

Review of Historic and Projected Population Estimates

2045 Socioeconomic Data Development Technical Report #1

October 2018

Prepared for



Prepared by



Contents

Review of Historic Census Data	1
County-Wide Growth	1
Sub-Area Growth	2
Population Growth Rates.....	3
Review of Previous LRTP Projections.....	4
2025 LRTP.....	4
2035 LRTP.....	5
2040 LRTP.....	6
LRTP Projections and Actual Population.....	6
Comparison of Forecasting Sources.....	8
BEBR 2001 – 2017 Projections	8
BEBR vs. W&P 2013 Comparison	9
BEBR vs. W&P 2017 Comparison	10
Conclusions for Developing 2045 Population Forecast	11
Appendix A.....	12

List of Tables

Table 1: Pasco County Historic Census Population (1970 – 2015).....	1
Table 2: Pasco County MPO 2025 LRTP Forecast.....	4
Table 3: Pasco County MPO 2025 LRTP Update Forecast.....	4
Table 4: Pasco County MPO 2035 LRTP Forecast.....	5
Table 5: Pasco County MPO 2040 LRTP Forecast.....	6

List of Figures

Figure 1: Annual Population Growth Rate (1970 – 2045), BEBR 2018 Medium Projection	2
Figure 2: Annual Population Growth Rate 2000-2045, Source: 2018 FSA, BEBR Medium Projection	3
Figure 3: LRTP Population Projections and Actual Population	7
Figure 4: BEBR Medium Projections (2001 – 2017)	8
Figure 5: BEBR vs. W&P 2013 Projections	9
Figure 6: BEBR vs. W&P 2017 Projections	10
Figure 7: 1980 Census Population Dot Density.....	13
Figure 8: 1990 Census Population Dot Density.....	14
Figure 9: 2000 Census Population Dot Density.....	15
Figure 10: 2025 LRTP Anticipated Growth Distribution.....	16
Figure 11: 2035 LRTP Anticipated Growth Distribution.....	17
Figure 12: 2040 LRTP Anticipated Growth Distribution.....	18

Review of Historic Census Data

In anticipation of the 2045 Long Range Transportation Plan (LRTP), Pasco County's historic and future population growth and numbers are being examined. Historical trends and projected population growth from the previous LRTPs, the Bureau of Economic and Business Research (BEBR), and Woods & Poole (W&P) are being examined to best inform the population projections for the 2045 LRTP.

County-Wide Growth

Pasco County has seen significant growth since 1970, growing from a small rural county of 78,000 to a large suburban county with a population rapidly approaching 500,000 people in 2010.

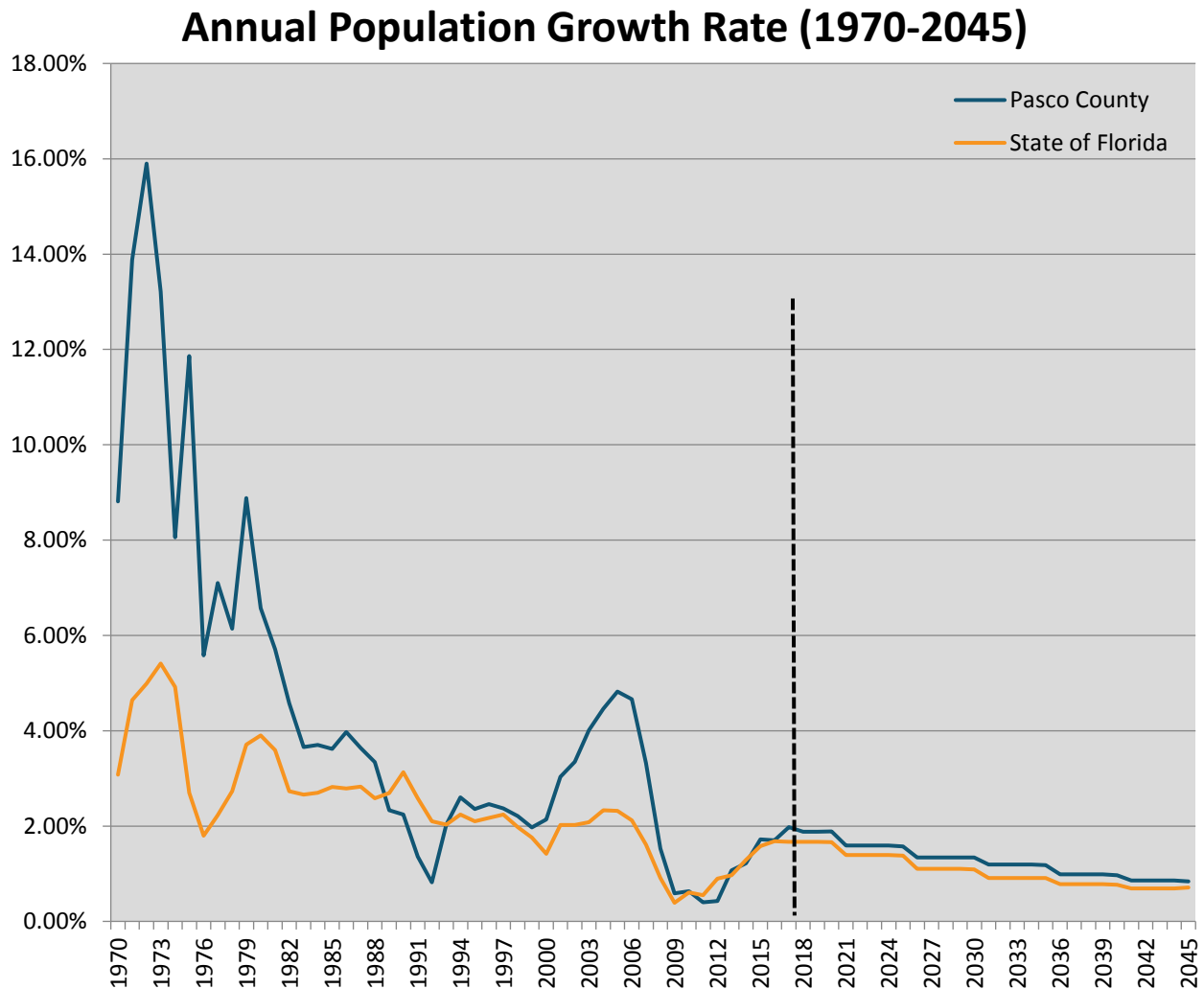
Table 1: Pasco County Historic Census Population (1970 – 2015)

Census Year	Population	10-Year Growth	Annual % Increase
1970	75,955	39,170	
1980	193,643	117,688	9.81%
1990	281,131	87,488	3.81%
2000	344,765	63,634	2.06%
2010	464,697	119,932	3.03%
2015*	487,588	22,891	0.97%

* University of Florida, Bureau of Economic and Business Research, October 2015.

The average annual growth rate has varied significantly between 1970 and 2010. The county experienced its highest annual growth rate between 1960 and 1970 at more than 7% and between 1970 and 1980 at almost 10%. The growth rate has significantly slowed since 1980, with the county experiencing annualized population increases of less than 4% per year since 1980. While the rate of population growth has slowed significantly, Pasco County added more residents in the 10-year span between 2000 and 2010 than at any other time, with nearly 120,000 people moving to the county. Growth slowed over the last five years, with around 22,000 more people in the county between 2010 and 2015 when the nation and region experienced economic decline. Nonetheless, Pasco County's annual population growth rate has generally been well above the state-wide average growth rate, except for the decade of the 1980's, and the early 2000's. Since 2009, the growth rate for the county and for the state are roughly equal. See Figure 1.

Figure 1: Annual Population Growth Rate (1970 – 2045), BEBR 2018 Medium Projection



Sub-Area Growth

Appendix A includes a series of maps illustrating the shifts in historic population for each of the decennial census years from 1980 to 2010. Notable observations of the dot density maps provided include:

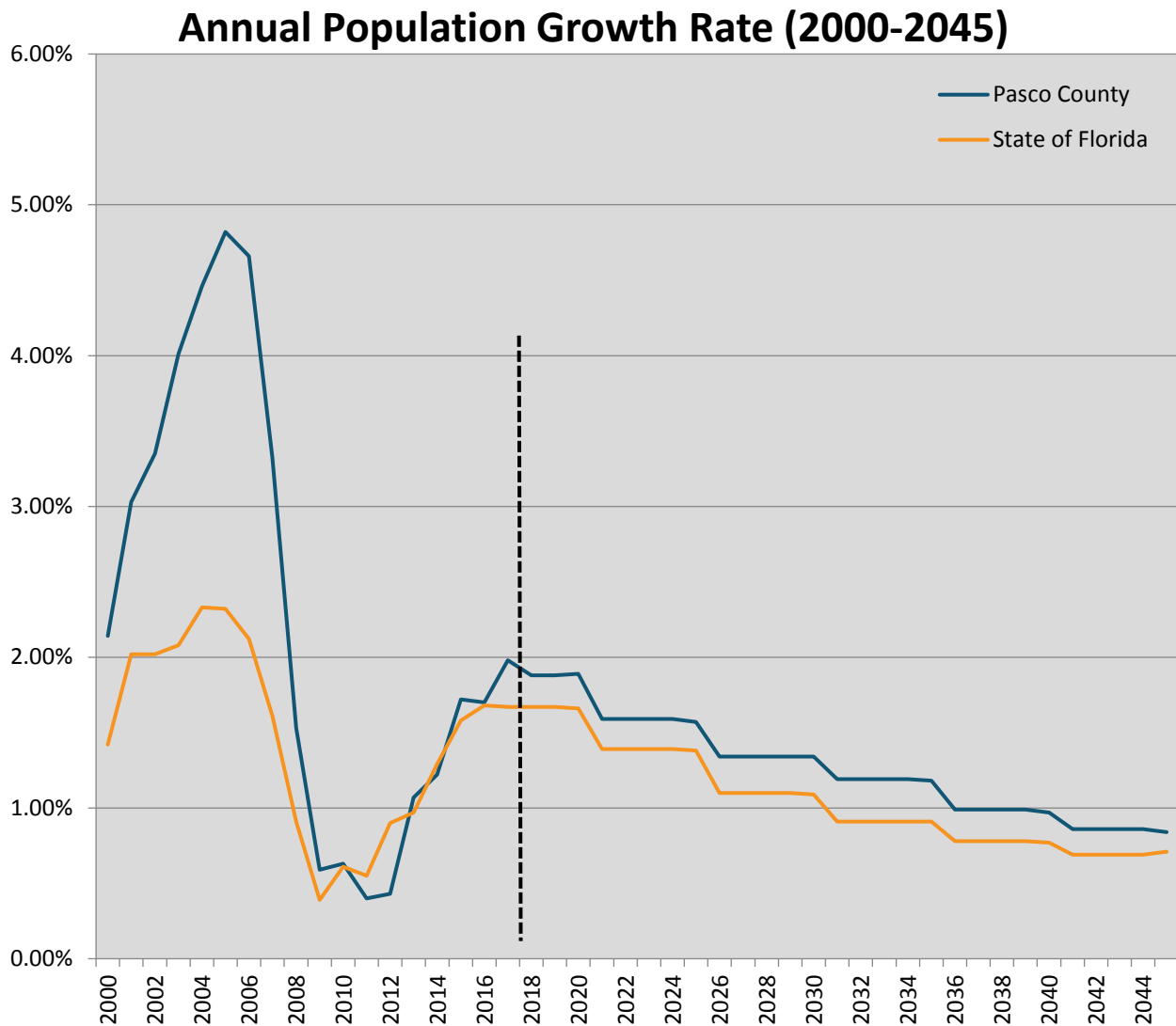
- Significant growth along the US19 Corridor.
- Significant growth along the SR54 Corridor – which is expected to continue its strong growth as the County implements land use regulations directing future growth along the corridor.
- The incorporated areas of Pasco County continue to see concentrated growth.
- Growth in the Wesley Chapel and Land O' Lakes Area – particularly beginning in the 2000's.

Population Growth Rates

Examining the population growth rate of the entire state compared to the population growth rate of the county can provide insight on how population growth is distributed across the state, and assist in projecting how the population growth in the state will distribute to the county.

The BEBR 2018 report pegs the medium county growth rate just above the state-wide population growth rate for the range of the projection.

Figure 2: Annual Population Growth Rate 2000-2045, Source: 2018 FSA, BEBR Medium Projection



Review of Previous LRTP Projections

In 1999, the MPO adopted the 2025 LRTP. In accordance with the requirements of the Federal transportation bills, the LRTP has been updated every 3 -5 years, using the best available projection data from the Bureau of Economic and Business Research (BEBR) out of the University of Florida. BEBR produced Florida's official state and local population estimates and projections based on high-medium-low projections, and is used for distributing state revenues, sharing dollars to cities and counties, budgeting, planning, and policy analysis among a multitude of local, state, and business entities. The *Florida Statistical Abstract* is published every year.

2025 LRTP

The 2025 LRTP was adopted in December of 1999 and updated in December of 2004. The Validation or Base year for the population projections was 1996 for the 1999 adoption, and 1999 for the 2004 adoption. Interim year estimates of population were provided for 2000, 2005, 2010, 2015, and 2020 for both forecasts.

The original 2025 LRTP (1999 base year, 2001 report) projected a total population of 357,200 people by 2005, while the 2004 update to the 2025 LRTP projected a total population of 397,100 for the same year. Based on BEBR's most recent available data (2017), Pasco County's total population in 2005 was 418,113 – indicating that both projections used by Pasco County under anticipated the growth the county would experience during that period. In retrospect, 2000 – 2010 was the highest decade of total growth in absolute population that has ever occurred in the county, making the underestimation reasonable.

Similarly, the 2001 report and the 2004 report anticipated 409,214 and 505,800 people by 2015, respectively. BEBR's most recent available data (2017) showed 487,588 people in the county in 2015. In this case, the 2001 report under-estimated the population by nearly 80,000 people, and the 2004 report overestimated the population by a little over 15,000 people. Generally, the 2004 report was more accurate than the 2001 report for the county's actual population in 2015.

Of note is the nearly 150,000 person difference in estimates between the 2001 report and the 2004 report for the 2025 population.

Table 2: Pasco County MPO 2025 LRTP Forecast

Category	1999	2005		2015		2025
Total Population	325,680	357,200		409,214		460,669
Annualized Growth Rate		1.16%		1.37%		1.19%

Source: Pasco County's MPO Forecast 2025 SE Data Development, July 2001

Table 3: Pasco County MPO 2025 LRTP Update Forecast

Category	2000	2005	2010	2015	2020	2025
Total Population	339,003	397,100	452,900	505,800	564,100	624,600

Annualized Growth Rate		3.21%	2.66%	4.49%	2.21%	2.06 %
------------------------	--	-------	-------	-------	-------	--------

Source: SE Data Development Update, Technical Memorandum, September 2004.

2035 LRTP

The 2035 LRTP was adopted in December of 2009. The Validation or Base year for the population projections was 2006, with interim year estimates of population for 2010, 2015, 2020, 2025, and 2030.

As shown in the table below, the 2006 report, which used an average of the medium and high BEBR projections, anticipated 474,600 people in the County by 2010, and 550,120 by 2015.

BEBR's most recent data (2017) showed the county population in 2010 was 464,697; the 2006 projection overestimated the population by around 10,000 people. Similarly, the 2015 population was 487,588, showing the 2006 projection overestimated the population by nearly 60,000 people – a significant overestimation. The average of BEBR's medium-high projection seems to be accurate in the short-term, but the further out the data is projected, the less accurate it becomes.

Table 4: Pasco County MPO 2035 LRTP Forecast

Category	2006	2010	2015	2020	2025	2030	2035
Total Population	424,400	474,600	550,120	625,640	701,160	776,680	852,200
Annualized Growth Rate		3.62%	3.00%	2.61%	2.31%	2.07%	1.87%

Source: SE Data Development Update, Technical Memorandum, December 2008

2040 LRTP

The 2040 LRTP was adopted in December of 2014. The Validation or Base year for the population projections was 2010, with interim year estimates of population for 2015, 2020, 2025, 2030, and 2035.

The 2040 LRTP projections anticipated 476,020 people in the county by 2015. The most recent available data from BEBR (2017) showed 487,588 people in the county in 2015, indicating the 2040 LRTP projections underestimated the 2015 population by around 10,000 people.

Table 5: Pasco County MPO 2040 LRTP Forecast

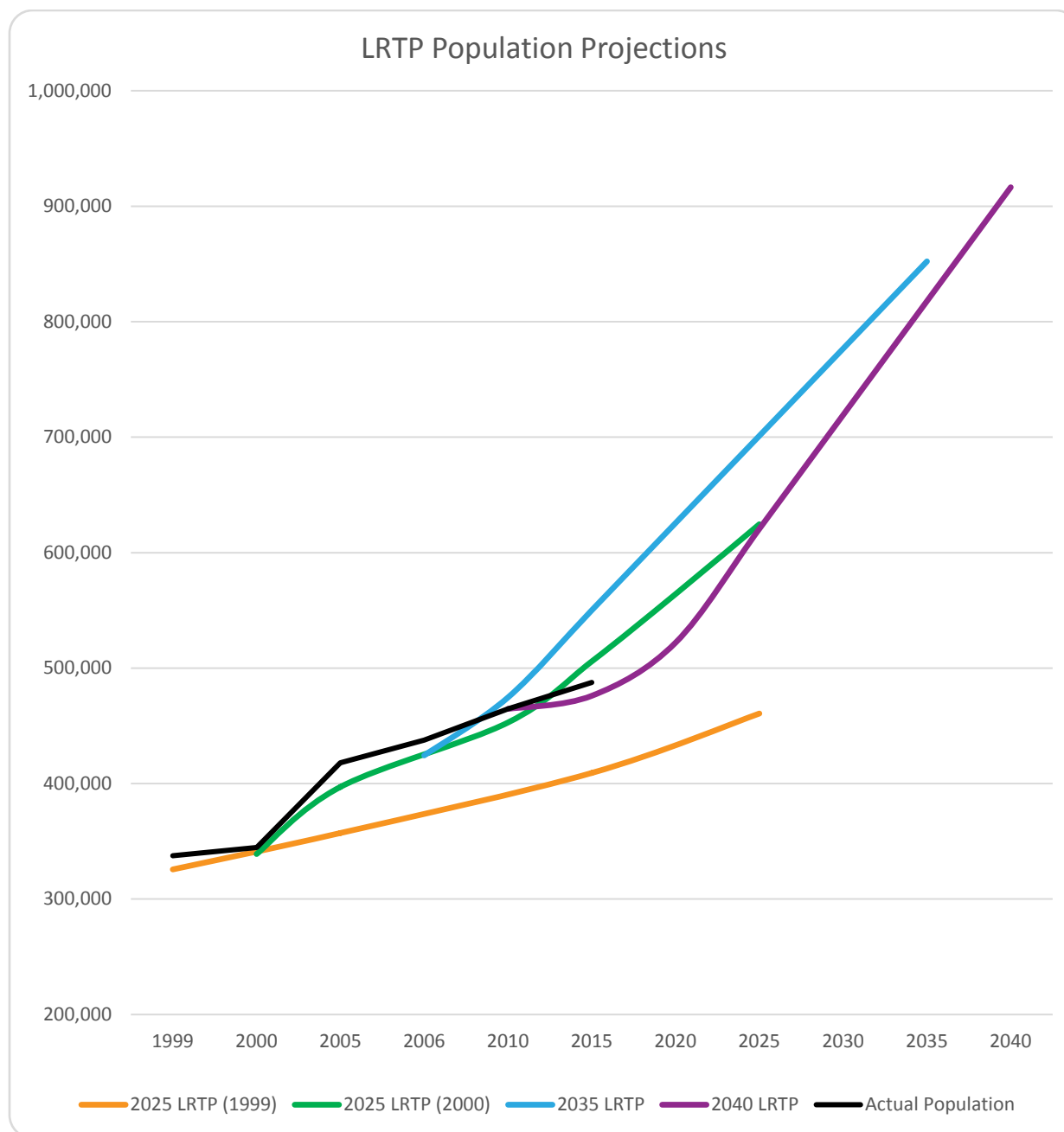
Category	2010	2015	2020	2025	2030	2035	2040
Total Population	464,697	476,020	522,026	620,620	719,213	817,807	916,400
Annualized Growth Rate		0.48%	1.86%	3.52%	2.99%	2.60%	2.30%

Source: SE Data Mobility Tech Memo, 2040 SE Data Forecast Development, July 2014, BEBR Vol. 46 Bulletin 165

LRTP Projections and Actual Population

The population projections for the last four LRTP's are graphed in Figure 3 below, along with the actual population between 1999 and 2015. Generally, the 2025 LRTP with the 2000 base year data seems to most accurately capture the population growth that occurred between 2000 and 2015.

Figure 3: LRTP Population Projections and Actual Population



Comparison of Forecasting Sources

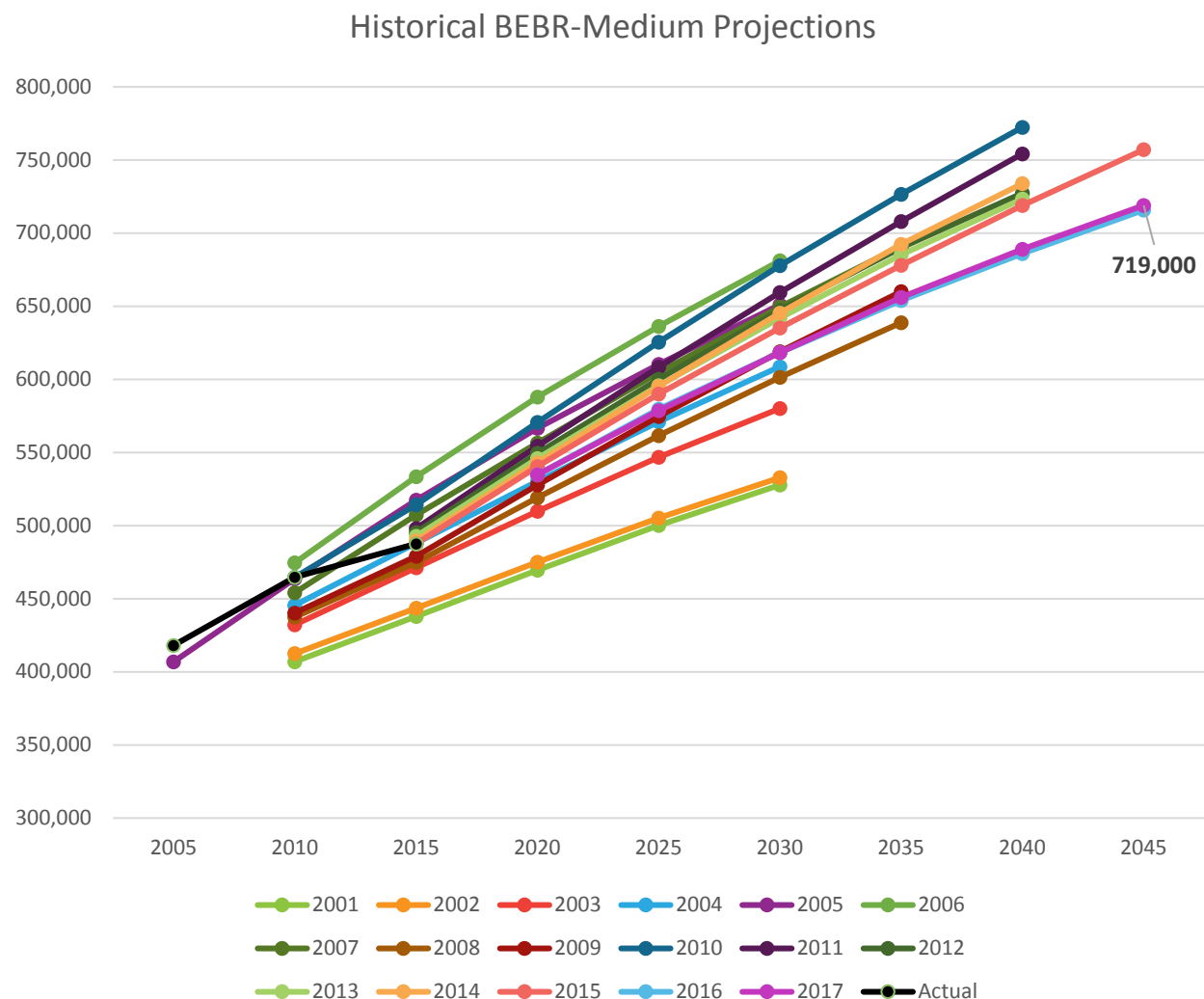
To better understand the best methodology to use for forecasting population for the 2045 LRTP, projections from BEBR and Woods & Poole Economics (W&P) were compared, with 2013 and 2017 as the base years for comparison.

BEBR 2001 – 2017 Projections

The medium historic and future projections for Pasco County population are provided below in Figure 4. Historic projections anticipated, for example, a population between 533,600 and 438,000 by 2015 (2006 and 2001 projections, respectively). The estimated population in 2015 was actually 487,588 people, indicating that actual population at least falls within the range of the projected population.

Only the three most recent projections developed by BEBR, 2015 through 2017, include estimates for 2045. The estimates for 2045 range from 757,100 to 719,100 for these three years.

Figure 4: BEBR Medium Projections (2001 – 2017)

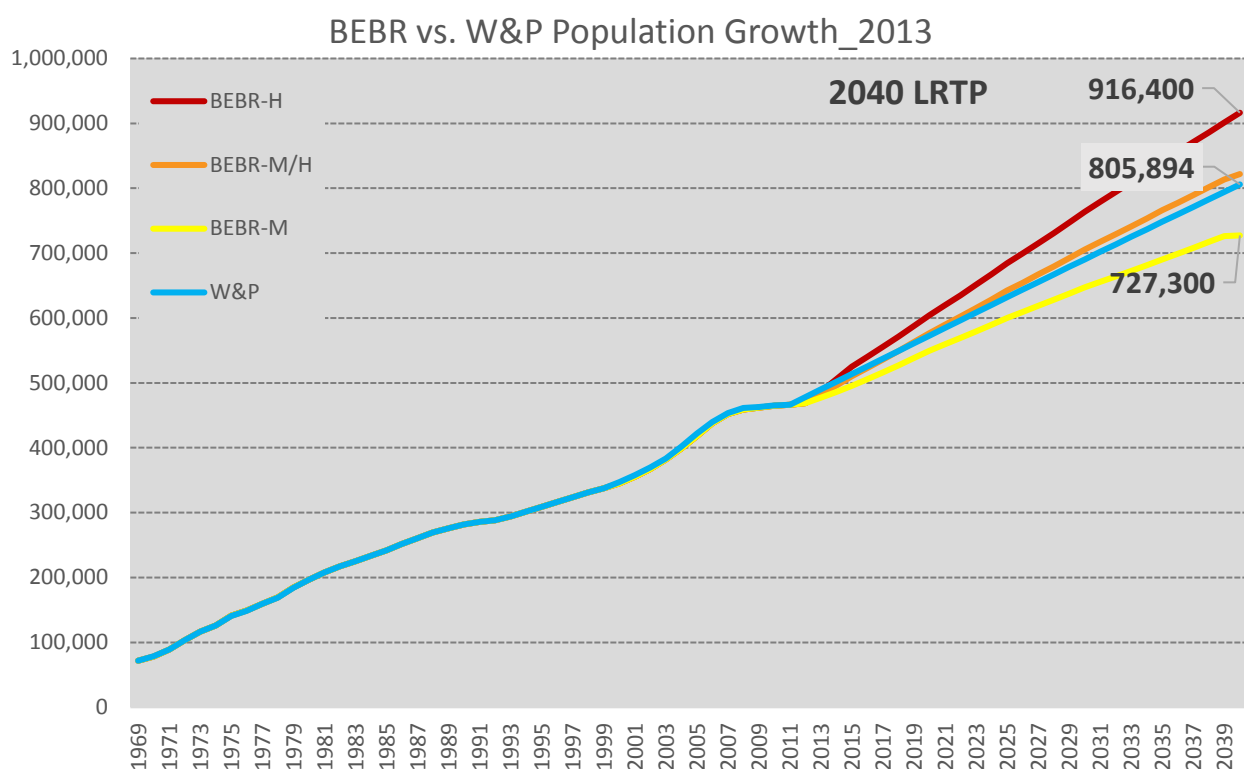


BEBR vs. W&P 2013 Comparison

The BEBR and W&P projections developed in 2013 are displayed below. For the 2040 LRTP, BEBR's High Projection was used for estimating the 2040 population. While the LRTP estimates for the interim years do not match BEBR's high projection population numbers, they were used as a basis. BEBR's high projection estimated the county population to be 525,100 by 2015, the medium projection to be 495,400, while the W&P projection anticipated 513,660 people in the county by 2015.

The 2045 estimates for BEBR and W&P greatly differ. The lowest estimates for the 2040 population are the BEBR medium – which anticipates 727,300, while the BEBR high anticipates 916,400. The W&P projection falls in the middle, estimating 805,894 people by 2040. The W&P projection is similar to the average of BEBR's medium and high projections - 821,850.

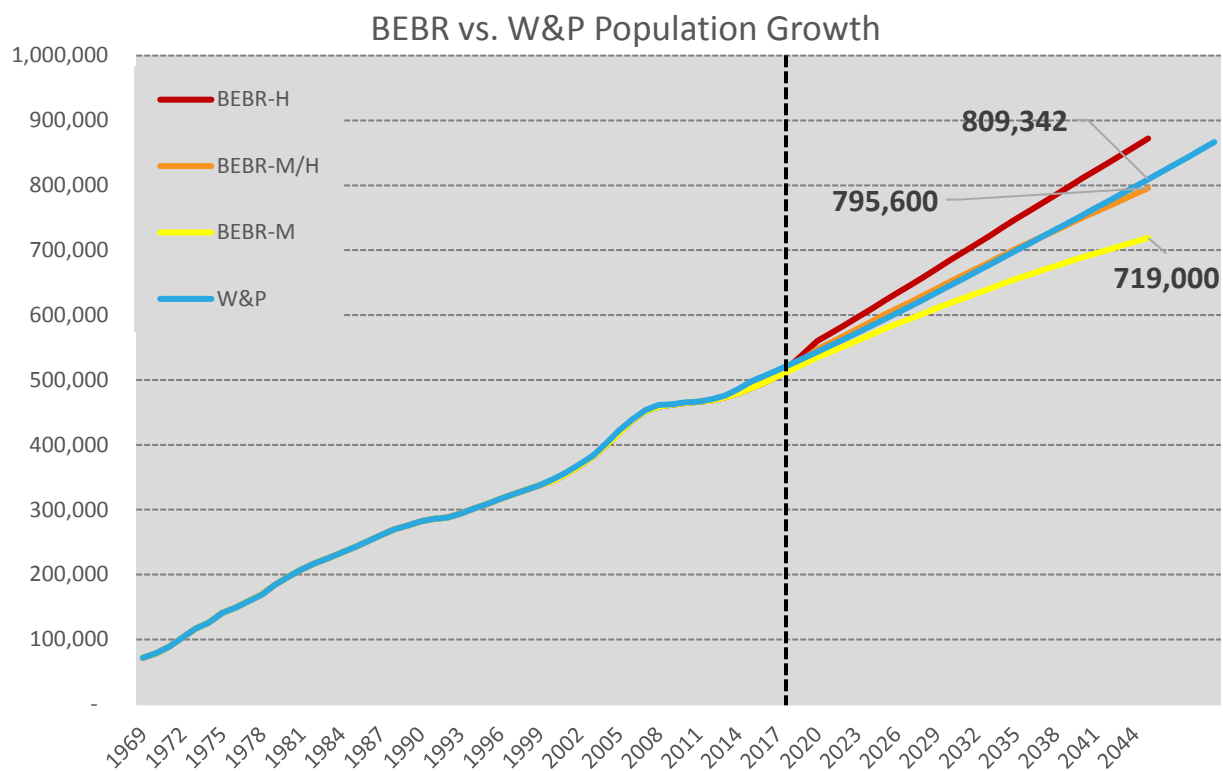
Figure 5: BEBR vs. W&P 2013 Projections



BEBR vs. W&P 2017 Comparison

The most recent projections from BEBR and W&P use 2017 as a base year. The projections are graphed below. Similar to the numbers above, the lowest estimate for 2045 is the BEBR medium projection at 719,000 people, and the highest is the BEBR high projection at 809,342. The W&P projection and the average of BEBR's medium and high projections fall similarly close to each other for their 2045 estimates again – at 809,342 and 795,600 respectively.

Figure 6: BEBR vs. W&P 2017 Projections



Conclusions for Developing 2045 Population Forecast

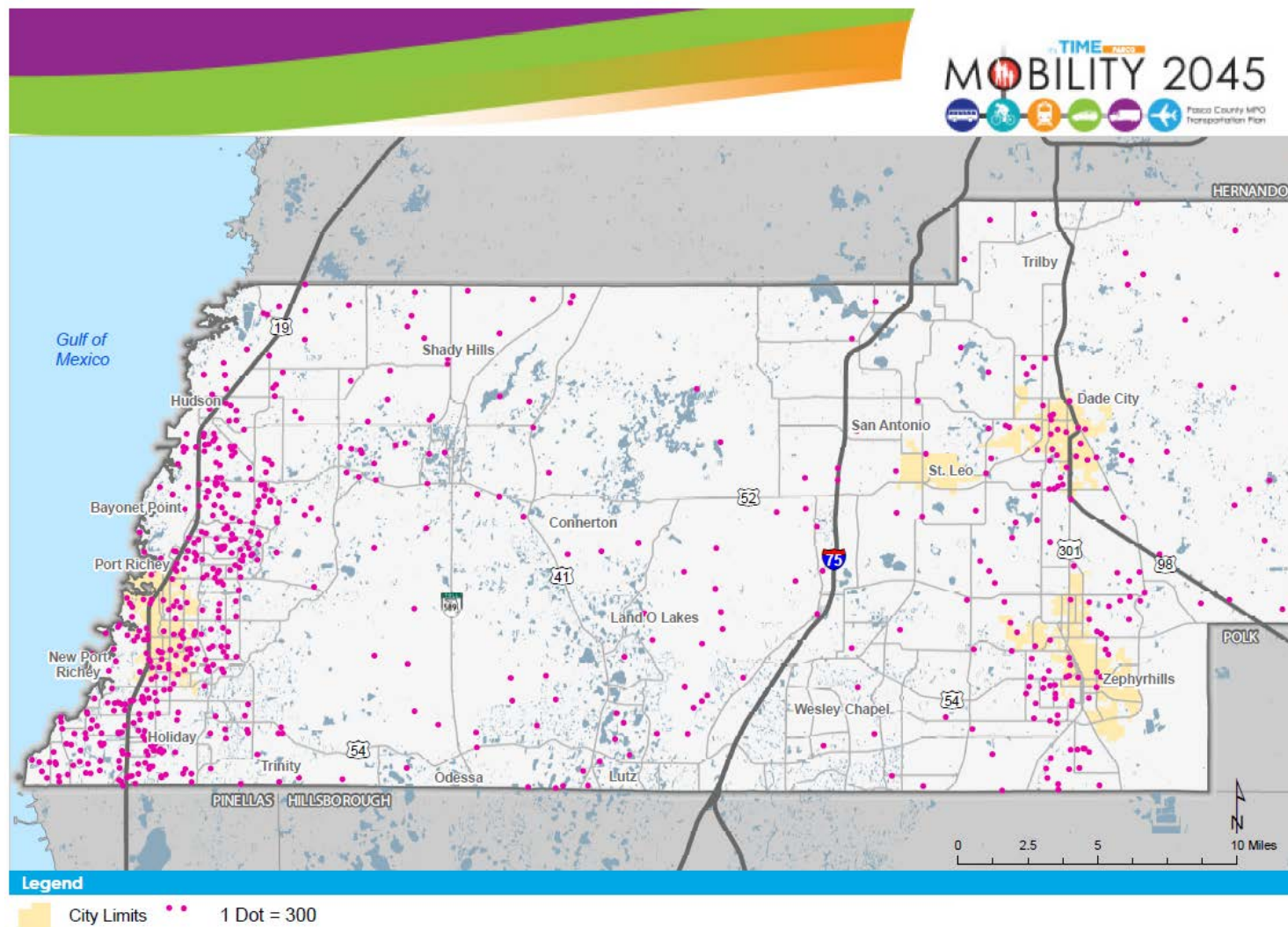
All projections or extrapolations of data will be inaccurate, with accuracy decreasing congruous with the distance from the original dataset.

The last 10 years of growth in Pasco County have not seen the same extremely high rates that were seen in the previous decades. Estimates of future population from BEBR are now responding to these slowing of growth, which the BEBR high estimate has typically overestimated. Nonetheless, the W&P estimates have been fairly consistent and accurate over the past five years. The W&P population projections are in line with the BEBR M/H projection, giving two data sources that result in similar 2045 populations.

Based on this analysis, it is recommended that the 2045 LRTP use the BEBR M/H population projection – estimating 795,600 people in 2045.

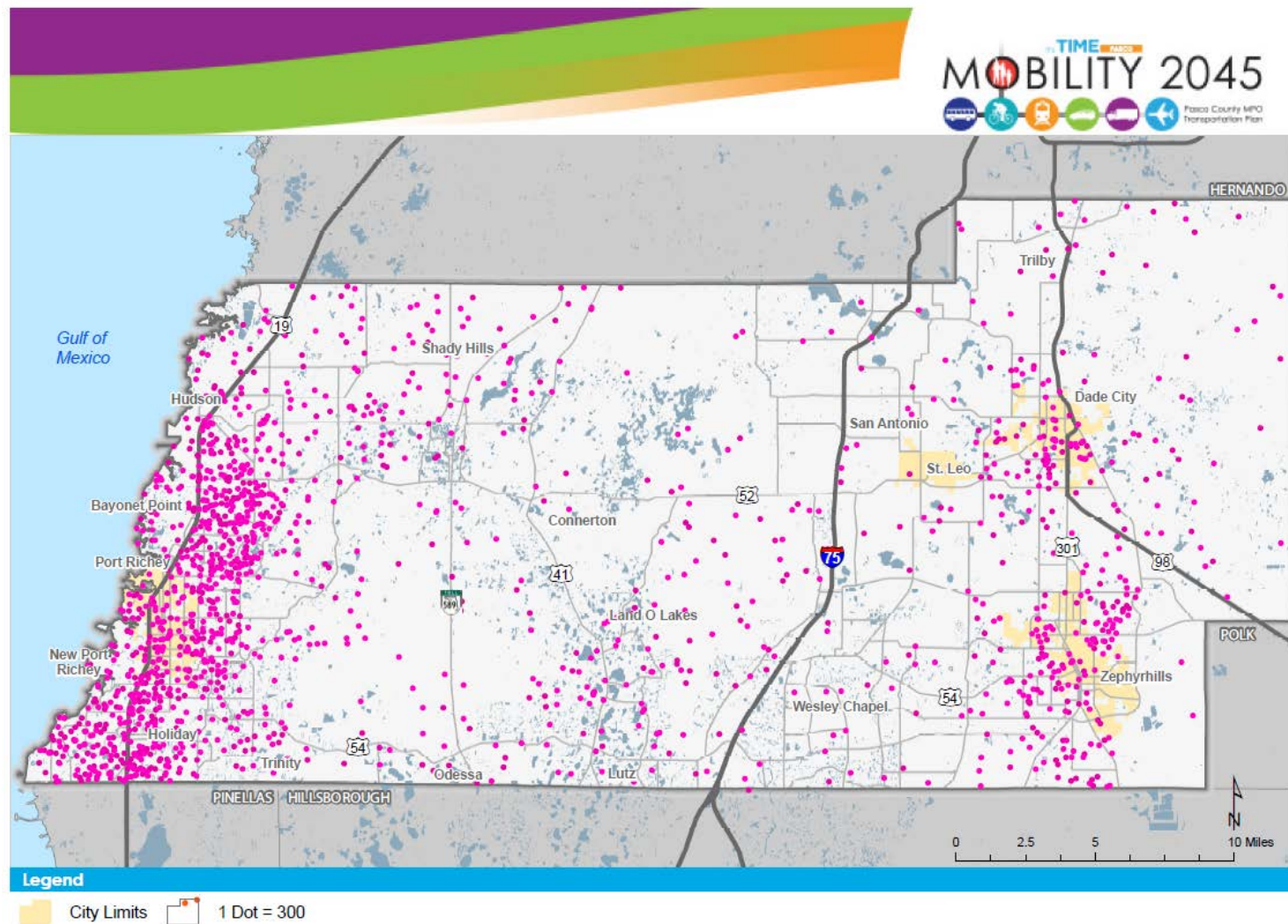
Appendix A

Figure 7: 1980 Census Population Dot Density



Source: Pasco County GIS, PCPT

Figure 8: 1990 Census Population Dot Density



Source: Pasco County GIS, PCPT

Figure 9: 2000 Census Population Dot Density

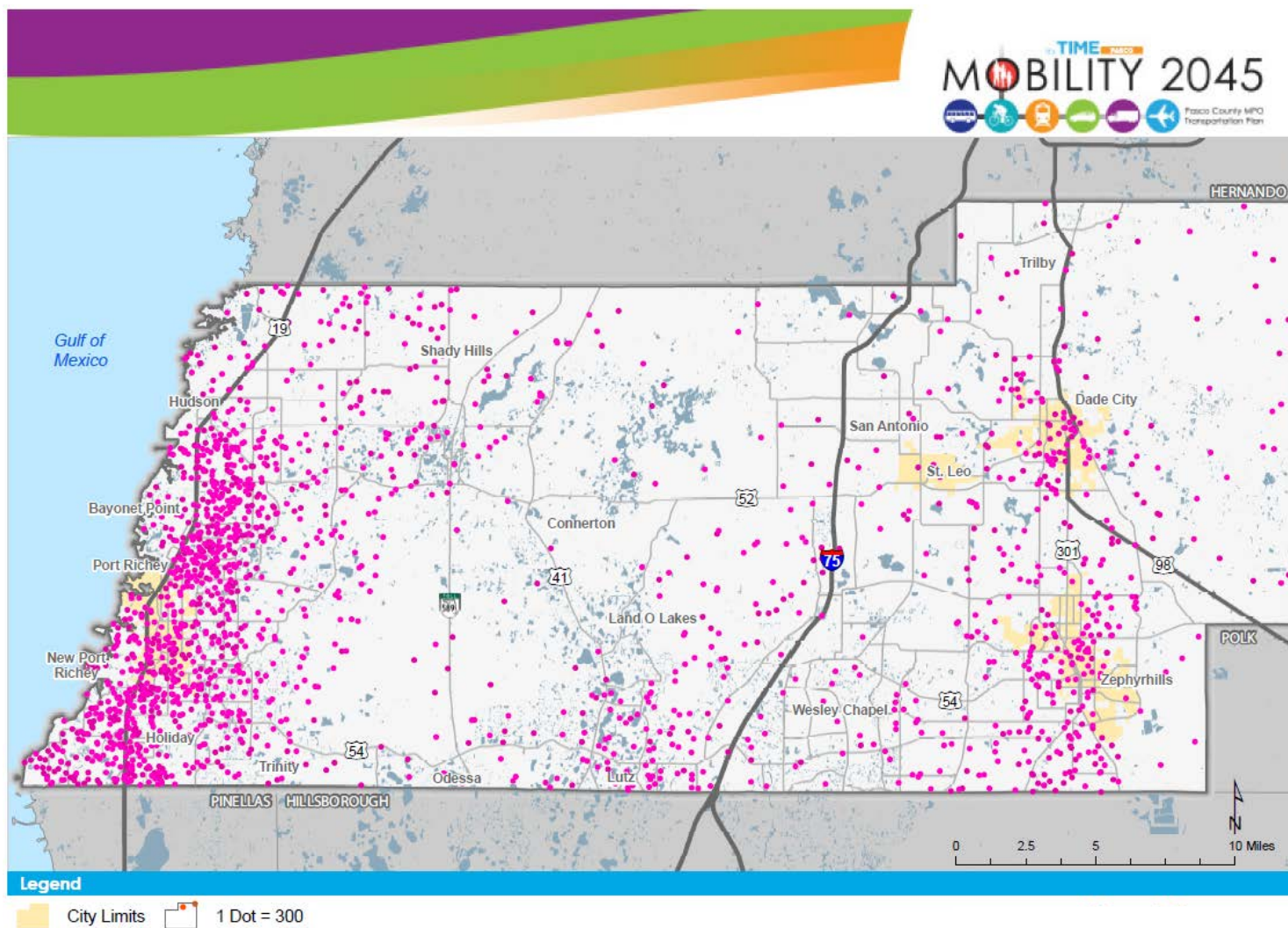


Figure 10: 2025 LRTP Anticipated Growth Distribution

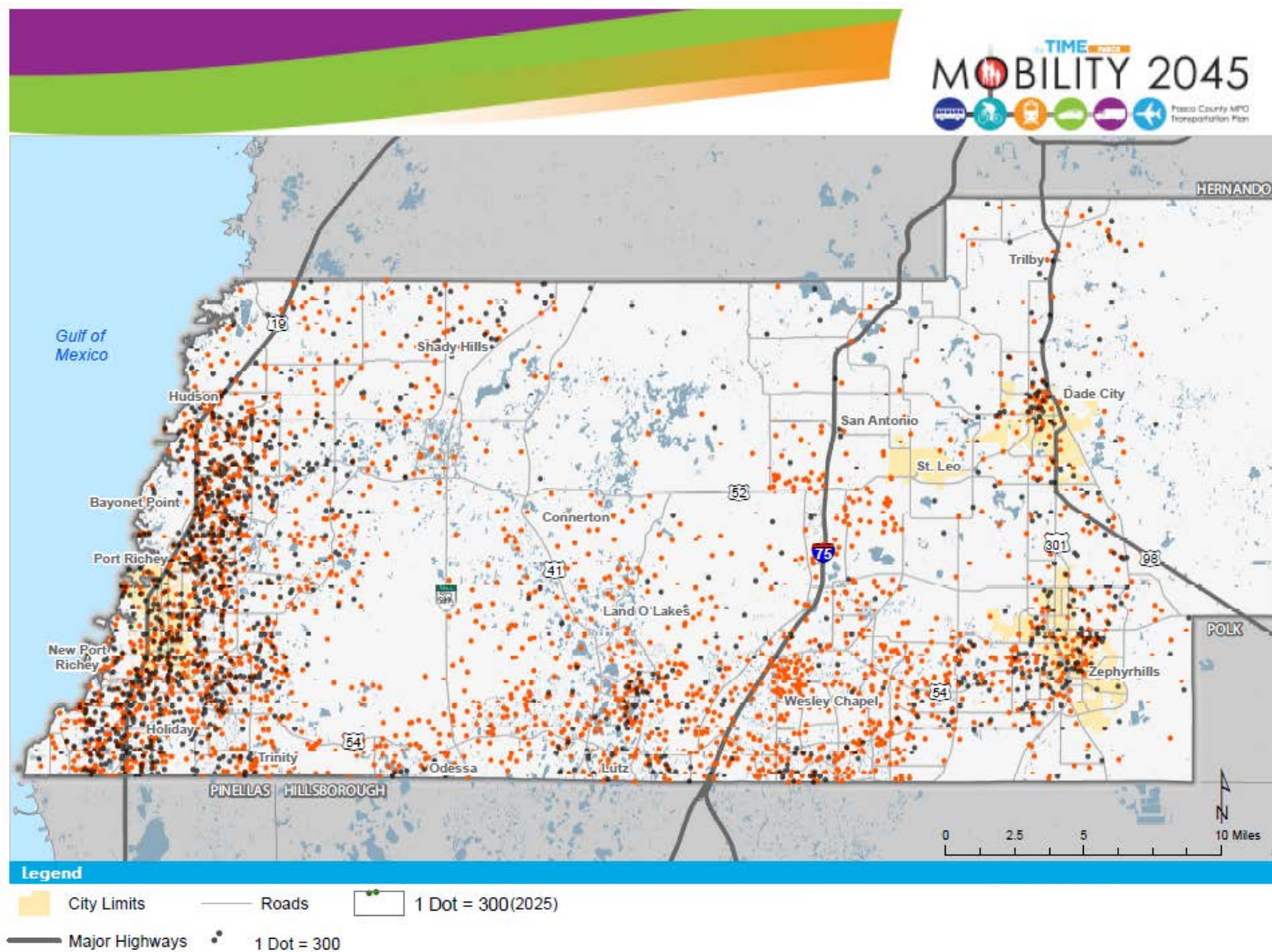


Figure 11: 2035 LRTP Anticipated Growth Distribution

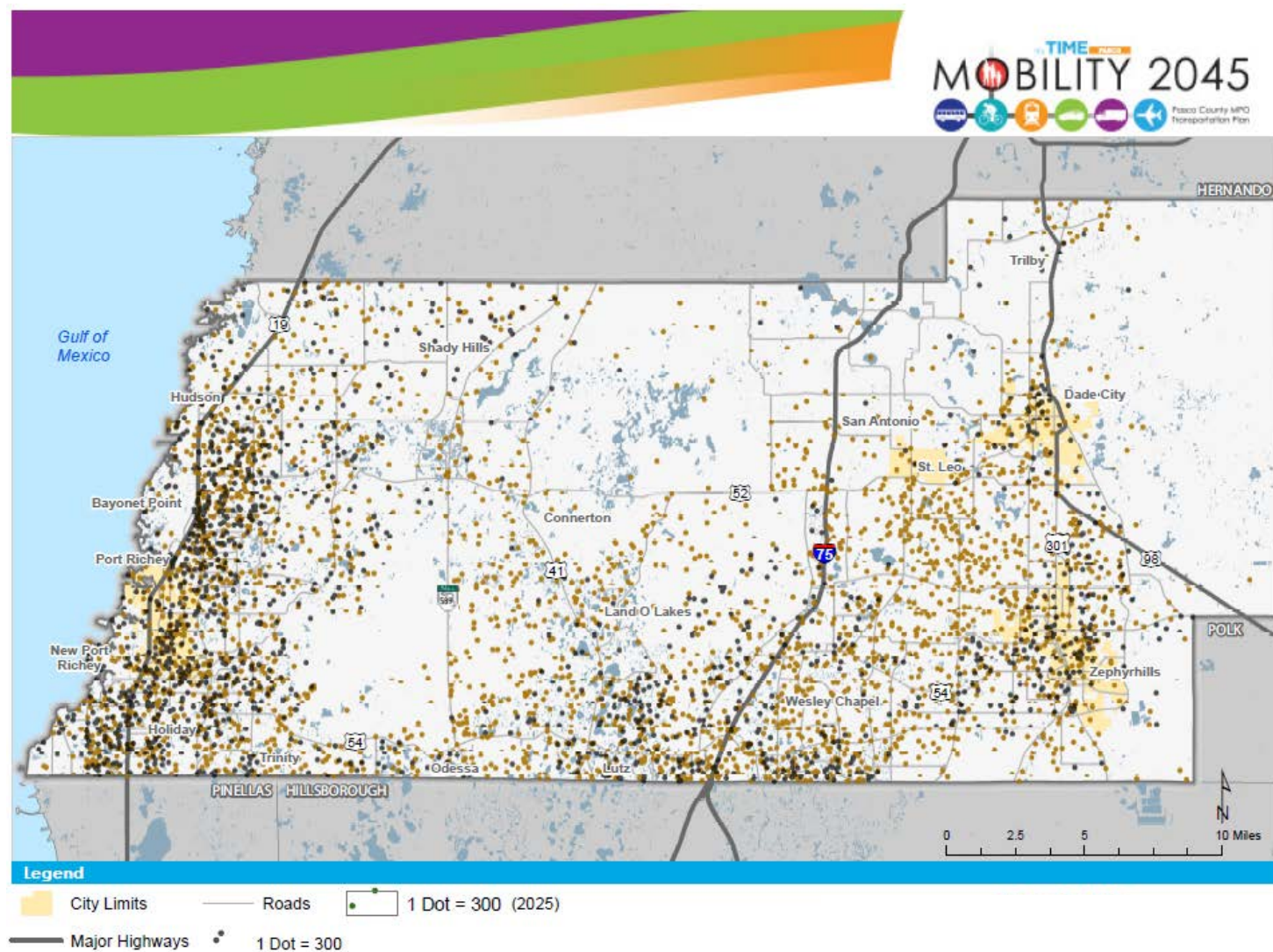


Figure 12: 2040 LRTP Anticipated Growth Distribution

