COMMON SENSE INSTITUTE

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BOOKED OR BLAMED? THE TRUTH ABOUT SHORT TERM RENTALS, THE GREAT RECESSION, AND HOME PRICES

EVIDENCE FROM ARIZONA AND AIRBNB

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ABOUT COMMON SENSE INSTITUTE

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INTRODUCTION

Arizona's housing affordability crisis is one of the state's most pressing economic and quality-of-life challenges. After 2019, home prices and rents rose sharply, straining household budgets, reshaping workforce choices, influencing migration patterns, and fueling debate over the causes. Short-term rentals (STRs), especially through platforms like Airbnb, have drawn particular attention because their growth coincided with this period of rapid price appreciation.

But coincidence is not causation. Effective policy depends on separating the primary drivers of Arizona's housing affordability crisis from trends that moved alongside it without being central causes.

To understand current conditions, it is necessary to step back to the Great Recession and its aftermath. Arizona suffered one of the nation's deepest housing collapses, with home prices falling about 46% from peak to trough. In the years that followed, confidence in housing weakened, lending standards tightened, and new home production slowed dramatically. In the five years before the crash (2003–2007), Arizona permitted and built roughly 400,000 housing units; over the next decade (2010–2019), that total fell to about 211,000. For much of the 2010s, modest price growth masked the market's growing fragility: fewer homes were being built, fewer permits were turning into completed units, and supply constraints were accumulating. When the COVID-19 pandemic arrived, those structural weaknesses collided with historically low interest rates, strong in-migration, and a sudden increase in demand for more living space and flexibility. The result was rapid price increases and a sharp deterioration in affordability.

Against this backdrop, the rise of STRs is real and locally significant. CSI estimates that Arizona had about 57,000 STR listings in 2024, up from roughly 10,000 to 15,000 in 2010. In some neighborhoods and resort communities, that growth raises legitimate concerns about neighborhood character, local housing use, and quality-of-life effects. But Arizona's housing market is much larger than the STR market alone: the state has roughly 3.3 million housing units, and as recently as 2020 it still had more than 200,000 seasonal or vacation homes.

The key question, then, is whether the rise of STRs can explain Arizona's statewide affordability crisis, or whether STRs are concentrated in places that were already high-demand, supply-constrained, and tourism-oriented. This report addresses that question using 10 years of data from Airbnb, the Census Bureau, Zillow, and other sources.

The aim is not to dismiss the disruptions STRs can create in specific communities, nor to suggest that housing affordability has a single cause. It is to test a widely repeated explanation against the evidence: what really caused home prices to rise so quickly?

KEY FINDINGS

- **Arizona's affordability crisis is primarily structural, not platform-driven.** The roots of today's problem lie in the decade after the Great Recession, when Arizona's housing pipeline weakened dramatically. In the five years before the crash, Arizona permitted and built roughly 400,000 housing units; over the next decade, that total fell to about 211,000. Tighter lending, more costly building conditions, and slower conversion of permits into completed housing left the market vulnerable well before the pandemic.
- **STR growth is real, but too small at the statewide level to explain Arizona's broad affordability crisis.** Arizona had an estimated 57,000 STR listings in 2024, but only a fraction were rented for more than 90 days-per-year, and the market remains small relative to the state's roughly 3.3 million housing units. STRs may matter in specific neighborhoods and resort markets, but statewide affordability is shaped far more by broad supply-and-demand conditions.
- **The rise of STRs appears to have "formalized" existing vacation/seasonal housing more than it removed full-time housing from the market.** Since 2010, the increase in STRs has closely tracked the decline in second homes. The report finds that growth in short-term rentals was almost fully offset by a reduction in vacation homes, suggesting that Airbnb often opened existing seasonal housing to short-term users rather than creating a large new withdrawal of housing from full-time residents.
- **Arizona's 2020–2022 price surge was driven by a pandemic-era demand shock hitting an already constrained housing market.** Prices accelerated statewide alongside tighter vacancy conditions, historically low interest rates, strong in-migration, remote-work shifts, and elevated federal stimulus. These forces hit after a decade of underproduction, making the pandemic-era price spike better explained by structural scarcity and a sudden demand surge than by STR growth.
- **Places with the most STR activity were often already expensive, supply-constrained, and tourism-oriented before Airbnb expanded.** Across Arizona, the areas with the highest STR density were not the places showing the clearest long-run evidence of Airbnb-driven price acceleration. Instead, STR activity tends to cluster in places that were already high-cost or exclusive, suggesting STRs more often follow preexisting desirability and access constraints than create them. The econometric results are consistent with that conclusion: once reasonable controls are introduced, the estimated relationship between STR density and home-price growth is small, unstable, and prone to spurious correlation.

THE HOUSING MARKET SINCE THE GREAT RECESSION

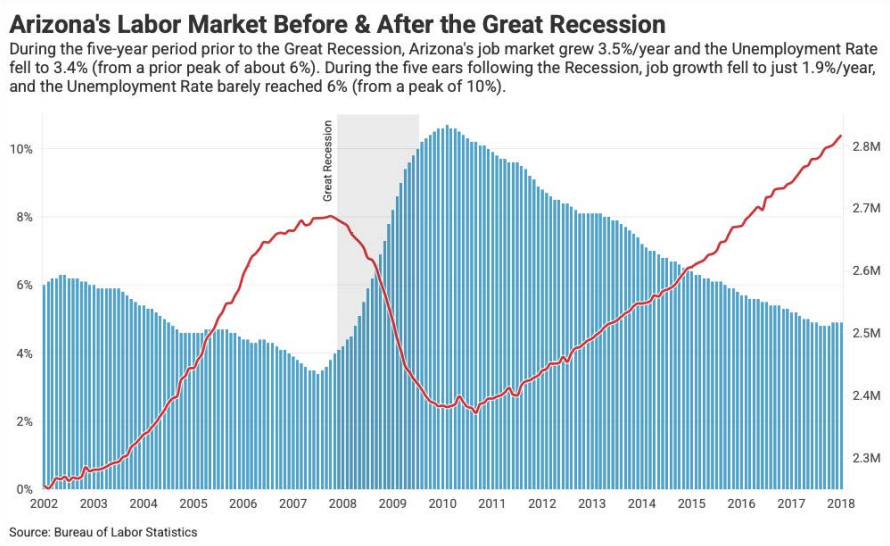
This report primarily focuses on the contemporary affordability challenges in Arizona's housing market, and the relationship the state's short-term-rental market has with that challenge.

Understanding what has happened to the housing market in Arizona and the United States over the last five years requires first understanding what happened prior to, and after, the Great Recession and what happened during and after the COVID-19 pandemic.

The arrival and rise of the sharing economy coincided with the Great Recession, which, until the pandemic, was the most significant economic contraction in the United States since the Depression. Beginning in December 2007, the Great Recession officially lasted 18 months, and U.S. real gross domestic product (GDP) fell 4.3%—the longest and largest decline since World War II. Arizona fared even worse; its labor market did not bottom out until September 2010 (35 *months* from its October 2007 peak). Ultimately, the state would not recover those lost jobs until March 2016, representing the slowest job market growth in contemporary state history).

Unlike prior recessions, some of which were brutal, the Great Recession combined a deep economic downturn with massive system-wide financial and asset value shocks. The credit crisis was catastrophic for lending and investment markets, while the collapse in home values dramatically depressed net worth for middle-class Americans. The subsequent recovery also was very slow.

FIGURE 1.



The run-up in mortgage debt, residential investment, and housing-related asset values fueled the expansion between the Dot Com and Great Recessions, and correspondingly led the declines.[i] Tightening lending standards and investor flight after the 2010 exacerbated the trend and slowed any potential recovery. In 2005, there were $4.7 trillion in new mortgage originations (2023 dollars); that level would not be reached again in the United States until 2020-2021, and even then, two-thirds of new mortgages during the pandemic were refinancing existing debt at then-historically-low rates.[ii] **The U.S. mortgage market and housing markets today are about two-thirds of their pre-Great Recession peaks, even though population is nearly 20% larger and the average American home has nearly doubled in price.**

And unlike a more typical recession, because home prices declined dramatically during the Great Recession (falling almost 20% nationally and a stunning 46% in Arizona, peak-to-trough)[iii], that contraction was particularly destructive to the wealth of lower-net-worth households whose wealth is relatively more concentrated in real estate and especially their primary home. As a result, **net worth losses were dramatically larger for the bottom 50% of households during the Great Recession than the wealthier.** Slow subsequent home price appreciation meant recovery for these households was also painfully slow, with the bottom 90% still poorer in 2012 than they had been before the Great Recession. This was especially true in Arizona, due to its disproportionate concentration in the real estate sector and especially large home price declines.[iv]

Intuitively, to understand the scope of the problem recall that a mortgage is "first priority" – primary home loans and other liens come off the top in any sale. Only the remaining equity after repaying those obligations goes to the owner. Under terms typical for a middle-class buyer, about 80% of a home's value is mortgaged, and it may be a

FIGURE 2.

U.S. Household Net Worth, 2007-2012

Typically, exposure to riskier assets (like equities) means higher income households experience greater volatility during the economic cycle. However, the Great Recession disproportionately impacted lower-wealth households, and their recovery was especially slow.

Wealth Group	Net Worth (2007)	Net Worth (2009)	Change (2007-2009)	Net Worth (2012)	Change (2007-2012)
Bottom 50%	$1.33T	$0.4T	-69.5%	$0.29T	-78.4%
50th–90th	$20.62T	$18.32T	-11.2%	$19.85T	-3.7%
90th–99th	$25.21T	$21.7T	-13.9%	$25.89T	+2.7%
Top 1%	$19.26T	$15.29T	-20.6%	$19.19T	-0.4%

Source: Federal Reserve Economic Database

FIGURE 3.

U.S. Mortgage & Housing Market Size, 2000-2024

After peaking just prior the Great Recession, the housing market in the United States never recovered. Today, in terms of both landing volumes and investment in new housing, the market is about a third smaller than it was in 2005-2006 (relative to the size of the U.S. economy).

Year	Mortgage Debt (nominal)	Mortgage debt / GDP	Residential investment / GDP	Mortgage originations (constant-dollar)
2000	$4.81T	46.9%	4.7%	$2.02T
2005	$8.9T	68.3%	6.6%	$4.72T
2006	$9.9T	71.7%	6.1%	$4.12T
2010	$9.96T	66.2%	2.5%	$2.37T
2013	$9.4T	55.7%	3.0%	$2.41T
2020	$10.78T	50.4%	4.3%	$4.84T
2021	$11.81T	49.8%	4.8%	$4.99T
2023	$13.02T	46.8%	4.0%	$1.64T
2024	$13.38T	45.7%	4.0%	

Source: Federal Reserve Economic Database, Bureau of Economic Analysis, Mortgage Bankers Association

decade before the owner pays off a significant chunk of that principal debt. This means that just a 20% decline in home values is enough to wipe out 100% of the owners' equity, which again for a middle-class household, can be effectively *all* net wealth.

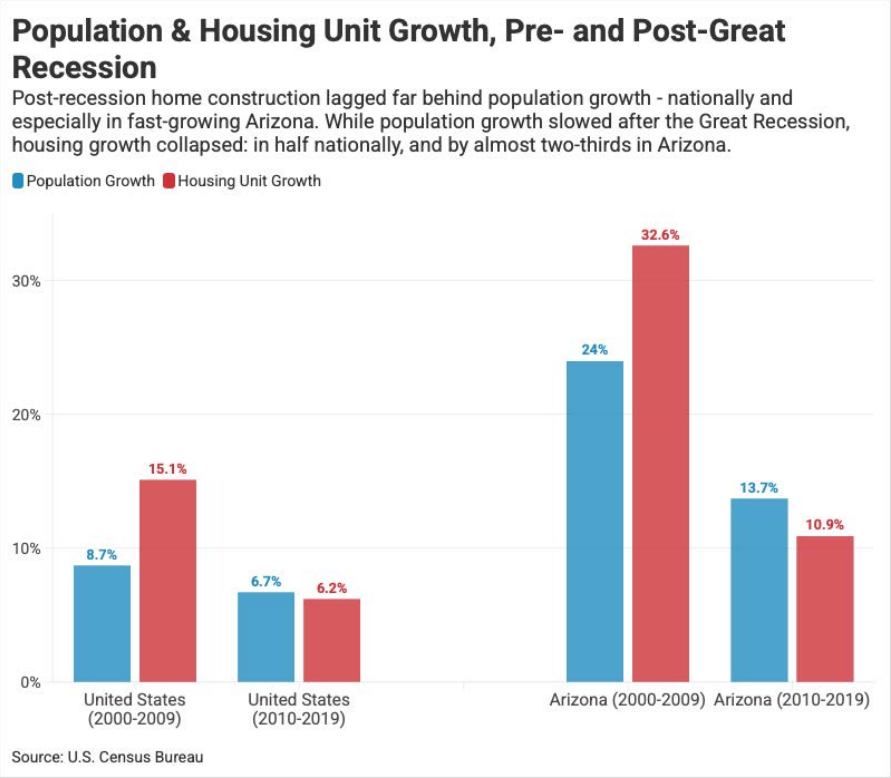
The Calm Before the (Housing Market) Storm

The Great Recession significantly weakened confidence in housing as a safe, wealth-building asset for many Americans—especially for households that experienced price declines, negative equity, and foreclosure.[v] The housing market itself became a convenient scapegoat for the period, and this view led to various policy changes; over time, Americans became more skeptical of housing development, and local and federal policy more tightly regulated the sector after the Great Recession. As a result, the sector never really recovered.

For perspective, over the five year period (2003-2007) just prior to the housing market crisis, the United States built about 9.4 million housing units. Arizona alone permitted and built 400,000 units. It would take 10 years for the United States to permit construction of another 9.4 million units; Arizona in that time would only permit about 211,000. Not only did permission to build slow, conversion of permits into housing slowed as well. Over the five years prior to the housing market crisis, the United States converted about 96% of building permits into housing units with a 12-24 month lag. Between 2010 and 2019 that conversion rate slowed to just 82%, according to U.S. Census and Building Permit Survey data. **The United States was permitting less housing, and fewer building permits were turning into occupiable housing.**

At least initially, though, the result of this supply malaise on potential long-run prices was not clear: between 2000 and their 2007 peak, home prices in the United States rose about 65%, or about 40% on an inflation adjusted basis. Over the 10 years between 2010 and the end of 2019, though, prices only rose about 38%, which was barely keeping pace with inflation. Hard-hit Arizona saw prices nearly double (up 91% in seven years) before 2008, but appreciation slowed over the decade between 2010 and 2019 (+62%). Conditions for buyers were further improved by relatively low interest rates; in the pre-Great Recession

FIGURE 4.



period 30-year mortgage rates averaged about 6%, versus about 4% over the 10 years before the pandemic.

Changes to lending rules, building standards, and regulatory requirements after the Great Recession made it much more expensive to lend money for homes, construct new housing, and comply with rules across the U.S. housing market. (See Appendix B for details on these changes). These shifts helped create the conditions for a future crisis by raising costs and limiting supply.

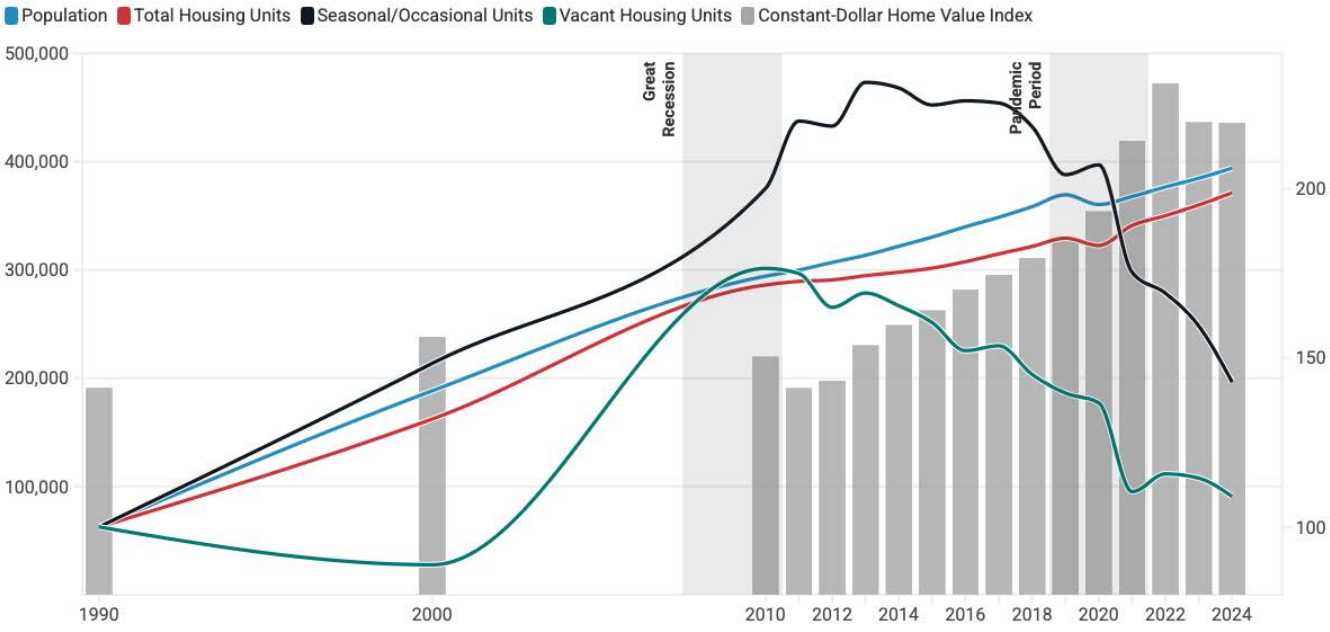
At the same time, demand for housing stayed unusually low due to the lasting shock from the recession itself, along with demographic shifts, people forming larger households (e.g., more multi-generational living to save money), and other factors (like historically low interest rates).

Together, these forces kept home prices relatively stable and manageable for years, masking the market's underlying structural weaknesses.[1] Notably, the housing sharing economy was growing throughout this time (CSI estimates there were only about 15,000 short-term rentals in Arizona in 2010 after the Great Recession; by 2019 that number had climbed 37,000 units) .

FIGURE 5.

Arizona's Housing Market, Pre- & Post-2010

Arizona' housing market dynamic has been characterized by supply-constraint since the Great Recession. After 2010, the pace of housing supply growth fell by two-thirds, vacancy rates fell nearly in half, and 60,000 second-homes have been returned to the regular market. Real prices - flat for twenty years - doubled over the last decade.



Source: U.S. Census Bureau, Zillow • Constant-dollar home values imputed from Zillow's home value index, the FHA House Price Index, and fixed to the GDP Implicit Price Deflator.

[1] Prior to the rise of formal online marketplaces, short-term rental markets were small and decentralized. Comprehensive data is not available about the size of location of these units. Based on estimated market shares (produced by CSI using public sources) and Airbnb-specific platform growth data, CSI back-casted STR market size in Arizona, but it is a best-guess estimate and not based on any actual unit count data.

The Perfect (Housing Market) Storm

By 2019, the conditions were already in place for a housing affordability crisis. Building had been slow for a decade, but population growth continued. Young adults living longer than they had historically with roommates or family had been stunting household growth relative to population, but this phenomenon could only ever be temporary; eventually these young people would need or want to form independent households.

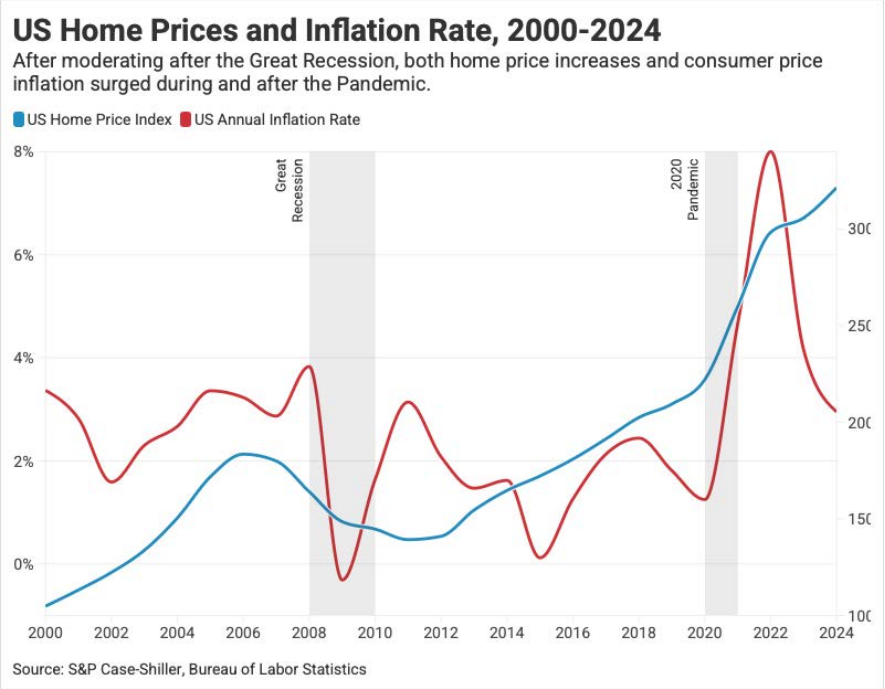
In 1980 there were about 1.8 adults living in the average American home; by 2008 that number had declined to about 1.65.[vi] Given the size of the population in 2008, this shift to smaller household populations (ignoring all other population and demographic changes since 1980) would equate to demand for almost 15 million additional housing units. Between 2008 and 2020, though, this trend reversed—the number of adults per household rose to about 1.75. **Though the American population grew over this period, household composition changes offset most of that growth, reducing housing demand by up to 11 million units by 2020 relative to what it would have been at 2008 sizes.** For context, over this period the United States added nine million housing units total and population grew by 27.5 million (enough to fill 10 million housing units at 2008 household sizes).

These behavioral shifts and household compositional changes after the Great Recession enabled the U.S. housing market to weather the new productive malaise imposed on it after the Great Recession. That cushion came to an end in early 2020, with the COVID-19 pandemic.

Policy responses to the pandemic were swift and unprecedented.[vii] The Federal Reserve slashed interested rates to near-zero and began purchasing a variety of private assets, including more than $1.3 trillion in mortgage-backed securities over the next three years. These moves depressed borrowing and mortgage costs, prompting a surge in new debt. Congress provided three rounds of massive federal stimulus, which sent trillions of dollars into various accounts, including direct payments to households and into national, local, and non-profit housing funds.

Beginning on March 15th, 2020, ultimately 43 U.S. states – including Arizona – would enact some kind of mandatory "stay-at-home" order.[viii] By early 2021, more than half (56%) of the U.S. workforce was working remotely[ix], and

FIGURE 6.



at peak in mid-2021, more than 18 million Americans were temporarily furloughed from work due to the pandemic[x]. **Together, these policies shocked housing demand.** By inducing a dramatic increase in the amount of time that households were spending together and at home, stay-at-home orders shifted consumer expenditures dramatically towards at-home consumption, including consumption of shelter itself. Household durable goods spending rose 12% in real terms during 2020[xi], and time-use survey data found that the average time Americans spent at home increased to about 17 hours per day by 2021[xii]. Average U.S. home sizes increased between 2020 and 2022[xiii], mortgage originations reached more than $4 trillion in 2020 and 2021 , and U.S. spending on remodeling and home renovations rose 30% after the pandemic (and have stayed elevated since)[xv].

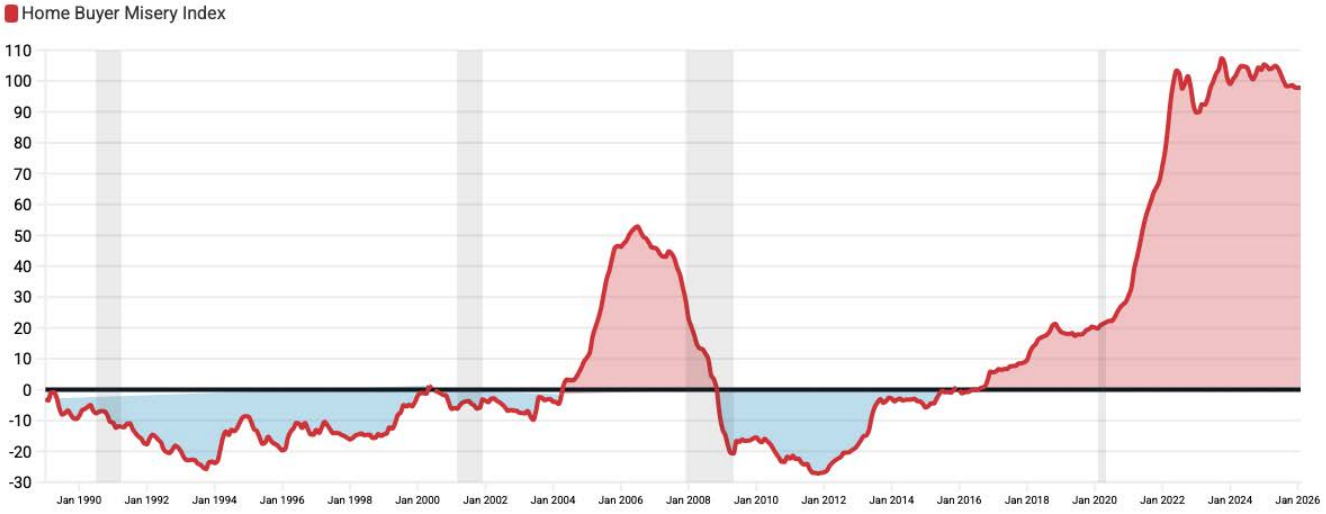
And this increased demand occurred precisely during a period where supply chains and labor markets were paralyzed by pandemic restrictions, limiting the ability of the construction and development industries to keep up.

As a result, the precarious balance in the housing market collapsed. Home prices in the United States rose by more than 40% in three years; Arizona fared even worse, with prices rising over 64% between 2019 and 2022. Inflation, too, accelerated – driven by a combination of excess demand, massive federal fiscal stimulus, and the loosest monetary policy in, arguably, the history of the post-war Federal Reserve system ; by mid 2022 the annual inflation rate was nearly 10%, and it wouldn't fall back under 3% per year until June 2024. This led to a late but rapid fiscal tightening by the Fed, with target rates rising from 0.25% in March 2022 to a peak of 5.5% in August 2023. Mortgage rates, in turn, peaked at more than 7% in 2023 and have been above 6% since 2022. For context, the last time mortgage rates were at these levels was in 2002 - when the average home price was under $150,000.

FIGURE 7.

Phoenix 'Misery Index' of Mortgage Rates & Home Prices

The Phoenix Misery Index has been falling since mid 2025 due to a combination of stagnating housing prices and falling interest rates, and is now 8.8% lower than the peak in October 2023. While the index is at its lowest level in two years, it remains stuck well over long-run norms.



Source: S&P Dow Jones Indices, Primary Mortgage Market Survey • Shaded areas indicate Recessions. Because the index is normalized to zero, direct percent changes are exaggerated; non-normalized percent changes are cited instead.

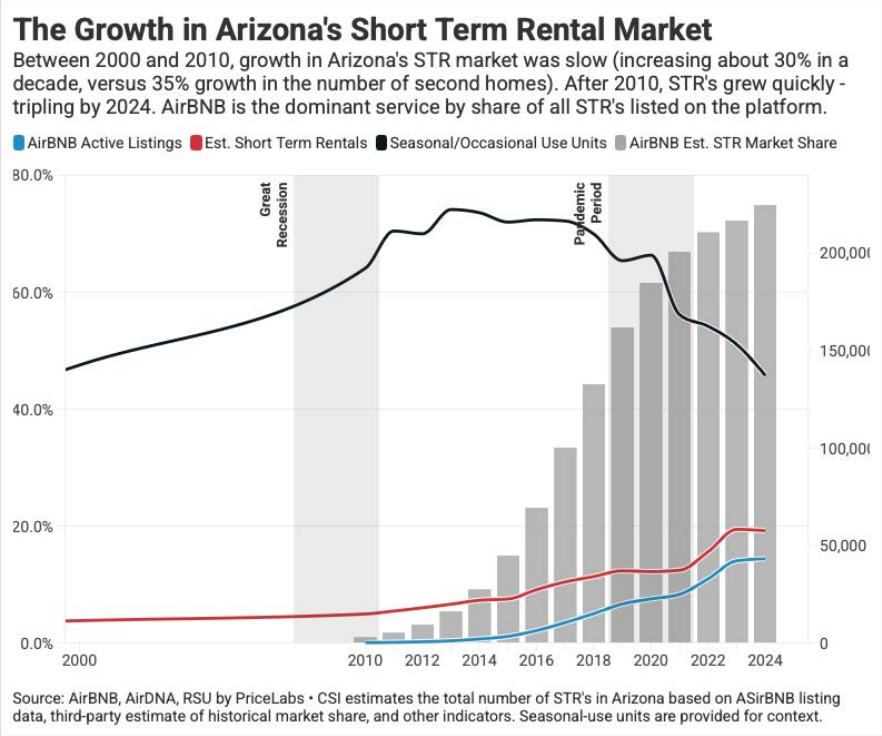
THE GROWTH OF RESIDENTIAL SHORT-TERM-RENTAL MARKETS

In 2024, there were an estimated 57,000 short-term-rentals (STR) operating in Arizona. CSI further estimates that between 15,000 and 20,000 housing units in the state, nearly 30% of all listings, are occupied at least *90-days-per-year* ("frequent") to platform-based short-term renters. For context there are about 3.3 million housing units in the state, and about 125,000 traditional hotel rooms available[xvii].

In some ways, this volume is remarkable. As recently as 2010, there were probably only about 15,000 STRs in the state, and effectively no dedicated/formal market for these kinds of units. On the other hand, there were still probably about 112,000 hotel rooms in the state (meaning this market has only grown about 5% over the period in which STRs tripled).[xviii] While there is some evidence that a short-term rental sector may have existed in some cities with small permanent populations and large seasonal inflows of tourists and temporary residents (e.g., Sedona/Oak Creek Canyon), these places were rare.[xix]

Instead, the early STR market was likely characterized by the mixed use of second homes (e.g., seasonal or vacation units) or unoccupied rooms through traditional market-makers (newspapers, local listing agents, etc.). Vacation rentals by owner (VRBO) was an early pioneer; Founded in 1995, it "paired homeowners with families looking for places to stay." Bookings were informal and direct (between the owner or their designated agent and the prospective guest), versus being facilitated via third-party marketplaces using standardized systems.

FIGURE 8.



These attributes added costs and kept the market small; early growth was slow (perhaps 2-3% average annual market growth in Arizona over the period 1990-2010) and the early market was probably concentrated.

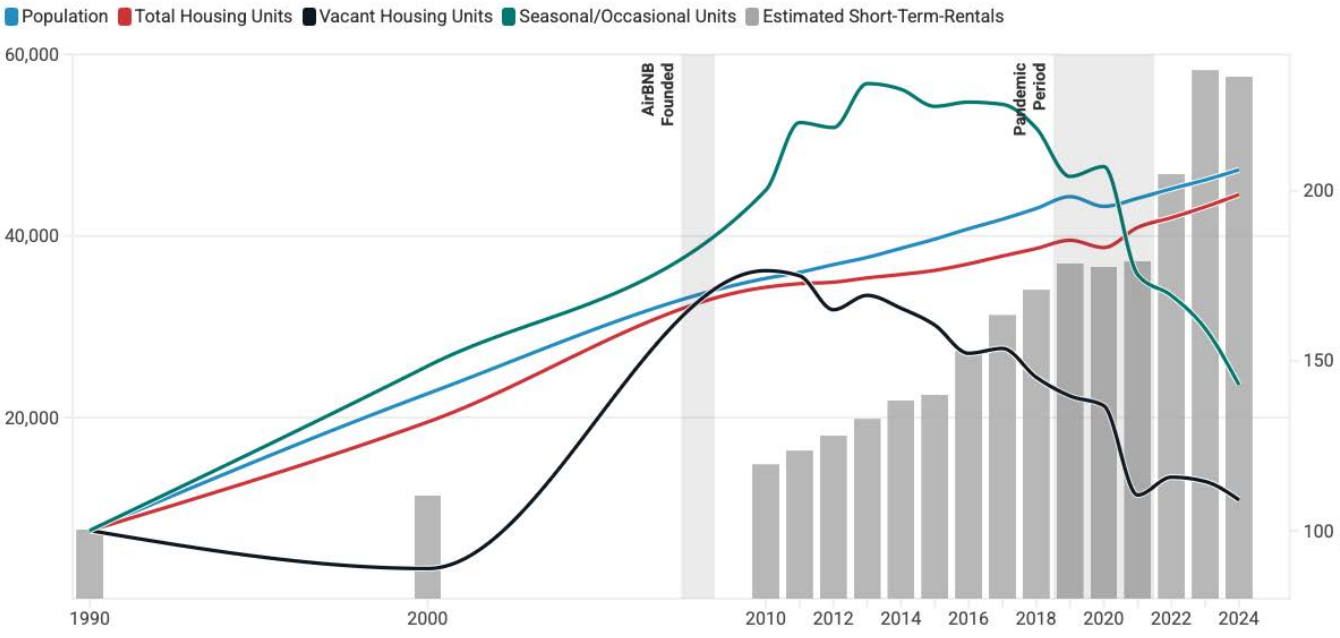
Beginning in the late 2000s, the rise of the "sharing economy" promised to shake up these markets by centralizing listings, standardizing bookings, and slashing costs. The idea was simple. Millions of Americans owned second cars, second homes or accessory dwellings (e.g., guest houses or mother-in-law suites), or other fixed depreciating assets with relatively high maintenance costs but relatively low utilization rates. Friction prevented efficiently matching most of this inventory with average Americans—most people lacked the time and resources to manage the rental, locate a customer, negotiate contracts, etc., and only the wealthiest visitors in the most desirable markets were willing to put in this kind of money and effort on the customer side, as well. It was impractical as an everyday tool for the average owner and visitor.

Utilizing the promise of the internet and the rise of location-based application services, online marketplaces aimed to solve these problems first by making it extremely easy for owners and customers to find each other, and then by managing their temporary business relationship in a simple, standardized, and affordable manner that made both parties comfortable. Beginning with its founding in 2008, Airbnb was an early pioneer—at first, listing empty beds as-needed around temporary but disruptive events like the August 2008 Democratic National Convention in Denver, Colo. It was followed shortly by Turo, launched 2009, which allows for the short-term-rental of otherwise private automobiles, and Uber, launched in2010, which allows for the short-term-rental of *rides* – now combining both the private asset and the private service, which prior to this was only accessible in tightly regulated and a relatively expensive manner).

FIGURE 9.

Arizona Housing & STR Composition Over Time

From their peak in 2013, the number of vacant and seasonal homes in Arizona has fallen by between a third and 40%. Today there are an estimated 200,000 fewer vacant and 55,000 fewer seasonal homes - versus a now-approximately 57,000 STR's (from 6,600 in 2010).



Source: U.S. Census Bureau, AirBNB • Arizona short-term-rental counts over time estimated from AirBNB listing counts and CSI-estimated market shares.

Today, the global "sharing economy" is an approximately $300-$400 billion market[xx] – and market leaders Airbnb ($82 billion in booking revenue), Uber ($163 billion), DoorDash ($80 billion) Lyft ($16 billion), and Turo ($2.5 billion) dominate.

Notably, these platforms create massive private efficiency gains. Presumably these 20,000 to 60,000 Arizona property owners were *willing* to share their properties with temporary visitors before 2010, but they weren't *able*. Still, these gains often came at the expense of market incumbents, who typically had established their market position through navigation of complex local operating, labor, and price regulations. For example, traditional public taxi service declined dramatically following broad customer adoption of ridesharing services.[xxi]

THE THEORETICAL BASIS FOR SHORT-TERM RENTALS RAISING HOME PRICES

Home sharing has been the subject of critique since its inception.[xxii] Early criticisms focused on the disruptive impact of residential neighbors using their homes as de facto hotels.[xxiii] Negative opinions have grown more intense recently, as home prices themselves soared following the pandemic. At least eight states, including Arizona,[xxiv] have imposed or allowed new restrictions on their short-term-rental markets in the last five years. In Arizona, registration and licensing are required, but the process is still relatively simple.

The economic argument is intuitive. Online lodging marketplaces like Airbnb make it very easy for homeowners to monetize their property; at least initially, generating income from a home as short-term-rental was as simple as going online and listing the home. Today in Arizona, registration and licensing are required, but the process is still relatively simple. Instead of vacating the home entirely, finding a long-term renter, and then dealing with the costs and implications of managing a landlord-tenant relationship, a homeowner can shift most of the administrative burden to the platform and share use of their property on only a short-term basis, without any long-term commitment or risk.

Theoretically, this financial opportunity increases the asset value of housing.[2] Because housing supply is relatively inelastic in the short-run, the primary effect is a rise in prices and/or long-term rental rates – not the construction of more housing. Restrictions that make it relatively more difficult to build new housing only compound this effect.

Depending on how frequently a homeowner is able to both list and occupy their property on a platform like Airbnb, and the attainable nightly rates, a host property can generate significant annual revenue. Housing can be conceptualized as a perpetuity that generates cash flow (traditionally in the form of rents, either directly through

FIGURE 10.

Select Housing Market Characteristics, 2015-2024

In general, home prices in Arizona have risen rapidly over the last decade. At the same time, the number of Arizona homes listed on Airbnb has grown from 0.1% of the housing stock to 1.3% of the housing stock (an 11-fold increase).

Jurisdiction	Airbnb Share of Housing Stock	Cumulative Home Price Increase, 2015-2024	Population Growth	Housing Stock Growth	Median Home Value
Arizona	1.3%	119.8%	8.8%	10.6%	$411,200
Paradise Valley	2.6%	98.4%	0.5%	2.0%	$2,000,001
Carefree	1.4%	93.7%	15.9%	-3.3%	$1,058,600
Scottsdale	3.8%	104.6%	6.5%	8.8%	$724,808
Sedona/Oak Creek	25.0%	125.0%	-1.4%	8.4%	$705,300
Phoenix	1.3%	134.8%	7.2%	7.5%	$410,399
Coolidge	0.3%	206.4%	17.1%	8.8%	$208,400
Williams	12.2%	140.5%	12.9%	-7.7%	$113,700

Source: Airbnb, U.S. Census Bureau • Because of differences in legal boundaries, estimates derived from ZIP code data will not perfectly match estimates derived from incorporated place data. We present these aggregated ZIP codes by their incorporated place names for simplicity, but with this note of caution.

[2] Notably, this effect should be offset by a reduction in the cost of short-term housing – namely, lodging rates in traditional hotels.

a tenant or indirectly through the homeowner's use of the housing as their primary shelter) but subject to depreciation and maintenance. This revenue generation should increase the value of the home, under that model.

However, the *magnitude* of the increase is unclear. Other reports have suggested a small but estimable statistical impact on home prices.[xxv] The next section will explore whether this statistical or theoretical impact can be observed in actual home prices at the macro-scale in Arizona, but first it is worth briefly exploring why the increase in short-term rentals alone cannot explain the state's current affordability crisis, given the potential generable revenue.

This opportunity cost to using a home (or part of a home) as a short-term rental is, principally, loss of use. In general, reallocation of housing between uses always has a cost; the use of online marketplaces to facilitate short-term uses of housing introduced new opportunities that didn't exist before, but always at the cost of other uses. As housing is moved into this new market, it moves out of other uses (like, long-term rentals, or the seasonal/semi-vacant housing stock); markets equilibrate when the two prices adjust sufficiently that at the margin one is indifferent between (for example) listing the home on Airbnb or finding a long-term tenant.

Additionally, in the longer term, there should be a supply response. By increasing the productive use of and demand for traditional residential housing, the existence of short-term rental markets should induce more capital investment and housing development. Therefore, the price response should be mitigated in the long run by an increase in the supply of housing (and particularly short-term rental housing) relative to the supply of traditional lodging like hotel rooms.

Arizona's Changing Housing Dynamics in Practice

Empirically, we have observed these results in Arizona. Home prices since 2010 have increased about 175%. While the supply of short-term rentals has more than tripled (or approximately +57,000 units), the supply of vacation homes has fallen by 30% (or approximately -55,000 units) and the number of hotel rooms has increased by just 5% (versus a 20% increase in population and a 30% increase in estimated tourism visits). The number

Arizona's Changing Housing Market Dynamics

Before & After Short-Term Rental Marketplaces

+25%
Population Growth, 2000-2010

+33%
Renter-Occupied Housing Unit Growth, 2000-2010

+35%
Seasonal Use Housing Unit Growth, 2000-2010

+18%
Population Growth, 2010-2024

+15%
Renter-Occupied Housing Unit Growth, 2010-2024

-30%
Seasonal Use Housing Unit Growth, 2010-2024

of renter-occupied housing units has increased about 15% over the same period – slightly slower than population growth overall but consistent with an overall slowdown in household formation and housing construction.

For context, between 2000 and 2010, renter-occupied housing units *grew* by 33% - versus a 25% increase in population. Interestingly, seasonal ("second") home supply also grew 35% over this period. The declines in vacant- and second-homes didn't begin until home construction slowed after the Great Recession, with the largest shift of idle housing back to the full-time occupancy markets coming after the 2020-era price surge.

There appears to be a clear relationship between the growth of online lodging marketplaces and a decline in the supply of second homes and a slowdown in the growth of the traditional lodging markets; rising home prices, falling relative supply, and the growth of the sharing economy appears to have reduced the stock of vacation and second homes. In fact, the growth in the number of short-term rentals over the last decade has been almost perfectly offset by a decline in the number of second homes – for theoretically no net change in available housing for full-time residents.[3]

Also notably, to reiterate, *housing production dramatically slowed in the period 2010-2024* relative to the first two decades of the new millennium. Given that 15 years should be sufficient time for a supply response to manifest, this finding is contrary to the theoretical expectation that if there was a sizable demand shock for traditional housing that existing stock could not meet. Or alternatively, the price increase induced by Airbnb increasing demand for housing was so small as to be dwarfed by other factors such as reduced household formation and less permissive regulatory environments.

Succinctly: **the primary observed effect of a tightening housing market and the growth of short-term rental marketplaces has been a decline in the number of vacation and vacant homes.** The failure of homebuilding to keep pace with demand has driven owners of multiple properties to bring those homes into the marketplace.

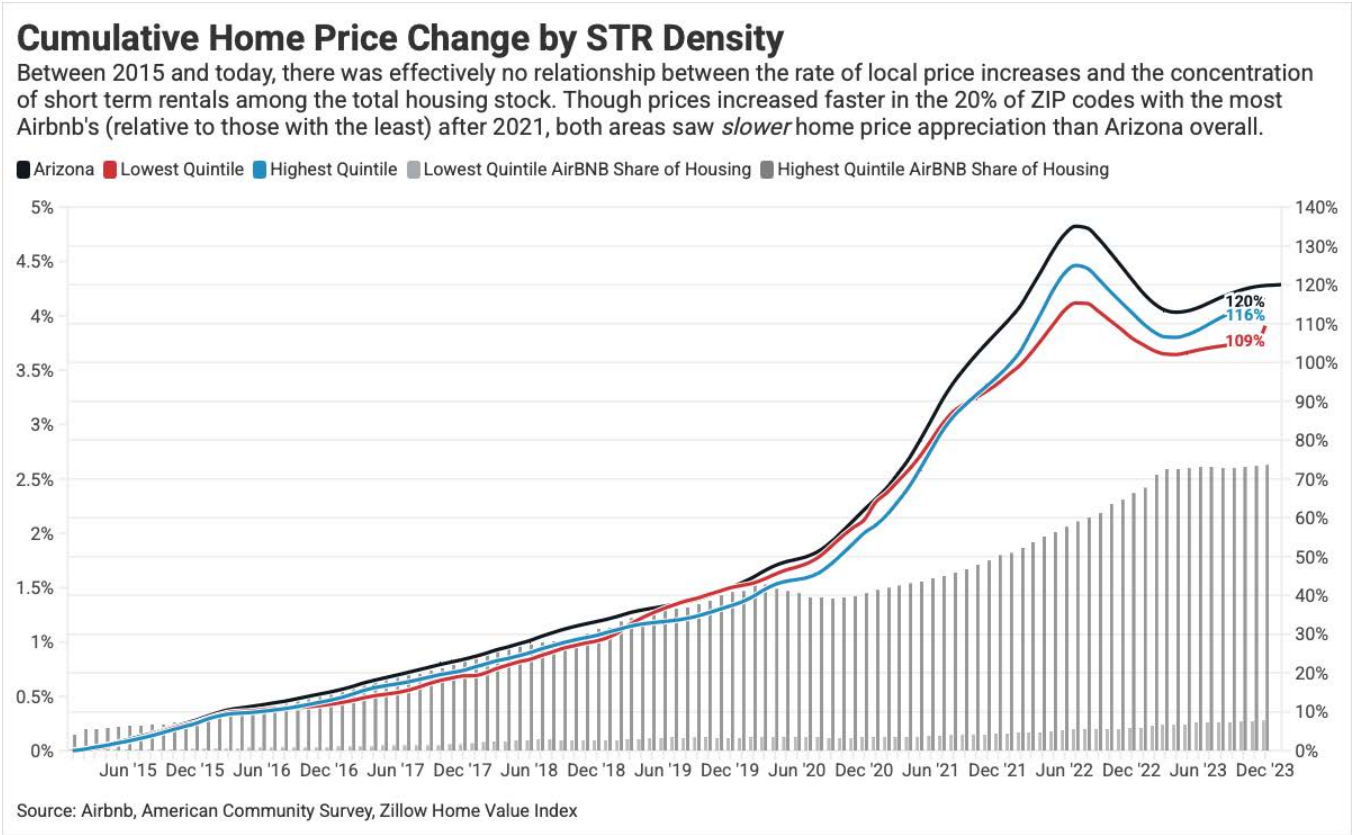
[3] As a note, while it is not clear how STR units appear in Census/ACS data, a reasonable assumption is that most–particularly frequently-listed units–show up in seasonal/occasional-use homes (vacation homes). And fewer second homes (with no decrease in total housing units) implies an increase in owner- or tenant-occupied housing, despite an increase in the number (total and frequently-listed) of STR's.

THE OBSERVED RELATIONSHIP BETWEEN STRS AND PRICES

In general, aggregated across geographies, home prices in Arizona follow similar trends regardless of the local concentration of short-term rentals. In fact, between 2015 and 2019, we observe a negative relationship between the pace of home price growth and the local concentration of Airbnb listings. **Between 2015 and 2019, statewide home prices increased 42% in Arizona; in the ~70 ZIP Codes with the highest concentration of Airbnb listings (as a share of total housing stock), home prices increased only 37% over the same period.**

In part this is because short-term rental density is not random; we find a higher concentration of Airbnb listings (relative to total housing) in ZIP codes which already had higher home prices prior to the growth of this sector. In 2015, the average home price in the ZIP codes that today make up the highest quintile of Airbnb listings as a share of total housing stock had an average home price of $239,000 – 21% higher than the statewide average of $197,000, according to Zillow valuation data.

FIGURE 11.



The Effect of the Pandemic

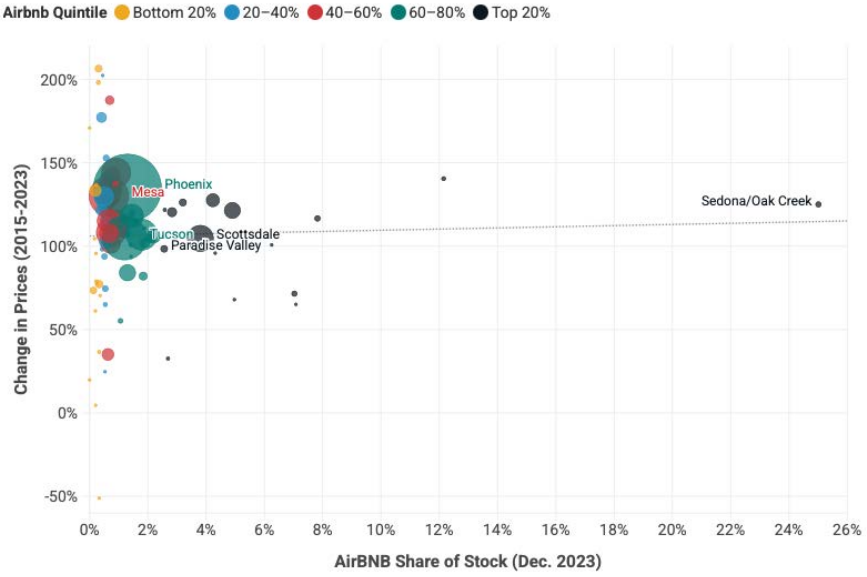
During 2020, the housing and short-term rental markets were disrupted. Between February and October 2020, the share of Arizona's housing stock that was available as an Airbnb declined 8% - the first ever observed decline. So-called "frequent" listings fell only marginally, from a peak of 5,675 to a low of 5,551 by mid-2020. Additionally, average occupied nights at remaining listings grew rapidly – from 85 nights/year prior to the pandemic to a peak of 114 nights/year by September 2021.

Between 2019 and 2021, the number of Census-tracked vacant housing units in Arizona fell precipitously – from 405,600 to an all-time low of just 320,900 units by 2021 (10% of the total housing stock). While American Community Survey data collection was disrupted by the pandemic and one-year estimates for that year are unreliable at best, there is some evidence that the long-term trend of declining seasonal/occasional-home stock slowed or even ceased during 2020, before falling even more rapidly from and after 2021.

FIGURE 12.

Relationship Between Cumulative Price Changes & AirBNB's Share of Housing

In general, there is no relationship between the cumulative price increase in 2015, and the share of a places housing stock devoted to AirBNB's. Virtually none of the regional change in Arizona home prices can be explained by the density of short-term-rentals, and any apparent relationship is weak and outlier-driven.

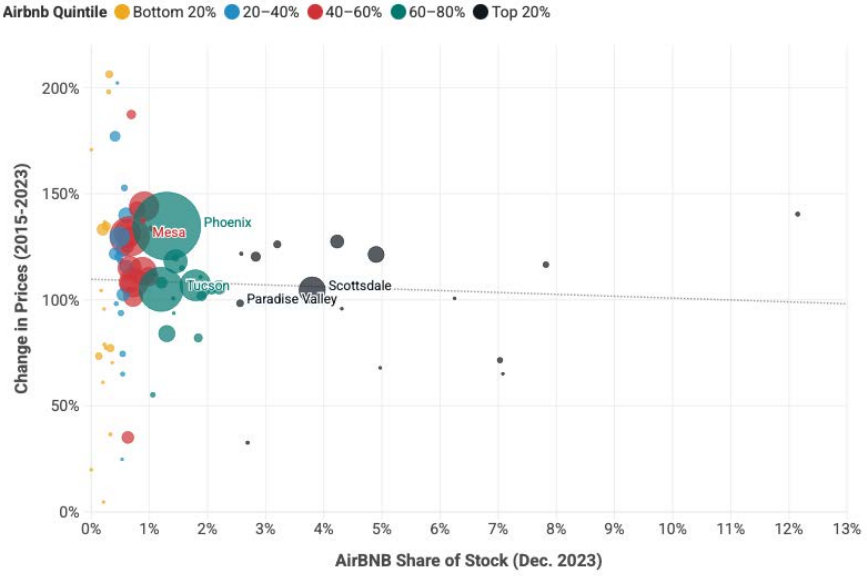


Source: AirBNB, Zillow Data

FIGURE 13.

Relationship Between Cumulative Price Changes & AirBNB's Share of Housing

After removing the two outliers (e.g., parts of the greater Sedona and Oak Creek area, and Grand Canyon Village, an unincorporated place on federal park land), the apparent relationship between AirBNB density and price increases is negative.



Source: AirBNB, Zillow Data

Over the four-year period between 2019 and 2023, home prices in Arizona grew a staggering 57% - significantly eclipsing prior growth rates. This context is key; growth accelerated across the state, and this growth paralleled other indicators of demand-side shift in the housing market (falling vacancy rates, briefly rising stock of second homes, etc.).

During this period, price growth in geographies with the most Airbnb listings also accelerated – reaching 57% and parity with overall Arizona home price growth, while appreciation in the ZIP codes with the lowest concentration of Airbnb listings relative to housing stock was now a relatively slower 43%. Though this was a reversal of pre-pandemic trends, the overall and surprising fact remains: **cumulative price increases in the 70 ZIP codes with the *most* Airbnb listings relative to total housing stock were smaller since 2015 than in Arizona overall, and only slightly greater than price increases in the ZIP codes with the *least*.** Were the proliferation of short-term rentals causal in significant price changes over the last decade, we would expect a more observable aggregate result.

An Econometric Analysis of STRs & Prices

Given the size of our dataset – approximately 48,500 observations across ten years from a variety of sources, including Airbnb – and the theoretical relationship between short-term rental opportunities and home prices, effort was made to identify any statistical relationship observable in macro-level price data for Arizona over time at both the local (ZIP code) level, and at the aggregate (statewide and city) level.

Ultimately, the analysis was highly sensitive to model construction – not just magnitude but the sign of the effect and its statistical robustness varied in what outliers were included (or excluded), the use and selection of control variables, and other parameter selections by the model's author.

Because of this, succinctly, **we conclude there is no observable statistical relationship between home prices (or home price appreciation) in Arizona sufficiently aggregated across communities/regions the number or density of short-term rentals in that jurisdiction.** While there may be a measurable and true (positive) impact on home values in Arizona attributable to the rise of Airbnb and other sharing markets, in practice, the effect is likely too small relative to the independent but parallel underlying price trend observable between 2015 and today. However, that these two events occurred in parallel makes any econometric analysis of home prices and Airbnb density prone to spurious correlation. This result is made manifest by the sensitivity of any measured positive correlation between home prices and Airbnb volumes to the specification of any model; it can be eliminated or its trend even reversed by including "control" variables, or excluding certain outliers, etc.

Stronger candidate variables with strong explanatory power over home prices changes in Arizona over the observed period are available to us. Unsurprisingly, high home prices are correlated with high local populations and incomes; home price growth is correlated with income and population growth. Perhaps more surprisingly, we do observe a robust relationship between the pace of new home construction and building permitting, and local prices (in levels or changes) – all else equal, this would suggest more home building leads to higher prices. We think this is a mistake, though, and causality here is reversed – homebuilding occurs where the demand is, and where high average home prices make new construction a palatable alternative to the existing stock.

[4] Recall when evaluating this parameter that this is a very large increase – on average, the 88 geographies evaluated by CSI for this report listed 1.8% of their housing stock on Airbnb during 2023.

FIGURE 14.

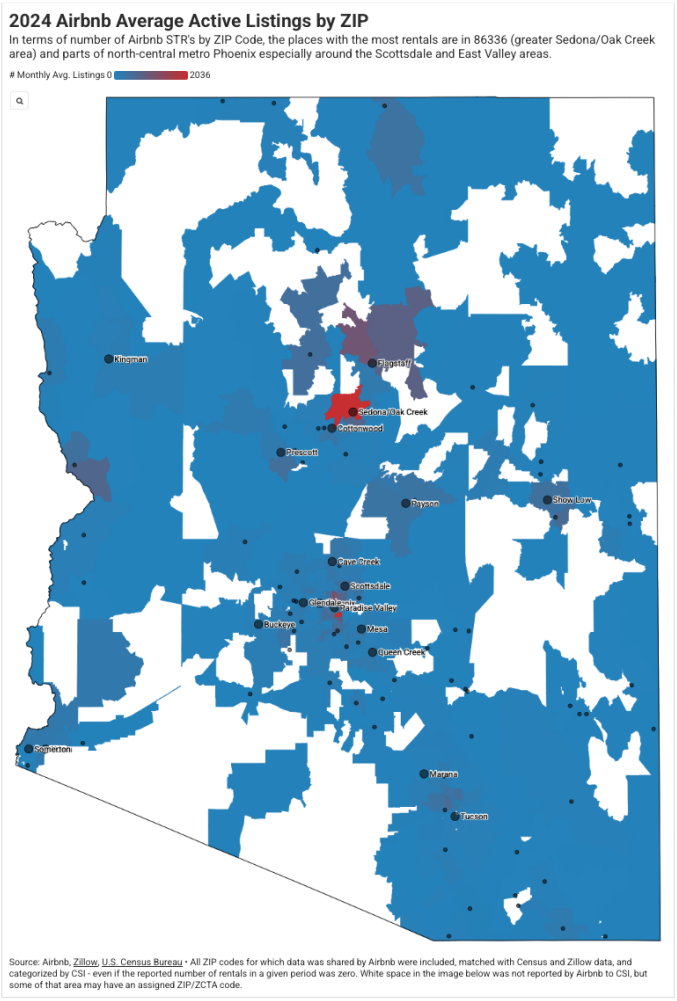
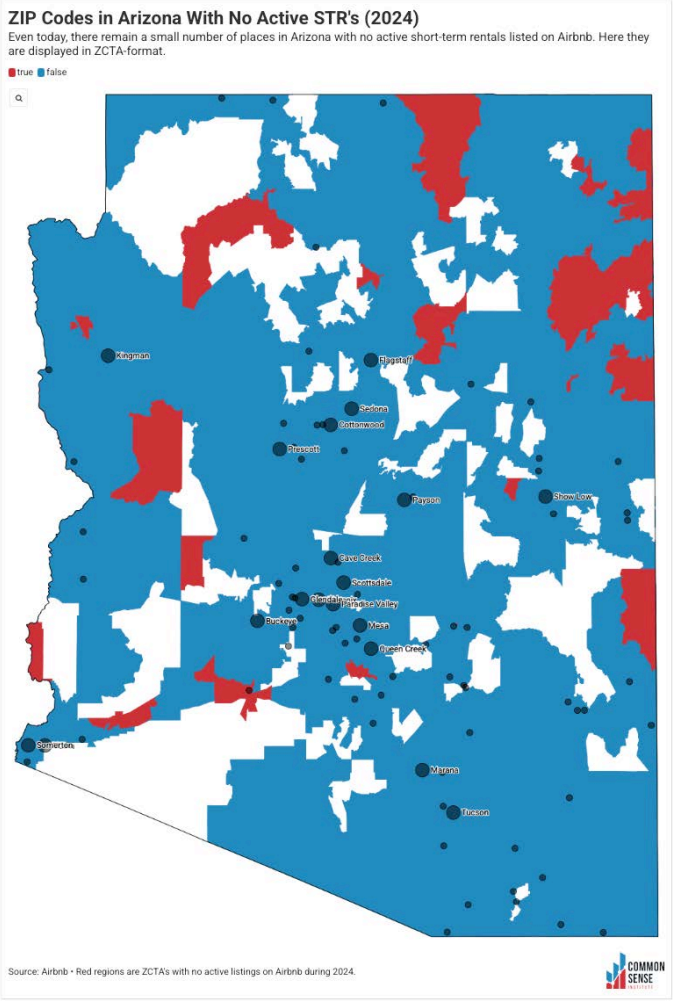


FIGURE 15.



OBSERVED CHARACTERISTICS OF STR-RICH JURISDICTIONS

If, as observed here, jurisdictions with the highest density of short-term rentals cannot generally be said to have particularly fast rates of home value appreciation over the last decade (or, for that matter, generally remarkable home prices in levels), the question remains: what can we say about such places in Arizona?

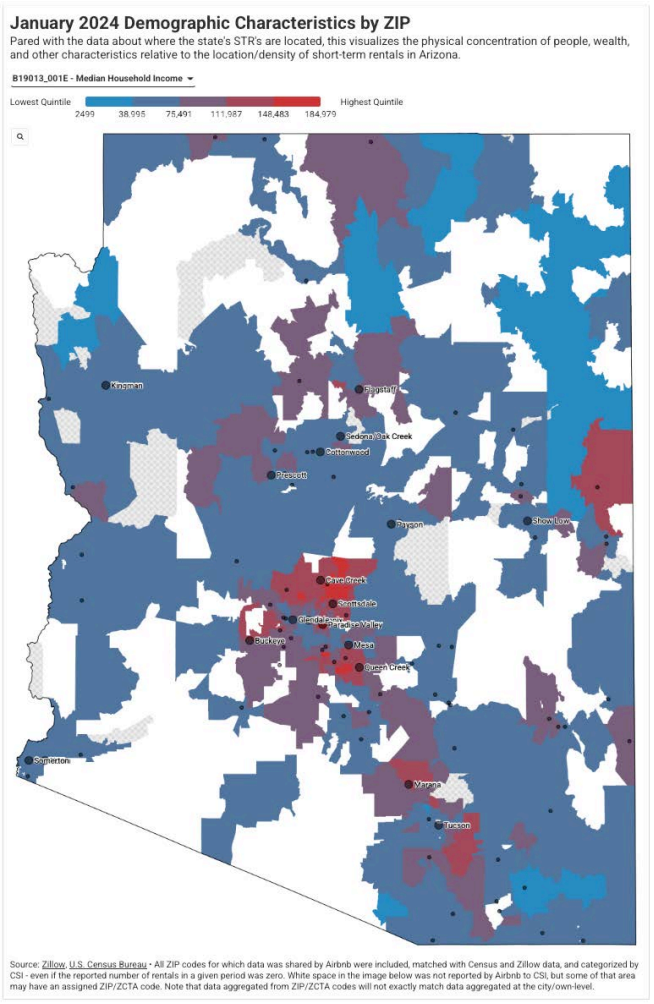
CSI as part of this analysis assigned both city-level jurisdictions and individual ZIP codes to quintile bins based on the relative share of their housing stock listed on Airbnb in an average month of a calendar year. In general, the 18 cities and towns with the highest share of their housing stock being used for short-term rental purposes revealed certain common features.

First, **there is an extremely strong relationship between the number of *frequent* listings in a geography and the *total* (active) listings in that same geography.** Because the listings data for active listings is more technically robust than for frequent listings (e.g., there are nearly four times more active than frequent listings, and the growth and density trends in these listings are more substantive and revelatory), most of the analyses performed here compare total listings to other local characteristics of interests. A reasonable question might be whether this omits a key relationship, and that *perhaps* it is frequent listings that drive price increases or other disfavored outcomes.

Our analysis suggests that is extremely unlikely. For example, controlling for time, we can explain approximately all observed variation in frequent listings by geography reported by Airbnb simply by looking at the number of active listings within those same geographies. In general, for every 100 active Airbnb listings in a location, one will find approximately 28.6 "frequent" Airbnb listings in that location. This relationship is very robust, and the true number likely falls between 28 and 29 at even the 99th percentile of confidence.

The relationship between the number of Airbnb listings in a location and average stays is weak – meaning Airbnb listings located in places with lots of short-term rentals don't necessarily see more occupancy than Airbnb listings elsewhere. In some ways this may not be unexpected; there is more competition for bookings in locations with a rich number of listings. But it may nonetheless surprise some readers. For example, while a 1% increase[4] in the share of local housing stock listed on Airbnb is expected to increase the average number of nights stayed per listing by 0.9%, the error range is wide – implying the true estimate is probably statistically zero.

FIGURE 16 – AN INTERACTIVE VERSION OF THIS IMAGE WITH SELECTABLE CHARACTERISTICS IS AVAILABLE ON OUR WEBSITE



Cities and towns with the highest concentration of short-term rentals had higher average and median household incomes than those with the lowest, but not higher than locations with concentrated closer to the median. The highest incomes were in the fourth quintile of jurisdictions (at approximately $104,200), followed close by the 3rd (median) quintile (at $99,200), again by share of Airbnb listings relative to housing units over CSI's constructed cities and towns.

This is likely attributable to the age and demographic characteristics of places with a higher concentration of short-term rentals: on average, these places have the *highest* average age among all jurisdictions ranked by Airbnb unit density, and over 27% of their population is estimated to be over 65. For perspective, the median age of an Arizonan was estimated by our dataset to be 39.3 years old (consistent with the ACS 2024 1-year estimate of 39.4), and 19% of the population was estimated to be over 65.

In general, Airbnb listings are disproportionately represented in smaller, older areas – potentially with high asset values but lower average earnings relative to working-age neighborhoods. And this comes through clearly in the home value data. Based on Zillow valuations, the highest quintile of jurisdictions by share of housing stock listed on Airbnb and the highest average home prices among all Arizona

jurisdictions measured by CSI ($593,400 in 2023). For context, the average home price in same period was an estimated $433,100 – and the price rises relatively linearly in the share of housing being used as a short-term rental. In fact, prices in the highest quintile are more than two-times higher on average than in the lowest ($275,300). **But prices in these areas were *already* high even prior to the growth of online STR marketplaces.** As already discussed in this report, prices increased slower over the observed period in places with the most Airbnb listings than in the state overall, and until the pandemic period even increased slower than prices in areas with the least Airbnb listings relative to housing stock. More directly: in 2008 (prior to the launch of Airbnb as a platform), Zillow home prices in jurisdictions that today have the highest concentration of such rentals were still higher than any other jurisdictions in Arizona ($334,200 on average, versus less than $200,000 statewide), and prices were then even higher relative to those in jurisdictions with the least concentration of Airbnb listings today (2.4-times average value in 2008, pre-Airbnb, versus 2.15-tmes in 2023).

This will be discussed in greater detail in the next section of this report, but in brief, CSI believes both high home prices and a high incidence of Airbnb listings is explained by the relatively lack of access in a particular jurisdiction – both are driven by the same underlying demand factors (more desire for affordable access than the local housing or lodging stock can provide), rather than one driving the other.

A Review of Select Cities

It is illustrative to examine these effects in the context of particular cities. Paradise Valley is a small and exclusive enclave located in the heart of the north-central Phoenix metro area. In 2015 (before the rapid growth of the short-term rental market) it had an average home value of between $1.1 and $1.2 million, and an average household income of over $226,000. This made it effectively the wealthiest city (and ZIP code) in Arizona.

Today, typical Paradise Valley homes have increased to between $2.0 and $2.5 million in value, depending on valuation source. And given that approximately 2.7% of its housing stock is listed on Airbnb in any given month (from 0.4% in 2015), the city is comfortably within the Highest Quintile of jurisdictions in Arizona by density of short-term rentals. At a 96% increase, though, the city's cumulative appreciation over the past decade was nonetheless slower than that of Arizona overall (approximately 120% price appreciation over the same period). Still, the city remains the most expensive for housing, and extremely high-income ($318,100 per household in 2023).

The Sedona/Oak Creek Canyon area is a small and exclusive resort community and international tourism destination in northern Arizona, known for its world-famous red rock formations and transitional desert landscapes. Today, it has a population of just 11,223 – a 1.5% *decrease* since 2015 (when population was 11,378). This population decline has occurred despite evidence of growing demand for housing in the city; home prices have grown 125% (faster than Arizona average) from between $430,000 and $480,000 in 2015 to between $705,000 and $966,000 at the end of 2023. The city is also not particularly high income. The mean household earns an estimated $105,000 annually in the Sedona area (86336), versus approximately $110,500 statewide. Households in Sedona are smaller and older, on average; there are 1.9 people per household, and the average age is almost 60 years old.

There are only about 8,000 housing units total in the city, and though the housing stock has grown 8% since 2015, in practice this reflects an addition of just 600 units over the last ten years. A quarter (2,100 units) of the housing stock is vacant, with most of those used as seasonal "second" homes. This is an unexpected result given both the high price level and the rapid price increase, as these are indicators of unmet housing demand and typically associated with *falling* and *low* vacancy rates. F or context, the overall vacancy rate in Arizona is under 10%; the total share of housing not occupied by a full-time resident in Sedona/Oak Creek Canyon area has *increased* since the pandemic, rather than falling in line with price and demand growth and statewide trends.

Sedona and the surrounding area (ZIP code 86336) is also an extreme outlier in terms of the share of its housing stock that is listed on Airbnb in any given month. Today the figure averages between 23% and 25% of all housing units. But it and similar cities are unusual. The five jurisdictions with the highest concentration of Airbnb listings relative to housing stock are all very small (in terms of population and housing units), growth constrained, and tourism/vacation destinations. But these places have *always* been small, access-constrained communities – even before the rise of STR markets – and others have been in slow decline for years. Jerome had 296 housing units and a full-time population of 415 in 2010; today it has just 285 housing units and the population has fallen to 231. **In 2010, 36% of the housing units in Pinetop were second homes; today the figure is 33%** (a *decline* of 3%, even as Airbnb listings have grown from basically zero).

Within Maricopa County, only two cities are in the top 20% of Arizona cities and towns by share of housing listed on Airbnb in any given month: Scottsdale, and Paradise Valley. Again, the pattern repeats. These cities are regarded as exclusive and luxury destinations.[xxvi] Of the Phoenix metro areas five-star resorts, 100% operate in these two cities; *half* of the regions four- and five-star resorts operate there.[xxvii] [xxviii] Average home prices in Paradise Valley exceed $2 million; in Scottsdale, average prices approach $900,000 – making it easily the states most

FIGURE 17.

Select City Housing Markets, 2010-2024

Whether a city maintained accessibility and affordability in this environment is more attributable to its affordability and accessibility a decade ago, and ongoing willingness to permit growth and development, than STR activity.

Jurisdiction	Arizona	Buckeye	Paradise Valley	Scottsdale	Sedona/Oak Creek
Housing Units, 2010	2,776,037	15,447	5,479	124,528	6,780
Housing Units, 2024	3,192,839	35,276	5,985	139,168	6,686
	15%	128%	9%	12%	-1%
Second-home share, 2010	6%	3%	6%	11%	15%
Second-home share, 2024	5%	3%	5%	9%	19%
Population, 2010	6,246,816	43,922	13,198	218,770	10,307
Population, 2024	7,378,838	104,923	12,611	243,821	9,777
	18%	139%	-4%	11%	-5%
Meidan Home Value, 2010	$215,000	$194,500	$1,000,001	$457,700	$472,200
Median Home Value, 2024	$394,500	$419,800	$2,000,001	$789,800	$786,800
	84%	116%	100%	73%	67%
Median Age (2010)	36	28	49	45	55
Median Age (2024)	39	36	56	49	58
	10%	27%	13%	10%	7%

Source: U.S. Census Bureau • ACS-reported median reported home values in Paradise Valley are truncated due to top-coding; more precise value estimates derive from Zillow data are used elsewhere in this report. Because of differences in legal boundaries, estimates derived from ZIP code data will not perfectly match estimates derived from incorporated place data.

expensive "large" city (population over 100,000). And again, while these places are often expensive, they aren't necessarily relatively more expensive today than they were prior to the expansion of short-term rentals. Many of these locations have been both high-cost and expensive for every period for which data was available to CSI, and their reputations as exclusive destinations have often been carefully cultivated for years or even decades.

This analysis appears to reveal the true role of Airbnb and similar short-term rental marketplaces as community disruptors, rather than price drivers: they threaten local exclusivity by making it easier for a broader range of American families to access previously closed-off luxury or isolated destinations on a short-term basis and relatively affordably. And this democratization of access may be perceived as an externality or value-loss to incumbent residents and homeowners, if part of the perceived value when they made their original purchasing decision was precisely that exclusivity. **But it seems clear that this accessibility issue was pre-existing, and that the short-term rental market was not causal.** In fact, causality may be reversed: high prices were often (though not always) indicative of exclusivity and access constraints, often paired with a lack of affordable and convenient traditional lodging and hotel options, which drove demand for low-cost short-term access via Airbnb and other platforms.

THE BOTTOM LINE

The Great Recession's housing crash and the post-recession tightening of regulatory conditions set up a decade of weak housing production - Arizona built over 400,000 units before the bubble burst but only about 200,000 over the following ten years, leaving the market structurally fragile. This structure shattered when the pandemic disrupted behaviors and markets.

STRs did grow rapidly over this period, but there's no stable, observable statistical relationship between where and when they grew, and home price appreciation. The correlation is accidental, on average and over the larger areas reviewed in this report. **Airbnb listings didn't cause the price rise.**

Instead, STR-heavy places tend to be already (pre-2008) high-cost, access-constrained markets, where Airbnb is better understood as democratizing access – probably by opening already existing vacation homes to short-term users – than as driving home price increases. It is within this disruptive context that the political and policy consequences of Airbnb and online STR marketplaces should be considered, rather than as an affordable housing issue.

APPENDIX A: TECHNICAL & METHODOLOGICAL SUMMARY

Background on Airbnb

Airbnb is the largest peer-to-peer marketplace for short-term rentals in the world. It was founded in 2008 and experienced rapid growth. Today, it lists over 8 million properties[xxix] in over 100,000 cities[xxx] around the world; CSI assumes for purposes of this report that as a share of the Arizona short-term rental market, Airbnb has grown from 1% in 2010 to 65% in 2024. This market-share data was estimated by CSI from independent sources and not provided, confirmed, or influenced by Airbnb.

The short-term rental dataset

CSI received data regarding short-term rentals in Arizona from Airbnb at the ZIP, County, and Statewide levels at a monthly cadence from January 2015 to August 2025. This data was paired with data from the American Community Survey, accessed from the Census API endpoint. ACS 1-year estimates were used at the county and state level, while 5-year estimates were used at the ZCTA/ZIP level. This data spanned the period of 2015-2024, and the annual estimates were replicated across 12 months to match the Airbnb cadence. Home values were sourced using the public "Zillow Home Value Index (SFR, Condo/Co-op) time Series, Smoothed, Seasonally Adjusted" dataset at the statewide, county, and ZIP level. To avoid inconsistencies in data definitions for cities and towns, we aggregated data from the granular ZCTA/ZIP level to create our own standardized city/town definitions that are identical across the different datasets. To do this, we used a 2020 list from the U.S. Census Bureau that calculated the geographic overlap between each ZCTA and a legally incorporated place. Each ZCTA is assigned to a single incorporated place by the largest geographic overlap to prevent double-counting. This resulted in the loss of several smaller incorporated areas that did not cover a geographic majority of any ZCTA. These are listed in more detail in the table below:

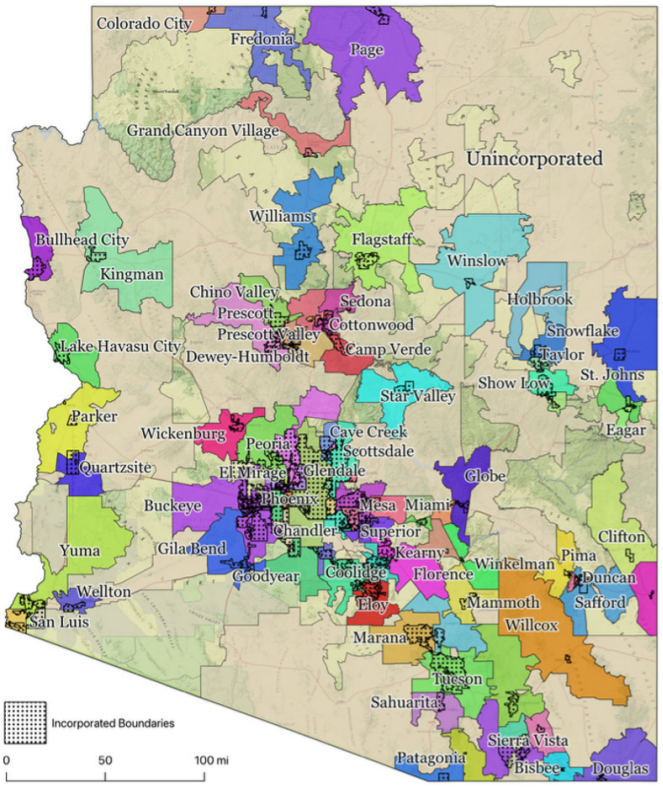
Incorporated Places NOT in CSI-constructed Cities & Towns	
Legal Place	**Explanation**
Guadalupe town	Its sole ZCTA, 85283, was absorbed into Tempe
Litchfield Park city	Its sole ZCTA, 85340, was absorbed into Buckeye with a slight margin (56%)
Payson town	Its sole ZCTA, 85541, was absorbed into Star Valley
Somerton city	It's main ZCTA, 85350, was absorbed into San Luis with a slight margin (53%)
South Tucson city	Its sole ZCTA, 85713, was absorbed into Tucson
Tolleson city	Its sole ZCTA, 85353, was absorbed into Phoenix
Tusayan town	Replaced by Grand Canyon Village – a larger but unincorporated place in same ZCTA

The granular ZCTA/ZIP data was then consolidated into 85 assigned cities, slightly fewer than the 91 total incorporated places in Arizona. New variables were calculated with according to the type of aggregation needed. The "count" variables, such as population and number of housing units, were summed together. Median age and per capita income were weighted by population (B01003_001E). Household variables and median rent were weighted by households (B11001_001E), while housing attribute variables like median home value (including Zillow ZHVI) were weighted by the number of housing units (B25001_001E). Finally, STR data variables that were an average/percentile were weighted by active listing (n_active_listings). Identical aggregation rules were also used to populate data for the created quintiles, as well as an entry for "Unincorporated" that encompassed all ZCTA/ZIPs that were not assigned to a city.

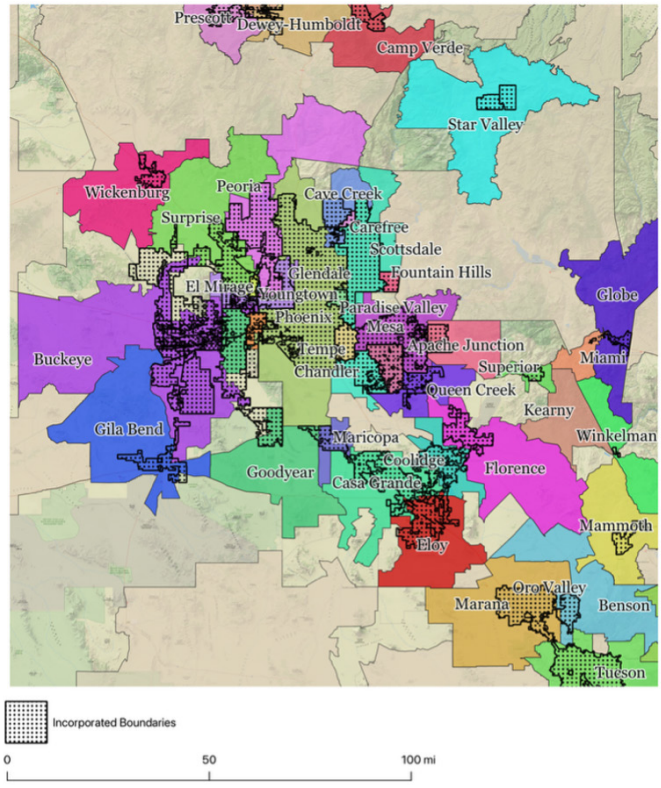
Data from the Building Permits Survey was added after the consolidation from ZCTA/ZIP to cities and was matched based on city name due to the unavailability of more granular data.

While this method of aggregation served to reconcile any discrepancies in labeling between data sets, it also reflects how cities colloquially extend beyond their strict legal boundaries. The two maps below illustrate the geographic difference between the legal Arizona incorporated boundaries and our synthesized geographies, with the different colors representing the merged ZCTA boundaries for each city.

Map of Arizona ZIP Codes by Designated City



Phoenix-Mesa-Chandler MSA ZIP Codes by Designated City



Key Terms & Definitions

Active Listing: As reported by Airbnb, this is the total number of bookable listings on the platform by geography on the first day of a given calendar month. For context, CSi estimated that in December 2023 there were 43,062 active listings in Arizona.

Frequent Listing: As reported by Airbnb, this is the total number of active listings on the platform by geography that satisfy all of the following criteria: must have at least 90 nights stayed in the past year (via the Airbnb platform); must not be exclusively available for long-term stays (defined by Airbnb to be at least 28 nights or more per reservation); must be an independent unit (e.g., not part of a traditional hotel or resort); and must be a listing for exclusive use of an entire dwelling or room. For context, CSI estimates that in December 2023 there were 12,265 frequent listings in Arizona.

Short-term Rental: Generally, a furnished residential property (or an occupiable bedroom within a larger property) that is rented out for a short period of time to temporary tenants (typically less than 30 consecutive nights). Unlike traditional rental housing, a short-term rental (STR) is a substitute for more traditional temporary lodging, such as hotels and motels. Although Airbnb is the largest STR marketplace operator, other STR markets exist, and existed prior to the 2008 launch of Airbnb.

STR Density: In general, throughout this report, we have used data provided by Airbnb about the number of active and frequent listings by ZIP code, aggregated to geographies of interest (e.g., city, county or statewide). However, to account for the size of the geography, we typically track, report, and assess based on the concentration or density of Airbnb listings. For clarity, where that term is used, it is defined as the number of active listings in the period divided by the total number of housing units in that geography and the period.

Housing Unit: Counts of housing units are sourced from the U.S. Census Bureau's decennial Census and annual American Community Survey. A housing unit can be either vacant, owner-occupied, or renter-occupied. If vacant, a home can separately be for sale or rent, available for seasonal/occasional use, or otherwise vacant.

Seasonal/Occasional Use Home: Throughout this paper, we use the term "seasonal", "vacation", and "second" home interchangeably. The Bureau categorizes a housing unit as vacant, but for seasonal/occasional use, if the property owner doesn't occupy the residence "most of the time", but does occupy it occasionally throughout the year, and it is not for rent or for sale.[xxxi]

Home Value: Home values for this report are derived from the U.S. Census Bureau's "median home value" and Zillow's proprietary "Zillow Home Value Index", depending on context and sourcing. As a general rule, we use ZHVI first, and Census second, subject to data availability. ZHVI is available on a monthly cadence and intended to estimate the "typical" home value – which is a "trimmed" mean excluding outliers and seasonal factors as opposed to a true mean or median.[xxxii] Median home value is the 50th-percentile-value reported by relevant Census respondents to the question of how much their home would sell for if it was sold today. Both values are closely related over time, but ZHVI exhibits more volatility and is more responsive to market changes. For context, in 2024 for Arizona, ZHVI averaged approximately $436,200 – versus a $426,000 Census median home value.

APPENDIX B: LENDING & BUILDING STANDARD CHANGES, 2010-2019

The Great Recession, which officially ended in June 2009, led to significant tightening of mortgage lending standards across the US, primarily through the Dodd-Frank Wall Street Reform and Consumer Protection Act signed into law on July 21, 2010. This legislation aimed to prevent the risky lending practices that contributed to the 2007-2009 housing crisis, such as subprime loans with minimal documentation. Key changes included:[xxxiii xxxiv xxxv]

Ability-to-Repay (ATR) Rule: Implemented by the Consumer Financial Protection Bureau (CFPB) in January 2014, this required lenders to verify a borrower's income, assets, employment, credit history, and debt obligations before approving a mortgage. This made loans more difficult to obtain for borrowers with irregular income or weaker credit, as lenders faced liability for non-compliance, leading to reduced approval rates for marginal applicants.

Qualified Mortgage (QM) Standards: Also under Dodd-Frank, these defined "safe" mortgages with caps on fees (e.g., no more than 3% of the loan amount for loans over $100,000), prohibitions on risky features like negative amortization or interest-only payments, and a debt-to-income (DTI) ratio limit of 43%. Non-QM loans exposed lenders to higher legal risks, increasing borrowing costs through higher interest rates (often 1-2% more) or outright denials, particularly affecting self-employed or low-down-payment borrowers.

Enhanced Prudential Standards and Capital Requirements: Banks were required to hold more capital against mortgage assets, especially riskier ones, under Basel III influences integrated via Dodd-Frank. This raised lending costs, as banks passed on expenses through higher interest rates or stricter credit score thresholds (e.g., average FICO scores for approved mortgages rose from around 700 pre-recession to 750+ by 2010-2015).

Prohibition on Certain Practices: New restrictions on the marketing of higher-cost loans and mandatory escrow accounts for higher-risk mortgages added administrative burdens, increasing origination fees by an estimated 0.5-1% of loan amounts, and limiting the potential buyer pool to higher-income, more credit-worthy individuals.

These reforms resulted in a sharp tightening of standards starting in late 2008, with banks reporting net tightening in Federal Reserve surveys through 2010, easing slightly by 2014-2019 but remaining far stricter than pre-2008 levels. Overall, they made home buying more difficult and expensive, contributing to slower housing market recovery, with mortgage denial rates doubling for lower-credit borrowers compared to pre-recession.

At the same time, U.S. building standards evolved through updates to model codes like the International Building Code (IBC) and International Energy Conservation Code (IECC), which are then adopted (subject to local modification) by states and localities. These changes often increased construction costs by 1-5% per code cycle due to enhanced requirements, making building more expensive and sometimes delaying projects. Key building standards updates in the 2010-2019 period include:

2010 ADA Standards: Between 2010 and 2012, federal accessibility standards for new residential construction were updated.[xxxvi] New standards regulated parking, appliance locations, floor space and door clearance minimums, and other building attributes.

2012 IBC/IECC: Introduced stricter energy efficiency (e.g., improved insulation R-values, air leakage testing), enhanced seismic and wind resistance provisions, and updated fire safety (e.g., sprinkler requirements in more multifamily buildings). These added costs for materials and testing, estimated at 2-3% higher for residential construction.

2012 DOE Requirement States Review Building Codes: Though technically a matter of state and local authority, the language in national/international building standards and then encouragement for local authorities to adopt those standards is often federally driven. A 2012 Department of Energy finding that new construction codes would achieve "greater energy efficiency" provided the impetus for more stringent local requirements.[xxxvii]

2015 IBC/IECC: Further tightened energy standards (e.g., mandatory blower door tests for airtightness, higher efficiency for HVAC and lighting), accessibility updates aligning with 2010 ADA Standards, and resilience features like flood-resistant design. This cycle increased costs by emphasizing green building, with builders reporting 3-4% uplifts in hard costs.

2015 Clean Water Rule: Proposed new 2015 federal rules would have dramatically expanded the scope of federal environmental review of historically local projects near and around wetlands, minor waterways, dry riverbeds, etc. Navigating this complex environmental review process was slow and laborious – the process can take decades, and the risk of litigation is very high. All of that adds not just cost but also uncertainty to impacted projects; developers likely also pursued fewer projects to avoid a clean water nexus during the period between introduction and full repeal.[xxxix]

2018 IBC/IECC: Added advanced energy modeling options, stricter structural integrity for high-occupancy buildings, and wildfire-resistant materials in prone areas. Compliance burdens grew, with prolonged permitting due to new inspections, raising overall development expenses and making affordable housing harder to build.

Those updates likely contributed to labor and material demands for new housing, slowing homebuilding recovery from 2010-2019.

Arizona-Specific Permitting & Zoning Changes

Arizona lacks mandatory statewide building codes and standards; adoption occurs at the local level, leading to variations that can increase complexity and costs for builders operating across jurisdictions. During 2010-2019, many cities adopted updated model codes with amendments that added requirements, making construction more expensive or difficult:

Building Code Adoptions: Phoenix adopted the 2012 IBC in 2013, with amendments for enhanced energy efficiency and seismic standards, then transitioned to the 2018 IBC effective July 1, 2019, incorporating stricter fire codes and accessibility (e.g., ICC A117.1-2009/2017).[xl] These required costlier materials like better insulation and sprinklers, increasing residential build costs by 2-5%. Tucson and other cities like Goodyear, Maricopa, and Glendale adopted the 2018 IBC/IECC by 2019, with local additions for water conservation and desert climate adaptations (e.g., higher R-values for roofs), raising expenses through mandatory testing and upgrades.

Permitting Requirements: Local processes grew more rigorous, with extended review times (e.g., 30-60 days in Phoenix for complex projects) due to environmental impact assessments and public hearings, delaying builds and adding holding costs. Local fees increased over this period as well.

APPENDIX C: CITIES BY RELATIVE OWN QUINTILE VS. ZCTA QUINTILE

In general, a consolidated location (e.g., city or town) can be ranked relative to other consolidated jurisdictions (in terms of the density of Airbnb listings), but its constituent ZIP codes can *also* be ranked relative to each other. Both approaches produce similar but not identical "average quintile" rankings, because of universe differences and "Average of average" issues. For completeness, those relative rankings are disclosed here.

Cities by quantity of ZIPs in each Quintile Category, Q1 = 0-20%, Q5 = 80-100%								
Cities	Q1	Q2	Q3	Q4	Q5	Total ZiPs for City	Avg Quintile	City/Town Quintile
Apache Junction	1		1	1		3	2.7	2nd Quintile
Avondale			2			2	3.0	3rd Quintile
Benson		1	1			2	2.5	2nd Quintile
Bisbee					1	1	5.0	Highest Quintile
Buckeye	1	2		1		4	2.3	3rd Quintile
Bullhead			1		1	2	4.0	4th Quintile
Camp Verde				1		1	4.0	4th Quintile
Carefree				1		1	4.0	4th Quintile
Casa Grande	1		2			3	2.3	2nd Quintile
Cave Creek				1		1	4.0	4th Quintile
Chandler		2	4			6	2.7	3rd Quintile
Chino Valley	1	1				2	1.5	Lowest Quintile
Clarkdale					1	1	5.0	Highest Quintile
Clifton		1				1	2.0	Lowest Quintile
Colorado					1	1	5.0	Highest Quintile
Coolidge		1				1	2.0	Lowest Quintile
Cottonwood					2	2	5.0	Highest Quintile
Dewey-Humboldt		1				1	2.0	2nd Quintile
Douglas	1					1	1.0	Lowest Quintile
Duncan	1					1	1.0	Lowest Quintile
Eagar					1	1	5.0	4th Quintile

Cities	Q1	Q2	Q3	Q4	Q5	Total ZiPs for City	Avg Quintile	City/Town Quintile
El Mirage		1				1	2.0	2nd Quintile
Eloy			2			2	3.0	3rd Quintile
Flagstaff					3	3	5.0	Highest Quintile
Florence		1	1			2	2.5	2nd Quintile
Fountain Hills				1		1	4.0	4th Quintile
Fredonia					1	1	5.0	Highest Quintile
Gila Bend	1					1	1.0	Lowest Quintile
Gilbert		1	4	1		6	3.0	3rd Quintile
Glendale	1	2	2	3	1	9	3.1	3rd Quintile
Globe			1			1	3.0	2nd Quintile
Goodyear		1	1	1		3	3.0	3rd Quintile
Hayden	1					1	1.0	Lowest Quintile
Holbrook				1		1	4.0	4th Quintile
Huachuca		1				1	2.0	Lowest Quintile
Jerome					1	1	5.0	Highest Quintile
Kearny	1					1	1.0	Lowest Quintile
Kingman		1	1			2	2.5	3rd Quintile
Lake Havasu					3	3	5.0	Highest Quintile
Mammoth	1	1				2	1.5	2nd Quintile
Marana	1		3	1		5	2.8	3rd Quintile
Maricopa		1				1	2.0	3rd Quintile
Mesa		5	6	3		14	2.9	3rd Quintile
Miami		1				1	2.0	2nd Quintile
Nogales		1				1	2.0	2nd Quintile
Not Found	2					2	1.0	Not Found
Oro Valley			1	3	1	5	4.0	4th Quintile
Page					2	2	5.0	Highest Quintile
Paradise Valley					1	1	5.0	Highest Quintile
Parker				1		1	4.0	4th Quintile
Patagonia					1	1	5.0	Highest Quintile
Peoria		3	3	1		7	2.7	3rd Quintile
Phoenix	3	13	11	10	10	47	3.2	4th Quintile
Pima		1				1	2.0	Lowest Quintile
Pinetop-Lakeside					2	2	5.0	Highest Quintile
Prescott				2	1	3	4.3	Highest Quintile
Prescott Valley		2				2	2.0	2nd Quintile
Quartzsite	1					1	1.0	Lowest Quintile
Queen Creek		1	1			2	2.5	2nd Quintile
Safford		1				1	2.0	Lowest Quintile
Sahuarita		1	1			2	2.5	2nd Quintile
San Luis	2					2	1.0	Lowest Quintile

Cities	Q1	Q2	Q3	Q4	Q5	Total ZiPs for City	Avg Quintile	City/Town Quintile
Scottsdale				4	5	9	4.6	Highest Quintile
Sedona/Oak Creek					1	1	5.0	Highest Quintile
Show Low					1	1	5.0	Highest Quintile
Sierra Vista		1	1		1	3	3.3	3rd Quintile
Snowflake			1			1	3.0	3rd Quintile
Springerville		1				1	2.0	3rd Quintile
St. Johns				1		1	4.0	4th Quintile
Star Valley				1		1	4.0	4th Quintile
Superior			1			1	3.0	2nd Quintile
Surprise		3	3	2		8	2.9	3rd Quintile
Taylor	1					1	1.0	Lowest Quintile
Tempe			1	3		4	3.8	4th Quintile
Thatcher		1	1			2	2.5	2nd Quintile
Tombstone					1	1	5.0	Highest Quintile
Tucson	2	5	2	8	4	21	3.3	4th Quintile
Grand Canyon Village		1				1	2.0	Lowest Quintile
Unincorporated	48	10	12	18	25	113	2.7	4th Quintile
Wellton	1					1	1.0	Lowest Quintile
Wickenburg				1		1	4.0	4th Quintile
Willcox				1		1	4.0	4th Quintile
Williams					1	1	5.0	Highest Quintile
Winkelman		1				1	2.0	2nd Quintile
Winslow		1				1	2.0	2nd Quintile
Youngtown	1					1	1.0	Lowest Quintile
Yuma			2			2	3.0	3rd Quintile
Grand Total	**73**	**72**	**73**	**72**	**73**	**363**		

APPENDIX D: CSI-CONSTRUCTED CITIES & ASSIGNED ZIP CODES

Cities used in data	
City Name	ZIP Codes Assigned
Apache Junction city	85118, 85119, 85120
Avondale city	85323, 85329, 85392
Benson city	85602, 85630
Bisbee city	85603
Buckeye city	85326, 85340, 85343, 85354, 85396
Bullhead City city	86429, 86442
Camp Verde town	86322
Carefree town	85377
Casa Grande city	85122, 85172, 85193, 85194
Cave Creek town	85331
Chandler city	85224, 85225, 85226, 85248, 85249, 85286
Chino Valley town	86323, 86334
Clarkdale town	86324
Clifton town	85533, 85540
Colorado City town	86021
Coolidge city	85128
Cottonwood city	86325, 86326
Dewey-Humboldt town	86327, 86329
Douglas city	85607, 85608
Duncan town	85534
Eagar town	85925
El Mirage city	85335
Eloy city	85123, 85131, 85141
Flagstaff city	86001, 86004, 86005, 86011
Florence town	85132, 85143
Fountain Hills town	85268
Fredonia town	86022
Gila Bend town	85322, 85337
Gilbert town	85233, 85234, 85236, 85295, 85296, 85297, 85298

Glendale city	85301, 85302, 85303, 85304, 85305, 85306, 85307, 85308, 85309, 85355
Globe city	85501
Goodyear city	85139, 85338, 85395
Grand Canyon Village	86023
Hayden town	85135
Holbrook city	86025
Huachuca City town	85616
Jerome town	86331
Kearny town	85137
Kingman city	86401, 86409
Lake Havasu City city	86403, 86404, 86406
Mammoth town	85618, 85623
Marana town	85653, 85658, 85741, 85742, 85743
Maricopa city	85138
Mesa city	85201, 85202, 85203, 85204, 85205, 85206, 85207, 85208, 85209, 85210, 85212, 85213, 85215, 85256
Miami town	85539
Nogales city	85621
Oro Valley town	85619, 85704, 85737, 85739, 85755
Page city	86036, 86040
Paradise Valley town	85253
Parker town	85344
Patagonia town	85624
Peoria city	85324, 85345, 85351, 85373, 85381, 85382, 85383
Phoenix city	85003, 85004, 85006, 85007, 85008, 85009, 85012, 85013, 85014, 85015, 85016, 85017, 85018, 85019, 85020, 85021, 85022, 85023, 85024, 85026, 85027, 85028, 85029, 85031, 85032, 85033, 85034, 85035, 85037, 85040, 85041, 85042, 85043, 85044, 85045, 85048, 85050, 85051, 85053, 85054, 85083, 85085, 85086, 85087, 85254, 85310, 85339, 85353
Pima town	85543
Pinetop-Lakeside town	85929, 85935
Prescott city	86301, 86303, 86305, 86313
Prescott Valley town	86314, 86315
Quartzsite town	85346
Queen Creek town	85140, 85142
Safford city	85546
Sahuarita town	85614, 85629
San Luis city	85336, 85349, 85350
Scottsdale city	85250, 85251, 85255, 85257, 85258, 85259, 85260, 85262, 85266
Sedona city	86336
Show Low city	85901
Sierra Vista city	85611, 85613, 85635, 85650

Snowflake town	85937
Springerville town	85938
St. Johns city	85936
Star Valley town	85541
Superior town	85173
Surprise city	85342, 85361, 85374, 85375, 85378, 85379, 85387, 85388
Taylor town	85939
Tempe city	85281, 85282, 85283, 85284
Thatcher town	85531, 85552
Tombstone city	85638
Tucson city	85641, 85701, 85705, 85706, 85707, 85708, 85709, 85710, 85711, 85712, 85713, 85714, 85715, 85716, 85718, 85719, 85721, 85723, 85724, 85726, 85730, 85734, 85745, 85746, 85747, 85748, 85749, 85756
Grand Canyon Village	86023
Wellton town	85356
Wickenburg town	85390
Willcox city	85643
Williams city	86046
Winkelman town	85192
Winslow city	86047
Youngtown town	85363
Yuma city	85364, 85365

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