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

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Coordinated Population Forecast

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Through

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Klamath 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.

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Executive Summary

Historical

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

Klamath County's total population has grown slowly since 2000 with average annual growth rates 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. Malin and the area outside UGBs posted the highest average annual growth rates at 2.4 and 0.7 percent, respectively, during the 2000 to 2010 period.

Klamath County's positive population growth in the 2000s was due to the combination of net in-migration and natural increase (births minus deaths). At the same time 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 natural increase—the difference between births and deaths—to decline from 2000 to 2014. While net in-migration and natural increase both contributed to population growth from 2000 to 2010, in recent years (i.e., 2011-2014) these two numbers shrank—slowing population growth.

Forecast

Total population in Klamath 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), and more slowly in 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. As natural increase declines and becomes natural decrease, population growth is expected to become increasingly reliant on net in-migration.

Even so, Klamath County's total population is forecast to increase by more than 5,100 over the next 20 years (2015-2035), but the county as whole is expected to see population decline over the last 30 years of the forecast period. With the exception of the area outside UGBs most sub-areas that saw population growth in the 2000s are forecast to have growth throughout the forecast period. Some sub-areas that experienced population loss in the 2000s are expected to show population increase throughout the forecast period, but these gains will likely be small.

Figure 1. Klamath 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)
Klamath County	*63,775*	*66,380*	*0.4%*	*67,043*	*72,164*	*69,591*	*0.4%*	*-0.1%*
Bonanza[1]	400	401	0.0%	441	513	641	0.8%	0.7%
Chiloquin	739	766	0.4%	768	803	849	0.2%	0.2%
Klamath Falls	41,541	42,567	0.2%	43,093	45,363	45,907	0.3%	0.0%
Malin	661	836	2.4%	833	926	1,035	0.5%	0.4%
Merrill	960	939	-0.2%	942	1,026	1,182	0.4%	0.5%
Outside UGBs	19,474	20,871	0.7%	20,966	23,534	19,977	0.6%	-0.5%

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.*

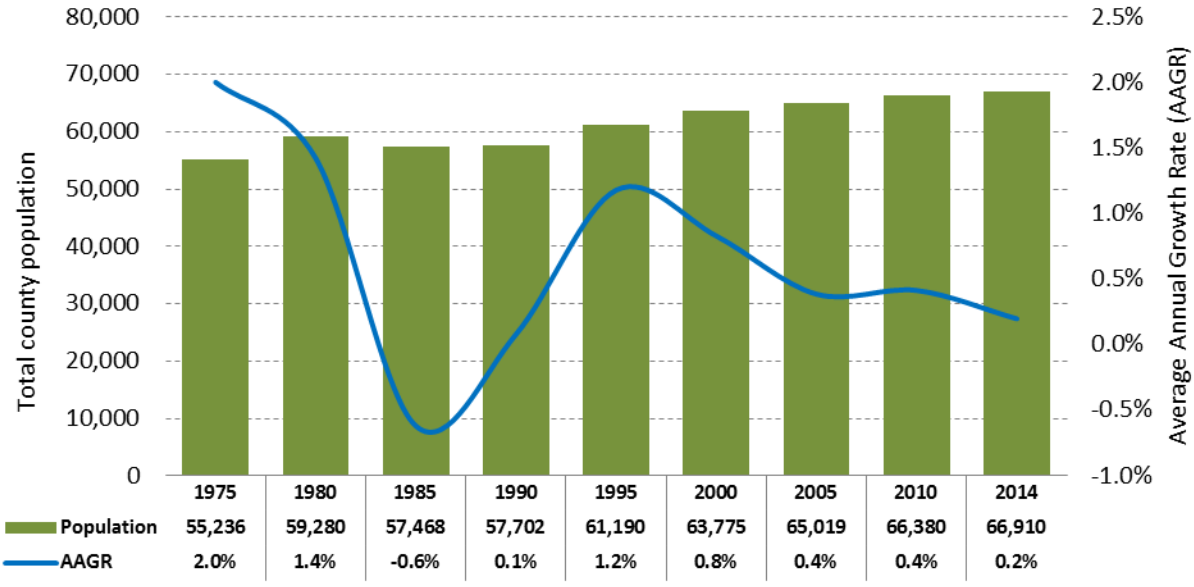
Historical Trends

Different growth patterns occur in different parts of the county. Each of Klamath 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, number of *housing units*, and 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

Klamath County's total population grew by about 21 percent between 1975 and 2014—from roughly 55,000 in 1975 to nearly 67,000 in 2014 (Figure 2). During this approximately 40-year period, the county realized the highest growth rates during the early 1970s, which coincided with a period of relative economic prosperity. During the early 1980s, challenging economic conditions, both nationally and within the county, yielded population decline. Since 1985, the county has experienced positive population growth, averaging around 0.4 percent per year. During the 2000s, population growth remained positive in spite of the Great Recession.

Figure 2. Klamath 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.

Klamath 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, Klamath County's average annual population growth rate stood at 0.4 percent, but the growth rate varied to a large degree in sub-areas across the county. For example, Malin recorded an average annual growth rate of 2.4 percent—the highest growth rate among Klamath County's sub-

areas—while Merrill's population declined by an average annual rate of 0.2 percent between 2000 and 2010 (Figure 3). The only UGB that increased as a share of total county population was Malin. The area outside UGBs experienced an average annual growth rate above that of the county as a whole and increased as a share of total county population between 2000 and 2010.

Figure 3. Klamath 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
Klamath County	*63,775*	*66,380*	*0.4%*	*100.0%*	*100.0%*
Bonanza[1]	400	401	0.0%	0.6%	0.6%
Chiloquin	739	766	0.4%	1.2%	1.2%
Klamath Falls	41,541	42,567	0.2%	65.1%	64.1%
Malin	661	836	2.4%	1.0%	1.3%
Merrill	960	939	-0.2%	1.5%	1.4%
Outside UGBs	19,474	20,871	0.7%	30.5%	31.4%

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

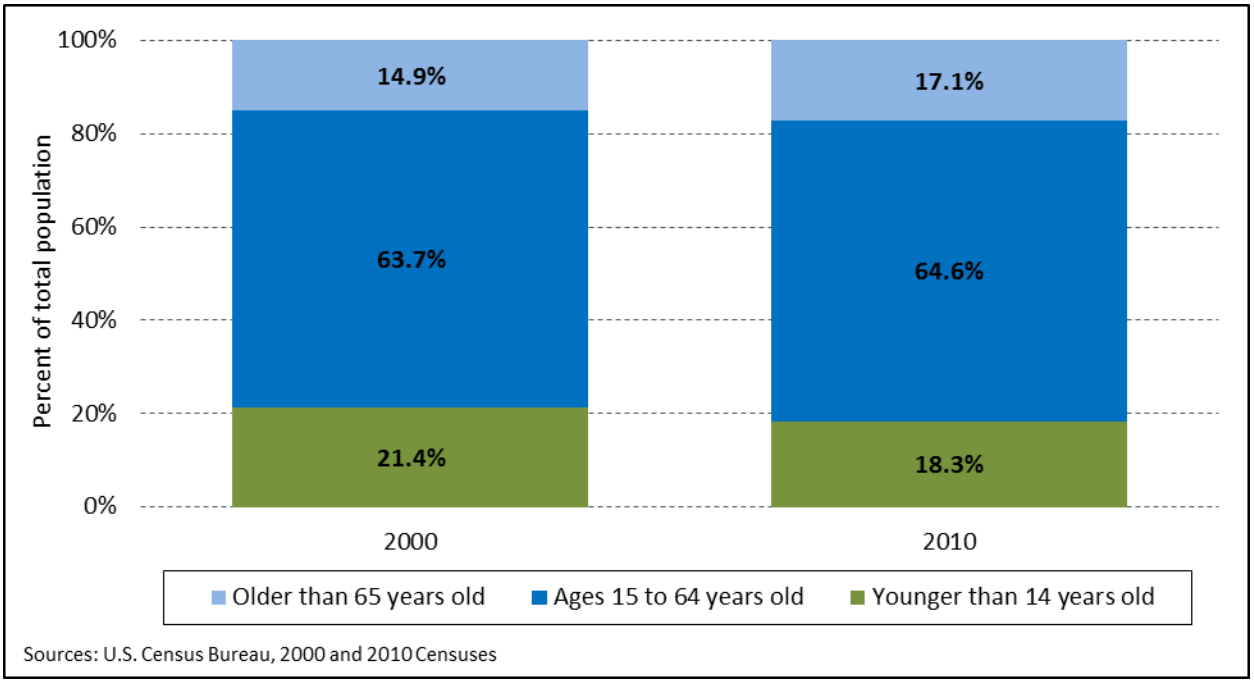
[1] *For simplicity each UGB is referred to by its primary city's name.*

Age Structure of the Population

Similar to most areas across Oregon, Klamath 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 or a slowing in the number of 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 about 15 percent to approximately 17 percent (Figure 4). Further underscoring the countywide trend in aging, the median age went from about 38 in 2000 to 42 in 2010.[1]

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

Figure 4. Klamath 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 Klamath 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. Klamath County—Hispanic or Latino and Race (2000 and 2010)

Hispanic or Latino and Race	2000		2010		Absolute Change	Relative Change
Total population	*63,775*	*100.0%*	*66,380*	*100.0%*	*2,605*	*4.1%*
Hispanic or Latino	4,961	7.8%	6,915	10.4%	1,954	39.4%
Not Hispanic or Latino	58,814	92.2%	59,465	89.6%	651	1.1%
White alone	53,659	84.1%	53,822	81.1%	163	0.3%
Black or African American alone	362	0.6%	394	0.6%	32	8.8%
American Indian and Alaska Native alone	2,443	3.8%	2,407	3.6%	-36	-1.5%
Asian alone	482	0.8%	615	0.9%	133	27.6%
Native Hawaiian and Other Pacific Islander alone	72	0.1%	68	0.1%	-4	-5.6%
Some Other Race alone	96	0.2%	63	0.1%	-33	-34.4%
Two or More Races	1,700	2.7%	2,096	3.2%	396	23.3%

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

Births

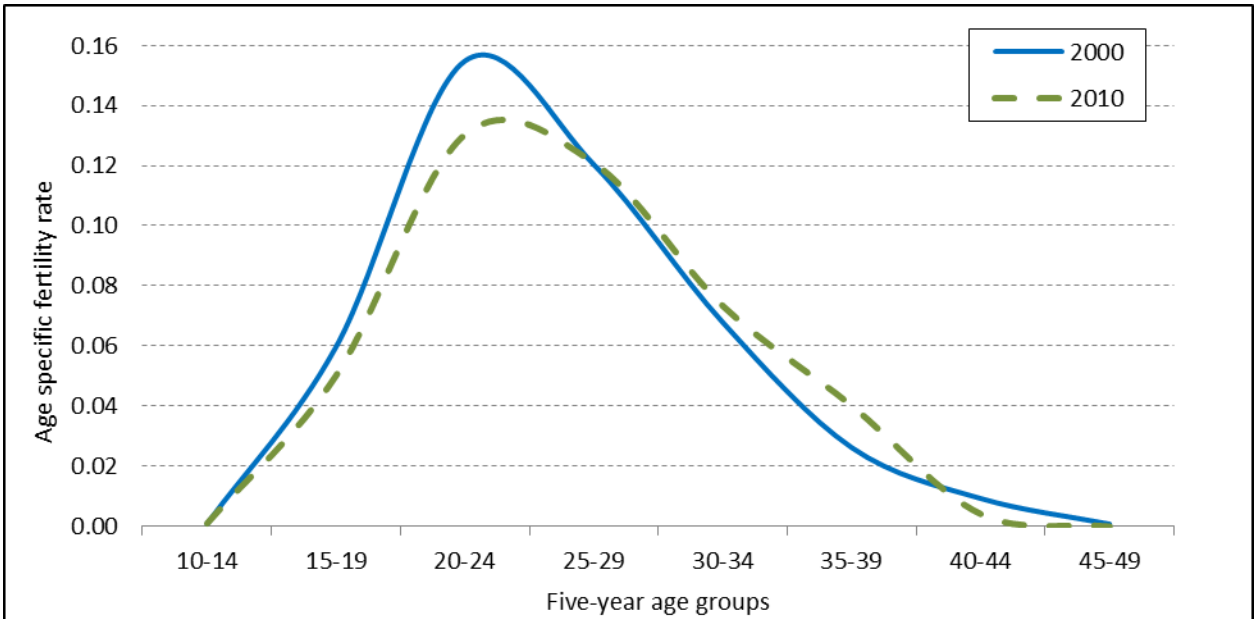
Historical fertility rates for Klamath County mirror trends similar to Oregon as a whole; while total fertility rates decreased for both the county and state from 2000 to 2010 (Figure 6), fertility for older women marginally increased in both Klamath County and Oregon (Figure 7 and Figure 8). As Figure 7 demonstrates, fertility rates for younger women in Klamath County are lower in 2010 compared to 2000, and women are choosing to have children at older ages. While these statistics largely mirror statewide changes, county fertility changes are distinct from those of the state. The decline in total fertility in Klamath County during the 2000s was less pronounced than the statewide decline during this same period. At the same time, total fertility in the county remains at *replacement fertility*, a trend that runs contrary to Oregon as a whole.

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

	2000	2010
Klamath County	2.20	2.10
Oregon	1.98	1.79

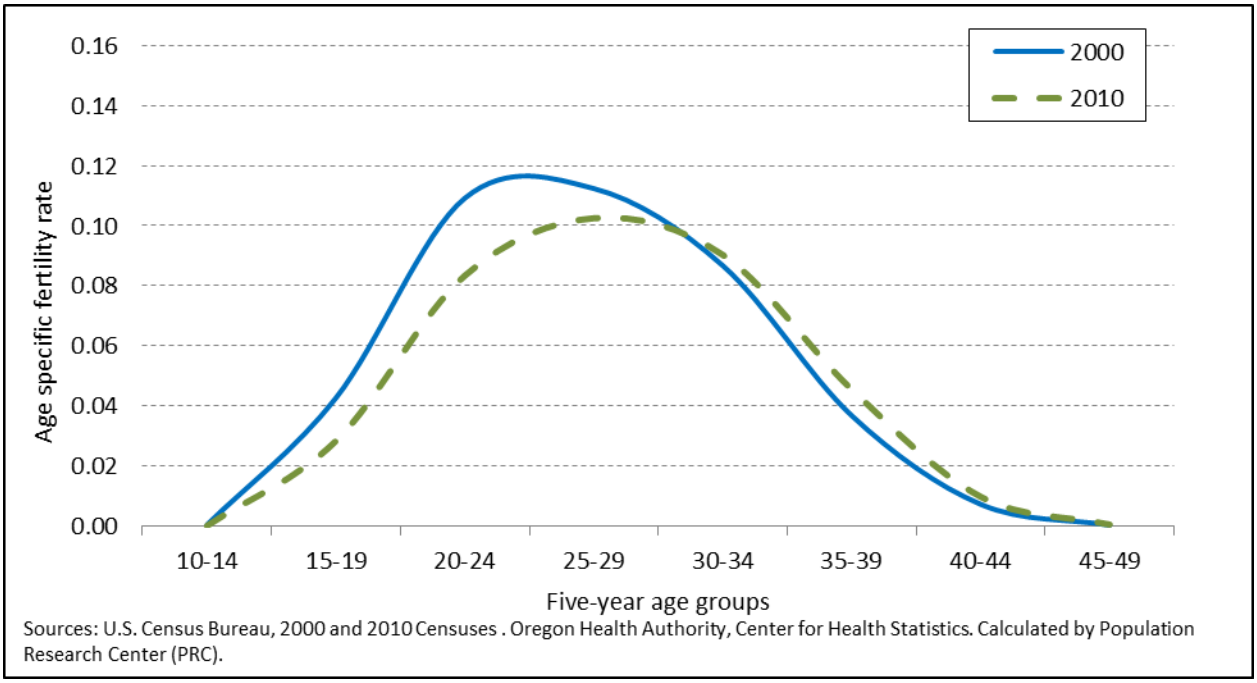
Sources: U.S. Census Bureau, 2000 and 2010 Censuses.
Oregon Health Authority, Center for Health Statistics.
Calculations by Population Research Center (PRC).

Figure 7. Klamath 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 during another time period. However, for the 10-year

period from 2000 to 2010 the county as a whole saw a decrease in births, while the most populous city—Klamath Falls—recorded an increase in births (Figure 9).

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

	2000	2010	Absolute Change	Relative Change	Share of County 2000	Share of County 2010
Klamath County	*829*	*803*	*-26*	*-3.1%*	*100.0%*	*100.0%*
Klamath Falls[1]	589	595	6	1.0%	71.0%	74.1%
Smaller UGBs[2]	72	34	-38	-52.8%	8.7%	4.2%
Outside UGBs	168	174	6	3.6%	20.3%	21.7%

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

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

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

Deaths

While the population in the county as a whole is aging, more people are living longer. For Klamath County in 2000, life expectancy for males was 74 years and for females was 79 years. By 2010, life expectancy had increased for both males and females, but only slightly. For both Klamath 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. Klamath County and Sub-Areas—Total Deaths (2000 and 2010)

	2000	2010	Absolute Change	Relative Change	Share of County 2000	Share of County 2010
Klamath County	*649*	*675*	*26*	*4.0%*	*100.0%*	*100.0%*
Klamath Falls[1]	220	443	223	101.4%	33.9%	65.6%
All other areas[2]	429	232	-197	-45.8%	66.1%	34.4%

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

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

[2] All other areas includes some larger UGBs (those with populations greater than 8,000), all smaller UGBs (those with populations less than 8,000), and the area outside UGBs. Detailed, point level death data were unavailable for 2000, thus PRC was unable to assign deaths to some UGBs.

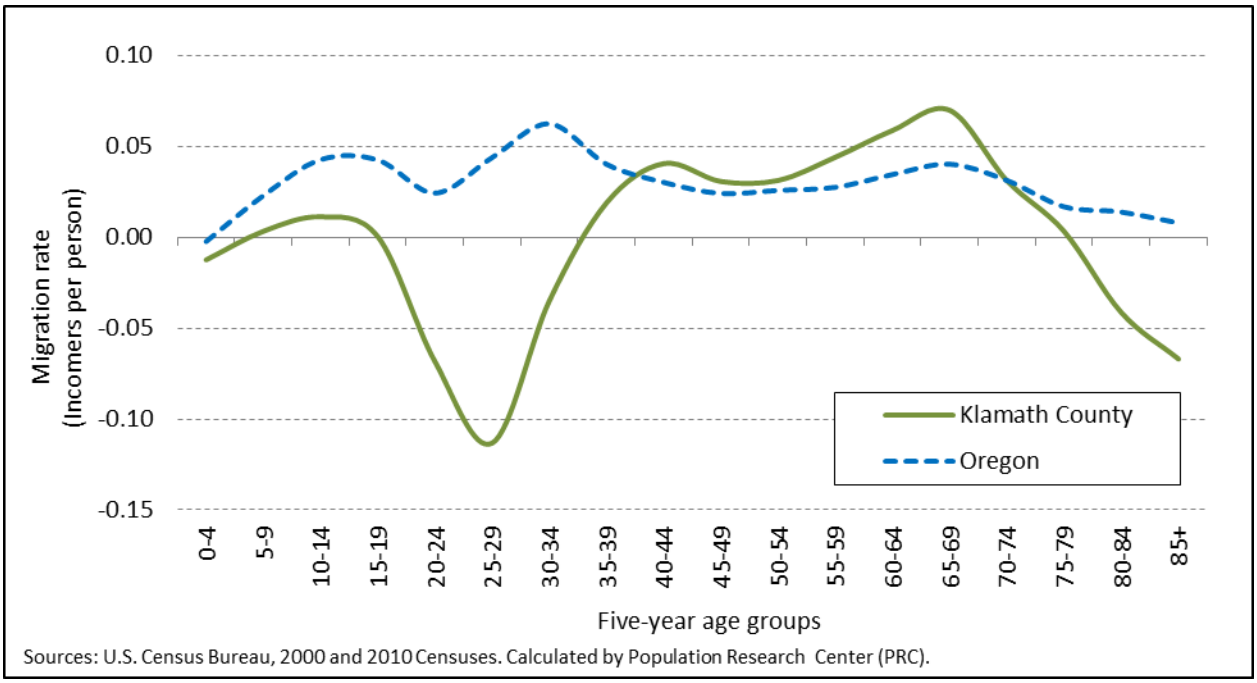
Migration

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

From 2000 to 2010, younger individuals (ages with the highest mobility levels) moved out of the county in search of employment and educational opportunities, as well as for military service. At the same time

the county attracted a small number of middle-aged to older migrants who likely moved into the county for work-related reasons, moved there to retire, or moved to be closer to family members. However, as these individuals age and need access to better medical services there is a marked out-migration of elderly persons.

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

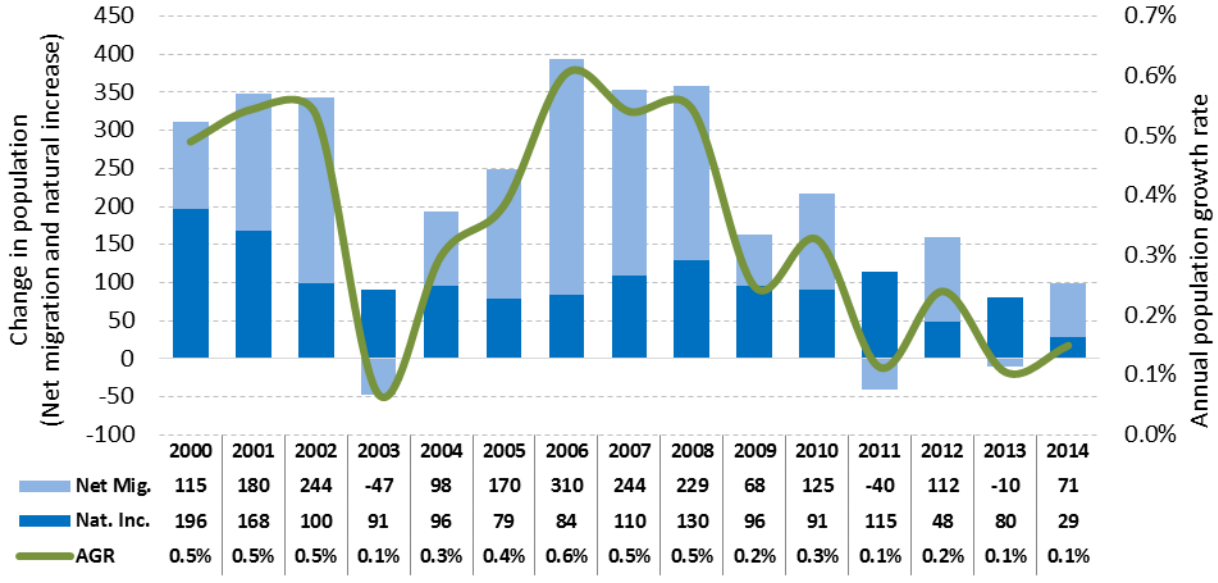


Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Calculated by Population Research Center (PRC).

Historical Trends in Components of Population Change

In summary, Klamath County's positive population growth in the 2000s was the result of substantial net in-migration and steady natural increase (i.e., more births than deaths) (Figure 12). 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 natural increase—the difference between births and deaths—to decline from 2000 to 2014. While net in-migration and natural increase both contributed to population growth from 2000 to 2010, in recent years (i.e., 2011-2014) these two numbers shrank, slowing population growth.

Figure 12. Klamath County—Components of Population Change (2000-2014)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Net Mig.	115	180	244	-47	98	170	310	244	229	68	125	-40	112	-10	71
Nat. Inc.	196	168	100	91	96	79	84	110	130	96	91	115	48	80	29
AGR	0.5%	0.5%	0.5%	0.1%	0.3%	0.4%	0.6%	0.5%	0.5%	0.2%	0.3%	0.1%	0.2%	0.1%	0.1%

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 Klamath County increased rapidly during the middle years of the 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 14 percent countywide; this equaled nearly 3,900 new housing units (Figure 13). Klamath Falls captured the largest share of the growth in total housing units, with the area outside UGBs also seeing large shares of the countywide housing growth. In terms of relative housing growth, Malin grew the most during the 2000s: its total housing units increased about 29 percent (66 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 numbers of total housing units are smaller than the numbers 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. Klamath County and Sub-Areas—Total Housing Units (2000 and 2010)

	2000	2010	AAGR (2000-2010)	Share of County 2000	Share of County 2010
Klamath County	*28,883*	*32,774*	*1.3%*	*100.0%*	*100.0%*
Bonanza[1]	149	165	1.0%	0.5%	0.5%
Chiloquin	300	379	2.4%	1.0%	1.2%
Klamath Falls	18,098	19,107	0.5%	62.7%	58.3%
Malin	227	293	2.6%	0.8%	0.9%
Merrill	408	388	-0.5%	1.4%	1.2%
Outside UGBs	9,701	12,442	2.5%	33.6%	38.0%

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 relatively larger changes in occupancy rates. From 2000 to 2010 the occupancy rate in Klamath 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, but some sub-areas experienced more extreme declines in the occupancy rate. The county's two most populous sub-areas, the area outside UGBs and Klamath Falls UGB, had substantially different occupancy rates in 2010. The area outside UGBs had an occupancy rate of about 72 percent, while the Klamath Falls UGB had an occupancy rate slightly lower than 91 percent.

Average household size, or PPH, in Klamath County was 2.4 in 2010, down from 2.5 in 2000 (Figure 14). Klamath County's PPH in 2010 was about the same as for Oregon as a whole, which also had a PPH of 2.5. PPH varied across the sub-areas, ranging from 2.3 to 3.1 persons per household. In 2010 the highest PPH was in Malin with 3.1 and the lowest in the area outside UGBs at 2.3.

Figure 14. Klamath 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
Klamath County	*2.5*	*2.4*	*-3.7%*	*87.3%*	*83.2%*	*-4.0%*
Bonanza[1]	2.9	2.7	-7.9%	91.3%	89.7%	-1.6%
Chiloquin	2.8	2.5	-8.1%	89.0%	79.4%	-9.6%
Klamath Falls	2.4	2.4	-1.3%	92.0%	90.5%	-1.5%
Malin	3.1	3.1	-1.3%	92.5%	91.8%	-0.7%
Merrill	2.6	2.7	3.6%	90.2%	89.2%	-1.0%
Outside UGBs	2.6	2.3	-8.7%	78.1%	71.7%	-6.4%

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 Klamath County's population forecast as well as the forecasts for larger sub-areas.[2] The assumptions are derived from observations based on life course events, as well as from trends unique to Klamath County and its larger sub-areas. 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 Klamath County is expected to continue to age, fertility rates will begin to decline in the near term and then continue on this path throughout the forecast period. Total fertility in Klamath County is forecast to decrease from 2.0 children per woman in 2015 to 1.9 children per woman by 2065. Similar patterns of declining total fertility are expected within the county's larger sub-areas.

Changes in mortality and life expectancy are more stable compared to fertility and migration. One influential factor affecting mortality and life expectancy is advances in medical technology. The county and larger sub-areas are projected to follow the statewide trend of increasing life expectancy throughout the forecast period—progressing from a life expectancy of 77 years in 2010 to 84 in 2060. However, in spite of increasing life expectancy and the corresponding increase in survival rates, Klamath 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. Larger sub-areas within the county will experience a similar increase in deaths as their population ages.

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 directionality and volume of migration. Net migration rates will change in line with historical trends unique to Klamath County. Net out-migration of younger persons and net in-migration of older

[2] County sub-areas with populations greater than 8,000 in the 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.

individuals will persist throughout the forecast period. Countywide average annual net migration is expected to increase from 81 net in-migrants in 2015 to 319 net in-migrants in 2035. Over the last 30 years of the forecast period average annual net migration is expected to be more steady, increasing to 326 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 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 Klamath 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

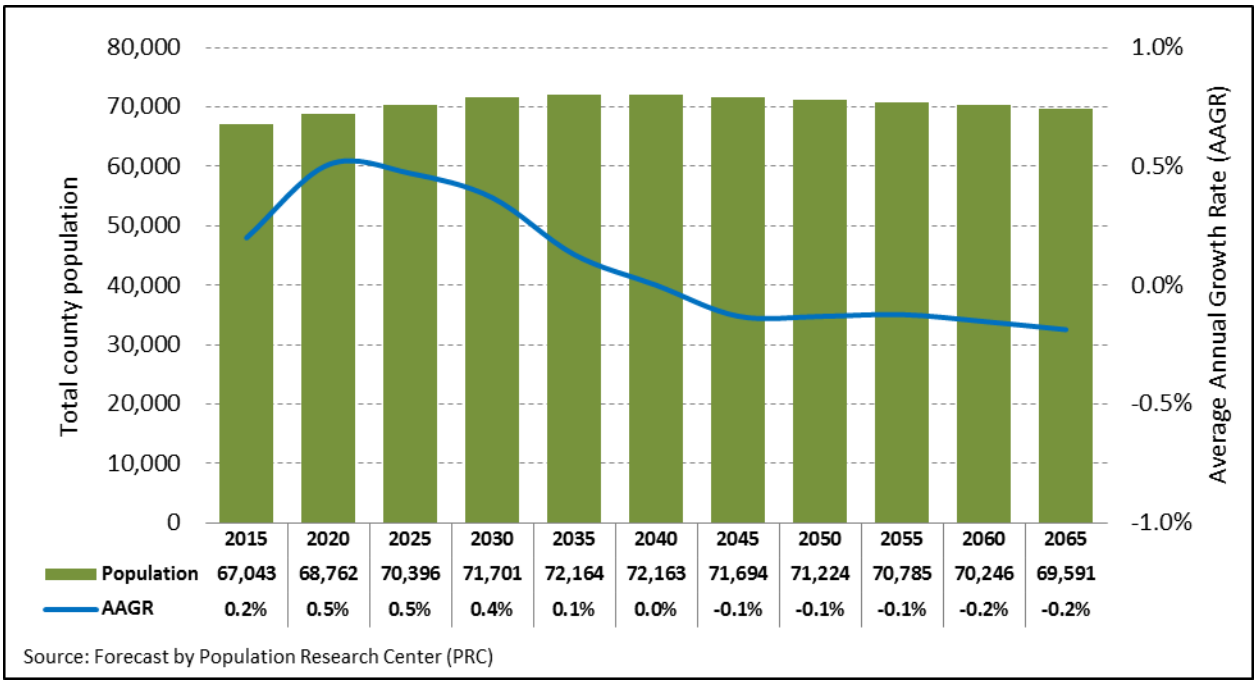
Assumptions used for developing population forecasts are partially derived from surveys and other information provided by local planners and agencies. See *Appendix A* for a summary of all submitted surveys and other information that was directly considered in developing the sub-area forecasts. Also,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

Forecast Trends

Under the most-likely population growth scenario in Klamath 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 decline throughout the forecast period. Forecasting tapered population growth is largely driven by an aging population, which is expected contribute to an increase in deaths, as well as a decrease in births (fewer women within childbearing years). The aging population is expected to in turn contribute to declining natural increase over the forecast period. The growth in net in-migration is expected to remain relatively steady throughout the forecast period, not fully offsetting the decline in natural increase and eventually the growth in natural decrease. The combination of these factors will likely result in a declining population growth rate and in later years of the forecast period, countywide population decline.

Klamath County's total population is forecast to grow by a little more than 2,500 persons (four percent) from 2015 to 2065, which translates into a total countywide population of 69,591 in 2065 (Figure 15). The population is forecast to grow at the highest rate—approximately 0.5 percent per year—in the near term (2015-2020). This anticipated population growth in the near term is based on the assumption that Klamath County's economy will continue to strengthen in the next five years. The largest component of growth in this initial period is net in-migration, with nearly 1,500 net in-migrants forecast for the 2015 to 2020 period.

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



Source: Forecast by Population Research Center (PRC)

The Klamath Falls UGB is forecast to increase by nearly 2,300 persons from 2015 to 2035, growing from a total population of 43,093 in 2015 to 45,363 in 2035. Growth is expected to occur more slowly for Klamath Falls during the second part of the forecast period, with total population increasing to 45,907

by 2065. The Klamath Falls UGB is expected to grow as a share of total county population over the 50-year forecast period.

Population outside UGBs is expected to grow by more than 2,500 people from 2015 to 2035, but is expected to lose more than 3,500 persons during the second half of the forecast period. The population of the area outside UGBs is forecast to decline as a share of total countywide population over the forecast period, composing 31 percent of the countywide population in 2015 and about 29 percent in 2065.

Figure 16. Klamath 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
Klamath County	*67,043*	*72,164*	*69,591*	*0.4%*	*-0.1%*	*100.0%*	*100.0%*	*100.0%*
Klamath Falls[1]	43,093	45,363	45,907	0.3%	0.0%	64.3%	62.9%	66.0%
Smaller UGBs[2]	2,984	3,267	3,707	0.5%	0.4%	4.5%	4.5%	5.3%
Outside UGBs	20,966	23,534	19,977	0.6%	-0.5%	31.3%	32.6%	28.7%

Source: Forecast by Population Research Center (PRC)

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

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

Klamath Falls, Klamath County's largest UGB, and the area outside UGBs are expected to capture the largest share of total countywide population growth during the initial 20 years of the forecast period (Figure 17); however the area outside UGBs is forecast to lose population during the final 30 years of the forecast period, while Klamath Falls and the smaller UGBs are all expected to increase in population. The increase in population in the county's UGBs is not expected to fully offset the decrease in population outside UGBs.

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

	2015-2035	2035-2065
Klamath County	*100.0%*	*100.0%*
Klamath Falls[1]	44.3%	-21.2%
Smaller UGBs[2]	5.5%	-17.1%
Outside UGBs	50.1%	138.3%

Source: Forecast by Population Research Center (PRC)

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

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

The remaining smaller UGBs are expected to grow by a combined number of a little less than 300 persons from 2015 to 2035, with a combined average annual growth rate of less than one percent (Figure 16). This growth rate is driven by expected slow growth in all smaller UGBs (Figure 18). Bonanza and Malin are forecast to grow at the fastest rate during the first 20 years of the forecast period, while Chiloquin and Merrill are expected to grow at a slower pace over this same time period. Similar to the larger UGBs and the county as a whole, population growth rates are forecast to decline for the last 30

years of the forecast period. The smaller UGBs are expected to collectively add a little more than 430 people from 2035 to 2065.

Figure 18. Klamath 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
Klamath County	*67,043*	*72,164*	*69,591*	*0.4%*	*-0.1%*	*100.0%*	*100.0%*	*100.0%*
Bonanza[1]	441	513	641	0.8%	0.7%	0.7%	0.7%	0.9%
Chiloquin	768	803	849	0.2%	0.2%	1.1%	1.1%	1.2%
Malin	833	926	1,035	0.5%	0.4%	1.2%	1.3%	1.5%
Merrill	942	1,026	1,182	0.4%	0.5%	1.4%	1.4%	1.7%
Larger UGBs[2]	43,093	45,363	45,907	0.3%	0.0%	64.3%	62.9%	66.0%
Outside UGBs	20,966	23,534	19,977	0.6%	-0.5%	31.3%	32.6%	28.7%

Source: Forecast by Population Research Center (PRC)

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

[2] Larger UGBs are those with populations greater than 8,000 in forecast launch year

Klamath County's smaller sub-areas are expected to compose roughly 5.5 percent of countywide population growth in the first 20 years of the forecast period (Figure 19); however during the final 30 years of the forecast period, as the county experiences population decline, the smaller sub-areas are expected to record population increase, partially offsetting the decline countywide.

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

	2015-2035	2035-2065
Klamath County	*100.0%*	*100.0%*
Bonanza[1]	1.4%	-5.0%
Chiloquin	0.7%	-1.8%
Malin	1.8%	-4.2%
Merrill	1.6%	-6.1%
Larger UGBs[2]	44.3%	-21.2%
Outside UGBs	50.1%	138.3%

Source: Forecast by Population Research Center (PRC)

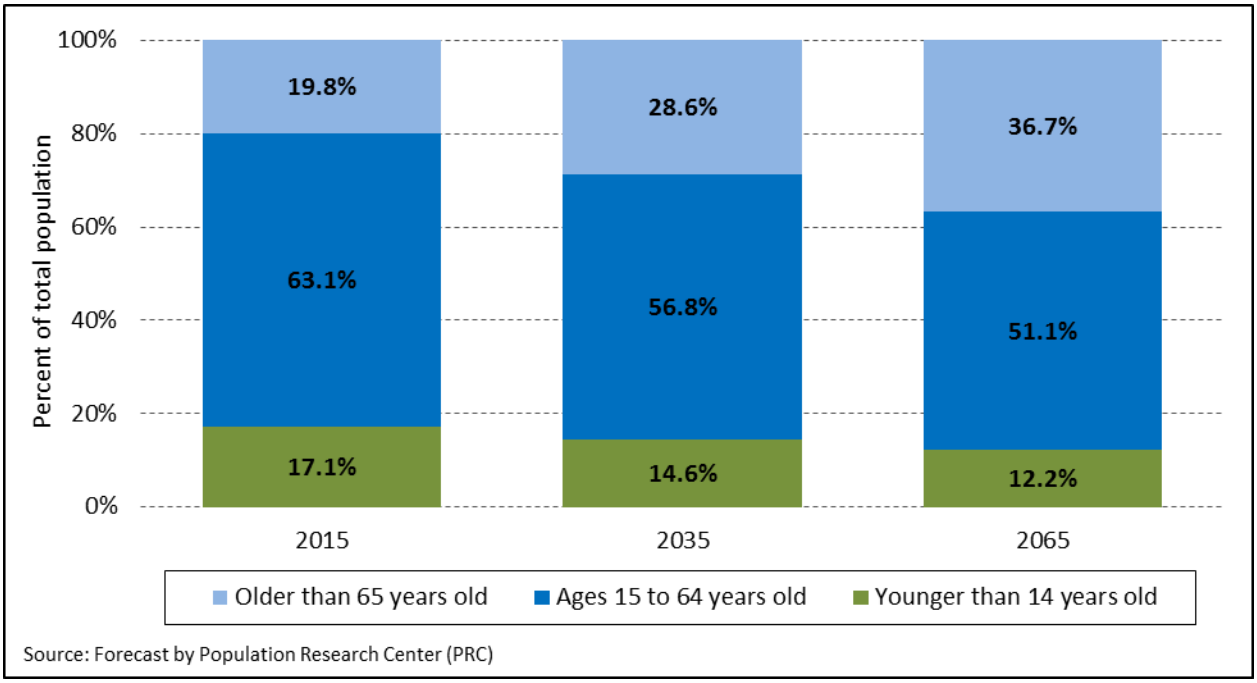
[1] For simplicity each UGB is referred to by its primary city's name.

[2] Larger UGBs are those with populations greater than 8,000 in forecast launch year

Forecast Trends in Components of Population Change

As previously discussed, a key factor in both declining births and increasing deaths is Klamath County's aging population. From 2015 to 2035 the proportion of county population 65 or older is forecast to grow from about 20 percent to nearly 29 percent. By 2065 about 37 percent of the total population is expected to be 65 or older (Figure 20). For a more detailed look at the age structure of Klamath County's population see the final forecast table published to the forecast program website (http://www.pdx.edu/prc/opfp).

Figure 20. Klamath County—Age Structure of the Population (2015, 2035, and 2065)

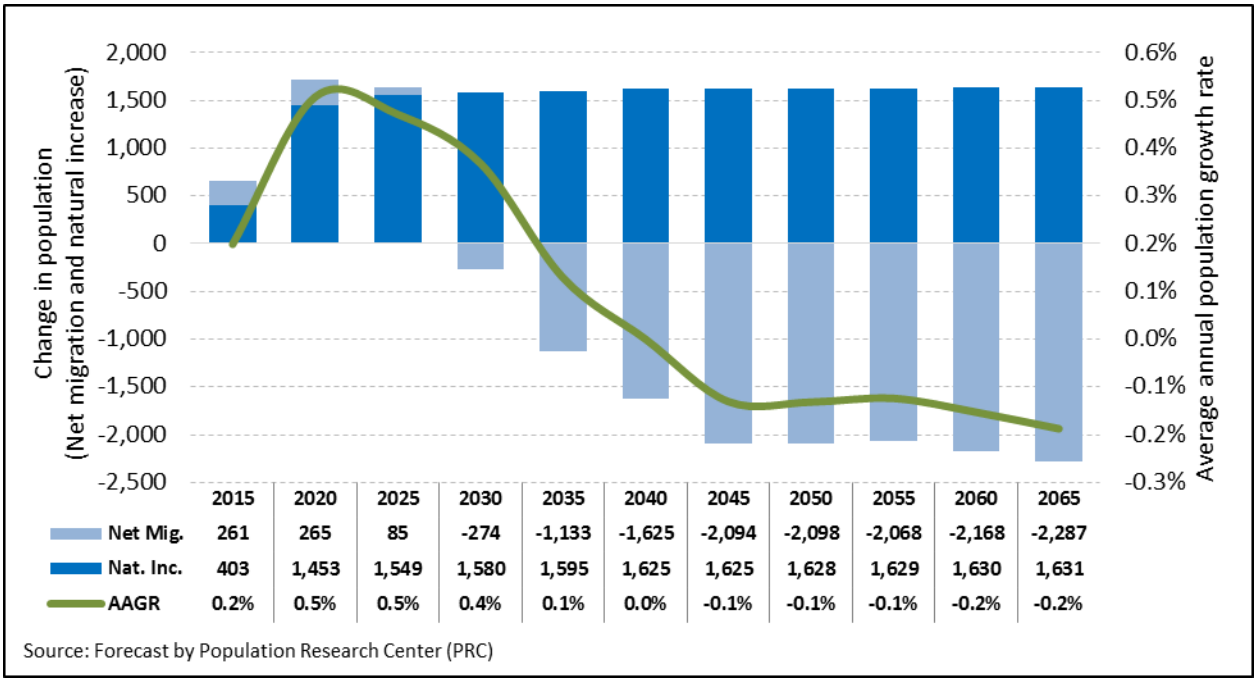


As the countywide population ages—contributing to a slow-growing population of women in their years of peak fertility—and more women choose to have fewer children and have them at an older age, average annual births are expected to steadily decline over the forecast period; this combined with the rising number of deaths will lead to a natural decrease (Figure 21). 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 and Baby Boom Echo generations. For example, in Klamath County, deaths are forecast to begin to increase significantly during the 2025-2035 period as Baby Boomers age out, and peak again in the 2040-2050 period as children of Baby Boomers (i.e. the Baby Boom Echo) succumb to the effects of aging.

As the increase in the number of deaths outpaces births, population growth in Klamath County is expected to become increasingly reliant on net in-migration. Positive net in-migration is expected to persist throughout the forecast period, with 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 expected to result in population growth reaching its peak in 2020 and then 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 will likely result in a long-term decline 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 21. Klamath 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 Bonanza and Chiloquin, as well as Klamath County did not submit survey responses.

Klamath Falls—Klamath 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**
	Occupancy rates and housing market stable	No new subdivision development since 2006 boom. We are experiencing build out of subdivisions that went into foreclosure and were bought by developers at reduced prices.	Gospel Mission women's shelter still in fund raising phase. No projected start date.	Smaller retailers such as Bealls and Sportsman's Warehouse are projected to open late in 2014 and early 2015. Bealls=25 jobs and Sportsman's Warehouse=15-20 jobs	$20 million upgrade to Waste Water Treatment Plant with design starting in 2015. Brett Way Extension project from Summers Lane to Homedale—construction in 2017 Numerous smaller water and sewer line rehabilitation projects each year.	**Promos:** Brett Way extension will open several large tracts of land for industrial development. **Hinders:**

Klamath Falls—Klamath County	
Highlights or summary of influences on or anticipation of population and housing growth from planning documents and studies	
Other information (e.g. planning documents, email correspondence, housing development survey)	

Malin—Klamath 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**
Hispanic population has grown over the years. We have numerous single elderly residents. Our school age student population seems to be stable.	We have a high rate of rental property. We usually have more people wanting to move to Malin and rent but do not have as much housing opportunities for them, especially 2-3 bedroom homes.	No planned development at this time We do have an undeveloped area north of Malin that is for sale. There is potential for 12-15 homes or more if it gets developed.	No plans at this time.	At present the business industry is slow, but hopefully Malin will be able to attract small businesses to the area.	Malin's streets, water, and sewer can easily accommodate growth of several hundred people.	**Promos:** Good infrastructure, emergency services, schools, great park and recreational facilities. Have enough land for expansion. **Hinders:** Drought and government water shutoff's that hurt the economic in the area. No medical facilities and limited shopping.

Malin—Klamath County	
Highlights or summary of influences on or anticipation of population and housing growth from planning documents and studies	The city has annexed several properties into city limits over the past ten years. Most of these properties could be developed if and when the country's economics improves, thus potentially increasing building resulting in more businesses and population. The city has not updated its comprehensive plan since that late 1980s. Most of Malin's planning information is on a visionary basis and not hard data. Malin updated the water system in 1999, added an extra lagoon pond in 2009, and made numerous updates in the streets and sidewalks.
Other information (e.g. planning documents, email correspondence, housing development survey)	

Merrill—Klamath 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**
Big population of Hispanic families. The Elderly take a great amount of population in the City. At least 2 children in every other household.	Occupancy rates stable.			Malin Potato Co-op Carleton Farms	City of Merrill Water/Sewer Department	**Promos:** Malin Potato Co-op is adding a sorting facility that can potentially open up a few positions. Carleton Farms is adding a potato storage with a potential chance of employing. **Hinders:** Couple of businesses are closing.

Merrill—Klamath County	
Highlights or summary of influences on or anticipation of population and housing growth from planning documents and studies	
Other information (e.g. planning documents, email correspondence, housing development survey)	

Email Communication

Comment from Klamath County: April 2, 2015

This is a few days late, but I wanted to give people some time to look over all that data. Nobody has raised any concerns about the Preliminary Population Forecast, so it doesn't look like we're going to have any major objections.

Interestingly enough there was a newspaper article here the very next morning that talked about how the County population has decreased over the last 4 years, so the decrease over time in the forecast was not a totally new phenomenon for the County.

Response from PSU: April 3, 2015

Thanks very much for your e-mail, and we are glad to hear that folks in Klamath are in general agreement with the coordinated forecast numbers.

Just as a heads up, the Proposed Coordinated Population Forecasts (including a short draft report) are now available here: http://www.pdx.edu/prc/opfp

Thanks again for your help and feedback

Appendix B: Specific Assumptions

Bonanza

The annual housing unit growth rate is assumed to increase over the forecast period to a little less than one percent—this is still closer to a long term historical average annual growth rate. The occupancy rate is assumed to stay at about 90 percent throughout the forecast period. Average household size is assumed to be constant over the forecast period, remaining at the size observed in 2010. Group quarters population is assumed to remain at zero.

Chiloquin

The annual housing unit growth rate is assumed to be relatively steady over the forecast period, staying at a rate slightly higher than the historical average of the 2000s. The occupancy rate is assumed to stay at the rate observed in 2010 throughout the forecast period. Average household size is assumed to remain at a long term historical average number of persons per household. Group quarters population is assumed to remain at zero.

Klamath Falls

The total fertility rate (TFR) is assumed to decline over the forecast period—although more slowly than it has historically—from a rate slightly lower than observed in 2010. Survival rates for 2060 are assumed to be a little closer to those forecast for the county as a whole. Klamath Falls has historically had slightly lower survival rates than observed countywide; this corresponds with a slightly shorter life expectancy. Age-specific net migration rates are assumed to generally follow historical patterns for Klamath Falls, but at slightly higher rates over the forecast period.

Malin

The annual housing unit growth rate is assumed to be, on average, slightly higher than a midterm historical average growth rate for the duration of the forecast period. The occupancy rate is assumed stay at the rate observed in 2010 throughout the forecast period. Average household size is assumed to decline over the forecast period, with an average of just fewer than three persons per household. Group quarters population is assumed to remain at zero.

Merill

The annual housing unit growth rate is assumed to be, on average, slightly higher than a midterm historical average growth rate for the duration of the forecast period. The occupancy rate is assumed to remain at the rate observed in 2010. Average household size is assumed to remain steady over the forecast period. Group quarters population is assumed to remain at four persons over the forecast period.

Outside UGBs

The total fertility rate (TFR) is assumed to decline over the forecast period—although more slowly than it has historically—from a rate slightly less than observed in 2010. Survival rates for 2060 are assumed to be a little above those forecast for the county as a whole. The area outside UGBs in Lane 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 historical

patterns for the area outside UGBs in Klamath County, but at slightly higher rates over the forecast period.

Appendix C: Detailed Population Forecast Results

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

Age Group	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065
00-04	3,821	3,790	3,728	3,597	3,460	3,330	3,221	3,109	2,986	2,864	2,796
05-09	3,882	3,743	3,715	3,618	3,485	3,350	3,223	3,114	3,004	2,886	2,818
10-14	3,738	3,862	3,728	3,665	3,564	3,431	3,297	3,169	3,060	2,953	2,889
15-19	4,141	3,686	3,808	3,639	3,572	3,471	3,341	3,207	3,081	2,976	2,926
20-24	4,344	4,032	3,617	3,698	3,529	3,462	3,364	3,235	3,104	2,984	2,877
25-29	3,850	4,035	3,776	3,350	3,420	3,263	3,200	3,107	2,986	2,867	2,750
30-34	3,507	3,866	4,085	3,785	3,355	3,424	3,266	3,201	3,107	2,989	2,865
35-39	3,568	3,703	4,109	4,302	3,983	3,531	3,604	3,436	3,368	3,272	3,143
40-44	3,834	3,817	3,999	4,402	4,606	4,266	3,783	3,861	3,682	3,614	3,507
45-49	3,995	4,067	4,080	4,238	4,663	4,882	4,524	4,013	4,097	3,913	3,837
50-54	4,586	4,192	4,306	4,286	4,453	4,905	5,141	4,768	4,234	4,332	4,137
55-59	5,019	4,877	4,483	4,566	4,546	4,729	5,216	5,473	5,082	4,523	4,628
60-64	5,451	5,345	5,231	4,772	4,864	4,851	5,056	5,584	5,869	5,466	4,867
65-69	4,831	5,774	5,725	5,569	5,088	5,197	5,194	5,424	6,004	6,332	5,903
70-74	3,383	4,349	5,195	5,431	5,357	4,918	5,039	5,048	5,285	5,874	6,203
75-79	2,341	2,842	3,645	4,605	4,720	4,853	4,326	4,602	4,628	4,871	5,428
80-84	1,648	1,731	2,100	2,862	3,682	3,808	3,939	3,527	3,775	3,821	4,039
85+	1,105	1,051	1,065	1,316	1,820	2,492	2,962	3,347	3,432	3,708	3,977
Total	*67,043*	*68,762*	*70,396*	*71,701*	*72,164*	*72,163*	*71,694*	*71,224*	*70,785*	*70,246*	*69,591*

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

	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065
Bonzanza Town UGB	441	453	473	493	513	533	554	575	597	619	641
Chiloquin UGB	768	779	787	795	803	811	819	827	834	842	849
Klamath Falls UGB	43,093	43,685	44,298	44,917	45,363	45,732	45,871	45,982	46,063	46,035	45,907
Malin UGB	833	870	892	909	926	943	961	979	997	1,016	1,035
Merrill UGB	942	961	981	1,003	1,026	1,049	1,074	1,099	1,126	1,153	1,182
Outside UGBs	20,966	22,013	22,964	23,585	23,534	23,094	22,416	21,763	21,168	20,582	19,977

Photo Credit: Sunset at Lake of the Woods in the Cascade Mountains. (Photo No. klaDA0254)

Gary Halvorson, Oregon State Archives

http://arcweb.sos.state.or.us/pages/records/local/county/scenic/klamath/152.html