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Coordinated Population Forecast for Wheeler County, its Urban Growth Boundaries (UGB), and Area Outside UGBs 2016-2066

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Coordinated Population Forecast

2016

Through

2066

Wheeler County

Urban Growth Boundaries (UGB)
& Area Outside UGBs

Coordinated Population Forecast for Wheeler County, its Urban Growth Boundaries (UGB), and Area outside UGBs 2016-2066

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How to Read this Report

This report should be read with reference to the documents listed below—downloadable on the Forecast Program website (http://www.pdx.edu/prc/opfp).

Specifically, the reader should refer to the following documents:

- *Methods and Data for Developing Coordinated Population Forecasts*—Provides a detailed description and discussion of the methods employed to prepare the forecasts. This document also describes the data sets and assumptions that feed into these methods and determine the forecast output.
- *Forecast Tables*—Provides complete tables of population forecast numbers by county and all sub-areas within each county for each five-year interval of the forecast period (i.e., 2016-2066).

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Historical

Different growth patterns occur in different parts of the County and these local trends within the UGBs and the area outside UGBs collectively influence population growth rates for the county as a whole.

Wheeler County's total population has declined slowly since 2000, with average annual growth rates of just above negative one percent between 2000 and 2010 (Figure 1); however, some of its sub-areas experienced some population growth during the 2000s. Fossil, the most populous UGB, experienced small growth and Spray posted the highest average annual growth rate at 0.1 and 1.1 percent, respectively, during the 2000 to 2010 period.

Wheeler County's population decline in the 2000s was the direct result of an aging population. The aging population not only led to an increase in deaths, but also resulted in a smaller proportion of women in their childbearing years. This, along with more women choosing to have fewer children and have them at older ages, has led to fewer births in recent years. The larger number of deaths relative to births caused a natural decrease (more deaths than births) in every year from 2000 to 2015 (Figure 12). While net in-migration and natural decrease compounded to create a substantial population decrease during the early and middle years of the last decade, migration into the county increased in the later part of the decade and helped to offset the natural decrease. Net out-migration was still substantial for populations between the ages of 20 and 29 years from 2000 to 2010, but there has been net in-migration for a slightly older population from 30 to 39 years of age. In more recent years (2010 to 2015) net in-migration has increased, bringing with it some slight population growth.

Forecast

Total population in Wheeler County as a whole as well as within its sub-areas will likely decline at a slightly slower pace in the near-term (2016 to 2035) compared to the long-term (Figure 1). The declining of growth rates is largely driven by an aging population—a demographic trend which is expected to contribute to a steady natural decrease (more deaths than births). As natural decrease occurs, population growth will become increasingly reliant on net in-migration.

Wheeler County's total population is forecast to decrease by more than 90 over the next 19 years (2016-2035) and by more than 300 over the entire 50-year forecast period (2016-2066). All sub-areas are expected to experience similar rates of population decline during the forecast period.

Figure 1. Wheeler County and Sub-Areas—Historical and Forecast Populations, and Average Annual Growth Rates (AAGR)

	Historical			Forecast				
	2000	**2010**	**AAGR (2000-2010)**	**2016**	**2035**	**2066**	**AAGR (2016-2035)**	**AAGR (2035-2066)**
Wheeler County	*1,547*	*1,441*	*-0.7%*	*1,447*	*1,349*	*1,124*	*-0.4%*	*-0.6%*
Fossil UGB	469	473	0.1%	473	444	373	-0.3%	-0.6%
Mitchell UGB	163	130	-2.3%	128	115	93	-0.6%	-0.7%
Spray UGB	150	167	1.1%	167	154	128	-0.4%	-0.6%
Outside UGBs	765	671	-1.3%	679	636	530	-0.3%	-0.6%

Sources: U.S. Census Bureau, 2000 and 2010 Censuses; Forecast by Population Research Center (PRC).

Historical Trends

Different growth patterns occur in different parts of the County. Each of Wheeler County's sub-areas was examined for any significant demographic characteristics or changes in population or housing growth that might influence their individual forecasts. Factors that were analyzed include age composition of the population, ethnicity and race, births, deaths, migration, and number or growth rate of *housing units* as well as the *occupancy rate* and *persons per household (PPH)*. It should be noted that population trends of individual sub-areas often differ from those of the county as a whole. However, in general, local trends within sub-areas collectively influence population growth rates for the county.

Population

Wheeler County's total population declined by about 29 percent between 1975 and 2015—from roughly 2,000 in 1975 to about 1,400 in 2015 (Figure 2). During this 40-year period, the county realized the highest growth rates during the early 1990s, which coincided with a period of relative economic prosperity. During the late 1970s and early 1980s, challenging economic conditions, both nationally and within the county, led to population decline. Again, during the early 1990s population growth increased, but challenging economic conditions in the late 1990s yielded declines in population growth. Wheeler County experienced population decline over the last decade (2000 to 2010)—averaging negative seven-tenth of one percent per year. In recent years, growth rates have marginally increased, leading to very slight population growth between 2010 and 2015.

Figure 2. Wheeler County—Total Population (1975-2015)

	1975	1980	1985	1990	1995	2000	2005	2010	2015
Population	2,052	1,504	1,468	1,396	1,570	1,547	1,467	1,441	1,445
AAGR	2.1%	-6.2%	-0.5%	-1.0%	2.3%	-0.3%	-1.1%	-0.4%	0.1%

Sources: U.S. Census Bureau, 1980, 1990, 2000, and 2010 Censuses; Population Research Center (PRC), July 1st Annual Estimates 1975, 1985, 1995, 2005, and 2015.
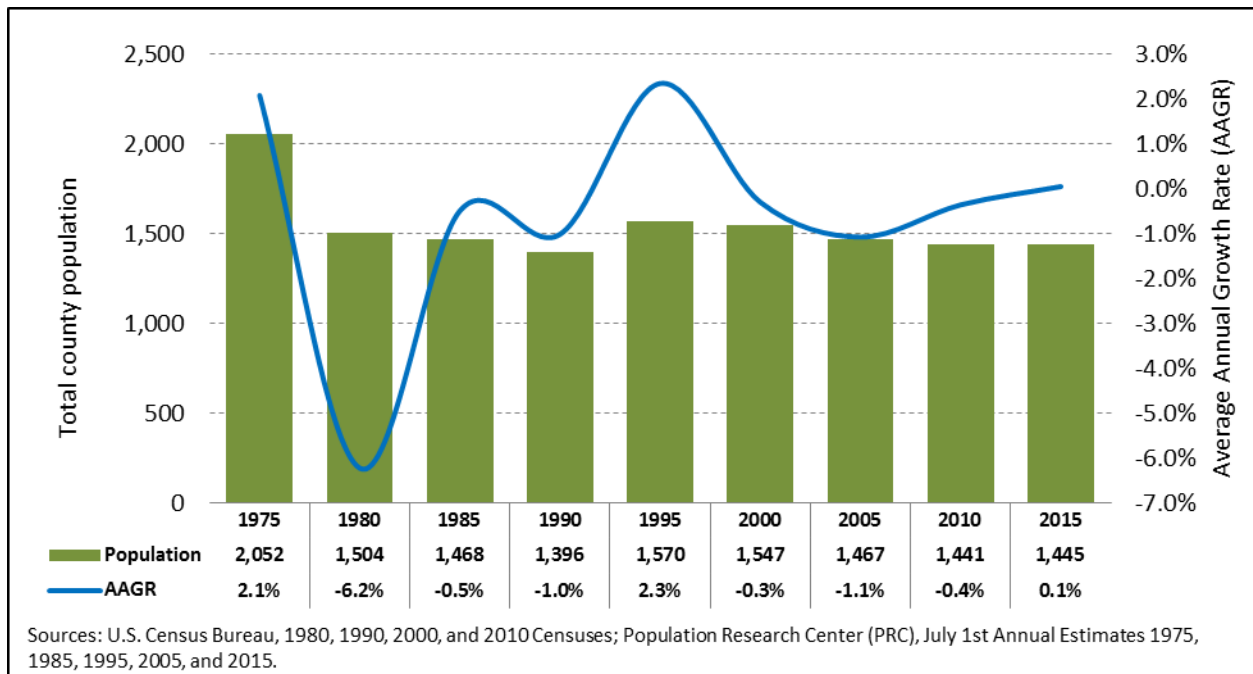
Wheeler County's population change is the combined population growth or decline within each sub-area. During the 2000s, Wheeler County's average annual population growth rate stood at negative seven-tenth of one percent (Figure 3). At the same time Fossil and Spray recorded average annual

growth rates of 0.1 and 1.1 percent, respectively. Mitchell experienced an average annual growth rate of negative 2.3 percent, while the area outside UGBs recorded population decline between 2000 and 2010.

Figure 3. Wheeler County and Sub-areas—Total Population and Average Annual Growth Rate (AAGR) (2000 and 2010)

	2000	2010	AAGR (2000-2010)	Share of County 2000	Share of County 2010
Wheeler County	*1,547*	*1,441*	*-0.7%*	*100.0%*	*100.0%*
Fossil	469	473	0.1%	30.3%	32.8%
Mitchell	163	130	-2.3%	10.5%	9.0%
Spray	150	167	1.1%	9.7%	11.6%
Outside UGBs	765	671	-1.3%	49.5%	46.6%

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

Note: For simplicity each UGB is referred to by its primary city's name.

Age Structure of the Population

Wheeler County's population is aging, and at a faster pace compared to most areas across Oregon. An aging population significantly influences the number of deaths, but also yields a smaller proportion of women in their childbearing years, which may result in a decline in births. However, for Wheeler County this has not been true. Births have actually increased, in spite of the rise in the proportion of county population 65 or older between 2000 and 2010 (Figure 4). Further underscoring Wheeler County's dramatic trend in aging, the median age went from about 48 in 2000 to 53 in 2010, an increase that is higher than what is observed statewide but in many cases similar to the increase in age seen in many of Oregon's counties over the same time period.[1]

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[1] Median age is sourced from the U.S. Census Bureau's 2000 and 2010 Censuses, DP-1.

Figure 4. Wheeler County—Age Structure of the Population (2000 and 2010)

Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Calculated by Population Research Center (PRC).
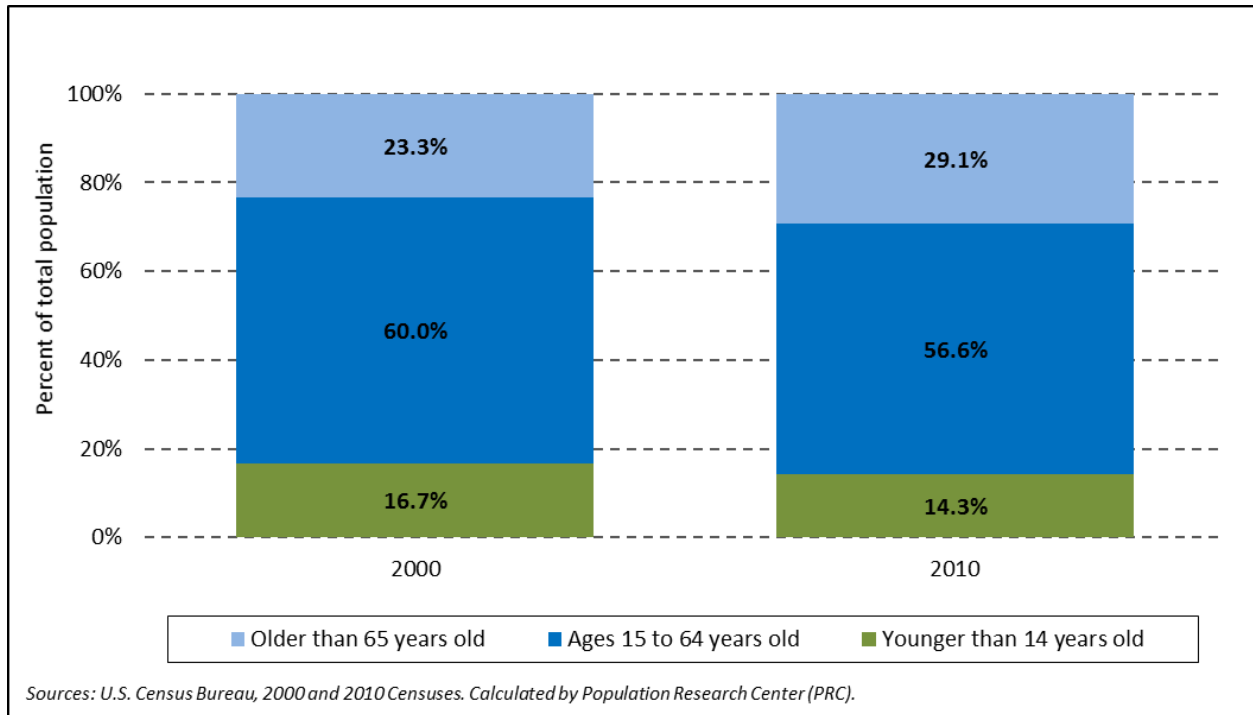
Race and Ethnicity

The Hispanic population within Wheeler County decreased from 2000 to 2010 (Figure 5), and the White, non-Hispanic population decreased over the same time period as well. A growing minority population usually affects both the number of births and average household size[2]. For example, fertility rates among Hispanic and minority women have tended to be higher than among White, non-Hispanic women; or Hispanic and minority households tend to be larger relative to White, non-Hispanic households. However, in the case of Wheeler County, the increase in other minority populations are too small in magnitude to have substantial impact on either household size or fertility rate.

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[2] Historical data shows that some racial/ethnic groups, such as Hispanics, generally have higher fertility rates than other groups (http://www.pewsocialtrends.org/2012/05/17/explaining-why-minority-births-now-outnumber-white-births/); also average household sizes can vary among racial/ethnic groups (https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&sqi=2&ved=0ahUKEwjp09-PltXMAhUC_WMKHQFZCBEQFggcMAA&url=http%3A%2F%2Fwww.census.gov%2Fpopulation%2Fsocdemo%2Fhh-fam%2Fcps2011%2FtabAVG1.xls&usg=AFQjCNFfO2dYB_OKGxp-ag3hBMVDx4_j9w&cad=rja).

Figure 5. Wheeler County—Hispanic or Latino and Race (2000 and 2010)

Hispanic or Latino and Race	2000		2010		Absolute Change	Relative Change
Total population	*1,547*	*100.0%*	*1,441*	*100.0%*	*-106*	*-6.9%*
Hispanic or Latino	79	5.1%	62	4.3%	-17	-21.5%
Not Hispanic or Latino	1,468	94.9%	1,379	95.7%	-89	-6.1%
White alone	1,431	92.5%	1,307	90.7%	-124	-8.7%
Black or African American alone	1	0.1%	0	0.0%	-1	-100.0%
American Indian and Alaska Native alone	8	0.5%	16	1.1%	8	100.0%
Asian alone	4	0.3%	8	0.6%	4	100.0%
Native Hawaiian and Other Pacific Islander alone	0	0.0%	2	0.1%	2	-
Some Other Race alone	0	0.0%	5	0.3%	5	-
Two or More Races	24	1.6%	41	2.8%	17	70.8%

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

Births

Historical fertility rates for Wheeler County do not mirror trends similar to Oregon as a whole. Total fertility rates increased in Wheeler County from 2000 to 2010, while they decreased for the state over the same time period (Figure 6). At the same time fertility for high end mothers marginally increased in both Wheeler County and Oregon (Figure 7 and Figure 8). As Figure 7 demonstrates, fertility rates for younger women in Wheeler County are lower in 2010 compared to earlier decade, and women are choosing to have children at older ages. While age specific fertility largely mirrors statewide patterns, county fertility changes are distinct from those of the state in two ways. First, total fertility in Wheeler County increased during the 2000s, which differed from the decrease observed statewide. Second, total fertility in the county remains well above *replacement fertility*, while for Oregon as a whole, total fertility continues to fall further below replacement fertility.

Figure 6. Wheeler County and Oregon—Total Fertility Rates (2000 and 2010)

	2000	2010
Wheeler County	2.07	2.74
Oregon	1.98	1.80

Sources: U.S. Census Bureau, 2000 and 2010 Censuses .
Oregon Health Authority, Center for Health Statistics.
Calculated by Population Research Center (PRC).

Figure 7. Wheeler County—Age Specific Fertility Rate (2000 and 2010)

Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).
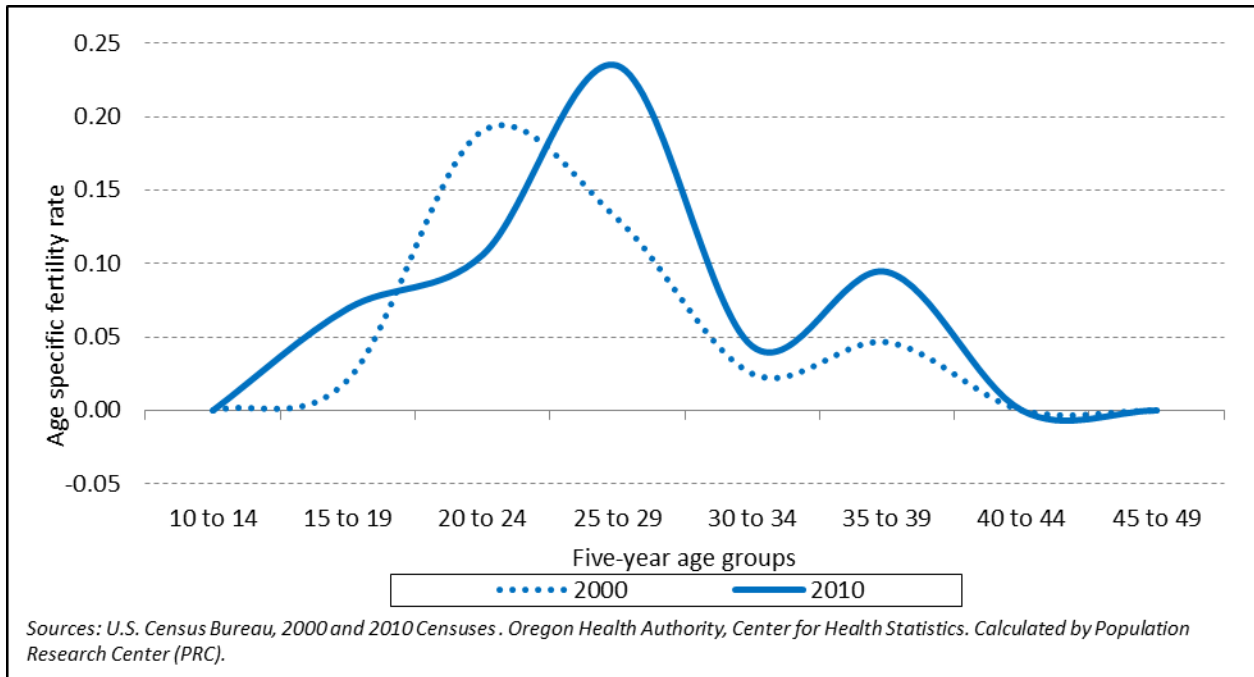
Figure 8. Oregon—Age Specific Fertility Rate (2000 and 2010)

Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).
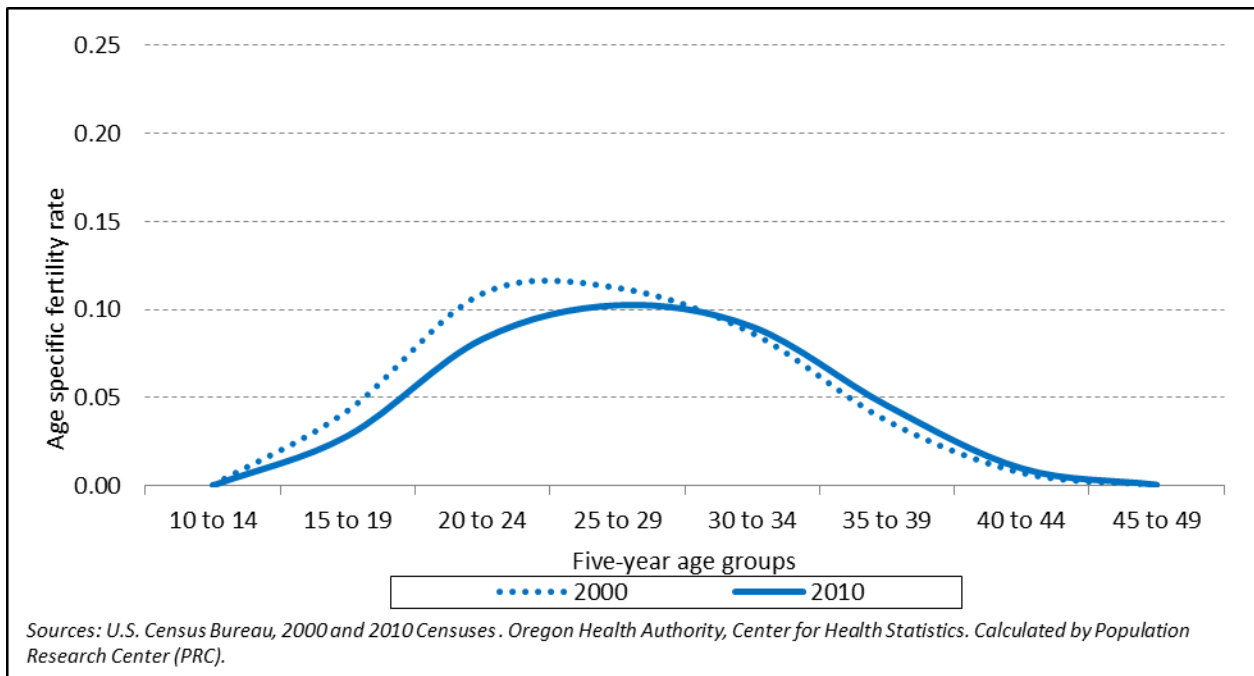
Figure 9 shows the number of births by the area in which the mother resides. Generally the number of births fluctuates from year to year. For example, a sub-area with an increase in births between two

years could easily show a decrease for a different time period; however for the 10- year period from 2000 to 2010 Wheeler County recorded an increase in births (Figure 9).

Figure 9. Wheeler County and Sub-Areas—Total Births (2000 and 2010)

	2000	2010	Absolute Change	Relative Change
Wheeler County	*11*	*15*	*4*	*36.4%*

Sources: Oregon Health Authority, Center for Health Statistics. Aggregated by Population Research Center (PRC).

Deaths

The population in the county, as a whole, is aging and similar to the statewide trend, people are living longer.[3] For Wheeler County in 2000, life expectancy for males was 76 years and for females was 81 years. By 2010, life expectancy had increased to 78 years for males, and had increased to 83 years for females. For both Wheeler County and Oregon, the survival rates changed little between 2000 and 2010—underscoring the fact that mortality is the most stable component of population change. Even so, the total number of countywide deaths decreased (Figure 10).

Figure 10. Wheeler County and Sub-Areas—Total Deaths (2000 and 2010)

	2000	2010	Absolute Change	Relative Change
Wheeler County	*21*	*17*	*-4*	*-19.0%*

Sources: Oregon Health Authority, Center for Health Statistics. Aggregated by Population Research Center (PRC).

Migration

The propensity to migrate is strongly linked to age and stage of life. As such, age-specific migration rates are critically important for assessing these patterns across five-year age cohorts. Figure 11 shows the historical age-specific migration rates by five-year age group, both for Wheeler County and Oregon. The migration rate is shown as the number of net migrants per person by age group.

From 2000 to 2010, younger individuals (ages with the highest mobility levels) moved out of the county in search of employment and education opportunities, as well as military service. At the same time however, the county attracted a substantial number of middle aged migrants who likely moved into the county due to economic opportunities. Many in this group of migrants were assumed to be accompanied by their children as shown in the in-migration of persons under the age of 14.

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[3] Researchers have found evidence for a widening rural-urban gap in life expectancy. This gap is particularly apparent between race and income groups and may be one explanation for the decline in life expectancy in the 2000s. See the following research article for more information. *Singh, Gopal K., and Mohammad Siahpush. "Widening rural-urban disparities in life expectancy, US, 1969-2009." American Journal of Preventative Medicine 46, no. 2 (2014): e19-e29.*

Figure 11. Wheeler County and Oregon—Age Specific Migration Rates (2000-2010)

Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Calculated by Population Research Center (PRC).
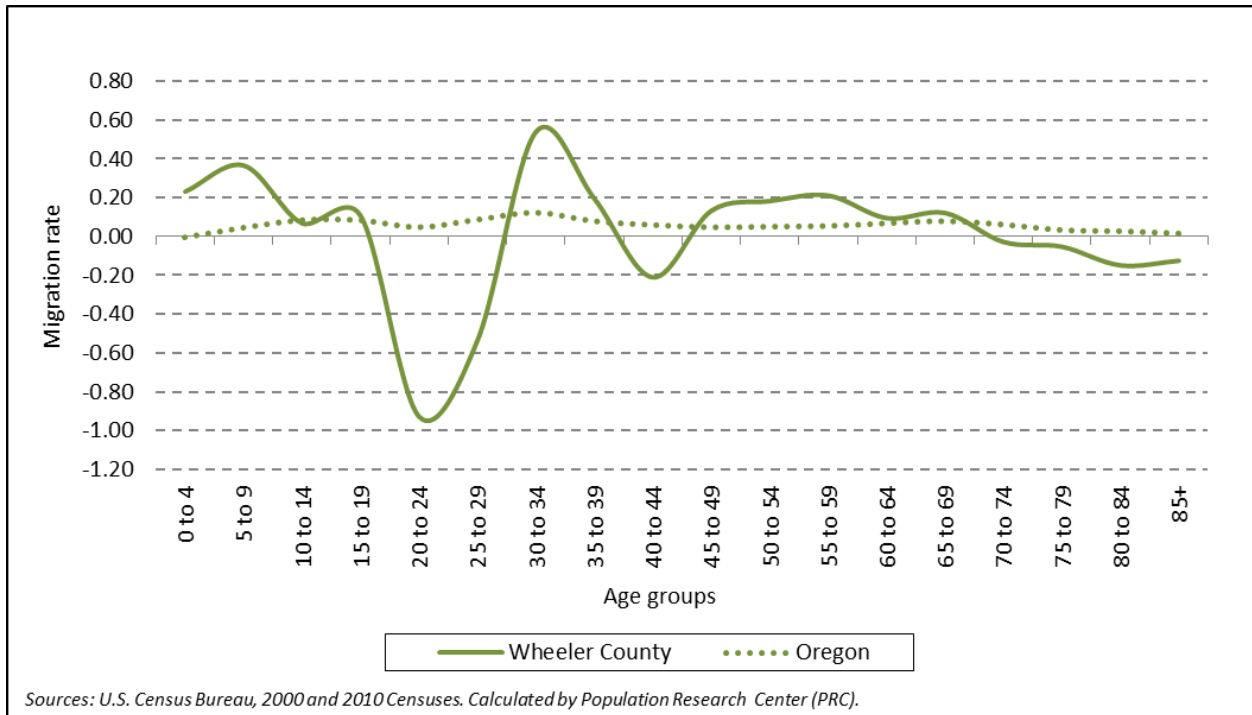
Historical Trends in Components of Population Change

In summary, Wheeler County's negative population changes in the 2000s was the result of a small but steady natural decrease and periods of substantial net in-migration (Figure 12). The larger number of deaths relative to births has led to a natural decrease (more births than deaths) in every year from 2000 to 2015. While net in-migration fluctuated dramatically during the early and middle years of the last decade, the number of in-migrants has been slightly more stable during recent years, contributing to the most recent population growth.

Figure 12. Wheeler County—Components of Population Change (2000-2015)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
■ Net Mig.	-1	-14	-10	-4	-6	5	9	7	3	-3	-2	5	8	12	14	23
■ Nat. Inc.	-15	-5	-5	-11	-9	-20	-9	-17	-13	-2	0	-10	-18	-7	-4	-18

Sources: Population Research Center, July 1st Annual Estimates 2000-2015. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).
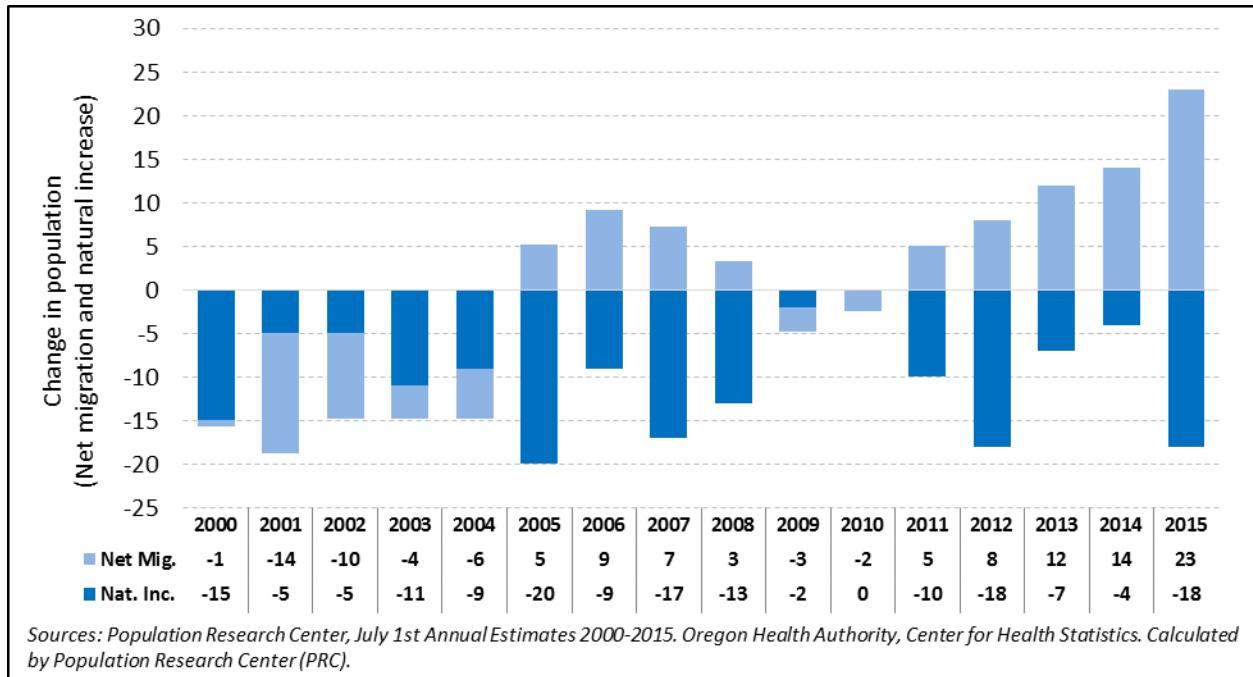
Housing and Households

The total number of housing units in Wheeler County increased moderately during the middle years of this last decade (2000 to 2010), but this growth slowed with the onset of the national recession in 2007. Over the entire 2000 to 2010 period, the total number of housing units increased by about six percent countywide; this resulted in more than 50 new housing units (Figure 13). Fossil and the Area outside all UGBs captured the largest shares of the growth in total housing units, 20 and 35 units, respectively, with Spray also seeing a small shares of the countywide housing growth. Mitchell, however observed a slight decrease during 2000s. In terms of county shares, Fossil and the Area outside all UGBs got larger shares from 2000 to 2010, while Mitchell and Spray lost some shares in the same period.

Figure 13. Wheeler County and Sub-Areas—Total Housing Units (2000 and 2010)

	2000	2010	AAGR (2000-2010)	Share of County 2000	Share of County 2010
Wheeler County	*842*	*895*	*0.6%*	*100.0%*	*100.0%*
Fossil	245	265	0.8%	29.1%	29.6%
Mitchell	88	83	-0.6%	10.5%	9.3%
Spray	94	97	0.3%	11.2%	10.8%
Outside UGBs	415	450	0.8%	49.3%	50.3%

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

Note: For simplicity each UGB is referred to by its primary city's name.

Occupancy rates tend to fluctuate more than PPH. This is particularly true in smaller UGB areas where fewer housing units allow for larger changes—in relative terms. From 2000 to 2010 the occupancy rate

in Wheeler County declined by four percentage points; this was most likely due to slack in demand for housing as individuals experienced the effects of the Great Recession. Many sub-areas experienced similar declines in occupancy rates, with Mitchell and outside UGB Area experiencing more extreme declines, negative 8.3 and negative 7.2 percentage points.

Average household size, or PPH, in Wheeler County was 2.2 in 2010, a little lower than in 2000 (Figure 14). Wheeler County's PPH in 2010 was slightly lower than for Oregon as a whole, which had a PPH of 2.5. PPH varied across the four sub-areas, with all of them falling between 2.0 and 2.5 persons per household. In 2010, the highest PPH was in outside UGB Area with 2.3 and the lowest in Fossil at 2.0.

Figure 14. Wheeler County and Sub-Areas—Persons per Household (PPH) and Occupancy Rate

| | Persons Per Household (PPH) | | | Occupancy Rate | | |
	2000	2010	Change 2000-2010	2000	2010	Change 2000-2010
Wheeler County	*2.3*	*2.2*	*-0.1*	*77.6%*	*72.7%*	*-4.8%*
Fossil	2.2	2.0	-0.1	84.9%	84.5%	-0.4%
Mitchell	2.3	2.1	-0.1	81.8%	73.5%	-8.3%
Spray	2.0	2.2	0.2	76.6%	74.2%	-2.4%
Outside UGBs	2.5	2.3	-0.2	72.5%	65.3%	-7.2%

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

Note: For simplicity each UGB is referred to by its primary city's name.

Assumptions for Future Population Change

Evaluating past demographic trends provides clues about what the future will look like, and helps determine the most likely scenarios for population change. Past trends also explain the dynamics of population growth specific to local areas. Relating recent and historical population change to events that influence population change serves as a gauge for what might realistically occur in a given area over the long-term.

Assumptions about fertility, mortality, and migration were developed for Wheeler County's population forecast. The assumptions are derived from observations based on life events, as well as trends unique to Wheeler County. Population change for smaller sub-areas is determined by the change in the number or the growth rate of total housing units, and PPH. Assumptions around housing unit growth as well as occupancy rates are derived from observations of historical building patterns and current plans for future housing development. In addition assumptions for PPH are based on observed historical patterns of household demographics—for example the average age of householder. The forecast period is 2016-2066.

Assumptions for the County

During the forecast period, as the population in Wheeler County is expected to age more quickly during the first half of the forecast period and then remain relatively stable over the rest forecast horizon. Fertility rates are expected to slightly decline throughout the forecast period. Total fertility in Wheeler County is forecast to decrease from 1.8 children per woman in 2015 to 1.7 children per woman by 2065. Similar patterns of declining total fertility are expected within the county's larger sub-areas.

Changes in mortality and life expectancy are more stable compared to fertility and migration. One influential factor affecting mortality and life expectancy is the advancement in medical technology and health care. The county is projected to follow the statewide trend of increasing life expectancy throughout the forecast period—progressing from a life expectancy of 81 years in 2010 to 88 in 2060. However, in spite of increasing life expectancy and the corresponding increase in survival rates, Wheeler County's aging population and large population cohort reaching a later stage of life will increase the overall number of deaths throughout the forecast period.

Migration is the most volatile and challenging demographic component to forecast due to the many factors influencing migration patterns. Economic, social, and environmental factors—such as employment, educational opportunities, housing availability, family ties, cultural affinity, climate change, and natural amenities—occurring both inside and outside the study area can affect both the direction and the volume of migration. Net migration rates will change in line with historical trends unique to Wheeler County. Net out-migration of younger persons and net in-migration of middle-age individuals will persist throughout the forecast period. Countywide average annual net migration is expected to be stable around a range of ten to twenty between 2015 and 2035. Over the last 30 years of the forecast period average annual net migration is expected to be steady as well, remaining at about 6-10 net in-migrants through 2065. Net in-migration is expected to account for most of the Wheeler County's population growth throughout the entire forecast period.

Assumptions for Sub-Areas

Rates of population growth for the smaller UGBs are assumed to be determined by corresponding growth in the number or growth rate of housing units, as well as changes in housing occupancy rates and PPH. The change in housing unit growth is much more variable than change in housing occupancy rates or PPH.

PPH are assumed to stay relatively stable over the forecast period. Smaller household size is associated with an aging population in Wheeler County and its sub-areas. Occupancy rates are assumed to gradually decline over the forecasting period for all smaller UGBs and the outside UGB Area.

In addition, for sub-areas experiencing population growth, we assume a higher growth rate in the near-term, with growth stabilizing over the remainder of the forecast period. If planned housing units were reported in the surveys, then we account for them being constructed over the next 5-15 years. Finally, for county sub-areas where population growth has been flat or has declined, and there is no planned housing construction, we hold population growth mostly stable with little to no change.

Forecast Trends

Under the most-likely population growth scenario in Wheeler County, countywide and sub-area populations are expected to decrease over the forecast period. The countywide population growth rate is forecast to gradually decline throughout the forecast period. Forecasting tapered population growth is driven by both an aging population—contributing to a steady increase in deaths over the entire forecast period—as well as the expectation of relatively stable in-migration over the second half of the forecast period. The combination of these factors will likely result in a slowly declining population growth rate as time progresses through the forecast period.

Wheeler County's total population is forecast to decline by a little more than 300 persons (-22 percent) from 2016 to 2066, which translates into a total countywide population of above 1,100 in 2066 (Figure 15). The population is forecast to decline slower—approximately point one percent per year, at the beginning, and then gradually decline to a negative level through the end of the forecast period. This anticipated population growth in the near-term is based on two core assumptions: The largest component of growth in this initial period is net in-migration. Nearly 90 net in-migrants are forecast for the 2020 to 2025 period (Figure 18). At the same time more than 120 more deaths than births are also forecast, combining with net in-migration for continued population declining.

Figure 15. Wheeler County—Total Forecast Population by Five-year Intervals (2016-2066)

	2016	2020	2025	2030	2035	2040	2045	2050	2055	2060	2066
Population	1,447	1,438	1,414	1,383	1,349	1,313	1,276	1,238	1,201	1,165	1,124
AAGR	0.1%	-0.2%	-0.3%	-0.4%	-0.5%	-0.5%	-0.6%	-0.6%	-0.6%	-0.6%	-0.6%

Source: Forecast by Population Research Center (PRC)
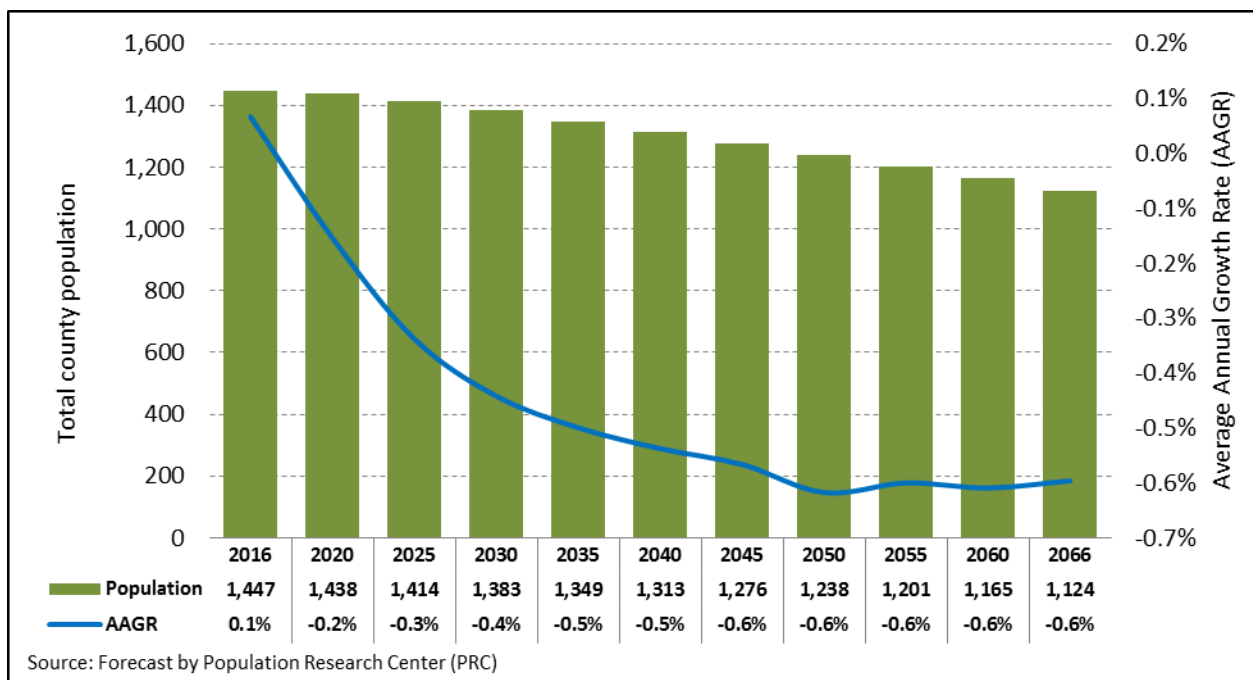
Wheeler County's all UGBs—Fossil, Mitchell, and Spray—are forecast to experience a combined population decline of more than 50 persons from 2016 to 2035 and nearly 120 from 2035 to 2066 (Figure 16). Within the three UGBS, Fossil decreased the most, with nearly 30 persons for the first 19 years and nearly 70 persons for the last 31 years.

Population outside UGBs is expected to decline by more than 40 people from 2016 to 2035, or a rate of -0.3% annually, and is expected to further decline during the second half of the forecast period, with more than 100 people from 2035 to 2066, or -0.6% annually. However, the population of the area outside UGBs, together with Fossil UGB, are forecast to slightly increase as a share of total countywide population over the forecast period.

Figure 16. Wheeler County and Larger Sub-Areas—Forecast Population and AAGR

	2016	2035	2066	AAGR (2016-2035)	AAGR (2035-2066)	Share of County 2016	Share of County 2035	Share of County 2066
Wheeler County	*1,447*	*1,349*	*1,124*	*-0.4%*	*-0.6%*	*100.0%*	*100.0%*	*100.0%*
Fossil	473	444	373	-0.3%	-0.6%	32.7%	32.9%	33.2%
Mitchell	128	115	93	-0.6%	-0.7%	8.8%	8.5%	8.2%
Spray	167	154	128	-0.4%	-0.6%	11.5%	11.4%	11.4%
Outside UGBs	679	636	530	-0.3%	-0.6%	47.0%	47.1%	47.2%

Source: Forecast by Population Research Center (PRC)

Note 1: For simplicity each UGB is referred to by its primary city's name.

Note 2: Smaller UGBs are those with populations less than 7,000 in forecast launch year.

Forecast Trends in Components of Population Change

As previously discussed, a key factor in increasing deaths is an aging population. From 2016 to 2035, the proportion of county population 65 or older is forecast to grow from roughly 32 percent to about 38 percent; but this proportion is expected to decrease from 2035 to 2066 (Figure 17). For a more detailed look at the age structure of Wheeler County's population see the forecast table published to the forecast program website (http://www.pdx.edu/prc/opfp).

Figure 17. Wheeler County—Age Structure of the Population (2016, 2035, and 2066)

Source: Forecast by Population Research Center (PRC)
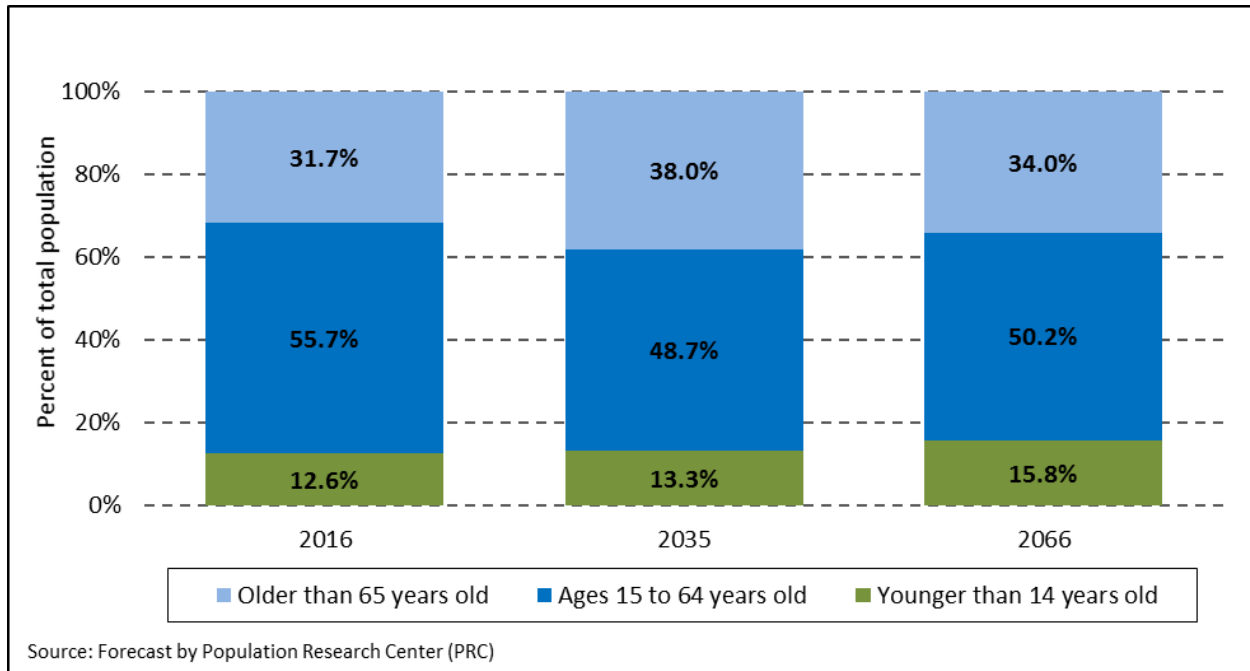
As the countywide population ages in the near-term—contributing to a slow-growing population of women in their years of peak fertility—and more women choose to have fewer children and have them at an older age, the increase in average annual births is expected to slow; this combined with the rise in number of deaths is expected to cause a natural decrease (Figure 18).

Net in-migration is forecast to increase gradually in the near-term and then decline a little over the remainder of the forecast period. The majority of these net in-migrants are expected to be middle-aged individuals and children under the age of 14.

In summary, a slight increase in the magnitude of natural decrease and steady net in-migration are expected to lead to a population decrease through the whole forecast period (Figure 18). An aging population is expected to not only lead to an increase in deaths, but a smaller proportion of women in their childbearing years will likely result in a long-term decline in births. Net migration is expected to remain relatively steady throughout the forecast period, and therefore will not offset the growth in the natural decrease.

Figure 18. Wheeler County—Components of Population Change, 2016-2066

	2016	2020	2025	2030	2035	2040	2045	2050	2055	2060	2066
Nat. Inc.	-55	-47	-75	-85	-85	-87	-87	-81	-73	-69	-84
Net Mig.	102	38	51	54	51	51	51	43	36	29	45

Period Ending Year

Source: Forcast by Population Research Center (PRC)
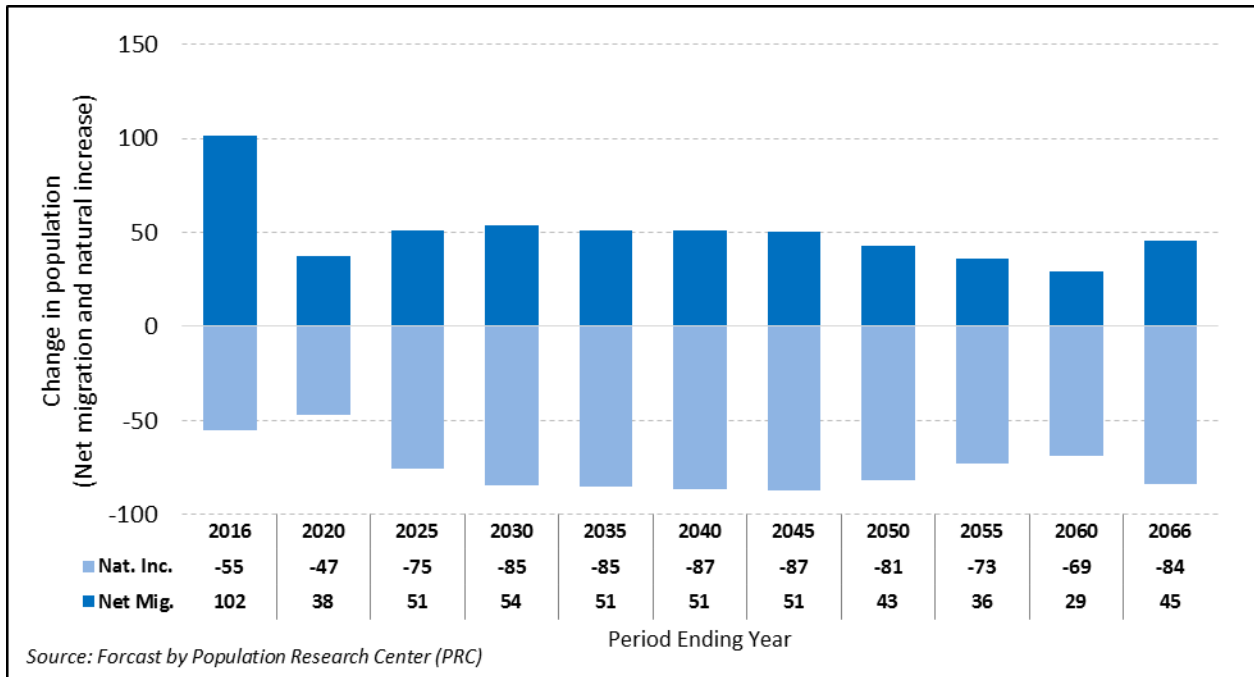
Glossary of Key Terms

Cohort-Component Method: A method used to forecast future populations based on changes in births, deaths, and migration over time; this method models the population in age cohorts, which are survived into progressively older age groups over time and are subject to age-specific mortality, fertility and net migration rates to account for population change.

Coordinated population forecast: A population forecast prepared for the county along with population forecasts for its city urban growth boundary (UGB) areas and non-UGB area.

Housing unit: A house, apartment, mobile home or trailer, group of rooms, or single room that is occupied or is intended for residency.

Housing-Unit Method: A method used to forecast future populations based on changes in housing unit counts, vacancy rates, the average numbers of persons per household (PPH), and group quarters population counts.

Occupancy rate: The proportion of total housing units that is occupied by individuals or groups of persons.

Persons per household (PPH): The average household size (i.e. the average number of persons per occupied housing unit for a particular geographic area).

Replacement Level Fertility: The average number of children each woman needs to bear in order to replace the population (to replace each male and female) under current mortality conditions. This is commonly estimated to be 2.1 children per woman in the U.S.

Appendix A: Surveys and Supporting Information

Supporting information is based on planning documents and reports, and from submissions to PRC from city officials and staff, and other stakeholders. The information pertains to characteristics of each city area, and to changes thought to occur in the future. The cities of Fossil, Mitchell, and Spray did not submit survey responses.

Fossil—Wheeler County—NO SURVEY RESPONSE						
Observations about Population Composition (e.g. about children, the elderly, racial ethnic groups)	Observations about Housing (including vacancy rates)	Planned Housing Development/Est. Year Completion	Future Group Quarters Facilities	Future Employers	Infrastructure	Promotions (Promos) and Hindrances (Hinders) to Population and Housing Growth; Other notes
						Promos: Hinders:

Fossil—Wheeler County—NO SURVEY RESPONSE	
Highlights or summary of influences on or anticipation of population and housing growth from planning documents and studies	
Other information (e.g. planning documents, email correspondence, housing development survey)	

Mitchell—Wheeler County—NO SURVEY RESPONSE						
Observations about Population Composition (e.g. about children, the elderly, racial ethnic groups)	**Observations about Housing (including vacancy rates)**	**Planned Housing Development/Est. Year Completion**	**Future Group Quarters Facilities**	**Future Employers**	**Infrastructure**	**Promotions (Promos) and Hindrances (Hinders) to Population and Housing Growth; Other notes**
						Promos: **Hinders:**
Highlights or summary of influences on or anticipation of population and housing growth from planning documents and studies						

Mitchell—Wheeler County—NO SURVEY RESPONSE	
Other information (e.g. planning documents, email correspondence, housing development survey)	

Spray—Wheeler County—NO SURVEY RESPONSE

Observations about Population Composition (e.g. about children, the elderly, racial ethnic groups)	Observations about Housing (including vacancy rates)	Planned Housing Development/Est. Year Completion	Future Group Quarters Facilities	Future Employers	Infrastructure	Promotions (Promos) and Hindrances (Hinders) to Population and Housing Growth; Other notes
						Promos: Hinders:
Highlights or summary of influences on or anticipation of population and housing growth from planning documents and						

Spray—Wheeler County—NO SURVEY RESPONSE	
studies	
Other information (e.g. planning documents, email correspondence, housing development survey)	

Appendix B: Specific Assumptions

Fossil

The 5-year average annual housing unit growth rate is assumed to gradually decrease, a trend that is similar to the historical trend after 2000. The overall 50-year annual average housing unit growth rate is close to zero percent. The occupancy rate is assumed to be steady at 84.5 percent throughout the 50-year horizon, which is close to Census 2010. PPH is assumed to be steady at 2.04 over the forecast period, the same as Census 2010 level. The group quarters population is also assumed to stay the same as Census 2010.

Mitchell

The 5-year average annual housing unit growth rate is assumed to marginally decline. The overall 50-year annual average is close to zero percent, which is higher than Census 2010. The occupancy rate is assumed to gradually decrease, and averages 67.4 percent, which is at the Census 2010 level, throughout the 50-year horizon. PPH is assumed to be steady at 2.22 over the forecast period, and is the average of the PPH in Census 2000 and 2010. The group quarters population is assumed to stay the same as the Census 2010 level.

Spray

The 5-year average annual housing unit growth rate is assumed to gradually decline, a trend similar to that which occurred after 2000. The overall 50-year annual average is close to zero percent. The occupancy rate is assumed to slightly decrease throughout the 50-year horizon, similar to the trend during the 2000s. PPH is assumed to be steady over the forecast period at the Census 2010 level, which is 2.22. The group quarters population is assumed to be the same as in Census 2010.

Outside UGBs

The 5-year average annual housing unit growth rate is assumed to gradually decline, similar to the trend during the 2000s. The overall 50-year annual average is close to zero percent. The occupancy rate and PPH are assumed to be fairly stable and remain at Census 2010 levels. The occupancy rate is 67 percent throughout the 50-year horizon, and PPH is assumed to be 2.28 over the forecast period. The group quarters population is also assumed to stay the same as in Census 2010.

Appendix C: Detailed Population Forecast Results

Figure 19. Wheeler County - Population by Five-Year Age Group

Population Forecasts by Age Group / Year	2016	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2066
00-04	62	59	51	48	51	53	54	53	52	49	48	48
05-09	64	76	73	63	59	65	66	66	65	63	61	61
10-14	56	66	83	80	69	66	71	72	71	70	68	68
15-19	82	59	73	92	89	78	73	78	78	77	77	77
20-24	50	51	34	43	55	54	46	43	45	45	45	45
25-29	36	38	40	27	34	44	42	36	33	35	35	36
30-34	75	44	51	53	36	46	58	56	47	43	46	46
35-39	72	98	50	58	61	42	53	67	63	53	49	50
40-44	59	63	93	47	56	59	40	50	62	59	50	49
45-49	65	62	68	100	52	62	65	43	53	67	64	62
50-54	96	70	67	73	110	57	68	70	47	57	73	73
55-59	121	115	79	75	84	126	65	75	78	52	65	68
60-64	149	127	121	84	80	91	133	68	79	82	55	58
65-69	125	157	131	126	88	85	95	139	71	82	86	80
70-74	126	108	147	123	119	85	81	90	130	66	78	79
75-79	104	121	103	140	119	116	82	76	86	121	63	65
80-84	69	78	96	82	113	97	93	65	60	68	95	84
85+	36	44	56	69	74	89	92	92	83	75	72	74
Total	**1,447**	**1,438**	**1,414**	**1,383**	**1,349**	**1,313**	**1,276**	**1,238**	**1,201**	**1,165**	**1,130**	**1,124**

Population Forecasts prepared by: Population Research Center, Portland State University, June 30, 2016.

Figure 20. Wheeler County's Sub-Areas - Total Population

Area/Year	2016	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2066
Wheeler County	1,447	1,438	1,414	1,383	1,349	1,313	1,276	1,238	1,201	1,165	1,130	1,124
Fossil UGB	473	471	464	454	444	433	421	409	397	386	375	373
Mitchell UGB	128	126	122	118	115	111	107	103	100	96	93	93
Spray UGB	167	165	162	158	154	150	146	141	137	133	129	128
Outside UGB Area	679	676	665	651	636	619	602	584	567	550	533	530

Population Forecasts prepared by: Population Research Center, Portland State University, June 30, 2016.