

Denver Housing Market Analysis Expansion

This analysis was conducted to support the City and County of Denver's *Housing an Inclusive Denver* and subsequent strategic plan that sets housing policy, strategy, and investment priorities.

This analysis focuses on the unmet housing needs that have potential to be met by the private sector through policy initiatives that incentivize or require affordable housing contributions.

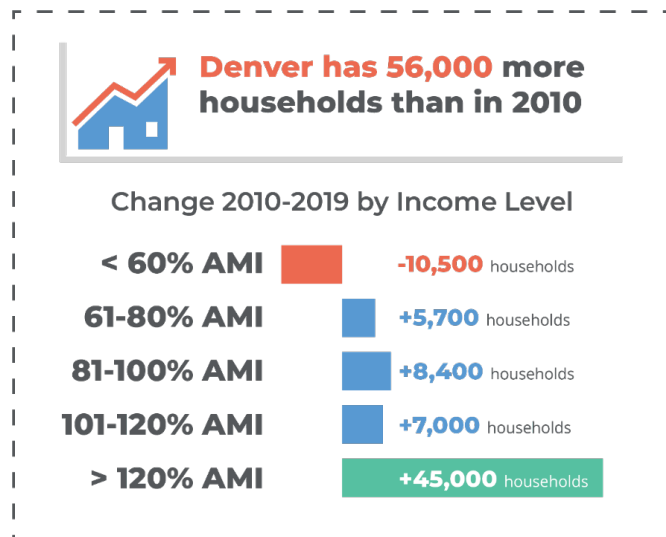
Key Findings: Household Change

Denver added 56,000 households between 2010 and 2019—an average of 6,300 households each year.

- Growth was highly concentrated among high income households. Those with incomes of more than 120 percent of the Area Median Income or AMI (\$96,000 and higher) accounted for 68 percent of household growth, totaling 45,000 households. This growth was equally split between renters and owners.
- Households with incomes between 61 to 100 percent AMI (\$64,000 and \$80,000) grew at about the same pace as the city overall, representing 25 percent of overall growth or 14,000 households. That growth was concentrated among renters.
- In contrast, households earning less than 60 percent AMI (or incomes of \$64,000 and less) declined by 10,500. Nearly all of these households were renters. This occurred as they left the city, doubled up to afford rent, or experienced increases in household income.
- Related to these growth patterns are demographic changes: the city has become slightly less racially and ethnically diverse, much more highly educated, higher income, and older.

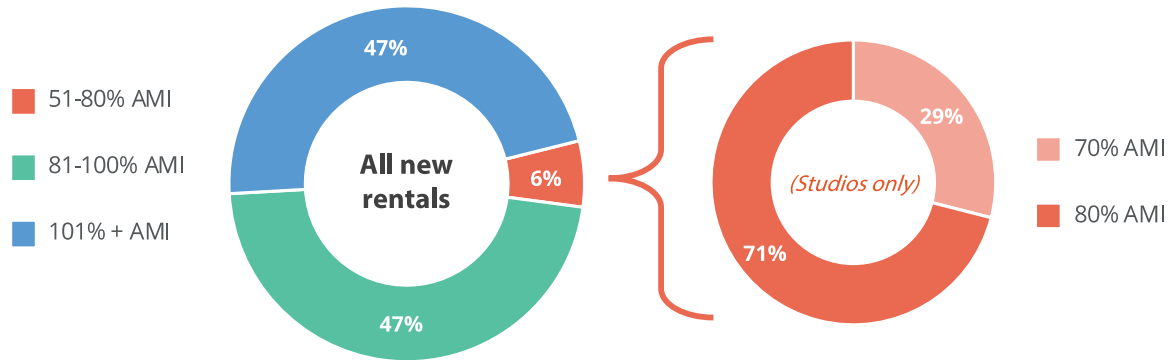
Key Findings: Rental Development and Market Shifts

Responding to housing demand, the housing market added 34,000 rental units between 2010 and 2019.



5 in 6 rental units built were **market-rate developments**. The vast majority were priced for 80 percent AMI and greater households. Of those affordable to less than 80 percent AMI households, all were studio units and most were priced at 70 percent AMI.

Figure 1.
Market Rate Rental Development, by AMI



Note: The 2020 HUD AMI for a two-person household of \$80,000 was used.

Source: CoStar, and Root Policy Research.

1 in 6 rental units were built as **dedicated-affordable units** that carry income restrictions and were created through a combination of city and federal funding.

The Department of Housing and Stability (HOST) supported the development and preservation of some of this new development, with much of HOST's funding serving 0-60 percent AMI renters and 61-80 percent AMI owners.

Figure 2. Units Created or Preserved with HOST Funding 2018-2020

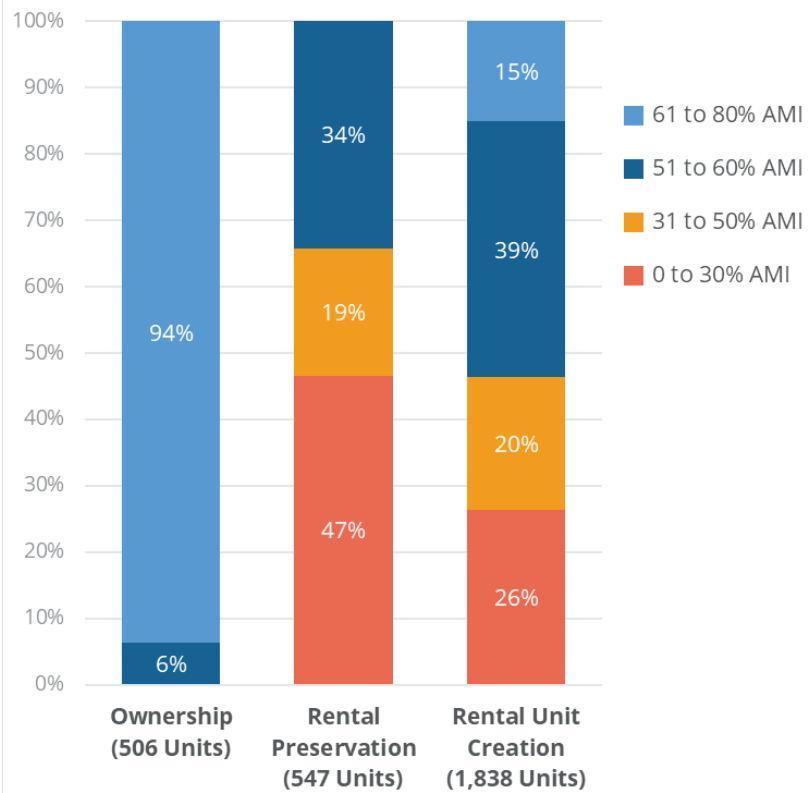
Note:

Based on year of HOST funding allocation; percentages reflect anticipated outcomes as some units are still in the pipeline for development.

Excludes affordable housing without HOST funding.

Source:

Affordable Housing Dashboard (HOST) and Root Policy Research.

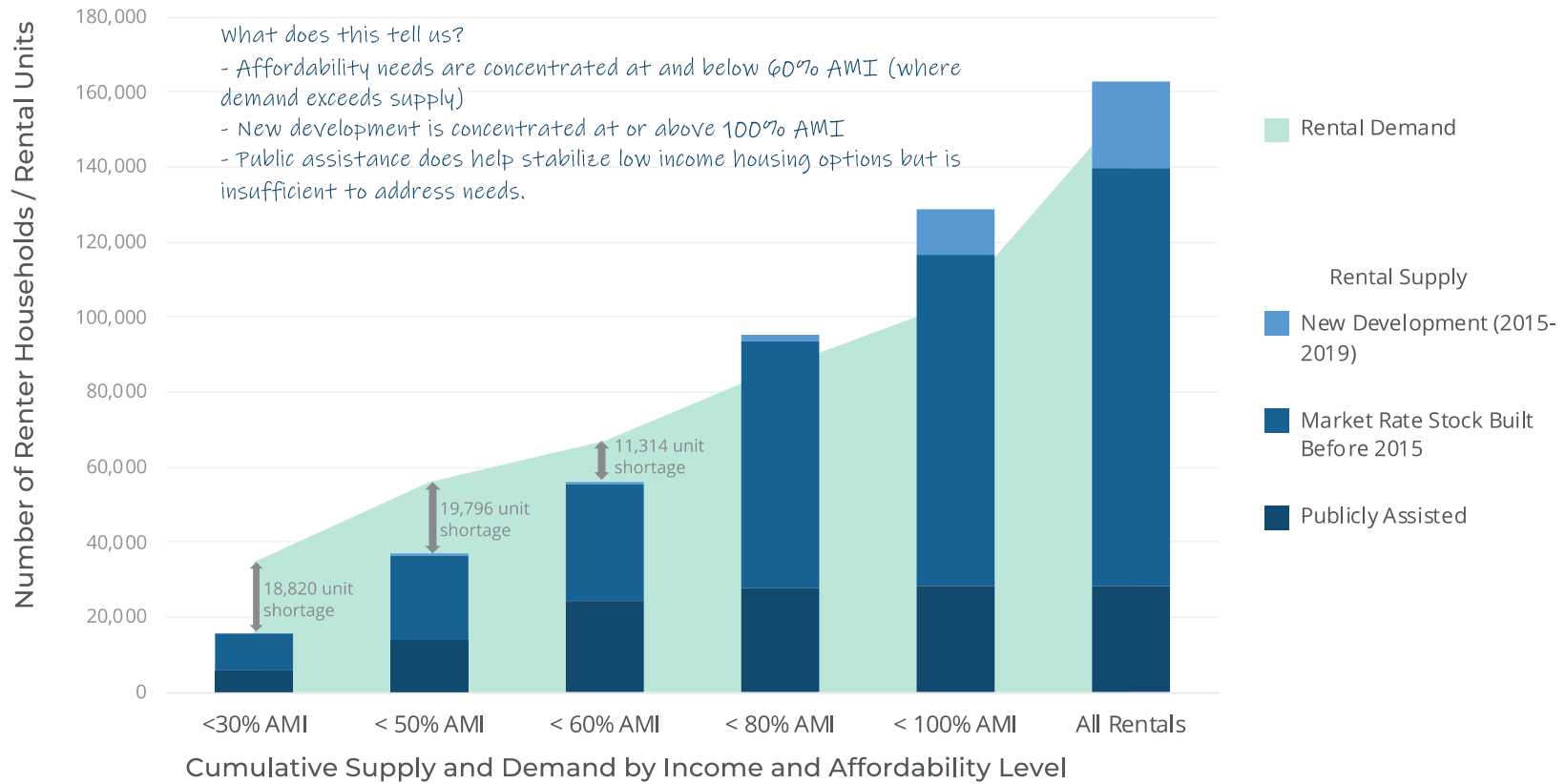


In between new development and HOST-supported units is “naturally occurring affordable housing” or NOAH—which typically bridges the gap between publicly-assisted and higher end market rate rentals. Before the recent upward shifts in housing prices, NOAH commonly served 51-80 percent AMI households. NOAH is also occupied by renters at the 60 percent AMI and higher level, who often “rent down” to save money for ownership.

Once affordable to 60 percent AMI renters and lower, the supply of NOAH has declined significantly. Compared to 2010, Denver has **28,000 fewer rental units affordable to 0-60 percent AMI renters**, largely due to the loss of NOAH.

Figure 3 below shows the primary providers of rental housing at various AMI levels, and the shortage of rentals by AMI level. **Publicly assisted housing** is a strong stabilizing force for households earning less than 60 percent AMI—providing **40 percent** of affordable units—with private market rentals built before 2015 comprising the rest. Yet this supply falls short of affordable units needed, resulting in a “rental gap.” That gap dissipates as income levels increase and the private sector is able to accommodate more of the rental demand. Stabilization occurs at the 100 percent AMI level when rental units exceed demand by a reasonable level. Adding to the supply of rentals at 60 percent AMI and less would reduce the rental gap directly, and adding at the 60 to 80 percent AMI level would **accelerate the “filtering”** process whereby households are better matched with units that serve their affordability needs. Both strategies would improve the rental imbalance.

Figure 3.
Rental Supply, Demand, and Production



Note: Housing Choice Vouchers are included in Publicly Assisted Inventory; accounts for a 40% estimated overlap in HCVs and other publicly subsidized units (e.g., HCV use in LIHTC). The 2020 HUD AMI for a two-person household of \$80,000 was used.

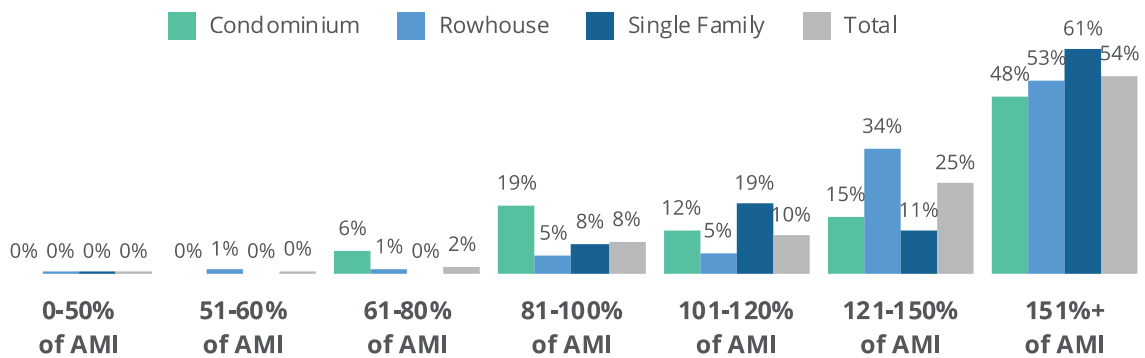
Source: 2019 ACS, Affordable Housing Dashboard (HOST), HUD Picture of Subsidized Households, CoStar, and Root Policy Research.

Key Findings: Ownership Development and Market Shifts

The median price of a single unit detached home in Denver is now \$515,000, representing a 9.5 percent increase since 2018. Although, home prices have increased faster than incomes but historically low interest rates have helped some buyers maintain purchasing power.

Newly built ownership units are mostly affordable to 151+ percent AMI households, with the exception of condominiums and, to a lesser extent, rowhomes. These more affordable products remain a small part of the city's stock (13%).

Figure 4.
Percent Distribution of Units Sold in 2019 and 2020 by AMI and Type (Built Between 2015-2020)

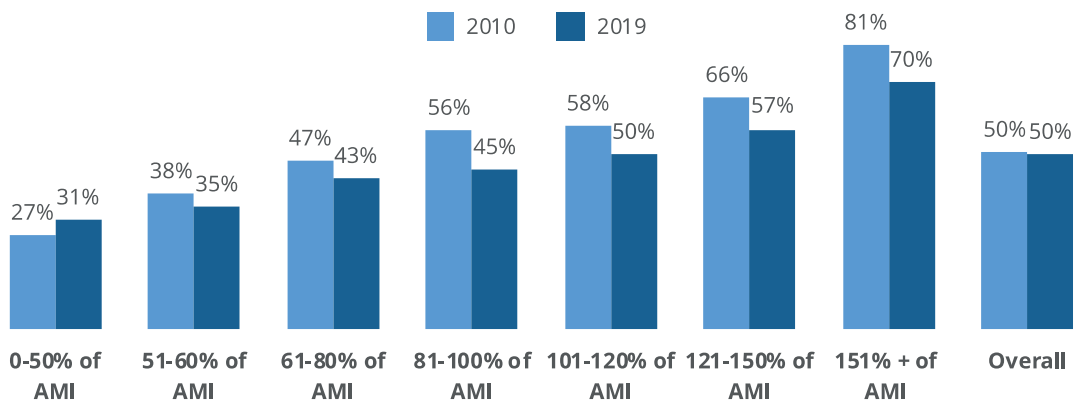


Note: The 2020 HUD AMI for a two-person household of \$80,000 was used.

Source: Denver Property Taxation and Assessment System and Arland, LLC.

Homeownership rates have dropped for nearly all AMI levels, reflective of diminished supply and an influx of higher income renters.

Figure 5.
Homeownership Rates, by AMI, 2010 and 2019



Note: The 2020 HUD AMI for a two-person household of \$80,000 was used, for 2010 HUD AMI for a two-person household of \$60,800 was used.

Source: 2010 and 2019 1-year ACS, and Root Policy Research.

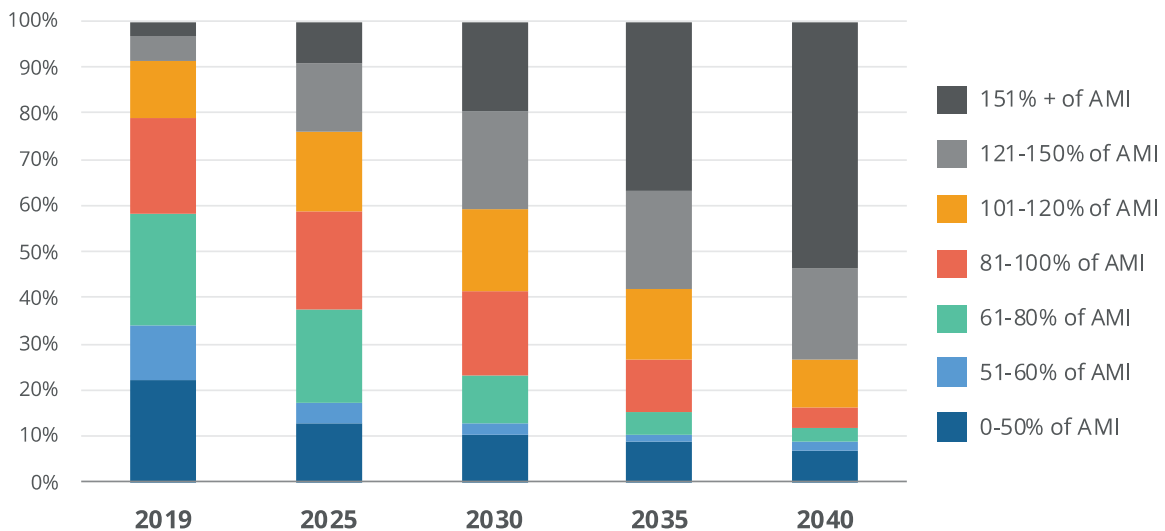
Key Findings: Future Housing Needs

The market's tilt toward higher priced housing is likely to continue, driven by projected employment growth in high-paying fields and continued in-migration of high income households.

Denver's affordable housing challenges will not be solved by employment growth and wage increases alone. Two of the fastest growing industries between now and 2040—Health Care and Social Assistance and Educational Services—pay wages in the 50 to 80 percent AMI range. Accommodating the affordable housing needs of these new workers will be critical to ensure that workers in these critical industries can both work and live in Denver.

At current rates of production and pricing, the private rental market will more than adequately accommodate renters earning more than 80 percent AMI. Rental housing gaps will be increasingly compressed in the 51 to 80, and by 2040, 81-100 percent AMI ranges, where new production and NOAH will become increasingly diminished.

Figure 6.
Rent Affordability Distribution Forecast

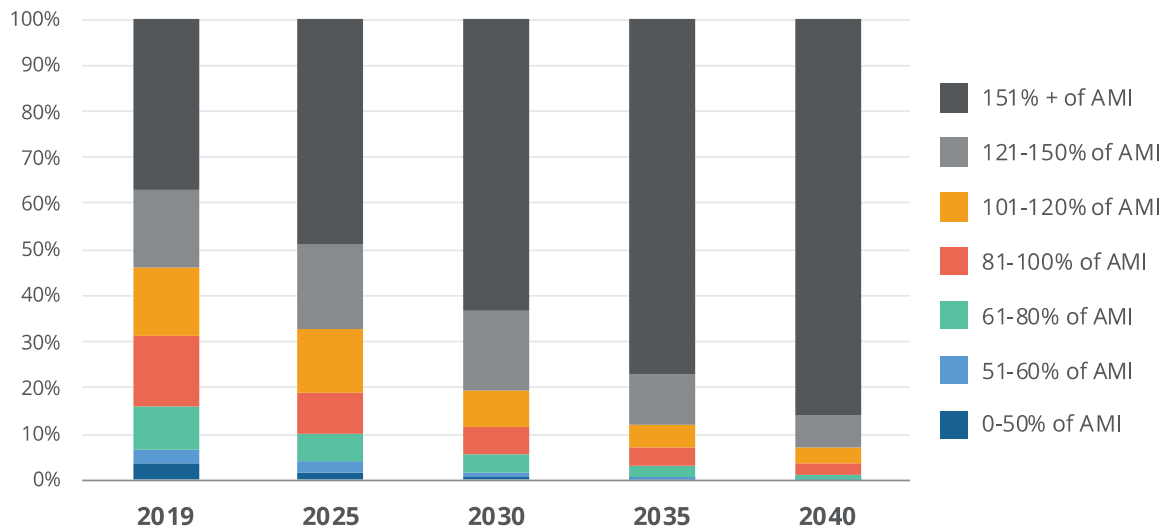


Note: Calculations assume income and price trends from 2010-2019 continue. The 2020 HUD AMI for a two-person household of \$80,000 was used.

Source: ACS 2010 and 2019 1-year estimates, HUD, and Root Policy Research.

Similarly, if for sale price trends continue, the vast majority of homes for sale—an estimated 86 percent—will serve 151 percent AMI households. These trends will reduce the homeownership rate in the city and drive would-be-owners into rentership longer term, potentially increasing the need for 61-80 percent rental units, or drive them to purchase homes elsewhere.

Figure 7.
Owner Affordability Distribution Forecast



Note: Calculations assume income and price trends from 2010-2019 continue. The 2020 HUD AMI for a two-person household of \$80,000 was used.

Source: ACS 2010 and 2019 1-year estimates, HUD, Case¹ Shiller Denver Home Value Index, MLS listed or sold homes data in 2019 through Q3-2020, and Root Policy Research.

Meeting housing demand. To preserve Denver’s socioeconomic diversity—and ensure adequate housing for a growing workforce—public sector priorities will need to be focused on facilitating production for 50 percent AMI and below renters—and private sector partnerships to build supply in 51 to 80 percent AMI ranges. As shown in the following figure, forecasted housing demand through 2040 is clustered in the lowest (for renters) and highest (for owners) AMI categories.

The rental gap, and cost burden, will increase by 5,600 units for 51-80 percent AMI households without production of units to serve this income range. As such, public-private partnerships should be focused on closing the gap in unit production in the 51-80 percent AMI range, freeing up public sector investments to serve less than 50 percent AMI households with growing needs.

Interventions in the ownership market should focus on preservation of existing affordable units, facilitating land trusts, and increasing the production of attached products that are naturally serving 80-120 percent AMI households.

It is important to note that although both market and affordable housing can contribute to affordability, dedicated affordable units have a much higher and immediate effect. The

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“filtering” process, whereby market rate housing gradually becomes more affordable, can take decades.

Figure 8.
Projected Number of Households by Income and Tenure, 2019 and 2040

	2019	2040	Change 2019-2040
Owners			
Income distribution			
0-30%	12,450	15,226	2,776
31-50%	12,916	15,796	2,880
51-60%	5,758	7,042	1,284
61-80%	14,821	18,126	3,305
81-100%	14,456	17,680	3,233
101-120%	12,616	15,429	2,813
121-150%	16,521	20,205	3,684
151% and above	69,081	84,484	15,403
Total	158,620	193,988	35,368
Renters			
Income distribution			
0-30%	34,975	42,773	7,798
31-50%	21,907	26,791	4,885
51-60%	10,916	13,350	2,434
61-80%	19,888	24,323	4,435
81-100%	17,467	21,362	3,895
101-120%	12,751	15,594	2,843
121-150%	12,632	15,448	2,817
151% and above	29,289	35,820	6,531
Total	159,825	195,462	35,637

Note: The 2020 HUD AMI for a two-person household of \$80,000 was used, the forecast holds tenure and income distributions from 2019 fixed. Household projections assume that the 2019 income distribution remains intact—i.e., that recent trends in the loss of 0-50 percent households are mitigated by income-restricted housing production—to give a baseline of the unit production needed to stabilize these households.

Source: 2019 1-year ACS, Blueprint Denver forecasts, and Root Policy Research.

Demographics

This section presents an overview of demographic trends, specifically related to shifts in household size, race and ethnicity, age, income and tenure, and employment. It concludes with projected population and employment growth.

The city has experienced rapid growth over the past years: Denver gained more than 50,000 new households since 2010, an increase of 22 percent.

Household size and family composition. As shown in the figures below, the average household size has remained fairly stable since 2010, decreasing slightly from 2.25 in 2010 to 2.24 in 2019. The average household size for owner households increased, from 2.39 to 2.45, while that of renter households decreased from 2.1 to 2.03. Denver's growth has been strongest among 1- and 2-person households.

Figure 9.
Average Household Size by Tenure, 2010 and 2019

Source:
2010, and 2019 1-year ACS.

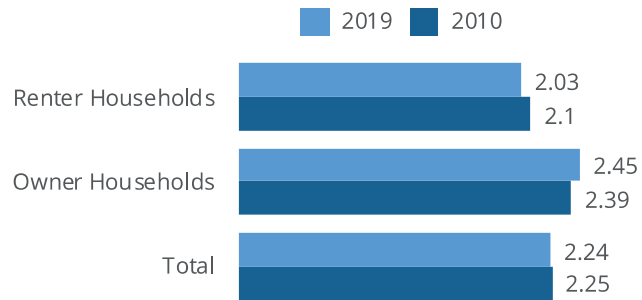
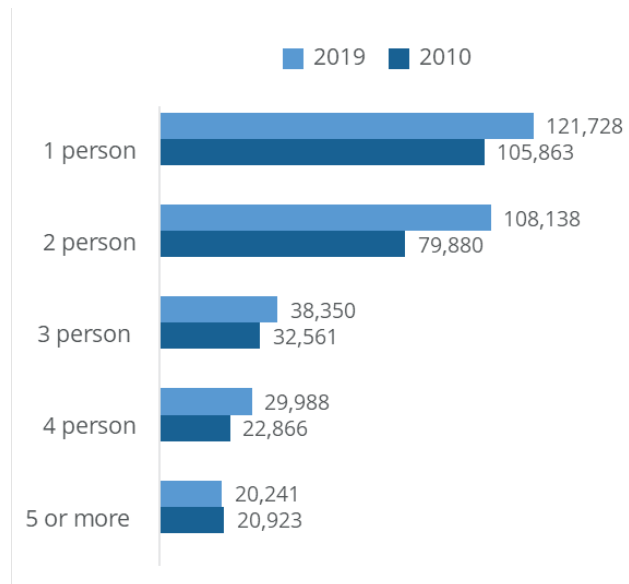


Figure 10.
Household Size, 2010 and 2019

Source:
2019 1-year ACS.

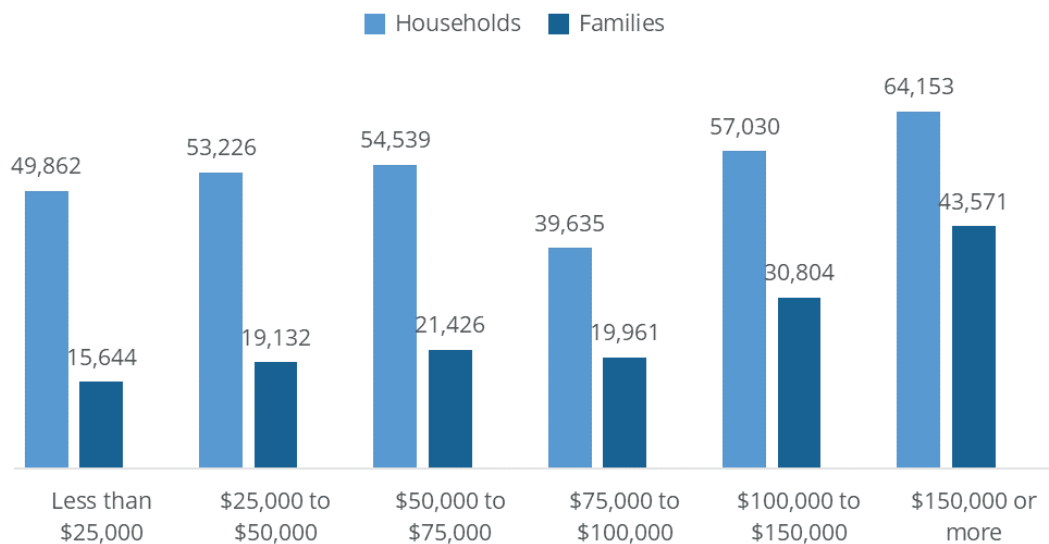


Families with children in the home grew at a slower rate than households overall. In 2019, 72,514 households were comprised of families with children living in the home. This compares with 65,992 families with children in the home in 2010—an increase of 10 percent, less than the overall increase of households in Denver over the same time period.

And families became wealthier. Compared to households overall, Denver families in 2019 tend to be clustered at higher income levels: 49 percent of families have income above \$100,000 compared to 38 percent of all households.

In 2019, about 13 percent, or nearly 9,500 families with children, lived below the poverty level. This is significantly lower than in 2010, when 27 percent and 17,600 families lived below the poverty line. This is equivalent to a 46 percent decrease, or decline of 8,000 families in poverty.

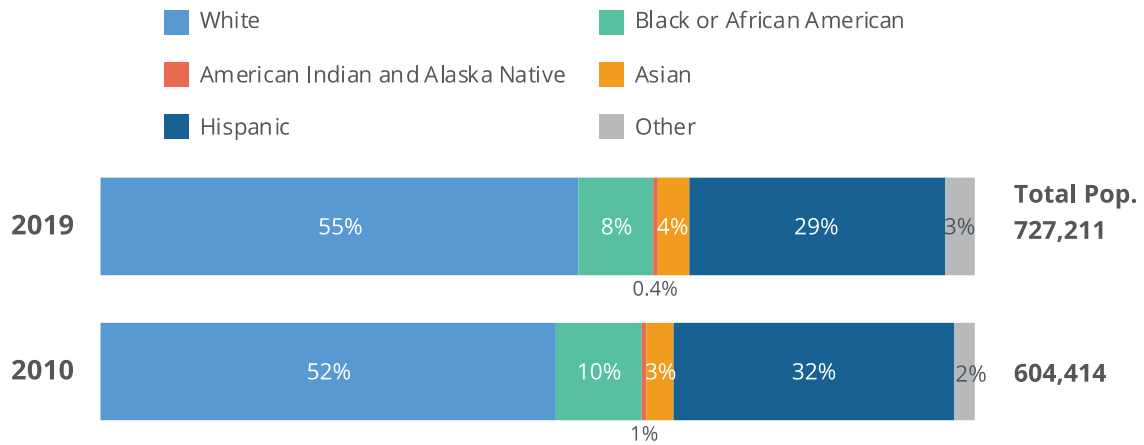
Figure 11.
Households and Families, by Income, 2019



Source: 2019 1-year ACS.

Race and ethnicity. The city has become slightly less racially and ethnically diverse since 2010. The share of the non-Hispanic White population increased from 52 to 55 percent, while the shares of the Hispanic and Black or African American population decreased, from 32 to 29 percent and 10 to 8 percent, respectively (Figure 12). This trend is not shared by the Denver-Aurora-Lakewood MSA, where the share of the non-Hispanic White population stayed about the same (64% in 2013 and 65% in 2019). In the state overall, the share of the non-Hispanic White population also decreased from 70 to 68 percent since 2010.

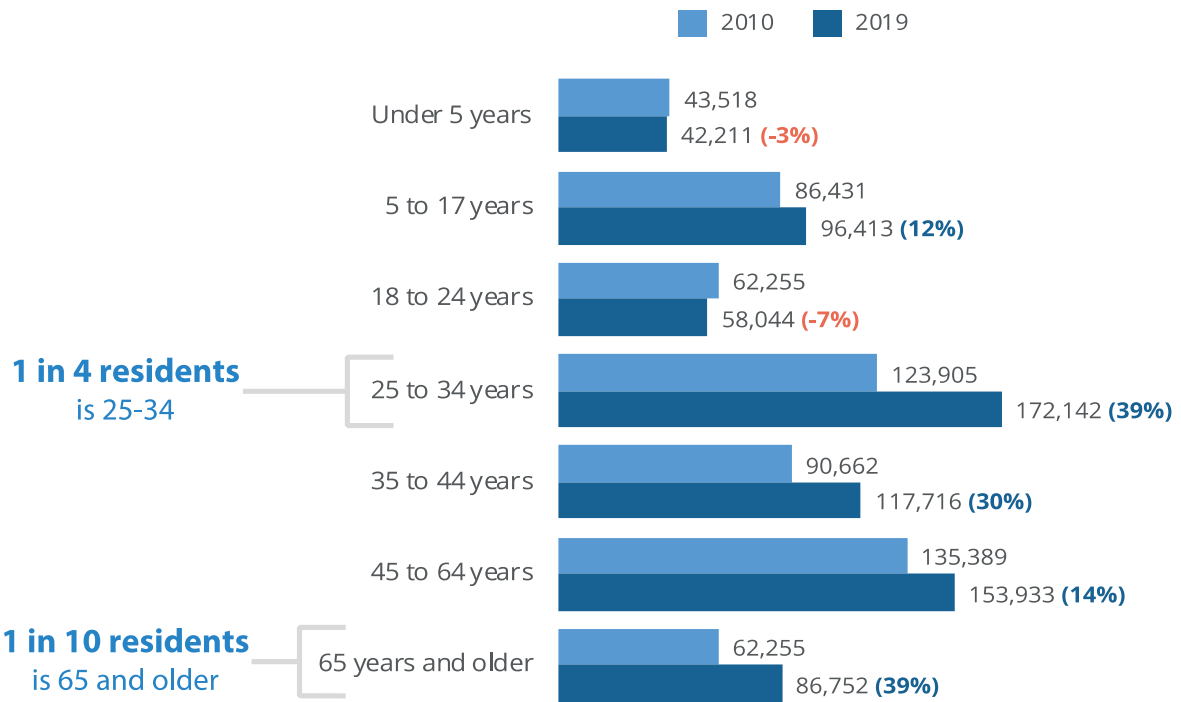
Figure 12.
Race and Ethnicity Distribution, 2010 and 2019



Source: 2010, and 2019 1-year ACS.

Age. While the median age in the city has slightly increased from 33.6 in 2010 to 34.7 in 2019, the age distribution in the city has changed significantly since 2010. Notably the number of residents under 5 years and between 18 to 24 years decreased by 3 and 7 percent, respectively— according to DPS data, elementary enrollment has been declining for more than 5 years, and the rate of decline has doubled within the past few years. The number of residents between ages 25 to 34 and 65 and older increased by 39 percent each (Figure 13). The decrease in residents under age 5 has been steeper in the state, where number of residents under 5 has decreased by 5 percent since 2010. Since 2013, the number of residents under 5 in the Denver-Aurora-Lakewood MSA has decreased 1 percent.

Figure 13.
Population by Age, 2010 and 2019



Source: 2010 and 2019 1-year ACS, and Root Policy Research.

Education. Figure 14 below shows the educational distribution and how it has changed since 2010. The population of the city has become much more highly educated. The number of residents without a high school degree has dropped by 30 percent (20,000 residents) and the number of residents with a bachelor’s degree or higher increased by 68 percent (113,000 residents).

This change has been much less pronounced statewide, where the number of number of residents without a high school degree has dropped by 13 percent since 2010, and in the Denver-Aurora-Lakewood MSA (10% decline since 2013).

Figure 14.
Educational Distribution, 2010 and 2019

	2010		2019		Change 2010-2019	
	Number	Percent	Number	Percent	Numerical Change	Percent Change
Less than a high school graduate	66,788	16%	46,731	9%	-20,057	-30%
High school graduate	81,218	20%	90,398	17%	9,180	11%
Some college or associate's degree	95,235	23%	111,691	21%	16,456	17%
Bachelor's degree or higher	168,620	41%	281,723	53%	113,103	67%

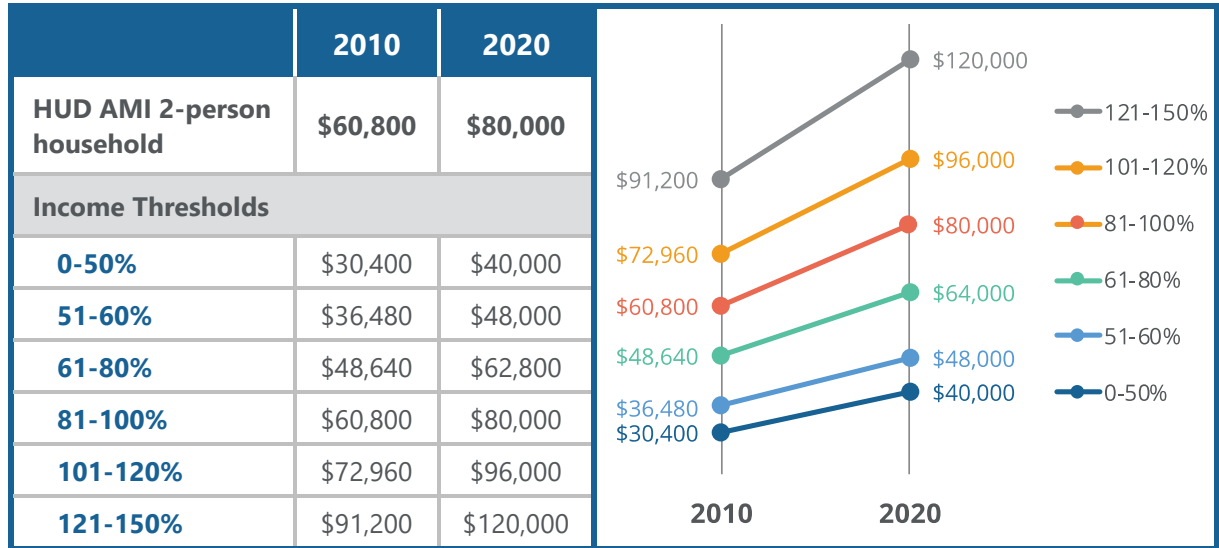
Note: For population 25 years and over.

Source: 2010, and 2019 1-year ACS, Root Policy Research.

Income trends. In the housing industry, affordable housing programs are typically pegged to the Area Median Income, or AMI, which is determined annually by the U.S. Department of Housing and Urban Development (HUD). The AMI thresholds determine eligibility levels for affordable housing. Current AMI levels are shown in Figures 15 and Figure 16 (which offers more detail by household size).

That figure also shows changes in AMI since 2010. Because Denver—and the metro area, on which AMI is based—has become higher income, the AMI levels that are used to determine eligibility for affordable housing have also shifted upwards. For example, in 2010, the AMI for a 2-person household was \$60,800. By 2020, the 2-person household AMI had increased by 32 percent to \$80,000. Due to this median income growth, an 80 percent AMI household in 2010 is equivalent to a 60 percent AMI household in 2020.

Figure 15.
Denver AMI Income Limits, 2010 and 2020



Note: The geographical area used by HUD for AMI calculations includes the Denver-Aurora-Lakewood MSA. It excludes the Boulder Valley. 2010 data not adjusted for inflation.

Source: HUD, Denver Department of Housing Stability, and Root Policy Research.

Figure 16.
Denver Income Limits by AMI, 2020

	1 Person	2 Person	3 Person	4 Person	5 Person
20% AMI	\$14,000	\$16,000	\$18,000	\$20,000	\$21,600
30% AMI	\$21,000	\$24,000	\$27,000	\$30,000	\$32,400
40% AMI	\$28,000	\$32,000	\$36,000	\$40,000	\$43,200
45% AMI	\$31,500	\$36,000	\$40,500	\$45,000	\$48,600
50% AMI	\$35,000	\$40,000	\$45,000	\$50,000	\$54,000
55% AMI	\$38,500	\$44,000	\$49,500	\$55,000	\$59,400
60% AMI	\$42,000	\$48,000	\$54,000	\$60,000	\$64,800
70% AMI	\$49,000	\$56,000	\$63,000	\$70,000	\$75,600
80% AMI	\$54,950	\$62,800	\$70,640	\$78,500	\$84,800
100% AMI	\$70,000	\$80,000	\$90,000	\$100,000	\$108,000
120% AMI	\$84,000	\$96,000	\$108,000	\$120,000	\$129,600

Source: https://www.chfainfo.com/arh/asset/Documents/2020_income_limits.pdf.

Figure 17 shows the household income distribution by AMI for 2010 and 2019 as well as the change between 2010 and 2019.

As Figure 17 demonstrates, household change is uneven across household income ranges. The city has experienced the most growth among higher income brackets (121% AMI and greater) and a decrease among households earning 60 percent AMI or less. Households earning 151 percent AMI—\$121,000 and more—and above account for 59 percent of the change in total households.²

According to migration trends from IRS data, between 2016 and 2018 lower income households moved to counties in Colorado with a lower cost of living including Adams, Pueblo, Mesa, and El Paso Counties. Higher income households moved from counties in high cost of living areas including New York City (NY), San Francisco (CA), and San Jose/Santa Clara County (CA).

² It should be noted that data presented by 2-person household AMI levels are estimates constructed using ACS household income data which do not include household size.

Figure 17.
Income Distribution, 2010 and 2019

	2010		2019		Change 2010-2019	
	Number	% Total Households	Number	% Total Households	Number	Percent
Total households	262,093	100%	318,445	100%	56,352	22%
Percent AMI						
0-50%	91,589	35%	83,442	26%	-8,147	-9%
51-60%	18,311	7%	15,864	5%	-2,448	-13%
61-80%	26,680	11%	34,437	11%	5,757	20%
81-100%	23,424	9%	31,811	10%	8,388	36%
101-120%	18,303	7%	25,367	8%	7,065	39%
121-150%	20,596	8%	33,045	10%	12,448	60%
151% and above	61,190	23%	94,479	30%	33,289	54%

Note: The AMIs reflect the HUD income thresholds for a two-person household: \$80,000 in 2020), and \$60,800 in 2010.

Source: 2010, and 2019 1-year ACS, Root Policy Research.

Differences for renters and owners. Figure 18 shows median household income by tenure as well as its distribution by AMI for 2010 and 2019. Renters have a median income around half that of owner’s median income in 2019; in 2010, renter income was 40 percent of owner income.

Renter median income has grown significantly since 2010 with the in-migration of high income renters. The share of renters with household income above 150 percent AMI doubled since 2010 (from 9% to 18%). This was offset by a large decline in less than 50 percent AMI renters. In 2010, these renters made up about half of the city’s renters; by 2019, this had declined to 36 percent.

Figure 18.
Income Distribution by Tenure, 2010 and 2019

	2010	2019	Change 2010-2019	
			Percentage Point Change	Numerical Change
Owner median income	\$68,971	\$103,069	49%	\$34,098
Income distribution				
0-50%	19%	16%	-3%	527
51-60%	5%	4%	-1%	-853
61-80%	10%	9%	-1%	1,383
81-100%	9%	9%	0%	2,506
101-120%	9%	8%	-1%	852
121-150%	10%	10%	0%	2,707
151% and above	37%	44%	6%	19,708
Total	100%	100%		26,830
Renter median income				
Income distribution				
0-50%	52%	36%	-16%	-10,977
51-60%	8%	7%	-1%	242
61-80%	11%	12%	1%	5,020
81-100%	7%	11%	4%	8,142
101-120%	7%	8%	1%	4,123
121-150%	5%	8%	2%	5,499
151% and above	9%	18%	9%	17,473
Total	100%	100%		29,522

Note: The 2020 HUD AMI for a two-person household of \$80,000 was used, for 2010 HUD AMI for a two-person household of \$60,800 was used. The percentage point change column refers to the change in the share of the households in each income brackets, not the overall percent change.

Source: 2010, and 2019 1-year ACS, Root Policy Research.

In sum, housing price increases have disproportionately affected less than 50 percent AMI renters, who have lost purchasing power as the market has shifted to accommodate higher income households.

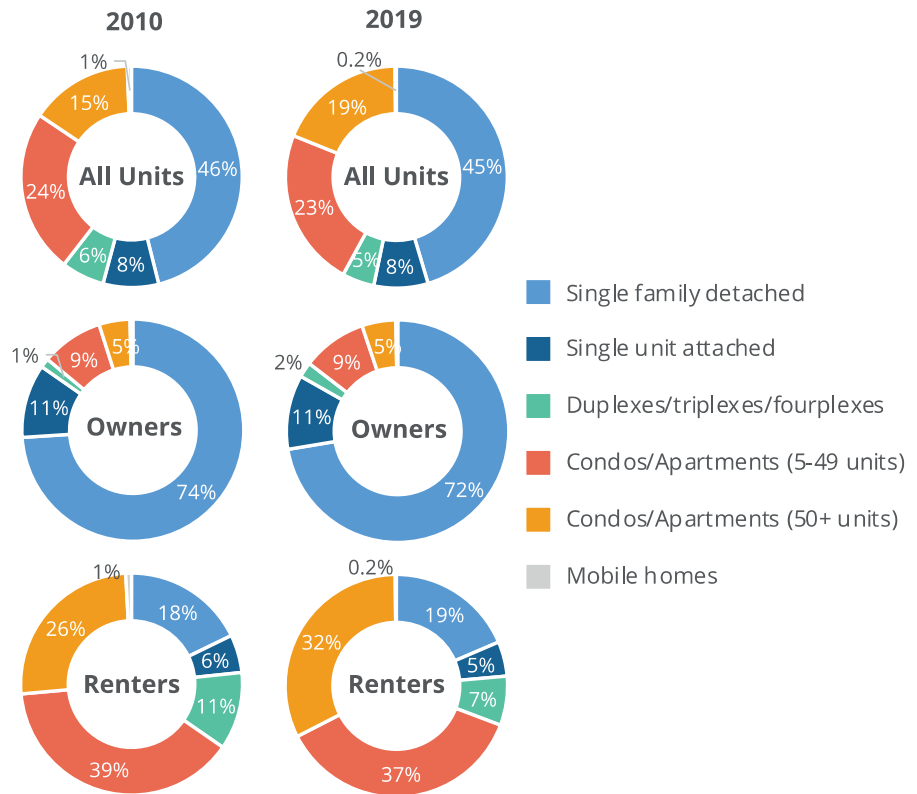
Housing Stock

Denver’s strong household growth has had little impact on the types of housing units in the city, as shown in the graphics below. Forty-five percent of the city’s housing stock was made up of single unit detached homes in 2019, compared with 46 percent in 2010.³ The vast majority of owners still live in single unit detached homes (72% in 2019 v. 74% in 2010), followed by apartments (42% in 2019 v. 39% in 2010). The share of “attached” homes—townhomes, duplexes—has remained flat (13% in 2019 v. 14% in 2010).

The largest shift in unit type has occurred in large (50+ units) apartment buildings: 19 percent of the city’s housing stock was contained within large apartment buildings in 2019, compared with 15 percent in 2010. More renters live in larger complexes than in 2010: 32 percent in 2019, compared with 26 percent in 2010.

Figure 19.
Distribution of Units
in Structure by
Tenure, 2010 and
2019

Source:
 2010 and 2019 1-year ACS,
 Root Policy Research.



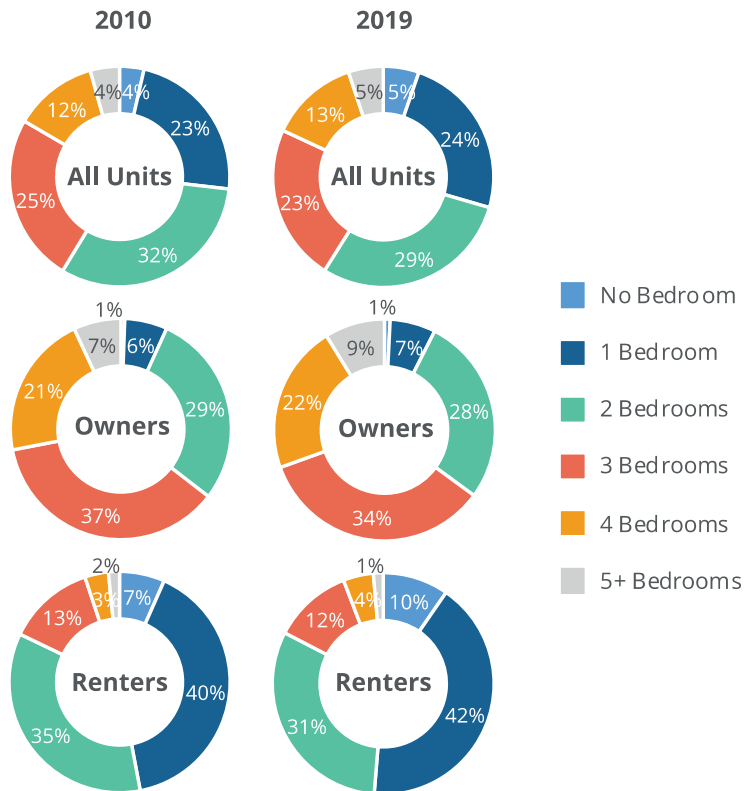
³ The decrease in share of single family homes is not due to a decrease in the number of single family units, it is due to the increase in other housing types.

As shown in Figure 20, more Denver owners live in larger homes than in 2010: 31 percent of owners live in homes with 4 or more bedrooms, compared with 28 percent in 2010.

The opposite is true for renters: with a larger majority 52 percent living in studio- or 1-bedroom units, compared to 47 percent in 2010.

Figure 20.
Distribution of Bedrooms
by Tenure, 2010 and
2019

Source:
 2010 and 2019 1-year ACS, Root
 Policy Research.

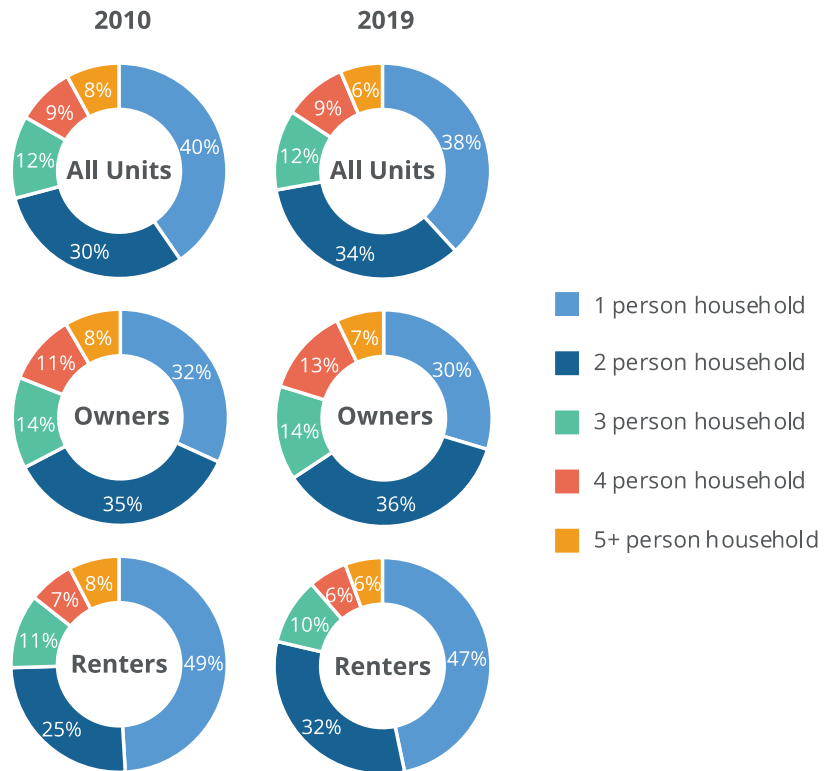


The shifts in bedroom size distribution reflect the changes in household size: owner-households have grown larger while renter households have grown smaller.

As shown in Figure 21, the distribution of household sizes for owners has changed very little since 2010, even for larger households: Owner households with 3 and more people dropped by 3 percentage points; renter households dropped by 4 percentage points.

Figure 21.
Distribution of
Household Size by
Tenure, 2010 and 2019

Source:
 2010 and 2019 1-year ACS, Root
 Policy Research.



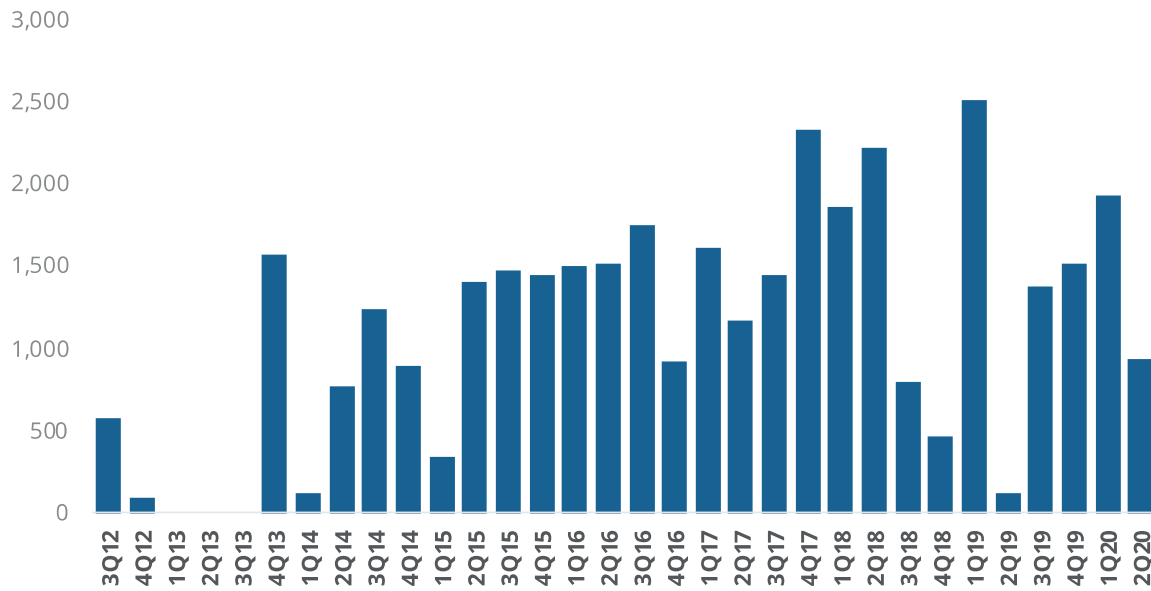
Unit Production

This section provides an overview of recent trends in production of rental and ownership units and their distribution by AMI.

Rental production. Nearly 34,000 rental units were added to the city between 2011 and 2019, with half of those built between 2017 and 2019 (Figure 22 and Figure 23 below). The renter population in the city has fluctuated much more than unit production. Overall, rental supply has kept up with demand.

It is important to note that the figure does not account for rental units that were removed from the inventory—e.g., an investor-owned single family home rental that was sold and is now owner-occupied. The fluctuation in renters, however, does account for such dynamics.

Figure 22.
Apartment Units Added, Q3-2012-Q2-2020



Source: Apartment Association of Metro Denver, Quarterly Rent & Vacancy Survey.

Figure 23.
Apartment Units and Renter Households Added per Year, 2011-2019

	Apartments	Renter Households
2011	512	6,312
2012	1,071	5,303
2013	1,577	-8,060
2014	3,018	12,334
2015	4,671	-877
2016	5,691	690
2017	6,558	2,365
2018	5,339	9,076
2019	5,525	2,379
Total	33,962	29,522

Source: Apartment Association of Metro Denver, Quarterly Rent & Vacancy Survey, ACS 1-year estimates, Root Policy Research.

The vast majority of the units added were priced to serve households earning 80 percent of the AMI and more. The data in Figure 24, which shows new multifamily construction captured by Co-star, show the difference in how income restricted new development and market rate new

development are priced. According to Co-star, only income-restricted new developments are targeting low AMI levels.

Affordable multifamily developments targeted the 31 to 80 percent AMI range across unit sizes. Market rate units only reached below 80 percent AMI levels for studios—and these represented just 6 percent of market rate units built.

By size, for 1-bedroom market rate developments, about 60 percent of units were priced between 81 and 100 percent AMI, with the balance priced for greater than 100 percent AMI. For 2- and 3-bedroom market rate developments, 43 percent were priced at between 81 and 100 percent AMI and 57 percent priced for 101 percent AMI and greater.

Figure 24.
Rent Distribution by AMI (based on 2020 AMIs), New Multifamily Construction, Units Built 2015-2019

	Studio	1 Bedroom	2 Bedrooms	3 Bedrooms	Total
Income Restricted Units					
< 30% AMI	0%	8%	1%	0%	3%
31-50% AMI	0%	36%	49%	54%	42%
51-80% AMI	100%	57%	50%	46%	55%
81%+ AMI	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%
Market Rate Units					
< 30% AMI	0%	0%	0%	0%	0%
31-50% AMI	0%	0%	0%	0%	0%
51-80% AMI	21%	2%	3%	2%	6%
81-100% AMI	57%	59%	40%	41%	47%
101%+ AMI	22%	39%	57%	57%	47%
Total	100%	100%	100%	100%	100%

Note: The 2020 HUD AMI for a two-person household of \$80,000 was used. Rents are assumed to be affordable if they do not exceed 30 percent of household income.

Source: CoStar and Root Policy Research.

Figure 25 shows affordable production tracked by the Department of Housing Stability (HOST), some of which are captured in the CoStar data above. More than 8,000 affordable units were preserved and built between 2010 and 2020 with 5,800 newly constructed units.

Figure 25.
Income Restricted Units Built/ Preserved by Type, 2010-2020

	Acquisition/ Rehab	Covenant Extension	New Construction	Total
2010	124	0	83	207
2011	295	0	678	973
2012	0	0	515	515
2013	370	0	351	721
2014	212	0	458	670
2015	262	0	52	314
2016	316	0	884	1,200
2017	77	308	880	1,265
2018	0	0	374	374
2019	57	0	1,217	1,274
2020	209	0	350	559
Total	1,922	308	5,842	8,072

Source: Denver Affordable Housing Dashboard, Denver Department of Housing Stability.

Figure 26 shows income targeting for all income restricted rental units in the city—not just those built in the past five years. Income restricted units are largely affordable in the 50 to 80 percent AMI range, with around 60 percent of the units clustered in that income range.

Figure 26.
Income Restricted Units by AMI, 2020

	Units Complete	Units Under Construction
0-30% AMI	1,991	82
31-50% AMI	7,766	114
51-60% AMI	10,138	372
61-80% AMI	3,652	361
81-100% AMI	413	82
Total	23,960	1,011

Source: Denver Affordable Housing Dashboard, Denver Department of Housing Stability.

The vast majority of income restricted units, 94 percent (22,544 units) are rental units, and 60 percent (14,303 units) do not include city funding.

Figure 27.
Income Restricted Units by Tenure and Funding Source, 2020

	With City Funding	Without City Funding	Total
Rental	9,356	13,188	22,544
Sale	428	1,115	1,543
Total	9,784	14,303	24,087

Note: Does not include units under construction, includes units affordable at 81-120% AMI.

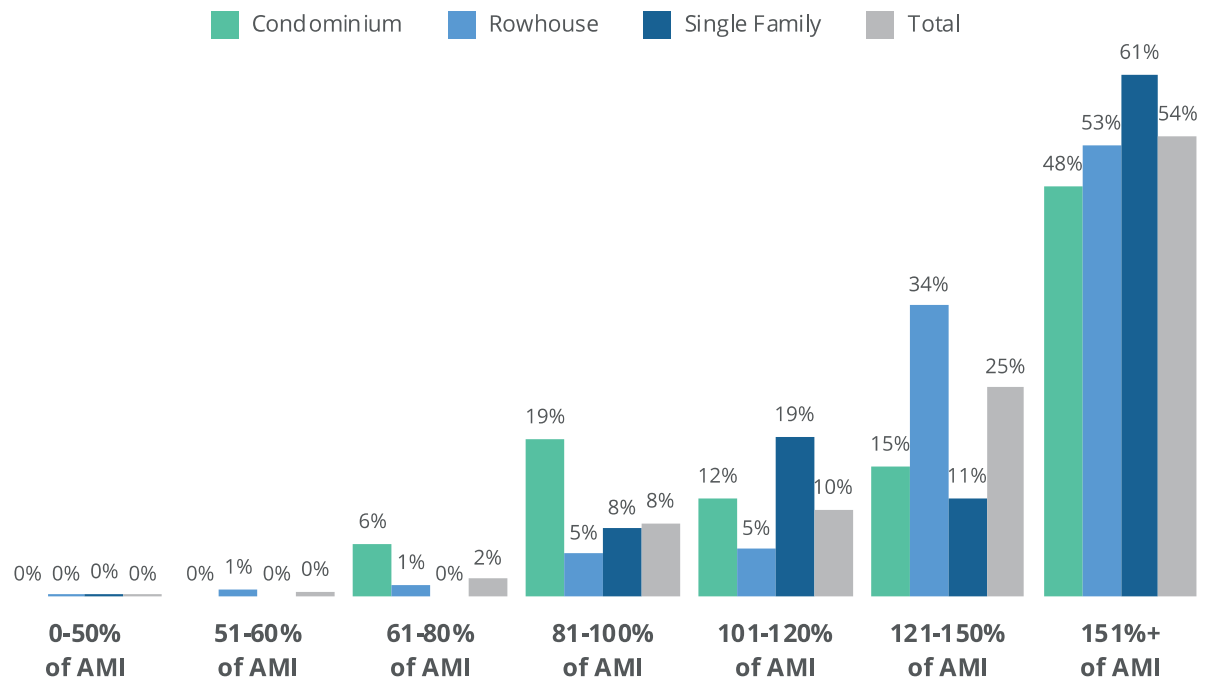
Source: Denver Affordable Housing Dashboard, Denver Department of Housing Stability.

For sale housing production. Figure 28 below shows the AMI distribution of units which were built between 2015 and 2020 and sold between July 2019 and July of 2020 according to data from the Denver Property Taxation and Assessment System.

These data suggest that condominiums and, to a lesser extent, rowhomes offer the best options for low and moderate income households looking to buy in Denver:

- Overall, most of the units (54%) are clustered above 150 percent AMI.
- The vast majority (73%) of single family units are priced at 120 percent AMI and above, with 61 percent at 150 percent AMI and above.
- Rowhomes are also clustered at AMI levels above 120 percent AMI (87%) and 150 percent AMI (53%); however, a good share is priced between 120 and 150 percent (34%).
- While almost half of recently built condominiums (48%) are priced above 150 percent AMI, 25 percent are priced below 100 percent AMI, compared to 7 percent of rowhouses and 8 percent of single family houses.

Figure 28.
Percent Distribution of Units Sold in 2019 and 2020 by AMI and Type (Built Between 2015-2020)



Note: The 2020 HUD AMI for a two-person household of \$80,000 was used.

Source: Denver Property Taxation and Assessment System and Arland, LLC.

Rental Housing Needs

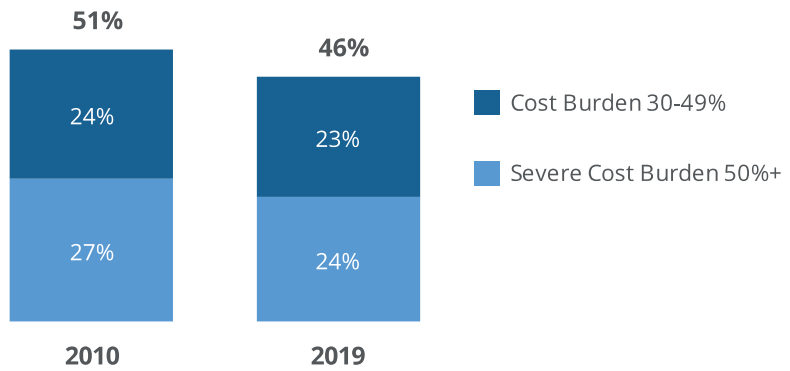
This section presents an overview of the rental market. It includes levels of cost burden for renters as well as current gaps in the rental market and how they have changed since 2010. A housing gaps model compares the supply of housing at various price points to demand, using income as a proxy. This model allows an examination of housing affordability challenges by income range. In addition, this section presents trends in median rents, vacancies, and trends in rental units developed.

Cost burden. A cost burdened household is one in which housing costs—the rent or mortgage payment, plus taxes and utilities—consumes more than 30 percent of monthly gross income. Spending more than 50 percent of income on housing costs is characterized as severe cost burden and puts households at high risk of homelessness; severe cost burden also restricts the extent to which households can contribute to the local economy.

In 2010, 5 in 10 of Denver’s renter households were cost burdened, with 2.5 in 10 severely cost burdened. In 2019, the share of cost burdened renter households decreased slightly, as shown in Figure 29.

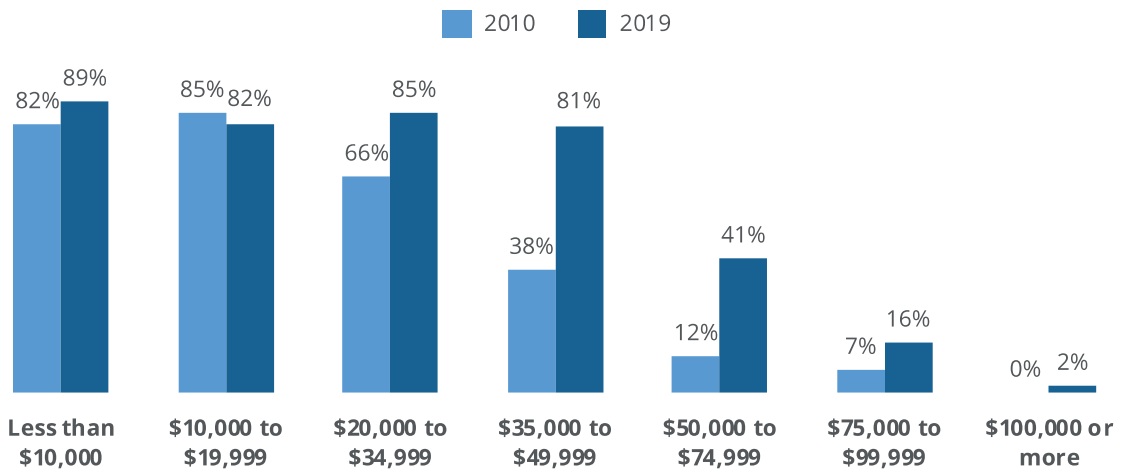
Figure 29.
Cost Burdened Renters,
2010 and 2019

Source:
 2010, and 2019 1-year ACS, Root
 Policy Research.



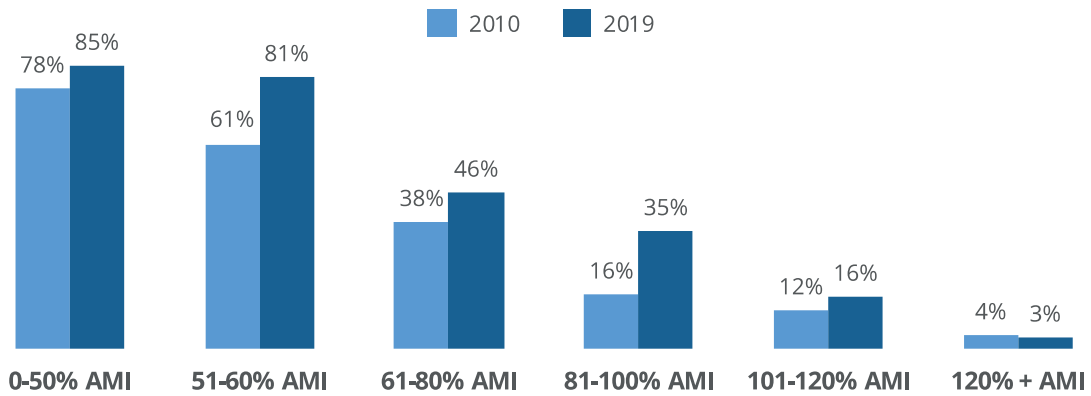
The decrease in cost burden is entirely driven by the influx of high income renters, very few of whom are burdened. As shown in the figures below, by income level, cost burden rose significantly for middle income renters.

Figure 30. Cost Burdened Renters by Income, 2010 and 2019



Source: 2010, and 2019 1-year ACS, Root Policy Research.

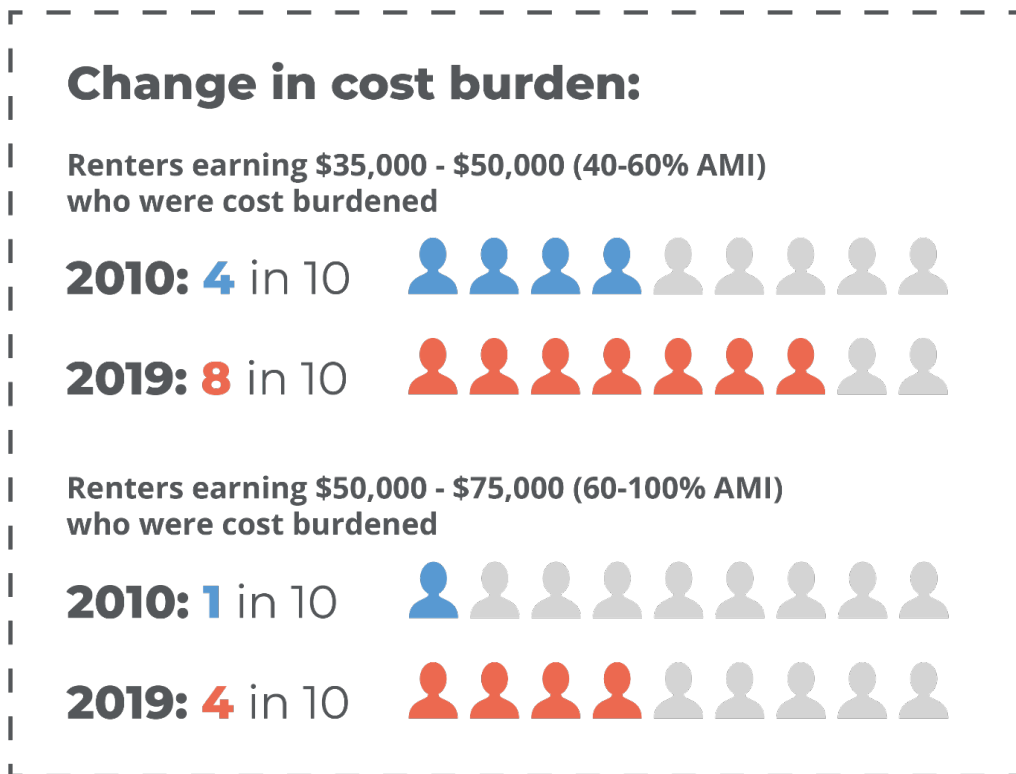
Figure 31.
Cost Burdened Renters by AMI, 2010 and 2019



Note: The 2020 HUD AMI for a two-person household of \$80,000 was used, for 2010 HUD AMI for a two-person household of \$60,800 was used.

Source: 2010, and 2019 1-year ACS, Root Policy Research.

In 2010, 4 in 10 40 to 60 percent AMI renters were rent burdened. By 2019, had risen to 8 in 10. Cost burden also increased for 60 to 100 percent AMI renters, who rarely experienced rent-burden in 2010. Cost burden is common among these renters now.



Rental gaps. A “gaps analysis” compares the supply of housing at various price points to the number of households who can afford such housing. The gaps analysis is an indicator of where the market is supplying housing relative to need. If there are more housing units than

households, the market is “oversupplying” housing at that price range. Conversely, if there are too few units, the market is “undersupplying” housing.

Figure 32 compares the number of renter households in Denver in 2019, their income levels, the maximum monthly rent they could afford without being cost burdened, and the number of units in the market that were affordable to them. The “Gap” column shows the difference between the number of renter households and the number of affordable rental units. Negative numbers indicate a shortage of units at the specific income level; positive units indicate an excess of units.

As shown in Figure 32 below,

- 32 percent of Denver’s renters—nearly 50,000 renters—have incomes below \$35,000.
- 15 percent of Denver’s rental units—24,000 units—have rents affordable for these renters.
- The difference is the gap between renters and rental units. The cumulative gap for households with income below \$35,000 is 25,100 units.
- It is important to note that these numbers include tenant based rental assistance (TBRA) such as the federal Housing Choice Voucher program, which lowers the tenant payment. Vouchers typically support households earning less than 50 percent AMI and, without that subsidy, the rental gap would be larger.

Sixty-percent of the city’s rental units rent between \$875 and \$1,875 per month, with 38 percent in the \$1,250 to \$1,875 per month range. Renters with incomes of less than 50 percent AMI who cannot find affordable rentals occupy these moderately-priced units (and are cost burdened). Moderately-priced units are also occupied by renters at the 61 percent AMI and higher level, who often “rent down” to save money for ownership.

In theory, adding units at both the low and high income ends of the rent distribution would correct the filtering of renters into right-priced units. Yet adding supply on the highest income end will only free up more affordable units for lower income households if high income households choose to move into higher rent units. In sum, higher income renters control price filtering through their choices.

Figure 32.
Gaps in Rental Market, 2019

Income Range	Maximum Affordable Gross Rent	Rental Demand (Current Renters)		Rental Supply (Current Units)		Gap
		Number	Percent	Number	Percent	
Less than \$5,000	\$125	7,256	5%	1,753	1%	(5,503)
\$5,000 to \$9,999	\$250	6,924	4%	3,805	2%	(3,119)
\$10,000 to \$14,999	\$375	8,301	5%	4,087	3%	(4,214)
\$15,000 to \$19,999	\$500	6,240	4%	3,204	2%	(3,036)
\$20,000 to \$24,999	\$625	7,187	5%	3,502	2%	(3,685)
\$25,000 to \$34,999	\$875	13,431	9%	7,888	5%	(5,543)
\$35,000 to \$49,999	\$1,250	20,171	13%	36,076	22%	15,905
\$50,000 to \$74,999	\$1,875	30,202	19%	62,258	38%	32,056
\$75,000+	\$1,875+	57,813	37%	40,404	25%	(17,408)
Total/Low Income Gap		157,524	100%	162,977	100%	(25,100)

Source: 2019 1-year ACS and Root Policy Research.

Figure 33 below presents the same type of analysis but provides income ranges based on percent of AMI. The analysis shows that:

- Around one third (36%) of renter households earn less than 50 percent of AMI per year. These renters need units that cost less than \$1,000 per month to avoid being cost burdened. Twenty-two percent of units in the city rent for less than \$1,000, leaving a gap of 19,796 units for less than 50 percent AMI households. As demonstrated in Figure 3, the gap is largest for 0-30 percent AMI households: 60 percent of rental demand in the 0-50 percent AMI is attributable to 0-30 percent AMI households.
- The private rental market largely serves renters earning between 61 and 100 percent AMI, with rents between \$1,200 and \$2,000 per month: 45 percent of the city’s rental units fall within this range. This compares to 33 percent of renters with incomes between 61 and 100 percent AMI. As Figure 3 demonstrates, the vast majority of this stock was built before 2015. This naturally occurring affordable housing is also most vulnerable to being lost from the stock in periods of high demand.

The “excess” units in this range are rented by lower income renters who are cost burdened, or higher income renters who, as the gaps analysis suggests, could pay more in rents. This is very pronounced for renters with incomes of 151 percent AMI and greater: there are fewer than 6,000 rental units for the nearly 29,000 renters at the 151+ percent AMI level. It is important to note that the shortage of units shows for high income renters suggests

those renters are spending less than 30 percent of their income on housing—perhaps in order to save for a down payment on a home.

Figure 33.
Gaps in Rental Market, by AMI, 2019

Income Range	Maximum Affordable Gross Rent	Rental Demand (Current Renters)		Rental Supply (Current Units)		Gap
		Number	Percent	Number	Percent	
0-50% of AMI	\$1,000	56,063	36%	36,267	22%	(19,796)
51-60% of AMI	\$1,200	10,759	7%	19,241	12%	8,482
61-80% of AMI	\$1,600	19,602	12%	39,675	24%	20,073
81-100% of AMI	\$2,000	17,216	11%	33,715	21%	16,500
101-120% of AMI	\$2,400	12,568	8%	20,233	12%	7,666
121-150% of AMI	\$3,000	12,450	8%	8,573	5%	(3,876)
151%+ of AMI	\$3,000+	28,868	18%	5,274	3%	(23,594)
Total/Low Income Gap		157,524	100%	162,977	100%	(19,796)

Note: The 2020 HUD AMI for a two-person household of \$80,000 was used.

Source: 2019 1-year ACS and Root Policy Research.

Figure 34 shows rental gaps by AMI in both 2010 and 2019 to evaluate changes in market trends and needs. The gap for households with income between 0 and 50 percent AMI has grown significantly since 2010. This is mostly due to the loss of affordable units. The supply of rental units in the 0 and 50 percent AMI range dropped by 21 percentage points, compared to a decline of households of 16 percentage points.

In addition, the surplus of units affordable to households with incomes between 50 to 60 percent of AMI—often referred to as naturally occurring affordable housing, or NOAH—dropped considerably. In the meantime, the surplus of units affordable for households with income between 60 to 120 percent of AMI expanded.

It is important to note that although both market-rate and affordable housing development can contribute to affordability, dedicated affordable units have a higher and much more immediate impact. In places with strong housing markets, the filtering process by which older market-rate housing becomes more affordable as new units are added to the market is slow and can take decades before those units become affordable for lower income households.

Figure 34.
Change in Gaps, by AMI, 2010 and 2019

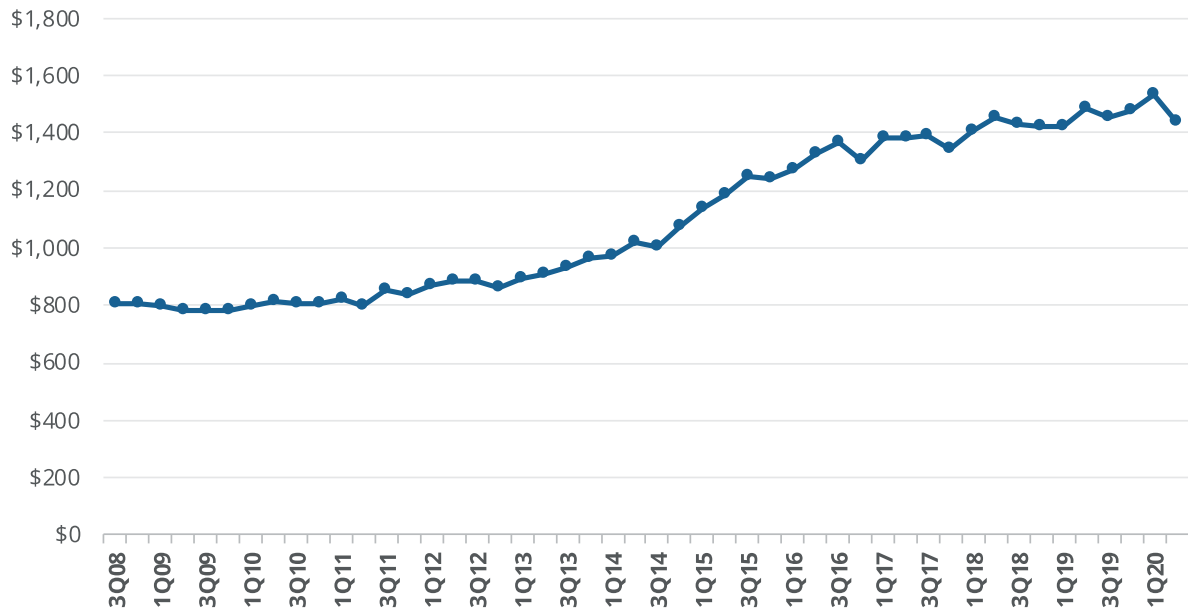
Renter Incomes	Maximum Affordable Gross Rent in 2019	2010					2019					2010-2019 Change		
		Rental Demand (Current Renters)		Rental Supply (Current Units)			Rental Demand (Current Renters)		Rental Supply (Current Units)					
		#	%	#	%	Gap	#	%	#	%	Gap	Renters	Units	Gap
0-50% of AMI	\$1,000	66,812	52%	59,249	43%	(7,563)	56,063	36%	36,267	22%	(19,796)	-10,750	-22,982	(12,233)
51-60% of AMI	\$1,200	10,510	8%	24,413	18%	13,904	10,759	7%	19,241	12%	8,482	249	-5,173	(5,422)
61-80% of AMI	\$1,600	14,639	11%	28,430	21%	13,791	19,602	12%	39,675	24%	20,073	4,963	11,244	6,282
81-100% of AMI	\$2,000	9,181	7%	10,726	8%	1,545	17,216	11%	33,715	21%	16,500	8,034	22,989	14,955
101-120% of AMI	\$2,400	8,495	7%	8,498	6%	3	12,568	8%	20,233	12%	7,666	4,073	11,735	7,662
121-150% of AMI	\$3,000	7,023	5%	5,109	4%	(1,913)	12,450	8%	8,573	5%	(3,876)	5,427	3,464	(1,963)
151%+ of AMI	\$3,000+	11,634	9%	2,001	1%	(9,633)	28,868	18%	5,274	3%	(23,594)	17,234	3,273	(13,961)
Total Gap		128,294	100%	138,427	100%	10,133	157,524	100%	162,977	100%	5,453	29,230	24,550	(4,680)

Note: The 2020 HUD AMI for a two-person household of \$80,000 was used, for 2010 HUD AMI for a two-person household of \$60,800 was used.

Source: 2010 and 2019 1-year ACS and Root Policy Research.

Rental market trends. According to data from the Apartment Association of Metro Denver, median rent in Denver as of Q2-2020 was \$1,438, a slight decrease from the median rent of \$1,484 in Q2-2019. As shown in the figure below, median rent shows a steep increase from 2012 through 2016, and a more moderate rate in increase since 2017. In 2010, the Q2 median rent was \$814. Between Q2-2010 and Q2-2020 the median rent in Denver has increased by 77 percent.

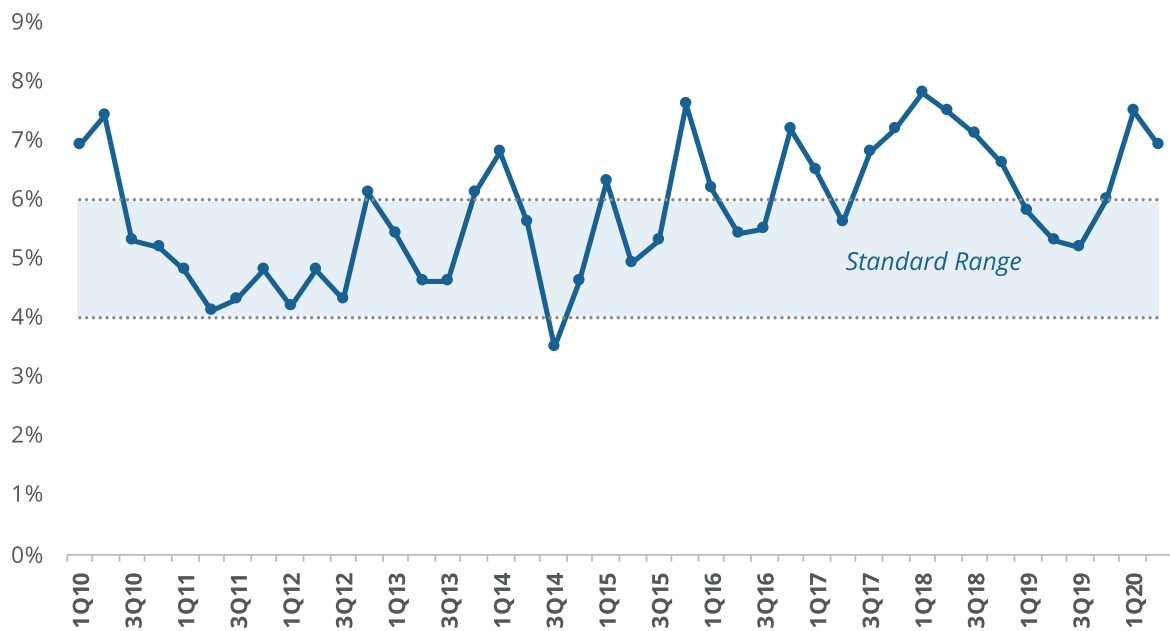
Figure 35.
Median Rent, All Apartments, City of Denver, 2008-2020



Source: Apartment Association of Metro Denver, Quarterly Rent & Vacancy Survey.

Vacancy. There has been wide variation in vacancy rates over the past decade, ranging between 3.5 in the second quarter of 2014, and 7.8 percent in the first quarter of 2018 (Figure 36). The rental vacancy rate for the second quarter of 2020 was 6.9 percent, slightly above what would be considered the standard healthy range for vacancy rates.

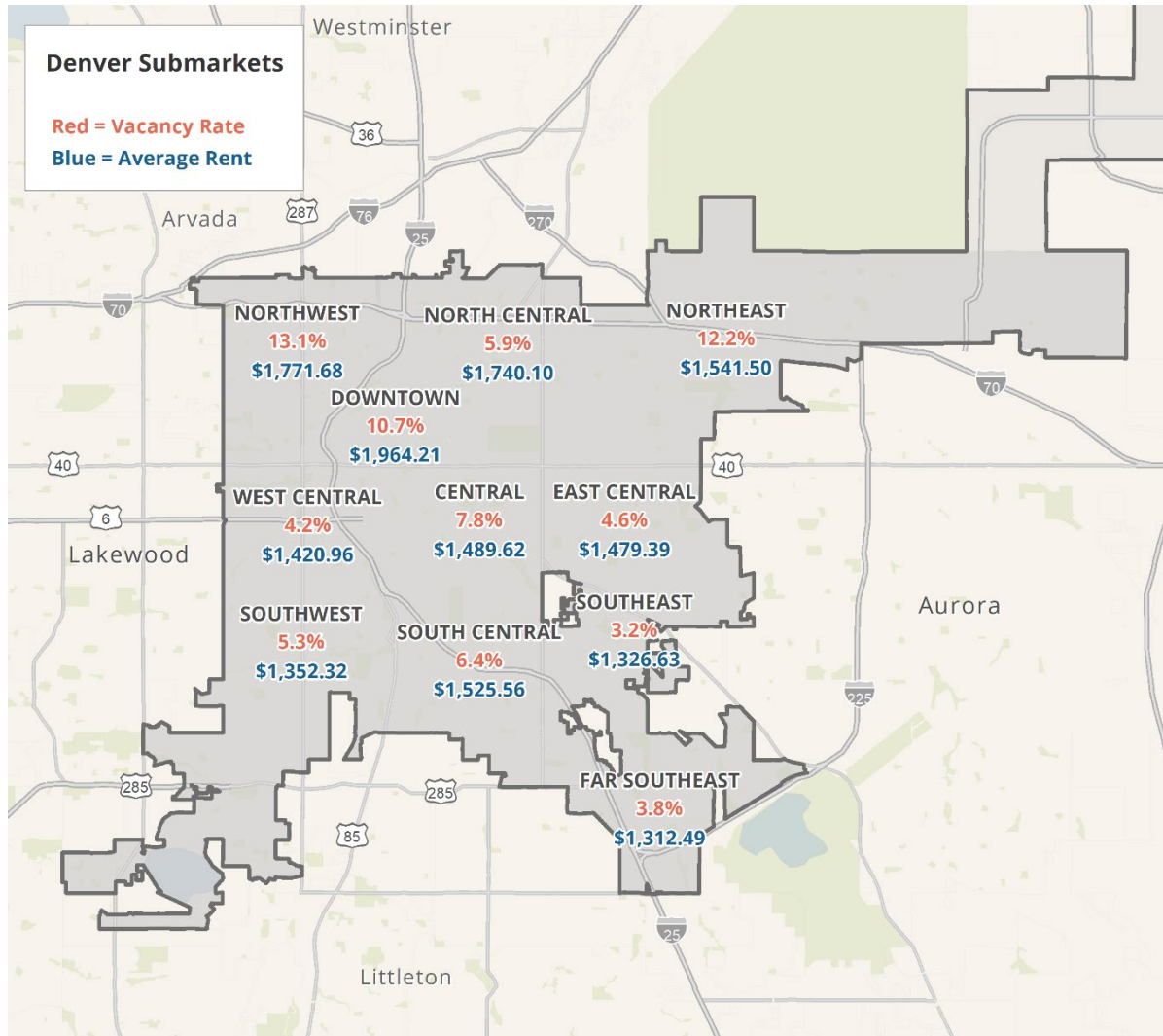
Figure 36.
Rental Vacancy Rates, All Apartments, City of Denver, Q1-2010-Q2-2020



Source: Apartment Association of Metro Denver, Quarterly Rent & Vacancy Survey.

As shown in Figures 37 and 38, vacancy rates are highest in Northeast and Northwest, as well as in Downtown Denver. There was a total of 2,651 vacant units with over 900 of them located in Downtown Denver. The areas with the highest median rents are North Central/City Park, Downtown, and Northwest. The areas with the lowest vacancy rates (Southeast and Far Southeast) have the lowest median rents.

Figure 37.
Vacancy Rates and Average Rent by Submarket, Q2-2020



Source: Apartment Association of Metro Denver, Quarterly Rent & Vacancy Survey.

Figure 38.

Vacancy Rates, Units Vacant, and Median Rents by Submarket, Q2-2020

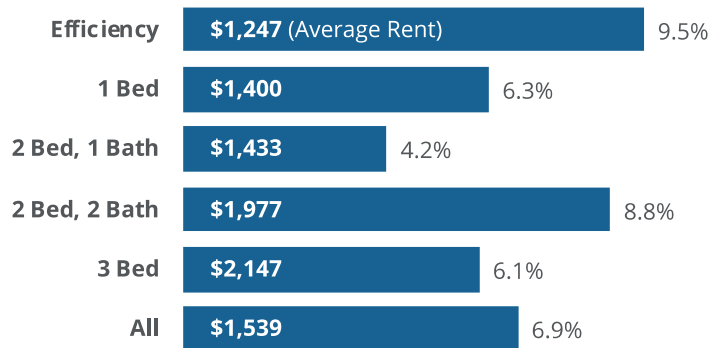
	Vacancy Rate	# Units Vacant	Median Rent
Denver County	6.9%	2,651	\$1,438
Denver – Central/Capitol Hill	7.8%	389	\$1,348
Denver – Downtown	10.7%	912	\$1,750
Denver – East Central/Lowry	4.6%	556	\$1,482
Denver – Far Southeast	3.8%	359	\$1,281
Denver – North Central/City Park	5.9%	20	\$1,931
Denver – Northeast	12.2%	340	\$1,529
Denver – Northwest	13.1%	158	\$1,719
Denver – South Central/Wash Park	6.4%	101	\$1,392
Denver – Southeast	3.2%	198	\$1,270
Denver – Southwest	5.3%	139	\$1,352
Denver – West Central	4.2%	59	\$1,402

Source: Apartment Association of Metro Denver, Quarterly Rent & Vacancy Survey.

As shown below, vacancy rates are lowest for 2 bed, 1 bath apartments (4.2%), and highest for efficiency (9.5%) and 2 bed, 2 bath apartments (8.8%). As expected, the smallest units have the lowest average price.

Figure 39.

Vacancy Rates by Size of Unit, Q2-2020

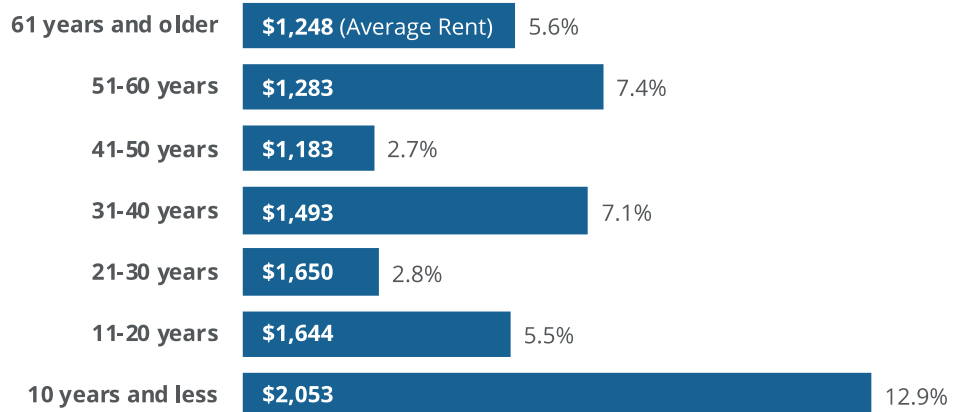


Source:
Apartment Association of Metro Denver, Quarterly Rent & Vacancy Survey.

As shown in Figure 40, vacancy rates are highest for the newest apartments, and lowest for apartments built in the 1970's, which are between 41 and 50 years old, and built in 1990's, which are between 21 and 30 years old; these apartments have vacancy rates below 3 percent.

Figure 40.
Vacancy Rates by
Age of Unit, Q2-
2020

Source:
 Apartment Association of
 Metro Denver, Quarterly
 Rent & Vacancy Survey.



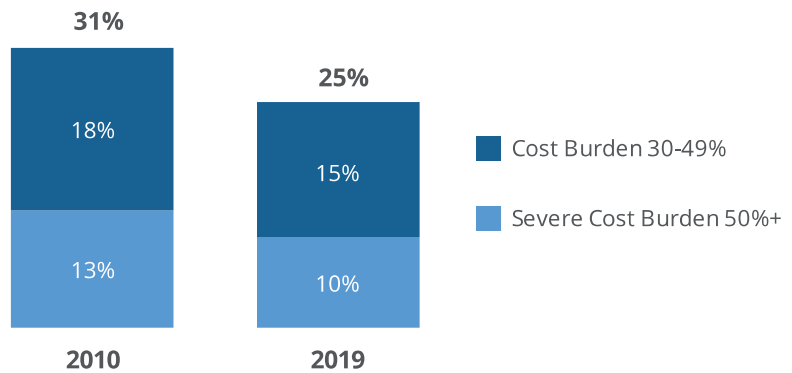
Attainable Homeownership

This section examines trends in homeownership. It includes cost burden levels for owners, as well as a gaps analysis comparing the distribution of potential homebuyers and availability of inventory, and trends in sales prices as well a geographic variation in prices.

Cost burden. As shown in Figure 42, the share of cost burdened owner households has decreased since 2010, declining from 31 to 25 percent. In addition, shares of cost burden and severe cost burden decreased since 2010.

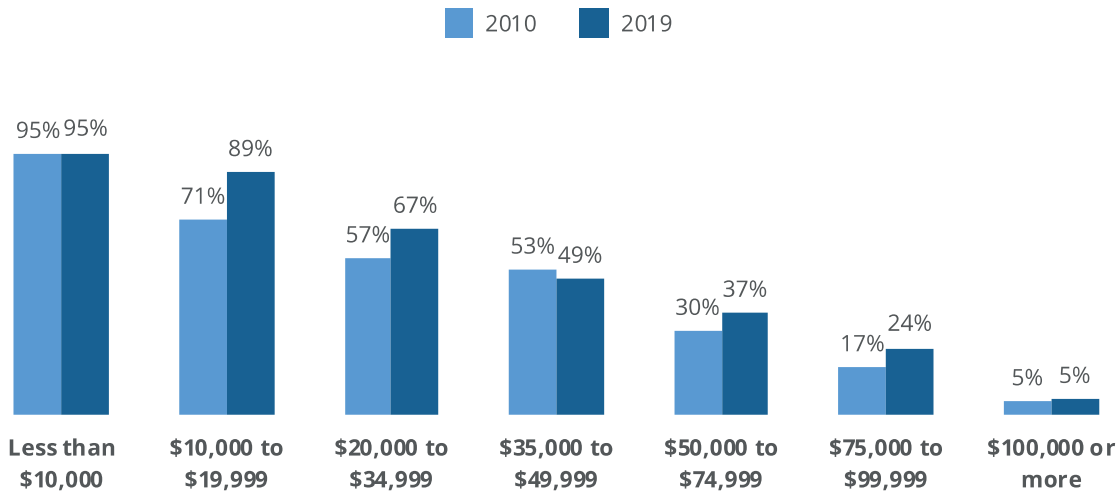
Figure 42.
Cost Burdened Owners,
2010 and 2019

Source:
 2010, and 2019 1-year ACS, Root
 Policy Research.



As shown in Figure 43, owner cost burden has remained stable for households earning less than \$10,000 and households earning more than \$100,000. Cost burden increased for all other income brackets, except for households earning between \$35,000 to \$49,000, which experienced a slight decrease.

Figure 43.
Cost Burdened Owners by Income, 2010 and 2019



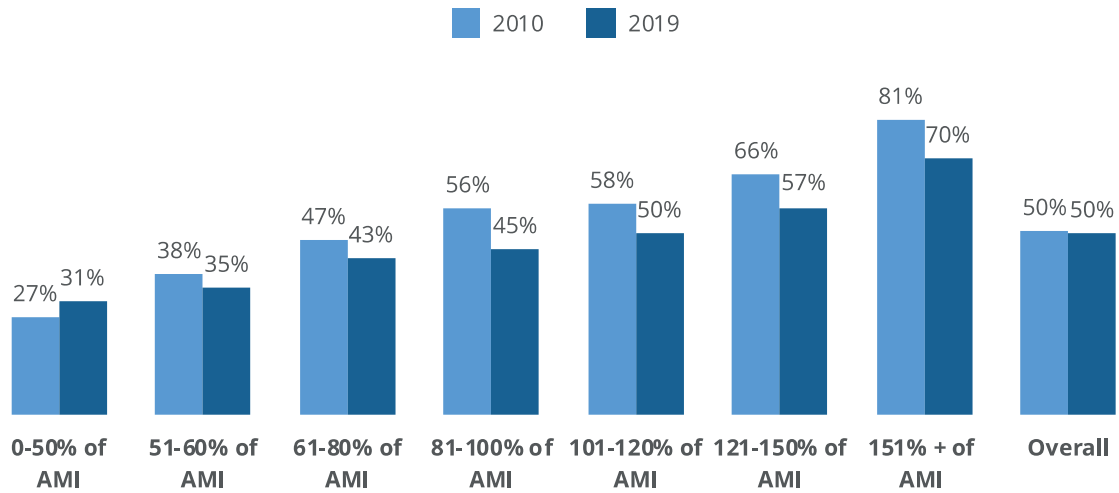
Source: 2010, and 2019 1-year ACS, Root Policy Research.

Ownership trends. As discussed in the previous section, the income distribution of renters has shifted towards higher income renters. This represents a compositional shift in homeownership.

Figure 44 below, shows the homeownership rate by AMI for 2010 and 2019. While the homeownership rate has remained flat since 2010, the composition by AMI has changed significantly. The rate of homeownership has increased from 21 to 31 percent for households with incomes of less than 50 percent of AMI—reflecting the outflow of these renters from Denver— while households with income above 80 percent AMI have experienced a steep drop in the homeownership rate.

Figure 45 further shows the income levels for which homeownership rates have dropped since 2010.

Figure 44.
Homeownership Rates, by AMI, 2010 and 2019



Note: The 2020 HUD AMI for a two-person household of \$80,000 was used, for 2010 HUD AMI for a two-person household of \$60,800 was used.

Source: 2010 and 2019 1-year ACS, and Root Policy Research.

Figure 45.
Homeownership Rates, by Income, 2010 and 2019

Income Range	2010	2019
Less than \$35,000	28%	30%
\$35,000 to \$49,999	47%	35%
\$50,000 to \$74,999	58%	44%
\$75,000 to \$99,999	68%	50%
\$100,000 to \$149,000	79%	59%
\$150,000 or more	87%	76%

Source: 2010 and 2019 ACS 1-year estimates, and Root Policy Research.

Ownership gaps. Similar to the rental gaps analysis, the model in Figure 46 below compares renters, renter income levels, the maximum monthly housing payment they could afford, and the proportion of units in the market that are affordable to them.

The maximum affordable home prices shown in Figure 46 assume a 30-year mortgage with a 10 percent down payment and an interest rate of 2.99 percent. The estimates also incorporate property taxes, insurance, HOA payments and utilities (assumed to collectively account for 30% of the monthly payment).

The “Renter Purchase Gap” column shows the difference between the proportion of renter households and the proportion of homes listed or sold between 2019 and the third quarter of 2020 that were affordable to them. Negative numbers indicate a shortage of units at the specific income level; positive units indicate an excess of units. It is important to note that the gaps column accounts only for units that fall precisely within the affordability range of the household.

The “cumulative gap”—which is a better measure of need—allows buyers to purchase homes that are priced at less than their affordability range. The cumulative gap calculation excludes households earning less than \$25,000 per year as they are not likely to purchase homes without subsidy.

The for-sale gaps analysis shows the Denver market to be affordable for renters earning more than \$100,000 per year with limited products available for \$75,000 to \$100,000 income renters.

It is important to note that home size, condition and housing preferences are not considered in the affordability model. The model also assumes that renters are able to save for a 10 percent down payment (up to \$34,000 for a household earning less than \$75,000 annually).

Figure 46.
Gaps in Ownership, 2019

Income Range	Maximum Affordable Home Price	Potential Demand Among 1 st Time Buyers (Current Renters)		For-Sale Supply (Homes Listed/Sold 2019-2020)		Renter Purchase Gap	Cumulative Gap Excluding <\$25,000
		Number	Percent	Number	Percent		
Less than \$25,000	\$114,289	35,907	23%	29	0%	-23%	N/A
\$25,000 to \$34,999	\$160,006	13,431	9%	395	2%	-7%	-7%
\$35,000 to \$49,999	\$228,583	20,171	13%	1,504	6%	-7%	-14%
\$50,000 to \$74,999	\$342,876	30,202	19%	4,398	18%	-1%	-15%
\$75,000 to \$99,999	\$457,170	19,636	12%	5,767	24%	11%	-4%
\$100,000 to \$149,999	\$685,757	23,271	15%	6,949	28%	14%	10%
\$150,000 or more	\$685,757+	14,905	9%	5,431	22%	13%	23%

Note: Assumes a 30-year mortgage at a rate of 2.99% with a 10% down payment, 30% of monthly payment is used for property taxes, utilities, insurance.

Source: 2019 ACS 1-year estimates, MLS listed or sold homes data in 2019 through Q3-2020, and Root Policy Research.

Figure 47 below shows the gaps model by AMI. The model shows a very small surplus for renters with income between 80 and 150 percent of AMI. If current price trends continue, the distribution will soon show a gap among renters in those AMI levels. Renters in those AMI levels are also the most likely to have homeownership as an option and are also the ones that have seen a steep decrease in homeownership rates.

Figure 47.
Gaps in Ownership, by AMI, 2019

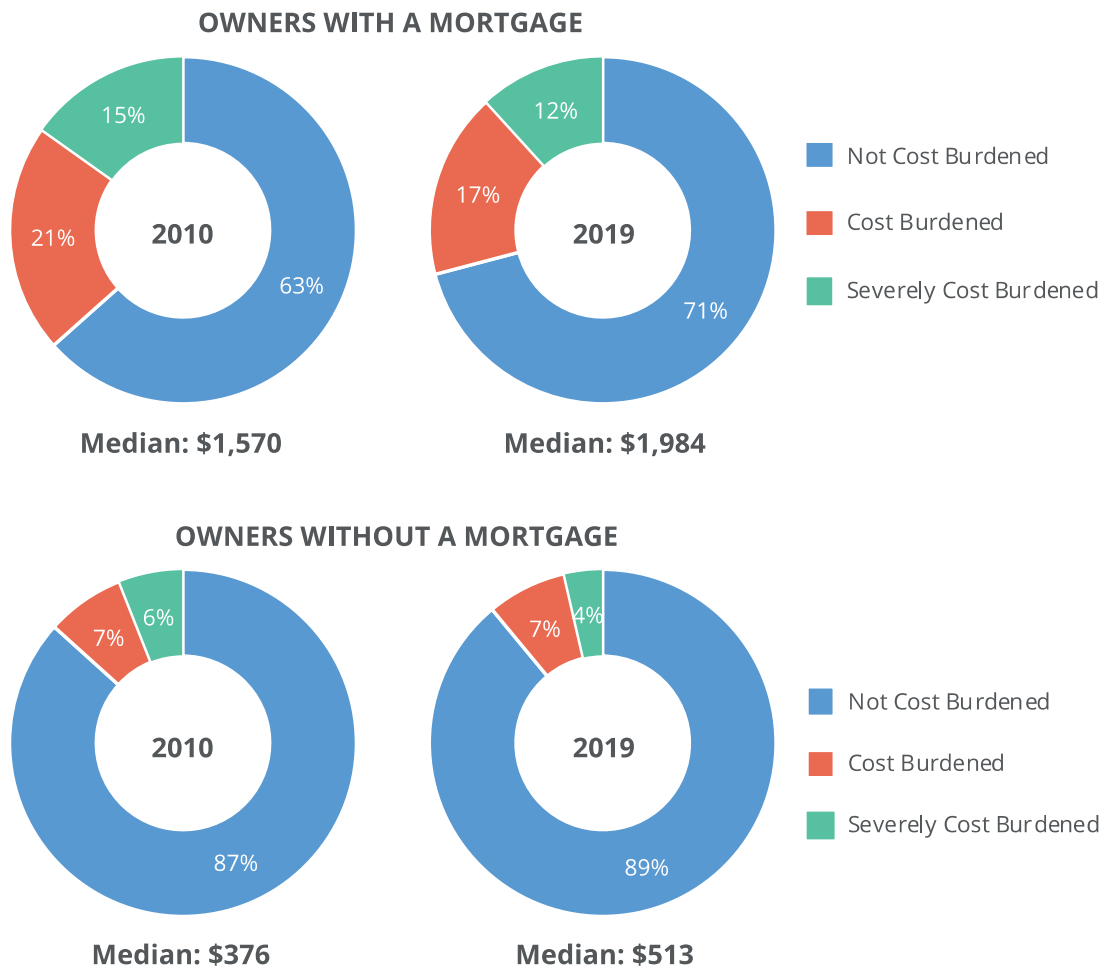
Income Range	Maximum Affordable Home Price	Potential Demand Among 1 st Time Buyers (Current Renters)		For-Sale Supply (Homes Listed/Sold 2019-2020)		Renter Purchase Gap	Cumulative Gap
		Number	Percent	Number	Percent		
0-50% of AMI	\$182,870	56,063	36%	876	4%	-32%	-32%
51-60% of AMI	\$219,444	10,759	7%	791	3%	-4%	-36%
61-80% of AMI	\$292,591	19,602	12%	2,244	9%	-3%	-39%
81-100% of AMI	\$365,739	17,216	11%	3,744	15%	4%	-35%
101-120% of AMI	\$438,887	12,568	8%	3,623	15%	7%	-28%
121-150% of AMI	\$548,609	12,450	8%	4,144	17%	9%	-19%
151%+ of AMI	\$548,609+	28,868	18%	9,051	37%	19%	0%

Note: Assumes a 30-year mortgage at a rate of 2.99% with a 10% down payment, 30% of monthly payment is used for property taxes, utilities, insurance. The 2020 HUD AMI for a two-person household of \$80,000 was used.

Source: 2019 ACS 1-year estimates, MLS listed or sold homes data in 2019 through Q3-2020, and Root Policy Research.

Figure 48 shows owner cost burden as well as the median costs for 2010 and 2019. Cost burden among owners has decreased for both owners with and without a mortgage. The share of cost burdened owners with a mortgage decreased by around 7 percentage points and the share of cost burdened owners without a mortgage decreased by 2 percentage points. A factor contributing to this trend is the influx of high income owners.

Figure 48.
Owner Cost Burden by Mortgage Status, 2010 and 2019



Source: 2010, and 2019 1-year ACS, Root Policy Research.

Price trends. The median home price in Denver has grown at a fast pace in the past decade. According to HOST’s most recent Annual Action Plan, the median price of a single family home in 2018 was \$470,000, and the median price for an attached home (condo or townhome) was \$378,000. According to analysis from MLS data covering the inventory of homes listed or sold from 2019 through the third quarter of 2020, the median price of a single unit detached home in Denver is now \$515,000, representing a 9.5 percent increase since 2018. The median price for a single unit attached home is \$375,000, representing a slight decrease of .8 percent from 2018.

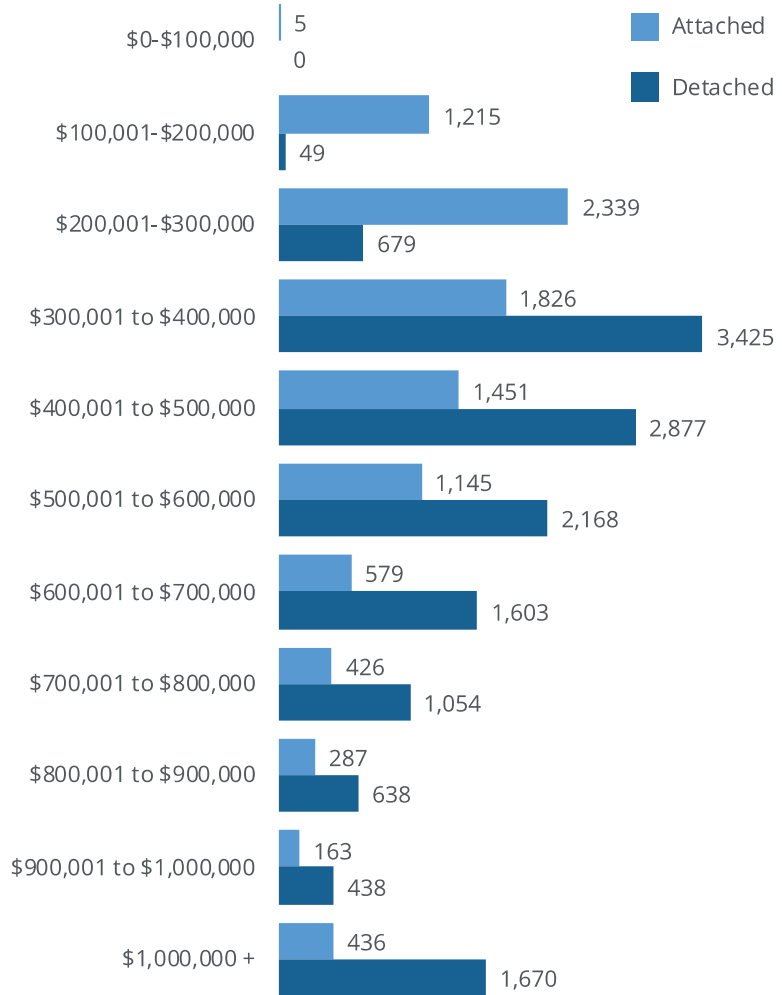
In 2011 there were around 11,300 units sold or for sale, and around 60 percent were detached (7,002 units), and 40 percent attached (4,327 units). According to the latest data there were 24,743 homes sold or listed in 2019 and 2020, with the same split—60 percent detached (14,601 units) and 40 percent attached (14,601).

Figure 49 shows the price distribution of attached and detached homes. The majority of detached homes (69%) are clustered between \$300,000 to \$700,000, while the majority of attached homes (70%) are clustered between \$100,000 to \$500,000. Attached homes provide the vast majority of affordable ownership units for households needing prices below \$300,000.

Figure 49.
Home Price Distribution,
Q1-2019 to Q3-2020

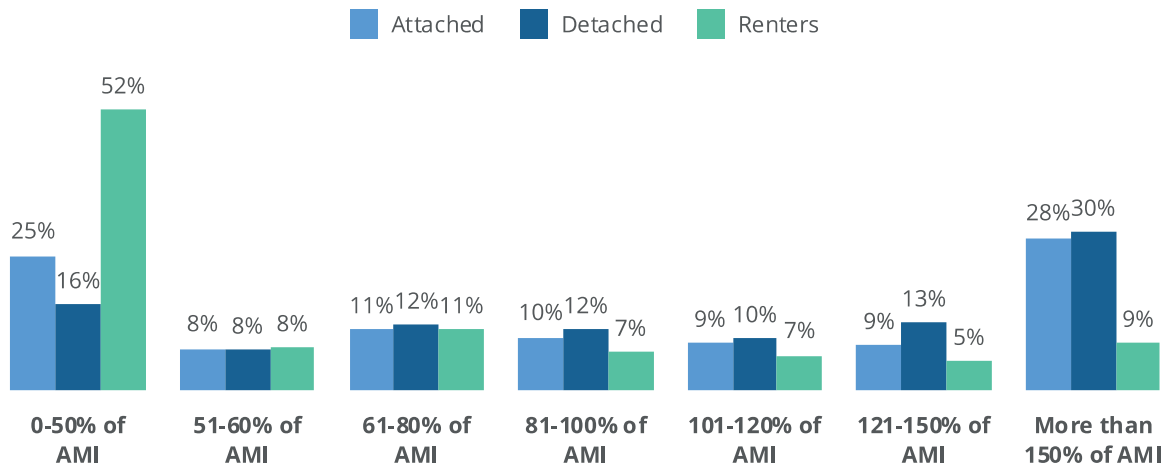
Note:
 For homes sold or listed.

Source:
 MLS, and Root Policy Research.



Figures 50 and 51 show the price distribution by AMI affordability levels for 2010 and 2019. Attached homes have retained a more even price distribution across income levels. Detached homes' price distribution has shifted away from households earning below 80 percent AMI almost completely, with nearly one-half priced affordably to households earning above 150 percent AMI, while only 18 percent of renters are in that income bracket.

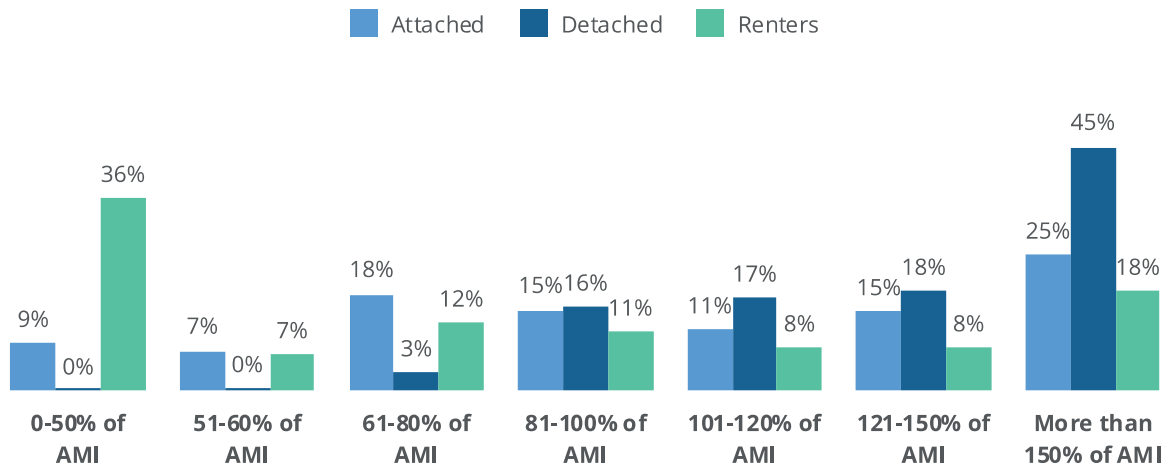
Figure 50.
Home Price Distribution and Renter Distribution, by AMI, 2010



Note: Assumes a 30-year mortgage at a rate of 5.25% with a 10% down payment, 20% of monthly payment is used for property taxes, utilities, insurance. The 2010 HUD AMI for a two-person household of \$60,800 was used.

Source: 2010 ACS 1-year estimates, MLS listed or sold homes data in 2011, and Root Policy Research.

Figure 51.
Home Price Distribution and Renter Distribution, by AMI, 2019



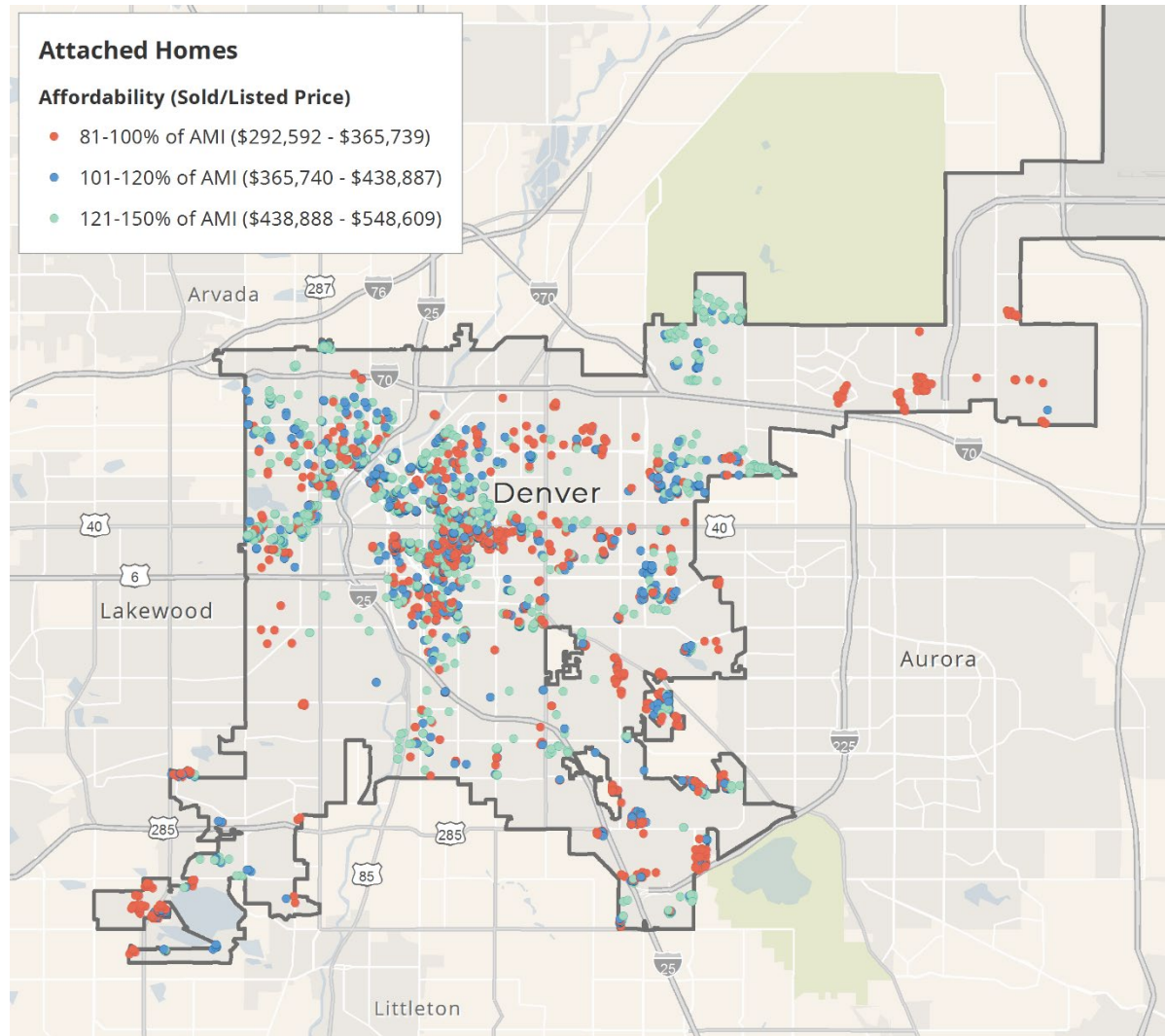
Note: Assumes a 30-year mortgage at a rate of 2.99% with a 10% down payment, 20% of monthly payment is used for property taxes, utilities, insurance. The 2020 HUD AMI for a two-person household of \$80,000 was used.

Source: 2019 ACS 1-year estimates, MLS listed or sold homes data in 2019 through Q3-2020, and Root Policy Research.

By geography. Maps in Figures 52 and 53 show the geographical distribution of listed or sold homes by AMI for attached and detached homes. Attached homes are clustered in the central parts of the city while detached homes are clustered more around the edges. The supply of detached homes priced below 120 percent AMI is clustered in the southwest and northeast

parts of the city, while the supply of attached homes priced below 120 percent AMI is more evenly distributed.

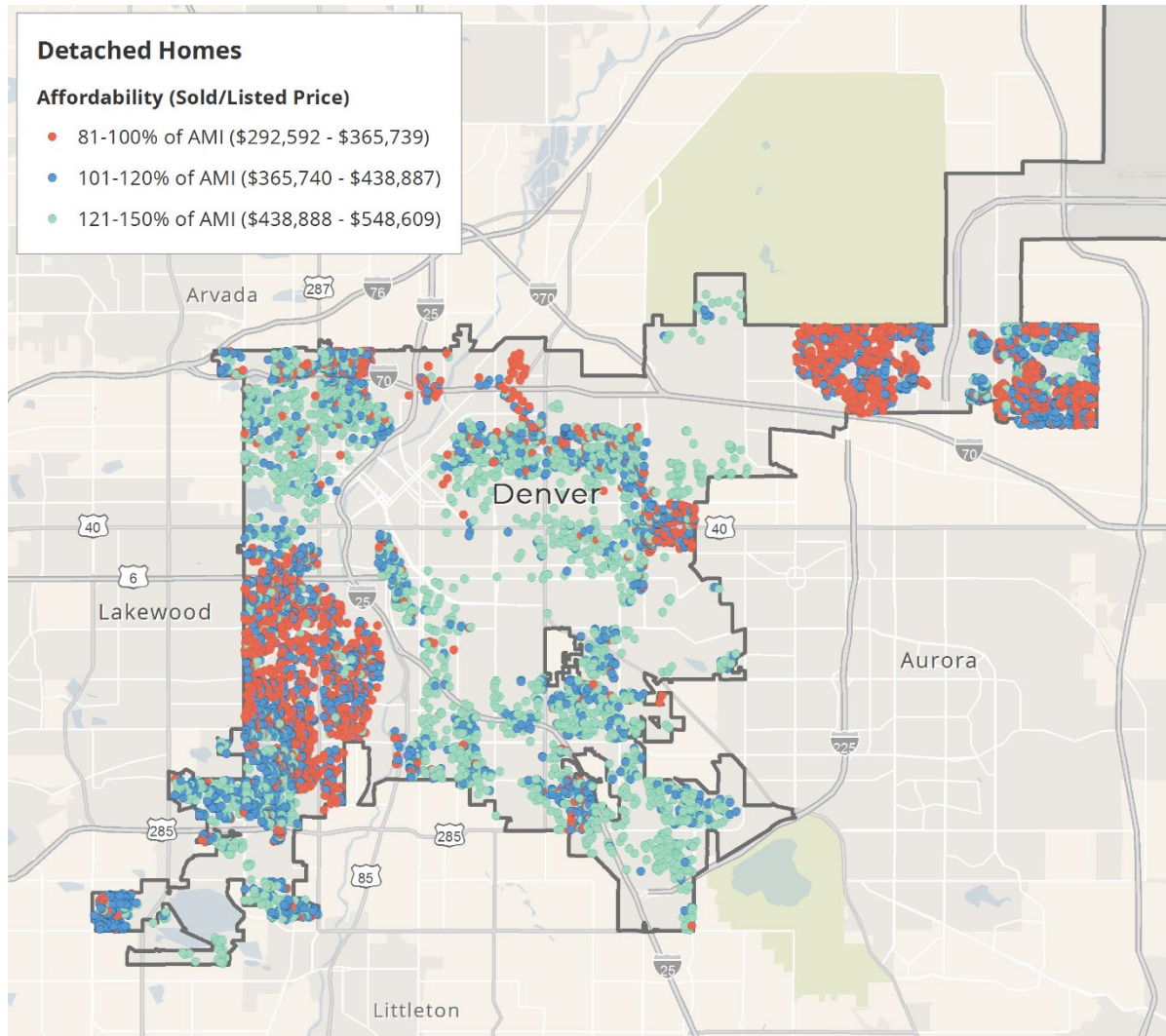
Figure 52.
Home Affordability by AMI, Attached Homes



Note: The 2020 HUD AMI for a two-person household of \$80,000 was used.

Source: MLS data for listed or sold homes in 2019 through Q3-2020, and Root Policy Research.

Figure 53.
Home Affordability by AMI, Detached Homes



Note: The 2020 HUD AMI for a two-person household of \$80,000 was used.

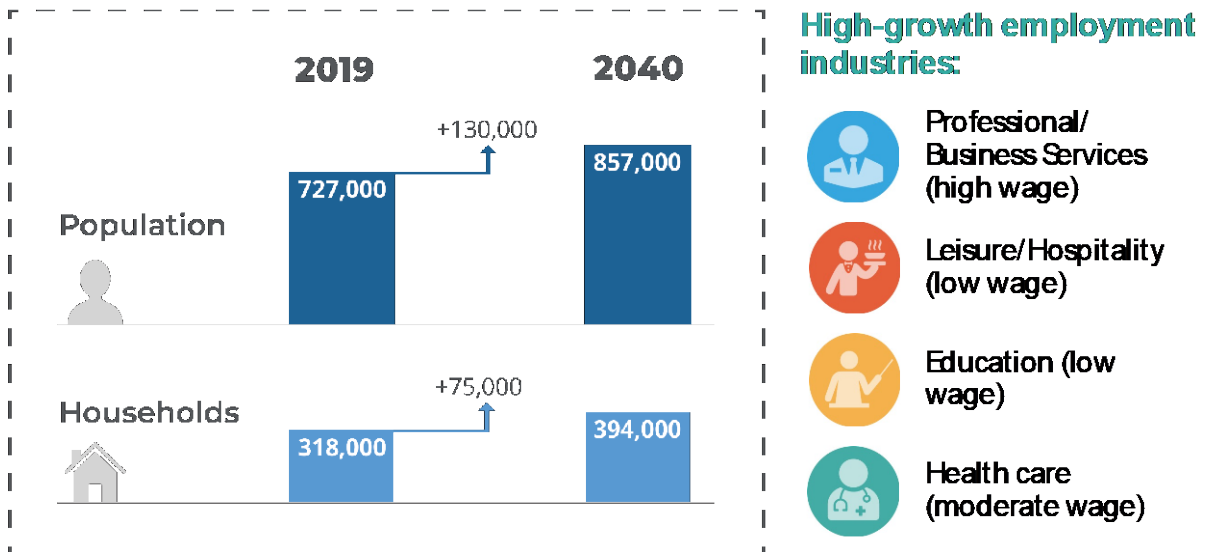
Source: MLS data for listed or sold homes in 2019 through Q3-2020, and Root Policy Research.

Population and Employment Growth and Housing Needs

According to population projections by DRCOG and Blueprint Denver, the city is expected to add between 120,000 and 140,000 residents, or between 70,000 and 80,000 households, by 2040.

Both Blueprint and DRCOG forecast slowing growth through 2040, about half the rate of growth experienced between 2010 and 2019.

Figure 54.
Population and Households Forecast



Source: 2019 ACS 1-year estimates, City of Denver, DRCOG, ArLand, LLC.

Growth, employment and wages. Between 2010 and 2019, Denver was able to maintain about the same distribution of jobs, even as the city changed (Figure 55). The sectors that experienced the fastest growth included construction, followed by leisure and hospitality; natural resources and mining; and professional and business services.

As shown in Figure 56, wages increased across industries, with leisure and hospitality showing the largest gain. The average wage increased by 27 percent since 2010, from around \$60,000 to around \$76,000.

However, even with wage increases, the maximum rent an average-wage worker in leisure and hospitality could afford is \$885, below the 50 percent AMI affordability level, where there is a significant shortage of rental units.

Figure 55.
Average Employment by Sector, 2010 and 2019

	2010		2019		Percent Change 2010-2019
	Number	Percent	Number	Percent	
Goods Producing	39,847	10%	53,969	11%	35%
Natural Resources and Mining	6,446	2%	9,188	2%	43%
Construction	14,080	3%	23,389	5%	66%
Manufacturing	19,321	5%	21,392	4%	11%
Service Providing	366,995	90%	459,756	89%	25%
Trade, Transportation and Utilities	80,084	20%	98,186	19%	23%
Information	13,788	3%	14,143	3%	3%
Financial Activities	34,742	9%	42,491	8%	22%
Professional and Business Services	77,542	19%	109,354	21%	41%
Education and Health Services	85,508	21%	95,482	19%	12%
Leisure and Hospitality	46,284	11%	66,033	13%	43%
Other Services	14,241	4%	18,263	4%	28%
Public Administration	14,806	4%	15,804	3%	7%
Total Employment	406,842	100%	513,725	100%	26%

Source: Bureau of Labor Statistics, Root Policy Research.

The figure below converts average wages by industry to AMI and affordable rents and affordable home prices. Goods-producing industries and about half of service-industries have wages that allow workers to afford the median rent and purchase a home. But many critical industries—education and health care services, tourism-supporting industries—pay wages that fall well below what is needed to rent in Denver, much less buy a home.

Figure 56.

Average Wages by Sector, 2010 and 2019

	Average Annual Wages		Percent Change 2010-2019	Approximate AMI Level	Max Affordable Rent	Max Affordable Home Price
	2010	2019				
Goods Producing	\$68,557	\$85,805	25%	100%	\$2,145	\$392,280
Natural Resources and Mining	\$157,352	\$173,680	10%	200%	\$4,342	\$794,020
Construction	\$54,496	\$72,072	32%	90%	\$1,802	\$329,495
Manufacturing	\$49,245	\$63,075	28%	80%	\$1,577	\$288,365
Service Providing	\$50,140	\$67,092	34%	80%	\$1,677	\$306,729
Trade, Transportation and Utilities	\$49,111	\$68,089	39%	80%	\$1,702	\$311,286
Information	\$101,556	\$116,896	15%	150%	\$2,922	\$534,418
Financial Activities	\$82,571	\$111,633	35%	140%	\$2,791	\$510,357
Professional and Business Services	\$71,246	\$94,911	33%	120%	\$2,373	\$433,907
Education and Health Services	\$51,820	\$57,643	11%	70%	\$1,441	\$263,530
Leisure and Hospitality	\$24,659	\$35,415	44%	40%	\$885	\$161,909
Other Services	\$35,224	\$45,233	28%	60%	\$1,131	\$206,795
Public Administration	\$68,484	\$80,610	18%	100%	\$2,015	\$368,526
Total Employment	\$59,845	\$76,240	27%	100%	\$1,906	\$348,551

Note: The 2020 HUD AMI for a two-person household of \$80,000 was used.

Source: Bureau of Labor Statistics, Root Policy Research.

The share of the city’s workforce that lives in Denver has remained stable since 2010 at 23 percent. More workers are living in Denver, however, and working outside of the city, as shown in Figure 57. Aurora and Lakewood remained the top two origin and destination places for in-commuters.

Figure 57.
Denver Workforce Commuting Patterns, 2010 and 2018

	2010			2019	
	Number	Percent		Number	Percent
Number of workers living or employed in Denver	565,660	100%		714,509	100%
Living and employed in Denver	126,288	22%		164,267	23%
Employed in Denver but living outside	304,842	54%		367,436	51%
Living in Denver but Employed Outside	134,530	24%		182,806	26%
Top Origins for In-Commuters					
Aurora, CO	43,989	8%	Aurora, CO	57,318	8%
Lakewood, CO	20,146	4%	Lakewood, CO	24,572	3%
Centennial, CO	16,892	3%	Thornton, CO	17,647	2%
Thornton, CO	13,691	2%	Arvada, CO	15,445	2%
Arvada, CO	13,626	2%	Centennial, CO	15,125	2%
Top Destinations for Out-Commuters					
Aurora, CO	18,185	3%	Aurora, CO	29,861	4%
Lakewood, CO	14,401	3%	Lakewood, CO	15,560	2%
Greenwood Village, CO	8,266	1%	Greenwood Village, CO	12,165	2%
Centennial, CO	7,622	1%	Centennial, CO	11,160	2%
Englewood, CO	4,724	1%	Westminster, CO	6,084	1%

Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics.

Employment projections. According to employment growth projections by the Colorado Department of Labor and Employment, the Denver MSA is expected to add over 160,000 jobs by 2029, which will represent a 10 percent increase in employment in the area.

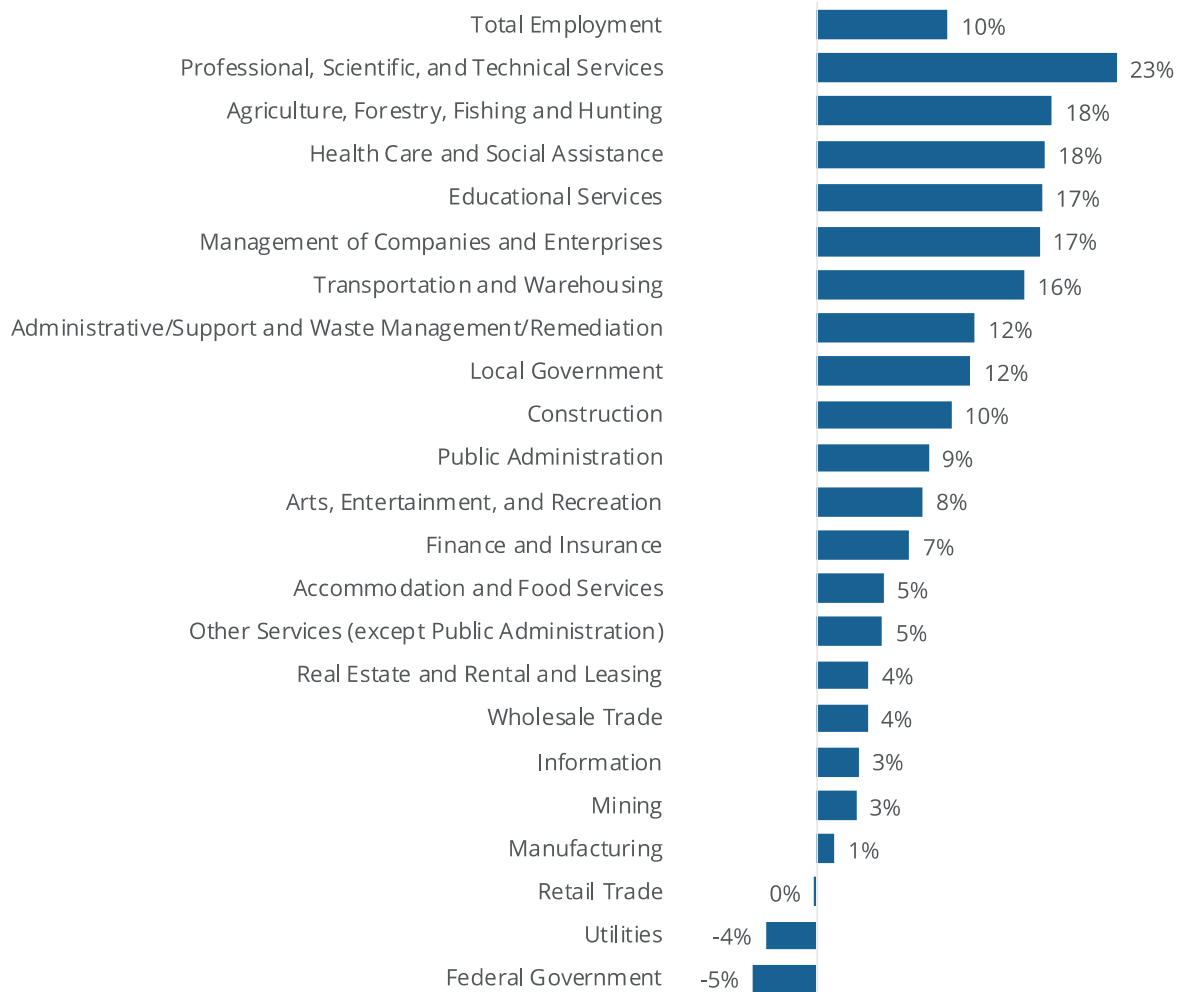
Figure 58 shows the projected employment change by sector.⁴ These forecasts do not anticipate the effect of the COVID-19 pandemic, yet the industries hardest hit by the pandemic—arts, entertainment, recreation; accommodation and food services; and retail trade—have relatively modest growth.

The professional, scientific, and technical services sector is projected to have the largest percent increase in the Denver MSA in the coming decade at 23 percent growth. This growth will attract higher-income households to Denver given that sector’s relatively high wages (\$94,911, as shown in Figure 56 above).

Most of the next highest-growth industries—health care and social services; educational services; and transportation and warehousing—are low to moderate wage industries.

⁴ It is important to note that the Agriculture, Forestry, Fishing, and Hunting industry is relatively small in size and is projected to add 800 jobs in the Denver MSA, which represents a relatively large share of its base.

Figure 58.
Employment Growth Projections by Industry, Denver MSA, 2019-2029



Source: Colorado Department of Labor and Employment.

According to employment forecasts by DEDO, Denver is projected to add around 31,000 jobs by 2025. The professional and business services sector is projected to add the largest share, accounting for around one third of the added jobs (10,000 jobs); followed by the leisure and hospitality sector at 17 percent (5,200 jobs); and the education and health services sector at 16 percent (5,000 jobs). It should be noted that the accuracy of forecasts—especially in the leisure and hospitality sector—will depend on the trajectory of the economic recovery from the COVID-19 pandemic. In addition, while the business services sector and the education and health services sector have high and moderate wages, the leisure and hospitality sector has the lowest average annual wages in the city (\$35,415).

In sum, Denver’s affordable housing challenges will not be solved by employment growth and wage increases alone. Two of the fastest growing industries between now and 2040—Health Care and Social Assistance and Educational Services—pay wages in the 50 to 80 percent AMI

range. Accommodating the affordable housing needs of these new workers will be critical to ensure that workers in these critical industries can both work and live in Denver.

Methodology and Definitions

Methodology. This study uses 2019 ACS data, which were the latest available at the time the analysis was conducted. It presents comparisons to 2010 data when relevant. It also draws on current sources of data for housing prices.

ACS data are supplemented with data from other sources, including:

- Apartment Association of Metro Denver, Quarterly Rent & Vacancy Survey;
- Bureau of Labor Statistics (BLS);
- Blueprint Denver;
- Co-star market data on multifamily development and pricing;
- Colorado Department of Labor and Employment;
- HOST data on assisted housing;
- Denver Economic Development and Opportunity (DEDO);
- Denver Property Taxation and Assessment System; and
- Multiple Listing Service (MLS).

Definitions. Definitions of common terms used throughout this document are:

Area Median Income (AMI)— The median income for a region as defined each year by the U.S. Department of Housing and Urban Development (HUD). Throughout the study, relevant data are presented by Area Median Income (AMI) brackets. For consistency purposes, AMI income brackets used in this study follow the 2020 income limits for a 2-person household, as maintained by the Denver Department of Housing Stability (HOST), as determined by HUD.⁵ These are calculated at the Denver-Aurora-Lakewood MSA level.⁶ The 2-person Denver Area Median Income for 2020 is \$80,000. Throughout this study, data for the number of households at each AMI range is estimated using the closest ACS income brackets.

The figure below presents the current AMI thresholds by household size used to determine eligibility levels for affordable housing.

⁵ A two-person household was chosen because it most closely reflects the average household size in Denver, which is was 2.24 as of 2019.

⁶ The Denver-Aurora-Lakewood MSA median income is slightly higher than Denver's median income according to the ACS. Counties included in the Denver-Aurora-Lakewood MSA calculation are: Adams, Arapahoe, Broomfield, Clear Creek, Denver, Douglas, Elbert, Gilpin, Jefferson, and Park.

Denver Income Limits by AMI, 2020

	1 Person	2 Person	3 Person	4 Person	5 Person
20% AMI	\$14,000	\$16,000	\$18,000	\$20,000	\$21,600
30% AMI	\$21,000	\$24,000	\$27,000	\$30,000	\$32,400
40% AMI	\$28,000	\$32,000	\$36,000	\$40,000	\$43,200
45% AMI	\$31,500	\$36,000	\$40,500	\$45,000	\$48,600
50% AMI	\$35,000	\$40,000	\$45,000	\$50,000	\$54,000
55% AMI	\$38,500	\$44,000	\$49,500	\$55,000	\$59,400
60% AMI	\$42,000	\$48,000	\$54,000	\$60,000	\$64,800
70% AMI	\$49,000	\$56,000	\$63,000	\$70,000	\$75,600
80% AMI	\$54,950	\$62,800	\$70,640	\$78,500	\$84,800
100% AMI	\$70,000	\$80,000	\$90,000	\$100,000	\$108,000
120% AMI	\$84,000	\$96,000	\$108,000	\$120,000	\$129,600

Source: https://www.chfainfo.com/arh/asset/Documents/2020_income_limits.pdf.

Cost burden— A cost burdened household is one in which housing costs—the rent or mortgage payment, plus taxes and utilities—consume more than 30 percent of monthly gross income.

Severe cost burden— A severely cost burdened household is one in which housing costs consume more than 50 percent of monthly gross income.

Affordability/affordable— Housing costs are “affordable” if they do not exceed 30 percent of a household’s gross monthly income. The figure below shows affordable rents and home prices by AMI level.

Maximum Affordable Rent and Home Price by AMI

Percent of AMI	Maximum Affordable Gross Rent	Maximum Affordable Home Price
0-50%	\$1,000	\$182,870
51-60%	\$1,200	\$219,444
61-80%	\$1,600	\$292,591
81-100%	\$2,000	\$365,739
101-120%	\$2,400	\$438,887
121-150%	\$3,000	\$548,609

Note: The 2020 HUD AMI for a two-person household of \$80,000 was used. Assumes a 30-year mortgage at a rate of 2.99% with a 10% down payment, 30% of monthly payment is used for property taxes, utilities, insurance.

Source: HUD, Root Policy Research.