Colorado Short Term Rental Impact Study

May 2022

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Executive Summary

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ABOUT THE STUDY

Mountain towns across Colorado have experienced increased pressure on local resources and housing markets in recent years due to two simultaneous trends: higher visitation and occupancy during the COVID-19 pandemic, and quickly rising housing costs. As a result, Counties and local jurisdictions across Colorado are considering interventions to regulate Short Term Rentals (STRs), which many see as a driver of these trends. HR&A was engaged to study the impact of STRs and STR visitors in five Colorado counties that have experienced an increase in visitors and occupancy in recent years: Eagle, Grand, Pitkin, Routt, and Summit Counties. Specifically, HR&A analyzed the economic and fiscal benefits of STR visitors and the potential impact of the STR inventory on the availability and cost of workforce housing through both quantitative analysis and interviews with local officials.

HR&A'S APPROACH

1. **Tourism Analysis**
   HR&A defined the scale and the spending habits of short-term rental (STR) visitors as a subset of the overall visitor pool.

2. **Economic and Fiscal Impact of STR Visitor Spending**
   HR&A analyzed the direct, indirect and induced spending and jobs attributable to STR visitors, as well as the fiscal benefit of STR visitor spending.

2. **Housing Market Overview**
   HR&A analyzed both publicly-available and third-party data sources to quantify housing supply and demand at different income levels, identify key market trends and categorize the inventory of vacation and seasonal homes.

4. **Impact of STRs on Workforce Housing Inventory**
   HR&A categorized the share of STRs that are most comparable to workforce housing and studied the potential impact of the STR inventory on the availability of workforce housing.

HR&A standardized different data sources by using 2020 data to account for sources that have not yet published publicly-available data for 2021.

Cover image credit: shutterstock.com, Sean Pavone.

Key Findings

Tourism and STR Visitors

- In 2020, there were **5.2M visitors** to the 5 counties studied. STR visitors comprised about **30% of all visitors** in these 5 counties and **spent $1.0B.**

Economic & Fiscal Impact

- 2020 STR visitor spending supported **14,700 jobs** (13,300 direct jobs, 300 indirect jobs, 1,100 induced jobs). These jobs generated **$599M in wages**.
- STR visitor spending also generated **$73.9M in tax receipts** for the state of Colorado and the local municipalities ($46.6M local tax receipts, $27.3 state tax receipts). Counties in Colorado do not directly receive sales tax revenue.

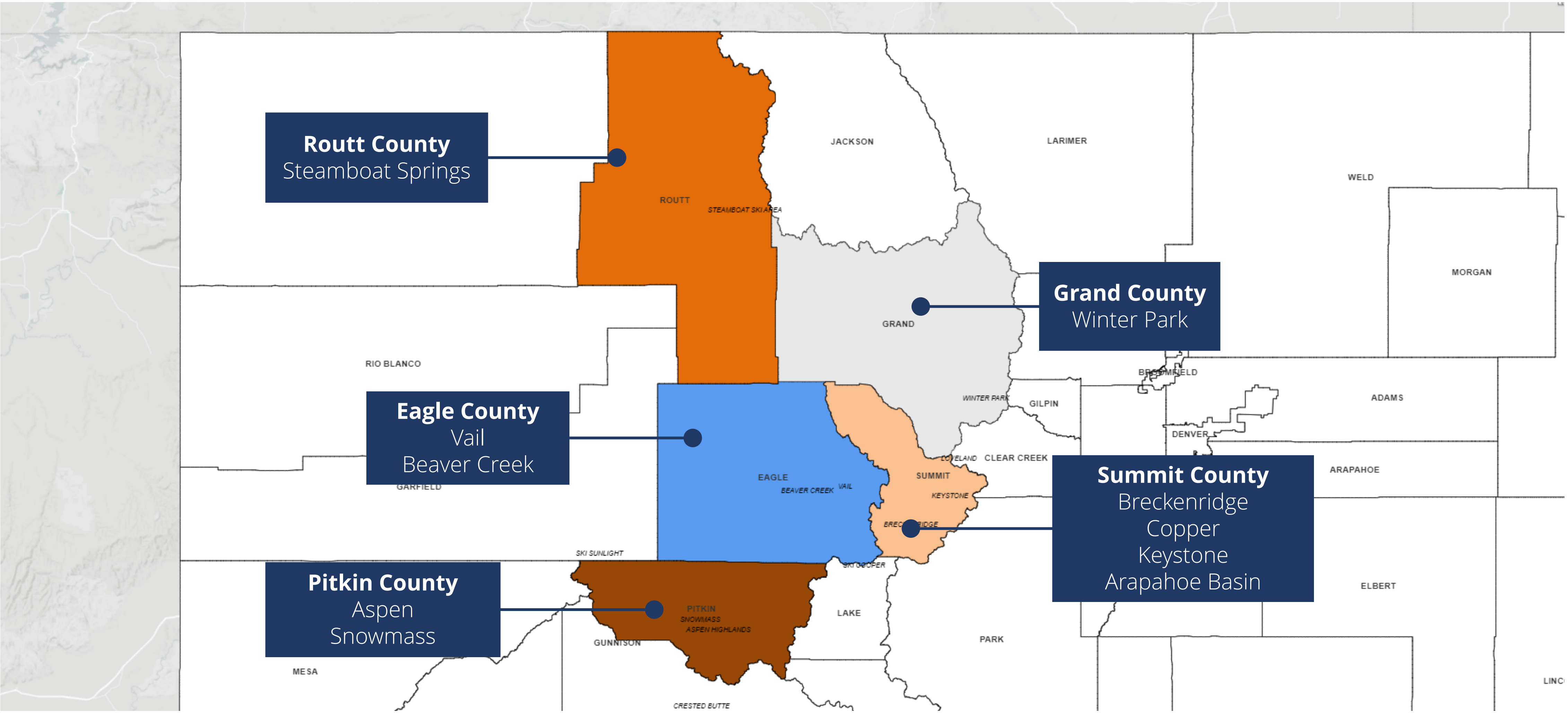
Workforce Housing

- Local officials report **increased occupancy** of the housing stock overall, including **longer stays** by owners of second homes and increased usage of traditional rental properties as STRs.
- Housing inventory has not kept up with job growth in these markets, creating a **deficit of affordable workforce housing units**.
- Only **3% of the STR inventory could be repurposed** to fill the workforce housing gap based on typology, availability, and price point.
- The housing gap should be addressed by 1) **building more rental housing** and/or 2) **subsidizing rental conversions**.

EXECUTIVE SUMMARY

Study Area

Eagle, Grand, Pitkin, Routt, and Summit County are the five counties in the study area.

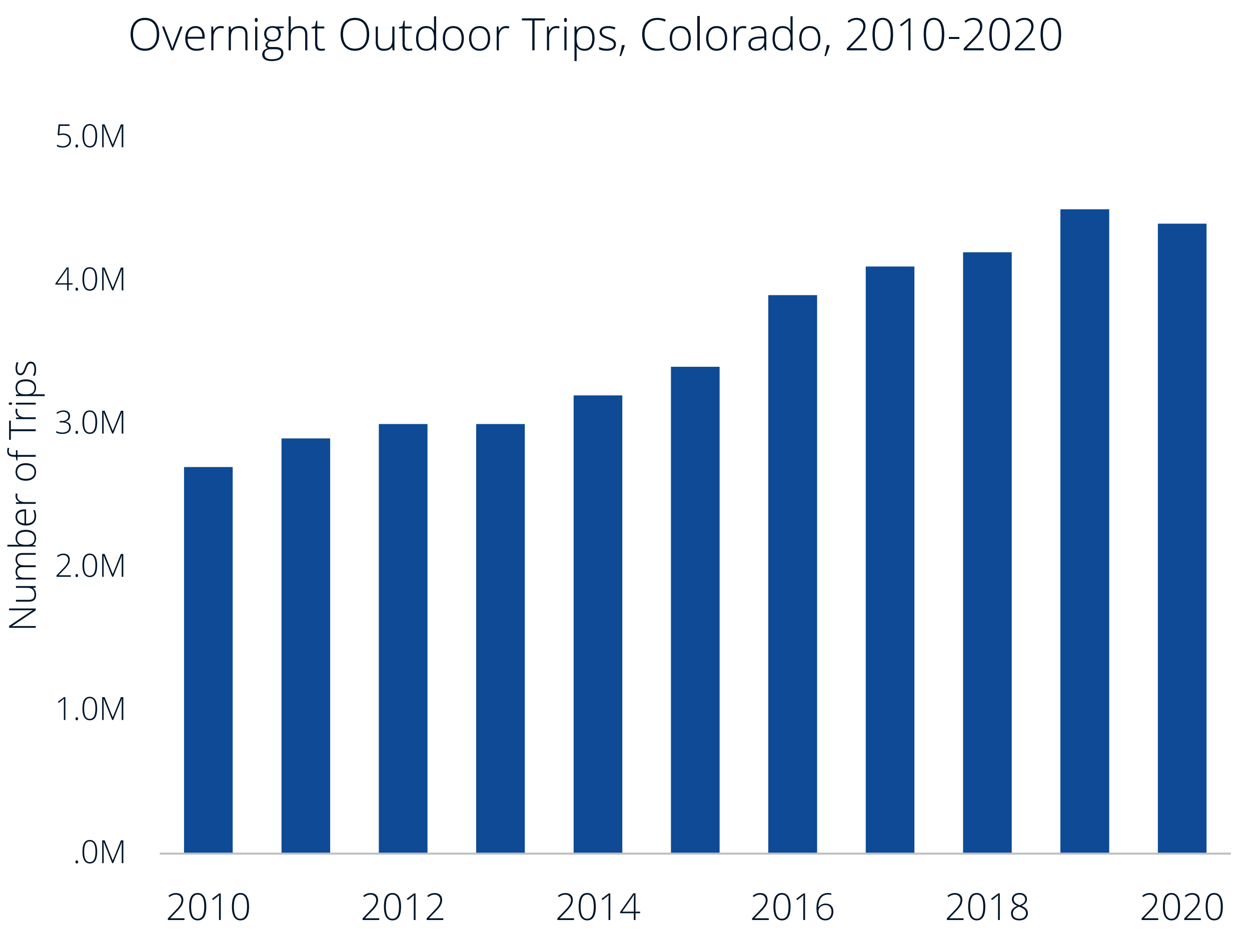


EXECUTIVE SUMMARY

Economic Benefit of STR Visitors

Colorado Tourism

Overnight Outdoor Trips is the primary driver of tourism in the five counties studied.



Tourism to Colorado has continued to increase over the last 10 years. In 2020 alone there were **18.6M overnight trips** to the State; **an increase of 12%** since 2010. The five counties in the study area include many of Colorado's outdoor recreation attractions, including ski resorts and hiking trails. Visitors who travel for outdoor activities are classified as **"outdoor" tourists and represent 20% of visitation to the state.** In 2020 alone there were **4.4M outdoor overnight trips** to the state.

In the past 10 years, outdoor tourism has grown at a faster rate than **overnight tourism** overall**, increasing by 63%.** With this growth, the proportion of outdoor trips to all overnight trips has also increased, growing from **20% in 2010 to 24% in 2020.** Nationally, outdoor travel remained at **6% of all trips**, demonstrating that the increased interest in outdoor travel in Colorado is attributable to a shift in traveler preferences.

Source: Longwoods International. Overnight Trips refer to overnight marketable leisure travel, which excludes trips where visitors are staying with friends and family.

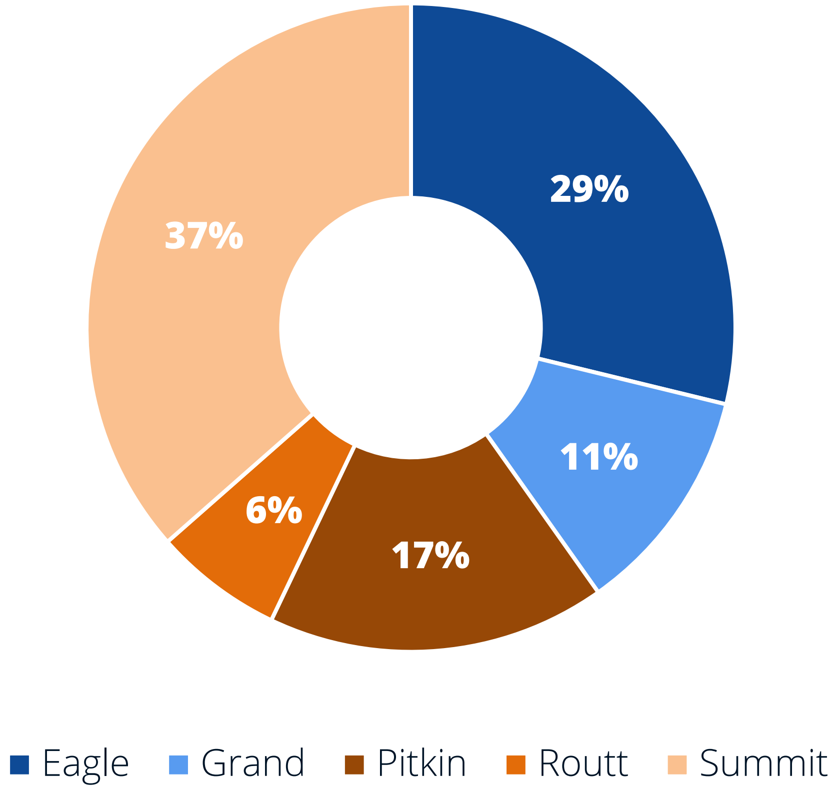
County Tourism

About 5.2M tourists visited the five counties in 2020, over half visiting either Summit or Eagle County.

Approximately 5.2M people visited the five counties in 2020. Summit County, home to Breckenridge, Keystone, & Copper Mountain, was the most visited county, with approximately **1.9M visitors**. Eagle County, home to Vail & Beaver Creek, had the 2nd highest visitation with **1.5M visitors**.

Tourists to a region augment resident spending and thus increase the overall economic activity of an area. Visitors to the five counties spent **$3.4B,** equal to approximately **$24,000 per permanent resident** in 2020. In Summit County, home to 31,000 residents, each visitor spent approximately $40,000 per resident, while in Pitkin County, home to only 18,000 people, visitors spent approximately $32,000 per resident.

Approximate Share of Visitors by County, 2020



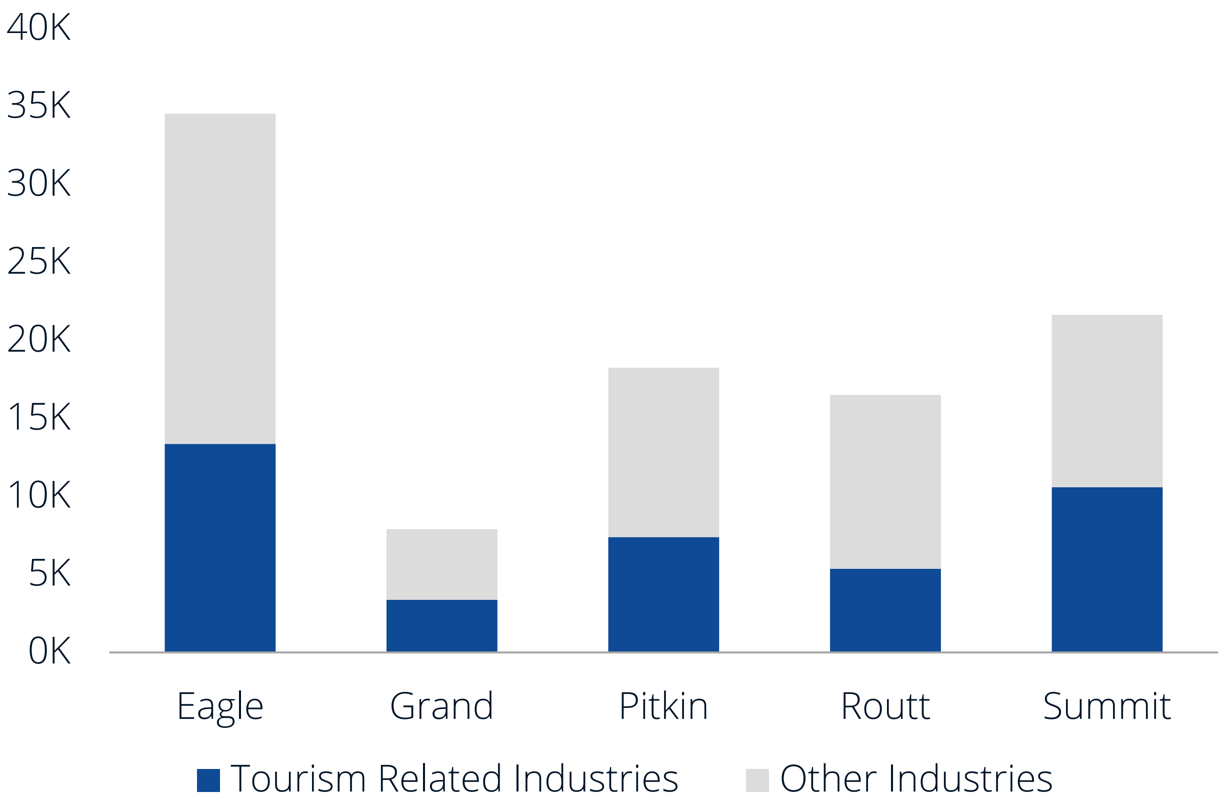
Sources: Longwoods International; Colorado Tourism Office (CTO).

ECONOMIC BENEFIT OF STR VISITORS

Tourism Jobs Impact

Visitor spending supported 40,100 jobs in tourism-related industries, representing 41% of all jobs.

Number of Jobs by Industry by County, 2020



In 2020, there were **98,900 jobs** in 21 total industries across the five counties. Tourism related industries are the dominant group, including accommodations, food services and arts, entertainment and recreation, and are responsible for the largest share of employment across the five counties.

Tourism related industries made up **41% of all jobs** in the five counties **compared to only 24%** in the broader United States. Overall, accommodations and food services was the largest industry in the five counties, providing **19,500 jobs** followed by government, employing 12,100 people, and retail trade, employing 10,200 people.

Among the five counties, 56,200 tourism related jobs are in Eagle or Summit County. Summit County has the highest portion of tourism jobs, with **49%** of all jobs in the county in tourism related industries, followed by Grand County, with **43%** of all jobs in the county in tourism related industries.

Note: Jobs in tourism related industries decreased by 17% from 2019 to 2020 as a result of COVID-19. As of 2021, these counties have regained 24% of these jobs lost.

Source: Emsi.

STR Visitors

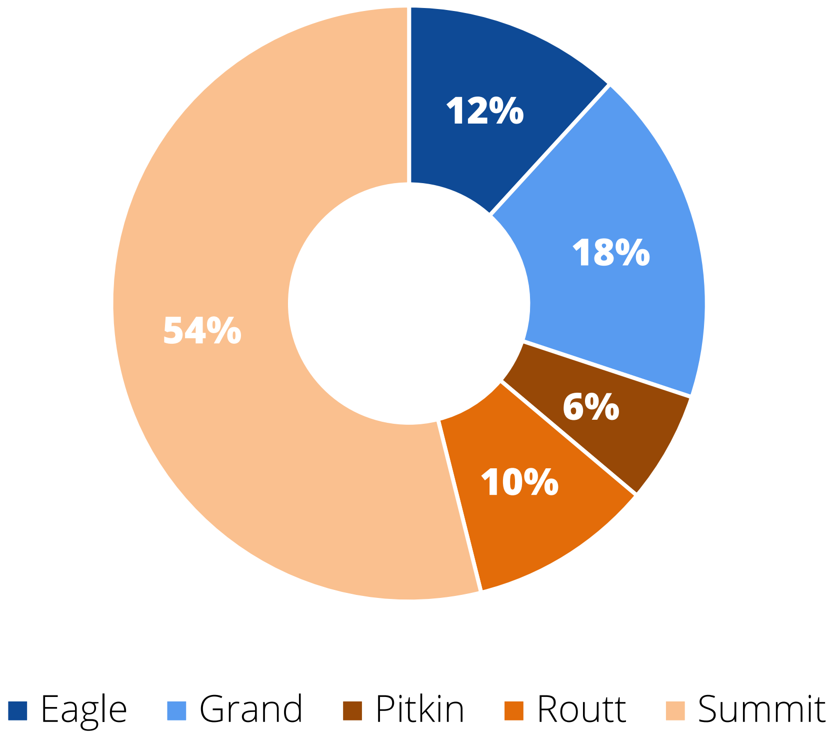
STR visitors comprise approximately 30% of all visitors, with over half staying in Summit County.

Overnight visitors stay in a range of different hospitality options including hotels, 2nd homes and short-term rentals (STRs). STR visitors **stay longer** than the typical visitor and are **wealthier**. Based on Airbnb surveys, STR trips average 3.7 nights compared to 3.2 nights for the typical statewide outdoor visitor.

Examining length of stay and occupied nights, HR&A estimates that **30% of all visitors stay in STRs** while visiting the five counties. This percentage is based on an examination of Airbnb data and is supported by studies of similar ski areas like Park City, UT and Sun Valley, ID. The distribution of STR visitors between the counties is based on the number of occupied nights and the average trip size in each county.

As the top destination for visitors to the five-county region, Summit County hosts **54% of all the STR visitors** to the region. Although Eagle County attracts a third of all visitors to the five counties it only hosts **12% of STR visitors.** In contrast, Grand County, which receives 11% of all visitors to the 5-counties, hosts **18% of STR visitors.**

Approximate Share of STR Visitors by County, 2020

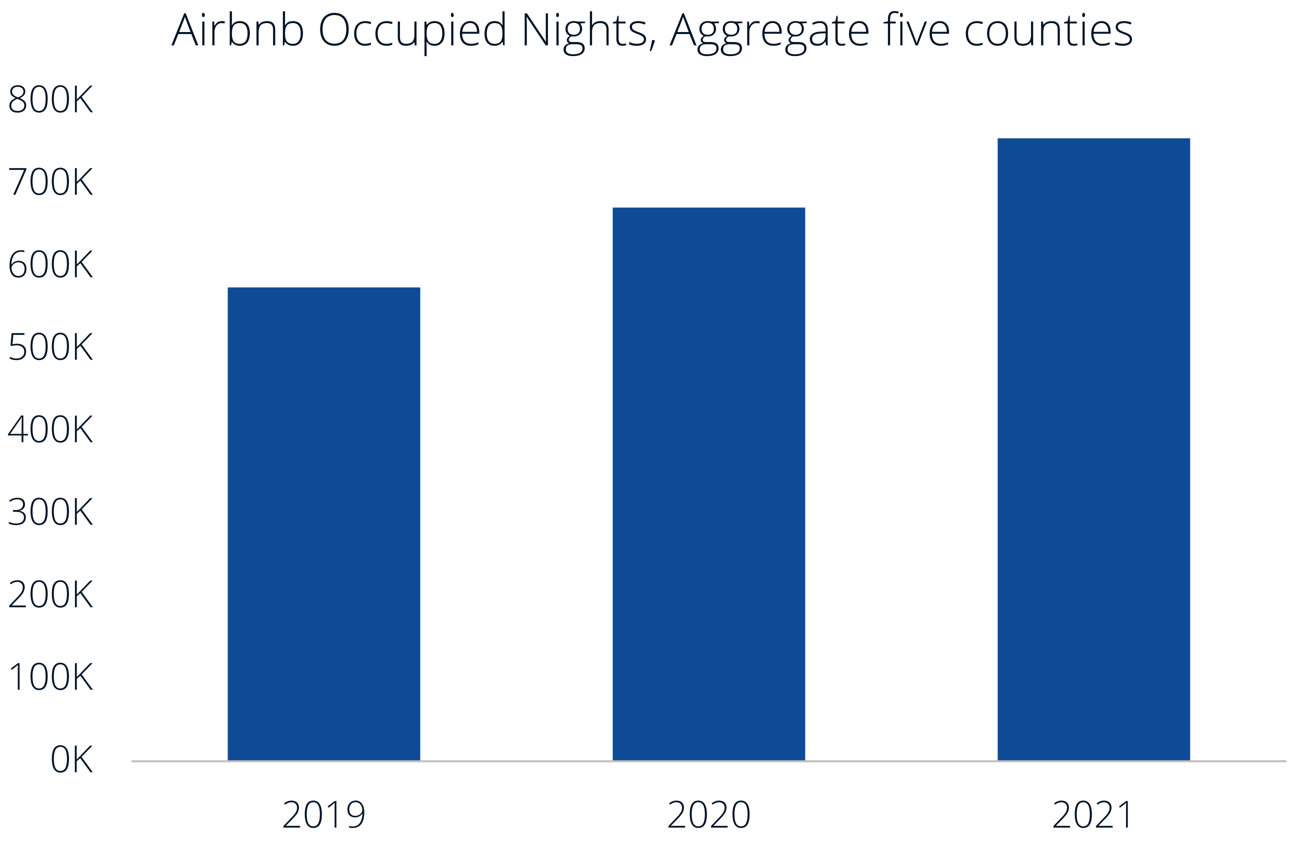


Sources Airbnb, Colorado Tourism Office, Utah Skier Study, Summit Rentals, MTExpress.

ECONOMIC BENEFIT OF STR VISITORS

COVID Impacts

STR visitation to the five counties rebounded in 2021, matching and sometime surpassing pre-pandemic numbers.



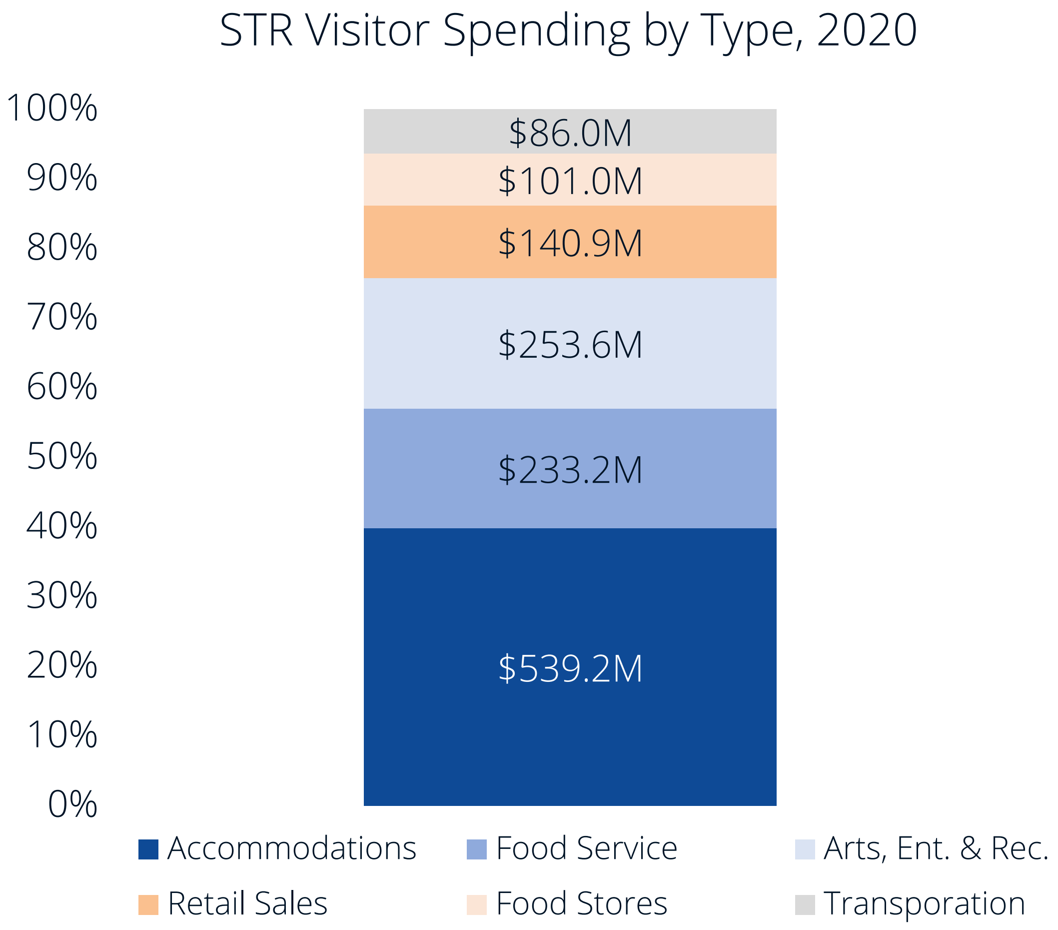
Statewide Outdoor trips were extremely resilient during COVID. In 2020, overall **overnight travel declined by 11%,** while **overnight outdoor travel only declined by 2%** from 2019. STRs became a desirable form of lodging during COVID as visitors could minimize their exposure to large crowds and create a home-like environment. With the increased preference from STR accommodations, STR visitors helped to drive an economic rebound in the five counties through COVID-19.

STR visitation in the five counties also remained strong through 2020 and 2021.

Source: Airbnb.

STR Visitor Spending

STR visitors spent $1.0B during their stays in 2020, 60% of which was spent on something other than lodging.



In 2020 **STR visitors spent $1.0B** during their trips to the five counties. Approximately 40% of visitor spending is on accommodations, while the remaining **60% is divided between: food service; arts, entertainment, and recreation; retail sales; food stores; and transportation**.

STR visitors have unique spending patterns compared to the general visitor. Airbnb provided data on the average daily spending of an Airbnb guest across different spending categories. Compared to a general visitor's spending distribution, Airbnb guests **spend more at food stores and retail and less on food service** than the average non-STR guest. For example, 10% of an Airbnb guest's daily average spending is on food stores vs. 8% of a general visitor's spending. Airbnb guests also **spend more on arts, entertainment, and recreation**, spending 19% of their daily average compared to 12% for a general visitor. In this analysis, HR&A applied the Airbnb guest spending distribution to all STR visitors, not just Airbnb guests.

Sources: Airbnb, Colorado Tourism Office, Emsi, Transparent

ECONOMIC BENEFIT OF STR VISITORS

STR Visitors’ Economic Impact

In 2020, nearly $1.0B in STR visitor spending generated almost 14,700 jobs in the five counties.

STR visitor spending is responsible for **14,700 direct jobs**, equal to **15% of all jobs** in the five counties. 13,200 of these jobs are directly employed by STR tourism related industries. The remaining 1,500 jobs are generated across industries through multiplier impacts. Multiplier impacts include indirect and induced impacts associated with vendors to companies who directly receive STR visitor spending, as well as household spending of employees who work in industries directly and indirectly supported by STR visitor spending.

In four of five counties, STR visitor spending **created the most jobs in accommodations** in 2020; however, in Routt County, spending created the most jobs in arts, entertainment, & recreation, ahead of accommodations in 2nd place.

Considering both direct and multiplier effects, STR visitor spending generated **$599M in compensation**, or **12% of all compensation** in the five counties and **$1.5B in economic output.**

14,700
JOBS CREATED
15% *of total jobs in the 5 counties*

$599M
EARNINGS

$1.5B
ECONOMIC OUTPUT

Sources: Colorado Tourism Office, Emsi.

ECONOMIC BENEFIT OF STR VISITORS

STR Visitors' Fiscal Impact

In 2020, nearly $1.0B in STR visitor spending produced almost $74M in tax revenue for the State of Colorado and their local municipalities.

$73.9M

STATE & LOCAL TAX REVENUE

***7%** of total taxes from travel in Colorado*

$46.6M

LOCAL TAXES

$27.3M

STATE TAXES

STR visitor spending generates a meaningful amount of local and state tax revenue. In 2020, STR visitor spending generated **$73.9M in State and Local Tax revenue**, representing **7% of all tax receipts from travel in Colorado**. Of all the tax revenue generated by STR visitor spending, approximately $46.6M or 63% was collected by the local municipalities within the five counties and $27.3M was collected by the State of Colorado.

Among the five counties, **Summit County STR visitor spending generated the most state and local taxes**, contributing $16.5M to the local municipalities and $10.3M to the state of Colorado. Eagle County generated the second highest amount of tax revenue, contributing $13.1M to its local municipalities and $7.6M to the State. Pitkin and Grand County contributed a total of $13.7M and $8.3M to local and state taxes, respectively. In line with the scale of total visitor spending, Routt County contributed the least to taxes, a $4.5M total contribution.

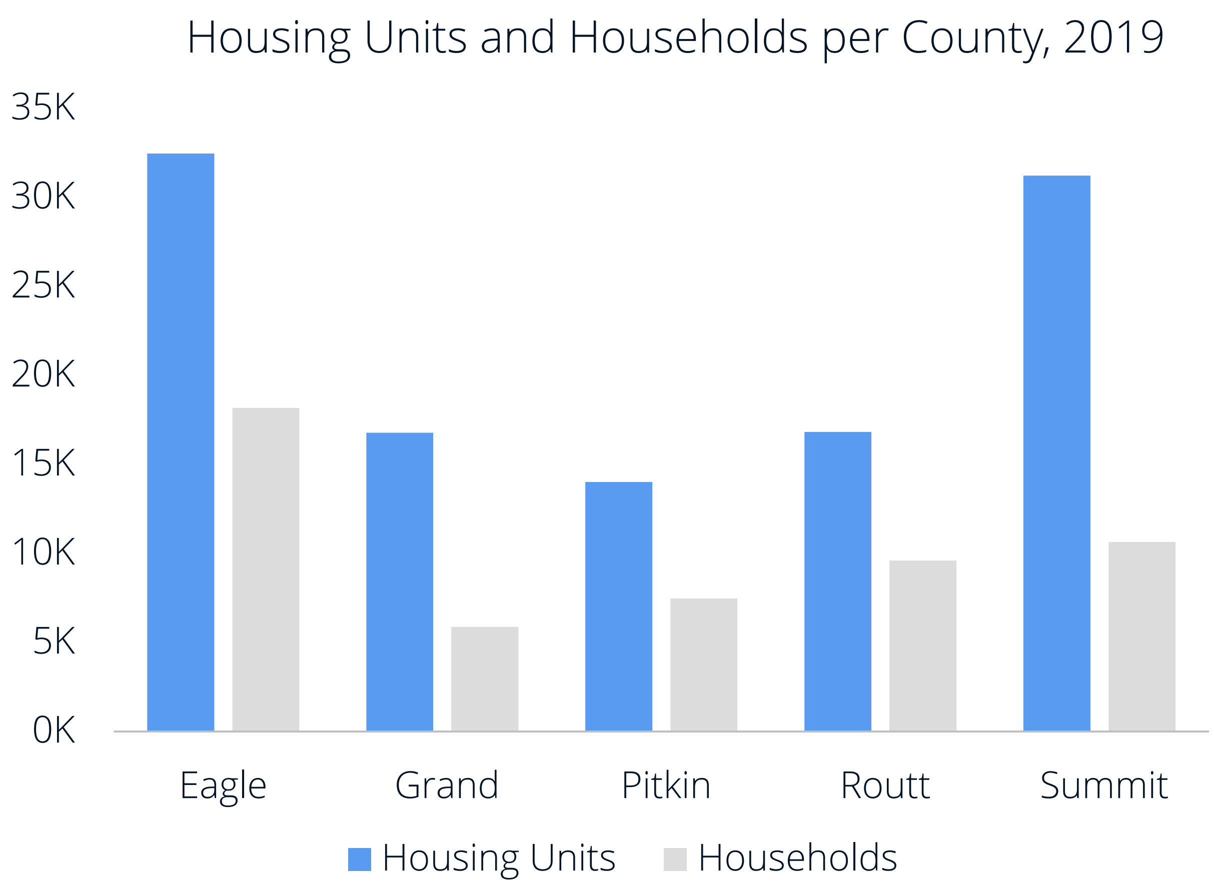
Sources: Colorado Tourism Office, Emsi.

ECONOMIC BENEFIT OF STR VISITORS

Housing Market Overview

Housing Inventory Overview

Across the five counties there were 59,500 more housing units than households in 2019.



Tourism is the main driver of the economies of the five counties. Given the seasonal nature of tourism, there is a substantial inventory of **housing units that are used as vacation or recreational homes rather than as primary residences**.

Across the five counties, there were 111,300 housing units in 2019 compared to only 51,700 households, creating a **surplus of 59,500 housing units.**

Over **59% of the surplus units are in Eagle and Summit County.** Summit County has the largest surplus of housing units with 10,600 households and 31,200 housing units, resulting in a surplus of 20,600 housing units, 66% of all units. While Eagle County has the greatest number of housing units at 32,500 units, given its larger permanent resident population, its housing surplus is only 44%. While Grand, Pitkin and Routt Counties have significantly smaller populations, they too experience a housing **surplus of 24,700 units across the 3 counties**.

Source: American Community Survey (ACS) 5-Year Estimates

HOUSING MARKET OVERVIEW

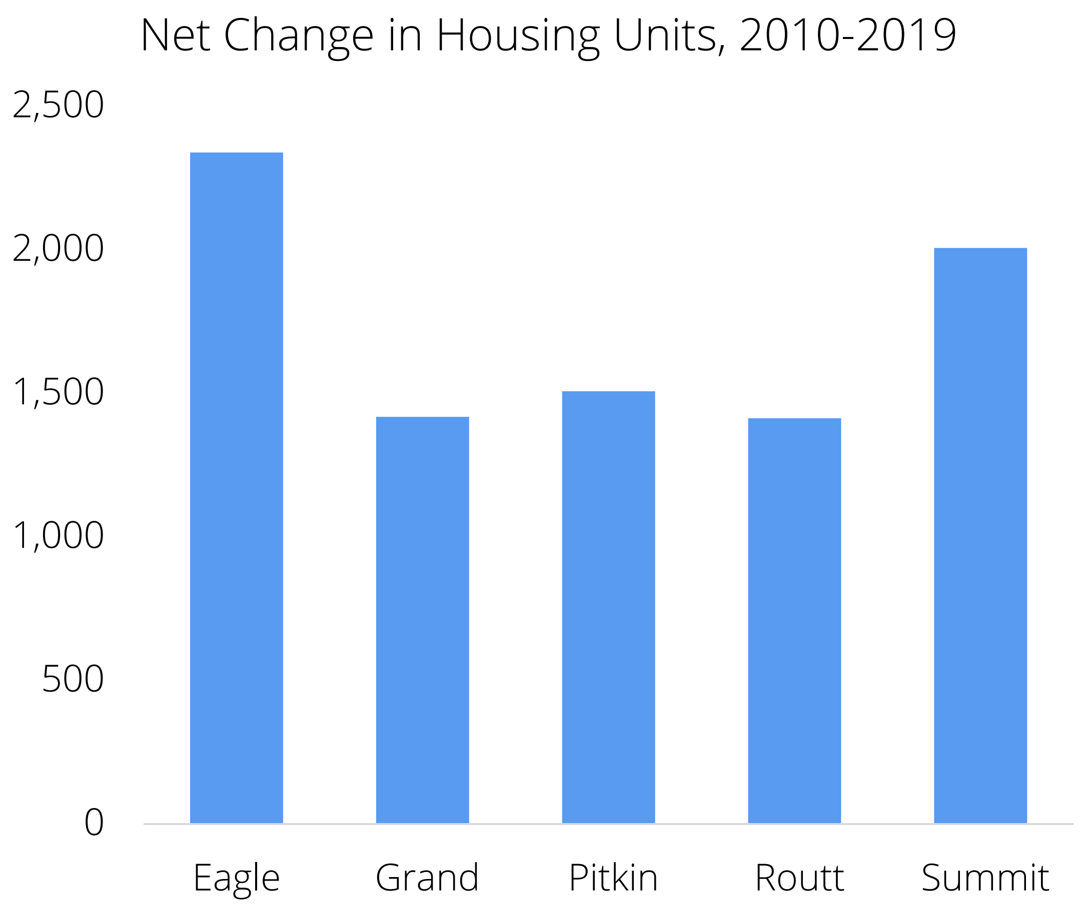
Housing Inventory Overview

The housing inventory across the five counties grew by 8,600 units from 2010 to 2019, or about 8%, compared to 17% overall job growth.

Employment and the residential population have continued to grow across the five counties. Between 2010 and 2019 employment **grew by 17%, or 16,000 jobs**. However, the number of housing units only grew by **8%, or 8,600 units, including units left vacant** for seasonal and recreational use (see slide 19).

The typology of housing units stayed fairly consistent from 2010 to 2019. **Single family homes remained the largest category** of housing type across all five counties, followed by 10–50-unit buildings. The largest change from 2010 to 2019 was in 50+ unit buildings; growing from **5% of the housing stock to 8%** in 2019.

Building permits in the five counties have not kept pace with job growth, further reenforcing the imbalance between the supply of year-round housing and the demand for permanent housing. For example, in Steamboat Springs, **construction of multifamily buildings has been stagnant** since 2010, increasing only recently.



Sources: ACS 5-Year Estimates, Public Use Microdata Survey (PUMS) data via U.S. Census Bureau, Routt County Building Permits.

HOUSING MARKET OVERVIEW

Vacant and Seasonal Housing Inventory

Both the total number of vacant units and the share of seasonal/recreational/occasional use units have been stable, suggesting that occupied homes are not being converted to STRs at high rates.

59,500

Number of unoccupied housing units as compared to the residential population

49,200

Units listed on STR platforms as of 2021

The five counties have a high percentage of vacant units. In 2019, the **vacancy rate across the five counties was 44%.** Vacant units are units that are not occupied by permanent residents and are broken into different types of vacancy: of the vacant units, 82% were vacant because they were for seasonal/ recreational/ occasional use.

The number of seasonal/recreational/occasional use units, 53,100, is close to the number of units available on the STR platforms, 49,200, indicating that the existing STR inventory has historically been used as tourism-related lodging or was occupied part-time.

Further, the vacancy rate in the five counties has remained stable over the past 10 years. In 2010, the vacancy rate was 48% compared to 44% in 2019. Since the number of unoccupied housing units has not increased, this suggests that **housing that is used as year-round housing is not being converted to STRs at a high rate**. Rather, **housing that has always been used as seasonal housing is being used as STRs**.

Sources: Public Use Microdata Sample (PUMS), Transparent.

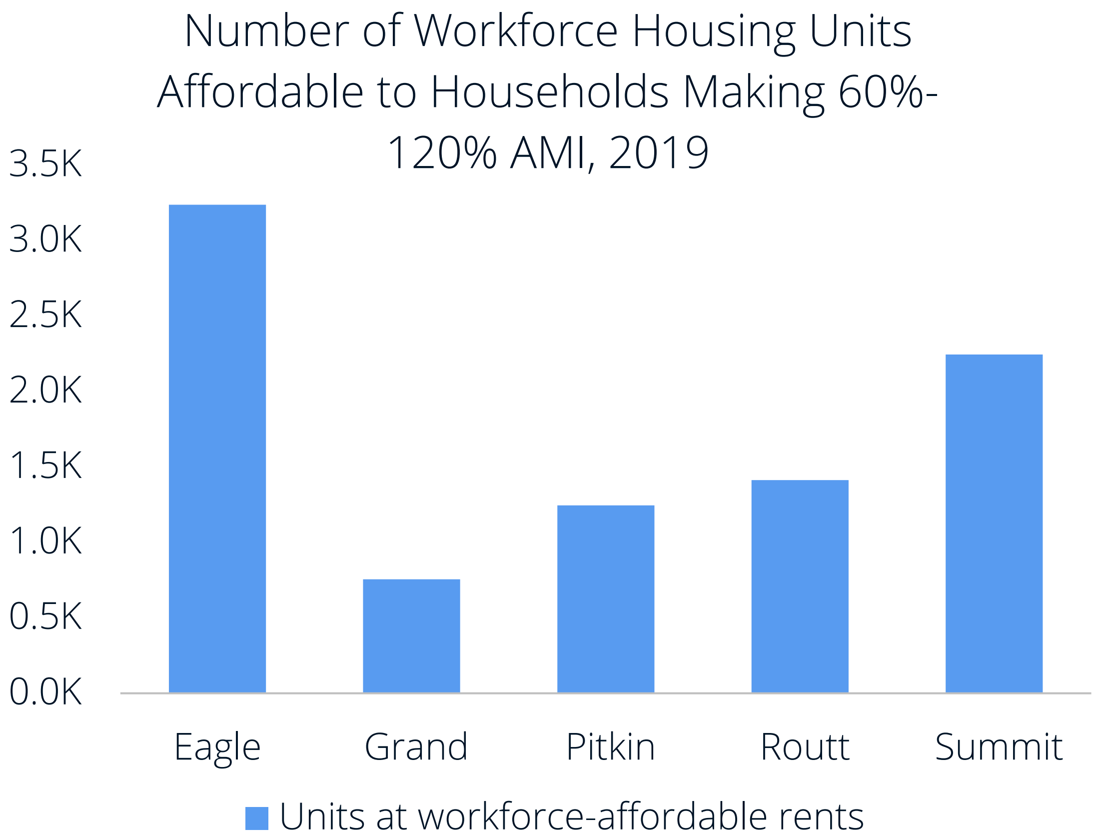
Workforce Housing Overview

In 2019, more than half of occupied rental units were affordable to households making between 60% and 120% of area median income.

While there is a surplus of housing units overall, local officials have reported **shortages in the workforce housing market**. The Urban Land Institute defines "workforce housing" as housing that is affordable to households making between 60% and 120% of the Area Median Income (AMI) and "affordable" as a household having to pay no more than 30% of their income in rent.

In the study area, the workforce housing income range is $**48,300 (60% AMI) to $96,500 (120% AMI) annual income per household,** as defined by ULI. Households that fall in this range can afford **monthly rents of $1,200 to $2,300**. In 2019, 6,300 households fell within the 60-120% AMI range.

Comparatively, in 2019 there were 8,900 rental units with monthly rents between $1,200 and $2,300 meaning that there was not a shortage of these rental units across the five counties.

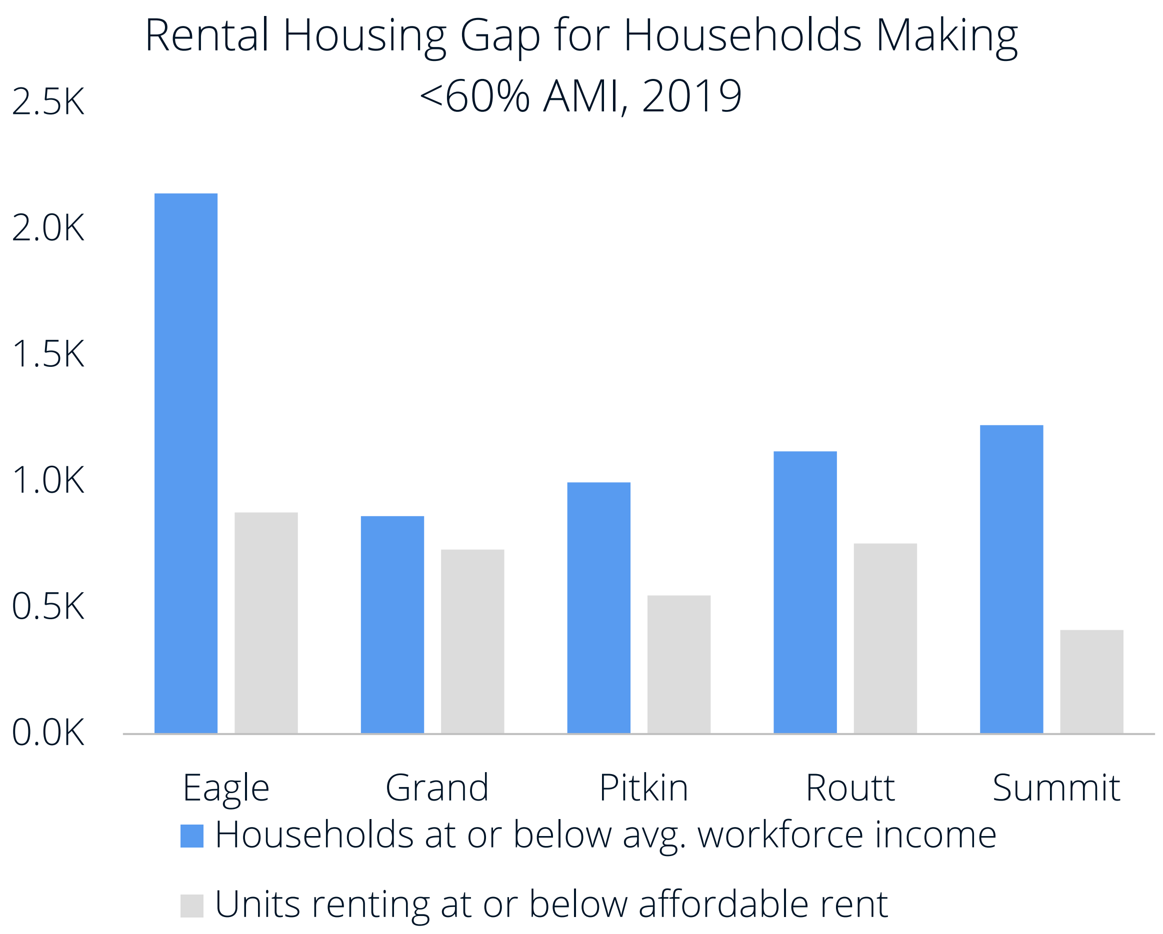


Sources: Urban Land Institute, ACS 5-Year estimates.

HOUSING MARKET OVERVIEW

Workforce Housing Overview

The "workforce" also includes those making less than 60% of AMI. At this lower income range, there is a deficit of affordable units.



Across the five counties, 91% of jobs pay less than $48,300 per year. The average annual wage of a tourism-related industry worker is $36,400, which places many of these workers below the 60-120% AMI range. Affordable units to households that earn less than 60% of AMI are defined as those with rents of $1,000 or less per month.

At this lower tier of affordability, there was a deficit of affordable units in 2019. Across the five counties, there was **a 3,000 unit deficit of affordable units**, with **approximately 42% of the deficit in Eagle County**. In terms of aggregate numbers, Eagle County has the largest deficit with 1,260 units.

Compounding the deficit of housing affordable to low-wage workers, production of housing at any price point has not kept pace with job growth. From 2010 to 2019, the five counties **added 8,900 low- to moderate-wage jobs, a 19% increase**. Over the same time period**, renter-occupied housing units only grew by 2%**, adding 2,200 units, **forcing workers to compete for limited rental supply**.

Sources: ACS 5-Year estimates, Emsi.

HOUSING MARKET OVERVIEW

Workforce Housing Supply

Recent data shows very few rental listings and exorbitantly high costs for long-term rentals, driving up overall rental prices.

Given that the most recent available ACS data is from 2019, pre-pandemic, the housing deficit for workforce housing is likely worse in 2022 than what the 2019 data describes. As of March 2022, **only 3 out of 267 total rental listings in the counties on Zillow were in the range affordable to low- to moderate-wage workers** (below $1,100 per month). The few properties that are listed on Zillow are exorbitantly expensive and driving up overall rental prices.

For example, as of February 2022, there were 28 Zillow rental listings in Summit County. The median asking rent of these listings was $3,800, which is **$2,700 more than a typical service worker can afford**.

In Eagle County, there were 24 Zillow rental listings. The median asking rent of these listings was $5,750, which is **$4,650 more than a typical service worker can afford**.

Breckenridge, CO: $2,300/ mo
1 bed, 1 bath, 406 SF Apartment for Rent

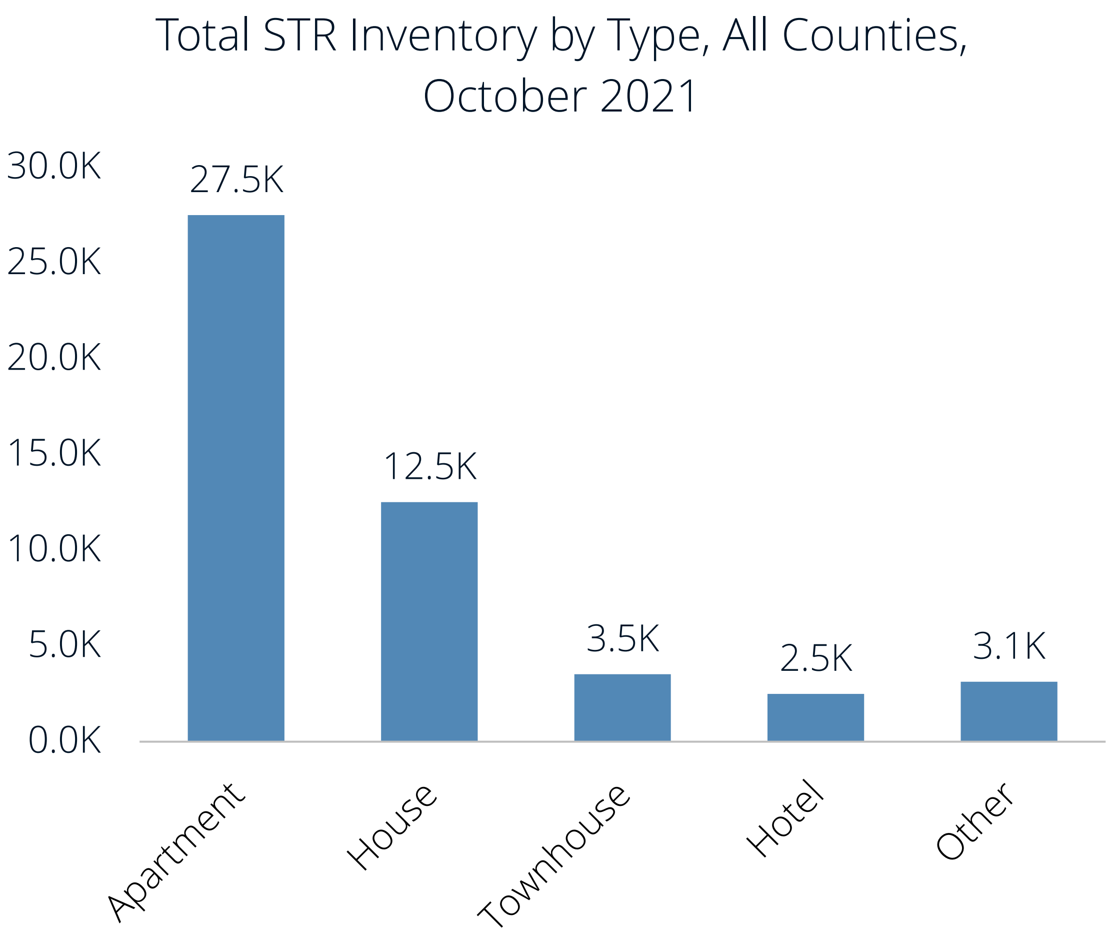
Source: Zillow, February 2022, Emsi

HOUSING MARKET OVERVIEW

Impact of STRs on Workforce Housing

STR Inventory

While listings vary monthly, there were approximately 49,000 total STRs available through different booking platforms in the fall of 2021.



Source: Transparent.

There were approximately **49,000 STRs** available across all five counties in October 2021. Over half of the listings are for apartments followed by houses at 25%. Apartments are the most common typology in every county except for Grand County.

Almost half of the STR Inventory rented for $300 or more per day, across the five counties. In Eagle and Pitkin Counties, approximately **71% of the STRs had an ADR of $300** or more per day. In comparison, the STR inventory in Grand, Routt, and Summit Counties included a sizeable share of STRs, **44%, with an ADR between $150 and $300**.

Across the five counties, most STRs are available 15 days or more per month and **average utilization of STRs was 48% in 2021**. Apartments and houses have the highest utilization rates at 42% and 56% respectively. The average utilization rates of apartments and houses are highest in Summit County and lowest in Routt County.

STR IMPACT ON WORKFORCE HOUSING

Comparison Criteria: STRs and Workforce Housing

The inventory of STRs includes both second homes that would otherwise remain vacant for much of the year and homes that might otherwise be available to long-term renters.

STRs that may be most comparable to workforce housing are those that are available for more than half of the month and in the lower ADR bracket. To estimate the potential number of STRs that could be otherwise available as workforce housing for low- and moderate-income workers, HR&A applied the following criteria:

Typology:

Apartment STRs are most comparable to workforce rental housing due to size, location, and price point.

Availability:

STRs that are available to rent for 15 days or more per month, on average, are unlikely to be actively used as second homes and might otherwise be available as long-term rentals.

Price Point:

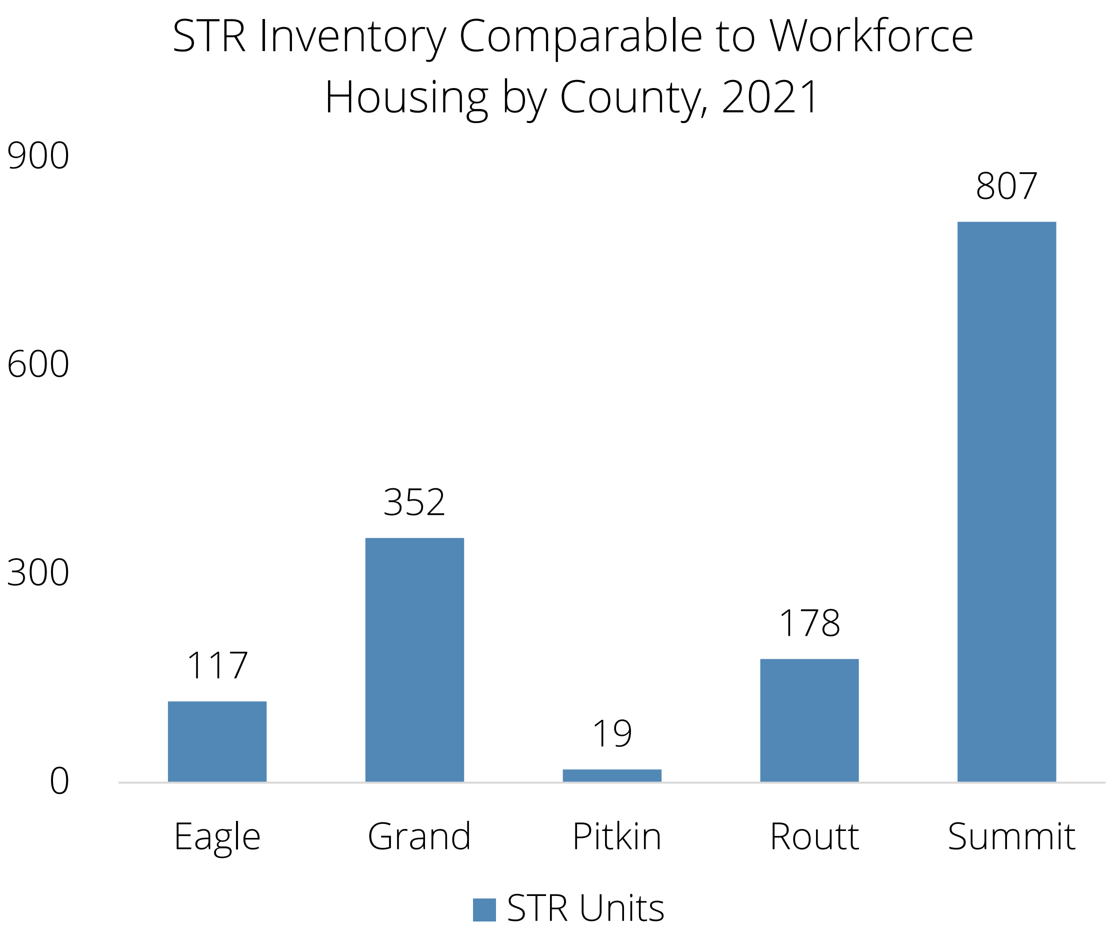
STRs that rent at the lowest average daily rate (ADR) tier, or less than $150 per day, are likely to be of more modest quality and size, comparable to affordable rental housing.

Sources: Transparent, ACS 5-Year Estimates.

STR IMPACT ON WORKFORCE HOUSING

Impacts of STR Inventory on Workforce Housing

Across the five counties, approximately 1,500 STRs were comparable to workforce rental housing in 2021, with 75% of the units concentrated in Summit and Grand Counties.



Source: Transparent

When filtering the STR inventory for apartments that are available for 15 days or more per month and rent for less than $150 per day, HR&A found that **approximately 1,500 units of STR inventory are comparable to workforce housing**. These STRs represent a **small fraction, 3%, of the total STR inventory.**

Over the course of the **pandemic, the pool of STRs that could be comparable to workforce housing has fluctuated because of changes in price and demand**. Between 2019 and 2020 the inventory decreased by 60 units. However, in the following year the inventory of STRs that could be comparable to workforce housing increased by 520 units across all five counties.

As of October 2021, Summit County accounted for over half of the STRs that could be comparable to housing affordable to low-and-moderate income households. Grand County had the next highest number of units with 350 STRs, while Pitkin County had the lowest with only 50 STRs falling into this category.

Impacts of STR Inventory on Workforce Housing

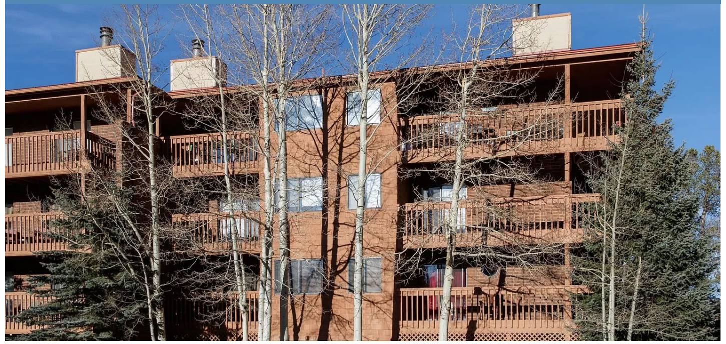
Given extreme market pressures and high demand from high income households, rental units that might be naturally affordable in other locations can be listed at much higher prices in these markets.

While a small portion of the STR inventory could potentially be affordable to low-and-moderate income households, other factors such as limited existing supply and increased demand from high income households are limiting the availability of naturally occurring affordable housing. Across the five counties, **rental prices have increased substantially over the past two years**, and rental housing units that may have previously been affordable to low-and–moderate income households are now being listed at prices that are well out of reach.

There are very few listings below $5,000 per month in most of the towns. For example, the median rental listing price in Aspen was $22,500 per month, and not a single unit was listed at below $5,000 per month, even including 1 and 2-bedroom units. In Eagle County, the median rental listing was $5,750 in February 2022, $4,550 more than a households making less than 60% AMI can afford.

Given this extreme market pressure, **even if lower tier STRs were converted to long-term rentals, they are unlikely to be listed at a price that low- and moderate-income households can afford**.

Frisco, CO 1,800 SF Apartment for Rent



$3,500
Jan 2019

$4,500
Feb. 2022

Avon, CO 1,300 SF Apartment for Rent

$2,300
Aug. 2021

$3,800
Feb. 2022

Source: Zillow, March 2022.

Impacts of STR Inventory on Workforce Housing

Due to extreme housing market pressures, meeting the housing needs of the workforce in these markets, particularly households making less than 60% of AMI, will require subsidy. There are two primary ways this subsidy could be used to create affordability in the market.

Build Rental Housing

Subsidize the construction of deed-restricted housing. Local and County government can offer subsidy to housing developers **in exchange for affordability**. Subsidy can be in the form of direct payments, low-cost loans or through the provision of public land to reduce development costs.

Subsidize Rental Conversions

Offer owners of lower tier STRs financial incentive to convert their units to long-term rentals, **in exchange for affordability**.

Source: Local Housing Solutions; subsidy costs will vary based on local market rents.

STR IMPACT ON WORKFORCE HOUSING

Technical Appendix

Tourism and STR Visitors

HR&A used **Longwoods International's 2020 Travel USA Visitor Profile for Colorado** to analyze the state's tourism trends. Longwoods International began tracking domestic American travelers in 1985 and has conducted large-scale syndicated visitor research quarterly since 1990.

Each quarter, a random, projectable sample of adult members (18 years of age and over) of a major U.S. consumer panel is invited to participate in the Longwoods Travel USA® survey. Respondents are selected to be representative of the U.S. adult population.

To calculate the number of STR visitors and understand STR guest characteristics and spending habits, HR&A analyzed **Airbnb provided guest data**. Airbnb's data is based on 129 survey responses. Airbnb was unable to break down responses by county, so this analysis is based on data for Colorado ex. Denver.

The **Colorado Tourism Office** (CTO) provides tourist spending information at the county level. In 2020, the total visitor spending across the 5 study area counties was $3,384,717,357. To approximate the number of tourists, HR&A divided the total spend by the average spending per person per trip. $652 is the average spend per person per trip from the CTO, which is an average of skiers, outdoor visitors, golf visitors, and "discretionary leisure". This calculation approximated 5,191,284 total visitors to the study area in 2020.

HR&A estimated that approximately 30% of all visitors to the five counties stay in STRs. This estimate is derived from analysis of Airbnb data and is supported by studies in similar ski areas, including:

- A **Utah Skier** study conducted in 2018 reported that 43% of visitors rent a home or condo in the winter. This figure is paired with a Park City specific study that reports that the STR percentage is ~20% in the summer.
- A 2017 study in the Town of Breckenridge by **Summit Mountain Rentals** reported that 33% of total vacation visitor income (lodging and other purchases) came directly from short-term lodging.
- **Visit Sun Valley** reported that 41% of 2019 accommodations were being used for STRs, according to Destimetrics. However, this does not factor in STR utilization.

Economic Impact Analysis

To analyze economic impacts of STR spending, HR&A employed **Emsi's Input-Output model** (www.economicmodeling.com), which uses Emsi's final unsuppressed industry data, gravitational flows, commuting patterns, and the U.S. Bureau of Economic Analysis's "make and use" tables, among other sources to develop in-house multipliers. A multiplier is a way of measuring how important one industry is to other industries in the region. If an industry has a multiplier of 2.5, for every positive or negative change on that industry, the total effect on the regional economy will be 2.5 times the original change.

The total economic impacts generated can be disaggregated into direct, indirect, and induced effects.

- The direct effect represents the initial change in economic spending or employment attributable to a policy, project, or event.
- The indirect effect represents the change in economic spending or employment by businesses that supply the industry that is directly affected.
- The induced effect represents the change in household spending of employees who are compensated for working in directly and indirectly affected industries.

In this study, HR&A used Emsi's regional multiplier for jobs, wages, and economic output. To apply the appropriate multipliers to the STR spending values, HR&A matched the Colorado Office of Tourism-provided categories to the relevant NAICS codes , the multiplier categorization used by Emsi (Figure A-1).

Per the U.S. Census Bureau, "the **North American Industry Classification System (NAICS)** is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy." 2-digit NAICS codes are the highest level classification for industries while 6-digit NAICS codes are the most specific classification; HR&A's model uses 6-digit NAICS codes in order to estimate economic impacts as precisely as possible. See: www.census.gov/naics.

HR&A distributed the spending across the 6-digit NAICS codes based on the actual distribution of all spending in the county for all categories, provided by Emsi, other than the accommodations category. This choice reflects the model's assumption that STR visitors have similar spending habits as the county's average spender at the 6-digit NAICS level.

Economic Impact Analysis (Continued)

Since STR visitors inherently spend money on different types of accommodations than other visitors, HR&A adjusted the distribution of the accommodations 6-digit NAICS to match the typology of STRs in the county, as provided by Transparent (Figure A-2).

Once the STR spending amounts are distributed across the 6-Digit NAICS, the model applies the specific Emsi multiplier to calculate initial, direct, indirect, and induced jobs. Once the number of jobs are calculated, the model applies the average wage of a job at that 6-Digit NAICS level to calculate the wages generated by STR visitor spending. Finally, the model calculates the total economic output of STR visitors by applying the 30% STR assumption to the total spending at each 6-Digit NAICS level.

Example process: Calculating the economic impact of food store spending in Eagle County by STR visitors

1. In 2020, Eagle County visitors spent $974.8M. Applying the assumption that STR visitors account for 30% of all visitors, STR visitors spent $292.5M.

2. According to Airbnb data, 7% of STR visitors' overall spending is at food stores. Applying this distribution, STR visitors spent $22.6M at food stores.

3. Food stores fall into 2-Digit NAICS category 44 (Retail Trade) and break down to 10 6-Digit codes like 445110 (Supermarkets), 445120 (Convenience Stores), and 44310 (Beer, Wine, and Liquor Stores).

4. In Eagle County, 78% of all food store spending is at supermarkets, so the supermarket multipliers are applied to $17.7M of spending (78% of $22.6MM). Applying the supermarket multipliers, the $17.7M of STR visitor supermarket spending in Eagle County in 2020 supported 22 direct jobs, 7 indirect jobs, and 27 induced jobs.

5. After aggregating the results of all the 10 6-digit NAICS, food store spending by STR visitors in Eagle County in 2020 supported 280 jobs (237 direct, 9 indirect, and 34 induced).

Economic Impact Analysis (Continued)

To better understand the incremental impact of STR visitor spending calculated from the economic impact model, HR&A conducted an analysis of the existing job landscape of the five counties. From Emsi, HR&A downloaded the number of jobs and the average wage per worker at the 2-digit NAICS industry level for each county and the United States for the years 2010, 2019, 2020, and 2021. This yielded 505 data points for analysis. Given the use of 2020 data to calculate economic impact, HR&A focused the analysis on 2020 data at the aggregate and individual county level.

Emsi software operates on the **Emsi Burning Glass** data set. The Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW) dataset provides detailed employment counts and earnings information for 95% of the employed workforce in the United States, broken out by industry. The employment counts data provided by this dataset are the gold standard of employment counts throughout Emsi Burning Glass data. Where necessary, Emsi Burning Glass fills in suppressed data points in QCEW using data from the Census's County Business Patterns (CBP) dataset.

The analysis refers to the 2-digit NAICS code industries identified in Figure A-1 as "tourism related industries". The other 17 industry codes are referred to as "other industries".

2020 job count data for the aggregate five counties can be found in Figure A-3.

TECHNICAL APPENDIX

Economic Impact Analysis (Continued)

Figure A-1: NAICS Code Translation

Colorado Office of Tourism Visitor Spending Categories	2-Digit NAICS equivalent
Accomodations	72- Accomodation and Food Service
Food Service	72- Accomodation and Food Service
Arts, Ent., & Rec	71- Arts, Entertainment, and Recreation
Retail Sales	44, 45- Retail Trade
Food Stores	44, 45- Retail Trade
Visitor Air Tran.	48,49- Transportation and Warehousing
Local Tran. & Gas	48,49- Transportation and Warehousing

Figure A-2: STR Visitors Accommodations Spend by 6-Digit NAICS; Eagle County, CO; 2020

6-Digit NAICS Code	Code Description	Distribution (based on STR Typology)
721110	Hotels (except Casino Hotels) and Motels	2.5%
721120	Casino Hotels	2.5%
721191	Bed-and-Breakfast Inns	0.2%
721199	All Other Traveler Accommodation	93.0%
721211	RV (Recreational Vehicle) Parks and Campgrounds	0.0%
721214	Recreational and Vacation Camps (except Campgrounds)	1.6%
721310	Rooming and Boarding Houses, Dormitories, and Workers' Camps	0.2%

Economic Impact Analysis (Continued)

Figure A-3: Number of Jobs by Industry, Aggregate five counties (2020)

Industry	2020
Accommodation and Food Services	19,500
Government	12,090
Retail Trade	10,230
Construction	9,070
Arts, Entertainment, and Recreation	8,800
Real Estate and Rental and Leasing	6,270
Administrative and Support and Waste Management and Remediation Services	6,210
Health Care and Social Assistance	6,170
Other Services (except Public Administration)	6,100
Professional, Scientific, and Technical Services	5,180
Finance and Insurance	1,670
Transportation and Warehousing	1,580
Educational Services	1,450
Manufacturing	1,120
Wholesale Trade	1,070
Agriculture, Forestry, Fishing and Hunting	720
Information	710
Utilities	360
Management of Companies and Enterprises	330
Mining, Quarrying, and Oil and Gas Extraction	270
Unclassified Industry	-
Total	**98,900**

Numbers rounded to the nearest 10

Fiscal Impact Analysis

HR&A's fiscal impact model uses data from the Colorado Tourism Office. The basic logic of the analysis is as follows:

To understand how much state and local (county and municipal) tax revenue is generated by tourists in the five counties, HR&A pulled county-level tax data from Economic Impact Reports prepared annually by **Dean Runyan Associates, Inc**. for the Colorado Tourism Office. This data shows the exact dollar amounts of state and local tax receipts (i.e., tax revenue) generated by visitor spending per county. According to the CTO, the data reflects "tax receipts collected by state, county, and municipalities, as levied on applicable travel-related purchases, including lodging, food and beverage service, retail goods, and motor fuel".

To understand how much of overall visitor-generated tax revenue in each county is attributable to STR visitors, HR&A multiplies the 2020 state tax revenue generated by all visitors in each county by 30% to estimate the 2020 state tax revenue generated by STR visitors in each county; the model does the same for local tax revenue. Aggregating the state and local tax revenue estimates per county produces the total fiscal impact per county.

TECHNICAL APPENDIX

Housing Market Analysis

To understand how STRs are impacting the inventory and availability of workforce housing, HR&A analyzed both publicly available and third-party data sources to quantify existing housing supply (i.e., housing inventory); quantify existing demand at different income levels; identify key market trends; and categorize the inventory of vacation and seasonal homes.

HR&A's analysis of the existing and historic housing supply in the five counties primarily relied on the 2010 and 2019 data from the **American Community Survey** (ACS).

The U.S. Census Bureau's American Community Survey (ACS) is conducted every year, where the Census Bureau contacts over 3.5 million households across the county. The ACS 2014-2019 5-Year Estimate was the most recent data available as of February 2022 as the 2016-2020 data was delayed due to complications from COVID-19.

HR&A supplemented the supply analysis with **publicly available building permits data**. The availability and quality of building permit data varied across the five counties. HR&A used 2020 building permit data for the municipality of Steamboat Springs (located in Routt County) for analysis, which was broken down by property type and construction status.

Public Use Microdata Survey (PUMS) data from the U.S. Census Bureau was used to break down the housing inventory data further into occupied and vacant units, including the type of vacant unit (i.e., whether units are vacant because they are seasonal homes or homes on-the-market).

For the study area of Eagle, Grand, Pitkin, Routt, and Summit County, HR&A used the Public Use Microdata Survey Areas (PUMAs) 08-00400 and -00200 as the closest approximation of county boundaries. However, HR&A's PUMS analysis includes a slightly larger area than the county boundaries.

TECHNICAL APPENDIX

Workforce Housing Analysis

To understand how STR housing inventory may be impacting the availability of workforce housing, HR&A categorized the existing inventory of STRs using STR inventory data from **Transparent**.

Transparent is a specialized data intelligence company based in Madrid. Transparent tracks over 35 million Airbnb, Vrbo, Booking.com, and TripAdvisor listings globally. HR&A purchased data for the five counties from 2018 to 2021. This includes characteristics about property type, average daily rate (ADR), and availability.

HR&A also conducted a housing gap analysis to quantify the existing supply of long-term housing (non-STRs) relative to demand at different income levels. The intention of this analysis was to analyze which STR units, if converted to long-term rentals, might reasonably be available at a price affordable to the workforce.

To supplement the 2019 ACS data with more current housing market information, HR&A pulled data from **Zillow**, a rental and for-sale listing company, for each county. The Zillow listing data reflects all active listings as of March 17, 2022.

TECHNICAL APPENDIX

County Profiles

Eagle County

Home to **Vail** and **Beaver Creek** ski resorts

Demographic Overview

18,200
Households

$84,800
Median Household Income

Housing Inventory Overview

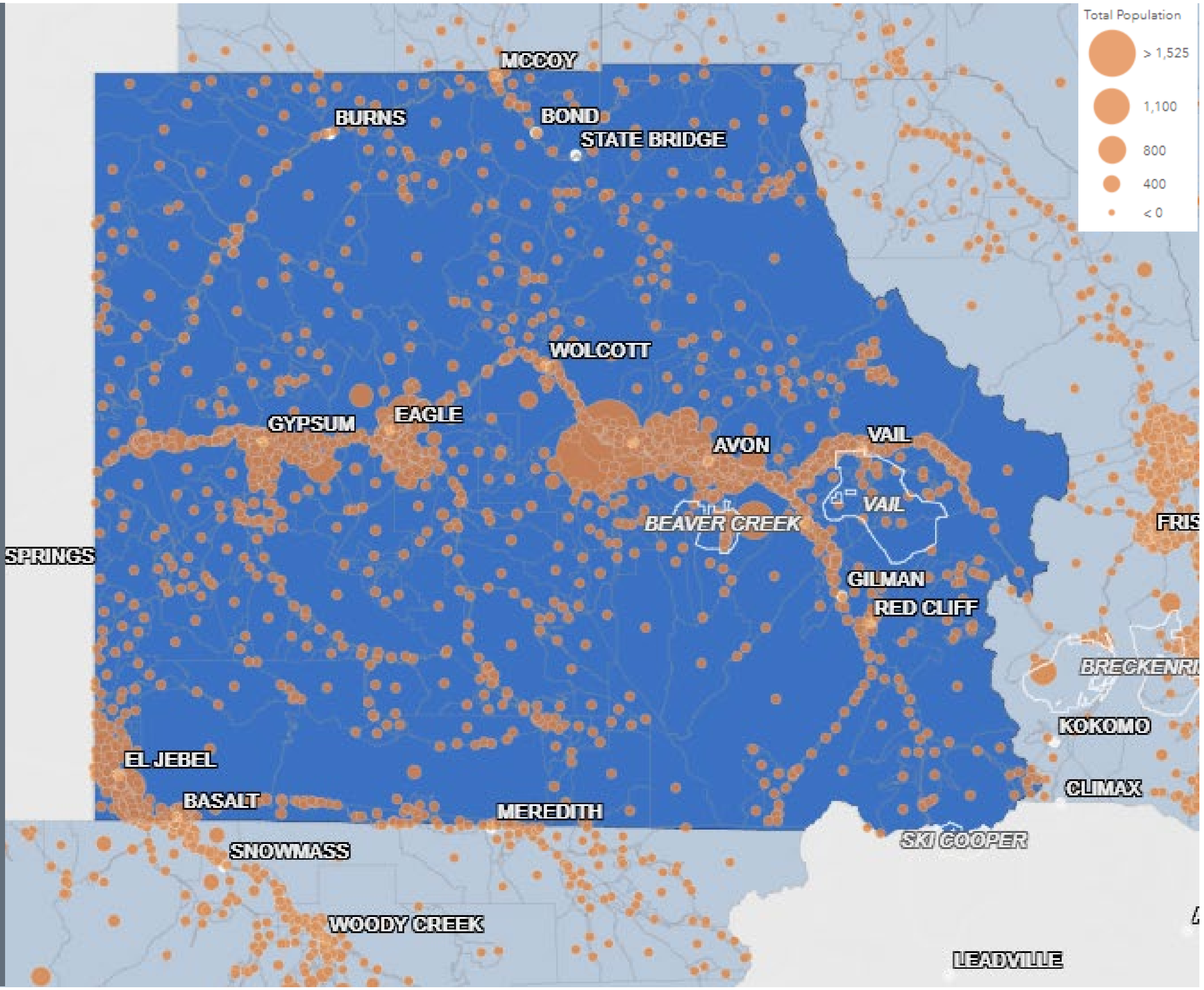
32,500
Housing Units

10,300
STR Units

Tourism Overview

1.5M
Est. Annual Visitors

$974.9M
Visitor Spending in 2020



Sources: American Community Survey (ACS) 5-Year estimates, Colorado Tourism Office, Longwoods International.

COUNTY PROFILES

Eagle County

STR visitors spent approximately **$292.5M** in 2020

Economic & Fiscal Impact

4,200
Jobs Supported

$193.5M
Worker Earnings

$20.7M
State & Local Taxes

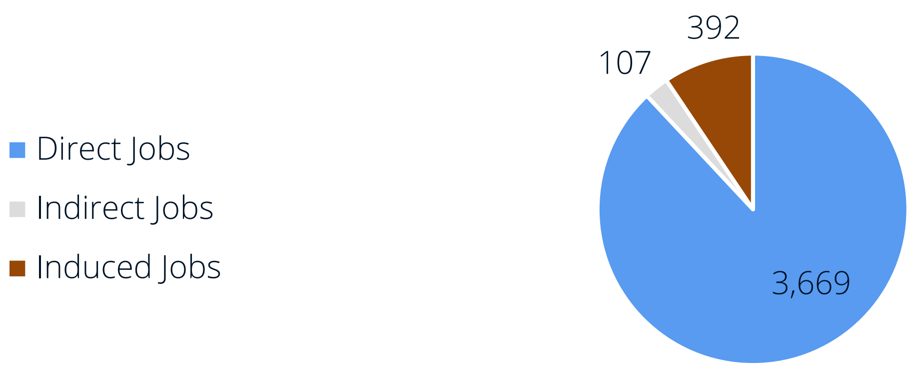
$527.0M
Total Economic Output

Workforce Housing Impact

117
STRs comparable to workforce housing* in 2021

+43
Increase in STRs comparable to workforce housing* from 2019 to 2021

Jobs Supported by STR Visitor Spending, 2020



Tax Revenue from STR Visitor Spending, 2020

Sources: ACS 5-Year estimates, Airbnb, Colorado Tourism Office, Emsi.

** This analysis includes apartment STR units that might otherwise be available and affordable to long-term renters. STR units that are available for more than half the month and are in the lower Average Daily Rate (ADR) bracket (less than $150 per day) are most directly comparable to rental units that could meet workforce housing need.*

Grand County

Home to **Winter Park** ski resort

Demographic Overview

5,900
Households

$71,200
Median Household Income

Housing Inventory Overview

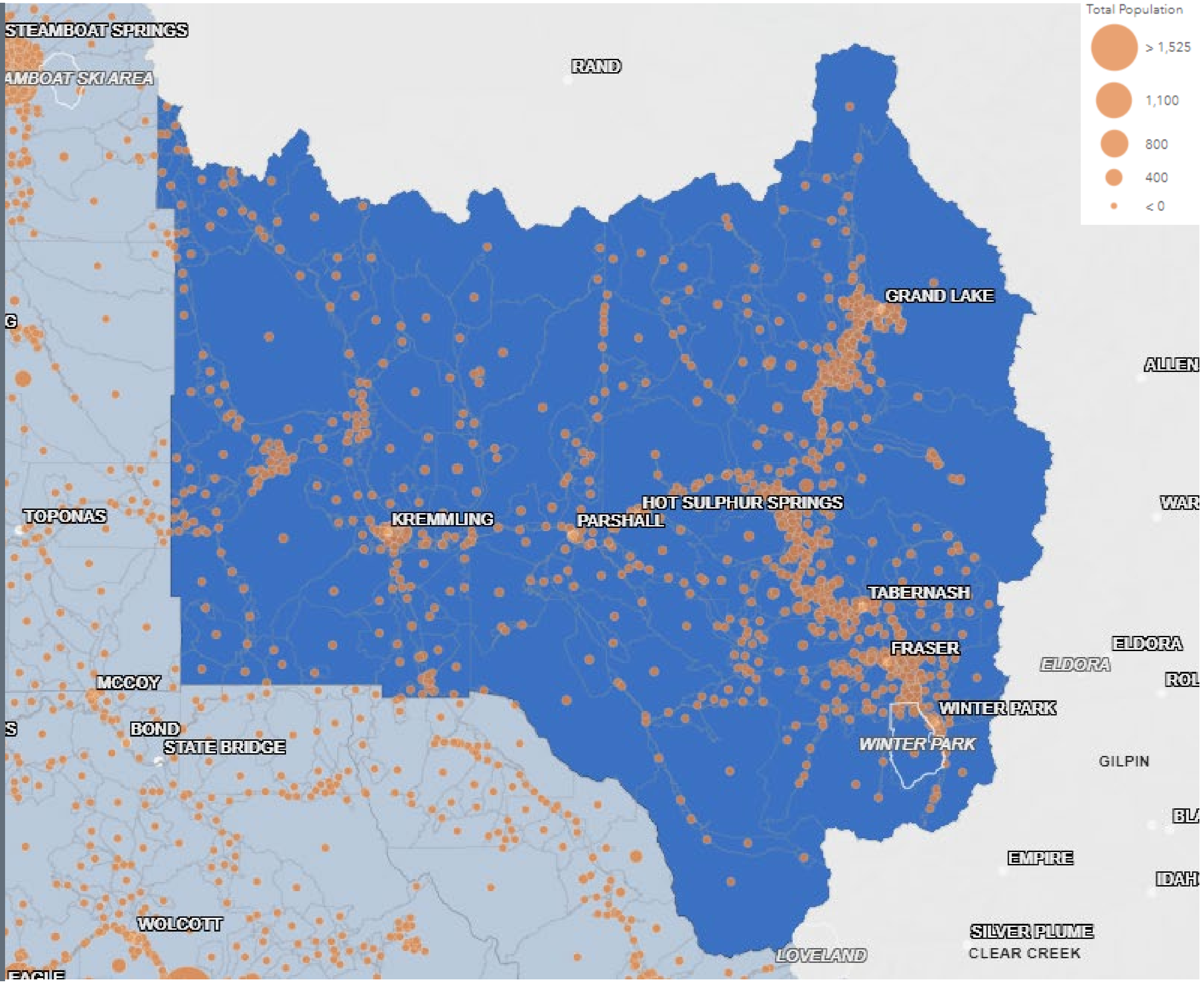
16,800
Housing Units

6,400
STR Units

Tourism Overview

591,900
Est. Annual Visitors

$385.9M
Visitor Spending in 2020



Sources: American Community Survey (ACS) 5-Year estimates, Colorado Tourism Office, Longwoods International.

COUNTY PROFILES

Grand County

STR visitors spent approximately **$115.8M** in 2020

Economic & Fiscal Impact

1,600
Jobs Supported

$33.1M
Worker Earnings

$8.3M
State & Local Taxes

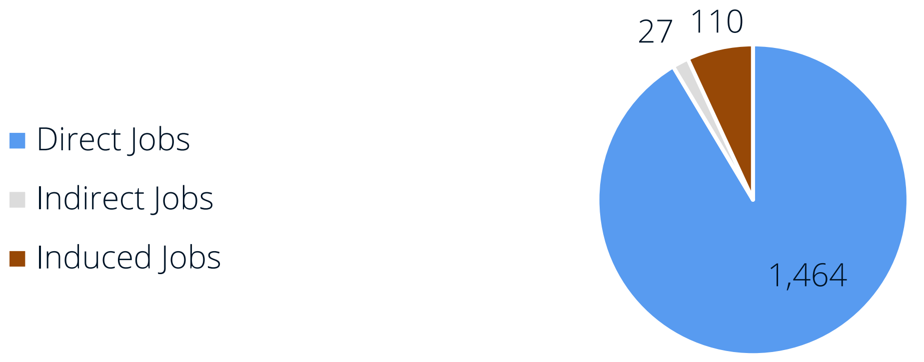
$115.1M
Total Economic Output

Workforce Housing Impact

352
STRs comparable to workforce housing* in 2021

+112
Increase in STRs comparable to workforce housing* from 2019 to 2021

Jobs Supported by STR Visitor Spending, 2020



Tax Revenue from STR Visitor Spending, 2020

Sources: ACS 5-Year estimates, Airbnb, Colorado Tourism Office, Emsi.

** This analysis includes apartment STR units that might otherwise be available and affordable to long-term renters. STR units that are available for more than half the month and are in the lower Average Daily Rate (ADR) bracket (less than $150 per day) are most directly comparable to rental units that could meet workforce housing need.*

COUNTY PROFILES

Pitkin County

Home to **Aspen** and **Snowmass** ski resorts

Demographic Overview

7,500
Households

$78,900
Median Household Income

Housing Inventory Overview

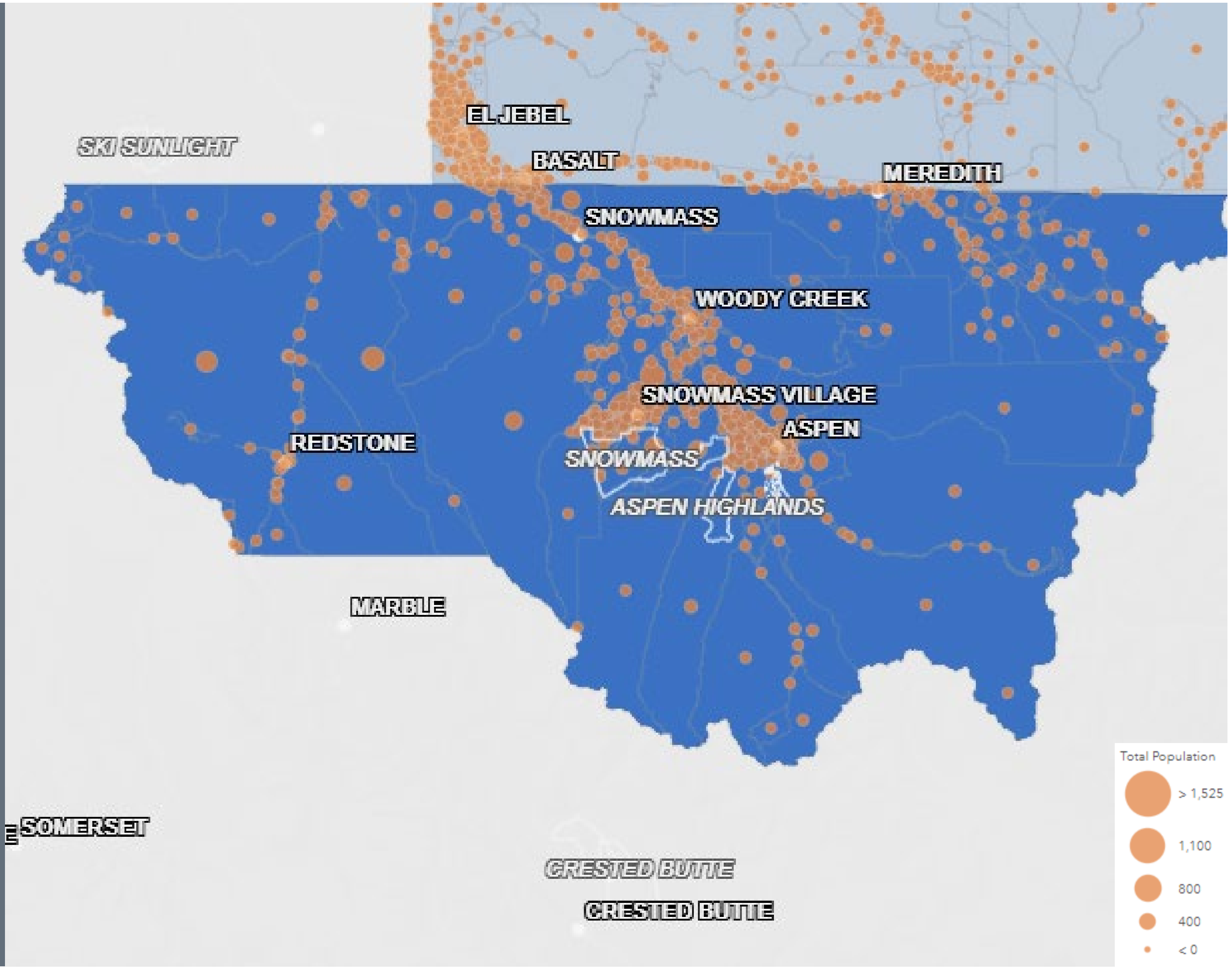
14,000
Housing Units

4,900
STR Units

Tourism Overview

876,500
Est. Annual Visitors

$571.5M
Visitor Spending in 2020



Sources: American Community Survey (ACS) 5-Year estimates, Colorado Tourism Office, Longwoods International.

Pitkin County

STR visitors spent approximately **$171.4M** in 2020

Economic & Fiscal Impact

1,900
Jobs Supported

$119.3M
Worker Earnings

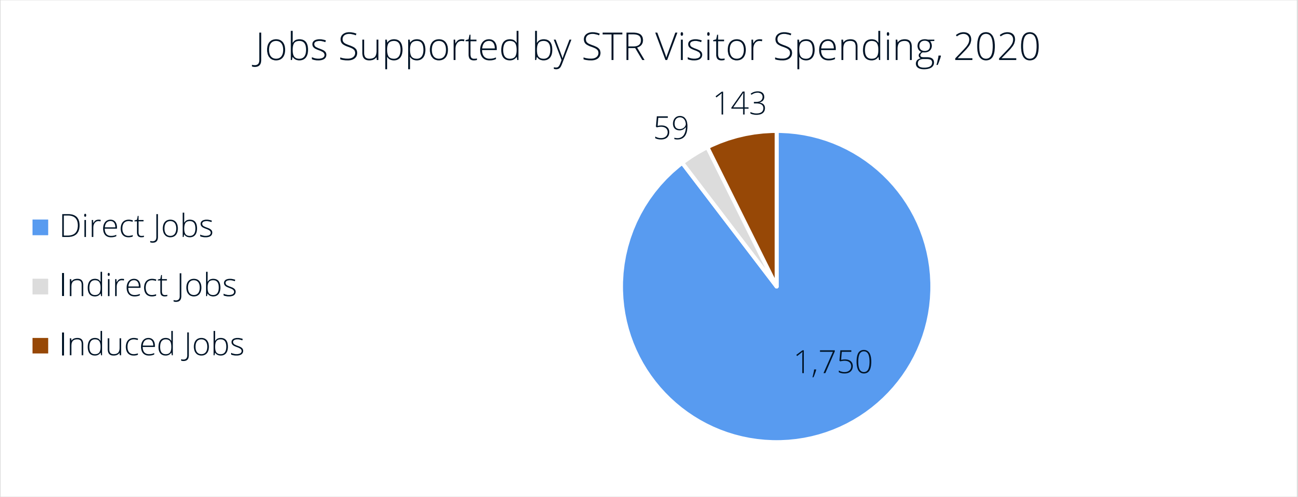
$13.7M
State & Local Taxes

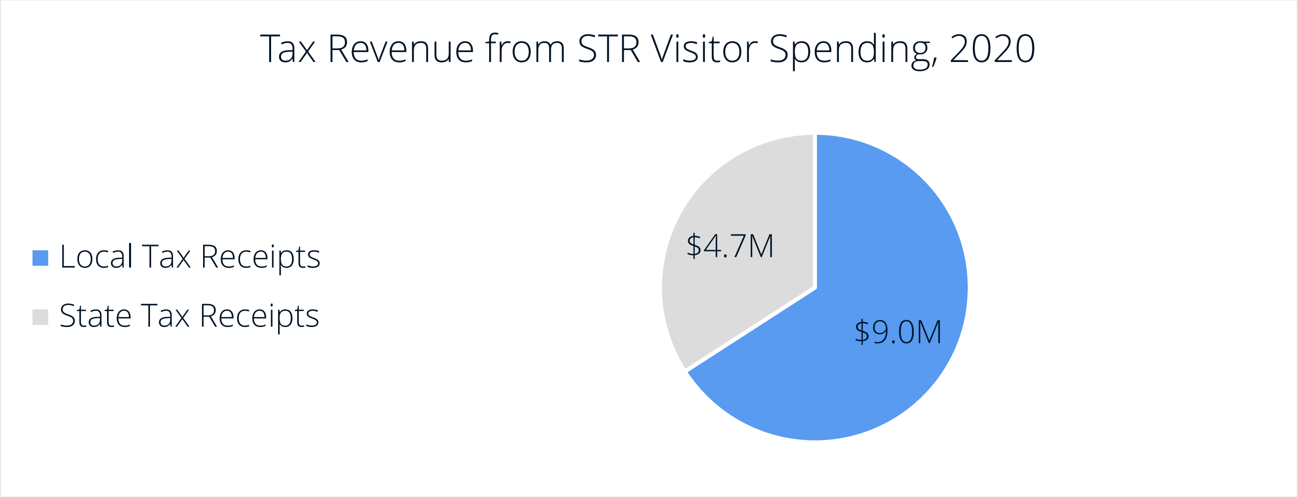
$331.8M
Total Economic Output

Workforce Housing Impact

19
STRs comparable to workforce housing* in 2021

+9
Increase in STRs comparable to workforce housing* from 2019 to 2021





Sources: ACS 5-Year estimates, Airbnb, Colorado Tourism Office, Emsi.

** This analysis includes apartment STR units that might otherwise be available and affordable to long-term renters. STR units that are available for more than half the month and are in the lower Average Daily Rate (ADR) bracket (less than $150 per day) are most directly comparable to rental units that could meet workforce housing need.*

Routt County

Home to **Steamboat Springs** ski resort

Demographic Overview

9,600
Households

$77,400
Median Household Income

Housing Inventory Overview

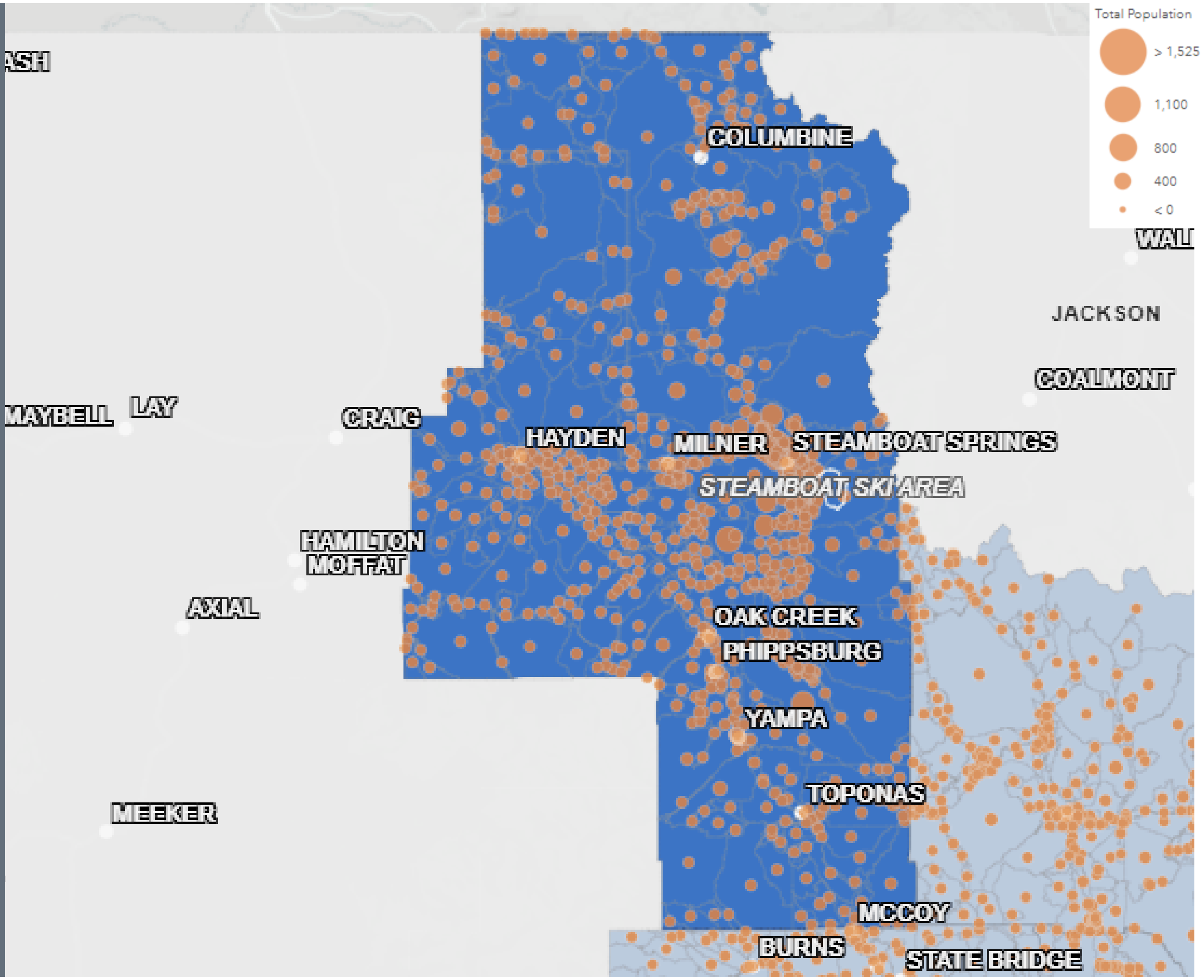
16,800
Housing Units

6,800
STR Units

Tourism Overview

333,700
Est. Annual Visitors

$217.6M
Visitor Spending in 2020



Sources: American Community Survey (ACS) 5-Year estimates, Colorado Tourism Office, Longwoods International.

Routt County

STR visitors spent approximately **$65.3M** in 2020

Economic & Fiscal Impact

1,100
Jobs Supported

$41.6M
Worker Earnings

$4.5M
State & Local Taxes

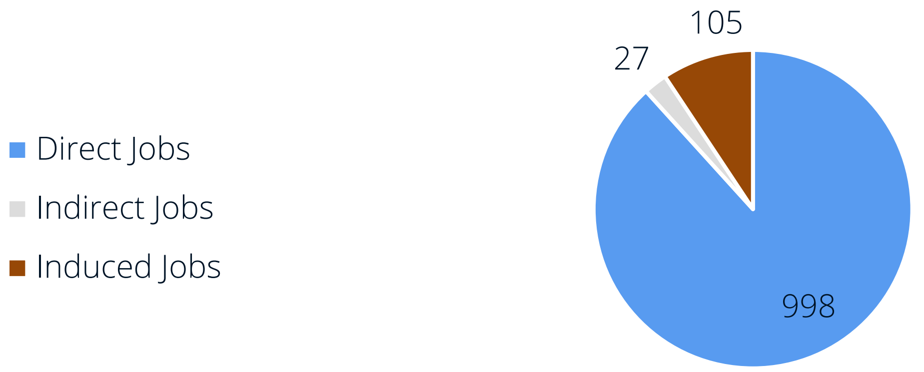
$179.2M
Total Economic Output

Workforce Housing Impact

178
STRs comparable to workforce housing* in 2021

+46
Increase in STRs comparable to workforce housing* from 2019 to 2021

Jobs Supported by STR Visitor Spending, 2020



Tax Revenue from STR Visitor Spending, 2020

Sources: ACS 5-Year estimates, Airbnb, Colorado Tourism Office, Emsi.

** This analysis includes apartment STR units that might otherwise be available and affordable to long-term renters. STR units that are available for more than half the month and are in the lower Average Daily Rate (ADR) bracket (less than $150 per day) are most directly comparable to rental units that could meet workforce housing need.*

COUNTY PROFILES

Summit County

Home to **Breckenridge, Keystone, Copper Mountain,** and **Frisco** ski resorts

Demographic Overview

10,600
Households

$79,300
Median Household Income

Housing Inventory Overview

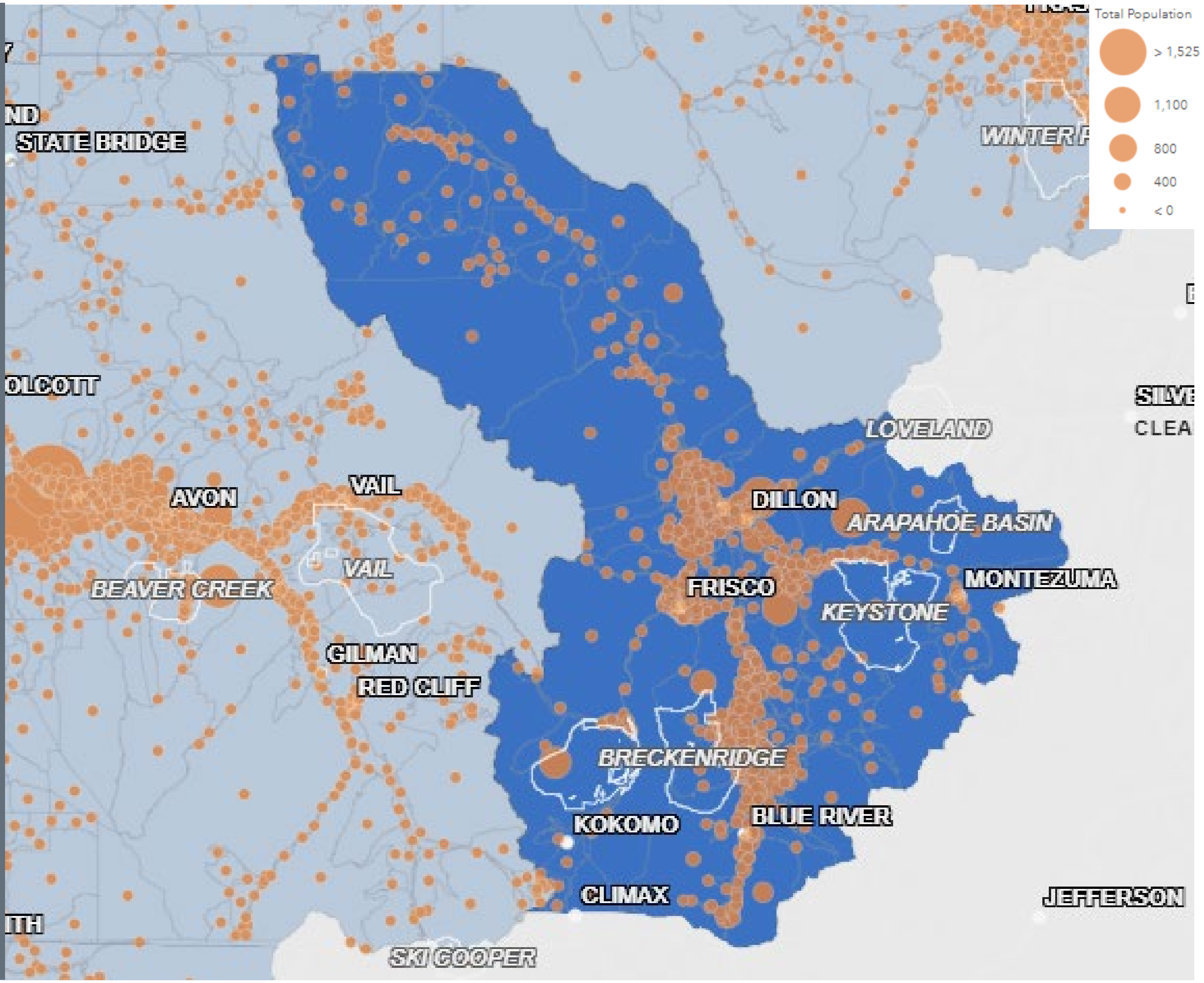
31,200
Housing Units

20,800
STR Units

Tourism Overview

1.9M
Est. Annual Visitors

$1.23B
Visitor Spending in 2020



Sources: American Community Survey (ACS) 5-Year estimates, Colorado Tourism Office, Longwoods International.

COUNTY PROFILES

Summit County

STR visitors spent approximately **$370.5M** in 2020

Economic & Fiscal Impact

5,900
Jobs Supported

$211.6M
Worker Earnings

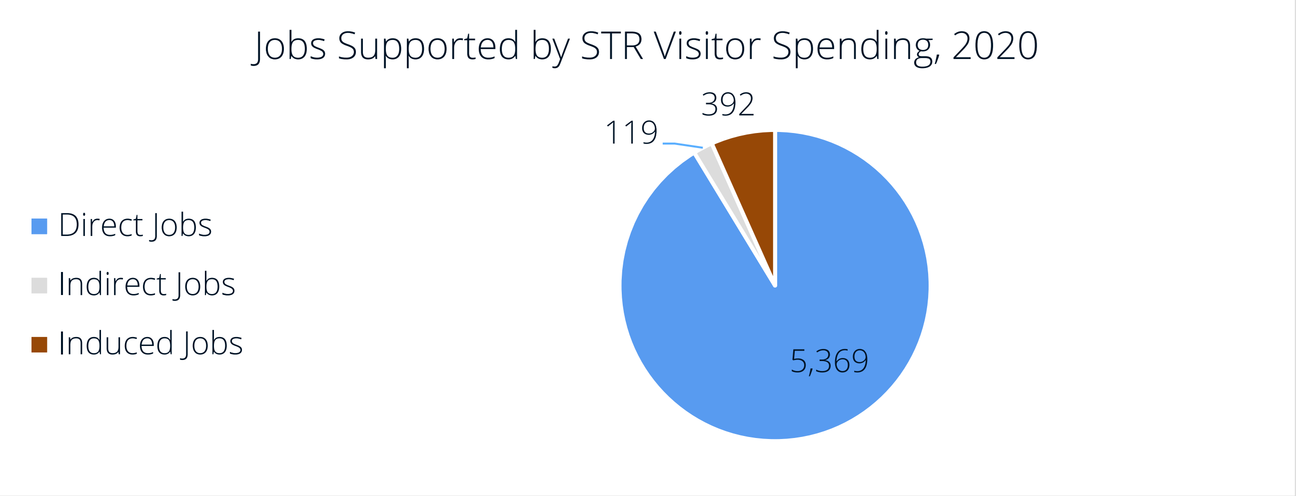
$26.8M
State & Local Taxes

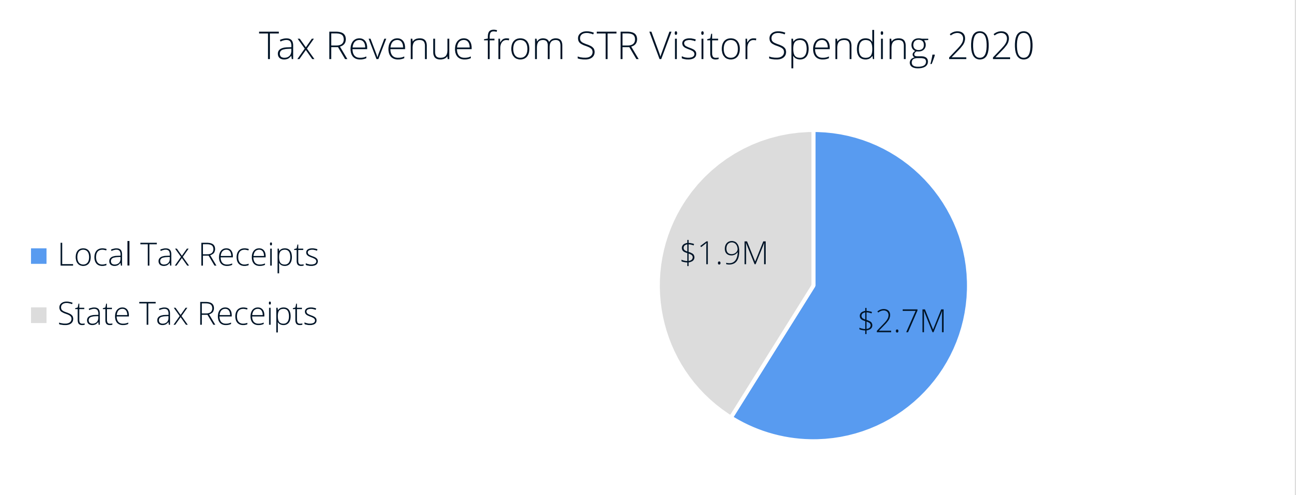
$358.2M
Total Economic Output

Workforce Housing Impact

807
STRs comparable to workforce housing* in 2021

+243
Increase in STRs comparable to workforce housing* from 2019 to 2021





Sources: ACS 5-Year estimates, Airbnb, Colorado Tourism Office, Emsi.

** This analysis includes apartment STR units that might otherwise be available and affordable to long-term renters. STR units that are available for more than half the month and are in the lower Average Daily Rate (ADR) bracket (less than $150 per day) are most directly comparable to rental units that could meet workforce housing need.*

Colorado Short Term Rental Impact Study

May 2022