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2015 State Land Use and Growth Management Report

Commonwealth of Pennsylvania
Tom Wolf, Governor

PA Department of Community & Economic Development
Dennis M. Davin, Secretary
dced.pa.gov

PADCEDnews

INTRODUCTION

The Pennsylvania Municipalities Planning Code requires the Governor's Center for Local Government Services within the Department of Community and Economic Development to prepare a land use and growth management report every five years. This is the third such report.

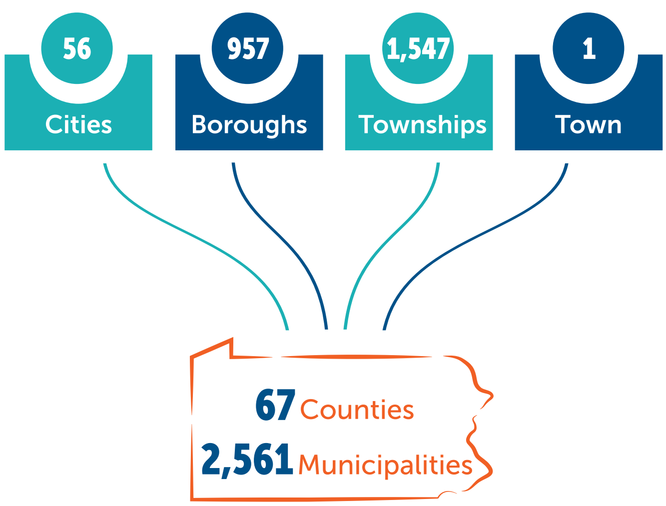
Land use is a core issue for communities. Those that deal with it smartly attract desired development and investment, improve quality of life, preserve treasured community character and resources, and incur less government cost.

In Pennsylvania, land use, growth, and development are principally managed by local governments. The Pennsylvania General Assembly provided statutory authority for counties and municipalities to perform planning, enact zoning and development ordinances, and utilize other land use tools. State agencies also affect land use and development. They regulate particular uses like landfills and resource extraction, own and manage state forests, parks, and game lands, and invest in transportation facilities, other infrastructure, and community and economic development projects.

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."

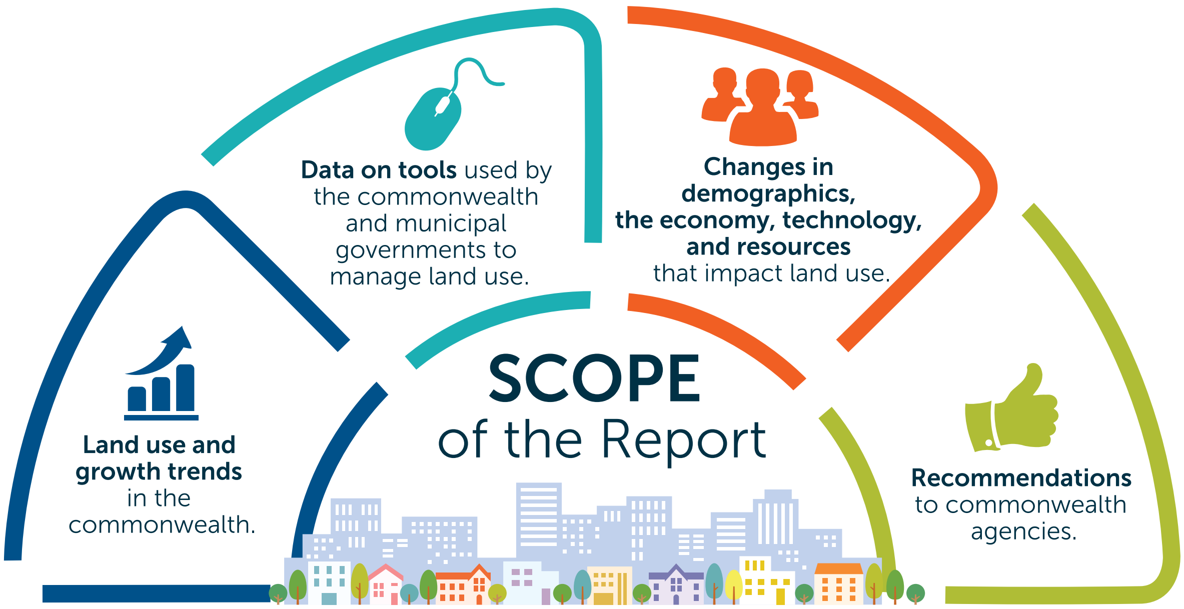
– Pennsylvania Municipalities Planning Code, Section 107



Cover Image: York County, Pennsylvania

PREPARATION

The report was prepared by staff of the Governor's Center for Local Government Services. Significant contributions were provided by state agency partners. The Department of Conservation and Natural Resources (DCNR) provided land cover data and analysis from 2011 and 2006 satellite imagery provided by the National Land Cover Database (NLCD).[1] The Departments of Agriculture, Conservation and Natural Resources (DCNR), Environmental Protection (DEP), and Transportation (PennDOT) provided data and policy input for their respective subject areas.



The Pennsylvania State Planning Board provided review and input via three work sessions at different stages of report development. Also, surveys were conducted of Pennsylvania's county planning agencies and a variety of stakeholder organizations representing local government, economic development, building, housing, and resource protection.

Data presented in the report comes from a variety of sources, the dates of which vary. For instance, the most recent land cover from satellite imagery is dated 2011. The most recent state population estimate from the U.S. Census Bureau is dated 2014. The report presents current data available at the time the report was written.

In addition to the *2015 State Land Use and Growth Management Report*, there is a Regional Trends Supplement containing more detailed land use, population, and agriculture data and trends by different regions of Pennsylvania.

1. See Appendix for more information on the data provided by the NLCD project.

ACKNOWLEDGMENTS

The Pennsylvania State Planning Board provided considerable help preparing the report. The Board has 25 members – fifteen gubernatorial citizen appointments, four legislative appointments (two from different parties in each chamber), and six cabinet secretaries.

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EXECUTIVE SUMMARY

The *2015 State Land Use and Growth Management Report* contains data on a variety of issues relevant to land use and development in Pennsylvania. It was prepared by the Governor's Center for Local Government Services with input from a variety of state government agencies and the Pennsylvania State Planning Board.

This report includes data and summaries for:

- Land use and growth trends
- Changes in demographics, the economy, and resources that affect land use
- Land use and development management tools used by municipalities

The report also provides recommendations for commonwealth agencies.

Land Use

The Great Recession of 2008 and the housing financing crisis slowed development throughout the nation. In Pennsylvania, from 2006 to 2011 (the most recent year for land use data from aerial imagery), the amount of land used by homes, businesses, and other built development increased only 1.7 percent. It was a significant change from 1992-2005 when developed land use had increased 131 percent. Between 2008 and 2014, numbers of building permits were at historic lows.

Historic changes are also occurring in demographics and technology with potential to affect land use and development. Lifestyle preferences of Millennials and aging Baby Boomers are creating more interest in urban development and redevelopment. Technology is changing where people work and shop and how much space is needed for industries, offices, and retail. The impact on future land use is still being debated.

Though the Pennsylvania economy is back on its pre-recession track, the state continues to comprise a smaller share of U.S. population and GNP – and fiscal distress, poverty, and blight remain hard-to-solve problems in many communities.

Growth Management

Land use and development regulations administered by municipalities and counties are important to Pennsylvania's ability to successfully address the above issues. Yet, land use regulations are significantly out of date. A survey done for this report shows only 27 percent of subdivision and land development ordinances and only 33 percent of zoning ordinances were enacted or updated in the last 10 years.

Recommendation

The principal recommendation of the report is to target state agency technical assistance and funding to help local governments modernize zoning ordinances and subdivision and land development ordinances. Modern ordinances would achieve a WIN-WIN of capitalizing on desired but changing growth and development opportunities AND promoting community character and quality of life.

LAND USE DATA AND TRENDS

LAND USE

Pennsylvania land use from 2006 to 2011 (as interpreted from satellite imagery) changed little. Growth in developed land was only 1.7 percent. Losses in forest and agricultural lands were each less than 1 percent. (Note: 2011 is the most current available imagery and data.)

These trends differ significantly from 1992-2005, as reported in the *2010 State Land Use and Growth Management Report,* when growth in developed land was 131 percent and losses were 2.5 percent for forest land and 15.4 percent for agricultural land.

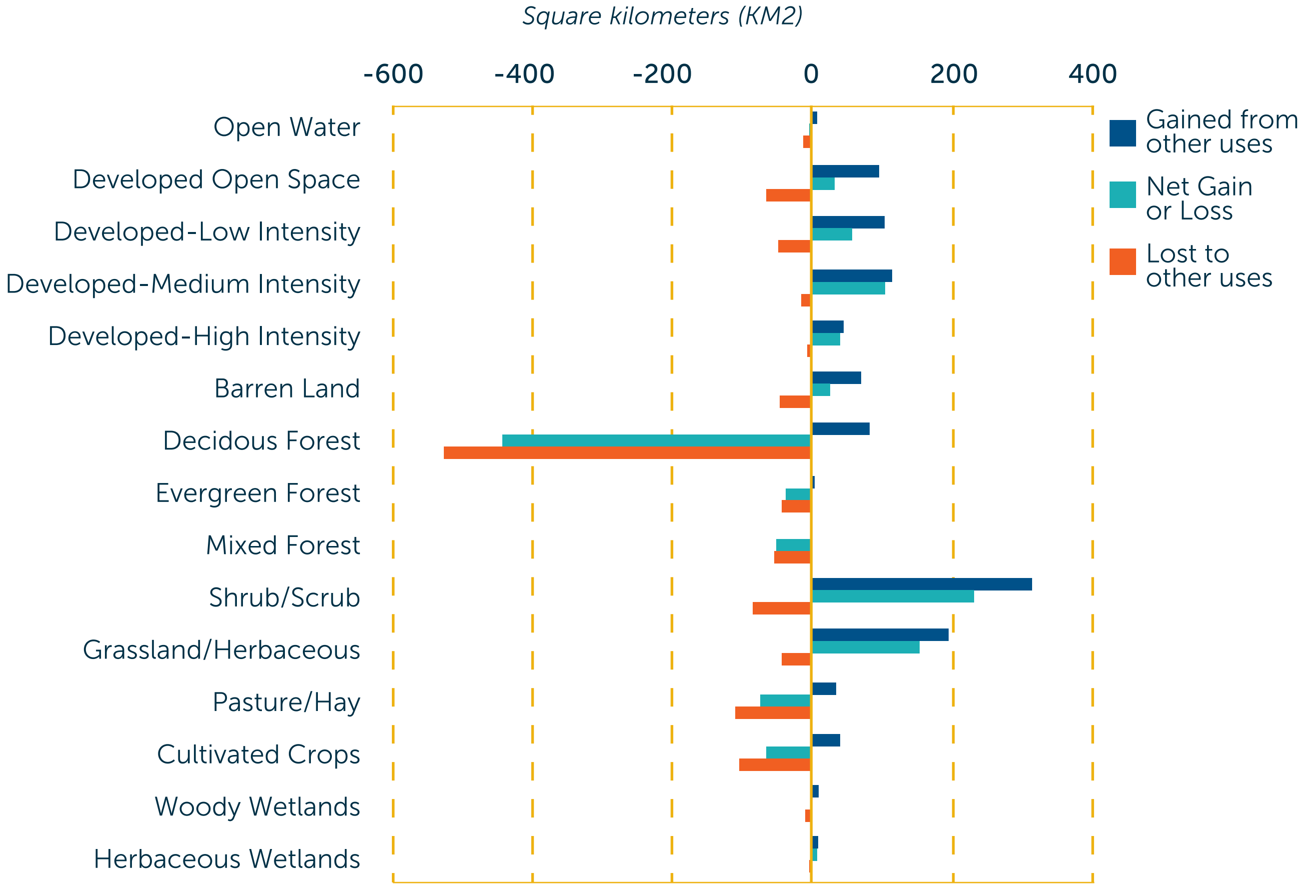
PENNSYLVANIA STATEWIDE LAND COVER BY CATEGORY
2006 AND 2011

Land Classification	2006 Acres	2006 Percent of Total	2011 Acres	2011 Percent of Total	Change in Acres 2006-2011	Percent Change
Forest	17,369,527	59.9	17,239,199	59.5	130,328	-0.8
Agriculture	6,603,155	22.8	6,569,551	22.7	33,603	-0.5
Developed, open space	2,087,397	7.2	2,095,458	7.2	8,062	0.4
Developed	1,423,350	4.9	1,473,898	5.1	50,549	3.6
Shrub/Scrub	418,601	1.4	476,554	1.6	57,953	13.8
Wetlands	451,550	1.6	453,807	1.6	2,257	0.5
Open Water	360,587	1.2	360,349	1.2	238	-0.1
Herbaceous/ Grassland	162,444	0.6	200,834	0.7	38,390	23.6
Barren Land	115,959	0.4	122,918	0.4	6,959	6.0
TOTAL	28,992,569		28,992,569			

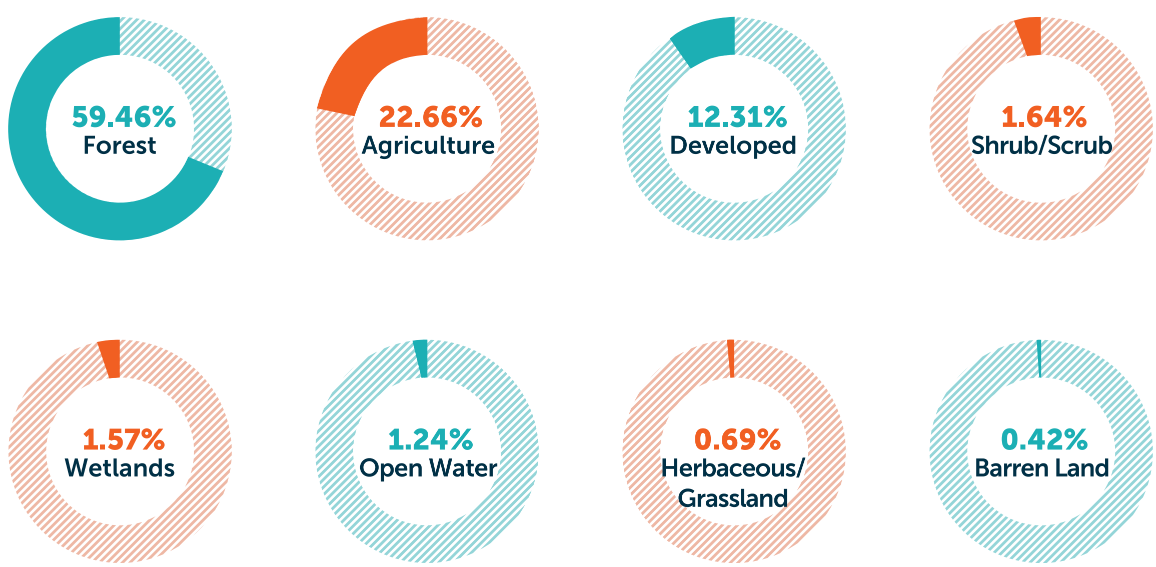
See Appendix for a detailed description of land uses in each of the classifications in the table.

Source: National Land Cover Database from Landsat satellite imagery

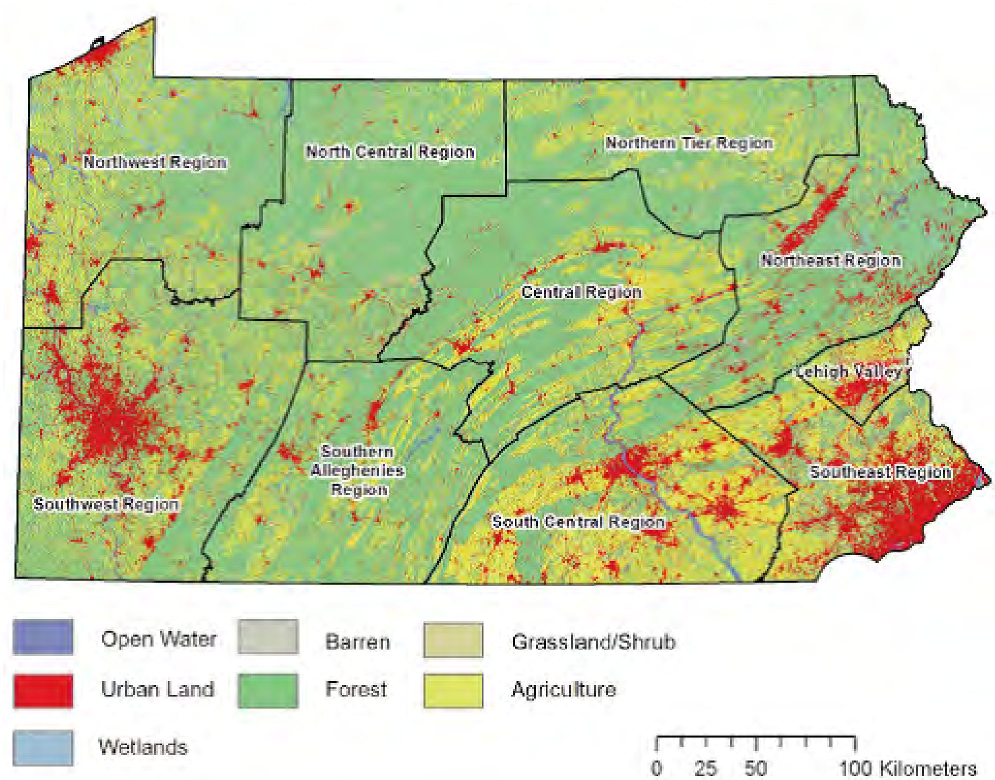
CHANGE OF PENNSYLVANIA'S LAND COVER
2006 - 2011



LAND COVER SUMMARY
Pennsylvania 2011



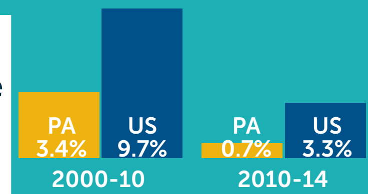
LAND COVER COMPOSITE MAP
Pennsylvania 2011



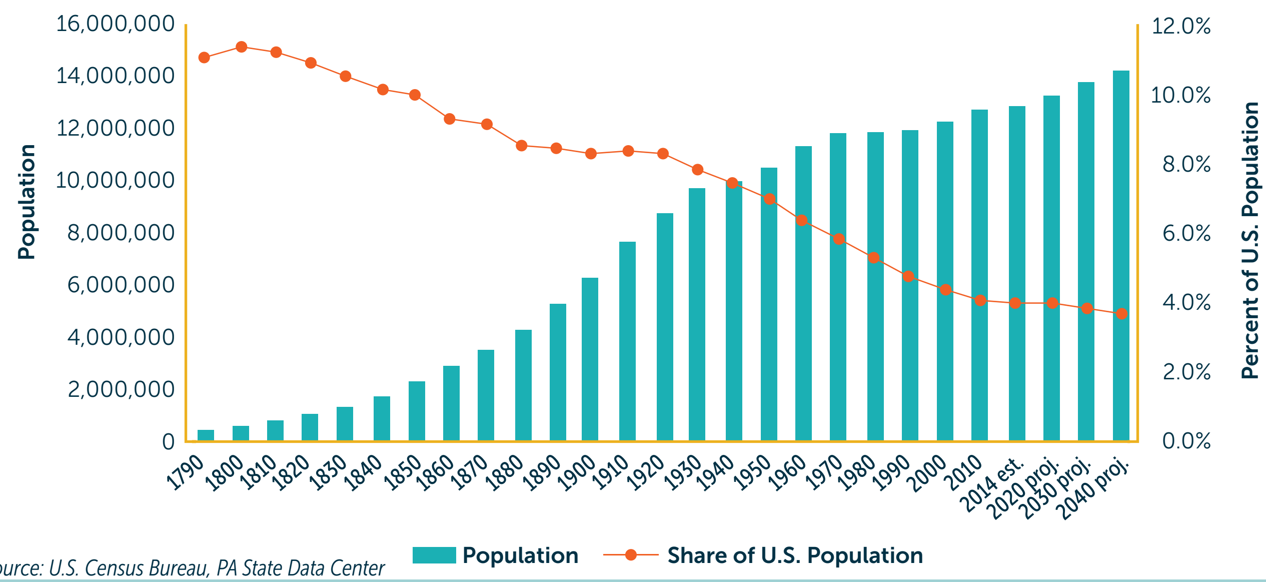
Source: National Land Cover Database from Landsat satellite imagery, PA DCNR

POPULATION

Pennsylvania's population continues slow growth compared to the nation. This is projected to continue in the coming decades.

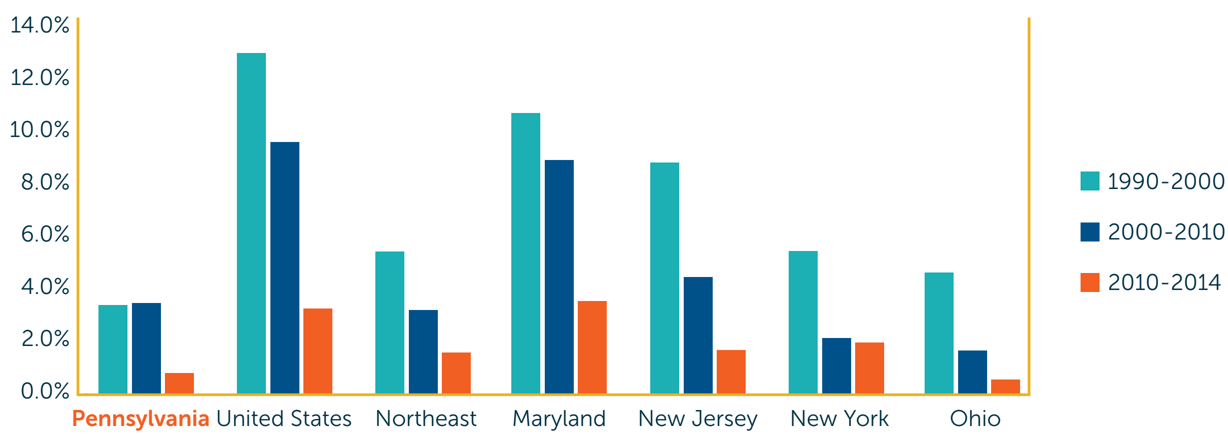


PENNSYLVANIA POPULATION
Share of U.S. Population, 1790-2040



Source: U.S. Census Bureau, PA State Data Center

POPULATION GROWTH RATES
PA, U.S. and Nearby States



Source: U.S. Census Bureau

Population is becoming more urban in Pennsylvania and the United States.

PA	Percent of Total		2000	of Total	Change	Percent 2010
Urban	9,464,101	77.1	9,991,287	78.7	5.6	
Rural	2,816,953	22.9	2,711,092	21.3	-3.8	
TOTAL	12,281,054		12,702,379			3.4
US						
Urban	222,360,539	79.0	249,253,271	80.7	12.1	
Rural	59,061,367	21.0	59,492,267	19.3	0.7	
TOTAL	281,421,906		308,745,538			9.7

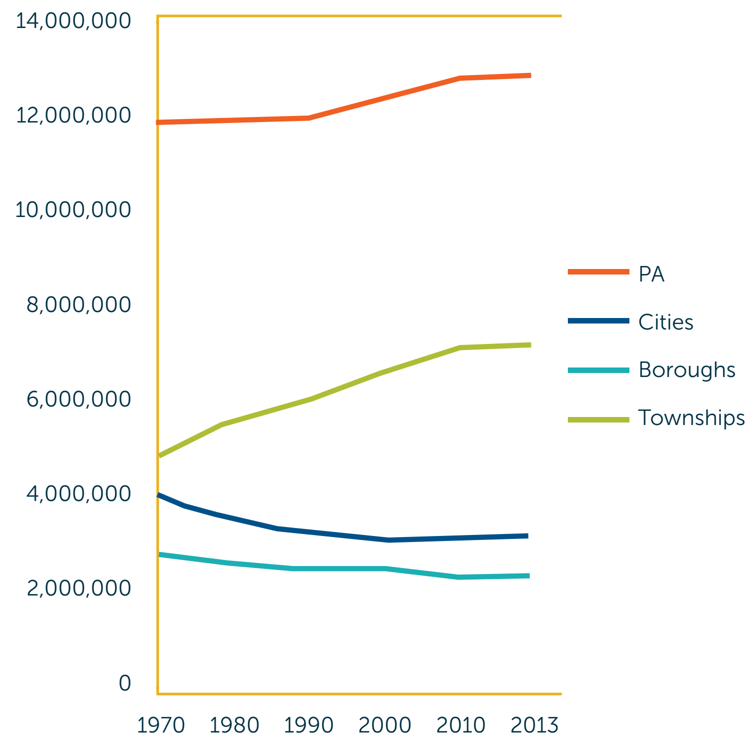
Source: U.S. Census Bureau

Almost 90 percent of Pennsylvania's projected 2010-2040 population increase will occur in urban counties.

Population in **cities** is starting to *increase*.

Population in **boroughs** is *levelling*.

Population growth in **townships** is *slowing*.



Source: U.S. Census Bureau

Components of population change.

- Since the mid-1990s and the last of the echo-Boomer births, Pennsylvania's natural increase – the number of births minus deaths – has been low – about 15,000-20,000 per year.
- The number of people moving into and out of Pennsylvania is similar. One U.S. Census source shows Pennsylvania as a small net importer of population from other states. Another shows Pennsylvania as a small net exporter of population to other states. Both sources show Pennsylvania as a small net importer of population from abroad.

DEMOGRAPHIC PROFILE

Population continues to age.

Pennsylvania's population age 65 and over is expected to increase from 15 percent of the total population in 2010 to 19 percent in 2020, and 23 percent in 2030.

Pennsylvania is 4th in percentage of the **population age 65 and over**:

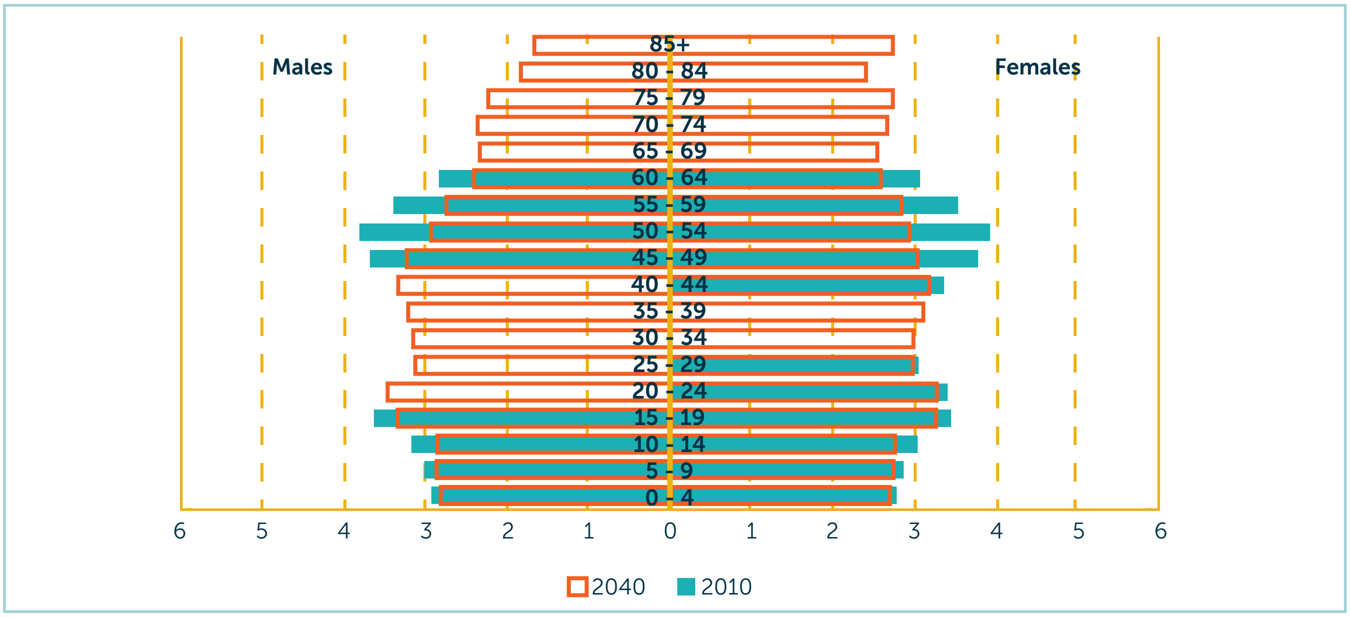
Florida	17.3%
West Virginia	16.0%
Maine	15.9%
Pennsylvania	**15.4%**
United States	12.9%

Pennsylvania is tied for 3rd in percentage of total **population age 85 and over:**

Florida	2.8%
North Dakota	2.7%
Hawaii, Iowa, **Pennsylvania**, South Dakota	**2.5%**
United States	1.8%

Source: U.S. Census Bureau, PA State Data Center, Center for Rural Pennsylvania

24.2 percent of total Pennsylvania households have one or more people 65 and over.



Households are changing.

- Number of husband-wife families and families with children are decreasing.
- Number of single-male headed, single-female headed, and non-family households are increasing.
- Household and family size continues to decrease, though the decrease is slowing.

Non-white population is the growth segment of Pennsylvania's population.

- All non-white races are growing.
- Hispanic population is growing.

PENNSYLVANIA DEMOGRAPHIC PROFILE
2000-2010

		2010	Change
POPULATION	12,281,054	12,702,379	3.4
Under 18	2,922,221	2,792,155	-4.5
Percent of total	23.8	22.0	
Age 20-64	7,091,305	7,563,682	6.7
Percent of total	57.7	59.5	
Age 65+	1,919,165	1,959,307	2.1
Percent of total	15.6	15.4	
Median Age	38	40.1	5.5
White	10,484,203	10,406,288	-0.7
Percent of total	85.4	81.9	
Black or African American	1,224,612	1,377,689	12.5
Percent of total	10.0	10.8	
American Indian and Alaska Native	18,348	26,843	46.3
Percent of total	0.1	0.2	
Asian	219,813	349,088	58.8
Percent of total	1.8	2.7	
Some Other Race	191,854	304,636	58.8
Percent of total	1.6	2.4	
Population of Two or More Races	142,224	237,835	67.2
Percent of total	1.2	1.9	
Hispanic or Latino	394,088	719,660	82.6
Percent of total	3.2	5.7	
HOUSEHOLDS	4,777,003	5,018,904	5.1
Family Households	3,208,388	3,261,307	1.6
Percent of all HHs	67.2	65.0	
With own children under 18	1,430,808	1,352,324	-5.5
Husband-wife family	2,467,673	2,417,765	-2.0
Percent of all families	76.9	74.1	
With own children under 18	1,043,071	919,067	-11.9
Male Householder, no wife present	186,022	229,495	23.4
Percent of all families	5.8	7.0	
With own children under 18 years	89,716	108,679	21.1
Female Householder, no husband present	554,693	614,047	10.7
Percent of all families	17.3	18.8	
With own children under 18 years	298,021	324,578	8.9
Non-Family Households	1,568,615	1,757,597	12.0
Percent of all HHs	32.8	35.0	
Average Household Size	2.48	2.45	-1.2
Average Family Size	3.04	3.02	-0.7

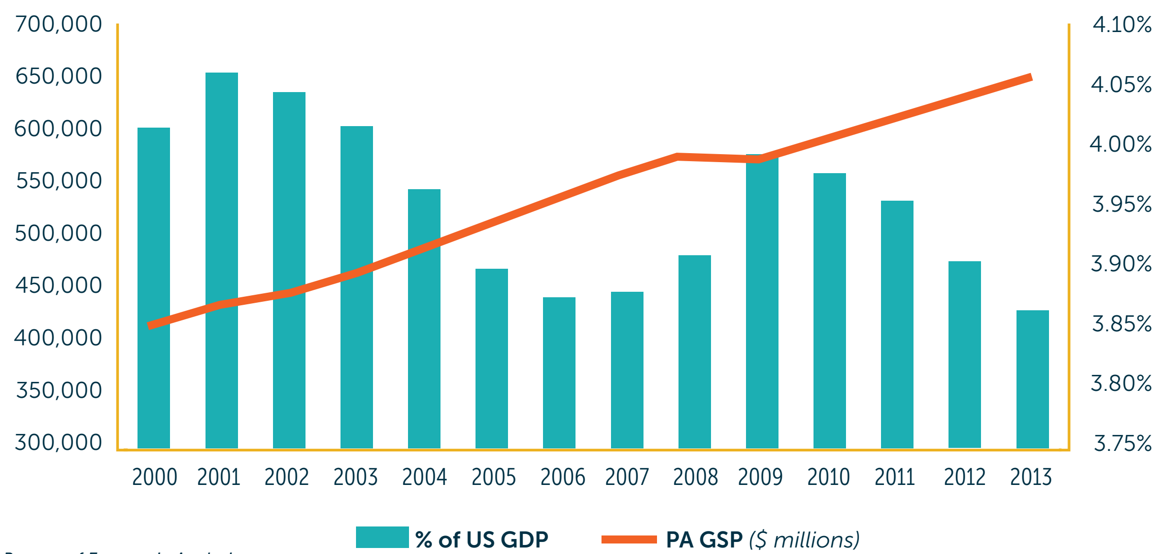
Source: U.S. Census Bureau

ECONOMY

Pennsylvania is mirroring the national economy in a slow recovery since the 2007-2009 Great Recession.

Pennsylvania's **GSP is growing**, but at a *slower rate than national GDP*.
Pennsylvania's share of the national GDP is declining slightly.

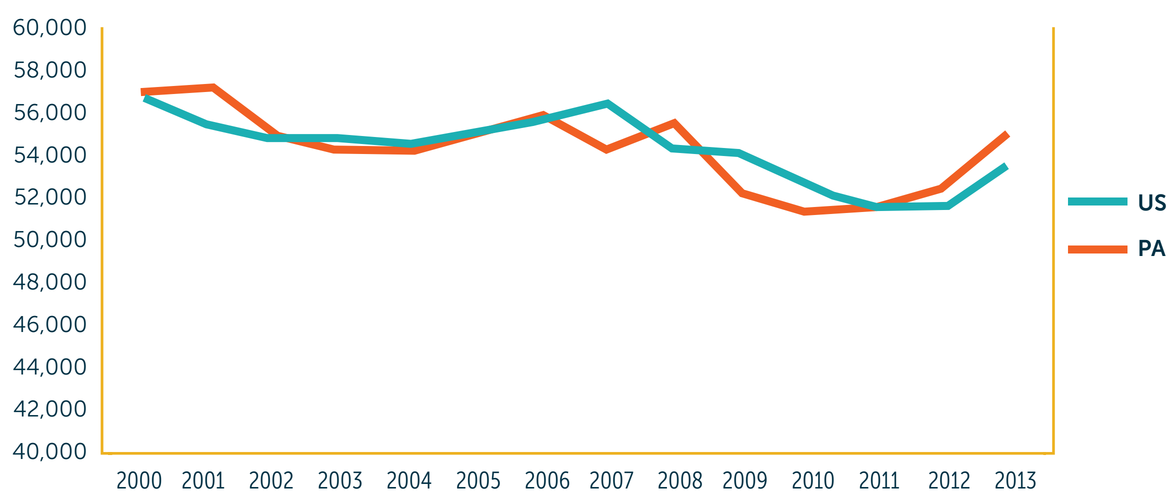
PA GROSS STATE PRODUCT
2000-2013



Source: U.S. Bureau of Economic Analysis

Until a recent upswing in Pennsylvania household incomes, PA and U.S. median household incomes had been decreasing (adjusted for inflation).

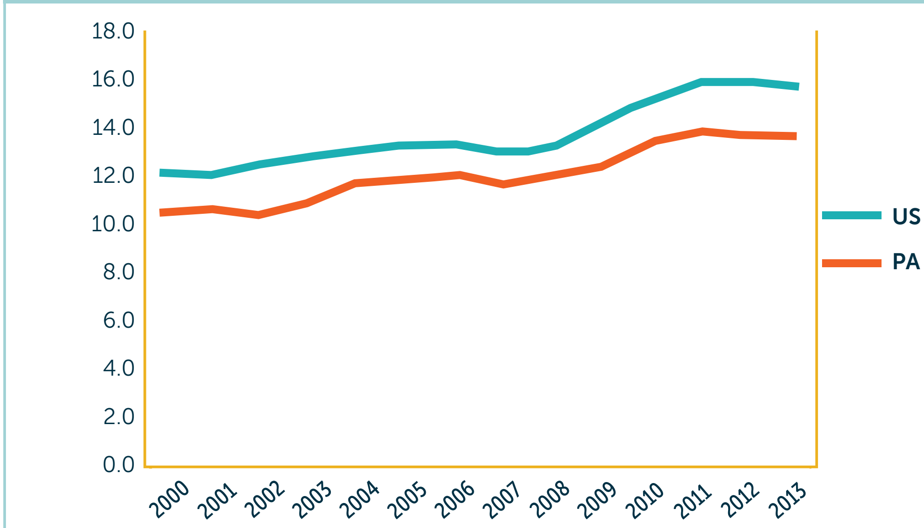
MEDIAN HH INC
2000-2013 in 2013 $



Source: U.S. Census Bureau

Pennsylvania's percent of persons living below the poverty level increased with the Great Recession, but remained below the poverty percentage nationwide.

% PERSONS BELOW POVERTY
2000-2013



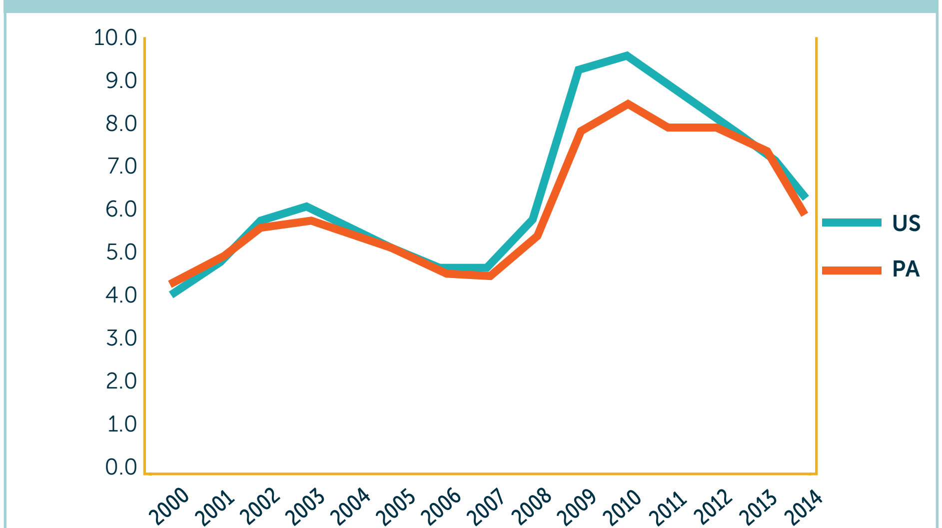
Source: U.S. Census Bureau

Through 2013 Pennsylvania's poverty rate was above historic "norms". (From prior U.S. Censuses, 1989 11.1 percent; 1979 10.5 percent; 1969 10.6 percent.)

Total employment in Pennsylvania is at roughly the same level today as it was before the 2007-2009 Great Recession.

Pennsylvania's unemployment rate is slightly below the national average.

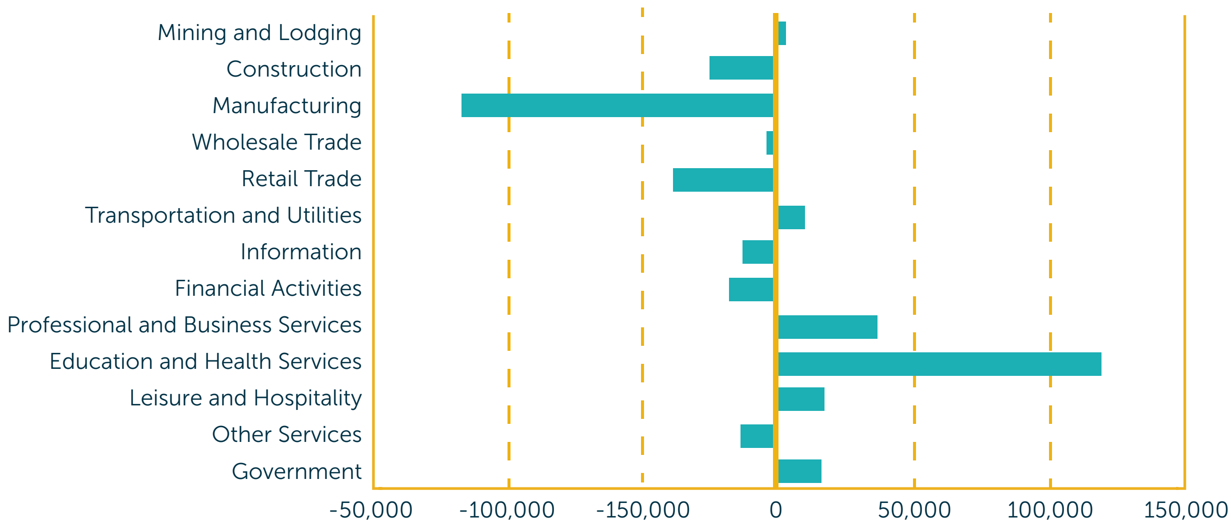
UNEMPLOYMENT RATE
2000-2014



Source: PA Department of Labor & Industry

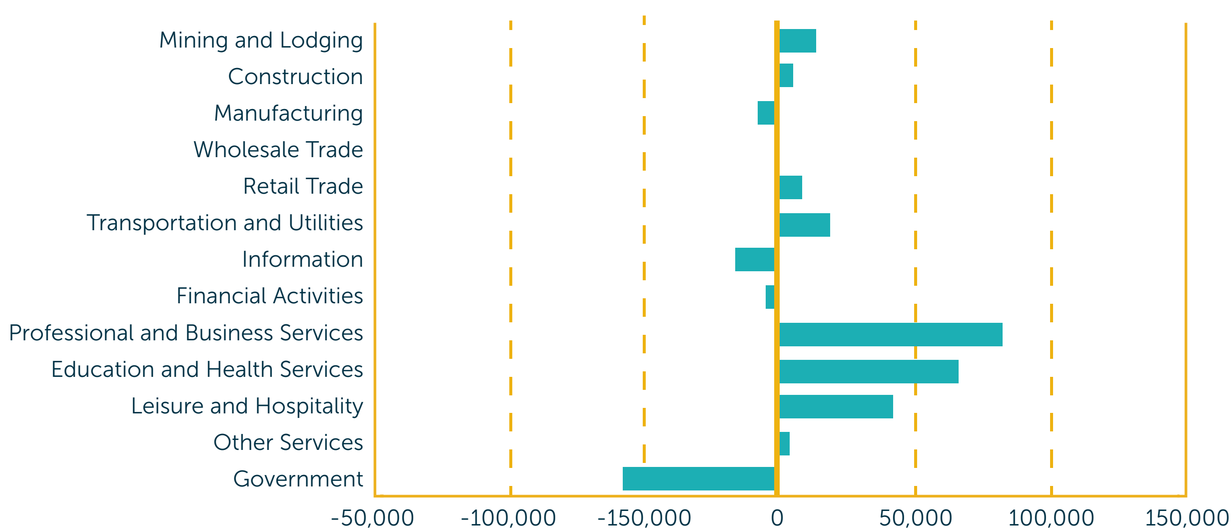
In the period 2004-2009 before and through the Great Recession, goods-producing industries, particularly manufacturing, decreased in employment and service-producing industries, led by education and health services, increased in employment. In the recent five-year period 2009-2014, goods producers reversed and had an increase in employment. Manufacturing bottomed in 2010 and has had net employment growth since then. Service industries continued to grow in employment and only one – government – had a noteworthy decrease.

CHANGE IN PA EMPLOYMENT
2004-2009



Source: PA Department of Labor & Industry

CHANGE IN PA EMPLOYMENT
2009-2014



Source: PA Department of Labor & Industry

With the Great Recession, the number of annual residential building permits in PA and the nation hit the lowest levels seen in over 50 years of researched data.

Since 2011, building permits have increased, but most recent annual numbers are still historically low.

RESIDENTIAL BUILDING PERMITS*

	PA	US
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
2010	19,740	604,610
2011	14,967	624,061
2012	18,796	829,658
2013	21,650	990,822
2014	25,059	1,046,363

Source: U.S. Census Bureau

**Number of new privately-owned units*

CHANGE 2006-2011

PERMITS

PA	US
-61.7%	**-66.1%**

VALUE

PA	US
-59.9%	**-63.9%**

CHANGE 2011-2014

PERMITS

PA	US
67.4%	**67.7%**

VALUE

PA	US
85.2%	**83.6%**

VALUATION OF CONSTRUCTION*

	PA	US
2000	4,616	185,744
2001	4,804	196,248
2002	5,573	219,189
2003	6,052	249,693
2004	6,767	292,414
2005	6,776	329,254
2006	6,354	291,314
2007	5,362	225,237
2008	4,145	141,623
2009	3,075	95,410
2010	3,293	101,943
2011	2,546	105,269
2012	3,111	140,425
2013	3,750	177,656
2014	4,714	193,243

Source: U.S. Census Bureau

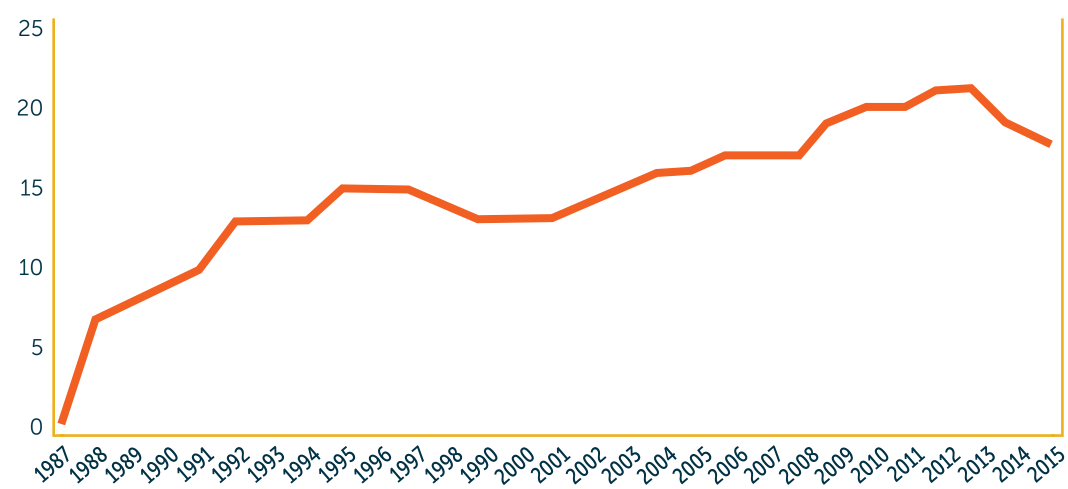
**In $millions for building permits*

MUNICIPAL FISCAL DISTRESS

Currently there are 18 municipalities in Pennsylvania designated as fiscally distressed under Act 47.

The graph below shows the growth of Act 47 municipalities since the law was enacted in 1987.

NUMBER OF ACT 47 MUNICIPALITIES
1987-2015



Source: PA Department of Community & Economic Development

Act 47 municipalities by type:

12 cities	**5** boroughs	**1** township

Since 1987, there have been 29 Act 47 designations. Eleven designations were rescinded. Of those, two were cities, eight were boroughs, and one was a township.

Since 2005, 75 municipalities (not including those currently under Act 47) received grant help from the PA Department of Community and Economic Development's Early Intervention Program (EIP). These grants help municipalities facing fiscal difficulties to take pre-emptive steps to improve their fiscal condition.

EIP grantees by type:

22 cities	**27** boroughs	**13** townships	**13** counties

HOUSING

Compared to the United States, Pennsylvania has:

- a lower housing vacancy rate
- older housing
- more owner-occupied housing
- lower values of owner-occupied housing

HOUSING PROFILE	UNITED STATES 2009-13 Estimate	UNITED STATES Percent	PENNSYLVANIA 2009-13 Estimate	PENNSYLVANIA Percent
HOUSING OCCUPANCY				
Total housing units	132,057,804		5,565,653	
Occupied housing units	115,610,216	87.5	4,958,427	89.1
Vacant housing units	16,447,588	12.5	607,226	10.9
UNITS IN STRUCTURE				
1-unit, detached	81,459,725	61.7	3,176,161	57.1
1-unit, attached	7,686,211	5.8	1,018,136	18.3
2 units	4,973,523	3.8	262,815	4.7
3 or 4 units	5,854,632	4.4	231,557	4.2
5 to 9 units	6,299,169	4.8	187,336	3.4
10 to 19 units	5,921,860	4.5	141,133	2.5
20 or more units	11,227,563	8.5	317,217	5.7
Mobile home	8,525,947	6.5	230,205	4.1
Boat, RV, van, etc.	109,174	0.1	1,093	0.0
YEAR STRUCTURE BUILT				
Built 2010 or later	771,765	0.6	19,565	0.4
Built 2000 to 2009	19,385,497	14.7	456,718	8.2
Built 1990 to 1999	18,390,124	13.9	518,872	9.3
Built 1980 to 1989	18,345,244	13.9	545,895	9.8
Built 1970 to 1979	21,042,566	15.9	710,217	12.8
Built 1960 to 1969	14,634,125	11.1	566,585	10.2
Built 1950 to 1959	14,464,282	11.0	774,073	13.9
Built 1940 to 1949	7,231,811	5.5	459,271	8.3
Built 1939 or earlier	17,792,390	13.5	1,514,457	27.2
HOUSING TENURE				
Owner-occupied	75,075,700	64.9	3,462,512	69.8
Renter-occupied	40,534,516	35.1	1,495,915	30.2
Median rooms per unit	5.5		6	
Median value	$176,700		$164,700	
Median rent	$904		$813	

Source: U.S. Census Bureau

According to research of housing trends by the Pennsylvania Association of Realtors:
It has been another recovery year in 2014 but not the same as 2013. With a broad pattern of rising prices and stable to improving inventory, the market has shifted from being drastically undersupplied to approaching equilibrium. Price gains are still positive but less robust than last year.

AGRICULTURE

In recent years there has been relatively little change in the amount of farmland and number of farms in Pennsylvania.

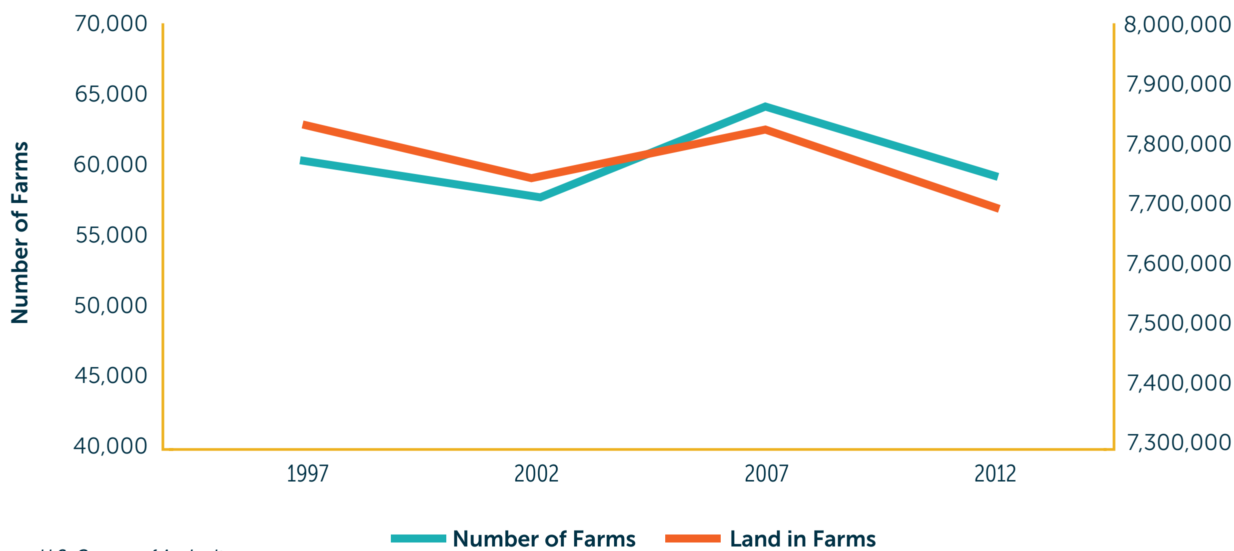
The following graph shows trends from the U.S. Census of Agriculture.
More recent annual surveys by U.S. Department of Agriculture show:

Land in Farms
2013: 7.7 million acres
2014: 7.72 million acres

Number of Farms
2013: 59,300
2014: 58,800

Appendix 4 contains additional information on Pennsylvania's regional agricultural trends.

PA FARMS AND LAND IN FARMS
1997 - 2012

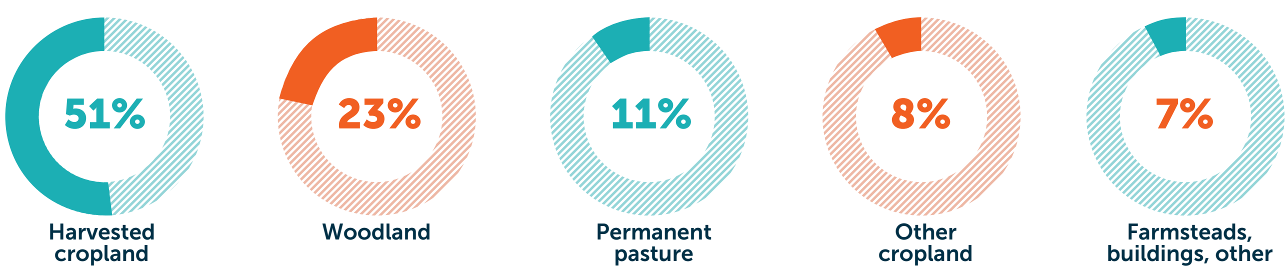


Source: U.S. Census of Agriculture

PA LAND USE ON FARMS
2012

Half of Pennsylvania's farmland is **harvested cropland**.

Almost **a quarter** of Pennsylvania's farmland is **woodland**.



Source: U.S. Census of Agriculture

Steep Hill Farm, Honesdale, Pennsylvania

New Agricultural Trends

Organic farming is growing and engages a younger segment of farmers. According to the U.S. Census of Agriculture:

2012: 600 Certified Organic Farms
(1 percent of all farms)

2007: 586 Certified Organic Farms
(.09 percent of all farms)

2012: Average age of principal farm operator

All farms 56.1 years

Organic farms 47.1 years

City and suburban agriculture takes the form of backyard, roof-top and balcony gardening, community gardening in vacant lots and parks, roadside urban fringe agriculture and livestock grazing in open space.

– U.S. Department of Agriculture

There is growing interest in urban agriculture, both for sustainable, locally-sourced food and to repurpose vacant and underutilized properties.

The Pennsylvania Department of Agriculture has been exploring urban agriculture. Current challenges are:

- Gaining control of properties to increase the scale beyond a single lot.
- Gaining control in areas where urban gardeners are planting gardens on abandoned properties they do not own.
- Contamination of urban lots from lead and other heavy metals.

FORESTS

Forests account for almost 60 percent of Pennsylvania's land use.

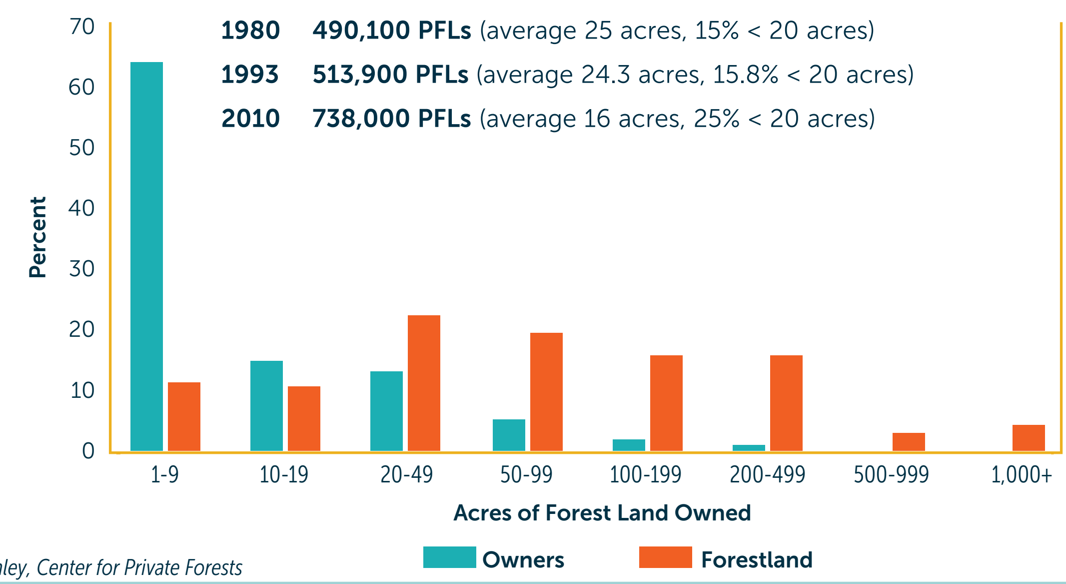
Of that, 30 percent are owned and professionally managed by public agencies such as the PA Department of Conservation and Natural Resources (DCNR), PA Game Commission, and U.S. Forest Service. The remaining 70 percent of Pennsylvania's forestland is in private ownership and less likely to be professionally managed. According to DCNR and a 2010 study by Penn State University, the trend in recent decades has been fragmentation – more private forest landowners owning smaller properties as owners distribute properties to heirs or subdivide and sell properties.

As of 2010 there were **738,000 private forest landowners** in Pennsylvania.

The average **private forest landowner is 59 years old**.

As many as 80 percent of private forest landowners plan to keep the land in the family, but fewer than half have discussed future plans for the forest with heirs. Heirs are prone to sell the land or timber to pay estate taxes and expenses. Smaller parcels increase the likelihood of development, poor forest management, or no management at all. DCNR cited the challenge of retaining working private forestlands that will provide needed economic, social, and ecological value.

PA'S PRIVATE FORESTS
2010

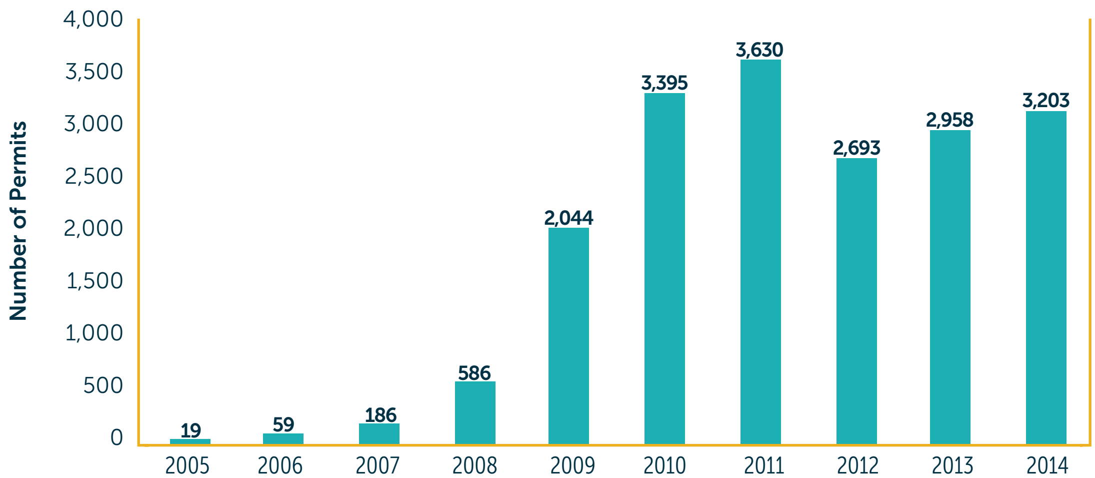


Source: Jim Finley, Center for Private Forests

NATURAL GAS

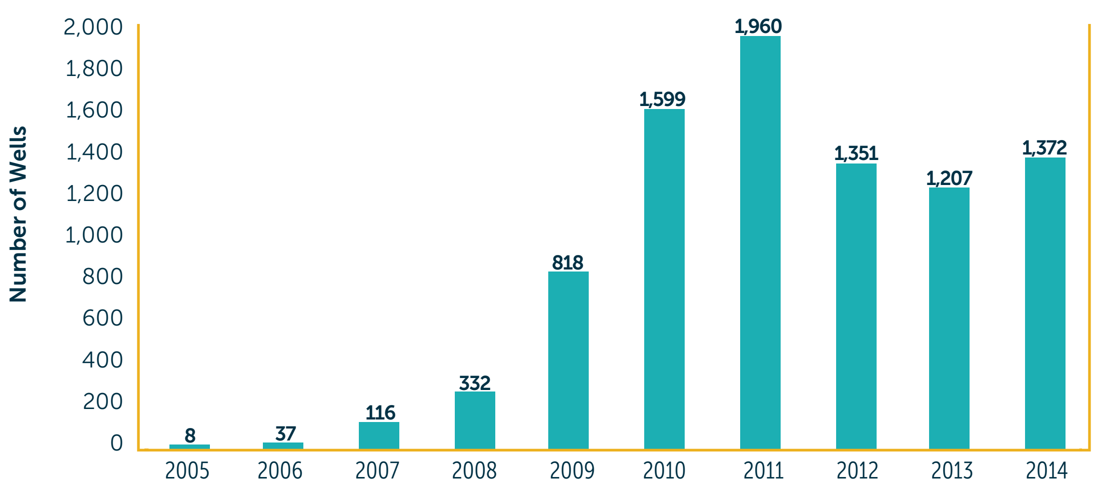
The growth of unconventional natural gas extraction in Pennsylvania has been well documented. Included herein are graphs and maps to summarize how it has grown as a land use in the last ten years. The impact of extraction or of natural gas as an industry ebbs and flows as local gas wells are in a drilling or production stage, and due to national and international supply, demand, and price factors along with individual business strategies and practices.

UNCONVENTIONAL WELL DRILLING PERMITS ISSUED
2005-2014



Source: PA Department of Environmental Protection

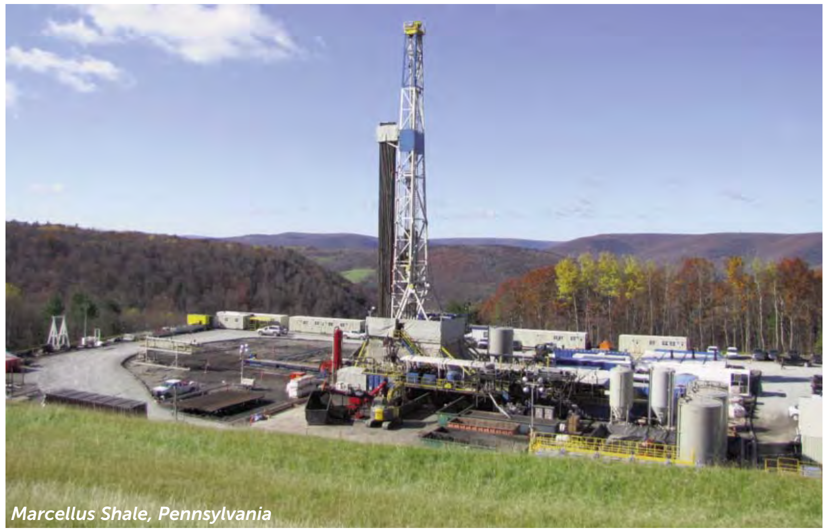
UNCONVENTIONAL WELLS DRILLED
2005-2014



Source: PA Department of Environmental Protection

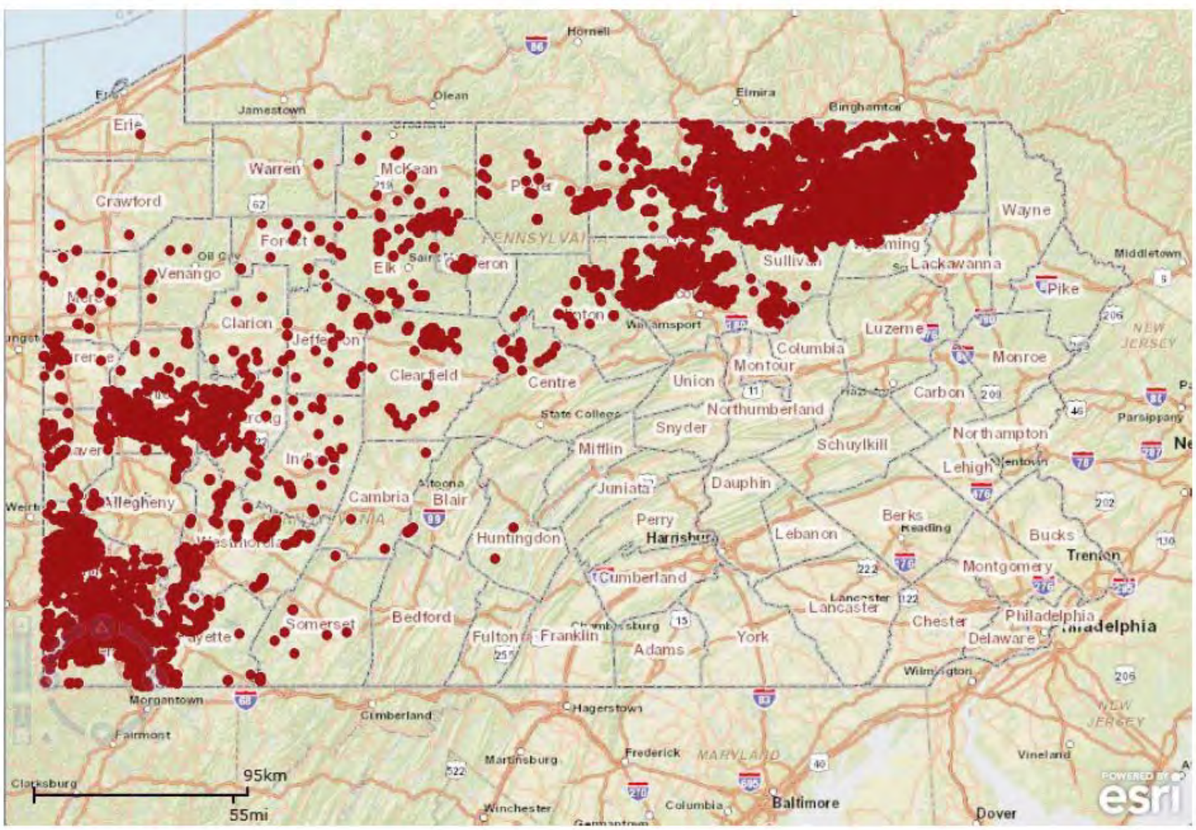
According to the Department of Environmental Protection (DEP), in the next decade, Pennsylvania will undergo a substantial and unprecedented pipeline infrastructure build-out to transport natural gas and related byproducts from thousands of wells throughout the state.

The commonwealth established the Pipeline Infrastructure Task Force (PITF) to develop policies, guidelines and tools to assist in pipeline development (including planning, permitting and construction) as well as long-term operation and maintenance. The task force began work July 2015 and will report to Governor Wolf by February 2016.



Marcellus Shale, Pennsylvania

UNCONVENTIONAL GAS WELLS DRILLED
2007 - 2015



Source: PA Department of Environmental Protection

TRANSPORTATION

Philadelphia, Pennsylvania

The availability, quality and capacity of transportation facilities and services are critical drivers of land-use development patterns.

In 2010, the US Treasury and Council of Economic Advisors concluded a thorough-going study of the economic effects of infrastructure investment. It found decisively that investment in transportation infrastructure increases productivity, accelerates economic growth, generates permanent new jobs, enhances real-estate values, and yields new tax revenues at the federal, state and local levels. In short, it creates new wealth. Transportation investment reduces congestion, thus saving the public valuable time, expense, energy consumption and the emission of pollutants and green-house gases.

Pennsylvania has the nation's fifth largest state-maintained public roadway system, totaling 41,000 miles, and third largest state bridge inventory, 25,000.

In 2013, the Pennsylvania General Assembly gave bipartisan support to the enactment of Act 89, which has enabled the commonwealth to make long overdue investment in the renewal and selective expansion of our transportation infrastructure.

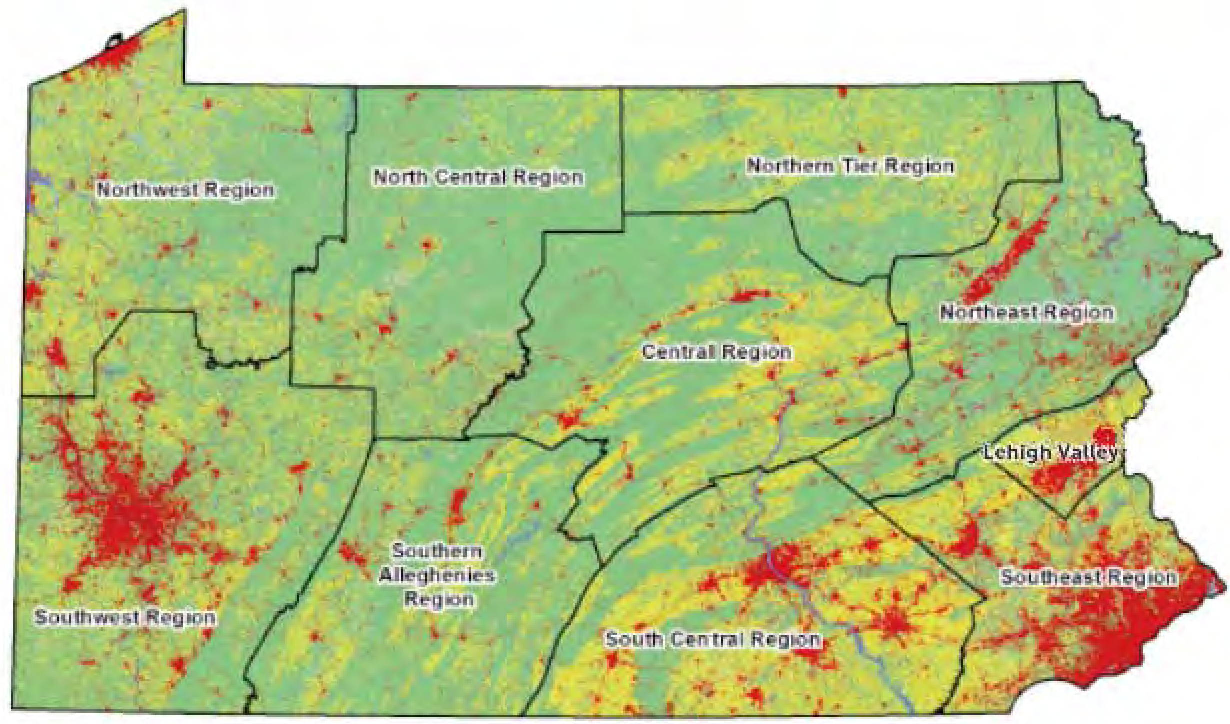
Act 89's enactment enabled increases in infrastructure investment on numerous fronts:

- Highway and bridge construction contracts have increased by 60 percent to $2.4 billion annually;
- About 300 structurally deficient bridges are being repaired or replaced annually, plus another 558 bridges will be replaced over three years under a pioneering public-private partnership;
- More than 2,000 miles of additional road resurfacing – a 71 percent increase in maintenance; – is scheduled annually;
- Capital grants to transit agencies has increased by 280 percent to $454 million per year;
- Multimodal grants to support aviation, passenger and freight rail, ports and bicycle-pedestrian improvements totaling $185 million represent a more-than-three-fold growth in these investments.

These new investments in transportation infrastructure have meant not only improvements to the road and bridge system, but jobs for people working on these projects and improved connections that help bolster commerce, strengthen communities and enhance the quality of life. The rough estimate is an additional 25,000 to 30,000 jobs for every $1 billion in infrastructure investment. Beyond these immediate job gains, crucial as they are to our economy in the short term, these investments contribute long-term to a future of economic growth, opportunity, a sustainable quality of life and a cleaner, healthier environment for our kids and their kids.

REGIONS

This section provides a summary of land use and population trends by regions of the commonwealth. More detailed data by region on land use, population, and agriculture are found in the Regional Trends Supplement. For this report, Pennsylvania is divided into ten regions designated for DCED's PREP (Partnerships for Regional Economic Performance) Program.



Base map source: National Land Cover Database from Landsat satellite imagery
PREP regions source: PA Department of Community and Economic Development

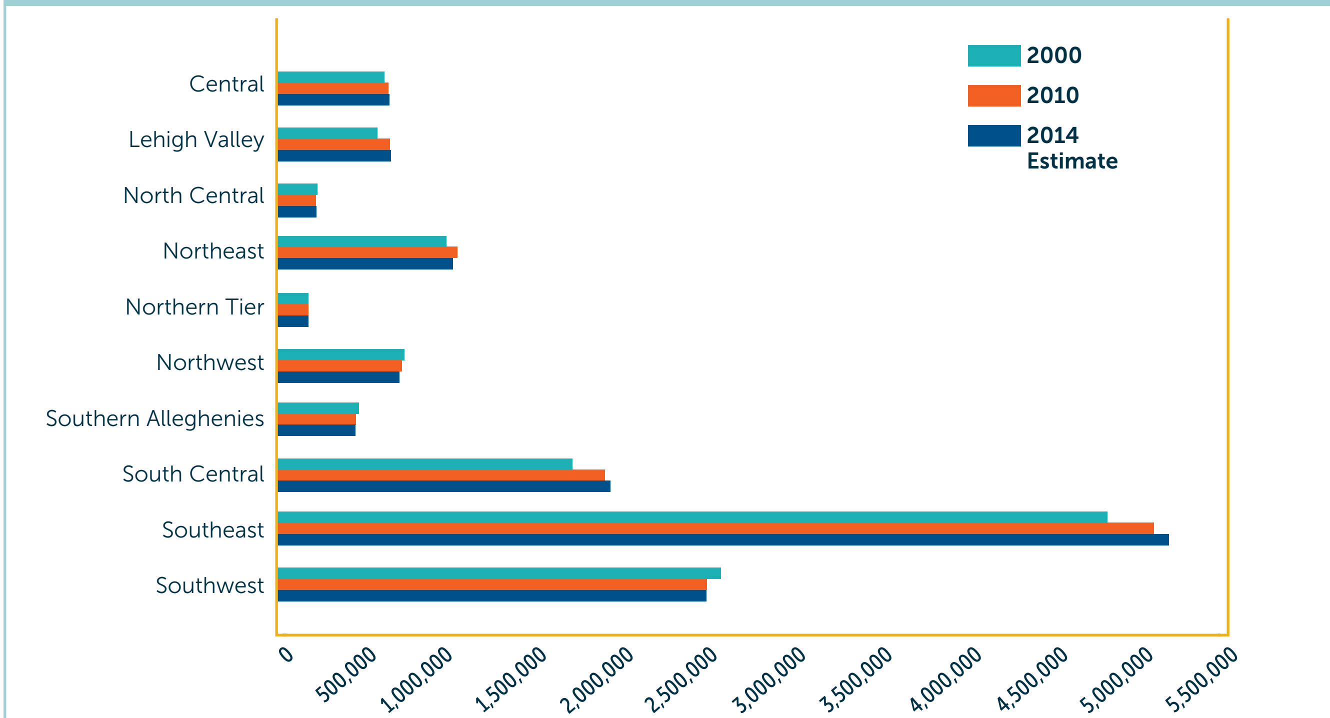
Population

Region	Count	2010 Count	2014 Estimate	% Change 2000-10	% Change 2010-14
Central	619,136	645,396	651,247	4.2%	0.9%
Lehigh Valley	579,156	647,232	658,477	11.8%	1.7%
North Central	234,416	224,780	221,588	-4.1%	-1.4%
Northeast	974,394	1,028,926	1,015,692	5.6%	-1.3%
Northern Tier	181,008	182,663	180,448	0.9%	-1.2%
Northwest	734,284	721,580	709,844	-1.7%	-1.6%
Southern Alleghenies	471,596	459,030	449,233	-2.7%	-2.1%
South Central	1,702,415	1,888,485	1,925,889	10.9%	2.0%
Southeast	4,802,441	5,067,668	5,151,751	5.5%	1.7%
Southwest	2,561,364	2,483,851	2,481,517	-3.0%	-0.1%
Pennsylvania	**12,860,210**	**13,349,611**	**13,445,686**	**3.8%**	**0.7%**

Source: U.S. Census Bureau


York, Pennsylvania

REGIONAL POPULATION GROWTH
2000-2014



Source: U.S. Census Bureau

From 2000 to 2010, the regions with the most growth were the Lehigh Valley and South Central, each with over 10% population growth.

Other regions had a mix of small growth or decrease, no gains or losses greater than 6%.

From 2010 to 2014 (estimated), population changed little. No region had more than 2.1% gain or loss.

Land Use

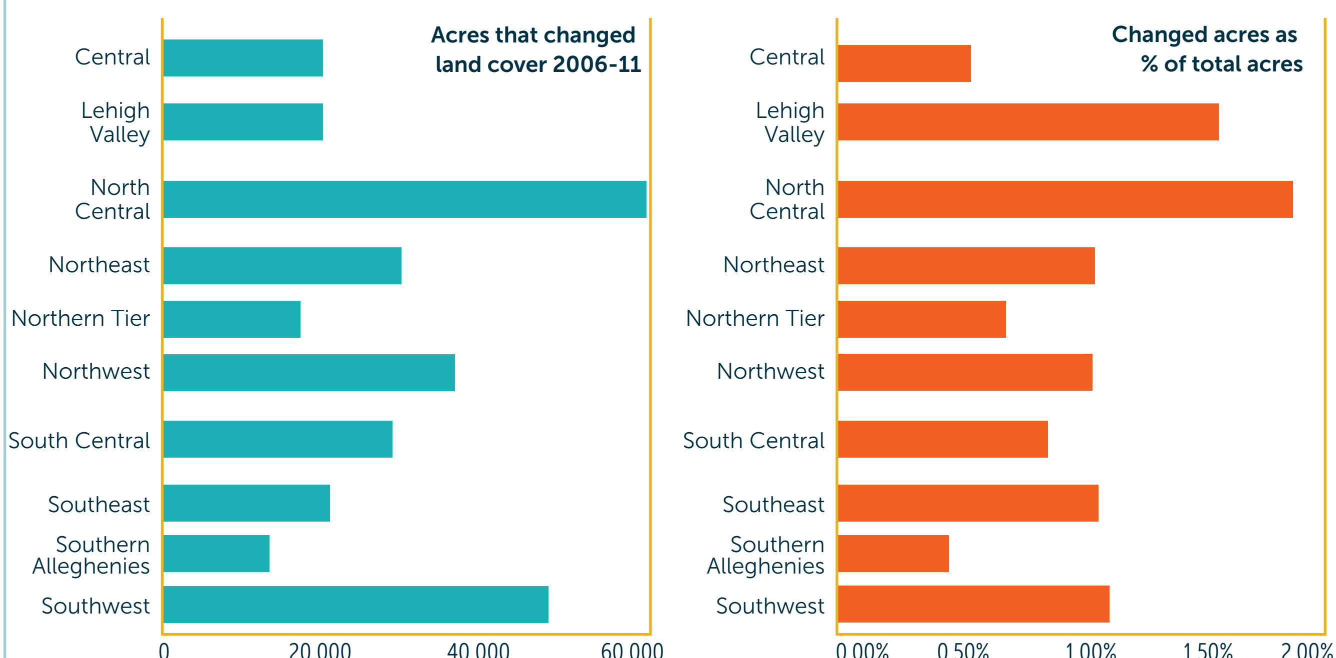
The tables below show by regions the total acres for which the land cover changed from one category (urban, ag, forest, etc.) to another from 2006 to 2011.

(Source for all tables and graphs in this subsection is National Land Cover Database from Landsat satellite imagery.)

In each region, the **total of changed acres was less than 2%** of the total acres in the region.

Region	Total Acres	Acres that Changed Land Cover 2006-11	Changed Acres as % of Total Acres
Central	3,717,942	20,058	0.54%
Lehigh Valley	464,310	7,211	1.55%
North Central	3,268,705	60,620	1.85%
Northeast	2,864,688	29,959	1.05%
Northern Tier	2,552,348	17,201	0.67%
Northwest	3,524,459	36,352	1.03%
South Central	3,337,894	28,575	0.86%
Southeast	1,963,496	20,824	1.06%
Southern Alleghenies	2,972,426	13,144	0.44%
Southwest	4,324,585	47,802	1.11%
Pennsylvania Total	**28,990,853**	**281,744**	**0.97%**

LAND COVER CHANGE
2006-2011



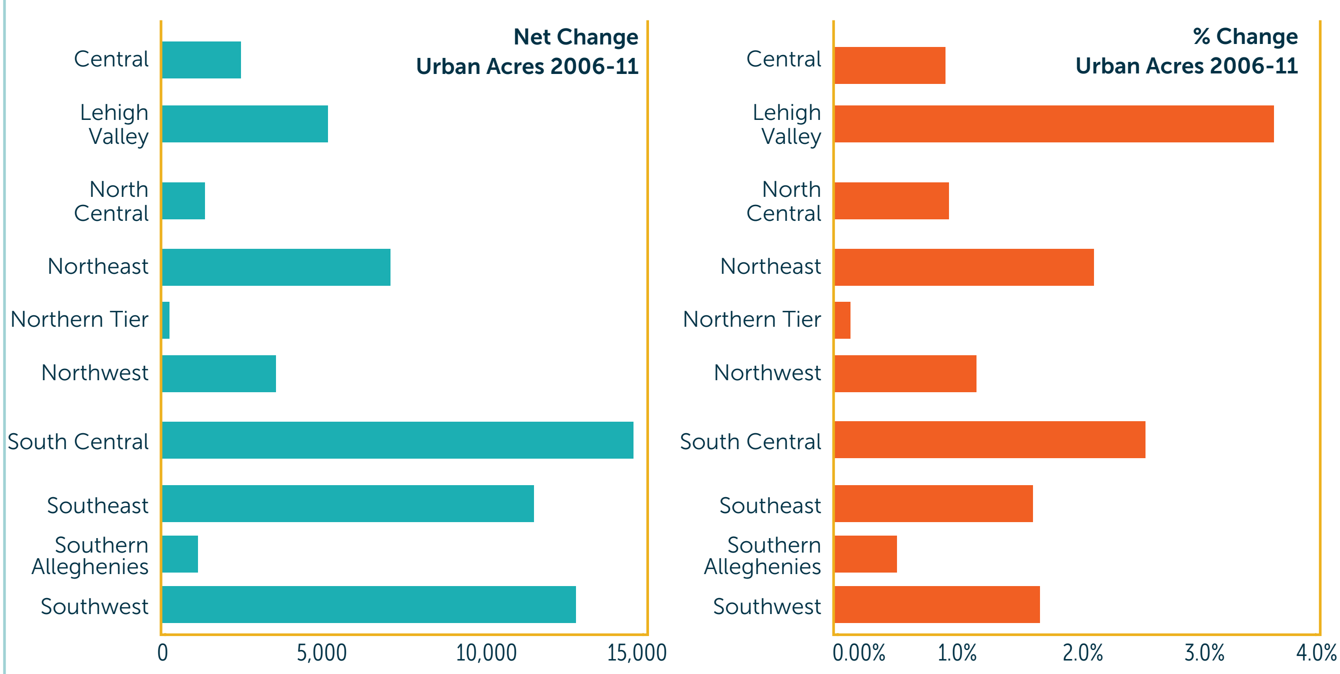
- **The South Central region had the most acres of net added urban land.**
- **The Lehigh Valley region had the largest percentage of added urban land.**
- **The regions with the most urban land growth were the largest metro regions of the state.**

Urban land is the total of four classes of developed land cover from the National Land Cover Database.

CHANGE IN URBAN LAND COVER
2006-2011

Region	Total Acres	Urban Acres 2006	Urban Acres 2011	Urban Acres as % of Total 2006	Urban Acres as % of Total 2011	Net Change Urban Acres 2006-11	% Change Urban Acres 2006-11	% of Added Urban Acres Acres Statewide
Central	3,717,679	266,622	269,042	7.2	7.2	2,420	0.91	4.1
Lehigh Valley	464,338	137,287	142,238	29.6	30.6	4,952	3.61	8.4
North Central	3,269,585	138,257	139,549	4.2	4.3	1,292	0.93	2.2
Northeast	2,864,532	325,518	332,410	11.4	11.6	6,892	2.12	11.8
Northern Tier	2,552,645	106,611	106,750	4.2	4.2	139	0.13	0.2
Northwest	3,524,627	302,839	306,392	8.6	8.7	3,553	1.17	6.1
South Central	3,338,090	557,301	571,595	16.7	17.1	14,294	2.56	24.4
Southeast	1,963,489	692,850	704,167	35.3	35.9	11,316	1.63	19.3
Southern Alleghenies	2,972,786	226,603	227,749	7.6	7.7	1,146	0.51	2.0
Southwest	4,325,202	756,857	769,465	17.5	17.8	12,607	1.67	21.5
Pennsylvania Total	**28,992,974**	**3,510,746**	**3,569,357**	**12.1**	**12.3**	**58,611**	**1.67**	**100.0**

NET CHANGE URBAN ACRES
2006-2011



EMERGING TRENDS

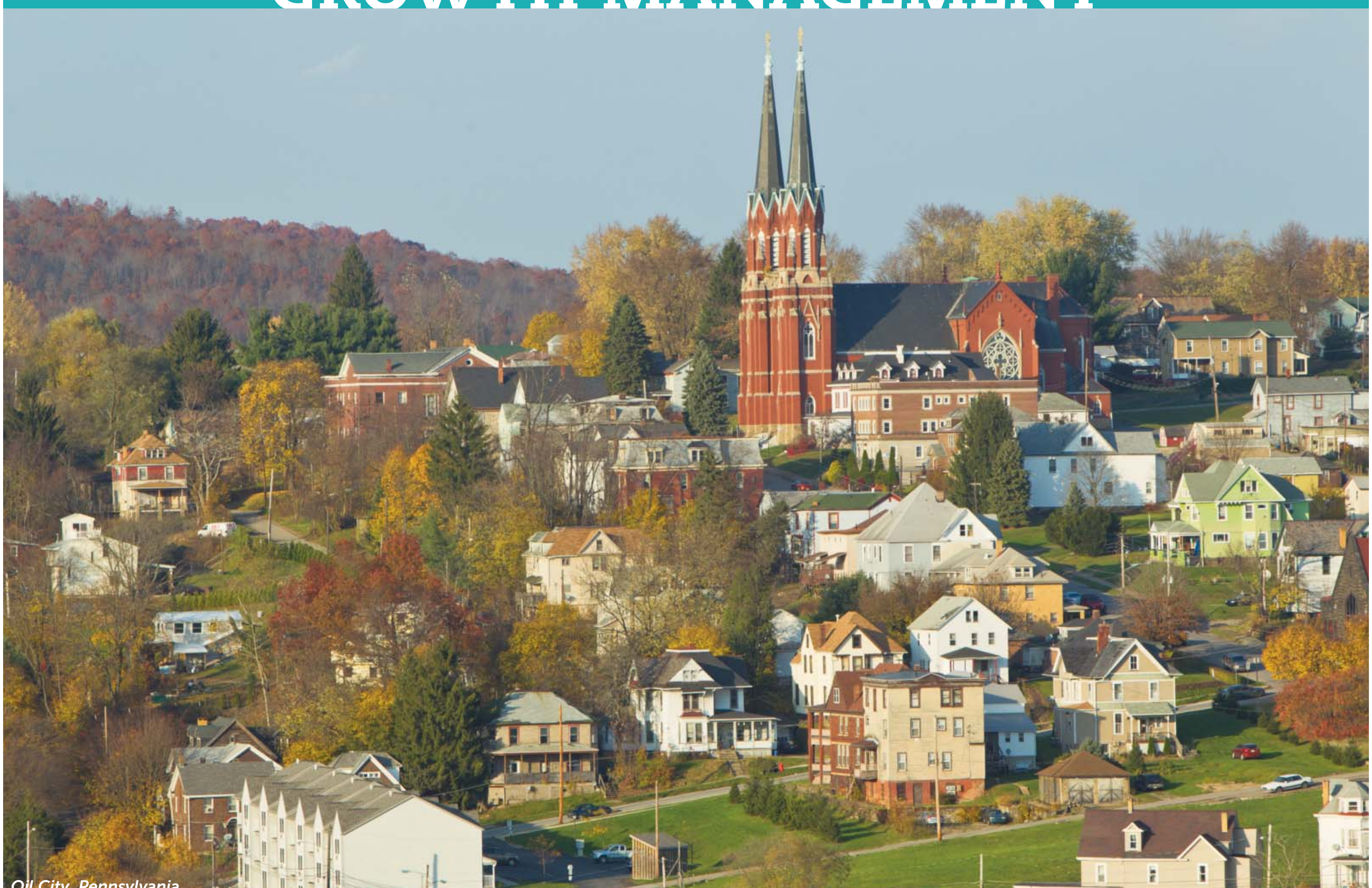
Publications and web-based information were reviewed to discover emerging trends affecting land use and development. Two particular publications provided insights to national real estate trends and related factors of influence:

- *Emerging Trends in Real Estate 2015,* PricewaterhouseCoopers and Urban Land Institute, October 2014
- *Expectations & Market Realities in Real Estate 2015,* Situs, RERC LLC, Deloitte, National Association of Realtors, 2015

Highlights of *national trends* reported by the above two publications:

- **Economy –** Overall, the impacts of the Great Recession are still being felt. Household incomes and assets have not recovered from pre-recession levels, and unemployment, though down, is still higher than "normal" historical levels.
- **The 18-Hour City –** Many urban cores are transforming themselves as live/work/play environments – in effect, "alive" 18 hours of the day – and competing strongly for investment, jobs, and residents.
- **Demographics –** Lifestyle preferences of Millennials and aging Baby Boomers are trending toward urban markets and other communities that offer "experiential" settings close to work, culture, entertainment, and other affinities.
- **Technology –** Technology continues to enhance work, shopping, and overall living, and change where people work and how much space is needed for industries, offices, and retail. Terms include digital manufacturing, 3-D printing, showrooming vs. webrooming, gig economy, etc. The expected end results are still being debated.
- **Housing** –Housing overall appears to have rebounded and reached a healthy equilibrium of supply and demand and price. There has been growth in rental housing including low-cost micro units (250-500 square feet), in part responding to demand from Millennials, though there is uncertainty in the longer term what type of housing and where Millennials will prefer as they have families. There is growth in demand for 55+ age-restricted communities.
- **Commercial –** As already noted, technology enhancements are impacting offices and retail. While it is not so clear if downsizing is the trend, most sources indicate flexible spaces and mixed uses will be preferred.

GROWTH MANAGEMENT



Oil City, Pennsylvania

LAND USE ORDINANCES

About two-thirds of Pennsylvania's municipalities have a citizen planning commission and about two-thirds have undertaken the task of preparing a comprehensive plan. Both have a role in providing guidance for future land use and growth in a municipality.

Most Pennsylvania municipalities have ordinances regulating land use and development.

- Currently there are 1,739 municipalities – **68 percent of all PA municipalities** – with **zoning regulations,** either by a municipal ordinance or coverage under a county ordinance. *The number with zoning increased 2.4 percent in the last 10 years.*
- Currently there are 2,415 municipalities – **94 percent of all PA municipalities** – with **subdivision and land development regulations,** either by a municipal ordinance or coverage under a county ordinance. *The number with SALDO regs increased 0.8 percent in the last 10 years.*

ZONING IN PA
As of 2015

	Number	of Total
Total municipalities **with zoning**	1,739	67.9
Municipalities with own zoning ordinance	1,602	62.6
Municipalities under county zoning ordinance	137	5.3
Total municipalities **without zoning**	822	32.1

PA land area zoned	54.3%
PA population zoned	92.0%
PA urban population zoned	98.2%
PA rural population zoned	68.9%

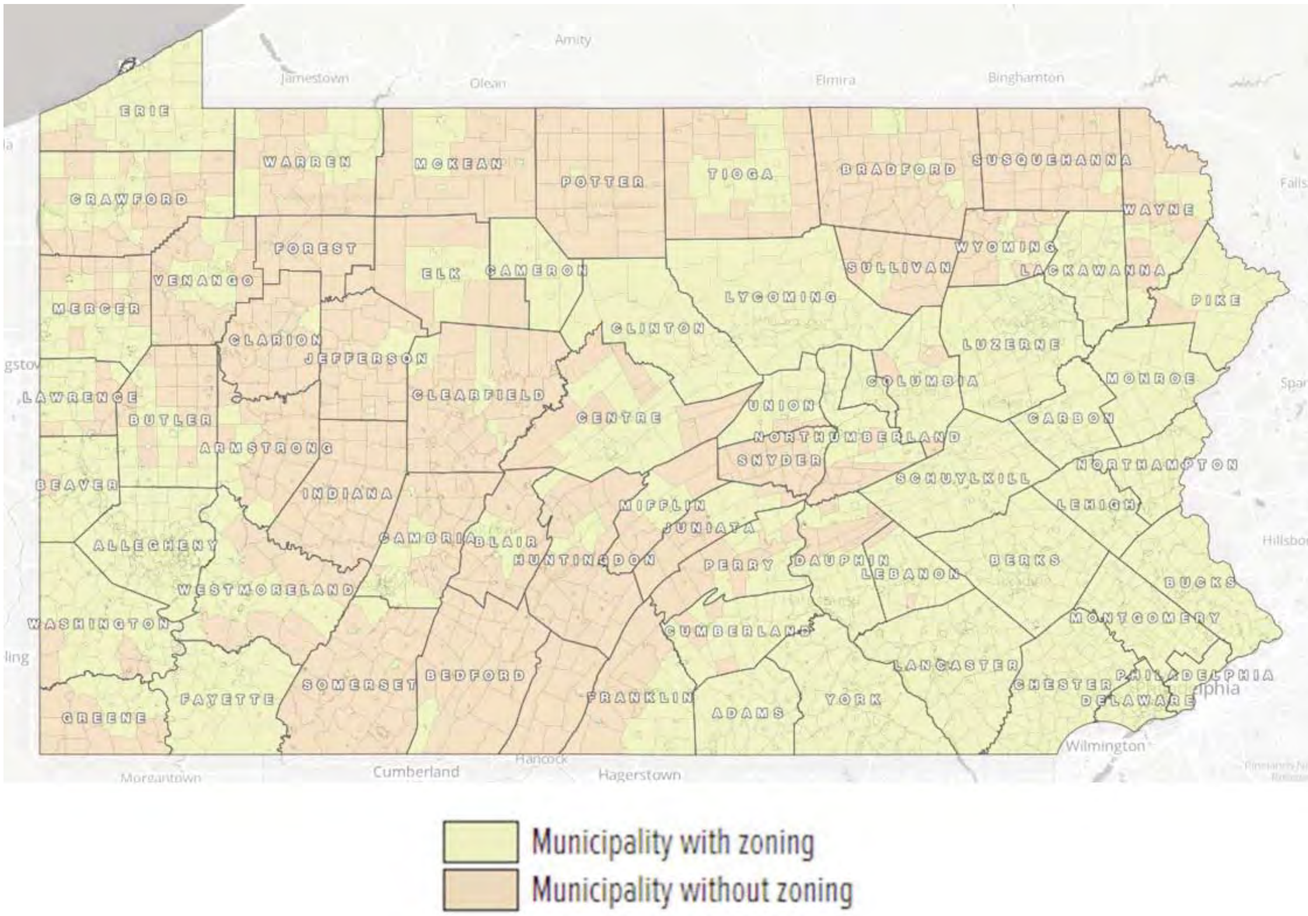
Source: PA Department of Community & Economic Development (DCED)

SUBDIVISION AND LAND DEVELOPMENT ORDINANCES (SALDO) IN PA
As of 2015

	Number	of Total
Total municipalities **with SALDO**	2,415	94.3
Municipalities with own SALDO	1,570	61.3
Municipalities under county SALDO	845	33.0
Total municipalities **without SALDO**	146	5.7

PA land area under SALDO	96.6%
PA population under SALDO	98.9%
PA urban population under SALDO	99.4%
PA rural population under SALDO	97.1%

Source: PA Department of Community & Economic Development (DCED)



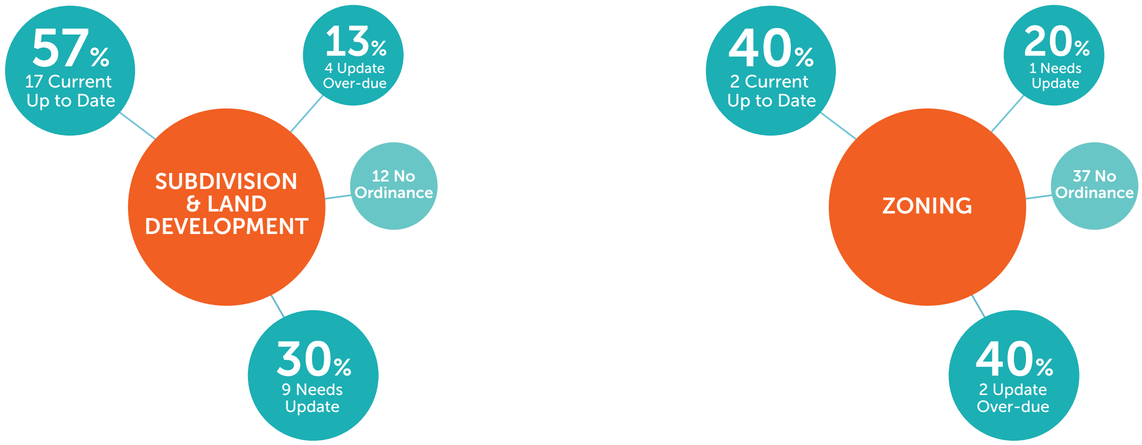
Source: State Impact PA, WHYY, 2014

While the number of municipal zoning and development ordinances is growing only slightly, the character of ordinances is changing significantly.

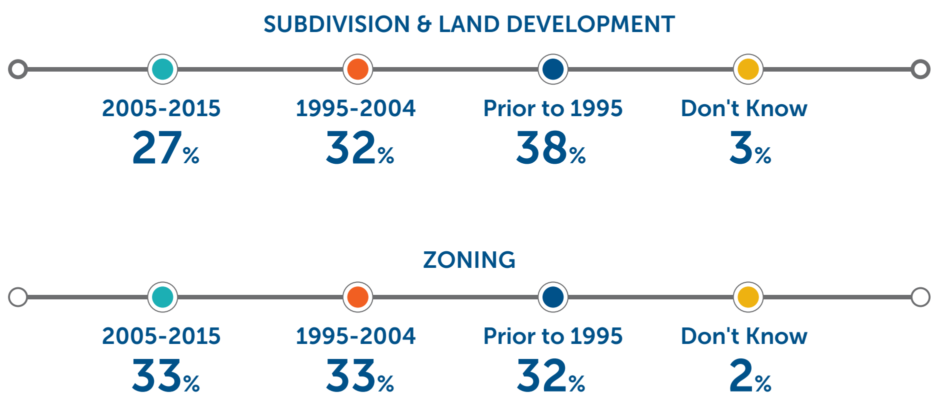
Zoning ordinances are increasingly promoting mixed uses, placemaking, and compatibility with the form and character of buildings and land.

A survey was conducted of Pennsylvania's 66 county planning agencies, with 42 responding.

How current are COUNTY land use ordinances?



What is the year of enactment or most recent comprehensive revision of MUNICIPAL land use ordinances?



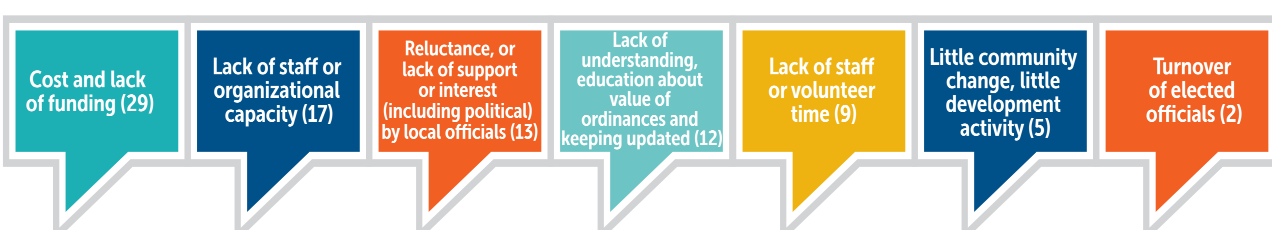
Note: Results in above table account for 64 percent of the municipal S&LD ordinances and 65 percent of the municipal zoning ordinances in PA.

Most land use ordinances enacted and administered by counties are current, though the majority is not overwhelming. For ordinances enacted and administered by municipalities:

- Only 27 percent of subdivision and land development ordinances are ten years old or younger.
- Only 33 percent of zoning ordinances are ten years old or younger.

What are the top obstacles to zoning and subdivision ordinances being kept up to date?

(Number of respondents with similar response.)



PROTECTED LANDS

Over 17 percent of the land in Pennsylvania is protected for its recreation, agriculture, conservation, heritage, and other public value.

PROTECTED LANDS IN PENNSYLVANIA

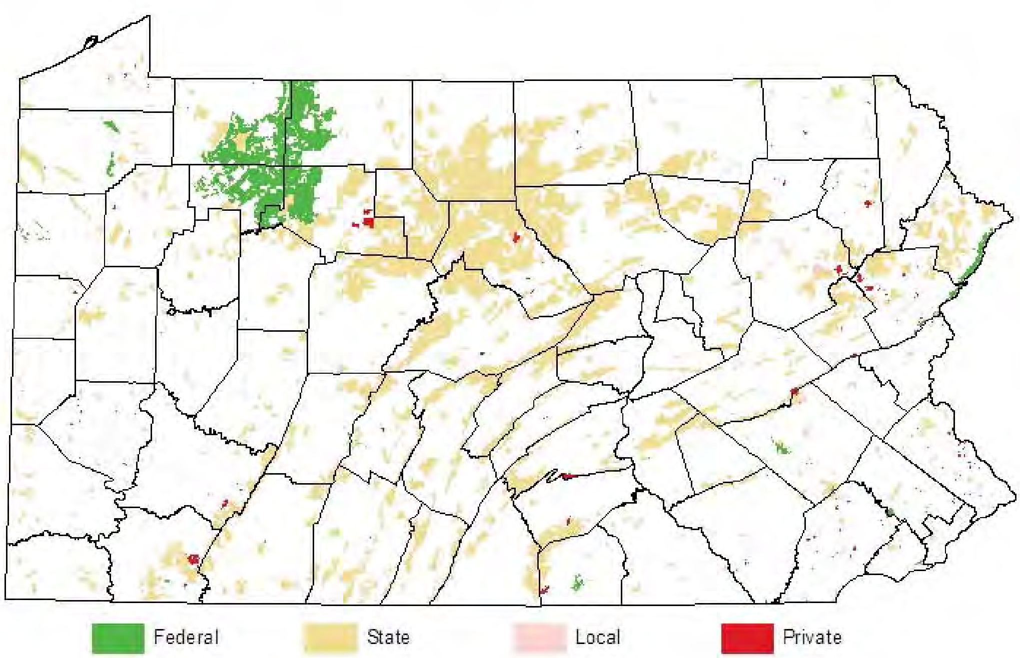
Ownership	Acres 2000	Acres 2012	Percent of Total 2012
Federal	101,072	566,375	11.2
State	3,667,455	3,820,693	75.7
County and Local Parks	68,736	122,190	2.4
County Agricultural Easements	275,983	470,155	9.3
Conservancy	22,026	35,336	0.7
Private	158,962	31,094	0.6
Total	**4,294,234**	**5,045,842**	**100.0**

Source: 2000 data from 2005 State Land Use & Growth Management Report.
2012 data from Conservation Biology Institute Dataset (DATA BASIN) and PA Department of Agriculture

Updated data from March 2015 – Land protected by agricultural easements obtained by a cooperative state/county/local program totals 504,252 acres on 4,750 farms in 57 counties.

Land enrolled in the Clean and Green Act (Act 319), which provides incentive to keep lands in farm, forest, or open space by taxing them at their use value rather than prevailing market value, increased from 8.5 million acres in 2010 to 9.1 million acres in 2013.

PENNSYLVANIA'S CONSERVATION LANDS



Source: PA Department of Conservation & Natural Resources

STAKEHOLDER SURVEYS

SURVEY OF COUNTY PLANNING AGENCIES

A survey was conducted of Pennsylvania's 66 county planning agencies, with 42 responding.

County planners were asked about land use and development trends in their counties.

SUBDIVISION & LAND DEVELOPMENT ACTIVITY
2014 Compared to 2013

	Much Higher	Some-what Higher	About the Same	Some-what Lower	Much Lower	Don't Know
# of Counties Responding	1	9.5	19	12	0.5	0
% of Counties Responding	2%	23%	45%	29%	1%	0%

SUBDIVISION & LAND DEVELOPMENT ACTIVITY
2014 Compared to 2010

	Much Higher	Some-what Higher	About the Same	Some-what Lower	Much Lower	Don't Know
# of Counties Responding	1	8	7	14.5	9.5	2
% of Counties Responding	2%	19%	17%	35%	23%	5%

Most counties reported development activity to be lower in 2014 than in 2010. Most counties reported development activity to be about the same in 2014 as in 2013.

Most significant observed trends, changes, or problems regarding land use and development in your county.

County planning agencies were asked to describe up to four most significant land use trends, changes, or problems in their counties. There were a variety of responses, and none were reported by a majority of responders, but below is a summary of those most commonly reported.

Natural Gas Development

This was the most frequently reported land use issue. Natural gas is both providing opportunities (spin-off and support businesses) and challenges (lower-quality development, higher-cost housing). Growing pipeline networks are a concern. Extensive leasing of land for natural gas has reduced subdivision activity.

Low Levels of Development

Many counties, especially NE border counties, reported decreases in development. Many rural counties reported minimal development.

Changing Character of Development

- More multifamily housing.
- More expansions of existing commercial and industrial developments than new developments.
- More urban development interest.
- More interest in walkable and "green" developments.


York County, Pennsylvania

Yet...

- There is confusion about and resistance to higher-density and mixed-use developments.
- In several rural counties and even in larger, developed counties there is reluctance to utilize land use and development ordinances.
- And, there have been appearances of vocal private property rights advocates that have impacted local planning efforts in a couple counties.

Also

- Several Central PA counties reported a stronger market for agriculture, some from growing Plain Sect populations, leading to less interest in subdividing farms for development. Others reported an increase in commercial animal farms.
- Blight is a current concern.
- There was frustration expressed with the multiplicity of municipalities with land use regulations and agencies requiring permits in the development review process.

SURVEY OF STAKEHOLDER ORGANIZATIONS

Pennsylvania's local government associations and several other stakeholder organizations were invited to participate in a survey.

Leaders from the following organizations were interviewed one-on-one. Three other organizations were invited to participate but did not respond.

- County Commissioners Association of Pennsylvania
- Pennsylvania Municipal League
- Pennsylvania State Association of Township Commissioners
- Pennsylvania State Association of Boroughs
- Pennsylvania State Association of Township Supervisors
- American Planning Association Pennsylvania Chapter
- Pennsylvania Builders Association
- Pennsylvania Economic Development Association
- Pennsylvania Land Trust Association
- Housing Alliance of Pennsylvania
- Penn State University Cooperative Extension

Philadelphia, Pennsylvania

Summary of Responses

Natural Gas

Many responders said natural gas is a significant issue, in some places providing a boost for revitalization of towns and new development, yet causing concerns about impacts to communities and landscapes, local regulation in the wake of the Robinson Act 13 Supreme Court decision, and slowdowns after activity peaks or as natural gas prices drop.

A Tale of Two Cities

Most 3rd class cities and boroughs are still struggling fiscally. Blight remains a significant problem. But, investment interest is increasing in urban areas. Places that have significant place and cultural assets – Philadelphia and Pittsburgh – and places able to invest in assets – like Allentown – are attracting investment. Some places are doing so well it is creating concern for displacement of poor persons.

Suburbs of Pittsburgh, Pennsylvania

Revitalization

Planners reported planning emphasis is shifting to revitalization and redevelopment, even repurposing of suburban plazas and office parks, and away from curbing "sprawl".

Slower Development

Many larger townships are becoming built out, other townships have had stagnant development, and rural areas, except for those getting a natural gas boost, have had slow to no development in recent years.

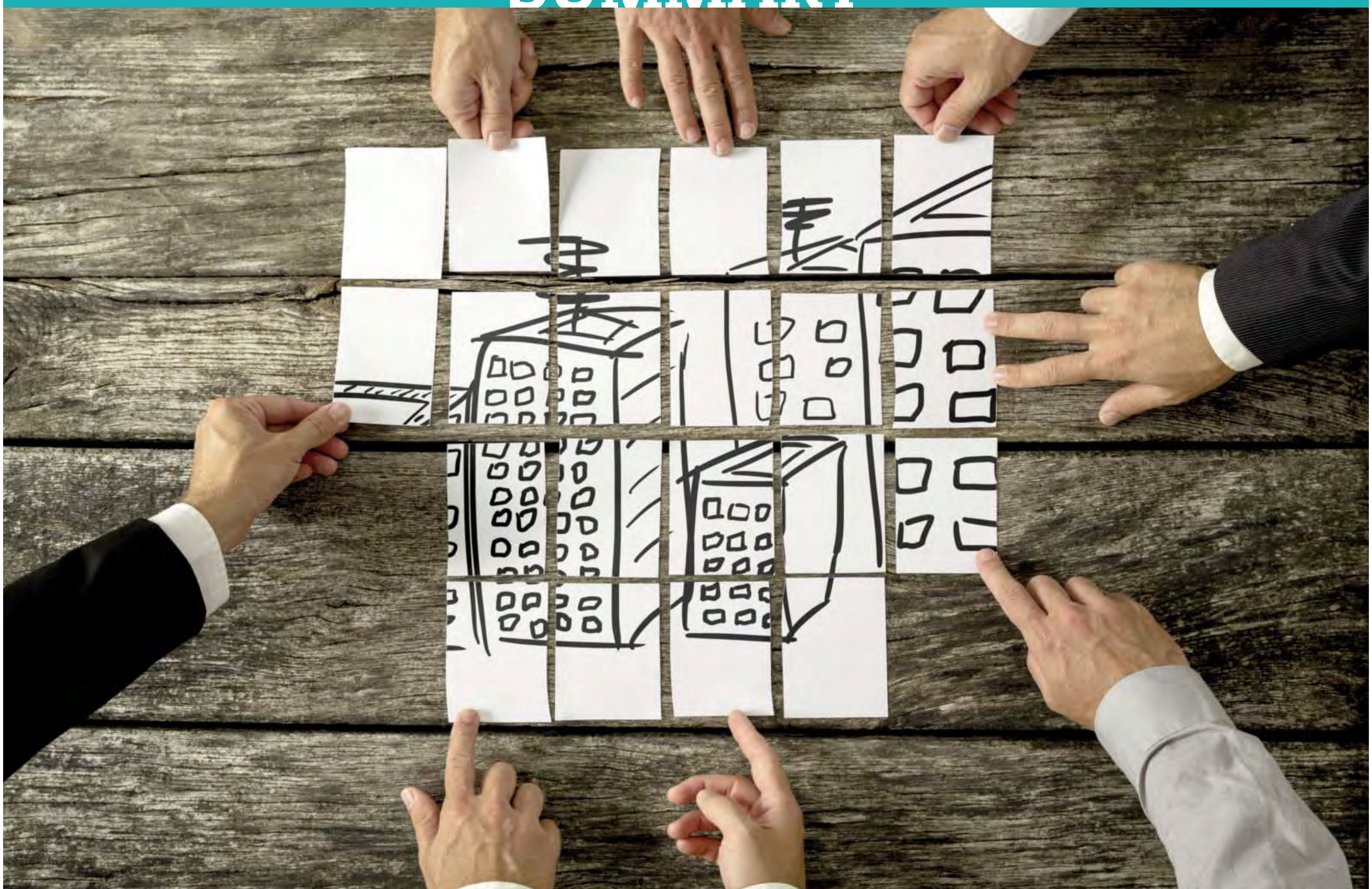
Changing Development Markets

Builders reported the single-family residential market is more stagnant, the multi-family residential market is growing, builders are building less on speculation, and there is growing interest in age 55+ communities.

The Goldilocks Effect and Land Use Regulations

To some, land use regulations are too unfriendly to development and have swung too far in favor of preservation. To others, local ordinances permit too much development that "chews up" the landscape. There are examples of municipalities that have enacted ordinances that are "just right", that reasonably accommodate current development demand and include modern best practices developers find agreeable. If there is a common view it is that too many local land use ordinances are out-of-date, and that the development approval process is challenging and, in the eyes of builders and economic developers, costs too much time and negatively impacts development.

SUMMARY



SUMMARY

Outward growth and conversion of undeveloped land to development slowed considerably with the Great Recession.

- During 2006-2011 the amount of developed land statewide increased 1.7 percent, compared to 1992-2005 when the amount of developed land increased 131 percent.
- Numbers of building permits were at historic lows 2008-2014.

Population and economy are growing – slowly.

- Economic growth is expected, and PA is back on the pre-recession track, but PA continues to comprise a smaller share of U.S. population and GNP.

Demographic, economic, and technology changes have potential to affect land use and development.

- **Demographic changes –** Aging Baby Boomers; emergence of Millennials; smaller and more non-family households; racial and ethnic minorities as the major growth segment.
- **Market changes –** Investment interest in urban development and the 18-hour city; demand for 55+ communities; emergence of NORCs (naturally occurring retirement communities); near-term demand for affordable rental housing, including micro housing; live/work spaces; smaller and more flexible work spaces; more home or garage businesses; changing character of retail.
- **Technology changes –** Tech enhancements in manufacturing (digital manufacturing, advanced robotics, 3-D printing), retailing, communications.

Natural gas was cited by most stakeholders as a significant land use issue.

- In the last ten years, the number of unconventional natural gas wells drilled in PA has risen greatly.
- In the next ten years, there will be unprecedented growth in the natural gas pipeline infrastructure network.
- Natural gas has been both a boost to revitalization of towns and new development, and a concern over impacts to communities and landscapes, and to local regulation in the wake of the PA Supreme Court Robinson/Act 13 decision.

There is still a challenge to get growth and investment in places where it hasn't been happening and to provide opportunities for all.

- Most stakeholders cited fiscal distress and blight as still hard-to-solve problems in many urban communities.
- Poverty rates since the Great Recession are above historic "norms".

Local land use regulations have not been kept up-to-date. *(They appear inadequately prepared to address the above challenges, and to promote growth in Pennsylvania.)*

- Based on survey responses, only 27 percent of municipal subdivision ordinances and 33 percent of municipal zoning ordinances are enacted or updated in the last 10 years.

QUESTIONS

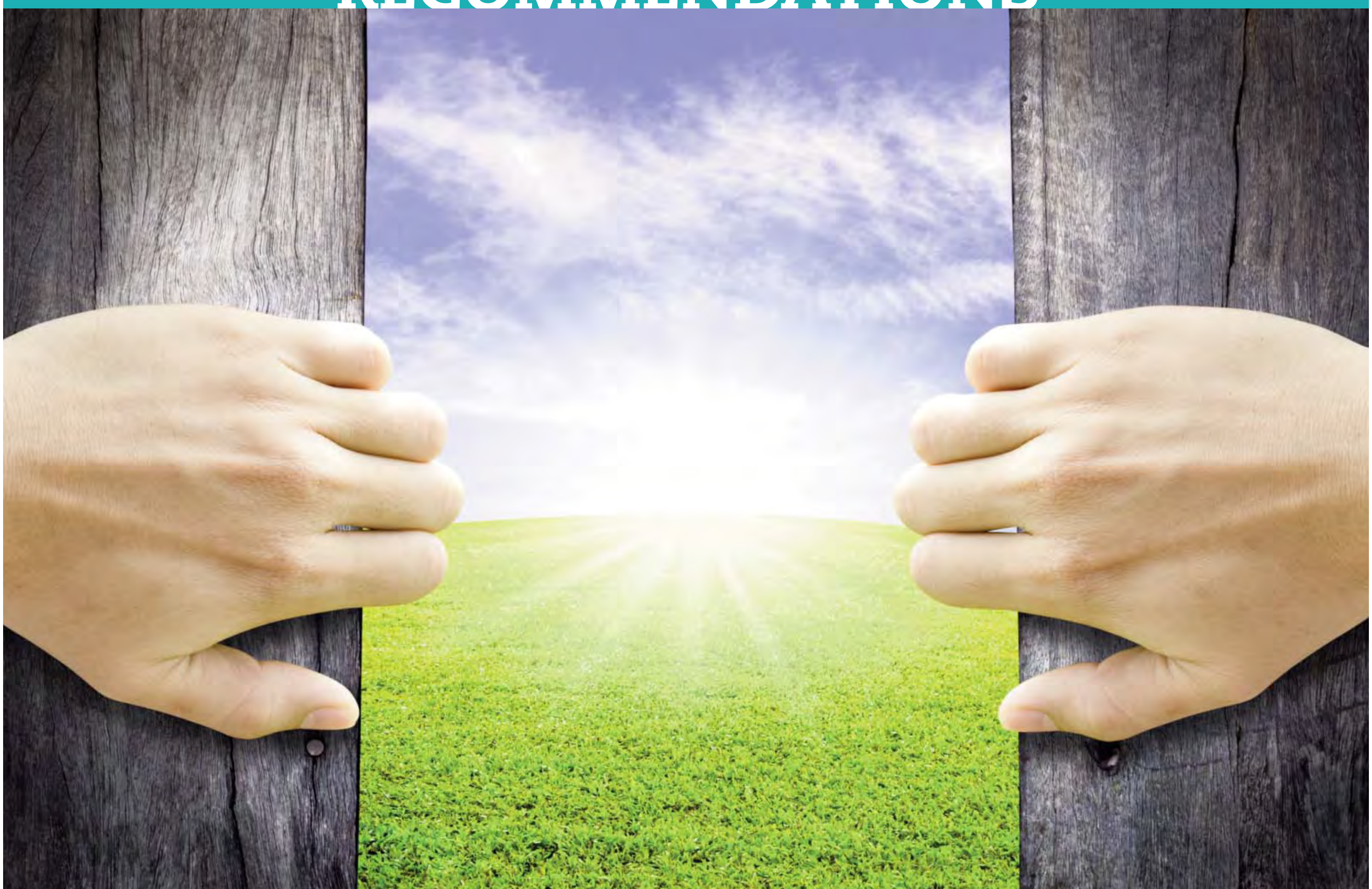
The Pennsylvania State Planning Board, in providing critical review of the data and summary, concluded there is not sufficient information for making a full set of policy recommendations.

Some data is too old. Some is too broad and does not reveal root causes.
There are questions about where trends will go in the future.

The State Planning Board suggested the following issues need further investigation:

- **Land use patterns –** Data from aerial imagery is current only through 2011. What has happened since then? Has the pattern of outward growth prevalent before the Great Recession returned?
- **Natural gas –** There are questions about:
  - Current market for natural gas.
  - Growth in pipelines and impacts of same, and forthcoming recommendations of the Pipeline Infrastructure Task Force.
  - Opportunities to do production in PA, cause more local distribution of service, and capture more value for PA's people and economy.
  - Gas replacing coal and resulting loss of coal energy facilities and jobs.
- **Communities still suffering economic distress –** There are questions about pervasive fiscal distress, poverty, and blight, as well as the root causes and how best to deal with them. There is need for acknowledgment that these are no longer just urban core issues. There was discussion that communities with capacity deal more effectively with these issues. Capacity is particularly needed for land banks, code enforcement, and other tools available or pending in legislation to fight blight. How can capacity be increased? The Department of Community and Economic Development set a policy priority to remediate blight, and invited the State Planning Board to make recommendations on strategies and tools to help communities.
- **"Crystal ball" questions –** There are questions about emerging demographic, technology, and economy changes and how these will affect land use and development. The research in this report is limited. Discussions have suggested PA and communities may need to have strategies for attracting people, placemaking, smart growth, and asset investment to capitalize on these changes, but discussions only scratched the surface.
- **Slow growth –** The board frequently discussed Pennsylvania's slow growth and believes positive action on the above issues will make Pennsylvania and its communities more competitive for growth and investment.
- **Agriculture and forests –** The information presented does not enough address agriculture and forest issues, particularly the connection between land use trends/policies and economic viability of farming and forests.

RECOMMENDATIONS



RECOMMENDATIONS

The recommendations are prefaced by repeating a declaration from the 2010 State Land Use and Growth Management Report: *Community planning is an ESSENTIAL local government function.*

- It is the means by which a community can successfully address the changes and trends discussed in this report.
- It helps make tough decisions about assets, services, and improvements critical to community livability and attracting desired investment.
- It leads to a healthier fiscal bottom line.

If done poorly, a plan will be shelved. A well-developed plan is a springboard for positive action and community improvement.

Recommendation #1
Establish a local land use ordinance modernization program.

A combination of technical assistance and funding should be strategically targeted to help local governments update zoning ordinances and subdivision and land development ordinances. DCED's Governor's Center for Local Government Services should take the lead in the effort.

Objectives for ordinance modernization:

- Address anticipated changes in demographics, markets, and technology.
- Address natural gas & pipelines.
- Make municipalities and Pennsylvania more competitive in attracting desired growth.
- Address state agency priorities – DEP climate change – DCNR forest management – Ag economic viability of farms.
- Streamline development approval processes.

Actions:

- Develop suggested ordinance provisions and best practices.
- Provide grants to local governments for ordinance modernization projects. Could include grants directly to municipalities, or grants for higher impact county/municipal cooperative efforts.
- Increase Municipal Assistance Program funding for both above actions.

Recommendation #2
Charge the State Planning Board to further investigate and make recommendations on issues in the report.

The Pennsylvania State Planning Board functions under the Office of the Governor. It has statutory responsibility to conduct research, identify issues of concern, and develop plans addressing economic, social, physical, and demographic factors affecting the welfare of the commonwealth. It is well-suited to undertake additional investigations called out in the report.

Issues for further investigation:

- Changing land use patterns and emerging trends from changes in demographics, technology & economy.
- Land use and community issues and opportunities related to natural gas.
- Communities in economic distress and related issues of blight and poverty.
- Pennsylvania's slow growth and how better planning and land use policies can make Pennsylvania and communities more competitive for investment.
- State agency priorities related to land use like economic viability of agriculture, forest management, and climate change.

Actions:

- Issue a charge from the Governor's Office to the State Planning Board to further study issues and provide recommendations.
- Create a Board structure that includes regular meetings and working committees.
- Provide resources – state staff support and/or funding for consultant contracts.
- Create a state interagency land use team to work with the State Planning Board. The core of the team would be the Departments seated on the Board – Agriculture, Community & Economic Development, Conservation & Natural Resources, Environmental Protection, Human Services, and Transportation. The team would recruit involvement of other state agencies as appropriate.

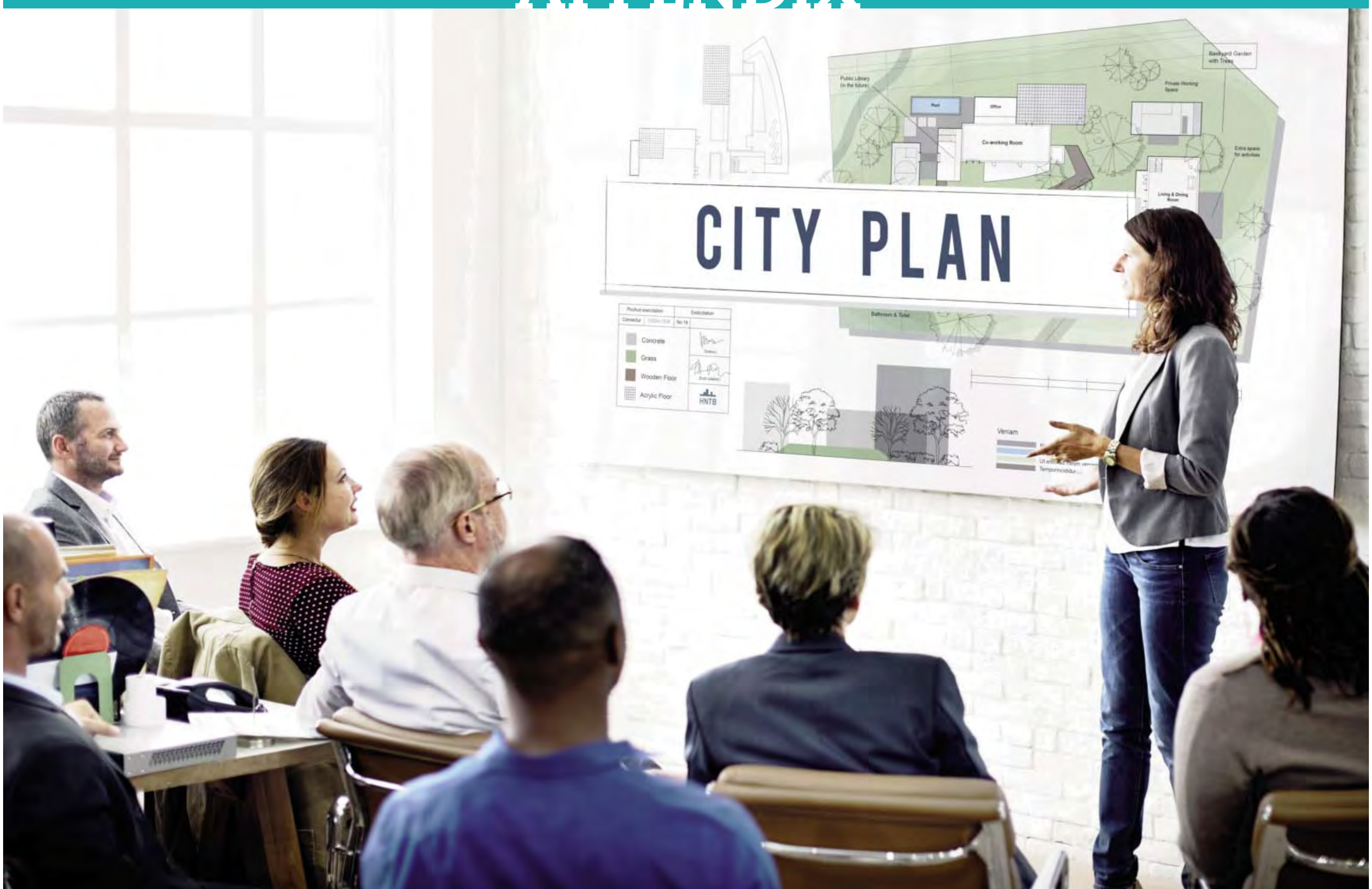
Recommendation #3
Implement recommendations of the Local Permitting Reform Study

The study was completed by the State Planning Board in August 2013. It called attention to the complexity and unpredictability of local government development permitting processes, and time and cost by applicants to navigate the processes. The Board, working with municipal officials and developers, identified win-win recommendations that have only been partially implemented.

Recommendations:

- Amendments to the PA Municipalities Planning Code addressing unified development ordinances, one substantive review step, specific plans, and sketch plans.
- Education and training for streamlining local development review practices.
- A joint local/state/multi-agency review process.

APPENDIX



NATIONAL LAND COVER DATABASE (NLCD)

Land cover data in the 2015 State Land Use and Growth Management Report was acquired from the Multi-Resolution Land Characteristics (MRLC) Consortium which developed the dataset(s) called the National Land Cover Database (NLCD) 2006-2011 Land Cover Change Retrofit product. The Multi-Resolution Land Characteristics (MRLC) consortium is a group of federal agencies (USGS, NOAA, NASA, etc.) who coordinate and generate consistent and relevant land cover information at the national scale for a wide variety of environmental, land management, and modeling applications. **The National Land Cover Database provides comprehensive data and consistent imagery and methodology on land use patterns and trends throughout the United States.** The 2006 and 2011 data were developed from Landsat imagery at a spatial resolution of 30 meters, and maintain a land cover classification scheme based on the Anderson Classification System. The classification system can be found on the next page.

The 2006 and 2011 data are the newest available. The next scheduled round of Landsat imagery is set for 2016 with the data most likely available at the end of 2018.

CLASS / VALUE	LAND COVER CLASSIFICATION DESCRIPTIONS for 2006 and 2011 NLCD Data
	WATER
11	**Open Water –** areas of open water, generally with less than 25% cover of vegetation or soil.
12	**Perennial Ice/Snow –** areas characterized by a perennial cover of ice and/or snow, generally greater than 25% of total cover.
	DEVELOPED
21	**Developed, Open Space** – areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.
22	**Developed, Low Intensity –** areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20% to 49% percent of total cover. These areas most commonly include single-family housing.
23	**Developed, Medium Intensity –** areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50% to 79% of the total cover. These areas most commonly include single-family housing.
24	**Developed High Intensity –** highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80% to 100% of the total cover.
	BARREN
31	**Barren Land (Rock/Sand/Clay) –** areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.
	FOREST
41	**Deciduous Forest –** areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.
42	**Evergreen Forest –** areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.
43	**Mixed Forest –** areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.
	SHRUBLAND
51	**Dwarf Scrub –** Alaska only areas dominated by shrubs less than 20 centimeters tall with shrub canopy typically greater than 20% of total vegetation. This type is often co-associated with grasses, sedges, herbs, and non-vascular vegetation.
52	**Shrub/Scrub –** areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.
	HERBACEOUS
71	**Grassland/Herbaceous –** areas dominated by gramanoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.
72	**Sedge/Herbaceous –** Alaska only areas dominated by sedges and forbs, generally greater than 80% of total vegetation. This type can occur with significant other grasses or other grass like plants, and includes sedge tundra, and sedge tussock tundra.
73	**Lichens –** Alaska only areas dominated by fruticose or foliose lichens generally greater than 80% of total vegetation.
74	**Moss –** Alaska only areas dominated by mosses, generally greater than 80% of total vegetation.
	PLANTED/CULTIVATED
81	**Pasture/Hay –** areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation.
82	**Cultivated Crops –** areas used for the production of annual crops, such as corn, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20% of total vegetation. This class also includes all land being actively tilled.
	WETLANDS
90	**Woody Wetlands –** areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.
95	**Emergent Herbaceous Wetlands –** Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.