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Coordinated Population Forecast for Jefferson County, its Urban Growth Boundaries (UGB), and Area Outside UGBs 2015-2065

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Coordinated Population Forecast

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Through

2065

Jefferson County

Urban Growth Boundaries (UGB) & Area Outside UGBs

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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 (i.e., 2015-2065). These tables are also located in *Appendix C* of this report.

Table of Contents

Table of Figures

Executive Summary

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.

Jefferson County's total population has grown steadily since 2000, with average annual growth rates of a little more than one percent between 2000 and 2010 (Figure 1); however some of its sub-areas experienced more rapid population growth during the 2000s. Culver posted the highest average annual growth rate 5.4 percent during the 2000 to 2010 period.

Jefferson County's positive population growth in the 2000s was the result of steady natural increase—the difference between births and deaths—and substantial net in-migration from 2006 to 2008. Meanwhile an aging population not only led to an increase in deaths, but also resulted in a smaller proportion of women in their childbearing years and a consequent decline in births. The growing number of deaths and shrinking number of births led to declining natural increase. While net in-migration and steady natural increase contributed to population growth during the early and middle years of the last decade, both of these numbers shrank during more recent years—slowing population growth from 2010 to 2013.

Forecast

Total population in Jefferson County as a whole as well as within its sub-areas will likely grow at a slightly faster pace in the first 20 years of the forecast period (2015 to 2035) relative to the last 30 years (Figure 1). The tapering of growth rates is largely driven by an aging population—a demographic trend which is expected to lead to declining natural increase (births minus deaths). As natural increase declines population growth will become increasingly reliant on net in-migration.

Even so, Jefferson County's total population is forecast to increase by more than 5,100 over the next 20 years (2015-2035) and by nearly 11,000 over the entire 50-year forecast period (2015-2065). The Madras UGB will likely show slightly stronger population growth—relative to the 2000s—in the initial 20 year forecast period, but population growth is expected to slow during the last 30 years. Population within the Culver UGB is expected to grow at a much slower rate—relative to the 2000s—in the initial 20-year forecast period. Population growth in Culver is also expected to taper throughout the last 30 years of the forecast period. The area outside UGBs is forecast to grow at a steadier, although lower rate than the UGBs throughout the forecast period.

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

	Historical			Forecast				
	2000	2010	AAGR (2000-2010)	2015	2035	2065	AAGR (2015-2035)	AAGR (2035-2065)
Jefferson County	*19,009*	*21,720*	*1.3%*	*22,806*	*27,973*	*33,779*	1.0%	0.6%
Culver[1]	802	1,357	5.4%	1,407	2,035	2,824	1.9%	1.1%
Madras	6,475	6,987	0.8%	7,484	9,815	12,749	1.4%	0.9%
Metolius	646	731	1.2%	724	869	1,102	0.9%	0.8%
Outside of UGBs	11,086	12,645	1.3%	13,191	15,254	17,104	0.7%	0.4%

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

[1] *For simplicity each UGB is referred to by its primary city's name.*

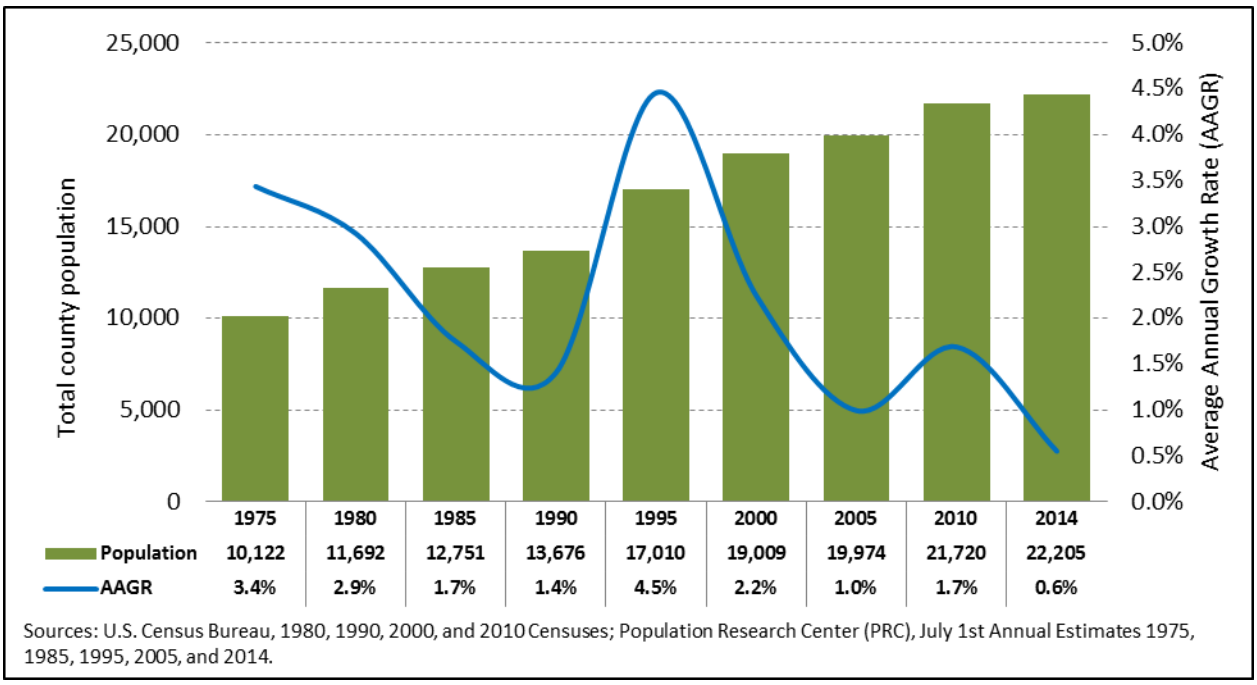
Historical Trends

Different growth patterns occur in different parts of the county. Each of Jefferson 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 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, population growth rates for the county are collectively influenced by local trends within its sub-areas.

Population

Jefferson County's total population grew by nearly 120 percent between 1975 and 2014—from roughly 10,000 in 1975 to more than 22,000 in 2014 (Figure 2). During this approximately 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 early 2000s, challenging economic conditions, both nationally and within the county, yielded a sharp decline in population growth. Since 2000, the county has experienced positive population growth—averaging just over one percent per year—although in recent years growth rates were at an all-time low.

Figure 2. Jefferson County—Total Population by Five-year Intervals (1975-2010 and 2010-2014)



Sources: U.S. Census Bureau, 1980, 1990, 2000, and 2010 Censuses; Population Research Center (PRC), July 1st Annual Estimates 1975, 1985, 1995, 2005, and 2014.

Jefferson County's population change is the sum of its parts, in the sense that countywide population change is the combined population growth or decline within each UGB and the area outside UGBs. During the 2000s, Jefferson County's average annual population growth rate stood at 1.3 percent, but the growth rate varied to a large degree in sub-areas across the county. All of the UGBs realized positive average annual growth rates, however they spanned the spectrum in terms of magnitude. For example

Culver recorded the highest average annual growth rate at more than five percent, while Madras grew by slightly less than one percent per year (Figure 3). The area outside UGBs experienced an average annual growth rate below that of the county as a whole and declined as a share of total county population between 2000 and 2010.

Figure 3. Jefferson 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
Jefferson County	*19,009*	*21,720*	*1.3%*	*100.0%*	*100.0%*
Culver[1]	802	1,357	5.4%	4.2%	6.2%
Madras	6,475	6,987	0.8%	34.1%	32.2%
Metolius	646	731	1.2%	3.4%	3.4%
Outside UGBs	11,086	12,645	1.3%	58.3%	58.2%

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

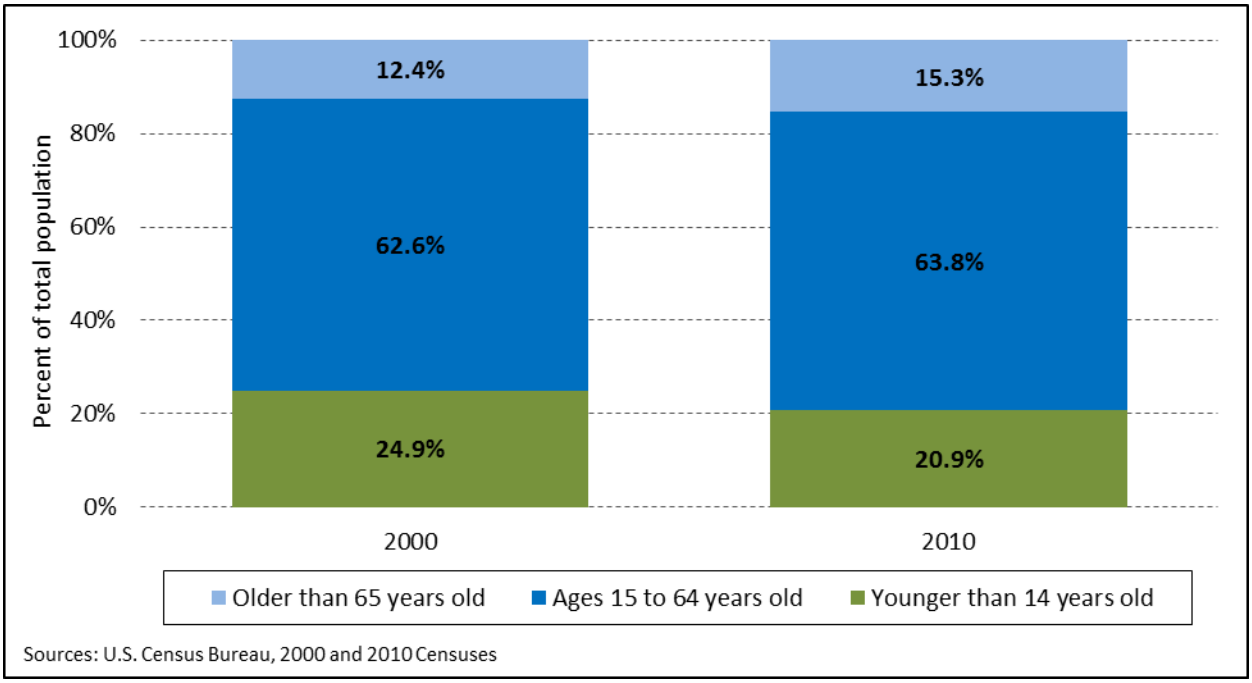
[1] For simplicity each UGB is referred to by its primary city's name.

Age Structure of the Population

Similar to most areas across Oregon, Jefferson County's population is aging. 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. This demographic trend underlies some of the population change that has occurred in recent years. From 2000 to 2010 the proportion of county population 65 or older grew from just over 12 percent to approximately 15 percent (Figure 4). Further underscoring the countywide trend in aging, the median age went from about 35 in 2000 to around 40 in 2010.[1]

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

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



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 Curry County increased substantially from 2000 to 2010 (Figure 5), while the White, non-Hispanic population increased by a smaller amount (in relative terms) 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 have tended to be higher than among White, non-Hispanic women. Second, Hispanic and minority households tend to be larger relative to White, non-Hispanic households.

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

Hispanic or Latino and Race	2000		2010		Absolute Change	Relative Change
Total population	*19,009*	*100.0%*	*21,720*	*100.0%*	*2,711*	*14.3%*
Hispanic or Latino	3,372	17.7%	4,195	19.3%	823	24.4%
Not Hispanic or Latino	15,637	82.3%	17,525	80.7%	1,888	12.1%
White alone	12,335	64.9%	13,429	61.8%	1,094	8.9%
Black or African American alone	43	0.2%	117	0.5%	74	172.1%
American Indian and Alaska Native alone	2,788	14.7%	3,360	15.5%	572	20.5%
Asian alone	54	0.3%	83	0.4%	29	53.7%
Native Hawaiian and Other Pacific Islander alone	28	0.1%	23	0.1%	-5	-17.9%
Some Other Race alone	11	0.1%	34	0.2%	23	209.1%
Two or More Races	378	2.0%	479	2.2%	101	26.7%

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

Births

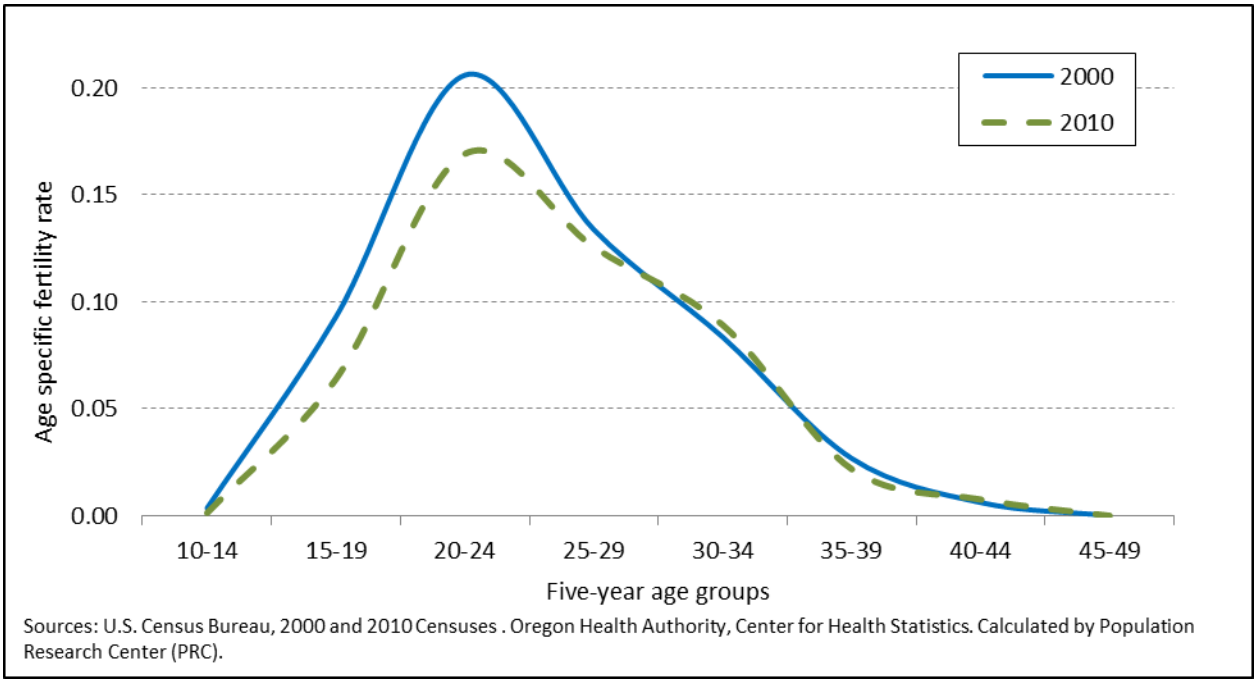
Historical fertility rates for Jefferson County mirror the decline in total fertility observed for Oregon overall (Figure 6); however fertility for younger women in Jefferson County has remained at a much higher level than for younger women statewide (Figure 7 and Figure 8). As Figure 7 demonstrates, fertility rates for younger women in Jefferson County are lower in 2010 compared to earlier decades. While the decrease in total fertility largely mirrors statewide changes, county fertility changes are distinct from those of the state in two ways. First, the decline in total fertility in Jefferson County during the 2000s was more pronounced than the statewide decline during this same period. At the same time, total fertility in the county remained above *replacement fertility*. Second, while fertility among younger women did decrease within the county, there was no substantial increase in fertility for older women.

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

	2000	2010
Jefferson County	2.76	2.39
Oregon	1.98	1.79

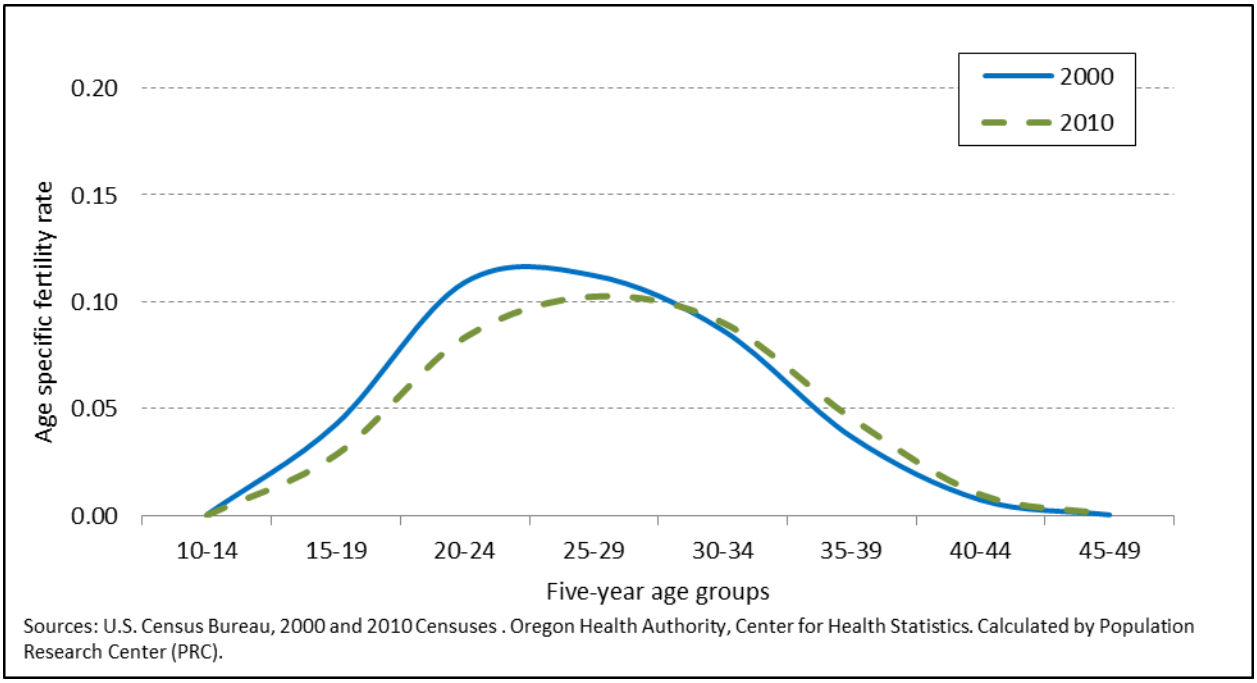
Sources: U.S. Census Bureau, 2000 and 2010 Censuses.
Oregon Health Authority, Center for Health Statistics.
Calculations by Population Research Center (PRC).

Figure 7. Jefferson 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. Please note that 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 the county as a whole as well as all of its sub-areas saw a decrease in births.

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

	2000	2010	Absolute Change	Relative Change	Share of County 2000	Share of County 2010
Jefferson County	*318*	*280*	*-38*	*-11.9%*	*100.0%*	*100.0%*
Smaller UGBs[1]	176	153	-23	-13.1%	55.3%	54.6%
Outside UGBs	142	127	-15	-10.6%	44.7%	45.4%

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

[1] Smaller UGBs are those with populations less than 8,000 in forecast launch year.

Deaths

The population in the county as a whole is aging, and contrary to the statewide trend, people aren't necessarily living longer.[2] For Jefferson County in 2000, life expectancy for males was 74 years and for females was 77 years. By 2010, life expectancy had decreased to 73 for males and was still about 77 for females. For both Jefferson 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 increased (Figure 10).

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

	2000	2010	Absolute Change	Relative Change
Jefferson County	*168*	*194*	*26*	*15.5%*

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

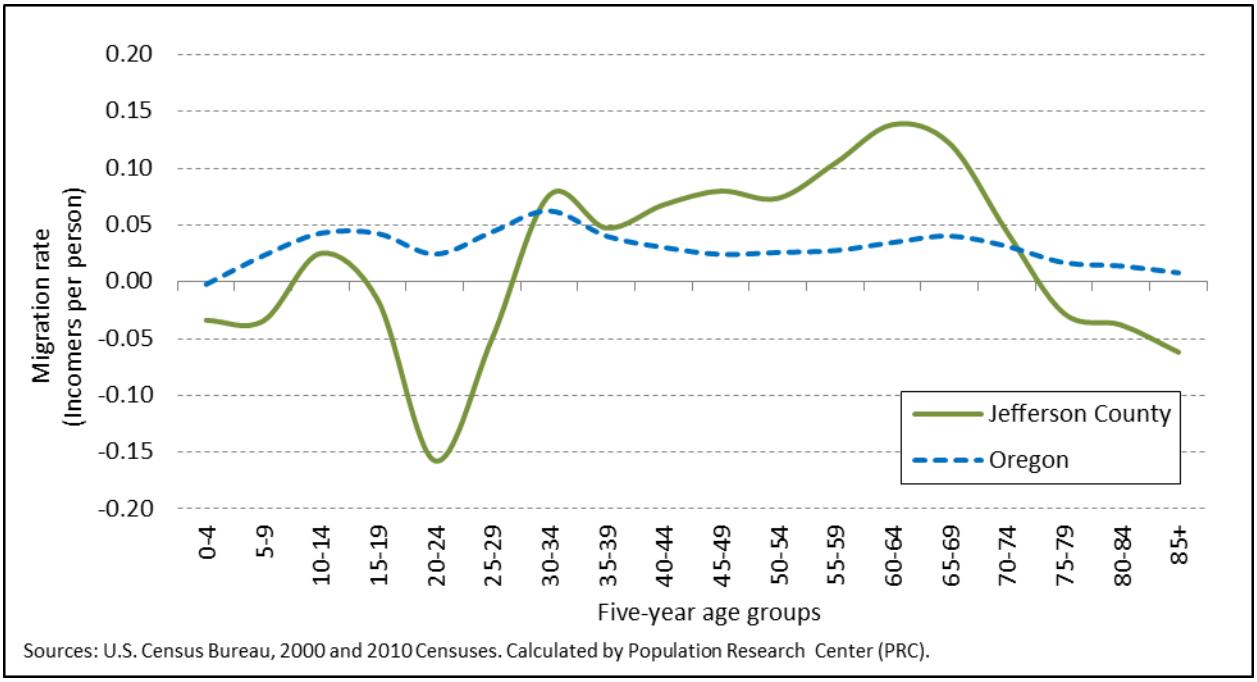
Migration

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 Jefferson County and Oregon as a whole. 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 older migrants who likely moved into the county to retire or to be closer to family members or to senior care facilities.

[2] Researchers have found evidence for a widening rural-urban gap in life expectancy. This gap is particularly apparent between race and income groups. This 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 Preventive Medicine 46, no. 2 (2014): e19-e29.*

Figure 11. Jefferson County and Oregon—Five-year Migration Rates (2000-2010)

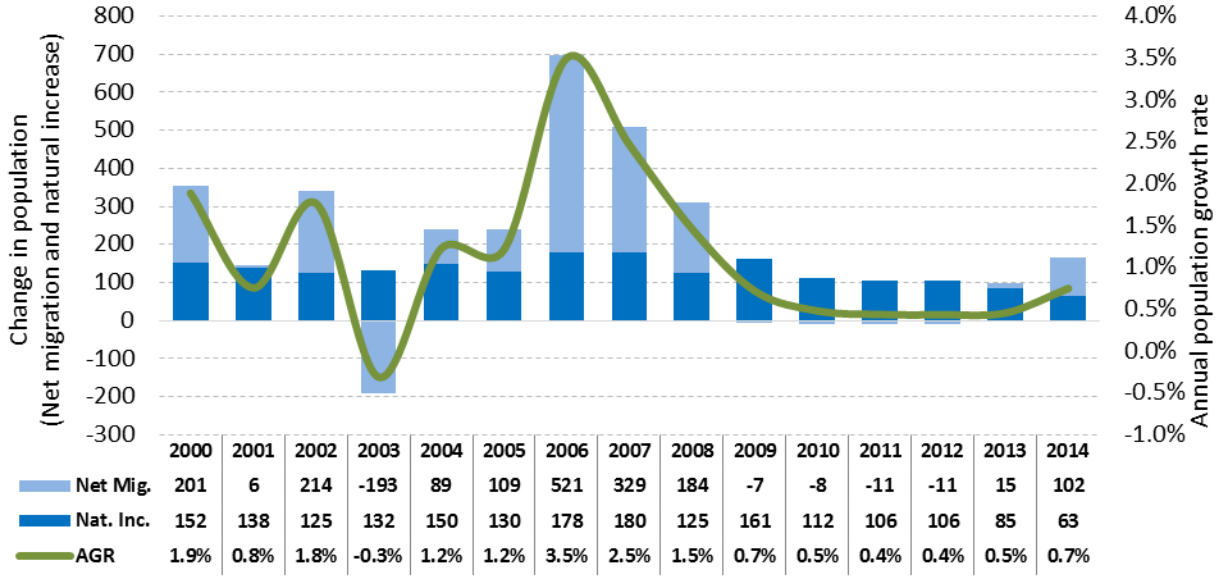


Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Calculated by Population Research Center (PRC).

Historical Trends in Components of Population Change

In summary, Jefferson County's positive population growth in the 2000s was the direct result of steady natural increase—the difference between births and deaths—and substantial net in-migration from 2006 to 2008 (Figure 20). Meanwhile 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 slower growth in births. The growing number of deaths and shrinking number of births led to declining natural increase. While net in-migration and steady natural increase contributed to population growth during the early and middle years of the last decade, both of these numbers shrank during more recent years—slowing population growth from 2010 to 2013.

Figure 12. Jefferson County—Components of Population Change (2000-2010)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Net Mig.	201	6	214	-193	89	109	521	329	184	-7	-8	-11	-11	15	102
Nat. Inc.	152	138	125	132	150	130	178	180	125	161	112	106	106	85	63
AGR	1.9%	0.8%	1.8%	-0.3%	1.2%	1.2%	3.5%	2.5%	1.5%	0.7%	0.5%	0.4%	0.4%	0.5%	0.7%

Sources: Population Research Center, July 1st Annual Estimates 2000-2014. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).

Housing and Households

The total number of housing units in Jefferson County increased rapidly 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 18 percent countywide; this equaled nearly 1,500 new housing units (Figure 13). The area outside UGBs captured the largest share of growth in total housing units, with Madras also seeing a large share of the countywide housing growth. In terms of relative housing growth, Culver grew the most during the 2000s: its total housing units increased more than 75 percent (207 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. The growth rates for housing may slightly differ than the rates for population because the number of total housing units is smaller than the number of persons, or the UGB has experienced changes in the average number of persons per household or in occupancy rates. However, the pattern of population and housing change in the county is relatively similar.

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

	2000	2010	AAGR (2000-2010)	Share of County 2000	Share of County 2010
Jefferson County	*8,319*	*9,815*	*1.7%*	*100.0%*	*100.0%*
Culver[1]	275	482	5.6%	3.3%	4.9%
Madras	2,470	2,970	1.8%	29.7%	30.3%
Metolius	224	303	3.0%	2.7%	3.1%
Outside UGBs	5,350	6,060	1.2%	64.3%	61.7%

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

[1] *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—in occupancy rates. From 2000 to 2010 the occupancy rate in Jefferson County declined slightly; this was most likely due to slack in demand for housing as individuals experienced the effects of the Great Recession. A slight drop in occupancy rates was mostly uniform across all sub-areas.

Average household size, or PPH, in Jefferson County was 2.7 in 2010, down from 2.8 in 2000 (Figure 14). Jefferson County's PPH in 2010 was slightly higher than for Oregon as a whole, which had a PPH of 2.5. PPH varied across all sub-areas, with all of them falling between two and a little more than three persons per household. In 2010 the highest PPH was in Culver with 3.1 and the lowest in Metolius and the area outside UGBs at 2.6.

Figure 14. Jefferson 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
Jefferson County	*2.8*	*2.7*	*-4.5%*	*80.9%*	*79.4%*	*-1.5%*
Culver[1]	3.2	3.1	-1.9%	92.4%	90.5%	-1.9%
Madras	2.8	2.7	-3.9%	92.6%	85.9%	-6.7%
Metolius	3.0	2.6	-12.2%	97.3%	92.7%	-4.6%
Outside UGBs	2.8	2.6	-5.0%	74.1%	74.6%	0.5%

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

[1] *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 forecast for the future will look like, and helps determine the realm of likely possibilities. Past trends explain the dynamics of population growth particular to local areas. Relating recent and historical population change to events that influenced the 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 Jefferson County's population forecast as well as the forecasts for its area outside UGBs.[3] The assumptions are derived from observations based on life course events, as well as trends unique to Jefferson County and the area outside UGBs. Population change in the 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 demographics—for example the average age of householder. The forecast period is 2015-2065.

Assumptions for the County and Larger Sub-Areas

During the forecast period, as the population in Jefferson County is expected to continue to age, fertility rates will begin to decline in the near term and continue on this path throughout the forecast period. Total fertility in Jefferson County is forecast to decrease from 2.4 children per woman in 2015 to 2.3 children per woman by 2065.

Changes in mortality and life expectancy are more stable compared to fertility and migration. One influential factor affecting mortality and life expectancy is advances in medical technology. The county is projected to follow the statewide trend of increasing life expectancy throughout the forecast period—progressing from a life expectancy of 75 years in 2010 to 82 in 2060. However in spite of increasing life expectancy and the corresponding increase in survival rates, Jefferson 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 Jefferson County. Net out-migration of younger persons and net in-migration of older individuals will persist throughout the forecast period. Countywide average annual net migration is expected to increase from 241 net in-migrants in 2015 to 330 net in-migrants in 2035. Over the last 30

[3] County sub-areas with populations greater than 8,000 in forecast launch year were forecast using the *cohort-component method*. County sub-areas with populations less than 8,000 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.

years of the forecast period average annual net migration is expected to be more steady, increasing to 382 net in-migrants by 2065. With natural increase diminishing in its potential to contribute to population growth, net in-migration will become an increasingly important component of population growth.

Assumptions for Smaller Sub-Areas

Rates of population growth for the smaller UGBs are assumed to be 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 are assumed to stay relatively stable over the forecast period, while PPH is expected to decline slightly. Smaller household size is associated with an aging population in Jefferson 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. Finally, for county sub-areas where population growth has been flat or declined, and there is no planned housing construction, we hold population growth mostly stable with little to no change.

Supporting Information and Specific Assumptions

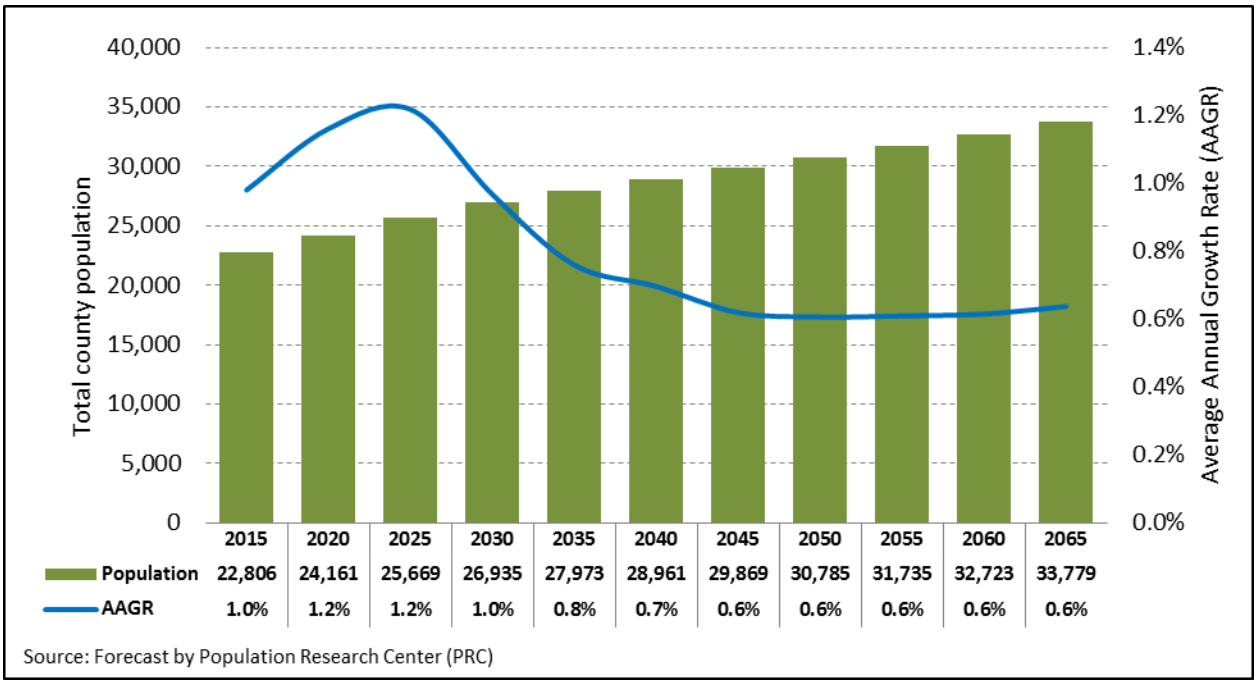
Assumptions used for developing population forecasts are partially derived from surveys and other information provided by local planners and agencies. See *Appendix A* for a summary of all submitted surveys and other information that was directly considered in developing the sub-area forecasts. Also, see *Appendix B* for specific assumptions used in each sub-area forecast.

Forecast Trends

Under the most-likely population growth scenario in Jefferson County, countywide and sub-area populations are expected to increase over the forecast period. The countywide population growth rate is forecast to peak in 2025, decline through 2045, and then hold mostly steady throughout the remainder of the forecast period. Forecasting tapered population growth is largely driven by an aging population, which is expected to contribute to an increase in deaths, as well as a decrease in births—fewer women within childbearing years ages 10 to 49. The aging population is expected to in turn contribute to declining natural increase over the forecast period. Net migration is expected to remain relatively steady throughout the forecast period, not fully offsetting the declining natural increase. The combination of these factors will likely result in a slowly declining population growth rate as time progresses through the forecast period.

Jefferson County's total population is forecast to grow by nearly 11,000 persons (48 percent) from 2015 to 2065, which translates into a total countywide population of 33,779 in 2065 (Figure 15). The population is forecast to grow at the highest rate—a little more than one percent per year—in the near term (2015-2025). This anticipated population growth in the near term is based on the assumption that Jefferson County's economy will continue to strengthen in the next five to ten years. The single largest component of growth in this initial period is net in-migration. A total of nearly 800 net in-migrants are forecast for the 2015 to 2025 period.

Figure 15. Jefferson County—Total Forecast Population by Five-year Intervals (2015-2065)



Source: Forecast by Population Research Center (PRC)

Population outside UGBs is expected to grow by more than 2,000 people from 2015 to 2035, but is expected to grow at a much slower rate during the second half of the forecast period, only adding a little more than 1,800 people from 2035 to 2065. The population of the area outside UGBs is forecast to

decline as a share of total countywide population over the forecast period, composing 58 percent of the countywide population in 2015 and about 51 percent in 2065.

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

	2015	2035	2065	AAGR (2015-2035)	AAGR (2035-2065)	Share of County 2015	Share of County 2035	Share of County 2065
Jefferson County	*22,806*	*27,973*	*33,779*	*1.0%*	*0.6%*	*100.0%*	*100.0%*	*100.0%*
Smaller UGBs[1]	9,615	12,720	16,675	1.4%	0.9%	42.2%	45.5%	49.4%
Outside UGBs	13,191	15,254	17,104	0.7%	0.4%	57.8%	54.5%	50.6%

Source: Forecast by Population Research Center (PRC)

[1] Smaller UGBs are those with populations less than 8,000 in forecast launch year. This includes all UGBs in Jefferson County.

Jefferson County's smaller UGBs are expected to grow by a combined number of more than 3,000 persons from 2015 to 2035, with a combined average annual growth rate of 1.4 percent (Figure 16). This growth rate is driven by expected rapid growth in Culver and Madras (Figure 17). Metolius is expected to experience steady increase in population with only a slight slowing in growth rates in the last 30 years of the forecast period. The smaller UGBs are expected to collectively add a little more than 3,900 people from 2035 to 2065.

Figure 17. Jefferson County and Smaller Sub-Areas—Forecast Population and AAGR

	2015	2035	2065	AAGR (2015-2035)	AAGR (2035-2065)	Share of County 2015	Share of County 2035	Share of County 2065
Jefferson County	*22,806*	*27,973*	*33,779*	*1.0%*	*0.6%*	*100.0%*	*100.0%*	*100.0%*
Culver[1]	1,407	2,035	2,824	1.9%	1.1%	6.2%	7.3%	8.4%
Madras	7,484	9,815	12,749	1.4%	0.9%	32.8%	35.1%	37.7%
Metolius	724	869	1,102	0.9%	0.8%	3.2%	3.1%	3.3%
Outside UGBs	13,191	15,254	17,104	0.7%	0.4%	57.8%	54.5%	50.6%

Source: Forecast by Population Research Center (PRC)

[1] *For simplicity each UGB is referred to by its primary city's name.*

All UGBs are expected to capture an increasing share of total countywide population growth over the forecast period (Figure 18). Madras is expected to capture the largest share of total countywide population growth throughout the entire forecast period. The area outside UGBs is expected to see a decrease in the share of countywide population growth as time progresses through the forecast period.

Figure 18. Jefferson County and Smaller Sub-Areas—Share of Countywide Population Growth

	2015-2035	2035-2065
Jefferson County	*100.0%*	*100.0%*
Culver[1]	12.2%	13.6%
Madras	45.1%	50.5%
Metolius	2.8%	4.0%
Outside UGBs	39.9%	31.9%

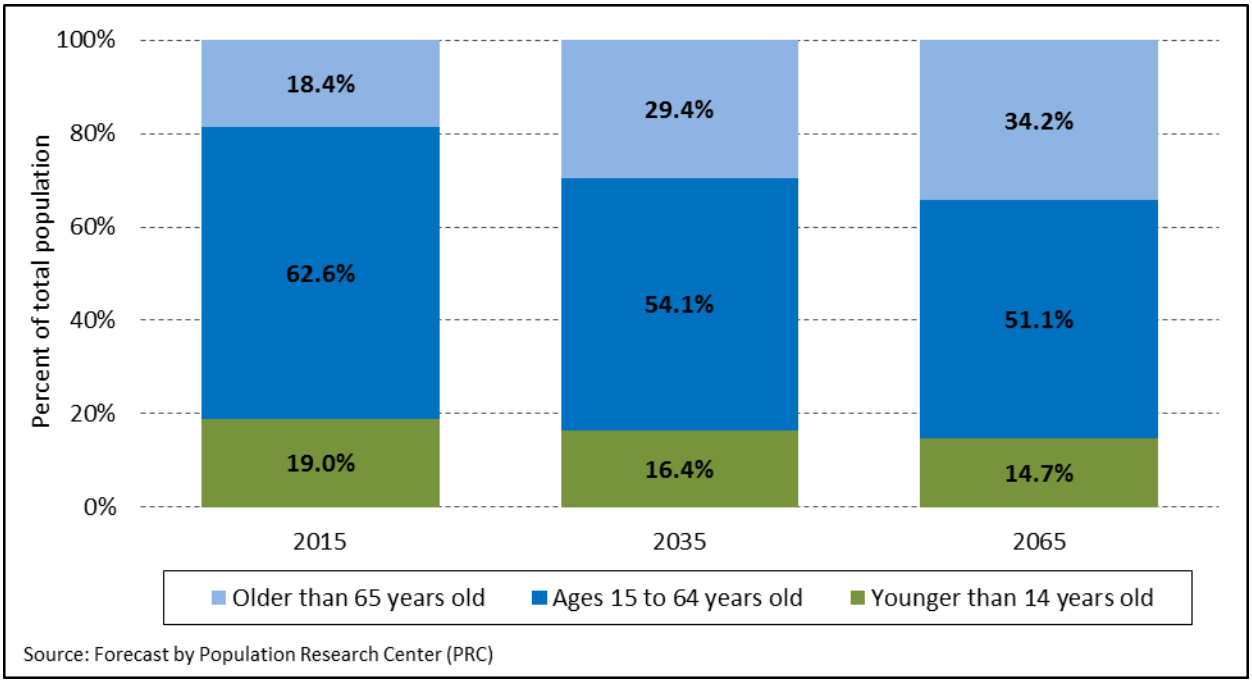
Source: Forecast by Population Research Center (PRC)

[1] *For simplicity each UGB is referred to by its primary city's name.*

Forecast Trends in Components of Population Change

As previously discussed, a key factor in both declining births and increasing deaths is Jefferson County's aging population. From 2015 to 2035 the proportion of county population 65 or older is forecast to grow from a little over 18 percent to nearly 29 percent. By 2065 about 33 percent of the total population is expected to be 65 or older (Figure 19). For a more detailed look at the age structure of Jefferson County's population see the final forecast table published to the forecast program website (http://www.pdx.edu/prc/opfp).

Figure 19. Jefferson County—Age Structure of the Population (2015, 2035, and 2065)

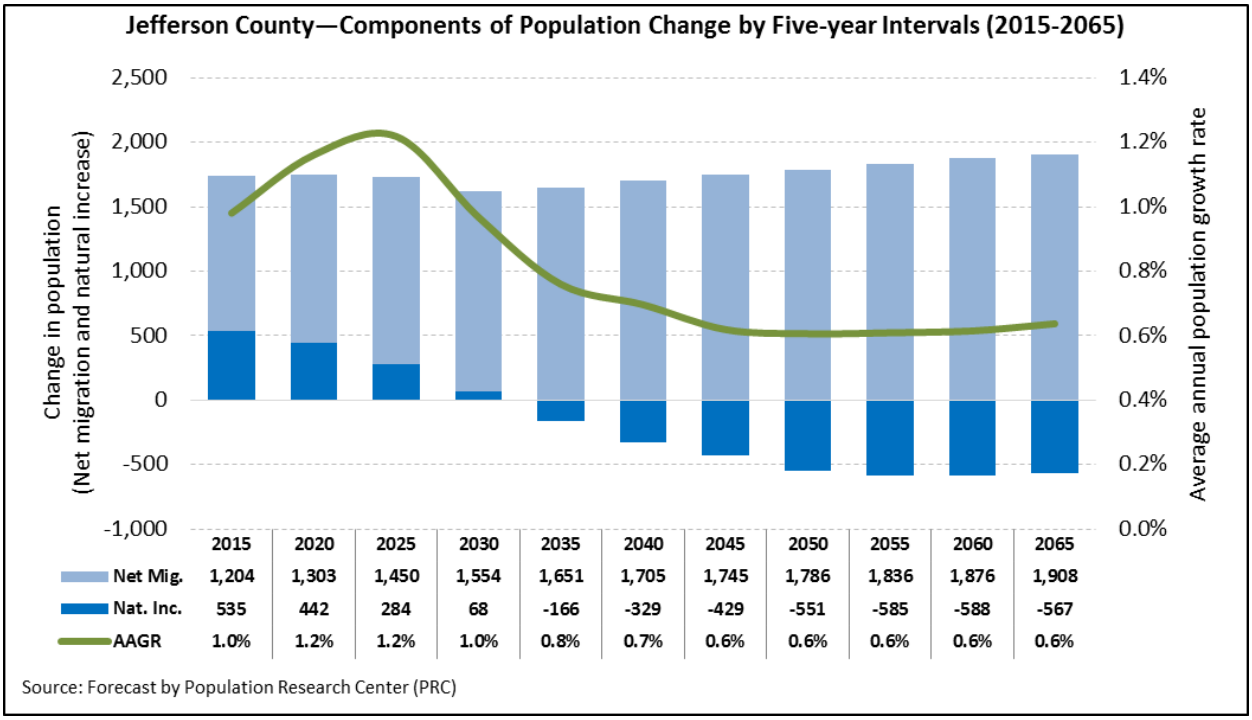


As the countywide population ages—contributing to a slow-growing population of women in years of peak fertility— and more women choose to have fewer children and have them at an older age, total fertility in Jefferson County is expected to decline over the forecast period. This decline is in line with the forecast trend for the state. Average annual births are expected to hold relatively steady over the forecast period; this, combined with the rising number of deaths, will lead to a natural decrease. The total number of deaths countywide is expected to increase more rapidly in the near term, followed by slower growth during the later years of the forecast period. This pattern of initial growth in the number of deaths is explained by the relative size and aging patterns of the Baby Boom generation. For example, in Jefferson County, deaths are forecast to increase significantly during the 2020-2050 period as Baby Boomers succumb to the effects of aging.

As the increase in the numbers of deaths outpaces births, population growth in Jefferson County is expected to become increasingly reliant on net in-migration; and in fact positive net in-migration is expected to persist throughout the forecast period. The majority of these net in-migrants are expected to be middle-aged and older individuals.

In summary, declining natural increase and steady net in-migration is forecast to result in population growth reaching its peak in 2025, declining through 2045, and then holding mostly steady throughout the remainder of the forecast period (Figure 20). 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 long-term slowing of the growth in births. Net migration is expected to remain relatively steady throughout the forecast period, and therefore is expected to not fully offset the growth in natural decrease.

Figure 20. Jefferson County—Components of Population Change, 2015-2065



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

Appendix A: 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 Culver and Metolius, as well as Jefferson County did not submit survey responses.

Madras—Jefferson County						
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**
No changes to age, racial, ethnic, etc.	Housing vacancy rates continue to be very low. Madras vacancy is greater than Bend and Redmond. It is estimated to be 5% or less by local realtors	No new permits for residential subdivisions or apartments were issued by the City in the last 18 months and therefore no changes are expected.	No new Group Quarters planned or permitted by the City within the last 18 months.	Aero Air/Erickson Aircraft collection will create 22 new jobs. Keith Manufacturing and Brightwood continue to hire additional employees.	Berg Drive was extended for Aero Air & the Erickson Aircraft Collection to create 22 new jobs. No other infrastructure improvements were made to create additional jobs and or residents. City has or will very shortly update Waste Water, Water, and Transportation System Plans.	**Promos:** Aero Air, Erickson Aircraft Collection, Keith Manufacturing, Central Oregon Seeds Inc., and Brightwood continue to thrive by investing in equipment. They are also either maintaining employment levels or are hiring employees. Agriculture continues to serve as part of the County's economic base. **Hinders:** Limited housing construction starts due to property values slowly increasing. Jobs and property values are driving economic and

Madras—Jefferson County						
						thereby population changes.
Highlights or summary of influences on or anticipation of population and housing growth from planning documents and studies	• The City's growth and development have historically been influenced by economics of Deschutes County. • The City's population has lagged behind the population projections in the 2006, Jefferson County Coordinated Population forecast due to economic conditions declining. • The City's primary infrastructure plans will be updated. • Airport is attracting new businesses • Existing large agricultural and manufacturing businesses are thriving.					
Other information (e.g. planning documents, email correspondence, housing development survey)	Madras has one large subdivision which is currently under review. If approved and developed the Willowbrook subdivision will be home to 153 single family dwellings. No pricing information was provided.					

Appendix B: Specific Assumptions

Culver

The annual housing unit growth rate is assumed to decline over the forecast period, beginning at a rate slightly closer to a long term historical average. The occupancy rate is assumed remain at the historical average of the 2000 and 2010 Censuses. Average household size is assumed to decline over the forecast period, with an average of about 2.9 persons per household. Group quarters population is assumed stay at six.

Madras

The annual housing unit growth rate is assumed to initially be higher than the rate observed in 2010 and then decrease to the historical average annual rate calculated between 2000 and 2010. The initial, higher growth rate is used to account for planned housing development in the near term. The occupancy rate is assumed to be constant at about 90 percent over the forecast period. Average household size is assumed to decline slightly over the forecast period. Group quarters population is assumed remain at the historical average over the forecast period.

Metolius

The average annual housing unit growth rate is assumed to be the same as the historical average observed in the 2000s and is assumed to remain at this rate over the forecast period. The occupancy rate is assumed to be constant at slightly more than 90 percent over the forecast period. Average household size is also assumed be constant over the forecast period, remaining at about 2.5 persons per household. There is no group quarters population in Metolius.

Outside UGBs

The total fertility rate (TFR) is assumed to decline from the rate observed in 2000 to the historical average calculated for the 2000s. Survival rates for 2060 are assumed to be a little above those forecast for the county as a whole. The area outside UGBs in Jefferson County has historically had slightly higher survival rates than observed countywide; this corresponds with a slightly longer life expectancy. Age-specific net migration rates are assumed to generally follow countywide historical patterns, but at slightly higher rates over the forecast period.

Appendix C: Detailed Population Forecast Results

Figure 21. Jefferson County—Population by Five-Year Age Group

Age Group	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065
00-04	1,479	1,519	1,540	1,532	1,536	1,557	1,589	1,616	1,633	1,647	1,666
05-09	1,374	1,426	1,480	1,497	1,493	1,500	1,523	1,556	1,582	1,599	1,614
10-14	1,469	1,422	1,490	1,543	1,564	1,563	1,574	1,600	1,635	1,663	1,681
15-19	1,509	1,460	1,430	1,495	1,551	1,576	1,578	1,591	1,618	1,654	1,683
20-24	1,291	1,283	1,256	1,227	1,286	1,339	1,363	1,367	1,379	1,402	1,434
25-29	1,168	1,229	1,231	1,202	1,176	1,239	1,294	1,320	1,326	1,338	1,364
30-34	1,275	1,251	1,335	1,334	1,307	1,282	1,355	1,418	1,448	1,455	1,471
35-39	1,219	1,334	1,325	1,411	1,415	1,390	1,368	1,448	1,516	1,551	1,560
40-44	1,376	1,300	1,438	1,425	1,522	1,531	1,509	1,487	1,577	1,652	1,692
45-49	1,537	1,481	1,412	1,560	1,550	1,662	1,677	1,656	1,635	1,735	1,822
50-54	1,658	1,640	1,600	1,523	1,687	1,683	1,810	1,830	1,811	1,789	1,902
55-59	1,599	1,803	1,804	1,758	1,680	1,868	1,871	2,017	2,045	2,027	2,008
60-64	1,644	1,771	2,017	2,016	1,973	1,894	2,117	2,127	2,300	2,338	2,324
65-69	1,543	1,765	1,927	2,196	2,207	2,173	2,096	2,352	2,372	2,573	2,625
70-74	1,155	1,515	1,760	1,923	2,204	2,226	2,205	2,135	2,403	2,433	2,647
75-79	782	1,024	1,366	1,591	1,697	2,017	1,988	2,043	1,985	2,241	2,282
80-84	472	641	855	1,143	1,343	1,443	1,728	1,713	1,774	1,732	1,966
85+	256	297	402	559	784	1,018	1,221	1,510	1,697	1,893	2,037
Total	*22,806*	*24,161*	*25,669*	*26,935*	*27,973*	*28,961*	*29,869*	*30,785*	*31,735*	*32,723*	*33,779*

Figure 22. Jefferson County's Sub-Areas—Total Population

	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065
Culver UGB	1,407	1,506	1,731	1,901	2,035	2,171	2,303	2,434	2,564	2,693	2,824
Madras UGB	7,484	8,070	8,700	9,268	9,815	10,356	10,867	11,358	11,832	12,294	12,749
Metolius UGB	724	734	776	824	869	913	954	994	1,031	1,067	1,102
Outside UGBs	13,191	13,850	14,461	14,942	15,254	15,521	15,744	16,000	16,308	16,668	17,104

Photo Credit: Trout Creek Recreation Area on the Deschutes River. Source: Gary Halvorson, Oregon State Archives

http://www.sos.state.or.us/archives/pages/records/local/county/scenic/jefferson/141.html