Coordinated Population Forecast

2022

Through

2072

Curry County

Urban Growth Boundaries (UGB) & Area Outside UGBs

Population Research Center
PORTLAND STATE UNIVERSITY

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 (https://www.pdx.edu/population-research/population-forecasts).

- *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 (2022-2072).

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Coordinated Population Forecast for Curry County, its Urban Growth Boundaries (UGB), and Area Outside UGBs

2022 – 2072

Prepared by

Population Research Center

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1. Methodology

Counties were forecast using the cohort component method. Deaths and survival rates were projected based on historical trends (2000-2020) and based on the methodology published by Clark and Sharrow 2011[1]. Mortality rates for the 85+ age group were further divided into 5-year age groups up to 100+ (i.e., 85-89, 90-94, 95-99, and 100+) using the proportion of each age group calculated from the single-year age group data in the 2010 decennial census. Age specific fertility rates were projected based on historical trends up to 2035 and held constant afterwards. The 2021 births data was not included in the projection model for two reasons: 1) the 2021 vital statistics were not finalized at the time of this report, and 2) due to uncertainties related to COVID-19 impacts on births and deaths, incorporating the 2021 births data into births and fertility rate projection may lead to errors such as underestimation. Nonetheless, the 2021 births and deaths numbers are included in Figures 3 and 4 to provide a more consistent visualization. Since the 2020 deaths data may be impacted by COVID-19, deaths were adjusted based on CDC's estimated excess deaths when forecasting future mortality rates to ensure these rates were not affected by short-term pandemic-related deaths.

Annual net migrants were calculated based on published data gathered from the IRS and the U.S. Census Bureau's American Community Survey (ACS) Public Use Microdata Sample (PUMS) and Population Estimates Program (PEP). Historical county level in-, out-, and net migration (domestic and foreign) were obtained from IRS and PEP (1991 – 2020). IRS provides domestic in- and out- while PEP provides domestic and foreign net. Age structures of gross migrants by direction (domestic in- and out- and foreign in-migration) were calculated for ACS Public Use Microdata Areas (PUMAs) which were used for migration to or from constituent counties. Future total net migrants were projected by applying an ARIMA model appropriate for each individual county.

The PRC estimate formed the baseline of the forecast for individual UGBs, with the difference in population between incorporated city and UGB boundaries estimated based on assignment of population in individual census blocks in each county into a UGB area and or city area, or balance of county. Populations in individual UGBs or in the balance of county were forecast by projections of individual components of the housing unit method of population estimation. Historical rates of population and housing unit change since 1990 were used to generate a weighted average annual rate of change. Jurisdiction-level vacancy rates and average household size were held constant from the 2020 decennial census. Population forecasts for sub-areas were then controlled by the county-level forecasts, e.g., sub-area populations were allocated using the county total (top-down approach), and the population summation of the sub-areas does not exceed the county population.

Forecast Program surveys were used to make adjustments to the baseline results for counties and UGB areas. Recent development and plans obtained from surveys were generally implemented in the first 5-10 years of the forecast, except where they indicate a change in long-run outlook. For the immediate period (2022-2030), the development rate derived from the surveys or received reports was applied before 2030. If no planned housing units were reported, recent development rate (2010-2020) or the overall county rate was used. For the later period (2030-2047), housing unit growth was based on either

[1] https://csss.uw.edu/research/working-papers/contemporary-model-life-tables-developed-countries-application-model-based

a weighted average or an extrapolation of historic trend (1990-2020). Assumptions were made for individual cities based on knowledge obtained from the general surveys, housing surveys, as well as documentations (e.g., housing needs assessment, comprehensive development plans) received from the cities.

Many uncertainties still remain in understanding the climate change impacts on migration. Thus, specific scenarios of climate change, political unrest, or other shocks were not reflected in the current forecast. The forecast program methodology is described in further detail in an accompanying report available on the Population Research Center's website.

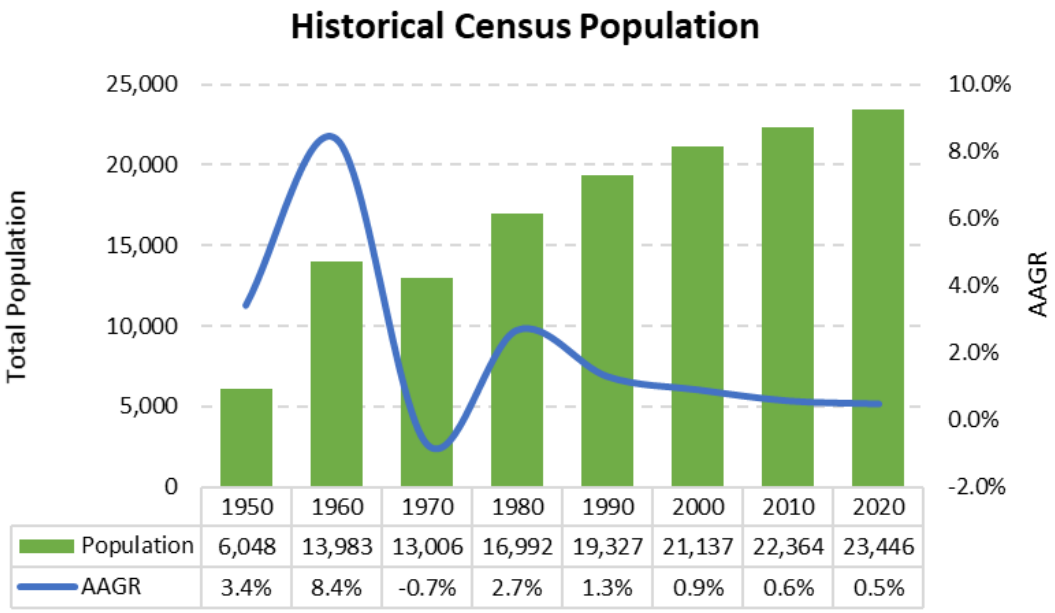
2. County Overview

The 2020 census recorded a total population of 23,446 for Curry County, which was an increase of over 1,000 compared to the 2020 census. Although the City of Gold Beach is the county seat, with a population of 6,744 reported in the 2020 census, Brookings is the most populated city in Curry County. Curry County's population AAGR was 0.5% between the 2010 and 2020 censuses and the forecast suggests the AAGR is projected to maintain between 0.1% to 0.3% during most of the years in the next 50 years. Populations in the three cities, Brookings, Gold Beach, and Port Orford are all projected to grow according to our forecast.

3. Historical Trend and Population Forecast

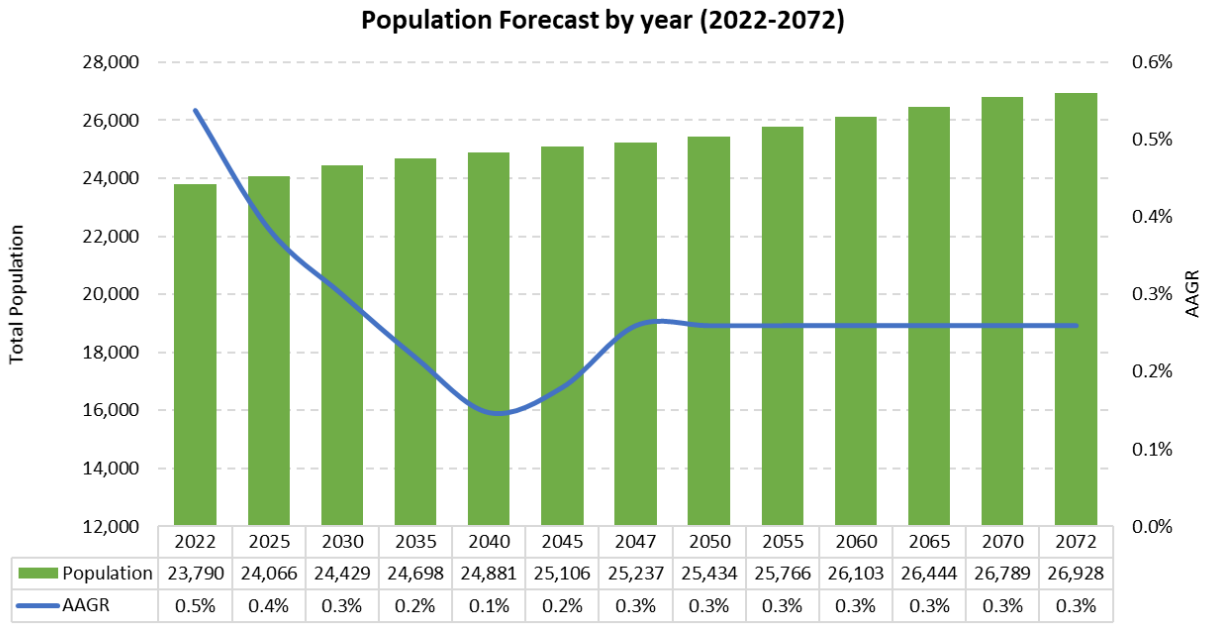
3.1 County Population

As illustrated in the Figure 1, in the last eight censuses, Curry County experienced the highest 10-year AAGR between 1950 and 1960. After a decline in the 1960s, population growth resumed between 1970 and 1980. The 1980 census recorded an AAGR of 2.7% for Curry County. The county population has been growing at rates of less than 1% for the past 30 years and the 2020 census showed an 0.5% AAGR between 2010 and 2020. Total population has grown by over 17,000 since 1950. As shown in Figure 2, the county population is projected to continue growing over the next 50 years at AAGRs ranging between 0.5% and 0.1%. Population growth during 2030 to 2045 is expected to be slower than other years, but the AAGR is projected to increase slightly after 2045. Changes in AAGR are associated with future net migration trend and age structure shifts. A 13% population increase is projected over 50 years.



Sources: US Census Bureau, 1950, 1060, 1970, 1980, 1990, 2000, 2010, and 2020 Decennial Census.

Figure 1. Historical total county population and AAGR, 1950-2020.



Sources: Forecasted by Population Research Center (PRC).

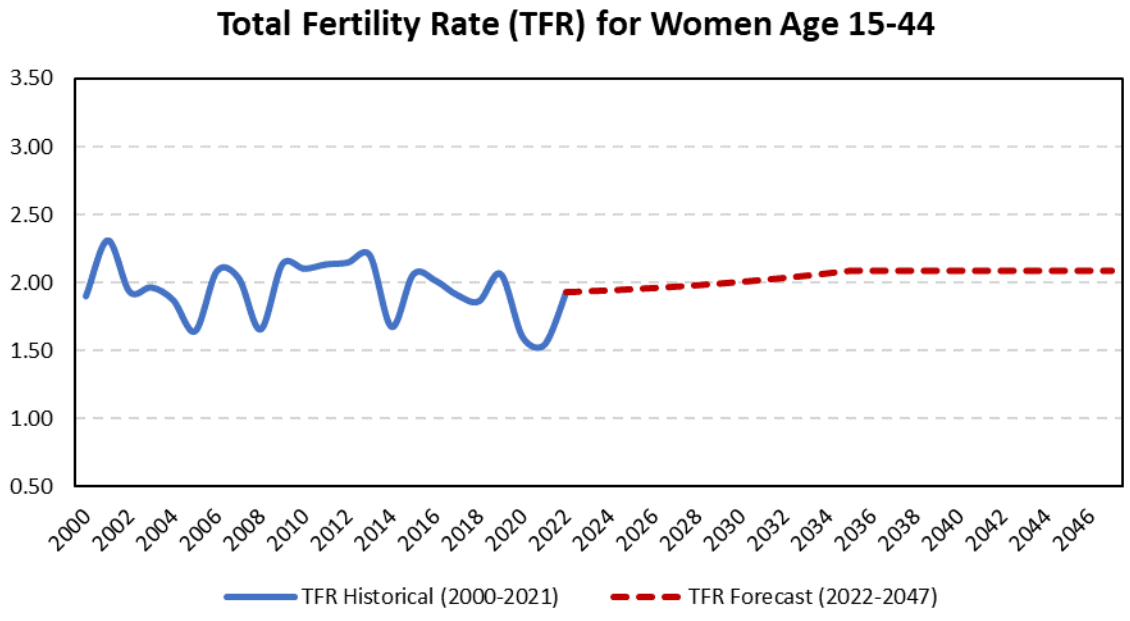
Figure 2. Forecasted total county population and AAGR, 2022-2072.

3.2 Births and Deaths

The total fertility rate (TFR) is shown in Figure 3. Curry County's TFR has experienced multiple high and low points since 2000. Compared to Oregon state, which experienced a TFR drop from 1.7 to 1.4 between 2014 and 2020, Curry County did not see a continuous TFR decline during that same time period. However, preliminary data from 2021 showed a decline from 1.6 to 1.5 during 2020-2021, which may be associated with the impacts of COVID-19. The TFR is projected to remain close to 2.0, which is in the same range (e.g., between 1.6 and 2.3) with the historic data.

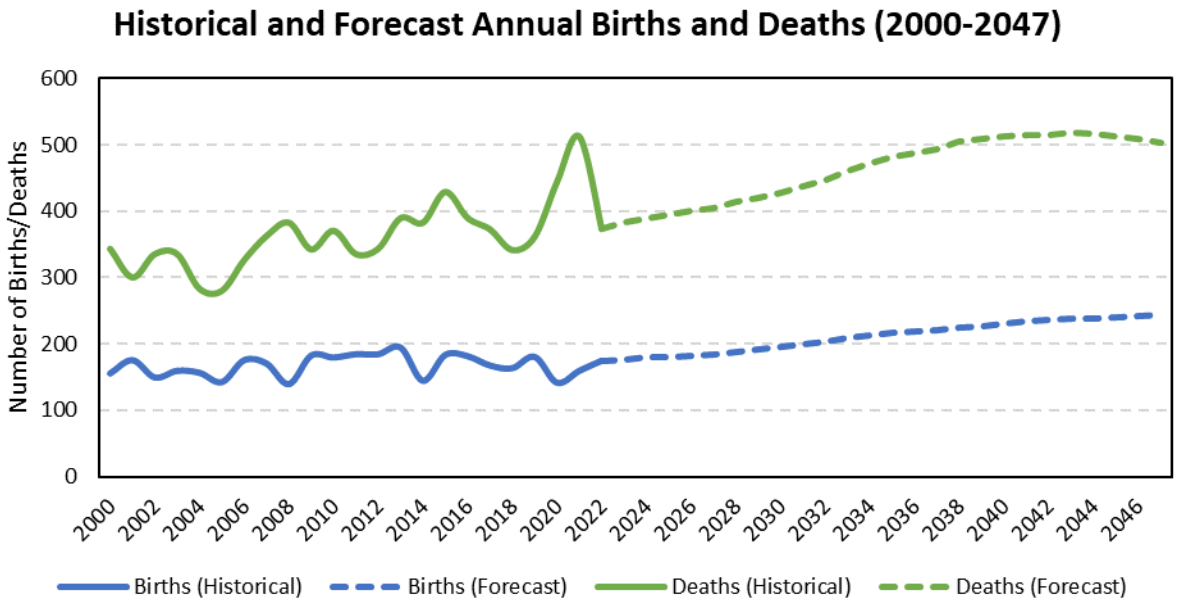
The actual number of births can follow a different trend than TFR if there are unusually high or low numbers of women of childbearing age in a given year. Figure 4 includes historical and projected births (and deaths) in the county. Annual births are projected to increase over time, reaching over 244 in 2047, compared to 175 projected for 2022. The county's annual births have not reached 200 since the year 2000, therefore, the projected increase in births can imply an increase in the number of women of childbearing age in the future.

In comparison, annual deaths are projected to continue to outnumber annual births. The increase in deaths shown in the 2021 OHA preliminary data may mainly be associated with excess deaths related to COVID-19. The impacts of COVID-19 was considered to be short-term in our forecast and the county annual deaths are expected to return to continue the pre-pandemic trend. Annual deaths are projected to reach a high point of over 500 around early 2040. Toward the end of the first 25 years of the 50-year forecast time horizon, annual deaths appear to show signs of decline. These dynamics are due to aging in the population, with the aging of the large baby boom cohort accounting for most of the increases in death counts during 2020-2040.



Note: OHA's vital statistics for 2021 are preliminary at the time of this report.
Sources: Oregon Health Authority (OHA), Center for Health Statistics. Calculations and forecast by Population Research Center (PRC).

Figure 3. Historical and projected total fertility rate (TFR), 2000-2047.

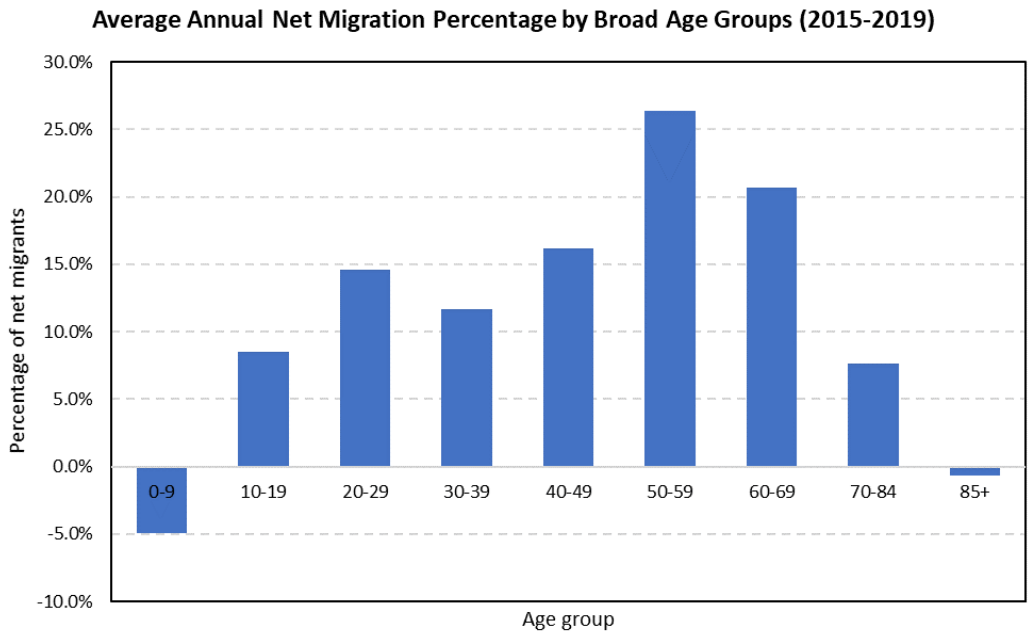


Note: OHA's vital statistics for 2021 are preliminary at the time of this report.
Sources: Oregon Health Authority (OHA), Center for Health Statistics. Calculations and forecast by Population Research Center (PRC).

Figure 4. Historical and projected annual births/deaths trend, 2000-2047.

3.3 Migration

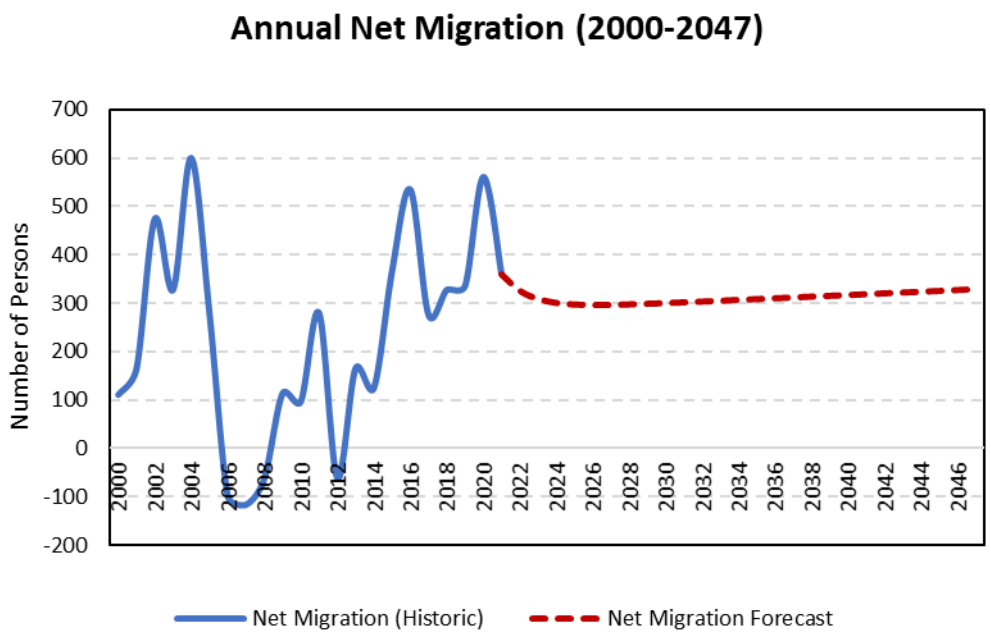
Age-specific migration was estimated based on the 2006-2010, 2011-2015, and 2015-2019 5-year ACS. The age patterns were used from the ACS but controlled to the number of total migrants by direction (in or out) and domestic (inter-state or between counties in Oregon) or foreign. The overall net migrants for each county were adjusted for consistency with annual PRC population estimates. Figure 5 illustrates the percentage each 10-year age group accounts for among total county net migration calculated based on the 2015-2019 ACS migration flow. Most age groups shown in Figure 5 indicated positive net migration except for the youngest and oldest age groups. The 50-59 age group accounted for the highest share of county net migration, followed by the 60-69 age group. This indicted that people near or at retirement age are more likely to move to the county than populations under 40.



Sources: American Community Survey (ACS); Internal Revenue Services (IRS); US Census Bureau Population Estimated Program (PEP); Calculated by Population Research Center (PRC).

Figure 5. Percentage of net migrations by broad age groups in Curry County, 2015-2019.

As shown in Figure 6, the historic annual net migration in Curry County varied significantly between 2000 and 2020. County-wide net migration experienced some downturns in the late 2000s and early 2010s, which may be associated with the impacts of the economic recession during that period. The county experienced the highest number of net migrations in 2004, in which the annual net migration reached 600. Annual net migration is projected to remain in the lower 300s and gradually increase over time.

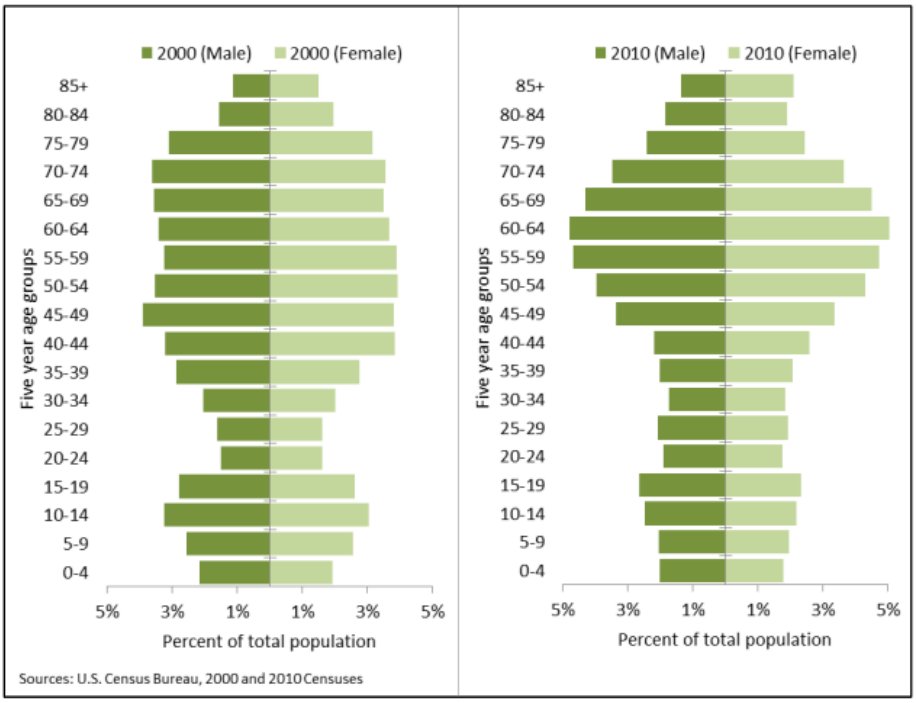


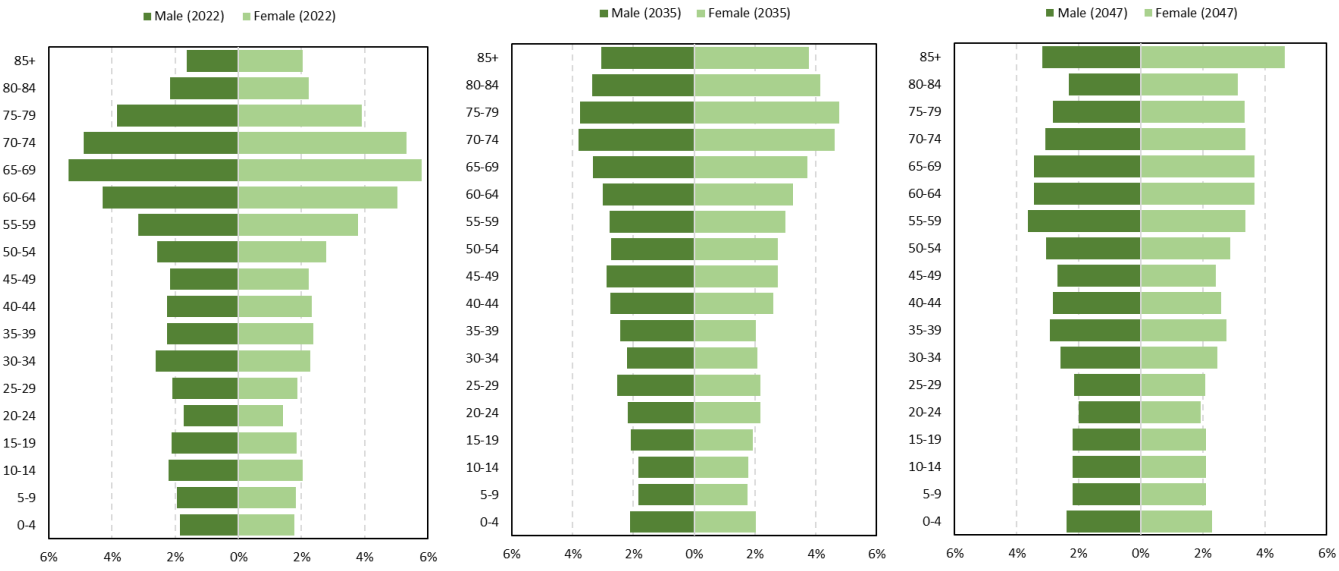
Sources: Internal Revenue Service (IRS) Tax Stats (1990-2020); American Community Survey (ACS); Population Estimates Program (PEP) 1990-2020. Calculations and forecast by Population Research Center (PRC).

Figure 6. Historical and projected total county net migration, 2000-2047.

3.4 Age Structure

As shown in Figure 7, the 2000 and 2010 censuses showed the population aging forward in the 10-year period. The share of population between 55 and 69 showed an increase in the 2010 census compared to the 2000 census. The population that was in the 50-54 age group in 2000 showed an increase in population share in 2010, which was reflected by the 60-64 age group in 2010, implying there has been positive net migration in this age group. The share of the youngest age groups (i.e., population under 14) declined in 2010 compared to the 2000 census. The forecast age pyramids show that the oldest age groups significantly increased over time, for instance, population share of the 85+ age group is expected to increase from 3.6% in 2022 to 7.6% in 2047. This reflects the 65-69 and 70-74 age groups in 2022 aging forward over time. Population share for the age groups under 19 also indicates growth in the forecast age pyramids.





Sources: Calculations and forecast by Population Research Center (PRC).

Figure 7. Population structure by age and sex, historical (2000 and 2010) and forecast (2022, 2035, and 2047).

3.5 Race/Ethnicity

Table 1 shows the race/ethnicity characteristics in the county from the 2010 and 2020 censuses. Race/ethnicity was not included as a component in the current forecast model but is provided in this report for reference. Between the two censuses, population identified as "Some Other Race alone" has the most relative gain compared to other race/ethnicity groups, followed by population of two or more races. With the exception of population identified as "White alone", all race/ethnicity groups shown in Table 1 indicated relative increase between 2010 and 2020. In the 2020 census, the Hispanic or Latino population continued to be the largest non-white alone population in the county.

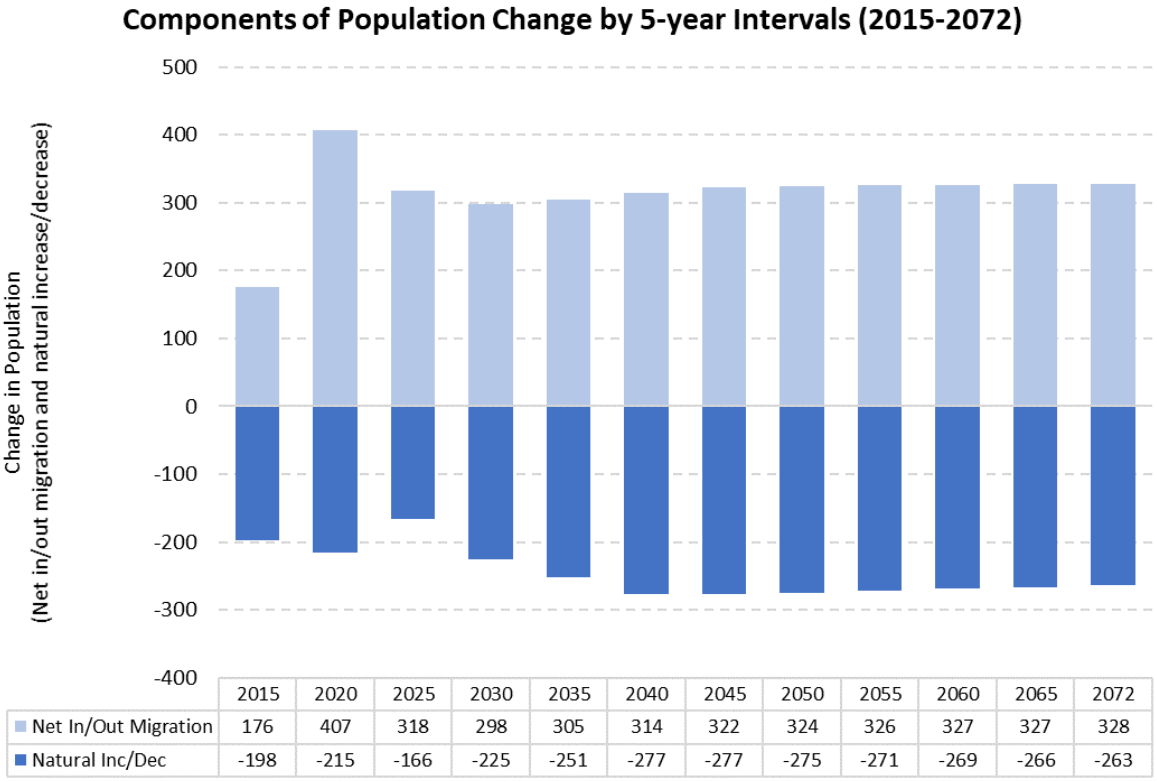
Table 1. County population by race/ethnicity.

Hispanic or Latino and Race	2010		2020		Absolute Change	Relative Change
Total Population	22,364		23,446		1,082	4.8%
Hispanic or Latino (of any race)	1,201	5.4%	1,674	7.1%	473	39.4%
Not Hispanic or Latino	21,163	94.6%	21,772	92.9%	609	2.9%
White alone	19,837	88.7%	19,428	82.9%	-409	-2.1%
Black or African American alone	62	0.3%	77	0.3%	15	24.2%
American Indian and Alaska Native alone	391	1.7%	461	2.0%	70	17.9%
Asian alone	157	0.7%	214	0.9%	57	36.3%
Native Hawaiian and Other Pacific Islander alone	21	0.1%	25	0.1%	4	19.0%
Some Other Race alone	16	0.1%	125	0.5%	109	681.3%
Two or More Races	679	3.0%	1,442	6.2%	763	112.4%

Sources: US Census Bureau, 2010 and 2020 Decennial Census. Calculated by PRC.

3.6 Component of Change

The component of population changes up to 2072 is shown in Figure 8. The darker blue shade indicates the natural increase/decrease (births less than deaths, which is negative in the county because there are more deaths than births), while the lighter blue shade indicates the net migration. At the county level, natural decrease is expected to continue as annual deaths continue to outnumber annual births. In the meantime, positive net migration is projected to continue and remain fairly stable over time. As positive net migration remains slightly higher than natural decrease throughout the forecast period, the county population is projected to continue to grow.



	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2072
Net In/Out Migration	176	407	318	298	305	314	322	324	326	327	327	328
Natural Inc/Dec	-198	-215	-166	-225	-251	-277	-277	-275	-271	-269	-266	-263

Figure 8. Historical and forecast components of population change, 2015-2072.

3.7 Sub-Area Population

Sub-area populations within and outside the urban growth boundaries (UGBs) are forecasted using the housing unit method, and then adjusted to be consistent with the county level forecast. As shown in Table 2, the Brookings UGB is the largest UGB in the county, and between 2010 and 2020, its population has experienced an AAGR of 0.4%. All three UGBs in Curry County are projected to grow in the next 50 years while the area outside of UGBs experiences population decline. The UGBs are projected to have faster population growth in the second half of the 50-year forecast timeframe. The results of the forecast indicate that, over time, people in Curry County are more likely to move from rural areas to the cities.

Table 2. Historical and forecasted population and AAGR in Curry County and its sub-areas.

	Historical			Forecast				
	2010	2020	AAGR (2010-2020)	2022	2047	2072	AAGR (2022-2047)	AAGR (2047-2072)
Curry County	22,364	23,446	0.5%	23,790	25,237	26,928	0.2%	0.3%
Larger Sub-Areas								
Brookings	11,199	11,706	0.4%	11,861	13,460	15,654	0.5%	0.6%
Smaller Sub-Areas								
Gold Beach	3,141	3,310	0.5%	3,361	3,680	4,371	0.4%	0.7%
Port Orford	1,807	1,797	-0.1%	1,811	1,835	2,048	0.1%	0.4%
Outside UGBs	6,217	6,633	0.6%	6,757	6,263	4,856	-0.3%	-1.0%

Note: UGBs are indicated by their city names. Lager sub-areas are those with populations of at least 8,000 in 2020.
Sources: U.S. Census Bureau; Forecast by Population Research Center (PRC)

3.7.1 Larger UGBs

As shown in Table 3, the Brookings UGB continues to be the most populated sub-area in the county and is projected to account for 58% of the county population by 2072, compared to 50% projected for 2022. In contrast, area outside of UGBs is projected to only account for 18% of the population, down from over 28% in 2022. The Brookings UGB is expected to increase its population by 32% over the next 50 years.

Table 3. Population forecast for larger sub-areas and their shares of county population.

	Population			Share of County Population		
	2022	2047	2072	2022	2047	2072
Curry County	23,790	25,237	26,928			
Larger Sub-Areas						
Brookings	11,861	13,460	15,654	49.9%	53.3%	58.1%
Outside UGBs	6,757	6,263	4,856	28.4%	24.8%	18.0%

Note: Larger sub-areas refer to those with populations of at least 8,000 in 2020.
Sources: Forecast by Population Research Center (PRC)

3.7.2 Smaller UGBs

The Gold Beach UGB is projected to increase its population share over the next 50 years while the Port Orford UGB is expected to maintain its current share in the county. Population in the Port Orford UGB is projected to grow at a relatively slower rate compared to the other UGBs, therefore, it does not show significant increases in share. By 2072, the two smaller UGBs are projected to account for nearly 24% of the county population.

Table 4. Population forecast for smaller sub-areas and their shares of county population.

	Population			Share of County Population		
	2022	**2047**	**2072**	**2022**	**2047**	**2072**
Curry County	23,790	25,237	26,928			
Smaller Sub-Areas						
Gold Beach	3,361	3,680	4,371	14.1%	14.6%	16.2%
Port Orford	1,811	1,835	2,048	7.6%	7.3%	7.6%
Outside UGBs	6,757	6,263	4,856	28.4%	24.8%	18.0%

Note: Smaller sub-areas refer to those with populations under 8,000 in 2020.
Sources: Forecast by Population Research Center (PRC)

4. Glossary of Key Terms

Average Annual Growth Rate (AAGR): The average rate of growth over a specific period of time. The AAGR is calculated using natural logarithm of the end-year value and the starting-year value, divided by the number of years.

Cohort-Component Method: A method used to forecast future populations based on a baseline or starting population, and cumulative changes in births, deaths, and migration.

Coordinated population forecast: A population forecast prepared for the county and sub-county jurisdictions including urban growth boundary (UGB) areas and all non-UGB area in the balance of county.

Group quarters: The US Census Bureau defines group quarters as places where "people live or stay in a group living arrangement that is owned or managed by an organization providing housing and/or services for the residents". Examples of a group quarter may include college dorms, skilled nursing facilities, groups homes, prison, etc.

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 estimate current populations or forecast future populations based on changes in housing units, vacancy rates, the average numbers of persons per household (PPH), and group quarters population counts.

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

Total Fertility Rate (TFR): The number of children a woman would have by the end of a defined childbearing age. In this report, child-bearing age is from 15 to 44.

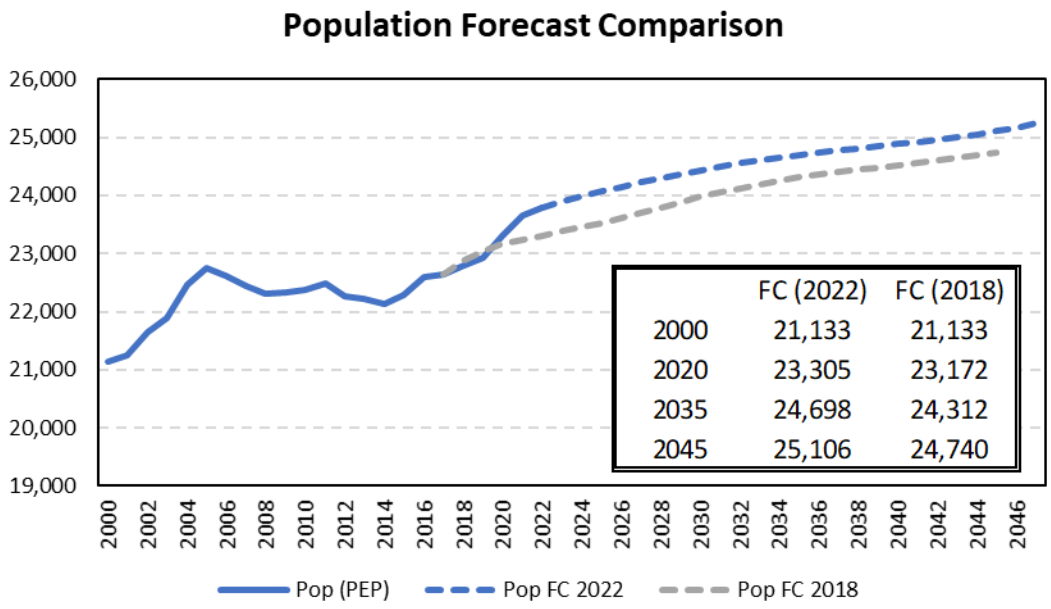
5. Appendix B: Detail Population Forecast Results

Age	2021	2022	2025	2030	2035	2040	2045	2047
0-4	864	858	872	927	1,024	1,103	1,168	1,184
5-9	930	897	844	838	890	984	1,060	1,089
10-14	991	1,008	994	900	897	951	1,047	1,082
15-19	874	945	1,063	1,084	993	992	1,050	1,087
20-24	754	743	831	1,059	1,077	983	980	997
25-29	989	940	874	934	1,161	1,180	1,087	1,069
30-34	1,120	1,162	1,141	996	1,060	1,291	1,314	1,274
35-39	1,059	1,100	1,192	1,238	1,097	1,165	1,399	1,439
40-44	1,077	1,089	1,122	1,273	1,321	1,183	1,253	1,367
45-49	1,048	1,047	1,132	1,235	1,388	1,438	1,304	1,285
50-54	1,292	1,268	1,196	1,251	1,357	1,513	1,568	1,497
55-59	1,785	1,657	1,478	1,363	1,424	1,535	1,695	1,766
60-64	2,269	2,222	2,055	1,643	1,540	1,608	1,723	1,789
65-69	2,644	2,660	2,386	2,121	1,736	1,643	1,714	1,786
70-74	2,489	2,428	2,566	2,316	2,076	1,723	1,639	1,621
75-79	1,633	1,844	2,095	2,315	2,104	1,893	1,584	1,554
80-84	1,006	1,043	1,250	1,678	1,862	1,691	1,520	1,374
85+	838	877	975	1,259	1,691	2,005	2,001	1,978

Source: PRC Estimates, 2021; Forecast by Population Research Center (PRC).

6. Appendix C: Comparison of Current and Previous Forecast

To provide a better understanding of the changes since the last round of forecast for the Region 1 counties, this section compares the current 2022 total county population forecast to the population forecast published by the Population Research Center in 2018.



	FC (2022)	FC (2018)
2000	21,133	21,133
2020	23,305	23,172
2035	24,698	24,312
2045	25,106	24,740