Oregon Population Forecast Program
Benton County
Regional Forecast Meeting – October 4, 2016

Presentation by
Population Forecast Program Team
Oregon Population Forecast Program Project Team

Sheila Martin,
Population Research Center Director

Jason Jurjevich,
Population Research Center Assistant Director

Risa S. Proehl,
Population Estimates and Population Forecast Programs Manager

Kevin Rancik,
GIS and Research Analyst

Charles Rynerson,
Research Associate

Nick Chun,
Research Analyst

Randy Morris,
GIS Analyst

Julia Michel,
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
• Discussion
PRC Research areas:

– Oregon Census State Data Center (SDC)
– Demographic Research and Advisory Services
– Demography Instruction
– Oregon Population Estimates Program
– Oregon Population Forecast Program (OPFP)
Forecasts Program Overview

PRC Website: http://www.pdx.edu/prc

Click here for more information on OPFP
Forecast Program Overview
Forecast Program Overview

Forecast Program: 4-Year Schedule

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Development</td>
<td>Prepare County-Level Forecasts</td>
<td>Prepare County-Level Forecasts</td>
<td>Prepare County-Level Forecasts</td>
</tr>
<tr>
<td>1st Set of Coordinated City-County Forecasts</td>
<td>2nd Set of Coordinated City-County Forecasts</td>
<td>3rd Set of Coordinated City-County Forecasts</td>
<td></td>
</tr>
</tbody>
</table>
Coordinated Forecast: Annual Schedule

July - August
- Gather and update input data

September - October
- Build models
- Hold 1st public meeting
- Distribute data collection surveys
- Prepare county-level forecasts

March - May
- Issue Preliminary Population Forecasts
- Hold 2nd public meeting
- Issue Proposed Population Forecasts
- 45-day official review period

November - February
- Compile local information
- Develop Preliminary Forecasts

June
- Issue Final Population Forecasts
- Issue Final Reports
Deliverables

- Forecasts (50 year horizon, 5-year time intervals)
  - County-level forecasts (5-year age groups)
  - Coordinated UGB-level forecasts (Total population)

- Report containing:
  - Summaries of historic and future demographic trends, assumptions about future growth, and a compilation of information collected from city and county officials and the public
  - Short technical description of methods employed to produce the forecast
Process for Population Forecasts

- Develop demographic models using historic and recent data
- Analyze past and current population trends
  - Reasons for change, continuous or short-term?
- Gather information about existing and planned future housing, and about population change
  - Housing developments
  - Construction of new group quarters facilities
  - New employers
- Make assumptions about future housing and population change
- Revise forecasts on a regular basis
Population Forecast Methods
Primary Models for this Forecast

• Cohort-Component Method
  — Based on age-sex structure
  — Survival rates – Fairly constant over time
  — Fertility – Slightly more variable than survival rates
  — Migration Rates – Subject to greater fluctuation than mortality and fertility and more unpredictable
  — Generally works better for areas with larger populations
Foreword Program Overview

Population Forecast Methods
Primary Models for this Forecast

- Housing Unit Method
  - Generally works better for areas with smaller populations
    - Housing unit growth
    - Housing unit type
    - Persons Per Household (PPH)
    - Occupancy Rates
    - Add Group Quarters Population
Population Forecast Methods
Other Models/Methods to Consider

• For comparison and to serve as a check
• Ratio Methods
• Trend Extrapolation
• Employment Conversion Model
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
• 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 input on:
    • Historical and current demographic and economic trends
    • Plans for future growth
  – Receive feedback on Preliminary Forecasts

• Local survey
  – Collect local observations
    • Population composition; recent change
    • Planned housing development plus group quarters facilities
    • Future employers
    • Infrastructure
    • Anything that might promote or hinder population growth
  – Survey will be posted on website and emailed to each jurisdiction
  – Issued in October, 2016

• Official review period for Proposed Forecasts
Benton County
Benton 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.

Sources: Population Research Center (PRC), July 1st Annual Estimates 2000 to 2015.
Demographic and Economic Trends

**Benton County—Components of Population Change (2000-2015)**

- **Net Mig.**
  - 2000: -67
  - 2001: 129
  - 2002: 403
  - 2003: 215
  - 2004: 853
  - 2005: 633
  - 2006: 850
  - 2007: 763
  - 2008: 502
  - 2009: 191
  - 2010: 94
  - 2011: 51
  - 2012: 621
  - 2013: 775
  - 2014: 854
  - 2015: 1,115

- **Nat. Inc.**
  - 2000: 361
  - 2001: 314
  - 2002: 362
  - 2003: 250
  - 2004: 262
  - 2005: 317
  - 2006: 305
  - 2007: 277
  - 2008: 183
  - 2009: 279
  - 2010: 221
  - 2011: 209
  - 2012: 169
  - 2013: 165
  - 2014: 161
  - 2015: 150

### Benton County and Incorporated Cities—Population and Average Annual Growth Rate (AAGR) (2000-2010 and 2010-2015)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Benton County</td>
<td>78,153</td>
<td>85,579</td>
<td>90,005</td>
<td>0.9%</td>
<td>1.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Adair Village</td>
<td>536</td>
<td>840</td>
<td>845</td>
<td>4.5%</td>
<td>0.1%</td>
<td>0.7%</td>
<td>1.0%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Albany (part)</td>
<td>5,104</td>
<td>6,463</td>
<td>7,267</td>
<td>2.4%</td>
<td>2.3%</td>
<td>6.5%</td>
<td>7.6%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Corvallis</td>
<td>49,322</td>
<td>54,462</td>
<td>57,390</td>
<td>1.0%</td>
<td>1.0%</td>
<td>63.1%</td>
<td>63.6%</td>
<td>63.8%</td>
</tr>
<tr>
<td>Monroe</td>
<td>607</td>
<td>617</td>
<td>620</td>
<td>0.2%</td>
<td>0.1%</td>
<td>0.8%</td>
<td>0.7%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Philomath</td>
<td>3,838</td>
<td>4,584</td>
<td>4,650</td>
<td>1.8%</td>
<td>0.3%</td>
<td>4.9%</td>
<td>5.4%</td>
<td>5.2%</td>
</tr>
<tr>
<td>Unincorporated</td>
<td>18,746</td>
<td>18,613</td>
<td>19,233</td>
<td>-0.1%</td>
<td>0.7%</td>
<td>24.0%</td>
<td>21.7%</td>
<td>21.4%</td>
</tr>
</tbody>
</table>


Note: The 2000 total population reflects Count Question Resolution (CQR) revisions made by the U.S. Census Bureau.

Note: Albany's population in Benton County is 13% of Albany's total population in 2010 and 14% in 2015.
Benton County—City Share of Population

Demographic and Economic Trends

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Older than 65 years old</th>
<th>Ages 15 to 64 years old</th>
<th>Younger than 14 years old</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>10.3%</td>
<td>72.5%</td>
<td>17.2%</td>
</tr>
<tr>
<td>2010</td>
<td>12.0%</td>
<td>73.6%</td>
<td>14.4%</td>
</tr>
</tbody>
</table>

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

Demographic and Economic Trends

Benton County and Oregon—Age Specific Migration Rates (2000 to 2010)

Benton County—Age Specific Fertility Rates (2000 and 2010)

<table>
<thead>
<tr>
<th>Total Fertility Rate (TFR)</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benton County</td>
<td>1.32</td>
<td>1.36</td>
</tr>
</tbody>
</table>

Demographic and Economic Trends

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

<table>
<thead>
<tr>
<th></th>
<th>Benton County</th>
<th>Oregon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fertility Rate (TFR)</td>
<td>1.36</td>
<td>1.80</td>
</tr>
</tbody>
</table>

Sources: U.S. Census Bureau, 2010 Census. Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).
Benton County—Age Specific Survival Rates (2000 to 2010)

Survival rate (Percent survived each age group)

Age groups

Oregon—Age Specific Survival Rates (2000 to 2010)

Survival rate (Percent survived each age group)

Age groups

Benton County—Dependency Ratio

Note: Dependency Ratio = \[
\frac{\text{Population Age 0-14} + \text{Population Age 65 or older}}{\text{Population Age 15-64}} \times 100
\]
### Benton County—Hispanic or Latino and Race (2000 and 2010)

<table>
<thead>
<tr>
<th>Hispanic or Latino and Race</th>
<th>2000</th>
<th>2010</th>
<th>Absolute Change</th>
<th>Relative Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total population</strong></td>
<td>78,153</td>
<td>85,579</td>
<td>7,426</td>
<td>9.5%</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>3,645</td>
<td>5,467</td>
<td>1,822</td>
<td>50.0%</td>
</tr>
<tr>
<td>Not Hispanic or Latino</td>
<td>74,508</td>
<td>80,112</td>
<td>5,604</td>
<td>7.5%</td>
</tr>
<tr>
<td>White alone</td>
<td>67,816</td>
<td>71,552</td>
<td>3,736</td>
<td>5.5%</td>
</tr>
<tr>
<td>Black or African American alone</td>
<td>637</td>
<td>715</td>
<td>78</td>
<td>12.2%</td>
</tr>
<tr>
<td>American Indian and Alaska Native alone</td>
<td>556</td>
<td>493</td>
<td>-63</td>
<td>-11.3%</td>
</tr>
<tr>
<td>Asian alone</td>
<td>3,493</td>
<td>4,404</td>
<td>911</td>
<td>26.1%</td>
</tr>
<tr>
<td>Native Hawaiian and Other Pacific Islander alone</td>
<td>175</td>
<td>199</td>
<td>24</td>
<td>13.7%</td>
</tr>
<tr>
<td>Some Other Race alone</td>
<td>173</td>
<td>156</td>
<td>-17</td>
<td>-9.8%</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>1,658</td>
<td>2,593</td>
<td>935</td>
<td>56.4%</td>
</tr>
</tbody>
</table>

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

Benton County—Housing Units (2000 and 2010)

Sources: U.S. Census Bureau, 2000 and 2010 Censuses.
### Benton and Incorporated Cities—Persons Per Household (PPH), Occupancy Rate, Percent Group Quarters, and Percent Seasonal Housing (2000 and 2010)

<table>
<thead>
<tr>
<th></th>
<th>Persons Per Household (PPH)</th>
<th>Occupancy Rate</th>
<th>Percent Seasonal Housing</th>
<th>Percent Group Quarters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benton County</td>
<td>2.4</td>
<td>2.3</td>
<td>94.3%</td>
<td>94.7%</td>
</tr>
<tr>
<td>Adair Village city</td>
<td>3.2</td>
<td>3.0</td>
<td>94.4%</td>
<td>95.2%</td>
</tr>
<tr>
<td>Albany city (part)</td>
<td>2.8</td>
<td>2.6</td>
<td>96.9%</td>
<td>95.6%</td>
</tr>
<tr>
<td>Corvallis city</td>
<td>2.3</td>
<td>2.2</td>
<td>93.9%</td>
<td>95.1%</td>
</tr>
<tr>
<td>Monroe city</td>
<td>2.7</td>
<td>2.5</td>
<td>85.9%</td>
<td>90.6%</td>
</tr>
<tr>
<td>Philomath city</td>
<td>2.9</td>
<td>2.6</td>
<td>93.9%</td>
<td>94.3%</td>
</tr>
<tr>
<td>Unincorporated</td>
<td>2.7</td>
<td>2.6</td>
<td>94.8%</td>
<td>93.5%</td>
</tr>
</tbody>
</table>

**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.”
Demographic and Economic Trends

Benton County—Employment Growth since 1991

Demographic and Economic Trends

Benton County and Oregon—Annual Unemployment Rate (1991 to 2015)

Source: Oregon Employment Department. Local Area Unemployment Statistics (LAUS).
Note: The rate represents the percent of the labor force seeking work but not employed.
Benton County—Top Three Industries by Employment in First Quarter of 2015

- Educational Services
- Health Care and Social Assistance
- Accommodation and Food Services


Note: The quarterly employment data used in this chart is not seasonally adjusted.
Local Input and Additional Information

• Questions?
• Discussion time
Benton County UGBs
ADAIR VILLAGE

Confirmed By City
MONROE

Confirmed By City
CORVALLIS

Confirmed By City
Confirmed By City
“Parking Lot”
Selection of Forecast Regions

• Looked at regions used by other agencies
  • Workforce
  • Small City Network
  • Etc.
• Counted counties and cities in each region
  • Balance workload
• Prioritized certain jurisdictions based on preference
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