.



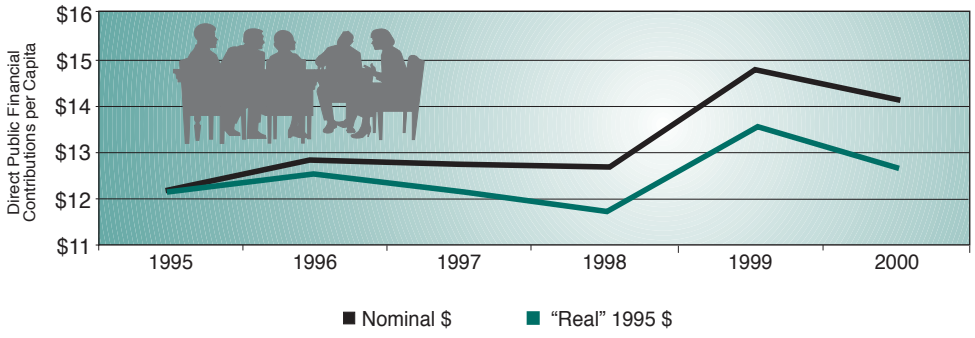
Note: 1988, 1992, 1996 & 2000 were Presidential Election Years
Source: Massachusetts Manual for the General Court

Indicator 8: Community Involvement

To enhance our understanding of community cohesion, another indicator was sought this year to measure community participation. Last year's State of the Region Report measured community involvement by examining attendance at public library events, the data for which suffered from several limitations. First, it included the number of people visiting the library only to borrow books. Second, the data was limited to information from only 16 municipal libraries that consistently compiled and reported data, far short of the 43 municipalities composing the Pioneer Valley region.

Accordingly, it was decided this year to examine per capita financial contributions received by several area charitable organizations. Due to time and resource constraints, this examination was limited to the Hampshire County United Way, the Community United Way of the Pioneer Valley, WFCR (the local National Public Radio station), and WGBY (the local Public Broadcasting television station). These organizations were chosen because each serves large segments of the region, and community members may benefit from their services whether or not they make individual financial contributions. The amount of public support contributed to these organizations is, in effect, a measure of citizens' willingness to support one or more of these regional assets.

Community Involvement



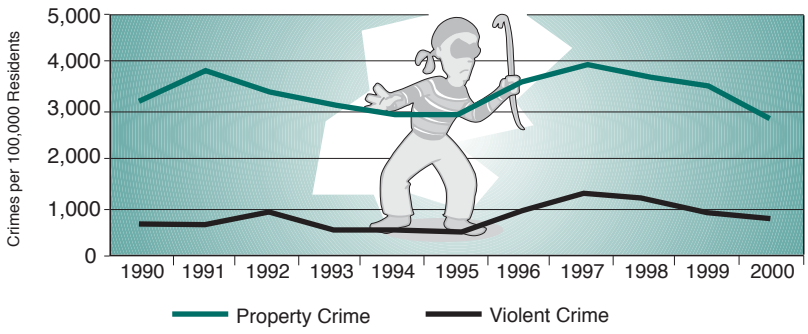
Source: IRS 990 Forms and Financial Statements Provided by WGBY and WFCR

When controlled for inflation, the six-year average (1995-2000) per capita financial contribution to these four select regional community organizations was $12.43. Charitable giving per capita reached a peak of $13.51 in 1999 with a four percent increase in the amount of per capita charitable giving realized between the years 1995 and 2000.

Indicator 9: Crime Rates

Besides their routine use as a public safety measure, crime rates are also a good indication of the sense of security felt by members of a community. A strong sense of security helps individuals and communities to thrive; furthermore, the resulting strong sense of community can also act to prevent or curtail crime. Thus, if crime rates are declining, more people are likely to be sharing in a strong sense of community.

Crime Rates

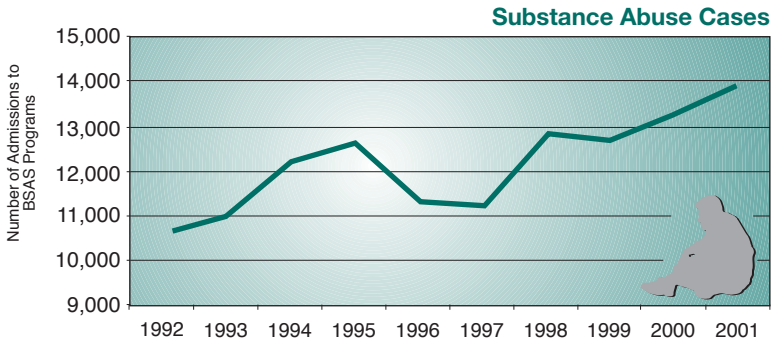


Source: Massachusetts State Police, Crime Reporting Unit;

The most recent statistics available show that crime rates are, indeed, declining here in the Pioneer Valley region. Between the years 1997 and 2000, crime rates for both property and violent crime dropped dramatically, by 30 percent and 45 percent respectively. In fact, property crime rates reached a 10-year low with 2,781 crimes per 100,000 residents while the number of violent crimes approached a 10-year low of 557 crimes per 100,000 residents. In addition to revealing a dramatic decline in crime rates, the data for 2000 suggests that fewer people are feeling disenfranchised from their communities, safety and security are improving, and there is a stronger sense of community emerging throughout the Pioneer Valley region.

Indicator 10: Substance Abuse Cases

Examining the number of patient admissions for treatment of substance abuse is yet another way to better understand trends in the number of people who are less likely to actively engage in their communities. Although it is true that not all substance abusers become disengaged from the happenings of their own communities, many do, especially those residents who are hospitalized due to drug or alcohol abuse. Unfortunately, the relevant data for the Pioneer Valley region remains troubling. While other indicators suggest an overall strengthening of community bonds, data for this indicator suggests that there is a sizable portion of the region's population that is experiencing disenfranchisement from their surrounding community.



Source: Massachusetts Department of Public Health, Community Health Information Profile

Despite declines in the number of substance abuse admissions recorded in 1996, 1997, and 1999, the overall trend between the years 1992 and 2001 shows an increase of almost 30 percent in the number of substance abuse case admissions among area residents. However, some of this increase may be attributed to community service improvements such as better access to substance abuse programs, increased financial support of community-based substance abuse programs, and a better societal understanding of the causes and treatments available to confront substance abuse.

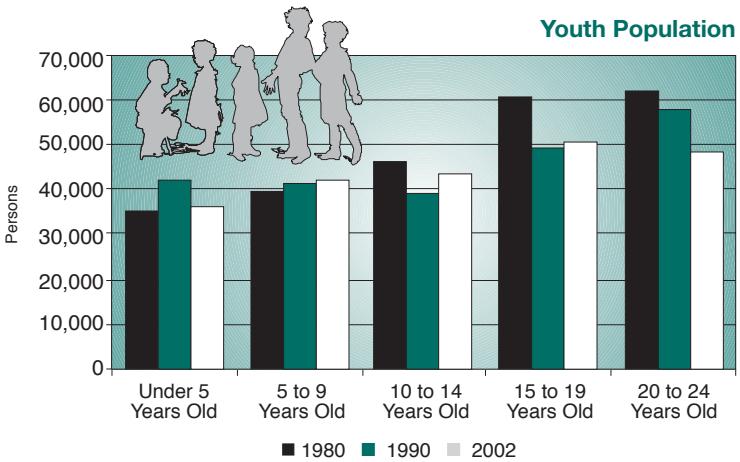
Sustaining Our Communities

In order to gain better insights into the sustainability of our region's communities, it is important to examine indicators that measure vital segments of the Pioneer Valley region's population base, the relative affordability of living in the region, and the fiscal capacity of the region's local governments.

Indicator 11: Size of Youth Population

The youth population of the Pioneer Valley region plays a vital role in the region's sustainability, and its contributions to the economic, social, and environmental well-being of the region cannot be overstated.

Despite a modest increase in the Pioneer Valley region's total population, the region's youth population actually decreased by 8.8 percent between 1980 and 2000. Employing controls for the region's transient college student population (that is, by taking out youth between the ages of 20 and 24), the region's youth population loss is a smaller but still significant 3.5 percent. If controls for all possible college students are applied by removing all persons in the 15- to 19-year-old age bracket, a far more favorable result is achieved with the region experiencing a youth population increase of 3.7 percent.

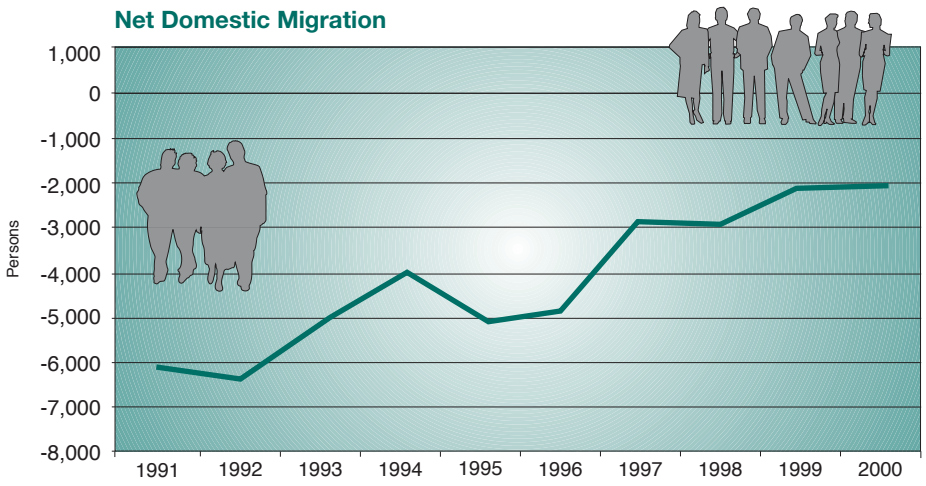


Source: U.S. Bureau of the Census, Decennial Census

Unfortunately, the future contributions of the youth population depend on the region's ability to retain many of the college-age students educated at the

region's colleges and universities. Consequently, this indicator suggests that the region's long-term sustainability may be at risk if this unfavorable trend cannot be addressed and reversed.

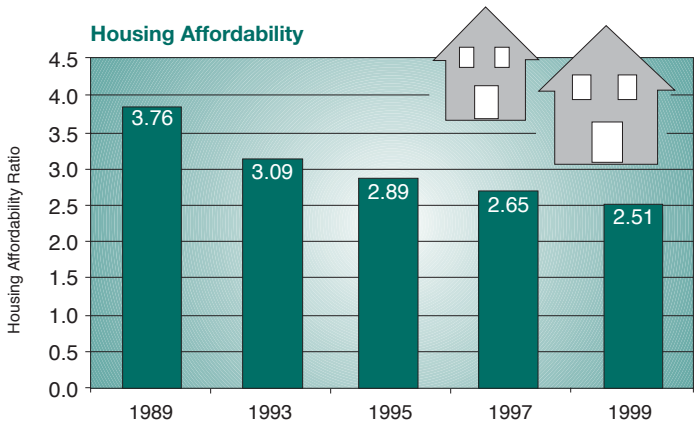
Indicator 12: Net Domestic Migration



Source: Massachusetts Institute for Social and Economic Research (MISER)

Another segment of the population that is important for sustaining the Pioneer Valley region's communities includes those people who are moving either in or out of the region. Throughout the 1990s, the region experienced negative domestic migration—that is, far more people were moving out of the region to other parts of the state or the nation than were moving into the region from those same places. This consistent pattern of out-migration could signal a serious problem for the future of the Pioneer Valley communities; however, despite the recent out-migration, new data shows that the exodus has declined. In 1992, the region's net out-migration total reached 6,507, but by the year 2000, this out-migration had declined by 65.8 percent, to 2,224. This improving trend is cause for optimism about the region's future and, more specifically, the possibility of the trend reversing.

Indicator 13: Housing Affordability



Note: Ratio is calculated by dividing median cost of housing by median household income.
Sources: U.S. Bureau of the Census; Warren Information Services.

The extent to which housing costs are affordable matters greatly to any community or region. Not only is housing a basic human need, it is also commonly the most significant expenditure that people must face. Moreover, when people purchase homes, their commitment to the community in which they live increases, thereby helping to boost the quality of life in the entire community. Fortunately, the Pioneer Valley region's housing has, on average, become more affordable.

In 1989, the median price of a home was 3.75 times greater than the region's median household income. By 1995, this ratio fell below 3.0, and by 1999, it was down to 2.5. This positive trend in the average affordability of housing is producing an increase in home ownership and is a trend that will ideally continue in the future.

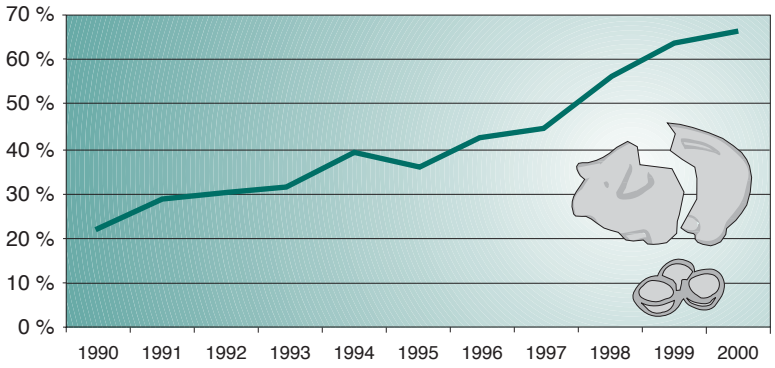
Indicator 14: Municipal Debt

An important part of a community's ability to function and sustain itself is the availability of resources that are needed to successfully implement local policies, projects, and programs. Moreover, these resources need to be managed wisely. Thus, it is important to examine the fiscal capacity of the region's local governments—specifically, the amount of debt incurred by municipalities and how that debt is managed over time. Although debt often is accompanied by a negative stigma, it is a vital financial tool that enables individual communities to accomplish major capital improvements that annual operating revenues are insufficient to support.

In addition, it is important to understand that in Massachusetts, Proposition 2 1/2 limits by law the amount of debt that can be incurred by cities and towns. The amount of debt incurred by the cities and towns of the Pioneer Valley region has grown by 116 percent since 1993. Nevertheless, despite this growth in debt, municipalities have actually used only 65 percent of the debt limit available to them. This fact underscores that the Pioneer Valley region's municipalities are being cautious about taking on debt and are managing their debt load very prudently.

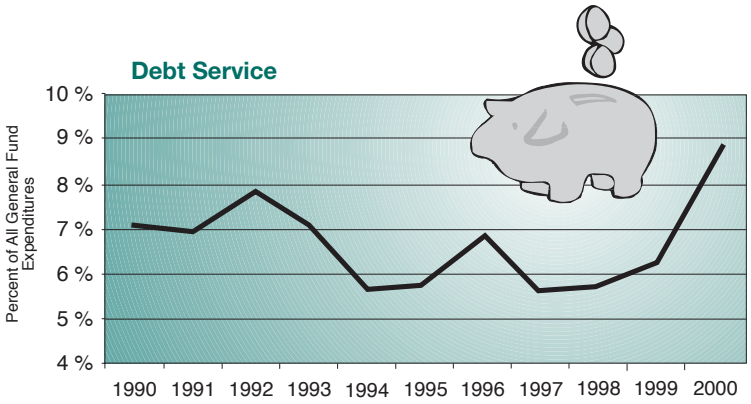
This conclusion is further substantiated by trends seen in the proportion of general fund expenditures being used by cities and towns to pay off debt. Though the amount of debt being carried by municipalities has increased, the percent of general fund expenditures being devoted to debt reduction has remained fairly stable, staying in the range of five to nine percent since 1990. However, between 1999 and 2000, there was an increase, from 6.3 to 8.8 percent respectively, in the percentage of general fund expenditures going to reduce the debt previously incurred—a trend that bears scrutiny looking to the future.

Municipal Debt



Source: Massachusetts Department of Revenue, Municipal Data Bank

Debt Service



Source: Massachusetts Department of Revenue, Municipal Data Bank

Regional Economy

The performance of the Pioneer Valley region's economy is extraordinarily important to the overall quality of life for all its residents. Economic opportunity is not simply about meeting material needs and wants, as most people are now seeking more from their work than simply a regular paycheck. Thus, a truly strong and vibrant economy is one that affords a wide array of employment opportunities and jobs that can contribute to the region's prosperity as well as a high quality of life.

In order to enhance our presentation on the regional economy, findings are reported in two sub-sections: "Employment, Productivity, and Income" and "The Workforce." The first sub-section focuses on the overall performance of the regional economy, including employment patterns, the continuing economic shift towards the service sector, and worker productivity, characteristics, and income. The second sub-section examines the academic and other endowments that the region's workforce possesses and that could have important ramifications for the regional economy, now and in the future.

What We See

Overall, the Pioneer Valley region's economy continues to move in a positive direction. For the most part, each of the key economic indicators shows an almost complete recovery from the substantial blows dealt to the Pioneer Valley region during the economic recession of the early 1990s. Unemployment, although on the upswing, remains relatively low. More important, the size of the region's labor force is increasing, as are total employment and worker productivity across all sectors. Although there continues to be a slow decline in the proportion of manufacturing jobs available in the region, manufacturing continues to employ better than ten percent of the region's total workforce and remains a vital component of the region's economic base.

The recent trends have had a positive effect on workers. Total employment has increased over the last several years and at a faster rate than at any time during the 1990s. Correspondingly, average wages and per capita income levels, even while controlling for inflation, are both on the rise and outpacing the cost of living.

A particular area of concern is workforce development, especially as we look to the future. Despite the fact that educational attainment and achievement indicators show progress and a positive trend, the Pioneer Valley region nevertheless remains well behind the rest of Massachusetts in developing the high-skill workforce that is urgently needed in a knowledge- and information-based economy.

Trends At A Glance

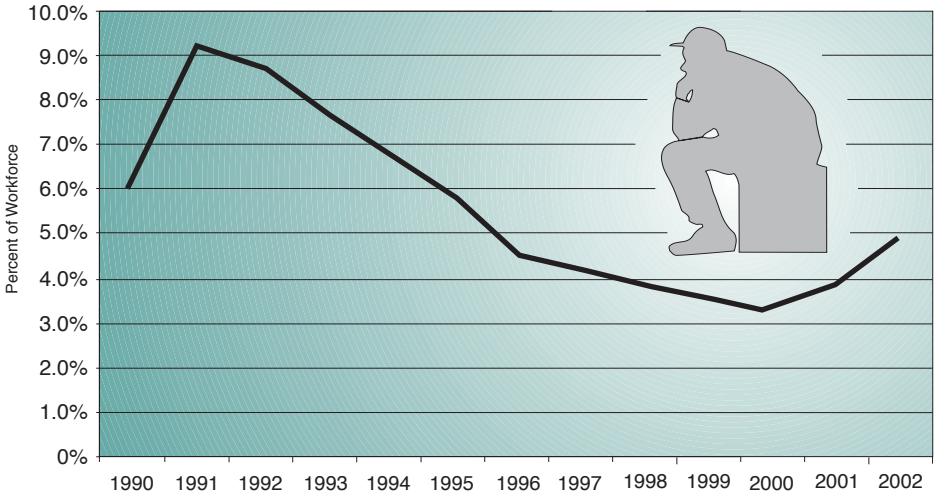
Indicator Number	Indicator	Summary Description	Trend
15	Unemployment	The unemployment rate has increased slightly, but total employment is increasing as well.	
16	Number of Jobs	The last two years have seen significant employment and labor force gains.	
17	Service Jobs per Manufacturing Job	The proportion of employment continues to shift towards services and away from manufacturing.	
18	Productivity	The region has grown more productive, but has become less productive relative to the nation.	
19	Average Wage	Average wages, when adjusted for inflation, continue to climb slightly.	
20	Per Capita Income	Per capita income, adjusted for inflation, has been rising for two decades and continues to do so.	
21	Educational Attainment	More of the region's population has graduated high school and college, but the region is still well below the Massachusetts average.	
22	High School Dropout Rate	High school dropout rates have begun to climb for the first time in eight years.	
23	MCAS Achievement	Students made substantial improvement between 2000 and 2001, but MCAS scores still remain quite low.	

Employment, Productivity, and Income

Indicator 15: Unemployment

Perhaps the most widely recognized measure of a region's economic health is its level of unemployment. In fact, during the second half of the 1990s, one of the most notable signs of the Pioneer Valley region's economic well-being was its rapidly declining rate of unemployment. In 1991, the region's unemployment rate peaked at 9.3 percent; however, nine years later, this rate dropped to only 3.1 percent in 2000. Unfortunately, with the recent onset of a new economic recession, unemployment rates have once again begun to rise. In 2001, the unemployment rate for the Pioneer Valley region reached 3.8 per-

Unemployment



Source: Bureau of labor Statistics, Local Area Unemployment Statistics
Note: The rate for 2002 is an average of the rates for January-April

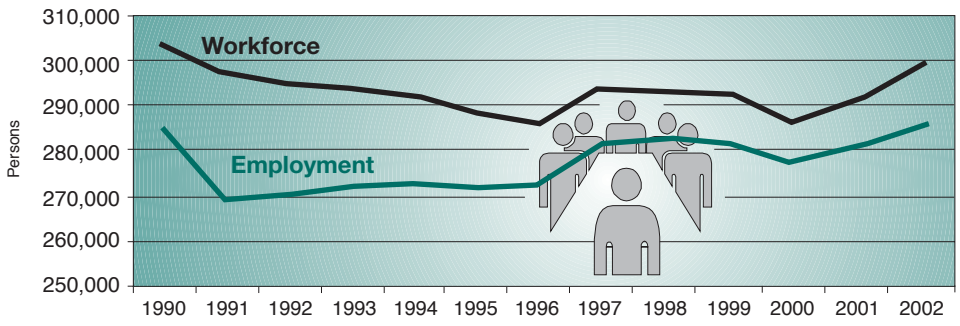
cent and by April of 2002 the rate had risen to 4.6 percent—the first time the unemployment rate had exceeded four percent since 1997.

This rise in unemployment is not simply the result of job losses. It also stems from the growing regional labor force, whose rate of growth is exceeding that of total employment. In the short term, this trend helps raise the region's unemployment rate. However, over the long term, a growing pool of skilled and productive workers is an important regional asset and a crucial support to both existing and new employers.

Indicator 16: Number of Jobs

Much like unemployment, the size of the region's labor force (those working and looking for work) and the total number of jobs are an important measure of economic health. A shrinking labor force can discourage employers from expanding in the region. At the same time, shrinking employment will prompt workers to leave the region in search of more and better job opportunities. During the early part of the 1990s, the size of the Pioneer Valley region's labor force and total employment decreased, but more recently these trends appear to have reversed, which is considered a positive sign for the region's economy and one that needs to be sustained.

Number Of Jobs



Source: Bureau of Labor Statistics, Local Area Unemployment Statistics
Note: The numbers for 2002 are an average of January-April

Total employment in the Pioneer Valley region rose by 4.0 percent between 1996 and the spring of 2002, which translates into an increase of more than 10,000 workers. Although employment dropped by 1.4 percent between 1999 and 2000, the trend of increasing employment so far seems to be continuing despite the nation's intensifying economic recession.

Of greater long-term significance is the size of the Pioneer Valley region's labor force, which has increased 4.1 percent between 2000 and the spring of 2002. Currently at 297,017, the size of the region's labor force is approaching the decade-long high of 303,208 recorded in 1990. This is clearly good news for the Pioneer Valley region, with these recent gains nearly erasing the severe declines to the region's labor force that were experienced during the 1990s.

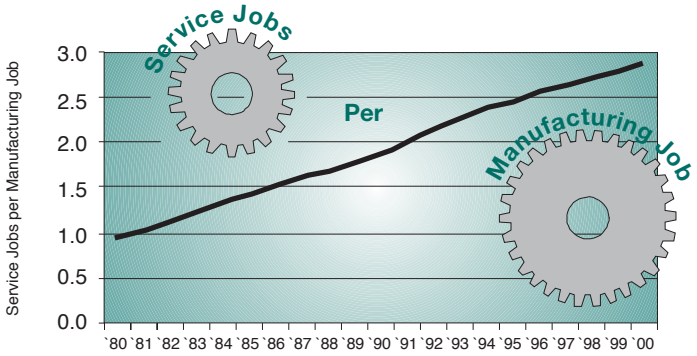
Indicator 17: Service Jobs per Manufacturing Job

The number of jobs in the service sector of the economy as compared to each available manufacturing job can reveal a great deal about a region's economy. Manufacturing jobs often offer higher rates of pay than service sector jobs. Manufacturing employment can also serve as a catalyst for the creation of jobs in other sectors, because new manufacturing activity leads to increased demand for goods and services that are provided by other sectors of the economy.

The Pioneer Valley region, like most of the nation, continues to experience a shift from manufacturing to service sector jobs. In 1980, .94 service sector jobs existed for every manufacturing job in the region, but by 2000 that number increased to 2.83 jobs. The growth rate in the ratio of service jobs to manufacturing jobs has remained fairly consistent over this 20-year period, so that each year the service job ratio has increased from between .04 to .16 over each manufacturing job. This increasing ratio results from both

manufacturing job losses and service job gains, but gains in the service sector clearly account for a larger share of this ongoing change. In fact, during the decade between 1991 and 2000, the number of service sector jobs in the Pioneer Valley region increased by 21.8 percent, while the number of manufacturing sector jobs decreased by 12.4 percent.

Though this continuing shift towards service sector jobs is perhaps cause for concern, it is not unexpected or without precedent. The nation as a whole is experiencing this shift. As long as the Pioneer Valley region retains a sizable manufacturing sector, the rising ratio should not jeopardize the region's future economic success. It is worthy to note, for example, that in 2000, more than 40,000 people in the region continued to be employed in the manufacturing sector.



Source: U.S. Bureau of Economic Analysis, Regional Economic Information System

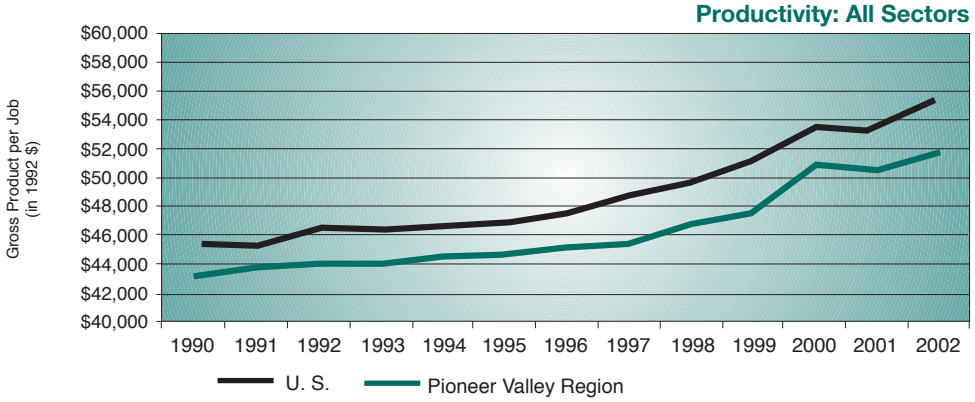
Indicator 18: Productivity

It is widely reported that the "new economy" brings with it higher rates of worker productivity. This seems to be substantiated by evidence of rising productivity rates across all sectors of the national economy. If the new economy does, in fact, bring greater productivity, the level and growth of productivity in the Pioneer Valley region may be an indicator of the region's ability to successfully connect with and integrate into this new economy. Findings regarding worker productivity in the Pioneer Valley region are mixed.

Compared to the nation as a whole, the Pioneer Valley region is experiencing an increase in productivity, measured as the gross regional product per job calculated in 1992 dollars. Between 1990 and 1999, the gross regional product per job in our region grew by 10.7 percent, or a respectable 1.2 percent per year. This rate, however, is somewhat slower than the national growth rate of 13.0, percent or 1.4 percent per year. Despite growing more slowly than national productivity, the Pioneer Valley region's productivity across all sectors increased during the 1990s from $42,906 per job to $51,420 per job.

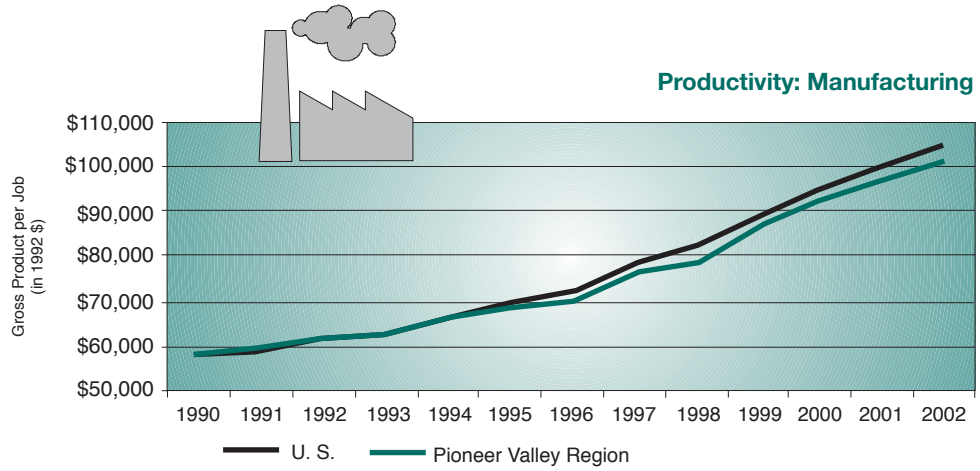
Manufacturing productivity, with its important multiplier effect on the rest of the economy, has grown more quickly than the rest of the Pioneer Valley region's economy. Manufacturing productivity grew by 46.6 percent between 1990 and 1999, a rate of 5.2 percent annually. This gain still lags behind national manufacturing sector gains,

Productivity: All Sectors

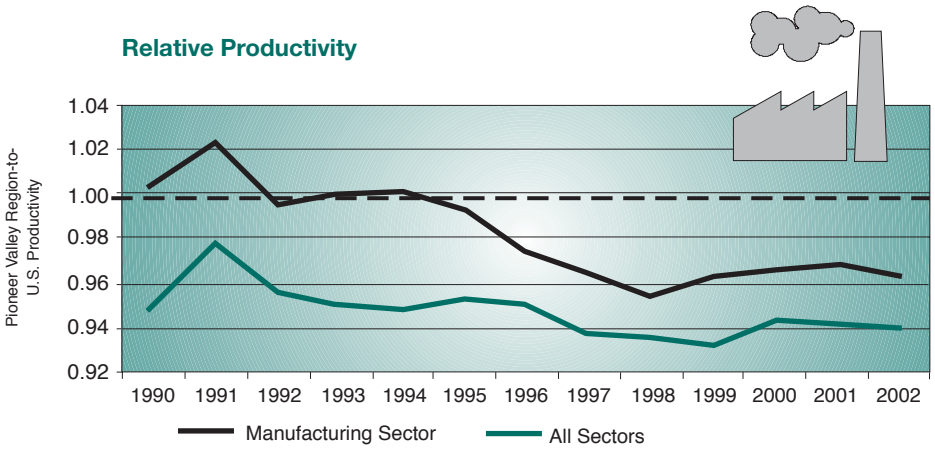


Source: REMI Policy Insight Database

Productivity: Manufacturing



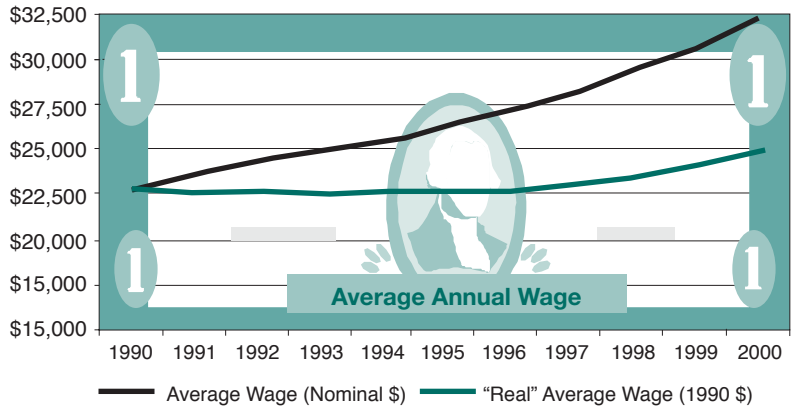
Source: REMI Policy Insight Database



Source: REMI Policy Insight Database

where the decade saw a 52.8 percent increase in manufacturing productivity, a rate of 5.9 percent annually.

While the Pioneer Valley region's economy is growing more efficient, its productivity relative to the national economy has slipped somewhat. In 1990, the region's gross product per job among all sectors of the economy was 95 percent of the national rate, but by 1999 the region's productivity dropped to 93 percent of the national rate. More specifically, in 1990 the region's manufacturing productivity matched that of the nation, but by 1999 it dropped to 96 percent of the nation's manufacturing productivity rate. Admittedly, while these relative declines are small, they are of concern to the extent that they predict future trends.



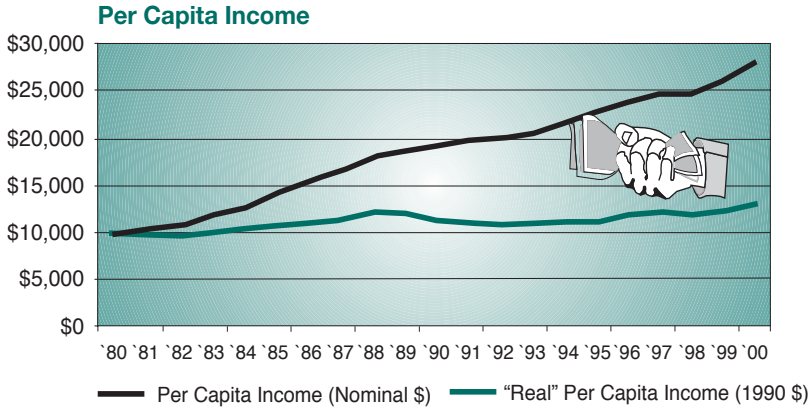
Source: Massachusetts Division of Employment and Training, ES-202 Program

Indicator 19: Average Wage

Average wages earned by workers in the Pioneer Valley region rose by 40.2 percent between 1990 and 2000. However, in terms of real wages (i.e., wages adjusted to remove the effect of inflation), the region's average wage climbed only 6.5 percent, or 0.7 percent annually. Nonetheless, the news that wages steadily increased throughout the 1990s is a positive sign for the Pioneer Valley region.

Indicator 20: Per Capita Income

Per capita income has risen more quickly over the past decade than average wages. In fact, real per capita income (i.e., income adjusted for the effect of inflation) grew by 33.3 percent between 1980 and 1990, or 1.7 percent annually. During the 1980s, the Pioneer Valley region's per capita income grew at a rate of 2.2 percent annually, while in the 1990s the rate slowed to 1.0 percent annually. Despite the slower rate of growth experienced during the first half of the 1990s, per capita income rose by 7.3 percent between 1998 and 2000, a rate of 3.6 percent annually. The fact that the region's per capita income is growing more rapidly than workers' average wages indicates growth in non-wage sources of income, such as investments.

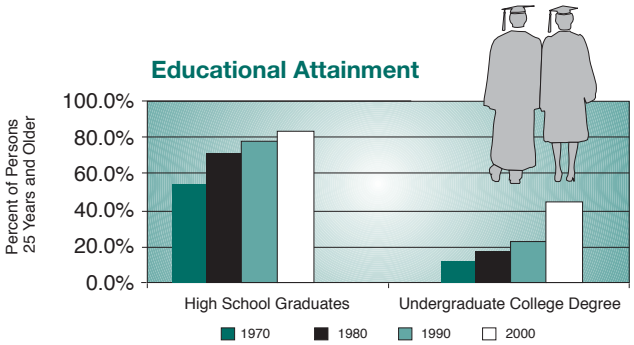


Source: U.S. Bureau of Economic Analysis, Regional Economic Information System

Indicator 21: Educational Attainment

In the past, the Pioneer Valley region has struggled to retain its highly educated workforce despite the presence of 14 institutions of higher education. As the information-based economy accelerated during the 1990s, development and retention of an educated workforce became and remains one of the region's highest priorities.

As of 2000, 81.6 percent of the region's population over the age of 25 have graduated from high school, and another 24.7 percent have graduated from college. In both these cases, the percentages are higher than the national averages of 80.4 and 24.4 percent respectively, but lower than the Massachusetts state averages of 84.8 and 33.2 percent respectively. Since 1990, the percentage of the population older than 25 that has graduated from high school has increased by 5.9 percent while the percentage completing college increased by 3.9 percent over the same period. While these may not appear to be large increases over the span of a decade, in real numbers they mean that by 2000, the Pioneer Valley region had 31,000 more high school graduates and 23,000 more college graduates than it did in 1990.



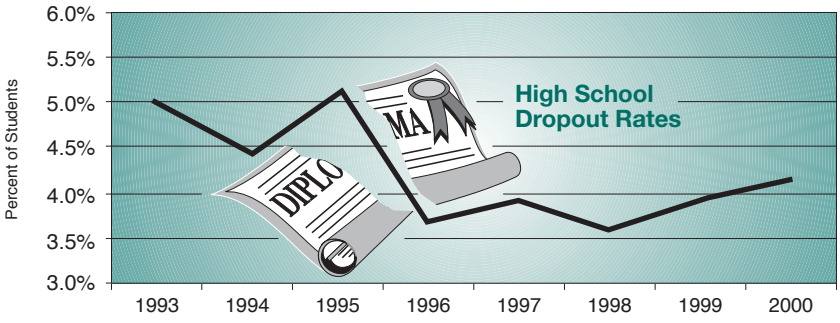
Source: U.S. Census Bureau, Decennial Census

While educational attainment has steadily improved in the Pioneer Valley region over the past 30 years, the gap between it and the rest of the Commonwealth needs to be closed if this region is to remain competitive in the new economy.

Indicator 22: High School Dropout Rate

Given the importance of education to each worker's level of success, high school graduation has become the bare minimum for effective participation in today's economy. Therefore, the number of high school students who drop out of school before completing their secondary education is another important indicator of the future economic success of the Pioneer Valley region.

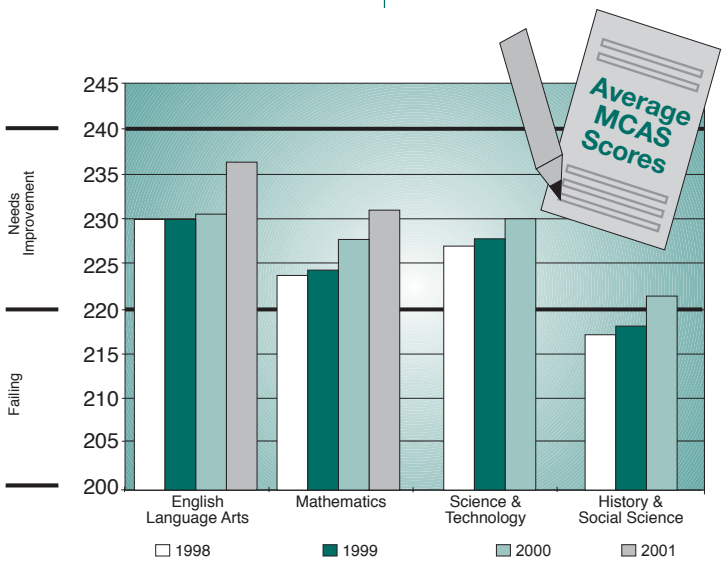
During most of the 1990s, high school dropout rates in the Pioneer Valley region declined from a decade high of 5.0 percent in 1993 and 1995 to a decade low of 3.6 percent in 1998. Unfortunately, since 1998 dropout rates have once again been rising, to 4.0 percent in 1999 and to 4.2 percent in 2000. This trend must be a major concern for the Pioneer Valley region. Although the reason for the recent rise in high school dropout rates remains unclear, there is growing pressure for all students to meet tougher standards for high school graduation. These standards become fully effective in 2003, when each student must pass the Massachusetts Comprehensive Assessment System (MCAS) test in order to earn a high school diploma. Given the adverse economic consequences that result from not receiving a high school diploma, solutions to the trend of rising dropout rates are imperative for the economic health of the Pioneer Valley region.



Source: Massachusetts Department of Education

Indicator 23: MCAS Achievement

The Massachusetts Comprehensive Assessment System (MCAS), now in its fourth year, tests the basic skills of fourth, eighth, and tenth graders in three subject areas: English language arts, mathematics, and science and technology. In addition, eighth graders now take an MCAS history and social sciences exam. Beginning with the high school class of 2003, passage of the English language arts and mathematics sections are required for high school graduation in Massachusetts.

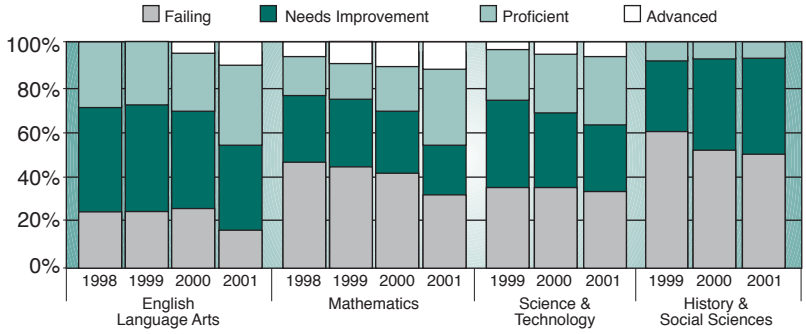


Source: Massachusetts Department of Education

Test data compiled for 1998 through 2000 reveal that average MCAS scores remained fairly constant across all subject areas. However, average scores in 2001 showed significant improvement over the prior year. The average scores on the English language arts and mathematics exams went up by 2.7 and 1.3 percent respectively. Science and technology MCAS tests were not administered in 2001, so no improvements were shown. On the history and social science exams, eighth graders increased their average score by 1.7 percent.

As average MCAS scores have improved, the percentage of students passing each of the exams has also increased. In English language arts, for example, the percentage of students passing the exams went from 76.7 percent in 1998 to 82.6 percent in 2001. Similarly, the percentage of students passing the MCAS mathematics exam went from 53.8 percent in 1998 to 66.8 percent in 2001. Nevertheless, MCAS failure rates in the Pioneer Valley region remain unacceptably high and are a major concern for the future of the region and its economy. However, steady improvement in MCAS test scores is evidence that concerted community and school district efforts to improve academic achievement are having a positive effect and need to be maintained.

Distribution of MCAS Scores



Source: Massachusetts Department of Education

Getting Around

Transportation issues critically affect the Pioneer Valley region's economy and quality of life. Automobiles, while a tremendous asset in terms of personal mobility and independence, also come at a collective cost to the region's residents. Excessive traffic volumes frequently lead to congested roads, lost travel time, safety concerns, and high anxiety levels. This is especially true in several of the Pioneer Valley's most important travel corridors, which include Route 9 in Amherst, Hadley, and Northampton; Route 20 in West Springfield and Westfield; and Route 5 in Holyoke and West Springfield, among others.

The reliance on vehicles to move people and goods in the Pioneer Valley region and elsewhere across the United States also requires substantial amounts of public expenditures to build, maintain, and operate America's surface transportation system—a formidable challenge for our region and hundreds of others across the United States. Reliance on automotive travel also strongly shapes our environmental quality. Vehicle emissions threaten the Pioneer Valley region's air quality and runoff from roads caused by rain and melting snow releases pollutants into our soil and groundwater.

The region's mobility is reviewed and analyzed in the following two subsections: "Reliance on Automobiles," which presents and analyzes key indicators tied to the Pioneer Valley's reliance on the private automobile, and "Automobile Alternatives," which examines other modes of transportation, particularly the public transportation services offered through the Pioneer Valley Transit Authority.

What We See

The Pioneer Valley region's heavy reliance on automobiles is not only increasing, but has been increasing more rapidly over the last several years than was true during the first half of the 1990s. As a consequence, Pioneer Valley residents own more vehicles and drive more miles than at any time prior to the 1990s. Our region may be approaching a time when there will be one or more registered vehicles for every single resident (including children). This increasing use of automobiles and other private passenger vehicles contributes to traffic congestion and safety concerns in all areas of the Pioneer Valley region. Fortunately, however, the rise in automobile use has not led to steep increases in numbers of motor vehicle related fatalities or serious injuries. This finding can largely be attributed to safer vehicles, stiffer penalties for traffic violations such as driving under the influence of alcohol, and slower average travel speeds oftentimes induced by congestion.

In terms of automobile alternatives, the use of public transportation has been declining slightly. However, on a positive note, over the next two to three years the Pioneer Valley region will gain several miles of dedicated bike paths and lanes that should help reduce our heavy reliance on automobiles and other passenger vehicles while affording residents a new mobility option.

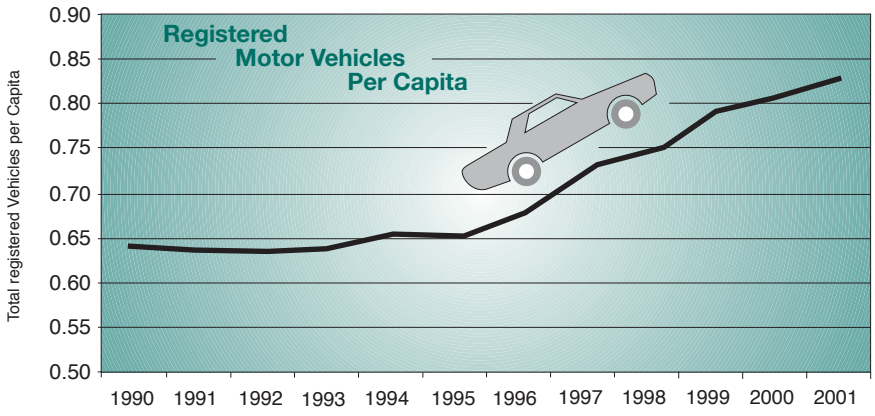
Trends At A Glance

Indicator Number	Indicator	Summary Description	Trend
24	Registered Motor Vehicles	The region is growing ever more dependant on cars for transportation.	
25	Daily Miles Driven	Between 1999 and 2000 the average daily distances area motorists drive decreased for the first time in nearly a decade, while the daily miles driven per resident remained high.	
26	Average Daily Traffic at Key points	Average daily traffic has grown across our region; however, traffic on local urban roads has declined somewhat.	
27	Motor Vehicle Fatalities and Injuries	Motor vehicle fatality and injury rates remain low.	
28	Per Capita Public Transportation Ridership	From 1998 to 2000, per capita ridership dropped 5.0 percent.	
29	Public Transportation Ridership per Service Mile	Ridership per service mile has dropped dramatically since 1999, but this is in part due to a significant increase in vehicle miles traveled.	
30	Miles of Dedicated Bike Paths and Lanes	Significant investments are rapidly increasing the miles of dedicated bike paths and lanes.	

Reliance on Automobiles

Indicator 24: Registered Vehicles

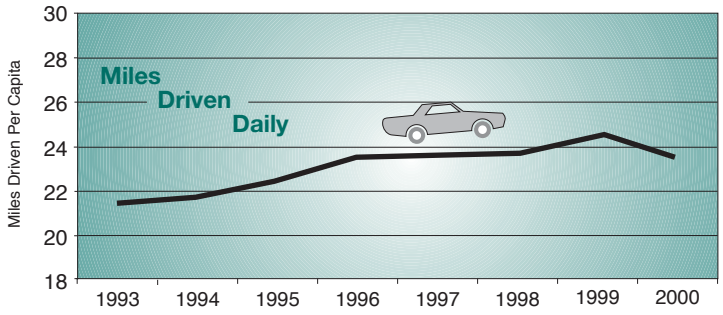
The Pioneer Valley region's dependence on automobiles and other private passenger vehicles continues to grow rapidly. Whereas in 1990 there were .64 cars for every resident of the Pioneer Valley region, by 2001 there were .82 cars for every resident. This represents a 28.1 percent increase over an 11-year time span, or the equivalent of a 2.6 percent rate of growth each year. Furthermore, because the number of cars per resident remained fairly stable through 1995, the region's average rate of increase during the second half of the decade was significantly higher, with a 4.4 percent annual increase recorded in the years from 1995 through 2001. If the number of vehicles per resident continues to increase at this rate, the region will have one car per resident (including children) by the year 2006. This trend is troubling, as it will result in greater traffic congestion and air pollution.



Source: Mass. Registry of Motor Vehicles

Indicator 25: Daily Miles Driven

With a rising number of registered vehicles, it is not surprising that there is also a corresponding increase in daily miles driven in the Pioneer Valley region. Although per capita daily vehicle miles driven increased during the years 1994 to 1999, it subsequently declined between 1999 and 2000. Having increased by 2.5 percent per year between 1994 and 1999, per capita daily miles driven in the Pioneer Valley region then decreased by 4.0 percent between 1999 and 2000. Despite this one-year decline, the daily miles driven per capita in 2000 remained 10.2 percent higher than was the case six years prior in 1994.

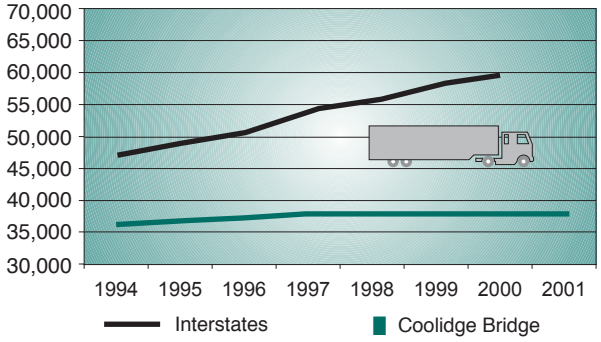


Source: Federal Highway Administration, Highway Performance Monitoring System; Pioneer Valley Planning Commission

Indicator 26: Average Daily Traffic at Key Points

Given the increase in the number of registered vehicles as well as the daily miles driven per capita, one would logically expect an increase in the volume of traffic on roadways throughout the Pioneer Valley region. PVPC regularly collects and tracks traffic volumes recorded at key locations throughout the region. Traffic congestion, however, is both time- and location-dependent, and therefore these counts cannot depict the actual experiences in all areas of the Pioneer Valley. Nevertheless, this data can be relevant and useful in depicting regional trends.

Average Daily Traffic: Major Highways

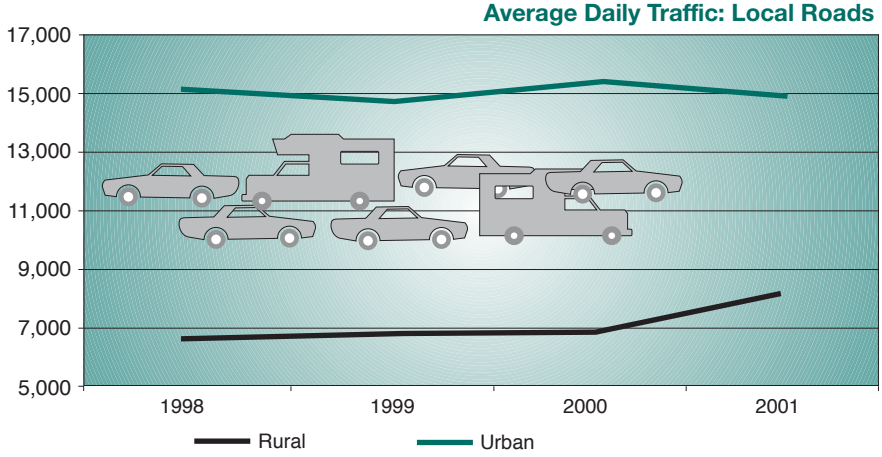


Source: Pioneer Valley Planning Commission

Average daily traffic on the region's primary interstate highways, routes 90 and 91, rose by 33.6 percent between 1990 and 2000, or the equivalent of 3.1 percent per year. Similarly, between 1990 and 2001, the Route 9 Coolidge Bridge, a major east-west traffic corridor in the northern part of the region, experienced an 11.9 percent increase in average daily traffic volume. While the increase is more modest than that found on the region's two interstate highways, this still amounts to a traffic gain of more than one percent per year on a two-lane state highway built to accommodate average daily traffic of only about 15,000.

Beginning in 1998, PVPC has regularly collected and tracked traffic volume statistics at four additional sites situated in two urban and two rural locations. Between 1998 and 2001, traffic volumes on the region's rural roads grew 20.2 percent with a 16.5 percent increase between 2000 and 2001. In contrast, average daily traffic on the region's urban roadways dipped 2.2 percent between 1998 and 2001, with a 6.5 percent drop between 2000 and 2001. To the extent that these limited traffic counts are accurate, the region appears to be experiencing a sharp increase in rural traffic volumes and a fairly even level of traffic in its urban areas.

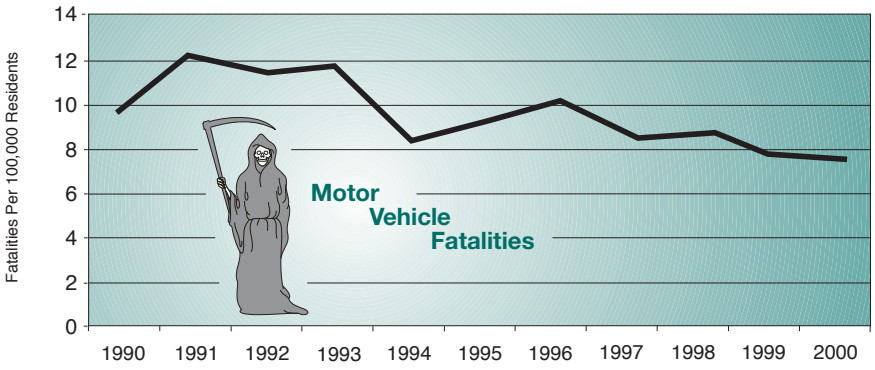
Average Daily Traffic: Local Roads



Source: Pioneer Valley Planning Commission

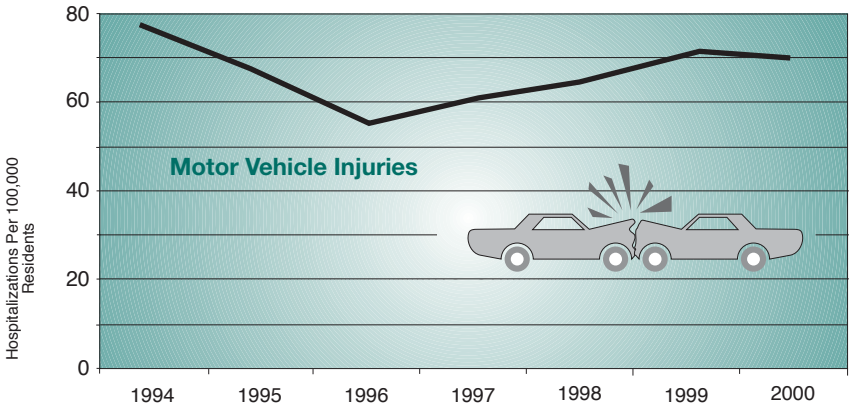
Indicator 27: Motor Vehicle Fatalities and Injuries

One obvious concern arising from increasing rates of vehicle use and increasing traffic volumes is the potential for increases in motor vehicle accident-related fatalities and injuries. Between 1990 and 2000, the number of motor vehicle fatalities per 100,000 residents has varied from 7.4 to 12.1. Fortunately, the second half of the decade has seen steady declines in the rate of motor vehicle fatalities. In 2000, the rate dropped to 7.4 fatalities per 100,000 residents, a rate lower than at any time during the 1990s. Overall, between 1990 and 2000, the fatality rate dropped a significant 24.5 percent, certainly an encouraging trend for the Pioneer Valley.



Source: Massachusetts Department of Public Health, Community Health Information Profile

Motor vehicle injury data, which is based on hospital discharges following motor vehicle accidents, has likewise been encouraging. In 1996, injury rates dropped to a decade low of 56.2 hospitalizations for every 100,000 residents. Despite slight increases in 1997 and 1998, the 1998 injury rate of 65.5 injuries per 100,000 residents was still 16.9 percent below the 1994 rate. However, this rate continued to slowly climb upward and by 2000 the motor vehicle injury rate reached 70 injuries for every 100,000 residents, a rate still 11.2 percent below that experienced in 1994, but an upward trend warranting concern.

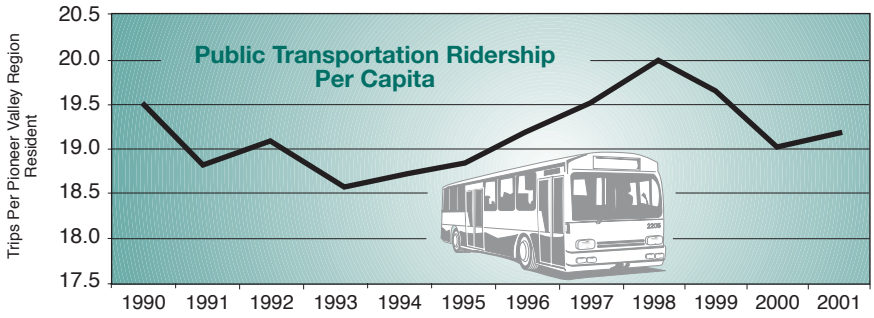


Source: Massachusetts Department of Public Health, Hospital Discharge Database

Automobile Alternatives

Indicator 28: Per Capita Public Transportation Ridership

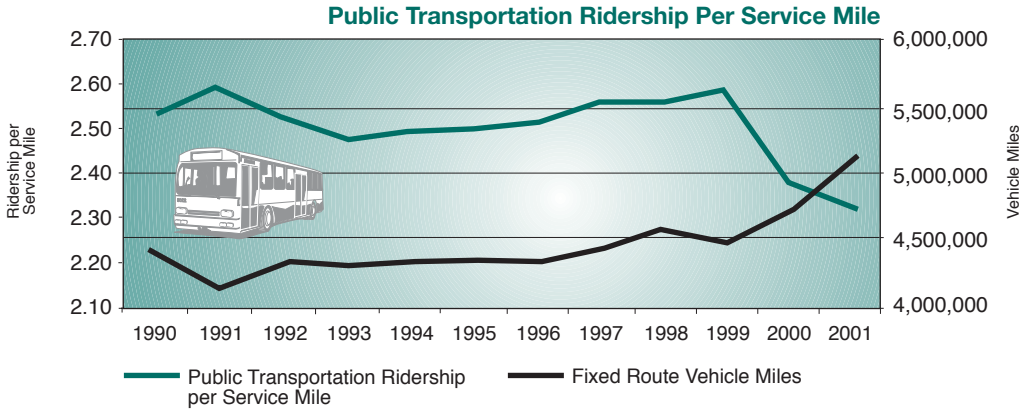
Between 1993 and 1998, the region's per capita public transit ridership (the number of trips taken on the bus per person in the region) on the Pioneer Valley Transit Authority (PVTA) bus system steadily increased. In 1993, there were 18.7 trips per Pioneer Valley region resident, which increased by 7.0 percent to 20.0 trips per resident in 1998. However, between 1998 and 2000, per capita public transit ridership fell back to 19.0 trips per resident, a 5.0 percent decrease in just two years, erasing most of the gains realized during the previous five years. In 2001, an increase brought the per capita ridership up to 19.2 rides per resident, which is 2.7 percent higher than the rates recorded in 1991 and 1993.



Source: Pioneer Valley Transit Authority, Annual Reports

Indicator 29: Public Transportation Ridership per Service Mile

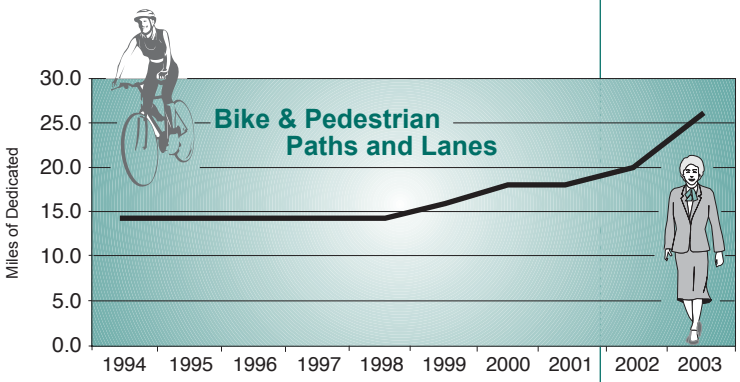
The number of passenger trips per service mile (trips taken for each mile of bus travel) examines the relationship between public transportation ridership and the addition of new PVTA bus routes. The number of passenger trips per service mile rose from 2.48 in 1993 to 2.56 in 1998, an increase of 3.2 percent. However, as with per capita ridership, the number of passenger trips per service mile dipped significantly between 1998 and 2001. By 2001, transit ridership had dropped to 2.29 passenger trips per service mile, a 10.5 percent dropoff in three years. This is in part due to fewer passenger trips, which declined by 1.7 percent between 1998 and 2000, but is also largely due to a significant increase in the number of fixed route miles operated by PVTA. In fact, from 1998 to 2001, the number of vehicle miles traveled by PVTA vehicles on fixed bus routes rose by 11.3 percent, or 3.8 percent annually. Although reduced PVTA transit ridership is of concern, the additional transit routes and service miles added by PVTA over the last few years may ultimately lead to increased ridership in the future.



Source: Pioneer Valley Transit Authority, Annual Reports

Indicator 30: Miles of Dedicated Bike Paths and Lanes

For those residents with short commutes, bicycles often present an alternative to automobiles and the various modes of public transportation. Currently, the Pioneer Valley region has a fairly modest number of dedicated bikeways, including shared-use bike/pedestrian trails and designated bike lanes in roadways, but has been working to significantly increase these valuable transportation assets. Between 1998 and 2001, for example, the Pioneer Valley region's total miles of dedicated bike paths and lanes increased by a sizable 26.2 percent. Furthermore, if all proposed bikeway projects currently being designed and built are completed on schedule, the region could experience a 44.8 percent increase in miles of bike paths between 2001 and 2003. By the end of calendar year 2003, the Pioneer Valley region is expected to have a total of 26.5 miles of dedicated bike paths and lanes.



Source: Pioneer Valley Planning Commission

Resource Use and Environmental Quality

How the region utilizes resources and cares for the environment profoundly affects the overall quality of life for both current and future generations living in the Pioneer Valley. To better understand how natural resources and the environment influence residents' lives, this section of the State of the Region Report examines land use development patterns, water and fuel consumption levels, waste generation and recycling amounts, and the region's air quality index. These indicators, although not all-inclusive, provide sufficient information to understand how resource use and environmental quality affect the Pioneer Valley region and its inhabitants.

What We See

The Pioneer Valley region's physical environment is often a major factor in attracting visitors and residents to the Pioneer Valley. In some ways, our region's communities have made great gains in protecting this asset. For example, our municipalities have continued an impressive reduction in the number of combined sewer overflows. Yet, other forces, such as land use sprawl, threaten to diminish the quality of our physical environment. Consequently, our policies and individual actions continue to both enhance and diminish the region's environment and scenic beauty. For the Pioneer Valley region to sustain its high quality of life, its communities must work together to streamline natural resource use and to protect environmental quality.

Trends At A Glance

Indicator Number	Indicator	Summary Description	Trend
31	Land Use Sprawl	The number of persons per acre of residential land decreased.	
32	Acres of Farmland	Though important to our region's identity, the amount of farmland has decreased.	
33	Water Consumption	Despite year-to-year fluctuations, water consumption per capita has remained fairly stable between 1994 and 2001.	
34	Motor Vehicle Fuel Consumption	In five years, fuel consumption per capita has increased.	
35	Waste Generation and Recycling	The amount of waste generated and recycled has remained relatively stable; however, the stagnant recycling rate remains below the state's goal of 46 percent.	
36	Number of Combined Sewer Overflows	The number of pollution-causing CSOs declined substantially during the 1990s and the trend continues to demonstrate a decline.	
37	Air Quality Index	During the 1990s, the number of days of moderate and unhealthy air quality has steadily decreased.	

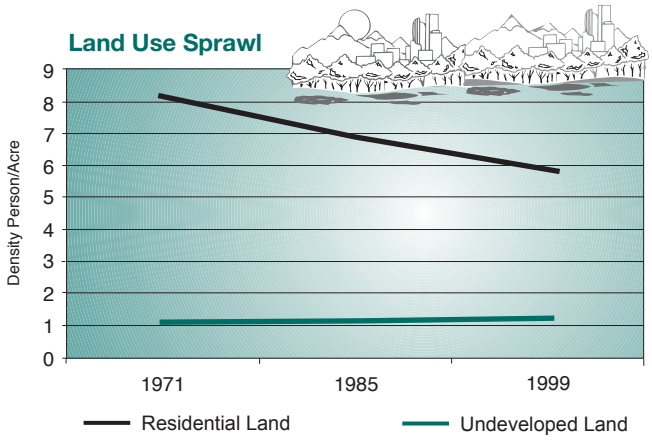
Trends At A Glance cont'd

Indicator Number	Indicator	Summary Description	Trend
38	Brownfield Sites	There has been an increase in the number of brownfield projects taking advantage of available DEP funding and economic incentives.	

Indicator 31: Land Use Sprawl

The presence of sprawl is often characterized by a radial pattern of very low-density land development that spreads from an urban core and results in the reduction of open space (such as undeveloped and agricultural land), increased automobile and fossil fuel dependence, higher levels of pollution, and declining city centers. In addition, unconstrained sprawl adversely affects the region's rural landscape as well as its cities.

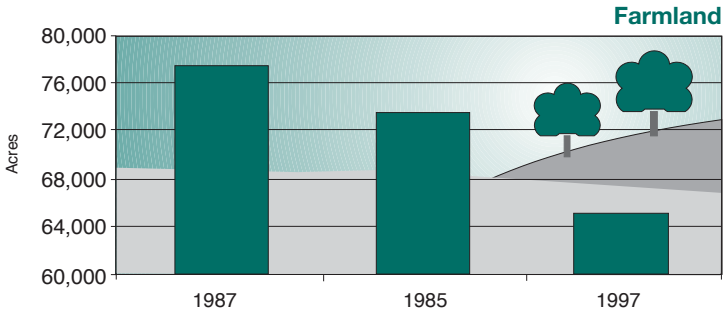
Despite the stable size of the population in the Pioneer Valley region, land use sprawl continues to occur, threatening the region's landscape and quality of life. From 1971 to 1999, the population per acre of residential land decreased from 8.18 persons to 5.93 persons. This reflects the region's overall low-density and decentralized land use pattern, with the region's outlying rural towns experiencing the greatest changes in residential density. Although less drastic than residential land density changes, the population per acre of undeveloped land increased from 1.06 persons to 1.16 persons. This change suggests that the amount of undeveloped land is decreasing and further implies a trend toward sprawl.



Source: Land USe Aerial Photographic Surveys 1971, 1985 and 1999

Indicator 32: Acres of Farmland

Among the Pioneer Valley region's greatest assets are its farms, farming landscapes, and agricultural products. While most of the region's population now lives in urban and suburban areas, there is a commonly held desire to preserve much of the Pioneer Valley region's remaining agricultural heritage and farmland. The desire to preserve farmland and other open space is fueled by the region's rich agricultural history and remains a priority for the Pioneer Valley region and most of its residents.

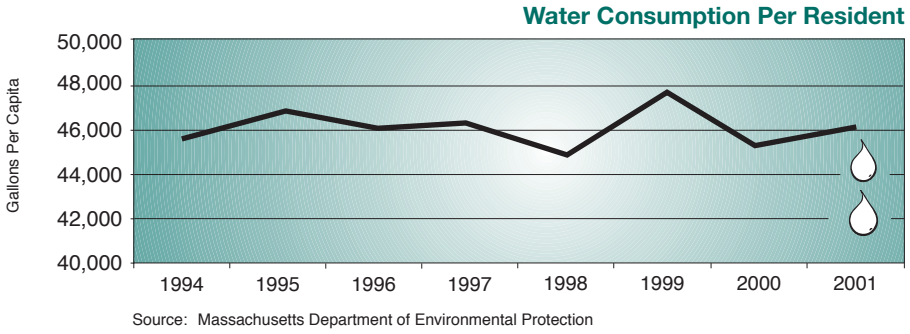


Source: Land Use Aerial Photographic Surveys 1971, 1985, and 1999

Between 1971 and 1999, the region experienced a 16 percent decrease in the acreage of agricultural land, with 12.7 percent of this decline occurring between 1985 and 1999. This alarming decrease is only slightly offset by a 4.5 percent increase in open space. Open space, whether in urban or rural areas, not only provides residents of the Pioneer Valley with picturesque natural beauty, it also serves as an excellent opportunity to preserve our region's natural resources and to sustain environmental quality and livability well into the future.

Indicator 33: Water Consumption

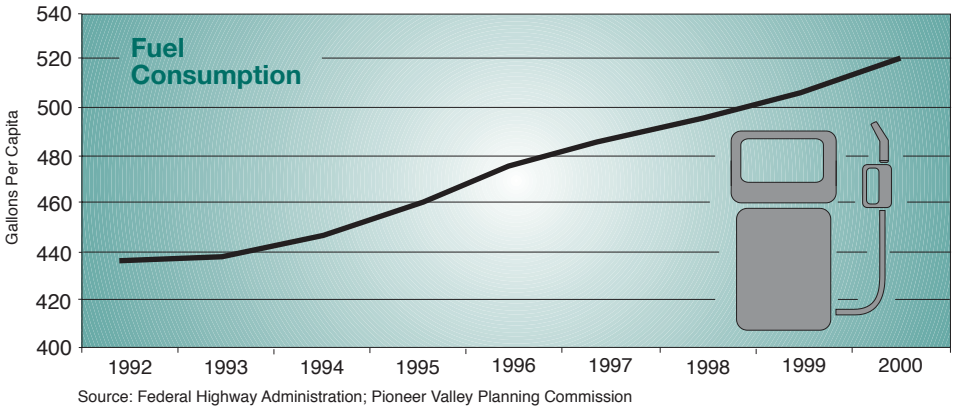
Residents of the Pioneer Valley appear to be consuming a relatively stable quantity of water. Over the past seven years, residential water consumption has fluctuated, averaging around 46,000 gallons per person per year. However, the data compiled for this measure is based on publicly reported water consumption and therefore does not include data for water that is consumed by residents who rely on private wells or other private sources of water.



Source: Massachusetts Department of Environmental Protection

Annual fluctuations are more likely attributable to calculation differences and changes in weather then to direct acts of conservation. In order to sustain our high quality of life, we must work together to implement policies and programs and put forth individual efforts to conserve one of our most precious natural resources.

Indicator 34: Motor Vehicle Fuel Consumption



Source: Federal Highway Administration; Pioneer Valley Planning Commission

The amount of fuel that Pioneer Valley residents consume to power their cars, SUVs, and trucks continues to climb. Since 1993, the number of gallons of fuel consumed annually has risen by almost 20 percent, or 82 gallons per capita, despite the region's steadfast efforts to provide public transportation, create or improve bike paths, and make streets more pedestrian friendly. Heightened fuel consumption is also a direct cause of increased vehicle exhaust emissions and air pollution. Thus, fuel consumption not only diminishes the current quality of life, it can also have serious consequences for future generations.

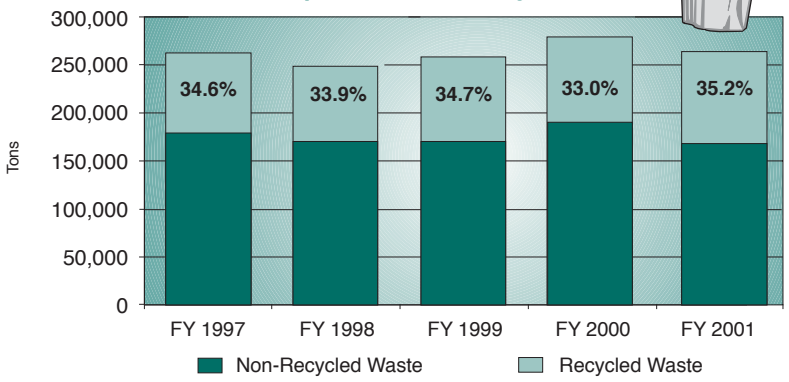
Indicator 35: Waste Generation and Recycling

The amount of solid waste generated in the Pioneer Valley region affects resource use as well as environmental quality. The mere fact that waste is generated means that some finite natural resources have been consumed. Additionally, the generated solid waste must be disposed of, either in one of the region's limited number of landfills or by incineration, both of which threaten environmental quality.

In fiscal year 2001, the region generated 6.7 percent less solid waste than in the previous fiscal year. However, those 256,799 tons of solid waste is still two percent higher than

the 251,556 tons produced in 1998. Regional waste generation works out to approximately 850 pounds of solid waste per person annually. Fortunately, we can mitigate some of our waste problem by recycling. The overall regional trend for the Pioneer Valley is to recycle approximately 35 percent of our solid waste. This recycling rate—the percentage of all waste that is recycled—remains below the Commonwealth's target of 46 percent, but is a positive development nonetheless.

Municipal Waste and Recycled Waste



Source: Massachusetts Department of Environmental Protection, Municipal Waste Reduction Program

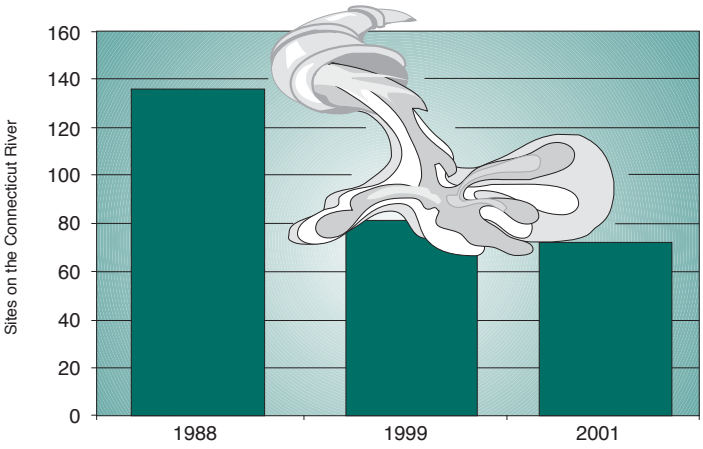
Indicator 36: Number of Combined Sewer Overflows

The Connecticut River is perhaps one of the region's greatest natural resources because it supports a vast ecosystem and provides the residents of the Pioneer Valley with a number of recreational opportunities. Unfortunately, the section of the Connecticut River that lies below the Holyoke Dam does not currently meet federally mandated Class B (fishable and swimmable) water quality standards.

One of the greatest threats to this natural resource is the pollution caused by older sewer systems that combine sanitary and stormwater lines, known as combined sewer overflows (CSOs). With every big rainstorm, torrents of stormwater overload sewer pipes and treatment facilities, sending millions of gallons of raw sewage into the river and raising bacterial levels and other pollutants in the river above acceptable federal levels.

In 1988, there were 134 known combined sewer overflows (CSOs) along the lower Connecticut River and its major tributaries. Over the past decade, many Pioneer Valley communities have made substantial progress toward eliminating these environmental hazards. As of 1999, the number of CSOs found below the Holyoke Dam had dropped to 81, a 40 percent reduction. Impressively, by 2001, the number of CSOs further declined to 78. Despite this improvement, the lower Connecticut River still does not meet federally mandated water quality standards, and the costs of further cleanup appear formidable.

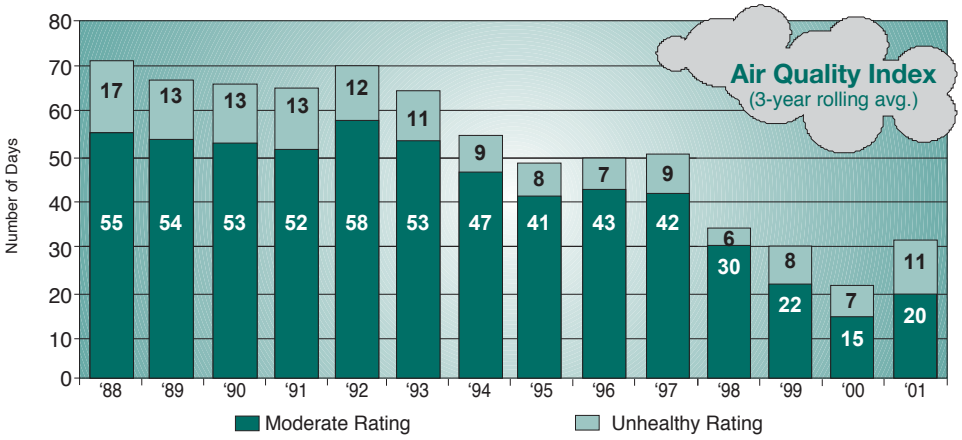
Number of Combined Sewer Overflows (CSOs)



Source: Pioneer Valley Planning Commission

Indicator 37: Air Quality Index

Air pollution affects everyone, but several populations are much more susceptible to its adverse health effects, including children, the elderly, people with respiratory problems, and people who spend a significant amount of time outdoors. Beyond health problems, severe air pollution can also impede visibility. Air quality is therefore an important regional indicator, because it can affect virtually everyone who lives and works in the Pioneer Valley region.



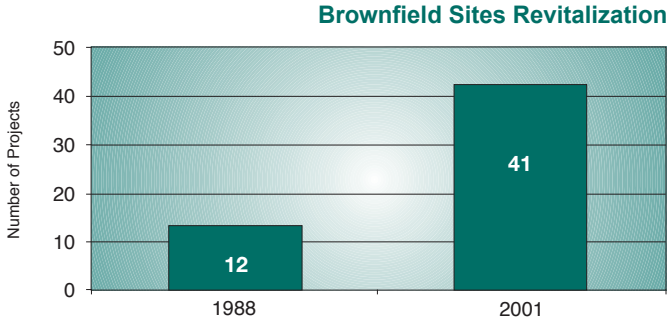
Source: Federal Environmental Protection Agency, Massachusetts Department of Environmental Protection

The Air Quality Index (AQI) is used as the measure of overall air quality because it measures air quality as it relates to several pollutants, such as ozone, carbon monoxide, and fine particulate matter. To minimize the effect of particularly hot or cool summers on the reported AQI this indicator is reported in three-year rolling averages. Additionally, because the U.S. Environmental Protection Agency recently established more stringent air quality standards, we report the AQI restated to the new standards for prior years.

During most of the 1990s, the region's air quality has been improving. Early in the decade, the number of unhealthy (classified as both "unhealthy" and "very unhealthy") days per year was in the double digits. During the latter part of the decade, the total number of unhealthy and moderate air quality days was consistently lower. The number of days with alarming air quality index scores has decreased by 59 percent, from a high of 76 total days in 1988, to only 31 days in 2001.

Indicator 38: Brownfield Sites

Brownfield sites are abandoned, idled, vacant, or underutilized former industrial and commercial sites whose redevelopment is limited by real or perceived environmental contamination. Finding new owners to redevelop brownfields is a major challenge because of concern over environmental conditions and the associated legal and financial liability. In 2001, there were 518 brownfield sites in the Pioneer Valley region, 54 of which were identified as significant priorities for redevelopment.



Source: Massachusetts Department of Environmental Protection, Brownfields Reports

The 1998 Brownfields Act established new incentives to encourage parties to clean up and redevelop contaminated property in Massachusetts. Most of the brownfield financial initiatives created under the Act have only recently begun operating; therefore, quantifiable data in connection with these programs is limited. However, brownfield revitalization projects have begun to produce environmental protection and economic gains as municipalities, corporations, and individuals throughout the region begin to take advantage of available funding and economic incentives.

Citizen Feedback Form

Did this report discuss issues you find important to the quality of your life?
Yes____ No_____

Which of the indicators included in this report are the most important to you?
Please list them in order of importance, with the most important first.

1. _____
2. _____
3. _____
4. _____
5. _____

What indicators would you have liked to see included in this report?

1. _____
2. _____
3. _____
4. _____
5. _____

What is your overall impression of this report?

Additional comments:

Please return form to: Pioneer Valley Planning Commission
Attn.: Paul Foster
26 Central Street – Suite 34
West Springfield, MA 01089-2787