# POPULATION OUTLOOK FOR POTTAWATOMIE COUNTY (Basis for Green Valley Area Projections)

Population projections are an important component of a long-range planning process. They help determine and quantify the demands that will be placed on public facilities and services based on the potential pace and scale of the County's physical growth. Projections reflect local, regional, national and international trends and offer a basis to prepare for the future. However, forecasting population changes can be challenging, particularly for the long term, because it is often difficult to account for all circumstances that may arise. Therefore, it will be important for the County to monitor population and economic growth continually to account for both short- and longer-term shifts that can influence development activity and trends in the community and larger region.

## Alternative Growth Scenarios

Demographers caution that population projections become trickier as the geographic area gets smaller. This is because local population change is strongly influenced by less predictable factors such as housing prices, availability of vacant land to develop, and economic shifts at the regional level.

Given this context, the chart in this section provides a comparison of several potential scenarios for future population change in Pottawatomie County. The projections build on the latest U.S. Census figure of 23,661 for 2016 and identify potential population levels in five-year increments forward to 2040.

## Wichita State Projection

The Center for Economic Development and Business Research (CEDBR) at Wichita State University releases Kansas county-level population projections through the year 2064. The projections methodology "is based primarily on the age-cohort survival method of forecasting. For each county, each five-year age-gender cohort's population change was fore-casted in five-year increments, starting with U.S. Census Population Estimates data for 2014. Under this forecasting method, each cohort group's population is forecasted forward five years at a time by using the estimated mortality rate and the estimated migration rate for that age-gender cohort in the county to projection population changes for that age-gender cohort." (CEDBR, February 2016 release).
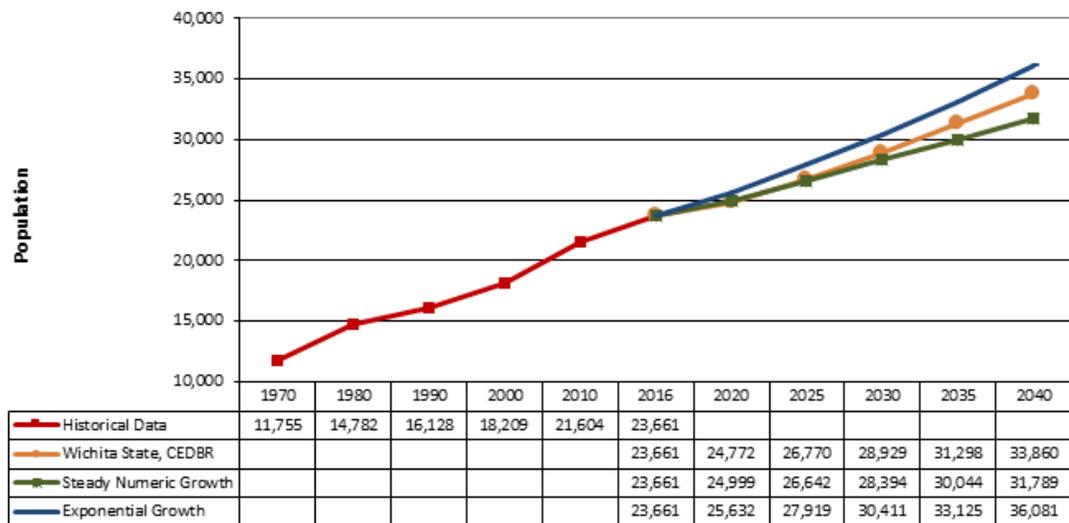
## Projections Based on Varying Quantities and Rates of Growth

Another population projection method extends historical trends to future years. Linear growth forecasts are "straight line" projections that result in the same absolute number of new persons being added to the population in each period. This produces a declining rate of growth over time as the same amount is being added to an ever-expanding base (in the case of Pottawatomie County, adding 3,395 residents per decade). Exponential growth projections produce higher numbers than linear by assuming a constant rate of growth over time. This is similar to the power of compound growth in a savings account over time; the interest (i.e., growth) rate may not change, but it is being applied to an ever-expanding balance, resulting in larger and larger interest earnings over time. In the case of Pottawatomie County, the Exponential and Linear Growth scenarios result in a population difference of 4,292 because the growth increments are large.

The Exponential Growth line is based on the 1.7 percent compound annual growth rate (CAGR) the County experienced from 2010 to 2016. The Exponential Growth line leads to a 2040 population of 36,081 while the Linear Growth line, labeled as "Steady Numeric Growth" on the chart, leads to a 2040 population of 31,789.

## Figure 6, Pottawatomie County Projections based on Varying Quantities and Rates of Growth



| | 1970 | 1980 | 1990 | 2000 | 2010 | 2016 | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Historical Data | 11,755 | 14,782 | 16,128 | 18,209 | 21,604 | 23,661 | | | | | |
| Wichita State, CEDBR | | | | | | 23,661 | 24,772 | 26,770 | 28,929 | 31,298 | 33,860 |
| Steady Numeric Growth | | | | | | 23,661 | 24,999 | 26,642 | 28,394 | 30,044 | 31,789 |
| Exponential Growth | | | | | | 23,661 | 25,632 | 27,919 | 30,411 | 33,125 | 36,081 |

# THE GREEN VALLEY AREA

The Green Valley Area is not an officially designated statistical area and historic population figures for the Area do not exist. Therefore, a population growth estimate had to be generated using known data specific to the Green Valley Area. The following methodology was used to generate a population growth estimate for the Area utilizing residential construction permit data.

The percentage of new homes permitted in The Green Valley Area from 2010-2018 was 527 as compared to 1,067 in all of Pottawatomie County. This equates to 49.4 percent of all new home permits issued in the county during this time frame. Next, the incremental amount of new population added to the County was calculated for each year in the County population estimate table. For Example, the difference in total population from the year 2016 to 2020 in the Wichita State model is 1,111. Assuming that 49.4 percent of this new population is living the homes built in the Green Valley Area, the estimated increase in the Green Valley Area's population from 2016 to 2020 is 550. This same methodology was applied to all years in the County-wide population estimate as show in the chart below and then used to create total population estimates for each year.

# BOTTOM LINE

It is wise to think in terms of a range of potential growth rather than an absolute number given the uncertainty of any small-area forecast that extends beyond a few years. It is assumed for this Plan that The Green Valley Area's 2040 population will increase by a forecast range of 4,023 to 6,148 persons, which yields a midpoint of 5,086.

Using a base population estimate of 3,983 (provided by ESRI's Business Analyst Software), the midpoint of a potential growth range to assume for this Area Plan – between the higher Exponential Growth projection and the Wichita State projection – would put the Area's population at approximately 4,533 in 2020; 6,591 in 2030; and 9,032 in 2040. This would mean an additional 5,049 residents from 2018 and implies that the Green Valley Area could add the equivalent of 127 percent of its current population by 2040. For perspective, ESRI calculates that the 2018 average household size in The Green Valley Area is 2.8 persons, meaning that 1,803 additional housing units would be needed to accommodate 5,049 additional residents.

## Figure 7, Green Valley Area Projections Based on Percentage of Pottawatomie County Growth Projections



|  | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Wichita State, CEDBR | 550 | 1,539 | 2,608 | 3,780 | 5,049 |
| Steady Numeric Growth | 662 | 1,476 | 2,343 | 3,159 | 4,023 |
| Exponential Growth | 976 | 2,108 | 3,341 | 4,685 | 6,148 |

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