

Oregon Population Forecast Program

Proposed Coordinated Forecasts for Benton
County, its Urban Growth Boundaries (UGBs),
and the Area Outside UGBs

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The primary purpose of today's meeting is to present progress and plans for future revisions related to the population forecasts, as well as gather additional data from comments or in response to today's Q&A.

Presentation Contents:

- Preliminary proposed forecasts of Region 4 counties and their sub-areas.
- Historical data (2000-2019) and forecast results(2020–2070) for the counties, as well as the Urban Growth Boundary (UGB) areas within each county.
- Approximately 30-40 minutes for each county, including 10-15 minutes for Q&A.

Cohort Component Model ("Demographic Balancing Equation"):

$$Population_{t2} = Population_{t1} + Births_{t1\ to\ t2} - Deaths_{t1\ to\ t2} + NM_{t1\ to\ t2}$$

t1: Starting year

t2: Ending year

NM: Net migration (difference between in/out migration)

Housing Unit Method:

$$Population = HU \times Occ \times PPH + GQ$$

HU: housing unit stock

Occ: Occupancy rate

PPH: Persons per household

GQ: Group quarters population

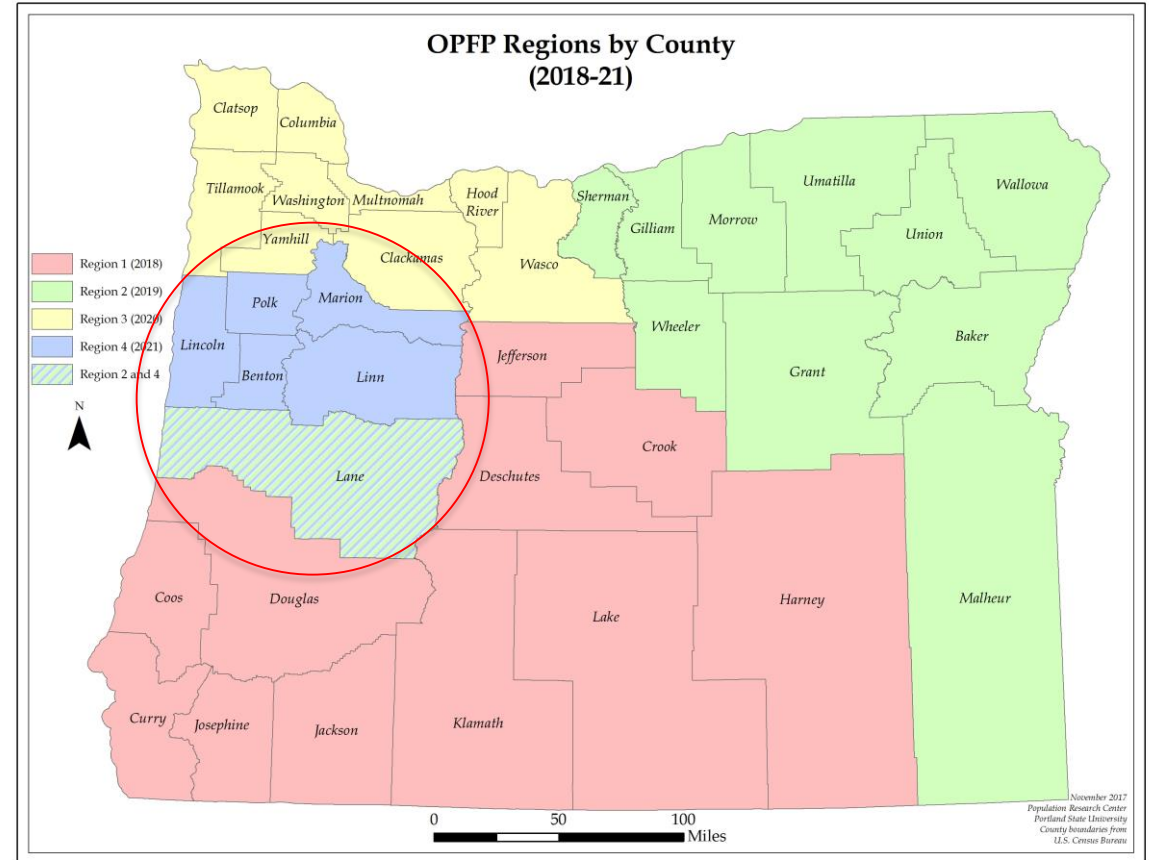
Modified Methodology (50 Year Period)

Forecast Methods (2020-45)

- Cohort-Component and Housing Unit Model

Modified Method (2045-70):

- County: AAGR of the last forecast period (2044-45) is extrapolated out for the remaining 25 years.
- Sub-areas: Trend the sub-area share of the County for the remaining 25 years.

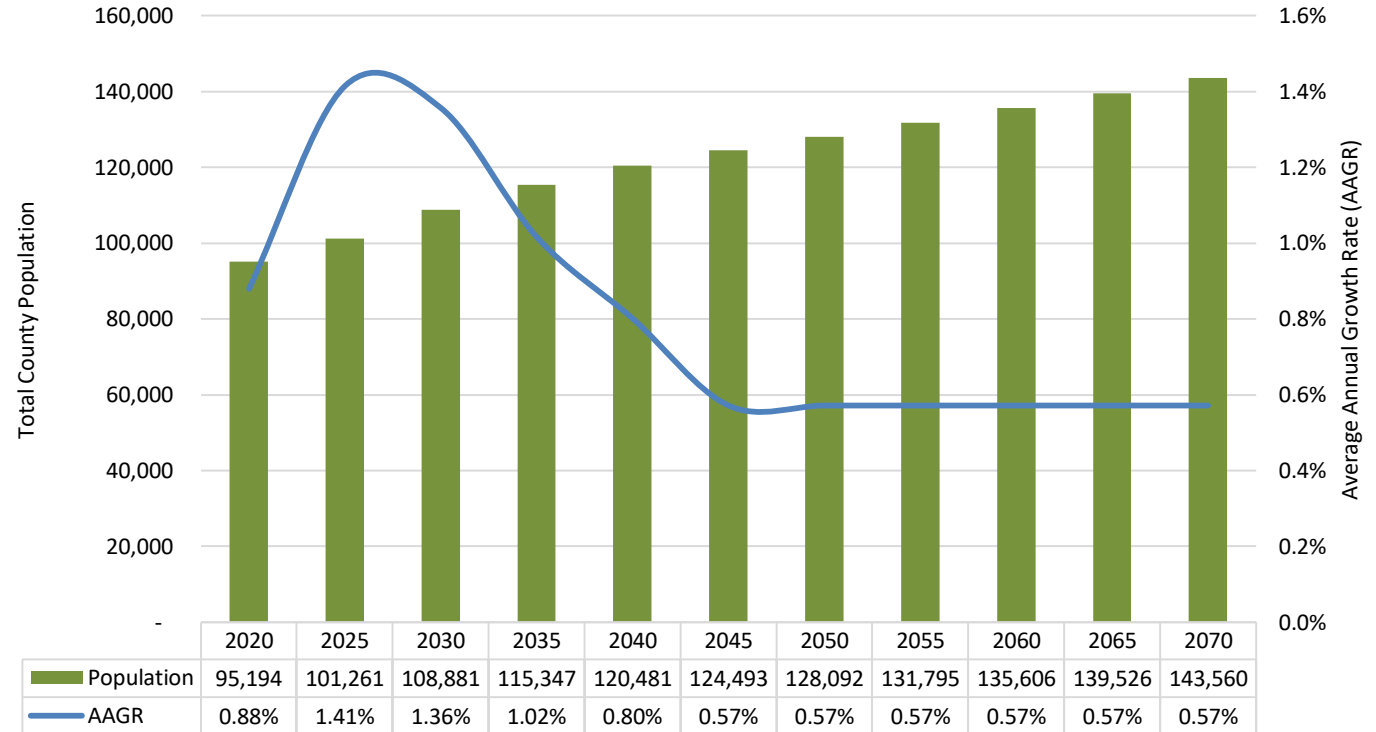


1. We incorporate the following assumptions for fertility and mortality.
 - a) Deaths and survival rates were projected based on historical trends (2000-2019) and the methodology published by Clark and Sharrow 2011 ([link](#)). Mortality rates for the 85+ age group were further divided into 5-year age groups up to 100+.
 - b) We applied some constrains to ensure the number of deaths maintain in a reasonable range as the elderly populations grow, accounting for positive factors associated with life expectancy (e.g., advanced medical treatments, life-style changes).
 - c) Fertility rates were projected based on historical trend up to 2030 and remain constant afterwards.
2. Net migration rates were based on the data published by the University of Wisconsin-Madison for 2000-2010, with minor adjustments made based on the following assumptions:
 - a) In/out migration would gradually approach zero for populations over 65, assuming there is minimal moving for people as they approach the age of 85+.
 - b) Considered and mitigated the uncertainties of in/out migration among college students.
3. Populations in sub-areas were forecasted using the housing unit method based on survey responses and historical pattern.

Proposed Forecast Results

Population of Benton County is projected to grow from over 95,000 in 2020 to over 143,000 by 2070. Annual growth rate reaches as high as 1.4% in 2025 and dropped to around 0.6% in 2045.

Benton County - Total Population by Five-year Intervals (2020-2070)

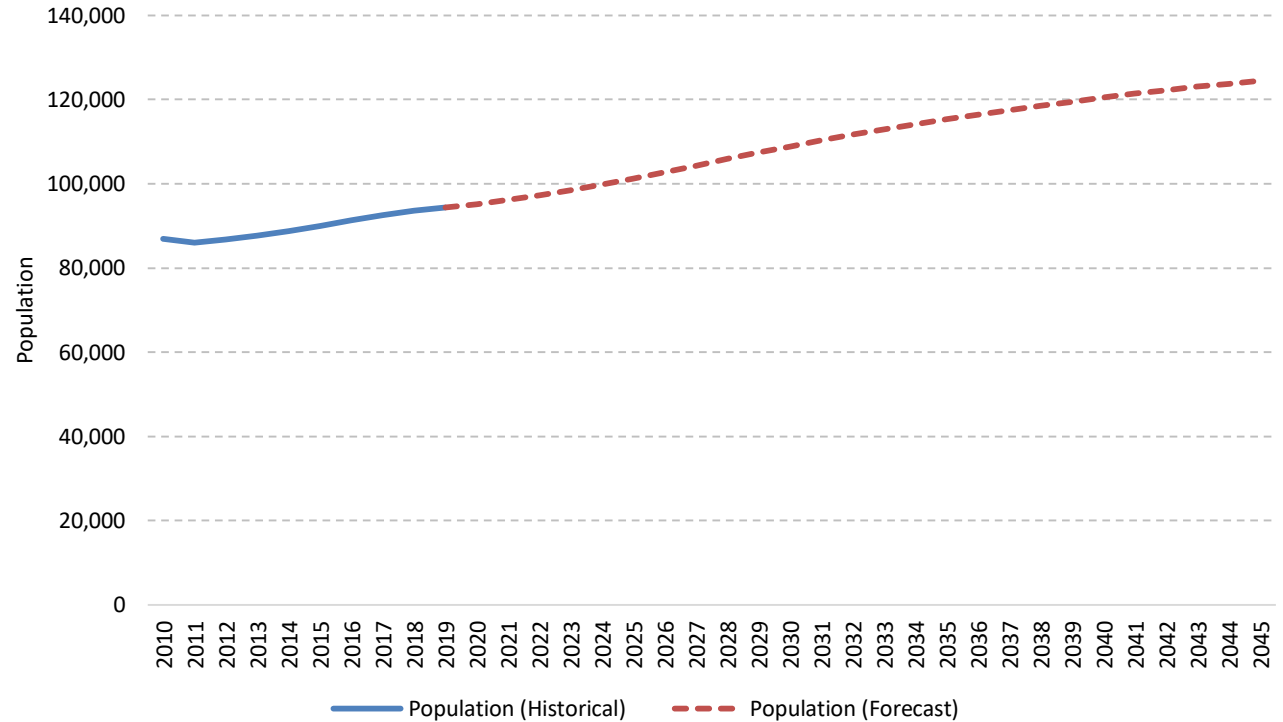


Source: Forecast by Population Research Center (PRC).
[Historical trend](#)

Proposed Forecast Results

Historical trend shows that total population reached 94,360 in 2019 and reaches 124,493 by 2045. The total county population shows a 28% growth between 2019 and 2045.

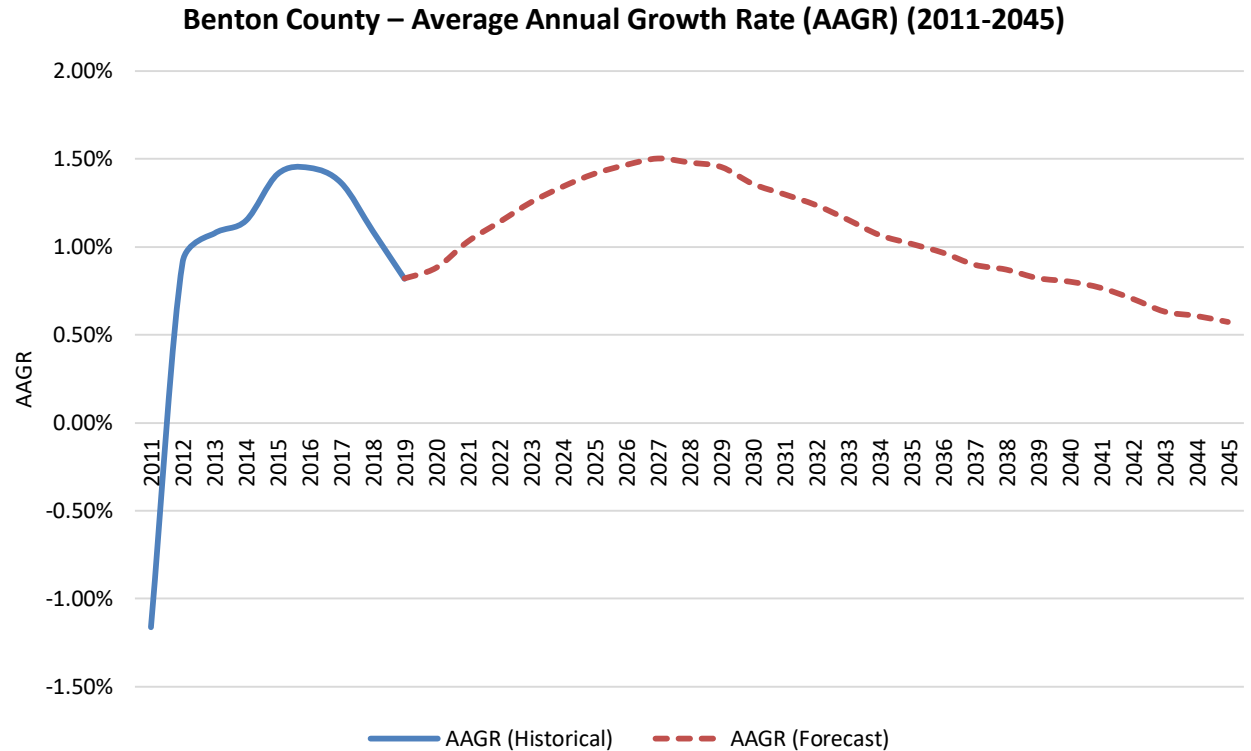
Benton County - Total Population Trend (2010-2045)



Source: U.S. Census Bureau. PRC Estimates. Forecast by Population Research Center (PRC).

Proposed Forecast Results

The average annual growth rate of the total population has varied throughout the historical time period, reaching nearly 1.4% in 2015. The annual growth rate dropped after it reaches a peak of 1.5% in 2028.

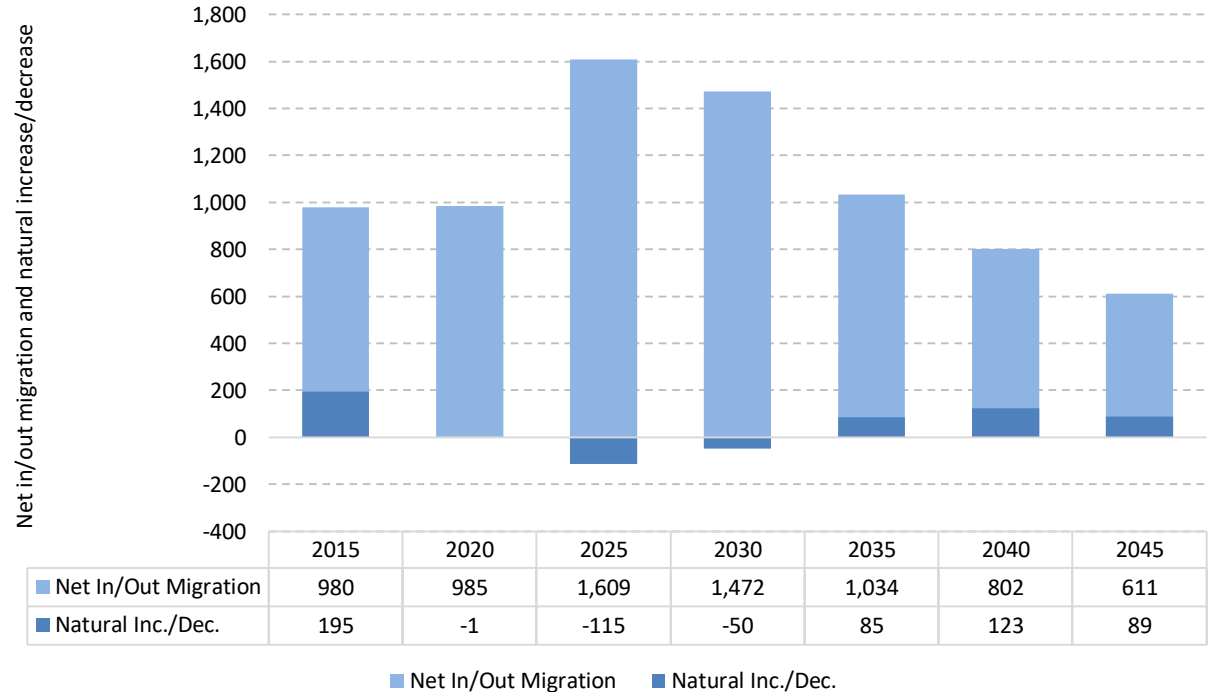


Source: U.S. Census Bureau. PRC Estimates. Forecast by Population Research Center (PRC).

Proposed Forecast Results

Net migration will be the main contributor to population increase in Benton County. Natural decrease occurs in 2020-2025 and 2025-2030 and returns to natural increase afterwards.

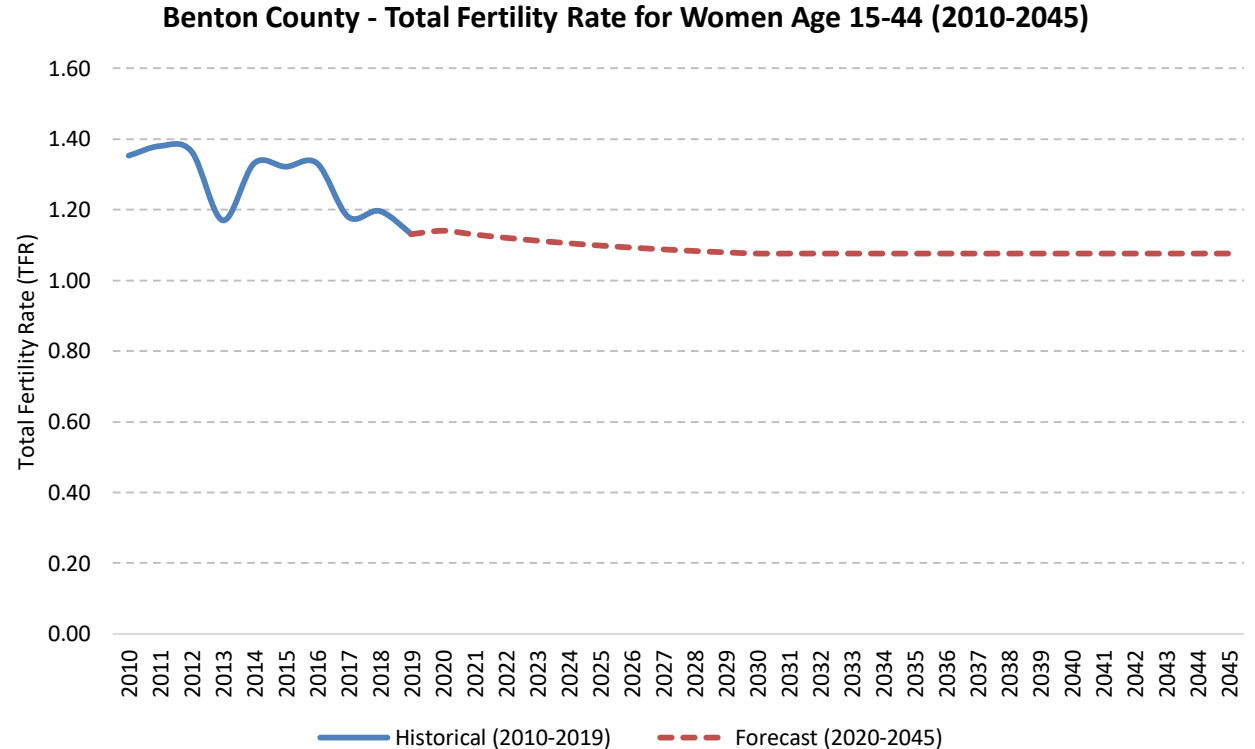
Benton County - Components of Population Change by Five-Year Intervals (2015-2045)



Source: Forecast by Population Research Center (PRC)

[Historical trend](#)

The total fertility rate for women age 15-44 remains relatively stable around 1.10. Historically, the TFR in Benton County has been under 1.40 since 2010.

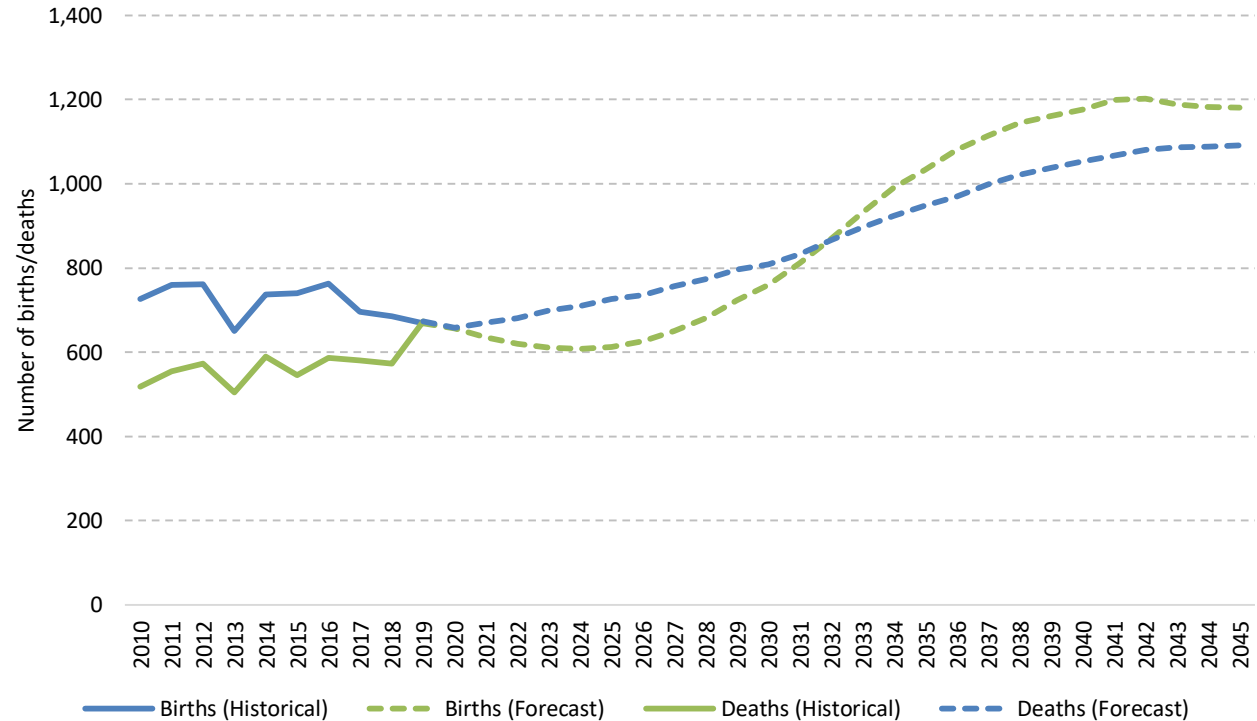


Sources: Oregon Health Authority, Center for Health Statistics. Calculations and forecast by Population Research Center (PRC).

Historical and Forecast Trends

Both births and deaths will increase over time in Benton County. Birth will experience a fall in the next 5 years but will increase afterwards. Death will also be increasing, surpassing birth between 2020 and 2031. There will eventually be more births than deaths after 2032 as the number of births increases.

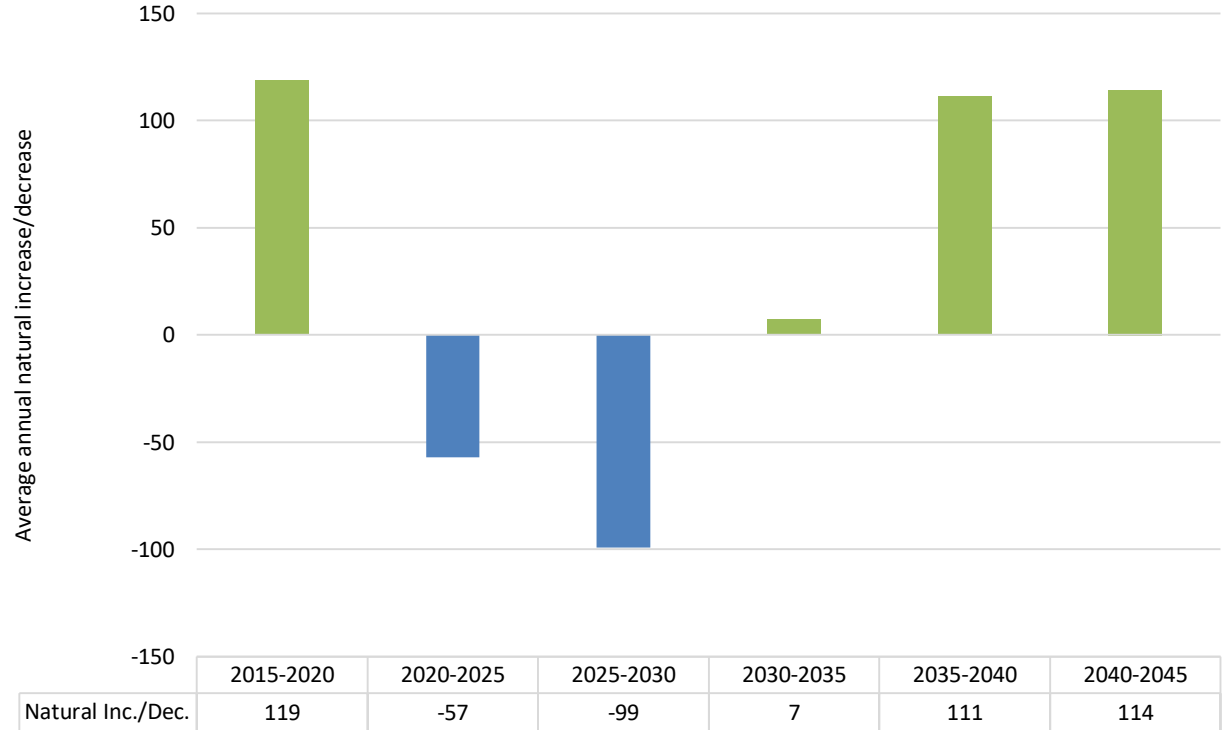
Benton County - Annual Births/Deaths (2010-2045)



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

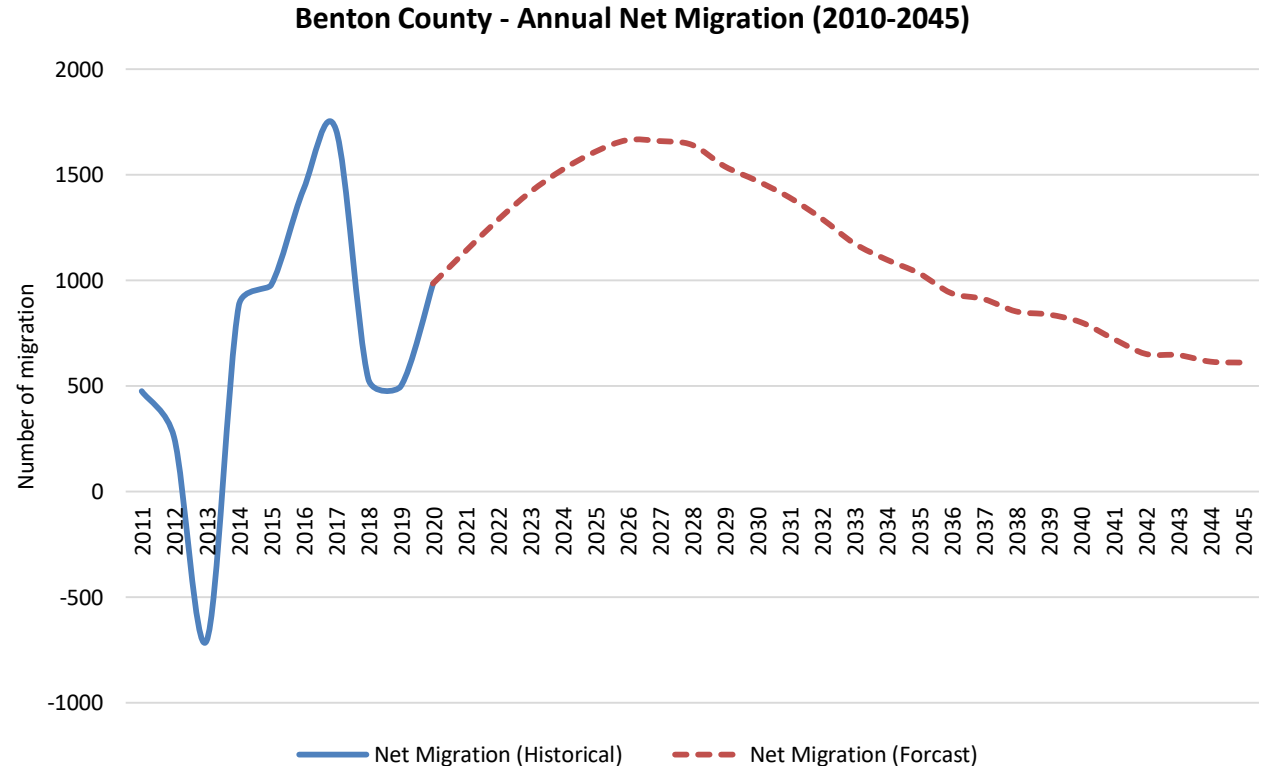
Natural decrease occurs from 2020 to 2030 but returns to increase after 2030. The change in age structure may contribute to the higher birth number and therefore, contribute to natural increase.

Benton County - Average Annual Natural Increase/Decrease



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

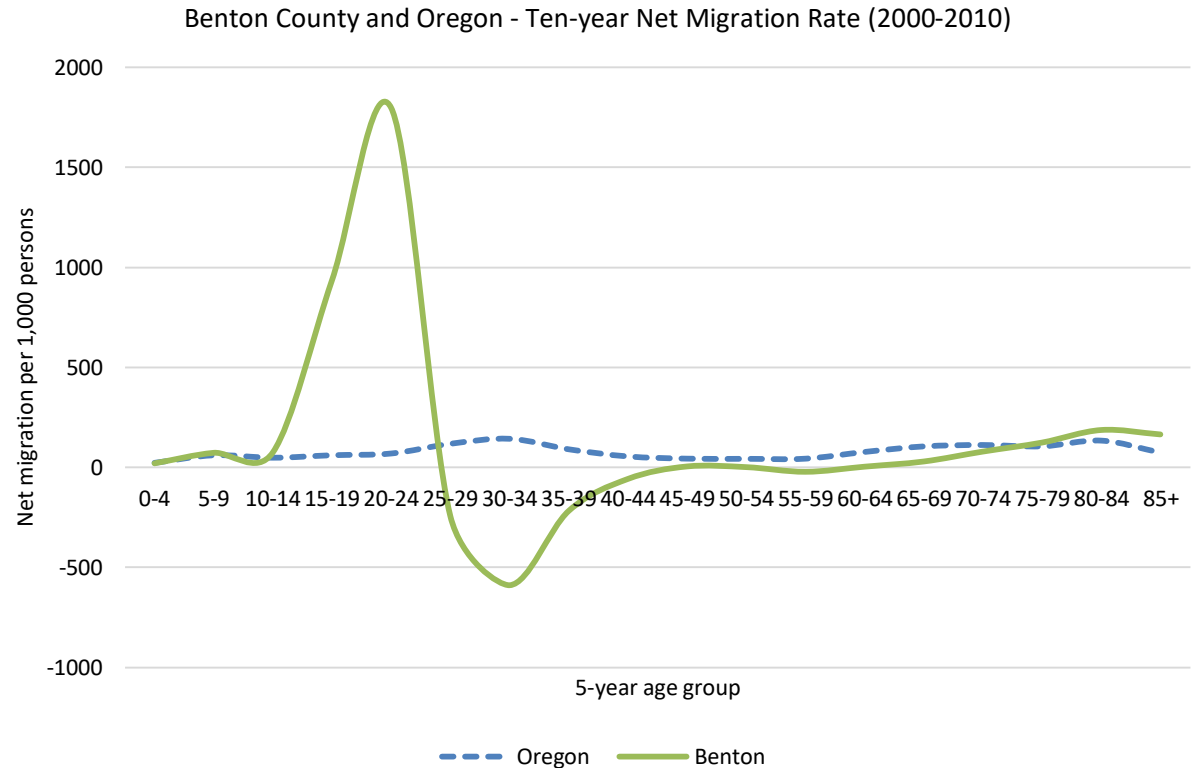
The annual net migration remains positive through 2045 and is likely to reach a peak around 2026. Although net migration decreases after 2026, it still falls within the historical range.



Sources: Center for Demography and Ecology, University of Wisconsin-Madison. Calculated by Population Research Center (PRC).

Additional Historical Trends

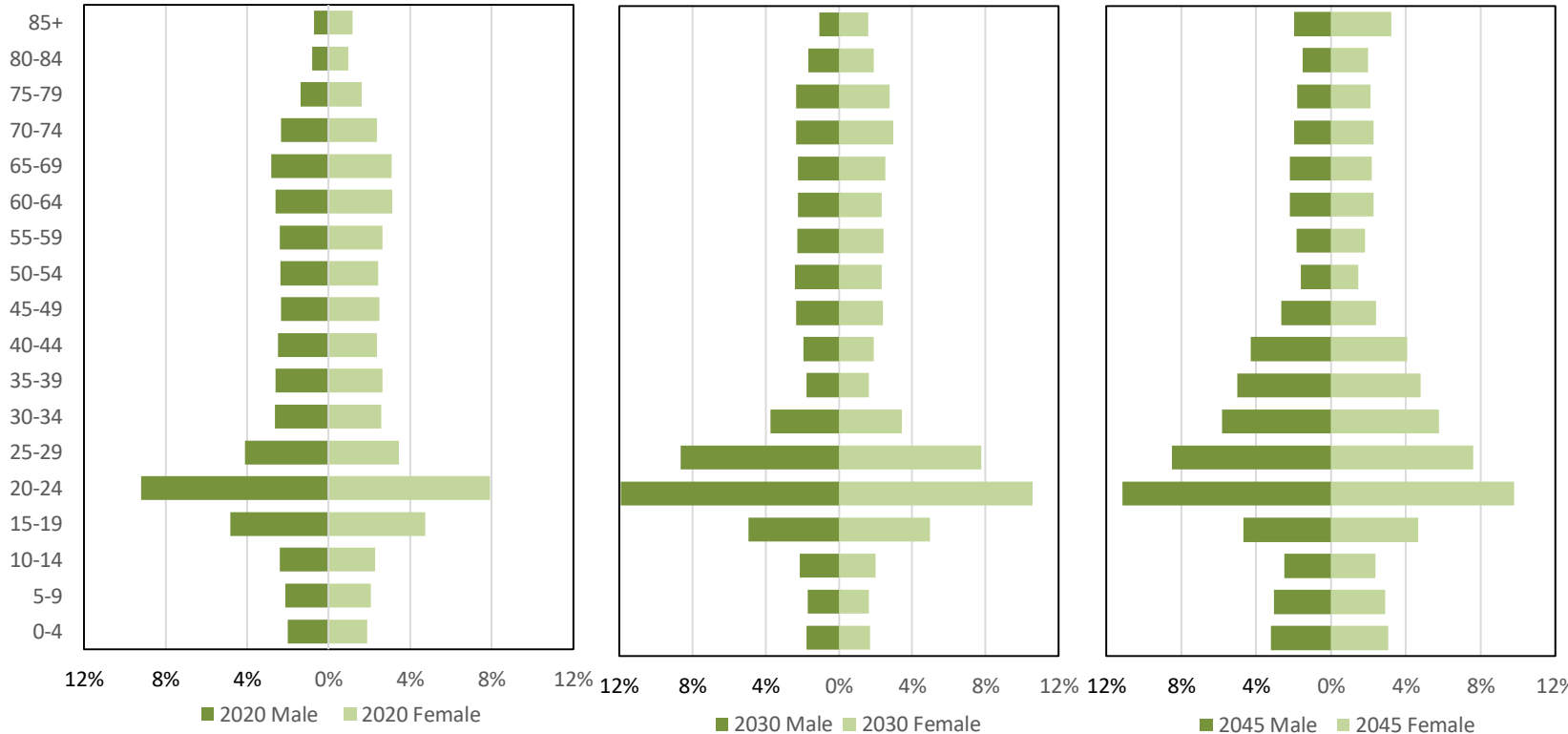
This figure presents the historical 10-year net migration rates for Oregon and Benton County from 2000 to 2010. Compared to Oregon, Benton County has a significantly higher net migration rate in the college-age population because of OSU enrollment. Population in the 30-39 age group tend to move out, but in-migration out-numbered out-migration.



Historical and Forecast Trends

Benton County—Age Structure of the Population

These figures show the age and sex distribution of Benton County. The oldest ages are at the top of the age pyramid and increase as a share of the population over time. The share of population in the 20-24 age group remains the highest among all age groups. The share of 25-29 age group also increases.



Source: Forecast by Population Research Center (PRC)
[Historical trend](#)

These numbers represent *Proposed* Forecast Results

1. All sub-area forecasts use a housing unit method rather than a cohort-component model for consistency.
2. 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.
3. If the reported housing development plans does not lead to significant differences to the observed pattern over most recent decade (2010-2019), the 2010-2019 housing development pattern was used.
4. If no planned housing units were reported, we assume future housing construction will follow historic patterns.
5. 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.
6. We expect persons per household (PPH) to stay relatively constant over time with no major changes. Although the median age tend to increase slightly for many areas, aggressive increases in median age are not expected in the short term to post significant impact in the forecast.

Benton County – Historical and Forecast Population for Benton County and its Sub-Areas

| | Historical | | | Forecast | | | | |
|--------------------------|------------|--------|---------------------|----------|---------|---------|---------------------|---------------------|
| | 2000 | 2010 | AAGR (2000-2010) | 2020 | 2045 | 2070 | AAGR (2020-2045) | AAGR (2045-2070) |
| Benton County | 78,153 | 85,574 | 0.91% | 95,194 | 125,756 | 143,560 | 1.11% | 0.53% |
| Outside UGBs | 16,128 | 16,484 | 0.22% | 17,376 | 20,677 | 21,157 | 0.70% | 0.09% |
| Larger Sub-Areas | | | | | | | | |
| Albany (part) | 5,445 | 6,867 | 2.32% | 7,393 | 13,369 | 21,459 | 2.37% | 1.89% |
| Corvallis | 50,439 | 55,325 | 0.92% | 62,427 | 78,952 | 84,526 | 0.94% | 0.27% |
| Smaller Sub-Areas | | | | | | | | |
| Adair Village | 592 | 929 | 4.50% | 1,567 | 2,967 | 3,861 | 2.55% | 1.05% |
| Monroe | 653 | 670 | 0.27% | 773 | 1,186 | 1,521 | 1.71% | 0.99% |
| Philomath | 4,897 | 5,298 | 0.79% | 5,657 | 8,657 | 11,036 | 1.70% | 0.97% |

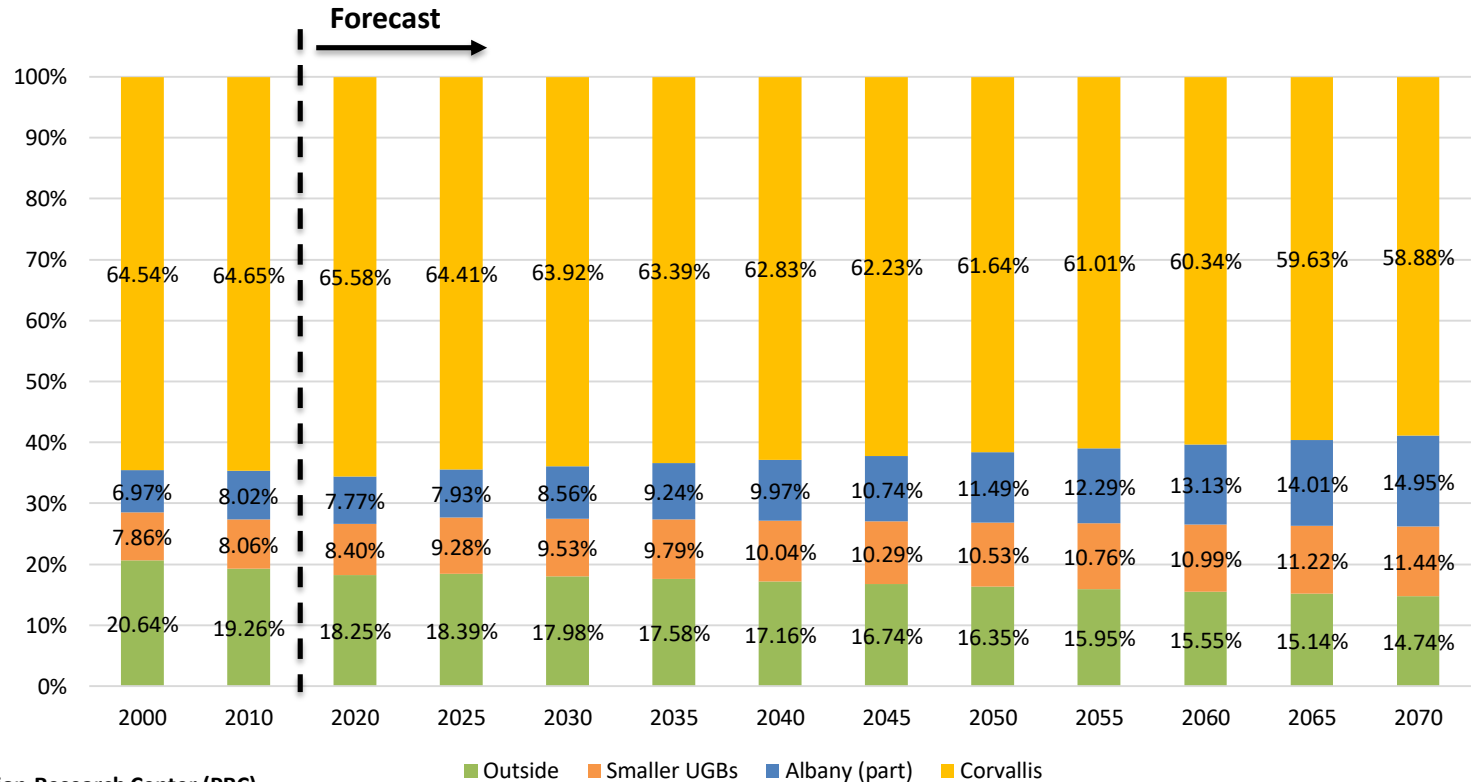
Sources: U.S. Census Bureau; Forecast by Population Research Center (PRC)

[Historical trend](#)

Proposed Forecast Results

Benton County – Population Shares of Sub-Areas and Outside UGBs

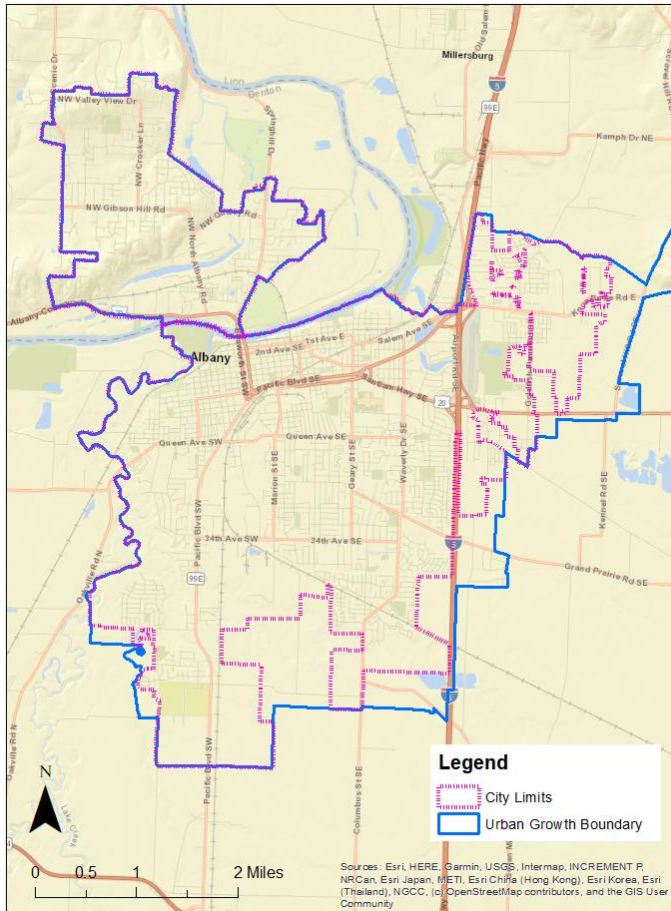
This figure shows the percentage of the county population that is in each large UGB, or smaller UGBs, or in the rest of the county. Over time, the share of the population living inside UGBs increases, while the population share outside of the UGBs decreases.



Sources: U.S. Census Bureau; Forecast by Population Research Center (PRC).

Note: Sub-areas with populations under 8,000 by 2010 were considered smaller UGBs

Proposed Forecast Results

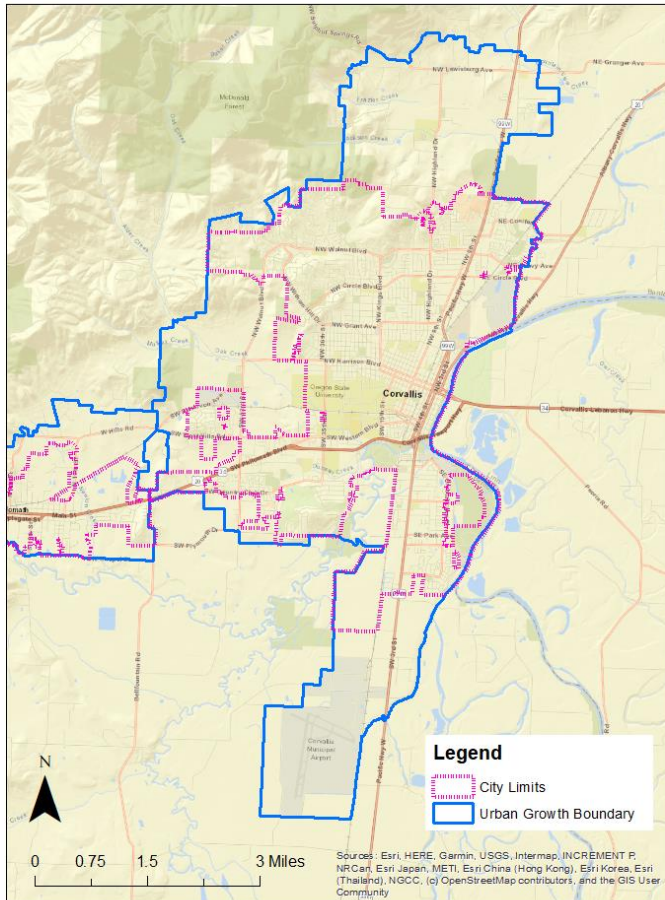


Albany UGB – Population Forecast

| | Population | Share of County |
|--------------------------|------------|-----------------|
| Albany UGB (Part) | | |
| 2020 | 7,393 | 7.8% |
| 2045 | 13,369 | 10.6% |
| 2070 | 21,459 | 14.9% |

Sources: Forecast by Population Research Center (PRC)

Note: Larger sub-areas refer to areas with populations over 8,000 by 2010.



Corvallis UGB – Population Forecast

| | Population | Share of County |
|----------------------|------------|-----------------|
| Corvallis UGB | | |
| 2020 | 62,427 | 65.6% |
| 2045 | 78,952 | 62.8% |
| 2070 | 84,526 | 58.9% |

* 5 to 10-year HU development plan (survey based): 0.3% annual rate

Sources: Forecast by Population Research Center (PRC)

Note: Larger sub-areas refer to areas with populations over 8,000 by 2010.

Proposed Forecast Results

Benton County – Population Distribution in Smaller Sub-Areas

| | Population | | | Share of County Population | | |
|----------------------|------------|---------|---------|----------------------------|-------|-------|
| | 2020 | 2045 | 2070 | 2020 | 2045 | 2070 |
| Benton County | 95,194 | 125,756 | 143,560 | | | |
| Outside UGBs | 17,376 | 20,677 | 21,157 | 18.3% | 16.4% | 14.7% |
| Adair Village | 1,567 | 2,967 | 3,861 | 1.6% | 2.4% | 2.7% |
| Monroe | 773 | 1,186 | 1,521 | 0.8% | 0.9% | 1.1% |
| Philomath | 5,657 | 8,657 | 11,036 | 5.9% | 6.9% | 7.7% |

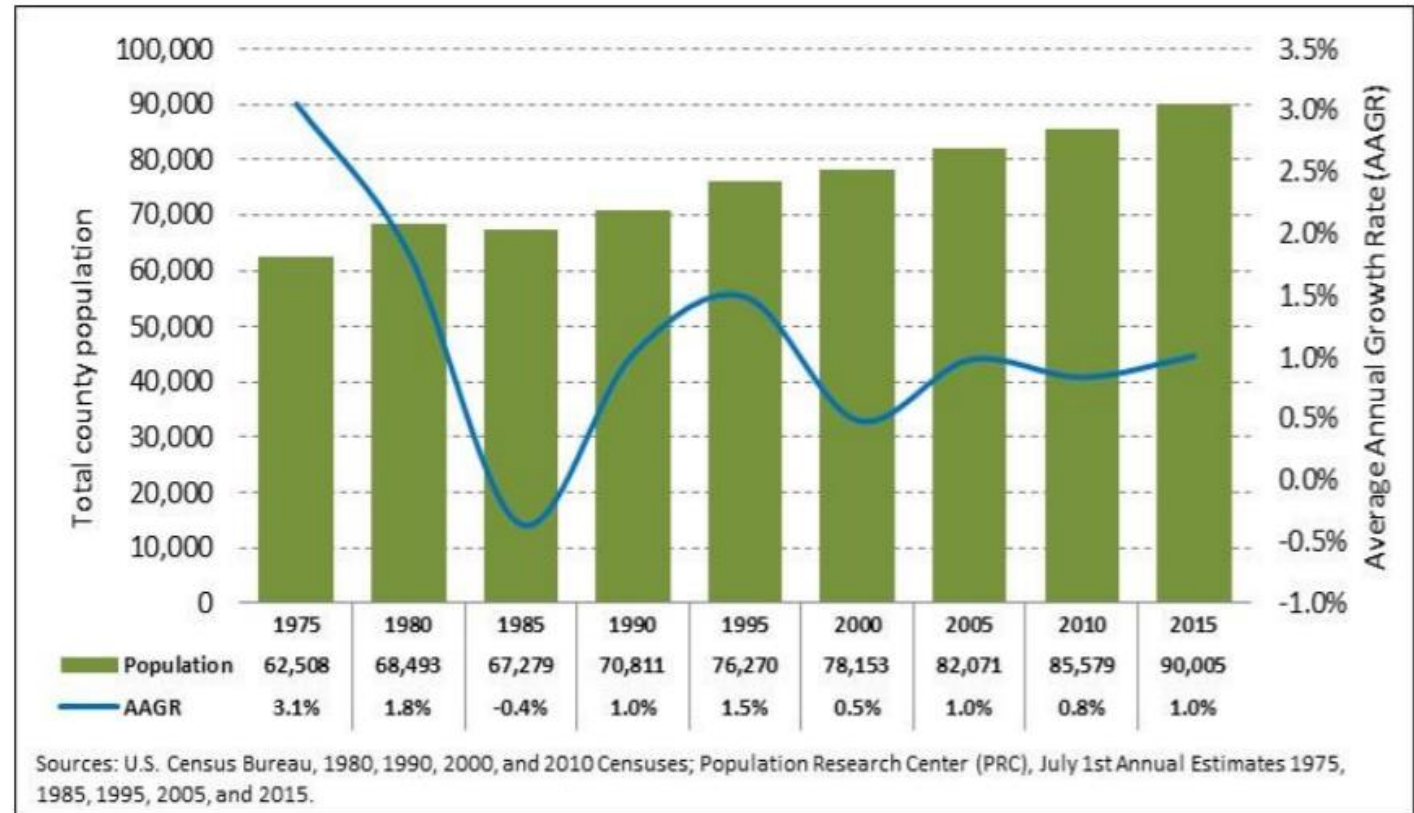
Sources: Forecast by Population Research Center (PRC)

Note: Smaller sub-areas refer to areas with populations under 8,000 by 2010.

1. We expect Benton County to experience a relatively high population growth rate in the upcoming years, reaching a peak of ~1.5% by 2027. The annual growth rate will then decline to ~0.6% by 2045.
2. Net migration increases over the next 6 years and decreased afterward, which contributed to the decline in population growth rate.
3. The 15-24 age group accounted for the largest population share due to college enrollment, and the share of the 30-44 age group also increased through 2045 as the 15-24 group aged forward.
4. Although the forecast reflected an increase in population in the older age groups, births returned to a higher number around 2031, mainly due to changes in age structure as the population share in women aged 25-39 increased.
5. All sub-areas will continue to experience population growth, while areas outside of the UGBs will decline slightly. Sub-areas with populations over 8,000 will account for 77% of the county population share by 2045.
6. The population of the two larger sub-areas, Albany and Corvallis, both increases. Albany shows an increase in population share while Corvallis shows a decrease in share.
7. Covid-19 and wildfires implications.

Additional Historical Trends

This figure shows total population growth for Benton County during 1975-2015. The annual growth rate varied from as high as 3.1% in 1975 to as low as -0.4% in 1985. The AAGR has stayed above 0.5% over the most recent 20 years.



Additional Historical Trends

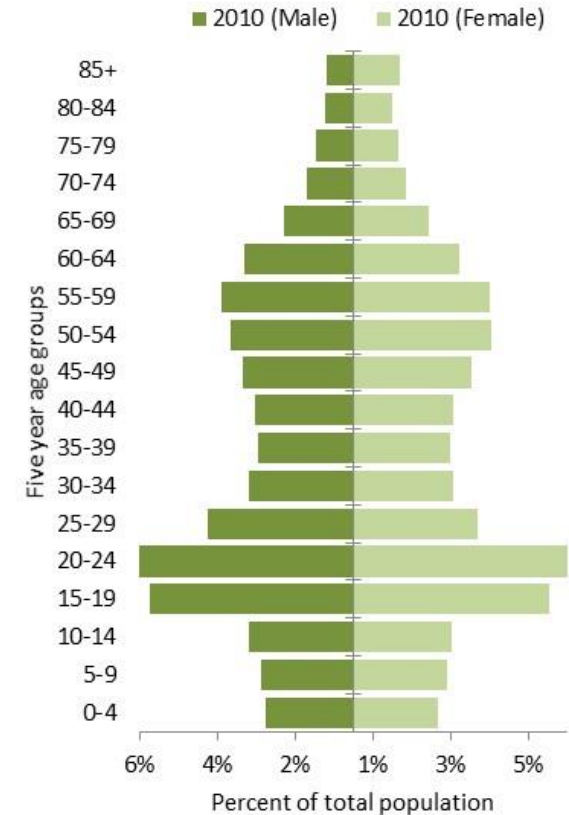
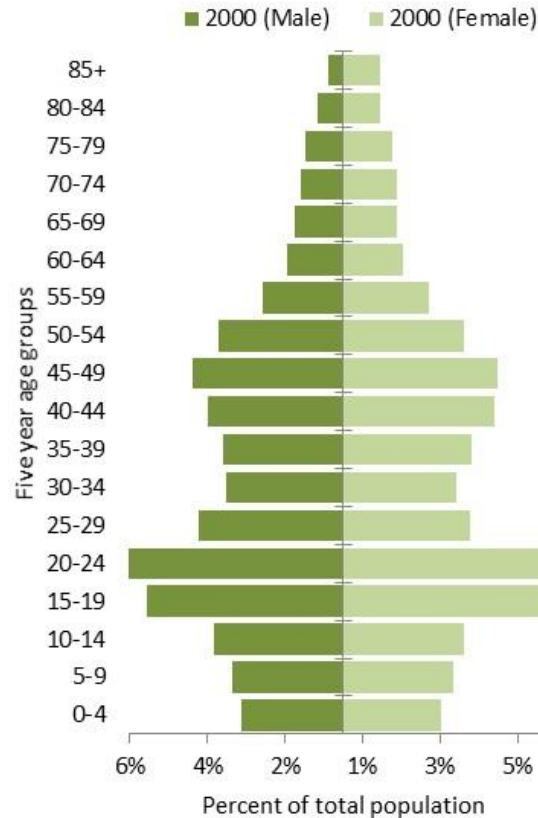
This table shows the growth rate of Benton County and its urban areas during 2000-2010. Adair Village has shown relatively high growth rate during 2000-2010. Albany (Benton part) also showed a relatively high growth rate.

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

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

Additional Historical Trends

These two age pyramids show the population at the time of the 2000 and 2010 census. The 2010 age pyramid showed the population aging forward from the 2000 census. The 15-19 and 20-24 age groups accounted for the largest population shares.



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

Additional Historical Trends

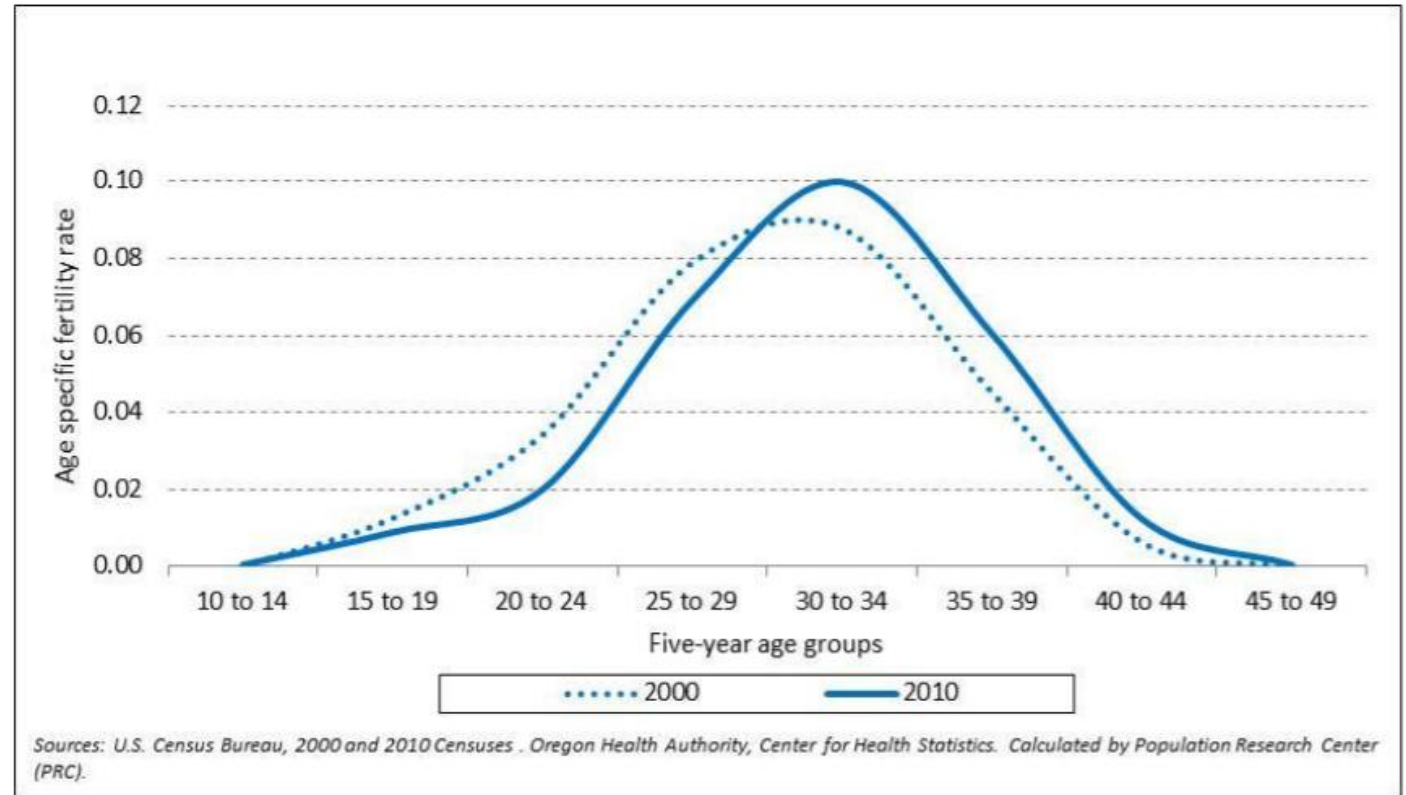
This table shows the race and ethnicity breakdown for Benton County in 2000 and 2010. The Hispanic population and population of two or more races showed the largest positive change between 2000 and 2010. The Native Hawaiian and Pacific Islander population decreased by 11.3%, further reducing the already small population for this group.

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

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

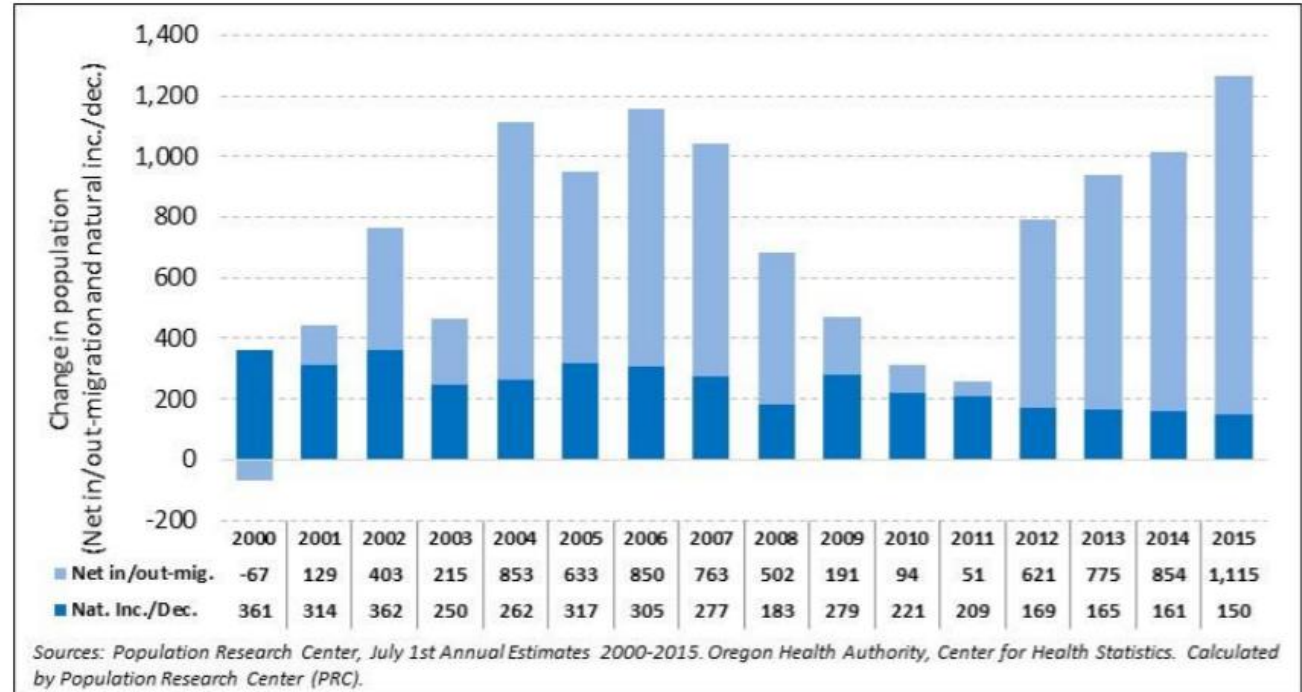
Additional Historical Trends

This figure shows age specific fertility rates for Benton County in 2000 and 2010. The curve shifted to the right in 2010, meaning births are occurring at later stages in life.



Additional Historical Trends

These figures showed the components of change (births, deaths, and net migrants) for Benton County during 2000-2015. Net migration has remained positive for most of the years except for 2000. There has been natural increase every year since 2000, but the number has been declining since 2010.



Additional Historical Trends

This table shows the total housing units for Benton County and each UGB during 2000 and 2010. Although Corvallis accounted for the highest share of housing units, Adair Village and Albany showed fast growth.

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

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

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

Additional Historical Trends

This table shows average household size and occupancy rate in 2000 and 2010. Household size either decreased or remain unchanged between 2000 and 2010 for all UGBs.

| | Persons Per Household (PPH) | | | Occupancy Rate | | |
|-----------------|-----------------------------|------|---------------------|----------------|-------|---------------------|
| | 2000 | 2010 | Change 2000-2010 | 2000 | 2010 | Change 2000-2010 |
| Benton County | 2.4 | 2.3 | -0.1 | 94.3% | 94.7% | 0.4% |
| Adair Village | 3.1 | 3.0 | -0.1 | 94.7% | 94.6% | -0.1% |
| Albany (Benton) | 2.8 | 2.6 | -0.1 | 96.9% | 95.6% | -1.3% |
| Corvallis | 2.3 | 2.2 | 0.0 | 93.9% | 95.1% | 1.2% |
| Monroe | 2.7 | 2.5 | -0.2 | 86.0% | 90.8% | 4.8% |
| Philomath | 2.9 | 2.6 | -0.2 | 94.0% | 94.5% | 0.5% |
| Outside UGBs | 2.7 | 2.5 | -0.2 | 95.4% | 93.1% | -2.3% |

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

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