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

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Coordinated Population Forecast

2020

Through

2070

Wasco County

Urban Growth Boundaries (UGB) & Area Outside UGBs

Population Research Center
PORTLAND STATE UNIVERSITY

Photo Credit: Wasco County Courthouse. Steven Pavlov. May 29, 2017. https://commons.wikimedia.org/wiki/File:The_Dalles,_OR_%E2%80%94_Third_Wasco_County_Courthouse_(2017-05-29),_02.jpg.

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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 Wasco County is an update of the 2016 version, and it differs from the prior iteration in several ways. Overall, we forecast a slightly lower starting population and lower population growth rates for Wasco County than previously forecasted. Due to the lower starting population and lower anticipated fertility rates, we forecast fewer births than previously anticipated, ultimately translating into a higher level of natural population decrease (more deaths than births) over the forecast period. We continue to expect net in-migration to Wasco County. However, we now forecast lower levels of net in-migration compared with the previous forecast based on recent observations. We expect that net in-migration will remain below the level previously forecasted.

This report also contains forecasts for Wasco County's sub-areas. At the sub-area level, we continue to forecast slow growth in UGB areas other than The Dalles and Mosier. However, we reduce growth expectations for The Dalles, aligning the forecast with the slowdown in net in-migration observed in the city during the 2010s. Despite slower forecasted growth in The Dalles, we continue to forecast that the city 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. Wasco County is comprised of two types of sub-areas: urban-growth boundary (UGB) areas (Antelope, Dufur, Maupin, Mosier, Shaniko, and The Dalles) 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.

Wasco County's total population has grown slowly over the last half century. The exception to this trend was the tumultuous 1980s, related to both the deep recession that hit Oregon and to the sudden appearance, growth, and decline of the Rajneeshpuram commune in southern Wasco County. Over the last two decades, demographic patterns settled into a trend of slow growth. Within the county, however, sub-areas experienced different growth patterns. The Dalles grew steadily at 0.6 percent annually during the 2000s, but its growth slowed to an average of 0.2 percent during the 2010s. Meanwhile, smaller UGB areas tended to add (or lose) a few dozen people but mostly remain unchanged (see **Figure 1**). The exception to this was Mosier, which reliably grew at 0.5 percent annually over the last two decades, perhaps benefiting from vacation appeal and its accessibility on the Columbia River Gorge between Hood River and The Dalles.

Considered as a whole, Wasco County's population growth between 2000 and 2020 depended heavily on net in-migration. 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 or became negative.

Natural population increase (i.e. births exceeding deaths) was a much less reliable source of population growth for the county during the 20-year period. It has also declined in magnitude since 2015 and has recently become negative. This pattern is not likely to change due to several factors. Most notably, between 2000 and 2010, Wasco County's total fertility rate fell along with the statewide rate. We forecast this decline to slow but nonetheless continue. That—combined with the nationwide trend of aging population—has led to fewer births and more deaths over time, and thus, declining natural increase that ultimately turns into natural decrease.

Forecast

The Population Research Center forecasts that despite natural population decrease, Wasco County will continue its steady growth pattern, gaining over 3,000 residents by 2045 and another 3,000 by 2070 (**Figure 1**). This growth will depend on net in-migration, with natural decrease expected to persist throughout the forecast period. The population is forecast to grow fastest in The Dalles and Mosier, with those sub-areas gaining in share of the total county population throughout the forecast period.

Figure 1. Wasco 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)
Wasco County	**23,791**	**25,213**	***0.6%***	**26,483**	**29,728**	**33,093**	***0.5%***	***0.5%***	***0.4%***
Antelope	59	46	*-2.5%*	42	40	38	*-0.9%*	*-0.1%*	*-0.3%*
Dufur	602	610	*0.1%*	621	639	650	*0.2%*	*0.1%*	*0.1%*
Maupin	420	421	*0.0%*	403	446	492	*-0.4%*	*0.4%*	*0.4%*
Mosier	418	441	*0.5%*	464	574	698	*0.5%*	*0.9%*	*0.8%*
Shaniko	26	36	*3.3%*	34	34	32	*-0.5%*	*-0.1%*	*-0.2%*
The Dalles	14,840	15,792	*0.6%*	16,148	18,823	21,668	*0.2%*	*0.6%*	*0.6%*
Outside UGBs	7,426	7,867	*0.6%*	8,770	9,172	9,513	*1.1%*	*0.2%*	*0.1%*

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. Wasco County and Sub-Areas—14-Year Population Forecast

Area	Population (2020)	Population (2034)	14-Year Change	AAGR (2020-2034)
Wasco County	**26,483**	**28,317**	**1,834**	***0.5%***
Antelope	42	40	-1	*-0.2%*
Dufur	621	633	12	*0.1%*
Maupin	403	427	24	*0.4%*
Mosier	464	522	57	*0.8%*
Shaniko	34	34	-1	*-0.1%*
The Dalles	16,148	17,551	1,403	*0.6%*
Outside UGBs	8,770	9,109	339	*0.3%*

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

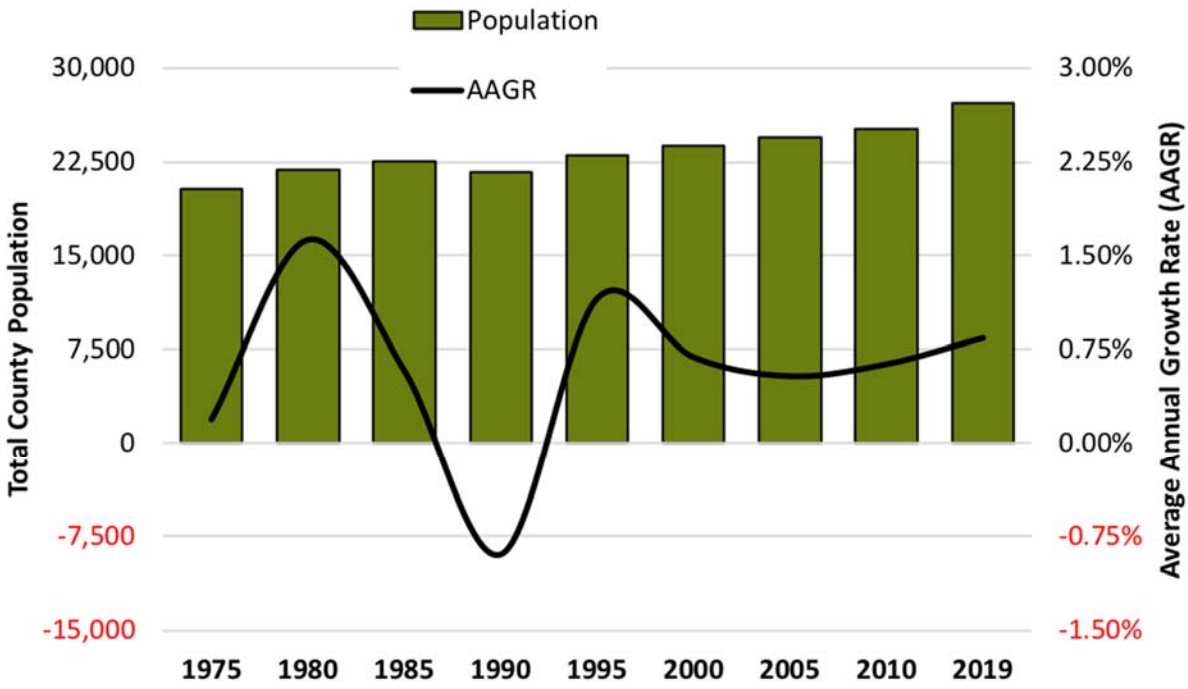
We examined Wasco County and its sub-areas to identify important demographic characteristics and trends that might influence those areas' population forecasts. Factors analyzed include historical population levels, age composition of the population, race and ethnicity, births, deaths, migration, the 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 Wasco County's historical populations and growth rates in 5-year increments, from 1975 to 2019. Wasco County's total population grew from 20,336 in 1975 to 27,240 in 2019.

Wasco County has grown slowly over the last fifty years. Its population growth rates peaked in the early 1980s at an average of 1.6 percent annually, perhaps significantly influenced by population inflows to Rajneeshpuram at Big Muddy Ranch during that period. However, during the mid-1980s, challenging economic conditions nationally and in Oregon—as well as the collapse of the Rajneeshee commune—led to a period of decelerating growth, culminating in negative growth in the late 1980s. Growth rates recovered to 1.2 percent during the early 1990s but have since slowed between 0.5 and 1 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. Wasco County—Total Population by Five-year Intervals (1975-2019)



Year	1975	1980	1985	1990	1995	2000	2005	2010	2019
Population	20,336	21,951	22,627	21,683	23,030	23,791	24,469	25,213	27,240
AAGR	0.2%	1.6%	0.6%	-0.9%	1.2%	0.7%	0.5%	0.6%	0.8%

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, Wasco County's average annual population growth rate was 0.6 percent (see **Figure 4**). All of the county's UGB sub-areas except Antelope grew during the decade. However, The Dalles and non-UGB areas in particular propelled county growth, adding population at 0.6 percent annually. Mosier added just 23 people, but given its small population that was sufficient to result in a 0.5 percent annual growth rate. All other sub-areas gained (or lost) no more than 10 people throughout the decade, and thus essentially remained the same size.

Figure 4. Wasco 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 in Share (2000-2010)
Wasco County	*23,791*	*25,213*	*0.6%*	*100.0%*	*100.0%*	*0.0%*
Antelope	*59*	*46*	-2.5%	0.2%	0.2%	-0.1%
Dufur	*602*	*610*	0.1%	2.5%	2.4%	-0.1%
Maupin	*420*	*421*	0.0%	1.8%	1.7%	-0.1%
Mosier	*418*	*441*	0.5%	1.8%	1.7%	0.0%
Shaniko	*26*	*36*	3.3%	0.1%	0.1%	0.0%
The Dalles	*14,840*	*15,792*	0.6%	62.4%	62.6%	0.3%
Outside UGBs	*7,426*	*7,867*	0.6%	31.2%	31.2%	0.0%

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, Wasco 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 Wasco 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 65 years old grew from a 16.7 to 17.7 percent share of the county's total population. Over the same time period, females between ages 15 and 49—considered childbearing years—declined as a proportion of the total population from 22.3 to 20.1 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. Wasco County—Age Structure of the Population (2000 and 2010)

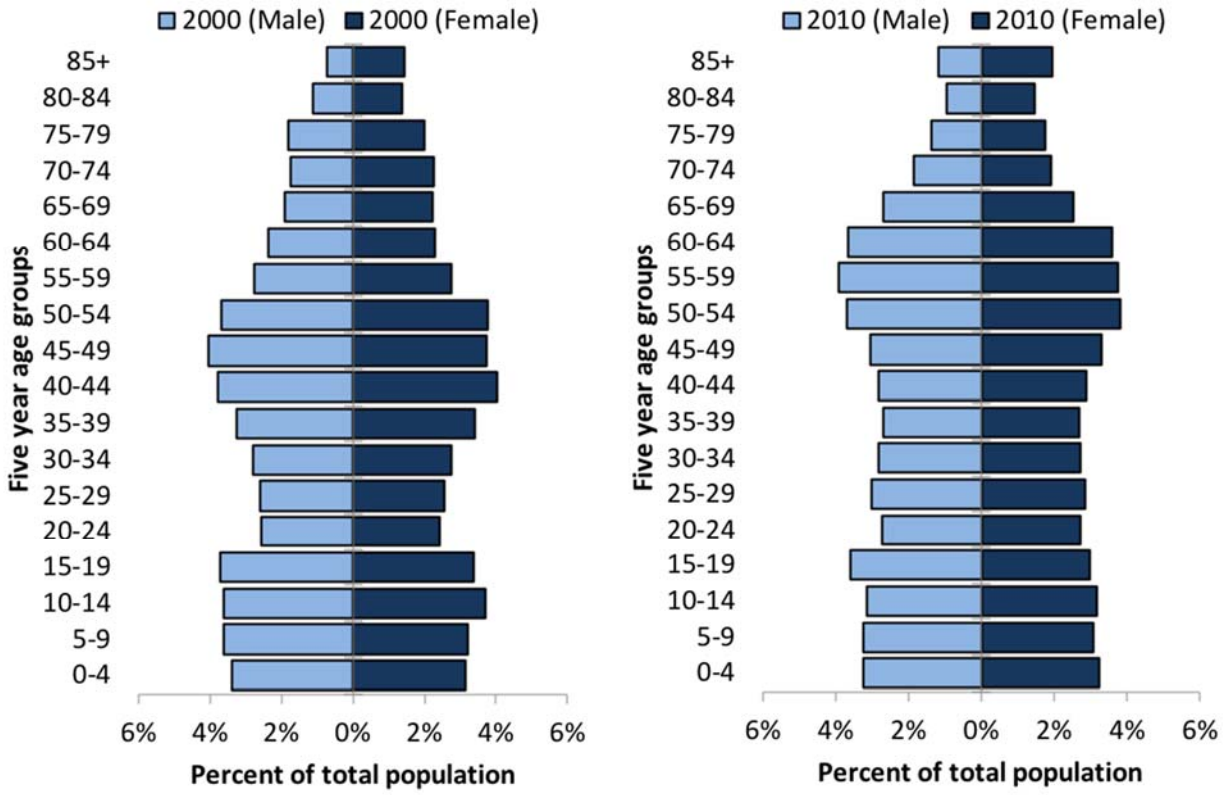


Figure 5 Source: U.S. Census Bureau, 2000 and 2010 Censuses.

Race and Ethnicity

In addition to statewide aging, another demographic shift is occurring across Oregon: growing racial and ethnic diversity. Between 2000 and 2010, Wasco County primarily saw this shift in an increase in its Latino population. However, on a percentage basis, the county also experienced sizable increases in Black residents, American Indian or Alaska Native residents, Native Hawaiian/Pacific Islander residents, and residents identifying as two or more races. These shifts are noteworthy on their own, but also for their impact on the components of population change. The growth in the Latino population, in particular, has several key impacts. 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 Wasco County increased by about 1,500 people. That represents a 69 percent increase, growing the Latino population from 9 percent of the county's total population to 15 percent (see **Figure 6**). Over the same time period, Wasco County's White, non-Latino population declined as a share of the overall population, decreasing from 84 to 78 percent.

Figure 6. Wasco 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	23,791	100.0%	25,213	100.0%	1,422	6.0%
Hispanic or Latino	2,214	9.3%	3,743	14.8%	1,529	69.1%
Not Hispanic or Latino	21,577	90.7%	21,470	85.2%	-107	-0.5%
White alone	19,967	83.9%	19,556	77.6%	-411	-2.1%
Black or African American alone	65	0.3%	85	0.3%	20	30.8%
American Indian and Alaska Native alone	845	3.6%	1,018	4.0%	173	20.5%
Asian alone	189	0.8%	191	0.8%	2	1.1%
Native Hawaiian and Other Pacific Islander alone	116	0.5%	142	0.6%	26	22.4%
Some Other Race alone	19	0.1%	16	0.1%	-3	-15.8%
Two or More Races	376	1.6%	462	1.8%	86	22.9%

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, Wasco County's TFR declined a similar magnitude, though from a higher starting point: 2.37 to 2.13. We have observed continued sharp decline in Oregon's TFR since 2010. This decline has been less pronounced in Wasco County. Consequently, we forecast that Wasco County's TFR will fall to 2.03 over the forecast period, while Oregon's TFR will fall to 1.51.

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

Area	Total Fertility Rate (2000)	Total Fertility Rate (2010)	Total Fertility Rate (2045)
Wasco County	2.37	2.13	2.03
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 Wasco County's historical fertility rates by female age cohort. It shows that, between 2000 to 2010, Wasco County's fertility declined among female age cohorts under 30 years old. On the other hand, fertility rates grew somewhat for individuals over 30 years old.

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

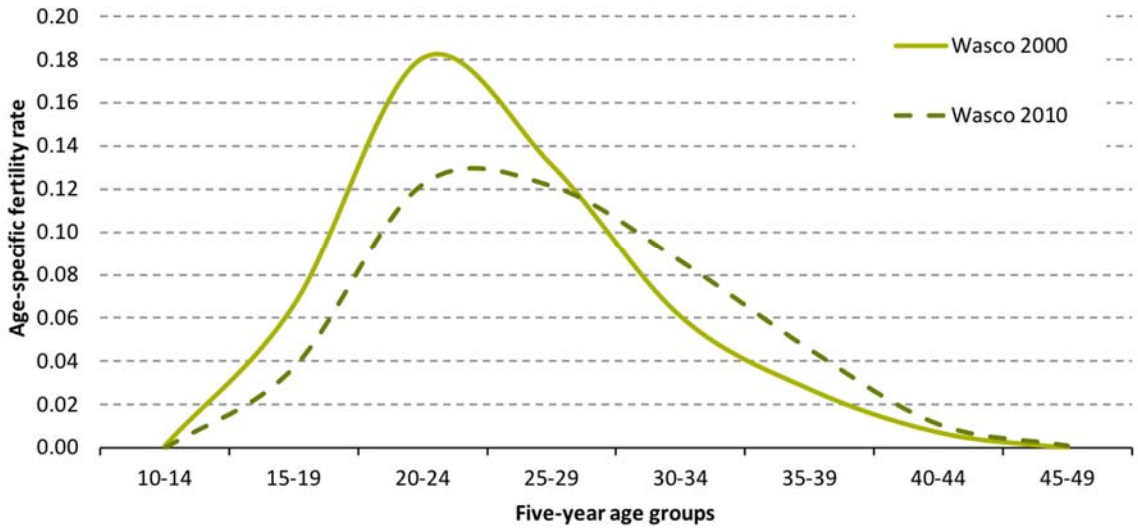
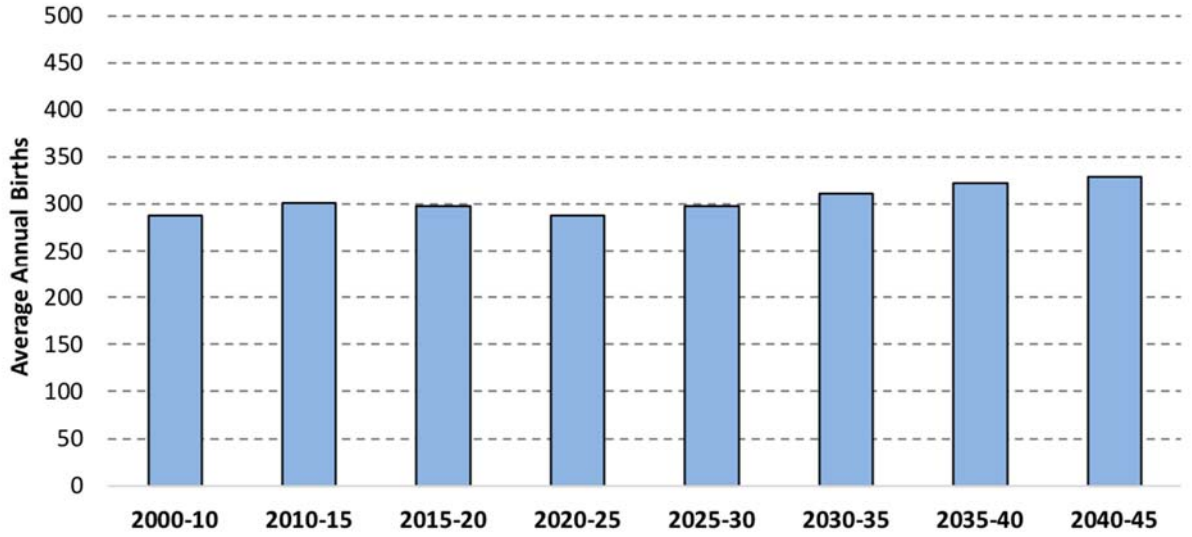


Figure 8 Sources: U.S. Census Bureau, 2000 and 2010 Censuses; Oregon Health Authority, Center for Health Statistics. Calculations by Population Research Center (PRC).

Figure 9 unites the concepts explored in **Figures 5 through 8** by showing the number of historical and forecasted births in Wasco County. The average annual number of births to Wasco County residents held steady around 300 between 2000 and 2020. By 2045, we expect the average annual number of births to gradually increase to 330 per year.

This may seem odd considering Wasco 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 Wasco County than live there currently. This expectation is based on anticipated overall population growth in Wasco County as well as the county's record of steady net in-migration of adults between 30 and 40 years old.

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



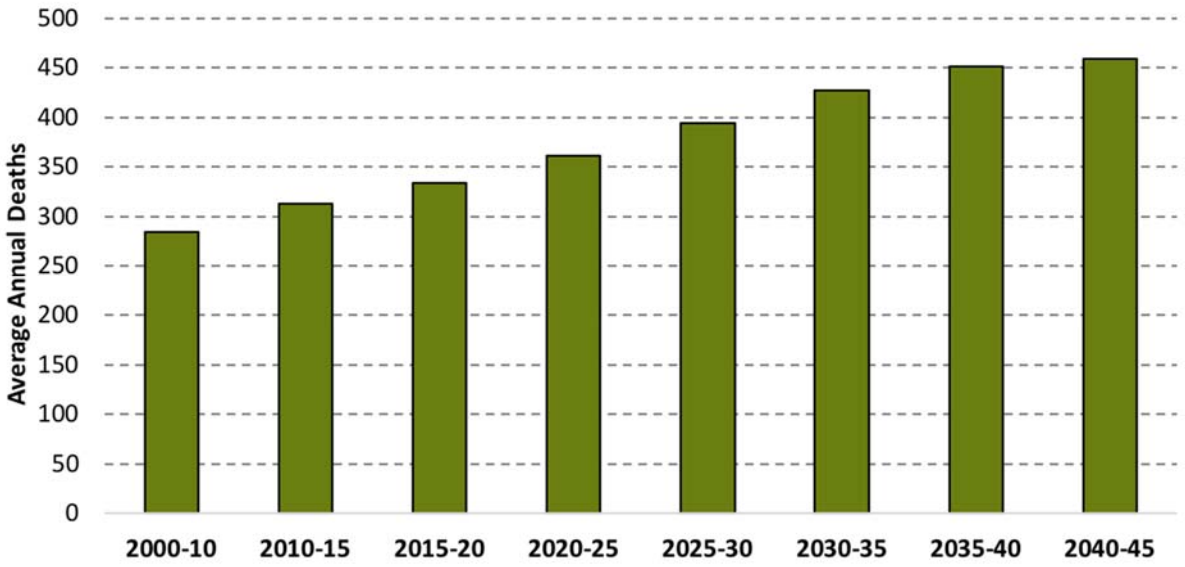
Year	2000-10	2010-15	2015-20	2020-25	2025-30	2030-35	2035-40	2040-45
Births	288	302	298	288	298	311	323	329

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

Deaths

The population in Wasco County is aging, yet the county's survival rates only improved slightly 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 Wasco County have grown since 2000, from 285 during the 2000s to 334 during the latter half of the 2010s. 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 from 334 during the 2015-20 period to 459 during the 2040-45 period.

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



Year	**2000-10**	**2010-15**	**2015-20**	**2020-25**	**2025-30**	**2030-35**	**2035-40**	**2040-45**
Deaths	285	313	334	361	395	427	451	459

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 Wasco 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.

Wasco 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 50 years old. In general, individuals older than 65 tended to exhibit net in-migration as well, suggesting the county's appeal to retirees. 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. Wasco County and Oregon—Age-Specific Migration Rates (2000-2010)

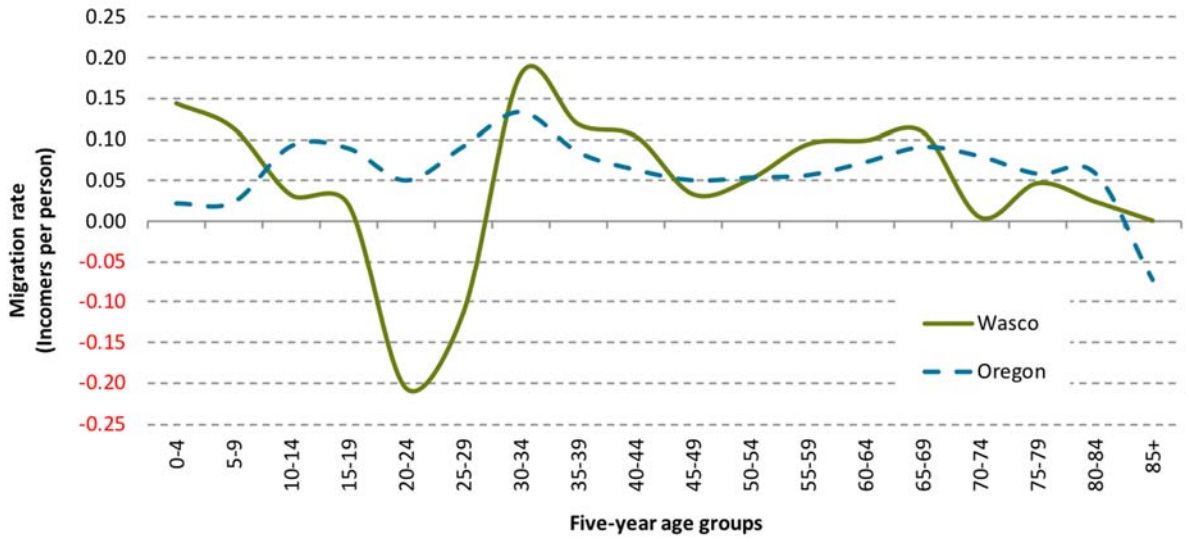


Figure 11 Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Calculated by Population Research Center (PRC).

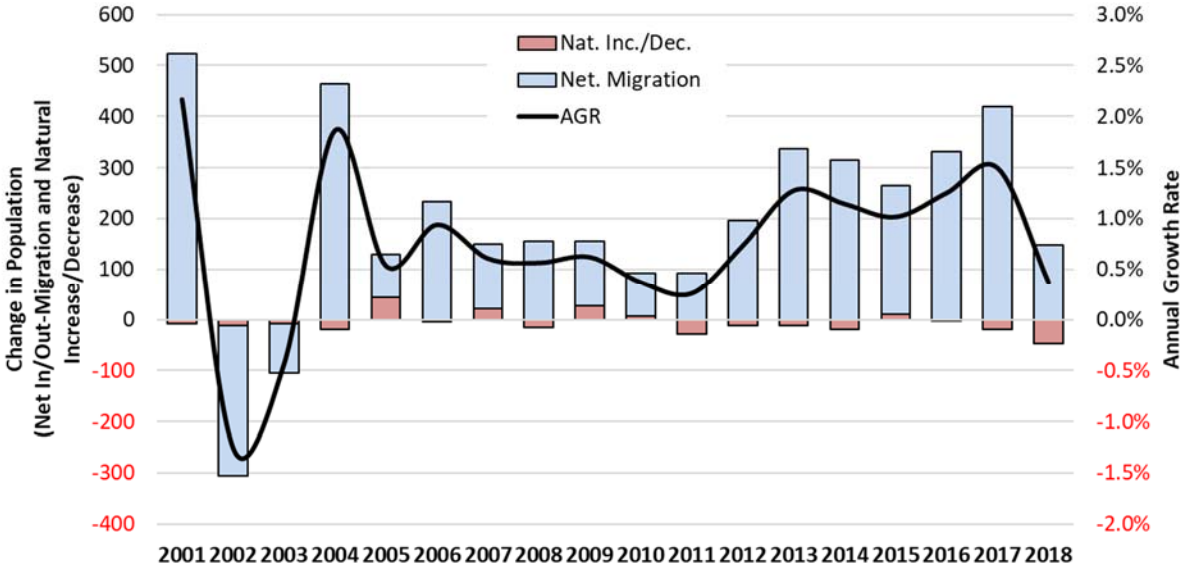
Historical Trends in Components of Population Change

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 Wasco County experienced variable natural increase; in some years, the county experienced more births than deaths, but in other years the opposite occurred. Since 2015, natural increase has consistently declined, falling from 11 more births than deaths in 2015 to 48 more deaths than births in 2018. As described in the forecast section of this report, we anticipate this trend to continue through 2045. That is because this shift resulted from a combination of enduring factors, especially the county's declining total fertility rate and the fact that the large Baby Boomer cohort has begun to pass away.

The figure also shows that population growth rates in Wasco County have tracked closely with net migration patterns—the growth factor that changes most from year to year. 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 or became negative.

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



Year	2001	2002	2003	2004	2005	2006	2007	2008	2009
Net Mig.	524	-294	-96	465	87	234	128	155	127
Nat. Inc./Dec.	-9	-11	-9	-20	43	-4	22	-15	28
AGR	2.2%	-1.3%	-0.4%	1.9%	0.5%	0.9%	0.6%	0.6%	0.6%

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Net Mig.	87	93	197	337	315	254	331	420	148
Nat. Inc./Dec.	6	-28	-12	-12	-20	11	-1	-20	-48
AGR	0.4%	0.3%	0.7%	1.3%	1.1%	1.0%	1.3%	1.5%	0.4%

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 Wasco County increased from 10,651 in 2000 to 11,487 2010, an 8 percent increase (see **Figure 13**). Over 50 percent of new housing units built in this time period were built in The Dalles. Areas outside of UGBs accounted for the next largest increase in housing units: 37 percent of the county's additional units. Mosier had a net gain of 57 housing units, signaling perhaps new appeal as a vacation destination (a hypothesis also supported by its decline in occupancy). 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. Wasco 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)
Wasco County	*10,651*	*11,487*	*0.8%*	*100.0%*	*100.0%*	*0.0%*
Antelope	41	43	0.5%	0.4%	0.4%	0.0%
Dufur	271	266	-0.2%	2.5%	2.3%	-0.2%
Maupin	247	275	1.1%	2.3%	2.4%	0.1%
Mosier	197	254	2.6%	1.8%	2.2%	0.4%
Shaniko	35	24	-3.7%	0.3%	0.2%	-0.1%
The Dalles	6,329	6,787	0.7%	59.4%	59.1%	-0.3%
Outside UGBs	3,531	3,838	0.8%	33.2%	33.4%	0.3%

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 Wasco County declined by 1.4 percent during the 2000s (see **Figure 14**). Most of Wasco 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—such as Shaniko—where fewer housing units allow for larger relative changes in occupancy rates. From 2000 to 2010, the occupancy rate in Wasco County declined from 88.3 to 87.3 percent (see **Figure 14**). The largest decline occurred in Mosier, from 85.3 to 81.5 percent occupancy. As stated above, this may signal an increase in second or vacation homes in the area.

Figure 14. Wasco 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
Wasco County	*2.5*	*2.4*	*-1.4%*	*88.3%*	*87.3%*	*-0.9%*
Antelope	*2.2*	*1.6*	*-24.8%*	*65.9%*	*65.1%*	*-0.7%*
Dufur	*2.4*	*2.5*	*2.4%*	*92.3%*	*92.9%*	*0.6%*
Maupin	*2.3*	*2.0*	*-12.8%*	*74.5%*	*72.7%*	*-1.8%*
Mosier	*2.5*	*2.1*	*-14.4%*	*85.3%*	*81.5%*	*-3.8%*
Shaniko	*1.9*	*2.1*	*14.0%*	*40.0%*	*70.8%*	*30.8%*
The Dalles	*2.4*	*2.4*	*0.3%*	*93.8%*	*93.0%*	*-0.8%*
Outside UGBs	*2.6*	*2.5*	*-3.4%*	*79.9%*	*78.7%*	*-1.2%*

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 Wasco County, The Dalles, and the area outside of UGBs. We used the housing-unit method to generate forecasts for all other sub-areas.

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 slow growth.
2. Net in-migration will increase over the forecast period (2020-45).
3. We incorporate state and local trends into our assumptions for fertility and mortality.
    a. Deaths will increase into the 2040s due to aging Baby Boomers.
    b. Total fertility rates will decline slightly, but the number of births will be relatively stable, with modest increases over the forecast period due to in-migration of residents in their 30s.
    c. The county and The Dalles UGB will experience natural population decrease (more deaths than births) throughout the forecast period.
4. Total population is expected to increase slowly as net in-migration outweighs natural decrease.

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.

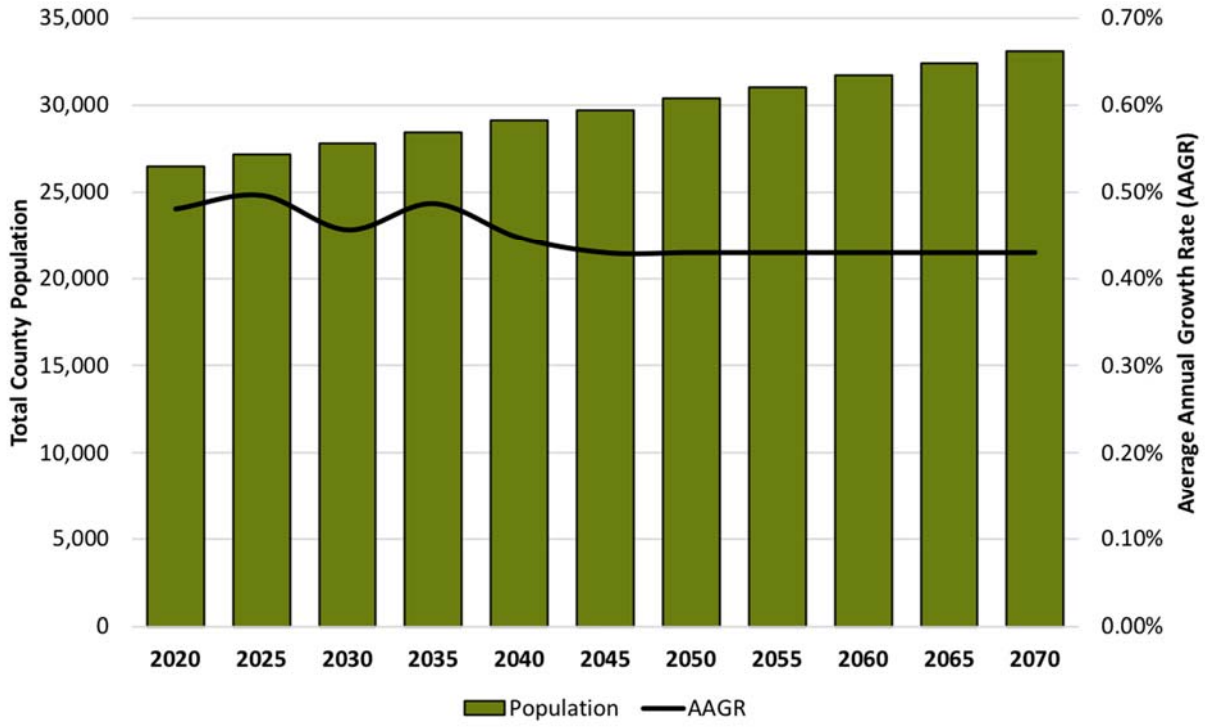
1. If planned housing units were reported in the surveys, we expect that they will be built within roughly 5 years, followed by a return to long range historic patterns.
2. If no planned housing units were reported, we assume future housing construction will follow historic patterns of limited growth.
3. Where population has historically declined or stayed flat, and there is no planned housing construction, we do not expect major losses of housing stock. Household turnover will create opportunities for new households, preventing significant decline in population.
4. 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 forecast steady, slow growth in Wasco 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 around 0.5 percent over the period, extending the sub-one-percent growth rates observed in the 2010s. Wasco County's total population is forecast to increase by roughly 6,600 people (25 percent) between 2020 and 2070. This will result in a total countywide population of 33,093 in 2070.

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



Year	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070
Pop.	26,483	27,146	27,772	28,454	29,097	29,728	30,372	31,031	31,703	32,391	33,093
AAGR	0.5%	0.5%	0.5%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%

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

Forecast Trends in Sub-Areas

We expect The Dalles to grow slightly faster than the county, averaging 0.6 percent annually. This will increase the population of the city from roughly 16,100 people in 2020 to 21,700 people in 2070. In correspondence with this increase, we forecast the city's share of the county's total population will grow as well, from 61.0 percent in 2020 to 65.5 percent in 2070 (see **Figure 16**).

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

	2020	2045	2070	AAGR (2020-2045)	AAGR (2045-2070)	Share of County 2020	Share of County 2045	Share of County 2070
Wasco County	**26,483**	**29,728**	**33,093**	***0.5%***	***0.4%***	--	--	--
The Dalles	16,148	18,823	21,668	*0.6%*	*0.6%*	*61.0%*	*63.3%*	*65.5%*
Outside UGBs	8,770	9,172	9,513	*0.2%*	*0.1%*	*33.1%*	*30.9%*	*28.7%*

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 Dufur, Maupin, and Mosier—the larger among Wasco's small cities—and areas outside of UGB areas will also grow between 2020 and 2070. Mosier is forecasted to grow faster than the county, in line with recent growth, while Dufur and Maupin are expected to grow more slowly than the county as a whole (see **Figure 17**). Antelope and Shaniko are expected to lose population. As a result of these various growth rates, Wasco County will continue to experience a spatial redistribution of its population as The Dalles and Mosier gain in share of the total population and other areas decline or maintain their shares.

Figure 17. Wasco 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
Wasco County	**26,483**	**29,728**	**33,093**	***0.5%***	***0.4%***	--	--	--
Antelope	42	40	38	*-0.1%*	*-0.3%*	*0.2%*	*0.1%*	*0.1%*
Dufur	621	639	650	*0.1%*	*0.1%*	*2.3%*	*2.2%*	*2.0%*
Maupin	403	446	492	*0.4%*	*0.4%*	*1.5%*	*1.5%*	*1.5%*
Mosier	464	574	698	*0.9%*	*0.8%*	*1.8%*	*1.9%*	*2.1%*
Shaniko	34	34	32	*-0.1%*	*-0.2%*	*0.1%*	*0.1%*	*0.1%*
Outside UGBs	8,770	9,172	9,513	*0.2%*	*0.1%*	*33.1%*	*30.9%*	*28.7%*

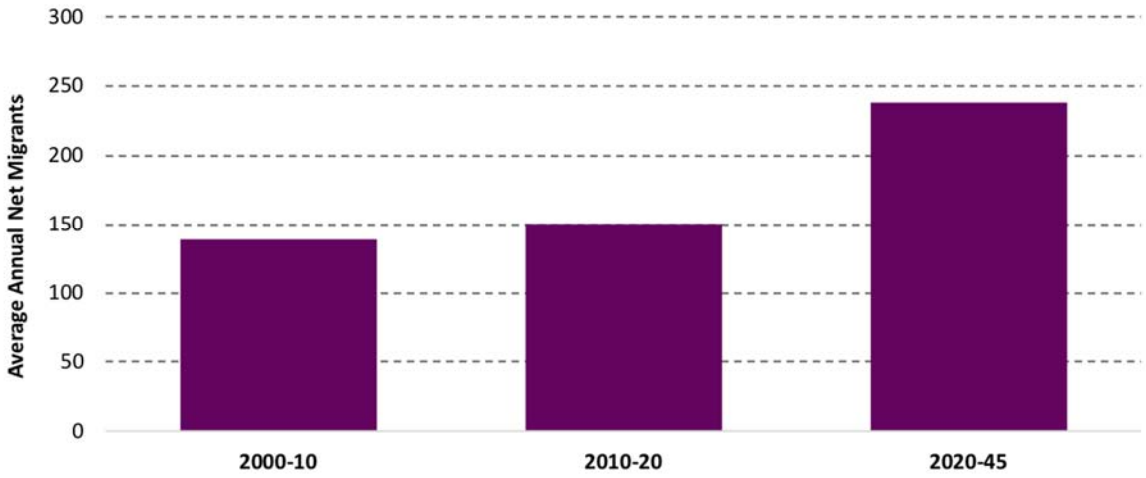
Figure 17 Source: Forecast by Population Research Center (PRC). Note: For simplicity each UGB is referred to by its primary city's name.

Forecast Trends in Components of Population Change

As previously discussed, we forecast that in-migrants will outnumber out-migrants in Wasco 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 pass away or retire, 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 Wasco County's annual net in-migration averaged 139 people during the 2000s and 150 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 240 people annually. **Figure 19** shows a somewhat different story for The Dalles. Unlike the county as a whole, the city experienced a slight decline in net in-migration during the 2010s. Still, we forecast net in-migration to rise over the long term due to the factors listed above.

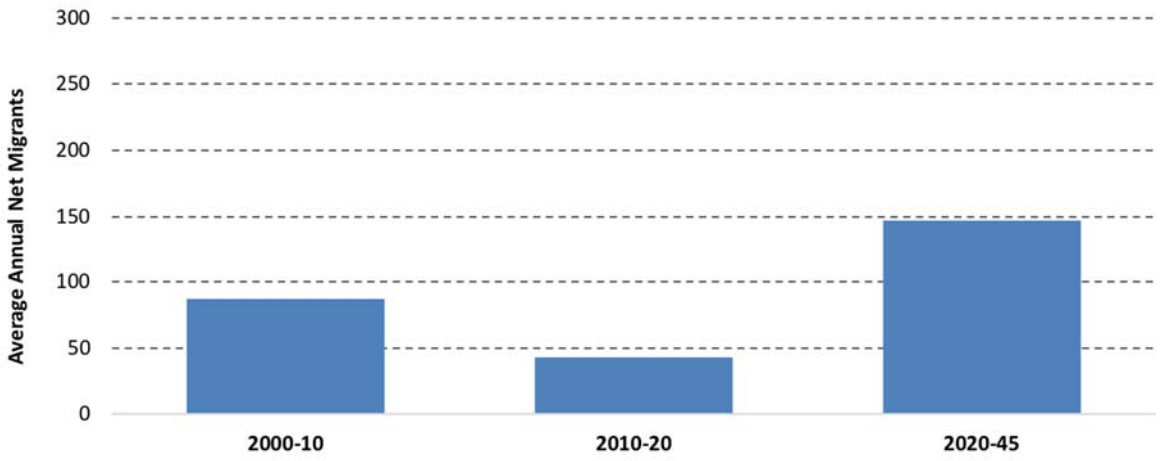
Figure 18. Wasco County—Average Annual Net In/Out-Migration (2000-2010, 2010-2020, and 2020-2045)



Year	2000-10	2010-20	2020-45
Wasco County	139	150	238

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. The Dalles—Average Annual Net In/Out-Migration (2000-2010, 2010-2020, and 2020-2045)



Year	2000-10	2010-20	2020-45
The Dalles	87	43	147

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 previously, a key factor shaping Wasco County's forecasted population is population aging. **Figure 20** plots Wasco 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 peak above 24 percent, before beginning to fall by 2045. These changes depict the large Baby Boomer generation continuing to age through the population pyramid and, by 2045, represent a smaller share due to mortality.

Two other significant trends are apparent in the county's population pyramids. First, over the forecast period, women of childbearing ages no longer decline as a proportion of the total population after sliding from 22.3 percent in 2000 to an expected 19.3 percent of the population in 2030. Second, children will also no longer decline as a proportion of the total population, thanks to a gradual increase in births and continued net in-migration of young families. For a more detailed look at the age structure of Wasco 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. Wasco County—Age Structure of the Population (2020, 2030, and 2045)

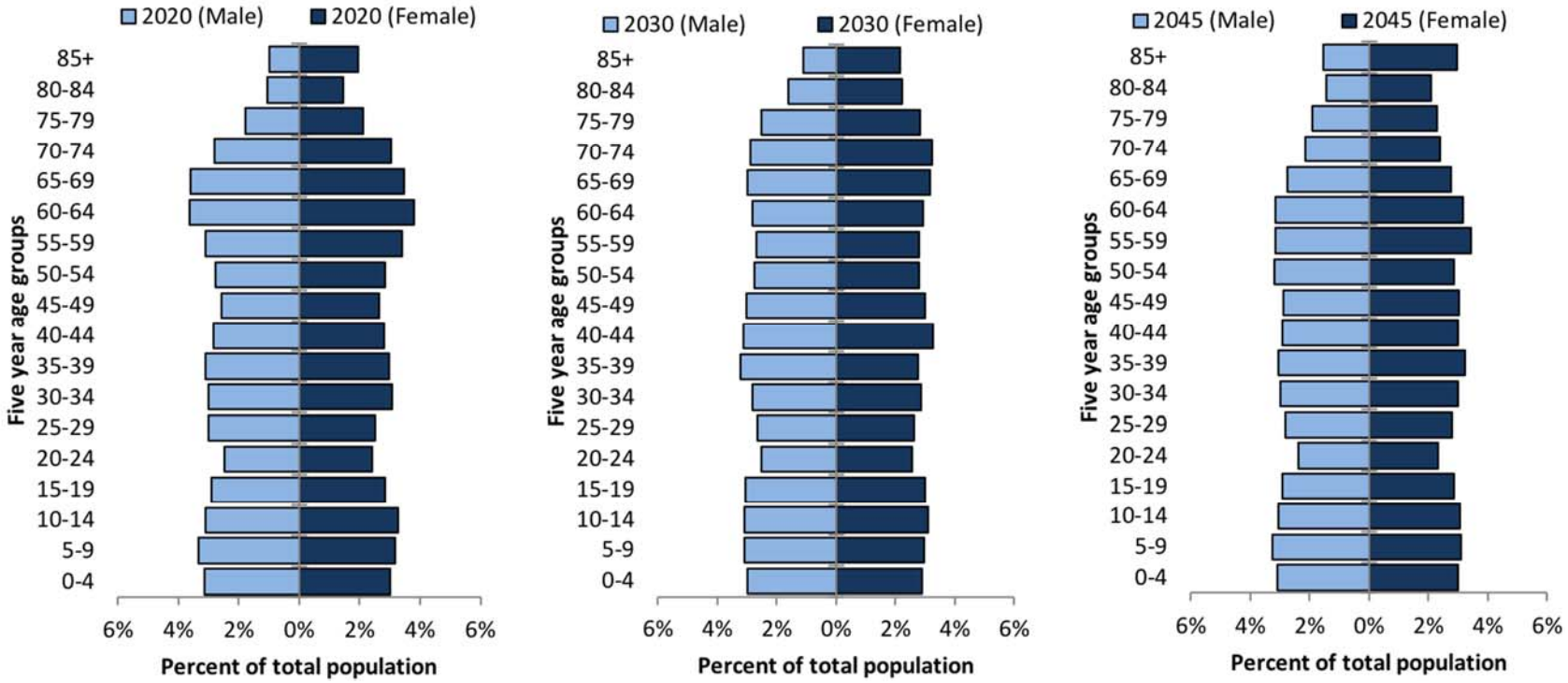
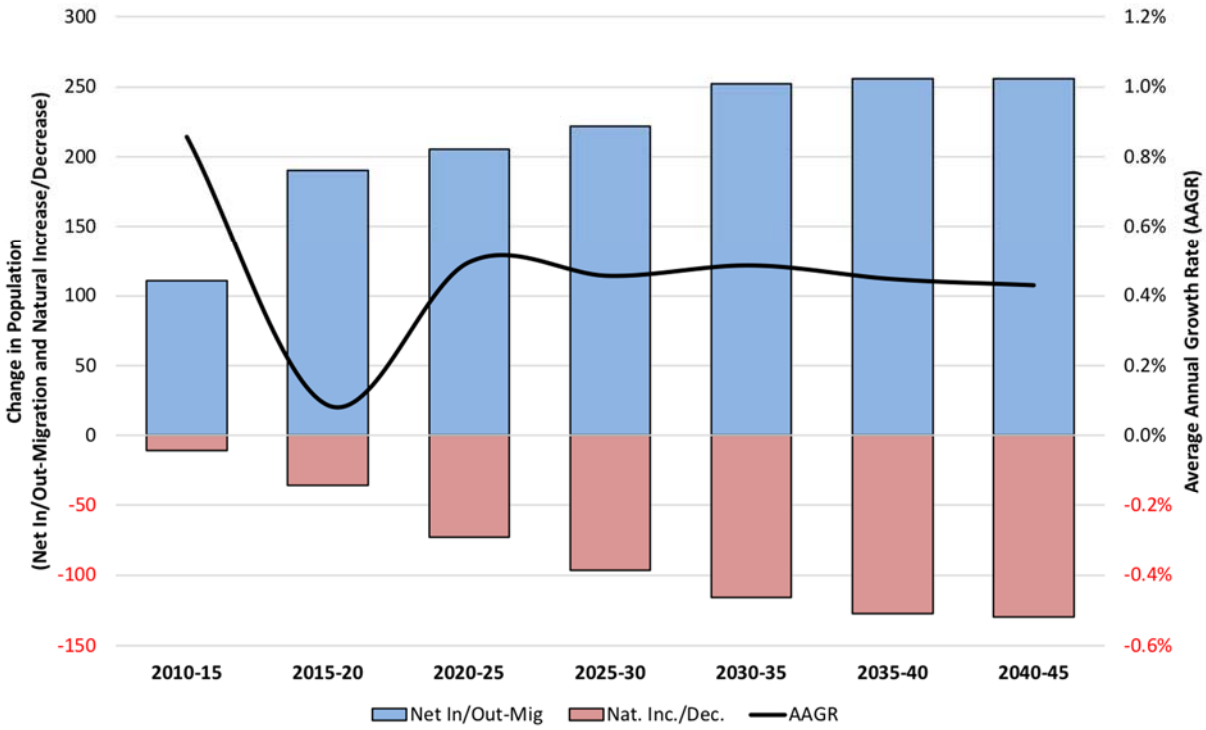


Figure 20 Source: Forecast by Population Research Center (PRC)

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 around 0.5 percent annually in Wasco County, powered by net in-migration as natural population decrease grows throughout the forecast period.

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



Year	2010-15	2015-20	2020-25	2025-30	2030-35	2035-40	2040-45
Net Mig.	111	190	206	222	253	256	256
Nat. Inc./Dec.	-11	-36	-73	-97	-116	-128	-130
AAGR	0.9%	0.1%	0.5%	0.5%	0.5%	0.4%	0.4%

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. General surveys received are included below. Representatives from Wasco County, Dufur, and The Dalles completed the OPFP General Survey. The responses are included below.

General Survey for the Oregon Population Forecast Program – Dufur

Questions	Answers
Timestamp	12/1/2019
Jurisdiction	The City of Dufur
Name and Title	Kathy Bostick
Observations about population composition (e.g. children, the elderly, racial and ethnic groups)	The City is current population is holding its own
Observations about housing	No growth however older houses are being replaced with new house.
Planned housing development and estimate of project(s) completion date	Possible subdivision to start being built in approx 2023
Future Group Quarters facilities	None
Future employers	None
Infrastructure	Wasterwater system is over capacity at this time. Design and construction to take place in the next 3 years
Promotions and hindrances to population growth	The City currently has a hindrance with its wastewater system and is working on an upgrade. The City water system has had some upgrade, but is still need more capacity and possibly a new well.
Highlights or summary from planning documents and studies on influences and anticipation of population and housing growth.	
Comments?	The city is currently in the process of upgrading wastewater system to accommodate future growth

General Survey for the Oregon Population Forecast Program – The Dalles

Questions	Answers
Timestamp	12/10/2019
Jurisdiction	The City of The Dalles
Name and Title	Joshua Chandler, Planner
Observations about population composition (e.g. children, the elderly, racial and ethnic groups)	• Majority white • All age brackets • Growing full-time Hispanic population w/ seasonal employment due to area agriculture School enrollment decrease from SY 2015-16 to SY 2019-2020: 4.14%
Observations about housing	• Majority of Housing Inventory is 50 years or older: 2010 + = 2.0% | 2000 – 2009 = 6.9% | 1990 – 1999 = 11.5% | 1980 – 1989 = 5.6% | 1970 - 1979 = 15.3% | 1969 and older = 58.8% (*construction years*) • Recent Housing Code Amendments approved 11/19: resulting in larger ADU sizes, smaller lot sizes, and duplexes permitted on all lots As of 2014: 64% of housing inventory is detached
Planned housing development and estimate of project(s) completion date	*Detailed information provided on Housing Development Survey document*
Future Group Quarters facilities	Columbia Gorge Community College Student Housing (~72 units; pre-application conference scheduled for 12/12/19)
Future employers	• Mid-Columbia Medical Center Hospital – Recently expanded into Hood River; job growth figures unavailable Google purchased 74 acres (2016) with no immediate plans at this point; the most recent Google Taylor Lake data center when complete is estimated to create 50 new jobs, with an estimated 750-1,000 temporary construction jobs during construction

Infrastructure	• Current water system is capable of continued residential growth; within the UGB, 2 separate water districts exist (City of TD and Chenowith PUD) • Recent upgrade/expansion of Waste Water Treatment Facility which is capable of ~20+ years of growth Transportation System Plan completed in 2017 which highlights existing conditions, and proposed roadway/bicycle/pedestrian plans; majority of proposed roadways located in vacant/partially vacant Eastern UGB area
Promotions and hindrances to population growth	• Promo: First city to implement HB 2001: resulting in duplexes permitted on every lot • Promo: Recent Housing Code Amendments: focused on density; resulting in smaller lot sizes, cluster housing development, and ADU size increases • Promo: More affordable housing in TD than 20 miles west (Hood River) • Hindrances: Large lot established neighborhoods • Hindrances: Shortage of qualified workforce and available housing for workforce Hindrances: Rising building costs
Highlights or summary from planning documents and studies on influences and anticipation of population and housing growth.	
Comments?	No UGB expansion planned at this time

General Survey for the Oregon Population Forecast Program – Wasco County

Questions	Answers
Timestamp	10/29/2019
Jurisdiction	Wasco County
Name and Title	Kelly Howsley Glover, Long Range Planner
Observations about population composition (e.g. children, the elderly, racial and ethnic groups)	Increase in families with children moving to unincorporated County areas. Increase in part to full time retirees living in temporary housing. We expect rapidly aging in place farmer populations to increase permits for accessory farm dwellings.
Observations about housing	High level of increase in unpermitted temporary housing (RVs, etc). Last summer we counted over 100 unpermitted RVs with at least one, in most cases two, occupants. If state legislature passes bill to allow for ADUs in rural residential zones, Wasco County will be permitting them which may double housing opportunities in rural residential zones.
Planned housing development and estimate of project(s) completion date	13 lots, anticipated completion in 2021
Future Group Quarters facilities	
Future employers	
Infrastructure	
Promotions and hindrances to population growth	

Highlights or summary from planning documents and studies on influences and anticipation of population and housing growth.	
Comments?	

General Survey for the Oregon Population Forecast Program – Wasco County

Questions	Answers
Timestamp	10/29/2019
Jurisdiction	Wasco County
Name and Title	Scott Hege, County Commissioner
Observations about population composition (e.g. children, the elderly, racial and ethnic groups)	Population seems to continue to age, but there has been more younger families moving here than I have noticed in recent years.
Observations about housing	Housing is a challenge here as it is everywhere. We do have more units being built than in any recent time since I've been here, but it's still a challenge and I see that continuing.
Planned housing development and estimate of project(s) completion date	Not aware of this info.
Future Group Quarters facilities	Not aware of this info.
Future employers	Google continues to grow their operation here. They are significant land owners here and looking to expand their operations in the years ahead.
Infrastructure	Basic infrastructure is reasonable, but need to continue to work on improvements.
Promotions and hindrances to population growth	Biggest hinderance to growth is the lack of employment lands (industrial and commercial). Scenic Area is really starting to constrain The Dalles' ability to grow, add jobs and tax base. Google is an opportunity for future growth in that sector. Need more land for diversification.
Highlights or summary from planning documents and studies on influences and anticipation of population and housing growth.	

Comments?	Thanks for allowing the comments.

Appendix B: Specific Assumptions

Antelope

We assume no housing or group quarters growth over the forecast period. We assume the occupancy rate will remain steady at 65.1%, and that persons per household (PPH) will cease its decline at 1.44 over the 25-year forecast period.

Dufur

We assume housing unit growth will remain very slow, around 0.1 percent annually throughout the forecast period. We assume the occupancy rate and PPH will hold steady at 92.9 percent and 2.47, respectively, over the 25-year forecast period. We assume group quarters population will remain constant.

Maupin

We assume housing unit growth will hover between 0.5 and 1 percent annually over the forecast period, in line with growth observed in the prior two decades. We assume occupancy rate and PPH will continue their declines from 71.7 to 69.2 percent and 1.87 to 1.79 over the 25-year forecast period. We assume group quarters population will remain constant.

Mosier

We assume housing unit growth will gradually decline from between 1 and 1.5 percent annually to below 1 percent annually over the forecast period. We assume the occupancy rate will hold steady at 81.5 percent, and that PPH will continue its decline from 2.07 to 1.96 over the 25-year forecast period. We assume group quarters population will remain constant.

Shaniko

We assume no housing or group quarters growth over the forecast period. We assume the occupancy rate will remain steady at 70.8 percent, and that PPH will decline only slightly from 2.02 to 1.98 over the 25-year forecast period.

The Dalles

Given that the City of The Dalles UGB comprises more than 60 percent of the county's population, its fertility rates differ very little from the county overall. The UGB's TFR was 2.39 in 2000 and 2.23 in 2010. We forecast further decline to 2.09 in 2030 and beyond. Survival rates for older age groups are slightly lower than for the county overall and change very little during the forecast period. Age-specific net migration rates are also similar to county rates, although there are lower rates of net out-migration among young adults age 20 to 24 and higher rates of net in-migration among the oldest age groups 70 and older.

Outside UGB Areas

Fertility rates have consistently been lower than in the county overall. The TFR for residents outside of UGBs fell from 1.95 in 2000 to 1.91 in 2010. Following state and county trends, forecasted TFR falls to 1.56 in 2030 and beyond. Survival rates are similar to county rates and change very little throughout the forecast period. Age-specific net migration rates differ from county patterns largely due to greater net out-migration of those in their 20s and those age 70 and older, as well as from higher rates of net in-migration of children and people in their 30s.

Appendix C: Detailed Population Forecast Results

Figure 22. Wasco 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	1,630	1,579	1,636	1,713	1,777	1,809
5-9	1,720	1,731	1,680	1,747	1,828	1,893
10-14	1,686	1,704	1,719	1,675	1,740	1,816
15-19	1,526	1,666	1,688	1,709	1,664	1,725
20-24	1,290	1,269	1,405	1,430	1,447	1,405
25-29	1,468	1,473	1,464	1,627	1,654	1,670
30-34	1,610	1,554	1,578	1,574	1,748	1,773
35-39	1,609	1,699	1,657	1,689	1,684	1,867
40-44	1,498	1,677	1,774	1,737	1,769	1,761
45-49	1,382	1,484	1,665	1,768	1,728	1,758
50-54	1,482	1,435	1,543	1,738	1,845	1,798
55-59	1,719	1,568	1,521	1,641	1,847	1,957
60-64	1,965	1,744	1,594	1,552	1,673	1,879
65-69	1,867	1,917	1,705	1,564	1,521	1,637
70-74	1,553	1,652	1,698	1,518	1,390	1,349
75-79	1,035	1,393	1,480	1,531	1,368	1,249
80-84	661	787	1,063	1,131	1,172	1,047
85+	782	815	903	1,110	1,243	1,334
Total	**26,483**	**27,146**	**27,772**	**28,454**	**29,097**	**29,728**

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

Area	Pop. (2020)	Pop. (2025)	Pop. (2030)	Pop. (2035)	Pop. (2040)	Pop. (2045)	Pop. (2050)	Pop. (2055)	Pop. (2060)	Pop. (2065)	Pop. (2070)
Wasco County	**26,483**	**27,146**	**27,772**	**28,454**	**29,097**	**29,728**	**30,372**	**31,031**	**31,703**	**32,391**	**33,093**
Antelope	42	41	40	40	40	40	40	39	38	38	38
Dufur	621	628	631	634	637	639	640	636	639	644	650
Maupin	403	406	418	430	439	446	455	463	473	482	492
Mosier	464	475	502	527	553	574	600	629	654	677	698
Shaniko	34	34	34	34	34	34	33	32	32	32	32
The Dalles	16,148	16,589	17,092	17,668	18,243	18,823	19,387	20,008	20,577	21,126	21,668
Outside UGB Area	8,770	8,974	9,056	9,123	9,152	9,172	9,218	9,223	9,291	9,392	9,513