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Coordinated Population Forecast for Hood River County, its Urban Growth Boundaries (UGB), and Area Outside UGBs 2020-2070

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Coordinated Population Forecast

2020

Through

2070

Hood River County

Urban Growth Boundaries (UGB) & Area Outside UGBs

Population Research Center
PORTLAND STATE UNIVERSITY

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2020-2070

Prepared by

Population Research Center

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How to Read this Report

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

- *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 (2020-2070).

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Modified Methodology

The Population Research Center, in consultation with DLCD, has identified cost savings associated with a modified methodology for the latter half of the 50-year forecast period (years 26 to 50). Fortunately, stakeholder feedback has indicated that a 25-year forecast fulfills most requirements for local planning purposes. Thus, we focus on years 1 through 25 to improve the cost effectiveness of the program. The cost savings from this change will allow DLCD to direct additional resources toward local government grants.

For the modified methodology, the Population Research Center continues to use forecast methods when estimating county and sub-area populations for the first 25 years of the 50-year forecast period. We then use a modified projection method for the remaining 25 years. A description of the forecast methodology can be accessed through the forecast program website (www.pdx.edu/prc/opfp). A summary of our modified projection method is below.

For years 26-50, PRC projects the county population using the annual growth rate from the 24^{th}-25^{th} year. For example, if we were to forecast a county to grow by 0.4 percent between the 24th and 25th year of the forecast, we would project the county population thereafter using a 0.4 percent annual growth rate. To allocate the projected county population to its sub-areas, we extrapolate the change in sub-area shares of county population observed in years 1-25 and apply the resulting shares to the projected county population.

Comparison to Cycle 1 (2015-17)

To keep up to date with local trends and shifting demands, the Oregon Population Forecast Program (OPFP) regularly updates its coordinated population forecasts for Oregon's counties and their sub-areas. The 2020 forecast for Hood River County is an update of the 2016 version, and it differs from the prior iteration in several ways. Overall, we forecast a lower starting population and slightly lower population growth rates in the near-term for Hood River County than previously forecasted. In part due to the lower starting population and growth, we expect fewer births and deaths, ultimately translating to smaller natural population increases between 2020 and 2035. We continue to expect net in-migration to Hood River County over the forecast period. However, we now forecast lower levels of net in-migration to better align with recent observations. We expect net in-migration to stay below the level previously forecasted.

This report also contains forecasts for Hood River County's sub-areas. At the sub-area level, we continue to expect similar levels of growth in the City of Hood River, but we forecast slower near-term growth in Cascade Locks. We expect Hood River County's non-UGB areas to grow at slower rates throughout the forecast period than previously forecasted, in line with a slowdown in housing unit growth observed throughout the 2010s. Given slower forecasted growth in Cascade Locks and areas outside of UGBs, we anticipate that the City of Hood River will gradually account for a greater share of the county population than previously forecasted. The full breakdown of differences between the current and previous forecasts by county and sub-area can be accessed at the following website: https://www.pdx.edu/prc/current-documents-and-presentations.

Executive Summary

Historical

Different sub-areas within Oregon's counties experience different growth patterns. Those patterns combine to collectively determine county-level demographic changes. Hood River County is comprised of two types of sub-areas: urban-growth boundary (UGB) areas (Cascade Locks and the City of Hood River) and areas outside of those UGBs. In this report, we describe demographic trends and forecasts for the county as a whole as well as its sub-areas.

Hood River County's total population has grown steadily over the last half century, with average annual growth rates exceeding 1 percent in every period except during Oregon's deep 1980s recession and the Great Recession (see **Figure 3**). The county's sub-areas exhibited different growth patterns over the last two decades. The City of Hood River grew quickest at 1.4 percent annually. Meanwhile, Cascade Locks and non-UGB areas experienced greater fluctuations, with Cascade Locks jumping from 0.3 percent annual growth during the 2000s to 1.4 percent growth during the 2010s, and non-UGB areas slowing from 0.6 percent annual growth during the 2000s to 0.4 percent growth during the 2010s (see **Figure 1**).

Considered as a whole, Hood River County's population growth between 2000 and 2020 resulted from a combination of natural population increase (births exceeding deaths) and net in-migration. However, since about 2010, Hood River County's annual natural population increase has decreased in size, falling from roughly 120 to 60 people. This is due to several factors. Most notably, between 2000 and 2010, Hood River County's total fertility rate fell much more drastically than the statewide rate. This—combined with the national trend of aging population—led to fewer births and more deaths over time and, thus, declining natural increase. Net migration, on the other hand, was much more variable than the steadily declining natural increase. Frequently, it was larger in magnitude too, which enabled it to exert considerable influence over the county's growth rates. In years with strong net in-migration, the county experienced strong growth rates. However, in years with weak in-migration or even out-migration, growth rates slowed to a crawl.

Forecast

The Population Research Center forecasts that, despite declining natural increase, Hood River County will continue its steady growth pattern, gaining over 5,000 residents by 2045 and another 5,000 by 2070 (see **Figure 1**). This will result primarily from net in-migration, with natural increase expected to turn to natural decrease in the late 2030s as the number of deaths each year rises. The population is forecast grow fastest in the City of Hood River, with the sub-area gaining as a share of the total county population throughout the forecast period.

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

Area	Population (2000)	Population (2010)	AAGR (2000-2010)	Population (2020)	Population (2045)	Population (2070)	AAGR (2010-2020)	AAGR (2020-2045)	AAGR (2045-2070)
Hood River County	**20,411**	**22,346**	***0.9%***	**24,406**	**29,702**	**35,124**	***0.9%***	***0.8%***	***0.7%***
Cascade Locks	1,117	1,147	*0.3%*	1,324	1,534	1,729	*1.4%*	*0.6%*	*0.5%*
Hood River City	7,648	8,800	*1.4%*	10,177	13,924	18,185	*1.4%*	*1.3%*	*1.1%*
Outside UGBs	11,646	12,399	*0.6%*	12,905	14,244	15,211	*0.4%*	*0.4%*	*0.3%*

Figure 1 Sources: U.S. Census Bureau, 2000 and 2010 Censuses; Forecast by Population Research Center (PRC). Note: For simplicity each UGB is referred to by its primary city's name.

14-Year Population Forecast

Figure 2 provides a 14-year population forecast (2020-2034) for the county and its sub-areas, as required by House Bill 2254. Populations at the 14th year of the forecast were interpolated using the average annual growth rate during the 2030-2035 period. The population interpolation template can be accessed at the following website: https://www.pdx.edu/prc/current-documents-and-presentations.

Figure 2. Hood River County and Sub-Areas—14-Year Population Forecast

Area	Population (2020)	Population (2034)	14-Year Change	AAGR (2020-2034)
Hood River County	**24,406**	**27,443**	**3,037**	***0.8%***
Cascade Locks	1,324	1,430	106	*0.6%*
Hood River City	10,177	12,310	2,133	*1.4%*
Outside UGBs	12,905	13,703	798	*0.4%*

Figure 2 Source: Forecast by Population Research Center (PRC). Note: For simplicity each UGB is referred to by its primary city's name.

Historical Trends

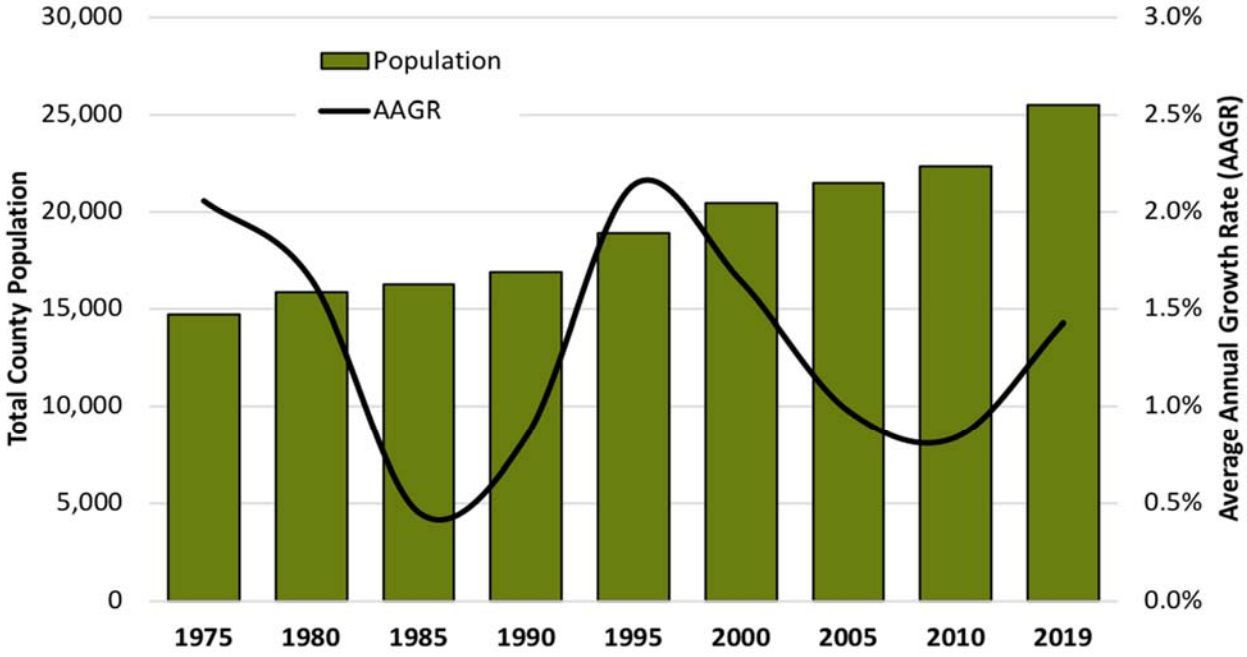
We examined Hood River County and its sub-areas to identify important demographic characteristics and trends that might influence those areas' population forecasts. Factors analyzed include historical population levels, age composition of the population, race and ethnicity, births, deaths, migration, the number of housing units, occupancy rate, and persons per household (PPH). As the coming pages demonstrate, population trends within individual sub-areas often differ from those of the overall county, while population growth rates for the county are influenced by local sub-area trends collectively.

Population

Figure 3 graphs Hood River County's historical populations and growth rates in 5-year increments, from 1975 to 2019. Hood River County's total population grew from 14,675 in 1975 to 25,480 in 2019.

In the late 1970s and early 1980s the county grew steadily, averaging around 2 percent growth annually. However, during the mid-1980s, challenging economic conditions nationally and in Oregon led to a brief period in which the average annual population growth rate fell to 0.5 percent annually. Growth rates recovered to 2.1 percent during the late 1990s but have since declined to around 1 to 1.5 percent annually. **Figure 3** includes a table below the chart containing the exact values plotted, a format applied to many charts throughout this report.

Figure 3. Hood River County—Total Population by Five-year Intervals (1975-2019)



Year	1975	1980	1985	1990	1995	2000	2005	2010	2019
Population	14,675	15,863	16,244	16,903	18,890	20,411	21,478	22,346	25,480
AAGR	2.1%	1.7%	0.5%	0.8%	2.1%	1.6%	1.0%	0.8%	1.4%

Figure 3 Sources: U.S. Census Bureau, 1980, 1990, 2000, and 2010 Censuses; Population Research Center (PRC), July 1st Annual Estimates 1975, 1985, 1995, 2005 and 2019.

Note: Population Estimates from the Oregon Population Estimates Program (OPEP) may not be consistent with the 2019 population forecast due to different methodologies and data sources.

Between 2000 and 2010, Hood River County's average annual population growth rate was 0.9 percent (see **Figure 4**). Each of the county's UGB sub-areas grew during the decade, though the City of Hood River propelled the county's growth, adding population fastest at 1.4 percent annually. Cascade Locks, meanwhile, grew slowly at 0.3 percent annually, and areas outside of those two UGB areas grew at 0.6 percent annually. Because the City of Hood River's growth rate exceeded the growth rate countywide, the city grew as a share of the total county population by roughly 2 percentage points.

Figure 4. Hood River County and Sub-Areas—Total Population and Average Annual Growth Rate (AAGR) (2000 and 2010)

Area	Population (2000)	Population (2010)	AAGR (2000-2010)	Share of County (2000)	Share of County (2010)	Change (2000-2010)
Hood River County	*20,411*	*22,346*	*0.9%*	*100.0%*	*100.0%*	*0.0%*
Cascade Locks	*1,117*	*1,147*	0.3%	5.5%	5.1%	-0.3%
Hood River City	*7,648*	*8,800*	1.4%	37.5%	39.4%	1.9%
Outside UGBs	*11,646*	*12,399*	0.6%	57.1%	55.5%	-1.6%

Figure 4 Source: U.S. Census Bureau, 2000 and 2010 Censuses. Note: For simplicity each UGB is referred to by its primary city's name.

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

Age Structure of the Population

Like most areas across Oregon, Hood River County's population is aging. This means the county's older age cohorts are growing as a share of the county's total population. As the population ages, the number of deaths may increase and the proportion of women in their childbearing years may decrease, resulting in fewer births.

Figure 5 illustrates this phenomenon by showing how Hood River County's age structure has changed over time. The figure contains two "population pyramids," one for 2000 and one for 2010. Each pyramid shows the percentage of the total county population that falls within each five-year age and gender cohort (e.g. female 35-39-year-olds). The oldest age cohort shown is 85 years and older. Between 2000 and 2010, Baby Boomers in their 40s and 50s aged into their 50s and 60s. As a result, individuals over 55 years old grew from a 19.1 to 22.0 percent share of the county's total population. Over the same time period, females between ages 15 and 49—considered childbearing years—declined as proportion of the total population from 24.4 to 22.7 percent, and their fertility rates fell. These facts create the overall aging effect described above, whereby older residents come to comprise a greater share of all residents.

Figure 5. Hood River County—Age Structure of the Population (2000 and 2010)

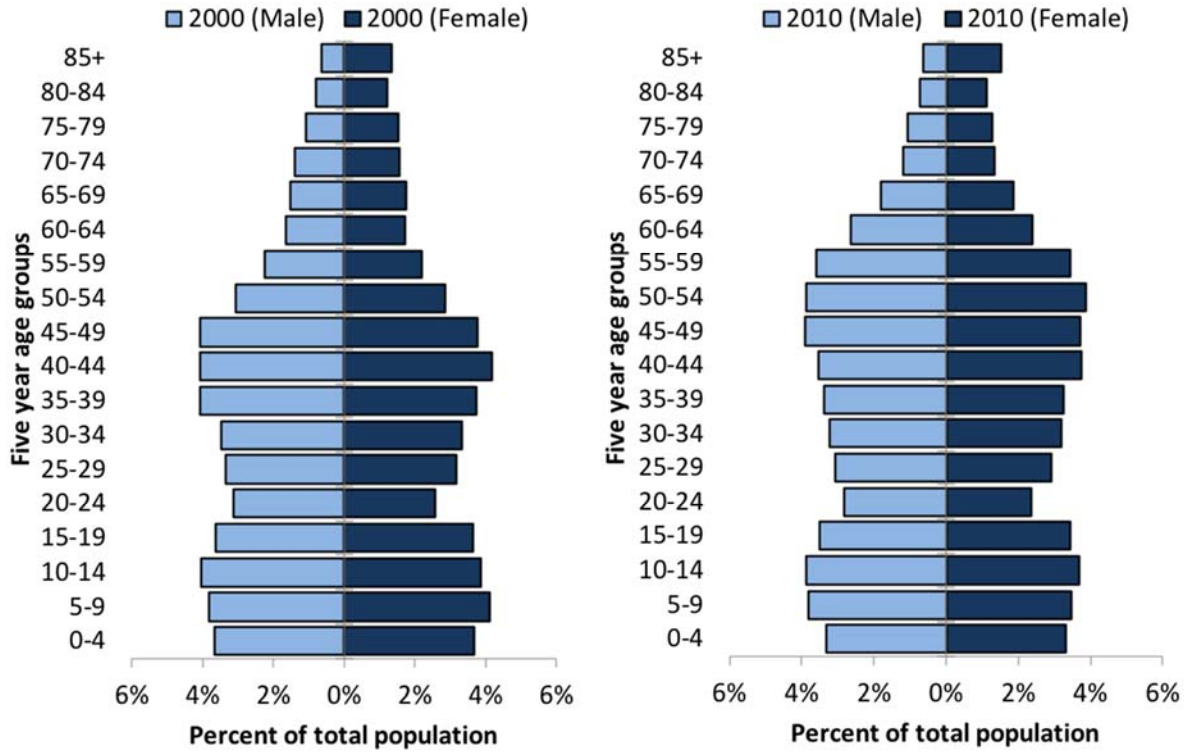


Figure 5 Source: U.S. Census Bureau, 2000 and 2010 Censuses.

Race and Ethnicity

In addition to statewide aging, another demographic shift is occurring across Oregon: growing racial and ethnic diversity. Between 2000 and 2010, Hood River County primarily saw this shift in an increase in its Latino population. This shift is noteworthy on its own, but also for its impact on the components of population change. First, fertility rates among Latinas have tended to be higher than those among White, non-Latinas. Although recent data shows that Latina fertility rates are quickly declining in some areas, the population is younger and thus still contributes more births. Second, Latino households have tended to be larger, on average, than White, non-Latino households. Thus, growth of Latino populations in Oregon has the potential to raise average household sizes.

Between 2000 to 2010, the Latino population in Hood River County increased by about 1,500 people. That represents a 29 percent increase, growing the population from an already sizable 25 percent of the county's total population to 29.5 percent (see **Figure 6**). Over the same time period, Hood River County's White, non-Latino population grew by nearly 300 people, but declined as a share of the overall population, from 70.7 to 65.8 percent.

Figure 6. Hood River County—Hispanic or Latino and Race (2000 and 2010)

Race and Ethnicity	Pop. (2000)	Pop. Share (2000)	Pop. (2010)	Pop. Share (2010)	Absolute Change	Relative Change
Total population	20,411	100.0%	22,346	100.0%	1,935	9.5%
Hispanic or Latino	5,107	25.0%	6,589	29.5%	1,482	29.0%
Not Hispanic or Latino	15,304	75.0%	15,757	70.5%	453	3.0%
White alone	14,426	70.7%	14,714	65.8%	288	2.0%
Black or African American alone	66	0.3%	63	0.3%	-3	-4.5%
American Indian and Alaska Native alone	177	0.9%	144	0.6%	-33	-18.6%
Asian alone	294	1.4%	305	1.4%	11	3.7%
Native Hawaiian and Other Pacific Islander alone	18	0.1%	30	0.1%	12	66.7%
Some Other Race alone	31	0.2%	25	0.1%	-6	-19.4%
Two or More Races	292	1.4%	476	2.1%	184	63.0%

Figure 6 Source: U.S. Census Bureau, 2000 and 2010 Censuses.

Births

In Oregon, the total fertility rate (TFR), or the average number of children a woman would have over her childbearing years based on age-specific rates at a given point in time, declined from 1.98 in 2000 to 1.79 in 2010 (see **Figure 7**). Over the same time period, Hood River County's TFR declined much more precipitously: from 2.85 to 2.09. We have observed continued sharp decline in Oregon's TFR since 2010. This decline has been less pronounced in Hood River County. Consequently, we forecast that Hood River County's TFR will fall to 1.90 throughout the forecast period, while Oregon's TFR will fall to 1.51.

Figure 7. Hood River County and Oregon—Total Fertility Rates (2000 and 2010)

Area	Total Fertility Rate (2000)	Total Fertility Rate (2010)	Total Fertility Rate (2045)
Hood River County	2.85	2.09	1.90
Oregon	1.98	1.79	1.51

Figure 7 Sources: U.S. Census Bureau, 2000 and 2010 Censuses; Oregon Health Authority, Center for Health Statistics. Calculations and forecast by Population Research Center (PRC).

Figure 8 provides more detail on fertility trends by presenting a graph of Hood River County's historical fertility rates by female age cohort. It shows that between 2000 to 2010, Hood River County's fertility declined drastically among female age cohorts under 30 years old. On the other hand, fertility rates grew slightly for individuals over 30 years old.

Figure 8. Hood River County—Age-Specific Fertility Rates (2000 and 2010)

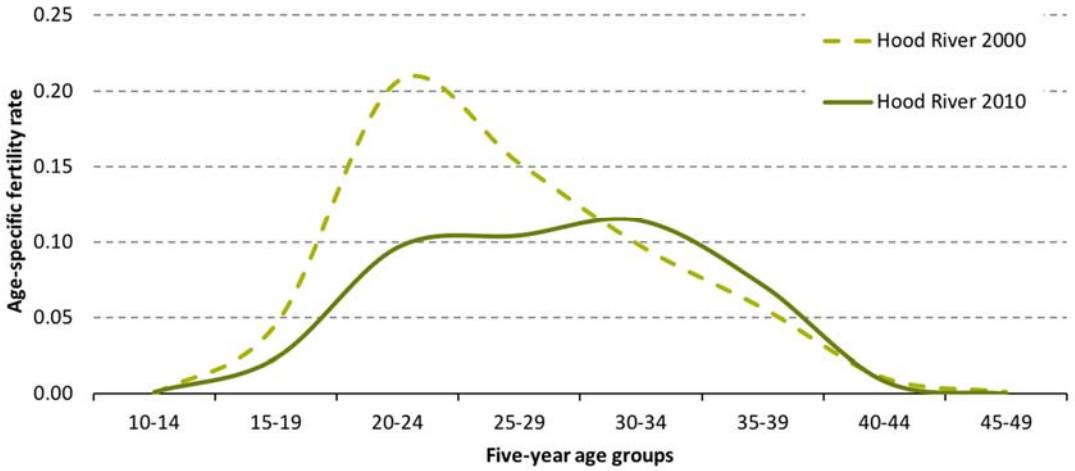
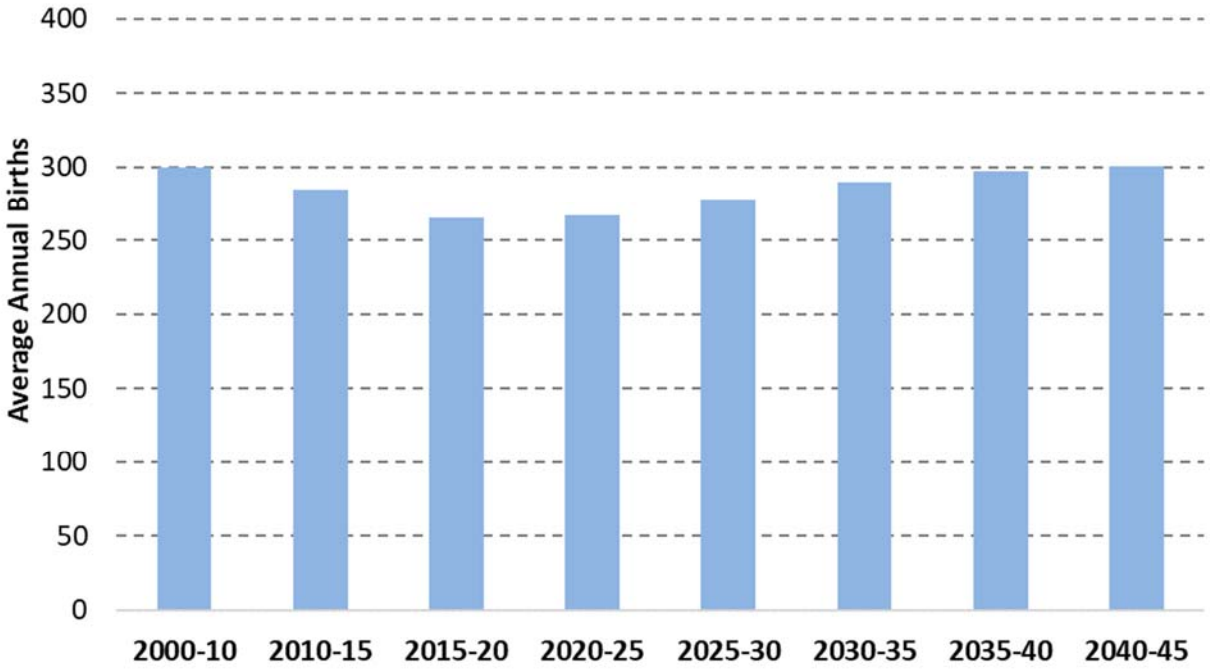


Figure 8 Sources: U.S. Census Bureau, 2000 and 2010 Censuses; Oregon Health Authority, Center for Health Statistics. Calculations by Population Research Center (PRC).

Figure 9 unites the concepts explored in **Figures 5 through 8** by showing the number of historical and forecasted births in Hood River County. The average annual number of births to residents of Hood River County declined from 300 to around 270 between 2000 and 2020. Between 2020 and 2045, we expect the average annual number of births to slowly recover to 300 per year.

This may seem odd considering Hood River County's declining fertility rates. While we expect women, on average, to have fewer children in the future, we also expect that over the forecast period, more women of childbearing age will live in Hood River County than live there currently. This expectation is based on anticipated overall population growth in Hood River County as well as the county's record of steady net in-migration of adults between 30 and 40 years old.

Figure 9. Hood River County—Average Annual Births (2010-2045)



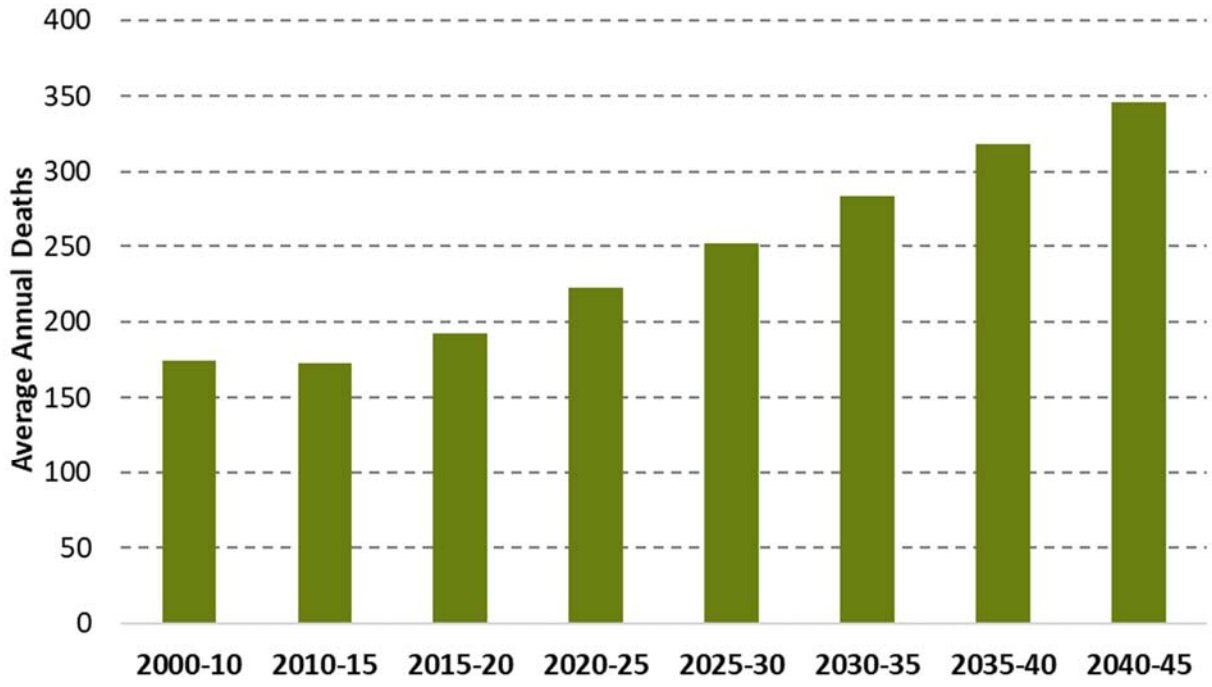
Year	2000-10	2010-15	2015-20	2020-25	2025-30	2030-35	2035-40	2040-45
Births	300	285	266	267	278	290	297	301

Figure 9 Sources: Oregon Health Authority, Center for Health Statistics. Calculations and forecast by Population Research Center (PRC).

Deaths

The population in Hood River County is aging, yet the county's survival rates only improved modestly between 2000 and 2010. This underscores the fact that mortality is a relatively stable component of population change when compared with birth and migration rates. Average annual deaths in Hood River County have begun growing since 2010, from around 173 between 2010 and 2015 to 192 between 2015 and 2020. Due to population aging, the average annual number of deaths is expected to continue increasing in the coming years. **Figure 10** depicts that forecasted increase, showing that average annual deaths will increase to 346 during the 2040-45 period.

Figure 10. Hood River County—Average Annual Deaths (2010-2045)



Year	2000-10	2010-15	2015-20	2020-25	2025-30	2030-35	2035-40	2040-45
Deaths	174	173	192	222	251	284	318	346

Figure 10 Sources: Oregon Health Authority, Center for Health Statistics. Calculations and forecast by Population Research Center (PRC).

Migration

Age and stage of life strongly influence people's likelihood of migrating from one city or county to another. As such, age-specific migration rates are critical in assessing migration patterns. Age-specific migration rates are the number of net migrants per person for an age group. **Figure 11** graphs Oregon's and Hood River County's historical age-specific migration rates by five-year age group (e.g. ages 35-39). In general, between 2000 and 2010 Oregon attracted migrants across all age cohorts, especially individuals in their late 20s and early 30s. Oregon only experienced out-migration among individuals older than 85 years, perhaps in search of end-of-life care.

Hood River County's migration patterns were more nuanced. The county experienced steady net in-migration of families—children under 20 years old and adults between 30 and 55 years old. Individuals older than 55 tended to exhibit as much in- as out-migration. Young adults between 20 and 30 were the primary age cohort that exhibited strong net out-migration, perhaps seeking college, employment, and social opportunities available in more urban locations.

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

Figure 11 Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Calculated by Population Research Center (PRC).

Historical Trends in Components of Population Change

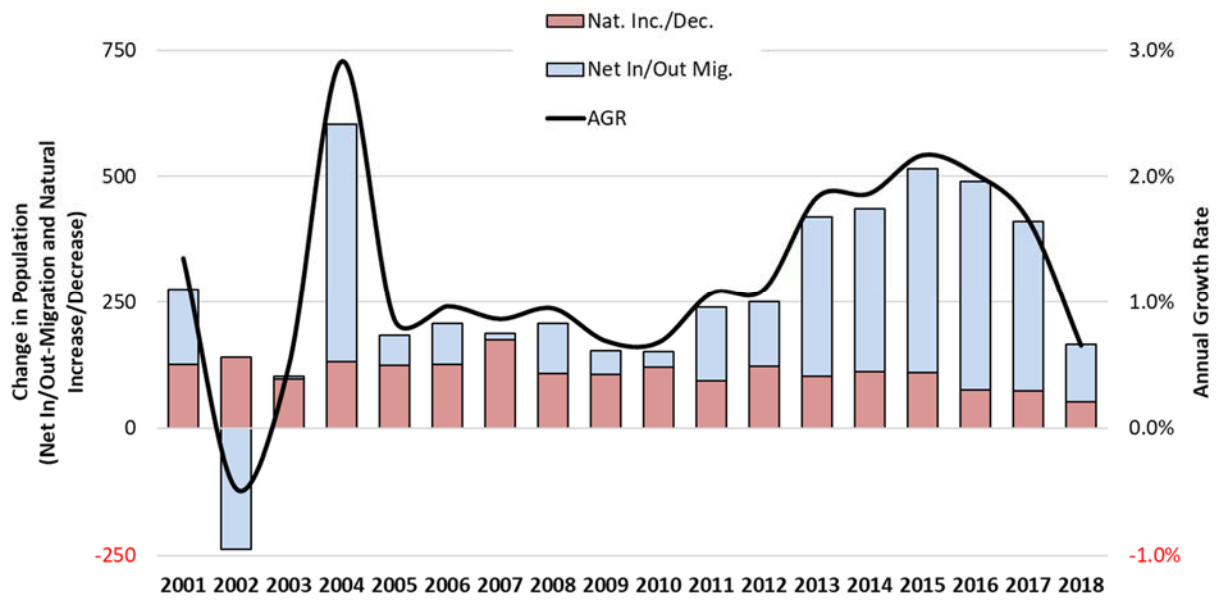
In this subsection, we summarize many of the demographic trends described above. First, we integrate birth and death trends by calculating natural increase (births minus deaths). Second, we translate migration rates from **Figure 11** into absolute net in- or out-migration. Finally, we graph annual net migration, natural increase, and the resulting population growth rate for each year from 2001 to 2018 in **Figure 12**.

The figure reveals that Hood River County experienced consistent natural increase—more births than deaths—in every year between 2001 and 2018. However, natural increase has declined during the 2010s from roughly 120 more births than deaths to roughly 50 in 2018. This shift resulted from a combination of factors, especially the county's declining total fertility rate and the fact that, over two decades, the large Baby Boomer cohort steadily aged toward life stages with lower survival rates.

The figure also shows that, prior to the Great Recession, net in-migration to Hood River County tended to be limited in magnitude. Only sporadically did the county experience strong net in- or out-migration. Since the Great Recession, however, net in-migration has contributed the bulk of population growth in Hood River County.

With consistently positive yet declining natural increase and variable net migration, population growth rates in Hood River County have tracked closely with net migration patterns—the factor changing most from year to year. Said another way, growth rates were strong in years with strong net in-migration but weak or negative in years with low net in-migration or net out-migration, such as 2002 and 2003.

Figure 12. Hood River County—Components of Population Change (2001-2018)



Year	2001	2002	2003	2004	2005	2006	2007	2008	2009
Net Mig.	150	-237	5	472	59	82	13	100	46
Nat. Inc./Dec.	126	140	98	131	124	126	175	108	107
AGR	1.4%	-0.5%	0.5%	2.9%	0.9%	1.0%	0.9%	0.9%	0.7%

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Net Mig.	31	147	128	317	324	406	415	336	113
Nat. Inc./Dec.	120	93	122	103	111	109	75	74	52
AGR	0.7%	1.1%	1.1%	1.8%	1.9%	2.2%	2.0%	1.7%	0.7%

Figure 12 Sources: Population Research Center, July 1st Annual Estimates 2001-2018 Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).

Note: Annual net in/out-migration estimates are based on population estimates from the Oregon Population Estimates Program. As such, migration assumptions for the 2019 population forecast may not be consistent with assumptions from OPEP.

Housing and Households

The total number of housing units in Hood River County increased from 7,818 in 2000 to 9,271 2010, a 19 percent increase (see **Figure 13**). Roughly 60 percent of new housing units built in this time period were built in the City of Hood River. Cascade Locks and areas outside of UGBs added housing at roughly one fifth and one half the rate of the City of Hood River, respectively. Housing unit counts from the ongoing 2020 Census will clarify whether these trends have continued since 2010.

Housing growth rates may differ from population growth rates because (1) the numbers of total housing units are fewer than the numbers of people; (2) the UGB has experienced changes in the average number of persons per household; or (3) occupancy rates have changed.

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

Area	Housing Units (2000)	Housing Units (2010)	AAGR (2000-2010)	Share of County 2000	Share of County 2010	Change (2000-2010)
Hood River County	*7,818*	*9,271*	*1.7%*	*100.0%*	*100.0%*	*0.0%*
Cascade Locks	477	503	0.5%	6.1%	5.4%	-0.7%
Hood River City	3,265	4,120	2.4%	41.8%	44.4%	2.7%
Outside UGBs	4,076	4,648	1.3%	52.1%	50.1%	-2.0%

Figure 13 Source: U.S. Census Bureau, 2000 and 2010 Censuses. Note: For simplicity each UGB is referred to by its primary city's name.

Average household size—or persons per household (PPH)—in Hood River County declined by about 2 percent during the 2000s (see **Figure 14**). Each of Hood River County's sub-areas experienced a decline in PPH, which corresponds with a statewide trend of decreasing PPH.

Occupancy rates tend to fluctuate more than PPH. This is particularly true in smaller UGBs where fewer housing units allow for larger relative changes in occupancy rates. From 2000 to 2010, the occupancy rate in Hood River County declined from 92.7 to 88.2 percent (see **Figure 14**). Though this trend draws on decreases in occupancy countywide, in particular it reflects a decrease of 5.7 percent in the City of Hood River's occupancy rate, perhaps due to an increase in the proportion of second homes and vacation rentals in the city.

Figure 14. Hood River County and Sub-Areas—Persons per Household (PPH) and Occupancy Rate (2000 and 2010)

Area	Persons per Household (2000)	Persons per Household (2010)	Change 2000-2010	Occupancy Rate (2000)	Occupancy Rate (2010)	Change 2000-2010
Hood River County	*2.7*	*2.6*	*-2.2%*	*92.7%*	*88.2%*	*-4.6%*
Cascade Locks	*2.6*	*2.6*	*-1.5%*	*89.7%*	*88.7%*	*-1.1%*
Hood River City	*2.5*	*2.4*	*-0.9%*	*92.3%*	*86.6%*	*-5.7%*
Outside UGBs	*2.9*	*2.8*	*-2.6%*	*93.4%*	*89.5%*	*-3.9%*

Figure 14 Source: U.S. Census Bureau, 2000 and 2010 Censuses. Calculated by Population Research Center (PRC). Note: For simplicity each UGB is referred to by its primary city's name.

Assumptions for Future Population Change

Evaluating past demographic trends provides clues about what the future will look like. This helps us establish reasonable assumptions for likely scenarios of population change.

In order to make population forecasts, we rely on two methods and two corresponding sets of assumptions. Please see the Glossary of Key Terms at the end of this report for a brief description of these methods or refer to the *Methods* document for a more detailed description of these forecasting techniques.

- We forecast county sub-areas with populations greater than 8,000 in the forecast launch year using the cohort-component method. This method requires assumptions about fertility, mortality, and migration.
- We forecast county sub-areas with populations less than 8,000 in the forecast launch year using the housing-unit method. This method requires assumptions about changes in the number of total housing units, PPH, occupancy rates, and group quarters population.

We used the cohort-component method to generate forecasts for Hood River County, the City of Hood River, and the area outside UGBs. We used the housing-unit method to generate the forecast for Cascade Locks.

The assumptions involved in those forecasts are described below. Unfortunately, we cannot accurately predict the timing and course of some key phenomena that will influence demographic change in Oregon, such as economic recessions, climate change, or a major earthquake. We update our forecasts according to our scheduled multi-year cycle in order to enable us to correct our course as information about those and other unpredictable factors becomes available. The global outbreak of COVID-19 is an example of an unpredictable, yet important event that will influence demographic patterns around the world. It offers a fresh reminder of several key forecasting dynamics that we must consider alongside the assumptions and forecast numbers below. First, we cannot predict the timing of exogenous events such as pandemics or recessions. Second, future developments ranging from national immigration policies to state and local economic, housing, and land use strategies may alter the trajectory of population change.

Assumptions for the County

The cohort-component model used for counties and large sub-areas requires assumptions about fertility, mortality, and migration.

1. We expect the County to continue its decades-long trend of modest annual growth, led by the City of Hood River's demand for additional housing.
2. Net in-migration will increase steadily over the forecast period (2020-2045).
3. We incorporate state and local trends into our assumptions for fertility and mortality.
    a. Deaths will increase steadily through the 2040s due to aging Baby Boomers.
    b. Total fertility rates will continue to decline, following precipitous drops from 2000 to present. However, births will increase slightly over the period due to expected in-migration of residents in their 30s.
    c. Growth due to natural increase (births minus deaths) will decrease in Hood River County and in the City of Hood River, becoming negative by the late 2030s.
4. Total population is expected to increase as net in-migration outweighs waning natural increase.

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.

1. Cascade Locks indicated in its survey response that it currently has no planned housing construction, so we assume any future housing construction will follow historic patterns.

2. We expect persons per household (PPH) to continue to slightly decline, resulting from observed declines in fertility rates and an aging population.

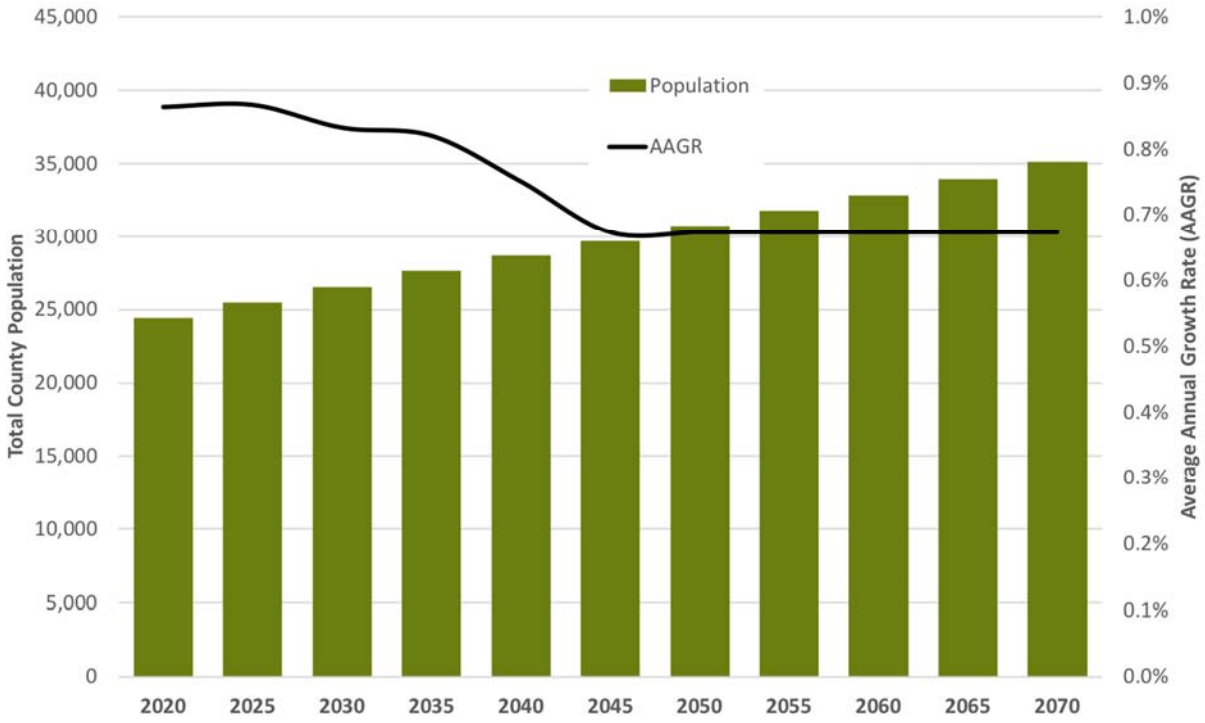
Forecast Trends

Forecast Trends in the County

We expect steady growth in Hood River County over the forecast period.

Figure 15 plots forecasted population and the average annual growth rate in five-year intervals, starting in 2020 and ending in 2070. The countywide average annual population growth rate is forecast to hold steady between 0.7 and 0.9 percent over the period, extending a decline in growth rates observed in the latter half of the 2010s. Hood River County's total population is forecast to increase by roughly 10,000 people (44 percent) between 2020 and 2070. This will translate into a total countywide population of 35,124 in 2070.

Figure 15. Hood River County—Total Forecast Population by Five-year Intervals (2020-2070)



Year	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070
Pop.	24,406	25,483	26,561	27,668	28,723	29,702	30,715	31,763	32,846	33,966	35,124
AAGR	0.9%	0.9%	0.8%	0.8%	0.8%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%

Figure 15 Source: Forecast by Population Research Center (PRC).

Forecast Trends in Sub-Areas

We expect the City of Hood River to grow faster than the county, averaging between 1.1 and 1.3 percent annually. This will raise the population of the city from roughly 10,200 people in 2020 to 18,200 people in 2070. Because this accounts for most of the county's population increase, the City of Hood River UGB's share of the county's total population will grow as well, up from 41.7 percent in 2020 to 51.8 percent in 2070 (see **Figure 16**).

Figure 16. Hood River County and Large Sub-Areas—Forecast Population and AAGR

	Population (2020)	Population (2045)	Population (2070)	AAGR (2020-2045)	AAGR (2045-2070)	Share of County 2020	Share of County 2045	Share of County 2070
Hood River County	**24,406**	**29,702**	**35,124**	***0.8%***	***0.7%***	--	--	--
Hood River City	10,177	13,924	18,185	*1.3%*	*1.1%*	*41.7%*	*46.9%*	*51.8%*
Outside UGBs	12,905	14,244	15,211	*0.4%*	*0.3%*	*52.9%*	*48.0%*	*43.3%*

Figure 16 Source: Forecast by Population Research Center (PRC). Note: For simplicity each UGB is referred to by its primary city's name.

We forecast that Cascade Locks and areas outside of UGB areas will also grow between 2020 and 2070, though at slower rates than the county as a whole (see **Figure 17**). Thus, over the long term we forecast they will both decline as shares of the county's total population. As a result, Hood River County will continue to experience a spatial redistribution of its population as the City of Hood River UGB gains as a share of total population and other areas have declining shares.

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

Area	Population (2020)	Population (2045)	Population (2070)	AAGR (2020-2045)	AAGR (2045-2070)	Share of County 2020	Share of County 2045	Share of County 2070
Hood River County	**24,406**	**29,702**	**35,124**	***0.8%***	***0.7%***	--	--	--
Cascade Locks	1,324	1,534	1,729	*0.6%*	*0.5%*	*5.4%*	*5.2%*	*4.9%*
Outside UGBs	12,905	14,244	15,211	*0.4%*	*0.3%*	*52.9%*	*48.0%*	*43.3%*

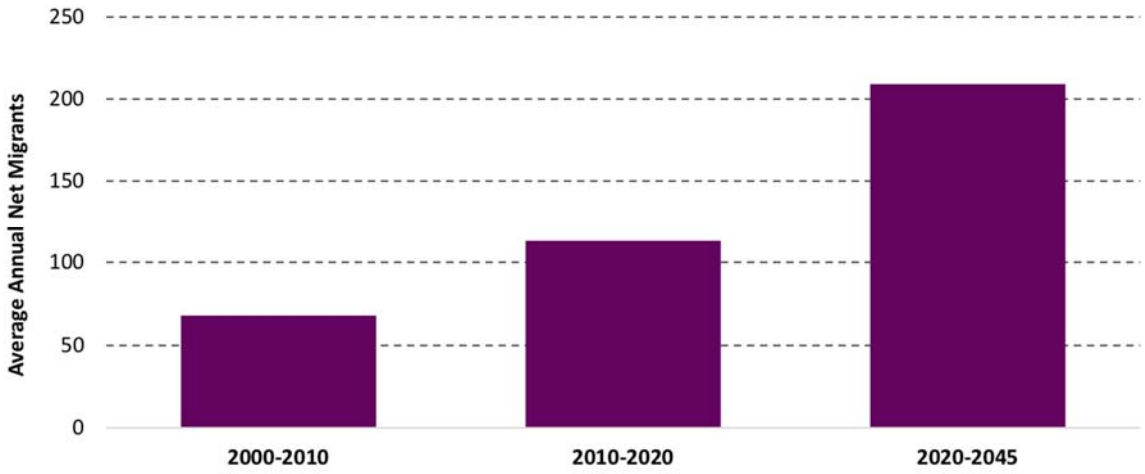
Figure 17 Source: Forecast by Population Research Center (PRC). Note: For simplicity each UGB is referred to by its primary city's name.

Forecast Trends in Components of Population Change

As previously discussed, we forecast that in-migrants will outnumber out-migrants in Hood River County, creating positive net in-migration of new residents throughout the forecast period. Important drivers of this dynamic are the forecasted aging of the population and increase in the county's number of deaths. As aging occurs and the large existing cohort of older residents passes away or retires, we assume that housing and jobs will become available, attracting new residents who migrate to the county to fill essential roles in the community.

Figure 18 shows that Hood River County's annual net in-migration averaged 68 people during the 2000s and 113 people during the 2010s. Due to the factors listed in the paragraph above between 2020 and 2045, we forecast that net in-migration will continue to rise above levels observed between 2000 and 2020 to roughly 209 people annually. **Figure 19** tells a similar story for the City of Hood River. Like the county as a whole, the city will continue the trend of increasing annual net in-migration observed since 2000.

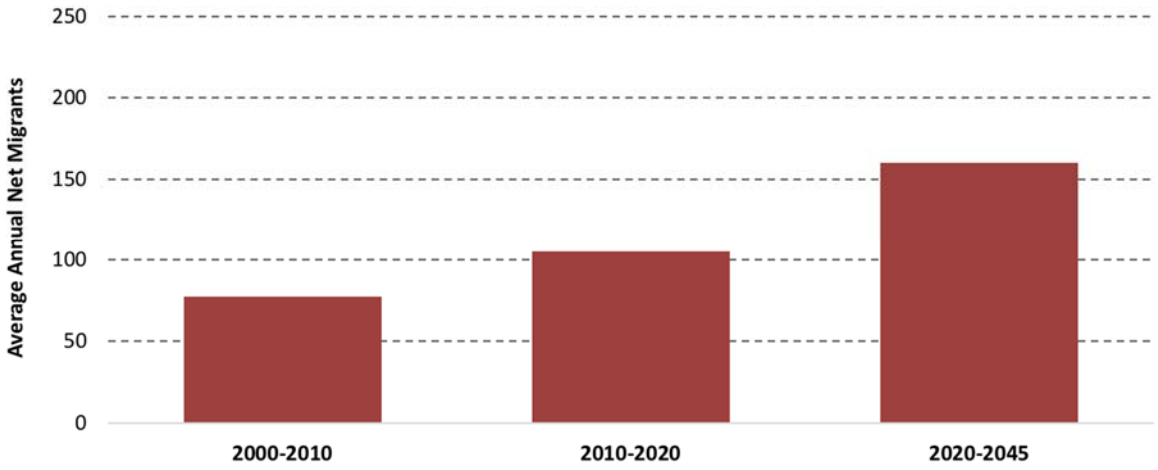
Figure 18. Hood River County—Average Annual Net In/Out-Migration (2000-2010, 2010-2020, and 2020-2045)



Year	**2000-10**	**2010-20**	**2020-45**
Hood River County	68	113	209

Figure 18 Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Calculations and Forecast by Population Research Center (PRC). Note: The average annual numbers were calculated for the 10-year periods (2000-2010 and 2010-2020) and the 25-year period (2020-2045).

Figure 19. Hood River City—Average Annual Net In/Out-Migration (2000-2010, 2010-2020, and 2020-2045)



Year	**2000-10**	**2010-20**	**2020-45**
Hood River County	77	105	160

Figure 19 Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Calculations and Forecast by Population Research Center (PRC). Note: The average annual numbers were calculated for the 10-year periods (2000-2010 and 2010-2020) and the 25-year period (2020-2045).

As mentioned above, a key factor shaping Hood River County's forecasted population is population aging. **Figure 20** plots Hood River County's population pyramids for three years: 2020, 2030, and 2045. Each pyramid graphs the percentage of the total population that falls within each five-year age and gender cohort (e.g. female 35-39-year-olds). The oldest age cohort shown is 85 years and older. **Figure 20** shows that between 2020 and 2045, the proportion of the county's population 65 years of age or older is forecast to grow from 16.4 to 21.1 percent. These changes represent the large Baby Boomer generation continuing to age through the population pyramid, expanding the share of the pyramid dedicated to the oldest cohorts.

Figure 20 also shows that the representation of females aged 15 to 49 will continue to modestly decline between 2020 and 2045, from 21.5 to 20.3 percent of the county population. Residents under 20 years old will experience a similar drop. They represented 30.5 percent of the county population in 2000 but will represent just 22.5 percent in 2045.

For a more detailed look at the age structure of Hood River County's population, see the final forecast table published on the forecast program website (https://www.pdx.edu/prc/current-documents-and-presentations).

Figure 20. Hood River County—Age Structure of the Population (2020, 2030, and 2045)

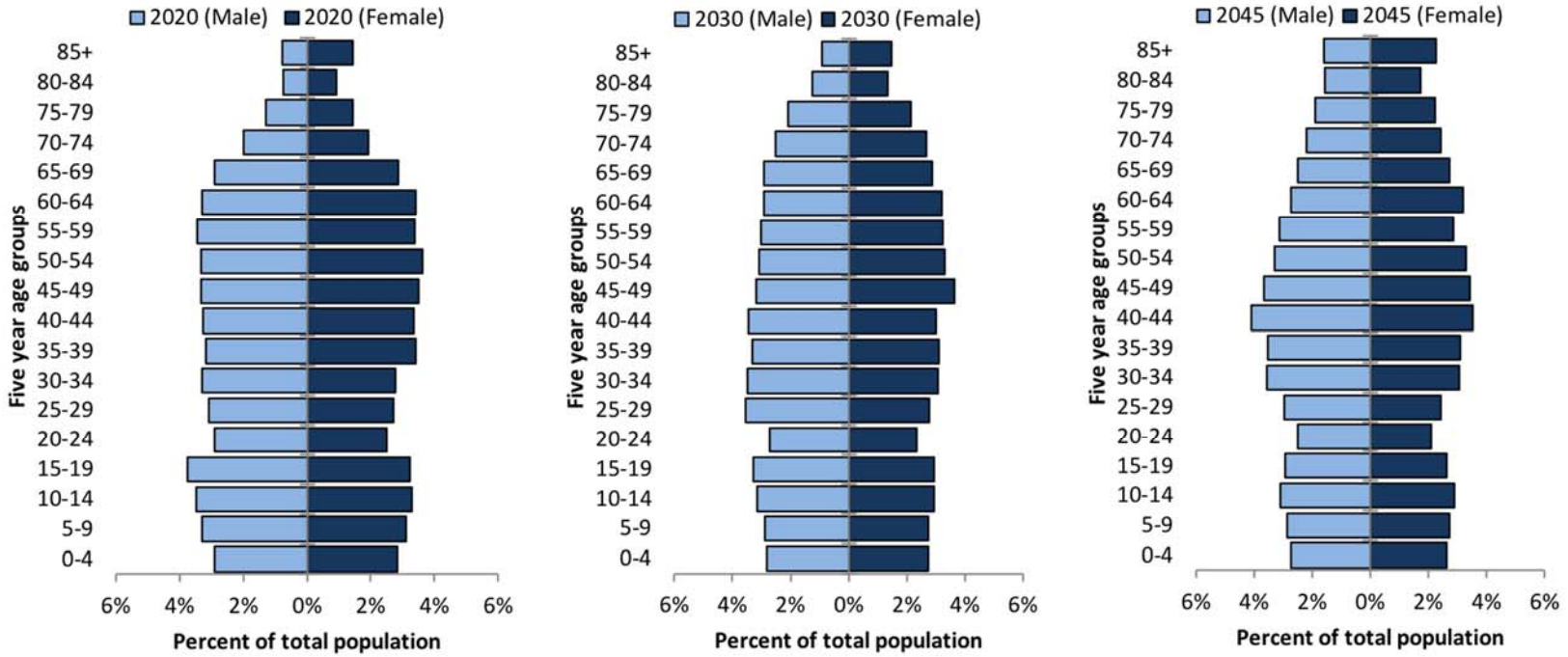
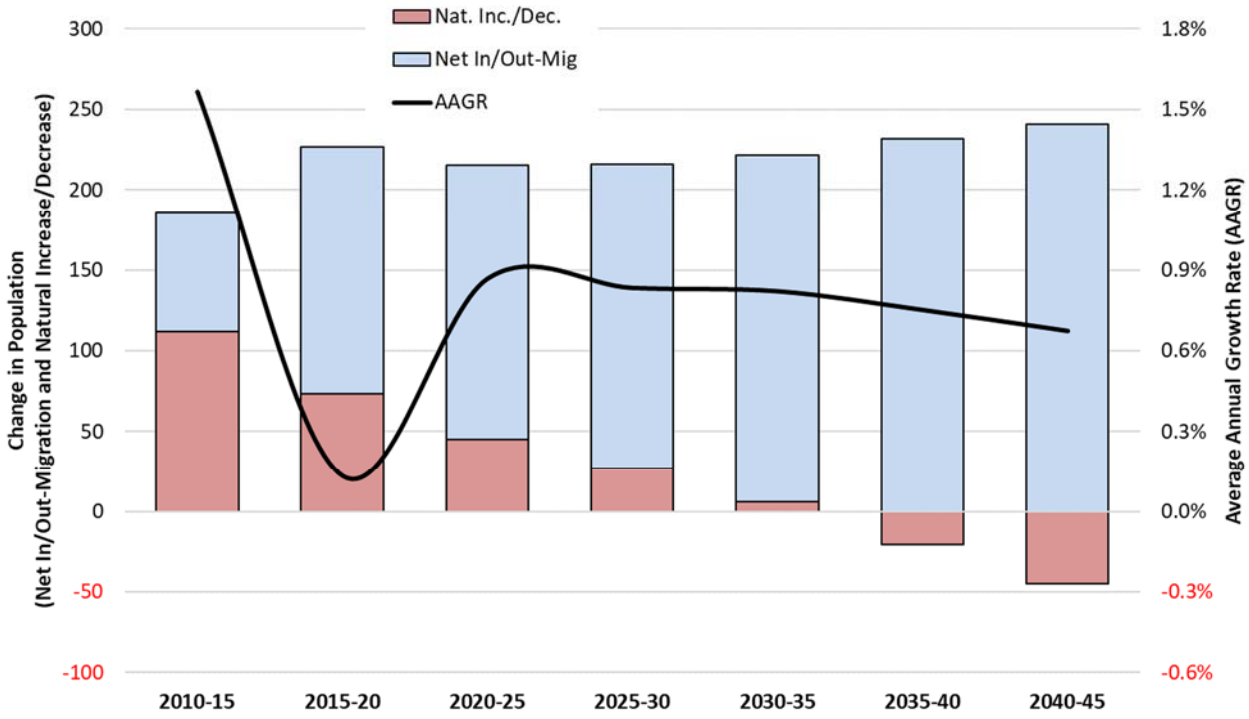


Figure 20 Source: Forecast by Population Research Center (PRC)

Figure 21 summarizes the forecasts described above by graphing the key components of population change: annual net migration, natural increase (births minus deaths), and the resulting population growth rate. The figure plots those components in five-year intervals, starting in the 2010-15 period and ending in the 2040-45 period. **Figure 21** reiterates that we forecast population growth between 0.7 and 0.9 percent annually in Hood River County, powered by net in-migration as natural population increase wanes and becomes negative by the late 2030s.

Figure 21. Hood River County—Components of Population Change (2010-2045)



Year	2010-15	2015-20	2020-25	2025-30	2030-35	2035-40	2040-45
Net Mig.	73	153	171	189	215	231	241
Nat. Inc./Dec.	112	73	45	27	6	-21	-45
AAGR	1.6%	0.1%	0.9%	0.8%	0.8%	0.8%	0.7%

Figure 21 Source: Forecast by Population Research Center (PRC)

Note: 2010-15 components are based on population estimates from the Oregon Population Estimates Program. As such, natural increase and net in-migration for the period may not align with the 2020 forecast assumptions.

Glossary of Key Terms

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

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

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

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

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

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

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

Appendix A: Surveys and Supporting Information

Supporting information pertains to characteristics of each city area, and to changes expected to occur in the future. The PRC gathers supporting information by soliciting responses to the OPFP General Survey in the fall prior to the forecast. A representative from Cascade Locks completed the OPFP General Survey. The response is included below.

General Survey for the Oregon Population Forecast Program – Cascade Locks

Questions	Answers
Timestamp	10/21/2019
Jurisdiction	City of Cascade Locks
Name and Title	Kathy Woosley, City Recorder
Observations about population composition (e.g. children, the elderly, racial and ethnic groups)	We have new housing so we are getting a variety of ethnicity here. Our elderly population eventually has to move out of town where they can get the services they need.
Observations about housing	We have a lot of new housing and we still have vacant land available for housing.
Planned housing development and estimate of project(s) completion date	We do not currently have any planned housing developments in progress.
Future Group Quarters facilities	I am not aware of any.
Future employers	We have some business development in process. pFriem Brewing, Gorges Brewing, Thunder Island Brewing, and a flex building for new tenants.
Infrastructure	A portion of town has new water main installed and a new reservoir. We have a wastewater project that will be starting soon.
Promotions and hindrances to population growth	A big hindrance for the City of Cascade Locks is a k-5 school with the others being bused to Hood River. Another hindrance is lack of services.
Highlights or summary from planning documents and studies on influences and anticipation of population and housing growth.	
Comments?	

Appendix B: Specific Assumptions

Cascade Locks

We assume housing unit growth will hover around 1 percent annually throughout the forecast period, near average growth observed since 2000. We assume the occupancy rate will decline from 87.7 to 85.7 and that persons per household (PPH) will continue its decline from 2.47 to 2.31 over the 25-year forecast period. We assume the group quarters population will remain constant.

City of Hood River

Fertility rates among residents of the City of Hood River UGB have been consistently lower than for the county overall but higher than statewide rates. As in the county overall, fertility rates have been falling. The TFR was 2.33 in 2000 and 1.97 in 2010. We forecast further decline to 1.68 in 2030. Survival rates for older age groups are somewhat higher than for the county overall, and change very little during the forecast period. Age-specific net migration rates are similar to county rates. However, the City of Hood River UGB sees net in-migration for all age groups 55 and older, whereas the county has mostly neutral or slight out-migration among older age groups.

Outside UGB Areas

Fertility rates have followed the same trend as in the county overall. The TFR for residents outside of UGBs fell from 2.90 in 2000 to 2.33 in 2010; further declines are expected until 2030, when TFR stabilizes at 1.85. Survival rates are similar to county rates and change very little throughout the forecast period. Age-specific net migration rates are also similar to county patterns; we assume net out-migration of those 20-29 years old, net in-migration of those age 30 to 64 along with children, and net out-migration of persons age 65 and older.

Appendix C: Detailed Population Forecast Results

Figure 22. Hood River County—Forecasted Population by Five-Year Age Group

Population Forecasts by Age Group	Population (2020)	Population (2025)	Population (2030)	Population (2035)	Population (2040)	Population (2045)
0-4	1,396	1,414	1,470	1,533	1,572	1,591
5-9	1,564	1,477	1,493	1,554	1,620	1,662
10-14	1,653	1,722	1,622	1,642	1,708	1,781
15-19	1,703	1,591	1,654	1,562	1,579	1,644
20-24	1,319	1,437	1,338	1,411	1,347	1,362
25-29	1,413	1,519	1,681	1,580	1,680	1,604
30-34	1,484	1,594	1,740	1,944	1,843	1,960
35-39	1,606	1,571	1,700	1,858	2,074	1,968
40-44	1,611	1,739	1,709	1,855	2,025	2,260
45-49	1,666	1,683	1,814	1,783	1,935	2,112
50-54	1,693	1,681	1,695	1,831	1,798	1,951
55-59	1,669	1,676	1,661	1,678	1,811	1,776
60-64	1,638	1,626	1,628	1,618	1,633	1,764
65-69	1,409	1,549	1,534	1,541	1,530	1,545
70-74	958	1,258	1,381	1,370	1,376	1,367
75-79	668	855	1,122	1,235	1,223	1,230
80-84	413	539	687	903	994	984
85+	542	551	633	769	975	1,141
Total	**24,406**	**25,483**	**26,561**	**27,668**	**28,723**	**29,702**

Figure 23. Hood River County's Sub-Areas—Forecasted Total Population

Area	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070
Hood River County	**24,406**	**25,483**	**26,561**	**27,668**	**28,723**	**29,702**	**30,715**	**31,763**	**32,846**	**33,966**	**35,124**
Hood River City	10,177	10,938	11,693	12,469	13,216	13,924	14,757	15,725	16,579	17,389	18,185
Cascade Locks	1,324	1,347	1,390	1,440	1,487	1,534	1,569	1,599	1,638	1,681	1,729
Outside UGB Area	12,905	13,197	13,478	13,759	14,020	14,244	14,390	14,438	14,629	14,895	15,211