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Coordinated Population Forecast for Benton County, its Urban Growth Boundaries (UGB), and Area Outside UGBs 2017-2067

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Coordinated Population Forecast

2017

Through

2067

Benton County

Urban Growth Boundaries (UGB) & Area Outside UGBs

Population Research Center
PORTLAND STATE UNIVERSITY

Coordinated Population Forecast for Benton County, its Urban Growth Boundaries (UGB), and Area Outside UGBs 2017-2067

Prepared by

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June 30, 2017

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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 forecast methods employed. This document also describes the 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 (2017-2067).

Table of Contents

Table of Figures

Executive Summary

Historical

Different parts of the county experience different growth patterns. Local trends within UGBs and the area outside them collectively influence population growth rates for the county as a whole.

Benton County's total population has grown slowly since 2000, with an average annual growth rate of less than one percent between 2000 and 2010 (**Figure 1**); however, some of its sub-areas experienced more rapid population growth during the 2000s. The Benton County portion of Albany and Adair Village posted the highest average annual growth rates at 2.4 and 4.7 percent, respectively, during the 2000 to 2010 period while all other sub-areas experienced average annual growth rates at or below that of the county as a whole.

Benton County's positive population growth in the 2000s was largely the result of substantial net in-migration. An 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. A larger number of births relative to deaths caused natural increase (more births than deaths) in every year from 2000 to 2015. While natural increase outweighed net in-migration during the early and late years of the last decade, in more recent years (2012-15) net in-migration has increased, far outpacing births (Figure 12).

Forecast

Total population in Benton County as a whole as well as within its sub-areas will likely grow at a faster pace in the near-term (2017 to 2035) compared to the long-term (**Figure 1**). The tapering of growth rates is largely driven by an aging population—a demographic trend which is expected to contribute to natural decrease (more deaths than births). As natural decrease occurs, population growth will become increasingly reliant on net in-migration.

Even so, Benton County's total population is forecast to increase by nearly 18,000 over the next 18 years (2017-2035) and by more than 33,000 over the entire 50 year forecast period (2017-2067). Sub-areas that showed strong population growth during the 2000s are expected to continue experiencing relatively strong growth rates during the forecast period.

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

	Historical			Forecast				
			AAGR				AAGR	AAGR
	2000	2010	(2000-2010)	2017	2035	2067	(2017-2035)	(2035-2067)
Benton County	*78,153*	*85,579*	*0.9%*	*92,287*	*110,274*	*125,570*	*1.0%*	*0.4%*
Adair Village UGB	554	874	4.7%	928	2,026	2,255	4.4%	0.3%
Albany UGB (Benton)	5,104	6,463	2.4%	7,586	10,254	14,305	1.7%	1.0%
Corvallis UGB	52,107	57,020	0.9%	61,449	73,164	84,495	1.0%	0.5%
Monroe UGB	611	631	0.3%	637	668	705	0.3%	0.2%
Philomath UGB	4,609	5,003	0.8%	5,169	7,222	8,546	1.9%	0.5%
Outside UGBs	15,168	15,588	0.3%	16,517	16,940	15,265	0.1%	-0.3%

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 Benton County. Each of Benton County's sub-areas were examined for any significant demographic characteristics or changes in population or housing growth that might influence their individual forecasts. Factors analyzed include age composition of the population, race and ethnicity, births, deaths, migration, the number of housing units, 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, population growth rates for the county are collectively influenced by local trends within its sub-areas.

Population

Benton County's total population grew from roughly 62,500 in 1975 to about 90,000 in 2015 (Figure 2). During this 40-year period, the county experienced the highest growth rates during the late 1970s, which coincided with a period of relative economic prosperity. During the early 1980s challenging economic conditions, both nationally and within the county, led to negative population growth rates. During the early 1990s population growth rates again increased but challenging economic conditions late in the decade again yielded declines. Benton County experienced positive population growth between 2000 and 2015—averaging a little less than one percent per year.

Figure 2. Benton County—Total Population by Five-year Intervals (1975-2015)

	1975	1980	1985	1990	1995	2000	2005	2010	2015
Population	62,508	68,493	67,279	70,811	76,270	78,153	82,071	85,579	90,005
AAGR	3.1%	1.8%	-0.4%	1.0%	1.5%	0.5%	1.0%	0.8%	1.0%

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.
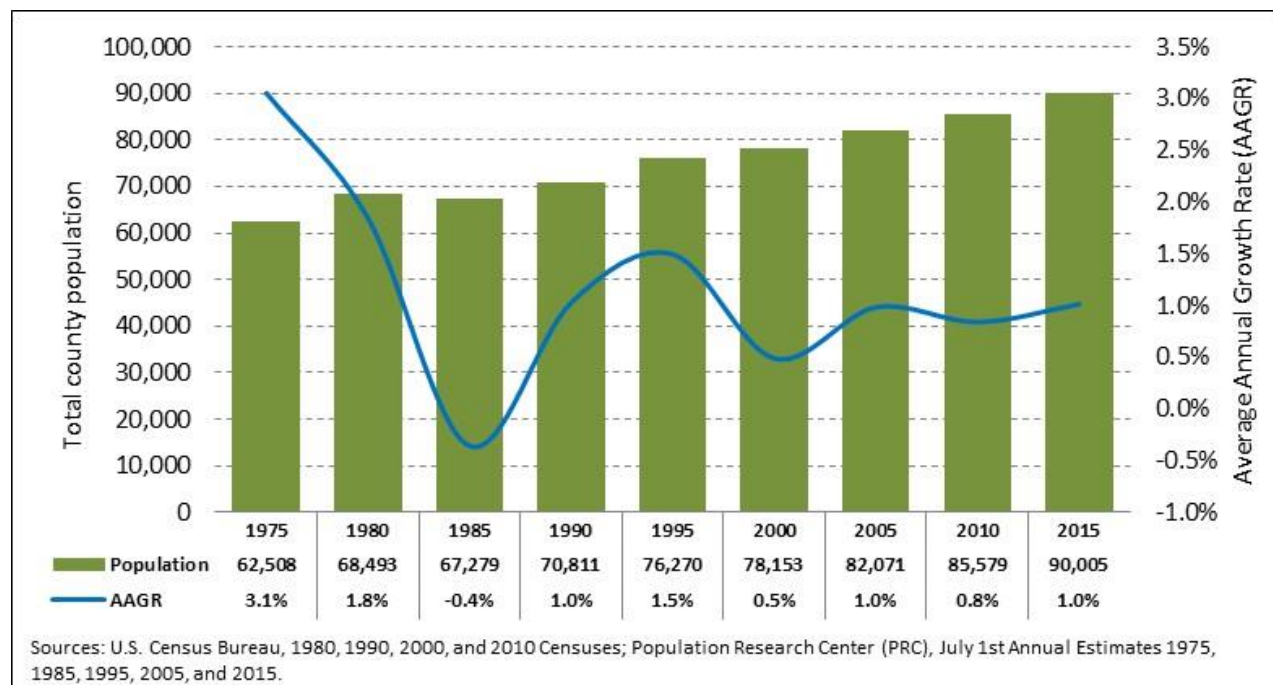
During the 2000s, Benton County's average annual population growth rate stood at 0.9 percent (**Figure 3**). At the same time, the Benton County portion of Albany and Adair Village recorded average annual growth rates of 2.4 and 4.7 percent, respectively. All other sub-areas experienced positive growth, including the county's largest UGB, Corvallis. Both Monroe and the area outside UGBs experienced the lowest average annual growth rates in the county, at 0.3 percent.

Figure 3. Benton County and Sub-areas—Total Population and Average Annual Growth Rate (AAGR) (2000 and 2010)[1]

	2000	2010	AAGR (2000-2010)	Share of County 2000	Share of County 2010
Benton County	*78,153*	*85,579*	*0.9%*	*100.0%*	*100.0%*
Adair Village UGB	554	874	4.7%	0.7%	1.0%
Albany UGB (Benton)	5,104	6,463	2.4%	6.5%	7.6%
Corvallis UGB	52,107	57,020	0.9%	66.7%	66.6%
Monroe UGB	611	631	0.3%	0.8%	0.7%
Philomath UGB	4,609	5,003	0.8%	5.9%	5.8%
Outside UGBs	15,168	15,588	0.3%	19.4%	18.2%

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

Age Structure of the Population

Benton County's population is aging but at a much slower 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. Indeed, between 2000 and 2010, births decreased while the proportion of the county population 65 or older increased in Benton County (Figure 4). However, the median age in Benton County increased just slightly, from 31.1 in 2000 to 32.1 in 2010, an increase half of what is observed statewide - and in many cases a quarter of that seen in many counties in the region during the same time period.[2]

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

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

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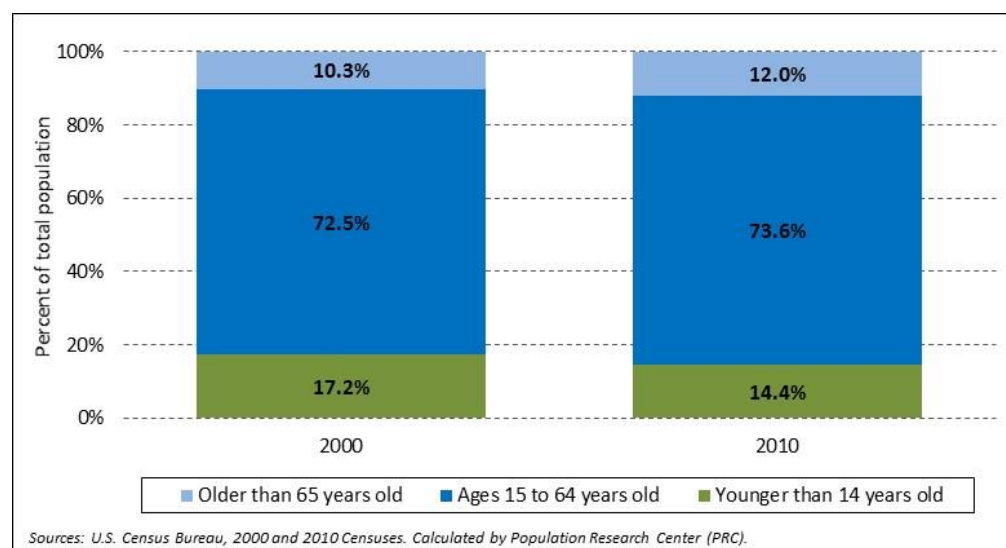
[1] When considering growth rates and population growth overall, it should be noted that a slowing of growth rates does not necessarily correspond to a slowing of population growth in absolute numbers. For example, if a UGB with a population of 100 grows by another 100 people, it has doubled in population. If it then grows by another 100 people during the next year, its relative growth is half of what it was before even though absolute growth stays the same.

[2] Median age is sourced from the U.S. Census Bureau's 2000 and 2010 Censuses.

Race and Ethnicity

While the statewide population is aging, another demographic shift is occurring across Oregon: minority populations are growing as a share of total population. A growing minority population affects both the number of births and average household size. The Hispanic population within Benton County increased modestly from 2000 to 2010 (**Figure 5**), while the White, non-Hispanic population grew at a slower rate over the same time period. This increase in the Hispanic population and other minority populations brings with it several implications for future population change. First, both nationally and at the state level, fertility rates among Hispanic and minority women tend to be higher than among White, non-Hispanic women. However, it is important to note recent trends show these rates are quickly decreasing. Second, Hispanic and minority households tend to be larger relative to White, non-Hispanic households.

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

Hispanic or Latino and Race	2000		2010		Absolute Change	Relative Change
Total population	*78,153*	*100.0%*	*85,579*	*100.0%*	*7,426*	*9.5%*
Hispanic or Latino	3,645	4.7%	5,467	6.4%	1,822	50.0%
Not Hispanic or Latino	74,508	95.3%	80,112	93.6%	5,604	7.5%
White alone	67,816	86.8%	71,552	83.6%	3,736	5.5%
Black or African American alone	637	0.8%	715	0.8%	78	12.2%
American Indian and Alaska Native alone	556	0.7%	493	0.6%	-63	-11.3%
Asian alone	3,493	4.5%	4,404	5.1%	911	26.1%
Native Hawaiian and Other Pacific Islander alone	175	0.2%	199	0.2%	24	13.7%
Some Other Race alone	173	0.2%	156	0.2%	-17	-9.8%
Two or More Races	1,658	2.1%	2,593	3.0%	935	56.4%

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

Births

Historical fertility rates for Benton County do not mirror statewide trends in Oregon as a whole. Total fertility rates increased slightly in Benton County from 2000 to 2010, while they decreased for the state over the same time period (**Figure 6**). At the same time fertility for women over 30 increased in both Benton County and Oregon (**Figure 7** and **Figure 8**). As **Figure 7** demonstrates, total fertility for Benton County was lower in 2010 compared to 2000 because women are having children at older ages. While changes in Benton County's total fertility rate run counter to statewide trends, age specific fertility in the county is similar that of Oregon as a whole, and total fertility in both the county and the state remain below replacement fertility.

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

	2000	2010
Benton County	1.32	1.35
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. Benton 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).
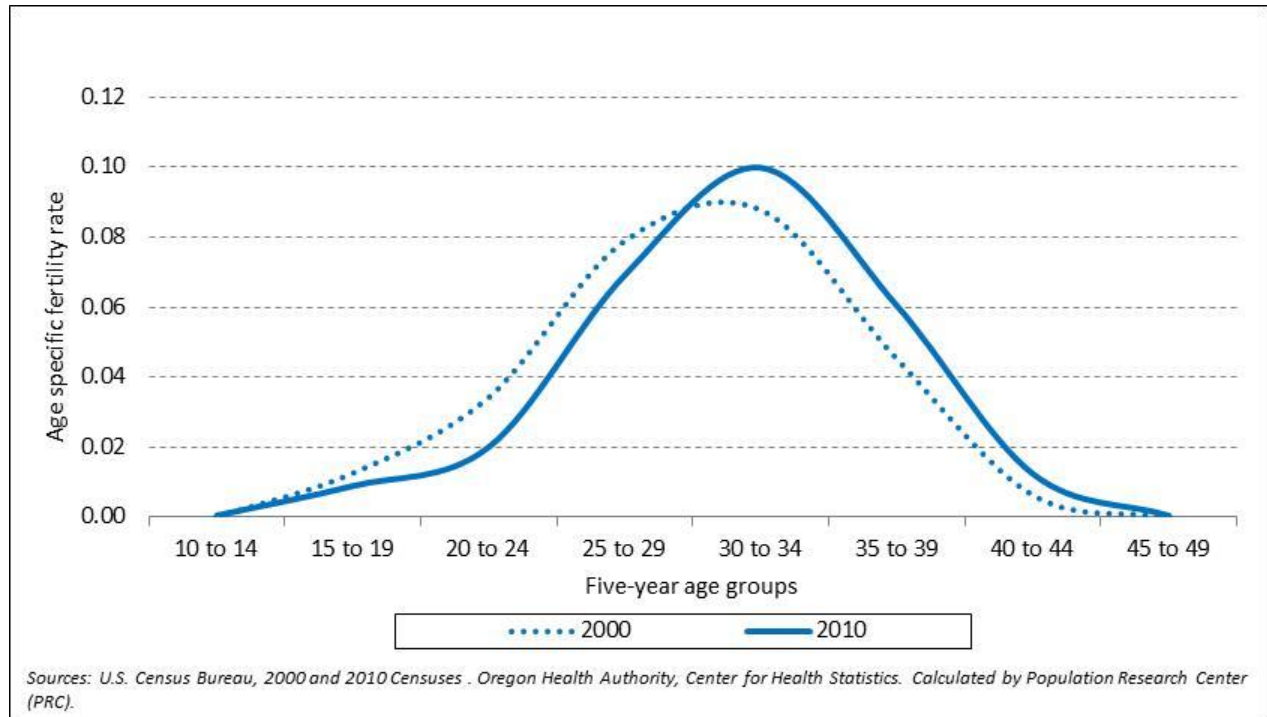
Figure 8. Oregon—Age Specific Fertility Rate (2000 and 2010)

Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).
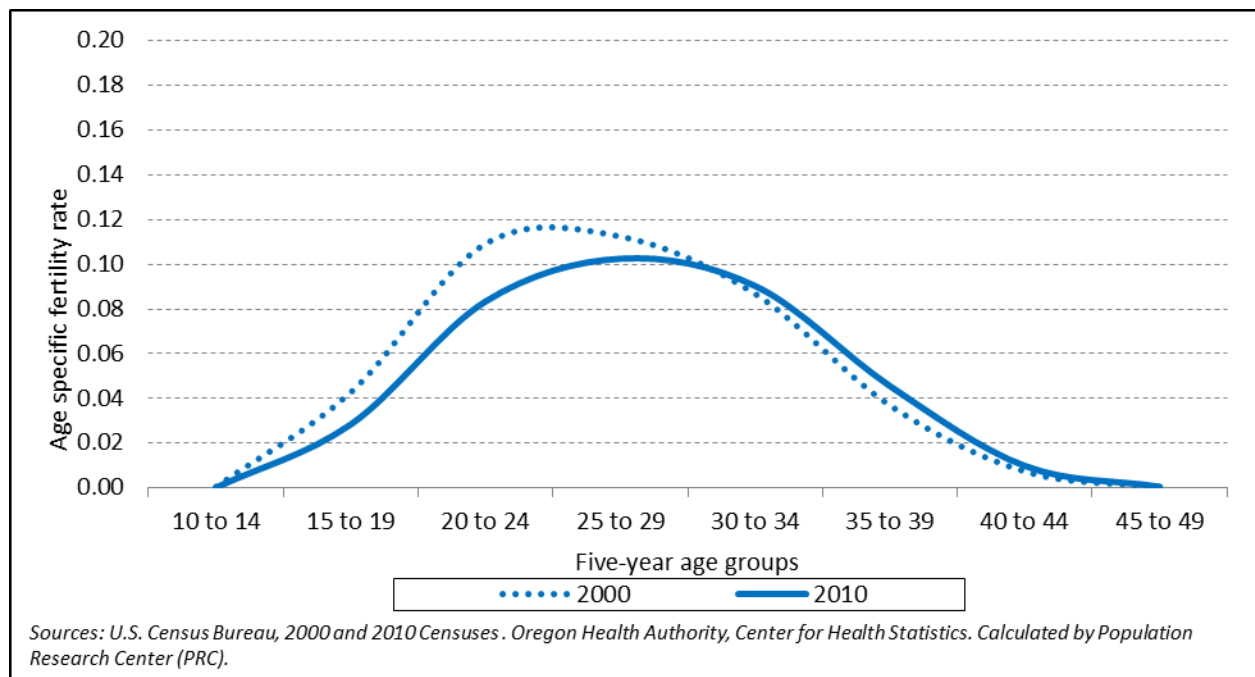
Figure 9 shows the number of births by the area in which the mother resides. Note that the number of births fluctuates from year to year. For example, a sub-area with an increase in births between two years may show a decrease during a different time period. For the 10-year period from 2000 to 2010, only the smaller UGBs saw a collective – though minimal -- increase in births, while all other sub-areas, as well as Benton County as a whole, saw a decrease (**Figure 9**).

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

	2000	2010	Absolute Change	Relative Change	Share of County 2000	Share of County 2010
Benton County	*797*	*751*	*-46*	*-5.8%*	*100.0%*	*100.0%*
Albany (Benton)	76	53	-23	-30.3%	9.5%	7.1%
Corvallis	492	490	-2	-0.4%	61.7%	65.2%
Outside UGBs	124	102	-22	-17.7%	15.6%	13.6%
Smaller UGBs	105	106	1	1.0%	13.2%	14.1%

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

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

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

Deaths

Though Benton County's population is aging, life expectancy increased during the 2000s.[3] For Benton County in 2000, life expectancy for males was 79.2 years and for females was 83.8 years. By 2010, life

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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.*

expectancy had increased slightly for males to 80.5 years but had remained nearly the same for females. For both Benton County and Oregon the survival rates changed little between 2000 and 2010, underscoring the fact that mortality is the most stable component, relative to birth and migration rates, of population change. Even so, the total number of countywide deaths increased as the population both increased and aged (**Figure 10**).

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

	2000	2010	Absolute Change	Relative Change	Share of County 2000	Share of County 2010
Benton County	*436*	*530*	*94*	*21.6%*	*100.0%*	*100.0%*
Albany (Benton)	23	41	18	78.3%	5.3%	7.7%
Corvallis	284	339	55	19.4%	65.1%	64.0%
Outside UGBs	121	101	-20	-16.5%	27.8%	19.1%
Smaller UGBs	8	49	41	512.5%	1.8%	9.2%

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

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

Note 2: All other areas includes all smaller UGBs (those with populations less than 7,000) and the area outside UGBs. Detailed, point level death data were unavailable for 2000, thus PRC was unable to assign deaths to some UGBs.

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 Benton County and for Oregon. The migration rate is shown as the number of net migrants per person by age group.

From 2000 to 2010, the county attracted a substantial number of younger individuals (ages with the highest mobility levels) in search of educational opportunities. At the same time however, a large number of post-graduates moved out seeking employment opportunities.

"Widening rural-urban disparities in life expectancy, US, 1969-2009." American Journal of Preventative Medicine 46, no. 2 (2014): e19-e29.

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

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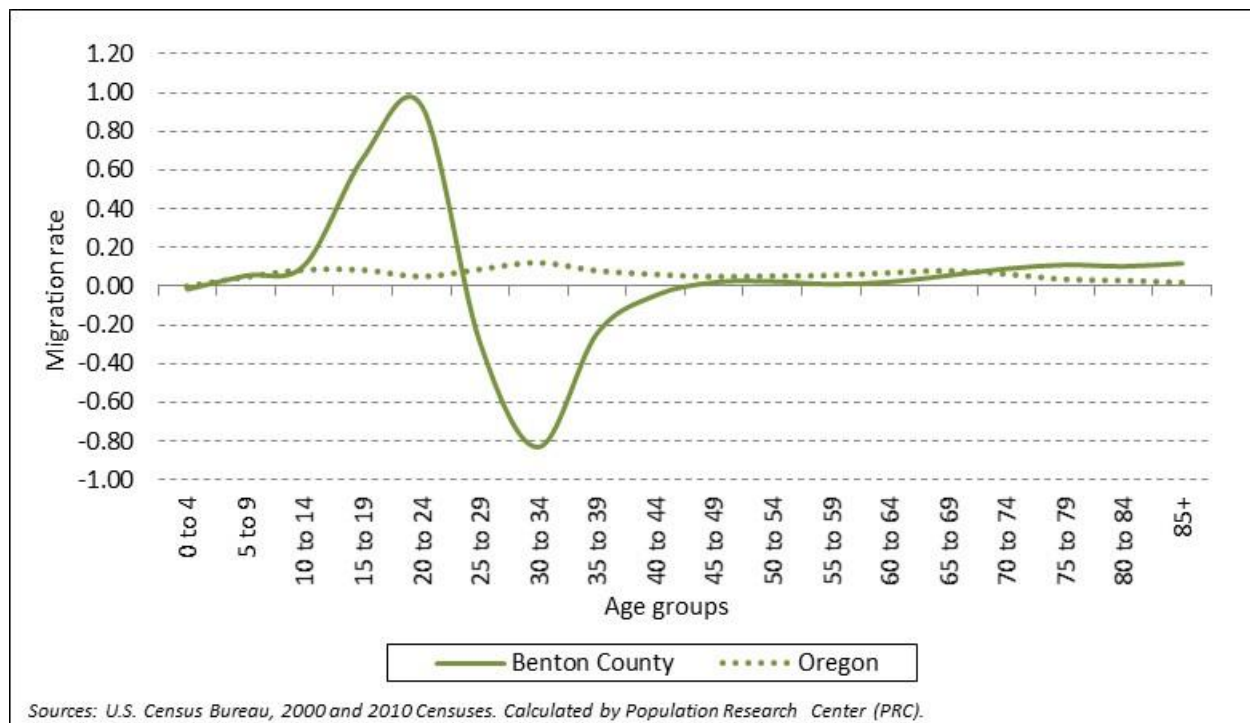
Historical Trends in Components of Population Change

In summary, Benton County's positive population growth during the 2000s was the result of steady natural increase and a mid-decade period of substantial net in-migration (**Figure 12**). The larger number of births relative to deaths led to natural increase (more births than deaths) in every year from 2000 to 2015. While net in-migration fluctuated dramatically during the early and late years of the last decade, the number of in-migrants recently (2012-15) eclipsed the in-migration observed during the pre-recession years. With this recent increase, net in-migration once again accounts for most of the population growth in the county.

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

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
■ Net in/out-mig.	-67	129	403	215	853	633	850	763	502	191	94	51	621	775	854	1,115
■ Nat. Inc./Dec.	361	314	362	250	262	317	305	277	183	279	221	209	169	165	161	150

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 Benton County increased rapidly during the middle years of this last decade (2000 to 2010), but this growth slowed with the onset of the Great Recession in 2008. Over the entire 2000 to 2010 period, the total number of housing units increased by 13.3 percent countywide; this was more than 4,200 new housing units (**Figure 13**). Corvallis captured the largest share of the growth in total housing units, with the Benton County portion of Albany also seeing a large share of countywide housing growth. In terms of relative housing growth, Adair Village had the highest growth rate; its total housing units increased nearly 66 percent (124 housing units) by 2010.

The rates of increase in the number of total housing units in the county, UGBs, and area outside UGBs are similar to the growth rates of their corresponding populations. Housing growth rates may differ from population growth rates because (1) the numbers of total housing units are smaller than the numbers of people; (2) the UGB has experienced changes in the average number of persons per household; or (3) occupancy rates have changed (typically most pronounced in coastal locations with vacation-oriented housing). However, the patterns of population and housing change in Benton County are relatively similar.

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

	2000	2010	AAGR (2000-2010)	Share of County 2000	Share of County 2010
Benton County	*31,980*	*36,245*	*1.3%*	*100.0%*	*100.0%*
Adair Village	188	312	5.2%	0.6%	0.9%
Albany (Benton)	1,881	2,553	3.1%	5.9%	7.0%
Corvallis	22,111	24,536	1.0%	69.1%	67.7%
Monroe	264	283	0.7%	0.8%	0.8%
Philomath	1,708	1,999	1.6%	5.3%	5.5%
Outside UGBs	5,828	6,562	1.2%	18.2%	18.1%

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

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

Average household size, or PPH, in Benton County was 2.3 in 2010, a small decline from 2000 (**Figure 14**). Benton 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 county's UGBs, with all of them falling between two and three persons per household. In 2010 the highest PPH was in Adair Village with 3.0 and the lowest in Corvallis at 2.2.

Occupancy rates tend to fluctuate more than PPH. This is particularly true in smaller UGBs where fewer housing units allow for larger relative changes in occupancy rates. From 2000 to 2010 the occupancy rate in Benton County increased slightly. Corvallis and Monroe, at 1.2 and 4.8 percent respectively, saw increases in occupancy rate greater than that of the county as a whole, while Philomath's increase was similar to that of the county (Figure 14). Conversely, Adair Village and the Benton County portion of Albany, as well as the area outside UGBs, experienced declines in occupancy rates.

Figure 14. Benton 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
Benton County	*2.4*	*2.3*	*-0.1*	*94.3%*	*94.7%*	*0.4%*
Adair Village	3.1	3.0	-0.1	94.7%	94.6%	-0.1%
Albany (Benton)	2.8	2.6	-0.1	96.9%	95.6%	-1.3%
Corvallis	2.3	2.2	0.0	93.9%	95.1%	1.2%
Monroe	2.7	2.5	-0.2	86.0%	90.8%	4.8%
Philomath	2.9	2.6	-0.2	94.0%	94.5%	0.5%
Outside UGBs	2.7	2.5	-0.2	95.4%	93.1%	-2.3%

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 that change serves as a gauge for what might realistically occur in a given area over the long-term. Our forecast period is 2017-2067.

Assumptions about fertility, mortality, and migration were developed for Benton County's overall population forecast and for each of its larger sub-areas.[4] The assumptions are derived from observations based on life events as well as trends unique to Benton County and its larger sub-areas. Benton County sub-areas falling into this category include Corvallis and the Benton County portion of Albany.

Population change for smaller sub-areas is determined by the change in the number 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 demographic. Benton County sub-areas falling into this category include Adair Village, Monroe, and Philomath.

Assumptions for the County and Larger Sub-Areas

During the forecast period the population in Benton County is expected to age more quickly during the first half of the forecast period and then remain relatively stable over the forecast horizon. Fertility rates are expected to slightly decline throughout the forecast period. Total fertility in Benton County is forecast to decrease from 1.3 children per woman in 2015 to 1.17 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 than fertility and migration. The county and its larger sub-areas are projected to follow the statewide trend of increasing life expectancy throughout the forecast period—progressing from a life expectancy of 82.2 years in 2010 to 89.8 in 2060. However, in spite of increasing life expectancy and the corresponding increase in survival rates, Benton 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.

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[4] County sub-areas with populations greater than 7,000 in the forecast launch year were forecast using the cohort-component method. County sub-areas with populations less than 7,000 in forecast launch year were forecast using the housing-unit method. See Glossary of Key Terms at the end of this report for a brief description of these methods or refer to the *Methods* document for a more detailed description of these forecasting techniques.

We assume rates will change in line with historical trends unique to Benton County. Net in-migration of younger persons and net out-migration of middle-aged individuals will persist throughout the forecast period. Countywide average annual net in-migration is expected to increase from 661 net in-migrants in 2015 to 878 net in-migrants in 2035. Over the last 30 years of the forecast period average annual net in-migration is expected to decline slightly at just above 700 net in-migrants by 2065. Net in-migration is expected to account for the majority of Benton County's population growth throughout the entire forecast period.

Assumptions for Smaller Sub-Areas

Rates of population growth for the smaller UGBs are determined by corresponding growth in the number 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.

Occupancy rates and PPH are assumed to stay relatively stable over the forecast period. Smaller household size is associated with an aging population in Benton County and its sub-areas.

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 (or as specified by local officials). Finally, for county sub-areas where population growth has been flat or declining, 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 for Benton County, countywide and sub-area populations are expected to increase over the forecast period. The countywide population growth rate is forecast to peak in 2020 and then slowly decline throughout the forecast period. A reduction in population growth rates is driven by both (1) an aging population—contributing to steady increase in deaths—as well as (2) 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.

Benton County's total population is forecast to grow by 33,283 persons (36 percent) from 2017 to 2067, which translates into a total countywide population of 125,570 in 2067 (Figure 15). The population is forecast to grow at the highest rate—over one percent per year—during the near-term (2017-2025). This anticipated population growth in the near-term is based on two core assumptions: (1) Benton County's economy will continue to strengthen during the next 10 years; (2) younger persons will continue migrating into the county. The largest component of growth during this initial period is net in-migration. Nearly 1,100 more births than deaths are forecast for the 2017 to 2025 period. At the same time more than 9,300 in-migrants are also forecast, combining with natural increase for continued population growth.

Figure 15. Benton County—Total Forecast Population by Five-year Intervals (2017-2067)

	2017	2020	2025	2030	2035	2040	2045	2050	2055	2060	2067
Population	92,287	95,818	101,632	106,498	110,274	113,169	115,646	118,019	120,396	122,687	125,570
AAGR	1.1%	1.3%	1.2%	0.9%	0.7%	0.5%	0.4%	0.4%	0.4%	0.4%	0.3%

Source: Forecast by Population Research Center (PRC)
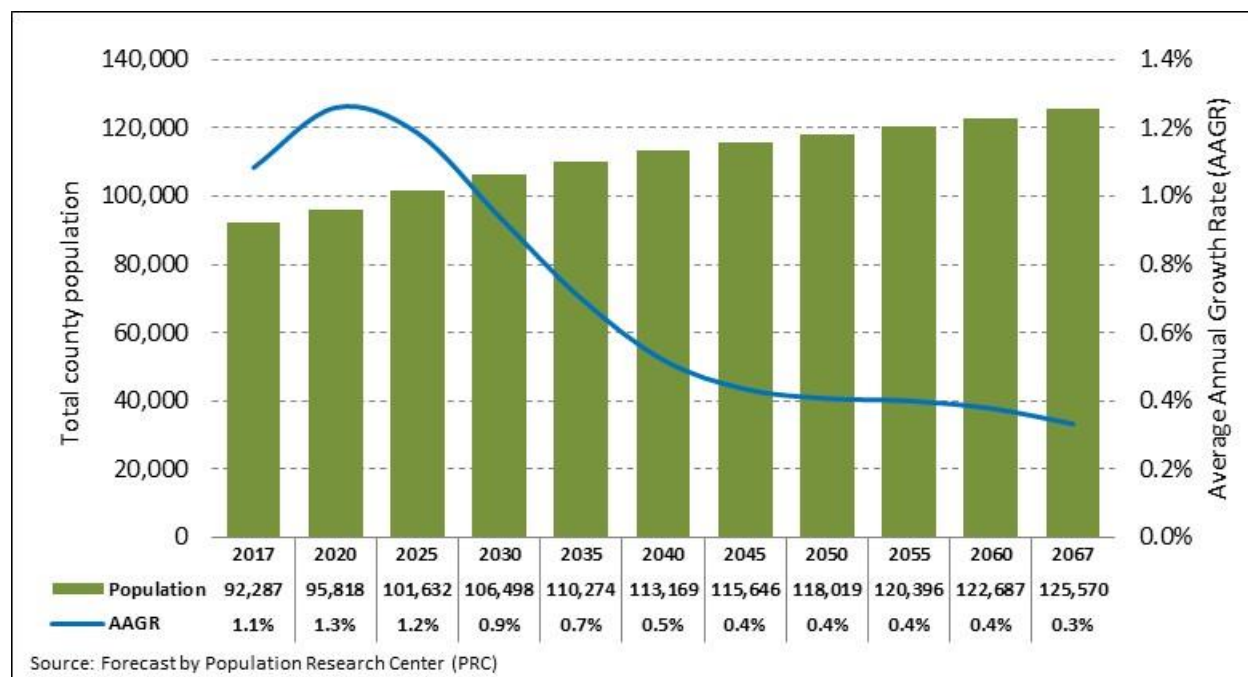
Benton County's two largest UGBs—Corvallis and the Benton County portion of Albany—are forecast to experience a combined population growth of more than 14,000 from 2017 to 2035 and over 15,300 from 2035 to 2067 (Figure 16). The Corvallis UGB is expected to increase by more than 11,700 persons from 2017 to 2035 (1.0% AAGR), growing from a total population of 61,449 in 2017 to 73,164 in 2035.

The Benton County portion of Albany's UGB is forecast to increase at a faster rate (1.7% AAGR), growing from 7,586 persons in 2017 to a population of 10,254 in 2035. Growth is expected to occur more slowly for Corvallis and the Benton County portion of Albany during the second part of the forecast period, with total populations increasing to 84,495 and 14,305, respectively, by 2067. Both Corvallis and the Benton County portion of Albany are projected to grow as shares of the total county population.

Population outside UGBs is expected to grow by roughly 400 people from 2017 to 2035 but is expected to shrink during the second half of the forecast period, declining by more than 1,600 people from 2035 to 2067. The population of the area outside UGBs is forecast to decline as a share of total countywide population over the forecast period, composing about 18 percent of the countywide population in 2017 and a little over 12 percent in 2067.

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

	2017	2035	2067	AAGR (2017-2035)	AAGR (2035-2067)	Share of County 2017	Share of County 2035	Share of County 2067
Benton County	*92,287*	*110,274*	*125,570*	*1.0%*	*0.4%*	*100.0%*	*100.0%*	*100.0%*
Albany UGB (Benton)	7,586	10,254	14,305	1.7%	1.0%	8.2%	9.3%	11.4%
Corvallis UGB	61,449	73,164	84,495	1.0%	0.5%	66.6%	66.3%	67.3%
Outside UGBs	16,517	16,940	15,265	0.1%	-0.3%	17.9%	15.4%	12.2%
Smaller UGBs	6,734	9,916	11,506	2.2%	0.5%	7.3%	9.0%	9.2%

Source: Forecast by Population Research Center (PRC)

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

Corvallis, Benton County's largest UGB, and the Benton County portion of Albany are expected to capture the largest shares of total countywide population growth during the entire forecast period (Figure 17).

Figure 17. Benton County and Larger Sub-Areas—Share of Countywide Population Growth

	2017-2035	2035-2067
Benton County	*100.0%*	*100.0%*
Albany UGB (Benton)	14.8%	19.5%
Corvallis UGB	65.1%	66.7%
Outside UGBs	2.3%	0.0%
Smaller UGBs	17.7%	13.8%

Source: Forecast by Population Research Center (PRC)

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

The smaller UGBs are expected to grow by a combined number of 3,182 persons from 2017 to 2035, with a combined average annual growth rate of 2.2 percent (Figure 16). This growth rate is due to modest growth in all smaller UGBs (**Figure 18**). Similar to the larger UGBs and Benton County as a whole, population growth rates are forecast to decline for the second half of the forecast period (2035 to 2067). The smaller UGBs are expected to collectively add 1,590 people from 2035 to 2067.

Figure 18. Benton County and Smaller Sub-Areas—Forecast Population and AAGR

	2017	2035	2067	AAGR (2017-2035)	AAGR (2035-2067)	Share of County 2017	Share of County 2035	Share of County 2067
Benton County	*92,287*	*110,274*	*125,570*	*1.0%*	*0.4%*	*100.0%*	*100.0%*	*100.0%*
Adair Village UGB	928	2,026	2,255	4.4%	0.3%	1.0%	1.8%	1.8%
Monroe UGB	637	668	705	0.3%	0.2%	0.7%	0.6%	0.6%
Philomath UGB	5,169	7,222	8,546	1.9%	0.5%	5.6%	6.5%	6.8%
Outside UGBs	16,517	16,940	15,265	0.1%	-0.3%	17.9%	15.4%	12.2%
Larger UGBs	69,035	83,418	98,800	1.1%	0.5%	74.8%	75.6%	78.7%

Source: Forecast by Population Research Center (PRC)

Note: Larger UGBs are those with populations equal to or greater than 7,000 in forecast launch year.

Benton County's smaller sub-areas are expected to compose roughly 18 percent of countywide population growth during the first 18 years of the forecast period and about 14 percent during the final 32 years (Figure 17). Adair Village and Philomath are expected to capture a decreasing share of countywide population growth between the initial 18 and final 32 years of the forecast period, while Monroe's share of growth is expected to remain stable.

Figure 19. Benton County and Smaller Sub-Areas—Share of Countywide Population Growth

	2017-2035	2035-2067
Benton County	*100.0%*	*100.0%*
Adair Village UGB	6.1%	3.8%
Monroe UGB	0.2%	0.2%
Philomath UGB	11.4%	9.8%
Outside UGBs	2.3%	0.0%
Larger UGBs	80.0%	86.2%

Source: Forecast by Population Research Center (PRC)

Note: Larger UGBs are those with populations equal to or greater 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 2017 to 2035 the proportion of the county population 65 years of age or older is forecast to grow from roughly 16 percent to nearly 21 percent, then increase further to nearly 24 percent by 2067 (Figure 20). For a more detailed look at the age structure of Benton County's population see the final forecast table published to the forecast program website (http://www.pdx.edu/prc/opfp).

Figure 20. Benton County—Age Structure of the Population (2017, 2035, and 2067)

Source: Forecast by Population Research Center (PRC)
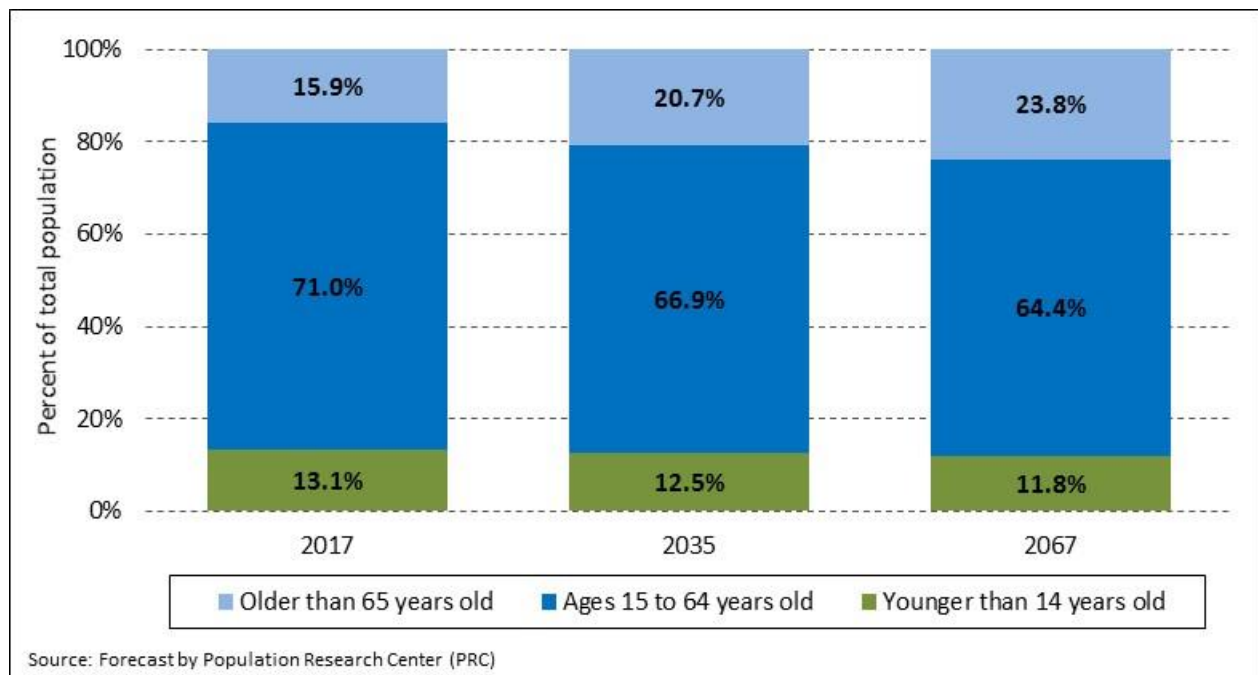
As the countywide population ages in the near-term—contributing to a slow-growing population of women in their years of peak fertility—and more women choose to have fewer children and have them at older ages, the increase in average annual births is expected to slow; this, combined with the rise in the number of deaths, is expected to cause natural increase to become natural decrease by 2035 (**Figure 21**).

Net in-migration is forecast to increase in the near-term and then remain relatively stable over the remainder of the forecast period. The majority of these net in-migrants are expected to be younger individuals.

In summary, a switch to a natural decrease from a natural increase, along with steady net in-migration, are expected to lead to population growth reaching its peak in 2020 and then slightly tapering through the remainder of the forecast period (Figure 21). An aging population is expected to not only lead to an increase in deaths but a smaller proportion of women in their childbearing years, leading to a slowdown in births. Net in-migration is expected to remain relatively steady throughout the forecast period and therefore offset the natural decrease.

Figure 21. Benton County—Components of Population Change, 2015-2065

	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065
Net In/Out Mig.	3,307	5,036	5,342	4,885	4,392	4,002	3,759	3,608	3,518	3,453	3,480
Nat. Inc./Dec.	910	776	473	-20	-616	-1,107	-1,282	-1,235	-1,141	-1,162	-1,339

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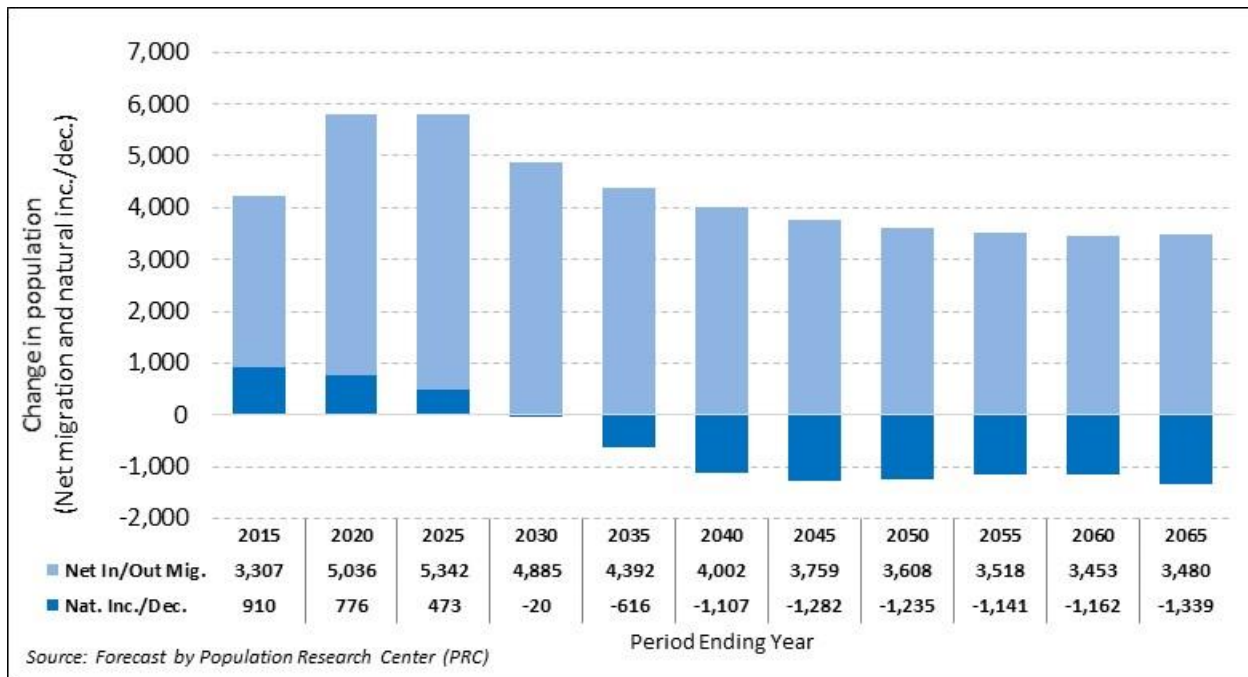
Glossary of Key Terms

Cohort-Component Method: A method used to forecast future populations based on changes in births, deaths, and migration over time.

Coordinated population forecast: A population forecast prepared for the county along with population forecasts for its 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 occupancy.

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 quarter population counts.

Occupancy rate: The proportion of total housing units that are occupied by an individual or group of persons.

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

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 in the U.S. This is commonly estimated to be 2.1 children per woman.

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 Adair Village, Albany, Monroe and Philomath did not submit survey responses.

Adair Village — Benton 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:

Adair Village — Benton County—NO SURVEY RESPONSE	
Highlights or summary from planning documents of influences on or anticipation of population and housing growth (including any plans for UGB expansion and the stage in the expansion process)	N/A
Other information (e.g. planning documents, email correspondence, housing development survey)	N/A

Albany — Benton 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 from planning documents of influences on or anticipation of population and housing growth (including any plans for UGB	N/A					

Albany — Benton County—NO SURVEY RESPONSE	
expansion and the stage in the expansion process)	
Other information (e.g. planning documents, email correspondence, housing development survey)	N/A

Corvallis — Benton County—11/1/2016

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
In 2013, about 19,000 of Corvallis' residents were undergrad, grad and professional students. Corvallis' largest ethnic and racial minority populations are Latino and Asian, each accounting for 8% of Corvallis' population.	Corvallis has a large percentage (43% in 2013) of housing stock devoted to multi-family / apartment type living (primarily associated with OSU students). 52% of Corvallis households are "non-family" (people living alone, unmarried couples, and unrelated housemates). During 2000 to	Total single family, duplex and multi-family housing stock has been steadily increasing the last 20 years. Through December 31 2014, 92 unplatted SF lots have been approved, out of the 1474 single family units that have been approved, 745 of them have already been	Benton County has long term plans to expand the County jail beyond its 40 bed limit, but time and location is unknown at this point. OSU expects about 3,550 new students by 2023, and uncertain if OSU will be developing group quarters housing on	Corvallis continues to focus its economic development efforts on small to mid-size companies, typically local start-ups stemming from Oregon RAIN / OSU Venture Accelerator, in order to diversify its economy.	Corvallis is not anticipating development of large scale utility infrastructure (water or waste water treatment facilities) in the near term. Road network will continue to expand per the City's Transportation System Plan, to support development of lands designated for residential and employment uses on the City's Comprehensive Plan.	**Promos:** **Hinders:** Limited availability of vacant residentially-designated land. Annexation, re-zone, or other measures are necessary to accommodate anticipated population growth through 2036.

	2015 period, Corvallis added 4,100 dwelling units. Nearly half of Corvallis' households are paying more than they can afford for housing. Median home sales prices have doubled in Corvallis since 2000.	developed while 729 are still vacant. 2 of these housing projects also include 56 MF planned units.	campus or elsewhere.		
Highlights or summary from planning documents of influences on or anticipation of population and housing growth (including any plans for UGB expansion and the	Recently completed (2016) Buildable Lands Inventory / Housing Needs Analysis / Economic Opportunities Analysis indicates Corvallis will have a shortage over the 2016-2036 planning period of vacant high density multi-family, commercial office and mixed use commercial lands. Conclusions from BLI are that Corvallis will need to re-designate lands, annex lands in the urban fringe, or take other measures to encourage efficient urbanization needed to support anticipated population and employment growth. Corvallis has initiated a comprehensive plan amendment process to begin to address these issues.				

stage in the expansion process)	
Other information (e.g. planning documents, email correspondence, housing development survey)	**According to PRC background research, Corvallis:** - Is growing faster than was anticipated. Some of this may be attributable to the increased enrollment at OSU. - Does not appear to have a land constraint issue. The Corvallis Land Needs Analysis completed in 1998 found that the city had sufficient land within its UGB to accommodate its twenty-year population and employment growth projections. **However**, most of that vacant land (507 acres) is designated for low density development, which could be constraining since OSU is growing rather quickly.

Monroe — Benton 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 from planning documents of influences on or anticipation of population and housing growth (including any plans for UGB	N/A					

Monroe — Benton County—NO SURVEY RESPONSE	
expansion and the stage in the expansion process)	
Other information (e.g. planning documents, email correspondence, housing development survey)	N/A

Philomath — Benton 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 from planning documents of influences on or anticipation of population and housing growth (including any plans for UGB	N/A					

Philomath — Benton County—NO SURVEY RESPONSE	
expansion and the stage in the expansion process)	
Other information (e.g. planning documents, email correspondence, housing development survey)	N/A

Appendix B: Specific Assumptions

Adair Village

The 5-year average annual housing unit growth rate is assumed to decline throughout the forecast period. The occupancy rate is assumed to be steady at 94.6 percent throughout the 50 year horizon. PPH is assumed to be stable at close to 3 over the forecast period. There is no group quarters population in Adair Village.

Albany

Total fertility rates are assumed to follow a historical trend (observed from the 2000 to 2010 period) and gradually decline over the forecast period. Survival rates are assumed to be the same as those forecast for the county as a whole; these rates are expected to gradually increase over the 50-year period. Age specific net migration rates are assumed to deviate from historical county patterns, with the sub-area experiencing a net out-migration of college-aged populations.

Corvallis

Total fertility rates are assumed to follow a historical trend (observed from the 2000 to 2010 period) and decline in the near-term, then stabilize thereafter. Survival rates are assumed to be the same as those forecast for the county as a whole; these rates are expected to gradually increase over the 50-year period. Age specific net migration rates are assumed to follow historical county patterns, but at slightly higher rates for the college-aged populations.

Monroe

The 5-year average annual housing unit growth rate is assumed to slightly decline throughout the forecast period. The occupancy rate is assumed to be steady at 90.8 percent throughout the 50 year horizon. PPH is assumed to be stable at close to 2.5 over the forecast period. There is no group quarters population in Monroe.

Philomath

The 5-year average annual housing unit growth rate is assumed to increase during the first 10 years and then decline thereafter. The occupancy rate is assumed to be steady at 94.5 percent throughout the 50 year horizon. PPH is assumed to be stable at little over 2.6 over the forecast period. Group quarters population is assumed to remain at 17.

Outside UGBs

The 5-year average annual housing unit growth rate is assumed to slightly decline over the forecast period. The occupancy rate is assumed to be steady at 94.2 percent over 50-year horizon. PPH is

assumed to be stable at 2.5 over the forecast period. Group quarters population is assumed to remain at 90.

Appendix C: Detailed Population Forecast Results

Figure 22. Benton County—Population by Five-Year Age Group

Population Forecasts by Age Group / Year	2017	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2067
00-04	3,760	3,915	4,154	4,331	4,406	4,375	4,391	4,466	4,592	4,704	4,752	4,756
05-09	3,947	3,893	4,184	4,422	4,572	4,603	4,564	4,585	4,669	4,801	4,909	4,925
10-14	4,396	4,354	4,275	4,577	4,799	4,911	4,937	4,900	4,929	5,020	5,153	5,195
15-19	8,940	9,059	8,987	8,851	9,436	9,840	10,063	10,121	10,053	10,114	10,291	10,395
20-24	14,107	14,395	14,836	14,759	14,553	15,412	16,057	16,433	16,544	16,433	16,514	16,621
25-29	6,660	6,715	7,002	7,155	6,984	6,728	7,103	7,418	7,617	7,669	7,586	7,585
30-34	5,533	5,935	5,984	6,141	6,147	5,929	5,700	6,025	6,303	6,473	6,502	6,467
35-39	4,843	5,258	5,935	5,962	6,064	6,008	5,789	5,570	5,897	6,170	6,324	6,331
40-44	4,750	5,018	5,784	6,504	6,484	6,530	6,465	6,238	6,011	6,367	6,651	6,712
45-49	4,789	4,917	5,415	6,220	6,939	6,849	6,890	6,829	6,600	6,363	6,728	6,842
50-54	5,066	4,925	5,173	5,678	6,471	7,147	7,048	7,101	7,052	6,820	6,565	6,709
55-59	5,385	5,140	4,936	5,166	5,627	6,347	7,010	6,922	6,991	6,941	6,700	6,596
60-64	5,425	5,442	5,060	4,837	5,018	5,405	6,089	6,729	6,658	6,724	6,669	6,571
65-69	4,938	5,417	5,477	5,068	4,795	4,929	5,298	5,978	6,608	6,547	6,600	6,577
70-74	3,637	4,469	5,240	5,281	4,846	4,536	4,659	5,014	5,669	6,269	6,202	6,218
75-79	2,523	3,052	4,226	4,935	4,934	4,484	4,197	4,316	4,657	5,270	5,823	5,795
80-84	1,698	1,871	2,567	3,553	4,133	4,103	3,737	3,513	3,632	3,932	4,457	4,641
85+	1,884	2,043	2,398	3,056	4,066	5,034	5,651	5,862	5,912	6,070	6,403	6,633
Total	**92,287**	**95,818**	**101,632**	**106,498**	**110,274**	**113,169**	**115,646**	**118,019**	**120,396**	**122,687**	**124,828**	**125,570**

Population Forecasts prepared by: Population Research Center, Portland State University, June 30, 2017.

Figure 23. Benton County's Sub-Areas—Total Population

Area / Year	2017	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2067
Benton County	92,287	95,818	101,632	106,498	110,274	113,169	115,646	118,019	120,396	122,687	124,828	125,570
Adair Village UGB	928	1,127	1,551	1,934	2,026	2,075	2,122	2,160	2,190	2,218	2,245	2,255
Albany UGB (Benton)	7,586	8,088	8,897	9,615	10,254	10,850	11,435	12,040	12,674	13,334	14,028	14,305
Corvallis UGB	61,449	63,857	67,485	70,572	73,164	75,227	76,963	78,622	80,342	82,130	83,882	84,495
Monroe UGB	637	643	652	660	668	675	682	688	693	698	703	705
Philomath UGB	5,169	5,388	6,354	6,848	7,222	7,493	7,726	7,919	8,109	8,299	8,488	8,546
Outside UGB Area	16,517	16,715	16,693	16,868	16,940	16,849	16,719	16,590	16,387	16,007	15,482	15,265

Population Forecasts prepared by: Population Research Center, Portland State University, June 30, 2017.