

# Oregon Population Forecast Program

## Regional Forecast Meeting – October 17, 2017

**Presentation by**

**Population Forecast Program Team**

# Oregon Population Forecast Program Project Team

**Nick Chun,**

*Population Forecast Program Coordinator*

**Kevin Rancik,**

*GIS Analyst*

**Deborah Loftus,**

*Office Specialist*

**Nathan Williams,**

*Research Assistant*

**Rhey Haggerty,**

*Graduate Research Assistant*

# 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:

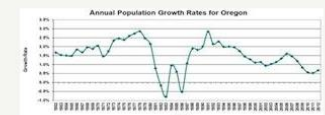
### Estimates questionnaire goes online:

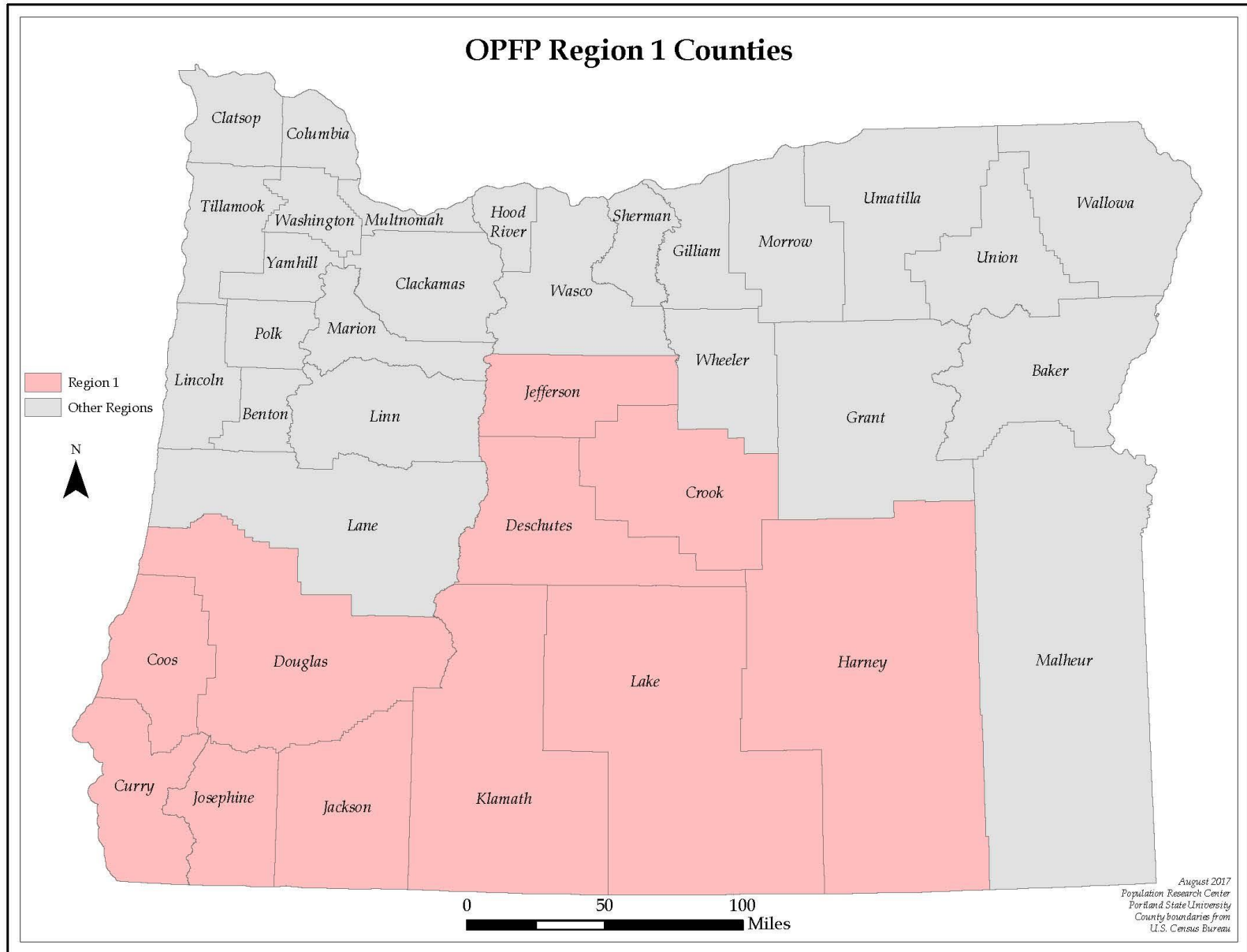
We are converting to an electronic process of data collection beginning in summer of 2013.

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.

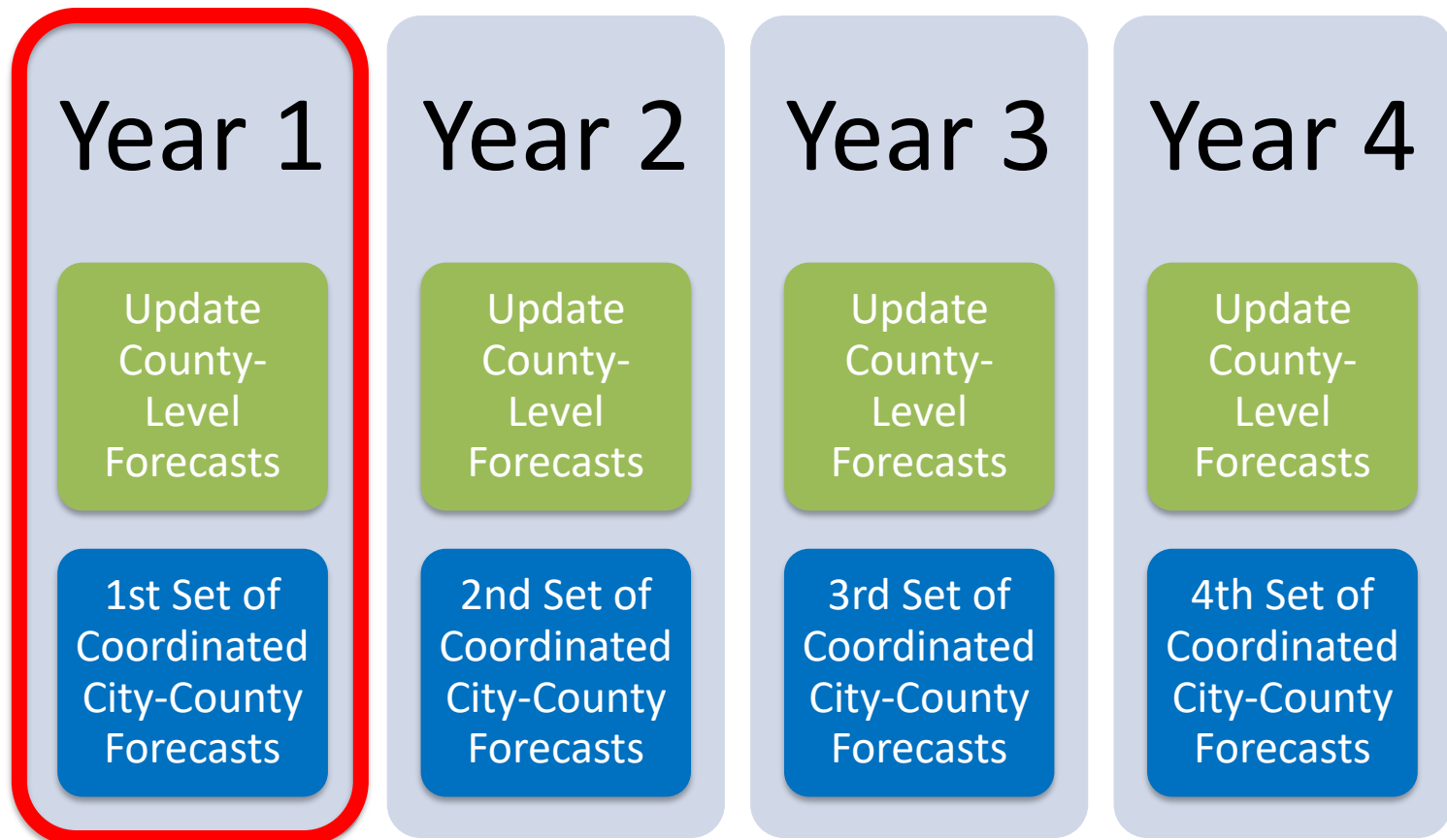
How we grow: see the **new annual population tables** for 2012!



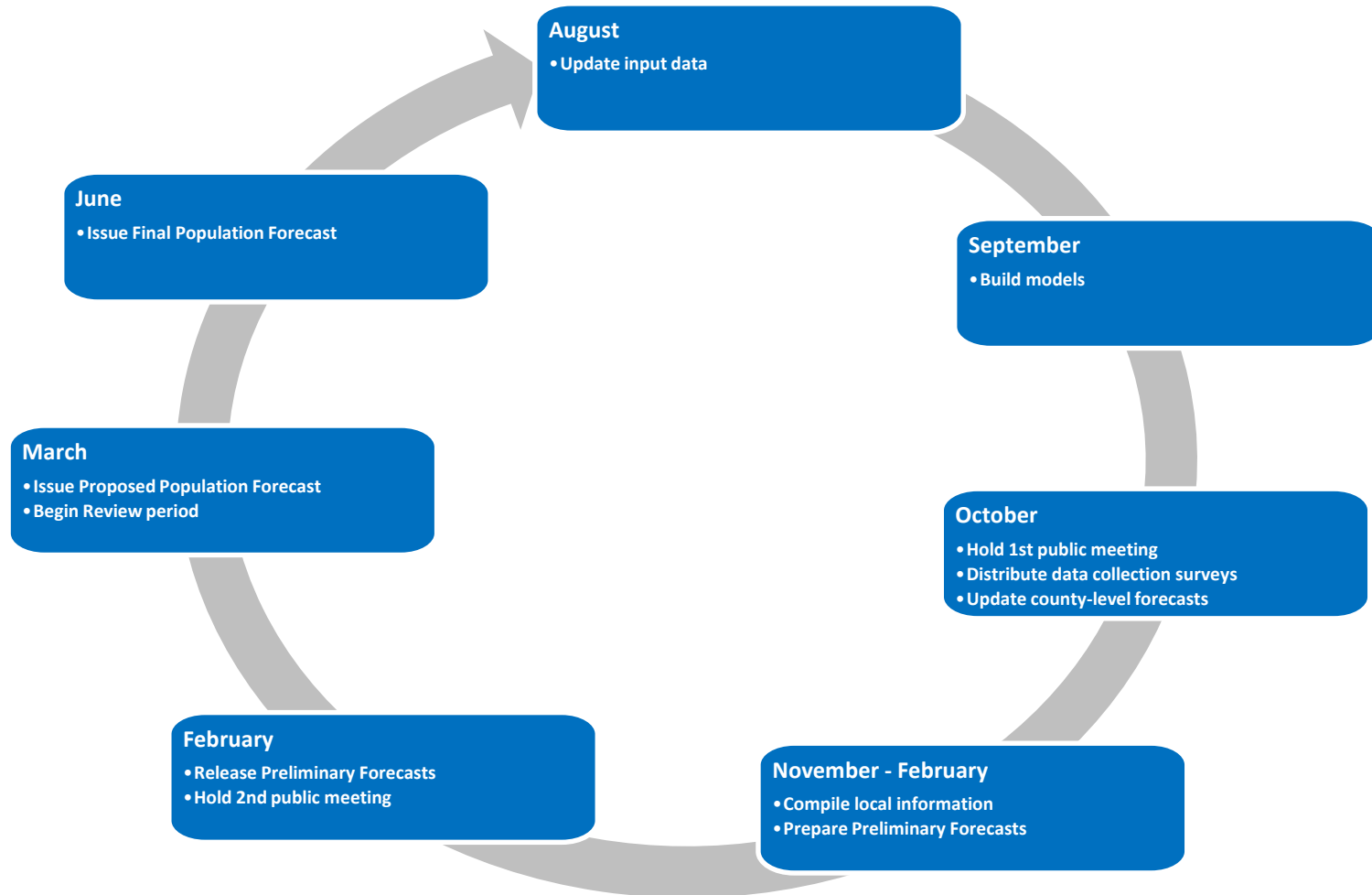




## Forecast Program: 4-Year Schedule



## 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

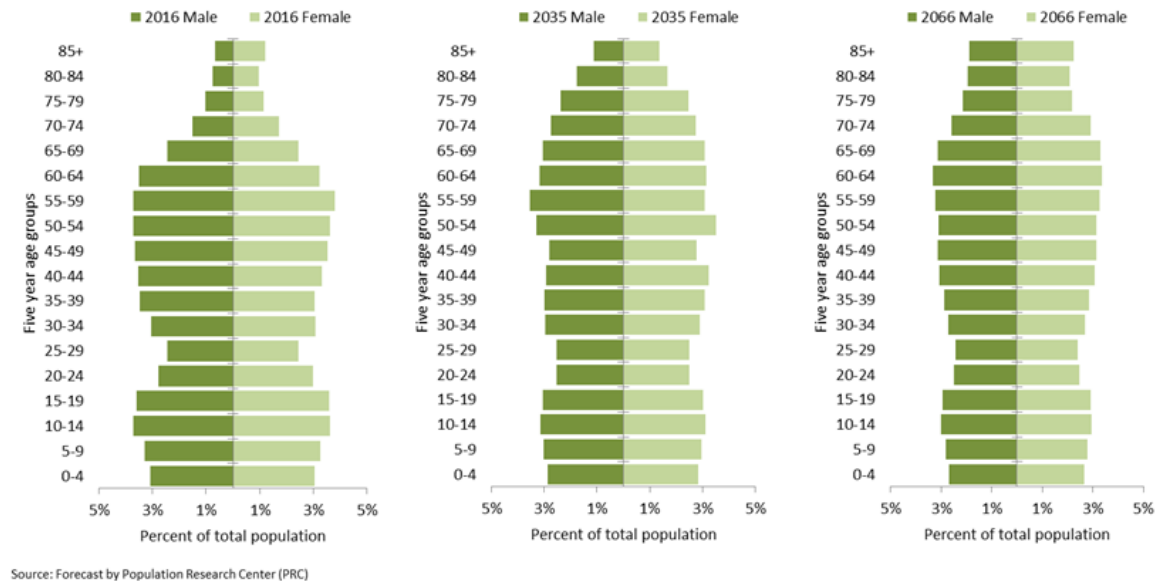
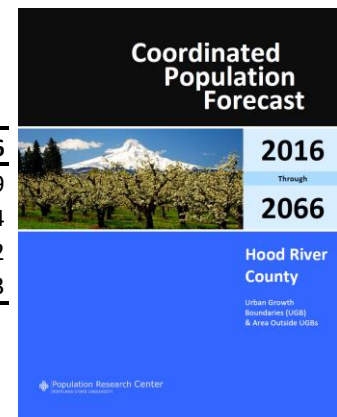


Figure 21. Hood River County's Sub-Areas - Total Population

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.



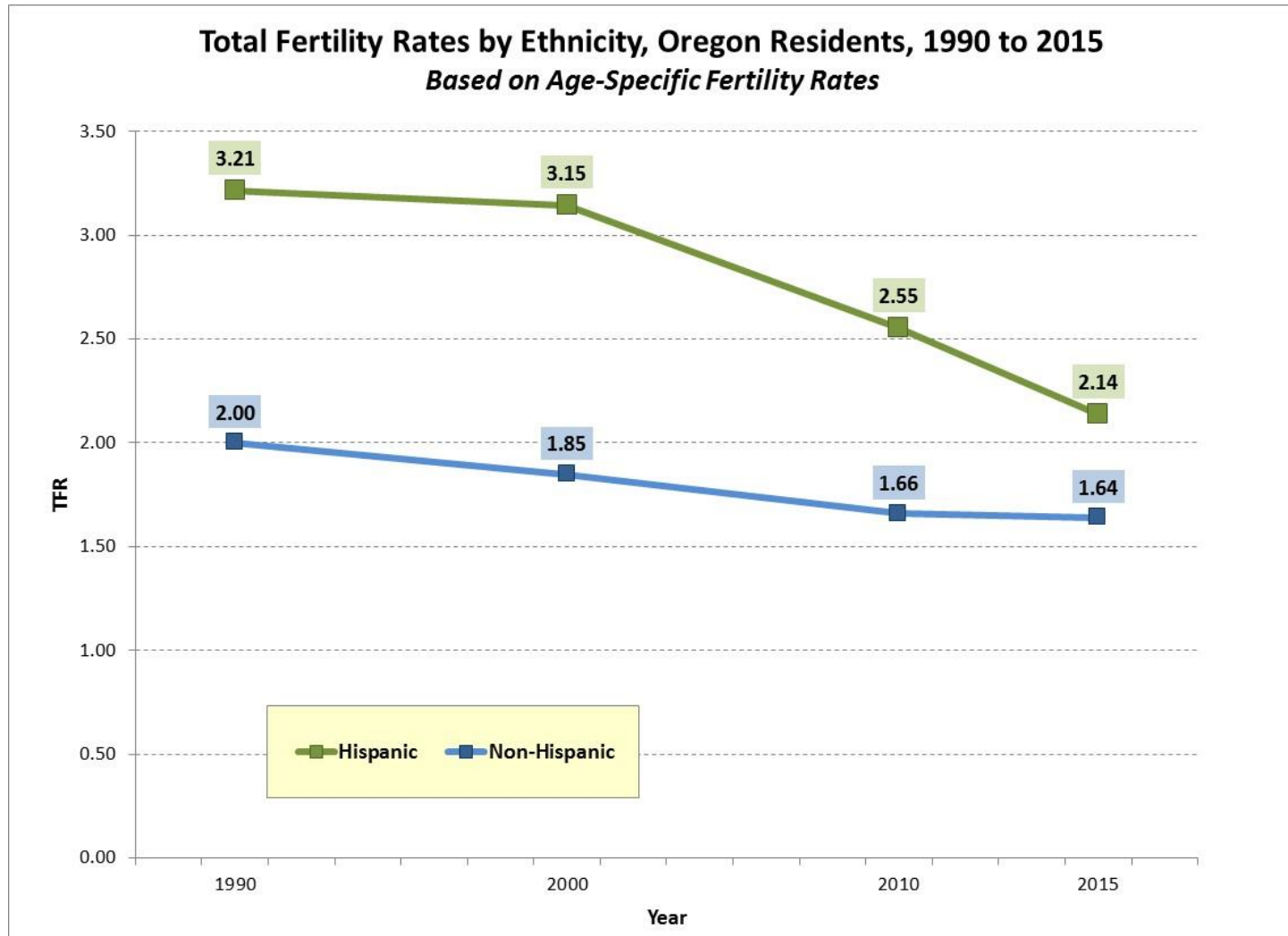
## Process for Population Forecasts

- 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

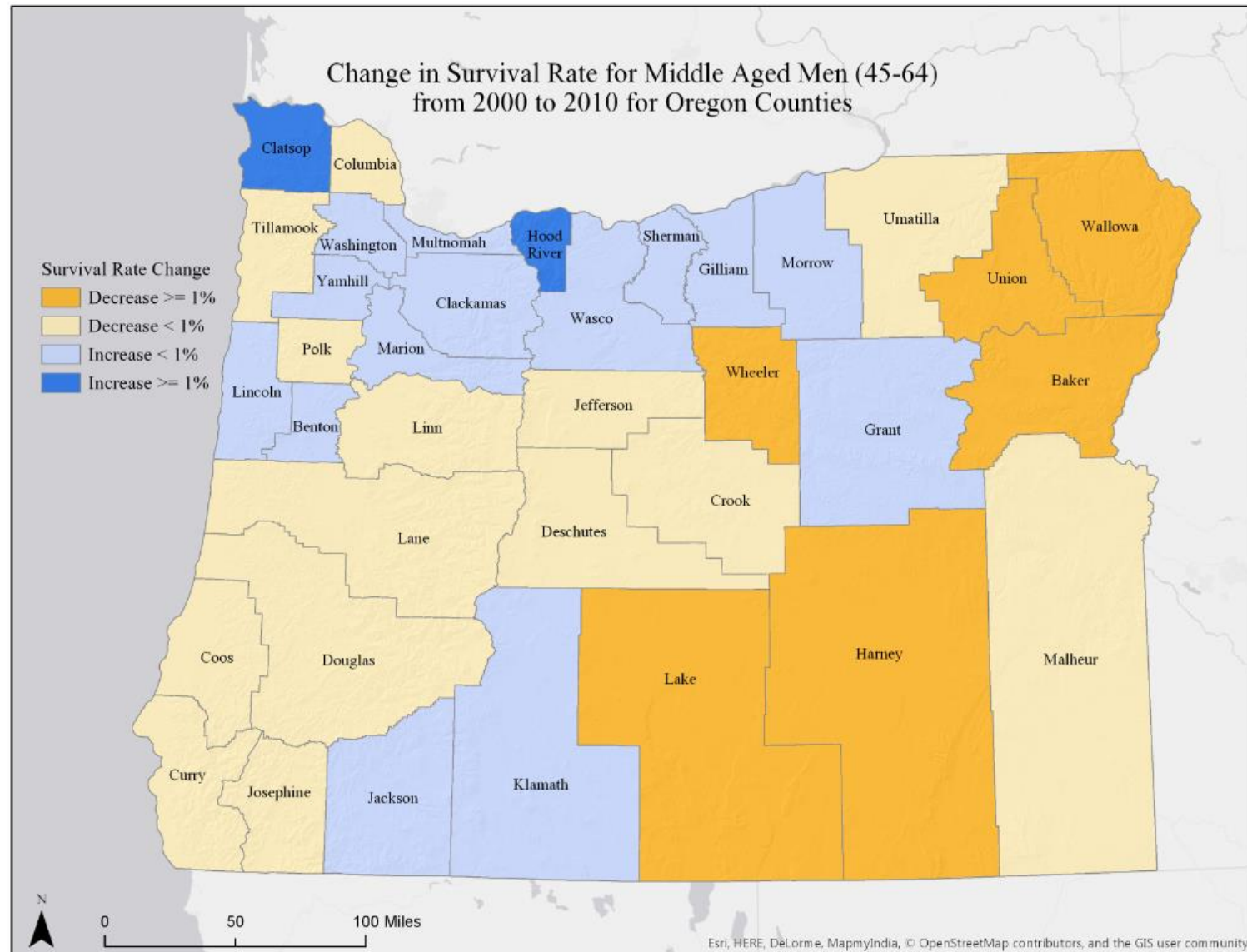
### Primary Models for this Forecast

- 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

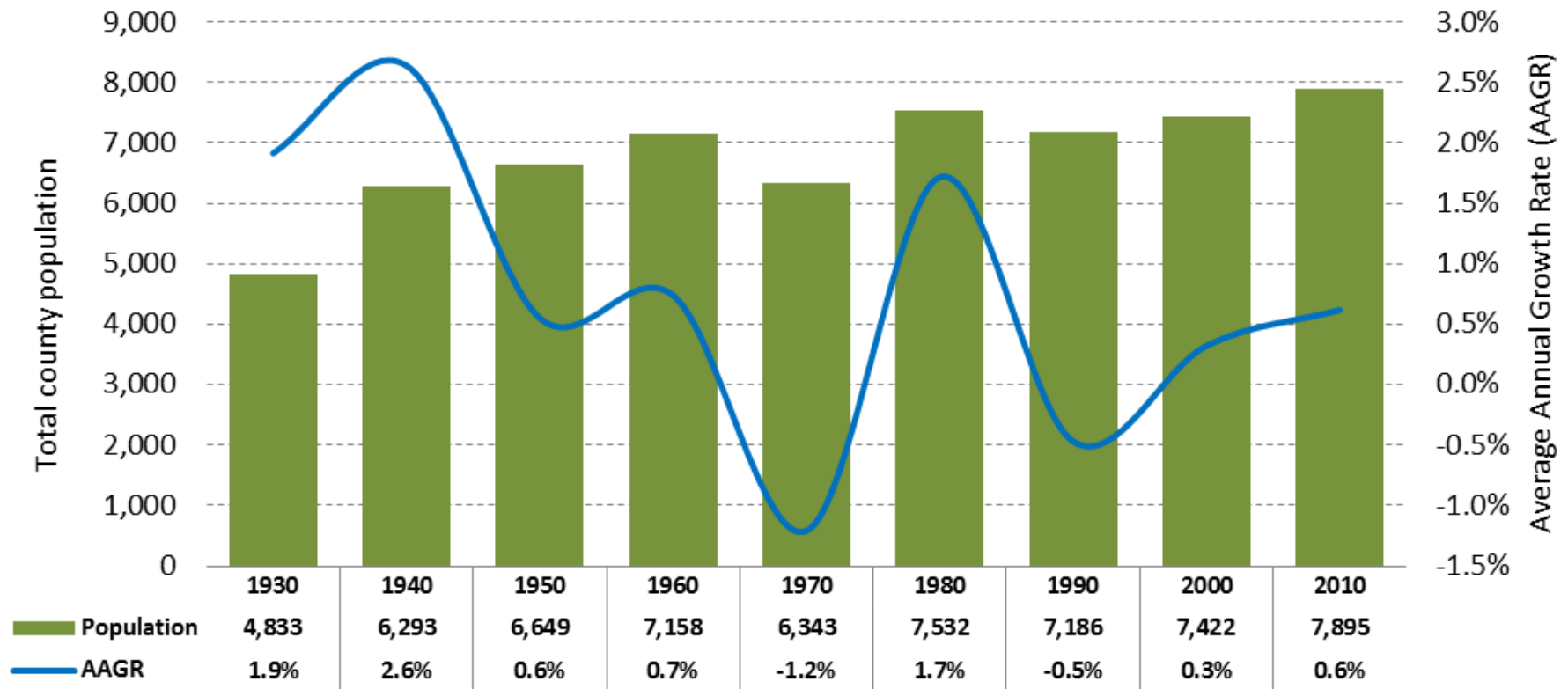


## Process for Local Input

- 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

## Lake County

**Lake County—Total Population by Ten-year Intervals (1930-2010)**

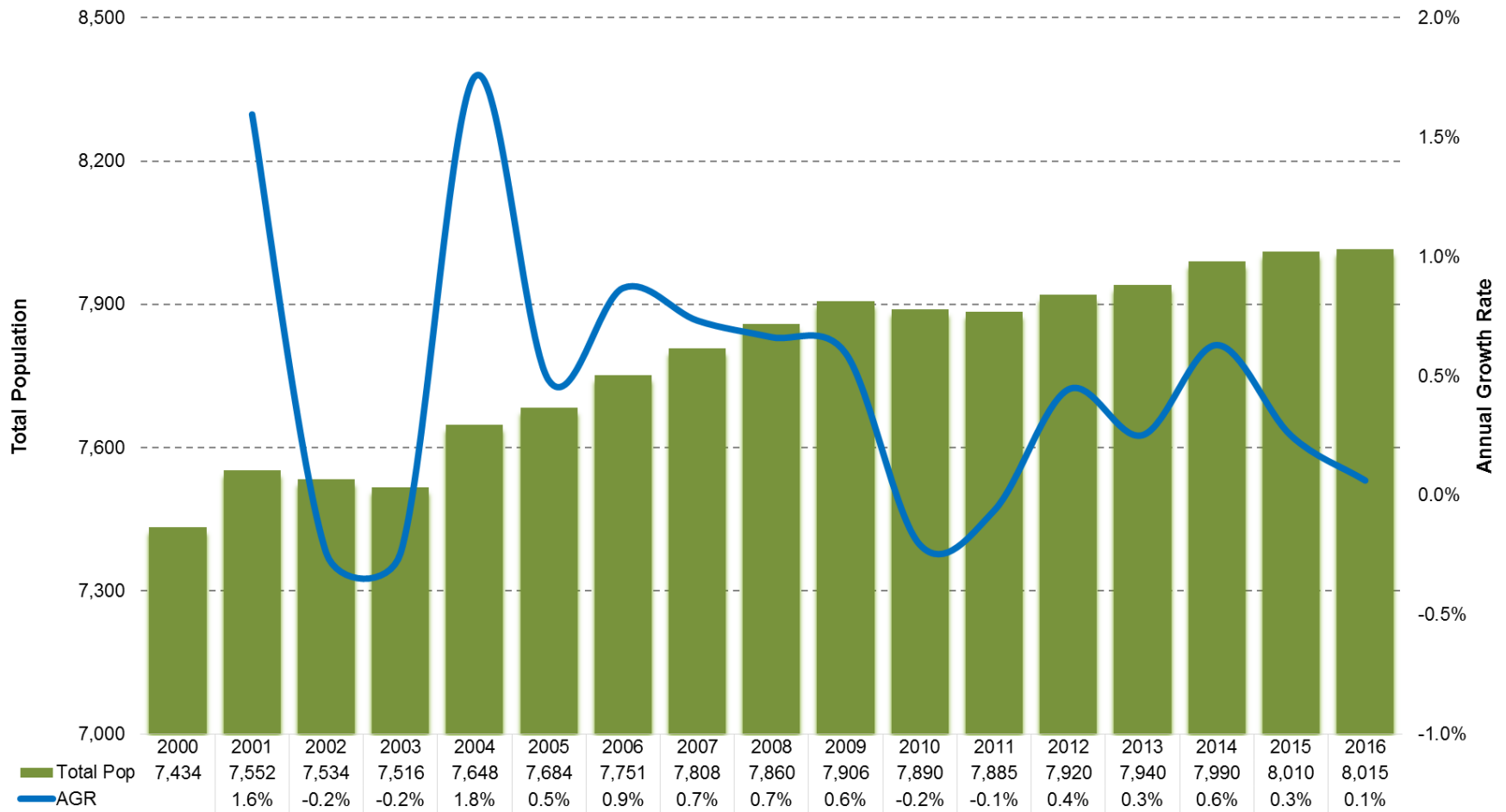


Sources: U.S. Census Bureau, 1930 to 2010 Censuses. Calculated by Population Research Center (PRC).

Note 1: Average annual growth rate is used for simplicity. In actuality the rate is an annualized rate calculated with this formula:  $[LN(Year1/Year2)/10]$

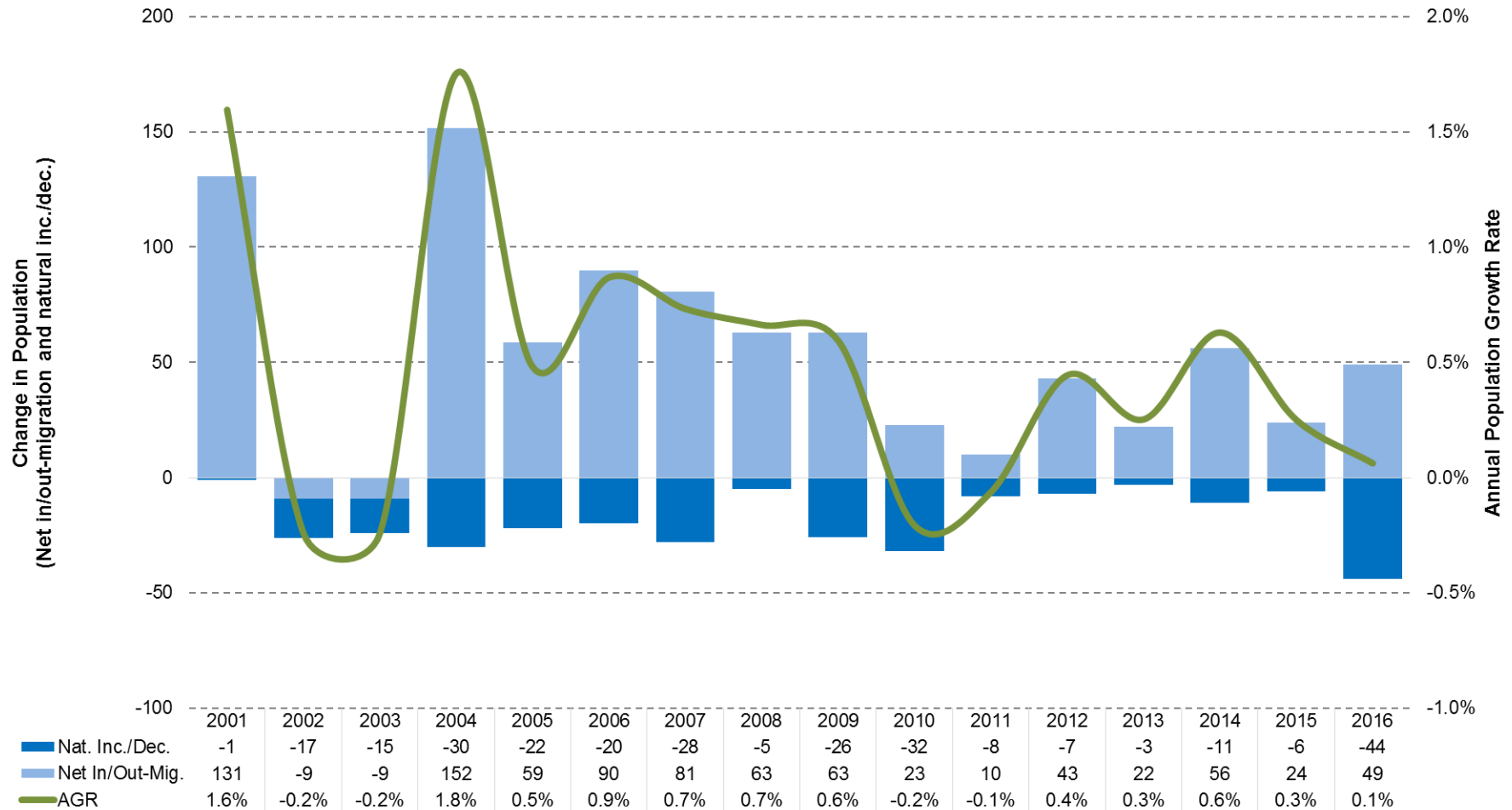
Note 2: The 2000 total population does not reflect Count Question Resolution (CQR) revisions made by the U.S. Census Bureau. Revised total population numbers are used for the "County and Incorporated City Population" table.

**Lake County — Recent Annual Population Trend — July 1st Estimates**



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

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



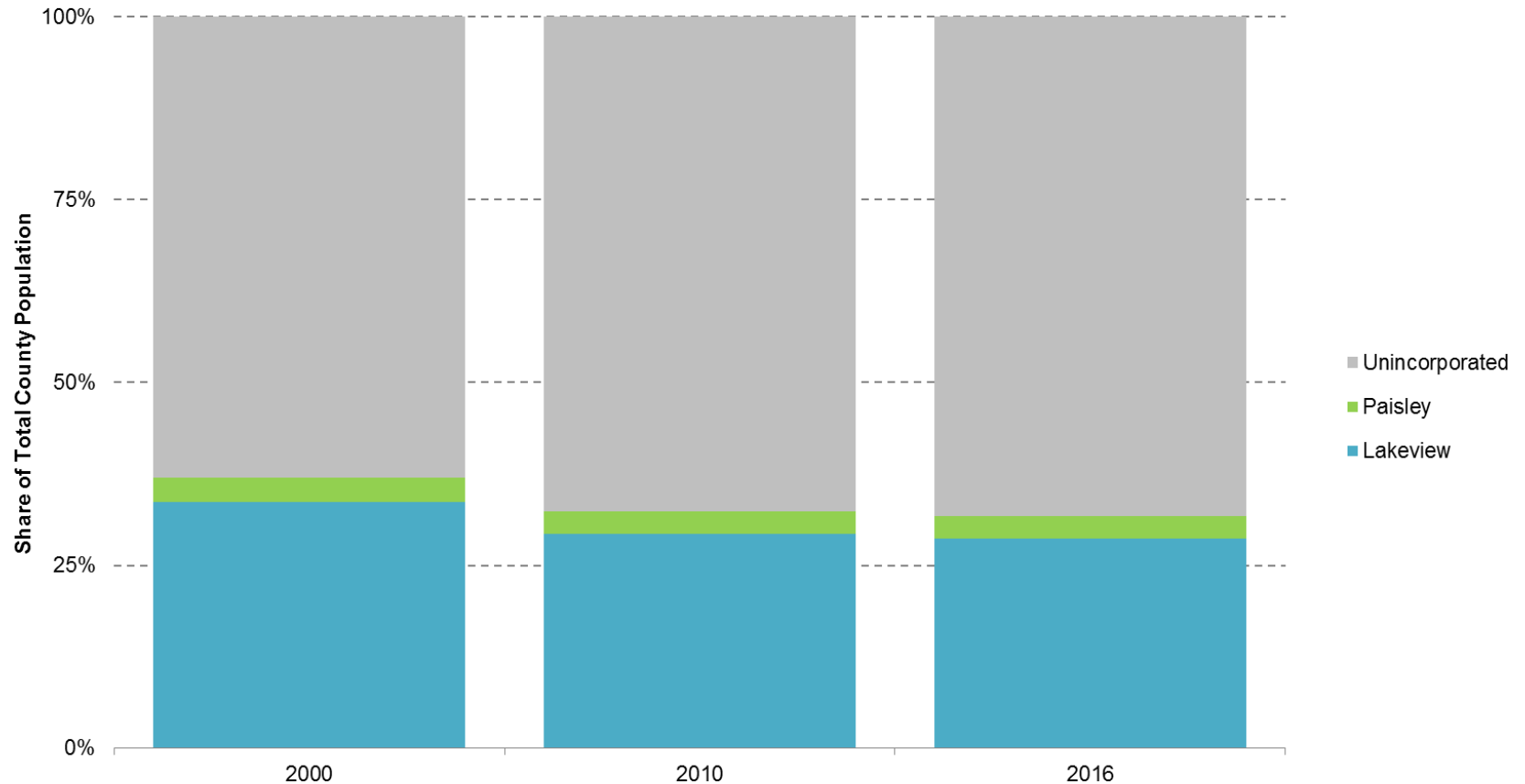
Source: Population Research Center, July 1st Annual Estimates 2001-2017. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).

## Lake County and Incorporated City Population

	Total Population			Share of County Population			Average Annual	
	2000	2010	2016	2000	2010	2016	2000-2010	2010-2016
<b>Lake County</b>	<b>7,422</b>	<b>7,895</b>	<b>8,015</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>0.6%</b>	<b>0.2%</b>
<i>Lakeview</i>	2,498	2,311	2,300	34%	29%	29%	-0.8%	-0.1%
<i>Paisley</i>	247	243	245	3%	3%	3%	-0.2%	0.1%
<i>Unincorporated</i>	4,677	5,341	5,470	63%	68%	68%	1.3%	0.4%

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).

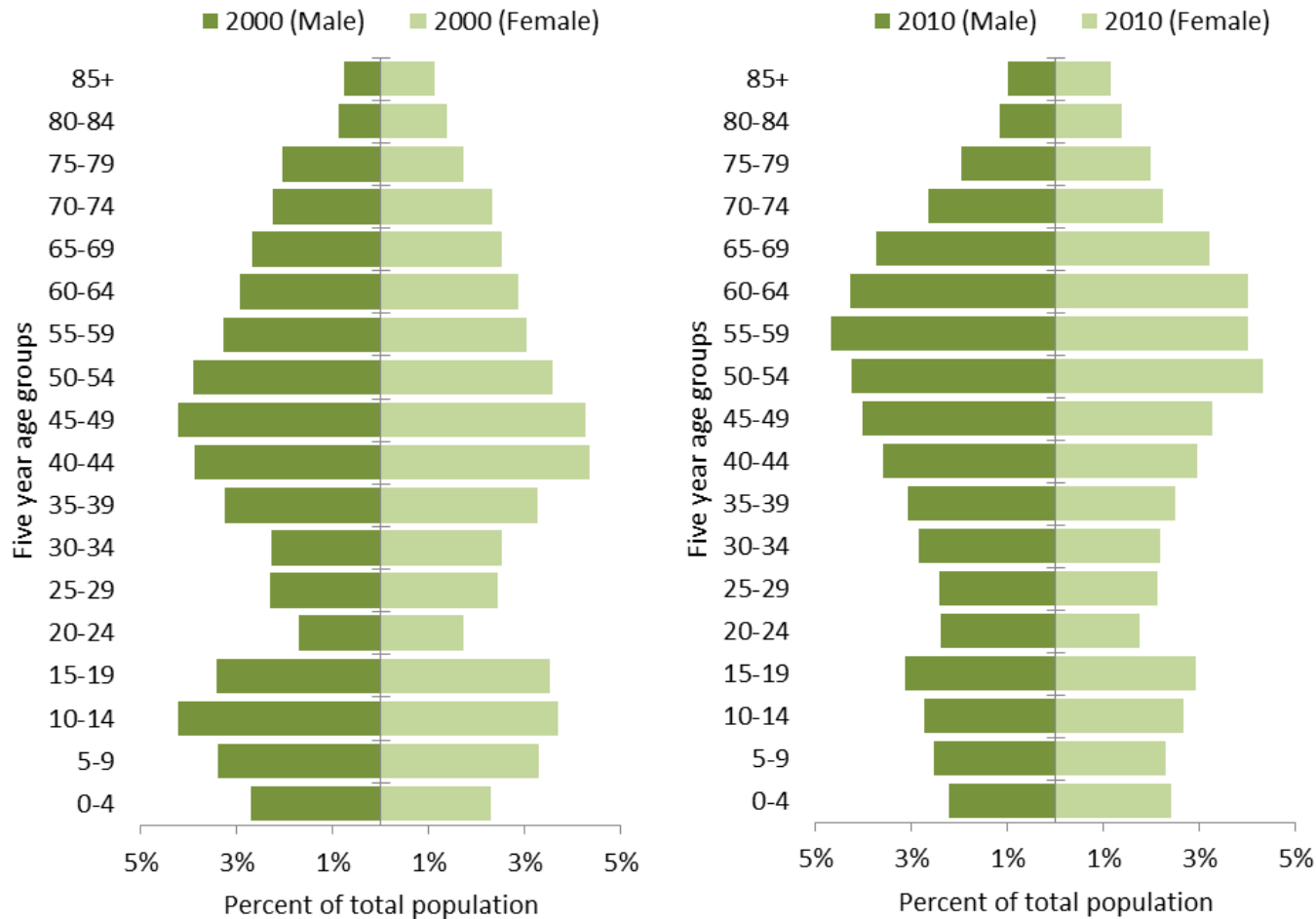
## Lake County — City Share of Poulation



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

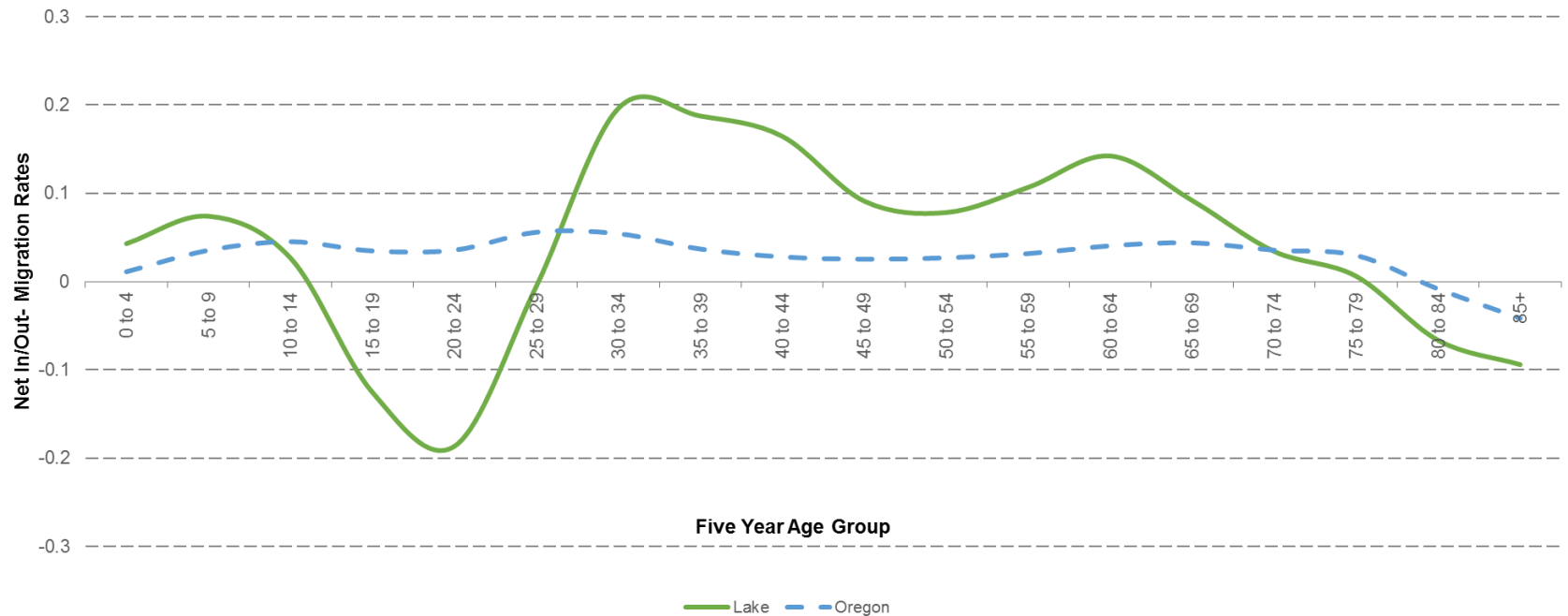


**Lake County—Age Structure of the Population (2000 and 2010)**



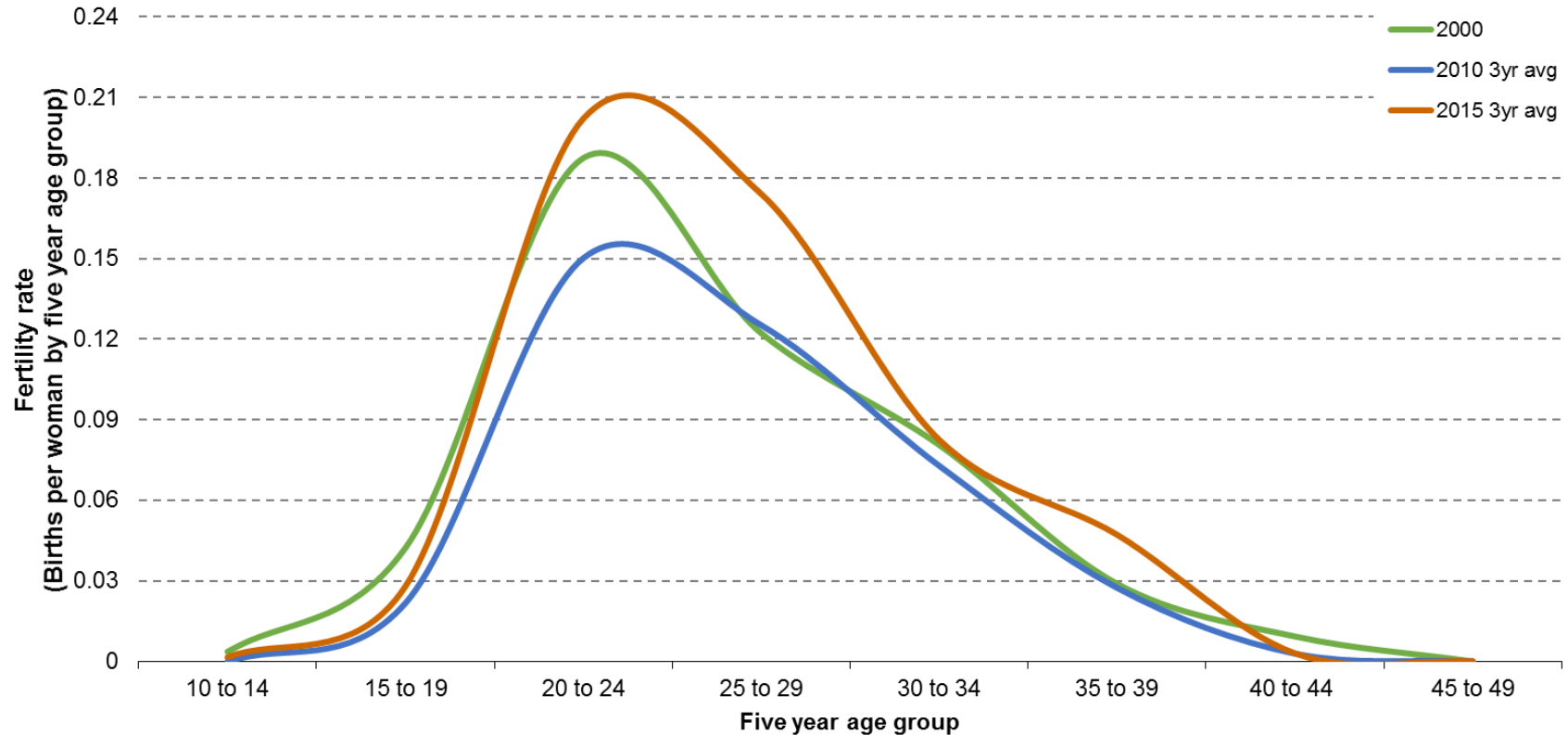
Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Calculated by Population Research Center (PRC).

**Lake County - 5yr Net In/Out-Migration Rates for Total Population, 2000-2010**



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

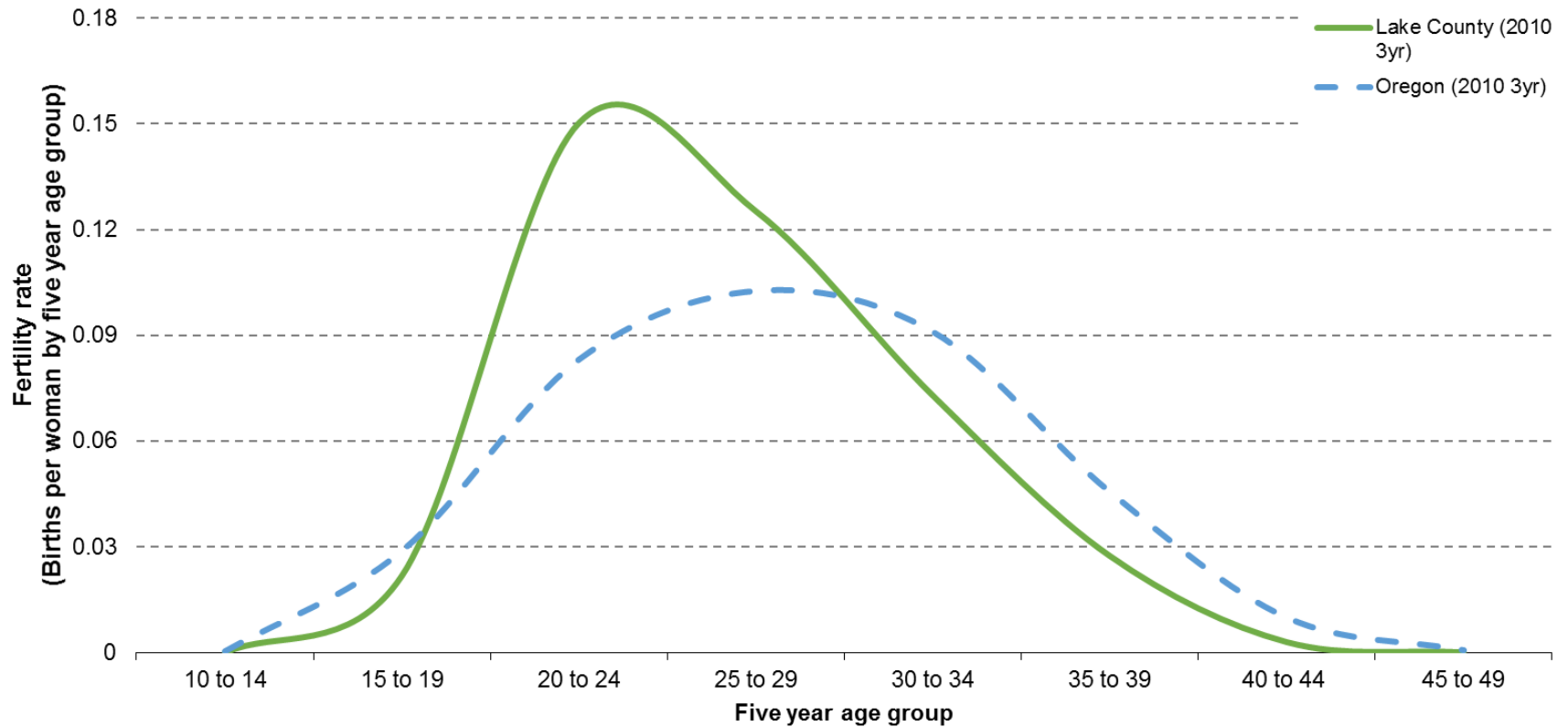
## Lake County — Age Specific Fertility Rates



	2000	2010 3yr	2015 3yr
<b>Total Fertility Rate</b>	<b>2.37</b>	<b>2.00</b>	<b>2.69</b>

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

## Lake County and Oregon — Age Specific Fertility Rates (2010)



	Lake County	Oregon
<b>Total Fertility Rate</b>	<b>2.00</b>	<b>1.81</b>

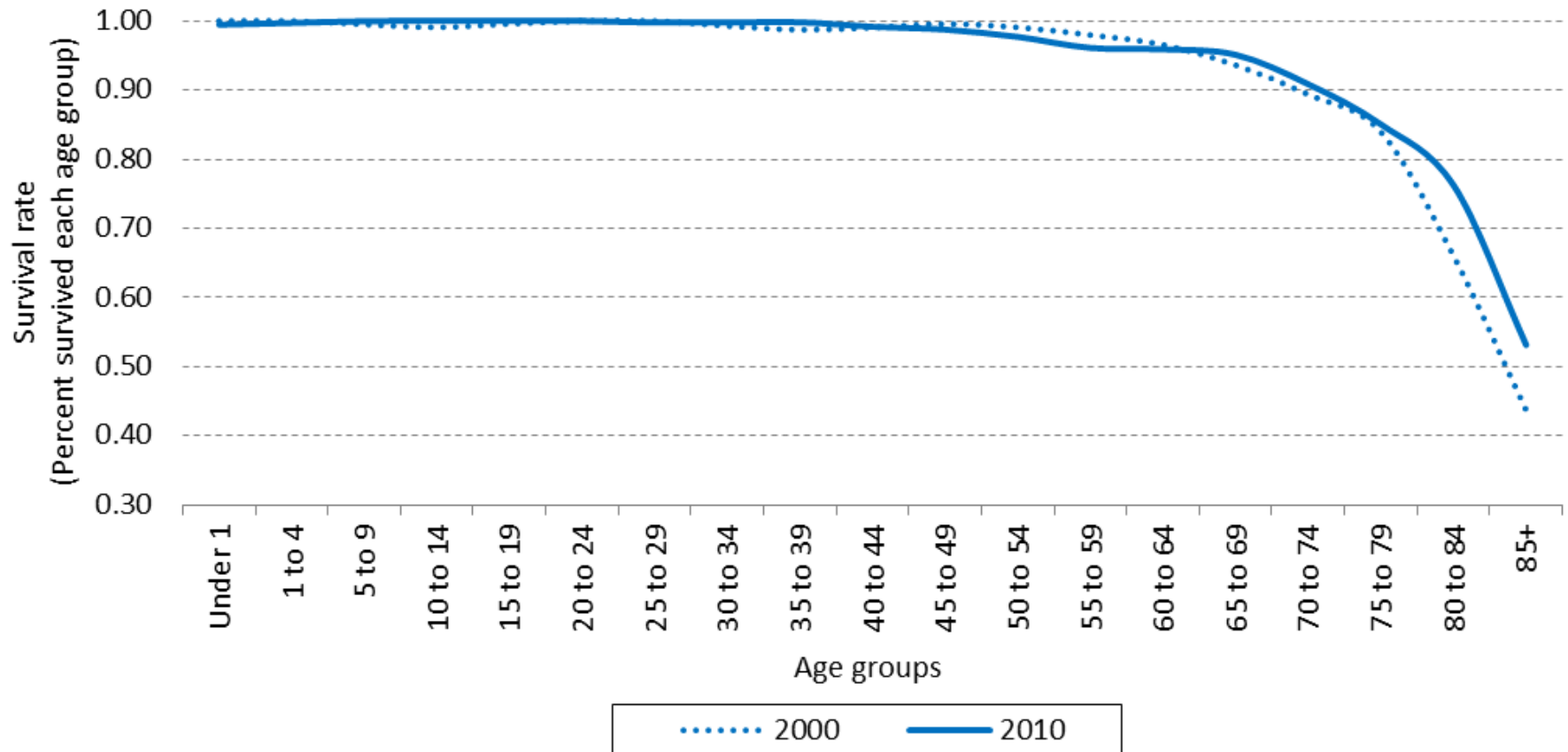
Source: U.S. Census Bureau, 2000 and 2010 Decennial Census. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).

## Lake County—Hispanic or Latino and Race (2000 and 2010)

Hispanic or Latino and Race	2000		2010		Absolute Change	Relative Change
<i>Total population</i>	7,422	100.0%	7,895	100.0%	473	6.4%
Hispanic or Latino	404	5.4%	545	6.9%	141	34.9%
Not Hispanic or Latino	7,018	94.6%	7,350	93.1%	332	4.7%
White alone	6,617	89.2%	6,875	87.1%	258	3.9%
Black or African American alone	8	0.1%	37	0.5%	29	362.5%
American Indian and Alaska Native alone	166	2.2%	149	1.9%	-17	-10.2%
Asian alone	53	0.7%	44	0.6%	-9	-17.0%
Native Hawaiian and Other Pacific Islander alone	10	0.1%	5	0.1%	-5	-50.0%
Some Other Race alone	6	0.1%	7	0.1%	1	16.7%
Two or More Races	158	2.1%	233	3.0%	75	47.5%

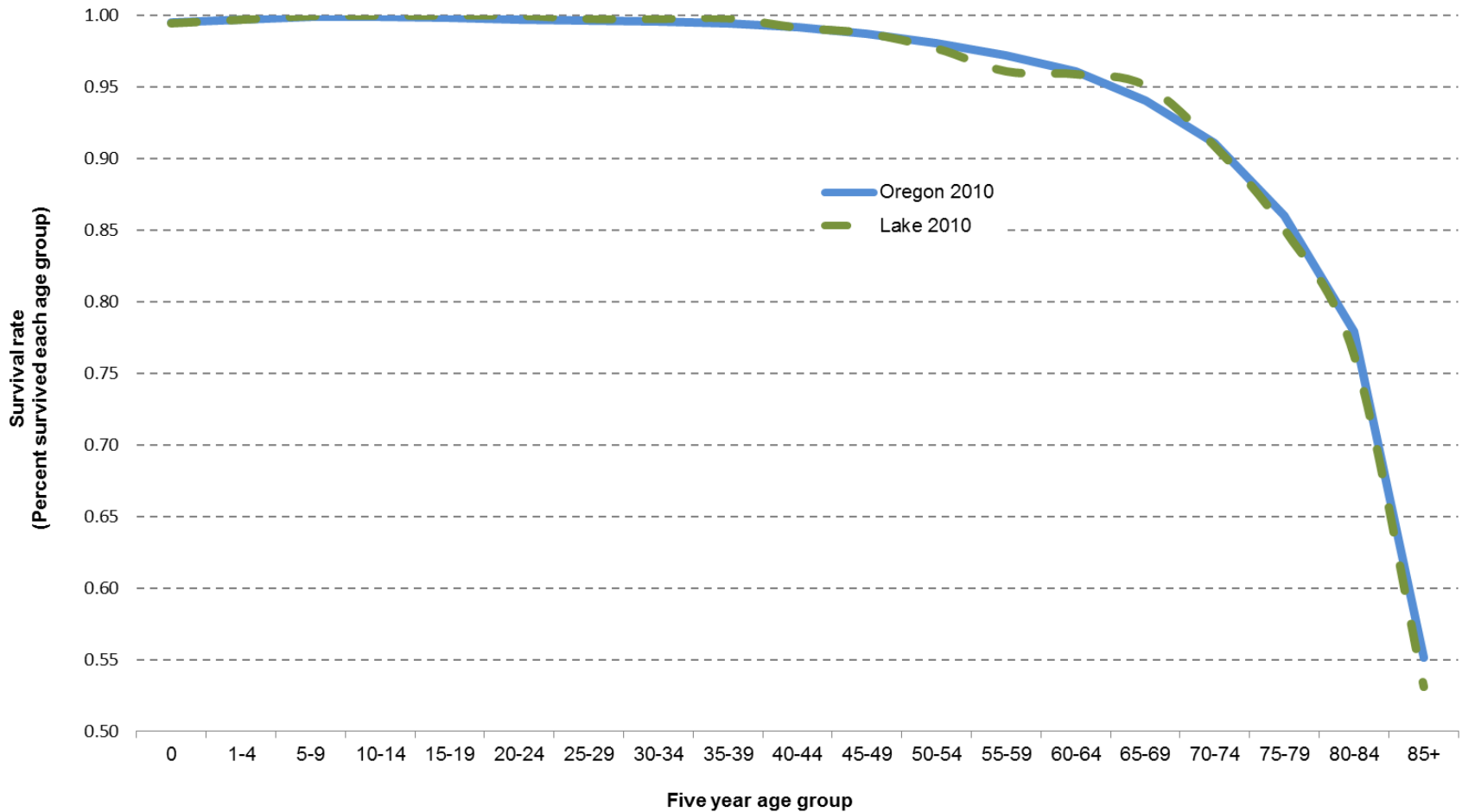
Sources: U.S. Census Bureau, 2000 and 2010 Censuses.

Lake County—Age Specific Survival Rates (2000 to 2010)



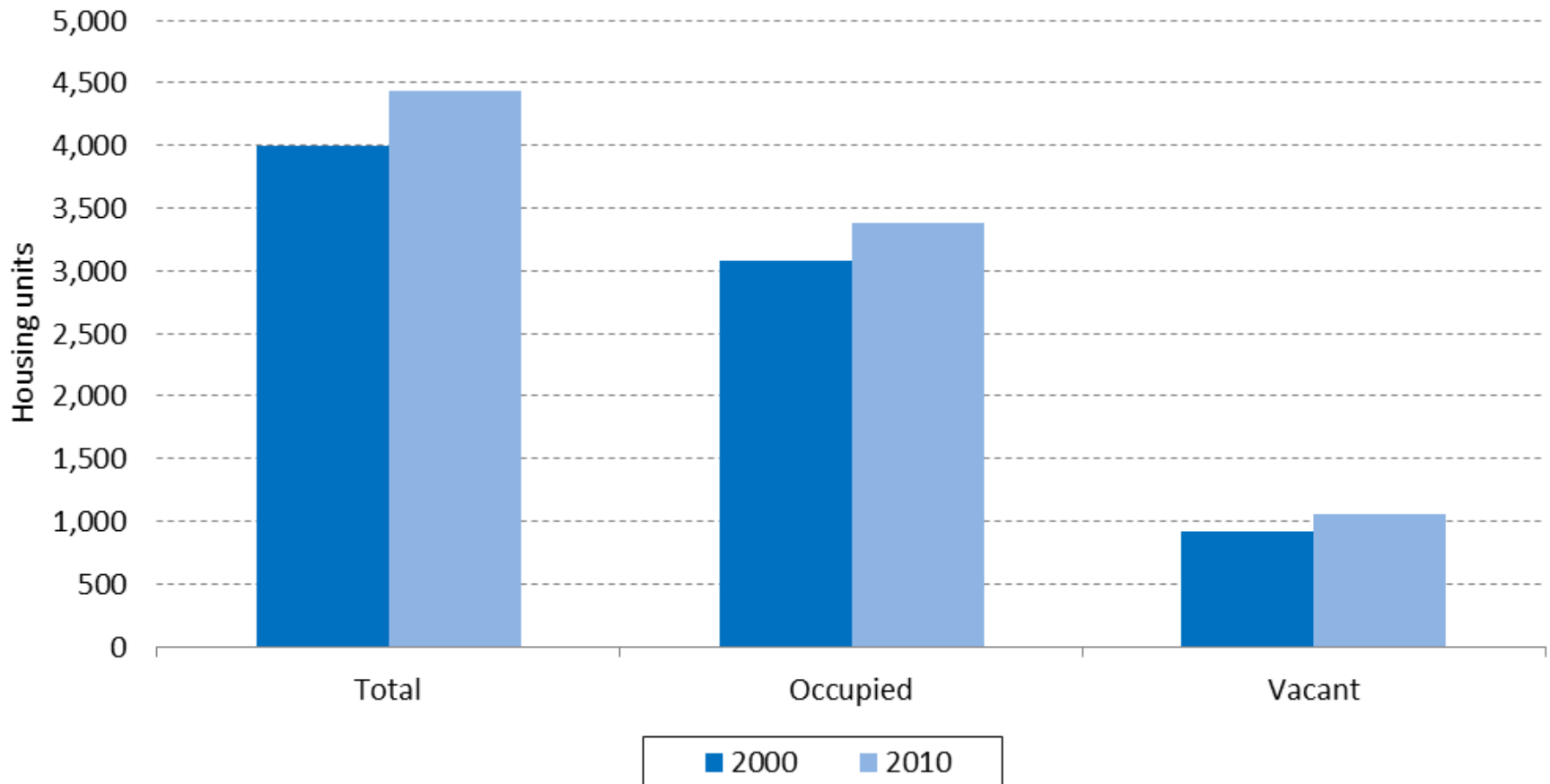
Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Calculated by Population Research Center (PRC).

## Lake County and Oregon — Age Specific Survival Rates





**Lake County—Housing Units (2000 and 2010)**



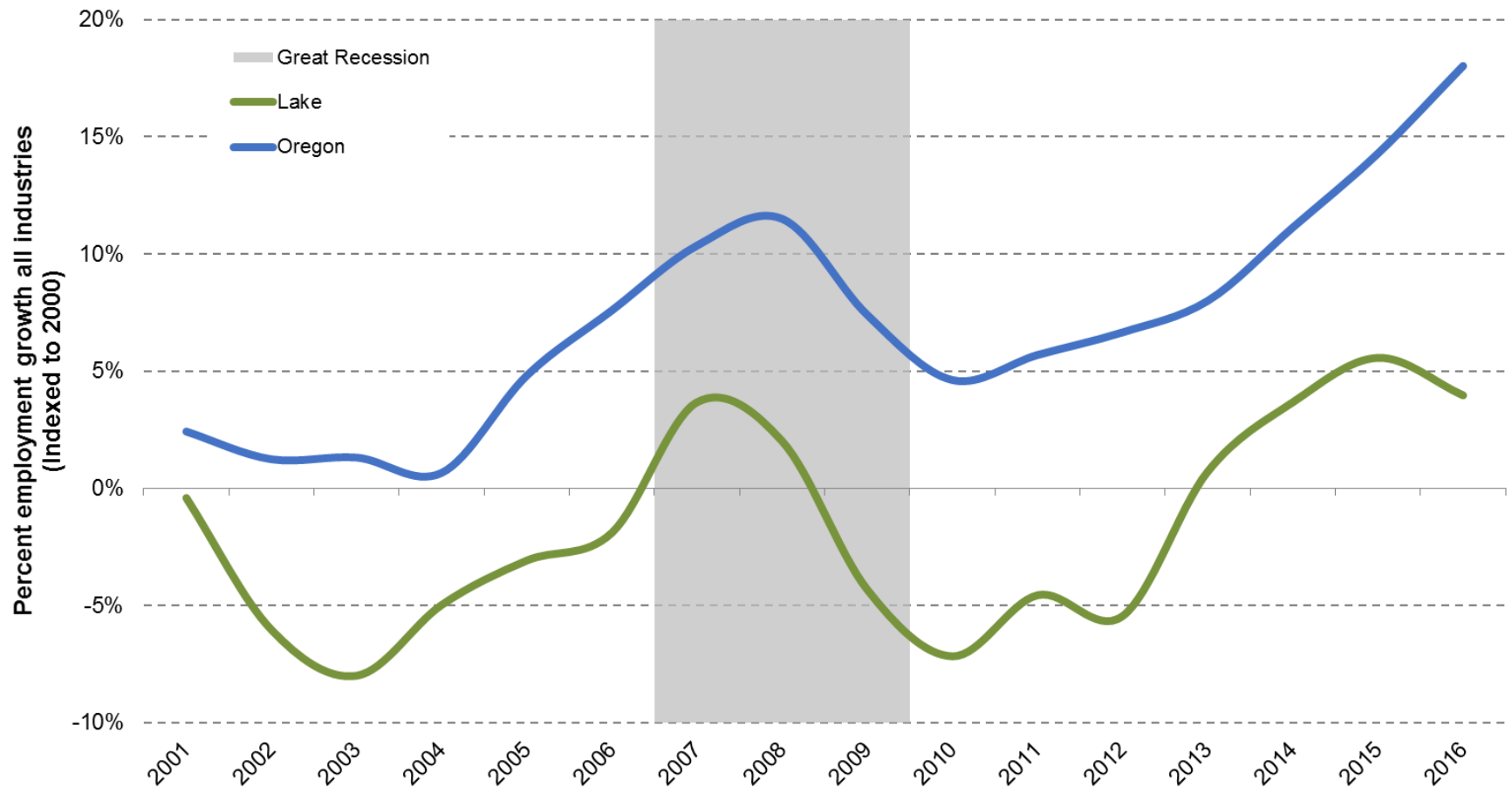
*Sources: U.S. Census Bureau, 2000 and 2010 Censuses.*

	Persons Per Household (PPH)		Occupancy Rate		Percent Group Quarters		Percent Seasonal Housing
	2000	2010	2000	2010	2000	2010	2010
Oregon	2.5	2.5	91.8%	90.7%	2.3%	2.3%	3.3%
Lake County	2.4	2.2	77.1%	76.1%	0.7%	5.8%	11.4%
Lakeview	2.3	2.2	85.0%	85.3%	2.0%	1.7%	3.1%
Paisley	2.2	1.9	65.3%	80.1%	0.0%	0.0%	9.6%
Unincorporated	2.4	2.4	74.2%	72.3%	0.1%	7.7%	NA

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

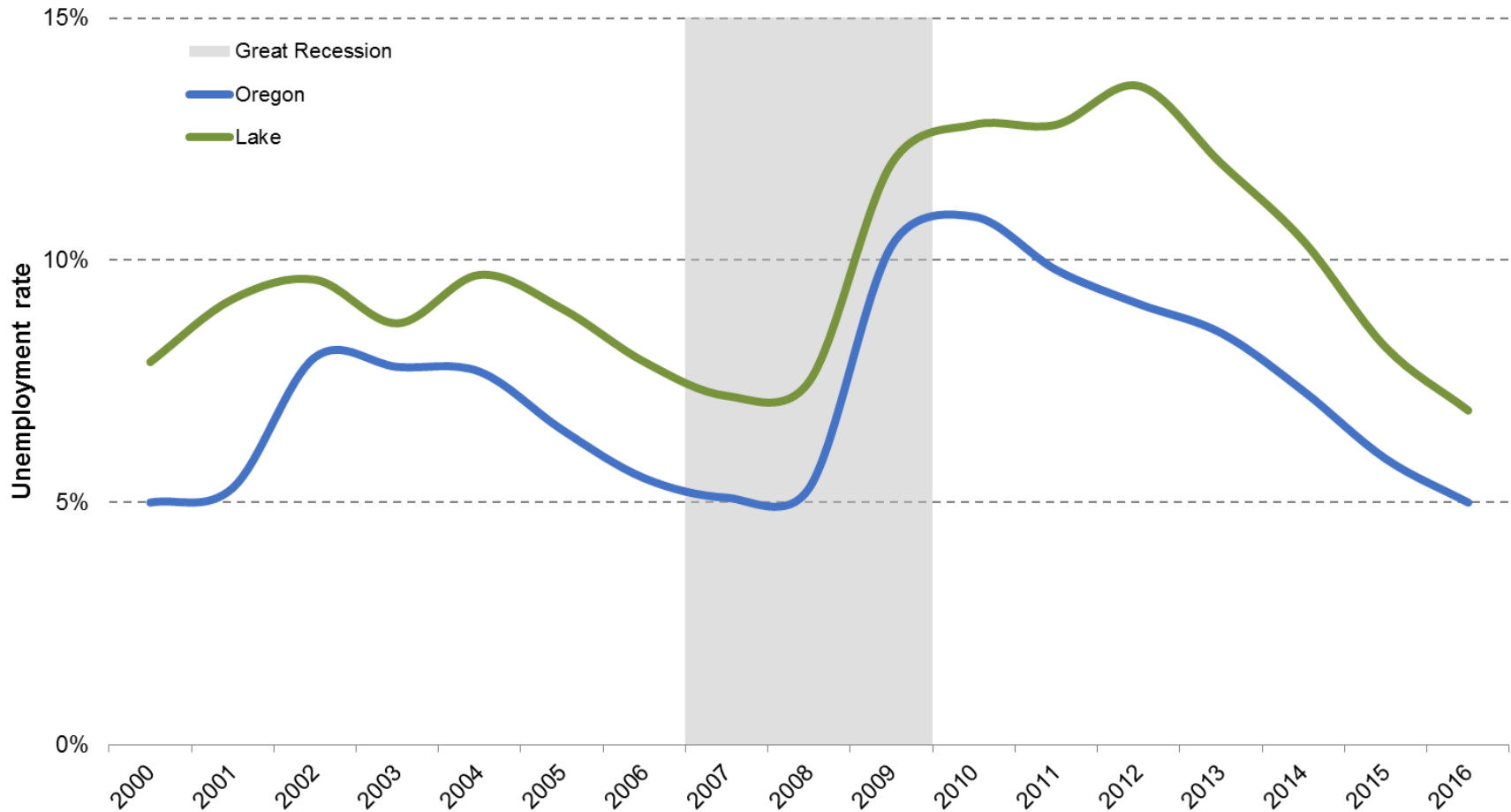
Note: Percent Seasonal Housing is the proportion of total housing units in 2000 and 2010 that are identified as vacant “for seasonal, recreational, or occasional use.”

## Lake 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).

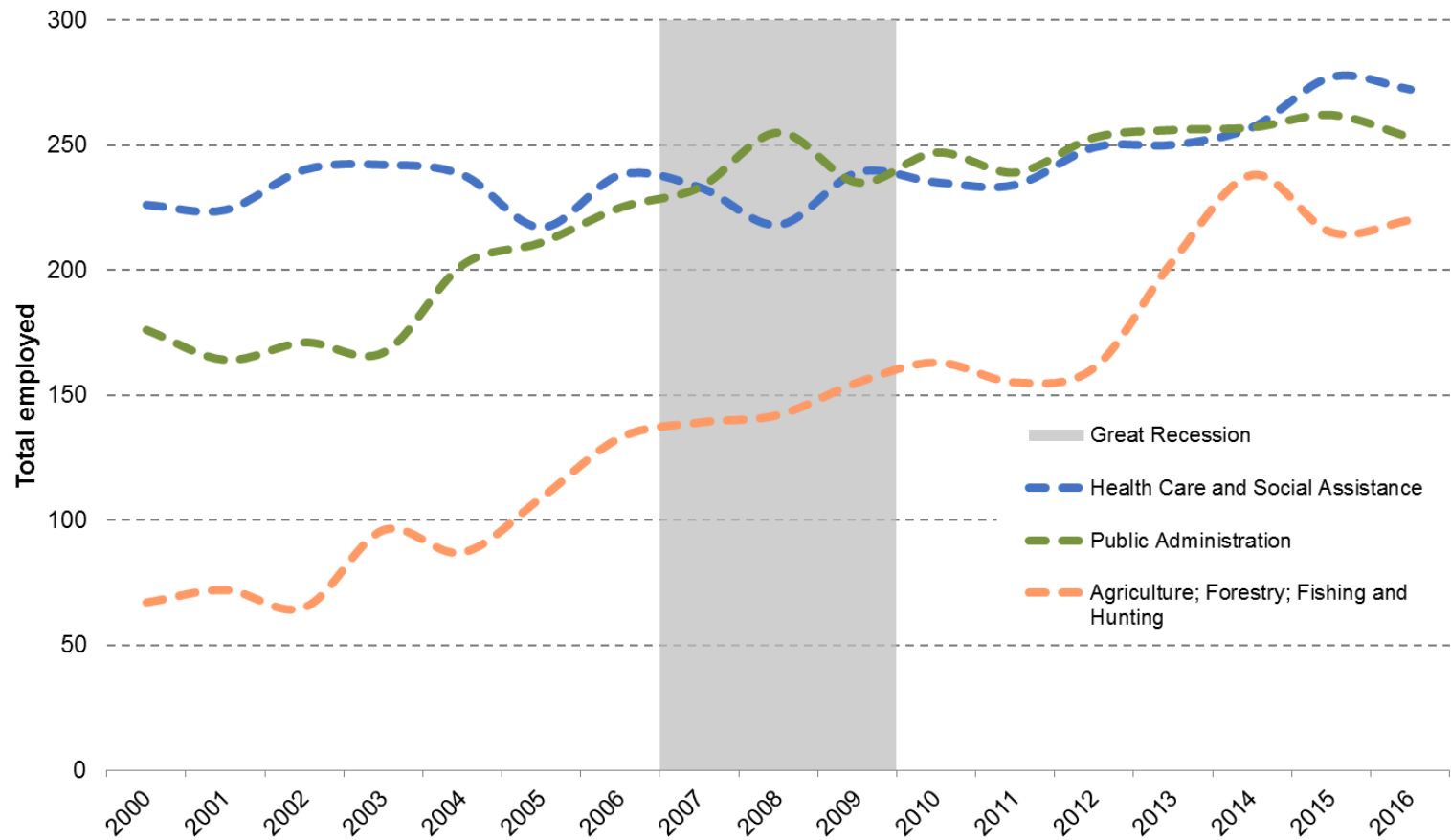
## Lake County and Oregon — Unemployment Rate



Source: Oregon Employment Department. Local Area Employment Statistics. Oregon Labor Market Information System. <http://www.qualityinfo.org/olmisj/labforce>.

Note: The rate represents the percent of the labor force seeking work but not employed.

**Lake 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”



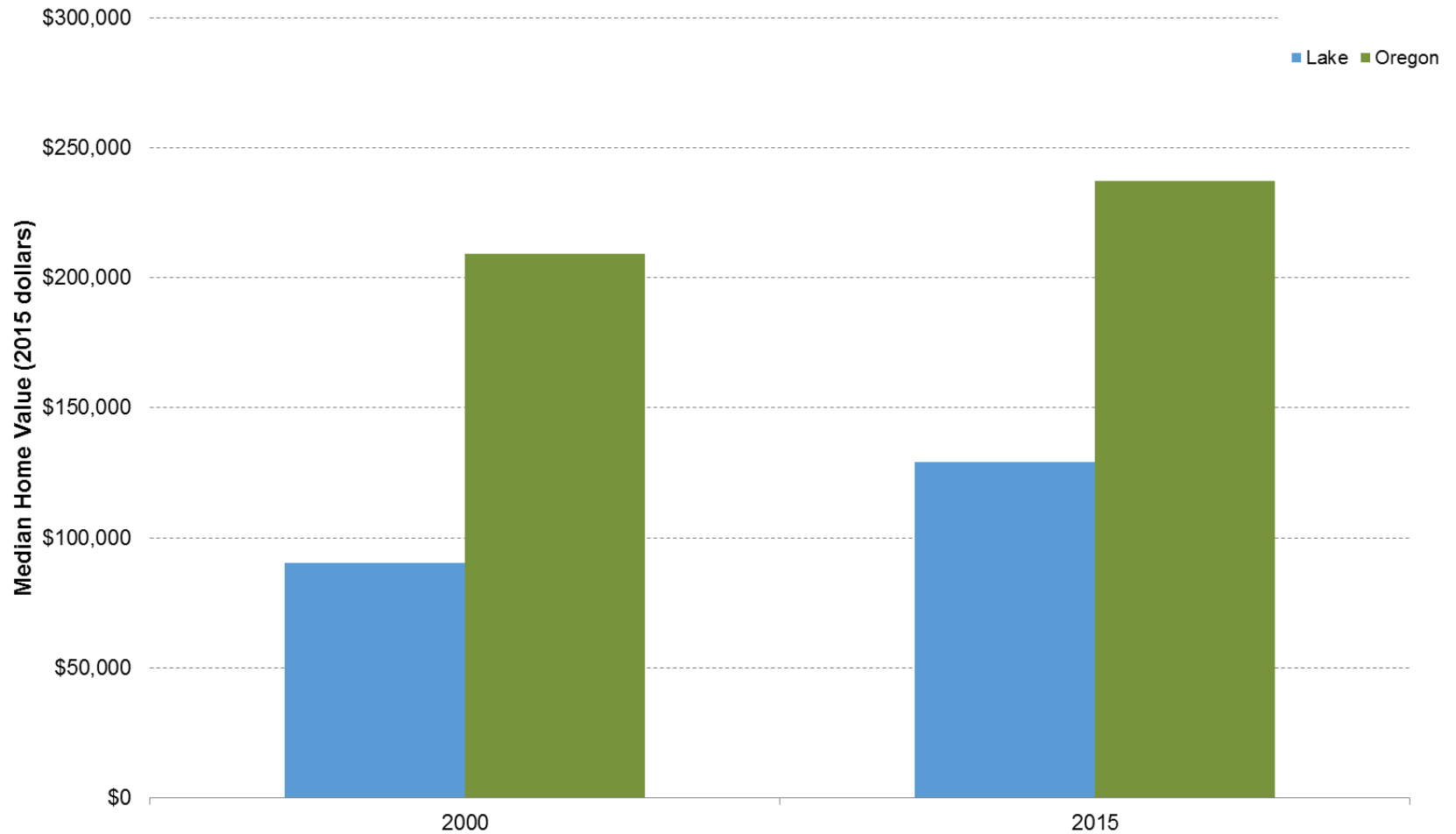
# Selection of Forecast Regions

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

# Population Estimates vs. Forecasts

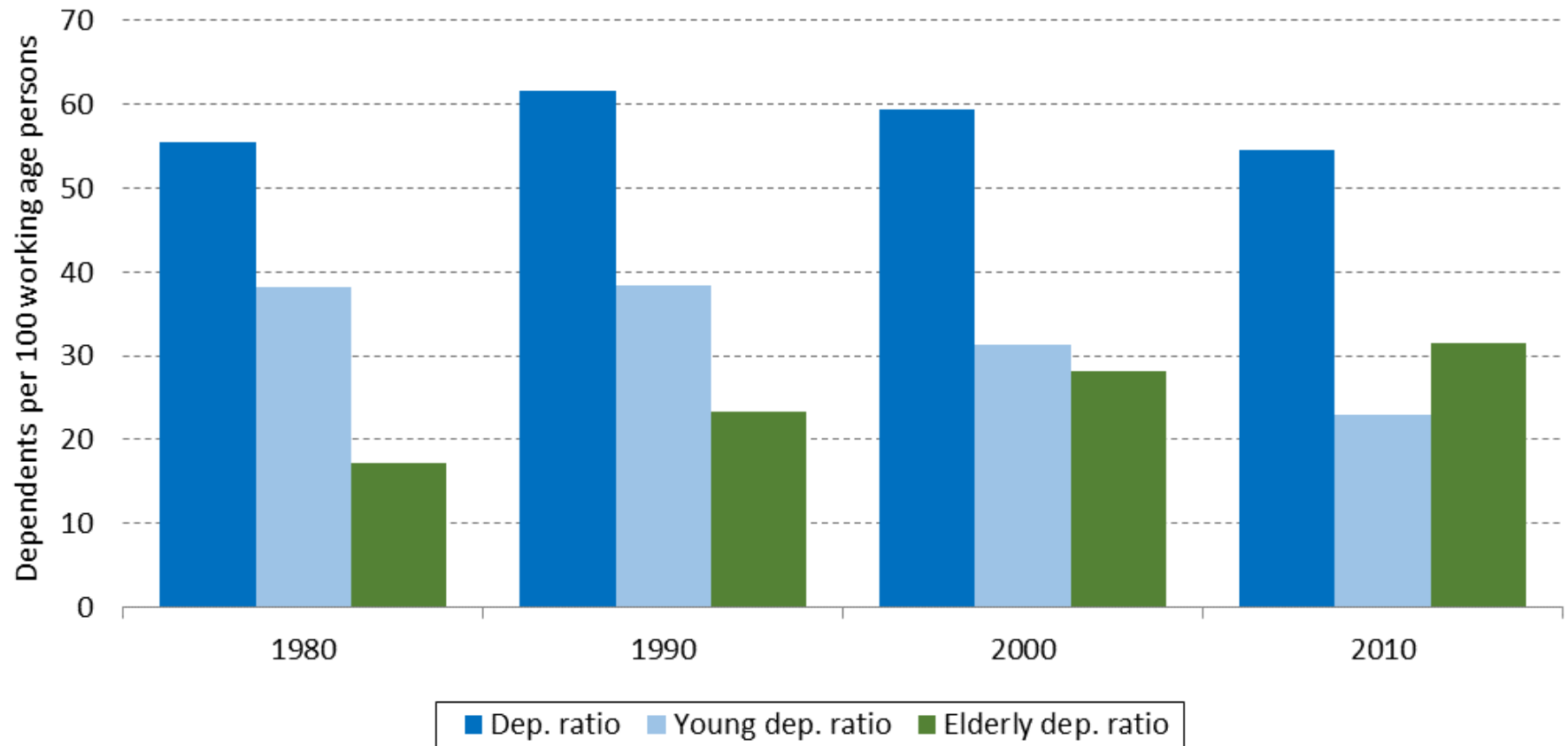
- **Population Estimates**
  - Refers to a point in time estimate of population in the present or in the past
- **Population Forecasts**
  - An estimation of future population based on historic and current trends, and assumptions about likely future events

## Lake 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.

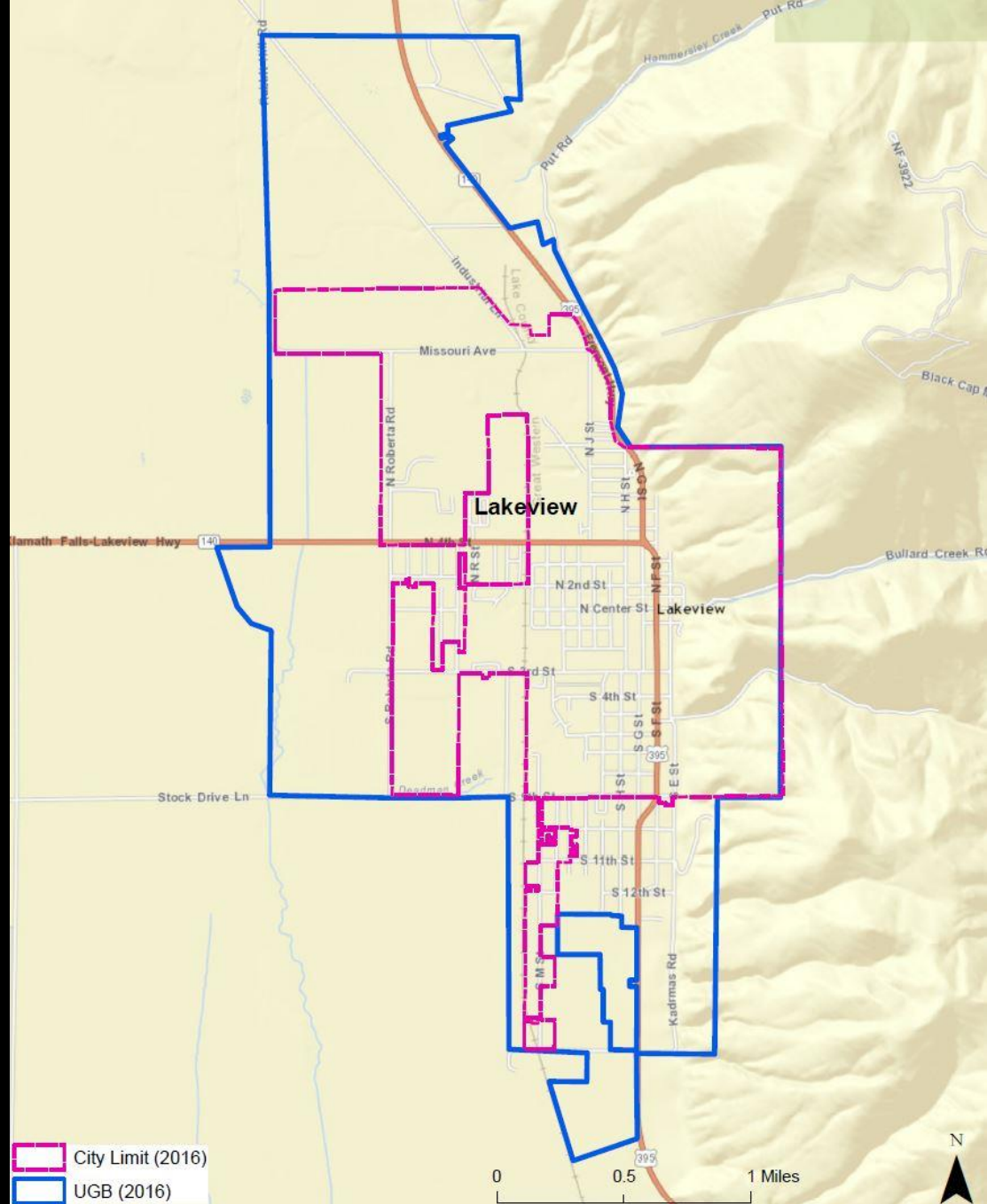
**Lake County—Dependency Ratio**



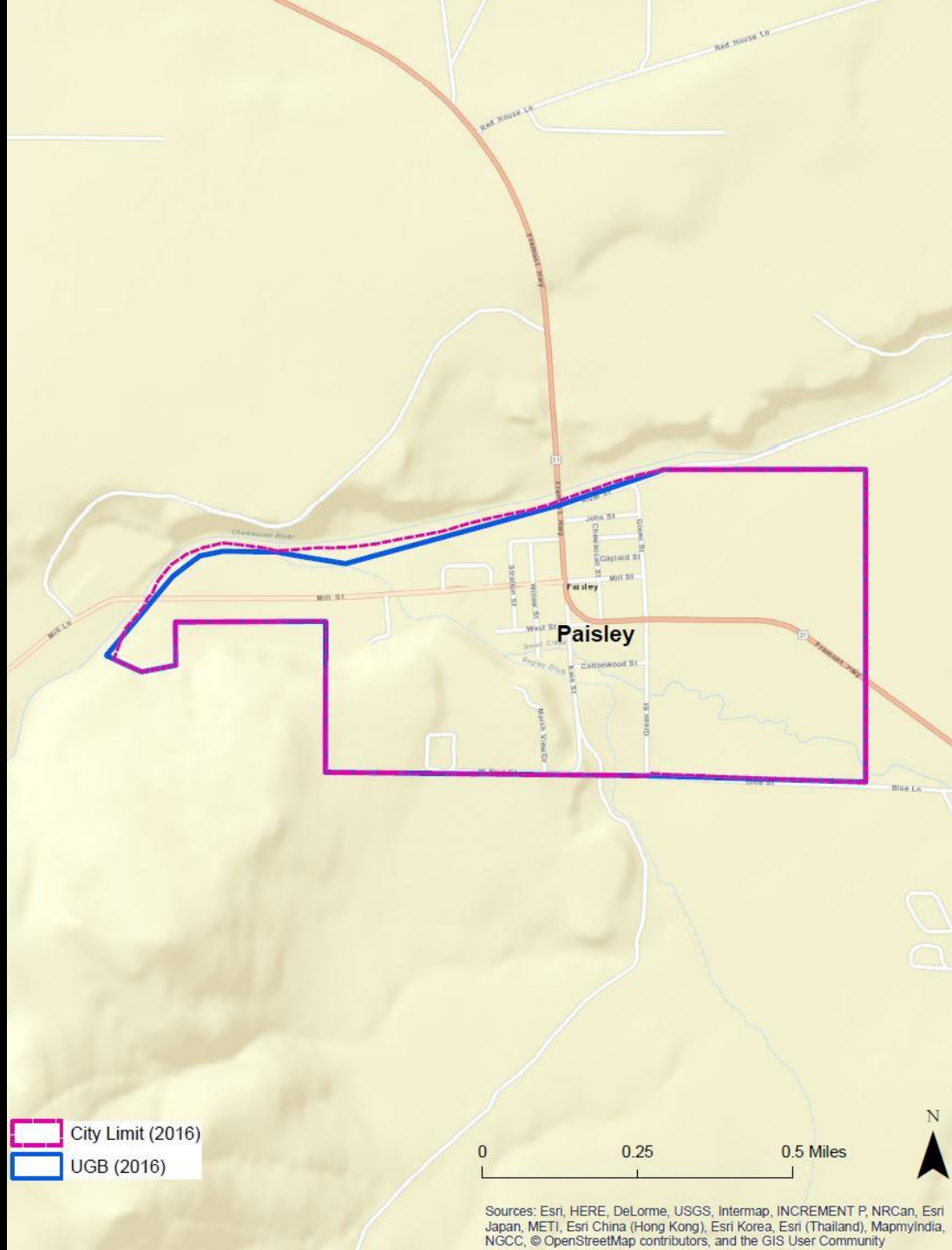
Sources: U.S. Census Bureau, 1980, 1990, 2000, and 2010 Censuses. Calculated by Population Research Center (PRC).

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

# Lake 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



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