Population and Development Patterns

Access Ohio 2045

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Executive Summary

The purpose of this report is to describe current and future demographic conditions in Ohio which advance understanding of future user needs and subsequent implications on transportation system investment through 2045.

POPULATION CHANGE

Ohio's population has grown slowly over the last 15 years, increasing from 11,353,140 in 2000 to 11,613,423 in 2015. Ohio's population is anticipated to grow 8.3 percent to 12,573,690 by 2045, compared to a projected 21.2 percent increase in the national population by 2045. Population change in Ohio has varied considerably across the state, with central Ohio generally experiencing the greatest population increases. This trend is projected to continue through 2045.

DEMOGRAPHIC SHIFTS

The Ohio population is growing older and more diverse. The percentage of the Ohio population over the age of 65 is expected to increase from 15.9 percent in 2015 to 20.8 percent in 2045. During this time period, the median age of Ohioans is projected to increase from 39.4 to 40.5 years. The minority population percentage also is anticipated to increase from 19.3 percent to 29.7 percent between 2015 and 2045. For the purposes of this analysis, minority is defined as non-White and/or of Hispanic or Latino origin.

INCOME AND PROSPERITY

Ohioans had a median household income of $51,075 in 2015, below the national median household income of $55,775. County-level data highlight considerable disparity in household income and poverty rates across Ohio. Suburban counties surrounding some of Ohio's major metropolitan areas—such as Delaware and Union counties outside of Columbus, Warren County outside of Cincinnati, and Geauga County outside of Cleveland—have the highest median incomes in the state. Median incomes in these four counties range from $67,382 to $91,555, all well above the state and national averages. Median household incomes tend to be much lower and poverty rates higher in rural southeastern Ohio, where there is a concentrated area of 10 contiguous counties with poverty rates over 20 percent (Highland, Adams, Pike, Scioto, Jackson, Vinton, Gallia, Meigs, Athens, and Morgan).

POPULATION DENSITY

This income disparity may be contributing to changes in the geographic distribution of the state's population as Ohioans continue to move from rural areas to urban and suburban areas. At the same time, the central cities of many of Ohio's largest metropolitan areas continue to lose population. The combination of increasing urbanization along with population decline in the urban cores results in population dispersal across increasingly large areas of land for many of Ohio's major metropolitan areas. These patterns may result in the need to more closely target and invest transportation solutions

which best support these demand changes and will be different in urban core versus rural, remote areas.

Introduction

BACKGROUND

This report explores socioeconomic data to describe the current and anticipated future population of Ohio. Historic, current, and projected future demographic and income data will be presented and analyzed in this report to describe the primary users of Ohio's transportation system to ensure Ohio's transportation system continues to serve their needs through 2045. This is one of a series of white papers that will influence the development of alternative futures, evaluated within Access *Ohio 2045* (AO45), Ohio's statewide long-range transportation plan.

DATA EVALUATION AND INTERPRETATION

This analysis will draw on historic and current data from the U.S. Census Bureau, ODOT's 2016 Customer Preference Survey (containing 8,500 responses), and population projections from Woods and Poole, Economics Inc. and the U.S. Census Bureau. Current demographic information is from the U.S. Census Bureau's American Community Survey (ACS) 2011–2015 5-Year estimates because it is the most recent comprehensive dataset that provides detailed demographic information for all counties in Ohio. Source information is detailed in **Appendix A** and additional data supporting the demographic trends discussed in this report are provided in **Appendix B**.

Where Are We Today?

POPULATION

Between 2000 and 2015, the Ohio population grew by just over two percent to 11,613,423. **Figure 1** provides a map of 2015 Ohio population by county and **Figure 2** provides a map of population change by county. As shown in **Figure 2,** the highest rates of growth generally occurred in suburban counties and the lowest rates of growth (including decline) occurred in urban (with the exception of Franklin) and rural counties. **Table 1** provides more details about the Ohio counties with the highest and lowest rates of growth between 2000 and 2015.

Geography	2000 Population	2015 Population	Change (2000-2015)	Average Annual Rate of Growth (2000-2015)
Counties with Highest Rates of Growth				
Delaware	109,989	185,433	68.6%	3.5%
Warren	158,383	219,916	38.9%	2.2%
Union	40,909	53,470	30.7%	1.8%
Fairfield	122,759	149,112	21.5%	1.3%
Licking	145,491	168,693	15.9%	1.0%
Counties with Lowest Rates of Growth				
Cuyahoga	1,393,978	1,263,189	-9.4%	-0.7%
Crawford	46,966	42,725	-9.0%	-0.6%
Mahoning	257,555	234,550	-8.9%	-0.6%
Trumbull	225,116	206,373	-8.3%	-0.6%
Jefferson	73,894	68,053	-7.9%	-0.5%
Statewide				
Ohio	11,353,140	11,575,977	2.0%	0.1%
National				
United States	281,421,906	316,515,021	12.5%	0.8%

Sources: U.S. Census Bureau 2000 Census, 2010 Census, 2015 ACS 5-Year Estimates.

TABLE 1 - POPULATION CHANGE, 2000-2015

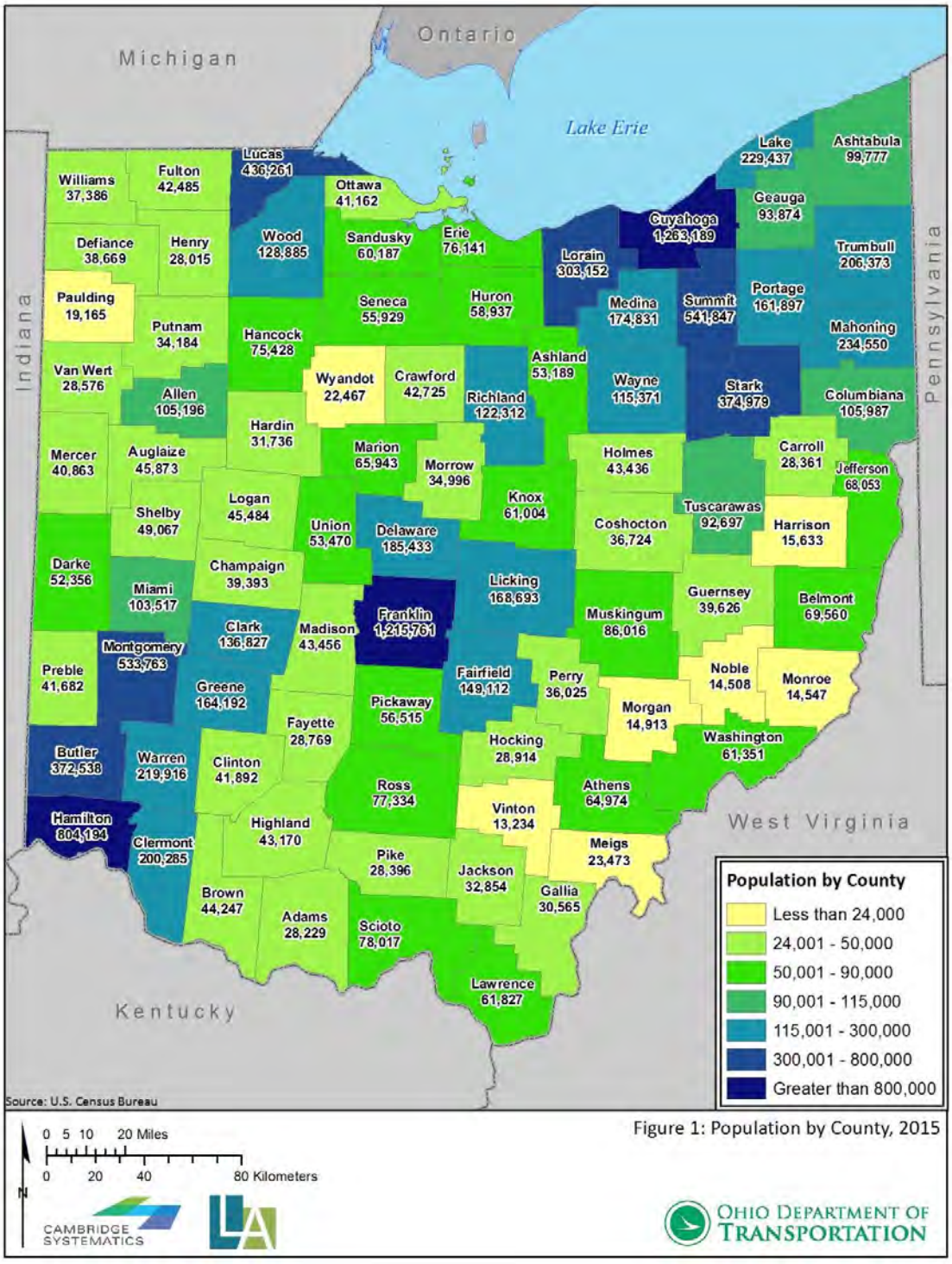


Figure 1: Population by County, 2015

Source: U.S. Census Bureau 2015 ACS 5-Year Estimates.

FIGURE 1 – POPULATION BY COUNTY, 2015

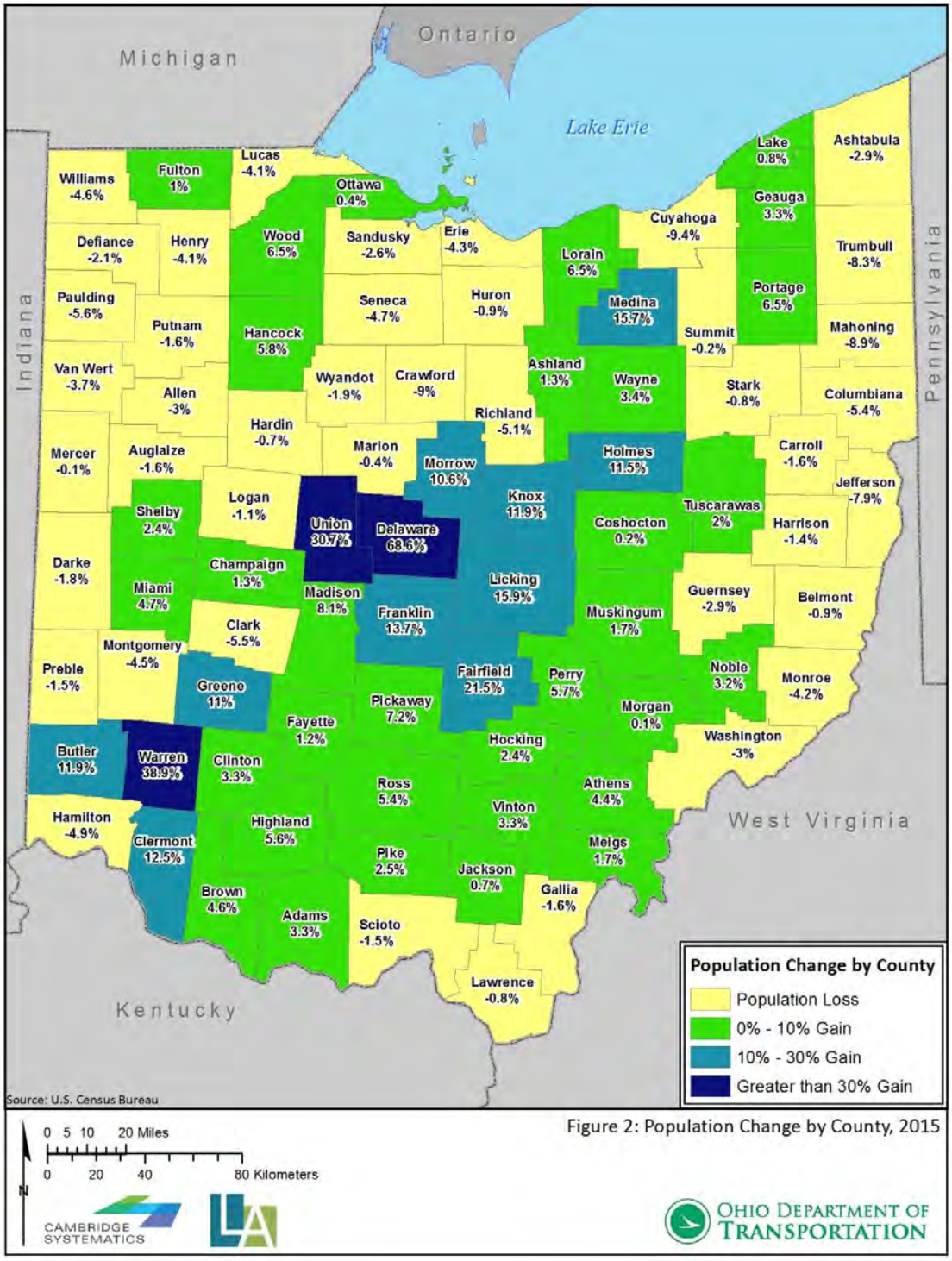


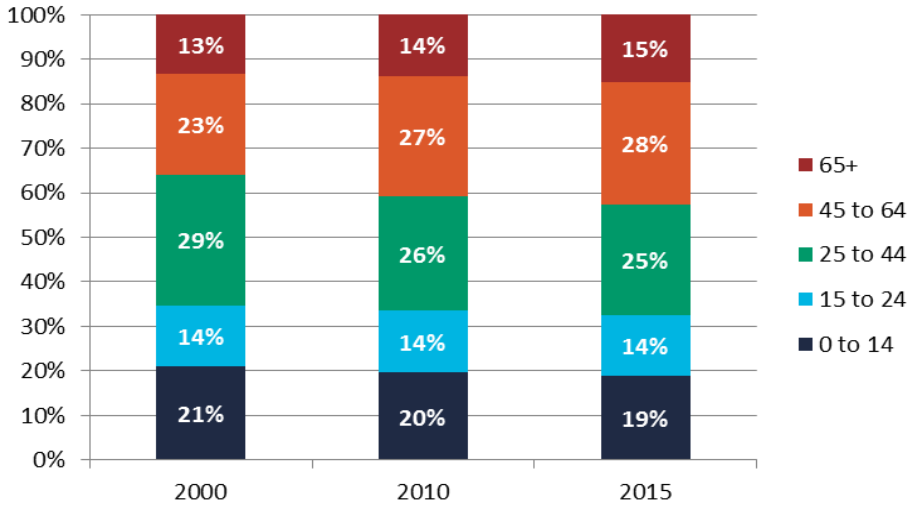
Figure 2: Population Change by County, 2015

Source: U.S. Census Bureau 2000 Census and 2015 ACS 5-Year Estimates.

FIGURE 2 – POPULATION CHANGE BY COUNTY, 2000-2015

AGE AND SEX DISTRIBUTION

In 2015, the Baby Boomer generation (defined in this report as ages 50 to 69) comprised over one quarter (25.6 percent) of Ohio's population. The Millennial generation (defined in this report as ages 17 to 35), made up a slightly larger share of the Ohio population at 26.4 percent. The median age of the Ohio population in 2015 was 39.2 years—an increase from 38.8 in 2010 and 36.4 in 2000. **Figure 3** shows the population distribution change across major age groups between 2000 and 2015 and **Figure 4** shows the percent of the population over age 65 in 2015 for each of Ohio's counties. Over 20 percent of the populations of Noble, Monroe, and Ottawa counties were over the age of 65. Franklin County had the lowest percentage of the population over the age of 65 at 10.6 percent.



Sources: U.S. Census Bureau 2000 Census, 2010 Census, 2015 ACS 5-Year Estimates.

FIGURE 3 - CHANGE IN AGE OF OHIO POPULATION, 2000-2015

RACE AND ETHNICITY

The Ohio population has been growing more diverse, with the minority population increasing from 17.0 percent to 19.7 percent of the total population between 2000 and 2015 (see **Table 2**). Diversity is generally increasing faster in the suburban counties surrounding Columbus and Cincinnati than in other parts of the state. The three counties with the greatest percentage increase in their minority population percentage between 2000 and 2015 were Fairfield (111.5 percent), Warren (91.1 percent), and Delaware (90.4 percent). One exception to this general trend is Pickaway County outside of Columbus which experienced the greatest percentage decline in its minority population between 2000 and 2015 at -22.2 percent. **Figure 5** shows the minority population percentage by county in 2015 and **Figure 6** shows the percentage change in minority population by county between 2000 and 2015.

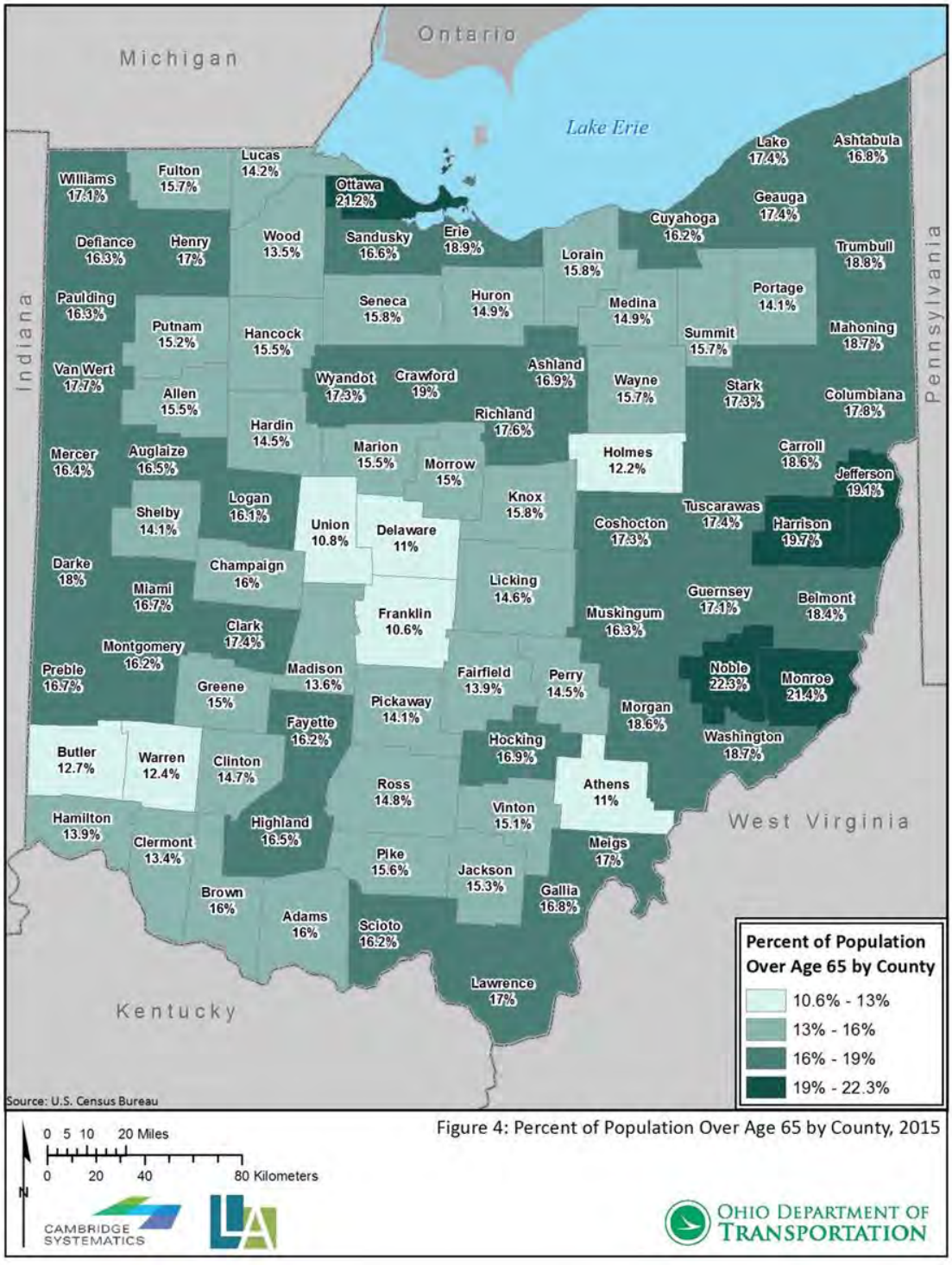


Figure 4: Percent of Population Over Age 65 by County, 2015

Source: U.S. Census Bureau 2015 ACS 5-Year Estimates.

FIGURE 4 – PERCENT OF POPULATION OVER AGE 65 BY COUNTY, 2015

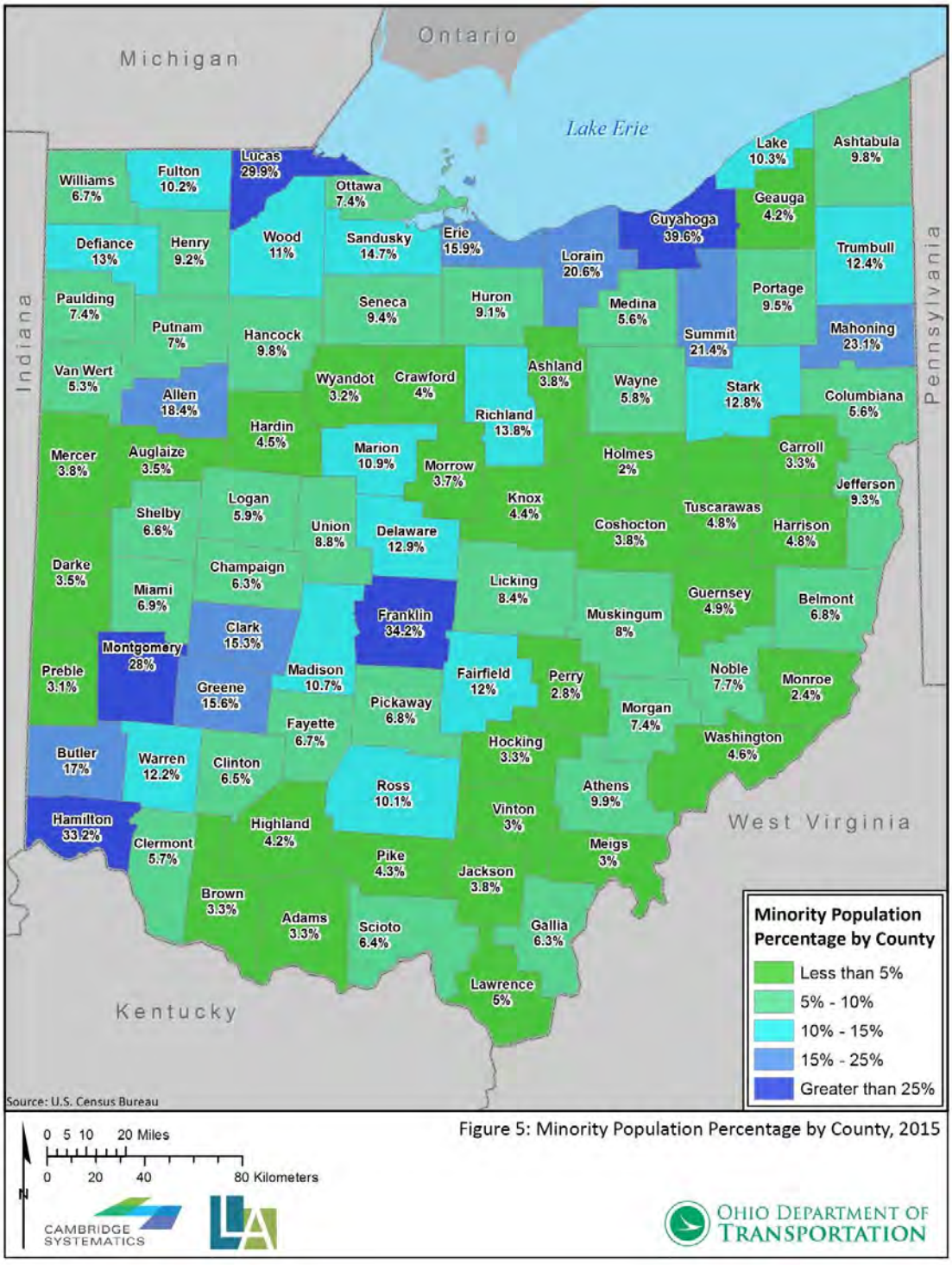


Figure 5: Minority Population Percentage by County, 2015

Source: U.S. Census Bureau 2015 ACS 5-Year Estimates

Figure 5 – Minority Population Percentage by County, 2015

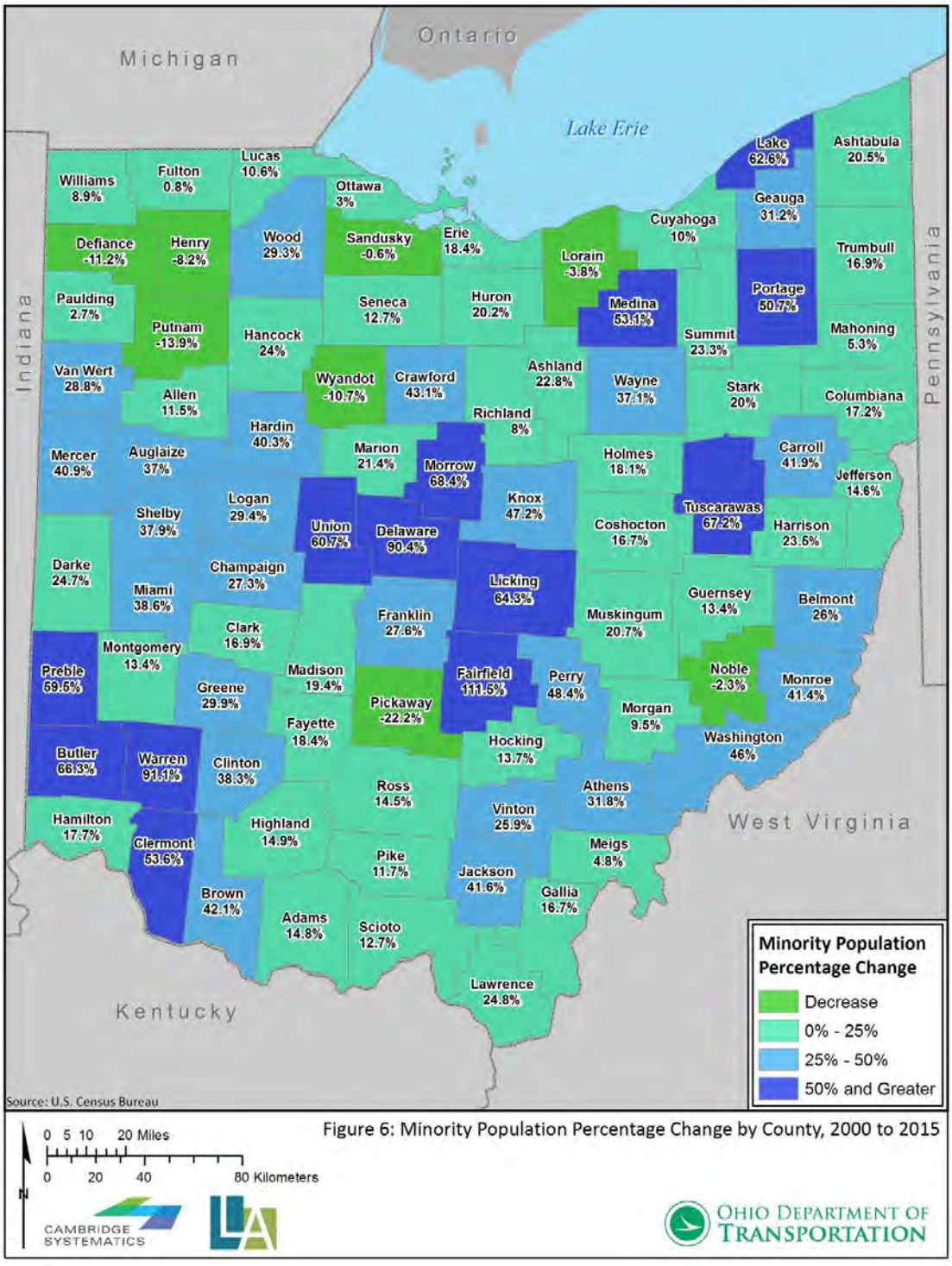


Figure 6: Minority Population Percentage Change by County, 2000 to 2015

Sources: U.S. Census Bureau 2000 Census and 2015 ACS 5-Year Estimates.

FIGURE 6 – CHANGE IN MINORITY POPULATION PERCENTAGE BY COUNTY, 2000–2015

Race	Ethnicity*	Percent of Total Population		
		2000	2010	2015
Black or African American		11.5	12.0	12.0
American Indian or Alaska Native		0.2	0.2	0.1
Asian		1.2	1.7	1.9
Native Hawaiian or Other Pacific Islander		0.0	0.0	0.0
Other		0.8	0.1	0.1
Two or More		1.4	1.8	2.2
Any Race	Hispanic or Latino	1.9	3.1	3.4
Total Minority Population		**17.0**	**18.9**	**19.7**
White	Not Hispanic or Latino	84.0	81.1	80.3
Total Population		**11,353,140**	**11,536,504**	**11,575,977**

Sources: U.S. Census Bureau 2000 Census, 2010 Census, 2015 ACS 5-Year Estimates.

*The U.S. Census Bureau changed the way that race and ethnicity information is requested beginning in 2010 in an effort to encourage respondents to identify with a specific race instead of answering "some other race." This change should be taken into consideration when comparing race and ethnicity data before and after 2010.

TABLE 2 – OHIO POPULATION DIVERSITY, 2000–2015

As shown in **Table 3**, the minority population in Ohio tends to be younger than the nonminority population. In 2015, over one quarter of the minority population in Ohio (26.2 percent) was under 15 years old and less than 10 percent was over age 65.

Age Group	% of Total Population	% of Nonminority Population	% of Minority Population
0 to 14 Years	18.9	17.1	26.2
15 to 24 Years	13.6	12.8	16.8
25 to 44 Years	24.8	24.3	26.9
45 to 64 Years	27.6	29.1	21.4
65 Years and Older	15.1	16.7	8.7

Source: U.S. Census Bureau 2015 ACS 5-Year Estimates.

TABLE 3 – MINORITY AND NONMINORITY POPULATION BY AGE GROUP, 2015

GEOGRAPHIC POPULATION DISTRIBUTION

According to the 2010 Census, approximately 11 percent of the land area of the state is home to the 78 percent of the Ohio population living in urban areas. In 2010, nearly four in five Ohio housing units were located in areas defined as urban by the U.S. Census Bureau, which includes both urbanized areas and urban clusters. Between 2000 and 2010, there was a 0.7 percent increase in the percent of housing units located in urban areas in Ohio. The highest rates of increasing urbanization occurred in Preble County outside of Dayton (69.6 percent), Ottawa County outside of Toledo (28.8 percent), and Pike County in southern Ohio (24.0 percent) which all experienced greater than a 20 percent increase in the percentage of housing units within their counties located in urban areas. **Table 4** provides additional details.

Geography	% Housing Units in Urban Area		% Change 2000-2010
	2000	2010	
Counties with Greatest Increase in Urbanization between 2000 and 2010			
Preble	19.4	32.9	69.6
Ottawa	43.0	55.4	28.8
Pike	23.2	28.8	24.0
Union	39.3	47.6	21.3
Washington	37.8	45.2	19.5
Counties with Greatest Decrease in Urbanization between 2000 and 2010			
Meigs	22.6	20.3	-10.3
Harrison	17.1	14.9	-12.7
Ashland	48.7	40.0	-18.0
Gallia	25.1	20.2	-19.5
Vinton	6.5	0.0	-100.0
Statewide			
Ohio	78.9	79.4	0.7

Sources: U.S. Census Bureau 2000 Census, U.S. Census Bureau 2010 Census.

TABLE 4 - CHANGE IN GEOGRAPHIC POPULATION DISTRIBUTION, 2000-2010

HOUSEHOLD INCOME AND POVERTY

A large disparity exists in income across different counties and regions in the state, with median household incomes ranging from $33,872 in Athens County to $91,955 in Delaware County. Household incomes in 2015 were generally lower in the counties located in southeastern Ohio than in the rest of the state.

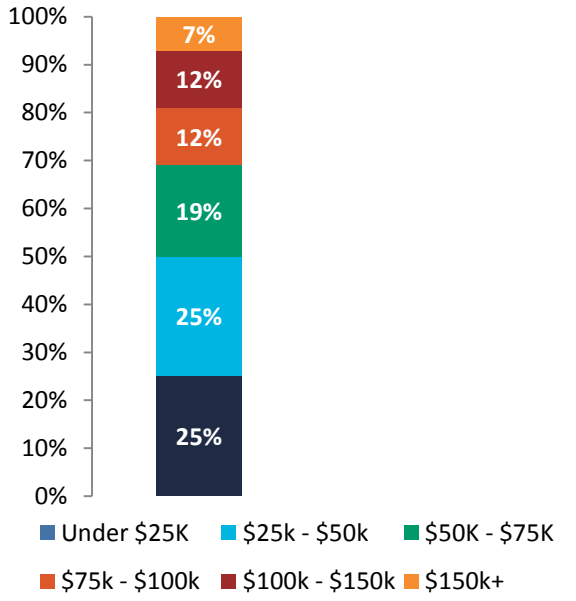
Between 2000 and 2015, median household income in Ohio increased 24.7 percent from $40,956 to $51,075. The greatest increases in income between 2000 and 2015 occurred in Delaware (+$24,697), Warren (+$16,427), Union (+$15,639), Holmes (+$15,052), and Pickaway (+$14,607) counties. Belmont, Lawrence, Harrison, Holmes, and Meigs counties experienced the highest rates of increase in income between 2000 and 2015, ranging from 38.6 to 47.5 percent. Despite this increase, four out of those five counties still have a median household income less than the statewide average in 2015. Based on a comparison of 2000 and 2015 data, geographic income disparity between Ohio's counties appears to be decreasing for the lowest-income counties. Seven of the 10 lowest-income counties in Ohio in 2000 experienced an increase in the ratio of county to state income between 2000 and 2015 (see **Table 5**).

	2000		2015	
Geography	Median Household Income	County Income as Percentage of Statewide Income	Median Household Income	County Income as Percentage of Statewide Income
Counties with Lowest Median Household Income in 2000				
Meigs County	$27,287	66.6%	$37,813	74.0%
Athens County	$27,322	66.7%	$33,872	66.3%
Scioto County	$28,008	68.4%	$35,903	70.3%
Morgan County	$28,868	70.5%	$37,067	72.6%
Lawrence County	$29,127	71.1%	$42,874	83.9%
Adams County	$29,315	71.6%	$35,560	69.6%
Vinton County	$29,465	71.9%	$40,680	79.6%
Belmont County	$29,714	72.6%	$43,833	85.8%
Guernsey County	$30,110	73.5%	$40,930	80.1%
Gallia County	$30,191	73.7%	$37,319	73.1%
Statewide				
Ohio	$40,956	N/A	$51,075	N/A

Sources: U.S. Census Bureau 2000 Census and 2015 ACS 5-Year Estimates.

TABLE 5 – CHANGE IN INCOME, 2000-2015

Figure 7 shows the distribution of household income in Ohio in 2015. **Figure 8** shows median household income by county and **Figure 9** shows the poverty rate by county in 2015. Households in the suburban counties surrounding Columbus, Cleveland, and Cincinnati tend to have the highest median household incomes and lowest poverty levels. The urban counties of Cuyahoga, Hamilton, Franklin, Montgomery, Summit, Lucas, and Stark tend to have lower median household incomes and higher rates of poverty than their surrounding suburban counties. Incomes in the more rural counties in Ohio tend to be lower than in both the urban and suburban areas, particularly in southeastern Ohio where there is a concentrated area of 10 contiguous counties that all have poverty rates over 20 percent (Highland, Adams, Pike, Scioto, Jackson, Vinton, Gallia, Meigs, Athens, Morgan).



Source: U.S. Census Bureau 2015 ACS 5-Year Estimates.

FIGURE 7 – HOUSEHOLD INCOME DISTRIBUTION

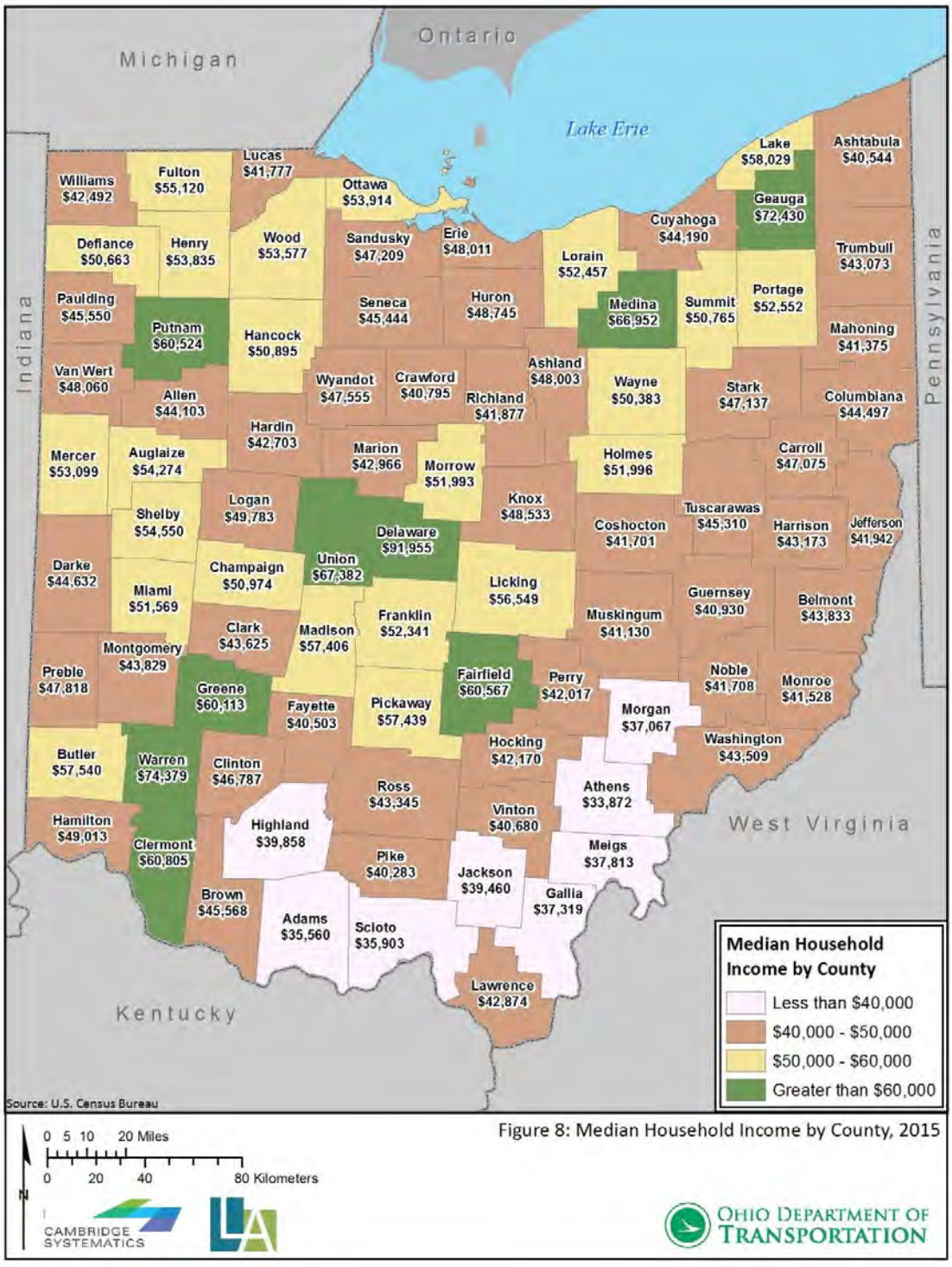


Figure 8: Median Household Income by County, 2015

Source: U.S. Census Bureau 2015 ACS 5-Year Estimates.

FIGURE 8 – MEDIAN HOUSEHOLD INCOME BY COUNTY, 2015

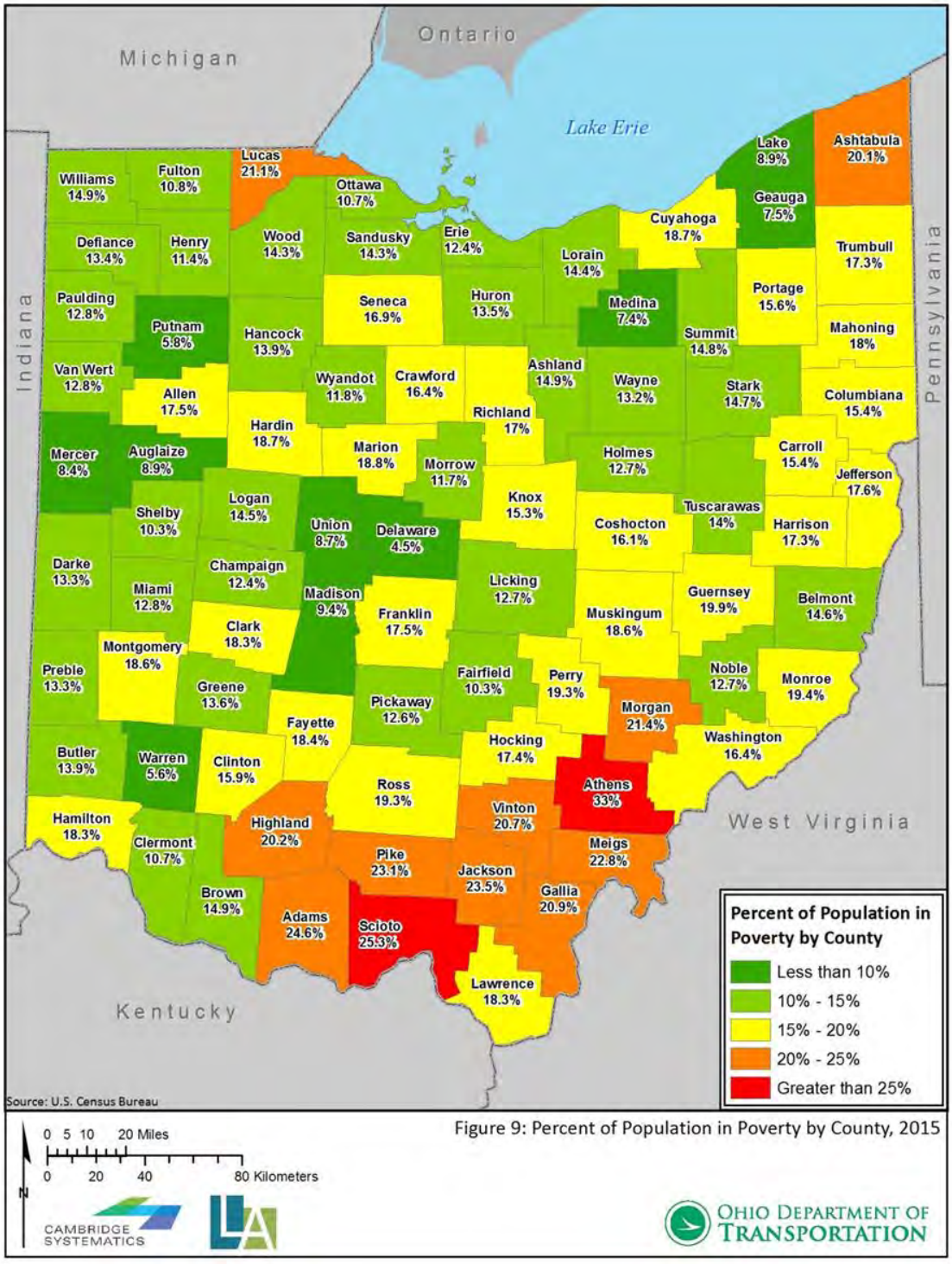


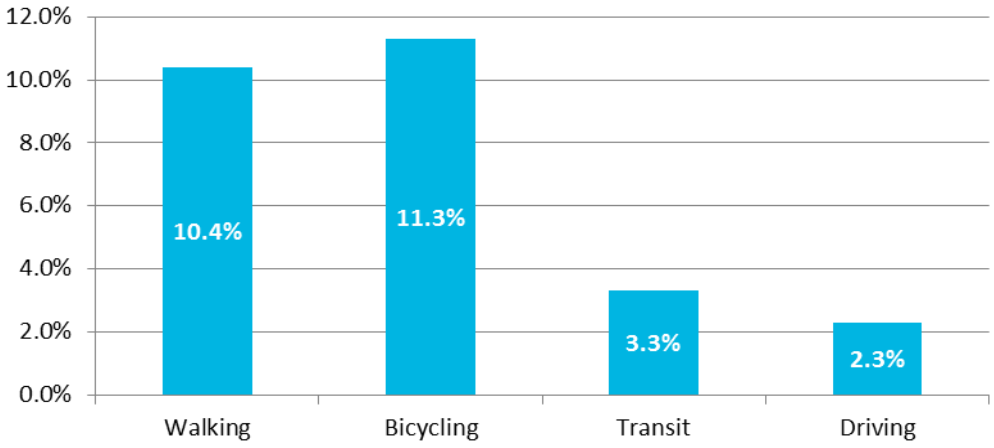
Figure 9: Percent of Population in Poverty by County, 2015

Source: U.S. Census Bureau 2015 ACS 5-Year Estimates.

FIGURE 9 – POVERTY RATES IN OHIO COUNTIES, 2015

DISABILITY STATUS

Based on the U.S. Census Bureau's ACS 5-Year Estimates, approximately 13.6 percent of Ohioans have a disability. In 2016, ODOT conducted a statewide Customer Preference Survey of 8,494 Ohioans. The 2016 ODOT Customer Preference Survey collected information about this topic and about 15 percent of Ohioans responded that they have a physical condition that prevents them from using various modes of transportation (see **Figure 10**). **Figure 11** provides a map of the percentage of the population with a disability by county according to U.S. Census Bureau 5-Year Estimates. As shown on **Figure 12**, many of the Ohio counties with the highest rates of disability also have relatively high poverty rates. The Director of the National Disability Institute, Michael Morris, stated in a 2015 National Public Radio segment that inadequate transportation is often a barrier to disabled individuals being able to reach work or school. Disabled students are less likely to graduate than their nondisabled peers, placing them at a further disadvantage in the workforce. In 2015, there were nine Ohio counties with disability rates over 18 percent and poverty rates over 20 percent, all of which were located in southeastern Ohio (Highland, Adams, Pike, Scioto, Vinton, Jackson, Morgan, Meigs, and Gallia).



Source: Ohio Department of Transportation Customer Preference Survey, 2016.

FIGURE 10 – PEOPLE WITH A PHYSICAL CONDITION PROHIBITING THEM FROM USING VARIOUS MODES OF TRAVEL, 2016

ENGLISH LANGUAGE PROFICIENCY

In 2015, approximately 2.4 percent of Ohioans had limited English proficiency. The most common languages spoken by Ohioans with limited English proficiency were Spanish and Spanish Creole, German and other West Germanic languages, and Chinese. The percentage of the population with limited English proficiency (LEP) increased slightly between 2000 and 2015, from 2.2 to 2.4 percent. Figure 13 provides a map of the percentage of the LEP population by county and Table 6 provides additional details about changes in the percentage of the LEP population between 2000 and 2015. Holmes County, which had the largest LEP percentage of all Ohio counties in 2015 at 19 percent, is home to one of the largest Amish communities in the world. Approximately 99 percent of the LEP population in Holmes County speaks German or other West Germanic languages according to the U.S. Census Bureau's ACS 5-Year Estimates.

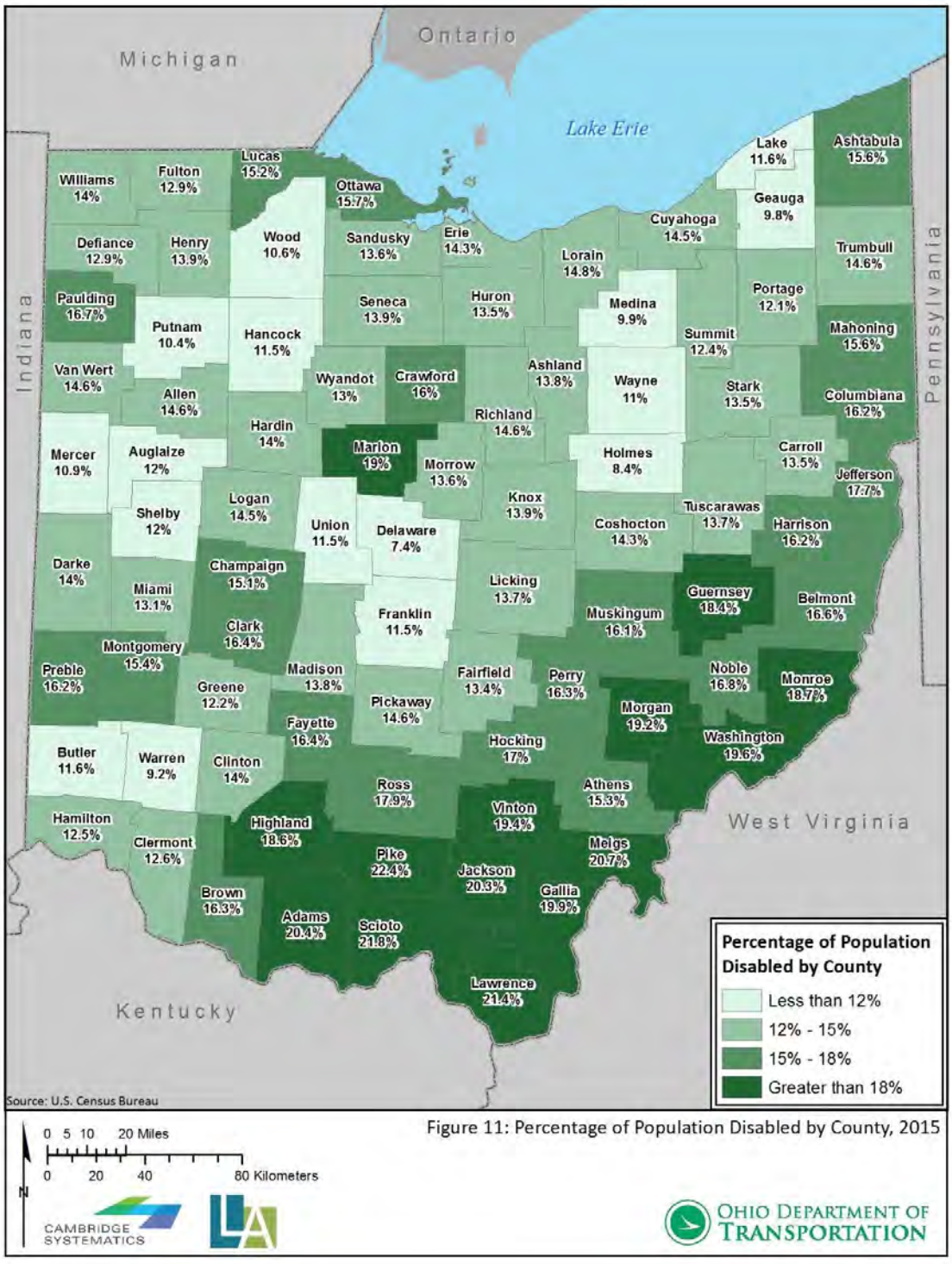


Figure 11: Percentage of Population Disabled by County, 2015

Source: U.S. Census Bureau 2015 ACS 5-Year Estimates.

FIGURE 11 – PERCENTAGE OF POPULATION WITH A DISABILITY BY COUNTY, 2015

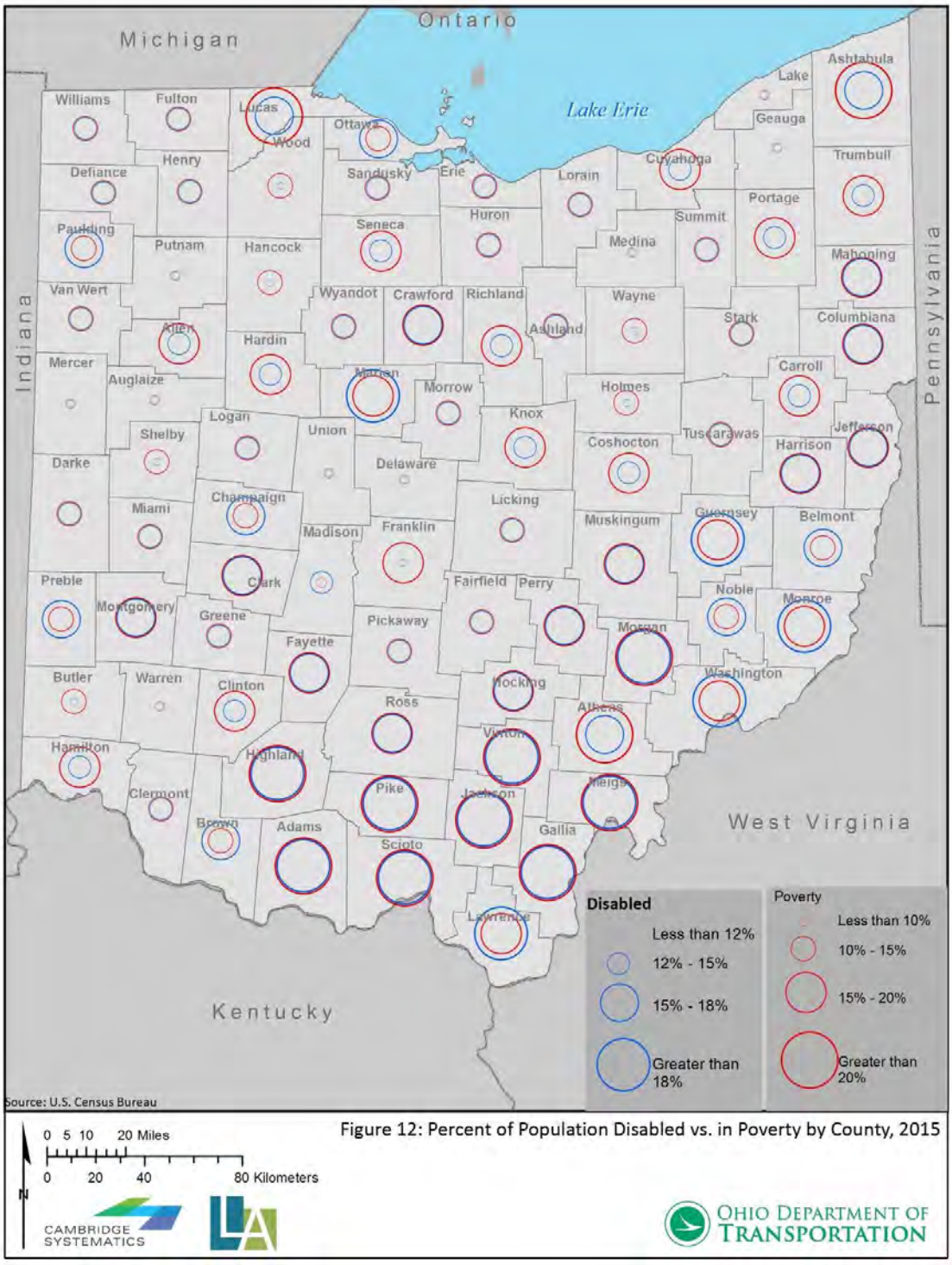


Figure 12: Percent of Population Disabled vs. in Poverty by County, 2015

Source: U.S. Census Bureau 2015 ACS 5-Year Estimates.

FIGURE 12 – POVERTY AND DISABILITY BY COUNTY, 2015

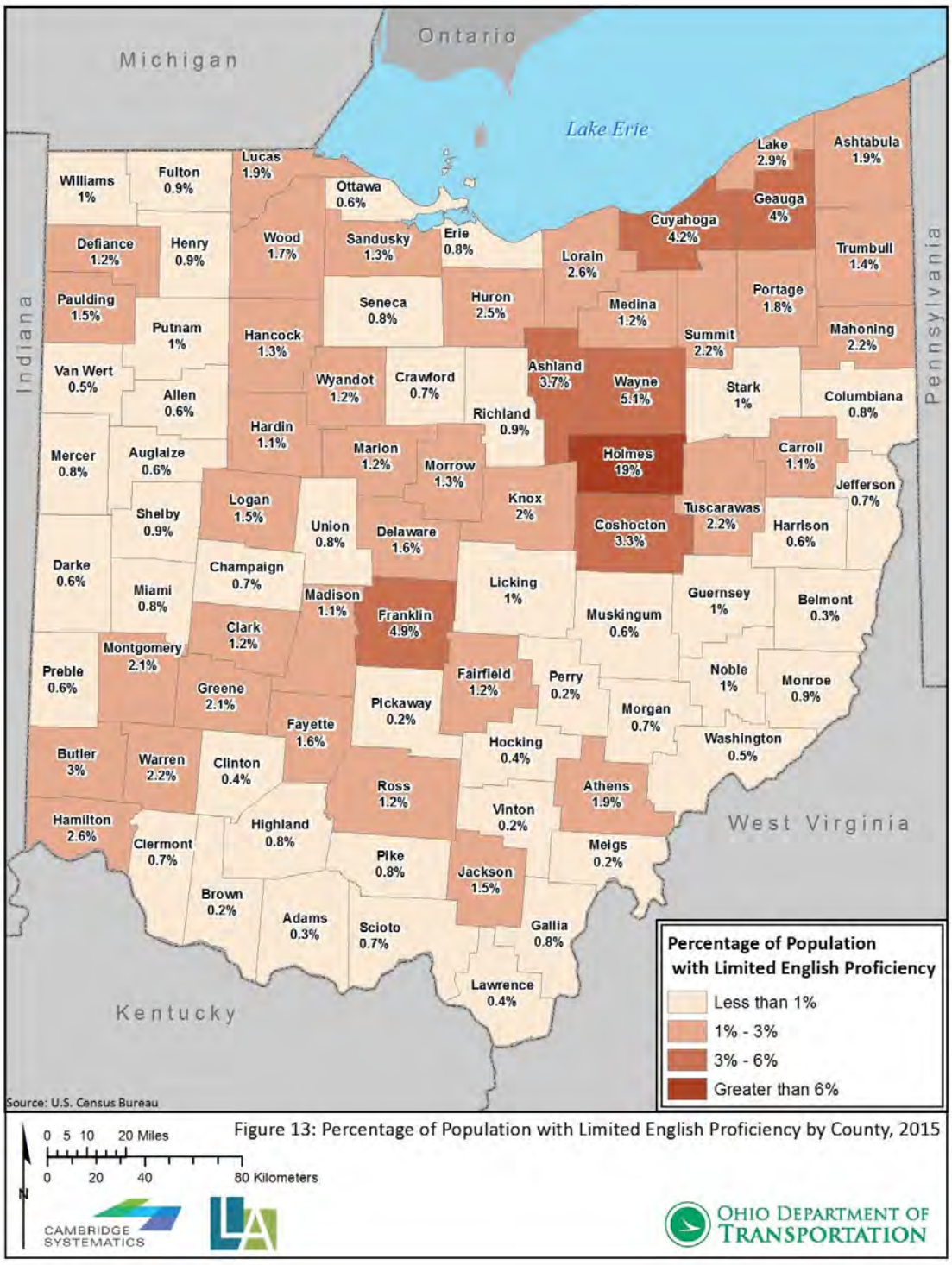


Figure 13: Percentage of Population with Limited English Proficiency by County, 2015

Source: U.S. Census Bureau 2015 ACS 5-Year Estimates.

FIGURE 13 – LIMITED ENGLISH PROFICIENCY BY COUNTY, 2015

Year	Total Population 5 Years and Older	Total Population With Limited English Proficiency*	Percent of Population With Limited English Proficiency
2000	10,599,968	234,459	2.2
2010	10,787,766	244,238	2.3
2015	10,879,981	259,859	2.4

Sources: U.S. Census Bureau 2000 Census, 2010 ACS 5-Year Estimates, 2015 ACS 5-Year Estimates.

*Note: For the purposes of this technical paper, individuals are considered to have limited English proficiency if they speak English less than "very well" based on self-reported data collected by the U.S. Census Bureau.

TABLE 6 – POPULATION WITH LIMITED ENGLISH PROFICIENCY IN 2000, 2010, AND 2015

MOBILITY

Access to Transportation Service

Based on the U.S. Census Bureau's ACS 5-Year Estimates, approximately 8.5 percent of Ohio households do not own a vehicle. Another 33.9 percent of Ohio households own only one vehicle. Between 2000 and 2015, there was not much change in the rated of vehicle ownership for Ohio households (see **Table 7**). **Figure 14** displays information about the number of motor vehicles and bicycles owned by respondents to the ODOT Customer Preference Survey and **Figure 15**.

Year	Households with no Vehicles Available	Households with 1 Vehicles Available	Households with 2 Vehicles Available	Households with 3 or More Vehicles Available
2000	8.6%	33.5%	39.4%	18.6%
2010	8.1%	33.3%	38.4%	20.3%
2015	8.5%	33.9%	37.5%	20.1%

Sources: U.S. Census Bureau 2000 Census, 2010 ACS 5-Year Estimates, 2015 ACS 5-Year Estimates

TABLE 7 – NUMBER OF CARS AVAILABLE BY HOUSEHOLD IN 2000, 2010, AND 2015

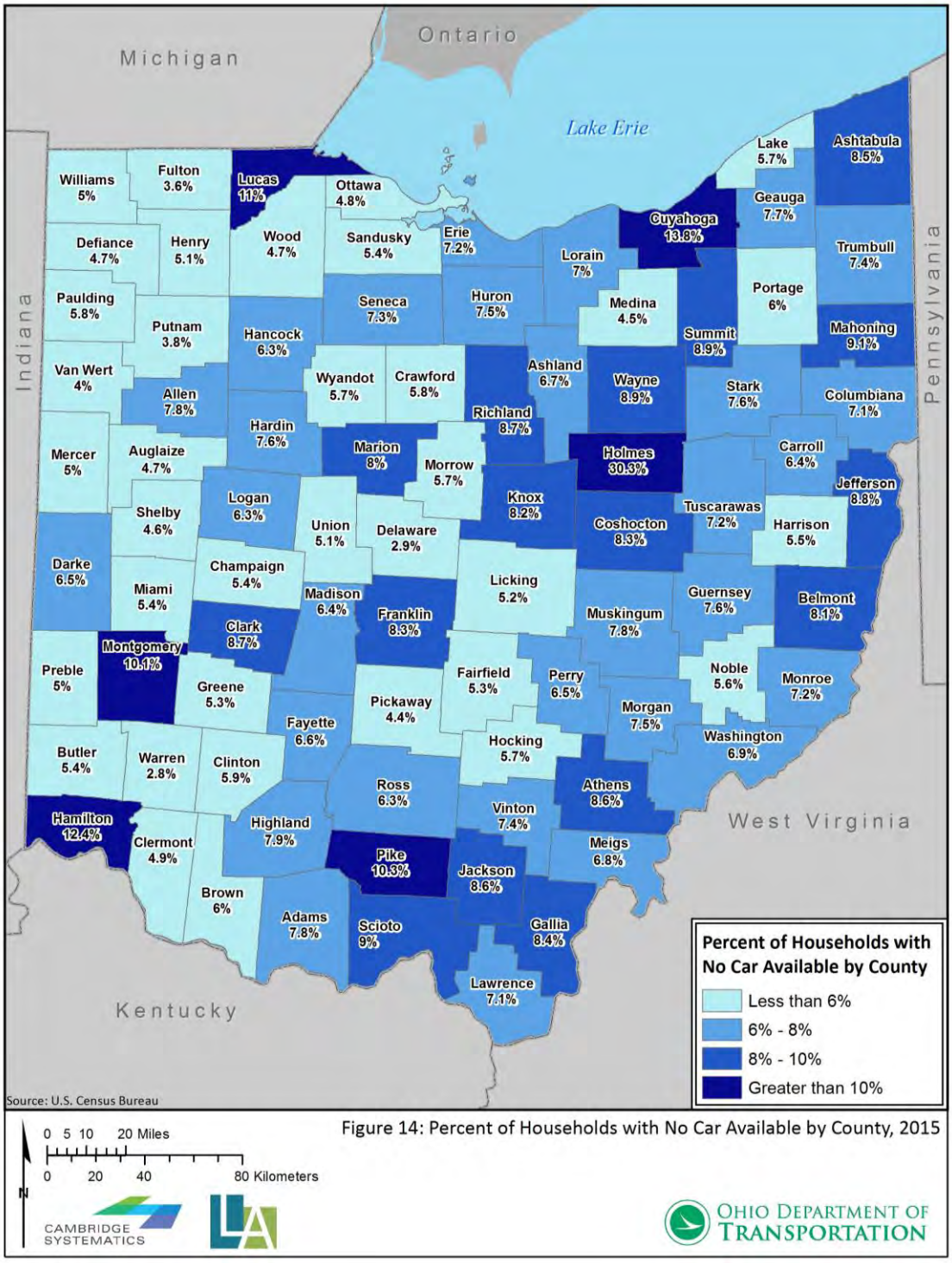


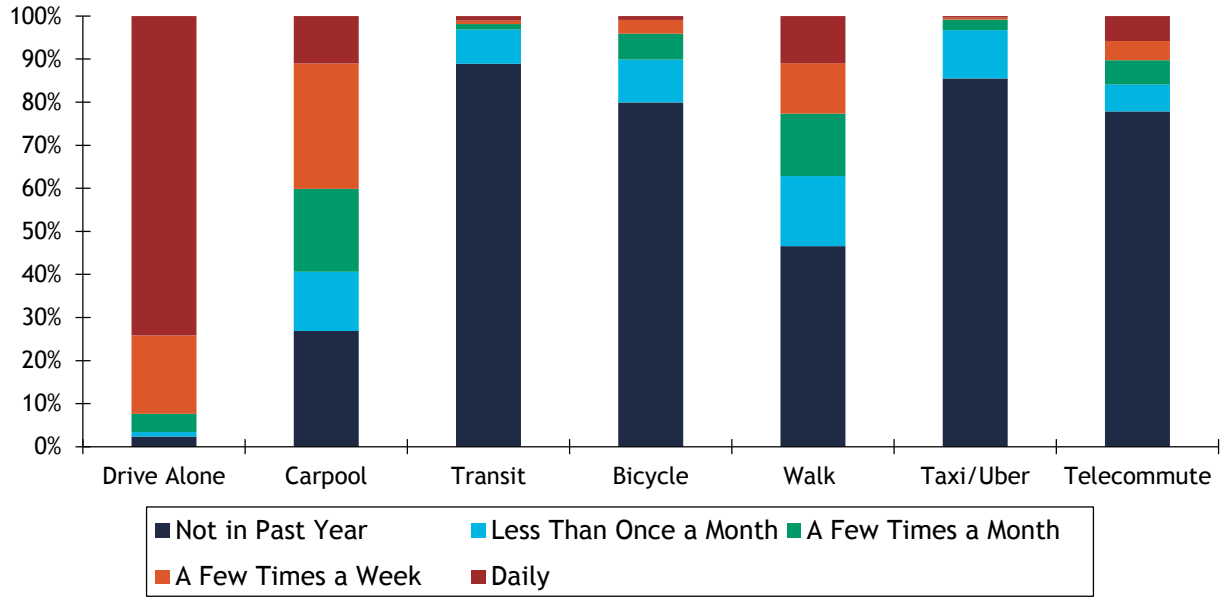
Figure 14: Percent of Households with No Car Available by County, 2015

Source: U.S. Census Bureau 2015 ACS 5-Year Estimates.

FIGURE 14 – PERCENT OF HOUSEHOLDS WITH NO CAR AVAILABLE BY COUNTY, 2015

Travel Mode

The ODOT 2016 Customer Preference Survey collected information regarding which travel modes are primarily used to get to work and school. Based on the survey results, a majority of Ohioans typically drive alone to work daily (see **Figure 15**). This is consistent with the U.S. Census Bureau's 2015 ACS 5-Year Estimates which indicate that 84 percent of Ohioans drive alone to work.



Source: Ohio Department of Transportation Customer Preference Survey, 2016.

FIGURE 15 – MODES OHIOANS USE TO GET TO WORK, 2016

The proportion of Ohioans driving to work alone gradually increased between 2000 and 2015. During this same time period, the percentage of Ohioans biking to work and working at home slightly increased while the percentage of Ohioans carpooling or using public transportation decreased (see **Table 8**).

Year	Drive Alone	Carpool	Public Transportation	Walk	Bike/ Motorcycle/ Taxi/ Other	Work at Home
2000	82.8%	9.3%	2.1%	2.4%	0.7%	2.8%
2010	83.1%	8.3%	1.8%	2.3%	1.0%	3.4%
2015	83.4%	7.9%	1.7%	2.3%	1.1%	3.5%

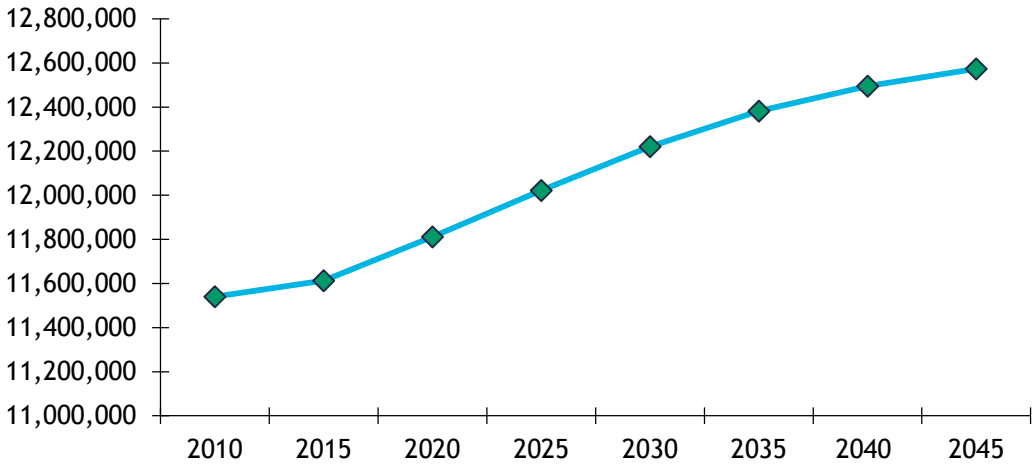
Sources: U.S. Census Bureau 2000 Census, 2010 ACS 5-Year Estimates, 2015 ACS 5-Year Estimates

TABLE 8 – MEANS OF TRANSPORTATION TO WORK IN 2000, 2010, AND 2015

Where Are We Going?

STATEWIDE PROJECTED POPULATION CHANGE

Ohio's population is anticipated to grow to 12,573,690 by 2045 (see **Figure 16**), an increase of 8.3 percent (0.3 percent growth annually) from 2015's level. This growth rate is well below the projected 21.2 percent growth (0.6 percent growth annually) in the national population during the same time period. The projected average annual population increase for Ohio of 0.3 percent between 2015 and 2045 is greater than the 0.1 percent average annual increase in population that Ohio experienced between 2000 and 2015.



Source: Woods & Poole Economics, Inc. 2017.

FIGURE 16 – OHIO PROJECTED POPULATION CHANGE, 2015-2045

The share of the Ohio population over the age of 65 is expected to increase from 15.9 percent in 2015 to 20.8 percent in 2045. The anticipated aging of Ohio's population is consistent with national demographic trends. Between 2000 and 2015, the percentage of the U.S. population over age 65 increased from 12.4 percent to 14.1 percent. According to the U.S. Census Bureau's 2014 population projections, the nation's older population is expected to continue to grow, with 21.8 percent of the population projected to be over age 65 in 2045.

All Ohio counties are projected to experience an increase in the percentage of their population over age 65 by 2045. With the exception of Ottawa County in northwest Ohio and Monroe County in southeastern Ohio, the counties projected to have the highest percentage of their population over age 65 in 2045 are concentrated in the suburban and rural areas surrounding Cleveland, Akron, Youngstown, and Steubenville in northeast Ohio (see **Table 9**).

Geography	2045 Population over Age 65	2045 Total Population	Percent of Population over Age 65, 2045
Counties Projected to Have Highest Percentage of Population Over Age 65 in 2045			
Geauga County	37,314	109,334	34.1%
Ottawa County	13,589	41,237	33.0%
Monroe County	4,152	13,653	30.4%
Lake County	71,362	244,283	29.2%
Medina County	71,187	245,533	29.0%
Trumbull County	54,063	189,966	28.5%
Carroll County	8,807	31,089	28.3%
Mahoning County	55,601	199,101	27.9%
Harrison County	4,065	14,730	27.6%
Erie County	19,921	73,315	27.2%
Statewide			
Ohio	2,617,308	12,573,690	20.8%

Source: Woods & Poole Economics, Inc. 2017.

TABLE 9 – PROJECTED POPULATION OVER AGE 65, IN 2045

The greatest percentage increases of population over the age of 65 between 2015 and 2045 are expected to occur in suburban counties outside of Columbus (Delaware, Union, and Madison) and Cleveland (Geauga and Medina). **Table 10** provides additional details about the Ohio counties with the highest rates of projected growth in the population over age 65 between 2015 and 2045. During this time period, the median age of Ohioan's is projected to increase from 39.4 to 40.5 years.

Geography	2015 Percent over Age 65	2045 Percent over Age 65	Percent Increase in Population over Age 65, 2015-2045
Counties with Greatest Percentage Change in Population Over Age 65, 2015-2045			
Delaware County	12.0%	22.2%	85.0%
Geauga County	18.6%	34.1%	83.5%
Medina County	16.1%	29.0%	79.9%
Union County	11.5%	19.5%	68.8%
Madison County	14.2%	23.8%	68.4%
Statewide			
Ohio	15.9%	20.8%	30.8%

Source: Woods & Poole Economics, Inc. 2017.

TABLE 10 – INCREASE IN POPULATION OVER AGE 65, 2015-2045

A 10 point increase in the Ohio minority population percentage also is anticipated between 2015 and 2045, from 19.3 percent to 29.7 percent. Urban counties containing Ohio's largest cities currently have the largest minority population percentages and this trend is expected to continue with Franklin (Columbus), Hamilton (Cincinnati), and Cuyahoga (Cleveland) counties all projected to have majority-minority populations by 2045 (see **Table 11**).

Geography	2045 Minority Population	2045 Total Population	2045 Minority Population Percentage
Counties Projected to Have Highest Percentage of Minority Population in 2045			
Franklin County	865,074	1,573,533	55.0%
Hamilton County	387,782	739,442	52.4%
Cuyahoga County	541,953	1,044,186	51.9%
Lucas County	176,443	411,654	42.9%
Montgomery County	18,1990	486,513	37.4%
Statewide			
Ohio	3,729,210	12,573,691	29.7%

Source: Woods & Poole Economics, Inc. 2017.

TABLE 11 – INCREASE IN MINORITY POPULATION, 2015 TO 2045

PROJECTED POPULATION CHANGE BY COUNTY

The Columbus metropolitan area and surrounding counties are expected to continue growing over the next few decades, with nine counties in central Ohio (Delaware, Union, Fairfield, Licking, Knox, Franklin, Morrow, Madison and Pickaway) projected to experience double-digit population growth by 2045. Population loss by 2045 is anticipated in 27 of Ohio's 88 counties with the greatest percentage losses expected in Cuyahoga
(-16.9 percent), Mahoning (-14.1 percent), and Jefferson (-12.9 percent) counties. **Figure 17** shows projected population change by county between 2015 and 2045.

CHANGES IN GEOGRAPHIC DISTRIBUTION

In 2010, the Greater Ohio Policy Center explored demographics trends and their potential implications on public policy in its *Shaping the State* publication. This report noted that much of the population growth that had occurred in Ohio between 2000 and 2008 occurred in the suburbs while Ohio's central cities continued to lose population. A 2015 publication by the Ohio State University Extension, *Trend Research: Land Use and Geographic Population Distribution,* came to similar conclusions, noting that that density has been decreasing within and near most of Ohio's central city districts even as Ohioans continue to move away from low density, rural areas. These migration patterns result in the need to extend infrastructure and services over a larger geographic area to serve a similar, or in some cases lower, level of population.

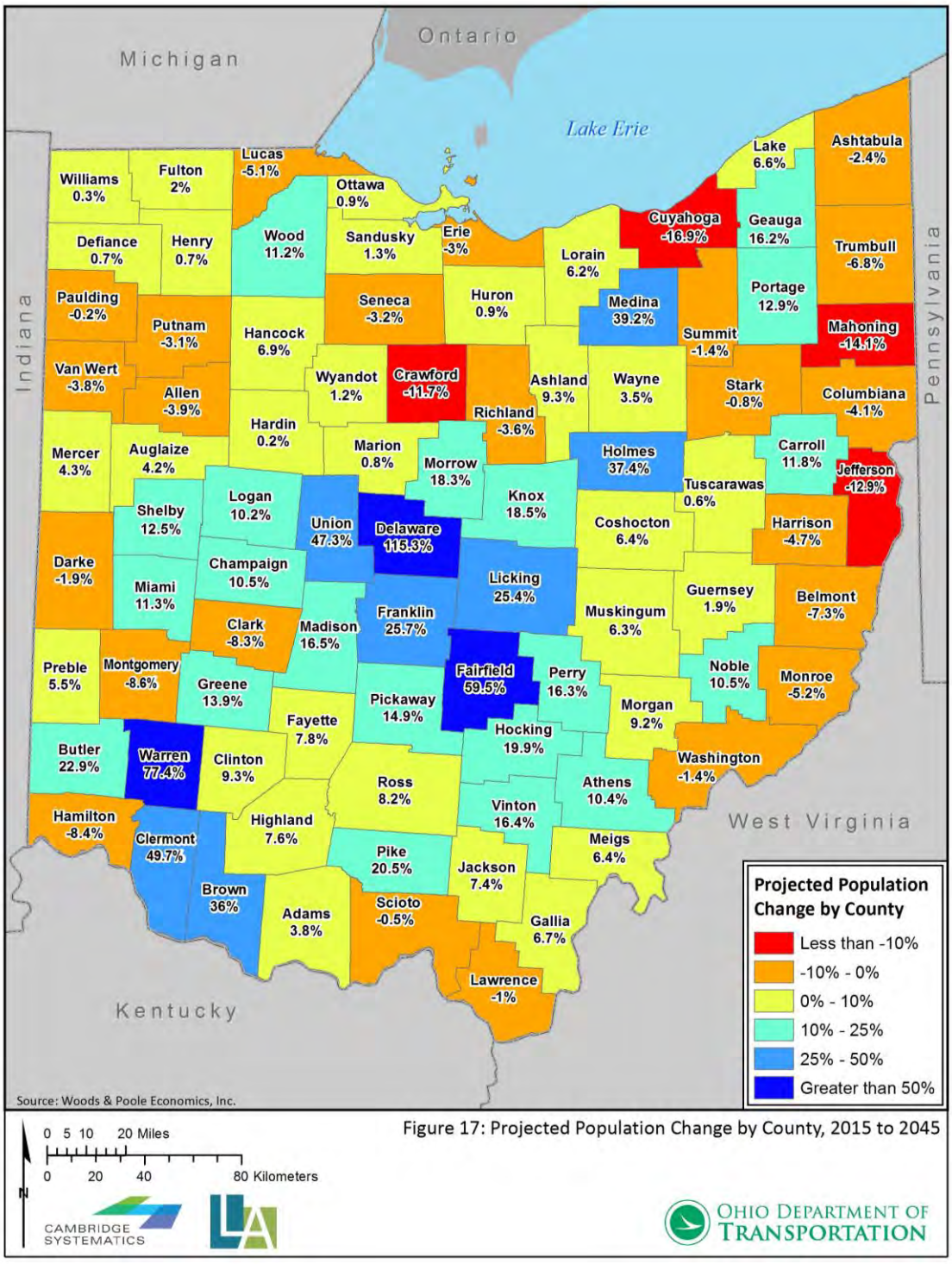


Figure 17: Projected Population Change by County, 2015 to 2045

Source: Woods & Poole Economics, Inc. 2017

FIGURE 17 – PROJECTED POPULATION CHANGE BY COUNTY, 2015-2045

Trends, Uncertainty, and Opportunities

LOW POPULATION GROWTH

Low Growth Projected for Ohio

Low levels of population growth are projected for the state over the next 30 years and many areas are expected to lose population. Ohio's population is projected to grow by only 8.3 percent (0.3 percent growth annually) between 2015 and 2045, compared to a 21.2 percent population growth (0.6 percent growth annually) projected nationally. Over one quarter of Ohio's counties are projected to lose population over the next 30 years. Population losses are projected for the counties that are home to most of Ohio's largest cities including Cleveland (Cuyahoga, -18.9 percent), Cincinnati (Hamilton, -8.4 percent), Toledo (Lucas, -5.1 percent), Akron (Summit, -1.4 percent), and Dayton (Montgomery, -8.6 percent).

Transportation Significance and Opportunity

Forecasted population decline in parts of Ohio may shift the need from future capacity investment to maintaining a state of good repair for transportation assets in those counties. Population change is just one of several factors that may influence future travel demand. Additional factors that may influence travel demand are discussed in other sections of this paper and include economics, land use development patterns and density, and generational needs and preferences. Under current traditional transportation fee structures lower future population growth and demand may also have implications to available revenue and local matching funds needed to leverage Federal funds for projects.

AGING POPULATION

Ohio's Population is Getting Older

Ohio's population grew older between 2000 and 2015 and this trend is expected to continue through 2045, with the share of Ohioans over age 65 projected to increase from 15.9 to 20.8 percent. This trend is consistent with national demographic trends and is expected to impact all areas of the state to varying degrees. All Ohio counties are projected to experience an increase in the percentage of their population over age 65 by 2045.

Transportation Significance and Opportunity

The age distribution of the population is an important consideration for transportation planning because transportation needs vary among different age groups. For example, older populations may be more likely to need access to public transit, including both fixed route and paratransit services. According to information published on AAA's website, "seniors are outliving their ability to drive safely by 7 to 10 years." According to the U.S. Centers for Disease Control and Prevention (CDC), the risk of being injured or killed in a car crash increases with age. As the population of Ohio continues to grow

older, it is anticipated that larger numbers of people may become transportation-dependent, increasing the need for alternative transportation options to driving alone.

The greatest percentage increases of population over the age of 65 between 2015 and 2045 are expected to occur in suburban counties outside of Columbus (Delaware, Union, and Madison) and Cleveland (Geauga and Medina). Many suburban communities in these counties have limited transit service and experience auto-oriented land use development patterns. According to the National Council on Aging's 2015 United States of Aging Survey, 75 percent of older adults want to remain in their current home for the rest of their lives but only 22 percent consider public transportation "acceptable" in their current community. As Ohio's population continues to grow older, there will be a greater need for adequate, efficient, and reliable transit, both fixed route and paratransit/on-demand service, particularly in suburban areas that are projected to experience the largest percentage increases in the senior population and may currently have limited alternative transportation options.

THE MILLENNIAL INFLUENCE

A Shift in Generational Transportation Preferences

Millennials, defined by the U.S. Census Bureau as the generation of Americans born between 1982 and 2000, recently overtook the Baby Boomers as the largest living generation. Unlike the transportation implications related to an aging Baby Boomer population, the discussion around Millennials has not focused on needs as much as it has focused on lifestyle and values. According to *Millennials and Mobility: Understanding the Millennial Mindset and New Opportunities for Transit Providers*, published by the Transportation Research Board, Millennials value cost, convenience, and exercise in their transportation choices and also are motivated by environmental considerations.

Between 2005 and 2014, the United States experienced a decline in the number of vehicle miles traveled (VMT) per capita. During this decline, the Millennial generation in particular stood out as driving far less than their counterparts in previous generations. In 2009, Americans between the ages of 16 and 34 drove 23 percent fewer miles than 16 to 34 year olds drove in 2001. However, the national VMT per capita began to increase again as the economic recovery began. In 2016, VMT per capita was 10,065 miles per capita, reaching its highest level since 2007. This trend suggests that the notable decline in VMT per capita that occurred between 2005 and 2014 may have been attributed as much to economics as to generational preferences, resulting in some uncertainties about the future transportation behaviors of the Millennial generation. It will be important to continue to track indicators such as VMT per capita, car ownership, and transit ridership for the Millennial generation into the future to see if the generational preferences that have been associated with this cohort continue.

Transportation Significance and Opportunity

If Millennials continue to demonstrate a preference for alternative transportation options, the demand for transit service, bicycle facilities, pedestrian accommodations, and other alternative modes would also continue to increase. Millennials are now the largest living generation and are transitioning into young adulthood. As members of this generation continue to enter the workforce, their transportation preferences will become an increasing factor for Ohio's transportation decision-makers to consider in order to attract and retain a talented labor pool.

INCREASING DIVERSITY

Ohio's Population is Becoming More Diverse

The Ohio population grew more diverse between 2000 and 2015 and this trend is expected to continue through 2045. The percentage of the Ohio population with limited English proficiency also increased during this time. These groups, along with elderly, disabled, and low-income individuals, have been historically underrepresented in the transportation process.

Transportation Significance and Opportunity

In 2015, minorities in Ohio were more likely to use transportation alternatives to driving alone than nonminorities. According to the ACS 5-Year Estimates, nonminorities (White and not Hispanic or Latino) account for approximately 83.7 percent of Ohio's population, but only account for 76.4 of carpoolers and 41.2 percent of public transportation users. If this trend continues as the minority population grows in Ohio, the demand for transportation alternatives will also grow.

CHANGES IN POPULATION DISTRIBUTION

Population Dispersal from Central Cities to Suburbs

Ohio has experienced very low levels of population growth over the last 15 years, including population decline in many areas, and this trend is expected to continue. According to research conducted by the Greater Ohio Policy Center and OSU Extension, the growth that has occurred has generally been concentrated in the suburbs while total population and population density has continued to decline in most of Ohio's central city districts.

Transportation Significance and Opportunity

The migration of Ohioans away from rural areas, in combination with population decline in the urban cores of many of Ohio's cities, often results in growth along the urban and suburban fringes of the state's metropolitan areas. The transportation implications of these migration patterns include the need to add capacity to the transportation system in new places to support the same level of population while simultaneously providing efficient and effective transportation options in less densely populated areas.

REGIONAL VARIATION IN INCOME

Higher Rates of Poverty and Disability in Southeastern Ohio

Income and poverty disparities exist between Ohio's urban, suburban, and rural counties as well as between the southeastern counties that make up Ohio's portion of Appalachia and the rest of the state. In general, the highest income areas in the state are in a few suburban counties outside of Columbus, Cleveland, and Cincinnati and the lowest income areas of the state are concentrated in a contiguous band of rural counties in southeastern Ohio. As previously shown in **Figure 17**, there also is an overlap between counties with high rates of poverty and high rates of disability, concentrated in rural southeastern Ohio.

Transportation Significance and Opportunity

Household income can influence the specific transportation needs of individuals and families. For example, low-income households may be more reliant on transit or carpooling if they do not own a car or if they share vehicles among multiple household members. The presence of a disability can also influence an individual's transportation needs, making some travel modes difficult or impossible to use. According to the 2016 ODOT Customer Preference Survey, 15 percent of Ohioans have a physical condition that prevents them from using one or more specific modes of transportation. Based on this survey data, the presence of a disproportionately large disabled population would increase the need for a range of transportation options. The concentration of poverty and individuals with disabilities in rural, southeastern Ohio presents a unique challenge because rural areas typically have a more limited range of transportation options than urban and suburban areas and it can be more expensive to provide certain types of transportation services to a population that is dispersed over a larger geographic area. ODOT will need to continue to work with the transportation planning and transit agencies in Ohio to ensure that future transportation decisions take these regional differences into consideration and consider the specific transportation needs of the low-income and/or disabled population concentrated in rural, southeastern Ohio.

Findings and Future Direction

This white paper identifies and describes the current and anticipated future users of Ohio's transportation system. Ohio has experienced very low levels of population growth relative to the nation over the last 15 years and this trend is expected to continue through 2045. The Ohio population in 2045 is expected to be, on average, older than today's population. At the same time, the Millennial generation will have a growing influence on transportation policy as more members of that cohort enter the workforce (and their peak commuting years) in large numbers. Ohio's population is also expected to grow more diverse between now and 2045. Some of the demographic trends highlighted in this report parallel regional or national trends. For example, declining population in many of Ohio's urban core areas is similar to urban population decline experienced in other parts of the country, particularly the Midwest/Rust Belt. Historically, there have been regional disparities in income and disability rates between Ohio's southeastern Appalachian counties and the rest of the state. There are several transportation implications related to the historic and anticipated future demographic trends described in this report:

- Transportation funding challenges associated with flat or declining local and state tax revenues due to low population growth and/or decline.
- Increased need for alternative transportation options in suburban areas that will have higher rates of growth in the elderly population
- Increased demand for alternative transportation options as the Millennial generation ages into the workforce in larger numbers.
- Need to ensure comprehensive public involvement during the transportation planning process to reach traditionally underrepresented groups and ensure that the plans being developed will meet the needs of an increasingly diverse Ohio population.
- Increased need for alternative transportation options in rural southeastern Ohio where there is a concentration of higher rates of poverty and disability.

The demographic trends and related transportation implications detailed in this technical report should be considered in the development of overall goals for *AO 2045*.

Appendix A-Sources

AAA. (2017). *Facts and Research.* Retrieved July 21, 2017 from: http://seniordriving.aaa.com/resources-family-friends/conversations-about-driving/facts-research/.

Davis, Jeff. (2017). "VMT Hits Nominal High, Approaches All-Time Per Capita Mark." *Eno Transportation Weekly, Week of February 20, 2017.* Retrieved September 1, 2017 from: https://www.enotrans.org/article/vmt-hits-nominal-high-approaches-time-per-capita-mark/.

Dutzik, Tony and Baxandall, Phineas. (2013). *A New Direction: Our Changing Relationship with Driving and the Implications for America's Future*. Retrieved September 1, 2017 from: http://www.uspirg.org/sites/pirg/files/reports/A%20New%20Direction%20vUS.pdf.

Gallup. (2014). "Average U.S. Retirement Age Rises to 62," Gallup.com. Retrieved July 21, 2017 from: http://www.gallup.com/poll/168707/average-retirement-age-rises.aspx.

Greater Ohio Policy Center. (2010). *Shaping the State: Overview of Key Demographic Trends Facing Ohio and Implications for Policy-making and Ohio's Future Competitiveness.* Retrieved September 1, 2017 from: https://static1.squarespace.com/static/59396fee59cc6877bacf5ab5/t/5963dd72ccf210d03bed01a5/1499716994075/ShapingTheState.pdf.

Greater Ohio Policy Center. (2017). Interview with Alison Goebel and Torey Hollingsworth on August 25, 2017.

Moon, Gregory and Civittolo, David. (2015). Vice President's Conversations on the Future; Trend Research: Land Use and Geographic Population Distribution. Ohio State University Extension. Retrieved July 2017 from: https://extension.osu.edu/sites/ext/files/imce/About_docs/Future_Conversations/17%20trends-land_use_and_geographic_population_distribution.pdf.

National Council on Aging. (2015). *The 2015 United States of Aging Survey National Findings.* Retrieved August 30, 2017 from: https://www.ncoa.org/resources/usa15-national-fact-sheet-pdf/.

National Public Radio (2015). *Why Disability and Poverty Still Go Hand in Hand 25 Years After Landmark Law.* All Things Considered. Retrieved October 12, 2017 from: http://www.npr.org/sections/health-shots/2015/07/23/424990474/why-disability-and-poverty-still-go-hand-in-hand-25-years-after-landmark-law.

Ohio Department Services Agency. (2013). "2010 to 2040 Population Projections for Ohio," Population Characteristics and Projections. Available at: https://development.ohio.gov/reports/reports_pop_proj_map.htm.

Ohio Department of Transportation. (2017a). *Public Involvement Manual.* Available at: https://www.dot.state.oh.us/Divisions/Planning/Environment/NEPA_policy_issues/PUBLIC_INVOLVEMENT/Pages/default.aspx.

Ohio Department of Transportation. (2017b). *2016 Customer Preference Survey.*

Sakaria, Neela and Stehfest, Natalie. (2013). Transportation Research Board Transit Cooperative Research Program. *Millennials and Mobility: Understanding the Millennial Mindset and New Opportunities for Transit Providers*. Retrieved July 21, 2017 from: http://www.trb.org/Publications/Blurbs/169527.aspx.

United States Census Bureau. (2000). "Decennial Census of Population and Housing," American FactFinder. Available at: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

United States Census Bureau. (2010a). "Decennial Census of Population and Housing," American FactFinder. Available at: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

United States Census Bureau. (2010b). "American Community Survey 3-Year Estimates," American FactFinder. Available at: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

United States Census Bureau. (2010c). "American Community Survey 5-Year Estimates," American FactFinder. Available at: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

United States Census Bureau. (2014). "National Population Projections," Population Projections. Available at: https://www.census.gov/programs-surveys/popproj.html.

United States Census Bureau. (2015a). "American Community Survey 1-Year Estimates," American FactFinder. Available at: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

United States Census Bureau. (2015b). "American Community Survey 5-Year Estimates," American FactFinder. Available at: https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

United States Census Bureau. (2016). "Population Estimates," QuickFacts. Available at: https://www.census.gov/quickfacts/fact/table/

United States Centers for Disease Control and Prevention. (2017). *Older Adult Drivers*. Retrieved August 29, 2017 from: https://www.cdc.gov/motorvehiclesafety/older_adult_drivers/index.html.

Woods & Poole Economics, Inc. (2017). *2017 State Profile, Ohio*.

Appendix B-Additional Data

Geography	2000 Population	2015 Population	Percent Change (2000-2015)
Adams County	27,330	28,229	3.3%
Allen County	108,473	105,196	-3.0%
Ashland County	52,523	53,189	1.3%
Ashtabula County	102,728	99,777	-2.9%
Athens County	62,223	64,974	4.4%
Auglaize County	46,611	45,873	-1.6%
Belmont County	70,226	69,560	-0.9%
Brown County	42,285	44,247	4.6%
Butler County	332,807	372,538	11.9%
Carroll County	28,836	28,361	-1.6%
Champaign County	38,890	39,393	1.3%
Clark County	144,742	136,827	-5.5%
Clermont County	177,977	200,285	12.5%
Clinton County	40,543	41,892	3.3%
Columbiana County	112,075	105,987	-5.4%
Coshocton County	36,655	36,724	0.2%
Crawford County	46,966	42,725	-9.0%
Cuyahoga County	1,393,978	1,263,189	-9.4%
Darke County	53,309	52,356	-1.8%
Defiance County	39,500	38,669	-2.1%
Delaware County	109,989	185,433	68.6%
Erie County	79,551	76,141	-4.3%
Fairfield County	122,759	149,112	21.5%
Fayette County	28,433	28,769	1.2%
Franklin County	1,068,978	1,215,761	13.7%
Fulton County	42,084	42,485	1.0%
Gallia County	31,069	30,565	-1.6%
Geauga County	90,895	93,874	3.3%
Greene County	147,886	164,192	11.0%
Guernsey County	40,792	39,626	-2.9%
Hamilton County	845,303	804,194	-4.9%
Hancock County	71,295	75,428	5.8%
Hardin County	31,945	31,736	-0.7%
Harrison County	15,856	15,633	-1.4%

Geography	2000 Population	2015 Population	Percent Change (2000-2015)
Henry County	29,210	28,015	-4.1%
Highland County	40,875	43,170	5.6%
Hocking County	28,241	28,914	2.4%
Holmes County	38,943	43,436	11.5%
Huron County	59,487	58,937	-0.9%
Jackson County	32,641	32,854	0.7%
Jefferson County	73,894	68,053	-7.9%
Knox County	54,500	61,004	11.9%
Lake County	227,511	229,437	0.8%
Lawrence County	62,319	61,827	-0.8%
Licking County	145,491	168,693	15.9%
Logan County	46,005	45,484	-1.1%
Lorain County	284,664	303,152	6.5%
Lucas County	455,054	436,261	-4.1%
Madison County	40,213	43,456	8.1%
Mahoning County	257,555	234,550	-8.9%
Marion County	66,217	65,943	-0.4%
Medina County	151,095	174,831	15.7%
Meigs County	23,072	23,473	1.7%
Mercer County	40,924	40,863	-0.1%
Miami County	98,868	103,517	4.7%
Monroe County	15,180	14,547	-4.2%
Montgomery County	559,062	533,763	-4.5%
Morgan County	14,897	14,913	0.1%
Morrow County	31,628	34,996	10.6%
Muskingum County	84,585	86,016	1.7%
Noble County	14,058	14,508	3.2%
Ottawa County	40,985	41,162	0.4%
Paulding County	20,293	19,165	-5.6%
Perry County	34,078	36,025	5.7%
Pickaway County	52,727	56,515	7.2%
Pike County	27,695	28,396	2.5%
Portage County	152,061	161,897	6.5%
Preble County	42,337	41,682	-1.5%
Putnam County	34,726	34,184	-1.6%
Richland County	128,852	122,312	-5.1%
Ross County	73,345	77,334	5.4%

Geography	2000 Population	2015 Population	Percent Change (2000-2015)
Sandusky County	61,792	60,187	-2.6%
Scioto County	79,195	78,017	-1.5%
Seneca County	58,683	55,929	-4.7%
Shelby County	47,910	49,067	2.4%
Stark County	378,098	374,979	-0.8%
Summit County	542,899	541,847	-0.2%
Trumbull County	225,116	206,373	-8.3%
Tuscarawas County	90,914	92,697	2.0%
Union County	40,909	53,470	30.7%
Van Wert County	29,659	28,576	-3.7%
Vinton County	12,806	13,234	3.3%
Warren County	158,383	219,916	38.9%
Washington County	63,251	61,351	-3.0%
Wayne County	111,564	115,371	3.4%
Williams County	39,188	37,386	-4.6%
Wood County	121,065	128,885	6.5%
Wyandot County	22,908	22,467	-1.9%
Statewide			
Ohio	11,353,140	11,575,977	2.0%

Sources: U.S. Census Bureau 2000 Census, 2010 Census, 2015 ACS 1-Year Estimates.

TABLE 12 – POPULATION CHANGE BY COUNTY, 2000-2015

Geography	2000	2010	2015	Historic Population Change (2000-2015)
Ohio	11,353,140	11,536,504	11,613,423	2.3%
United States	281,421,906	308,745,538	321,418,821	14.2%

Sources: U.S. Census Bureau 2000 Census, 2010 Census, 2015 ACS 1-Year Estimates.

TABLE 13 – COMPARISON OF U.S. AND OHIO HISTORIC POPULATION CHANGE, 2000-2015

Geography	2015	2025	2035	2045	Projected Population Change (2015-2045)
Ohio	11,613,420	12,021,670	12,381,470	12,573,690	8.3%

United States	321,369,000	347,334,912	370,338,137	389,394,178	21.2%

Sources: U.S. Census Bureau 2014 Population Projections, Woods & Poole Economics, Inc. 2016 Population Projections.

TABLE 14 – COMPARISON OF U.S. AND OHIO PROJECTED POPULATION CHANGE, 2015-2045

Geography	Total Population	Percent 65 and Over	Median Age
Adams County	28,229	16.0	41.0
Allen County	105,196	15.5	38.1
Ashland County	53,189	16.9	39.9
Ashtabula County	99,777	16.8	41.8
Athens County	64,974	11.0	28.0
Auglaize County	45,873	16.5	41.0
Belmont County	69,560	18.4	43.9
Brown County	44,247	16.0	40.8
Butler County	372,538	12.7	36.4
Carroll County	28,361	18.6	44.5
Champaign County	39,393	16.0	41.2
Clark County	136,827	17.4	41.0
Clermont County	200,285	13.4	39.5
Clinton County	41,892	14.7	39.3
Columbiana County	105,987	17.8	43.2
Coshocton County	36,724	17.3	41.5
Crawford County	42,725	19.0	42.6
Cuyahoga County	1,263,189	16.2	40.4
Darke County	52,356	18.0	41.8
Defiance County	38,669	16.3	39.7
Delaware County	185,433	11.0	37.8
Erie County	76,141	18.9	44.0
Fairfield County	149,112	13.9	39.0
Fayette County	28,769	16.2	41.1
Franklin County	1,215,761	10.6	33.8
Fulton County	42,485	15.7	39.8
Gallia County	30,565	16.8	41.0
Geauga County	93,874	17.4	44.2
Greene County	164,192	15.0	37.7
Guernsey County	39,626	17.1	42.2
Hamilton County	804,194	13.9	37.0

Geography	Total Population	Percent 65 and Over	Median Age
Hancock County	75,428	15.5	39.2
Hardin County	31,736	14.5	35.4
Harrison County	15,633	19.7	45.9
Henry County	28,015	17.0	41.2
Highland County	43,170	16.5	40.1
Hocking County	28,914	16.9	42.6
Holmes County	43,436	12.2	30.4
Huron County	58,937	14.9	38.8
Jackson County	32,854	15.3	39.5
Jefferson County	68,053	19.1	44.3
Knox County	61,004	15.8	38.7
Lake County	229,437	17.4	43.2
Lawrence County	61,827	17.0	41.2
Licking County	168,693	14.6	39.7
Logan County	45,484	16.1	40.7
Lorain County	303,152	15.8	41.0
Lucas County	436,261	14.2	37.7
Madison County	43,456	13.6	40.2
Mahoning County	234,550	18.7	43.3
Marion County	65,943	15.5	40.4
Medina County	174,831	14.9	41.4
Meigs County	23,473	17.0	42.3
Mercer County	40,863	16.4	40.1
Miami County	103,517	16.7	41.4
Monroe County	14,547	21.4	45.6
Montgomery County	533,763	16.2	39.4
Morgan County	14,913	18.6	43.9
Morrow County	34,996	15.0	41.2
Muskingum County	86,016	16.3	40.3
Noble County	14,508	22.3	50.2
Ottawa County	41,162	21.2	47.3
Paulding County	19,165	16.3	41.0
Perry County	36,025	14.5	40.0
Pickaway County	56,515	14.1	39.1
Pike County	28,396	15.6	40.8
Portage County	161,897	14.1	37.6
Preble County	41,682	16.7	41.9

Geography	Total Population	Percent 65 and Over	Median Age
Putnam County	34,184	15.2	39.7
Richland County	122,312	17.6	41.3
Ross County	77,334	14.8	40.6
Sandusky County	60,187	16.6	41.3
Scioto County	78,017	16.2	39.5
Seneca County	55,929	15.8	39.0
Shelby County	49,067	14.1	38.9
Stark County	374,979	17.3	41.8
Summit County	541,847	15.7	40.7
Trumbull County	206,373	18.8	43.6
Tuscarawas County	92,697	17.4	41.0
Union County	53,470	10.8	38.1
Van Wert County	28,576	17.7	41.5
Vinton County	13,234	15.1	41.0
Warren County	219,916	12.4	38.7
Washington County	61,351	18.7	43.6
Wayne County	115,371	15.7	38.8
Williams County	37,386	17.1	41.6
Wood County	128,885	13.5	34.8
Wyandot County	22,467	17.3	42.0
Statewide			
Ohio	11,575,977	15.9	39.2

Source: U.S. Census Bureau 2015 ACS 1-Year Estimates.

TABLE 15 – AGE DISTRIBUTION IN OHIO, 2015

Geography	% Housing Units in Urban Area-2000	% Housing Units in Urban Area-2010	Change 2000-2010
Adams County	11.17%	11.13%	-0.04%
Allen County	75.47%	75.80%	0.33%
Ashland County	48.70%	39.96%	-8.75%
Ashtabula County	57.30%	56.37%	-0.93%
Athens County	55.46%	50.73%	-4.73%
Auglaize County	62.05%	62.34%	0.30%
Belmont County	53.91%	48.63%	-5.28%
Brown County	21.17%	25.23%	4.07%
Butler County	88.96%	90.94%	1.99%
Carroll County	31.60%	29.18%	-2.42%
Champaign County	32.84%	31.89%	-0.95%
Clark County	78.17%	77.92%	-0.25%
Clermont County	72.82%	77.89%	5.08%
Clinton County	47.75%	48.31%	0.56%
Columbiana County	58.51%	57.40%	-1.12%
Coshocton County	43.42%	41.44%	-1.98%
Crawford County	68.66%	67.70%	-0.96%
Cuyahoga County	99.33%	99.50%	0.17%
Darke County	38.04%	37.60%	-0.44%
Defiance County	55.76%	58.00%	2.24%
Delaware County	68.50%	80.38%	11.88%
Erie County	74.77%	75.22%	0.45%
Fairfield County	63.92%	67.10%	3.18%
Fayette County	54.16%	54.08%	-0.07%
Franklin County	98.32%	98.83%	0.50%
Fulton County	44.77%	45.00%	0.23%
Gallia County	25.06%	20.19%	-4.88%
Geauga County	39.23%	39.52%	0.29%
Greene County	84.54%	86.30%	1.76%
Guernsey County	41.47%	39.46%	-2.01%
Hamilton County	97.96%	98.08%	0.12%
Hancock County	71.09%	71.86%	0.76%
Hardin County	46.53%	43.78%	-2.75%
Harrison County	17.11%	14.93%	-2.18%
Henry County	34.20%	33.87%	-0.33%
Highland County	29.71%	28.56%	-1.15%

Geography	% Housing Units in Urban Area-2000	% Housing Units in Urban Area-2010	Change 2000-2010
Hocking County	29.97%	27.68%	-2.29%
Holmes County	10.65%	9.75%	-0.90%
Huron County	55.71%	51.49%	-4.22%
Jackson County	40.92%	37.77%	-3.15%
Jefferson County	61.85%	61.89%	0.04%
Knox County	45.03%	46.77%	1.74%
Lake County	92.71%	94.08%	1.37%
Lawrence County	55.47%	55.96%	0.49%
Licking County	63.91%	66.30%	2.38%
Logan County	53.55%	52.10%	-1.45%
Lorain County	84.89%	89.13%	4.25%
Lucas County	95.25%	95.96%	0.72%
Madison County	49.64%	47.47%	-2.17%
Mahoning County	86.92%	86.03%	-0.89%
Marion County	69.30%	69.87%	0.58%
Medina County	67.92%	71.86%	3.94%
Meigs County	22.63%	20.30%	-2.33%
Mercer County	42.77%	40.62%	-2.15%
Miami County	69.71%	70.81%	1.10%
Monroe County	2.14%	2.30%	0.16%
Montgomery County	95.88%	96.14%	0.26%
Morgan County	17.89%	17.32%	-0.57%
Morrow County	12.31%	12.65%	0.33%
Muskingum County	55.50%	55.07%	-0.42%
Noble County	24.12%	23.34%	-0.78%
Ottawa County	42.98%	55.40%	12.42%
Paulding County	17.91%	19.33%	1.42%
Perry County	27.20%	24.82%	-2.38%
Pickaway County	51.30%	49.09%	-2.21%
Pike County	23.21%	28.78%	5.57%
Portage County	60.13%	67.73%	7.60%
Preble County	19.36%	32.89%	13.52%
Putnam County	16.76%	16.58%	-0.19%
Richland County	72.98%	70.58%	-2.39%
Ross County	41.25%	39.70%	-1.55%
Sandusky County	60.45%	57.40%	-3.04%

Geography	% Housing Units in Urban Area-2000	% Housing Units in Urban Area-2010	Change 2000-2010
Scioto County	51.69%	46.71%	-4.98%
Seneca County	57.22%	54.56%	-2.66%
Shelby County	46.14%	51.41%	5.26%
Stark County	87.55%	87.56%	0.01%
Summit County	96.19%	96.58%	0.39%
Trumbull County	75.78%	75.42%	-0.36%
Tuscarawas County	60.78%	60.14%	-0.64%
Union County	39.27%	47.61%	8.35%
Van Wert County	51.47%	51.98%	0.51%
Vinton County	6.55%	0.00%	-6.55%
Warren County	77.28%	82.59%	5.31%
Washington County	37.78%	45.16%	7.38%
Wayne County	52.95%	54.06%	1.12%
Williams County	36.51%	38.59%	2.09%
Wood County	67.91%	71.41%	3.50%
Wyandot County	46.51%	45.80%	-0.72%
Statewide			
Ohio	78.91%	79.42%	0.52%

Sources: U.S. Census Bureau 2000 Census and 2010 Census.

TABLE 16 – CHANGE IN GEOGRAPHIC POPULATION DISTRIBUTION, 2000-2010

Geography	2000	2010	2015	% Change 2000-2015
Counties with Greatest Increase in Median Household Income between 2000 and 2015				
Belmont	$29,714	$38,320	$43,833	47.5
Lawrence	$29,127	$36,461	$42,874	47.2
Harrison	$30,318	$35,363	$43,173	42.4
Holmes	$36,944	$43,533	$51,996	40.7
Meigs	$27,287	$33,407	$37,813	38.6
Counties with Least Increase in Median Household Income between 2000 and 2015				
Fayette	$36,735	$39,599	$40,503	10.3
Lucas	$38,004	$42,072	$41,777	9.9

Geography	2000	2010	2015	% Change 2000-2015
Montgomery	$40,156	$43,965	$43,829	9.1
Clark	$40,340	$44,141	$43,625	8.1
Williams	$40,735	$44,538	$42,492	4.3
Statewide				
Ohio	$40,956	$47,358* $45,090†	$49,429* $51,075†	20.7* 24.7†

Sources: U.S. Census Bureau 2000 Census, 2010 ACS 5-Year Estimates, 2015 ACS 5-Year Estimates

* ACS 5-Year Estimate provides a 5-year average (2011-1015) and is consistent with available county-level data

† ACS 1-Year Estimate provides a 1-year average but is not available for all counties.

TABLE 17 – CHANGE IN MEDIAN HOUSEHOLD INCOME, 2000-2015

Age Group	Total	Labor Force Participation Rate	Unemployed
16 to 19	623,526	45.4%	19.0%
20 to 24	775,259	77.9%	11.5%
25 to 29	764,007	84.2%	7.6%
30 to 34	722,356	83.0%	6.6%
35 to 44	1,400,811	82.7%	5.3%
45 to 54	1,575,665	79.7%	4.4%
55 to 59	836,258	71.3%	3.8%
60 to 64	757,819	55.8%	3.0%
65 to 74	1,044,297	24.8%	3.8%
75 and Over	795,257	6.1%	2.2%
Total Population 16 and Over	9,295,255	63.2%	6.4%

Sources: 2015 ACS 1-Year Estimates.

TABLE 18 – OHIO LABOR FORCE PARTICIPATION AND UNEMPLOYMENT BY AGE GROUPS, 2015

Educational Attainment	Total	Males	Females
Population 18 to 24 Years			
Less than high school graduate	14.3%	16.1%	12.5%
High school graduate	31.1%	34.3%	27.8%
Some college or associate's degree	45.2%	42.0%	48.5%
Bachelor's degree or higher	9.4%	7.6%	11.3%
Population 25 Years and Over			
Less than 9th grade	3.1%	3.2%	2.9%
9th to 12th grade, no diploma	7.8%	8.1%	7.5%
High school graduate	34.1%	34.9%	33.5%
Some college, no degree	20.7%	20.6%	20.7%
Associate's degree	8.2%	6.9%	9.5%
Bachelor's degree	16.4%	16.5%	16.3%
Graduate or professional degree	9.7%	9.8%	9.6%

Source: U.S. Census Bureau 2015 ACS 5-Year Estimates.

TABLE 19 – EDUCATIONAL ATTAINMENT BY AGE GROUP, 2015

	Less Than High School Graduate	High School Graduate	Some College or Associate Degree	Bachelor Degree or Higher
18 to 24 Years				
2000	23.2%	31.2%	38.3%	7.4%
2010	16.2%	32.5%	42.4%	8.8%
2015	14.3%	31.1%	45.2%	9.4%
25 Years and Over				
2000	17.0%	36.1%	25.8%	21.1%
2010	12.6%	35.8%	27.4%	24.1%
2015	10.9%	34.1%	28.9%	26.1%

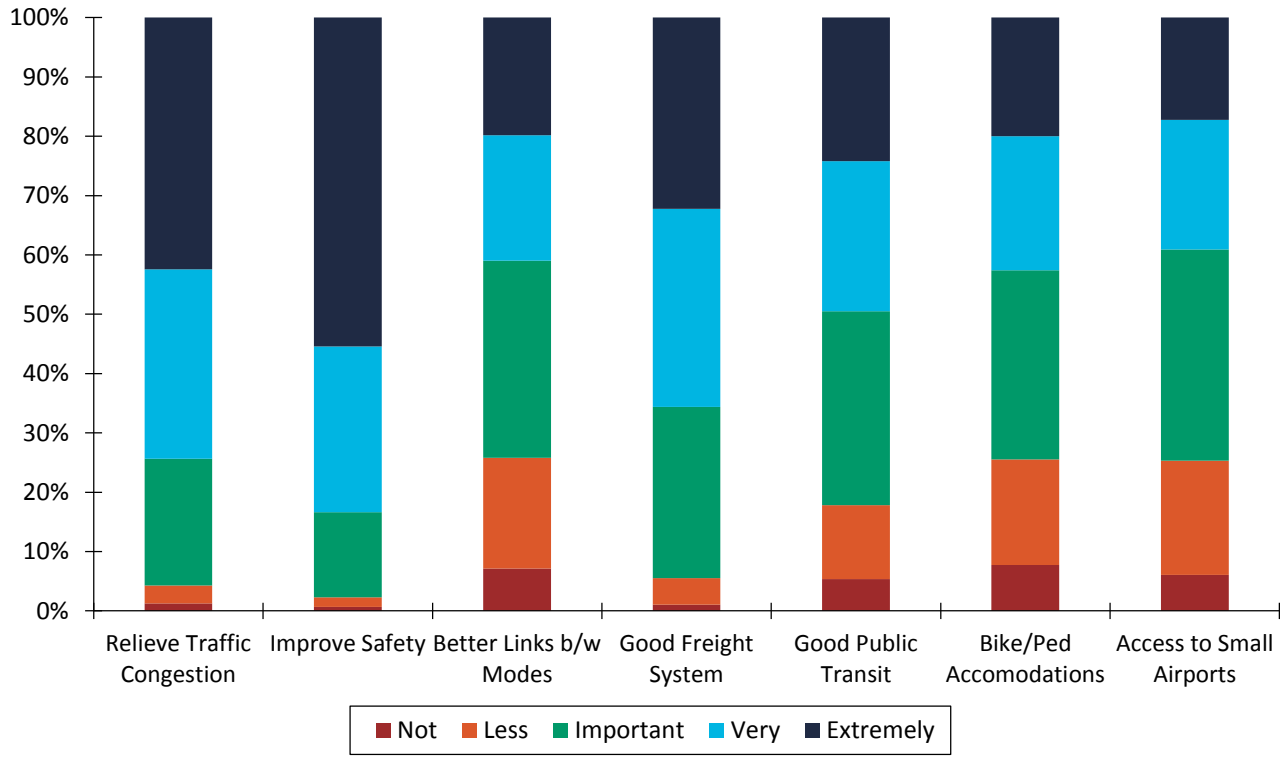
Sources: U.S. Census Bureau 2000 Census, 2010 ACS 5-Year Estimates, 2015 ACS 5-Year Estimates.

TABLE 20 – EDUCATIONAL ATTAINMENT BY AGE GROUP IN 2000, 2010, AND 2015

	Drive Alone	School Bus	Carpool	Transit	Bicycle	Walk	Other
How Adults Get to Work	94.9%	N/A	4.8%	1.2%	1.1%	2.2%	1.1%
How Adult Students Get to School	82.5%	N/A	8.6%	9.6%	4.1%	9.2%	1.9%
How Children Get to School	N/A	59.8%	43.9%	1.2%	2.0%	8.6%	0.1%

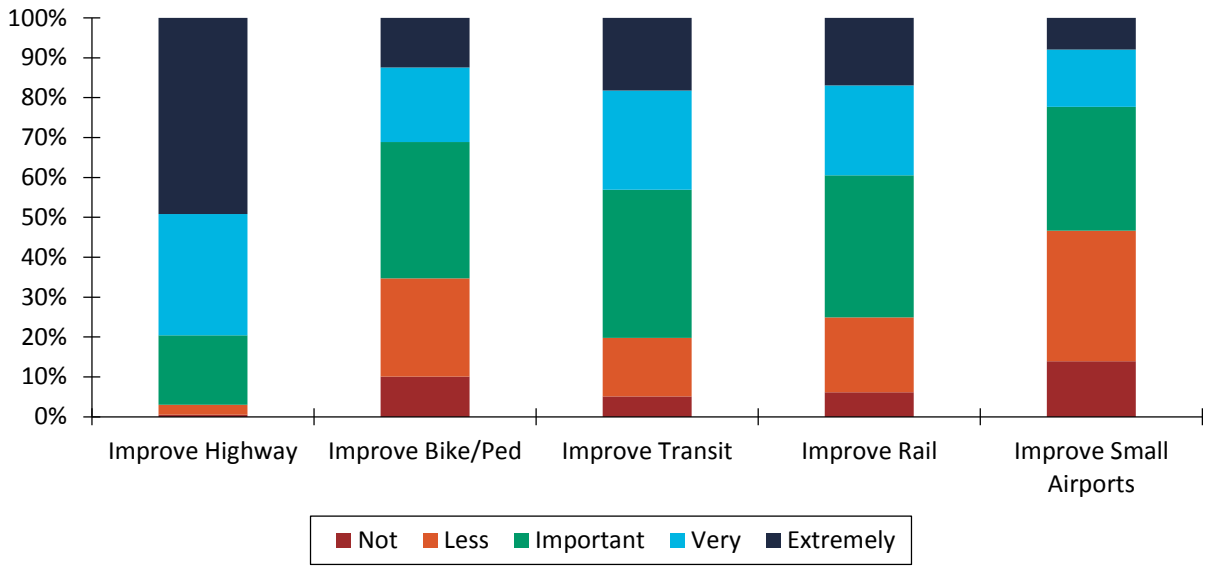
Source: Ohio Department of Transportation Customer Preference Survey, 2016.

TABLE 21 – HOW OHIOANS USUALLY GET TO WORK AND SCHOOL, 2016



Source: Ohio Department of Transportation Customer Preference Survey, 2016.

FIGURE 18 – IMPORTANCE OF THE FOLLOWING TRANSPORTATION TOPICS, 2016



Source: Ohio Department of Transportation Customer Preference Survey, 2016.

FIGURE 19 – IMPORTANCE OF IMPROVING DIFFERENT TRANSPORTATION MODES, 2016

Appendix C-Intraregional Cross-State Flows

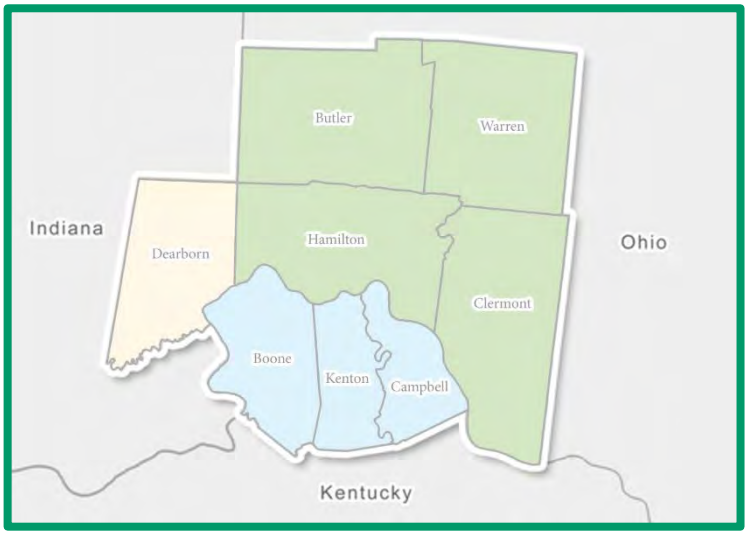
The Demographics White Paper includes an analysis of historic and projected future population changes within Ohio. The data utilized for the demographics analysis was limited to Ohio's 88 counties. A number of Ohio cities, namely Cincinnati, Belpre, Bridgeport, Ironton, Steubenville, Toledo, and Youngstown that are located near the Ohio border have metropolitan areas that extend beyond state lines.

This analysis will focus on intraregional cross-state migration and commuting flows in the regions surrounding Cincinnati, Toledo, and Youngstown, as these areas are representative of the demographic trends affecting bi-state and/or multi-state metropolitan regions. The analysis considers net movements between Ohio counties and non-Ohio counties within each of the three regions. Data from the U.S. Census Bureau's American Community Survey (ACS) was used for both the Migration Flow and Commute Flow analysis. The most recent comprehensive migration dataset (including all counties in the U.S.) available is the *County-to-County Migration Flows: 2011-2015 ACS*. The most recent comprehensive commuting dataset available (including all counties in the U.S) is the *2009-2013 5-Year ACS Commuting Flows*. Regions typically extend across multiple jurisdictions and do not generally have universally-accepted geographic limits. For example, a region could be defined by the census-designated Metropolitan Statistical Area (MSA) boundaries or by the service area of the local Metropolitan Planning Organization (MPO) or Council of Governments (COG). A description and justification of the geography considered in the analysis is provided for each region in the following sections.

CINCINNATI

Regional Geography for Analysis

The Ohio Kentucky Indiana Regional Council of Governments (OKI) is the COG and the MPO for the Cincinnati region. The geography used for the Cincinnati cross-state flows analysis is the same as the OKI transportation planning area and includes Butler, Clermont, Hamilton, and Warren Counties in Ohio; Dearborn County in Indiana; and Boone, Campbell, and Kenton Counties in Kentucky (see **Figure 1**).



Source: OKI, 2017

FIGURE 1: OKI TRANSPORTATION PLANNING AREA

The total population for the eight counties in the OKI transportation planning area is 2,205,711 (see Table 1). Cincinnati is located within Hamilton County, Ohio which accounts for approximately 40 percent of the regional population.

Migration Flows

An analysis of cross-state migration patterns between the OKI counties in Ohio (Butler, Clermont, Hamilton, and Warren) and the OKI counties outside of Ohio (Dearborn in Indiana and Boone, Campbell, and Kenton in Kentucky) shows that Ohio lost a net 1,558 residents (less than 0.01 percent of the region's total population) to Indiana and Kentucky due to intraregional cross-state migration (see **Table 2**). All four Ohio counties in the region experienced a net loss of population to non-Ohio counties in the region. Hamilton County experienced the greatest net population loss (-781) and Clermont County experienced the greatest percentage net population loss (-0.22 percent).

County (State)	Population
Butler (OH)	372,538
Clermont (OH)	200,285
Hamilton (OH)	804,194
Warren (OH)	219,916
Dearborn (IN)	49,679
Boone (KY)	124,617
Campbell (KY)	91,475
Kenton (KY)	163,007
Total	**2,025,711**

Source: ACS 2011-2015 5-Year Estimates

TABLE 1: CINCINNATI REGIONAL POPULATION

County (State)	Net Migration to Ohio Counties from Non-Ohio Counties				
	Dearborn (IN)	Boone (KY)	Campbell (KY)	Kenton (KY)	Total
Butler (OH)	12	-50	-61	64	**-35**
Clermont (OH)	0	59	-146	-351	**-438**
Hamilton (OH)	-88	-223	-7	-463	**-781**
Warren (OH)	18	-85	-141	-96	**-304**
Total	**-58**	**-299**	**-355**	**-846**	**-1,558**

Source: County-to-County Migration Flows: 2011-2015 ACS

TABLE 2: NET MIGRATION TO OHIO COUNTIES FROM NON-OHIO COUNTIES IN CINCINNATI REGION

Commute Flows

Over 29,000 more people in the Cincinnati region commute from Indiana or Kentucky into Ohio than from Ohio into Indiana or Kentucky for work. Approximately 75 percent of the net cross-state, intraregional Cincinnati commuters entering Ohio for work live in Kentucky (22,003) which means that they are likely to be traveling over one of the bridges crossing the Ohio River.

County (State)	Net Commutes to Ohio Counties from Non-Ohio Counties				
	Dearborn (IN)	Boone (KY)	Campbell (KY)	Kenton (KY)	Total
Butler (OH)	762	-80	550	329	**1,561**
Clermont (OH)	-22	-1,398	-70	-1,390	**-2,880**
Hamilton (OH)	6,511	1,749	11,548	10,864	**30,672**
Warren (OH)	210	-107	282	-276	**109**
Total	**7,461**	**164**	**12,310**	**9,527**	**29,462**

Source: 2009-2013 5-Year ACS Commuting Flows

TABLE 3: NET COMMUTES TO OHIO COUNTIES FROM NON-OHIO COUNTIES IN CINCINNATI REGION

TOLEDO

Regional Geography for Analysis

The Toledo Metropolitan Area Council of Governments (TMACOG) is both the COG and the MPO for the Toledo region. The geography used for the Toledo cross-state flows analysis includes the three counties that are within the TMACOG transportation planning area: Lucas and Wood Counties in Ohio and Monroe County in Michigan (see **Figure 2**).

The total population for the three counties in the TMACOG transportation planning area is 715,582 (see **Table 4**). Toledo is located within Lucas County, Ohio which accounts for approximately 61 percent of the regional population.

County (State)	Population
Lucas (OH)	436,261
Wood (OH)	128,885
Monroe (MI)	150,436
Total	715,582

Source: ACS 2011-2015 5-Year Estimates

TABLE 4: TOLEDO REGIONAL POPULATION

Migration Flows

An analysis of cross-state migration patterns between the TMACOG counties in Ohio (Lucas and Wood) and the TMACOG county outside of Ohio (Monroe County, Michigan) shows that Ohio lost a net 91 residents (less than 0.01 percent of the region's total population) to Michigan due to cross-state migration (see **Table 5**).

County (State)	Net Migration to Ohio Counties from Monroe (MI)
Lucas (OH)	-113
Wood (OH)	22
Total	**-91**

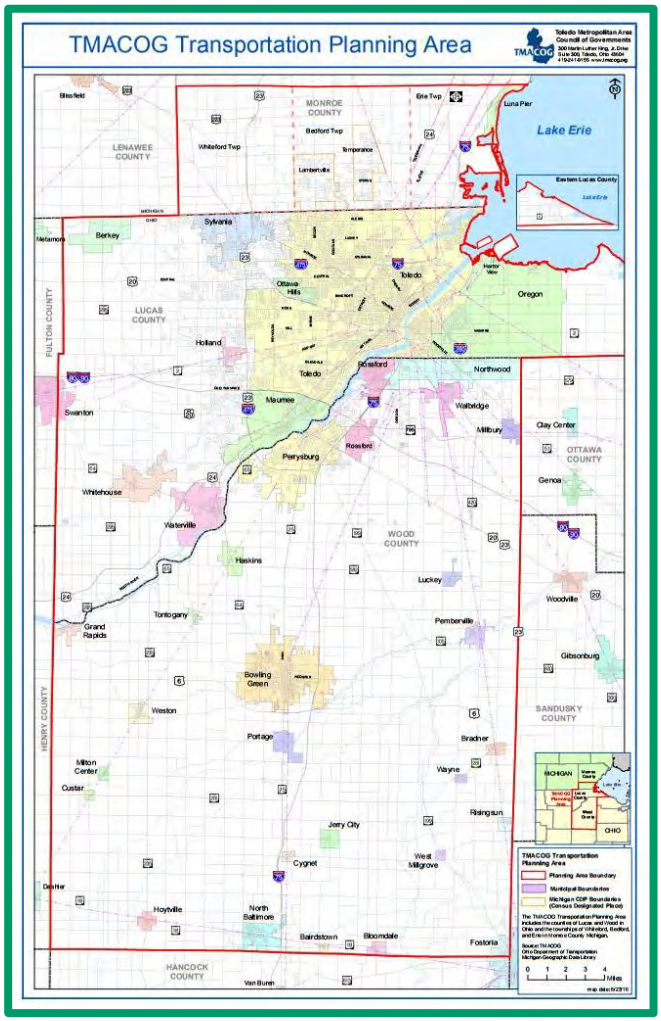
Source: County-to-County Migration Flows: 2011-2015 ACS

TABLE 5: NET MIGRATION FROM OHIO COUNTIES TO MONROE COUNTY, MICHIGAN IN TOLEDO

Commute Flows

Over 9,000 more people in the Toledo region commute from Monroe County, Michigan into Ohio for work than commute from Ohio into Michigan. Over 90 percent of the net cross-state, intraregional commuters work in Lucas County (see **Table 6**).

County (State)	Net Commutes to Ohio Counties from Monroe (MI)
Lucas (OH)	8,560
Wood (OH)	693
Total	9,253



Source: TMACOG, 2017

FIGURE 2: TMACOG TRANSPORTATION PLANNING AREA

Source: 2009-2013 5-Year ACS Commuting Flows

TABLE 6: NET COMMUTES TO OHIO COUNTIES FROM MONROE COUNTY, MICHIGAN IN TOLEDO REGION

YOUNGSTOWN

Geography for Analysis

Eastgate Regional Council of Governments (Eastgate) is both the MPO and the COG for the Youngstown region. Eastgate's transportation planning area is entirely within the state of Ohio, limited to Mahoning and Trumbull counties. However, the Youngstown-Warren-Boardman MSA extends into Mercer County, Pennsylvania. The geography used for the Youngstown cross-state flows analysis includes Mahoning and Trumbull Counties in Ohio and Mercer County in Pennsylvania (see **Figure 3**).

The total population for the three counties in the Youngstown-Warren-Boardman MSA is 556,243 (see **Table 7**). Youngstown is located within Mahoning County, Ohio which accounts for approximately 42 percent of the regional population.

Migration Flows

An analysis of cross-state migration patterns between the MSA counties in Ohio (Mahoning and Trumbull) and Mercer County, Pennsylvania shows that Ohio gained a net 194 residents (approximately 0.03 percent of the region's total population) from Pennsylvania due to intraregional cross-state migration (see **Table 8**).

Source: U.S. Census Bureau, 2010

FIGURE 3: YOUNGSTOWN-WARREN-BOARDMAN

County (State)	Population
Mahoning (OH)	234,550
Trumbull (OH)	206,373
Mercer (PA)	115,320
Total	556,243

Source: ACS 2011-2015 5-Year Estimates

TABLE 7: YOUNGSTOWN REGIONAL

County (State)	Net Migration to Ohio Counties from Mercer (PA)
Mahoning	59
Trumbull (OH)	135
Total	194

Source: County-to-County Migration Flows: 2011-2015 ACS

TABLE 8: NET MIGRATION FROM OHIO COUNTIES TO MERCER COUNTY, PENNSYLVANIA IN YOUNGSTOWN REGION

Commute Flows

Around 1,500 more people in the Youngstown region commute from Ohio into Pennsylvania for work than commute from Pennsylvania to Ohio. Approximately 98 percent of the net cross-state, intraregional commuters live in Mahoning County, Ohio (see **Table 9**).

County (State)	Net Commutes to Ohio Counties from Mercer (PA)
Mahoning (OH)	-29
Trumbull (OH)	-1,554
Total	**-1,583**

Source: 2009-2013 5-Year ACS Commuting Flows

TABLE 9: NET COMMUTES FROM OHIO COUNTIES TO MERCER COUNTY, PENNSYLVANIA IN YOUNGSTOWN

TRANSPORTATION IMPLICATIONS

Ohio counties in the Cincinnati region have experienced a small net loss in population to Kentucky and Indiana. In turn, there are almost 30,000 more commuters entering Ohio from Indiana and Kentucky than commuters traveling in the opposite direction. The Toledo region has also experienced a small net population loss from the Ohio counties in the region to the non-Ohio county (Monroe County, Michigan). Over 9,000 more commuters in the Toledo region commute from Michigan into Ohio than commute from Ohio to Michigan. Unlike Cincinnati and Toledo, Youngstown has more regional commuters leaving Ohio for work than entering Ohio for work.

For all three regions, the cross-state intraregional migration and commute patterns will require coordination with Departments of Transportation and local planning agencies in neighboring states. In addition, transportation plans for the Toledo and Cincinnati regions will need to account for both the Ohio-based population and the additional 9,000 to 29,000 commuters entering Ohio for work.