

Oregon Population Forecast Program

Regional Forecast Meeting – October 18, 2017

Presentation by

Population Forecast Program Team

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Agenda

- Population Research Center (PRC)
- Forecast Program overview
 - Forecast regions
 - Schedule
 - Deliverables
 - Forecasting methods and data sources
 - Process for local input
- Demographic and economic trends

PRC Research areas:

- Oregon Population Forecast Program
- Oregon Population Estimates Program
- Oregon State Data Center (SDC)
- Demographic Research and Advisory Services
- Applied Demography Instruction



Forecast Program Overview

PRC Website:

<http://www.pdx.edu/prc>

Click here for —————→
more information on OPFP

PRC Statewide Programs

- Oregon Census State Data Center
- Annual Population Estimates
- Oregon Population Forecast Program

The Population Research Center (PRC) is an interdisciplinary public service, research, and training unit for population-related data and research for the State of Oregon. The mission of PRC is to provide population data, information, and research analysis for Oregon and its communities. Center staff engage in a variety of demographic activities, including the Oregon State Data Center, the Oregon Population Estimates Program, and a variety of commissioned population projects. PRC staff also teach in the Nohad A. Toulan School of Urban Studies and Planning, supporting a graduate concentration in applied demography and a graduate certificate program in applied demography.



POPULATION RESEARCH CENTER



New at PRC:

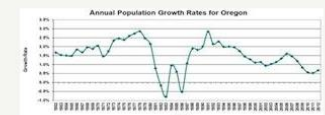
Estimates questionnaire goes online:

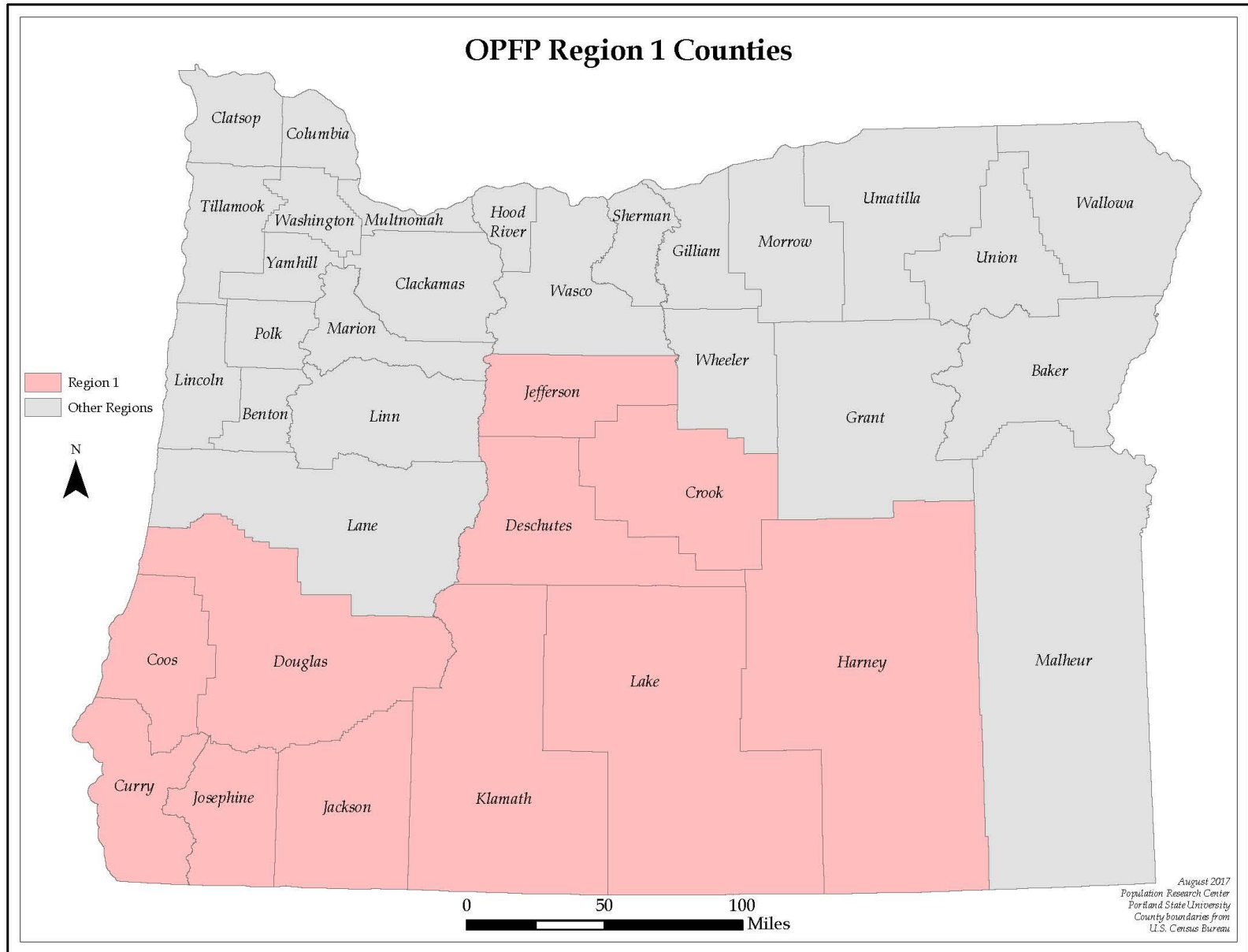
We are converting to an electronic process of data collection beginning in summer of 2013.

The link to the web-based annual questionnaire will be emailed to the contact person we have on file from previous completed forms.

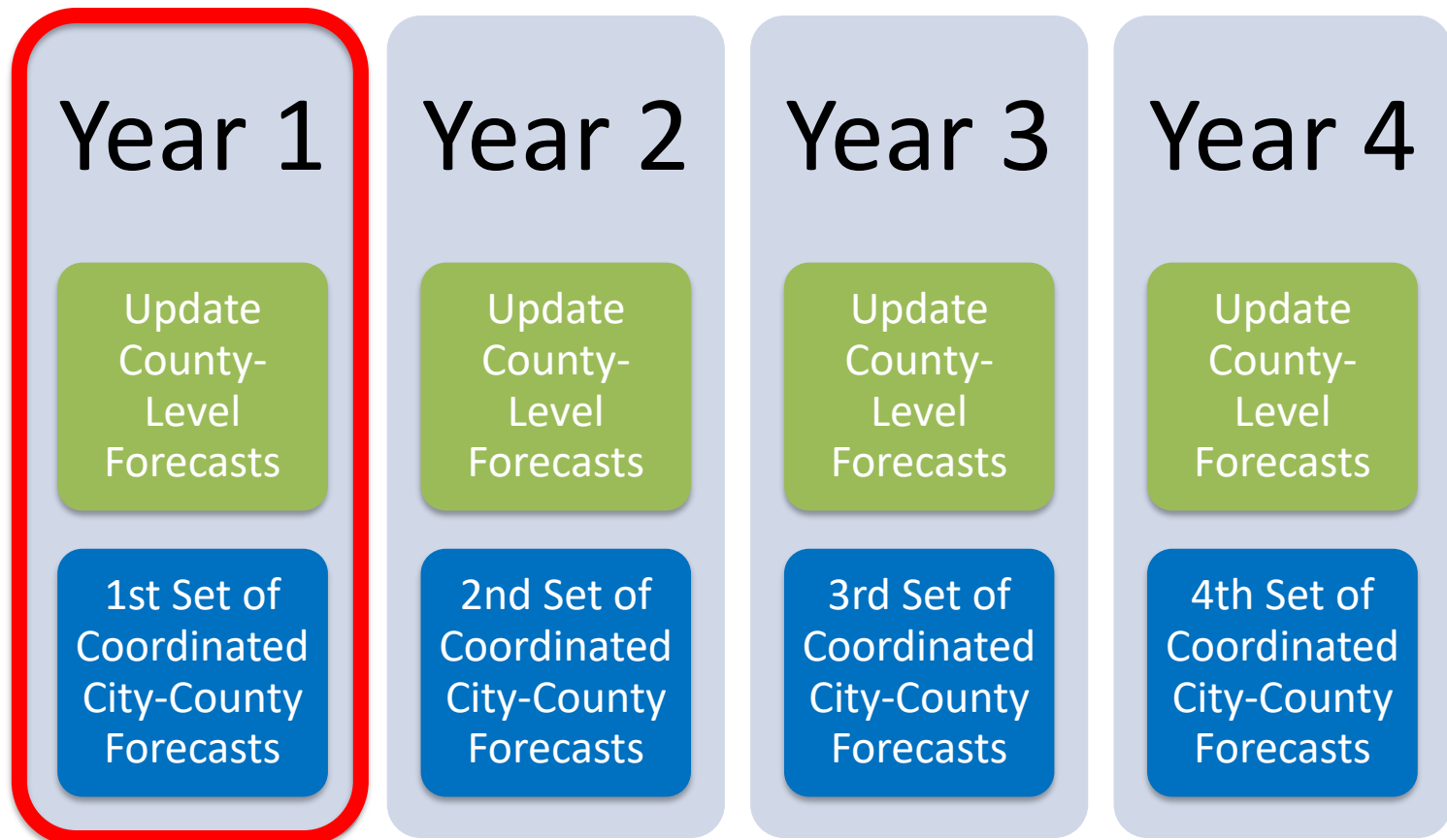
If you are the estimates contact person for your city or county, watch your email for the 2013 Annual Housing Unit and Population Questionnaire. Instructions will be provided with the email and questionnaire.

How we grow: see the **new annual population tables** for 2012!

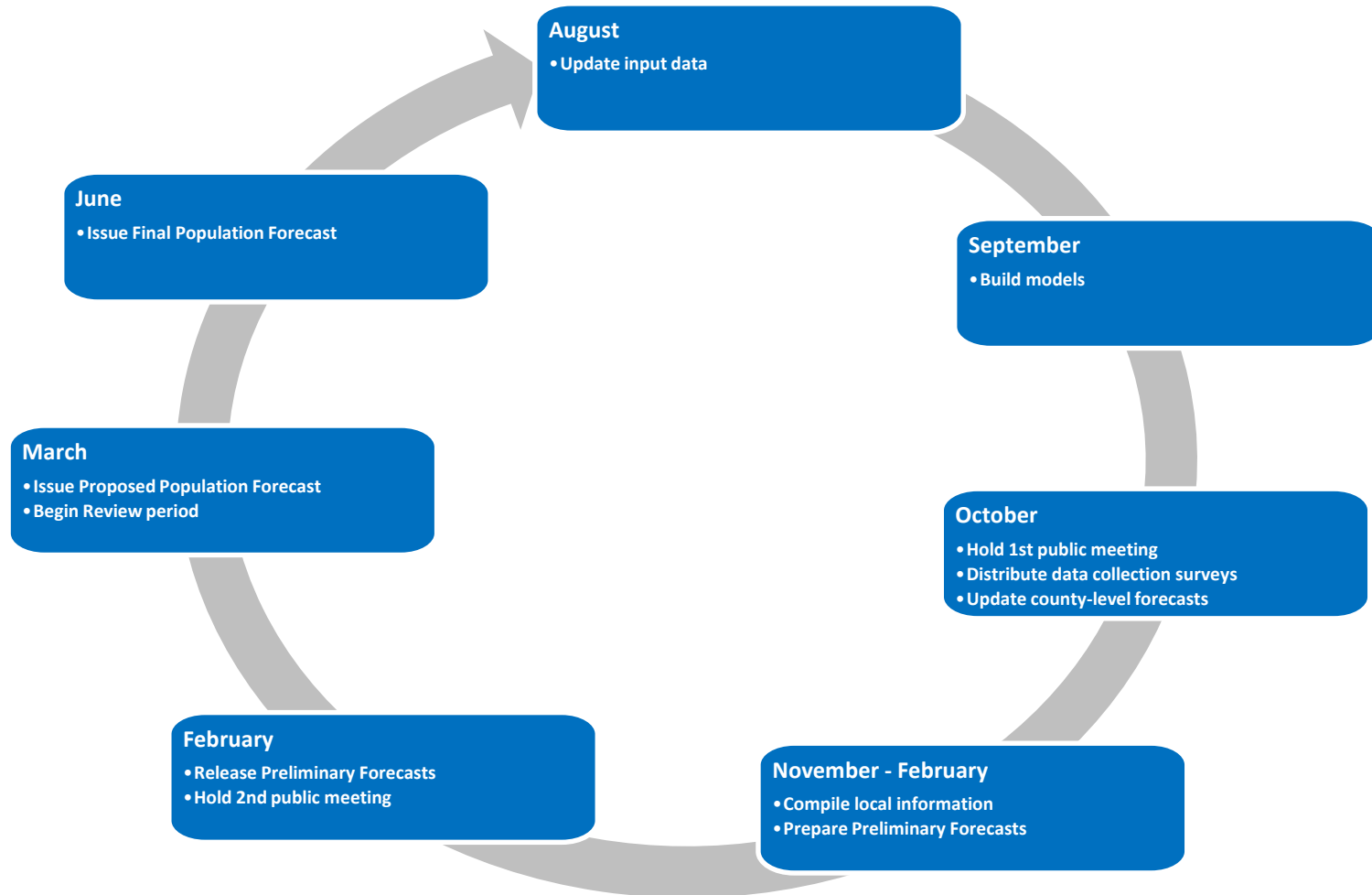




Forecast Program: 4-Year Schedule



Coordinated Forecast: Annual Schedule



Deliverables

- County-level forecasts
 - 50 year horizon
 - 5-year age cohorts by sex
- Coordinated city-level forecasts
 - UGB forecasts
 - Total population
- Report containing:
 - Assumptions & Context

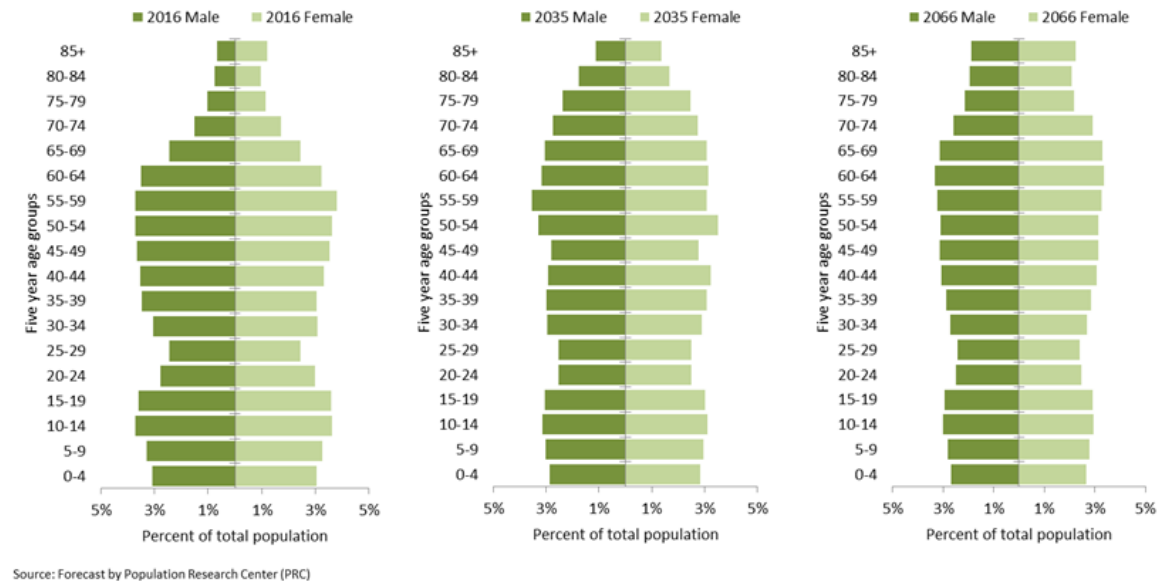
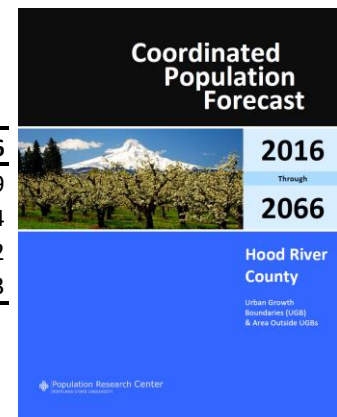


Figure 21. Hood River County's Sub-Areas - Total Population

Area/Year	2016	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2066
Hood River County	24,436	25,810	27,442	29,014	30,538	32,045	33,521	34,939	36,300	37,611	38,828	39,049
Cascade Locks UGB	1,231	1,284	1,347	1,408	1,464	1,515	1,563	1,605	1,644	1,679	1,709	1,714
Hood River UGB	9,675	10,282	11,051	11,811	12,576	13,342	14,092	14,804	15,486	16,116	16,634	16,712
Outside UGB Area	13,530	14,244	15,044	15,795	16,498	17,188	17,866	18,529	19,170	19,816	20,485	20,623

Population Forecasts prepared by: Population Research Center, Portland State University, June 30, 2016.



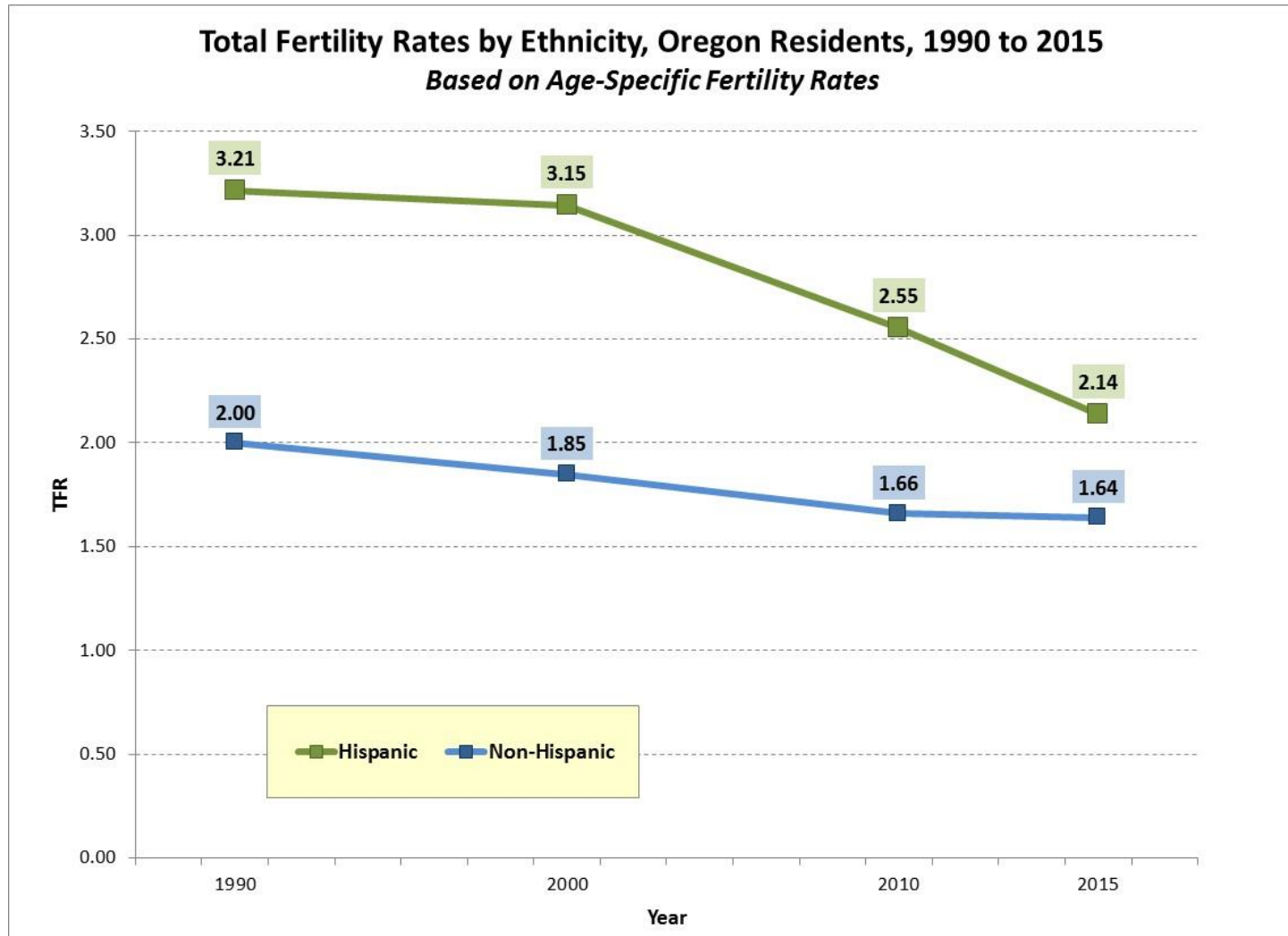
Process for Population Forecasts

- Develop demographic models using historic and recent data
 - Post Recession- 2013 and onward
- Gather information about existing and planned future housing, and about population change
 - Housing developments
 - Construction of new GQ facilities
 - New employers
- Make assumptions about future housing and population change
- Regularly revise forecasts

Population Forecast Methods

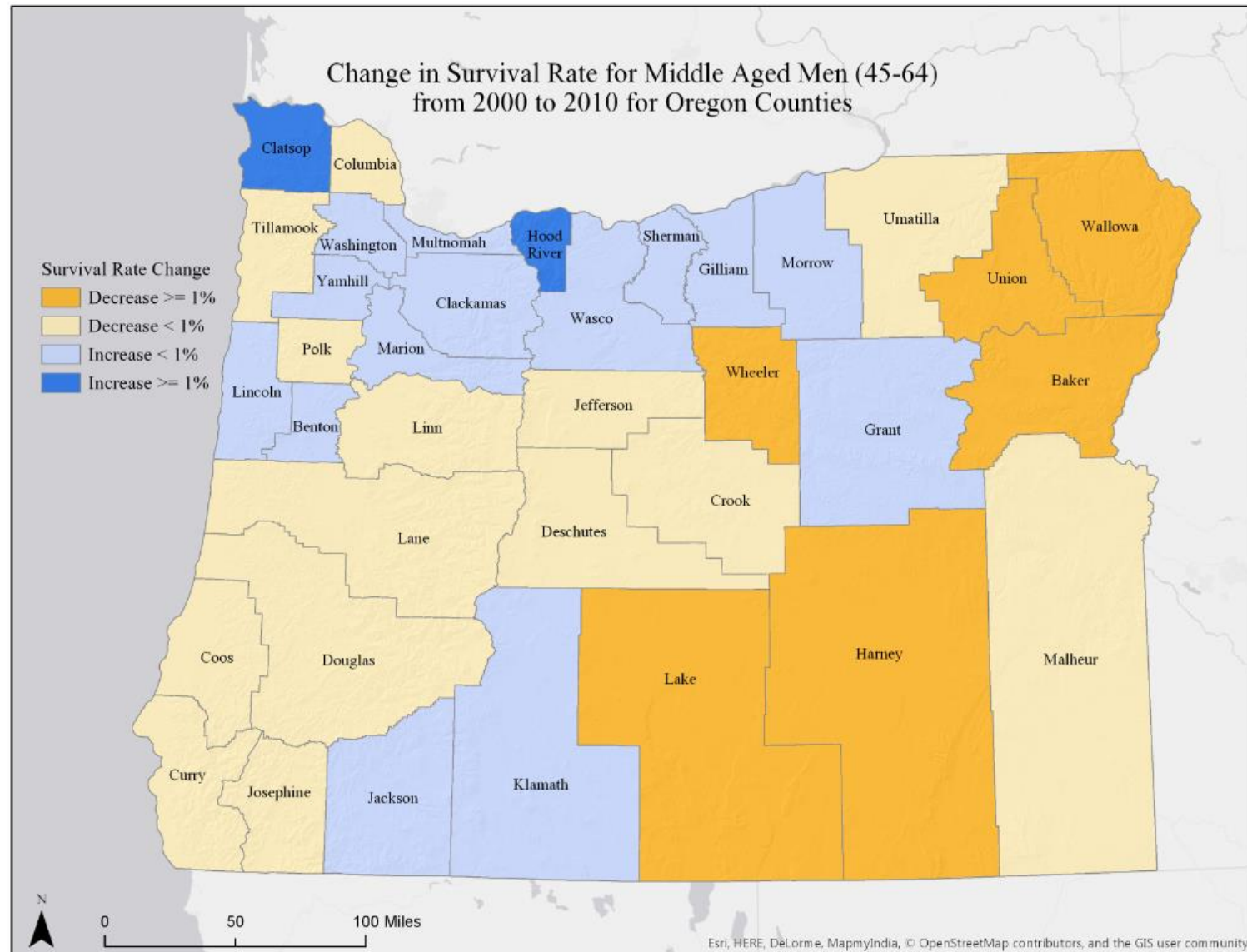
Primary Models for this Forecast

- Cohort-Component Method
 - Relies on Age-Sex Schedules of demographic behavior
 - Population pyramid displays age structure
 - Mortality - Generally Stable
 - Fertility - Delayed Childbearing, Hispanic Fertility
 - Migration Rates - Subject to greater fluctuation than mortality and fertility and more unpredictable
 - Generally used for areas with larger populations



Sources: PEPASR6H-Geography-OregonYear-July 1, 2015 and July 1, 2010

Hispanic Origin-Hispanic: Annual Estimates of the Resident Population by Sex, Age, Race, and Hispanic Origin for the United States and States: April 1, 2010 to July 1, 2015
Population Research Center (PRC): 2015 Population Estimates



Population Forecast Methods

Primary Models for this Forecast

- Housing Unit Method
 - For smaller cities and unincorporated areas, outside of UGBs
 - Housing unit growth - Trend actual, trend county shares
 - Housing unit type (single-/multi-family)
 - Household composition
 - Persons Per Household (PPH)
 - Occupancy Rates
 - Add Group Quarters Population
 - Controlled to Cohort-Component Model results for county

Population Forecast Data Sources

Primary Sources:

- U.S. Census Bureau, Decennial Censuses
- Population Research Center (PRC), Oregon Population Estimates Program
- Oregon Health Authority, Center for Health Statistics
- Incorporated counties, Assessors Office
- Incorporated cities, Community Development/Planning Department
- Oregon Geospatial Enterprise Office (GEO), Spatial Data Library

Secondary Sources:

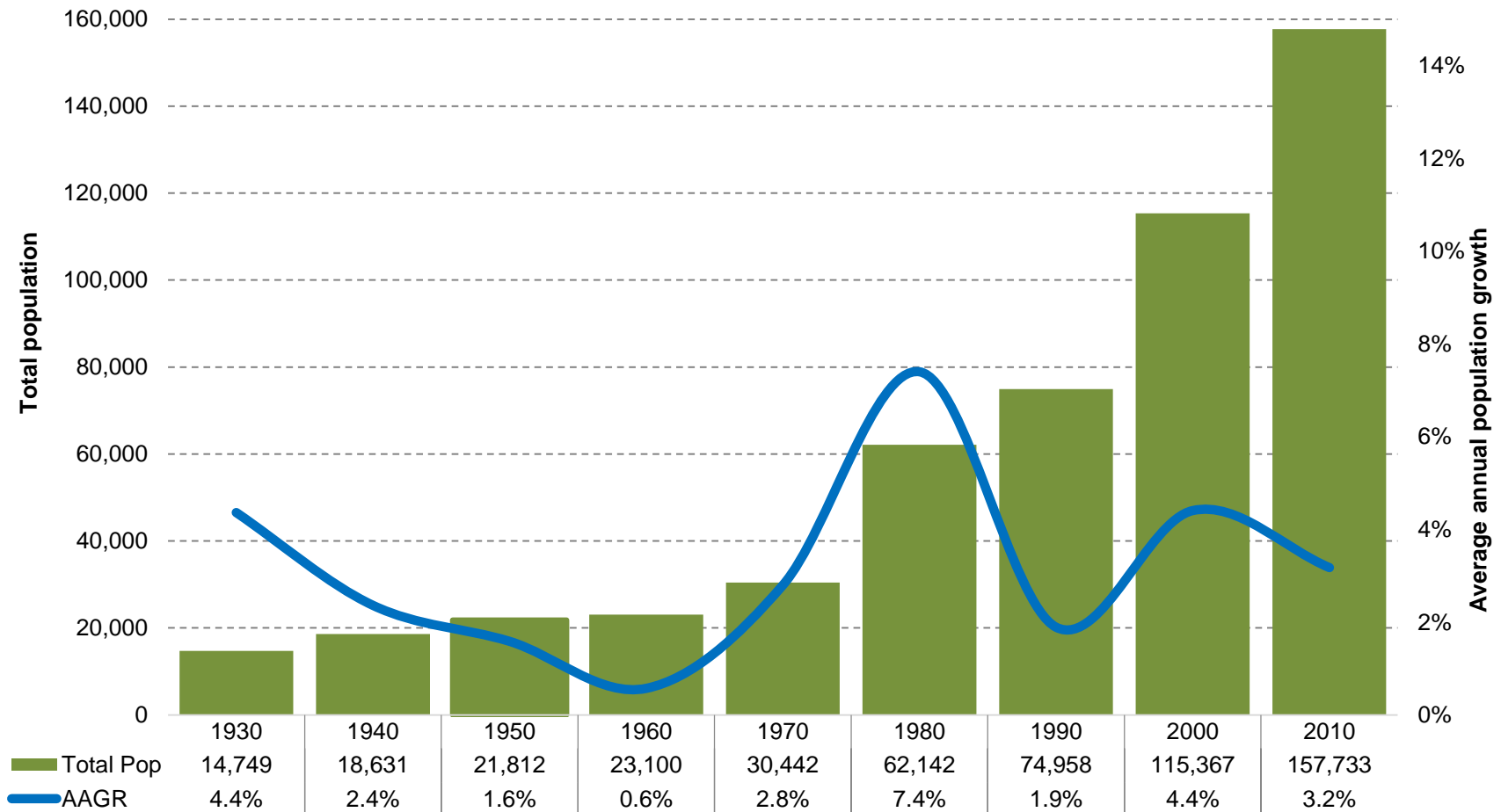
- State of Oregon, Office of Economic Analysis
- U.S. Census Bureau, American Community Survey (ACS)
- U.S., Internal Revenue Service
- State of Oregon, Department of Revenue
- Oregon Department of Education
- U.S., Centers for Medicare and Medicaid Services
- State of Oregon, Employment Department

Process for Local Input

- Hold regional meetings
 - Receive feedback on:
 - Historical and current demographic and economic trends
 - Local land use and growth management planning
- Local survey
 - Collect local observations
 - Population composition; recent change
 - Planned housing development plus group quarters facilities
 - Future employers
 - Infrastructure
 - Existing capacity
 - Planned expansion
 - Anything that might promote or hinder population growth
 - Survey will be posted on website and emailed to each jurisdiction
 - Issued in October 2017

Deschutes County

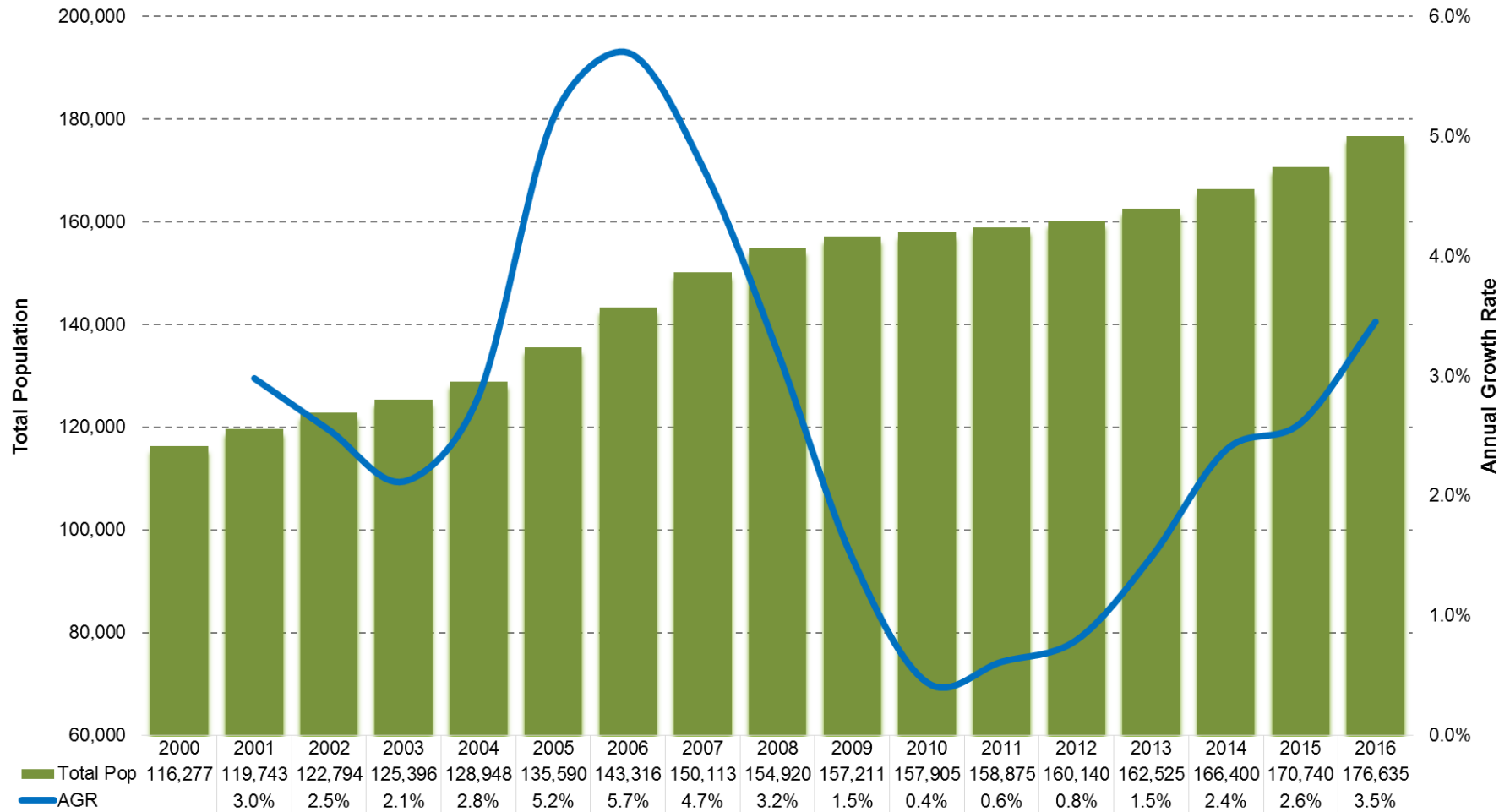
Deschutes County – Historical Census Population



Source: U.S. Census Bureau, 1930 to 2010 Decennial Censuses. Calculated by Population Research Center (PRC).

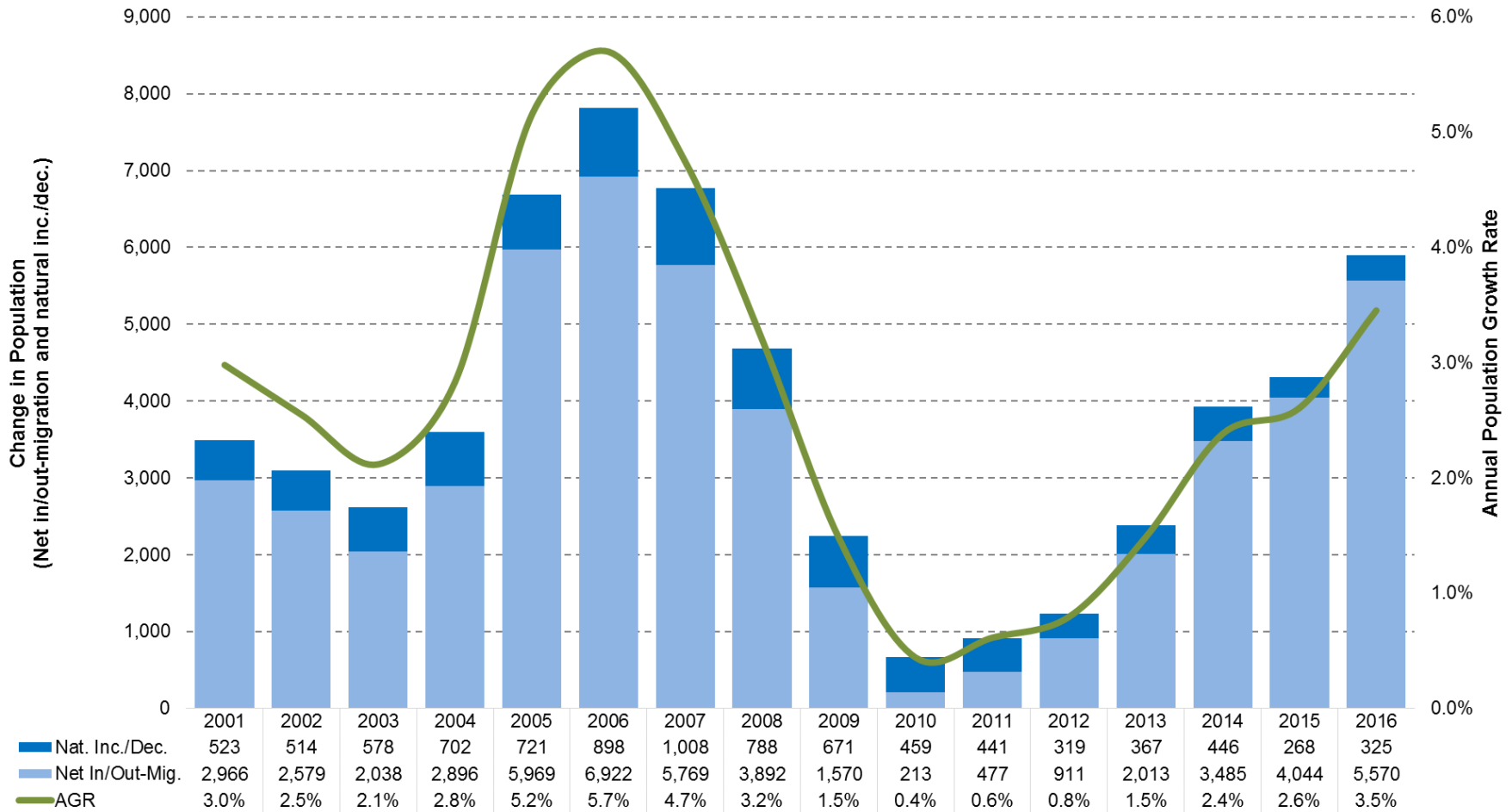
Note: Average annual growth rate is used for simplicity. In actuality the rate is an annualized rate calculated with this formula = $[(\text{Year1}/\text{Year2})^{1/10}] - 1$

Deschutes County — Recent Annual Population Trend — July 1st Estimates



Source: Population Research Center Annual Estimates 2000-2017. Calculated by Population Research Center (PRC).

Deschutes County — Natural Increase/Decrease and Net In/Out-Migration



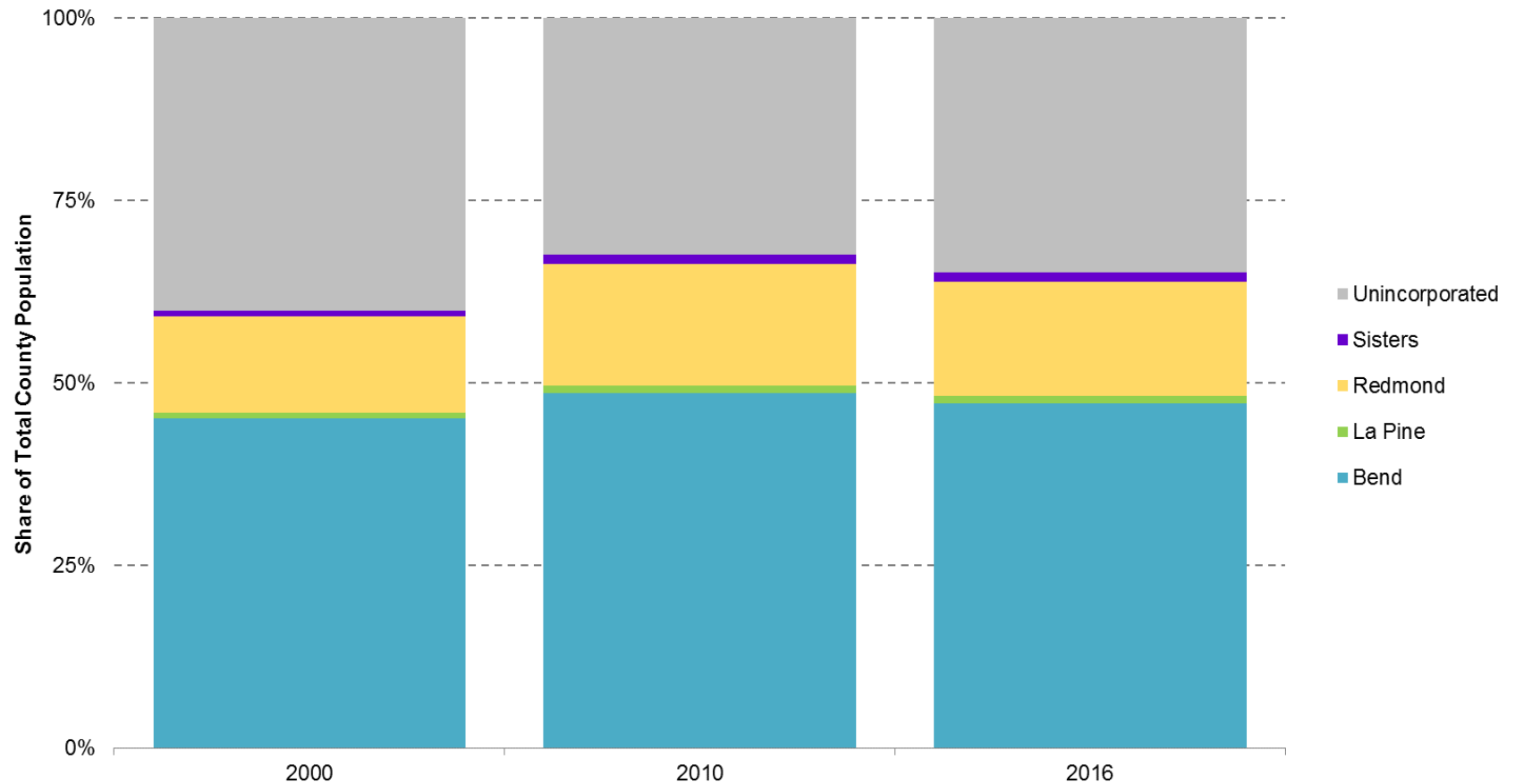
Source: Population Research Center, July 1st Annual Estimates 2001-2017. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).

Deschutes County and Incorporated City Population

	Total Population			Share of County Population			Average Annual	
	2000	2010	2016	2000	2010	2016	2000-2010	2010-2016
Deschutes County	115,367	157,733	176,635	100%	100%	100%	3.2%	1.8%
<i>Bend</i>	52,033	76,652	83,500	45%	49%	47%	3.9%	1.4%
<i>La Pine</i>	899	1,653	1,675	1%	1%	1%	6.3%	0.2%
<i>Redmond</i>	15,254	26,211	27,595	13%	17%	16%	5.6%	0.8%
<i>Sisters</i>	961	2,038	2,390	1%	1%	1%	7.8%	2.6%
<i>Unincorporated</i>	46,220	51,179	61,475	40%	32%	35%	1.0%	3.0%

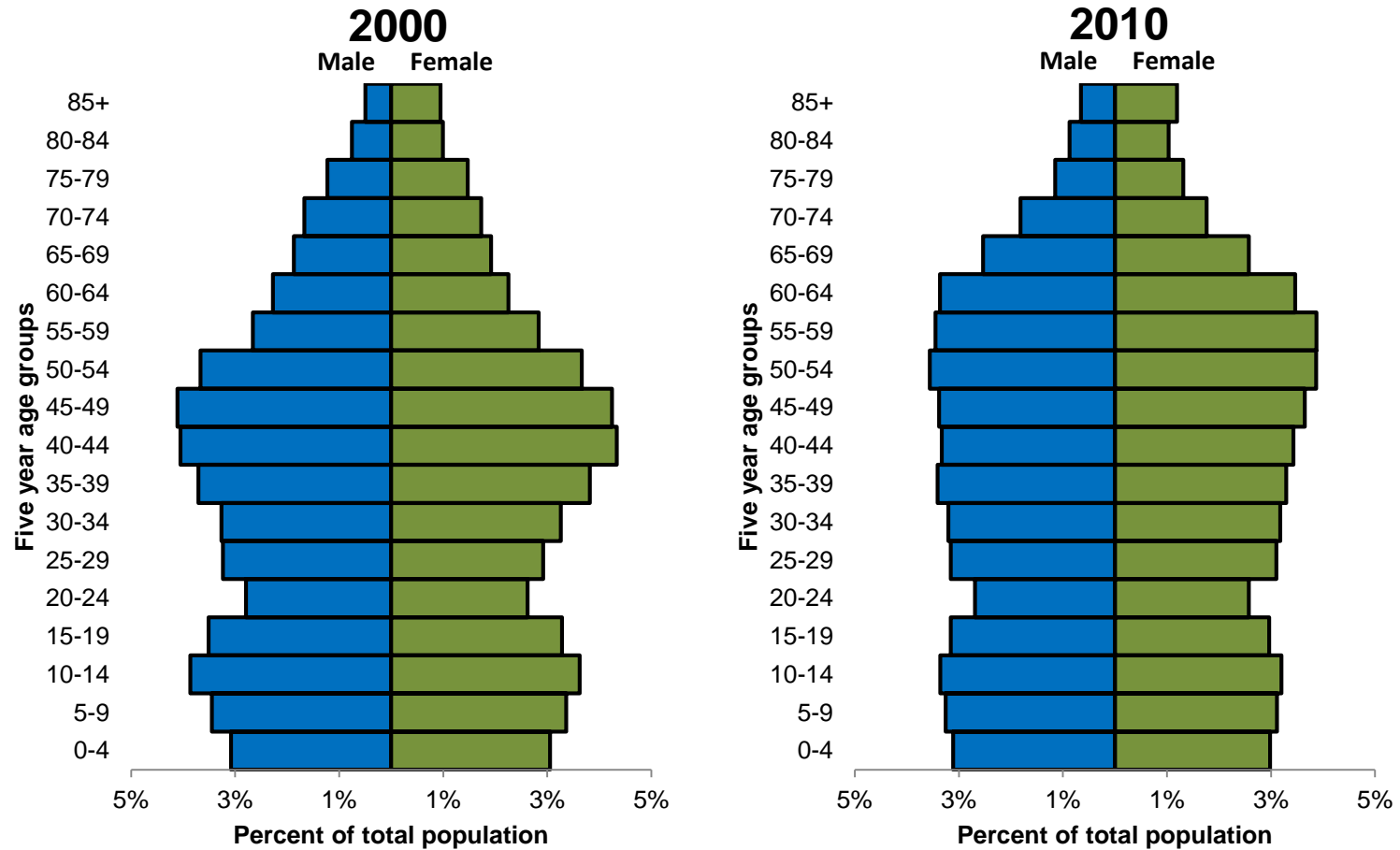
Source: U.S. Census Bureau, 2000 and 2010 Decennial Census. Population Research Center, July 1, 2016 Annual Intercensal Estimate. Calculated by Population Research Center (PRC).

Deschutes County — City Share of Population

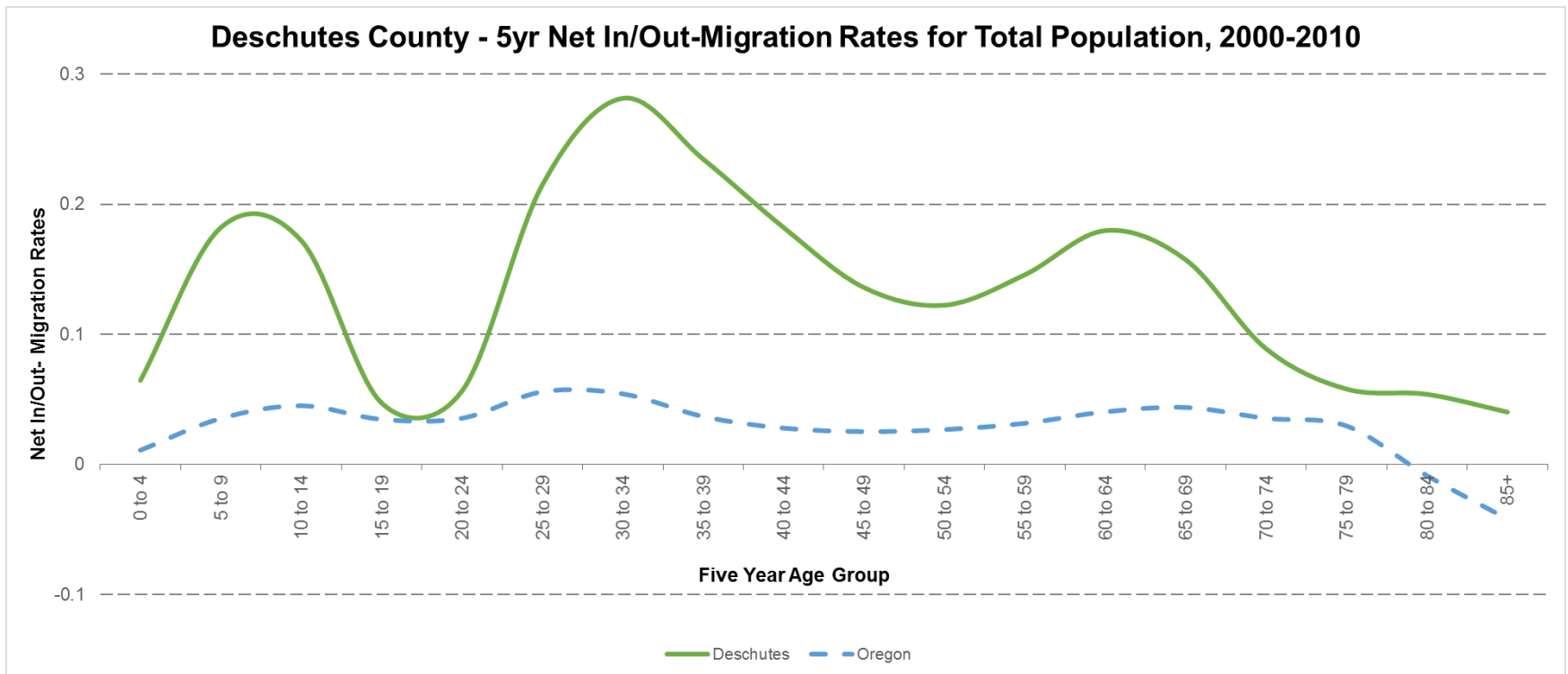


Source: U.S. Census Bureau. 2000 and 2010 Decennial Census. Population Research Center, July 1st Annual Estimates 2016. Calculated by Population Research Center (PRC).

Deschutes County – Distribution by Age of Total Population

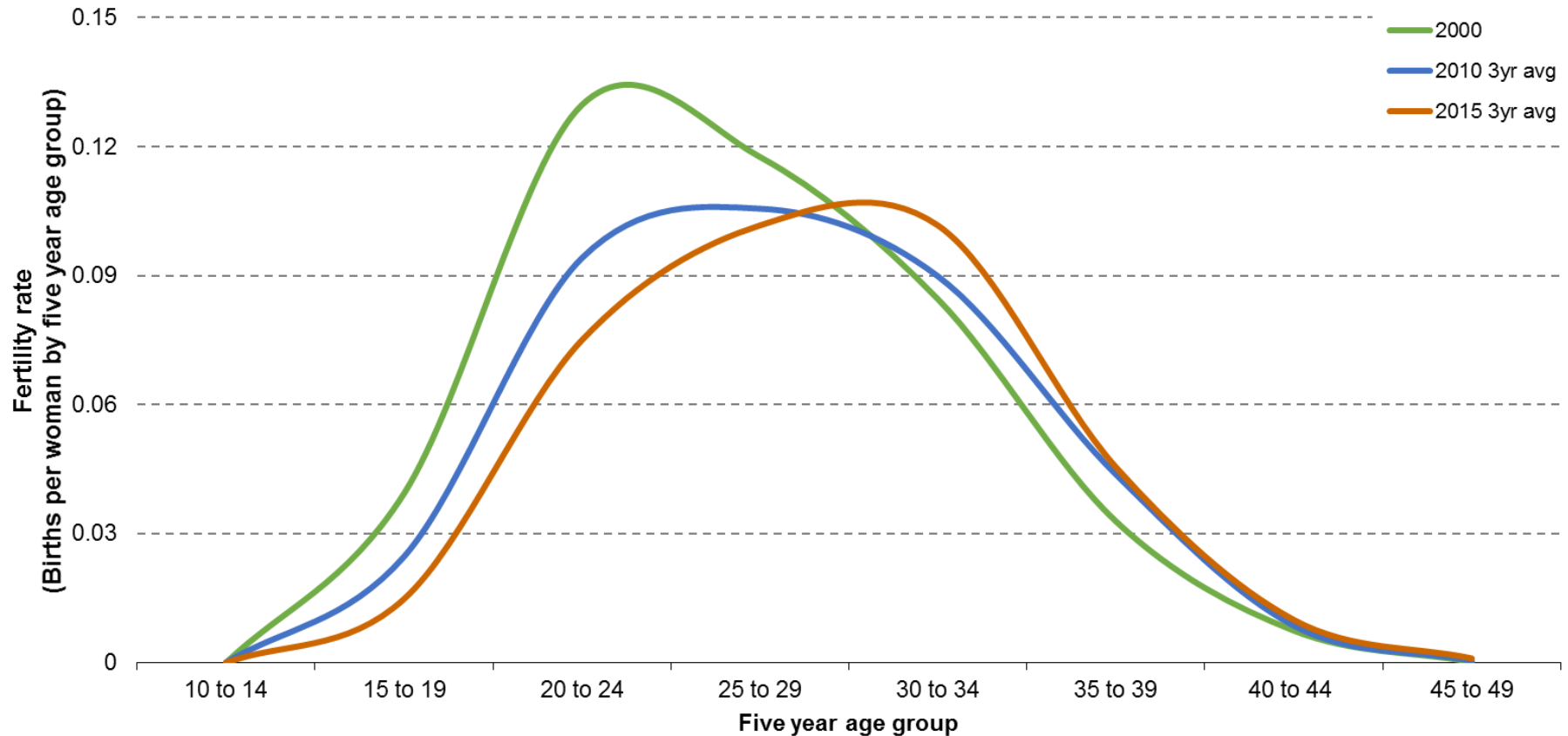


Source: U.S. Census Bureau. 2000 and 2010 Decennial Census.



Source: U.S. Census Bureau. 2000 and 2010 Decennial Census. Calculated by Population Research Center (PRC).

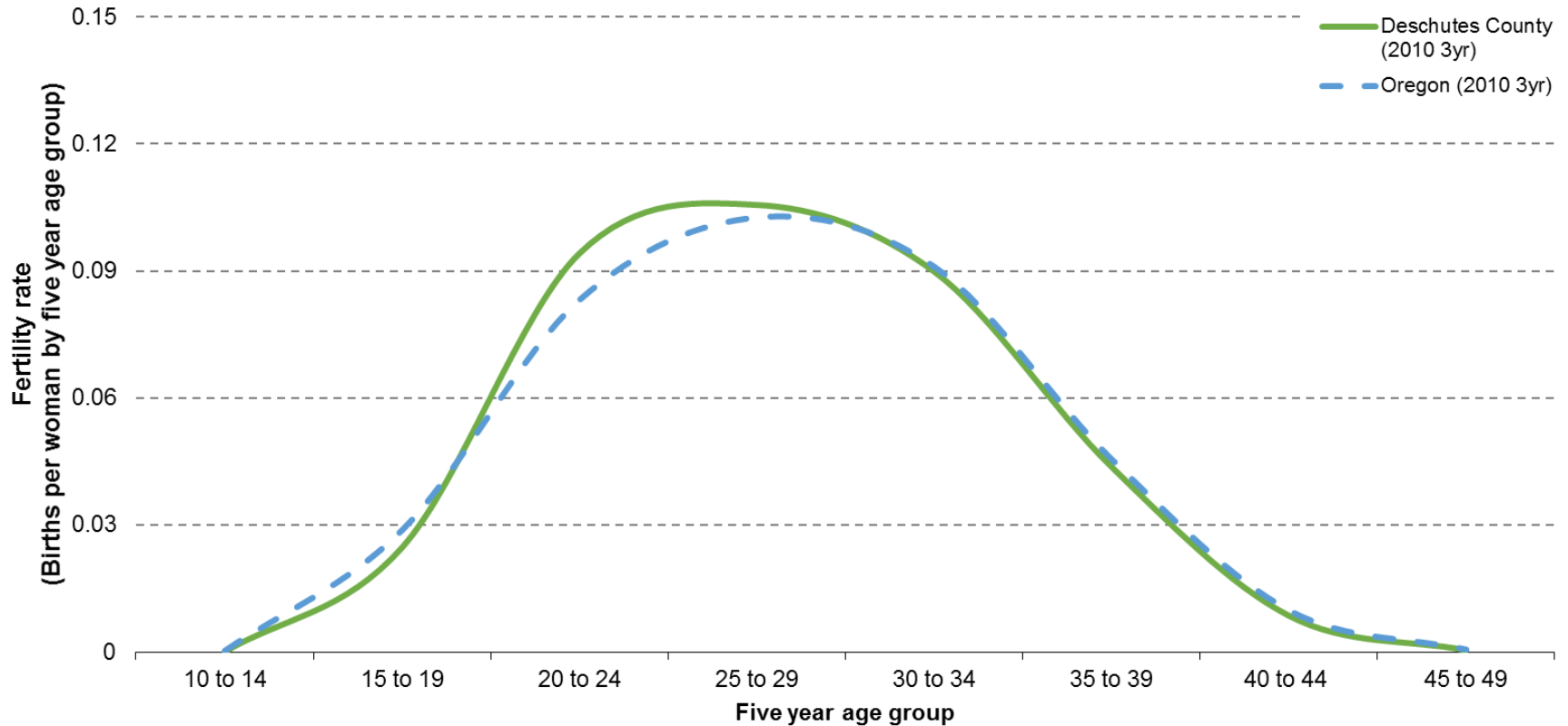
Deschutes County — Age Specific Fertility Rates



	2000	2010 3yr	2015 3yr
Total Fertility Rate	2.06	1.84	1.75

Source: U.S. Census Bureau, 2000 and 2010 Decennial Census. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).

Deschutes County and Oregon — Age Specific Fertility Rates (2010)



	Deschutes County	Oregon
Total Fertility Rate	1.84	1.81

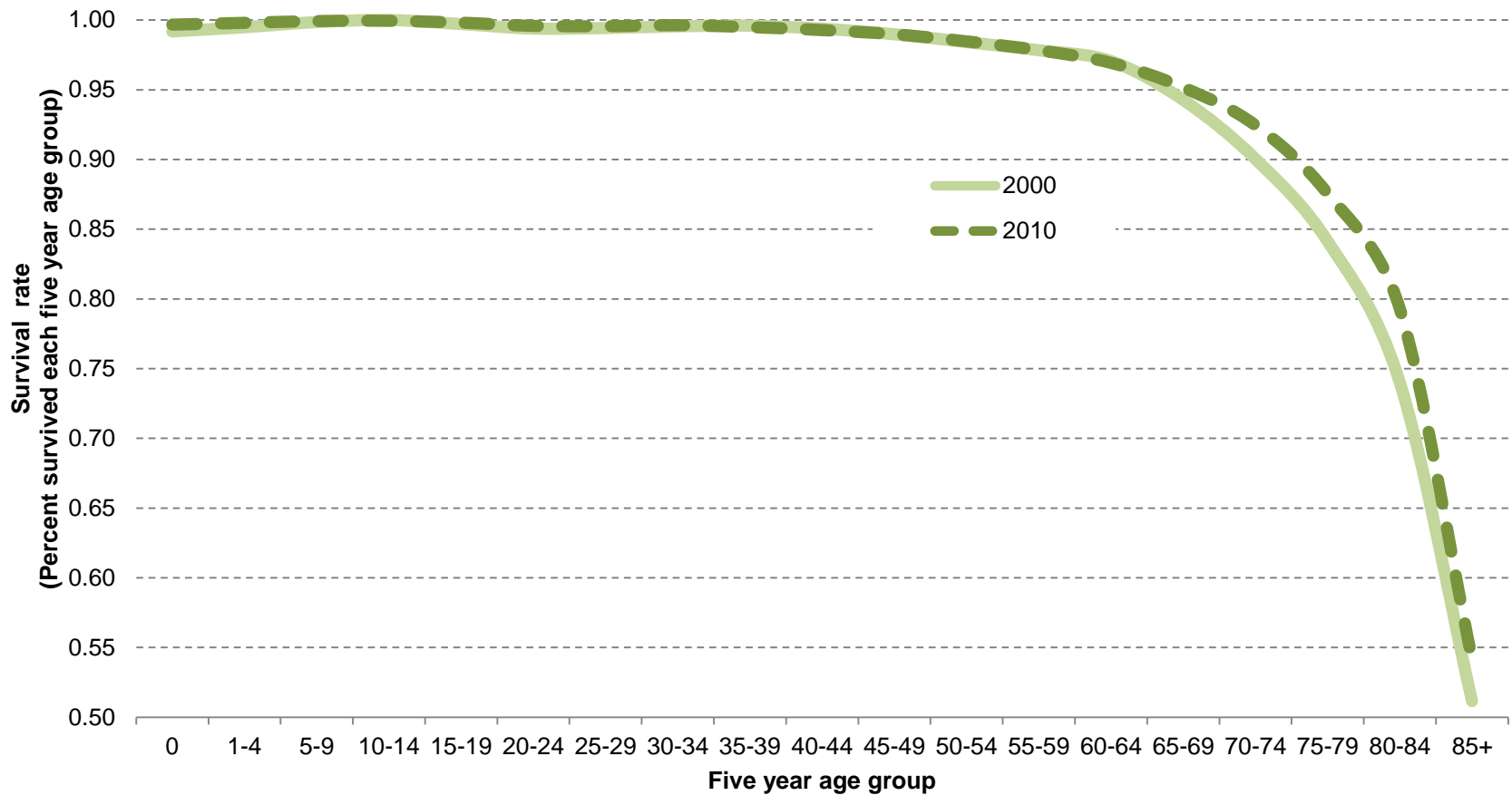
Source: U.S. Census Bureau, 2000 and 2010 Decennial Census. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).

Deschutes County

Hispanic or Latino and race	2000		2010		Change	
Total population	115,367	100.0%	157,733	100.0%	42,366	36.7%
Hispanic or Latino	4,304	3.7%	11,718	7.4%	7,414	172.3%
Not Hispanic or Latino	111,063	96.3%	146,015	92.6%	34,952	31.5%
White alone	107,177	92.9%	139,470	88.4%	32,293	30.1%
Black or African American alone	207	0.2%	524	0.3%	317	153.1%
American Indian and Alaska Native alone	875	0.8%	1,197	0.8%	322	36.8%
Asian alone	831	0.7%	1,412	0.9%	581	69.9%
Native Hawaiian and Other Pacific Islander alone	81	0.1%	183	0.1%	102	125.9%
Some Other Race alone	77	0.1%	141	0.1%	64	83.1%
Two or More Races	1,815	1.6%	3,088	2.0%	1,273	70.1%

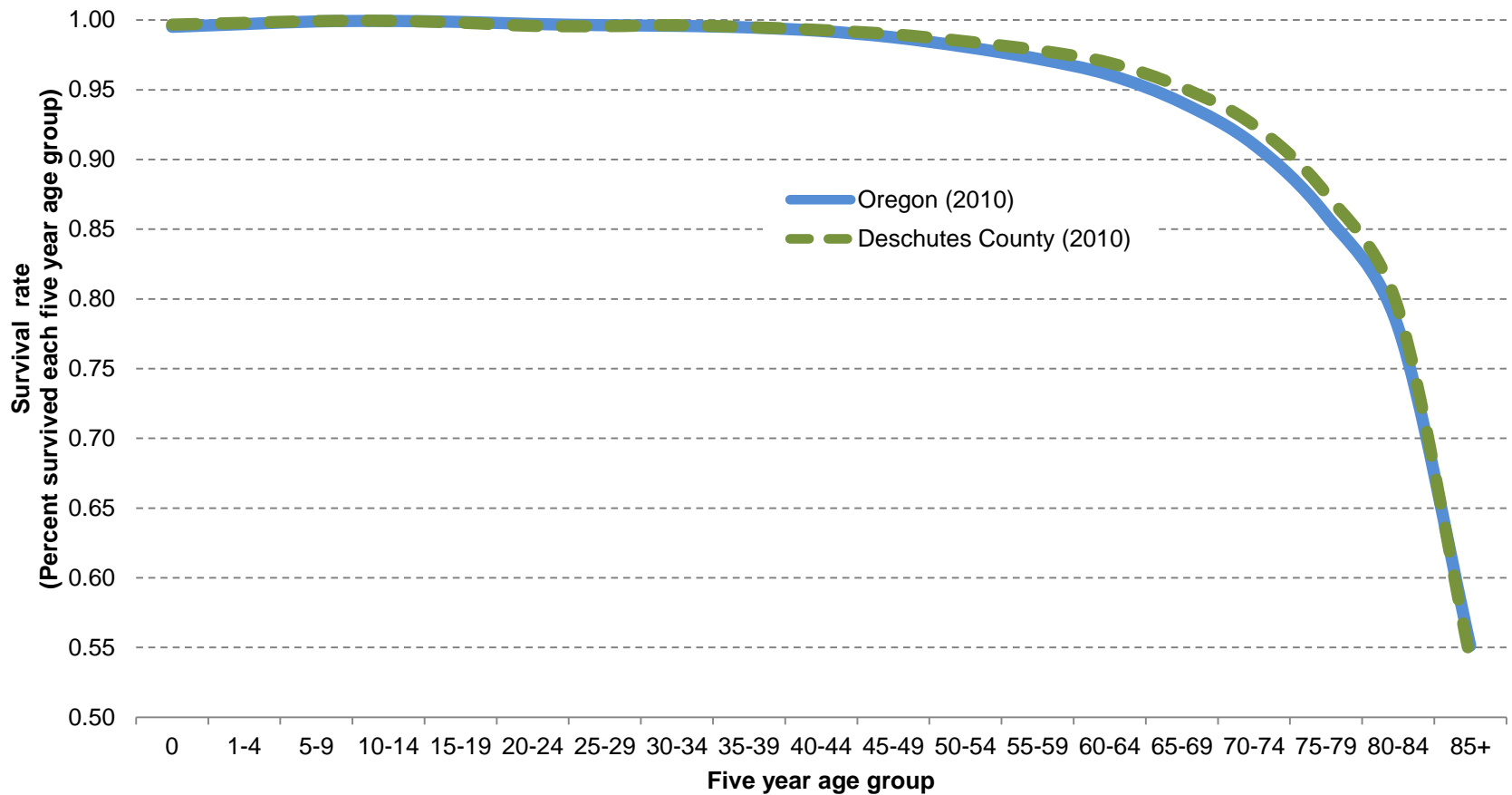
Source: U.S. Census Bureau. 2000 and 2010 Decennial Census.

Deschutes County – Age Specific Survival Rates



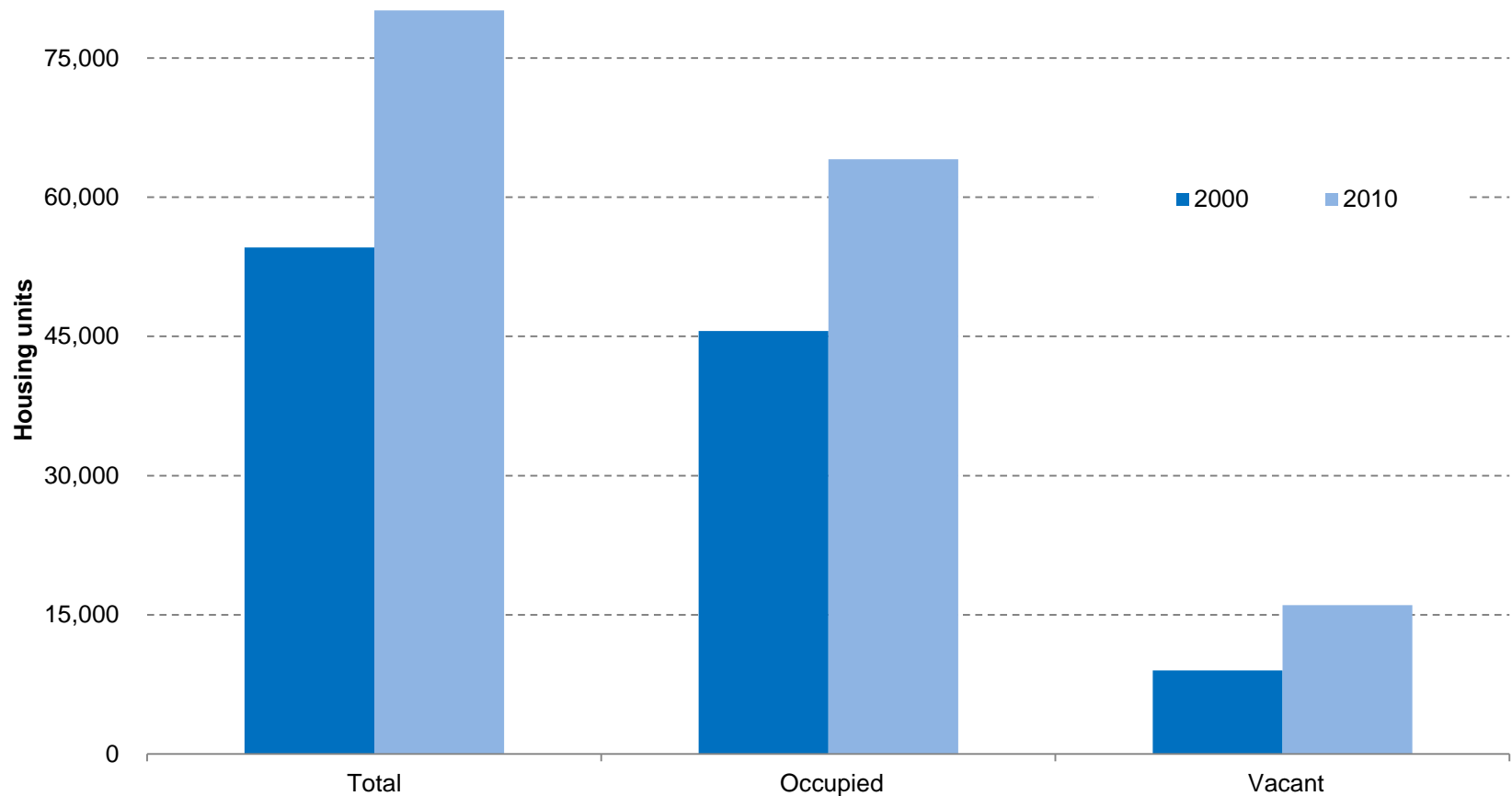
Source: U.S. Census Bureau, 2000 and 2010 Decennial Census. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).

Deschutes County and Oregon – Age Specific Survival Rates



Source: U.S. Census Bureau, 2000 and 2010 Decennial Census. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).

Deschutes County - Housing Units



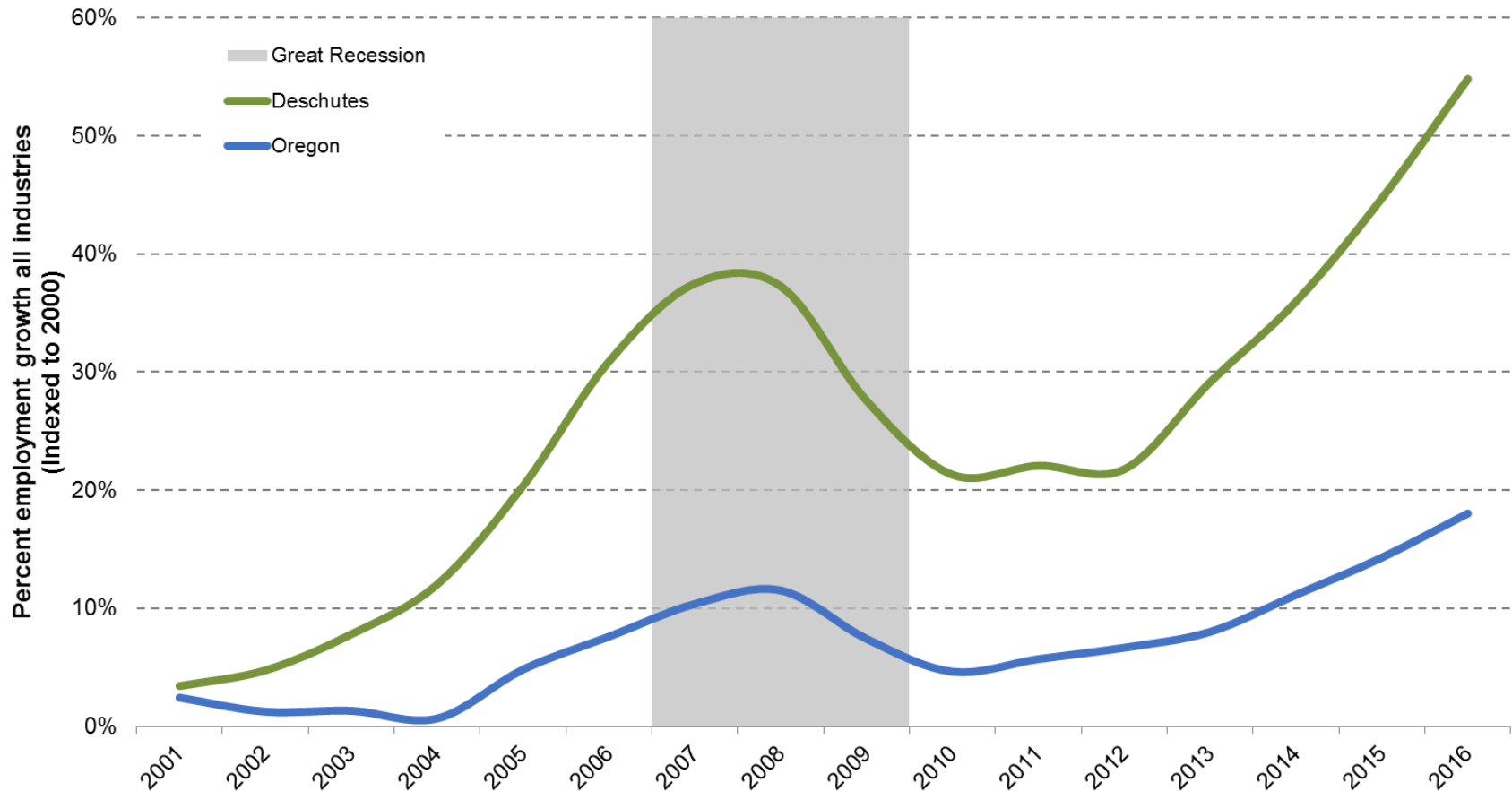
Source: U.S. Census Bureau. 2000 and 2010 Decennial Census.

	Persons Per Household (PPH)		Occupancy Rate		Percent Group Quarters		Percent Seasonal Housing*
	2000	2010	2000	2010	2000	2010	2010
Oregon	2.51	2.47	91.8%	90.7%	2.3%	2.3%	3.31%
Deschutes County	2.50	2.44	83.5%	80.0%	1.1%	0.8%	12.01%
<i>Bend</i>	2.42	2.39	93.6%	88.0%	1.9%	0.8%	3.58%
<i>La Pine (CDP in 2000)</i>	2.47	2.30	78.4%	74.1%	0.6%	2.8%	9.77%
<i>Redmond</i>	2.54	2.61	94.2%	90.7%	0.8%	1.1%	0.79%
<i>Sisters</i>	2.41	2.39	82.4%	76.4%	0.4%	0.5%	12.17%
<i>Unincorporated</i>	2.60	2.45	71.8%	67.1%	0.1%	0.6%	NA

Source: U.S. Census Bureau. 2000 and 2010 Decennial Census. Calculated by Population Research Center (PRC).

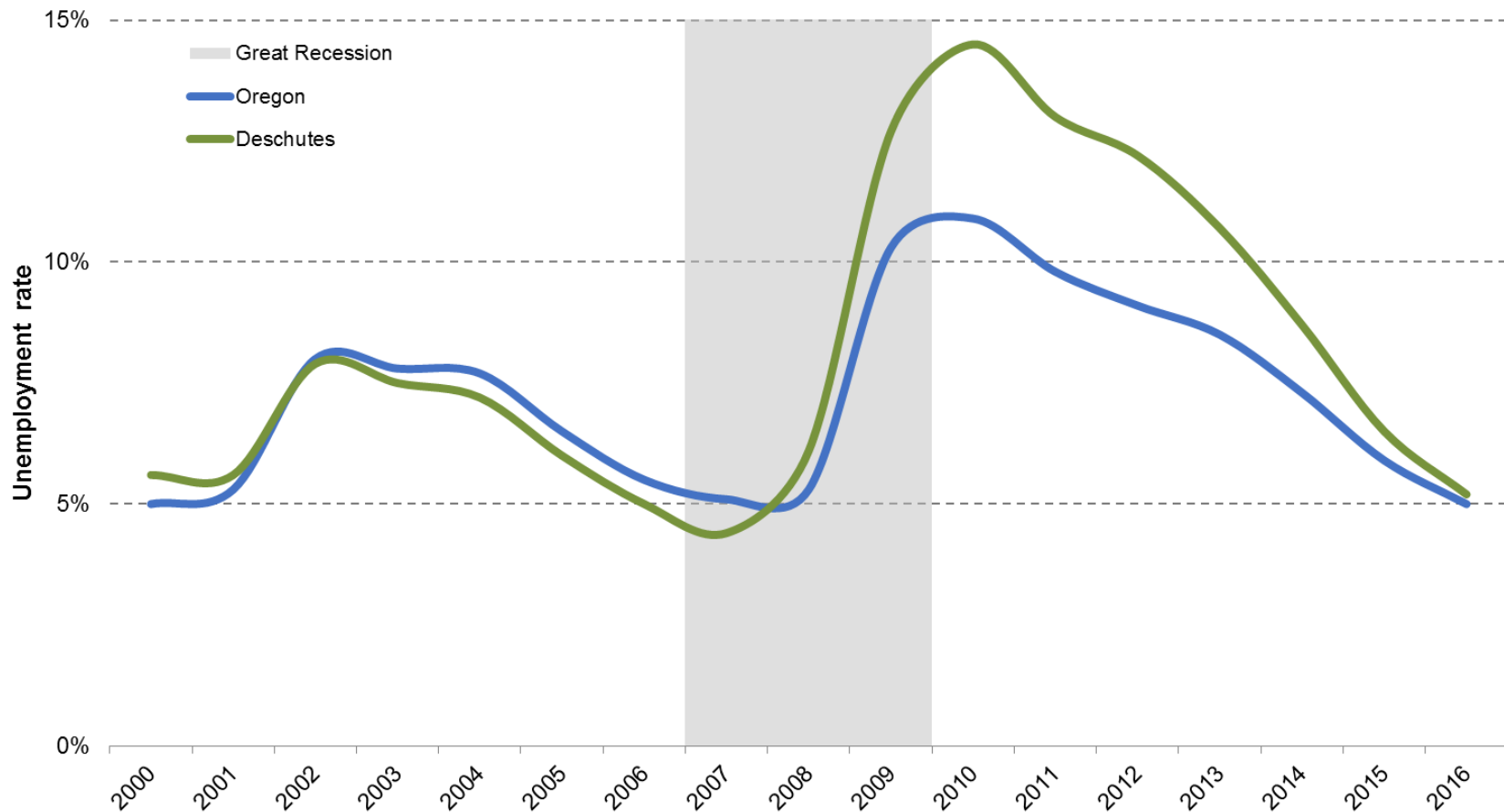
*Note: Percent Seasonal Housing is the proportion of total housing units in 2010 that are identified as vacant "for seasonal, recreational, or occasional use."

Deschutes County — Employment Growth Since 2000



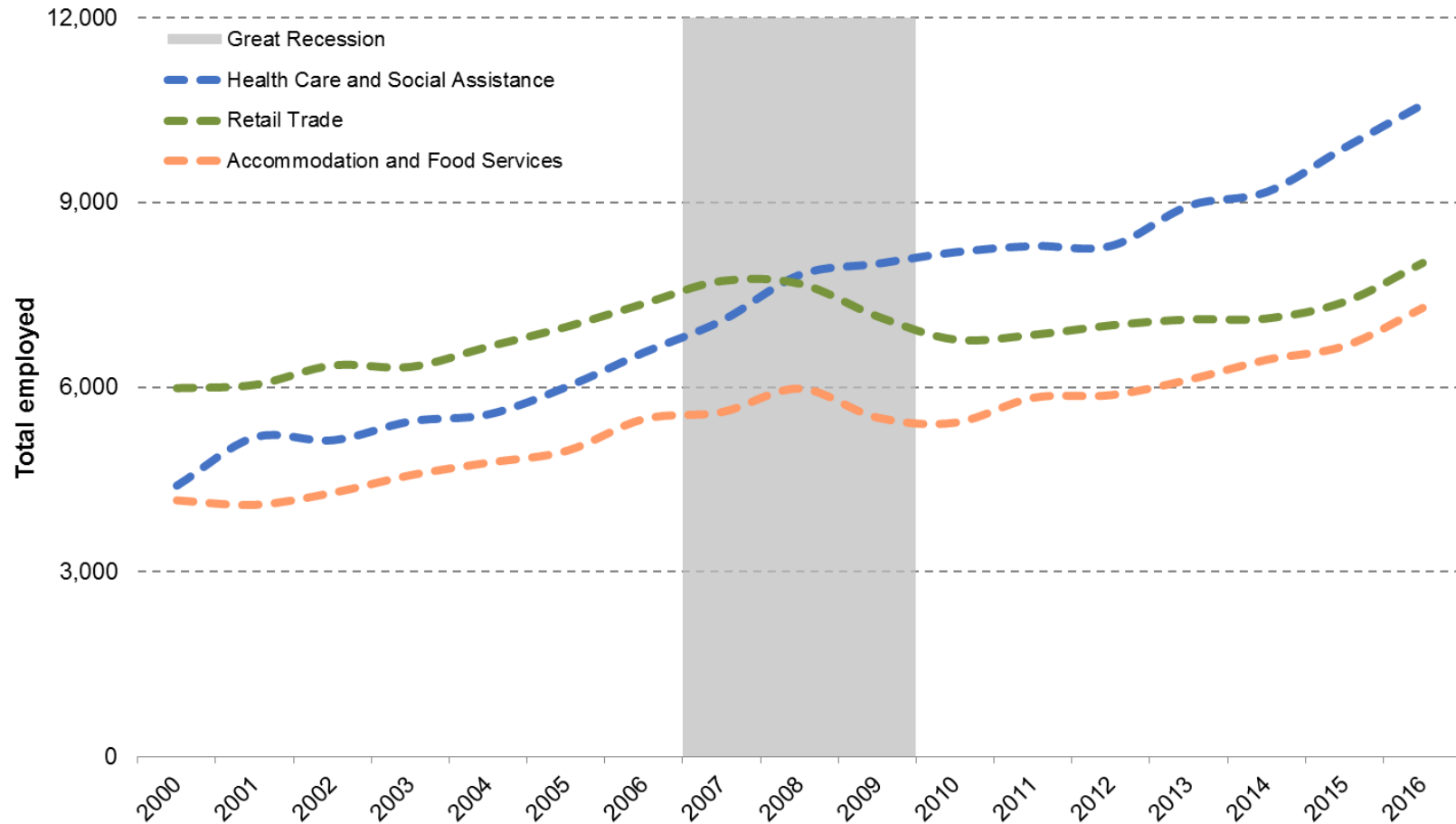
Source: U.S. Census Bureau. 2017. Quarterly Workforce Indicators Data. Longitudinal-Employer Household Dynamics Program. <http://ledextract.ces.census.gov/>.
Calculated by Population Research Center (PRC).

Deschutes County and Oregon — Unemployment Rate



Source: Oregon Employment Department. Local Area Employment Statistics. Oregon Labor Market Information System. <http://www.qualityinfo.org/olmis/labforce>.
Note: The rate represents the percent of the labor force seeking work but not employed.

Deschutes County — Top Three Industries by Average Quarterly Employment 2016



Source: U.S. Census Bureau. 2017. Quarterly Workforce Indicators Data. Longitudinal-Employer Household Dynamics Program. <http://ledextract.ces.census.gov/>.
Calculated by Population Research Center (PRC).

Note: The quarterly employment data used in this chart is not seasonally adjusted.

Local Input and Additional Information

- Questions?
- Discussion time

“Parking Lot”

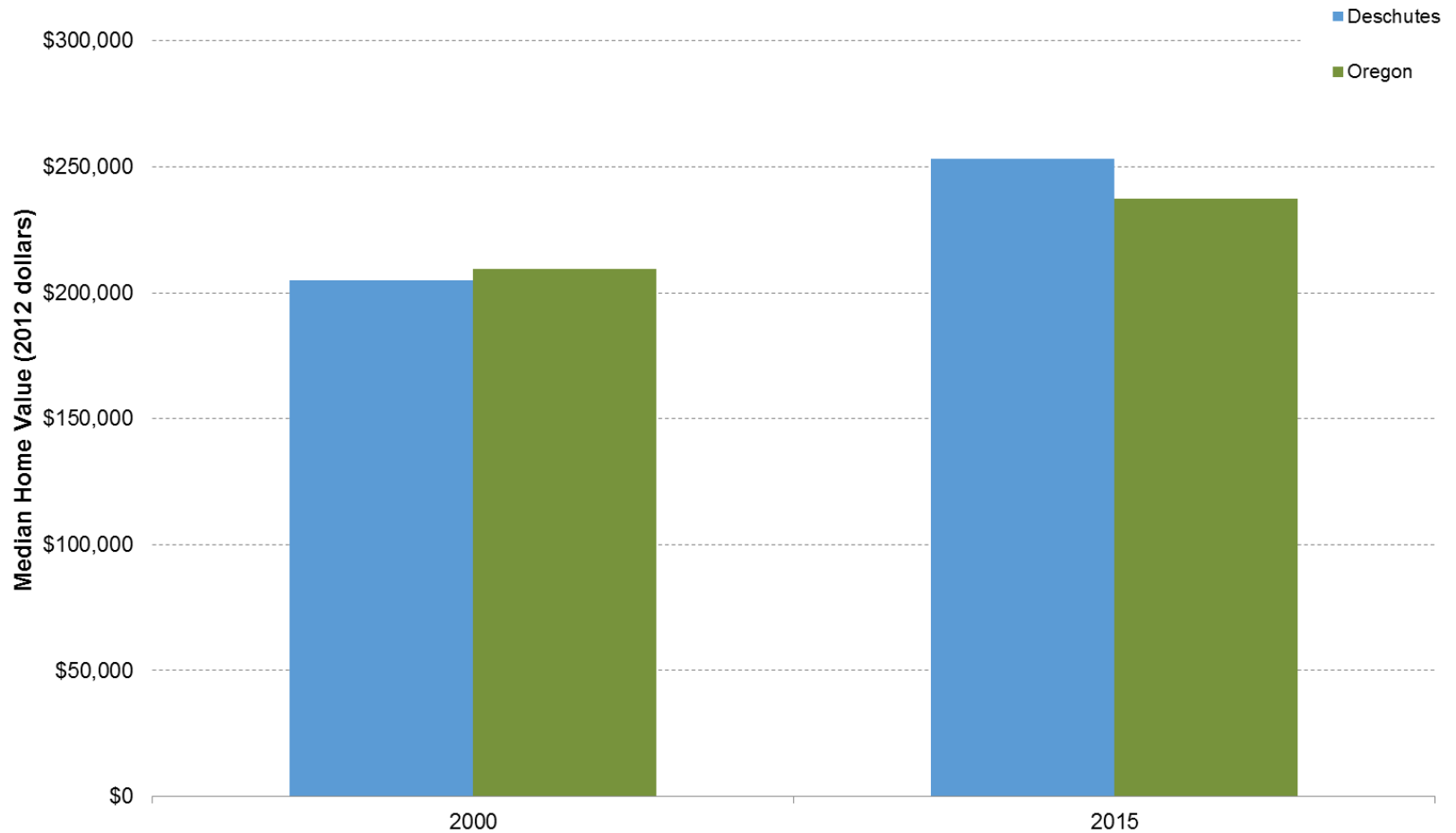
Selection of Forecast Regions

- Looked at regions used by other agencies
 - Workforce
 - Small City Network
- Counted counties and cities in each region
 - Balance workload

Population Estimates vs. Forecasts

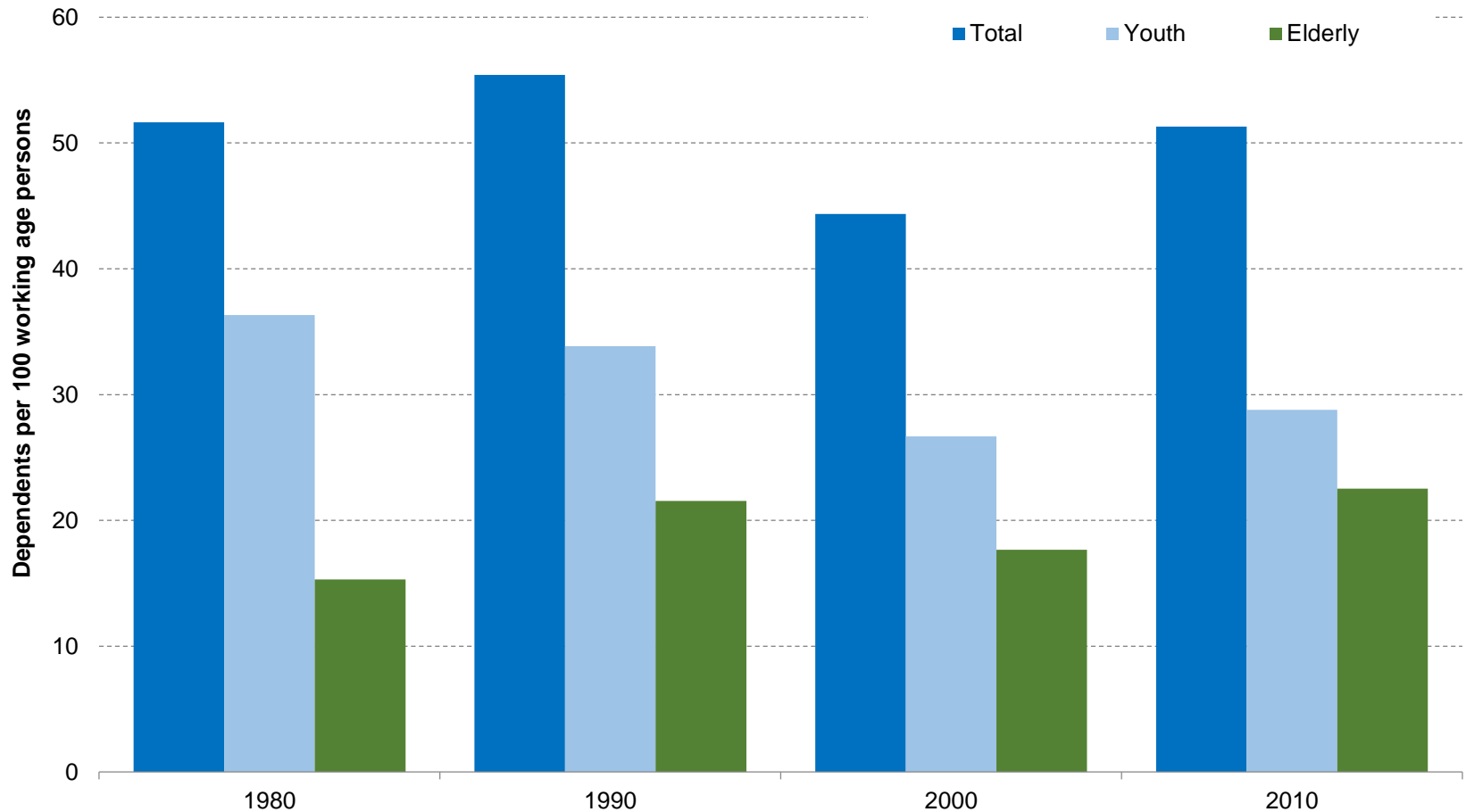
- **Population Estimates**
 - Refers to a point in time estimate of population in the present or in the past
- **Population Forecasts**
 - An estimation of future population based on historic and current trends, and assumptions about likely future events

Deschutes County — Median Home Value (2015 dollars)



Source: U.S. Census Bureau. 2000 Decennial Census. 2015 ACS 5yr. Bureau of Labor Statistics. CPI, U.S. City Average for all urban consumers. Calculated by Population Research Center.

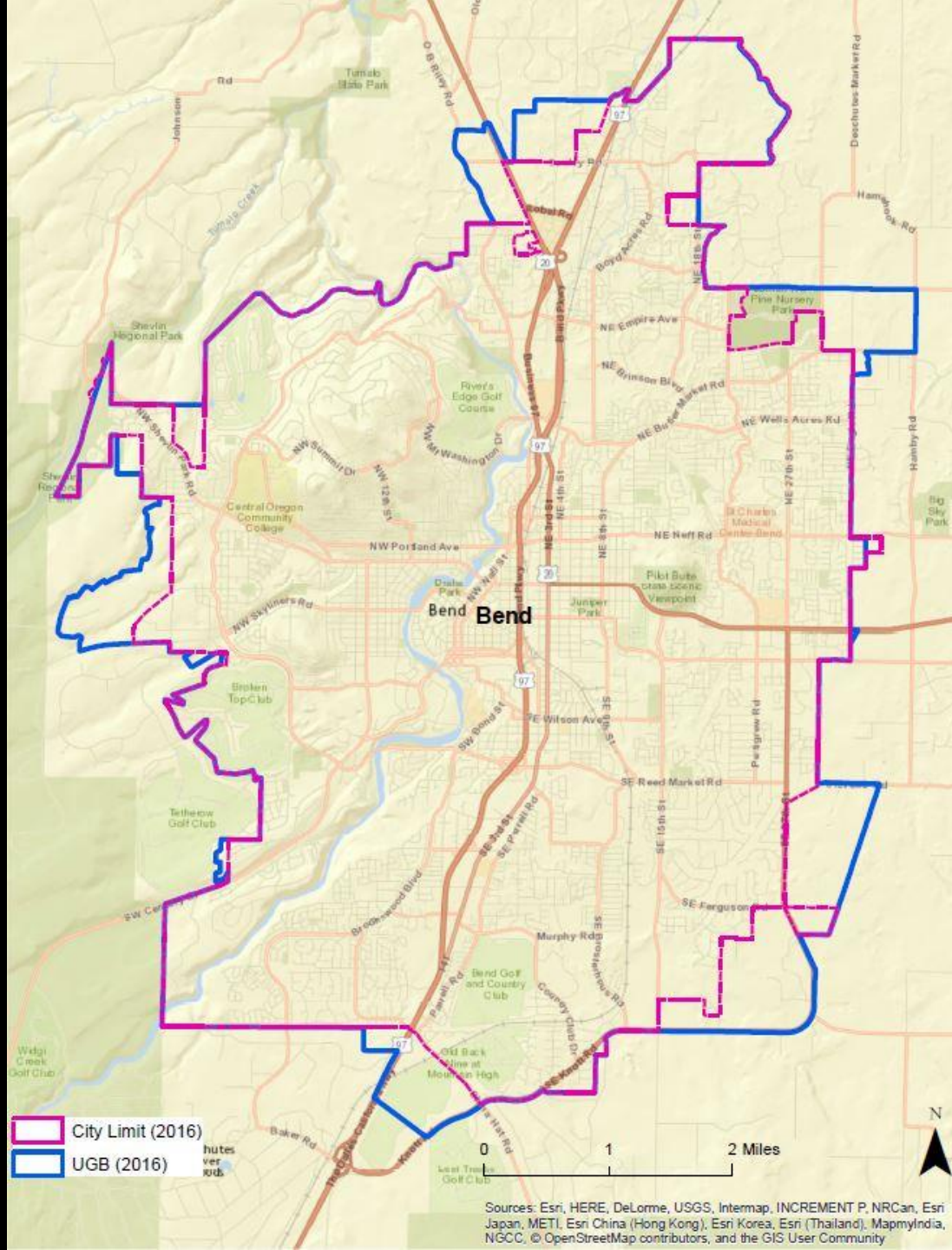
Deschutes County - Dependency Ratio

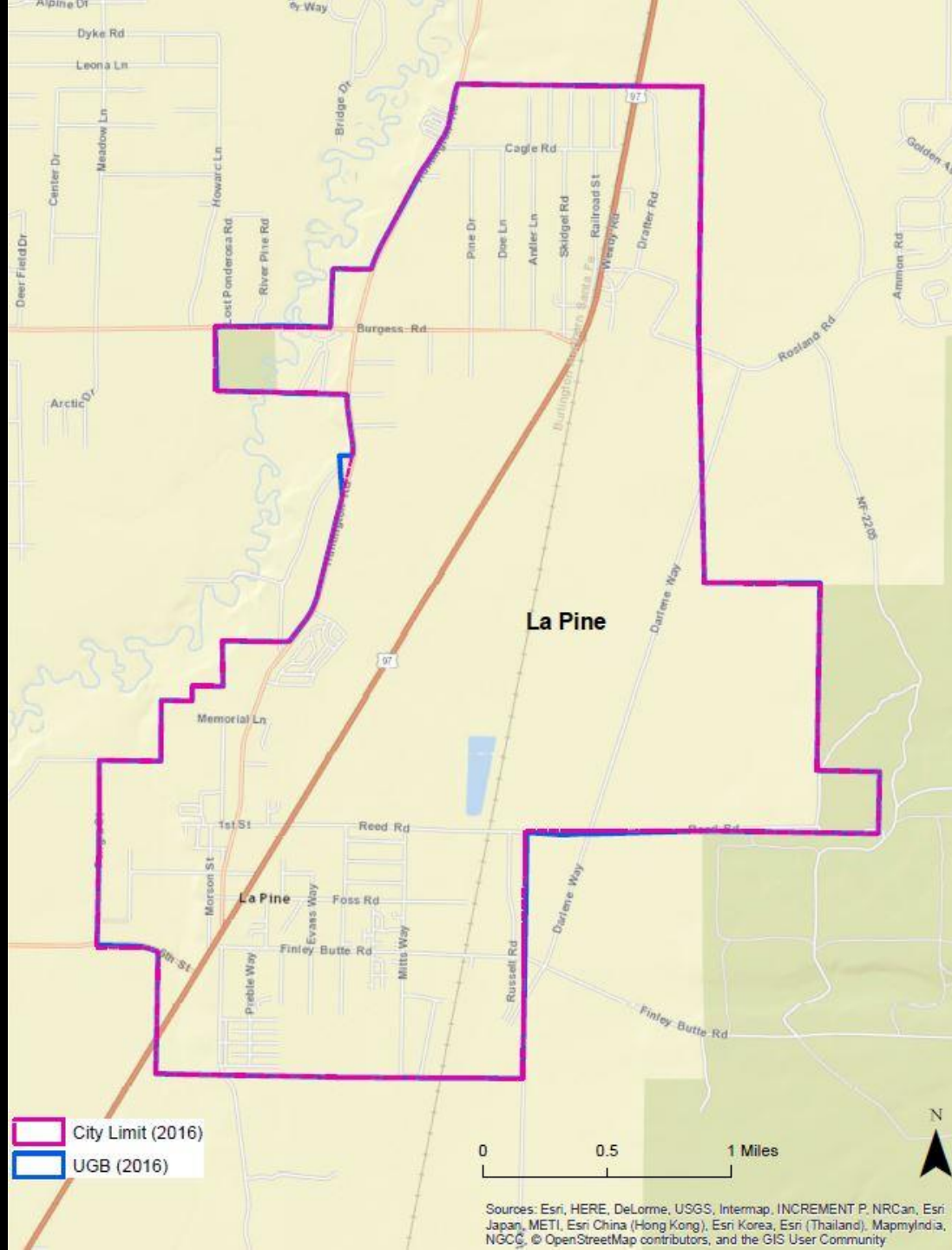


Source: U.S. Census Bureau, 1980, 1990, 2000, and 2010 Decennial Census. Calculated by Population Research Center (PRC).

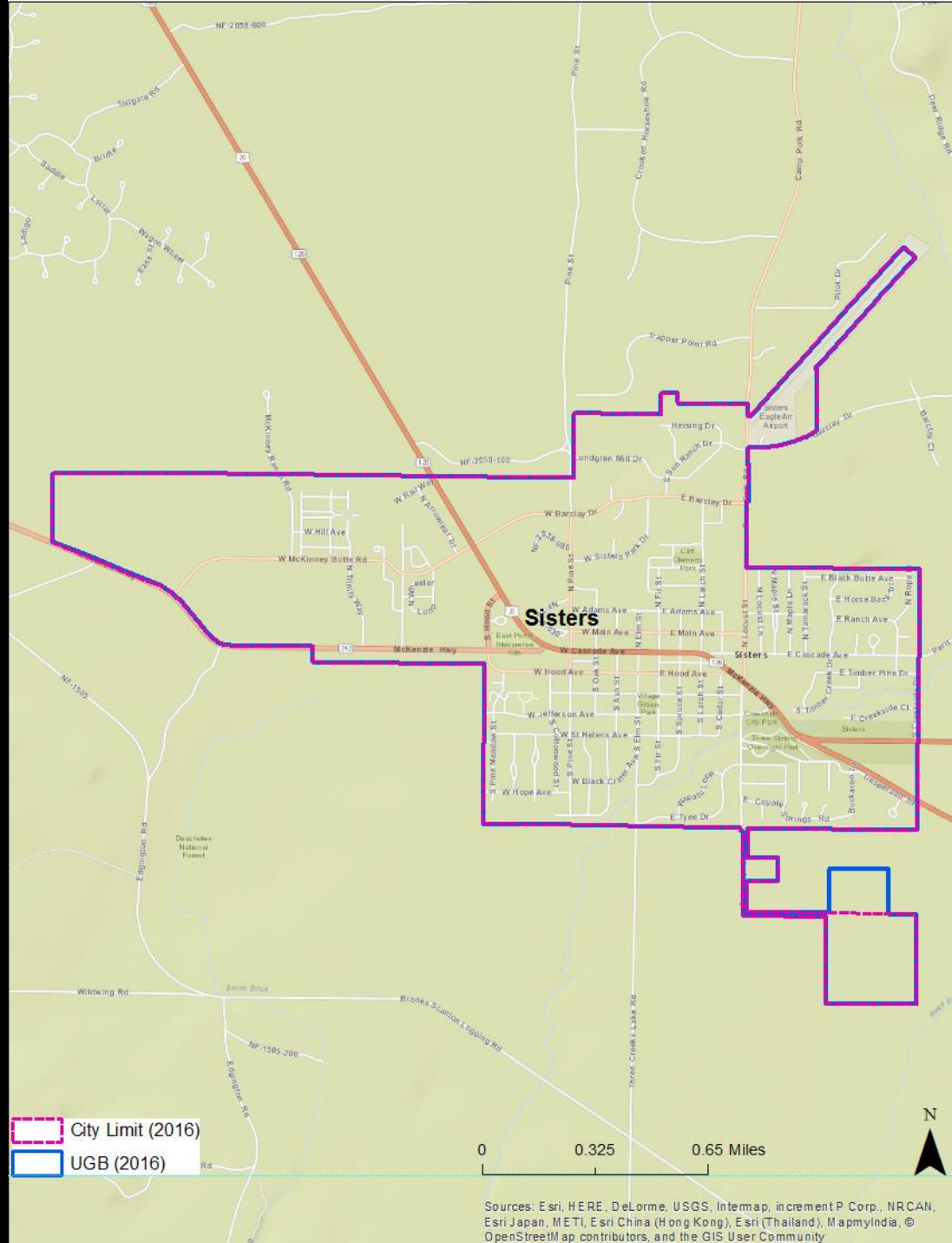
Note: Dependency Ratio = $\{[(\text{Population Age 0-14}) + (\text{Population Age 65 or older})] / (\text{Population Age 15-64})\} \times 100$

Deschutes County UGBs





Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community



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