

# Oregon Population Forecast Program

## Regional Forecast Meeting - March 7, 2018

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

# Oregon Population Forecast Program Project Team

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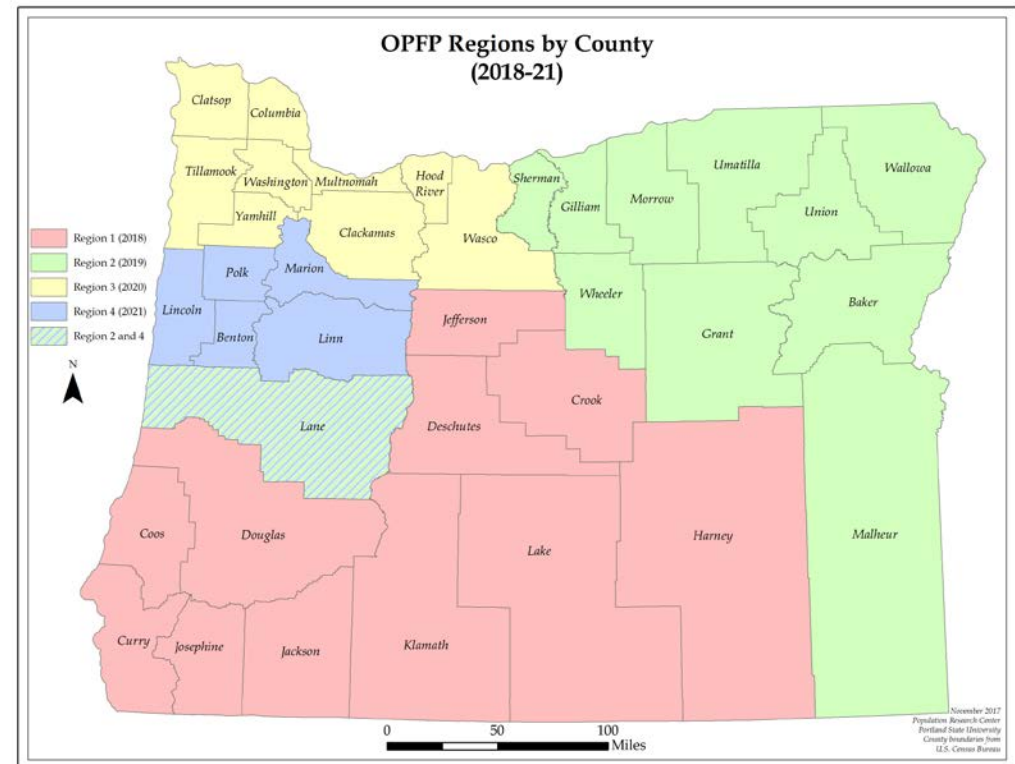
**Charles Rynerson,**  
*Research Consultant*

# Agenda

- Present and discuss preliminary forecast results
  - Proposed Forecasts by March 31st, 2018; To be posted on Oregon Population Forecast Program (OPFP) website:  
<http://www.pdx.edu/prc/opfp>
- Explain our assumptions for future change
- Obtain your feedback

## 2018-2021 Update

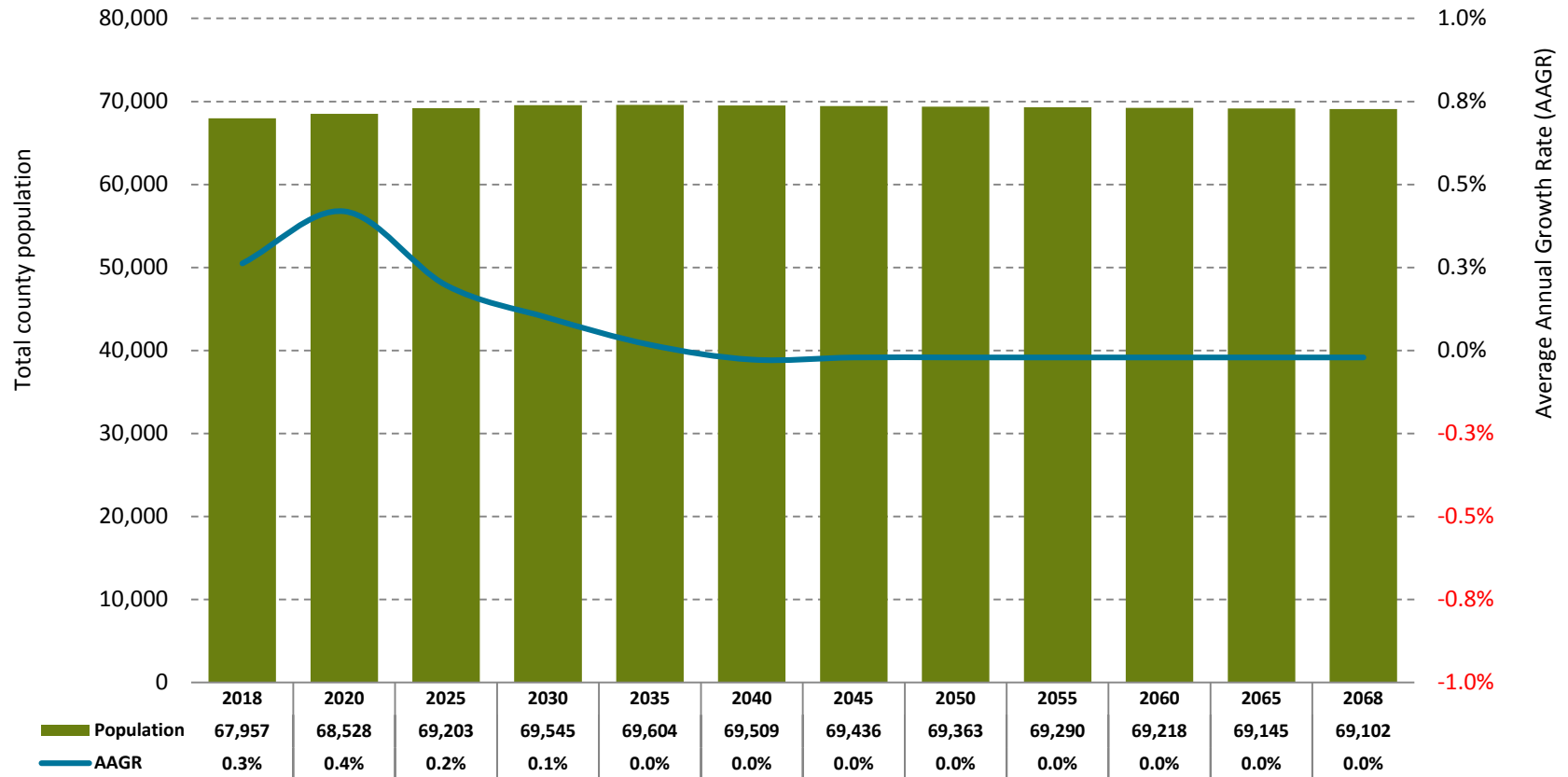
- Modified Methodology (50 Year Period)
- Forecast Methods (2018-43)
  - Cohort-Component and Housing Unit Model
- Modified Method (2043-68):
  - County: AAGR of the last 5 year period (2040-45) is extrapolated out for the remaining 25 years.
  - Sub-areas: Trend the sub-area share of the County for the remaining 25 years.



## Assumptions for Klamath County and Larger Sub-Area Forecasts

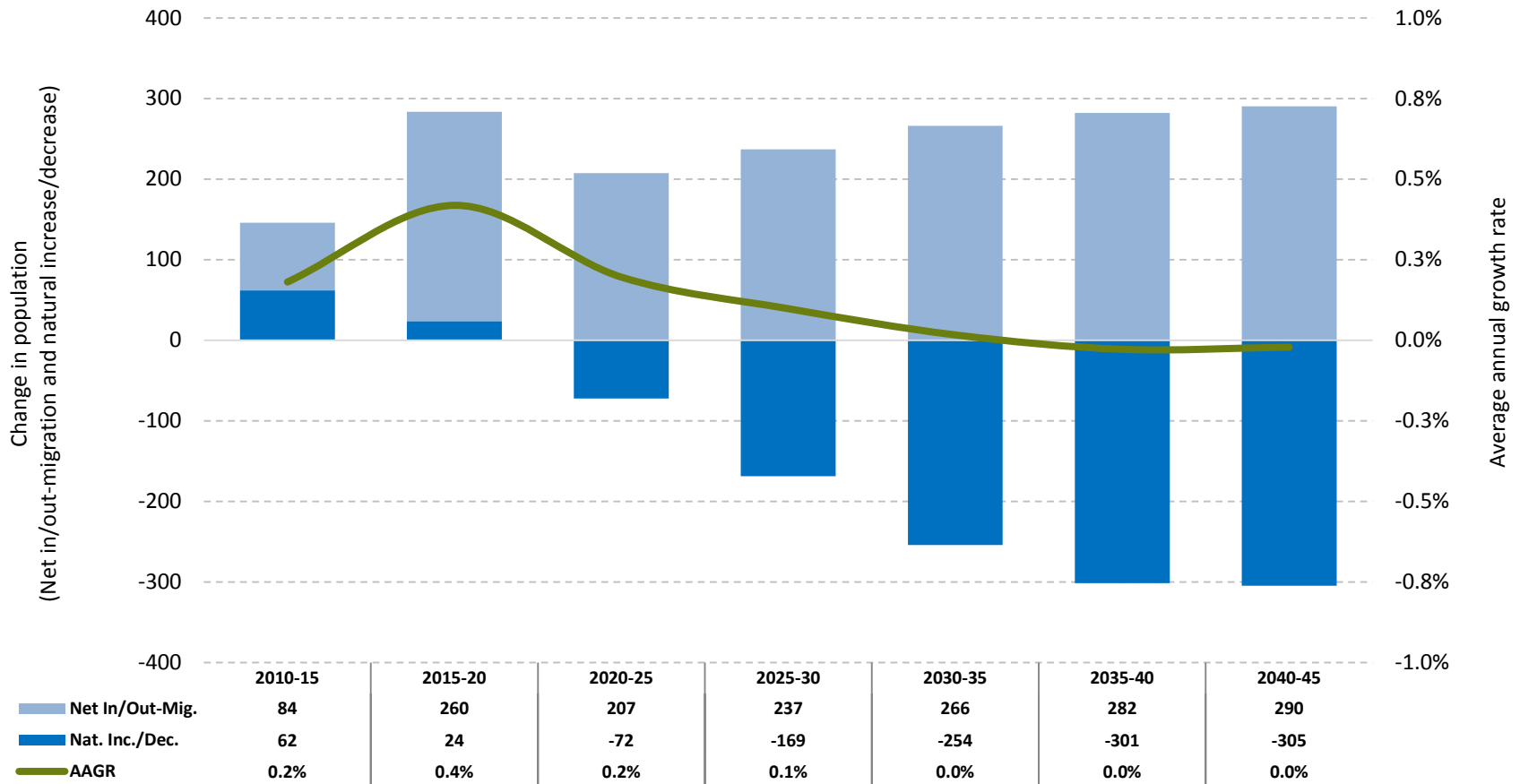
1. As the economy strengthens and Oregon's population ages, we assume net in-migration and housing construction to increase into the 2010-20 decade.
  - a) Despite the recent influx of net in-migration over the last few years, we expect growth to regress during early 2020's as the economy contracts.
  - b) Net in-migration will occur over the entire forecast horizon.
2. We incorporate state and local trends into our assumptions for fertility and mortality.
  - a) As a result of aging Baby Boomers, deaths increase and peak in the 2040's.
  - b) Total fertility rates remain stable throughout the period.
  - c) As a result, the County and its sub-areas will continue to experience a natural decrease at a growing magnitude.
3. Total population is expected to decline slightly as natural decrease outpaces net in-migration.

Klamath County—Total Population by Five-year Intervals (2018-2068)



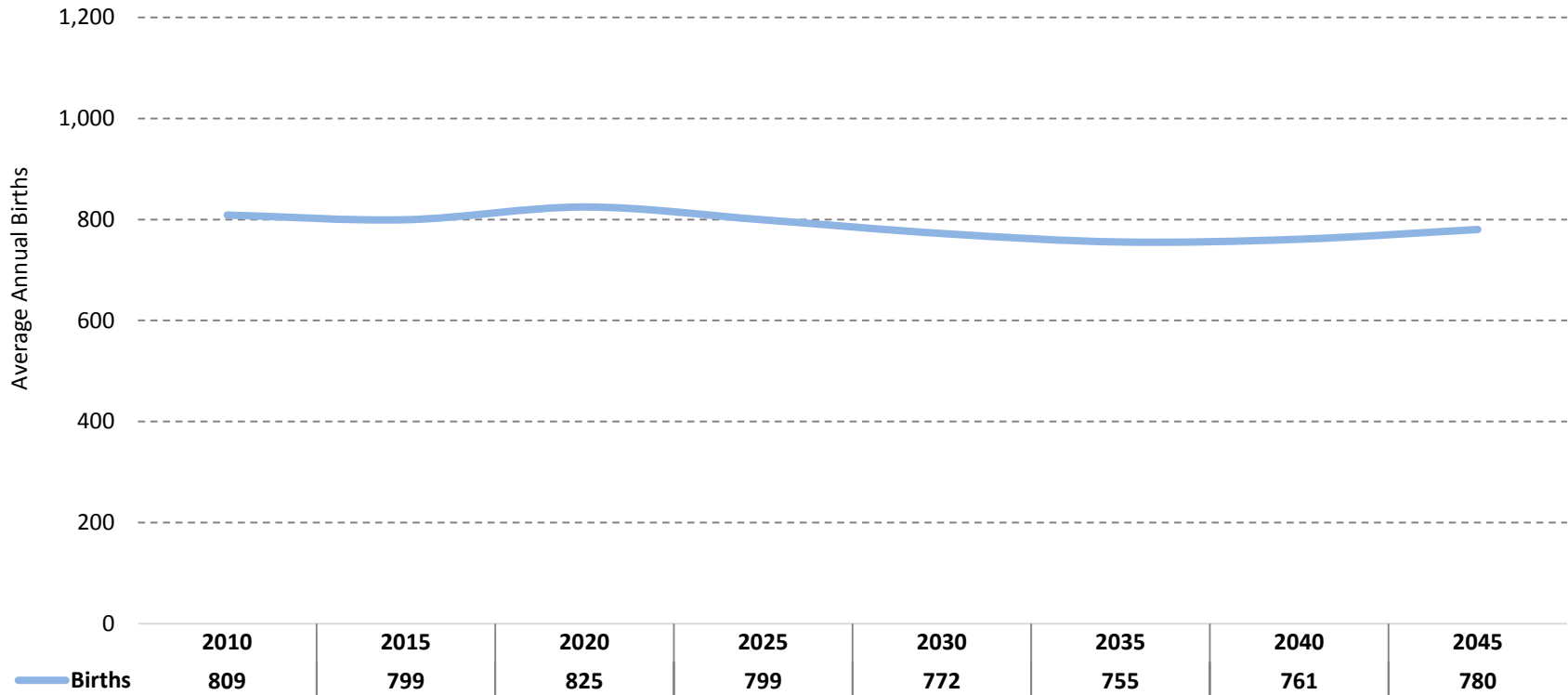
Source: Forecast by Population Research Center (PRC).

Klamath County—Components of Population Change by Five-year Intervals (2015-2045)



Source: Forecast by Population Research Center (PRC)

**Klamath County—Average Annual Births**



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

Note: The years signify the end of the period for which average annual numbers were calculated. The average annual numbers for "2010" were calculated for the 2000-2010 period, with the remaining years calculated for their preceding five-year periods.



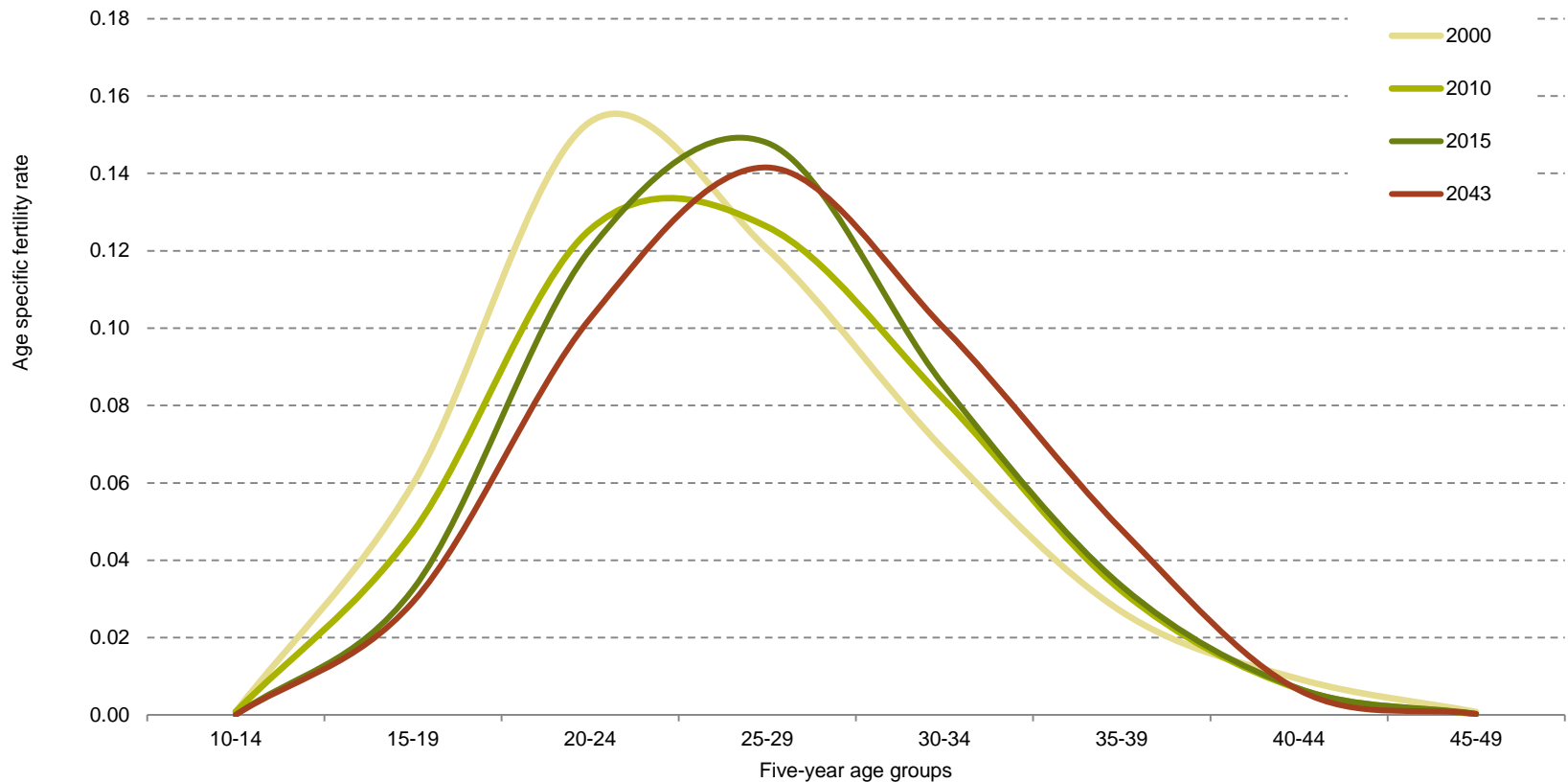
## Total Fertility Rate (TFR)

	<b>2000</b>	<b>2010</b>	<b>2015</b>	<b>2043</b>
<b>Klamath County</b>	2.20	2.10	2.13	2.14
<b>Oregon</b>	1.98	1.81	1.72	--

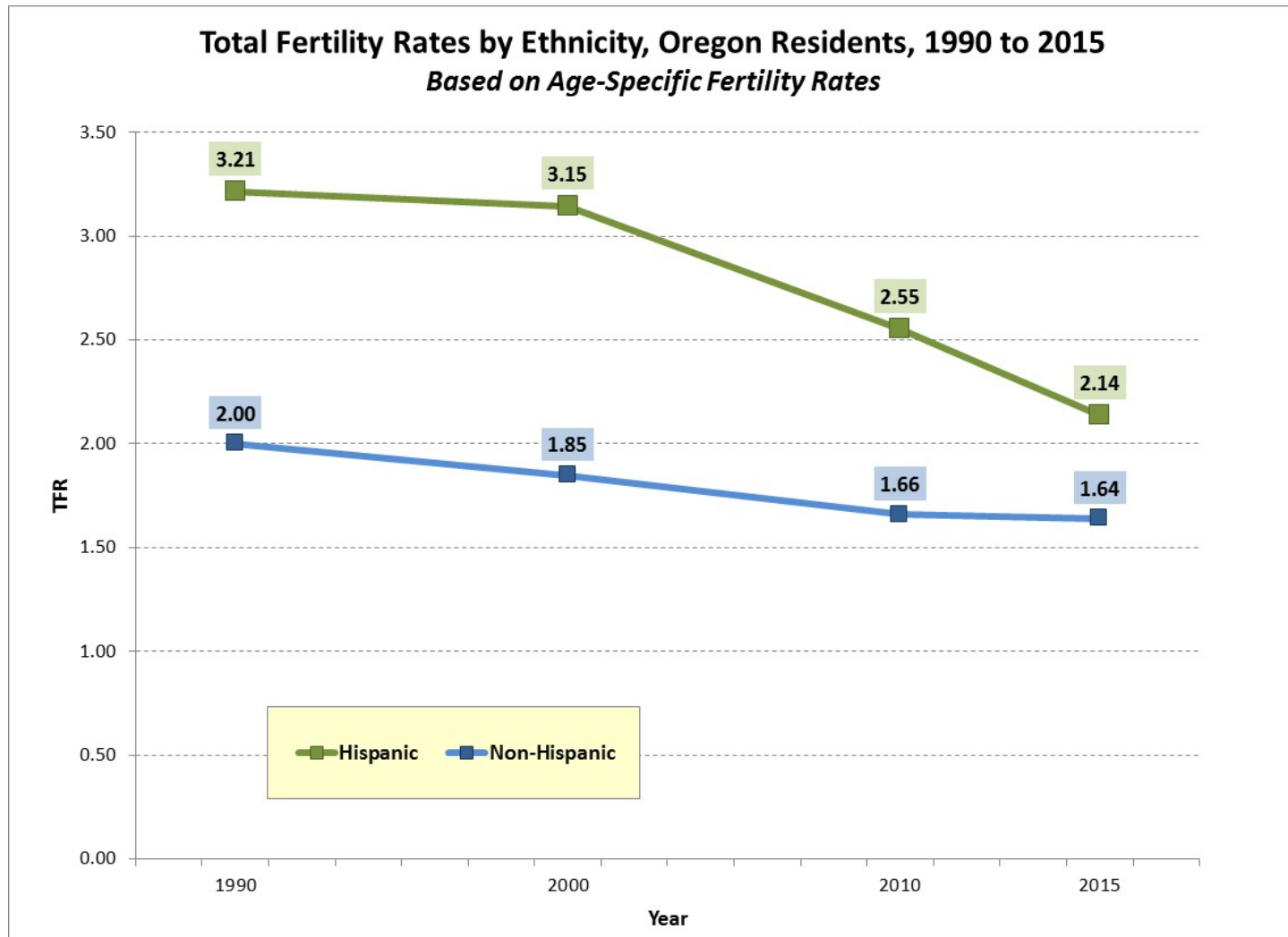
*Sources: U.S. Census Bureau, 2000 and 2010 Censuses. PRC Estimates. Oregon Health Authority, Center for Health Statistics. Calculations and Forecast by Population Research Center (PRC).*

*Note: 2000, 2010 and 2015 are annual TFRs, whereas the TFR for 2043 is for the preceding five-year forecast period. In other words the TFR for 2043 is calculated for the 2040 to 2045 forecast period.*

### Klamath County—Age Specific Fertility Rate (2000, 2010, 2015 and 2043)



Sources: U.S. Census Bureau, 2000 and 2010 Censuses. PRC Estimates. Oregon Health Authority, Center for Health Statistics. Calculations and Forecast by Population Research Center (PRC).

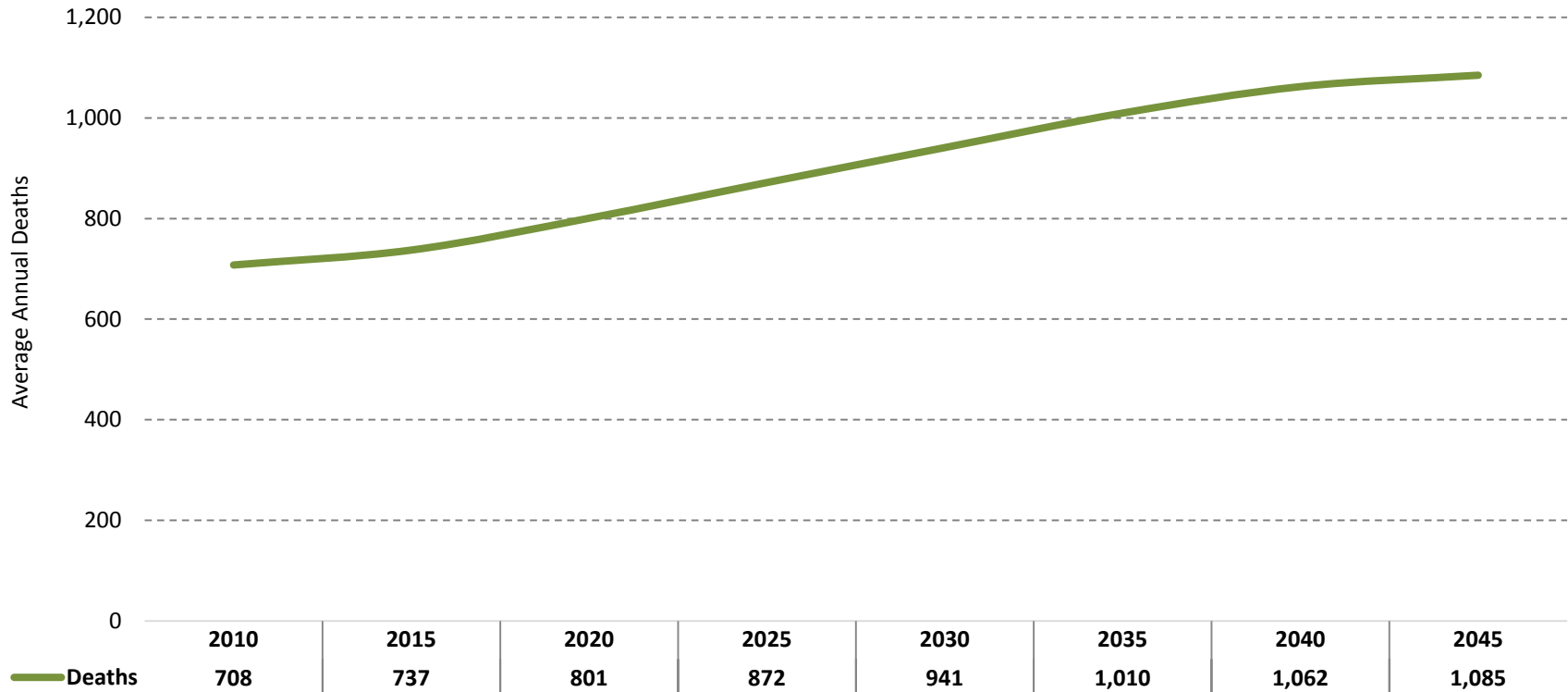


Sources: PEPASR6H-Geography-OregonYear-July 1, 2015 and July 1, 2010

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

These numbers represent **Preliminary** Forecast Results

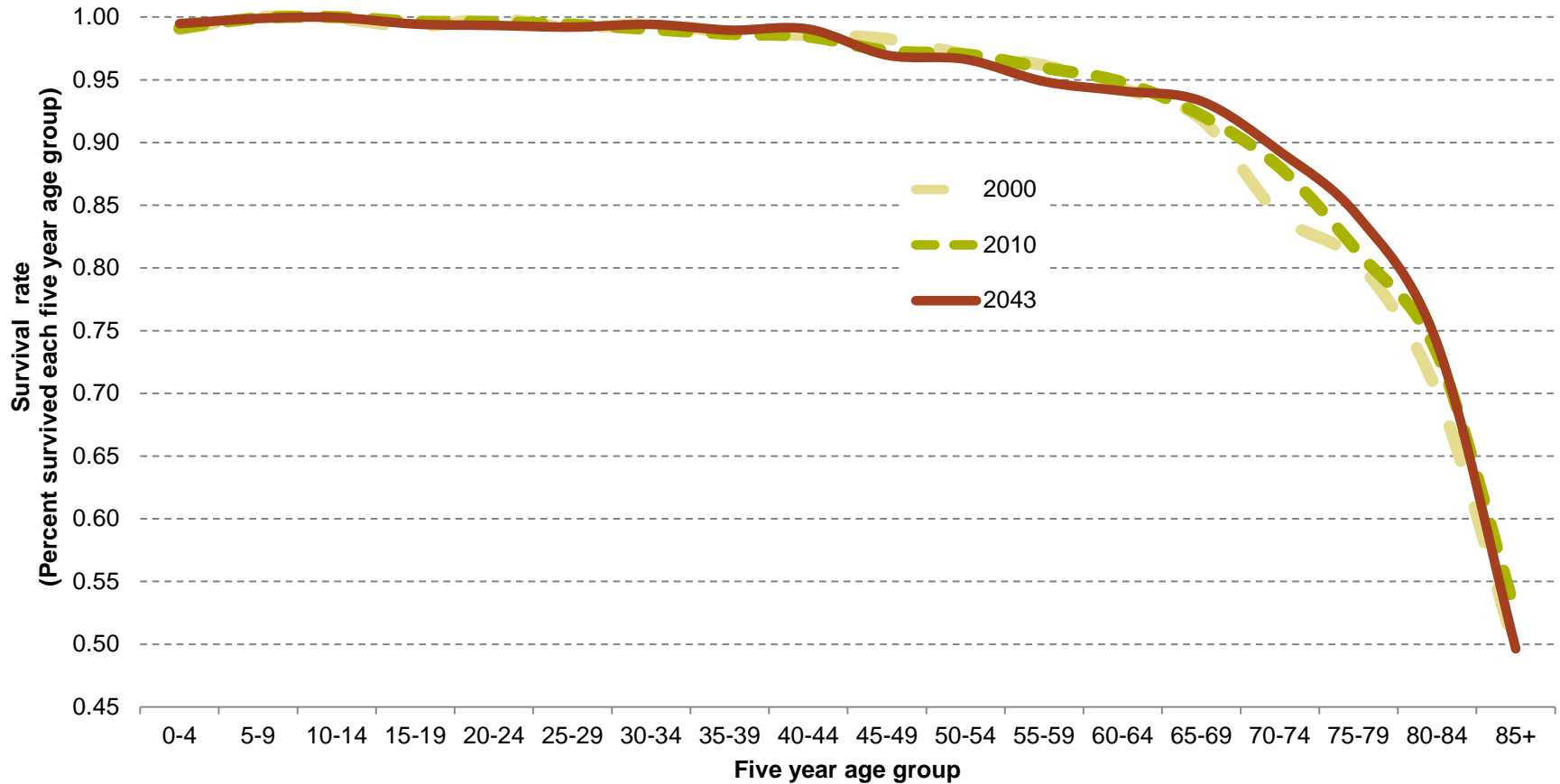
**Klamath County—Average Annual Deaths**



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

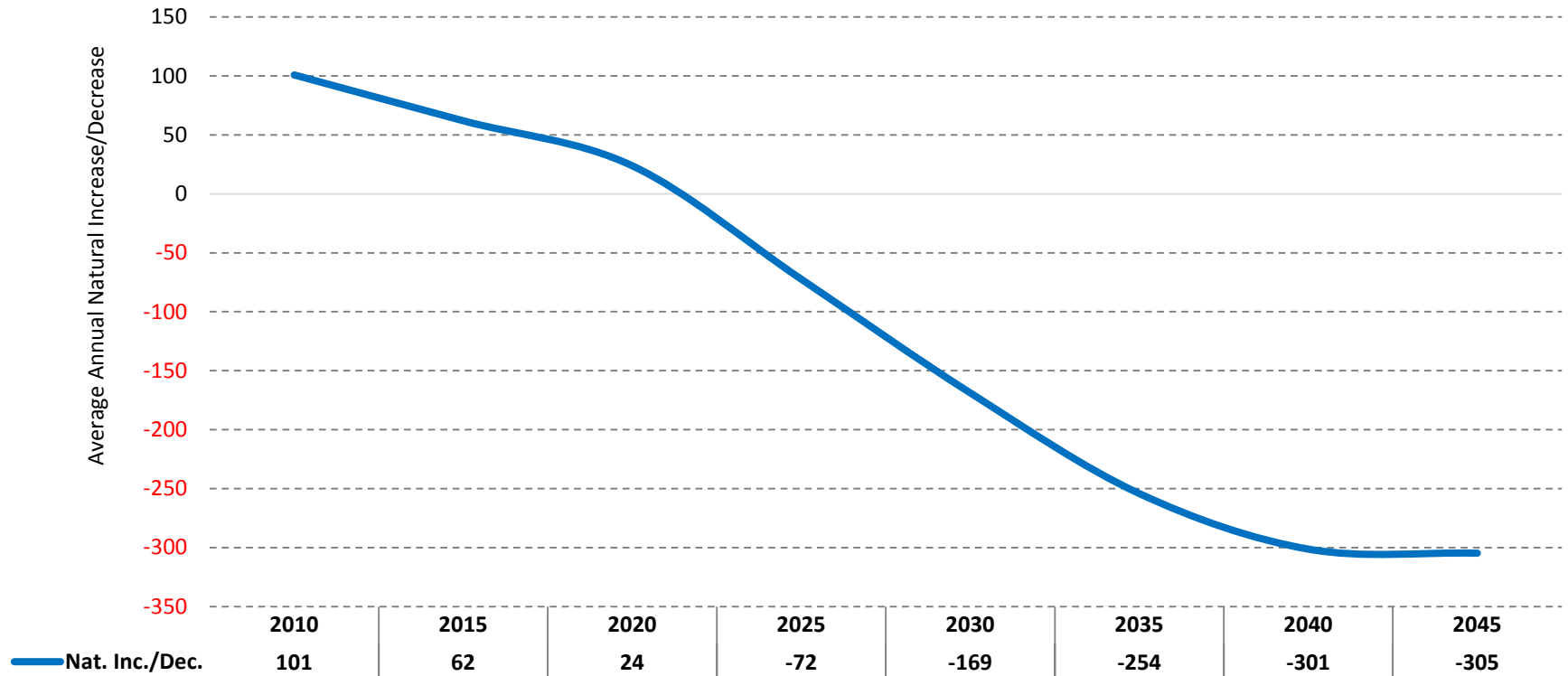
Note: The years signify the end of the period for which average annual numbers were calculated. The average annual numbers for "2010" were calculated for the 2000-2010 period, with the remaining years calculated for their preceding five-year periods.

### Klamath County – Age Specific Survival Rates



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

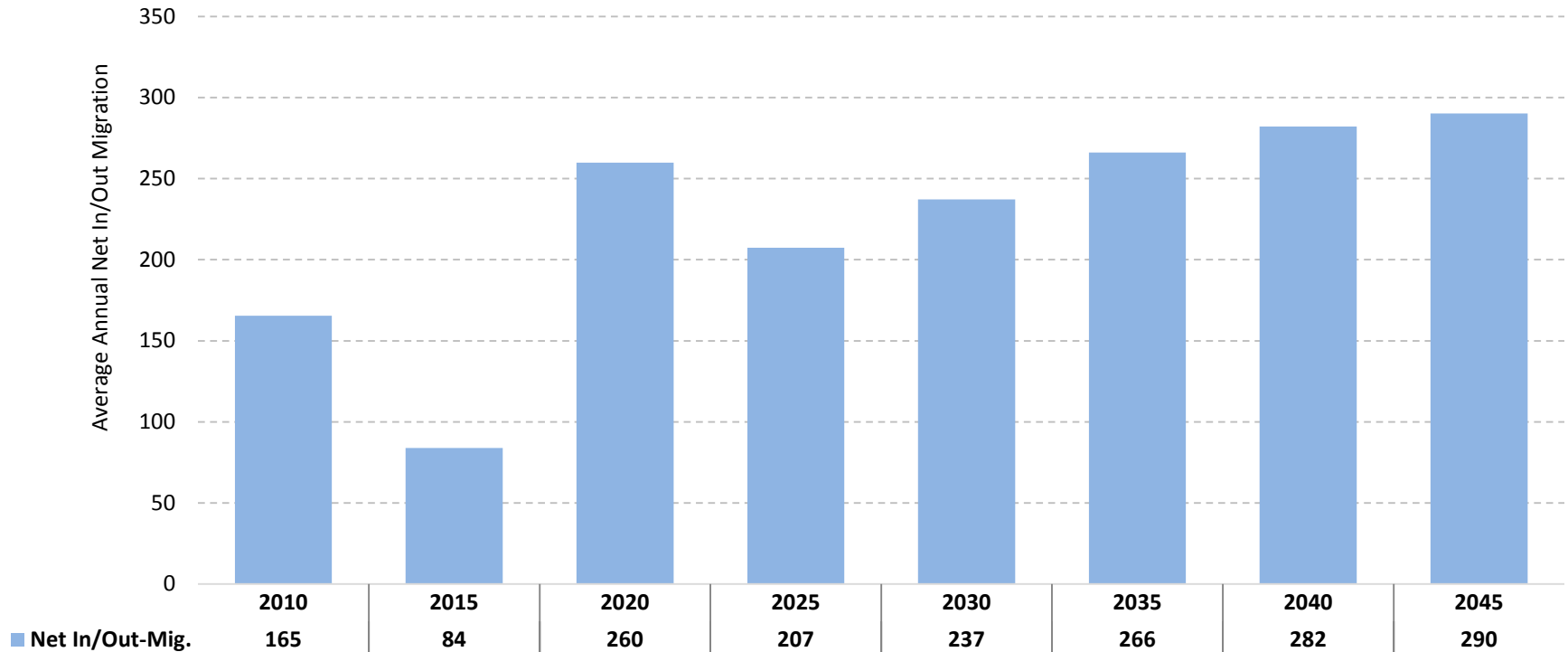
**Klamath County—Average Annual Natural Increase/Decrease**



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

Note: The years signify the end of the period for which average annual numbers were calculated. The average annual numbers for "2010" were calculated for the 2000-2010 period, with the remaining years calculated for their preceding five-year periods.

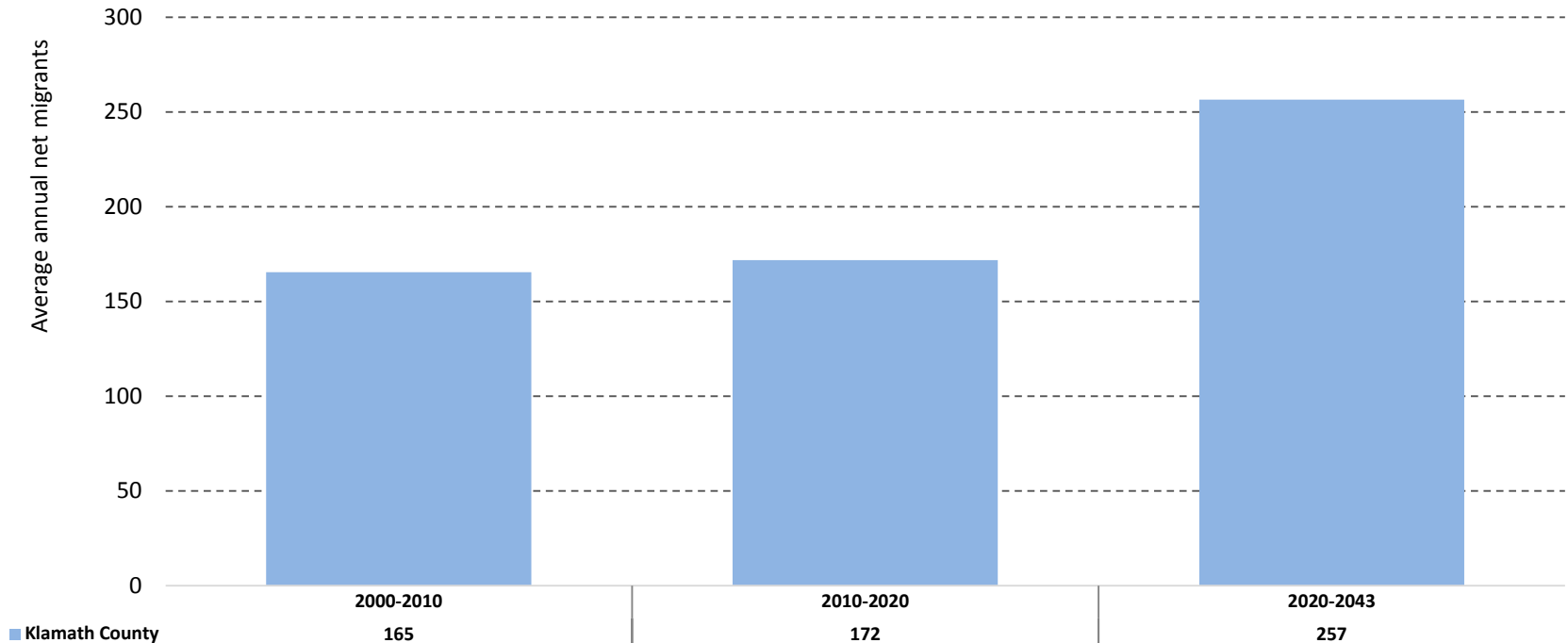
Klamath County—Average Annual Net In/Out-Migration



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

Note: The years signify the end of the period for which average annual numbers were calculated. The average annual numbers for "2010" were calculated for the 2000-2010 period, with the remaining years calculated for their preceding five-year periods.

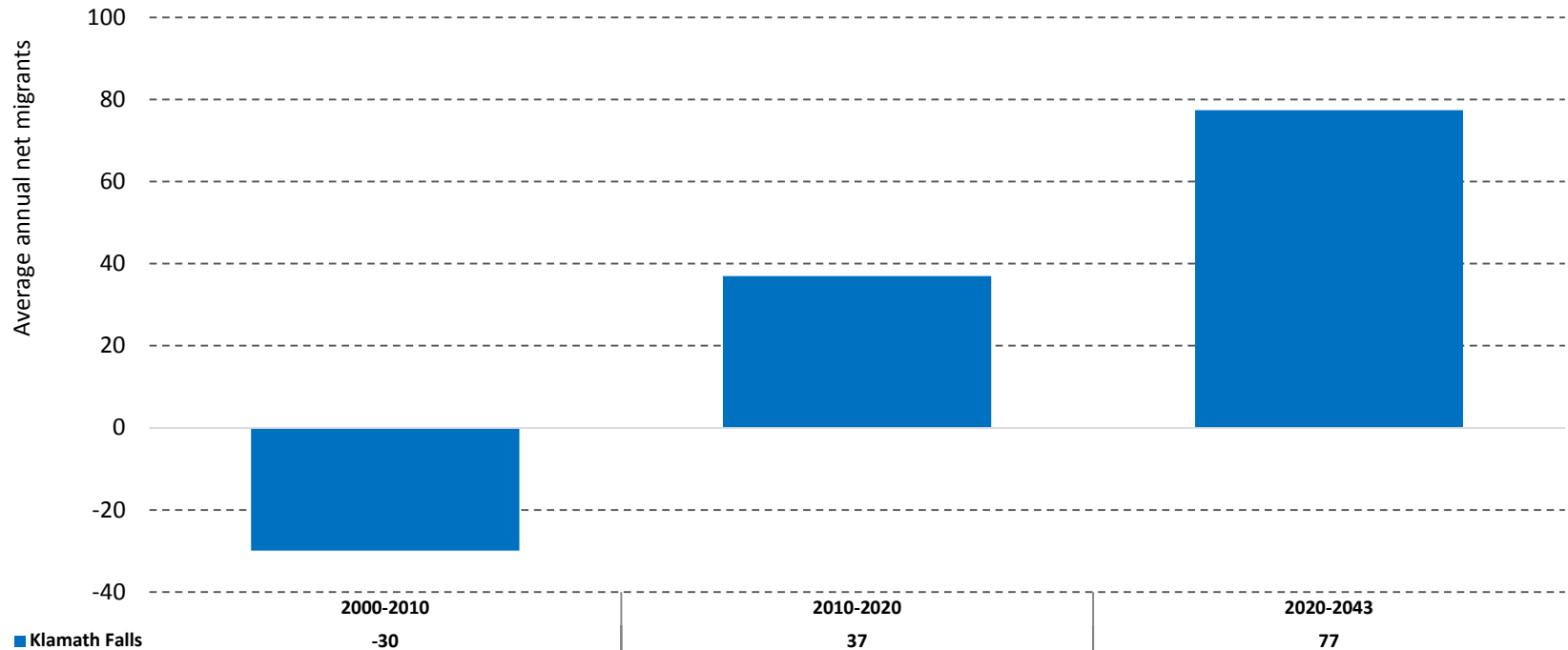
### Klamath County—Average Annual Net In/Out-Migration



Sources: U.S. Census Bureau, 2000 and 2010 Censuses. Calculations and Forecast by Population Research Center (PRC).  
Note: The average annual numbers were calculated for the 10 year periods (2000-2010 and 2010-2020) and the 23 year period (2020-2043).



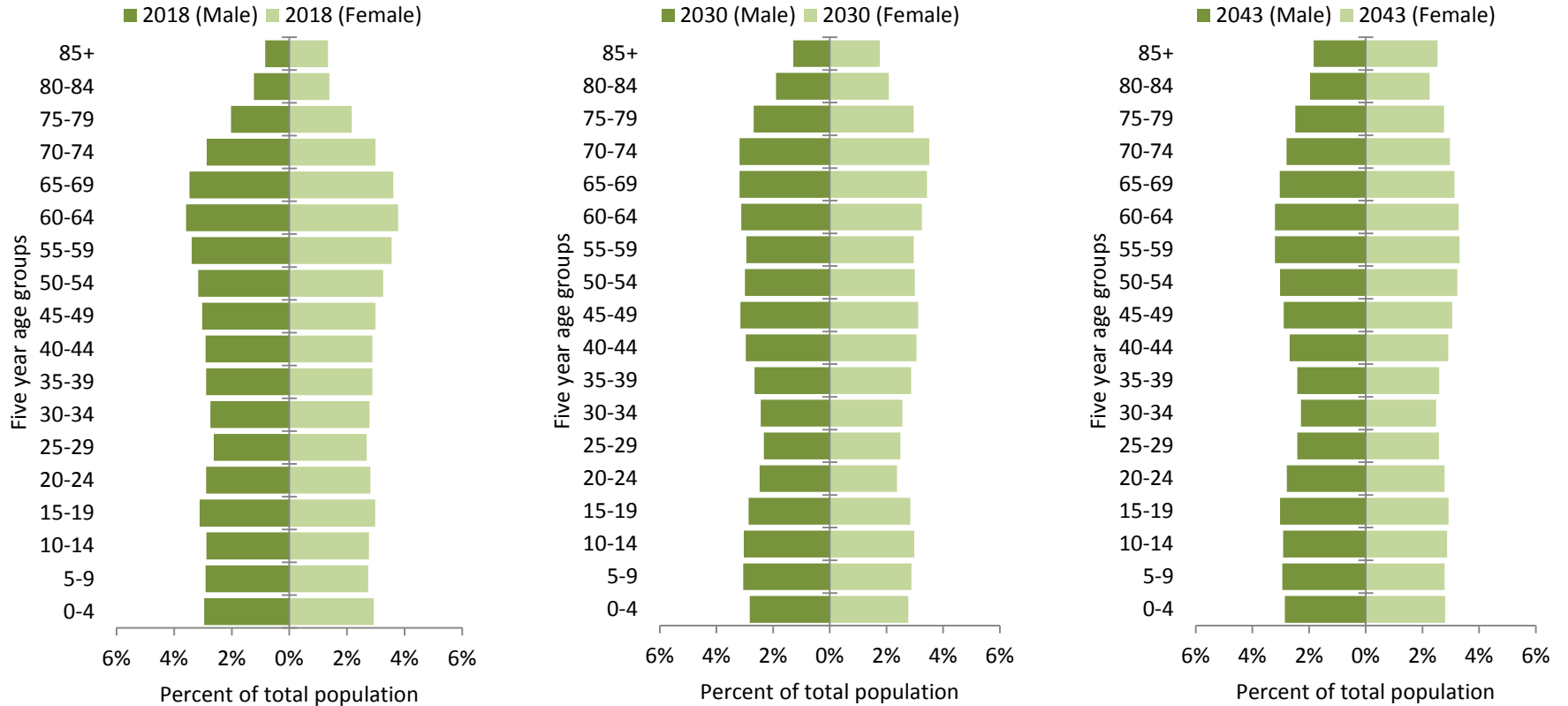
### Klamath County's Larger Sub-Areas—Average Annual Net In/Out-Migration



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

Note: The average annual numbers were calculated for the 10 year periods (2000-2010 and 2010-2020) and the 23 year period (2020-2043).

## Klamath County—Age Structure of the Population



Source: Forecast by Population Research Center (PRC)

## Historical and Forecast Populations for Klamath County and its Sub-Areas

	Historical			Forecast					
	2000	2010	AAGR (2000-2010)	2018	2043	2068	AAGR (2010-2018)	AAGR (2018-2043)	AAGR (2043-2068)
<i>Klamath County</i>	63,841	66,505	0.4%	67,957	69,465	69,102	0.3%	0.1%	0.0%
Bonanza	400	401	0.0%	441	488	528	1.2%	0.4%	0.3%
Chiloquin	747	766	0.3%	770	798	822	0.1%	0.1%	0.1%
Klamath Falls	41,541	42,567	0.2%	43,684	45,231	45,650	0.3%	0.1%	0.0%
Malin	661	836	2.4%	838	863	879	0.0%	0.1%	0.1%
Merrill	960	939	-0.2%	935	951	949	0.0%	0.1%	0.0%
Outside UGBs	19,466	20,871	0.7%	21,288	21,133	20,274	0.2%	0.0%	-0.2%

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

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

## County and Larger Sub-Areas—Population and Average Annual Growth Rate (AAGR) (2018, 2043 and 2068)

	2018	2043	2068	AAGR (2018-2043)	AAGR (2043-2068)	Share of County 2018	Share of County 2043	Share of County 2068
<i>Klamath County</i>	67,957	69,465	69,102	0.1%	0.0%	--	--	--
Klamath Falls	43,684	45,231	45,650	0.1%	0.0%	64.3%	65.1%	66.1%
Outside UGBs	21,288	21,133	20,274	0.0%	-0.2%	31.3%	30.4%	29.3%

Source: Forecast by Population Research Center (PRC)

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

## Assumptions for Smaller Sub-Area Forecasts

1. For UGBs experiencing population growth, we assume a higher growth rate in the near-term, with growth stabilizing over the remainder of the forecast period.
2. If planned housing units were reported in the surveys, then we account for them being constructed over the next 5-10 years.
3. For county sub-areas where population growth has been flat or declined, and there is no planned housing construction, we tend to temper losses over the forecast period.

## County and Smaller Sub-Areas—Population and AAGR (2018, 2043 and 2068)

	2018	2043	2068	AAGR (2018-2043)	AAGR (2043-2068)	Share of County 2018	Share of County 2043	Share of County 2068
<i>Klamath County</i>	67,957	69,465	69,102	0.1%	0.0%	--	--	--
Bonanza	441	488	528	0.4%	0.3%	0.6%	0.7%	0.8%
Chiloquin	770	798	822	0.1%	0.1%	1.1%	1.1%	1.2%
Malin	838	863	879	0.1%	0.1%	1.2%	1.2%	1.3%
Merrill	935	951	949	0.1%	0.0%	1.4%	1.4%	1.4%
Outside UGBs	21,288	21,133	20,274	0.0%	-0.2%	31.3%	30.4%	29.3%

Source: Forecast by Population Research Center (PRC)

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

# Local Input and Additional Information

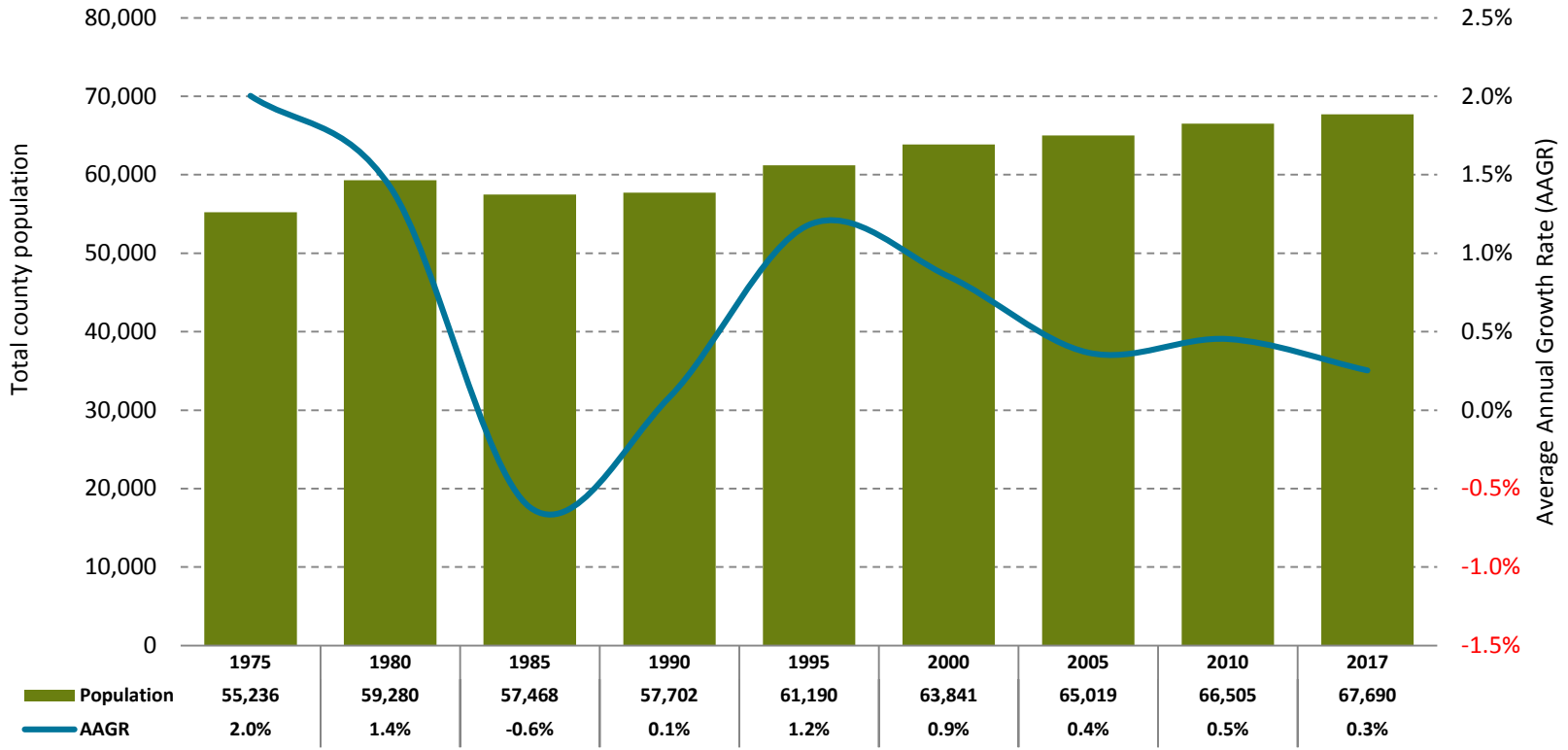
- Questions?
- Discussion time





## Additional Historical Trends: Klamath County

**Klamath County—Total Population by Five-year Intervals (1975-2017)**



Sources: U.S. Census Bureau, 1980, 1990, 2000, and 2010 Censuses; Population Research Center (PRC), July 1st Annual Estimates 1975, 1985, 1995, 2005 and 2017.

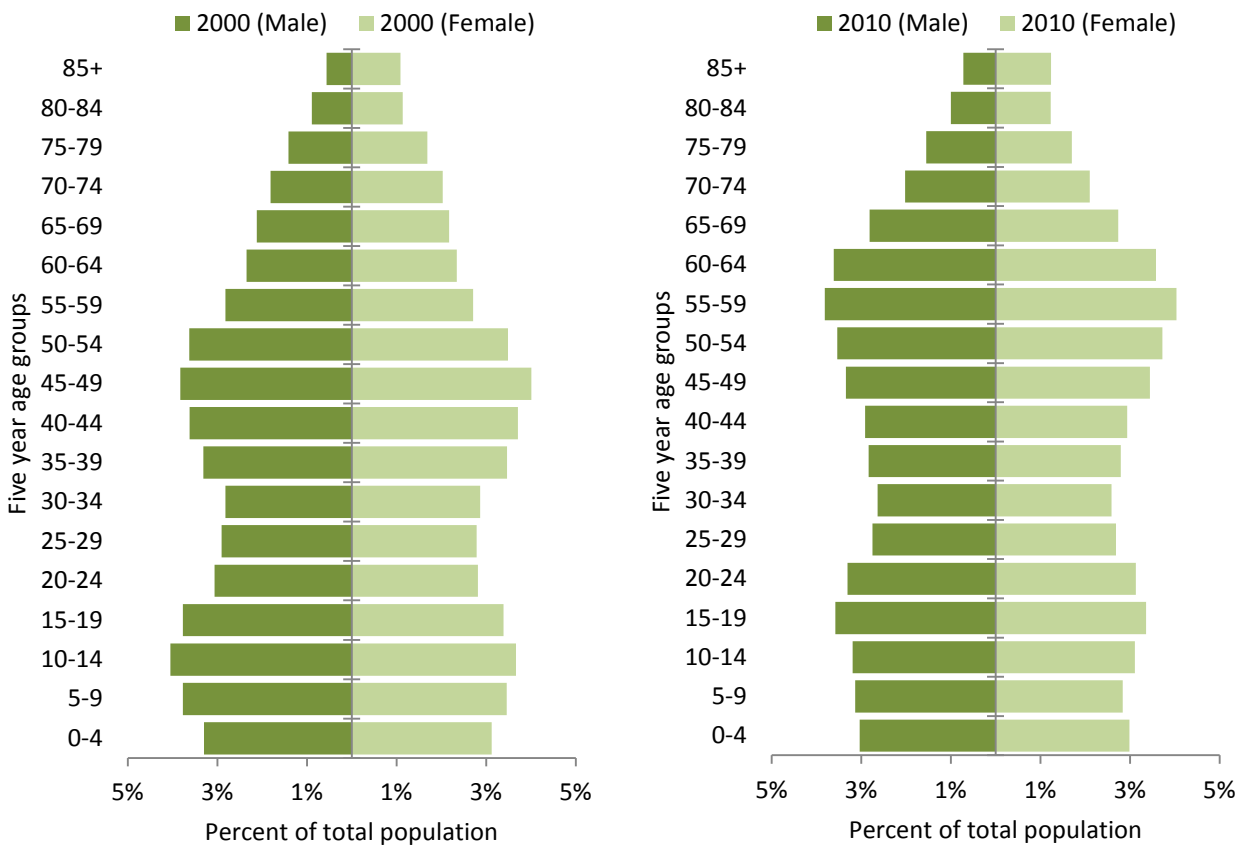
## County and Sub-Areas—Population and Average Annual Growth Rate (AAGR) (2000-2010)

	2000	2010	AAGR (2000-2010)	Share of County 2000	Share of County 2010	Change (2000-2010)
<i>Klamath County</i>	63,841	66,505	0.4%	99.9%	99.8%	-0.1%
Bonanza	400	401	0.0%	0.6%	0.6%	0.0%
Chiloquin	747	766	0.3%	1.2%	1.2%	0.0%
Klamath Falls	41,541	42,567	0.2%	65.1%	64.0%	-1.1%
Malin	661	836	2.4%	1.0%	1.3%	0.2%
Merrill	960	939	-0.2%	1.5%	1.4%	-0.1%
Outside UGBs	19,466	20,871	0.7%	30.5%	31.4%	0.9%

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

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

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

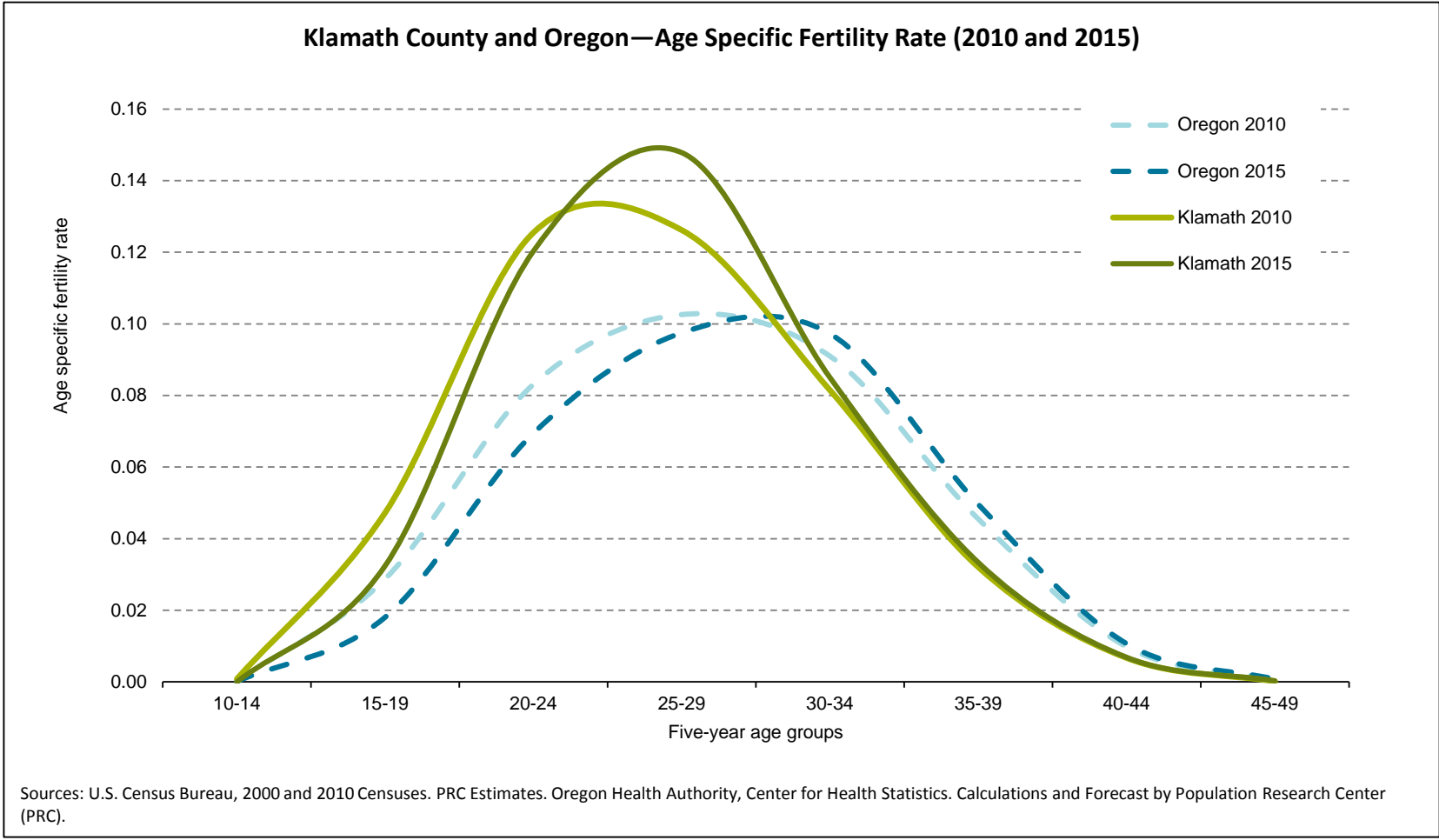


Sources: U.S. Census Bureau, 2000 and 2010 Censuses

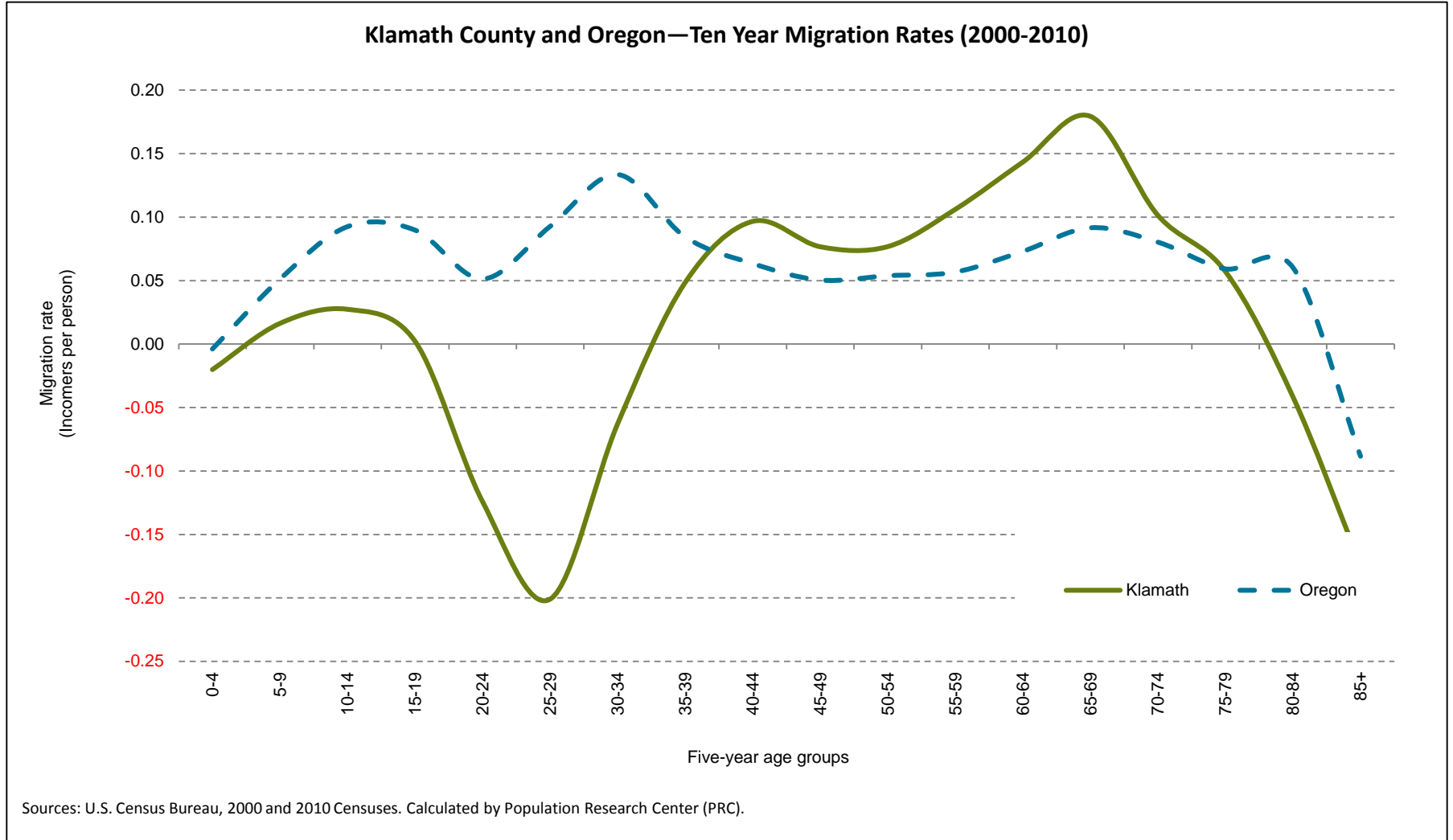
## Klamath County—Hispanic or Latino and Race (2000 and 2010)

Hispanic or Latino and Race	2000		2010		Absolute Change	Relative Change
	Count	Percentage	Count	Percentage		
<i>Total population</i>	63,775	100.0%	66,380	100.0%	2,605	4.1%
Hispanic or Latino	4,961	7.8%	6,915	10.4%	1,954	39.4%
Not Hispanic or Latino	58,814	92.2%	59,465	89.6%	651	1.1%
White alone	53,659	84.1%	53,822	81.1%	163	0.3%
Black or African American alone	362	0.6%	394	0.6%	32	8.8%
American Indian and Alaska Native alone	2,443	3.8%	2,407	3.6%	-36	-1.5%
Asian alone	482	0.8%	615	0.9%	133	27.6%
Native Hawaiian and Other Pacific Islander alone	72	0.1%	68	0.1%	-4	-5.6%
Some Other Race alone	96	0.2%	63	0.1%	-33	-34.4%
Two or More Races	1,700	2.7%	2,096	3.2%	396	23.3%

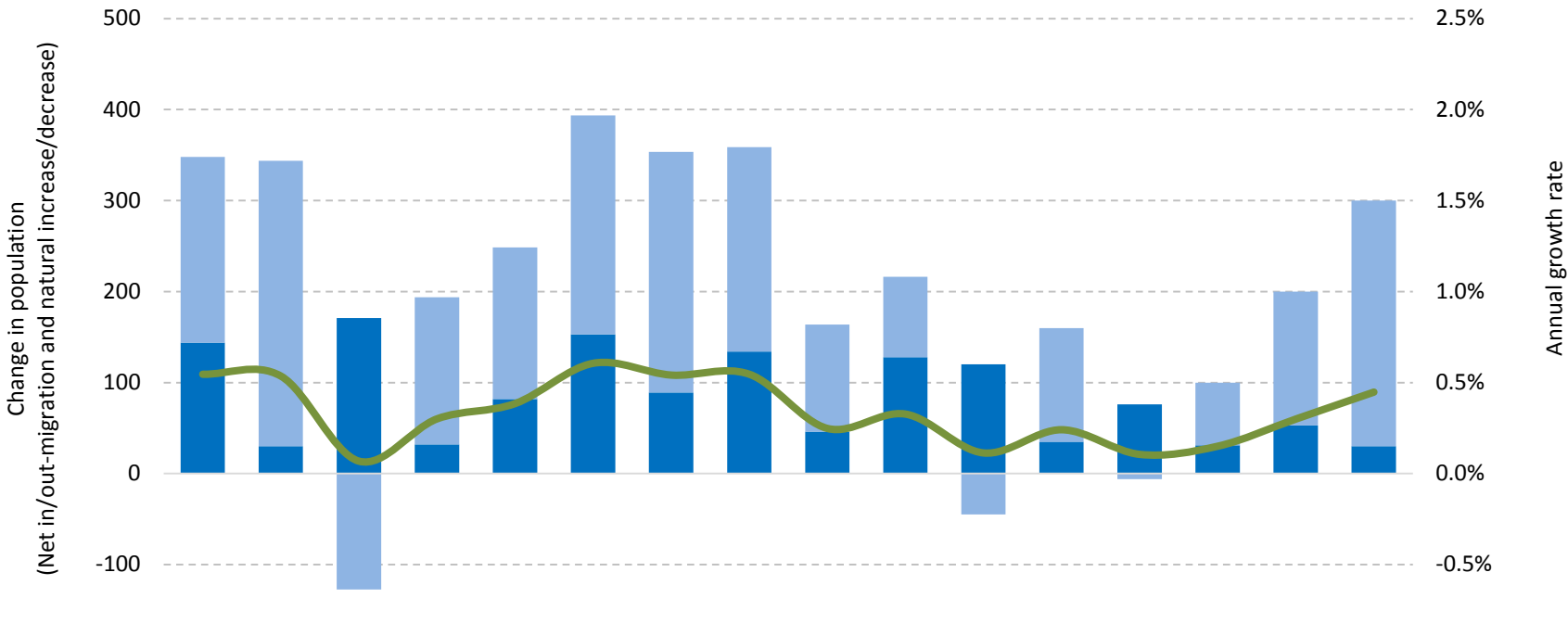
Sources: U.S. Census Bureau, 2000 and 2010 Censuses.



Total Fertility Rate (TFR)		
	2000	2010
<b>Klamath County</b>	2.20	2.10
<b>Oregon</b>	1.98	1.81



**Klamath County—Components of Population Change (2001-2016)**



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Net In/Out Mig.	204	314	-127	162	167	241	265	225	118	88	-45	125	-6	69	147	270
Nat. Inc./Dec.	144	30	171	32	82	153	89	134	46	128	120	35	76	31	53	30
AGR	0.5%	0.5%	0.1%	0.3%	0.4%	0.6%	0.5%	0.5%	0.2%	0.3%	0.1%	0.2%	0.1%	0.1%	0.3%	0.4%

Sources: Population Research Center, July 1st Annual Estimates 2001-2016 Oregon Health Authority, Center for Health Statistics. Calculated by Population Research Center (PRC).



## Klamath County and Sub-Areas—Total Housing Units (2000 and 2010)

	2000	2010	AAGR (2000-2010)	Share of County 2000	Share of County 2010	Change (2000-2010)
<i>Klamath County</i>	28,883	32,774	1.3%	100.0%	100.0%	0.0%
Bonanza	149	165	1.0%	0.5%	0.5%	0.0%
Chiloquin	302	379	2.3%	1.0%	1.2%	0.1%
Klamath Falls	18,098	19,107	0.5%	62.7%	58.3%	-4.4%
Malin	227	293	2.6%	0.8%	0.9%	0.1%
Merrill	408	388	-0.5%	1.4%	1.2%	-0.2%
Outside UGBs	9,699	12,442	2.5%	33.6%	38.0%	4.4%

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

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

## Klamath County and Sub-Areas—Persons Per Household (PPH) and Occupancy Rate (2000 and 2010)

	Persons Per Household (PPH)			Occupancy Rate		
	2000	2010	Change 2000-2010	2000	2010	Change 2000-2010
<i>Klamath County</i>	2.5	2.4	-3.7%	87.27%	83.24%	-4.0%
Bonanza	2.5	2.7	8.8%	91.28%	89.70%	-1.6%
Chiloquin	2.9	2.5	-13.5%	89.07%	79.42%	-9.7%
Klamath Falls	2.8	2.4	-13.2%	91.99%	90.50%	-1.5%
Malin	2.4	3.1	27.3%	92.51%	91.81%	-0.7%
Merrill	3.1	2.7	-14.1%	90.20%	89.18%	-1.0%
Outside UGBs	2.6	2.3	-10.5%	78.08%	71.72%	-6.4%

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

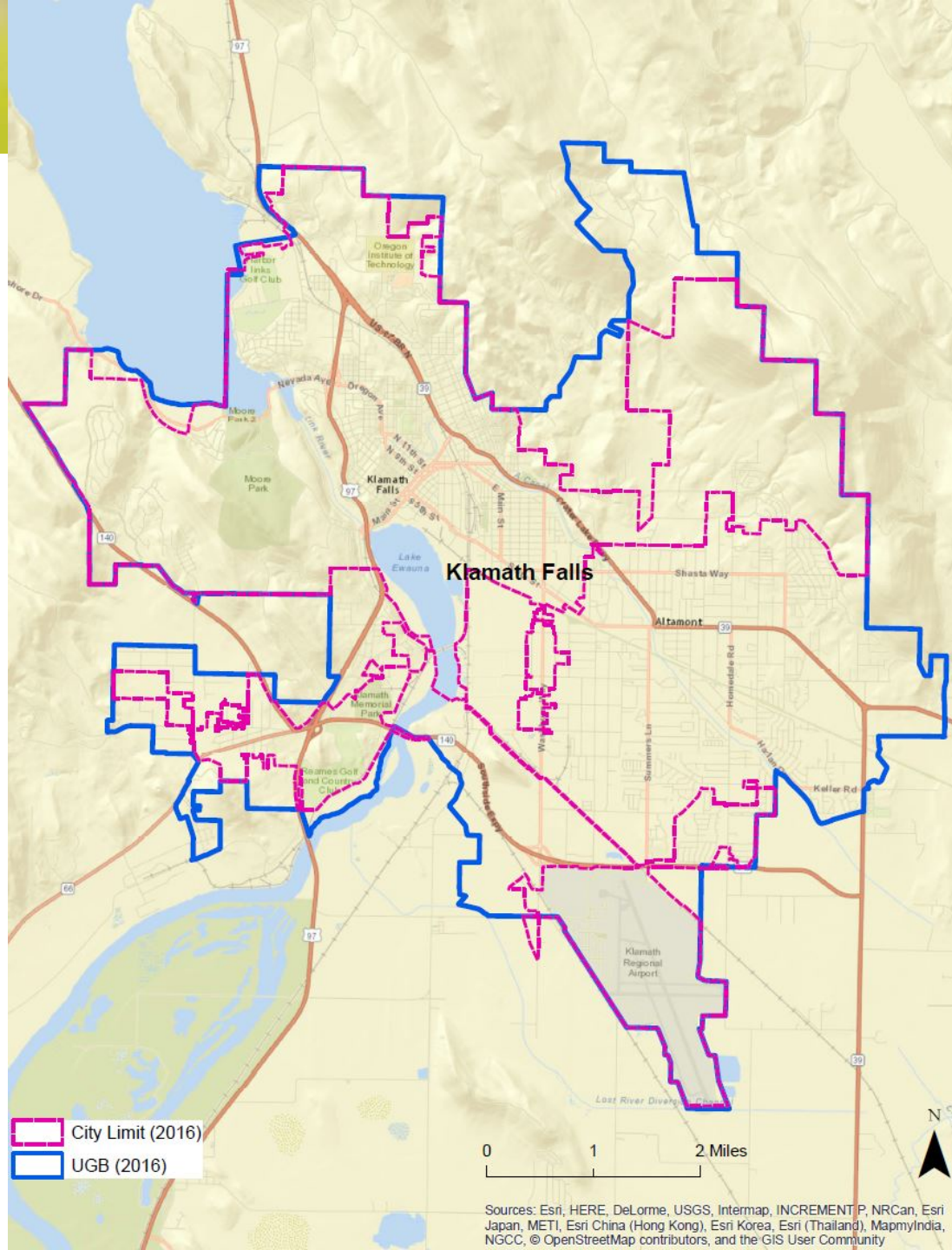
Note: For simplicity each UGB is referred to by its primary city's name.

# Klamath County UGBs







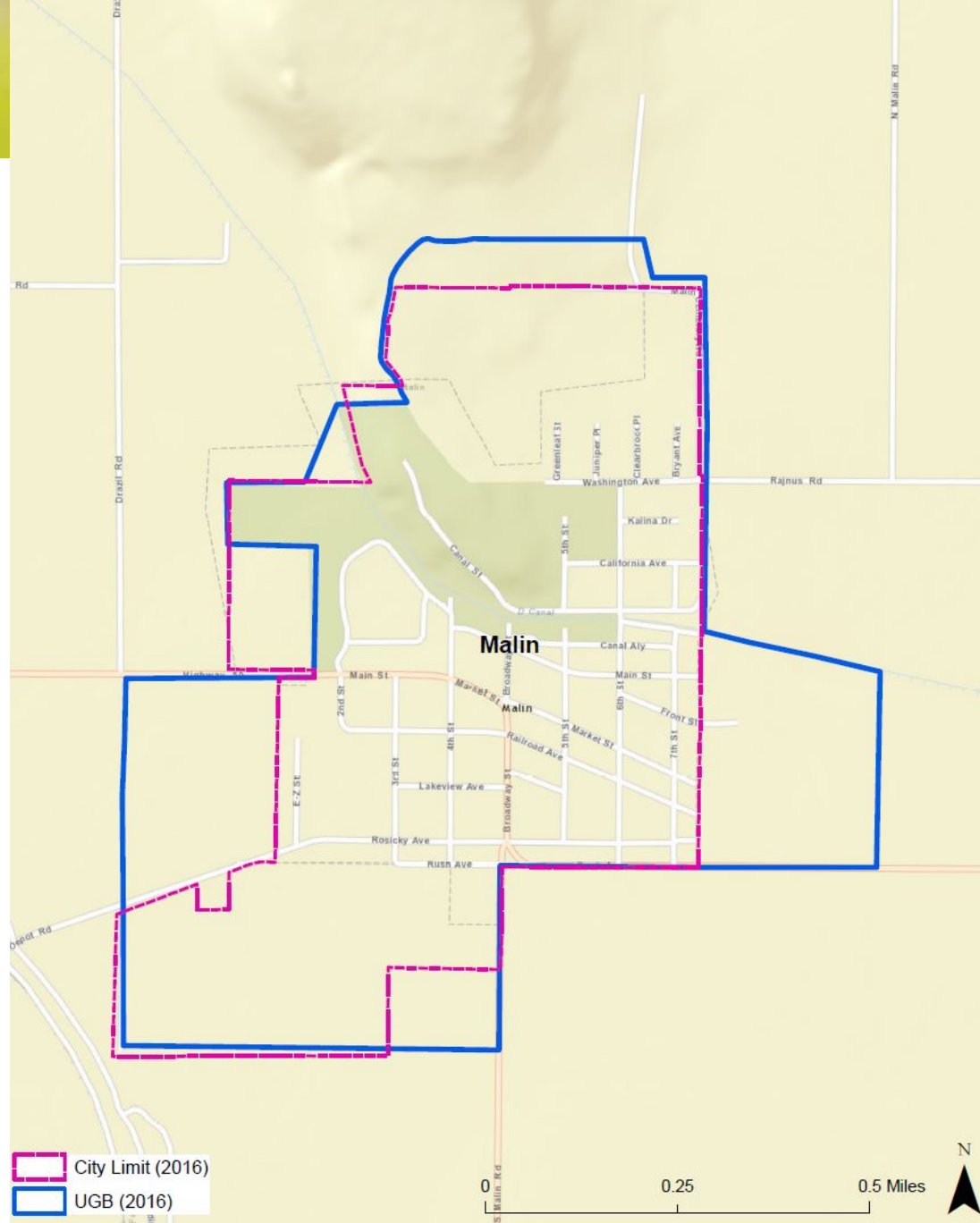


City Limit (2016)  
UGB (2016)

0 1 2 Miles



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



- City Limit (2016)
- UGB (2016)



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

