

Chapter Three

Population

Introduction

Under the direction of Brigham Young, Provo City was settled by Mormon pioneers in the Spring of 1849. John S. Higbee led 33 families (approximately 150 people) from Salt Lake City to the Provo area, a difficult three-day travel. On April 3, 1849, the pioneers started construction of a fort on the south bank of the Provo River, three miles east of Utah Lake. In 1850, the settlers moved east toward higher ground. Blocks of four acres were surveyed and divided into parcels for home sites. Provo City became the county seat for Utah County on January 31, 1850.

Demographic Profile of Provo

Since the 1849 settlement of Provo, the demographics have changed significantly. Provo City's demographic statistics are reflected in the U.S. Census Bureau's American Community Survey: 2005-2007. They include population, sex and age, race, household by type, and college student population. According to the U.S. Census Bureau Population Estimates Program, Provo City had a 2008 population of 118,581. This chapter will use this number as the base population, including its use for all population projections. Alternatively, the U.S. Census Bureau 2005-2007 American Community Survey (ACS) was used to provide other demographic information where the Population Estimates Program does not. The ACS estimates a 2007 base population of 115,163.

Population Tables

The tables on the following pages include data that describe the population of Provo, either as it existed at the time of the most recent U. S. Census, or as projected to occur, or as recorded to exist in past years.

Population

Since the settlement of Provo City in 1849 by approximately 150 people, Provo City's demographics have changed significantly. Provo has experienced an average annual growth rate of approximately 2.75%. Table 3.1 Population by Year shows population numbers from 1860 to 2000.

| TABLE 3.1 POPULATION BY YEAR | | | |
|-------------------------------------|-------------------|--------------------------|---|
| Year | Population | Percent of Change | Average Percent of Annual Growth |
| 1860 | 2,030 | N/A | N/A |
| 1870 | 2,384 | 17% | 1.7% |
| 1880 | 3,452 | 45% | 4.5% |
| 1890 | 5,159 | 49% | 4.9% |
| 1900 | 6,185 | 20% | 2.0% |
| 1910 | 8,925 | 44% | 4.4% |
| 1920 | 10,303 | 15% | 1.5% |
| 1930 | 14,766 | 43% | 4.3% |
| 1940 | 18,071 | 22% | 2.2% |
| 1950 | 28,937 | 60% | 6.0% |
| 1960 | 36,047 | 25% | 2.5% |
| 1970 | 53,131 | 47% | 4.7% |
| 1980 | 74,111 | 39% | 3.9% |
| 1990 | 86,835 | 17% | 1.7% |
| 2000 | 105,439 | 21% | 2.1% |
| 2008 (Estimate) | 118,581 | 12% | 1.5% |

U.S. Census Bureau Decennial Censuses, U.S. Census Bureau, 2005-2007 American Community Survey

Gender and Age

As Table 3.2 Gender and Age shows, Provo City had a male population of 56,070 (48.7%) and a female population of 59,093 (51.3%) for the year 2007. Provo has a very young population with a median age of 23.3 years, compared to 36.4 years nationally, although the median age does seem to be rising since the 2000 Census.

| TABLE 3.2 GENDER AND AGE OF TOTAL POPULATION | | | | |
|---|------------------------|------------------------|--------------------------|--------------------------|
| Age Cohort | Male Population | Male Percentage | Female Population | Female Percentage |
| Under 5 years | 5,887 | 5.11 | 5,133 | 4.46 |
| 5 to 9 years | 2,758 | 2.39 | 2,929 | 2.54 |
| 10 to 14 years | 2,564 | 2.23 | 2,341 | 2.03 |
| 15 to 19 years | 6,572 | 5.71 | 8,794 | 7.64 |
| 20 to 24 years | 15,299 | 13.28 | 16,331 | 14.18 |
| 25 to 34 years | 11,537 | 10.02 | 10,401 | 9.03 |
| 35 to 44 years | 3,516 | 3.05 | 3,540 | 3.07 |
| 45 to 54 years | 2,998 | 2.60 | 3,328 | 2.89 |
| 55 to 59 years | 1,406 | 1.22 | 1,379 | 1.20 |
| 60 to 64 years | 906 | 0.79 | 1,457 | 1.27 |
| 65 to 74 years | 1,336 | 1.16 | 1,455 | 1.26 |
| 75 to 84 years | 977 | 0.85 | 1,448 | 1.26 |
| 85 years & over | 325 | 0.28 | 557 | 0.48 |
| Total | 56081 | 48.69 | 59,093 | 51.31 |

U.S. Census Bureau, 2005-2007 American Community Survey

Households

Provo City is estimated to have 31,100 total households. Provo's average household size is 3.35 persons per household, while the average family size is 3.42 persons per family. Table 3.3 2007 Households by Type show the categories of family and non-family households. Because Provo is home to Brigham Young University, the number of non-family households is significant.

| TABLE 3.3 2007 HOUSEHOLD BY TYPE | | |
|--|---------------|-------------------|
| Type | Number | Percentage |
| Family Households (families) | 21,001 | 67.5 |
| With own children under 18 | 9,611 | 30.9 |
| Married-couple family | 17,540 | 56.4 |
| With own children under 18 | 8,018 | 25.8 |
| Female householder, no husband present | 2,413 | 11.48 |
| With own children under 18 | 1,186 | 3.8 |
| Non-family households | 10,099 | 32.5 |
| Householder living alone | 4,780 | 15.4 |
| Householder 65 years and over | 1,298 | 4.2 |
| Households with individuals under 18 years | 10,553 | 33.9 |
| Households with individuals 65 and over | 4,123 | 13.3 |

U.S. Census Bureau 2005-2007 American Community Survey

College Student Population

A large college student population resides in Provo due in large part to Brigham Young University (BYU). However, Utah Valley University (UVU), though located in the City of Orem, also impacts the number of students living in Provo. In addition to BYU and UVU, Provo also has several other institutions of higher education that augments the college student population. According to the American Community Survey conducted by the U.S. Census Bureau, Provo had 42,649 enrolled students over the age of 18. Table 3.4 *Winter 2009 College Student Enrollment* shows the number of students living in Provo from BYU and UVU.

| TABLE 3.4 WINTER 2009 COLLEGE STUDENT ENROLLMENT | | |
|--|------------|------------------------|
| Institution | Enrollment | Living in Provo |
| Brigham Young University ¹ | 33,145 | 28,232 (85%) |
| Utah Valley University ² | 23,214 | 4,343 (estimate) (20%) |
| Total | 56,359 | 32,575 (58%) |

¹ BYU Institutional Assessment and Analysis, 2009, ² UVSC Institutional Research and Planning, 2009

Based upon these numbers there are upwards of 10,000 persons living in Provo enrolled in higher education at institutions other than BYU and UVU. Compared to Census Population Estimates, 37% of the City is enrolled full or part-time in higher education.

Population Projections

Anticipating population growth and trends is essential to any long-range planning effort. This section examines various population projection methods and includes projections for Provo according to each method. A combination of these estimates is used to project a realistic future population.

The accuracy of population projections depends upon the accuracy of existing population figures and the sensibility of assumptions underlying the projections method. Methods used to calculate present population consist of projections by the Provo City Community Development Department and one outside projection by Mountainland Association of Governments. Projections by the Provo City Community Development Department include the logarithmic extrapolation and building permit methods. Mountainland Association of Governments uses the General Plan Analysis method.

Method One: Logarithmic Extrapolation Method

This method is used to calculate the annual growth rate during a time period where population change occurred. The most recent population estimate from the United States Census Bureau's

2008 population estimates as well as the 2000 population from the decennial census are used to calculate the annual growth rate during that time period. The following formula was used to calculate the annual growth rate:

$$\text{LN}(2008 \text{ population}/2000 \text{ population})/8*100=\text{annual growth rate}$$

Using the calculated annual growth rate, it is possible to project what the population will be in the future. Based on the population values for Provo in 2000 and 2008, Provo had an annual increase in population of 1.47% during the eight year time period. Using the annual growth rate, the following formula can be used to calculate future population values:

$$\text{Future Population}=\text{Base year population} * \exp(.014683 * \text{number of years})$$

Based on the calculated annual growth rate, the formula used above calculates a 2010 population of 122,114. While this method is quick, easy and provides an annual growth rate during the recent decade, it also lacks the particular variables that may affect population growth such as fertility, mortality, and economic conditions.

Method Two: Building Permit Method

There are a couple of projections that can be used in the building permit method. The one that Provo will use is based upon the average household size of a dwelling unit. There are different averages for households in a dwelling unit depending on the type of dwelling unit. Provo will use the U.S. Census Bureau's average household size for Provo of 3.35 to project the current and future population.

To project the current population, the average number of demolition permits are subtracted from the average number of building permits. The net number of building permits is then multiplied by the average household size. The annual population is then divided by the 2000 population to get an annual growth rate. For example:

1. Average building permits for units - Average demolition permits for units
2. Net units x average household size = Population
3. $\text{LN}(\text{Population with new Permits} / 2000 \text{ population})/8*100 = \text{annual growth rate}$

The annual growth rate based on this calculation is 1.49%. This growth rate projects that population in the year 2010 will be 122,160. The building permit method described above does not provide allowances for fertility, mortality rates or fluctuations in the economy that affect residential construction.

Method Three: General Plan

Population estimates may be determined by evaluating the amount and type of residential growth allowed under current or proposed policies. By doing so, a minimum and maximum build-out can be projected. Mountainland Association of Governments projected a middle build-out, which resulted in a 0.91% annual growth rate. The projected population of 2010 would be

121,330.

Summary of Methods

Table 3.5 Population Projection Methods and Results presents a summary of growth rates derived from the above methods and the resulting population projections from those methods through the year 2030.

| TABLE 3.5 POPULATION PROJECTION METHODS AND RESULTS | | | | | | | |
|--|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Method | Growth Rate | 2000 | 2010 | 2015 | 2020 | 2025 | 2030 |
| Logarithmic | 1.47% | 105,439 | 122,115 | 131,417 | 141,428 | 152,202 | 163,796 |
| Building Permit | 1.49% | 105,439 | 122,160 | 131,588 | 141,744 | 152,684 | 164,469 |
| General Plan¹ | 0.91% | 105,439 | 121,330 | N/A | 131,258 | N/A | 138,450 |
| Total Averages | 1.29% | 105,439 | 121,868 | 129,766 | 138,143 | 146,579 | 155,571 |

Provo City Community Development Department, 2009, ¹Mountainland Association of Governments, 2008

Population growth is influenced in part by land use policies which affect the amount of land set aside for residential growth and development densities. The policies in this general plan reflect a conservative approach for additional multi-family housing. The various methods show growth rates that may be interpreted as very low to very high. Therefore, averaging the various methods probably provides a more realistic growth rate. The average of 1.29% annual growth would result in a population of 121,868 by 2010. By 2030, the planning length of the general plan, the population would be 155,571. The Provo City Census Tracts Map, on file in the Provo City Community Development Department, shows the census tract boundaries for the 2000 Census. This map may be helpful for statistics at the census tracts level.

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