Washington County Temporary Resident Population Estimates, 2017

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ANALYSIS IN BRIEF

Washington County’s blend of outdoor recreation opportunities and retirement communities contribute to a large, but previously unknown number of temporary residents. We estimate there were 57,069 temporary residents in Washington County at the fall 2017 seasonal peak in addition to the already estimated 165,592 permanent residents. This research offers a more comprehensive measure of population that is particularly informative to planners in a high-visitiation area such as Washington County.

- The 57,069 temporary residents equates to an additional third of the 165,592 permanent resident population. The two sum to estimate the 2017 total peak population of 222,661. The total peak population is then 74 percent permanent residents, and 26 percent temporary residents.

- The peak estimate varies daily and seasonally. We measure overnight visitors and seasonal residents in Washington County on an average peak visitor weekend in 2017 such as Labor Day weekend.

- The temporary resident population is comprised of two distinct populations: overnight visitors and seasonal residents. Overnight visitors stay in commercial or private accommodations, and seasonal residents stay in secondary homes.

- We identified seasonal patterns in the overnight visitor population. We estimate 28,103 overnight visitors during the peak season in the fall, and 11,498 during the low season in the winter, with a maximum capacity of approximately 43,000 overnight visitors.

- Washington County has a large share of secondary homes, approximately 20 percent of the county’s total housing units. We translate those secondary housing units into people, and estimate 28,966 seasonal residents in 2017.

These peak temporary visitor population estimates provide an important foundation for understanding the Washington County population. This work provides a baseline for future temporary resident research, and creates a data-driven analysis to answer the question: How many people reside in Washington County on a busy weekend?
Overview

Washington County’s blend of outdoor recreation opportunities and retirement communities contribute to a large, but previously unknown number of seasonal residents and overnight visitors. An accurate estimate of this population is vital information for appropriate regional planning because these temporary residents utilize local infrastructure and services. Traditional population estimates, such as those produced by the Census Bureau and the Utah Population Committee (UPC), measure the permanent residents who live in Washington County for most of the year. These official estimates do not include temporary or seasonal residents. This research provides new information on this illusive and highly impactful seasonal population.

We estimate there were 57,069 seasonal residents and overnight visitors in Washington County at the 2017 seasonal peak. This estimate equates to an additional third of the 165,592 permanent residents, and results in 222,661 total permanent and temporary residents during the peak, fall season. The total peak population is then 74 percent permanent residents, and 26 percent temporary residents. We utilized multiple local data sources to estimate the seasonal residents and temporary visitors, and performed a supplemental analysis of Airbnb and HomeAway/VRBO rental data.

Results

What is Driving Washington County’s Temporary Resident Population?

Washington County’s seasonal population and overnight visitor growth trends are intertwined with the robust regional resident population and economic expansion that began in the late 1960s. Washington County is now the 5th most populous county in the state, growing from 13,900 in 1970 to 171,040 in 2018, an absolute growth of 157,140 residents, and a greater than tenfold increase. The Census Bureau recognized the St. George Metropolitan Statistical Area (Washington County) as the fastest growing MSA in the nation in its most recent data.

Its proximity off of I-15 between Salt Lake City and Las Vegas, regional economic growth and development, and the county’s unique recreational opportunities—including Zion National Park and four state parks—strengthen its renown within the western United States as both a place to live and visit. Population growth, particularly retirees, and the expansion of the travel and tourism sector have shaped the local economy. Washington County has developed an economic structure that serves this population with industry concentrations in residential construction, services, retail trade, accommodations and restaurants, and healthcare and medical service industries. These provide a wide range of opportunities for visitors and residents.

Migration has become a dependable mainstay of Washington County population growth, having contributed over 70 percent of the county’s population increase since 2010. Over the last half century, Washington County has gone from net out-migration across all age groups to net in-migration of virtually every age group, including the retirement ages. Researchers consistently distinguish it nationally as a recreation and retirement county.

How Many Temporary Residents are in Washington County on a Peak Day?

We estimate there were 57,069 temporary residents in Washington County at the 2017 seasonal peak. A temporary resident is any visitor or seasonal resident who stays at least one night in Washington County. Our temporary resident estimate is an average daily number of temporary residents on one of the busiest days in Washington County.

In 2017, the Utah Population Committee (UPC) estimated 165,592 permanent residents in Washington County. Figure 1 shows the two estimates (permanent and temporary residents). Adding the permanent and temporary resident populations result in a total peak Washington County population estimate of 222,661. Past anecdotal evidence had suggested that Washington County accommodated an extra 20 percent above the residential population estimates, but our results indicate that number is closer to 26 percent.

The peak temporary resident population is the sum of two distinct groups: overnight visitors and seasonal residents. Overnight visitors utilize varying paid and free accommodations such as hotels, motels, bed and breakfasts, resorts, campgrounds and RV parks. We utilized overnight stay accommodation data and applied occupancy rates and average travel party size by each accommodation type to estimate this population.

Seasonal residents stay longer than the typical overnight visitor, usually for a few months at a time in their second homes or timeshares. We estimated the seasonal population by applying the 2010 Decennial Census occupation rates and household size data to Washington County Assessor data records marked as non-primary homes. Figure 2 shows the 2017 population estimates by type.
How Should We Interpret These Numbers?

We estimate that there are approximately 57,000 overnight visitors and seasonal residents in Washington County on a peak visitor weekend such as Labor Day weekend. This estimate is a peak daily count that can, in reality, vary daily and seasonally. This is distinct from and in addition to the UPC permanent resident population estimate of 165,592. The two sum to estimate the 2017 total peak population of 222,661.

The Overnight Visitor Population

Utah residents and out-of-state visitors travel to and stay overnight in Washington County for reasons that range from business travel to vacation. Overnight visitors stay in a variety of commercial, private, and/or free accommodations. Many visitors choose to stay in commercial paid accommodations such as hotels/motels/hostels, bed and breakfasts, short term rentals, resorts, RV parks, and campgrounds. There are also many accommodations that are free or are not commercially taxed, including second homes (e.g., houses, timeshares, and condominiums), and family or friends’ private residences. Our estimates also include nonresident youth staying overnight in Washington County residential therapy programs. We exclude overnight visitors who stay in short term rentals (e.g., AirBnB), camp on BLM land, sleep in cars, or those who pass-through the county.

We estimate the average low and high-season overnight visitors, along with the maximum capacity of most of the accommodation types. Table 1 and Figure 3 display our estimates. We estimate approximately 28,000 overnight visitors during the peak season in the fall, and approximately 11,500 during the low season in the winter, with a maximum capacity of approximately 43,000 overnight visitors. The 28,103 overnight visitors at peak season accounts for an additional 13 percent of Washington County’s 2017 estimated total peak population.

<table>
<thead>
<tr>
<th>Accommodation Type</th>
<th>Average Overnight Visitors (Low Season)</th>
<th>Average Overnight Visitors (High Season)</th>
<th>Max Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>11,498</td>
<td>28,103</td>
<td>43,045</td>
</tr>
<tr>
<td>Hotel/Motel/Hostel</td>
<td>7,215</td>
<td>14,621</td>
<td>21,828</td>
</tr>
<tr>
<td>Private Home (Friends/Family)</td>
<td>2,700</td>
<td>8,200</td>
<td>8,200*</td>
</tr>
<tr>
<td>Campground/RV Site</td>
<td>600</td>
<td>4,200</td>
<td>11,800</td>
</tr>
<tr>
<td>Youth Residential Programs</td>
<td>878</td>
<td>878</td>
<td>975</td>
</tr>
<tr>
<td>Bed and Breakfast</td>
<td>105</td>
<td>204</td>
<td>242</td>
</tr>
</tbody>
</table>

*Max Capacity is unknown for visitors staying with friends and families.


Figure 3: Overnight Visitor Estimates, Washington County, 2017

*Max Capacity is unknown for visitors staying with friends and families.

Our research indicates that there remains significant capacity within the existing overnight accommodations to support an even greater number of overnight visitors. We based overnight visitors on monthly or quarterly trends, which does not identify actual daily peaks or variations.

Seasonal Trends by Overnight Visitor Accommodation

Washington County visitation peaks in the fall and is lowest in the winter. We identified these seasonal patterns in the occupancy rates across different types of overnight accommodations. Some data sources have monthly or quarterly data while others do not provide data frequently enough to identify seasonal trends.

The largest share of Washington County overnight visitors stay in hotels/motels/hostels. Figure 4 shows a distinct seasonality, with the highest occupancy reported in September and the fall months, and the lowest occupancy reported in December and January.

We identified 38 campgrounds and RV parks in Washington County in 2017 (see Appendix D for list). The 19 public campgrounds/RV parks had a maximum capacity of approximately 5,300 campers per day, and the 19 private campgrounds/RV parks had a maximum capacity of approximately 6,500 campers per day. This sums to a maximum of 11,800 campers per day.

Quarterly survey data showed distinct seasonality in the number of visitors who stay in Washington County campgrounds, and we applied those data to the maximum capacity numbers to estimate total peak and low season occupancy (see Methodology section for details). We estimated approximately 600 campers per night during the winter season and approximately 4,200 campers per night during the fall season (Table 1).

We estimated the “Private Home” accommodation type very similarly to the camping accommodation type by comparing proportions from OmniTrak Group survey data that asks where visitors stayed and the purpose of their stay. We calculated the ratio of those staying in private homes to those staying in hotels, and multiplied this ratio by low season and high season hotel visitor counts to estimate a range of visitors staying in private homes. We were able to approximate a peak and low estimate, but we were unable to estimate a reasonable maximum capacity since we consider every home in Washington County a possible place for someone to stay.

We utilized Utah Department of Human Services data that provides number of slots (beds) per licensed youth residential treatment program by county to estimate nonresident therapy program participants.

The Seasonal Resident Population

Washington County has a large share of secondary homes. Approximately 20 percent of the total housing units in the local county Assessor Data are designated as “Non-Primary”. The Census Bureau defines these non-primary homes as vacant if they are occupied by individuals that live somewhere else for more than 6 months of the year. This assumption is correct for estimating the permanent resident population, but is problematic when estimating the total number of people residing in the county on a nightly basis regardless of residency.

We estimated the seasonal population by applying 2010 Decennial Census household occupancy rates and household size to all non-primary residential parcels in Washington County. We calculated estimates at the Census tract level to account for geographic rate variation across the county. We summed Census tract estimates to provide a total county estimate (please see Appendix F for Washington County Census tract boundaries, and Appendix G for Census tract occupancy and household size). Tables 2 and 3 show the number of non-primary housing units and the resulting seasonal population for 2010 and 2017.

Washington County added 2,761 new non-primary housing units to their records since the 2010 Decennial, totaling 13,238 non-primary units in 2017. We translate those housing units into people, and estimate 28,966 seasonal residents in 2017. This accounts for an additional 13 percent of Washington County’s 2017 estimated total peak population.

Table 2: Non-Primary Homes: Housing Units, Washington County

<table>
<thead>
<tr>
<th>Total # of Units April 1 2010</th>
<th>New Units 2011-2017</th>
<th>Total # of Units 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,477</td>
<td>2,761</td>
<td>13,238</td>
</tr>
</tbody>
</table>

Source: Kem C. Gardner Policy Institute analysis of Washington County Assessor data

Table 3: Seasonal Residents: Population Estimates Washington County

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>22,431</td>
<td>6,535</td>
<td>28,966</td>
</tr>
</tbody>
</table>

Sources: Kem C. Gardner Policy Institute analysis of Washington County Assessor data and Census Bureau data
This is a peak seasonal population estimate since we apply permanent resident household occupancy rates (approximately 80 percent occupancy at the county level). We assume that occupancy patterns are the same for both seasonal and permanent residents, though we expect that in reality, overnight visitors have slightly lower and less consistent occupancy trends than permanent residents.

We estimated maximum capacity of these secondary homes by assuming 100 percent occupancy. Figure 5 compares our seasonal peak population estimates and seasonal home maximum capacity. These data show that if all of the seasonal units were occupied in 2017, there would be approximately 37,000 seasonal residents, rather than the peak estimate of approximately 29,000.

**Short Term Rental Supplemental Analysis:**

**Airbnb and HomeAway/VRBO**

We acquired short term rental data from AirDNA, a company that uses an online algorithm to collect data listings daily from two main short term rental websites: Airbnb and HomeAway/VRBO. This analysis is separate from and not included in the temporary visitor population estimates. This data, while an important type of overnight accommodation, was intentionally left out of the official estimates. An unknown number of these rentals are potentially non-primary homes used in the seasonal resident estimates or they are primary homes included in the UPC primary residential estimates. We do not have any data to understand the potential overlap of these estimates, so we have kept them separate.

The number of Washington County short term rental listings has been exponentially increasing since 2014, with a very sharp increase in June 2017, and approximately 1,779 total listings in December 2017 (Figure 6).

The seasonal occupancy patterns are very similar to what we see in the hotel/motel/bed and breakfast data. Peak occupancy occurs in October, and the lowest occupancy occurs in January and February. We see the real story once we compare occupancy to maximum capacity. The AirDNA data shows us that there is extremely low occupancy compared to the total number of listings available. For example, in October, there was room for approximately 12,000 visitors, but only 3,900 visitors stayed in a short term rental. That equates to roughly 33 percent occupancy during peak season. Figure 7 shows the monthly occupancy and total capacity data.

These patterns indicate that visitors are currently more likely to stay in traditional overnight accommodations like hotels rather than in home-sharing accommodations. For more detail on AirDNA rental data and monthly numbers, see the Methodology section.

**Why Are These Estimates Important?**

These peak temporary visitor population estimates provide an important foundation for understanding the Washington County population. This research and these estimates offer a much more comprehensive view and definition of population that may be more helpful for planning purposes in a high-tourism area such as Washington County. This work provides a baseline for future temporary resident research, and creates a data-driven analysis to answer the question: How many people reside in Washington County on a busy weekend?
Methodology

We created two distinct methodologies for the temporary resident estimates, one for overnight visitors and one for seasonal residents. Each method uses different data and assumptions. The following sections provide detailed information on the data, methods, and assumptions.

Overnight Visitor Population Estimate Data and Methods

Commercial Overnight Accommodations

Transient room tax revenues track overall Washington County visitation trends. Washington County accommodation sales are subject to a 4.25 percent county transient room tax. Based on Utah State Tax Commission records, Washington County’s transient room sales tax revenues more than doubled between 2008 and 2017, increasing from 3.5 million to 7.7 million when adjusted for inflation (see Figure 8). This translates to overnight visitors spending almost $100 million more on Washington County accommodations in 2017 than in 2008.

—Hotels, Motels, and Hostels

The largest share of Washington County overnight visitors stays in hotels, motels, and hostels (hotels). In 2017, Smith Travel Research (STR) surveyed 65 out of 74 Washington County hotels to gather occupancy rates, daily room rates, and revenue per available room (see Appendix A). Washington County’s 74 hotels offered an average of 5,300 available nightly rooms. From 2015 to 2017, average monthly occupancy rates in Washington County ranged from approximately 40 percent in the winter to 80 percent in the summer, dropped slightly in August, and peaked at 84 percent in September/October (see Figure 9).

Figure 9: Hotel Occupancy Rates by Month, Washington County, 2015-2017

Each month, travel research firm OmniTrak Group, Inc. (OTG) surveys and collects data from a panel of over 50,000 American travelers. According to OTG, in 2017, 57 survey respondents (along with their travel party members) stayed overnight in Springdale, UT; an additional 110 stayed overnight in St. George, UT; and 21 stayed overnight in both Springdale/St. George for a net 146 Washington County respondents/travel parties. The average annual travel party size for this domestic visitor group was 3.15 persons per travel party. In 2017, Washington County travel party size differed slightly by quarter.

We estimated the average number of Washington County hotel room visitors by using STR’s average monthly hotel occupancy rates, Washington County’s average monthly hotel room count, and OTG’s average quarterly travel party size (see Table 4).11

—Bed and Breakfasts

Bed and breakfasts (B&Bs) are lodging establishments that offer guests overnight accommodation and breakfast. In 2017, there were 28 commercial B&Bs in Washington County with an estimated 121 available rooms (see Appendix B). Each B&B offered one to 14 rooms for nightly rent. We used STR’s average monthly hotel occupancy rates to estimate B&B overnight visitor counts (see Table 5).12

Figure 10 shows estimated overnight visitors compared to maximum B&B room capacity.

Table 4: Hotel Visitor Estimates, Washington County, 2017

<table>
<thead>
<tr>
<th>Month (2017)</th>
<th>STR Occupancy Rate</th>
<th>Hotel Rooms</th>
<th>Occupied Rooms</th>
<th>Persons Per Room</th>
<th>Avg Overnight Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>44.1%</td>
<td>4,914</td>
<td>2,167</td>
<td>3.33</td>
<td>7,216</td>
</tr>
<tr>
<td>Feb</td>
<td>55.3%</td>
<td>5,028</td>
<td>2,780</td>
<td>3.33</td>
<td>9,259</td>
</tr>
<tr>
<td>Mar</td>
<td>71.6%</td>
<td>5,190</td>
<td>3,716</td>
<td>3.33</td>
<td>12,374</td>
</tr>
<tr>
<td>Apr</td>
<td>76.8%</td>
<td>5,284</td>
<td>4,058</td>
<td>3.01</td>
<td>12,215</td>
</tr>
<tr>
<td>May</td>
<td>78.4%</td>
<td>5,284</td>
<td>4,143</td>
<td>3.01</td>
<td>12,469</td>
</tr>
<tr>
<td>Jun</td>
<td>81.1%</td>
<td>5,284</td>
<td>4,285</td>
<td>3.01</td>
<td>12,899</td>
</tr>
<tr>
<td>Jul</td>
<td>78.4%</td>
<td>5,284</td>
<td>4,143</td>
<td>3.30</td>
<td>13,671</td>
</tr>
<tr>
<td>Aug</td>
<td>74.9%</td>
<td>5,284</td>
<td>3,958</td>
<td>3.30</td>
<td>13,060</td>
</tr>
<tr>
<td>Sep</td>
<td>84.2%</td>
<td>5,262</td>
<td>4,431</td>
<td>3.30</td>
<td>14,621</td>
</tr>
<tr>
<td>Oct</td>
<td>75.5%</td>
<td>5,457</td>
<td>4,120</td>
<td>3.09</td>
<td>12,731</td>
</tr>
<tr>
<td>Nov</td>
<td>59.8%</td>
<td>5,457</td>
<td>3,263</td>
<td>3.09</td>
<td>10,084</td>
</tr>
<tr>
<td>Dec</td>
<td>43.4%</td>
<td>5,380</td>
<td>2,335</td>
<td>3.09</td>
<td>7,215</td>
</tr>
</tbody>
</table>

Source: Kem C. Gardner Policy Institute analysis of OmniTrak Group, Inc., and STR, Inc., data

Figure 10 shows estimated overnight visitors compared to maximum B&B room capacity.
but are not limited to, apartment, cabin, campsite, chalet, earth house, estate, farmhouse, guest suite, house, nature lodge, private room in house, recreational vehicle, studio, tent, tipi, villa, and yurt.

We calculated the approximate number of overnight short term rental guests by separating rentals by month and by number of bedrooms. Next, we estimated the average number of guests per available room. We assumed two overnight guests in all studio and one-bedroom rentals; we used the average quarterly Washington County travel party size for all two-bedroom rentals (matching the estimates used for hotel rooms); seven guests for every three- to four-bedroom rental; 14 guests for every five- to nine-bedroom rental; and 25 guests for every 10- to 15-bedroom rental. Then we multiplied the number of estimated guests by the number monthly reservation days (reserved nights) and divided the total by the number of days in each month. Using this methodology, we estimate a low of 664 average overnight guests (January) to a high of 3,901 in October (see Table 6).

---Resorts

Compared to hotels, which normally offer lodging, limited meals, and possibly a swimming pool and gym, resorts usually encompass larger tracts of land than hotels and offer additional services, activities, and recreational opportunities (e.g. spas, golf courses, tennis courts). We identified 18 commercial Washington County resorts in 2017 (see Appendix C), but could not gather capacity or occupancy data. Please note, 11 of the 18 resorts list their rooms or rental units on short term rental websites, and those 11 resorts are included in the short term rental estimate. The other 7 are not included in any estimate due to lack of data.
—Campgrounds

We identified 38 Washington County campgrounds in 2017 (see Appendix D). Campgrounds offer one or more of the following: individual, double, and group sites (walk-in or drive-up), RV hookup sites, cabins, wagons, glamping tents, lodges, cottages, and A-frames.

The National Park Service, Utah State Parks, BLM, Pine Valley Ranger District, and Dixie National Forest manage Washington County’s 19 public campgrounds. These 19 public campgrounds offered around 555 single campsites, 20 double sites, and 19 large group sites, which could accommodate a maximum capacity of around 5,300 campers.

Washington County’s 19 private campgrounds and RV parks offered approximately 850 RV sites, 60 rental units (cabins, cottages, A-frames, cowboy wagons), 200 tent/glamping sites, and one group campsite for up to 10 people. We estimate these private campgrounds and RV parks had the capacity to accommodate up to 6,500 visitors per day at maximum capacity.

In total, we estimate Washington County’s 38 private and public campgrounds and RV parks had the capacity to accommodate up to 11,800 overnight visitors; however, we estimate the average number of nightly campers to be around 600-800 during the winter and closer to 3,800-4,200 during peak season.

—Other Accommodations

—Private Homes

OTG travel surveys capture the proportion of Utah overnight visitors by accommodation type, including hotel, B&B, private home, personal second condo/home, rental condo/home, timeshare, RV/tent, shared economy property, and other property. We filtered the OTG survey data to look at travelers that both stayed in a “private home” and also listed the primary purpose of their travel as “to visit family/friends.” We calculated the ratio of those staying in private homes to those staying in hotels, and multiplied this ratio by low season and high season hotel visitor counts to estimate a range of visitors staying in private homes. The low season ratio of private home guests is between 41 and 47 percent of hotel guests and during the high season the ratio is between 37 and 39 percent of hotel guests. As a result, we estimate around 5,000 nightly visitors stayed with family and friends in 2017, ranging from a low of 2,700 to 2,900 on a winter day to 6,400 to 8,200 in the summer/fall.

—BLM Camping

The U.S. Bureau of Land Management manages nearly 41 percent of Washington County. Dispersed camping—or camping in an undeveloped area without services—is allowed on BLM land free of charge. Dispersed BLM campsites can accommodate an unknown number of campers. In addition, there are an unknown number of seasonal Washington County visitors who park and live in their RV in Washington County for extended time periods. We did not include these visitors in the estimates.

—Residential Youth Therapy Programs

Washington County is home to several residential therapy programs that accommodate nonresident youth. In 2017, we identified 17 Washington County residential therapy programs, including six in St. George, four in Hurricane, two in Toquerville, and one each in Enterprise, Hildale, LaVerkin, New Harmony, and Santa Clara (see Appendix E). Although we do not know the occupancy rate of these 17 programs, we know that they had a combined maximum capacity of 975 youth beds and we assume that 90 percent of youth clients were nonresidents.

Total Overnight Visitation

We estimate a range from 11,498 overnight visitors during the off-season (December/January) to 28,103 overnight visitors during the high tourist season (September/October). These numbers include overnight visitors staying in Washington County hotels, bed and breakfasts, campgrounds, RV parks, private homes, and in youth residential programs. Short term rental estimates and resorts are not included in these totals (see Table 1).

Seasonal Resident Population Estimate Data and Methods

About the Assessor Data

Seasonal residents often stay in Washington County for several months at a time in their second homes or timeshares. The seasonal resident population estimates are based on assessor data (parcel data), which is first used to estimate counts of non-primary residential housing units. We estimate seasonal residents using a housing unit method to infer occupancy and persons per new dwelling unit.

Washington County provided assessor data in an Access database and we used the Residential Improvements table. We included records with abstract codes 12A, 12B, 12C, 12D, and 12E (“Residential – Non-Primary”, “Planned Unit Dev—Non-Primary”, etc) to estimate the number of non-primary residential structures. These abstract codes are contained in the field OCCABSTRACT. The BLASTOTALUNITCOUNT field contains the number of housing units for each parcel record. We preserved the number of units in this field, except for 16 records which were changed from 1 unit to 0 units. There were also 767 records with the total unit count given as 0 units in the assessor data. We did not alter the unit count for these records.

We found 13,658 non-primary residential parcel records built through 2017. Of these records, 10,999 records were built before or during 2009; 185 were built in 2010; and 2,474 records were built from 2011 through 2017. We analyzed a geographic layer of parcel data provided by Washington County to identify the corresponding census tract for each parcel with a nonresident housing unit(s).
Assumptions Used for Estimation

—Timing
The year built in the assessor data (field name BLTASYEAR BUILT) is the actual time the structure was completed. We assume that people occupy the structure immediately. The base amount of non-primary residential housing units (and the population they contain) are those present as of April 1, 2010 (Census Day). New non-primary residential housing units (and the population they contain) are those built after Census Day (April 1, 2010 through December 31, 2017). Our 2017 seasonal resident estimate (28,966) is the total of the base and the new populations.

Our base nonresidential population is centered on Census Day, which occurred three months into 2010. We included one-quarter of all structures built in 2010 in the base nonresidential population, and the other three-quarters are considered new nonresidential population. We have included all structures built in 2017, so our estimates are based on cumulative calendar year data.

—Occupancy Rates
We assume there are vacancies in some non-primary residential units. We do not have strong data on the occupancy rates of specifically non-primary residential units. So we use the overall rate of housing unit occupancy from Census 2010 as a substitute for this occupancy rate. The overall occupancy rate is the number of housing units occupied by primary residents, divided by the total housing units.

In Census 2010 data, the source of our occupancy rate, the total housing units includes all occupied or vacant housing units. Occupied units are those occupied as primary residences. Vacant housing units include those usually occupied by or available as primary residences, as well as those that are seasonal or other non-primary residences (whether occupied or not). In other words, a housing unit is considered vacant in census terminology if it is not occupied, or is occupied but not by a primary resident.

Our occupancy rate assumption means that non-primary residential units are assumed to have the same rates of use (occupancy) as the rate of primary residences in the overall pool of housing structures. Importantly, we assume that occupancy rates vary by location, so nonresident structures in a given census tract will follow the Census 2010 vacancy rate specific to that tract (Appendix G).

—Average Household Size (Persons per Household)
The seasonal population for each occupied non-primary residential unit is calculated using household size data from Census 2010. We assume that the number of people staying in a non-primary housing unit is the same as the primary resident population (the population represented in Census 2010 data). These differ according to the number of units in the structure. For structures containing 1-11 units, we use the owner-occupied average household size. For structures containing 12 units or more, we use the renter-occupied average household size. As with occupancy rates, we apply the Census 2010 average household sizes which correspond to the census tract location of each non-primary residential housing unit (Appendix G).

We estimated occupied non-primary housing units and seasonal residents by using the tract-level occupancy and household size assumptions listed above. Table 7 displays these results broken down by major time points in the estimation period.

Table 7: Non-Primary Total Housing Units, Occupied Housing Units, and Seasonal Residents, Washington County

<table>
<thead>
<tr>
<th>Units built through 2009</th>
<th>Total Units</th>
<th>Occupied Units</th>
<th>Seasonal Residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,431</td>
<td>7,983</td>
<td></td>
<td>22,325</td>
</tr>
<tr>
<td>Units built in 2010</td>
<td>183</td>
<td>146</td>
<td>425</td>
</tr>
<tr>
<td>Units built 2011 through 2017</td>
<td>2,624</td>
<td>2,128</td>
<td>6,216</td>
</tr>
<tr>
<td>2017 Estimate</td>
<td>13,238</td>
<td>10,257</td>
<td>28,966</td>
</tr>
</tbody>
</table>

Sources: Kem C. Gardner Policy Institute analysis of Washington County Assessor data and Census Bureau data
Appendix A: Washington County Hotels

Ambassador Inn
America's Best Inn & Suites St George
Americas Best Value Inn St George
Best Western Coral Hills
Best Western Plus Abbey Inn
Best Western Plus Zion West Hotel
Best Western Travel Inn
Bumbleberry Inn
Cable Mountain Lodge
Chalet Motel
Claridge Inn
Clarion Suites Saint George
Cliffrose Lodge & Gardens
Comfort Inn @ Convention Center St George
Comfort Inn Saint George North
Comfort Suites Saint George University Area
Coronada Inn & Suites
Courtyard St George
Days Inn Hurricane Zion National Park Area
Days Inn St George
Desert Pearl Inn
Dixie Hostel*
Dixie Palms Motel*
Driftwood Lodge
Econo Lodge Hurricane Zion Park Area
Econo Lodge Saint George
Economy Inn
Fairfield Inn & Suites Virgin Zion National Park
Fairfield Inn St George
Flanigan's Inn Spa & Cafe
Hampton Inn & Suites Springdale Zion National Park
Hampton Inn St George
Hilton Garden Inn St George
Holiday Inn Express & Suites St George North Zion
Holiday Inn Express Springdale Zion National Park Area
Holiday Inn St George Convention Center
Hotel Zion Inn*
Howard Johnson Inn & Suites St George
Hyatt Place St George Convention Center
Inn @ Entrada
Inn on the Cliff (formerly Rococco Inn)*
La Quinta Inns & Suites @ Zion Park Springdale
La Quinta Inns & Suites La Verkin Gateway To Zion
La Quinta Inns & Suites St George
Leeds Motel*
Majestic View Lodge
Motel 6 St George
Pioneer Lodge*
Quality Inn & Suites Montclair Springdale
Quality Inn Saint George North
Quality Inn Springdale @ Zion Park
Ramada St George
Red Lion Hotel Conference Center St George
Red Mountain Resort
Rodeway Inn Hurricane
Rodeway Inn St George
Sands Motel
Sleep E Motel*
Springhill Suites Springdale Zion National Park
St George Inn & Suites
Studio 6 St George
Super 8 Hurricane Zion National Park Area
Super 8 St George
The Inn @ St George
TownePlace Suites St George
Trademark Hotel Collection Desert Garden Inn
Wingate by Wyndham Hurricane Near Zion National Park
Wingate By Wyndham St George
Zion National Park Lodge
Zion Park Motel
Zion Suites of Hildale*
Zion's Most Wanted*

*Not surveyed by STR
Sources: Kem C. Gardner Policy Institute analysis of STR, Inc. and Booking.com data.

1 Opened October 2017
2 Opened October 2017
3 Opened April 2017
4 Opened February 2017
5 Opened April 2017

Appendix B: Washington County Bed & Breakfasts

7 Wives Inn B&B
Amber Inn B&B
America's Most Wanted Suites & B&B (aka Zion Most Wanted)*
Bunk House at Zion B&B
Canyon Creek at Zion B&B*
Canyon View B&B*
Canyon Vista Lodge B&B
Desert Thistle B&B
Father's B&B*
Harvest House B&B
Heinrich Gubler Home
Heller House Inn on Main*
Novel House Inn
Orson Pratt House*
Quicksand & Cactus B&B
Red Rock Inn
Springs Creek Gardens
Suites @ LaFare Gallery
The Jens-Inn*
The Young Home B&B*
Thompson Mansion*
Toquerville B&B*
Two Cranes Inn
Under the Eaves Inn
Zion Blue Sage B&B*
Zion Canyon B&B
Zion View B&B*
Zion's Nest*

*One or more rooms advertised on Airbnb and/or HomeAway/VRBO
Sources: Kem C. Gardner Policy Institute analysis of Booking.com and AirDNA data.
Appendix C: Washington County Resorts

<table>
<thead>
<tr>
<th>Resort Name</th>
<th>Source Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amira Resorts*</td>
<td>The Ledges Golf Club*</td>
</tr>
<tr>
<td>Coral Springs Resort*</td>
<td>Movara Fitness Resort</td>
</tr>
<tr>
<td>Crescent Moon Inn</td>
<td>Sand Hollow Resort*</td>
</tr>
<tr>
<td>Entrada at Snow Canyon*</td>
<td>Sports Village*</td>
</tr>
<tr>
<td>Estancia Resort*</td>
<td>Southgate Villas*</td>
</tr>
<tr>
<td>Las Palmas Resort*</td>
<td>Worldmark St. George*</td>
</tr>
<tr>
<td>Zion's Edge Lodging</td>
<td>Zion Mountain Resort</td>
</tr>
<tr>
<td>Zion Pioneer Lodge</td>
<td>Zion Ponderosa Ranch</td>
</tr>
<tr>
<td>Zion Suites of Hildale*</td>
<td>Zion Villa's True North</td>
</tr>
</tbody>
</table>

*One or more rooms advertised on Airbnb and/or HomeAway/VRBO
Sources: Kem C. Gardner Policy Institute analysis of Booking.com and AirDNA data.

Appendix D: Washington County Campgrounds

Public

<table>
<thead>
<tr>
<th>Campground Name</th>
<th>Source Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baker Dam Recreation Area—BLM</td>
<td></td>
</tr>
<tr>
<td>Crackfoot Campground—Pine Valley Ranger District</td>
<td></td>
</tr>
<tr>
<td>Dean Gardner Campground—Pine Valley Ranger District</td>
<td></td>
</tr>
<tr>
<td>Ebenezer Bryce Campground—Pine Valley Ranger District</td>
<td></td>
</tr>
<tr>
<td>Effie Bechstrom East/West Group Campground—Pine Valley Ranger District</td>
<td></td>
</tr>
<tr>
<td>Equestrian Campground—Pine Valley Ranger District</td>
<td></td>
</tr>
<tr>
<td>Gunlock State Park—Utah State Parks</td>
<td></td>
</tr>
<tr>
<td>Honeycomb Rocks Campground—Pine Valley Ranger District</td>
<td></td>
</tr>
<tr>
<td>Lava Point Campground—National Park Service</td>
<td></td>
</tr>
<tr>
<td>Mitt Moody Campground—Pine Valley Ranger District</td>
<td></td>
</tr>
<tr>
<td>Oak Grove Campground—Dixie National Forest</td>
<td></td>
</tr>
<tr>
<td>Pine Valley Guard Station—Pine Valley Ranger District</td>
<td></td>
</tr>
<tr>
<td>Quail Creek State Park—Utah State Parks</td>
<td></td>
</tr>
<tr>
<td>Red Cliffs Recreation Area—BLM</td>
<td></td>
</tr>
<tr>
<td>Sand Hollow State Park—Utah State Parks</td>
<td></td>
</tr>
<tr>
<td>Snow Canyon State Park—Utah State Parks</td>
<td></td>
</tr>
<tr>
<td>Watchman Campground—National Park Service</td>
<td></td>
</tr>
<tr>
<td>Yellow Pine Loop—Pine Valley Ranger District</td>
<td></td>
</tr>
<tr>
<td>Zion National Park South Campground—National Park Service</td>
<td></td>
</tr>
</tbody>
</table>

Private

<table>
<thead>
<tr>
<th>Campground Name</th>
<th>Source Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hillside Palms RV &amp; Mobile Home*</td>
<td></td>
</tr>
<tr>
<td>Holmstead Ranch Resort</td>
<td></td>
</tr>
<tr>
<td>Leeds RV Park*</td>
<td></td>
</tr>
<tr>
<td>McArthur’s Temple View RV Resort*</td>
<td></td>
</tr>
<tr>
<td>Moonlight Oasis Glamping</td>
<td></td>
</tr>
<tr>
<td>Palms RV Resort*</td>
<td></td>
</tr>
<tr>
<td>Robert's Roost RV Park/Camping*</td>
<td></td>
</tr>
<tr>
<td>St. George RV Park &amp; Campground*</td>
<td></td>
</tr>
<tr>
<td>St. George/Hurricane KOA Campground*</td>
<td></td>
</tr>
<tr>
<td>Under Canvas Zion</td>
<td></td>
</tr>
<tr>
<td>Veyo Pool Resort &amp; Climbing</td>
<td></td>
</tr>
<tr>
<td>Willow Wind RV Park*</td>
<td></td>
</tr>
<tr>
<td>Zion Canyon Campground</td>
<td></td>
</tr>
<tr>
<td>Zion Glamping Adventures</td>
<td></td>
</tr>
<tr>
<td>Zion Luxury Camping</td>
<td></td>
</tr>
<tr>
<td>Zion Ponderosa Ranch</td>
<td></td>
</tr>
<tr>
<td>Zion River Resort</td>
<td></td>
</tr>
<tr>
<td>Zion RV &amp; Campground*</td>
<td></td>
</tr>
<tr>
<td>Zion West RV Park*</td>
<td></td>
</tr>
</tbody>
</table>

*might rent to permanent or seasonal RV residents
Sources: Kem C. Gardner Policy Institute analysis of National Park Service, Utah State Parks, Pine Valley Ranger District, Campendium.com, KOA, Visit St. George, and AllStays.com data.

Appendix E: Washington County, Residential Therapy Programs

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashcreek Ranch Academy</td>
<td>Toquerville, Utah</td>
</tr>
<tr>
<td>Cinnamon Hills Youth Crisis Center</td>
<td>St. George, Utah</td>
</tr>
<tr>
<td>Diamond Ranch Academy</td>
<td>Hurricane, Utah</td>
</tr>
<tr>
<td>Eagle Ranch Academy</td>
<td>St. George, Utah</td>
</tr>
<tr>
<td>Evoke at Entrada</td>
<td>Santa Clara, Utah</td>
</tr>
<tr>
<td>Forte Strong</td>
<td>St. George, Utah</td>
</tr>
<tr>
<td>Kolob Canyon Residential Treatment Ctr</td>
<td>New Harmony, Utah</td>
</tr>
<tr>
<td>Lava Heights Academy</td>
<td>Toquerville, Utah</td>
</tr>
<tr>
<td>Liahona Treatment Center</td>
<td>Hurricane, Utah</td>
</tr>
<tr>
<td>North Star Treatment Center</td>
<td>La Verkin, Utah</td>
</tr>
<tr>
<td>Red Circle Lodge</td>
<td>Hildale, Utah</td>
</tr>
<tr>
<td>Red Cliff Ascent</td>
<td>Enterprise, Utah</td>
</tr>
<tr>
<td>Red Rock Canyon School</td>
<td>St. George, Utah</td>
</tr>
<tr>
<td>Second Chances in Southern Utah</td>
<td>St. George, Utah</td>
</tr>
<tr>
<td>Star Guides</td>
<td>St. George, Utah</td>
</tr>
<tr>
<td>Sunrise Residential Treatment Center</td>
<td>Hurricane, Utah</td>
</tr>
<tr>
<td>Three Points Center</td>
<td>Hurricane, Utah</td>
</tr>
</tbody>
</table>

Sources: Utah Department of Human Services
Appendix F: Washington County Census Tract Boundaries

The county has 21 census tracts.

Sources: Map by Kem C. Gardner Policy Institute, U.S. Census Bureau (boundaries), AGRC (roads).

Appendix G: Washington County Census Tracts, Occupancy Rates and Household Size by Tenure, Census 2010

<table>
<thead>
<tr>
<th>Tract Name</th>
<th>Occupancy Rate</th>
<th>All Households</th>
<th>Owner-Occupied</th>
<th>Renter-Occupied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Census Tract 2701</td>
<td>71.9%</td>
<td>3.44</td>
<td>2.7</td>
<td>5.33</td>
</tr>
<tr>
<td>Census Tract 2702</td>
<td>59.0%</td>
<td>3.03</td>
<td>2.94</td>
<td>3.52</td>
</tr>
<tr>
<td>Census Tract 2703</td>
<td>86.8%</td>
<td>2.86</td>
<td>2.87</td>
<td>2.83</td>
</tr>
<tr>
<td>Census Tract 2704</td>
<td>83.7%</td>
<td>2.72</td>
<td>2.62</td>
<td>3.26</td>
</tr>
<tr>
<td>Census Tract 2705</td>
<td>83.6%</td>
<td>3.46</td>
<td>3.4</td>
<td>3.76</td>
</tr>
<tr>
<td>Census Tract 2706</td>
<td>61.2%</td>
<td>2.7</td>
<td>2.57</td>
<td>2.99</td>
</tr>
<tr>
<td>Census Tract 2707</td>
<td>78.1%</td>
<td>2.8</td>
<td>2.6</td>
<td>3.12</td>
</tr>
<tr>
<td>Census Tract 2708.01</td>
<td>82.2%</td>
<td>3.24</td>
<td>3.17</td>
<td>3.46</td>
</tr>
<tr>
<td>Census Tract 2708.02</td>
<td>78.7%</td>
<td>2.72</td>
<td>2.63</td>
<td>2.92</td>
</tr>
<tr>
<td>Census Tract 2709.01</td>
<td>88.0%</td>
<td>3.08</td>
<td>3.11</td>
<td>2.97</td>
</tr>
<tr>
<td>Census Tract 2709.02</td>
<td>84.2%</td>
<td>2.84</td>
<td>2.77</td>
<td>2.98</td>
</tr>
<tr>
<td>Census Tract 2710</td>
<td>88.6%</td>
<td>3.21</td>
<td>3.19</td>
<td>3.29</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tract Name</th>
<th>Occupancy Rate</th>
<th>All Households</th>
<th>Owner-Occupied</th>
<th>Renter-Occupied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Census Tract 2711</td>
<td>86.7%</td>
<td>2.89</td>
<td>2.88</td>
<td>2.91</td>
</tr>
<tr>
<td>Census Tract 2712</td>
<td>83.9%</td>
<td>2.71</td>
<td>2.59</td>
<td>2.84</td>
</tr>
<tr>
<td>Census Tract 2713</td>
<td>90.9%</td>
<td>3.16</td>
<td>2.75</td>
<td>3.42</td>
</tr>
<tr>
<td>Census Tract 2714</td>
<td>81.6%</td>
<td>2.43</td>
<td>2.37</td>
<td>2.49</td>
</tr>
<tr>
<td>Census Tract 2715</td>
<td>76.0%</td>
<td>2.79</td>
<td>2.78</td>
<td>2.79</td>
</tr>
<tr>
<td>Census Tract 2716</td>
<td>82.1%</td>
<td>2.42</td>
<td>2.35</td>
<td>3.02</td>
</tr>
<tr>
<td>Census Tract 2717.01</td>
<td>87.2%</td>
<td>3.25</td>
<td>3.16</td>
<td>3.83</td>
</tr>
<tr>
<td>Census Tract 2717.02</td>
<td>86.9%</td>
<td>3.45</td>
<td>3.43</td>
<td>3.49</td>
</tr>
<tr>
<td>Census Tract 2718</td>
<td>85.9%</td>
<td>2.5</td>
<td>2.43</td>
<td>2.63</td>
</tr>
<tr>
<td><strong>Washington County Sum</strong></td>
<td><strong>80.3%</strong></td>
<td><strong>2.94</strong></td>
<td><strong>2.84</strong></td>
<td><strong>3.17</strong></td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, Table DP-1: Profile of General Population and Housing Characteristics: 2010
Endnotes

7 OmniTrak Group, Inc.
8 OmniTrak Group, Inc.
9 OmniTrak Group, Inc. does not survey international travelers.
10 Travel party size includes both those who live in and outside of survey respondent’s household.
11 Hotel room counts includes STR-surveyed rooms, rooms accounted for but not surveyed by STR, and rooms unaccounted for by STR but identified by GPI.
12 For this analysis we assumed a maximum of two people per B&B room.
13 December 2017.
14 In AirDNA data, “reservation days” represent actual number of overnight reservations.
15 These 38 campgrounds include every one we could identify online and may not be completely exhaustive.
16 Public campsites include both tent and RV hook up sites; we calculated maximum capacity by assuming eight campers per single site, 16 per double site, and 30 per group site.
17 We calculated maximum capacity based on private campground websites (i.e. guest capacity of cabins, cottages, wagons, etc.).
18 To calculate low/high daily camper numbers we used OTG proportions of survey respondents that reported they stayed in a “RV/tent” vs. a “hotel” during Q1 2017 (low season) and Q3 2017 (high season).
19 OTG’s Washington County accommodation type sample sizes are too small to be scientific; however, they offer a sense of accommodation type shares.
22 Utah Department of Human Services
23 Youth therapy program nonresident assumptions are based on personal communication between Kem C. Gardner Policy Institute and Washington County youth residential therapy program directors.
24 In all assessor’s data, BLTASCODE fields with values of 99 (detached garage), 326 (storage garage), 421 (shed – tool), or 397 (barn) were all checked and changed to 0 units if necessary (descriptions are listed in the BLTASDESCRIPTION field). One record had an OCCCODE value of 99 (detached garage); though the BLTASCODE was not 99; this was also treated as 0 units.
25 We do not know why these records are marked as having 0 housing units, as they are of common residential housing types. In these cases we chose to trust the assessor’s data as given. If these records were altered to represent 1 housing unit each, roughly 2,000 additional people would be added to the seasonal population estimate. There were 737 records with 0 units built through 2009 and only 36 records with 0 units built 2010 or later.
26 We also researched the number of non-primary residential units as given in Census 2010 rather than by the Washington County assessor data. The count was 8,209, much lower than the 10,477 non-primary residential units identified in assessor data. We included the vacant-seasonal (7,201 units) and vacant-other (1,008 units) housing types in our count of 8,209 non-primary residential units presented in the Census 2010 data.
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