pennsylvania
GOVERNOR'S CENTER FOR
LOCAL GOVERNMENT SERVICES

STATE LAND USE and GROWTH MANAGEMENT REPORT

2010

Fellow Pennsylvanians:

The Governor's Center for Local Government Services has an important statutory responsibility to report on land use and growth management trends in the Commonwealth every five years. This report fulfills that responsibility. It is the first update after the inaugural report in 2005.

The report talks about change. The latter half of the decade brought an economic recession and with it dramatic declines in building and development in Pennsylvania—plus more fiscal stress for state and local governments. Pennsylvania's population is one of the oldest in the nation. The average size of households continues to decrease as they are more comprised of one or two persons and less of families with children. Our state is diverse and land use issues vary from region to region. Marcellus Shale natural gas, not foreseen in the 2005 report, is a major issue today.

Planning and the character of land use and development play an important role in addressing the above issues. Pennsylvania and its communities need to look to the future; understand demographic, market, and technological changes; and be ahead of others in embracing new economic opportunities presented by these changes. We need to understand which community assets are most critical to both retaining and attracting people and businesses. These include not only basic infrastructure and services, but also historical, cultural, and natural features that make Pennsylvania stand out as a place to live, work, and enjoy. State and local governments must act strategically and cooperatively to invest shrinking resources in these priority assets.

I trust you will find the report insightful as we work collaboratively to address land use issues in a way that will provide all Pennsylvanians with the highest quality of life possible, whether they live in a rural community, a small town, a suburb, or a city. The Governor's Center for Local Government Services looks forward to working with state agencies, local governments, the business community, and other stakeholders to review the findings and put the recommendations into action.

Fred Reddig
Executive Director
Governor's Center for Local Government Services

Executive Summary

The 2010 State Land Use and Growth Management Report builds on the work of the inaugural 2005 report with an assessment of statewide and regional growth and development patterns and an evaluation of major contemporary land use issues. This report provides several new recommendations—and opportunities for the Commonwealth to positively impact future growth and development patterns.

State Land Use and Growth Management Report

"A comprehensive land use and growth management report to be prepared by the Center for Local Government Services and which shall contain information, data and conclusions regarding growth and development patterns in this Commonwealth and which will offer recommendations to Commonwealth agencies for coordination of executive action, regulation and programs."

-Pennsylvania Municipalities Planning Code Section 107

Major Findings and Themes of the 2010 Report

PRE-RECESSION – DEVELOPMENT OUTPACED GROWTH

Prior to the current recession (pre-2008), the principal trend identified in the 2005 Land Use and Growth Management Report was still evident—Pennsylvania was developing but not growing. The most current (2005) land data from aerial imagery showed significant increases in developed land, mainly in suburbs and exurbs, at a time when population and the economy showed minimal growth.

- Between 1992 and 2005, urban (developed) land in Pennsylvania increased by 131.4 percent, from approximately 1.2 million acres in 1992 to almost 2.8 million acres in 2005. During this same time frame, Pennsylvania's population only grew 4.5 percent. The economy, in terms of GDP constant dollars, grew 33 percent.
- Pennsylvania's population grew by 3.4 percent between 2000 and 2010, compared to 9.7 percent national growth, and ranked 47th in the nation for natural increase (the addition of births and subtraction of deaths) between 2000 and 2009.
- Since 2000, city/borough population decreased at a slower pace and township population increased at a slower rate than in the prior three decades. The decentralizing pattern slowed, but continued.

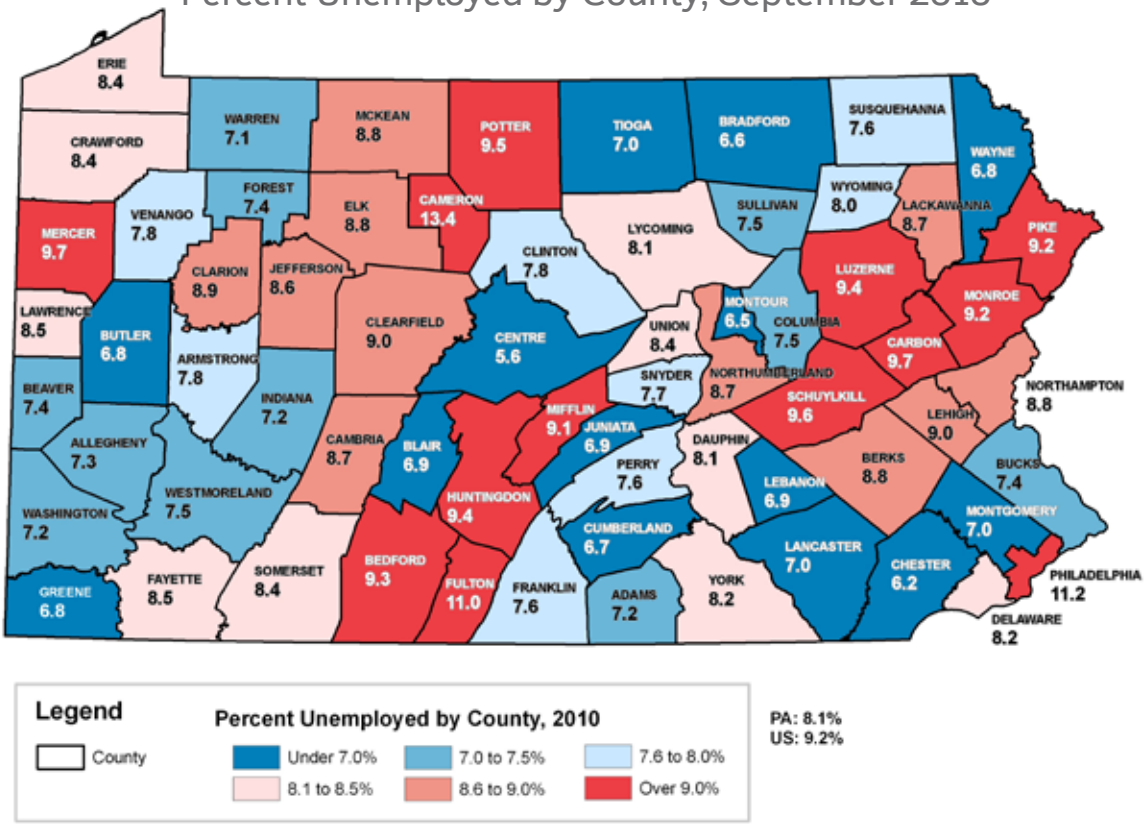
Pennsylvania is growing slower than the nation, but consistent with the Northeast region.

RECESSION – POOR ECONOMY AND DRAMATIC DROP IN DEVELOPMENT

In 2008 and 2009 during the nationwide recession, Pennsylvania's economy as measured by GDP declined, unemployment increased, and development activity dropped precipitously. The number of residential building permits reached lows not seen in 50 years. Subdivision and land development activity slowed considerably throughout the state. Despite the decline, indicators show that what little development occurred was located mainly in suburbs, exurbs, and rural areas.

- In September 2010, the state unemployment rate was 8.1 percent, compared to the June 2007 unemployment rate of 4.4 percent.
- Between 2007 and 2009, the number of new residential building permits declined approximately 46 percent. However, Pennsylvania fared slightly better than the national rate of decline of 58 percent.
- A 2010 survey of county planning agencies shows subdivision and land development activity is down in 83 percent of Pennsylvania counties since January 2008.

Percent Unemployed by County, September 2010



Source: U.S. Bureau of Labor Statistics

CHANGING DEMOGRAPHIC DEMANDS

Demographic shifts affect future land use and the character of development. Pennsylvania already has a large proportion of senior citizens compared to other states—a trend which will continue. This trend will impact land use due to seniors' less mobile lifestyle; desire for closer-to-home health care and services; need for smaller, more community-connected housing; and preferred recreations. With the number of deaths approaching the number of births, for Pennsylvania to grow, its communities will need to be attractive to people outside of the state. The principal component of population change in the last decade has been in-migration from other countries, not other states, and in-migrants have been less educated and of lower income than out-migrants.

- In 2009, Pennsylvania ranked 6th in the nation with a median age of 39.9.
- Currently one out of every five Pennsylvanians is over the age of 60. By 2020 it is projected that this age group will account for 25 percent of the state's population.
- Pennsylvania's low tax burden coupled with a relatively low cost of living for the region makes it an attractive place for seniors to live and retire.
- Pennsylvania cities, boroughs, and older suburbs offer urban lifestyle opportunities which are increasingly becoming more popular among the 45-and-older baby boomer population. These communities also provide potential health benefits by offering more opportunities to walk.
- The average size of households continues to decrease as they are more comprised of one or two persons and less of families with children.

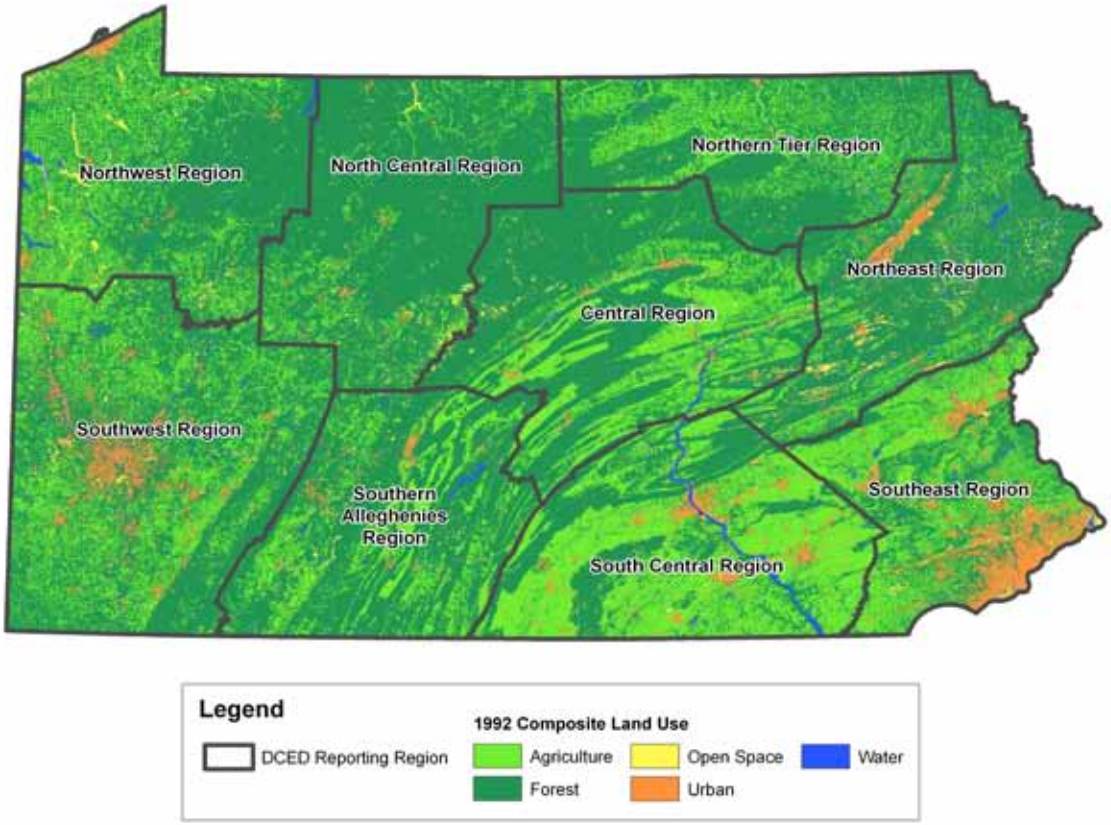
PLANNING ISSUES VARY WIDELY BY REGION

Pennsylvania is a tale of two states. Data and maps regularly depict a dividing line running from South Central Pennsylvania up through the Lehigh Valley and the Poconos. Areas to the south and east are experiencing more growth, better economic indicators, and a younger population than to the north and west. Clearly a one-size-fits-all policy approach won't work.

- Between 1970 and 2007, the Southeast and South Central regions experienced the greatest increase in population and housing, whereas the Southern Alleghenies and Southwest regions saw a loss in population and an increase in housing units.
- Pennsylvania's total developed land area increased from 4.1 percent of the state's total land area in 1992 to 9.6 percent in 2005—with the most significant acreage increases occurring in the Southeast and South Central regions. A total of approximately 500,000 acres of agricultural land was lost to development within these two regions.
- The Southeast region experienced the greatest percentage loss in acres of forest to developed land (20.4 percent), while three regions (Northern Tier, North Central, and Central) experienced less than a 2 percent loss. The Southeast Region also had the greatest percentage loss of acres of agricultural land to developed land (24.4 percent), while the Northern Tier had the lowest percentage loss with 4.9 percent.

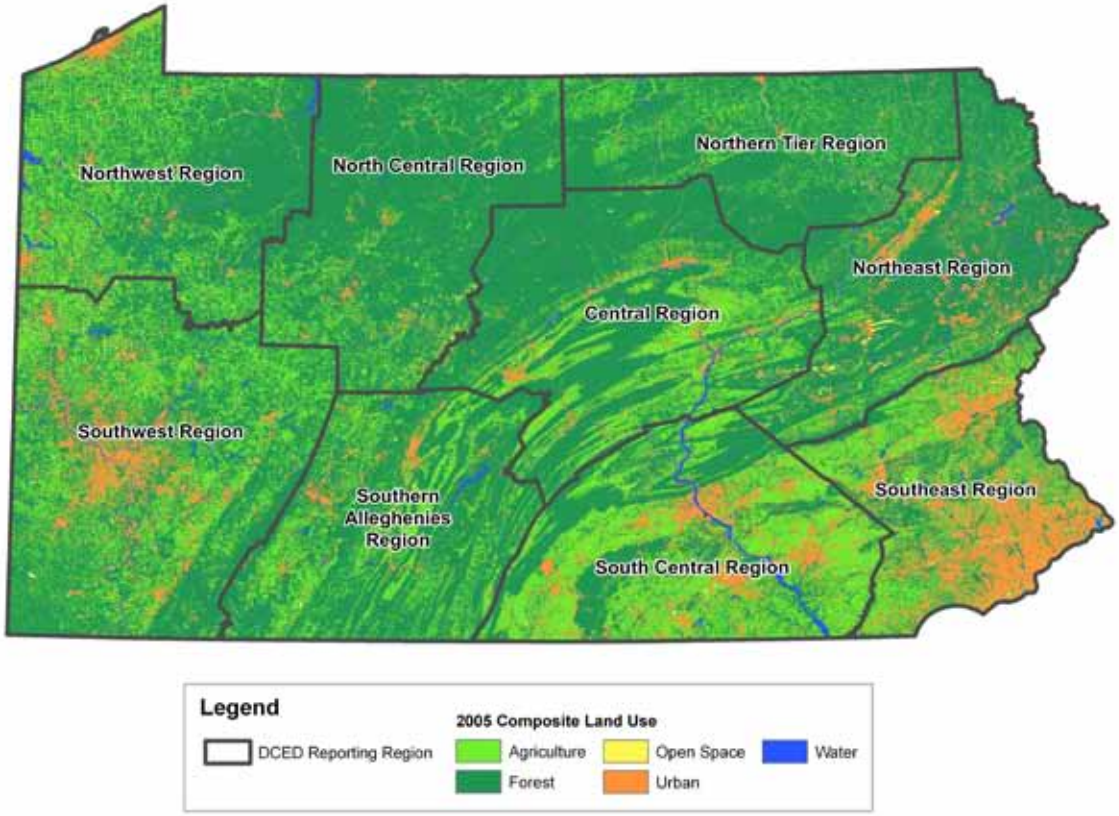
Pennsylvania's different regions and municipality types are growing at different rates and changing in different ways.

Land Cover Composite Map of Pennsylvania, 1992



Source: U.S. Geological Survey

Land Cover Composite Map of Pennsylvania, 2005



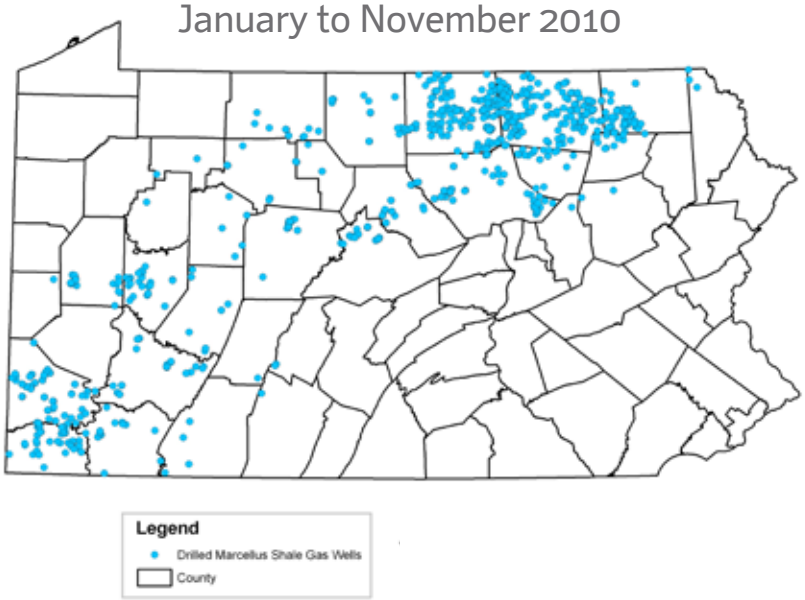
Source: U.S. Geological Survey

NATURAL RESOURCE MANAGEMENT AND GROWTH

There are large-scale natural resource issues that will have an impact on land use and development. This includes major natural gas exploration and well activity related to the Marcellus Shale, Total Maximum Daily Load (TMDL) for the Chesapeake Bay Program (and potentially for other watersheds in the future), and energy costs and demands for conservation.

- Sudden expansion in the natural gas industry is introducing environmental, infrastructure, economic, and social impacts, as well as an influx in population to primarily rural areas of the state.
- Bradford, Susquehanna, and Tioga counties are likely to continue as "hot spots" for Marcellus Shale activity in the next several years.

Marcellus Shale Gas Wells Drilled, January to November 2010



Source: Pennsylvania Department of Environmental Protection

INADEQUATE CAPACITY TO ADDRESS GROWING NEEDS

Government fiscal capacity to deal with these matters is declining at both the state and local levels. At the local government level, the burdens of employee pensions and health care, energy costs, and growing government responsibilities are forcing deferred maintenance of infrastructure (roads, water and sewer systems, and parks) and service cuts. Reliable infrastructure is critical to a community's ability to attract investment in homes and businesses. Fiscal stress is becoming more of a reality for all levels of government, not just inner cities and boroughs.

- In 2008, 44.5 percent of municipalities were operating at a deficit. More than half (58.4 percent) of Pennsylvania's cities fell into this category as did 50 percent of townships of the first class. Many boroughs (44 percent) and townships of the second class (43.4 percent) were also operating at a deficit.
- As of November 2010, 19 municipalities (11 cities, 6 boroughs, and 2 townships) were classified as Act 47 distressed communities.
- Existing annual unmet transportation needs are estimated to total $2.3 billion (local and state needs), rising to almost $5 billion by 2020. Water and wastewater systems have combined capital needs of $36.5 billion in the next 20 years.
- Land Use Planning and Technical Assistance Program (LUPTAP) grants have been provided to 470 local government grantees and 25 regional or statewide grantees since the start of the program in 2000. Budget cuts beginning in fiscal year 2009-2010 reduced LUPTAP funding to less than 10 percent of prior levels, limiting planning help available to local governments.

In 2008,
44.5 percent of municipalities were operating at a deficit.

Areas of Recommendation…
Opportunities for the Future Pennsylvania

Planning is a Local Government Function

In Pennsylvania, planning and regulation of land use and development are—appropriately—local government functions. It makes sense for multiple municipalities to work together to deal with issues that cross municipal boundaries, such as economic and development markets, transportation, and environmental systems.

Planning is Essential

Community planning is an essential local government function, even though not mandated by state law (in most instances). Planning is how a community learns of and adapts to change. It sets priorities for community services and improvements most important for attracting people and businesses. It guides spending decisions. A well-done plan is the springboard for desired development and community improvements.

Recommendation Area 1: Local Governments Need Resources for Planning

The track record shows that where the Commonwealth, counties, or local organizations provide funding and hands-on technical assistance, local government plans get results—community revitalization projects, better designed development, innovative development regulations, and investments in priority infrastructure and community assets.

Opportunities for the Commonwealth:

- Develop and maintain a best practices web resource library to share successful practices in planning.
- Enhance planning guidance and develop a training program.
- Coordinate geospatial data and technologies to better inform and assist local governments in decision making.
- Continue the State Planning Board as a non-partisan forum for assessing needs related to land use and growth management.
- Continue the Interagency Land Use Team as a coordination point for state agency funding and permitting actions related to land use and growth management.
- Continue DCED's Land Use Planning and Technical Assistance Program.

Pennsylvania's **Land Use Planning and Technical Assistance Program (LUPTAP)** has a 10-year record of success, and has funded:

- comprehensive plans for 46 counties, 142 partnerships of multiple municipalities, and 69 individual municipalities;
- 74 projects to modernize and improve land use ordinances; and
- 164 strategic plans spurring economic development, revitalization, and community improvements in downtowns, highway corridors, and small communities.

Recommendation Area 2: Strategic Investment

A strategic approach to investment is crucial to the future of Pennsylvania's communities. It is fiscally smart, if not absolutely necessary. It focuses a community's limited resources on assets most critical to attracting desired development and enhancing quality of life. It results in a win-win of development that both provides real economic growth and is sustainable over the long term.

Opportunities for the Commonwealth:

- Evaluate the effectiveness of the Keystone Principles and Criteria and continue to implement them through state agency programs.
- Continue the Community Action Team (CAT) approach to deliver Commonwealth financial and technical assistance to local governments.
- Target state investments to important assets identified through local community planning.
- Provide flexible revenue sources for local governments beyond real estate and income taxes.
- Reevaluate and strengthen Commonwealth infrastructure financing programs.

The Keystone Principles and Criteria were developed by the Interagency Land Use Team and adopted in 2005 by the Governor's Economic Development Cabinet. They include 10 basic principles, a set of core criteria, and preferential criteria for each principle. Twenty-three state agencies have incorporated them as evaluation or scoring factors in financing programs.

Recommendation Area 3: Green and Walkable

Pennsylvania's growth opportunity is green and walkable. Changing demographics suggest there is an emerging market for development that is green (energy and environmentally conscious) and walkable (compact, affordable, mixed-use, and favoring pedestrians). This is a win-win scenario. Pennsylvania CAN attract growth AND sprawl less.

Opportunities for the Commonwealth:

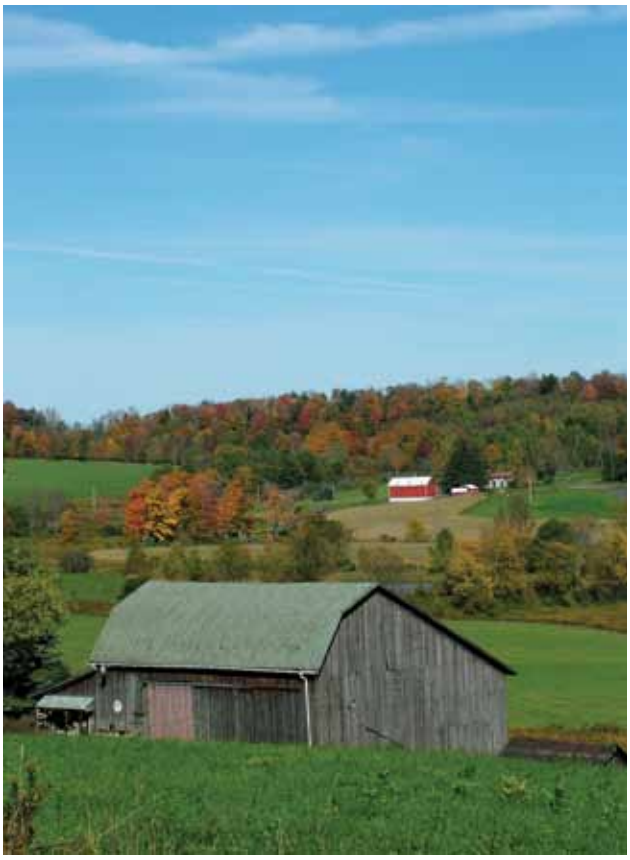
- Embrace a policy to facilitate green and walkable development and capture related market opportunities.
- Realign state funding, program, and permitting priorities to assist green and walkable development throughout the state.
- Promote standards and tools for green and walkable development such as LEED, LEED-ND, revised local zoning and development ordinances, expedited permitting, and tax and development bonuses.
- Establish a designation program to encourage communities to become greener and more walkable—a designation that can be marketed to attract residents and businesses.

Green and walkable development can occur in all community types—cities, boroughs, and townships of all sizes. It can take the form of redevelopment, infill, and greenfield development.

Recommendation Area 4: Emerging Areas

Five other emerging issue recommendation areas identified in the 2010 report include:

- Marcellus Shale Natural Gas Industry – Provide financial and technical assistance to help local governments address impacts.
- Resource Protection Programs – Initiate a state effort to better integrate natural resource and farmland protection programs.
- Chesapeake Bay Program – Monitor impacts of TMDL implementation on land use and development.
- Intergovernmental Cooperation – Continue to offer state aid for shared local government services and programs, and promote more options for voluntary intergovernmental initiatives.
- Development Permitting Processes – Convene a discussion on ways to streamline and coordinate development permitting processes.



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Introduction

In 2000, Acts 67 and 68 brought the most extensive amendments to the Pennsylvania Municipalities Planning Code (MPC) since 1988. Changes included the requirement of general consistency among county and municipal comprehensive plans, enhancements to encourage multimunicipal planning, and the requirement that the Governor's Center for Local Government Services (GCLGS) issue a Land Use and Growth Management Report by 2005 and a report update every 5 years thereafter (MPC, Section 307).

The 2005 report provided an assessment of statewide and regional growth and development patterns, plus strategic policy recommendations. The 2010 report builds on the work of the inaugural report with an evaluation of the primary contemporary land use issues, significant historic and projected trends, and statewide and regional development patterns. The report is organized into three sections to provide background and trend data, as well as a summary of future projections:

- Socioeconomic Setting
- Land Use and Natural Resource Trends and Sustainability
- Government Capacity

This report also calls attention to a number of new recommendations, or specific opportunities for the Commonwealth to positively impact future growth and development patterns.

Preparation of this Report

This report was prepared by GCLGS with contracted assistance from a private consulting team led by PB Americas, Inc. The consultant team researched recent relevant reports and data sources (see endnotes) to identify significant land use issues and potential solutions for the Commonwealth to undertake. A web-based survey of county planning directors was conducted to verify the leading land use issues found throughout the various regions of the state. Data and findings were discussed at two work sessions of a project steering committee comprised of the Pennsylvania State Planning Board and additional state agency and local government representatives. And, there were two work sessions involving the steering committee and interested stakeholders from private business, economic development, building and development, real estate, conservation, and planning.

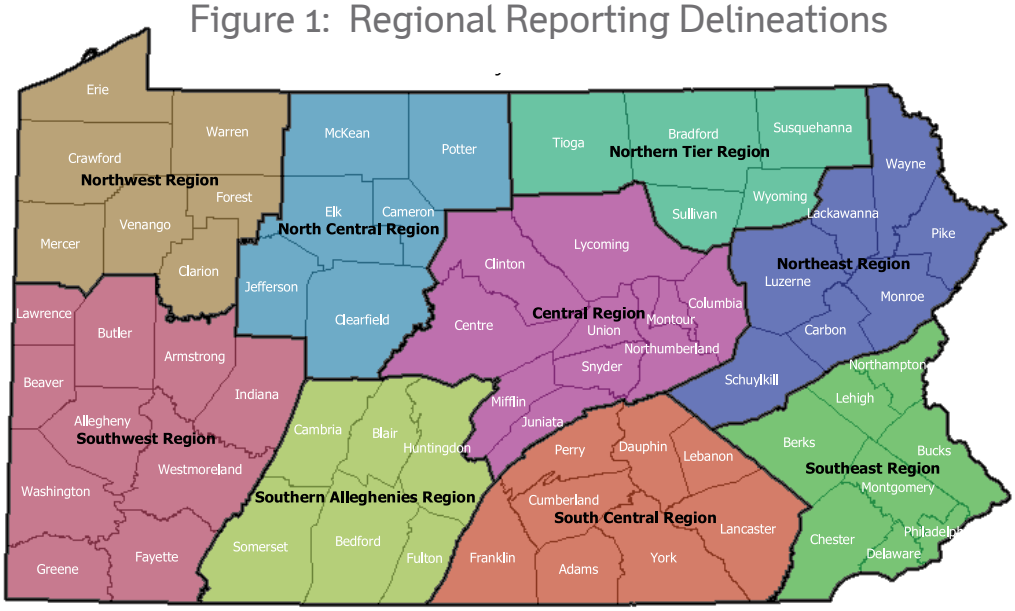
Steering Committee Members

- Pennsylvania State Planning Board
- Pennsylvania Department of Conservation & Natural Resources
- Pennsylvania Department of Aging
- Pennsylvania Department of Labor & Industry
- Pennsylvania Department of Education
- Governor's Office of Policy
- County Commissioners Association of Pennsylvania
- Pennsylvania State Association of Boroughs
- Pennsylvania State Association of Township Commissioners
- Pennsylvania State Association of Township Supervisors
- Pennsylvania League of Cities and Municipalities
- American Planning Association Pennsylvania Chapter

Participating Stakeholders

- 10,000 Friends of Pennsylvania
- County Planning Directors Association of Pennsylvania
- PennFuture
- Pennsylvania Association of Housing & Redevelopment Authorities
- Pennsylvania Association of Local Development Districts
- Pennsylvania Association of Realtors
- Pennsylvania Builders Association
- Pennsylvania Business Council
- Pennsylvania Economic Development Association
- Pennsylvania Environmental Council
- Pennsylvania Infrastructure Investment Authority (Pennvest)
- Pennsylvania Land Trust Association
- Pennsylvania State Data Center
- Team PA Foundation

Figure 1: Regional Reporting Delineations



Source: Governor's Center for Local Government Services

Focused research was conducted by the project team to collect and analyze quantitative data to show historic and projected trends for the top identified land use issues. In addition, spatial data was obtained and used to prepare a selection of maps to reflect statewide and regional land cover changes from 1992 through 2005. The reporting regions used throughout this report are identical to the regions delineated for the 2005 report as illustrated in Figure 1.

Pennsylvania has 2,562 municipalities in 67 counties: 1,547 1st or 2nd class townships; 958 boroughs; 56 cities of the 1st, 2nd, or 3rd class; and one town. Sixty-five percent of municipalities are rural.

State Land Use and Growth Management Report

"A comprehensive land use and growth management report to be prepared by the Center for Local Government Services and which shall contain information, data and conclusions regarding growth and development patterns in this Commonwealth and which will offer recommendations to Commonwealth agencies for coordination of executive action, regulation and programs."

-Pennsylvania Municipalities Planning Code Section 107

Recommendations from the 2005 Report

The 2005 report made seven recommendations to address land use and growth management issues in Pennsylvania. Below is a progress report on implementation of the recommendations.

Recommendation – Improve Pennsylvania's geospatial technologies to guide community and economic investment decisions.

- Accomplishments – The PAMAP effort funded from multiple public sources and led by PA DCNR, plus PASDA (Pennsylvania Spatial Data Access) led cooperatively by Penn State University and the Commonwealth, have created and made available for broad use digital aerial imagery and elevation data across the Commonwealth.

Recommendation – Strengthen the capacity of county and municipal governments to address their growth and development issues.

- Accomplishments – DCED's Center for Local Government Services made changes to the Land Use Planning & Technical Assistance Program (LUPTAP) to promote more innovative and effective community plans, more intergovernmental cooperation, and more help to local governments to implement plans.

Recommendation – State agencies should coordinate funding and permitting decisions that have regional significance and impact.

- Accomplishments – Greatly increased coordination via the State Interagency Land Use Team and DCED's Community Action Team.

Recommendation – Conduct a comprehensive review of all state policies, programs, and regulations affecting land use planning to ensure they are consistent with Pennsylvania's newly adopted Keystone Principles.

- Accomplishments – 23 state agencies incorporated the Keystone Principles and Criteria into funding programs.

Recommendation – The State Planning Board should continue to monitor trends and issues related to Pennsylvania's land use, economic development, and growth patterns.

- Accomplishments – The Board completed a comprehensive report in 2006 and has been promoting proposals on governance and planning (voluntary municipal consolidation options enacted as Act 102 of 2010).

Recommendation – County and municipal governments should ensure their financial planning goals are linked and integrated with their community planning and economic development objectives.

- Accomplishments – GCLGS occasionally offers a training program on the topic and encourages integration by local governments of comprehensive plans with long-term fiscal plans using combined LUPTAP and EIP (Early Intervention Program) funding.

Recommendation – Promote and support collaborative efforts among and between necessary partners to strengthen municipal planning and economic development.

- Accomplishments – This is being encouraged by the State Interagency Land Use Team, DCED's Community Action Team, and revised LUPTAP guidelines.

Acknowledgements

Steering Committee

The Pennsylvania State Planning Board served as the core of the steering committee. There are 25 members—sixteen gubernatorial appointments, four legislative appointments (two from each party in each chamber), and five cabinet secretaries.

Gubernatorial Appointees

Chairperson – Judith Schwank, Dean, Agriculture and Environmental Sciences, Delaware Valley College, Doylestown

Vice Chairperson – Alexander J. Graziani, Executive Director, Smart Growth Partnership of Westmoreland County, Greensburg

Ronald Bailey, Executive Director, Chester County Planning Commission, West Chester

Jane Billings, Borough Manager, Swarthmore Borough

Michael E. Braxton, Major Gift Officer, Carnegie Mellon University, Pittsburgh

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Socioeconomic Setting

Pennsylvania is the 6th largest state in the nation but ranks 15th nationally in numeric increase—and 42nd in percent increase—in population since 2000. Although the Commonwealth's growth is similar to other Northeastern states, the state is growing at a slow pace compared to nationwide figures. Pennsylvania also continues to grow older. In 2000, the Commonwealth ranked second in the nation in percentage and fifth in number of residents aged 65 and above. By 2030, this sector is expected to make up 22.6 percent of the state's total population.

Pennsylvania's population and housing continue to show growth in the south and east while the north and west continue to lag behind. The suburban townships of Pennsylvania continue to grow while urban cities and boroughs continue to lose residents.

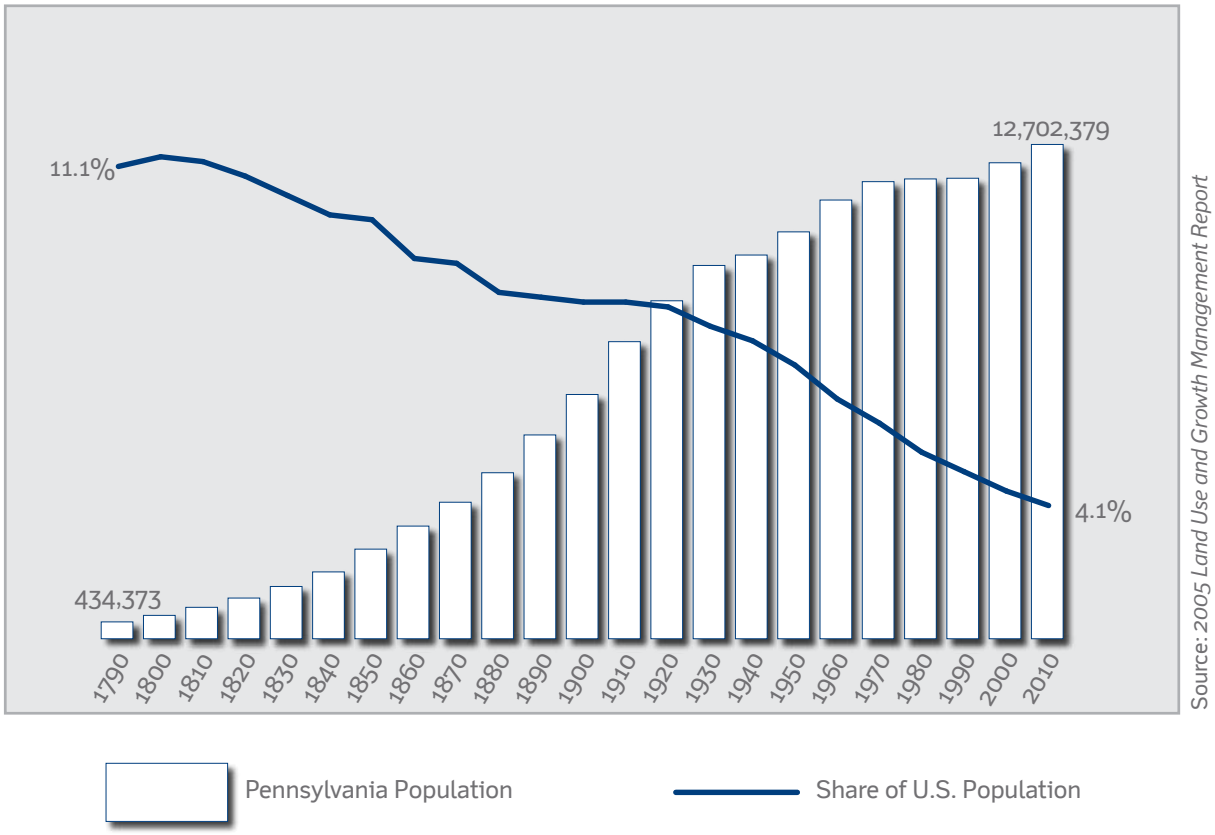
In recent decades Pennsylvania has maintained a relatively stable economy, though it has grown slower than the national economy and it declined along with the national economy in the late-2000s recession. Pennsylvania's economy will likely continue to shift away from manufacturing to service-oriented industries. However, there are promising employment opportunities in the growing biosciences and high-tech sectors along with the emerging industries of Marcellus Shale natural gas production and "green" jobs.

Population Growth

U.S. Census Bureau data shows that Pennsylvania experienced a relatively rapid increase in population through the early part of the 20th century (Figure 2), but population growth slowed in the latter part (Figure 3). Population growth was negligible in the 1970s and 1980s, but modest growth resumed in the 1990s and 2000s. The 2010 Census count is 12,702,379. Pennsylvania's growth rate in the last decade (3.4 percent) is comparable to the Northeast (3.2 percent), which includes states in both New England and the Mid-Atlantic. However, Pennsylvania's population growth continues to lag in comparison to the U.S. as a whole, and the state is making up a progressively smaller percentage of the national population (Figure 4). The shrinking proportion of population has caused Pennsylvania to lose at least one seat in the U.S. House of Representatives every decade since 1920. The latest census gives Pennsylvania 18 seats in the House—half of what it had in 1920.

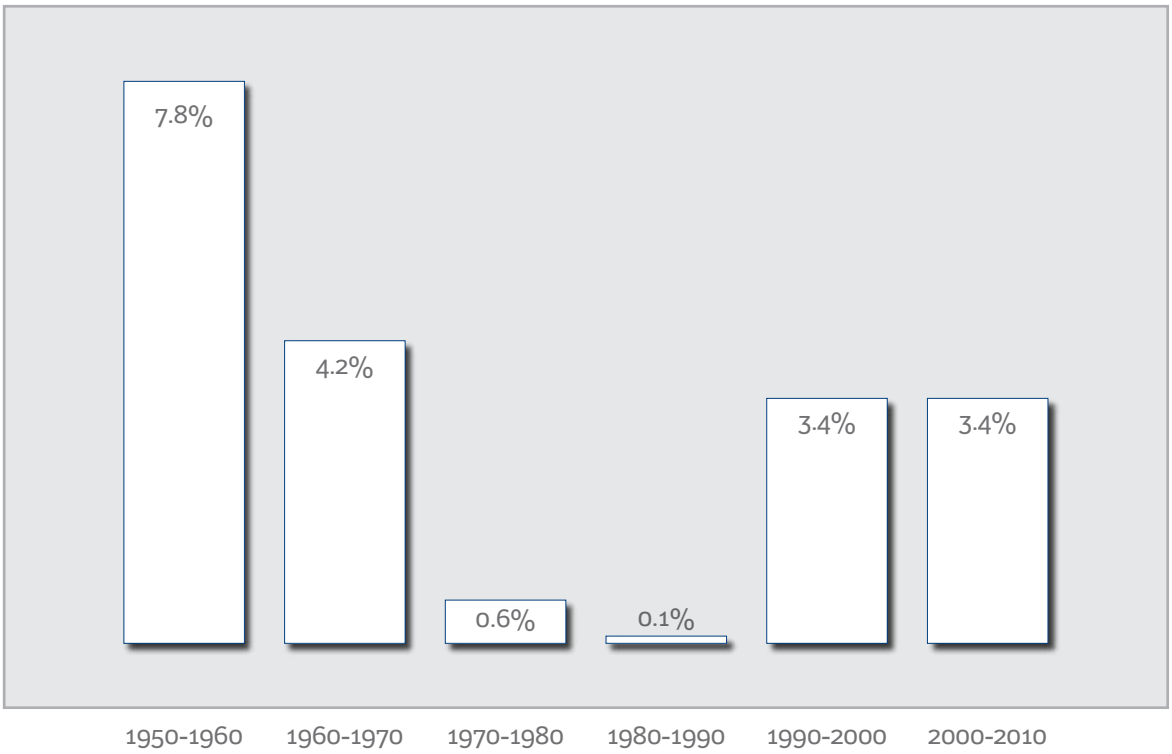
Pennsylvania is growing slower than the nation, but consistent with the Northeast region.

Figure 2: Pennsylvania Population and Share of U.S. Population, 1790-2010



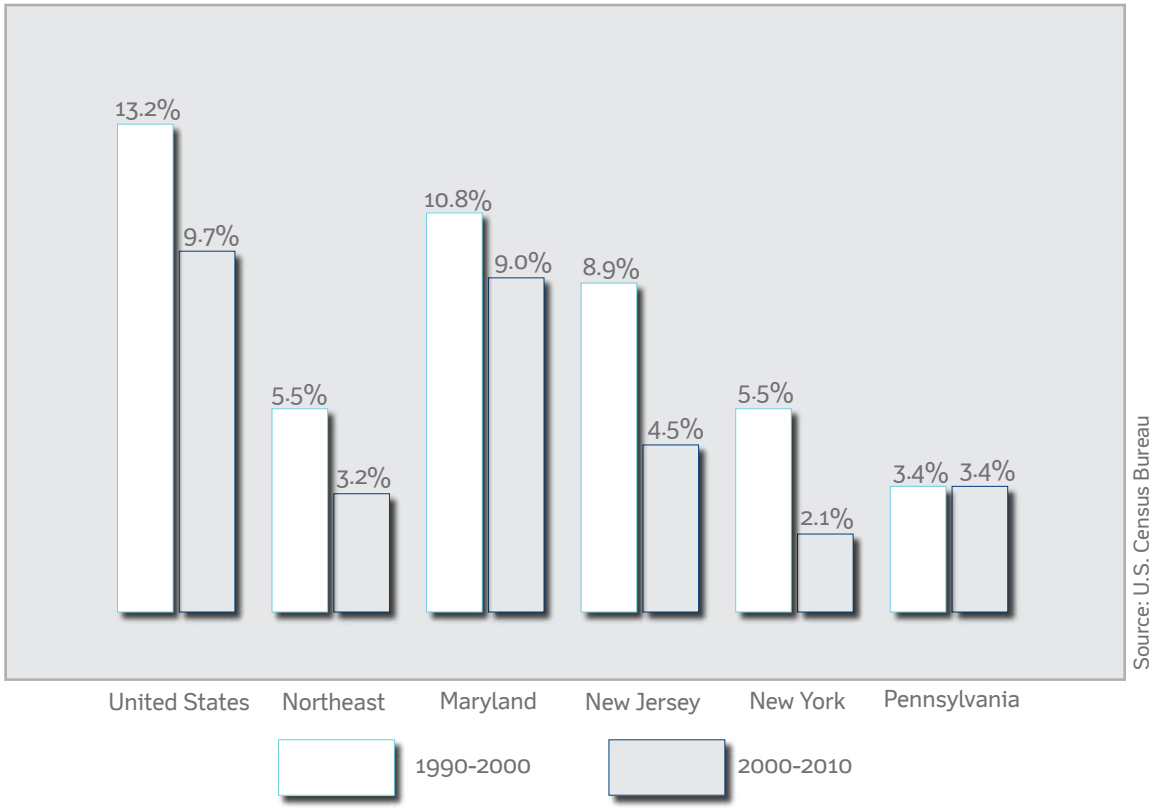
Source: *2005 Land Use and Growth Management Report*

Figure 3: Pennsylvania Population Change, 1950-2010



Source: U.S. Census Bureau

Figure 4: Regional Population Change, 1990-2010



The growth that has occurred in Pennsylvania can be largely attributed to international migration (people moving here from other countries). The state ranked 47th in the nation for natural increase (the addition of births and subtraction of deaths) between 2000 and 2009. During that time frame 32 counties experienced a natural decrease (more deaths than births). However, many of these losses have been compensated by in-migration, predominantly from other countries. Pennsylvania's population increased by 323,696 people during this period; 55 percent of those arrived from other countries. The counties of Chester, York, and Northampton experienced the largest total net in-migration while Philadelphia, Allegheny, and Erie counties experienced the largest population loss to out-migration.

Recent migration characteristics show out-migrants from Pennsylvania to be slightly older, more educated, and having larger income than persons moving into Pennsylvania. A small net domestic out-migration of young adults also occurred. This reflects the continuing trend from recent decades where Pennsylvania has experienced an out-migration of young educated residents.

Of the residents who remained in Pennsylvania, 87.4 percent lived in the same home as they had the previous year. According to the U.S. Census, Pennsylvania ranked fifth in the nation in the percentage of persons who did not move their residence during the previous year.

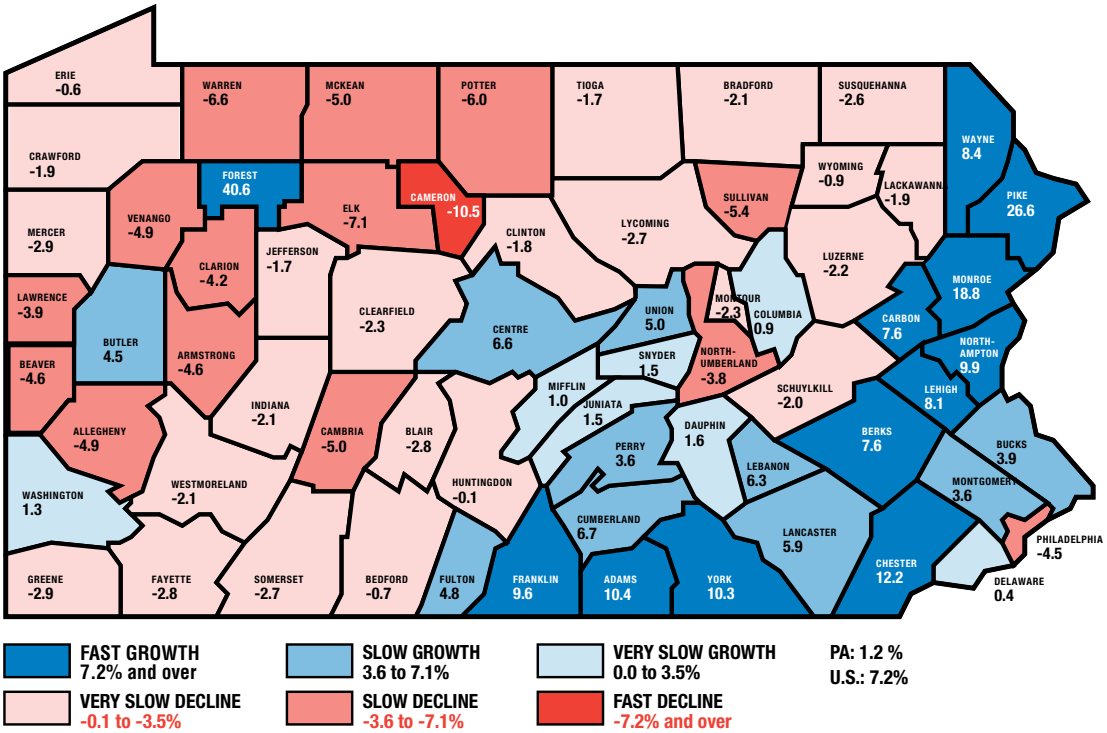
During the 2000-2010 time frame, Pennsylvania ranked 42nd nationally in population percent change.

Varying Patterns of Development

Pennsylvania's different regions and municipality types are growing at different rates and changing in different ways.

Pennsylvania is characterized by diverse geography and communities with varying patterns of development. Differences in population density and migration trends between counties and regions are rooted in disparate economic growth patterns. Between 2000 and 2007, the Northeast and South Central reporting regions were the primary growth areas of the state, as demonstrated by their net gain in population (Figure 5). Forest County had the largest percent population increase in the Commonwealth, primarily due to the mid-decade construction of a new state correctional institution. Conversely, the North Central region and several counties in the Southwest region experienced the greatest out-migration of residents to other Pennsylvania counties and to other states. The counties of Chester, Cumberland, Lebanon, and Pike led the state in percent population growth for 2008-2009 with 0.9 percent growth. The Lebanon Metropolitan Statistical Area was the fastest growing metropolitan statistical area in the state, and the 149th fastest-growing metro area in the country for 2009.

Figure 5: Estimated Percent Change in Population, 2000-2007



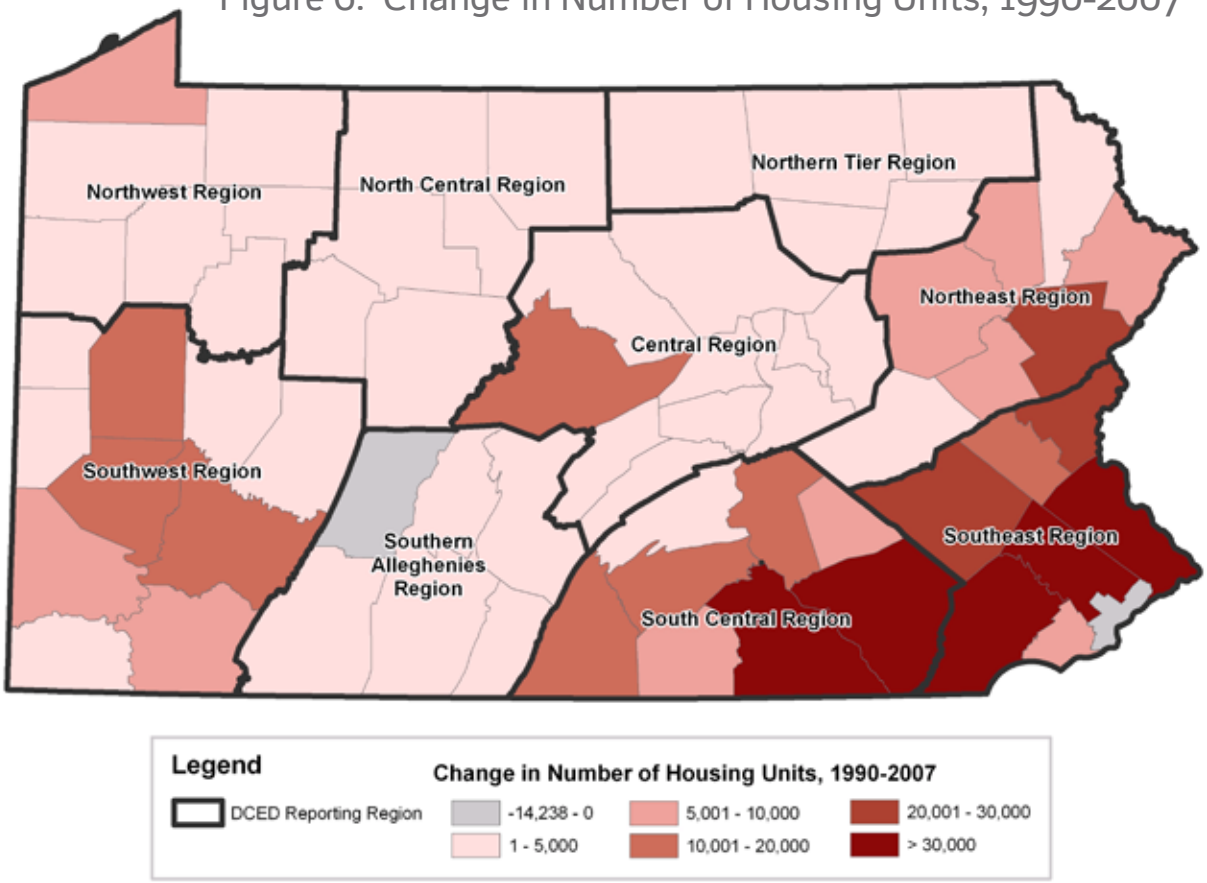
Source: *Pennsylvania: Road to Growth*, February 2009.

Housing versus Population Growth

Between 2000 and 2007, two counties in the Northeast region—Pike and Monroe—gained significantly higher percentage increases in housing units than the state average, Pike with a 15.6 percent increase and Monroe with a 16.1 percent gain.[1] This dramatic increase in housing construction likely reveals a continuation of the interstate migration pattern experienced in this corner of Pennsylvania. Chester, York, and Montgomery counties were the top three counties in terms of the absolute number of housing units built.[2] In contrast, the western portion of the state saw proportionately small increases in housing units since the early 2000s.

Pennsylvania population increased by 4.6 percent between 1990 and 2007, yet the state experienced a 10.9 percent increase in the number of housing units during the same time frame. Growth in housing units for Pennsylvania slightly surpassed New York (9.9 percent) and was relatively comparable to housing growth in New Jersey (13.8 percent). However, housing growth was relatively limited in comparison to the neighboring state of Maryland (22.5 percent). Every county except Philadelphia and Cambria increased in total number of housing units. The degree of housing growth varied greatly across the state as illustrated in Figure 6. With the exception of the City of Philadelphia, the eastern and south central portions of the state experienced the greatest amount of housing growth. The counties of Butler, Allegheny, and Westmoreland in the Southwest region and Centre County in the Central region also gained more than 30,000 housing units.

Figure 6: Change in Number of Housing Units, 1990-2007

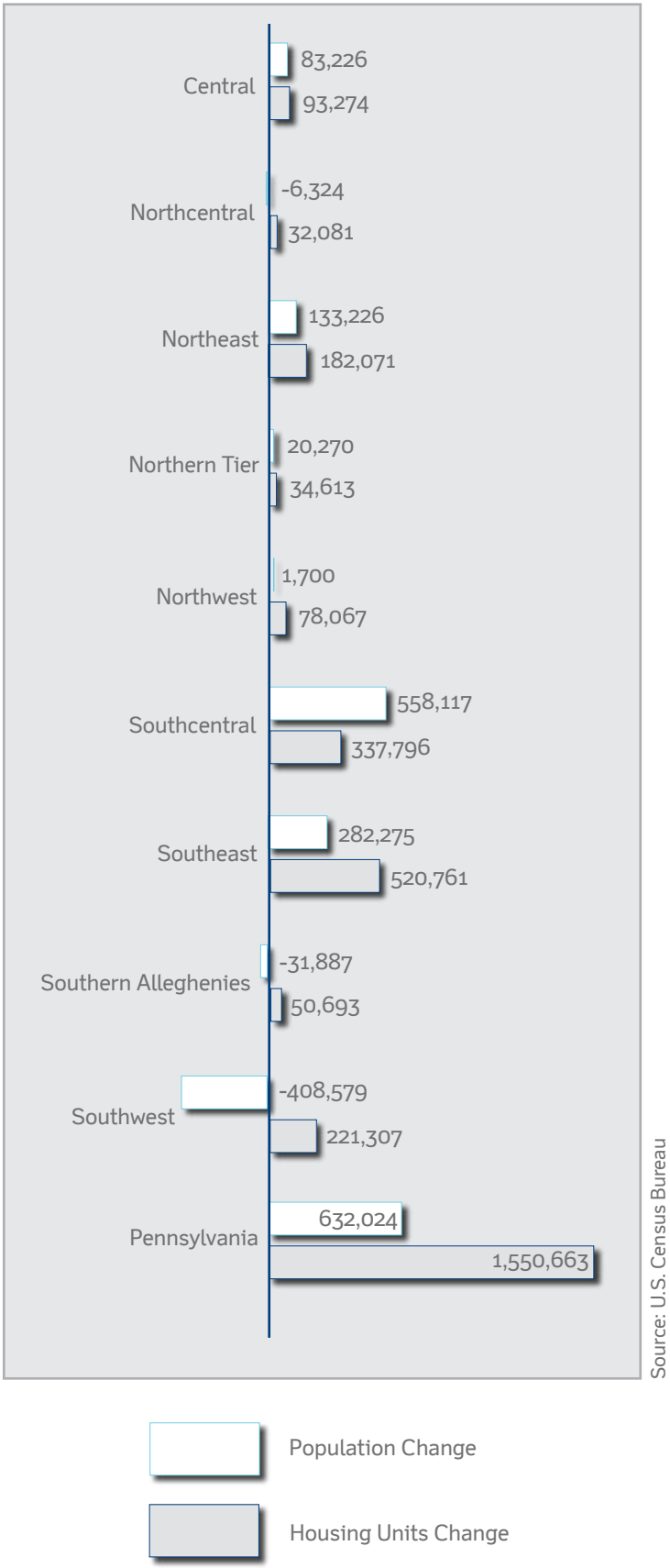


Sources: U.S. Census Bureau; Pennsylvania State Data Center, May 2001. Compiled by the Pennsylvania Department of Aging

A look at a longer trend (1970-2007) in housing and population by region supports the more recent trend discussed above. Figure 7 compares population and housing growth within and across each region. Similar to the more recent trend, the greatest increases in population and housing units occurred in the eastern and south central portions of the state while the northern portions of the state have shown minimal growth since 1970. However, note that housing growth exceeded population growth in every region of the state, with housing increases even present in regions with net population loss.

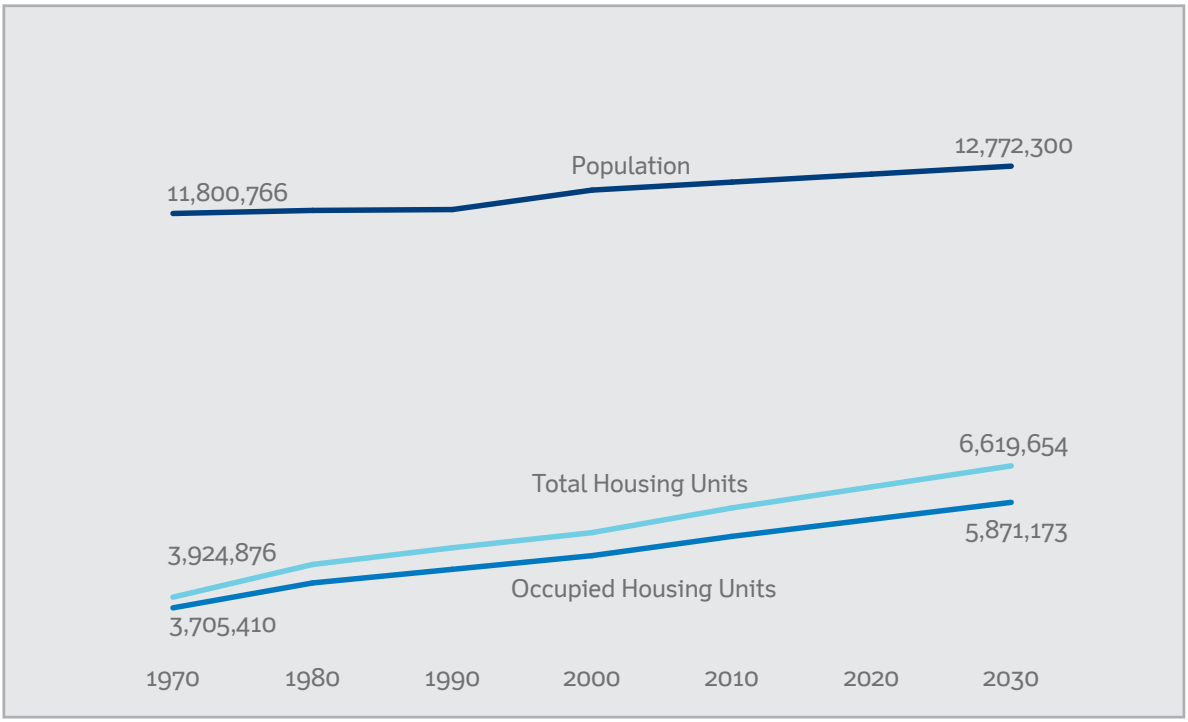
An uptick in new housing construction and rehabilitation in cities and boroughs occurred between 2000 and 2004, with 22.5 percent more housing permits issued during that time period than between 1995 and 1999.[3] However, due to the recent economic recession, the number of new residential building permits declined approximately 46 percent in both rural and urban Pennsylvania counties between 2007 and 2009. Pennsylvania fared slightly better than the national rate of decline of 58 percent. In 2009, one residential permit for every 600 residents was issued in the rural counties of Pennsylvania and one for every 730 residents was issued in urban counties. The national average for residential construction was one permit for every 527 residents.[4]

Figure 7: Change in Population and Housing Units, 1970-2007



Source: U.S. Census Bureau

Figure 8: Pennsylvania Population and Housing Trends, 1970-2030



Sources: U.S. Census Bureau; PB Americas, Inc.
(For years 2010 and beyond - linear growth is assumed for housing based on 1970-2000 census data.)

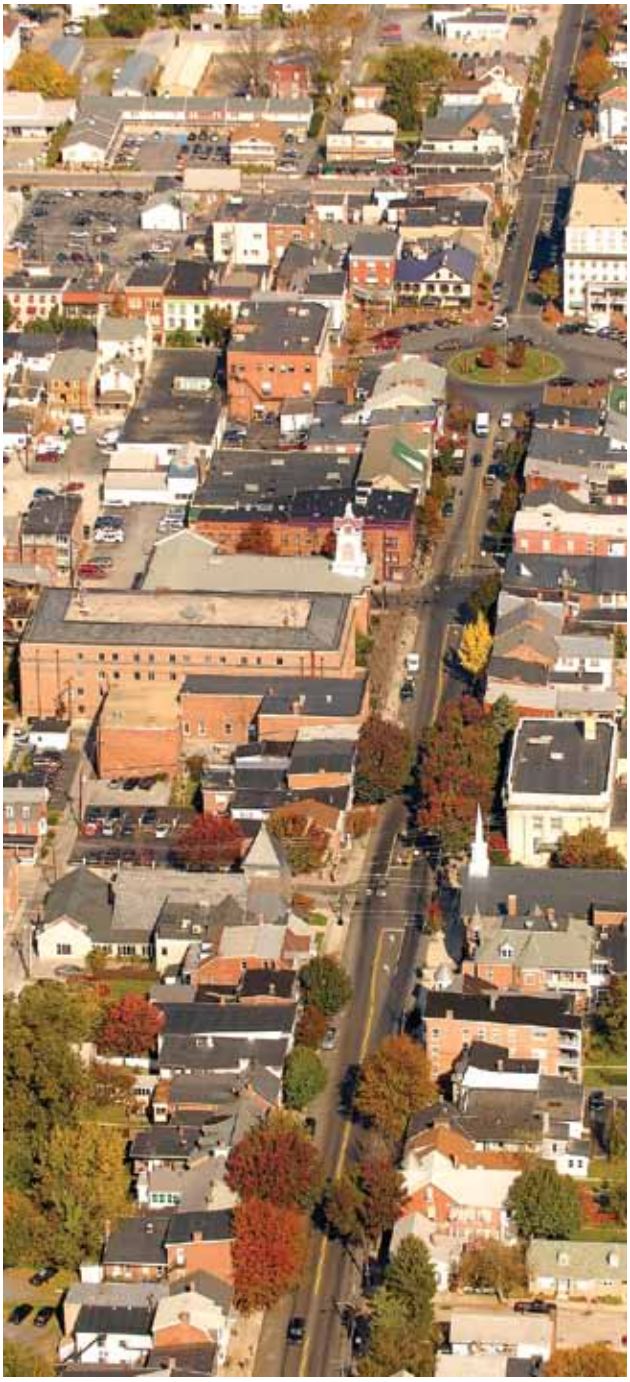
The Pennsylvania trend in housing growth beginning in 1970 and projected through 2030 is illustrated in Figure 8. It is evident that the overall growth in new housing units outpaces the growth in population and occupied housing units. During this time frame the size of Pennsylvania households is expected to decrease while the total number of housing units is expected to increase. The number of persons per occupied housing unit decreases from 3.18 persons in 1970 to a projected 2.18 persons in 2030 (Table 1). Although it appears that the decrease in household size contributes to the increase in housing units, the number of vacant housing units also increases. The housing unit vacancy rate increases from 5.6 percent in 1970 to 10.1 percent in 2010 and a projected 11.3 percent in 2030.

Table 1: Persons per Household and Vacancy Rate, 1970-2030

Year	Persons per Household	Vacancy Rate
1970	3.18	5.6%
1980	2.81	8.3%
1990	2.64	9.0%
2000	2.57	9.0%
2010	2.41	10.1%
2020	2.28	10.8%
2030	2.18	11.3%

Sources: U.S. Census Bureau; PB Americas, Inc.
(For years 2010 and beyond - linear growth is assumed based on 1970-2000 census data.)

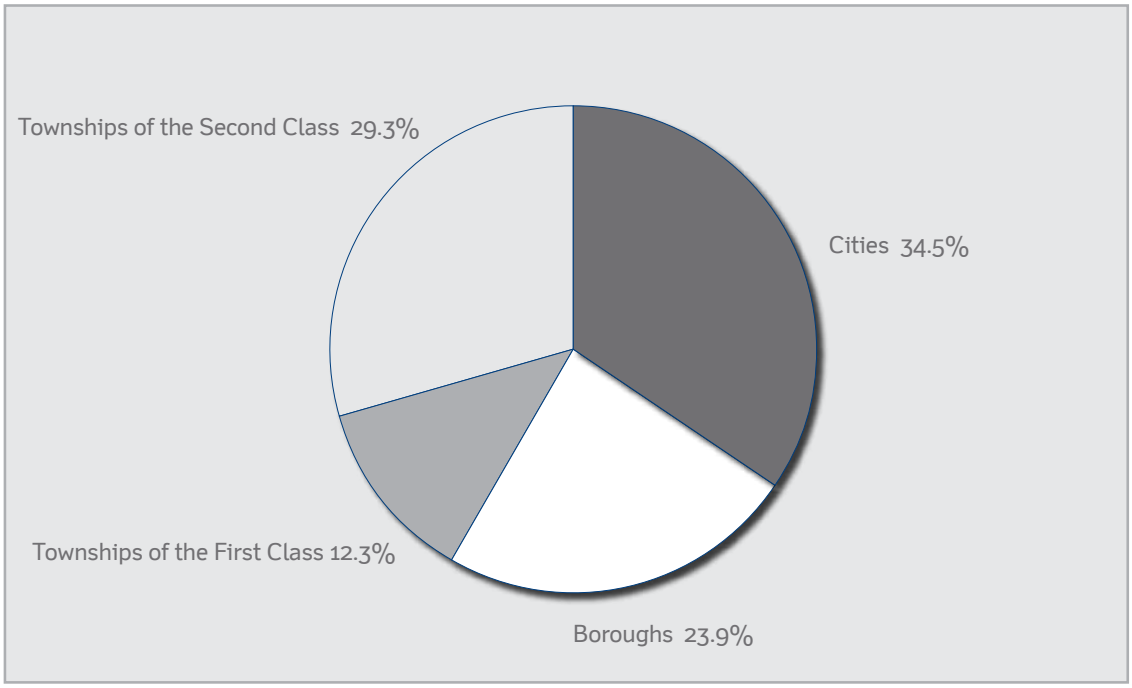
Growth by Municipality Type



Not only are Pennsylvania's regions experiencing variations in population and housing growth, trends indicate disparate population gains and losses based on municipality type. Using most recent census counts, cities, boroughs, and townships of the first class (those typically located closer to cities and boroughs) all experienced an overall decline in population share between 1970 and 2000 (Figure 9 and Figure 10). In 1970, more people lived in Pennsylvania's cities than its townships or boroughs. Between 1970 and 2000, the share of population living in cities declined from 34.5 percent to 25.5 percent. By 2000, the greatest percentage of Pennsylvanians (41.7 percent) lived in second class townships. This population shift signified a historic trend in rural and suburban population growth and urban decline.

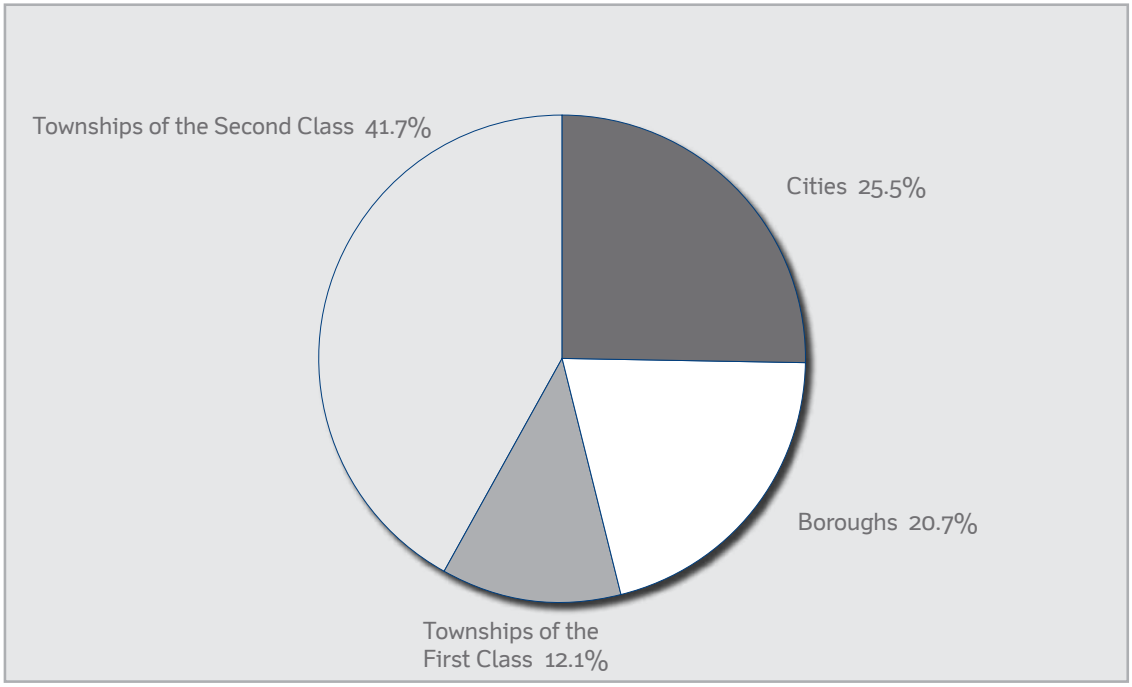
Municipal population estimates from the U.S. Census Bureau indicate the trend is continuing but slowing (Figure 11 and Figure 12). Between 2000 and 2008, Pennsylvania's population in older cities and boroughs decreased 4.5 percent and 3.0 percent, respectively, while townships increased 5.9 percent. When combined, townships of the first and second classes grew by approximately the same percentage that cities and boroughs (combined) declined. Using the estimates, it is evident city/borough population is decreasing less and township population is growing less this decade than in the prior three decades.

Figure 9: Distribution of Pennsylvania Population by Municipality Type, 1970



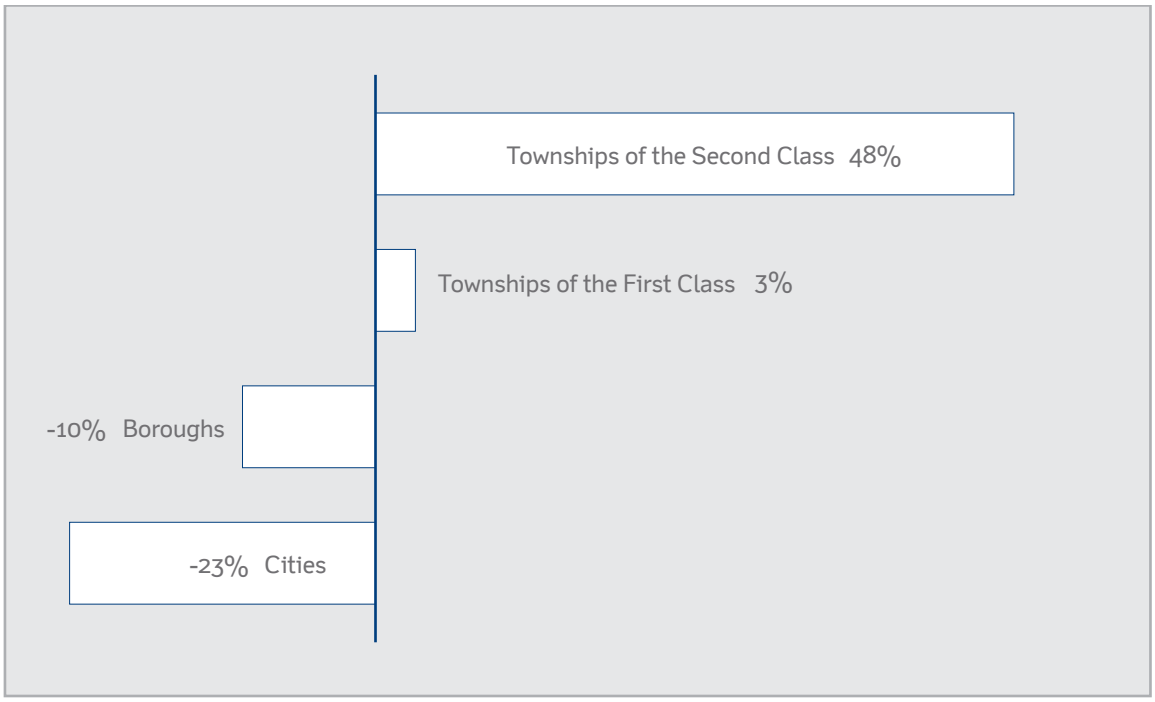
Source: U.S. Census Bureau

Figure 10: Distribution of Pennsylvania Population by Municipality Type, 2000



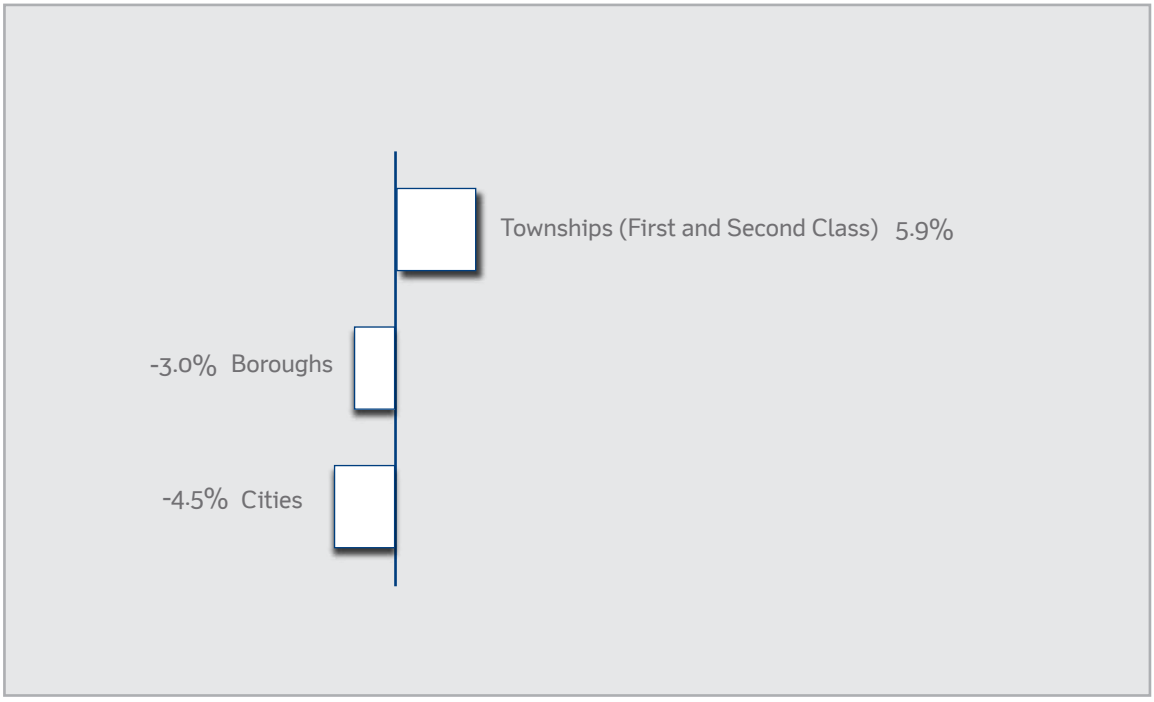
Source: U.S. Census Bureau

Figure 11: Population Change by Municipality Type, 1970-2000



Source: U.S. Census Bureau

Figure 12: Population Change by Municipality Type, 2000-2008



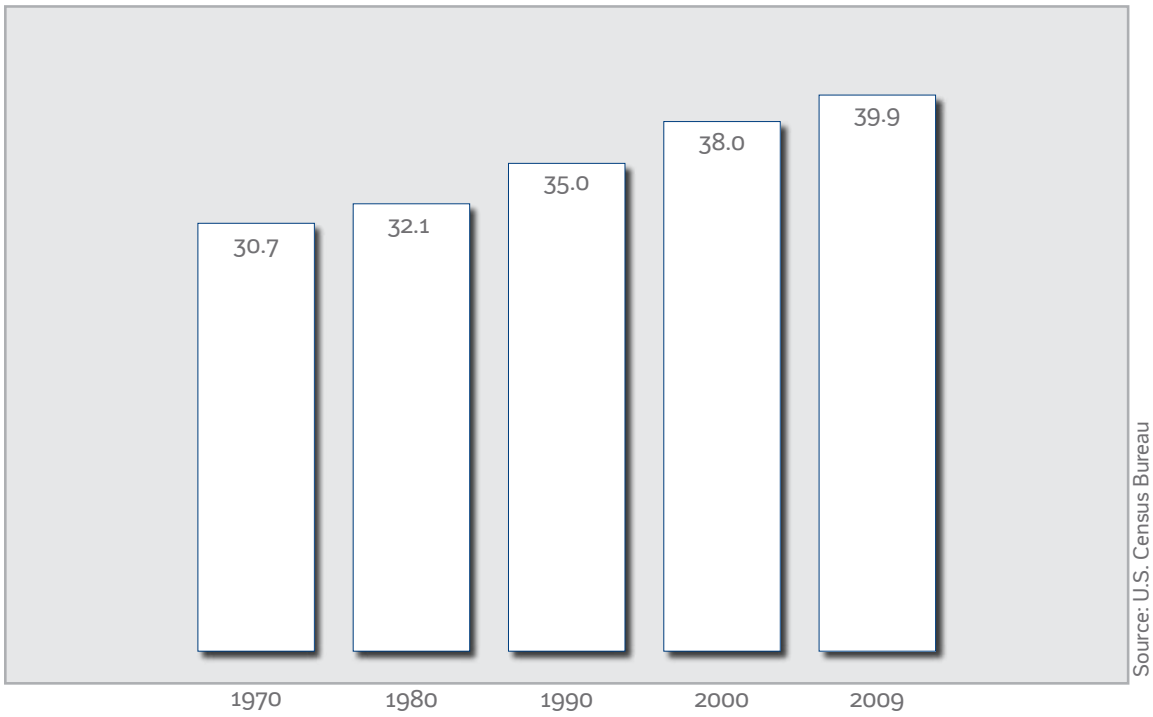
Source: U.S. Census Bureau

The Aging Demographic

One out of every five Pennsylvanians is over age 60. By 2020, this age group will be one-quarter of the population.[5] In 2000, Pennsylvania ranked number 2 in the nation in percentage and number 5 in number of residents aged 65 and above.[6] In comparison, neighboring states ranked significantly lower in percent of population over age 65: Maryland (number 41), New Jersey (number 18), and New York (number 24). Pennsylvania continues to grow older and has increased in median age from 30.7 in 1970 to 39.9 in 2009 (Figure 13).

Recent research by the Pennsylvania Department of Aging shows that Pennsylvania's 65 and over age group experienced a slight decrease of 0.8 percent between 2000 and 2005; however, the 85 and over age group increased by 12.8 percent. By 2005, there were approximately 1.9 million Pennsylvania residents aged 65 and above, and 44 percent of them lived within seven counties in the southeastern and southwestern areas of the state (Philadelphia, Montgomery, Delaware, Lancaster, Bucks, Allegheny, and

Figure 13: Pennsylvania Median Age, 1970-2009



In 2009, Pennsylvania had a median age of 39.9—only five other states had a median age greater than Pennsylvania.

Westmoreland). The southwestern counties of Allegheny and Westmoreland were the only two counties with higher percentages of residents 65 and older (17.9 percent and 18.3 percent) than the state as a whole (15.3 percent).[7]

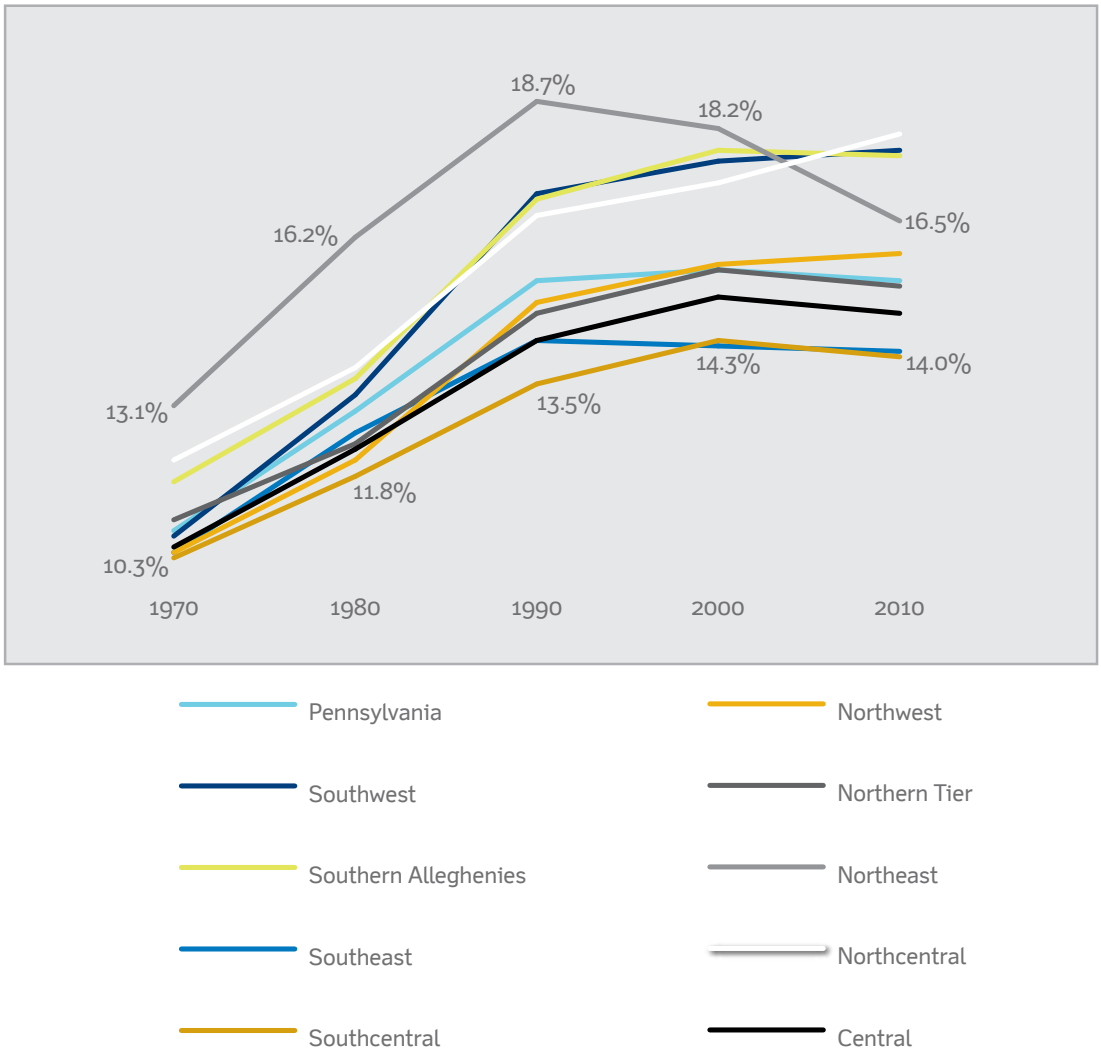
In 2005, 40 percent of all households in Pennsylvania had a head of household who was at least 55 years old and 32 percent of householders aged 65 and above lived alone.[8] Over half of the 65 and older age group had lived in the same home for more than 30 years. Older householders aged 55 to 64 are considerably less likely to be living in poverty than are households headed either by younger householders or householders aged 85 and above.[9]

The different regions of the state have aged at varying rates. Figure 14 shows the percent of population aged 65 and older for Pennsylvania and each region from 1970 to 2010.[10] Four of the regions showed a significant increase in this age group compared to the overall state during this time frame:

- Northeast
- North Central
- Southern Alleghenies
- Southwest

The Northeast region had the highest portion of the over age 65 population and also experienced the greatest increase from 1970-1990. This age group sharply declined in 2000 and by 2010 the North Central region had the highest percentage of persons aged 65 and older. Conversely, the South Central region maintained the lowest percentage of persons aged 65 and older from 1970-2010—with the exception of the early 2000s when the Southeast region dropped in percent of aged 65 and over due to a continuing downward trend that started in the 1990s.

Figure 14: Percent of Population Aged 65 and Older by Reporting Region, 1970-2010

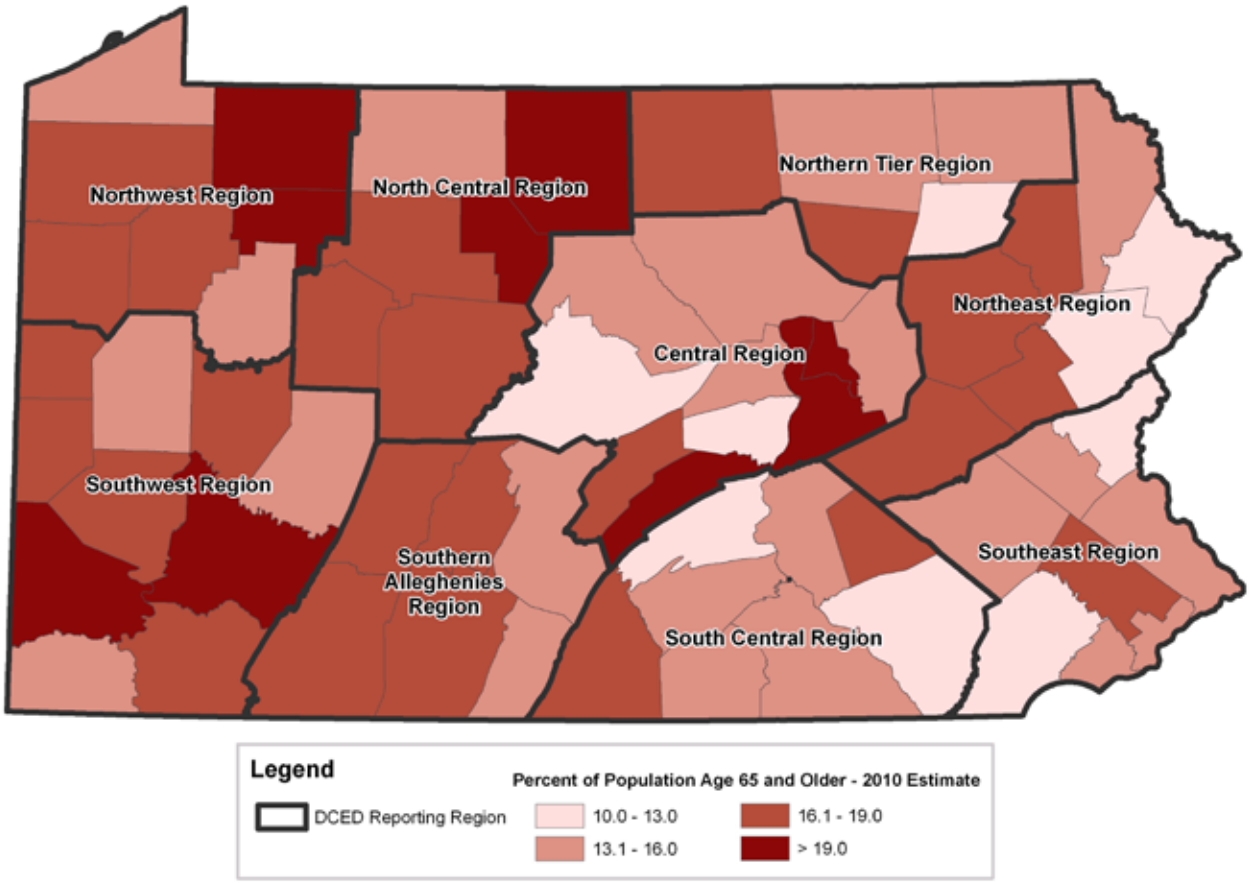


Sources: Pennsylvania State Data Center; Pennsylvania Department of Aging

The geographic distribution of the age 65 and older population by county shows that the western half of Pennsylvania has the highest percentage of the older population compared to the counties in the east and south central portions of the state (Figure 15). The comparatively younger residents of the central portion of the state can be attributed largely to the student population of Pennsylvania State University in Centre County. Similarly, higher than average growth rates in the Poconos and southeastern/south central Pennsylvania are reflected in comparatively lower percentages of persons over 65.

The reasons behind the higher percentages of residents over 65 in Pennsylvania are multifaceted. One primary reason for this demographic characteristic is that Pennsylvania offers a lower tax burden for retirees. While many states in the region, including Pennsylvania, do not tax Social Security income, Pennsylvania is the only nearby state that does not tax federal, state, or local pension income or IRA income for residents over age 59.5. Additionally, Pennsylvania's overall 2008 tax burden was 10.2 percent in comparison to neighboring states with significantly higher tax burdens. New Jersey ranks first in the nation with a tax burden of 11.8 percent; New York has 11.7 percent; Maryland has 10.8 percent. Pennsylvania's low tax burden coupled with a relatively low cost of living for the region makes it an attractive place for seniors to live and retire.

Figure 15: Percent of Total Population Aged 65 and Older by County, 2010

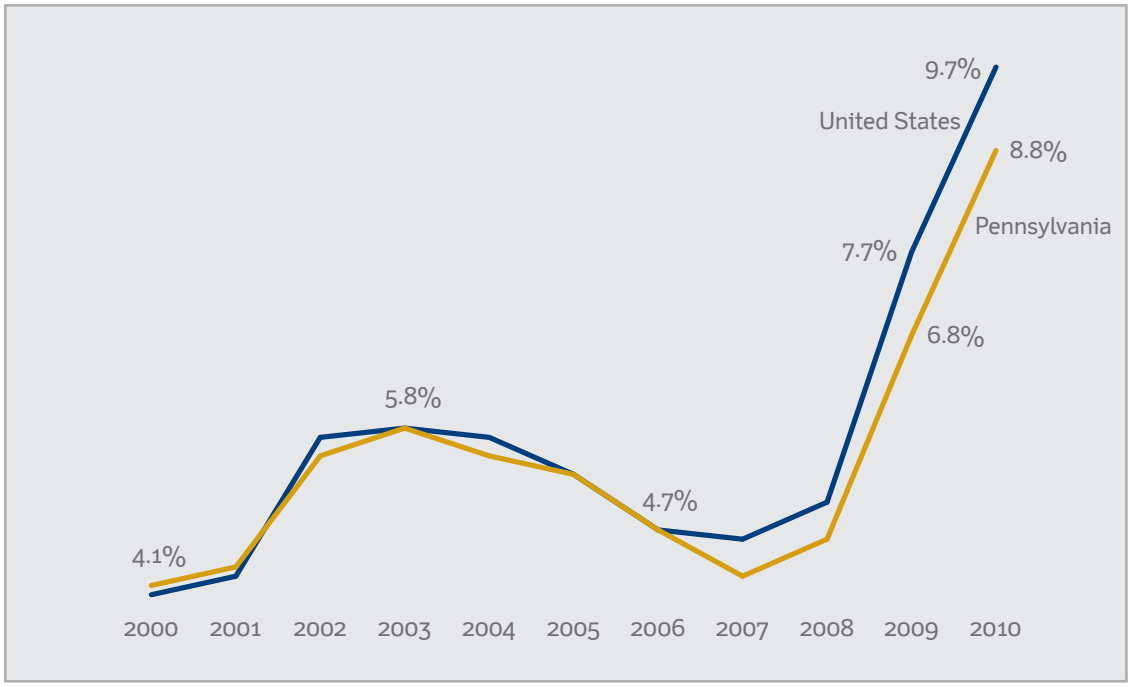


Sources: U.S. Census Bureau; Pennsylvania State Data Center, May 2001. Compiled by the Pennsylvania Department of Aging

Employment Conditions

Over the last decade, Pennsylvania's unemployment rate has nearly mirrored that of the nation (Figure 16). Between January 2003 and June 2010, the unemployment rate in Pennsylvania has remained at or below the national rate for all but three months. However, unemployment rates increased significantly throughout the country as a result of the recession that occurred later in the decade. In January 2000, Pennsylvania's rate of unemployment (4.1 percent) was slightly higher than that of the U.S. and the neighboring states of Maryland (3.4 percent) and New Jersey (3.8 percent), but below New York (4.7 percent). By January 2010, Pennsylvania's unemployment rate (8.8 percent) equaled New York but was below the U.S. (9.7 percent) and New Jersey (9.9 percent) (Figure 17). Even with the recent economic downturn, Pennsylvania's unemployment trend throughout the past decade was relatively comparable to the national average and neighboring states.

Figure 16: Unemployment Rates for Pennsylvania and the U.S. (seasonally adjusted), January 2000-January 2010



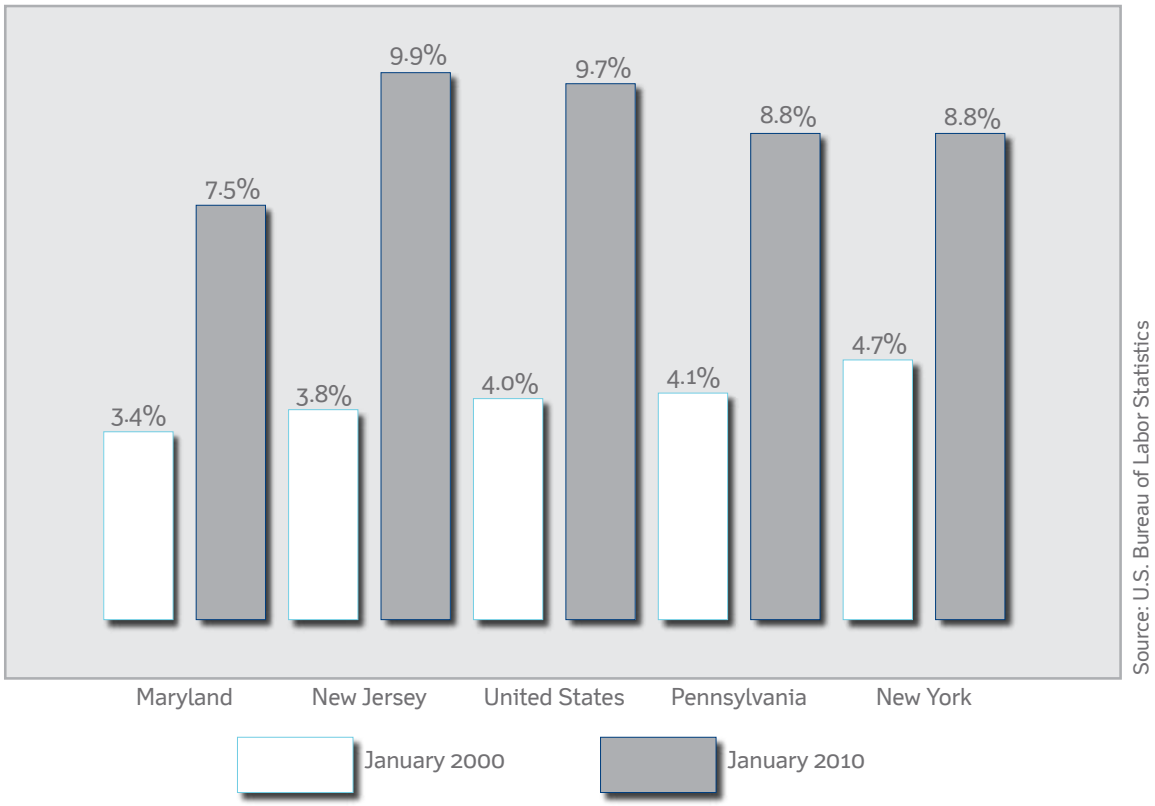
Source: U.S. Bureau of Labor Statistics

In looking at geographic patterns of unemployment within Pennsylvania it is evident that the concentration of economic health has been influenced by the 2008 recession. The following maps and data obtained from the publication *Pennsylvania: Road to Growth* illustrate the recent economic trend between 2001 and 2007 (Figure 18). This data is supplemented by 2010 data to reflect the impact of the recent recession (Figure 19).

In September 2010, the state unemployment rate was 8.1 percent, in comparison to the June 2007 unemployment rate of 4.4 percent. In 2010, 34 counties had an unemployment rate above 8.1 percent. In 2007, 44 counties had an unemployment rate above the state average. The most significant difference between the 2007 and 2010 rates of unemployment occurred in the Northeast and Southern Alleghenies regions.

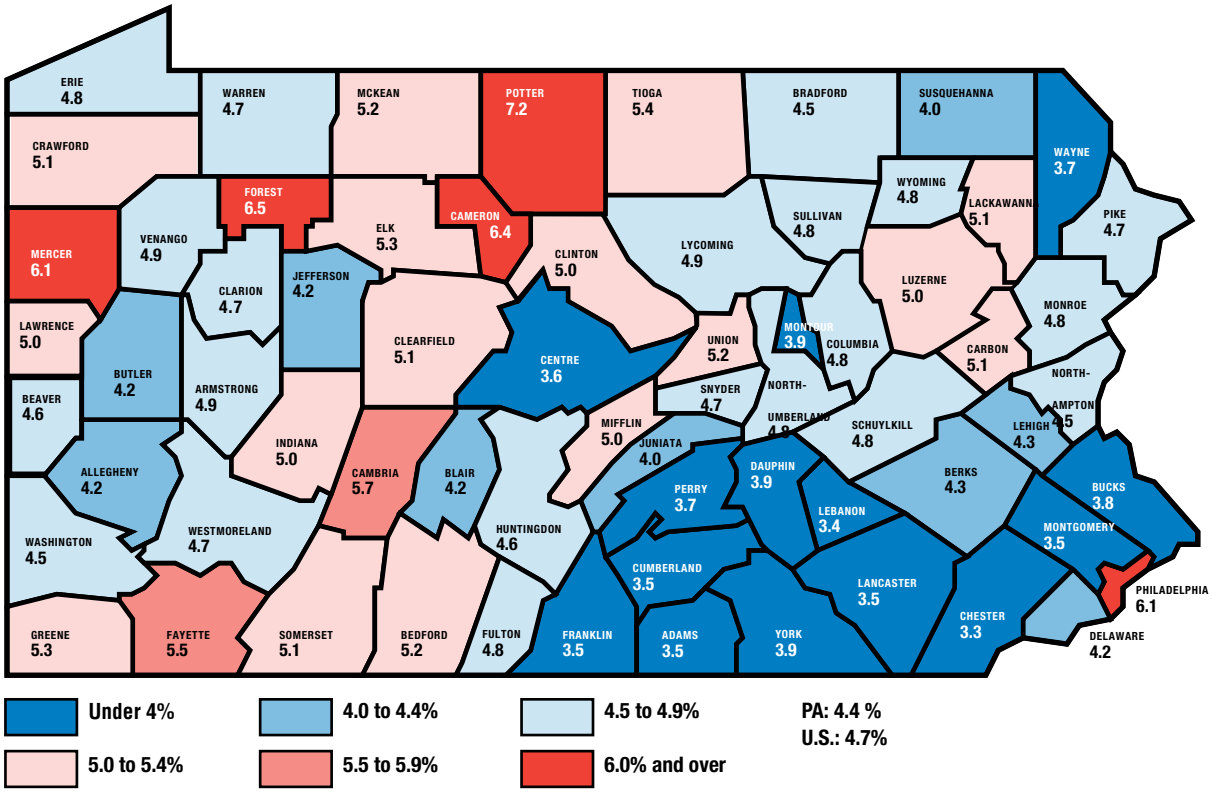
In September 2010, the state unemployment rate was 8.1 percent, compared to the June 2007 unemployment rate of 4.4 percent.

Figure 17: Unemployment Rates (seasonally adjusted), January 2000 and January 2010



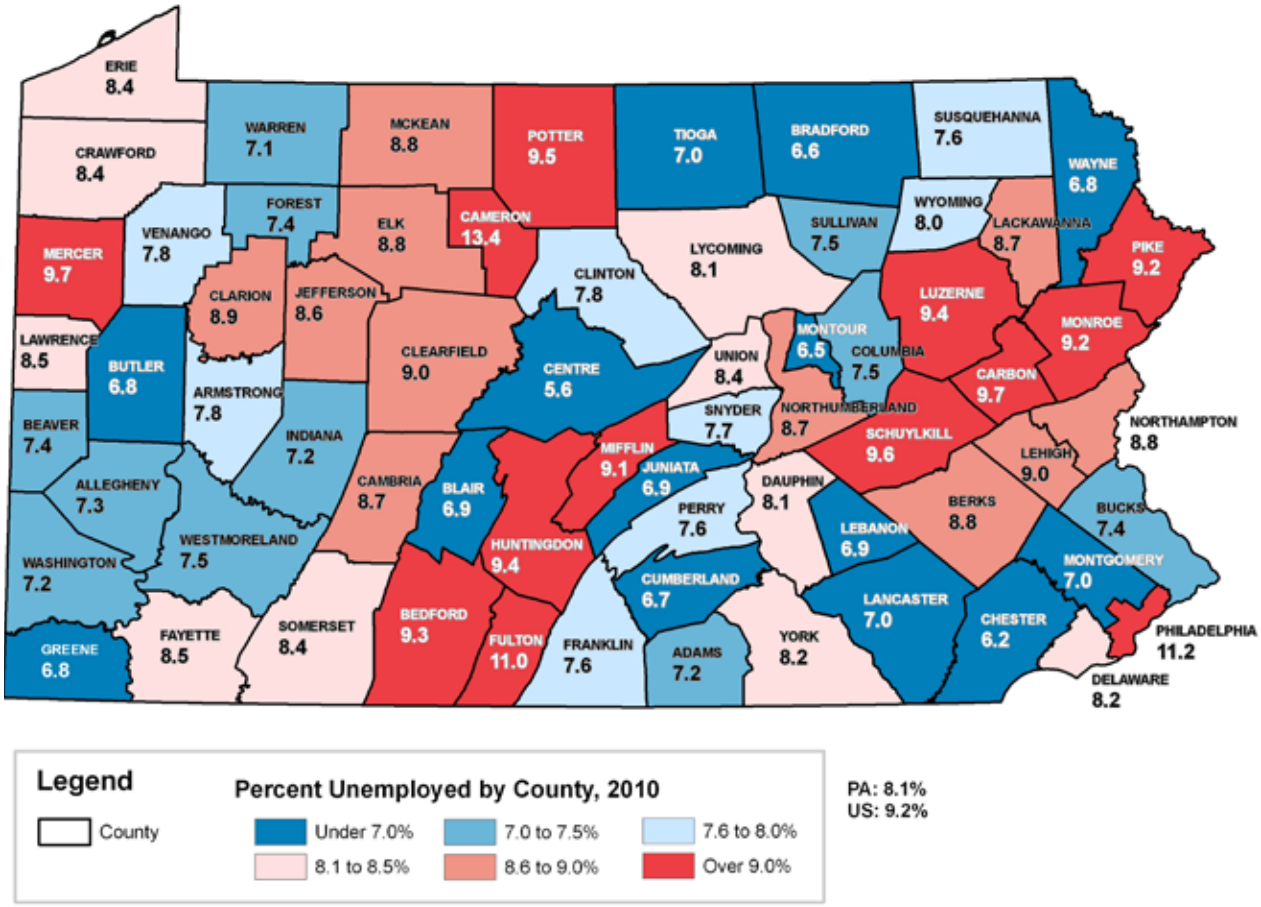
Source: U.S. Bureau of Labor Statistics

Figure 18: Percent Unemployed by County, June 2007



Source: *Pennsylvania: Road to Growth*, February 2009.

Figure 19: Percent Unemployed by County, September 2010



Source: U.S. Bureau of Labor Statistics

In September 2010, Cameron County exhibited the highest unemployment rate (13.4 percent) while Centre County had the lowest rate (5.6 percent).

Pennsylvania's economic output is primarily concentrated within its major metropolitan areas. In fact, of the 14 metropolitan statistical areas in Pennsylvania, the top six—Philadelphia, Pittsburgh, Harrisburg/Carlisle/Lebanon, the Lehigh Valley (Allentown/Bethlehem/Easton), Scranton/Wilkes-Barre/Hazleton, and Lancaster—constitute 68.4 percent of the state's population and generate 80.5 percent of the state's economic output.

In 2007, the four largest employing sectors—which represent more than 50 percent of total employment in Pennsylvania—were health care and social assistance, manufacturing, retail trade, and accommodation and food services. The percent change in nonagricultural employment between December 2007 and October 2010 reflects significant industry shifts due to the recession and Marcellus Shale activities. The mining and logging industry saw the greatest increase in employment with a 23.9 percent increase. The construction and durable goods manufacturing industries experienced the greatest decline at 17.5 percent and 16.7 percent, respectively.

In addition, Pennsylvania has achieved national prominence in four highly attractive sectors—biosciences, high technology, advanced manufacturing, and business services. These gains are fed in part by Pennsylvania's network of public and private colleges and universities, which provide both highly trained employees as well as research in these areas. These businesses are primarily clustered around the major metropolitan areas of Pittsburgh and Philadelphia. Workforce development and retention in these globally competitive industry sectors will be important as Pennsylvania continues to transition away from a manufacturing-based economy.

Studies show that an indication of a declining economy is the propensity of educated young adults to be the first to move out of state. In recent decades, Pennsylvania has struggled to attract and retain young educated residents. Although young adults will always tend to gravitate to wherever employment opportunities are more abundant, having amenities that promise a better quality of life is an important factor in determining exactly where this young workforce chooses to reside. Currently Pennsylvania urban areas are more likely to attract the young workforce from rural areas of the state due to the "bright city lights" effect—unique entertainment and other amenities offered by urban environments. Adjusting local economies to the new realities of the 21st century may be a means to reversing Pennsylvania's long-standing trend of a slowly growing and statistically older population. Attracting post-industrial, knowledge-based industries that will provide more employment opportunities to a young workforce can be facilitated by capitalizing on the various amenities sought out by this demographic.[11]

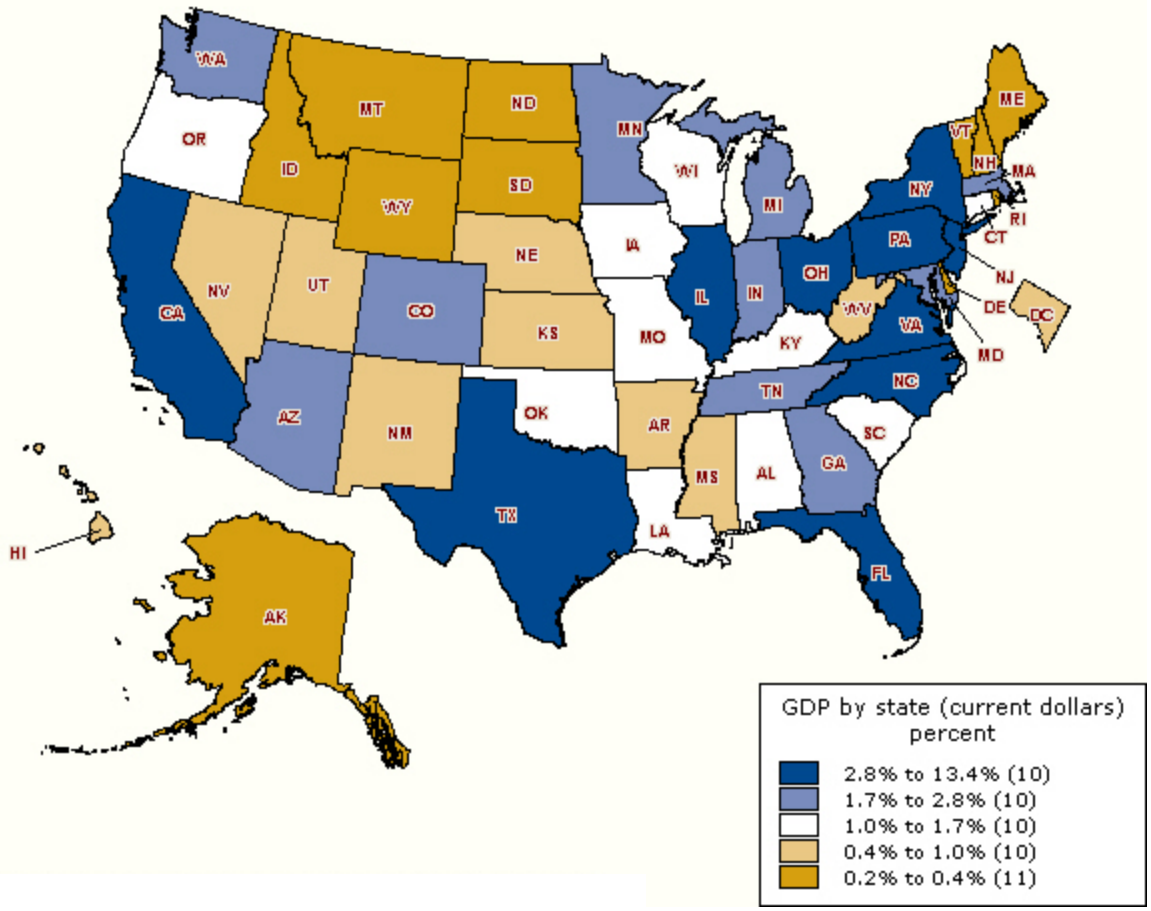
– *Journal of Regional Analysis and Policy*, 2008.

The percent change in nonagricultural employment between December 2007 and October 2010 reflects significant industry shifts due to the recession and Marcellus Shale activities.

Pennsylvania's Position in the National Economy

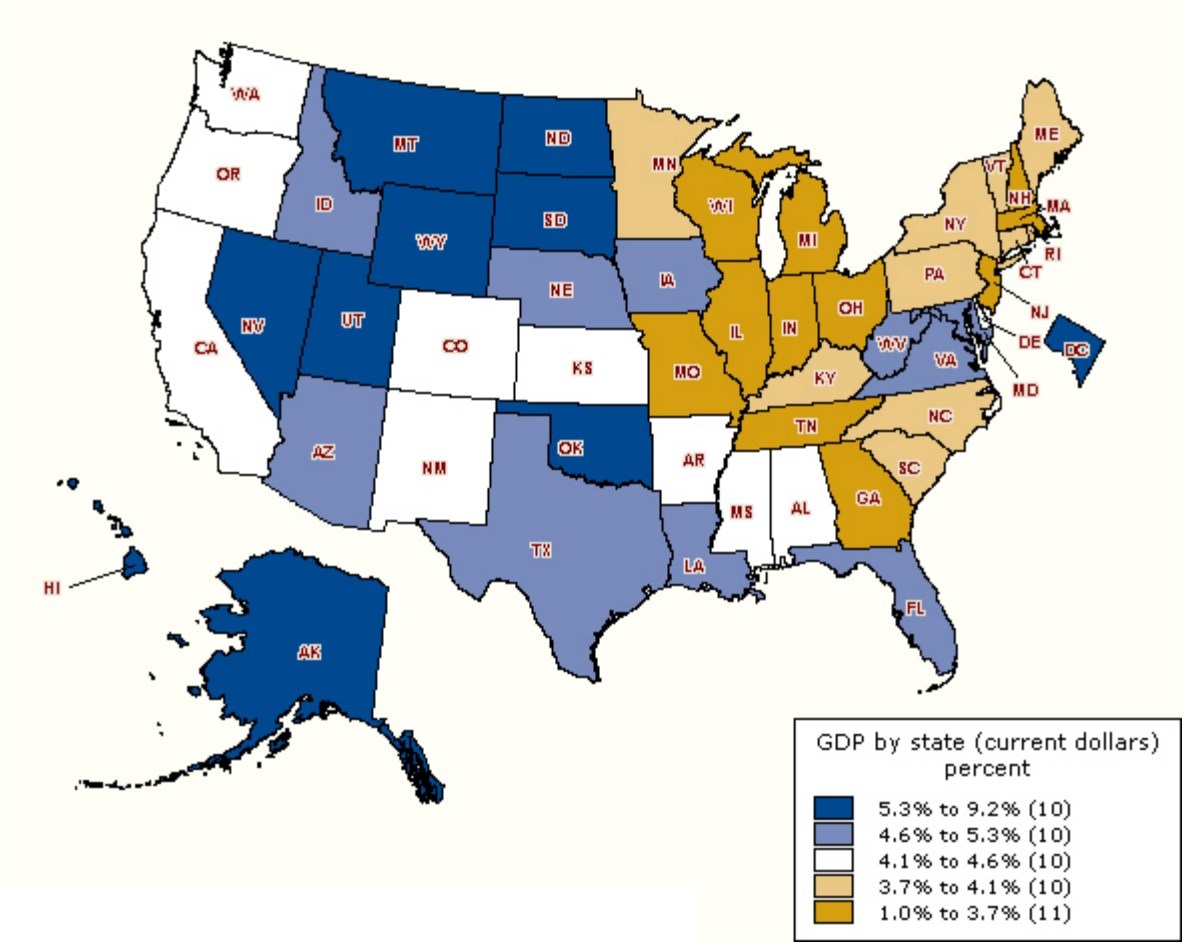
In comparison to the rest of the country, Pennsylvania ranks in the top quintile for Gross Domestic Product (GDP) by state. In 2007, Pennsylvania ranked 7th in the nation with a GDP of $533 billion, or 3.9 percent of the total U.S. GDP. Pennsylvania has historically been one of the top 10 states for total GDP, however, average annual growth in GDP between 2001 and 2007 paints a different picture. During this six-year time frame, the Commonwealth ranked 37th nationally with a growth rate of 4.6 percent (Figure 20 and Figure 21). In comparison, the GDP for the U.S. grew by 5.3 percent. Pennsylvania has fared better in the current recession. Between 2007 and 2009, U.S. GDP decreased 2.0 percent; Pennsylvania GDP decreased only 0.2 percent.

Figure 20: Gross Domestic Product (GDP) by State, 2009



Source: U.S. Bureau of Economic Analysis, data released on November 18, 2010

Figure 21: Change in Gross Domestic Product (GDP) by State, 2000-2009



Source: U.S. Bureau of Economic Analysis, data released on November 18, 2010

Table 2: Residential Building Permits*

Year	Pennsylvania	United States
1990	37,204	1,110,800
1991	34,608	948,900
1992	38,282	1,094,700
1993	40,126	1,199,200
1994	40,210	1,371,800
1995	36,250	1,332,300
1996	37,895	1,425,600
1997	39,877	1,441,100
1998	41,616	1,612,300
1999	42,662	1,663,600
2000	41,076	1,592,267
2001	41,403	1,636,676
2002	45,114	1,747,678
2003	47,356	1,889,214
2004	49,665	2,070,077
2005	44,525	2,155,316
2006	39,128	1,838,903
2007	33,665	1,398,415
2008	24,577	905,359
2009	18,275	582,963

Source: U.S. Census Bureau
Note: *Number of new privately-owned units

Building Permits

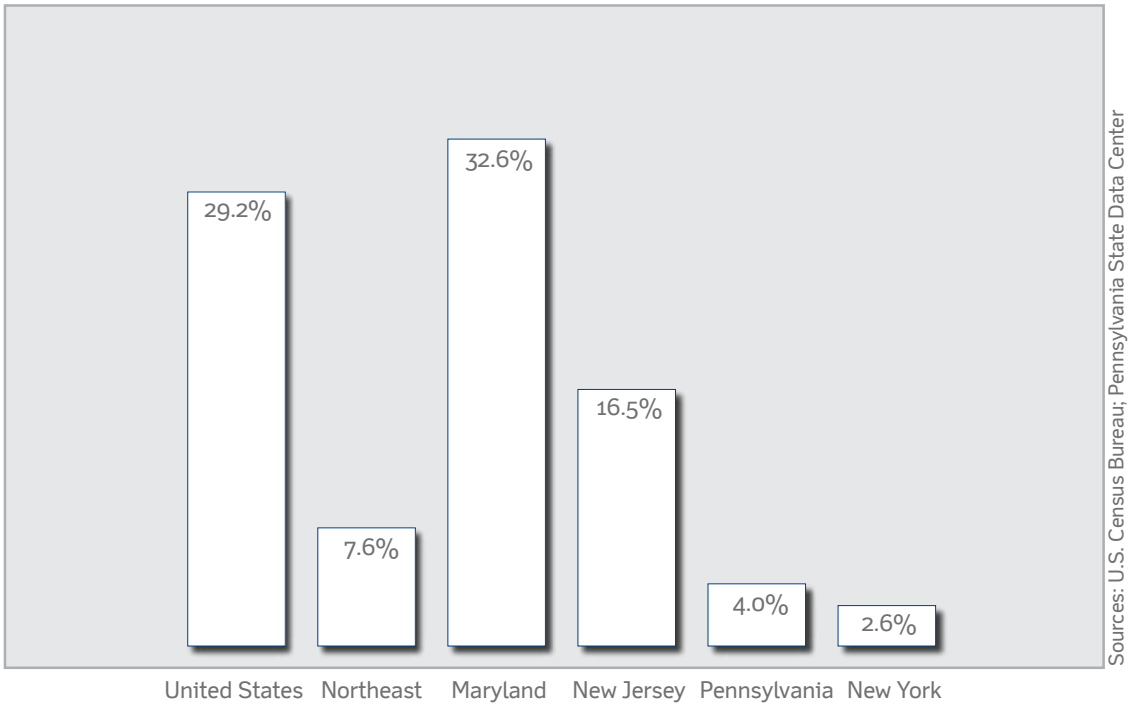
Building permit data sheds more light on the current economic recession. Annual residential building permit totals for both Pennsylvania and the U.S. are the lowest they've been in at least 50 years. Table 2 shows the last 20 years. Between 1990 and 2004, annual permit totals generally grew, though Pennsylvania's growth over the period (33.5 percent) lagged behind the national growth (86.4 percent), further evidence of the lag in the state's economy during that time. Since 2004, the drop in annual permits has been precipitous. Pennsylvania's decrease (63.2 percent) has been less than the nation's (71.8 percent).

Land development activity is also down. A 2010 survey of county planning agencies reported subdivision and land development activity since January 2008 to be less than prior years in 83 percent of the counties. More than half the counties reported activity to be *much* less. Of the 10 percent of counties reporting more activity, all but one were rural counties in energy hot spots with increasing land development related to natural gas (Marcellus Shale), wind turbines, or coal.

Where Are We Heading?

The U.S. Census Bureau estimates that Pennsylvania's population will continue to grow at a relatively slow pace over the next 20 years—and grow more slowly than the neighboring states of Maryland and New Jersey, with a total increase of only 4 percent between 2000 and 2030. U.S. population as a whole is expected to grow by more than 29 percent during this same period (Figure 22).

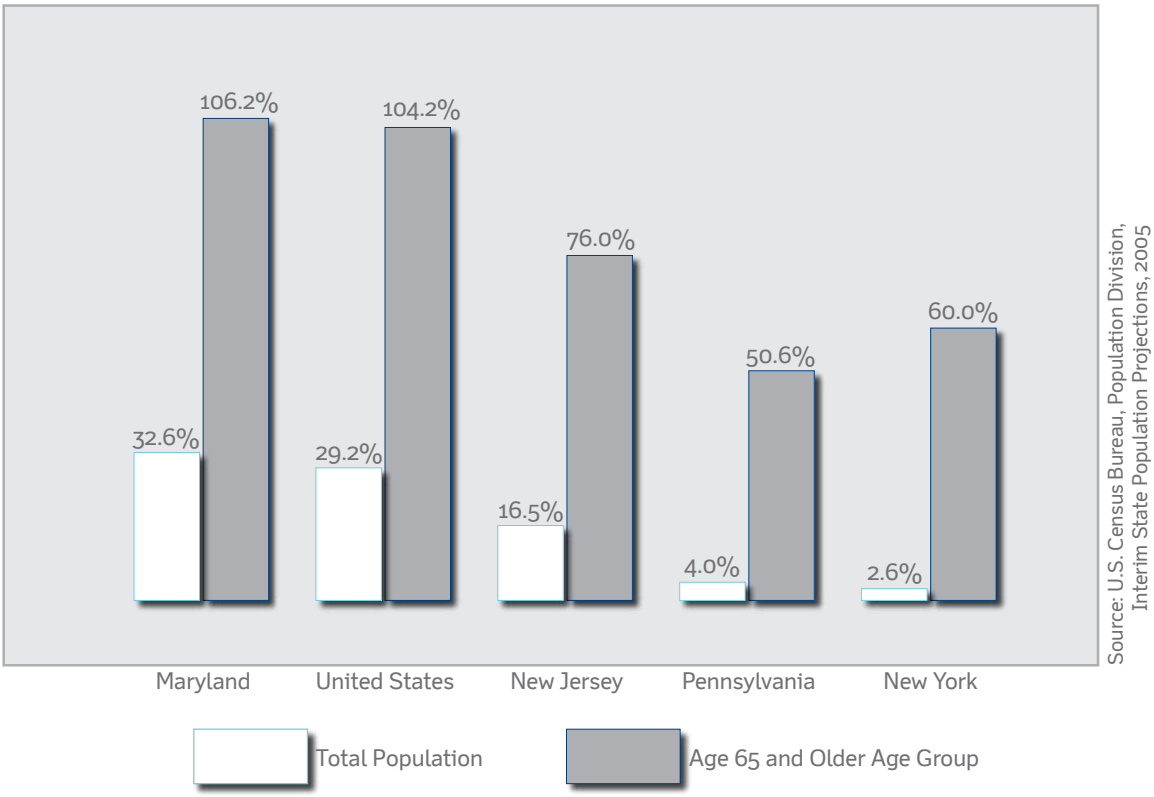
Figure 22: Population Change Projections, 2000-2030



Although Pennsylvania is expected to grow at a relatively slow pace during the 2000-2030 time frame, all age groups of the state's over 55 population are projected to increase. It is anticipated that the growth in mature residents within Pennsylvania will be slightly less than in surrounding states (Figure 23). The first wave of baby boomers born between 1946 and 1964 will reach age 65 in 2011. This post-World War II generation will contribute considerably to the 65 and over age group projections nationwide. By 2030, Pennsylvania's 65 and older and 85 and older populations—which are expected to increase by more than 50 percent and almost 75 percent respectively—will have a significant impact on Pennsylvania (Figure 24).[12] The 65 and older population will make up 22.6 percent of the state's population.

The aging baby boomer bubble will have a major impact on the country as a whole. Pennsylvania is projected to slip from the 2nd to the 11th spot in national ranking for the age 65 and older population by 2030. Nevertheless, Pennsylvania's older population will still be greater than the national average, with considerable implications for communities. The aging baby boomer population is different from previous generations of seniors. Many new retirees expect to live longer, and live more independent lives as they age than their parents and grandparents. As more Pennsylvanians choose to "age in place" in rural and suburban areas, these communities will need to support their older residents by providing housing and mobility options as well as improved access to health care and other essential services.

Figure 23: Projected Change in Total Population and Age 65 and Older Age Group, 2000-2030



Source: U.S. Census Bureau, Population Division, Interim State Population Projections, 2005

Figure 24: Population Pyramids of Pennsylvania, 2000 and 2030

Source: U.S. Census Bureau

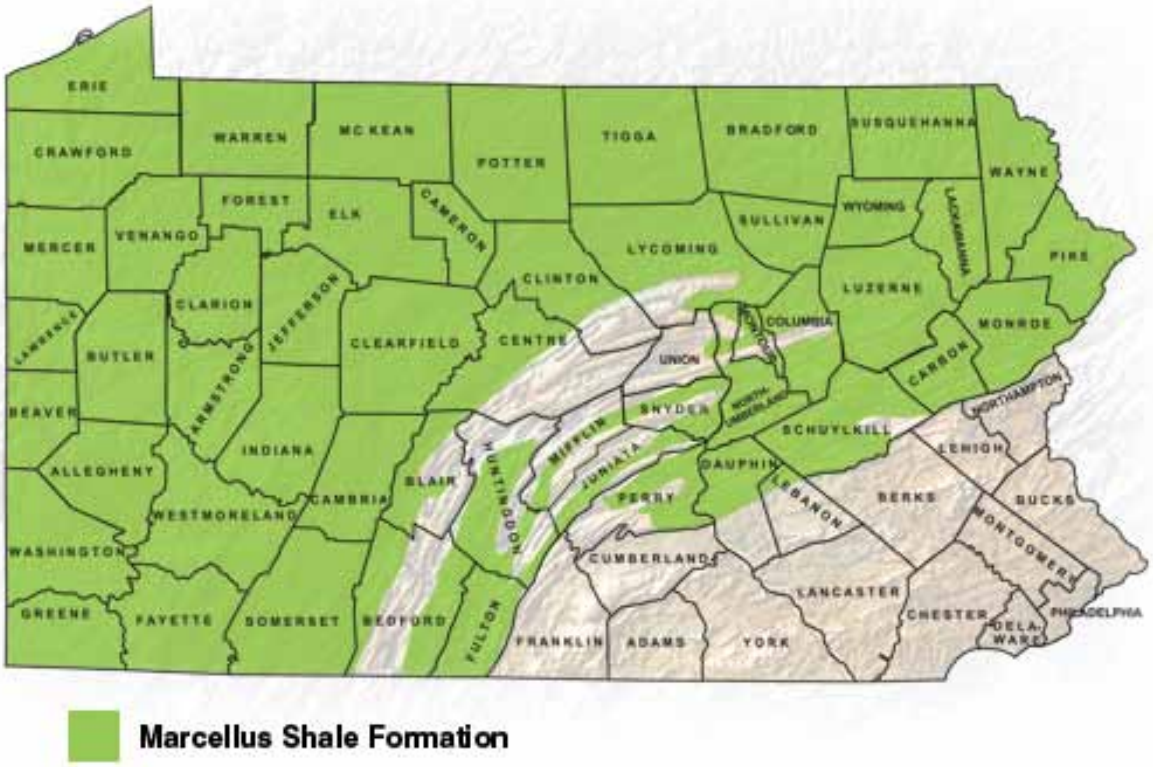
Opportunities to boost Pennsylvania's economy and improve future employment conditions can be found through a number of growing industry sectors. According to the Pennsylvania Center for Workforce Information and Analysis, the top 10 fastest-growing occupations through 2014 based on numeric employment change include:

1. Food Preparation & Serving-Related Occupations
2. Management Occupations
3. Health Care Practitioners & Technical Occupations
4. Health Care Support Occupations
5. Personal Care & Service Occupations
6. Education, Training, & Library Occupations
7. Transportation & Material Moving Occupations
8. Building & Grounds Cleaning & Maintenance Occupations
9. Food & Beverage Serving Workers
10. Motor Vehicle Operators

These jobs may be the best opportunities available for many Pennsylvanians. However, few of these top 10 categories are on the cutting edge of 21st century economic development. More effective partnerships among schools, local and regional employers, and state and local agencies leading to long-term growth may be one way to add some of the more advanced economic sectors to this top 10 list, and thereby better enable the Commonwealth to maintain the highly educated labor force made available through its 240 colleges and universities.

In addition to the above fastest-growing employment opportunities, key economic trends indicate two emerging industries in Pennsylvania: Marcellus Shale natural gas production and "green jobs."

Figure 25: Marcellus Shale Formation in Pennsylvania



Source: Pennsylvania Department of Environmental Protection – Bureau of Oil and Gas Management

Marcellus Shale

The Marcellus Shale, an organic-rich black sedimentary rock formation which underlies approximately 60 percent of Pennsylvania, is believed to hold between 50 and 390 trillion cubic feet (TCF) of recoverable natural gas (Figure 25),[13] possibly making it one of the largest unconventional on-shore gas deposits in the world. Geologists have been aware of the Marcellus Shale's natural gas deposits for decades, but only recently have new drilling techniques and rising energy prices made the Marcellus Shale formation an economically viable source of natural gas.

Unlike the gradual pace at which most trends unfold, the Marcellus Shale development is introducing opportunities and challenges at a very rapid pace. The first profitable wells for Marcellus Shale gas extraction in Pennsylvania were drilled in 2003 and started producing in 2005.[14] Now in many parts of the state a majority of landowners have sold their oil, gas, and mineral (OGM) rights or have been approached to do so. Marcellus Shale gas production has already become one of the most rapidly growing industries in Pennsylvania.

Permit information from the Pennsylvania Department of Environmental Protection indicates that drilling activity in the Marcellus Shale increased dramatically in 2009 and was accelerating in the first several months of 2010. In fact, the number of wells drilled between January and October 2010 exceeds the total number of wells drilled in 2008 and 2009 combined.

> The number of Marcellus Shale wells drilled in Pennsylvania totaled:
> - 196 in 2008,
> - 763 in 2009, and
> - 1,177 between January and October 2010

According to Pennsylvania State University's Cooperative Extension update, *Accelerating Activity in the Marcellus Shale: An Update on Wells Drilled and Permitted,* the primary locations of activity appear to be shifting. Table 3 provides summary data of permitted and drilled wells in the top five counties from 2008 through April 2010. Washington County,

Table 3: Monthly Averages of Number of Wells Drilled and Permitted in the Top Five Counties in the Marcellus Shale Formation

Drilled Wells								
2008	**Monthly Average**	**Total**	**2009**	**Monthly Average**	**Total**	**2010 January-April**	**Monthly Average**	**Total**
Washington	2.7	32	Washington	11.5	138	Bradford	20.3	81
Susquehanna	2.7	32	Tioga	9.5	114	Tioga	11.5	46
Westmoreland	1.6	19	Bradford	9.4	113	Washington	7.3	29
Greene	1.5	18	Greene	7.6	91	Lycoming	4.5	18
Fayette	1.5	18	Susquehanna	5.0	60	Greene	4.3	17
Permitted Wells								
2008	**Monthly Average**	**Total**	**2009**	**Monthly Average**	**Total**	**2010 January-April**	**Monthly Average**	**Total**
Washington	7.7	92	Bradford	35.8	430	Bradford	41.0	164
Susquehanna	5.8	70	Tioga	25.0	300	Susquehanna	21.5	86
Bradford	5.1	61	Washington	17.4	209	Tioga	20.8	83
Lycoming	4.3	52	Greene	15.2	182	Washington	13.5	54
Greene	3.6	43	Susquehanna	12.9	155	Greene	6.8	27

Source: Pennsylvania Department of Environmental Protection – Bureau of Oil and Gas Management

the site of the first producing Marcellus well, remains an active area across all three years, but other counties have moved up the list. The most notable counties are Bradford and Tioga, as they moved to the top of the list in 2009 and 2010 in the number of wells drilled, and within the top three in the number of permits issued. The number of permits also suggests the areas of likely future activity, so Bradford, Susquehanna, and Tioga counties are likely "hot spots" for the next several years.

As the Marcellus Shale industry increases it is expected that more jobs and income should reach local residents. An economic study released by Pennsylvania State University in May 2010 estimates a dramatic expansion of Marcellus gas production from slightly over 327 million cubic feet per day during 2009 to over 13 billion cubic feet per day by 2020 and an increase in employment by 200,000 jobs.[15] This estimate does not account for new businesses and industries that may be attracted to these areas.

There are economic, environmental, and social impacts associated with the Marcellus Shale activities. These impacts include the construction of housing units to accommodate new residents and employees associated with the industry, increased demand on schools and community services and facilities, elevated crime and social tension, and pockets of new wealth as a result of royalties associated with gas leases. Because most natural gas activity is occuring in rural communities with relatively small local economies, the scale and significance of natural gas-related economic impacts could be much higher in Pennsylvania than in other parts of the country.

There are economic, environmental, and social impacts associated with the Marcellus Shale activities.

Local governments and school districts will have to assume increased costs of providing additional services and infrastructure.

Sudden expansion in the natural gas industry is also introducing population growth, including an influx of workers from other states with gas drilling experience. These trends tend to be more pronounced because they are occuring mainly in rural areas in the western and northern parts of the state. Rural areas are typically less able to absorb a spike in demand for infrastructure and services associated with a surge in temporary or longer-term populations. Small towns are seeing a strong demand for motels, apartments, houses, offices, and equipment yards, all of which need to be served by utilities, roads, schools, law enforcement, medical facilities, and supporting businesses and services such as restaurants, grocery stores, laundromats, and so on. Local governments and school districts will have to assume increased costs of providing additional services and infrastructure.

Another aspect of rapid population growth is the social tension that can result when a rural area with a relatively homogeneous population must adjust to an influx of "outsiders." Just as tourism in Pennsylvania's rural areas can introduce financial benefits but also infrastructure and social strains, so can a major change in the cultural landscape brought by a new industry.

Further, rapid and extensive changes—both positive and negative—alter the character of communities, making them more desirable or less desirable to visit or live in, depending on an individual's priorities and perspective. While the natural gas industry will draw many new workers and residents, others might move out of the area, beyond the influence of Marcellus Shale. Those who have leased land and have a substantial increase in income and options may choose to retire to a warmer climate or leave the area for other reasons. For small towns that have had relatively stable populations for generations, this new mobility is likely to result in significant changes in the social fabric and sense of community. Research suggests that "Energy Boomtowns" may result from the Marcellus Shale natural gas rush. Entrepreneurs can capitalize on such opportunities, but for local governments a population and industry boom presents tremendous challenges. Although overall economic conditions would be expected to improve, natural gas income is not subject to local taxation in Pennsylvania. Local governments are questioning the adequacy of indirect revenue increases—from local job and income increases and taxable real estate development—to meet cost increases.

Additional environmental considerations related to Marcellus Shale development are discussed in the next chapter.

Local governments are questioning the adequacy of indirect revenue increases—from local job and income increases and taxable real estate development—to meet cost increases.

Green Jobs

Green jobs—defined by the Pennsylvania Department of Labor and Industry as those that promote energy efficiency, contribute to the sustainable use of resources, prevent pollution, and reduce harmful emissions or clean up the environment—are also growing in Pennsylvania. According to the Pennsylvania Green Jobs Report, Pennsylvania's green jobs are primarily found in the five industry sectors shown in Table 4. Fostering the growth and development of green jobs has become a focal point of the Pennsylvania Department of Labor and Industry. Pennsylvania's focus on green jobs as a growth industry is still in the early stages, so data on growth in the number of jobs or industries is currently not available. However, the state is projecting $10 billion in public and private investments between 2010 and 2012, which is expected to develop 115,000 green jobs.

Pennsylvania is actively promoting the development of green jobs through investment and training. While some green jobs will be filled by local workers who are currently unemployed or underemployed, green job growth will also likely spur some migration of businesses and people from other parts of the state or country.

Philadelphia has set the goal to become the greenest city in the United States by 2015. The City's sustainability plan, *Greenworks,* identifies over 150 initiatives in five different goal areas—energy, environment, equity, economy, and engagement—all designed to help create jobs in the emerging green economy and reduce the city's environmental footprint.

Table 4: Green Jobs by Industry Sector in Pennsylvania

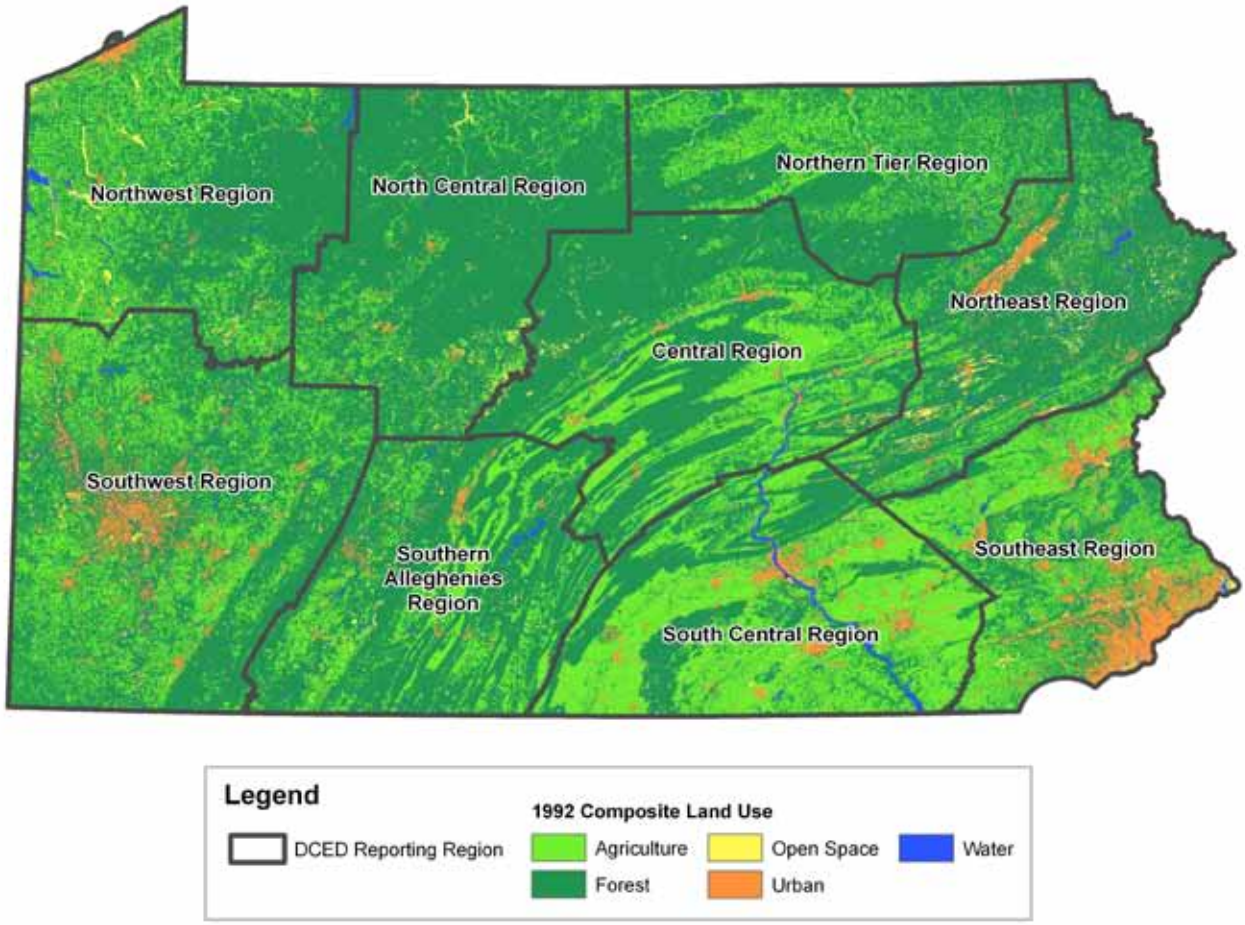
Industry Sector	Sample Employers
Energy Efficiency	civil engineering consultants building construction contractors
Renewable Energy	wind turbine builders electric utility companies
Clean Transportation	aircraft manufacturers transportation management companies
Pollution Prevention & Environmental Cleanup	scientific research facilities water treatment builders
Agriculture & Resource Conservation	biomass farms energy consulting companies

Source: Pennsylvania Department of Labor and Industry, *The Pennsylvania Green Jobs Report,* 2010.

Land Use and Natural Resource Trends and Sustainability

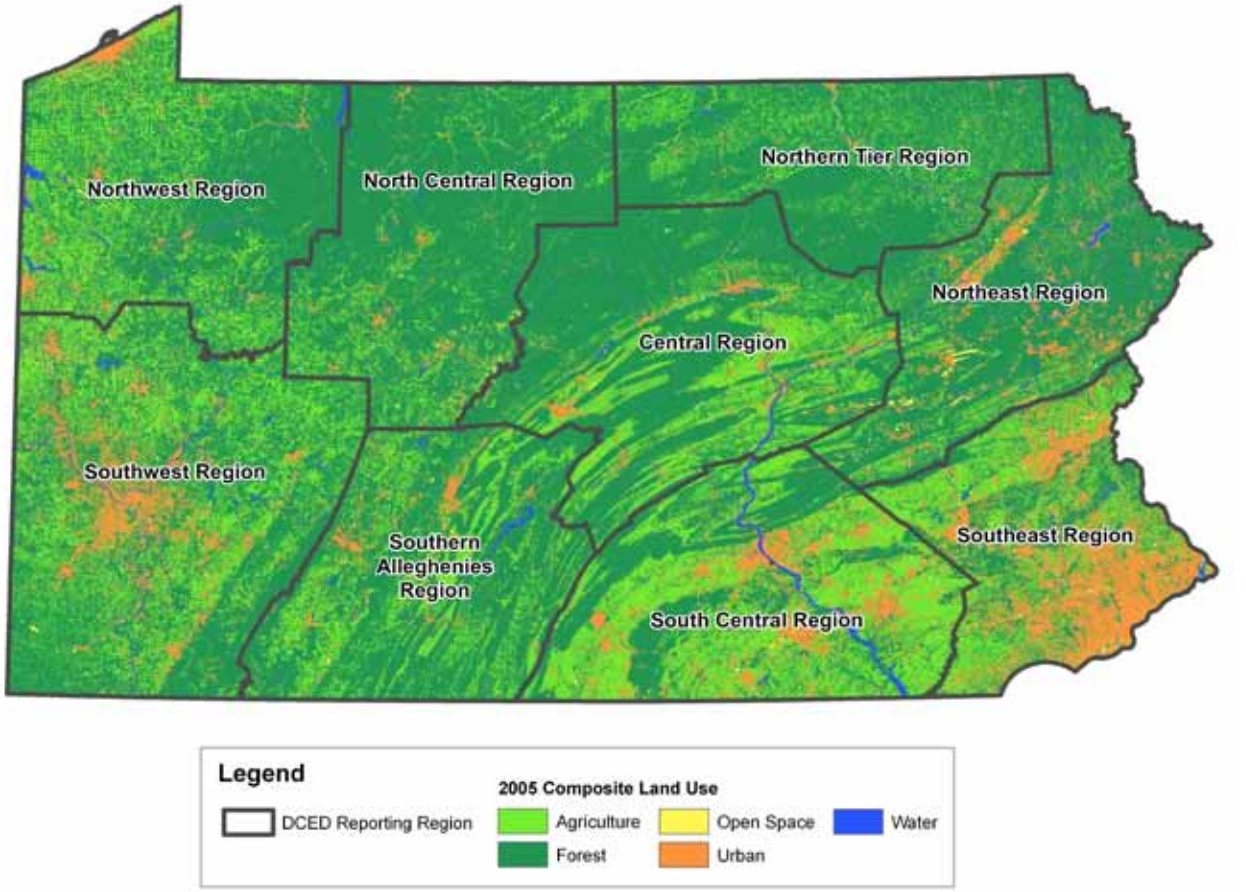
The Pennsylvania landscape continues to be shaped by decentralizing patterns of land development. The most recent comprehensive land cover data available from the Pennsylvania Spatial Data Access (PASDA) geospatial information clearinghouse shows that significant changes in land cover have occurred between 1992 and 2005 (Figure 26 and Figure 27). This chapter outlines the various influencing factors that challenge the land cover composition of Pennsylvania.

Figure 26: Land Cover Composite Map of Pennsylvania, 1992



Source: U.S. Geological Survey

Figure 27: Land Cover Composite Map of Pennsylvania, 2005



Source: U.S. Geological Survey

Resource Impacts of Decentralizing Land Use Patterns

Developed Land

Between 1992 and 2005, urban (developed) land in Pennsylvania increased by 131.4 percent, from approximately 1.2 million acres in 1992 to almost 2.8 million acres in 2005. During this same time frame, Pennsylvania's population only grew 4.5 percent, and the economy, in terms of GDP constant dollars, grew 33 percent. Figure 28 shows decentralizing patterns of development surrounding core urban centers and along major transportation corridors.

Participants in steering committee and stakeholder work sessions for this report discussed core reasons for the decentralizing land use pattern:

- Local government reliance on real estate tax revenues, that compels all municipalities to seek development, even in competition with each other.
- Infrastructure (roads, water, sewer) spending decisions.
- Perceptions of quality of schools.
- Outdated thinking and taboos in local planning and regulations that promote decentralized development.
- Legacy costs and employee collective bargaining arrangements that inhibit intergovernmental cooperation in municipal services.
- Tax and utility rate structures that don't equitably assign to development the costs of region-wide services and benefits.

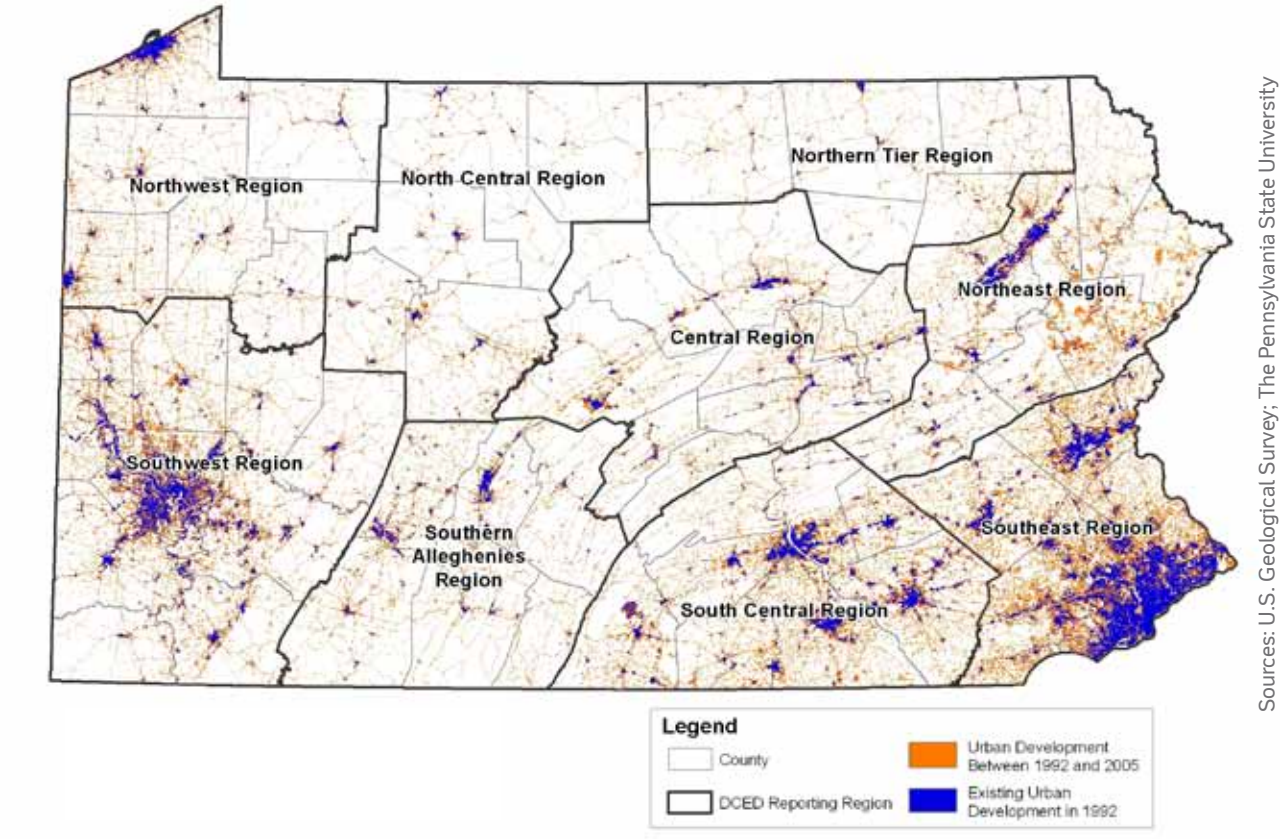
The most significant amount of land development between 1992 and 2005 occurred in the Southeast and South Central regions (Figure 28). The Southeast Region increased its urban footprint by 399,294 acres. The South Central Region followed close behind with an increase of 321,416 acres. Pennsylvania's total developed land area increased from 4.1 percent of the state's total land area in 1992 to 9.6 percent in 2005 (Table 5). Agricultural land and forest land decreased by approximately 15.4 percent and 2.5 percent, respectively. Open space decreased by 21.7 percent. A 2005 snapshot of Pennsylvania land cover shows the predominance of forest land, which represented 63.9 percent of the land area, followed by agricultural land at 23.4 percent, developed land at 9.6 percent, open space at 1.6 percent, and water at 1.4 percent.

Since 2005, the decentralizing pattern appears to have slowed. There is no more current land cover data than 2005, however residential building permit data discussed earlier shows a dramatic decline in development activity. Between 2004 and 2009, annual permits declined each year, falling 63.2 percent overall from 49,655 to 18,275. Subdivision and land development activity reported by county planning agencies is down in 83 percent of the counties. The decentralizing pattern does not appear to have reversed, though. Between 2005 and 2008, the population in Pennsylvania's townships continued to increase by 1.9 percent while the population of cities and boroughs respectively decreased by 0.8 percent and 0.5 percent. According to a 2010 survey of county planning agencies, 55 percent of the counties reported most development activity since January 2008 occurring in suburban, exurban, or rural areas. 40 percent reported a mix of development locations. Only 5 percent reported most development occurring in urban core communities.

Most current indications, in the face of the late-2000s recession, are that the pace of development has changed, but not the pattern.

Developed land in Pennsylvania increased by 131.4 percent between 1992 and 2005.

Figure 28: Growth in Developed Land, 1992-2005



Sources: U.S. Geological Survey; The Pennsylvania State University

Table 5: Growth in Developed Land by Reporting Region, 1992-2005

Reporting Region	Total Acreage	Urban Acreage, 2005	Urban Land as % of Total Acreage, 2005	Acres Converted to Urban, 1992-2005	% Increase in Urban Acreage, 1992-2005
Central	3,695,510	205,929	5.6%	147,166	250.4%
North Central	3,247,957	87,753	2.7%	56,964	185.0%
Northeast	2,845,317	283,033	9.9%	163,296	136.4%
Northern Tier	2,535,381	67,425	2.7%	50,479	297.9%
Northwest	3,269,420	172,517	5.3%	89,313	107.3%
South Central	3,317,569	478,787	14.4%	321,416	204.2%
Southeast	2,411,112	789,968	32.8%	399,294	102.2%
Southern Alleghenies	2,954,622	162,938	5.5%	110,295	209.5%
Southwest	4,528,403	511,126	11.3%	228,872	81.1%
Pennsylvania Total	28,805,291	2,759,476	9.6%	1,567,095	131.4%

Source: Pennsylvania Spatial Data Access (PASDA), compiled by geographIT and PB Americas, Inc.

Pennsylvania ranks fifth in the nation for organic agriculture, with $58.3 million in sales and more than 45,000 acres in production in 2007.

Pennsylvania's decentralizing patterns of development impact its natural resources. Two of these resources, which are also significant to the economy and the quality of life for Pennsylvania residents, are agriculture and forest lands. These resources contribute to Pennsylvania's renowned rural landscape and offer opportunities for recreation, tourism, and local food production.

Agriculture

Agriculture is a leading economic industry contributing $6.1 billion to the state's economy each year. Approximately 14 percent of the state's employment is related to agriculture. The top five counties in agricultural sales are Lancaster, Chester, Berks, Franklin, and Lebanon—all located in the Southeast and South Central regions. These two regions are also experiencing the greatest conversion of agricultural land to urban development.

According to the U.S. Census of Agriculture, Pennsylvania experienced a negligible decrease (0.1 percent) between 1997 and 2007 in the total acreage of land dedicated to agriculture/farm use (Figure 29). In 2007, 63,163 farms operated on 7.8 million acres (27 percent of Pennsylvania's land area). This is an increase of 5 percent since 1997 and 9 percent since 2002 (Figure 30). The average farm size decreased from 130 acres in 1997 to 124 acres in 2007. Approximately 64 percent of Pennsylvania farms are less than 100 acres in size compared to 60 percent 10 years ago.[16] Similar to the national average, 36 percent of Pennsylvania's small family farms are residential/lifestyle farms. The owners of these small farms earn their main livelihood from another job.

Pennsylvania leads the nation in farmland preservation. Agricultural Security Area (ASA) designation protects quality farmland from the urbanization of rural areas. An ASA designation qualifies land to be protected through the Pennsylvania Agricultural Conservation Easement Purchase Program. Typically, conservation easements have been purchased in areas experiencing moderate to high levels of development pressure. Approximately 25 percent of the areas under easement purchase are located where public sewer and water is either available or planned.[17] As of the end of 2009, a total of 428,708 acres in 57 counties were under preservation since the inception of the program in 1988. In 2008, 308 farms were preserved by permanent agricultural easements, matching 2001 as the second-highest number of farms preserved in one year. A total of 232 farms were preserved in 2009.

The Pennsylvania Farmland and Forest Land Assessment Act (Act 319), referred to as the Clean and Green Act, became law in 1974 and provides incentives to prevent the conversion of farmland, forest land, and open space to development by allowing such lands to be taxed according to their use-value rather than the prevailing market value. In all, 8.5 million acres have been enrolled in the program since its inception.

Figure 29: Acres of Land in Farm Use

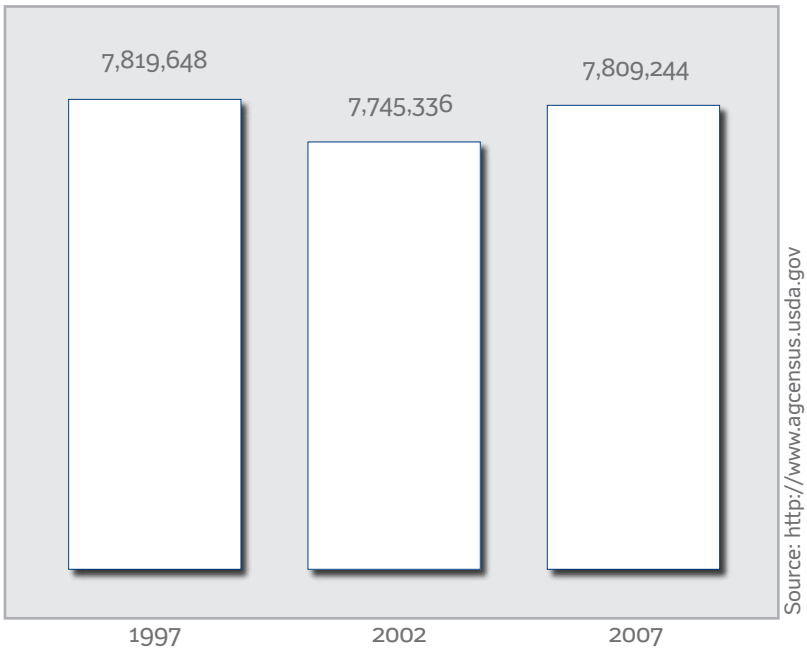
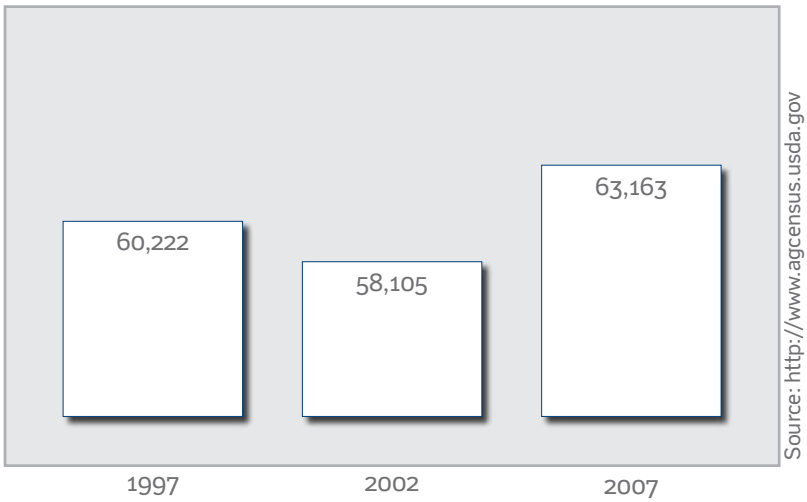
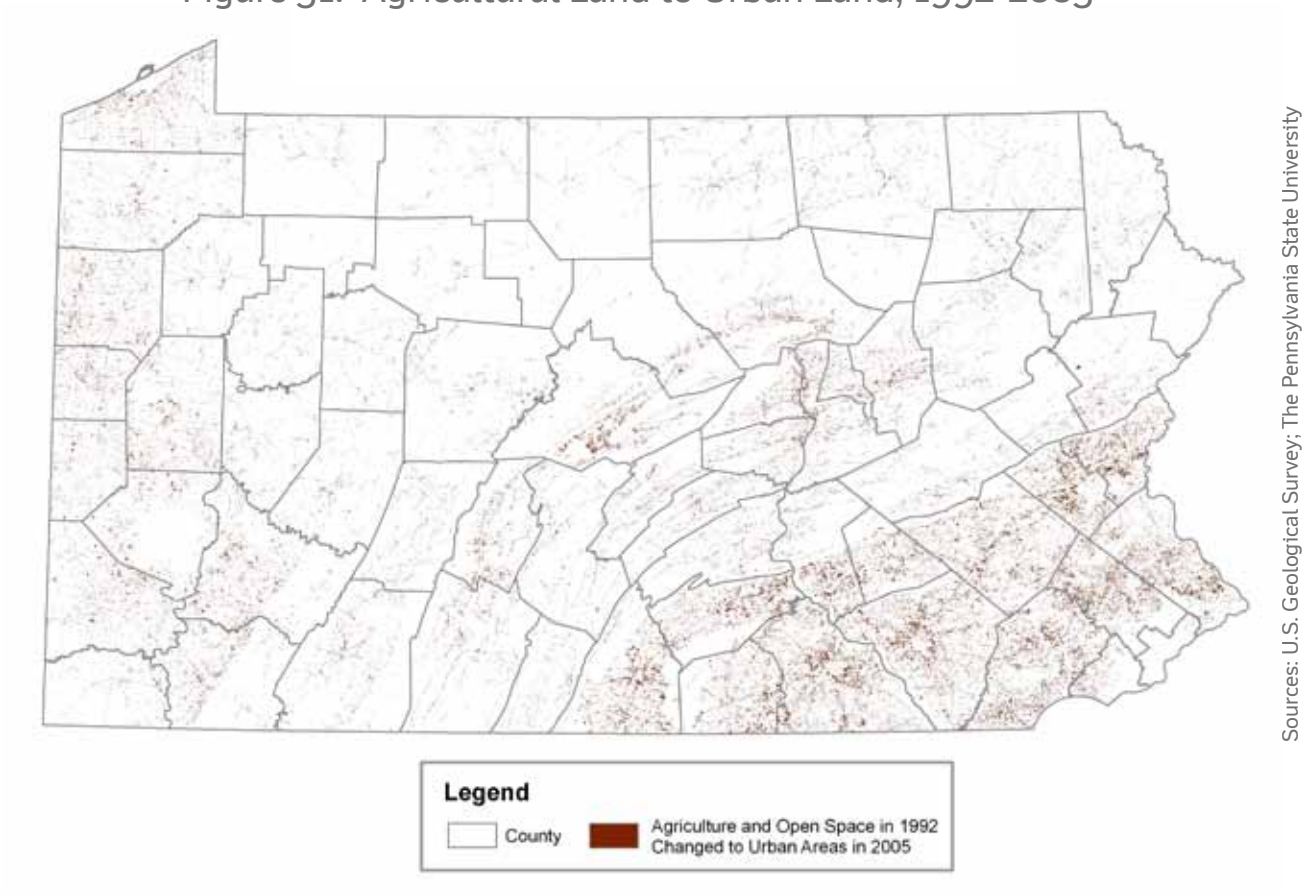


Figure 30: Number of Farms in Pennsylvania



The conversion of almost 960,000 acres of Pennsylvania agricultural land to developed land from 1992 to 2005 reflects the growing urban footprint primarily occurring in the Southeast and South Central regions (Figure 31 and Table 6). Approximately 500,000 acres of agricultural land were lost to development within these two regions. During this time frame, 1.9 million acres of agricultural land reverted back to forest land (Figure 32 and Table 7). This pattern of afforestation was found to be most significant in the Northern Tier region with the conversion of 53 percent of agricultural land to forest. The Northeast region followed at approximately 40 percent.

Figure 31: Agricultural Land to Urban Land, 1992-2005



Sources: U.S. Geological Survey; The Pennsylvania State University

Table 6: Conversion of Agricultural Land to Urban by Reporting Region, 1992-2005

Reporting Region	Total Acreage	Agriculture Acreage, 2005	Agriculture as % of Total Acres, 2005	Acres of Agriculture Converted to Urban, 1992-2005	% of Agriculture Acres Converted to Urban, 1992-2005
Central	3,695,510	791,721	21.4%	109,098	10.9%
North Central	3,247,957	376,624	11.6%	25,871	8.3%
Northeast	2,845,317	283,607	10.0%	43,497	12.8%
Northern Tier	2,535,381	402,710	15.9%	33,784	4.9%
Northwest	3,269,420	825,424	25.2%	70,794	7.9%
South Central	3,317,569	1,408,521	42.5%	260,021	14.4%
Southeast	2,411,112	663,758	27.5%	231,691	24.4%
Southern Alleghenies	2,954,622	705,690	23.9%	59,479	8.3%
Southwest	4,528,403	1,283,105	28.3%	125,019	9.9%
Pennsylvania Total	28,805,291	6,741,161	23.4%	959,254	12.0%

Source: Pennsylvania Spatial Data Access (PASDA), compiled by geographIT and PB Americas, Inc.

Figure 32: Agricultural Land to Forest, 1992-2005

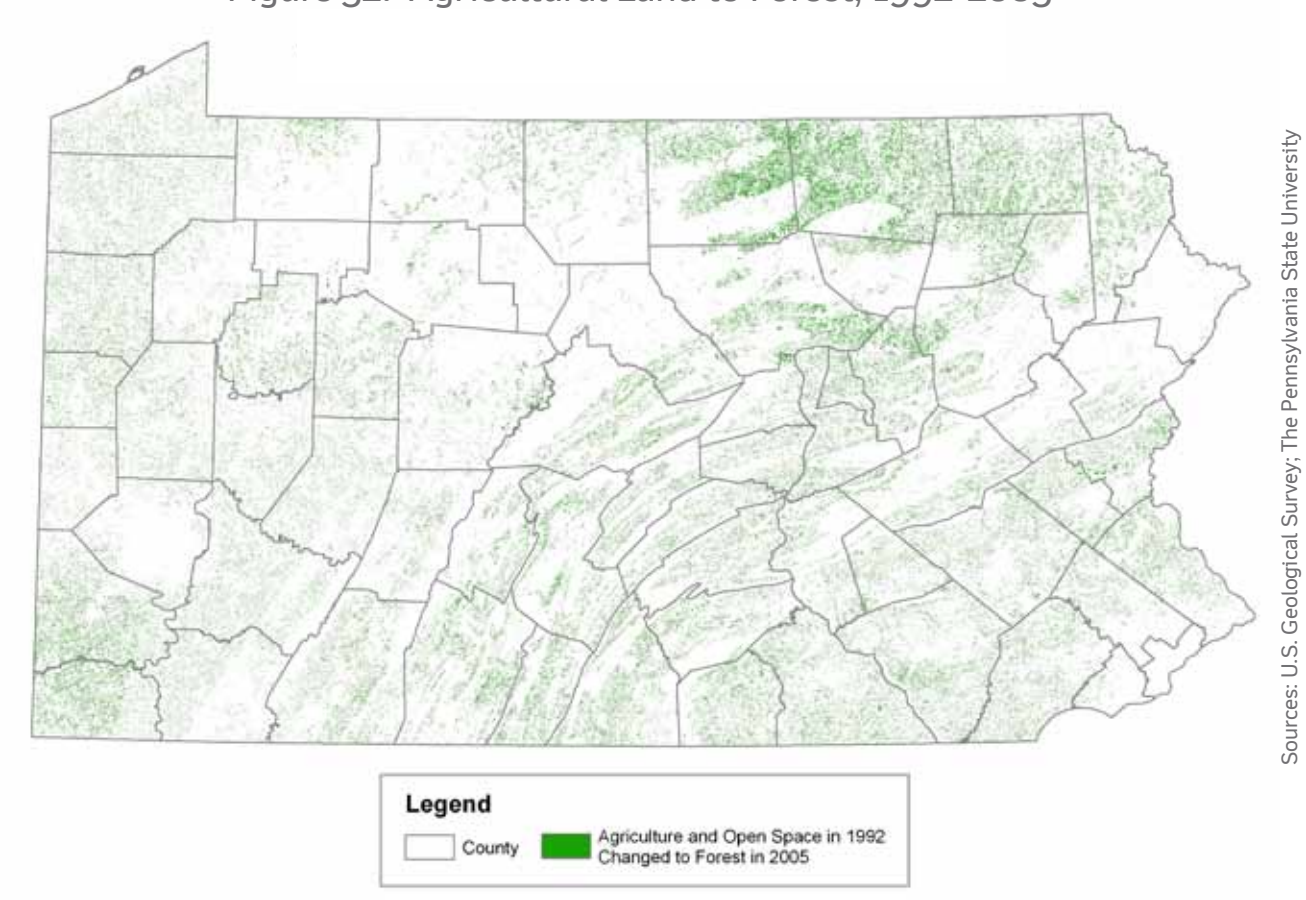


Table 7: Conversion of Agricultural Land to Forest by Reporting Region, 1992-2005

Reporting Region	Total Acreage	Agriculture Acreage, 2005	Agriculture as % of Total Acres, 2005	Acres of Agriculture Converted to Forest, 1992-2005	% of Agriculture Acres Converted to Forest, 1992-2005
Central	3,695,510	791,721	21.4%	247,524	24.8%
North Central	3,247,957	376,624	11.6%	111,287	35.7%
Northeast	2,845,317	283,607	10.0%	136,345	40.0%
Northern Tier	2,535,381	402,710	15.9%	367,927	53.3%
Northwest	3,269,420	825,424	25.2%	171,361	19.2%
South Central	3,317,569	1,408,521	42.5%	259,520	14.3%
Southeast	2,411,112	663,758	27.5%	171,455	18.1%
Southern Alleghenies	2,954,622	705,690	23.9%	191,449	26.6%
Southwest	4,528,403	1,283,105	28.3%	285,610	22.7%
Pennsylvania Total	28,805,291	6,741,161	23.4%	1,942,478	24.4%

Source: Pennsylvania Spatial Data Access (PASDA), compiled by geographIT and PB Americas, Inc.

Forest Land

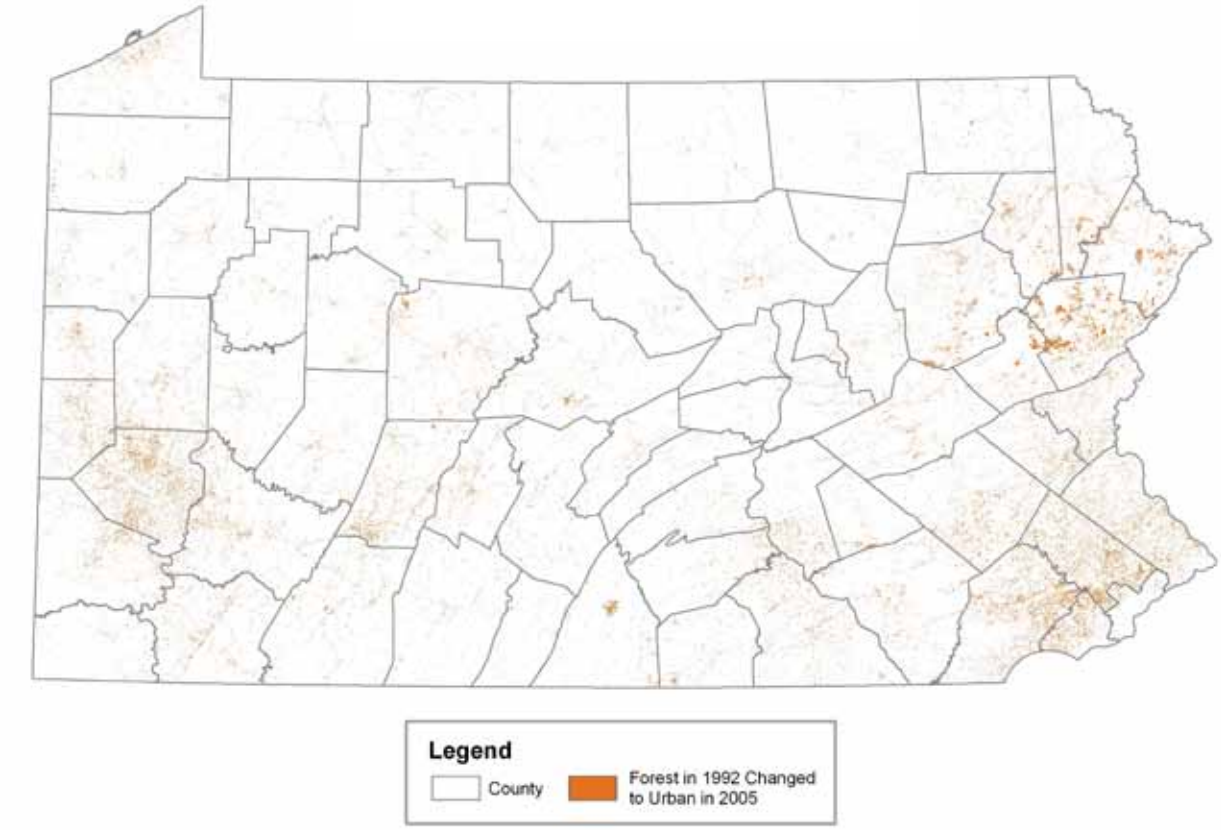
Pennsylvania ranks number one in the U.S. in hardwood production. The timber and forest products industry employs more than 90,000 Pennsylvanians and contributes approximately $5 billion annually to the state's economy. Forest-based recreation also contributes significantly to the state's large tourism industry.

Historically, the most significant impacts to the forested land area of Pennsylvania occurred during the 19th century due to land clearing for agriculture and commercial timber harvesting. By the beginning of the 20th century, forest land covered approximately 32 percent of Pennsylvania's land area. Forest land continued to gain land area throughout the 20th century and more recent trends show a relatively stable forest land base. In 2004, forest lands comprised 58 percent (16.6 million acres) of the total land area within the Commonwealth. Approximately 75 percent of this land is under private ownership while state-owned forest lands constitute 2.1 million acres.

The total acreage of forest land remains relatively stable at the statewide level as conversions to urbanized areas are counterbalanced by afforestation of agricultural and other open space lands. The change in forest land composition during the 1992-2005 time frame has some noteworthy regional variations (Figure 33 and Table 8). The most significant amount of forest-to-urban land conversion occurred in the Southeast region with over 20 percent of this land area succumbing to development during this time frame. Other regions with considerable forest land conversion to urbanized development include the Northeast, South Central, and Southwest. Development pressures may have influenced this conversion as illustrated by the concentration of this change in land use occurring in areas surrounding Philadelphia and Pittsburgh and within the growing Poconos area. The conversion of this forest land to commercial and residential development primarily occurred near urban centers or major connecting highways and has led to small patches of highly fragmented forests.[18]

Conversion of forest land to agricultural land largely occurred in the western portion of the state; however, the Southeast region also experienced a significant amount of forest land conversion to agricultural use (Figure 34 and Table 9). Between 1992 and 2005, this conversion accounted for approximately 1.7 million acres of new agricultural land throughout the state. The four regions with the greatest acreage conversion by percentage are the Southwest with 14.5 percent, Southeast with 12.7 percent, Southern Alleghenies with 10.4 percent, and South Central with 9.9 percent.

Figure 33: Forest Land to Urban, 1992-2005



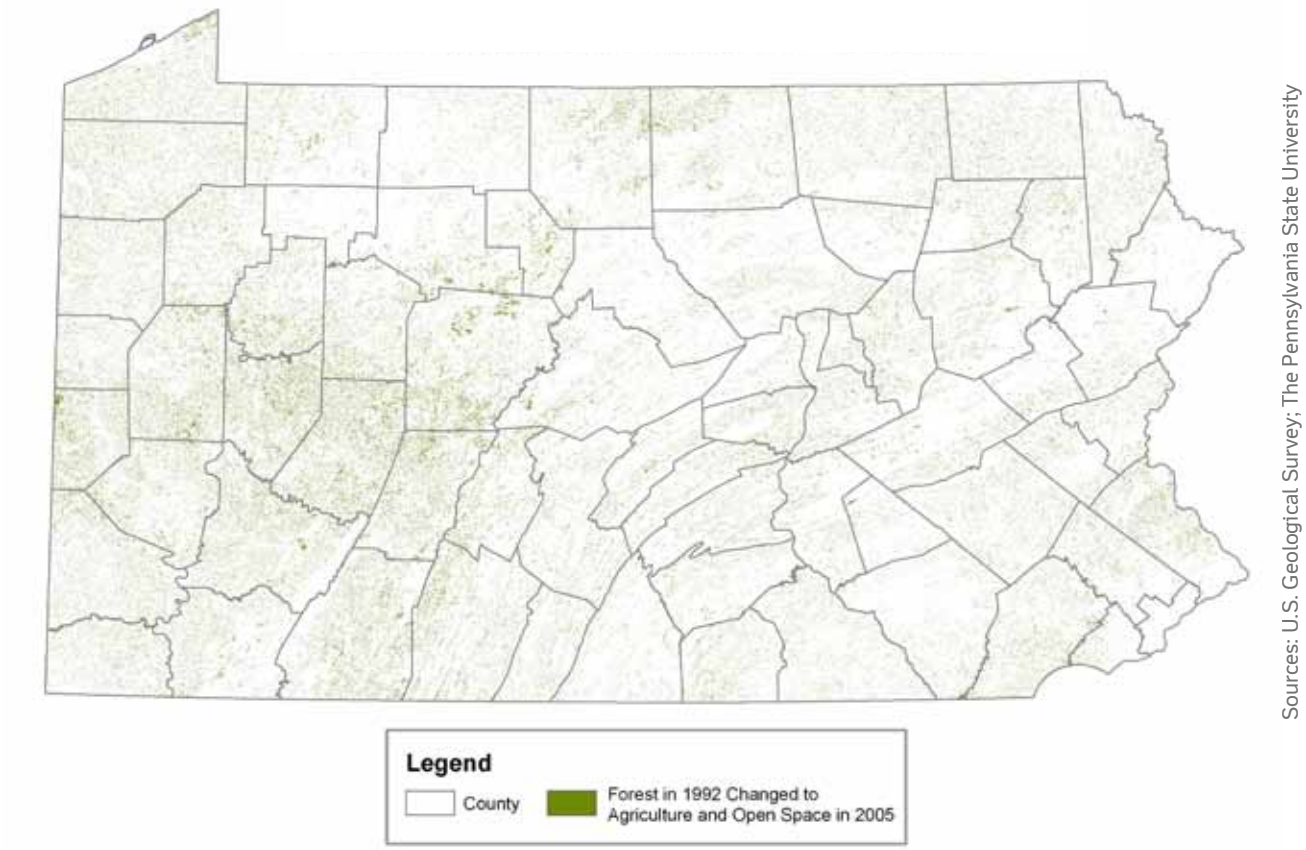
Sources: U.S. Geological Survey; The Pennsylvania State University

Table 8: Conversion of Forest to Urban by Reporting Region, 1992-2005

Reporting Region	Total Acreage	Forest Acreage, 2005	Forest Land as % of Total Acreage, 2005	Acres of Forest Converted to Urban, 1992-2005	% of Forest Converted to Urban, 1992-2005
Central	3,695,510	2,636,933	71.4%	48,946	1.9%
North Central	3,247,957	2,721,642	83.8%	39,519	1.4%
Northeast	2,845,317	2,149,687	75.6%	149,368	6.8%
Northern Tier	2,535,381	2,012,857	79.4%	23,426	1.3%
Northwest	3,269,420	2,128,929	65.1%	45,289	2.1%
South Central	3,317,569	1,336,741	40.3%	81,557	6.4%
Southeast	2,411,112	824,208	34.2%	200,627	20.4%
Southern Alleghenies	2,954,622	2,043,975	69.2%	63,347	3.0%
Southwest	4,528,403	2,565,308	56.6%	173,772	6.0%
Pennsylvania Total	28,805,291	18,420,279	63.9%	825,851	4.4%

Source: Pennsylvania Spatial Data Access (PASDA), compiled by geographIT and PB Americas, Inc.

Figure 34: Forest Land to Agricultural Land, 1992-2005



Sources: U.S. Geological Survey; The Pennsylvania State University

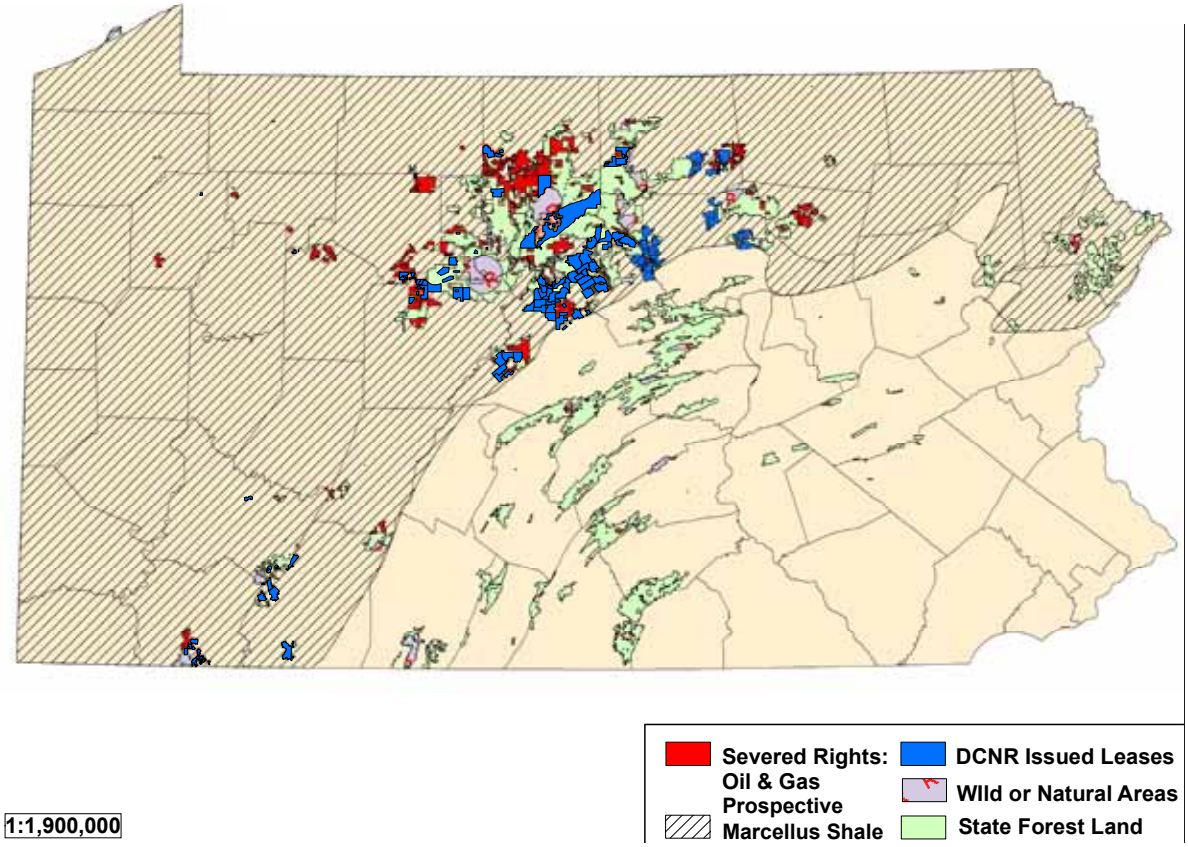
Table 9: Conversion of Forest Land to Agricultural Land by Reporting Region, 1992-2005

Reporting Region	Total Acreage	Forest Acreage, 2005	Forest Land as % of Total Acreage, 2005	Acres of Forest Converted to Agriculture, 1992-2005	% of Forest Converted to Agriculture, 1992-2005
Central	3,695,510	2,636,933	71.4%	146,424	5.7%
North Central	3,247,957	2,721,642	83.8%	196,836	6.9%
Northeast	2,845,317	2,149,687	75.6%	105,392	4.8%
Northern Tier	2,535,381	2,012,857	79.4%	124,509	6.9%
Northwest	3,269,420	2,128,929	65.1%	204,244	9.4%
South Central	3,317,569	1,336,741	40.3%	125,223	9.9%
Southeast	2,411,112	824,208	34.2%	125,167	12.7%
Southern Alleghenies	2,954,622	2,043,975	69.2%	220,695	10.4%
Southwest	4,528,403	2,565,308	56.6%	419,843	14.5%
Pennsylvania Total	28,805,291	18,420,279	63.9%	1,668,333	8.8%

Source: Pennsylvania Spatial Data Access (PASDA), compiled by geographIT and PB Americas, Inc.

Acceleration in the deforestation and fragmentation of forest lands and impacts to agricultural lands is occurring as the Marcellus Shale natural gas industry takes hold. Over 70 percent of state forest lands are located within the area containing the Marcellus Formation. The Commonwealth does not own all the subsurface oil and gas rights on approximately 15 percent of state-owned forest lands, and consequently has a limited ability to control surface exploration or development activity on these lands. In addition, owners of property protected under Pennsylvania's Farmland Preservation Program retain the right to enter into oil and gas leases. As of January 2010, approximately 700,000 acres of State Forest lands (including areas to which the Commonwealth does not own the oil and gas rights) were encumbered by oil and gas leases (Figure 35). Other factors expected to contribute to the potential loss of high-value forest land include parcelization as private forest land owners turn over lands to the next generation, use for energy conveyance through pipeline and overhead transmission line expansions, and fragmentation from various right-of-way acquisitions.

Figure 35: Pennsylvania State Forest Land and the Marcellus Shale



Source: Pennsylvania Department of Conservation and Natural Resources

Marcellus Shale Extraction Effects on the Environment

As discussed in the previous chapter, drilling activity and gas extraction within the Marcellus Shale has increased significantly since the first wells were drilled in 2005. A total of 768 wells were drilled in 2009. The top five counties in number of wells drilled in 2009 are located in the Southwest and Northern Tier regions: Washington (138), Tioga (114), Bradford (113), Greene (91), and Susquehanna (60) (Figure 36 and Table 3). The extraction of natural gas from the Marcellus Formation has been surrounded by controversy over the last few years, primarily due to the associated environmental impacts. Specific land use and natural resources concerns of Marcellus Shale extraction methods and activities include:

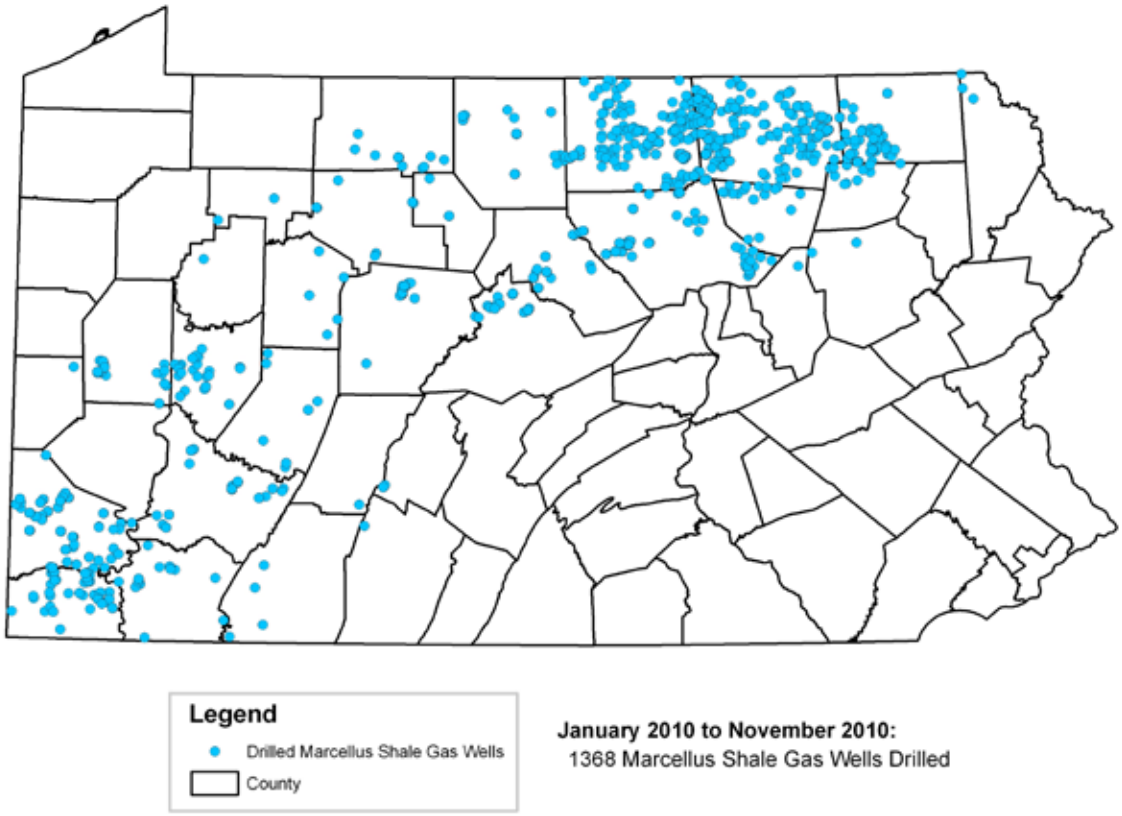
- strain on existing infrastructure and municipal services
- potential degradation of water withdrawal sources (primarily streams and lakes)
- potential groundwater contamination
- erosion and sedimentation resulting from extensive earth disturbances at the well site, roads, and pipeline construction
- timber removal
- ecological impacts and habitat fragmentation
- increased emissions from increased truck, equipment, and vehicle activity
- aesthetics

Land use impacts have primarily focused on forest lands as discussed earlier, and water quality. A producing well generally occupies approximately 1.5 acres after a site is cleared of timber and top soil is disturbed to allow for construction of the drilling pad. The site is to be reclaimed and reforested after the well stops producing. The potential extraction life for these gas wells has been estimated to be 20-40 years. Marcellus Shale well reservoirs differ from conventional oil and other gas extraction methods due to the use of directional drilling and hydrofracturing. This method uses high-pressure water, sand, and chemicals, and can require as much as 20 times the water volume that is used in conventional well drilling.

Water use is a significant concern both in volume and in the treatment and disposal of the waste product. The drilling process can require 50,000 to 300,000 gallons of water per day and the deep hydrofracturing process can require 500,000 to more than 1 million gallons per day.[19] Water consumption continues at lower volumes throughout the post-fracturing stages of well development and production. The annual water withdrawal for Marcellus Shale drilling operations (approximately 10 billion gallons per year) equals about the same volume of water used in three days by thermoelectric power plants. However, the impacts to water sources for Marcellus Shale operations have been debated to be a more significant environmental concern due to the remote locations of the water sources.

The top five counties in number of wells drilled in 2009 are located in the Southwest and Northern Tier regions: Washington (138), Tioga (114), Bradford (113), Greene (91), and Susquehanna (60).

Figure 36: Oil and Gas Wells Drilled, January - November 2010



Source: Pennsylvania Department of Environmental Protection

Community Sustainability Issues

Low-density, dispersed development patterns increase the costs to construct and maintain new public infrastructure (roads, sewer and water systems, schools, and other public services). This suburbanization compounds the fiscal challenges for all communities, whether they are growing or declining. Pennsylvania's older urban communities continue to struggle with residential abandonment, limited redevelopment activity, and loss of retail businesses. Residential and commercial abandonment in cities and boroughs leads to the degradation in quality of place for a large number of Pennsylvania communities.[20] These municipalities experience significant reductions in their tax base that in turn limit their ability to efficiently provide services. Likewise, municipalities experiencing rapid growth also struggle to provide adequate infrastructure and services for their expanding low density development patterns. This low density, dispersed development pattern contributes to the loss of farm land and open space and alters the landscape of rural Pennsylvania.

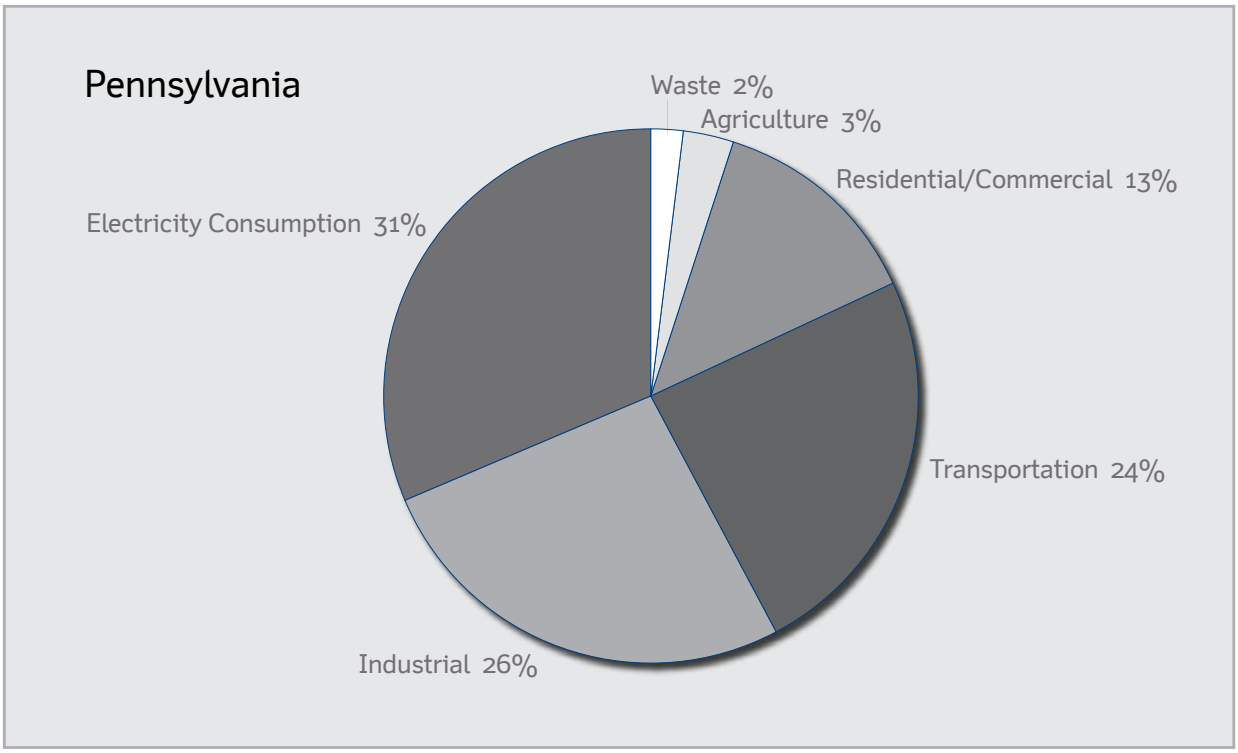
Sustainable communities emphasize long-term human and ecological well being and offer current and future residents a living and working environment that carefully considers the balance of the ecological, economic, and social characteristics of an area. Sustainable communities provide healthier and environmentally greener places which contribute greatly to the quality of life for rural, suburban, and urban residents throughout the state. Many Pennsylvania communities currently offer residents and visitors a variety of intrinsic amenities and unique assets. Likewise, many of these communities may realize potential economic opportunities in the up-and-coming green jobs industry as discussed in the previous section of this report.

Pennsylvania communities are beginning to find opportunities to become greener. Union County was the first county in the nation to be designated as a Green Community by the United States Environmental Protection Agency (EPA). The City of York was also designated by EPA Region III (mid-Atlantic) as a participating Green Community. As a Green Community, the EPA provides technical assistance for redevelopment opportunities. This assistance includes knowledge-sharing on topics including the integration of energy conservation, site design measures to reduce environmental impacts, and stormwater management.

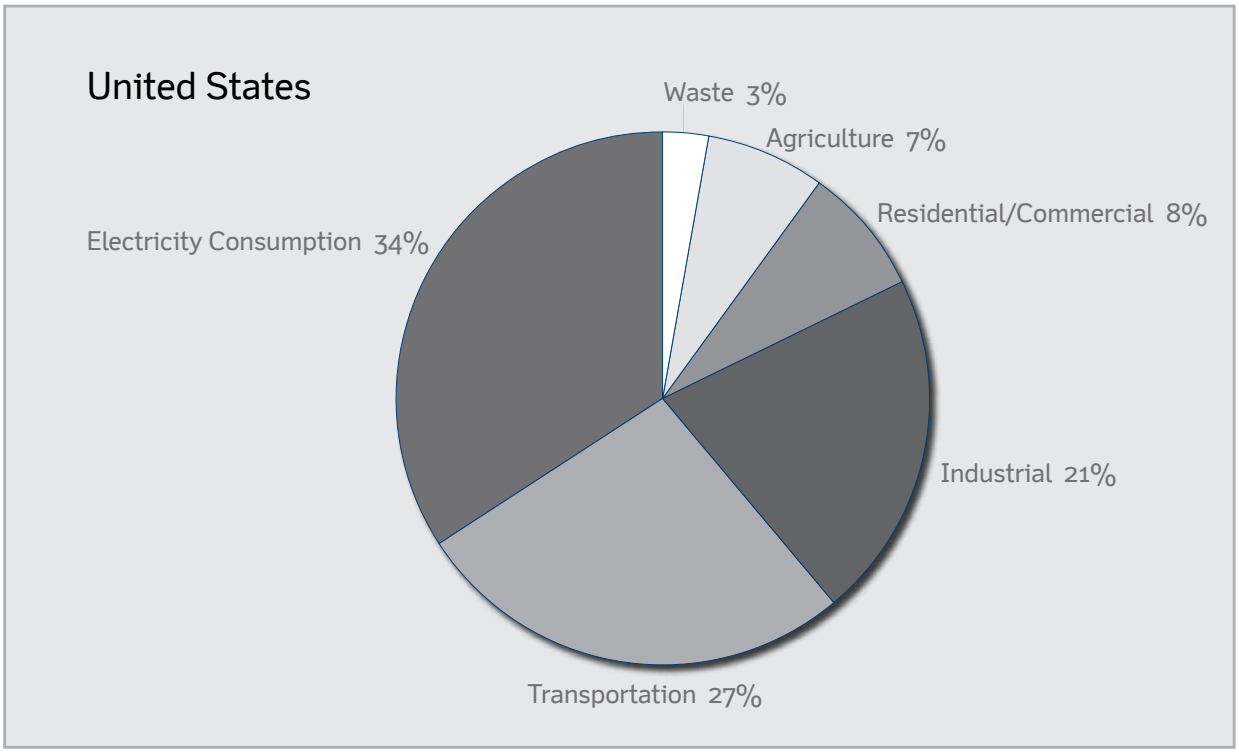
In association with becoming greener, awareness of climate change and carbon footprint—the total amount of greenhouse

Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable communities build on this theme through a holistic, interdisciplinary approach that blends environmental, land use, housing, transportation, and economic development planning.

Figure 37: Gross GHG Emissions by Sector, 2000



Source: *Pennsylvania Climate Change Action Plan*



Source: *Pennsylvania Climate Change Action Plan*

Reductions in transportation emissions, energy usage, and greenhouse gases can be facilitated by combining land use and transportation strategies.

gases produced to directly and indirectly support human activities—have brought new concerns to how we develop and grow. Studies related to the recent Pennsylvania Climate Change Action Plan indicate that Pennsylvania's climate will change over the course of the next century in response to the substantial increase in atmospheric concentrations of carbon dioxide, methane, nitrous oxide, and other greenhouse gases (GHG). These GHGs are created naturally and by human factors such as automobile emissions, tree loss, and energy consumption. Pennsylvania is responsible for 1 percent of the planet's man-made greenhouse gas emissions.[21] The principal sources of Pennsylvania's GHG emissions in 2000 were electricity consumption, industrial activities, and transportation—all of which have a land use implication. Figure 37 compares the distribution of gross GHG emissions by sector in 2000 in Pennsylvania and the U.S.

Reductions in transportation emissions, energy usage, and greenhouse gases can be facilitated by combining land use and transportation strategies. These land use strategies include development patterns that support compact, mixed land uses and green space preservation while providing transportation options that promote transit and pedestrian travel and reduce automobile reliance. Transportation strategies include increased fuel efficiency, use of alternative fuels, reduction in vehicle miles traveled (VMT), and providing public and non-motorized transportation choices. In addition, community and neighborhood design elements as well as location decisions can help support reductions in greenhouse gases.

These design elements and location-efficient strategies include:

- Narrower streets and reduced parking requirement to reduce the urban heat island effect
- Building orientation
- Use of shade trees and green space for carbon dioxide sequestration
- Energy-efficient building design
- Directing development away from remote locations
- Providing transit, walking, and biking opportunities through compact community design
- School siting to encourage walking, biking, and decreased automotive travel to school[22]

The Montgomery County Commissioners adopted *Greenprint for Montgomery County: Climate Change Action Plan* in 2007. The report presents a recommended set of actions intended to reduce the amount of greenhouse gas emissions within the county. The plan is being implemented through the Advisory Committee on Climate Change, which was formed by the Montgomery County Commissioners on December 20, 2007.

The plan recognizes that actions to minimize greenhouse gas emissions will provide other significant benefits including traffic congestion reduction, smart growth and the revitalization of older communities, open space protection and farmland preservation, new economic development opportunities, increased energy independence, and potential cost savings through energy conservation.

Sustainable communities not only improve quality of life for their residents but can also provide added health benefits. Communities that offer a mix of destinations within a walkable distance present the opportunity for a healthy community by their very design. Pennsylvania cities, boroughs, and older suburbs offer urban lifestyle opportunities which national studies indicate are increasingly becoming in greater demand among the 45-and-older baby boomer population.[23] These communities also provide potential health benefits by offering increased pedestrian opportunities and destinations. Research has also shown that people living in walkable communities drive up to 26 percent fewer miles than their non-walkable counterparts. These communities not only offer opportunities to increase physical activity levels for their residents, but also contribute to improved air quality.

National statistics show that approximately 72.5 million U.S. adults are considered obese—Pennsylvania ranks 17th for adult obesity and 25th for childhood obesity. Throughout the country obesity rates are increasing. In 2000 all states had an obesity rate under 30 percent. In 2009, the obesity rate for Pennsylvania was 28.1 percent whereas nine other states had an obesity rate over 30 percent. This statistic is partially a result of the ever-increasing sedentary lifestyle. Recent national research indicates that walkable communities offer opportunities for physical activity and can help reduce rates of obesity as well as reduce or delay the on-set of many chronic diseases.

Pennsylvania's rural townships also provide opportunities for healthy communities. These communities can support physical activity through outdoor recreation sites including parks, land and water trails, and community greenways. National and state-level studies indicate that outdoor recreation facilities and services improve the physical and financial well-being of individuals and communities.[24] Land use and growth management practices that enhance the Commonwealth's quality of place through the protection and preservation of the rural countryside, small towns, and historic older cities can facilitate healthy, sustainable communities. Pennsylvania can capitalize on the quality of life in the variety of communities throughout the state to promote greener, healthier, and sustainable communities to attract individuals and families.

A study conducted by the Pennsylvania Department of Health found that 26 percent of adults aged 45-64, 29 percent of adults aged 65-74, and 44 percent of Pennsylvania adults over age 75 responded that they had not engaged in any leisure time physical activity during 2003-2005.[25] Additionally, 42 percent of residents aged 18-29, 61 percent of residents aged 30-44, and 66 percent of Pennsylvanians aged 65 and above were considered to be overweight. A 2007 study indicated that 18 percent of Pennsylvania elementary school-aged children were overweight.[26]

Pennsylvania's *2009-2013 Statewide Comprehensive Outdoor Recreation Plan* identifies four goals for healthy living. Goal 1 specifically speaks to local governments: Strengthen connections between outdoor recreation, healthy lifestyles, and economic benefits in communities. Recent programs and initiatives to encourage physical activity have included Keystone Action Zones to foster education and awareness at the county level, and Steps to a Healthier PA, to promote activities at school, in the community, and at worksites in the pilot counties of Luzerne, Tioga, and Fayette.

Pennsylvania is establishing a green footprint: the Pennsylvania Department of Environmental Protection's Local Government Greenhouse Gas Pilot Grant Program provided funding in 2009 to selected municipalities for the development of greenhouse gas inventories and action plans to reduce emissions and to improve energy efficiency and reduce energy costs.

The U.S. Green Building Council's new LEED for Neighborhood Development (LEED-ND) Rating System ensures that neighborhood design meets accepted levels of environmentally-responsible, sustainable development. Five pilot LEED-ND projects are located in Pennsylvania.

Where Are We Heading?

The continuation of decentralizing land use development patterns within Pennsylvania will have a considerable impact on the natural, economic, and social environments of communities. This development trend can be modified through proactive planning—a sustainable Pennsylvania can emerge.

Pennsylvania farms are beginning to consider new sustainability techniques including electricity generation and conservation practices. The Pennsylvania Department of Agriculture recognizes Marcellus Shale gas leasing and drilling as a potential revenue opportunity for Pennsylvania farmers, and encourages farm owners to balance both economic and preservation needs. The future conservation and protection of agricultural and forest lands will require innovative and aggressive policies and strategies. The newly re-energized Chesapeake Bay Program is currently placing an emphasis on the protection of forest land and urban forest renewal. In the near future, creative trading programs such as for carbon and nutrients may be able to offer cash to forest land owners, and new planning and prioritization efforts such as the development of voluntary Forest Security Areas may also help access more federal funding for conservation.[27]

Increased development pressures and economy-driven financial strains are a growing challenge to keeping land in agriculture production. The EPA's Chesapeake Bay Watershed Total Maximum Daily Load (TMDL) requirements for Pennsylvania are a concern for the agricultural industry as well as municipalities. Pennsylvania and other headwater states of the Chesapeake Bay are required to have a Watershed Implementation Plan (WIP) with specific controls to meet the final target levels of the TMDL requirements, which will be in place by 2025. The TMDL will require agriculture and other sources, including wastewater and stormwater, to implement remedial efforts such as Best Management Practices (BMPs) to reduce pollution and restore and maintain healthy waterways. Meeting the TMDL requirements will come at a cost to farmers and municipalities.

Marcellus Shale activity is occurring primarily in the western and northern rural areas of the state and will likely alter the rural landscape, including forested lands. In addition to wells, the conveyance of the extracted natural gas will require the construction of a pipeline system, which will have an impact on the surrounding landscape. Many of the rural Pennsylvania communities likely to be impacted by the Marcellus Shale gas extraction and future conveyance are the same communities of the coal and oil regions, which have scarred landscapes associated with resource extraction and the boom-and-bust nature of the industry. The long-term effects of Marcellus Shale impacts on Pennsylvania rural communities are still somewhat unknown and currently being debated.

Climate change projections indicate that Pennsylvania will become warmer and wetter over the next 20 years. The state has responded in part by developing the Pennsylvania Climate Change Action Plan. The plan was released in 2009 as a directive of the Pennsylvania Climate Change Act (Act 70 of 2008). The plan's 52 recommendations chart a course for reducing greenhouse gas emissions by 42 percent by

2020, compared to 2000 levels. Only two of these recommendations are directly related to compact land use development and they account for a mere 0.7 percent of the total greenhouse gas reduction expected from all 52 recommendations. However, GHG reductions resulting from changes in land uses (i.e., an increase of mixed-use, walkable communities) would be gradual and therefore large benefits would not be realized until 2030-2050. In addition, the combination of land use strategies with transportation strategies such as pricing policies and the expansion of alternative mode options (i.e., carpool/vanpool programs, better sidewalks, bike paths, and transit services), may have a greater impact on reducing GHGs than each individual strategy would have on its own.

Farming operations in Pennsylvania and the nation are trending toward small or very large farm operations—and fewer mid-sized farms.

Government Capacity

Pennsylvania local governments are struggling financially to provide basic, efficient services. Throughout the Commonwealth, revenue streams are out of sync with budget needs for all types of municipalities—cities, boroughs, townships, and counties. Municipal and multimunicipal planning is essential to inform decision-makers of the infrastructure and service needs of a community and to develop a successful implementation strategy for moving forward in a fiscally-constrained future.

Fiscal Challenges in Providing Basic Public Services

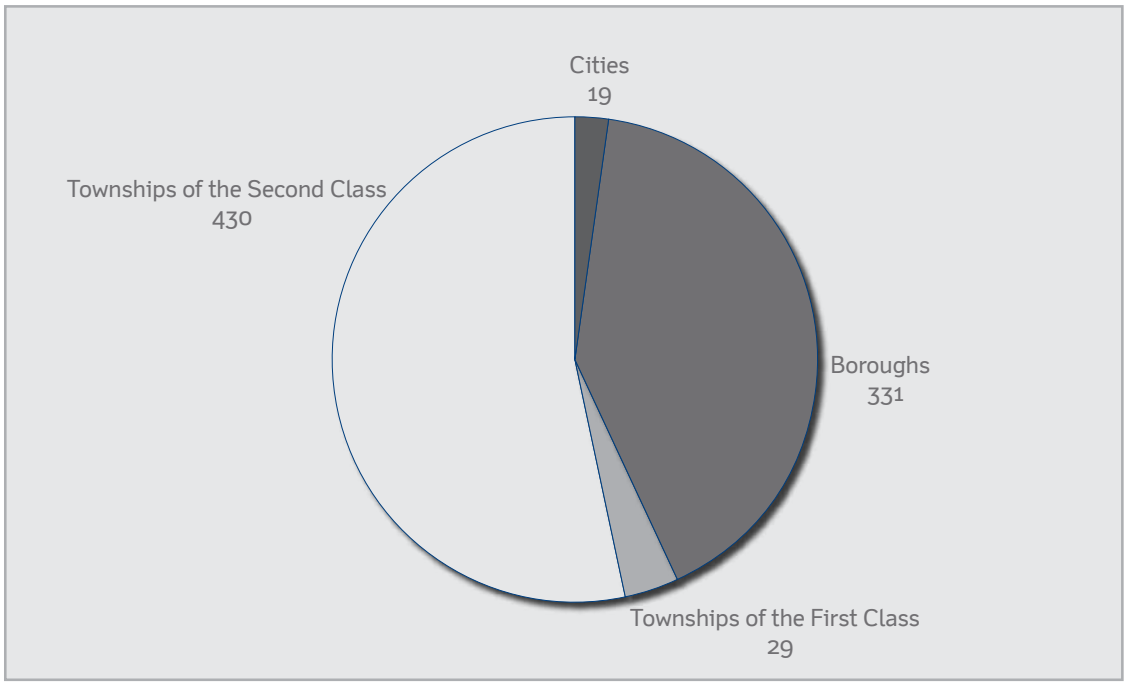
An increasing number of municipalities are having difficulty generating general fund revenue that is sufficient to cover their expenditures. A review of Department of Community and Economic Development (DCED) municipal statistics data for 2006 and 2008 indicates that approximately one-third (32.4 percent) of the reporting 2,499 municipalities in 2006 were operating in a deficit (Figure 38). This fiscal decline affected cities, boroughs, and townships of the first and second class almost evenly, with 30 to 35 percent of each of these municipal types operating at a deficit. By 2008, the percentage of municipalities operating at a deficit had increased significantly to 44.5 percent, with more urban cities (58.4 percent) and townships of the first class (50 percent) falling into this category than boroughs (44 percent) and townships of the second class (43.4 percent) (Figure 39).

The Municipalities Financial Recovery Act (Act 47 of 1987) provides financially-distressed local governments with both technical assistance through the development and implementation of a multi-year fiscal recovery plan, and financial assistance through loans and grants.

As of November 2010, 19 municipalities (11 cities, 6 boroughs, and 2 townships) were categorized as distressed. Four of these municipalities (3 cities, 1 township) enrolled in the Act 47 program after 2005. An additional six municipalities have had their distress determinations rescinded since the start of the program. The Borough of Homestead, in Allegheny County, was the most recent community to have the distressed determination rescinded (March 2007).

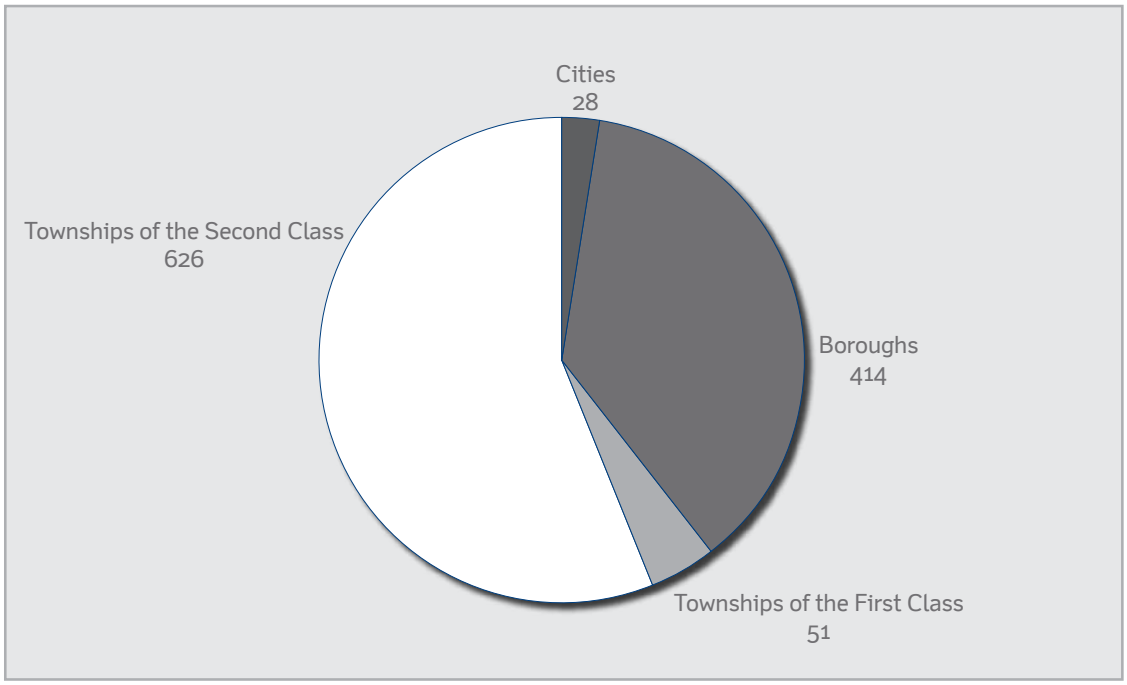
DCED also provides assistance through the Early Intervention Program (EIP). It provides funding for multi-year financial plans to help local governments proactively address fiscal issues and avert financial crises. Since the program's inception in 2005-06, more than 50 municipalities have participated.

Figure 38: Number of Municipalities with Year-End Deficits by Municipality Type, 2006



Source: PA Department of Community and Economic Development

Figure 39: Number of Municipalities with Year-End Deficits by Municipality Type, 2008



Source: PA Department of Community and Economic Development

Research conducted by 10,000 Friends of Pennsylvania indicates that this pattern of fiscal decline has been in place since 1970 and has not been limited to any specific region of the Commonwealth or type of governmental structure. 10,000 Friends cited local governments' reliance on property taxes—the revenues from which have failed to keep pace with increasing costs—as a primary reason for this decline.

According to the Pennsylvania Economy League's (PEL) 2003 *Structuring Healthy Communities* report, fiscal distress among the Commonwealth's municipalities is often inevitable under existing state laws governing municipal government, with revenue streams that are largely inelastic, capped, and out of sync with budget needs. PEL found several key characteristics for municipalities that are prone to fiscal strain:

- Most distressed municipalities have personal income levels below the state average.
- They have education levels below the state average.
- They have poverty levels above the state average.
- They have an older population than the state average.
- They have a higher population density than the state average.

The short-term trend, based on the DCED data presented above, is clearly toward a rapidly increasing number of municipalities operating under ongoing deficit conditions. It is not clear how much of this trend is due to the recent recession, or how long this trend will continue. However, it is clear that municipalities are finding it increasingly difficult to generate the revenues necessary to fund essential services. And, legacy cost issues—pensions, other post-employment benefits like retiree health care, and workmen's compensation—plus constraints of the collective bargaining process are adding to the fiscal stress problem.

In terms of longer-term trends, the 2003 PEL report, which contains 33 years of data starting in 1970, indicates that more and more municipalities are slipping into fiscal distress. The report's summary of the fiscal trends for all municipal classifications follows:

- By 2003, all cities fell below the state's fiscal average, as compared to 54 of 56 in 1970.
- Roughly two-thirds of Pennsylvania's boroughs struggled with declines in their relative fiscal health between 1970 and 2003.
- 70 of the state's 91 townships of the first class saw their fiscal health decline relative to the state average between 1970 and 2003.

- Approximately 30 percent of the state's townships of the second class had slipped below the state average by 2003, with 42 percent of those that stayed above the state average experiencing some decline in fiscal health.

Along with the growing fiscal decline, municipalities are struggling with infrastructure. A 2008 report from the Governor's Sustainable Infrastructure Task Force projects that user rates plus state and federal subsidies will not be sufficient to pay costs over the next 20 years to maintain and improve Pennsylvania's aging water and wastewater systems. Combined capital needs in that time period total $36.5 billion. The shortfall of revenue versus costs is projected to reach $41.7 billion. The transportation picture looks similar. A 2010 study conducted by the Pennsylvania State Transportation Advisory Committee concluded that current annual unmet transportation needs are estimated to total $2.3 billion (local and state needs), rising to almost $5 billion by 2020. According to a study by the American Society of Civil Engineers, Pennsylvania's infrastructure continued to decline between 2006 and 2010. A report card was created to evaluate 12 different areas. Grades reflect the infrastructure condition, performance, funding, and capacity versus need (Table 10).

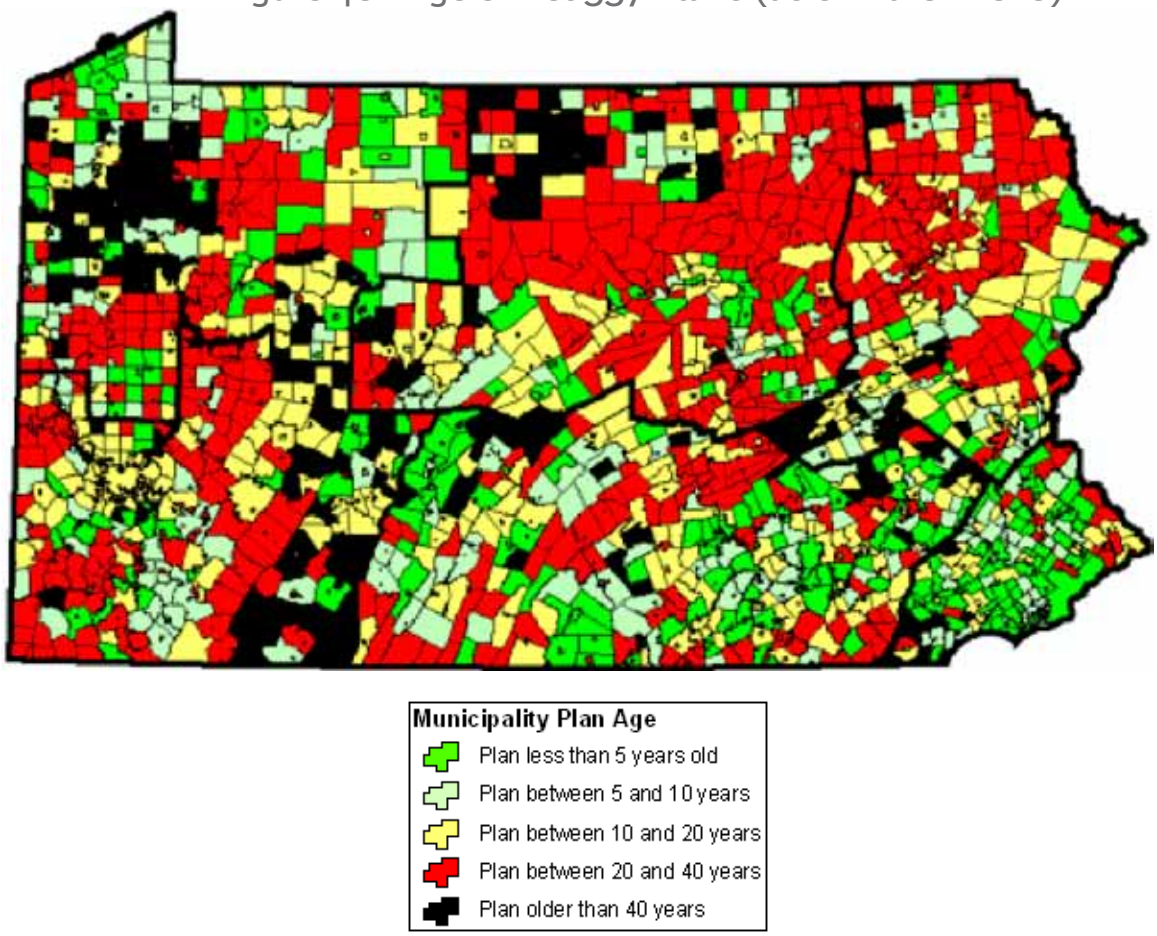
Table 10: Pennsylvania Infrastructure Grades, 2010

Infrastructure Type	Grade	Needs/Issues
Freight Rail	B	Smaller railroads are in need of assistance as freight demand continues to increase.
Parks and Recreation	B-	Growing Greener II funding source will terminate in 2010.
Schools	B-	Less than 6% of reporting schools are considered to be in Poor condition; 29% rated Excellent.
Solid Waste	B-	As of January 2009, Pennsylvania landfills have an average remaining capacity life of 16 years.
Bridges	C	Approximately $11 billion is needed for existing state bridge (20-foot span or longer) repair needs.
Dams and Levees	C-	Over $1.4 billion is needed to repair all deficient dams over the next five years.
Drinking Water	D+	Approximately $15.5 billion is needed to replace aging water infrastructure over the next 20 years.
Wastewater	D+	Approximately $28.3 billion is needed to repair or add capacity to existing systems over the next 20 years.
Navigable Waterways	D+	Aging waterway infrastructure (locks) in Pennsylvania, and nationally, are in a state of severe disrepair.
Stormwater	D-	Improvements to stormwater infrastructure are necessary to limit pollutants in reservoirs and improve drinking water that serves 84% of residents.
Roads	D-	38% of Pennsylvania state roads rated in fair or poor condition, and transportation funding needs exceed available sources. Truck traffic on Pennsylvania's 1,754 miles of interstate roads is more than double the national average.
Transit	D-	Although transit use has increased faster than any other transportation mode in the recent past, future dedicated funding has been significantly reduced.

Source: American Society of Civil Engineers, 2010

In general, there is a lack of capital budgeting by municipalities which, if combined with comprehensive planning, would be an effective tool to guide strategic infrastructure decisions. The Pennsylvania Sewage Facilities Act (Act 537) requires that all Commonwealth municipalities develop and implement comprehensive official plans that provide for the resolution of existing sewage disposal problems, address the future sewage disposal needs of new land development, and provide for the future sewage disposal needs of the municipality. Several of these plans are more than 20 years old and likely do not accurately reflect current and future needs (Figure 40). A number of these communities are located in the northern reaches of Pennsylvania where growth related to Marcellus Shale activity is expected to occur. And almost half of the state's municipalities are located in the Chesapeake Bay watershed in which impending implementation of TMDLs—Total Maximum Daily Loads—of pollutants will burden municipal wastewater systems to be part of the overall effort to reduce pollutants.

Figure 40: Age of Act 537 Plans (as of March 2010)



Source: Pennsylvania Department of Environmental Protection

Planning Resources at the County and Local Levels

Pennsylvania's state government has a recent history of investing in its communities by supporting municipal planning efforts. In the 1980s and 1990s, two planning assistance grant programs were funded by the legislature and administered by the Department of Community Affairs (now part of DCED):

- SPAG – State Planning Assistance Grant – Statewide amounts of typically $100,000-$300,000 annually.
- SCPAP – Small Communities Planning Assistance Program – Statewide amounts of $200,000-$250,000 annually, taken from state Community Development Block Grant (CDBG) allocations, available to small communities meeting CDBG low-moderate income criteria.

In FY 2000, the legislature dramatically increased state funding for local planning assistance. It created the Land Use Planning and Technical Assistance Program (LUPTAP) and appropriated $3.6 million (Table 11). Of that, $1 million was designated for technical assistance and training. In FY 2001, the appropriation increased to $4.6 million with $2 million designated for technical assistance and training. Much of that went to the hiring of staff for the Governor's Center for Local Government Services (GCLGS) to carry out its Executive Order 1999-1 Land Use mandate. The GCLGS conducted extensive outreach and research to assemble information of the state's land use trends and an inventory of best practices to use for technical assistance.

A cursory review conducted in early 2010 to identify the age of comprehensive plans and land use ordinances indicates Pennsylvania communities have made an earnest effort to update plans and ordinances over the last decade. Through FY 2008, $2.3 to $3.6 million in annual grants was provided to municipalities for comprehensive plans, zoning ordinances, and other planning support. LUPTAP funding was provided to 470 local government grantees and 25 regional or statewide grantees. It funded 257 comprehensive plans (142 multimunicipal plans, 69 municipal plans, 46 county plans), 74 land use ordinances, and 164 other planning studies. The latter included strategic development and revitalization plans for downtowns, neighborhoods, rural communities, and road/transit corridors to provoke desired development and investment, and to identify priorities for funding from Commonwealth agencies. The GCLGS coordinated and leveraged LUPTAP funding with other state and federal planning monies from state agencies, such as PennDOT and DCNR, to reach more communities throughout the state. A result was better coordination among state agencies and more coordination of land use, economic development, transportation, and conservation at the local level.

Table 11: Land Use Planning and Technical Assistance Program (LUPTAP) Appropriations and Grants, 2000-2010

	State Fiscal Year									
	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
Total (in millions)	$3.6	$4.6	$3.9	$3.5	$3.5	$3.2	$3.2	$4.2	$3.7	$0.4
Grants (in millions)	$2.6	$2.6	$2.6	$2.5	$2.3	$2.4	$2.5	$3.6	$2.8	$0.1

Source: Pennsylvania Department of Community and Economic Development

The 2008 nationwide financial crisis and accompanying economic downturn led to lower state tax revenues and projected budget deficits. The Governor and General Assembly responded in part by appropriating in FY 2009 only $375,000 for LUPTAP, less than 10 percent of the prior two years' appropriations. Only $94,000 was awarded for grants to municipalities and no money was allocated for planning training. The recently enacted LUPTAP appropriation for FY 2010 was $359,000.

Although the recent economic downturn has reduced the Commonwealth's ability to invest in community planning through LUPTAP, the Commonwealth continues to support community planning efforts through other state agency funding initiatives such as the Pennsylvania Communities Transportation Initiative (PCTI). PennDOT established the PCTI program in 2009 to fund planning and construction projects that improve communities by linking transportation investments to local land use planning and decision making. A total of $83.2 million has been provided or set aside for 2009-2014 to fund community-led planning and construction projects.

Where Are We Heading?

The Commonwealth and many of its municipalities, including growing suburban townships, are experiencing increased fiscal challenges due to the recent recession and budget cuts. Maintaining existing infrastructure and public services—let alone supporting and financing additional infrastructure—has become increasingly difficult. Likewise, aging infrastructure repair costs and existing capacity limits place undue strain on Pennsylvania communities and deter economic and community development. It is important for local governments to use capital budgeting and planning and avoid crisis management. Financing infrastructure improvements, along with maintenance and rehabilitation of existing infrastructure, will continue to be a challenge throughout the nation. In Pennsylvania, unmet transportation needs are estimated to total $2.3 billion annually (local and state needs), rising to almost $5 billion by 2020. Water and wastewater systems have combined capital needs of $36.5 billion in the next 20 years. A focus on maintaining and improving existing infrastructure across all community types—rural, suburban, and urban—is a Commonwealth strategy likely to continue over the next several years.

Action Plan

Major Findings and Themes in This Report

PRE-RECESSION – DEVELOPMENT OUTPACED GROWTH
Prior to the current recession (pre-2008), the principal trend identified in the 2005 Land Use and Growth Management Report was still evident—Pennsylvania was developing but not growing. The most current (2005) land data from aerial imagery showed significant increases in developed land, principally in suburbs and exurbs, at a time when population and the economy showed minimal growth.

DURING THE RECESSION – POOR ECONOMY AND DRAMATIC DROP IN DEVELOPMENT
In 2008 and 2009 during the nationwide recession, Pennsylvania's economy as measured by GDP declined, unemployment increased, and development activity dropped precipitously. The number of residential building permits reached lows not seen in 50 years. Subdivision and land development activity slowed considerably throughout the state. Despite the decline, indicators show that what little development occurred was located mainly in suburbs, exurbs, and rural areas.

CHANGING DEMOGRAPHIC DEMANDS
Demographic shifts affect future land use and the character of development. Pennsylvania already has a large proportion of senior citizens compared to other states—a trend which will continue. This trend will impact land use due to seniors' less mobile lifestyle; desire for closer-to-home health care and services; need for smaller, more community-connected housing; and preferred recreations. With deaths approaching the number of births, for Pennsylvania to grow, its communities will need to be attractive to people outside of the state. The principal component of population change in the last decade has been in-migration from other countries, not other states, and in-migrants have been less educated and of lower income than out-migrants.

PLANNING ISSUES VARY WIDELY BY REGION
Pennsylvania is a tale of two states. Data and maps regularly depict a dividing line running from South Central Pennsylvania up through the Lehigh Valley and the Poconos. Areas to the south and east are experiencing more growth, better economic indicators, and a younger population than to the north and west. Clearly, a one-size-fits-all policy approach won't work.

NATURAL RESOURCE MANAGEMENT AND GROWTH
There are large-scale natural resource issues that will have an impact on land use and development. This includes major natural gas exploration and well activity related to the Marcellus Shale, Total Maximum Daily Load (TMDL) for the Chesapeake Bay Program (and potentially for other watersheds in the future), and energy costs and demands for conservation.

INADEQUATE CAPACITY TO ADDRESS GROWING NEEDS
Government fiscal capacity to deal with these matters is declining, at both the state and local levels. At the local government level, the burdens of employee pensions and health care, energy costs, and growing government responsibilities are forcing service cuts and deferred maintenance of infrastructure (roads, water and sewer systems, and parks). Reliable infrastructure is critical to a community's ability to attract investment in homes and businesses. Fiscal stress is becoming more of a reality for all levels of government, not just inner cities and boroughs.

Five-Year Recommendations – Preface

Planning is a Local Government Function

In Pennsylvania, planning and regulation of land use and development are—appropriately—local government functions. Local government is essential in a democratic society. It is closest to the people and the land. This report makes no recommendation to weaken local government authority or reduce the number of local governments in Pennsylvania.

There are merits to intergovernmental cooperation. Economic and development markets, transportation and infrastructure, and environmental systems are regional in nature. It makes sense for multiple municipalities to work together to deal with these issues. Pennsylvania planning law—the Municipalities Planning Code—authorizes this in a way that allows municipalities to voluntarily cooperate by agreement to create multimunicipal comprehensive plans and zoning ordinances, while retaining their individual sovereignty. Since 2000, when the law was amended to promote cooperative planning, close to 200 multimunicipal comprehensive plans involving some 800 municipalities have been undertaken.

Local governments can voluntarily cooperate by agreement, or merge or consolidate by approval of the electorate, in the interest of more effectively providing services conducive to attracting and keeping desired land use and development. This report supports such opportunities where local choice finds them appropriate for better government. Cities, boroughs, and townships can turn to their counties for planning help. Capacity to help varies, but all Pennsylvania counties have some form of planning agency and all but one have planning staff.

The bottom line is that local governments, which are created by the Commonwealth, need the Commonwealth to provide legal tools and resources, or the authority for local governments to raise their own resources, including means other than raising property taxes, to deal successfully with land use, development, and planning.

Planning is Essential

Community planning is important. It is an ESSENTIAL local government function, even though not mandated by state law (except at the county level).

- It is the means by which a community learns of and adapts to changing demographic and economic conditions.
- It sets priorities for assets, services, and improvements critical to attracting and keeping people and businesses.
- It guides spending decisions when money is tight (which is almost always).

If done poorly, a plan will be shelved. A well-developed plan offers practical value and serves as a springboard for desirable development and community improvements.

Community planning
is an essential
local government function.

Five Keys to a Valuable, Implementable Plan

Focus on community issues and assets.

Go beyond a conventional planning formula and give priority to the biggest problems to be solved, needs to be met, or opportunities to be pursued. Come to grips with changing conditions and market realities. Focus on the assets—from basic services and infrastructure to favorite places to economic drivers—that make the community attractive for investment.

Organize the plan the way local officials and citizens think.

The plan document and work sessions should be organized around the priority issues: **We have a problem. Here's the data to prove it. Here are the best ideas to solve it. And here's how we'll do it.** It is a misconception that the PA Municipalities Planning Code requires a comprehensive plan to have individual chapters for land use, housing, etc. It's poor planning, too, since land use, infrastructure, economic development, and the environment are interrelated.

Devise practical and workable recommendations.

Recommendations should be sufficiently specific to be tied to definite actions, costs and financing, and responsible parties. Fewer recommendations with depth and detail are better than more general recommendations. Put them in some order of priority. Resources are limited and strategic choices have to be made.

Create a structure and capacity to implement the plan.

Build a team of expert organizations and community leaders. Involve them in the planning, then ask them to take a role implementing a part, large or small, of the plan. Commit the time of a municipal manager or planner to coordinate implementation.

Get and keep local ownership of the plan.

Public involvement should draw out aspirations for the community's future. Elected officials should be involved, some throughout the plan, the rest at key milestones. Steering committee members and elected officials should be able to speak comfortably in public about priority plan recommendations. After all, it's their plan.

Recommendation Area 1:
Local Governments Need Resources for Planning

Local governments need resources for planning. And, the track record shows, where the Commonwealth, counties, or local organizations or foundations provide funding and hands-on technical assistance, local government plans get results—community revitalization projects, better designed development, innovative development regulations, and investments in priority infrastructure and community assets.

OPPORTUNITIES:

1. The best practices library being created as part of this report should be maintained over the long term. It is an online resource that will provide examples of successful practices in planning, land use, and development. Municipalities are more inclined to employ an innovative practice when it has been used successfully in another municipality. Sharing best practices is a low-cost means to provide significant benefit to local governments.

2. DCED's Governor's Center for Local Government Services should publish enhanced planning guidance. GCLGS and the Pennsylvania Chapter of the American Planning Association did preliminary work to identify the characteristics of results-oriented and implementable plans. A guidebook and training program should be created from this for minimal cost.

3. The Commonwealth should take a leadership role in geospatial data and technologies. There are existing sources of public and private data, but too few local governments and state agencies are fully capable of using them. The state should play a coordinating role to spread expertise to access existing data and technologies, promote standardization, and encourage new data or use of emerging modeling technologies to close data gaps. The state should partner with private sector data and technology providers, including universities. The ultimate aim is better informed and more democratic decision making.

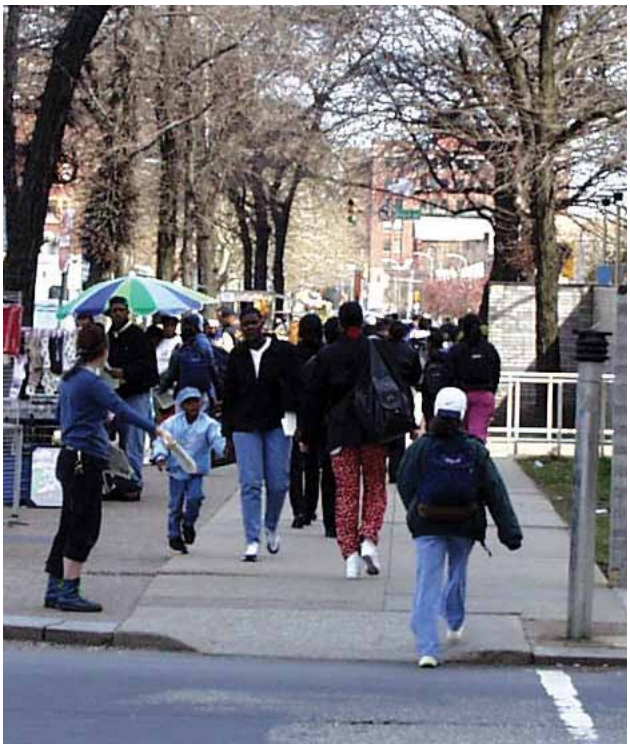
4. The State Planning Board should continue to serve as a non-partisan forum assessing community technical and financial needs in planning, land use, growth, and development, and advising the Governor and General Assembly on needs for assistance.

5. The state Interagency Land Use Team should continue to be a coordinating point for state agency funding and permitting actions as they impact local growth, development, and land use.

6. As local and state government budgets face cuts, the value of planning does not diminish. It defines priorities as communities have less to spend to encourage desired development and investment. Commonwealth funding via DCED's Land Use Planning and Technical Assistance Program has a 10-year record of providing significant help to local governments. The program should continue, even if it must be reduced in proportion with state revenue and spending targets. The program's priority should be to support strategic planning for community competitiveness.

Background

- Pennsylvania's Land Use Planning and Technical Assistance Program (LUPTAP) has a 10-year record of success, and has funded:
  - comprehensive plans for 46 counties, 142 partnerships of multiple municipalities, and 69 individual municipalities;
  - 74 projects to modernize and improve land use ordinances;
  - 164 strategic plans spurring economic development, revitalization, and community improvements in downtowns, highway corridors, and rural communities; and
  - training in planning and land use which annually delivered 10-12 courses at 50-60 sites attended by more than 1,000 local government officials.
- Despite these successes, the two most recent state budgets funded LUPTAP at about one-tenth of prior levels.
- Local governments are facing growing fiscal challenges that inhibit their ability to fund essential services, including planning.
- Local governments are facing challenges ranging from growth management to economic decline, for which planning help is needed.



Recommendation Area 2: Strategic Investment

A strategic approach to investment is crucial to the future of Pennsylvania's communities. It is fiscally smart, if not absolutely necessary. It focuses a community's limited resources on assets most critical to obtaining desired development and quality of life. It results in a win-win of development that provides real economic growth AND is sustainable over the long term.

OPPORTUNITIES:

1. Commonwealth investing and state agency programs should continue to implement the Keystone Principles and Criteria. A review of their impact and possible update would be in order. The State Interagency Land Use Team should continue as the mechanism promoting implementation as state programs and policies evolve in coming years.

2. The Commonwealth should continue the Community Action Team (CAT) approach to delivering assistance for community and economic development projects. CAT coordinates an offer of financing from multiple state agencies to help undertake a well-planned, multi-component, high-impact local development project. More opportunities can be considered to use this "engagement" approach. A community's comprehensive plan could be used as a basis for providing coordinated state agency assistance, in place of the traditional narrow-purpose, single-agency "program" approach based on funding applications. The State Planning Board made similar recommendations with further details in its May 2006 report.

3. An accepted Pennsylvania goal is to attract and keep people—including talented young adults; families who seek safe, stable communities and schools; and seniors with a retirement nest egg and the time and inclination for community service. The key to attracting people is to provide inviting community assets—a combination of reliable infrastructure and services, "place" amenities, cultural activities, entertainment, affordable housing, and economy-driving businesses that provide jobs. The Commonwealth and local governments need to identify the most strategic of these assets via community planning, then target investments to these assets.

4. Local governments need an additional, flexible revenue source designed to support strategic investments in assets. They need authority beyond the real estate tax and income tax, which are barely able to support the most basic municipal services and facilities.

5. Investment in and maintenance of existing infrastructure is often deferred due to fiscal distress experienced by local governments—and the trend continues to worsen with the current economic recession. Commonwealth infrastructure financing programs should be reevaluated and strengthened to respond to municipal investment priorities. Creative funding mechanisms, like those outlined in the 2008 Governor's Sustainable Infrastructure Task Force Report, should also be explored to maximize funding opportunities for the state and local governments.

The **Keystone Principles and Criteria** were developed by the Interagency Land Use Team and adopted in 2005 by the Governor's Economic Development Cabinet. They include 10 basic principles, a set of core criteria, and preferential criteria for each principle. Twenty-three state agencies have incorporated them as evaluation or scoring factors in financing programs. The Keystone Principles are:

- REDEVELOP FIRST
- PROVIDE EFFICIENT INFRASTRUCTURE
- CONCENTRATE DEVELOPMENT
- INCREASE JOB OPPORTUNITIES
- FOSTER SUSTAINABLE BUSINESSES
- RESTORE AND ENHANCE THE ENVIRONMENT
- ENHANCE RECREATIONAL AND HERITAGE RESOURCES
- EXPAND HOUSING OPPORTUNITIES
- PLAN REGIONALLY; IMPLEMENT LOCALLY
- BE FAIR

Background

- Pennsylvania's population and economy have grown in recent years, but both have lagged behind national growth, and there are regions and communities that have not grown or have declined.
- Fiscal stress is becoming ever more severe for state and local governments. Communities are struggling to provide basic services and maintain infrastructure. Legacy costs add significant burden, especially for core communities. The multitude of needs, combined with legislative limitations and political inertia, makes spending decisions daunting.
- DCED's Community Action Team has spurred community-changing revitalization projects in 80 communities, resulting in almost $1.3 billion in public and private investment for community improvements and development projects.

- Pennsylvania's infrastructure needs are large—$2.3 billion annually for state and local transportation, rising to $5 billion by 2020, and $36.5 billion for water and wastewater capital over the next 20 years.

Recommendation Area 3: Green and Walkable

Pennsylvania's growth opportunity is green and walkable. Changing demographics suggest there is an emerging market for development that is green (energy and environmentally conscious) and walkable (compact, affordable, mixed-use, and favoring pedestrians). This is a win-win scenario. Pennsylvania CAN attract growth AND sprawl less.

OPPORTUNITIES:

The Commonwealth should embrace a policy to facilitate green and walkable development and capture related market opportunities. The Commonwealth should exercise leadership to help communities and the private sector do the same. More specifically:

1. State agencies should set funding priority, coordinate programs, and expedite permitting to assist green and walkable development. Targets would be green buildings, green infrastructure, redevelopment and infill of existing walkable communities, enhancement of suburban communities to be more walkable, new development designed to be green and walkable, transit-oriented development, and open space protection. State planning law and transportation policy should promote facilities that accommodate pedestrians and other non-automobile modes of travel, and in turn reduce automobile travel and greenhouse gas emissions.
2. The Commonwealth should provide leadership and education for green and walkable development. Target standards include LEED (Leadership in Energy and Environmental Design) green building certification and LEED Neighborhood Development. There are numerous publications and web resources offering walkability standards. Planning tools are green/walkable zoning and development ordinances (including the Pennsylvania Standards for Residential Site Development), traditional neighborhood development, form-based codes, official map, and specific plan. Incentive tools include expedited permitting, reduced permit fees, development bonuses, tax abatements or credits, and marketing help.
3. Pennsylvania should consider establishing a designation program that encourages communities to achieve green and walkable standards and channels the above state agency assistance to motivated communities. Pennsylvania should market these communities to attract new businesses and residents.

The Win-Win of Green and Walkable Development

- Pennsylvania can have population and economic growth from emerging markets AND development that consumes less land and costs less in infrastructure and services.
- Green and walkable development can occur in all community types—cities, boroughs, and townships of all sizes. It can take the form of redevelopment, infill, or greenfield development.
- Green and walkable is an attractive development style for two demographic segments important to Pennsylvania:
  - educated, active young people, who the Commonwealth desires to retain and attract; and
  - aging Baby Boomers, who will be a large proportion of the state's population in coming years.
- Planners, conservationists, builders, and realtors support green and walkable development.

Background

- Pennsylvania's age 60+ population, one of the largest in the nation, is growing. By 2020 it will be one-quarter of the population. These residents will be less mobile and seek convenient access to health care and other services. They may also be interested in more modest housing—many Baby Boomers lost considerable retirement wealth in the recent recession and their financial future is uncertain.
- Decentralizing patterns of development have moved people and the economy from core communities to outlying areas, leaving decline and abandonment in the former and creating demands (and costs) for new public infrastructure and services in the latter. This pattern leads to increased traffic and greenhouse gas emissions as people drive more, obesity as people walk less, and less land for valuable Pennsylvania features that require lots of land—farms, forest, and natural systems.
- National surveys show a preference for walkable communities and interest in energy-efficient features of green homes. Market research suggests a "green" home is perceived by consumers as a higher quality product with efficiency and health benefits. It offers market differentiation and a competitive advantage to builders.
- National demographic changes point to a new development market. The U.S. population is projected to grow by 100 million in coming decades. Half will represent immigrants and ethnic minorities who prefer an urban lifestyle. Average household size will continue to decline. Generation Y "echo boomers," many saddled with student debt, are being hard hit by the recession and will have less to spend on housing and transportation.

What is Green Development?

- Efficient use of energy, water, and other natural resources.
- Low environmental impact—less air and water pollution, stormwater runoff, erosion, light pollution, and heat island effect.
- Minimization and reuse of waste materials, use of recycled materials, and use of local and sustainably produced materials.
- Attention to indoor environmental quality and human health.
- Includes green infrastructure which ranges from urban applications such as green roofs, trees, rain gardens, pocket wetlands, permeable pavement and stormwater collectors, reforestation, and riparian buffers, to protection and enhancement of natural systems.

What is Walkable Development?

- A mix of uses—homes, shops, schools, and workplaces—in close enough proximity to make walking feasible.
- Development compact enough to offer shorter, walkable distances between uses and enough nearby population (customers) for businesses to flourish.
- Provides connections to public transit for trips to farther places without need for a car.
- Design that favors pedestrians—streets that accommodate pedestrians and bicycles as well as cars, and buildings close to the street and sidewalks.
- Plenty of "people places"—parks, playgrounds, and public gathering spaces.

Recommendation Area 4: Emerging Areas

Five additional issues have substantial and far-reaching—and yet in many ways uncertain—implications for many aspects of life and government in Pennsylvania:

- **Marcellus Shale – Natural Gas**
- **Resource Protection Programs**
- **Chesapeake Bay Program**
- **Intergovernmental Cooperation**
- **Development Permitting Processes**

Strategic actions in these emerging areas can help produce desirable outcomes.

Marcellus Shale – Natural Gas

Development of the Marcellus Shale Formation is already having a big impact on land use in Pennsylvania. It is evident in the difficulty trying to cross Main Street in once quiet small towns. Impacts are growing—land consumed and fragmented by well sites and pipeline networks, new development such as hotels and equipment yards, and escalating housing costs. The natural gas industry is also having positive economic impacts in many parts of Pennsylvania where jobs are very much needed.

Numerous groups are contributing research to understand the economic opportunities and land use impacts. This report does not add to that body of work.

OPPORTUNITIES:

This report calls attention to fundamental issues for which the Commonwealth should provide financial and technical assistance:

- Local governments need fiscal help to deal with land use impacts, plus roads and bridges and growing demands on safety and social services.
- Communities need planning help—effective and consistent regulations, tips on how to capitalize on economic growth while retaining treasured community character, and guidance on how to prepare for the "bust" in 20 to 40 years when the Marcellus Shale is played out.

Resource Protection Programs

There was discussion in work sessions contributing to this report regarding an overall review of Pennsylvania's resource protection programs—Growing Greener, Farmland Preservation Program, etc. Resource-based industries, mainly agriculture, forestry, minerals, and tourism, are at the heart of Pennsylvania's economy. Open any marketing brochure and you will see photos of beautiful natural areas, waterways, and farms.

Programs to protect those resources have been successful. There is an opportunity to make them better. A model can be found in the regional Conservation Landscape Initiatives piloted by the Department of Conservation and Natural Resources. DCNR considers resources and their connection to communities, the economy, and quality of life in a holistic, integrated way. The same could be done at a statewide level with the aim of strategically maximizing the impact of these programs and their limited dollars.

OPPORTUNITY:

- A multiple state agency effort could be initiated to review resource protection objectives and programs and provide assistance. Pennsylvania could develop an umbrella mechanism such as "Pennvest for resource protection programs," or a Resource Action Team.

Chesapeake Bay Program

Through the Chesapeake Bay Program, the federal government is setting pollution limits for streams in the Chesapeake Bay watershed. These limits are called TMDL, or Total Maximum Daily Load. Pennsylvania is soon to complete its implementation plan which will likely include additional pollution controls and/or treatment requirements for wastewater plants, stormwater runoff, and farms. Local governments, developers, and farmers are bracing for anticipated cost burdens. Land use and development will be impacted, but it is not clear how.

- Will a combination of factors, such as greater regulation and cost of greenfield development, as well as economic benefits to farmers from nutrient credit trading, encourage infill and redevelopment in existing communities?
- Will a combination of other factors, such as increased cost and loss of profitability of farming, and increased urban stormwater and wastewater treatment costs passed on to users, encourage development of farms and outlying areas?

OPPORTUNITY:

- As the Chesapeake Bay watershed covers two-thirds of Pennsylvania, and as TMDL may be applied in other watersheds in the future, the impacts to land use and development of TMDL implementation should be monitored.

Intergovernmental Cooperation

- Intergovernmental cooperation is not really an emerging issue, but there are still opportunities needing attention. The value of cooperation grows as fiscal distress among local governments grows.
- The Pennsylvania State Planning Board made several proposals for more options and fewer barriers for voluntary local government mergers, consolidations, and cooperative services. One was enacted as Act 102 of 2010.

OPPORTUNITIES:

- The State Planning Board should, in partnership with the local government associations and business community, continue to pursue legislation that would remove barriers and enhance intergovernmental initiatives.
- Existing efforts, such as DCED's Shared Municipal Services Program and technical assistance, should continue a history of sparking councils of government (COGs), joint police and fire departments, shared services, joint purchasing, and other intergovernmental successes.
- Commonwealth agencies should encourage more intergovernmental involvement in submission of grant/loan applications where impacts will be multimunicipal or regional.

Development Permitting Processes

- With the recession, businesses and developers have been discussing permitting processes for development, the time and cost to obtain state and local approvals, and whether processes can be streamlined and coordinated. The State Planning Board convened a discussion group. A legislature-appointed task force has discussed this for large-scale developments of regional impact.
- There may be options to serve developer and community interests—by means of expedited permit reviews—for development promoting the Keystone Principles, green and walkable development, or development in locally-planned target growth areas (including redevelopment). There may be opportunity for streamlined permitting with greater use of specific plans, which are little used in Pennsylvania and only authorized for multimunicipal comprehensive plan participants.

OPPORTUNITY:

- In the wake of the recession, it is timely to launch a state and local government discussion of permitting processes and ways to streamline and coordinate them. There are practical and statutory obstacles, but they should not block the opportunity to discuss and explore options.

Appendix

KEYSTONE PRINCIPLES AND CRITERIA FOR GROWTH, INVESTMENT & RESOURCE CONSERVATION

Lock Haven

Pennsylvania's future prosperity depends on effective collaboration among state and local governments working with public and private partners to make wise development and investment choices that enhance Pennsylvania's exceptional built communities and rural and natural resources. How we coordinate our land use, economic development, community revitalization and conservation plans and projects directly affects the quality of life our citizens enjoy in their communities.

Developed by the Interagency Land Use Team and adopted by the Economic Development Cabinet in 2005, the Keystone Principles and Criteria make a strategic effort to target Pennsylvania's investments through a coordinated interagency approach to fostering sustainable economic development and conservation of resources in Pennsylvania's diverse communities.

The principles lay out general goals and objectives for economic development and resource conservation agreed upon among the agencies and programs that participated in their development. The criteria help measure the extent to which particular projects accomplish these goals.

The principles and criteria are designed to encourage sound planning and project development that will integrate programs and funding sources from a variety of state agencies into a comprehensive strategy that improves whole communities. There are two categories of criteria:

Core Criteria, where relevant, should be given primary consideration in all investment decisions made by commonwealth agencies when making grants or loans to public or private projects using agency funds.

Preferential Criteria should be used by commonwealth agencies in all programs to which they are applicable to evaluate projects and make decisions on grants or loans using agency funds.

Projects are evaluated with the recognition that rural, suburban, and urban areas in Pennsylvania have different characteristics and needs, and that what might work in an urban area might not work for rural communities.

Keystone Principles

Core Criteria

Project avoids or mitigates high hazard locations (e.g., floodplain, subsidence or landslide prone areas)

Project/infrastructure does not adversely impact environmentally sensitive areas, productive agricultural lands, or significant historic resources

Project in suburban or rural area: Project and supporting infrastructure are consistent with multi-municipal or county & local comprehensive plans and implementing ordinances, and there is local public/private capacity, technical ability, and leadership to implement project

Project in "core community" (city, borough or developed area of township): Project is supported by local comprehensive vision & plan, and there is local public/private capacity, technical ability, and leadership to implement project

Project supports other state investments and community partnerships

REDEVELOP FIRST. Support revitalization of Pennsylvania's many cities and towns. Give funding preference to reuse and redevelopment of "brownfield" and previously developed sites in urban, suburban, and rural communities for economic activity that creates jobs, housing, mixed use development, and recreational assets. Conserve Pennsylvania's exceptional heritage resources. Support rehabilitation of historic buildings and neighborhoods for compatible contemporary uses.

Preferential criteria:

- Brownfield or previously developed site
- Rehabilitation or reuse of existing buildings (including schools and historic buildings)
- Infill in or around city, borough, or developed area of township
- If greenfield site, located in or adjacent to developed area with infrastructure
- Located in distressed city, borough or township

Pittsburgh

PROVIDE EFFICIENT INFRASTRUCTURE. Fix it first: use and improve existing infrastructure. Make highway and public transportation investments that use context sensitive design to improve existing developed areas and attract residents and visitors to these places. Provide transportation choice and intermodal connections for air travel, driving, public transit, bicycling and walking. Increase rail freight. Provide public water and sewer service for dense development in designated growth areas. Use on-lot and community systems in rural areas. Require private and public expansions of service to be consistent with approved comprehensive plans and consistent implementing ordinances.

Preferential criteria:

- Use of existing highway capacity, rail infrastructure &/or public transit access available
- Within ½ mile of existing or planned public transit access (rail, bus, shared ride or welfare to work services)
- Use of context sensitive design for transportation improvements
- Use/improvement of existing public or private water & sewer capacity and services

Philadelphia

CONCENTRATE DEVELOPMENT. Support infill and "green field" development that is compact, conserves land, and is integrated with existing or planned transportation, water and sewer services, and schools. Foster creation of well-designed developments and walkable, bikeable neighborhoods that offer healthy life style opportunities for Pennsylvania residents. Recognize the importance of projects that can document measurable impacts and are deemed "most-ready" to move to successful completion.

Preferential criteria:

- Mixed residential, commercial & institutional uses within development or area adjacent by walking
- Sidewalks, street trees, connected walkways & bikeways, greenways, parks, or open space amenities included or nearby
- Interconnected project streets connected to public streets
- Design of new water, sewer & storm water facilities follows Best Management Practices, including emphasizing groundwater recharge & infiltration, and use of permeable surfaces for parking and community areas

Ohiopyle State Park

INCREASE JOB OPPORTUNITIES. Retain and attract a diverse, educated workforce through the quality of economic opportunity and quality of life offered in Pennsylvania's varied communities. Integrate educational and job training opportunities for workers of all ages with the workforce needs of businesses. Invest in businesses that offer good paying, high quality jobs, and that are located near existing or planned water & sewer infrastructure, housing, existing workforce, and transportation access (highway or transit).

Preferential criteria:

- Improves parks, forests, heritage parks, greenways, trails, fisheries, boating areas, game lands and/or infrastructure to increase recreational potential for residents & visitors
- Historic, cultural, greenways and/or opens space resources incorporated in municipal plans and project plan
- Makes adaptive reuse of significant architectural or historic resources or buildings

FOSTER SUSTAINABLE BUSINESSES. Strengthen natural resource based businesses that use sustainable practices in energy production and use, agriculture, forestry, fisheries, recreation and tourism. Increase our supply of renewable energy. Reduce consumption of water, energy and materials to reduce foreign energy dependence and address climate change. Lead by example: support conservation strategies, clean power and innovative industries. Construct and promote green buildings and infrastructure that use land, energy, water and materials efficiently. Support economic development that increases or replenishes knowledge-based employment, or builds on existing industry clusters.

Preferential criteria:

- Number of permanent jobs created and impact on local labor market
- Number of temporary jobs created and impact on local labor market
- Number of jobs paying family sustaining wage
- Increased job training coordinated with business needs & locations

RESTORE AND ENHANCE THE ENVIRONMENT. Maintain and expand our land, air and water protection and conservation programs. Conserve and restore environmentally sensitive lands and natural areas for ecological health, biodiversity and wildlife habitat. Promote development that respects and enhances the state's natural lands and resources.

Preferential criteria:

- Sustainable natural resource industry improvement or expansion: agriculture, forestry, recreation (fisheries, game lands, boating), tourism
- Business or project is energy efficient; uses energy conservation standards; produces, sells or uses renewable energy; expands energy recovery; promotes innovation in energy production and use; or expands renewable energy sources, clean power, or use of Pennsylvania resources to produce such energy
- Project meets green building standards
- Project supports identified regional industry cluster(s)

ENHANCE RECREATIONAL AND HERITAGE RESOURCES. Maintain and improve recreational and heritage assets and infrastructure throughout the Commonwealth, including parks & forests, greenways & trails, heritage parks, historic sites & resources, fishing and boating areas and game lands offering recreational and cultural opportunities to Pennsylvanians and visitors.

Preferential criteria:

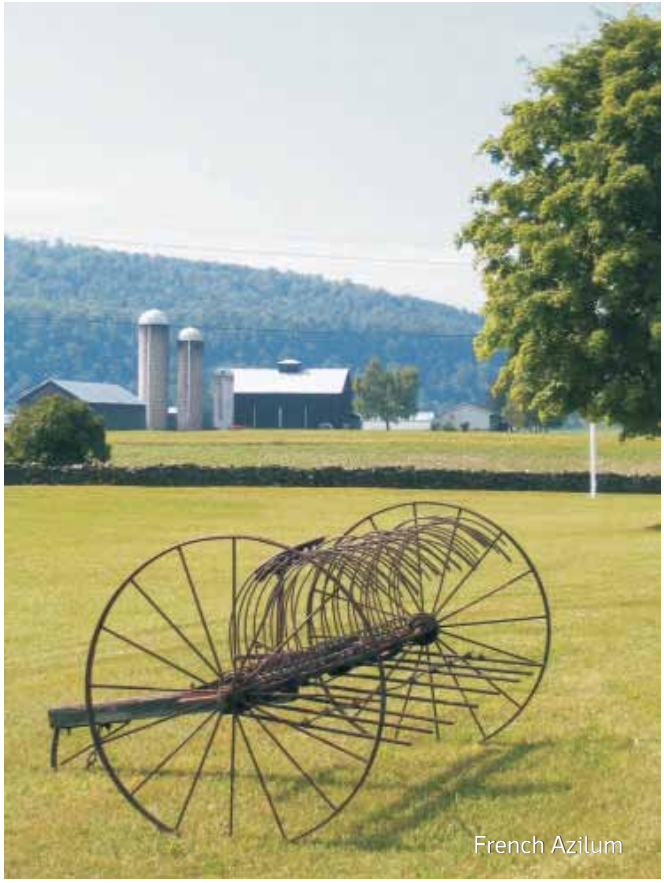
- Cleans up/reclaims polluted lands and/or waters
- Protects environmentally sensitive lands for health, habitat, and biodiversity through acquisition, conservation easements, planning and zoning, or other conservation measures
- Development incorporates natural resource features and protection of wetlands, surface & groundwater resources, and air quality

Wellsboro

EXPAND HOUSING OPPORTUNITIES. Support the construction and rehabilitation of housing of all types to meet the needs of people of all incomes and abilities. Support local projects that are based on a comprehensive vision or plan, have significant potential impact (e.g., increased tax base, private investment), and demonstrate local capacity, technical ability and leadership to implement the project. Coordinate the provision of housing with the location of jobs, public transit, services, schools and other existing infrastructure. Foster the development of housing, home partnerships, and rental housing opportunities that are compatible with county and local plans and community character.

Preferential criteria:

- Adopted county and multi-municipal or local municipal plans include plan for affordable housing; and implementing zoning provides for such housing through measures such as inclusion of affordable housing in developments over a certain number of units (e.g., 50), provision for accessory units, and zoning by right for multifamily units
- Project provides affordable housing located near jobs (extra weight for employer assisted housing)Project adds to supply of affordable rental housing in areas of demonstrated need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PLAN REGIONALLY; IMPLEMENT LOCALLY. Support multi-municipal, county and local government planning and implementation that has broad public input and support and is consistent with these principles. Provide education, training, technical assistance, and funding for such planning and for transportation, infrastructure, economic development, housing, mixed use and conservation projects that implement such plans.

Preferential criteria:

- Consistent county and multi-municipal plan (or county and local municipal plan) adopted and implemented by county and local governments with consistent ordinances
- County or multi-municipal plan addresses regional issues and needs to achieve participating municipalities' economic, social, and environmental goals. All plans (county, multi-municipal, and local) follow standards for good planning.
- County and local ordinances implement the governing plans and use innovative techniques, such as mixed use zoning districts, allowable densities of six or more units per acre in growth areas, and/or clustered development by right, transfer of development rights, specific plans, and tax and revenue sharing

BE FAIR. Support equitable sharing of the benefits and burdens of development. Provide technical and strategic support for inclusive community planning to ensure social, economic, and environmental goals are met. Ensure that in applying the principles and criteria, fair consideration is given to rural projects that may have less existing infrastructure, workforce, and jobs than urban and suburban areas, but that offer sustainable development benefits to a defined rural community.

pennsylvania PA
STATE OF INDEPENDENCE

Endnotes

[1] Pennsylvania State Data Center

[2] U.S. Census Bureau

[3] The Brookings Institution, *Committing to Prosperity*, 2007

[4] September/October 2010 Center for Rural Pennsylvania Newsletter

[5] Pennsylvania Department of Health, *Older Pennsylvanians*, 2007; The Pennsylvania Chronic Care Management, Reimbursement and Cost Reduction Commission Strategic Plan, February 2008

[6] Pennsylvania Department of Health, *Older Pennsylvanians*, 2007

[7] *Ibid.*

[8] AARP State Housing Profiles; 2005 U.S. Census American Community Survey

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