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Colorado's Housing Affordability Report:

The Impact of Home Prices, Interest Rates,
and Property Taxes

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ABOUT THE AUTHOR



Steven Byers, Ph.D. is the Senior Economist with Common Sense Institute. Steven's experience as an economist spans twenty-three years, including work at federal regulatory agencies (SEC, CFTC, PCAOB) and quantitative economic analysis supporting international trade litigation cases brought before the U.S. International Trade Commission.

ABOUT COMMON SENSE INSTITUTE

Common Sense Institute (CSI) is a non-partisan research organization dedicated to the protection and promotion of our economy. As a leading voice for free enterprise, CSI's mission is to examine the fiscal impacts of policies laws and educate voters on issues that impact their lives.

CSI's founders were a concerned group of business and community leaders who observed that divisive partisanship was overwhelming policy making and believed that sound economic analysis could help people make fact-based and *common sense* decisions.

CSI employs rigorous research techniques and dynamic modeling to evaluate the potential impact of these measures on the Colorado economy and individual opportunity.

TEAMS & FELLOWS STATEMENT

CSI is committed to independent, in-depth research that examines the impacts of policies, initiatives, and proposed laws so that Coloradans are educated and informed on issues impacting their lives. CSI's commitment to institutional independence is rooted in the individual independence of our researchers, economists, and fellows. At the core of CSI's mission is a belief in the power of the free enterprise system. CSI's work explores ideas that protect and promote jobs and the economy, and the CSI team and fellows take part in this pursuit with academic freedom. The CSI team's work is informed by data-driven research and evidence.

The views and opinions of fellows do not reflect the institutional views of CSI. CSI operates independently of any political party and does not take positions.

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Colorado's Housing Affordability Report:

The Impact of Home Prices, Interest Rates, and Property Taxes

The cost of housing in Colorado has made it a more expensive place to live. Significant fluctuations in demand during the pandemic, coupled with a growing supply shortage due to lagging development, have created the conditions for a tight housing market. As a result, home prices have increased dramatically. Coupled with higher home prices is large increases in property taxes beginning in 2023 (payable in 2024). There are diverging views on the direction of mortgage rates going forward as the Federal Reserve tackles inflation. Higher/lower mortgage rates would raise/lower the cost of new home purchases, undoubtedly impacting demand for housing. While this may provide some relief in terms of availability, permitting for new housing units is tapering off and actual home completions will likely decline as builders gauge the impact of a slowing economy on housing demand. For Colorado to remain competitive with other states by improving housing affordability, the supply of homes must increase to both close the existing housing shortfall and meet future demand.

This report analyzes trends in housing affordability in seven counties in the Denver Metro area and five other large counties in Colorado. This study encompasses the period 2000 to 2023. Data sources used and most recent availability include: the American Community Survey (2021), the National Association of Homebuilders (2020), U.S. Department of Housing and Urban Development (March 2023), Zillow (November 2022), the Wall Street Journal/Realtor.com Emerging Housing Markets Index, and the Colorado State Demography Office (2022). The housing deficit/surplus in 2022 is estimated using forecasts of population and average household sizes. It is important to note that the housing unit deficit/surplus estimates will change with each new U.S. Census data release.

Key Findings

- **Due to elevated housing prices and rising interest rates, the affordability of purchasing a home in the Denver Metro area remains near record lows.** In just the past 11 years the cost (purchase price plus mortgage interest) of purchasing an average priced home has increased by 112%, with a large part of that increase occurring over the last three years. (Figure 1 & 2).
- **Since 2013, affordability has decreased by:**

a. 126% in Adams County	g. 114% in Jefferson County
b. 113% in Arapahoe County	h. 108% in El Paso County
c. 110% in Boulder County	i. 112% in Larimer County
d. 100% in Broomfield County	j. 102% in Mesa County
e. 127% in Denver County	k. 127% in Pueblo County
f. 99% in Douglas County	l. 141% in Weld County.
- **Household incomes have not kept pace with rising housing costs.** Between January 2013 and February 2023, the average hourly wage increased 38%, from \$26.04 to \$38.59. However, due to the rapidly increasing cost of housing, the number of hours of work required to cover the median mortgage payment increased from 46 hours to 98 hours, a 113% increase. The number of required hours of work jumped 25 hours, or 34% alone, from Feb 2022 to Feb 2023. (**Figure 7**)
- **Increased 2023 property taxes (paid in 2024) for Colorado's most populous counties will increase 35% on average and require an additional 26 hours per year on average to pay for the increase for a total of 99 hours per year. For Colorado's most populous counties the total number of hours required to pay for residential property taxes in 2024 (at 2023 average wage rates) are as follows:**

a. Adams – 109 hours, a 34% increase	g. El Paso – 76 hours, a 40% increase
b. Arapahoe – 102 hours, a 38% increase	h. Larimer – 107 hours, a 36% increase
c. Boulder – 128 hours, a 31% increase	i. Mesa – 63 hours, a 35% increase
d. Denver – 84 hours, a 31% increase	j. Pueblo – 66 hours, a 33% increase
e. Douglas – 150 hours, a 44% increase	k. Weld – 98 hours, a 33% increase.
f. Jefferson – 104 hours, a 33% increase	

- **Based on permit data through March 2023, the Denver Metro area is not on track to issue enough housing permits to close the supply gap and meet projected demand by 2028.** The region is currently on track to issue 21,120 permits in 2023, below the needed annual range of 26,000 to 37,600. Permitting for new housing in 2022 started off well but tapered off as home builders reassess the demand for housing in a higher interest rate environment. To avoid a similar collapse in new home building that followed the last recession, permitting must remain at elevated levels for the next several years.
- **While the Denver Metro area is not on track to issue enough permits in 2023, two counties within the Metro are.** Five of the seven counties are not on track to issue enough permits in 2023 including Adams, Arapahoe, Boulder, Broomfield, and Jefferson County. Denver and Douglas counties are currently projected to issue enough permits.
- **The Denver Metro area issues the majority of housing unit permits for multi-family structures.** In 2022, 41.8% of housing unit permits were for single-family homes and 58.2% were for multi-family. In 2023 through March, 38.7% of housing permits are for single family homes and 61.3% are for multi-family homes.
- **Homebuilder confidence has declined 44.4% since a recent high in November 2020.** The National Association of Home Builders/Wells Fargo Housing Market Index for the Western Region is now 41 having rebounded beginning in January 2023 after falling for 9 straight months. Lower homebuilder confidence is indicating a decrease in the rate of new housing creation going forward and is likely to result in insufficient new housing to close the deficit and meet new demand.

Declining Affordability as Measured by the Homebuyer Misery Index

The “Homebuyer Misery Index”, as developed by [Common Sense Institute](#)ⁱ, captures the impact of housing prices and mortgage rates on the affordability of purchasing a new home, see **Figure 1**. The Homebuyer Misery indices are based on 30-year mortgage rates and the Zillow home prices.

The mortgage rates are converted into an index with 2000 as its base year. The mortgage rate index is then added to the Zillow price index and normalized. The following graph shows the Denver Homebuyer Index, the Colorado Homebuyers Misery Index, and the U.S. Homebuyers Misery Index. The Denver Homebuyer Misery Index is lower than the Colorado Homebuyer Misery Index after 2013 and above the U.S. Homebuyer Misery Index after 2019. The substantial increase from 2012 to the end of 2020 was primarily a function of home prices increasing. Beginning in 2021, home prices in Denver went up dramatically and mortgage rates more than doubled by November 2022, consequently the cost to purchase an average priced home went up by 142% from 2012 to 2022. Since November 2022, the misery indices have declined as home prices and mortgage rates have fallen.

Homebuyer Misery Index

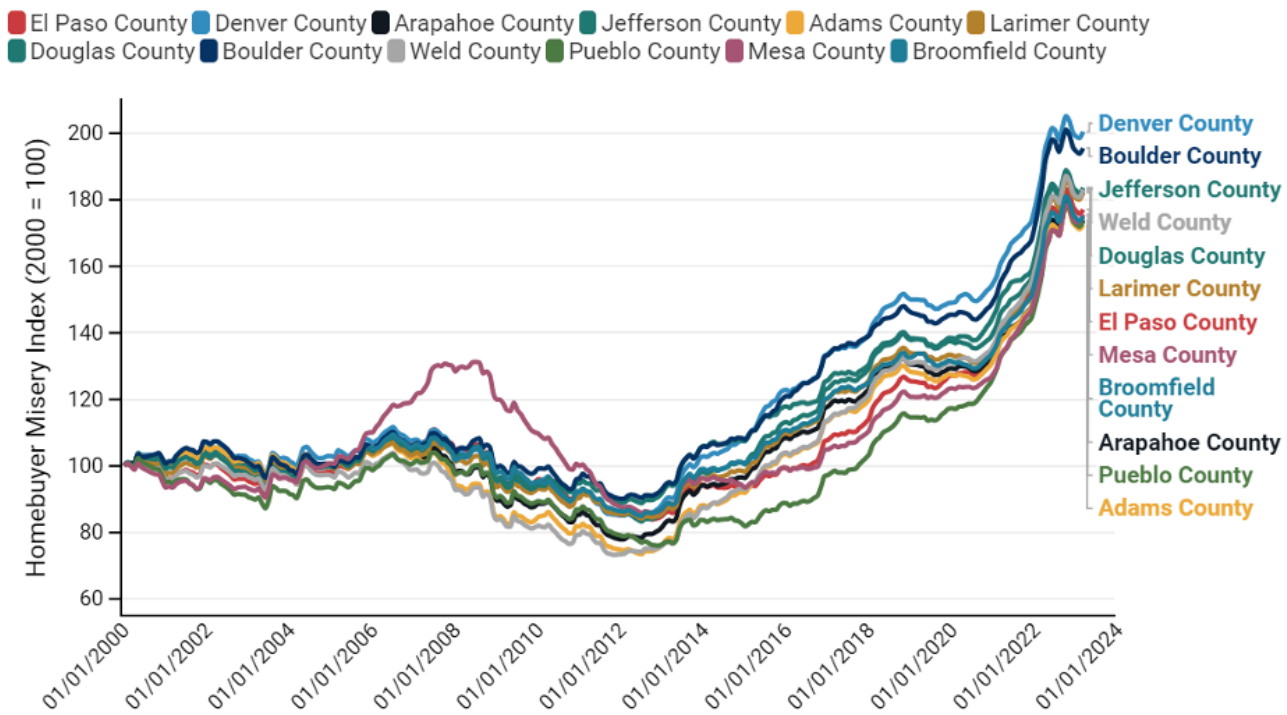


Figure 1

In the counties under consideration, home affordability has declined since January 2013. **Figure 2** shows the decline in affordability for each county for 11 years starting in January 2013 to March 2023. Weld County has experienced the largest decrease in affordability with a 141% decrease since January 2103. Denver and Pueblo are tied for the second largest decrease in affordability with a 127% decrease over the same time period. Douglas County saw the lowest decrease in affordability with a 99% increase since January 2013.

Percent Change in Housing Unaffordability											
% Change as of March 2023 Since:	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan	18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan
Adams	126%	96%	88%	67%	52%	44%	35%	35%	31%	14%	0%
Arapahoe	113%	85%	81%	60%	48%	41%	33%	35%	30%	15%	1%
Boulder	110%	85%	81%	62%	47%	40%	34%	34%	31%	14%	1%
Broomfield	100%	77%	74%	58%	45%	40%	32%	33%	30%	13%	0%
Denver	127%	95%	87%	63%	50%	43%	34%	35%	29%	13%	1%
Douglas	99%	72%	70%	55%	45%	40%	32%	33%	30%	14%	1%
El Paso	108%	88%	91%	78%	64%	55%	41%	39%	33%	13%	0%
Jefferson	114%	87%	82%	62%	49%	42%	33%	33%	27%	13%	1%
Larimer	112%	89%	85%	66%	52%	45%	36%	37%	34%	15%	1%
Mesa	102%	82%	88%	77%	67%	59%	45%	42%	37%	17%	1%
Pueblo	127%	107%	112%	96%	78%	67%	52%	48%	37%	17%	1%
Weld	141%	109%	97%	76%	61%	51%	40%	40%	34%	15%	1%

Figure 2

Potential for Future Home Price Appreciation

The Wall Street Journal and Realtors.com began producing their Emerging Housing Markets Index in spring 2021 and has now published 6 quarterly estimates. The index identifies the top metro areas for home buyers seeking an appreciating housing market, strong local economies, and appealing lifestyle amenities. Three hundred of the most populous core-based statistical areas as measured by the U.S. Census Bureau are evaluated using two main areas: real-estate markets (50%) and economic health (50%). It utilizes 11 key indicators that are weighted and summed to create a single measure: real-estate supply (16.6%), real-estate demand (16.6%), medium home listing price trend (16.6%), unemployment (6.25%), wages (6.25%), regional price parities (6.25%), amenities (6.25%), small businesses (6.25%), and property taxes (6.25%).ⁱⁱ

Figure 3 shows the rankings of the Denver core-based statistical areas relative to all three hundred most populous areas included in the index. The Denver MSA is in the top third (ranked 100 or higher) of all metro areas in terms future home price appreciation. However, it has fallen 37 places. This index provides some perspective that while housing affordability is near record lows, as of the latest data, Winter 2023, Denver is generally ranked in the upper 25% of the 299 other MSA's that are in the Emerging Housing Market Index and is viewed as moderately attractive given the potential for prices to continue to rise and for other quality of life amenities and economic factors.

Wall Street Journal/Realtor.com Emerging Housing Markets Index, Ranked Relative to 300 Metropolitan Statistical Areas in Future Housing Appreciation

	Spring 2021	Summer 2021	Fall 2021	Spring 2022	Summer 2022	Fall 2022	Winter 2023
Colorado Springs	32	14	11	25	20	14	56
Boulder	31	46	20	6	14	33	43
Denver-Aurora-Lakewood	115	88	59	52	66	38	75
Grand Junction	60	39	90	126	50	43	39
Fort Collins	96	68	24	8	11	47	25
Pueblo	86	55	83	102	78	98	164
Greeley	153	140	93	108	113	168	137

This table is ranked by comparison to 300 of the most populous metro areas in the U.S. Colorado metro areas that were ranked in the top ten in any given year are highlighted in orange. The index identifies the top metro areas for home buyers seeking an appreciating housing market, a strong local economy and appealing lifestyle amenities.

Figure 3

Figure 4 shows the relative rank of other major MSA's in Colorado. Though prices in Denver are historically high, among the other MSA's in Colorado, it is still considered to have some potential for future home appreciation. Fort Collins is considered to have the most potential for future home price appreciation among the 7 MSA's tracked in Colorado.

Wall Street Journal/Realtor.com Emerging Housing Markets Index, Ranked Relative to Colorado Metropolitan Statistical Areas for Future Appreciation							
	Spring 2021	Summer 2021	Fall 2021	Spring 2022	Summer 2022	Fall 2022	Winter 2023
Colorado Springs	2	1	1	3	3	1	4
Boulder	1	3	2	1	2	2	3
Denver-Aurora-Lakewood	6	6	4	4	5	3	5
Grand Junction	3	2	6	7	4	4	2
Fort Collins	5	5	3	2	1	5	1
Pueblo	4	4	5	5	6	6	7
Greeley	7	7	7	6	7	7	6

This table is ranked by comparison to 7 of the most populous metro areas in Colorado. The index identifies the top metro areas for home buyers seeking an appreciating housing market, a strong local economy and appealing lifestyle amenities.

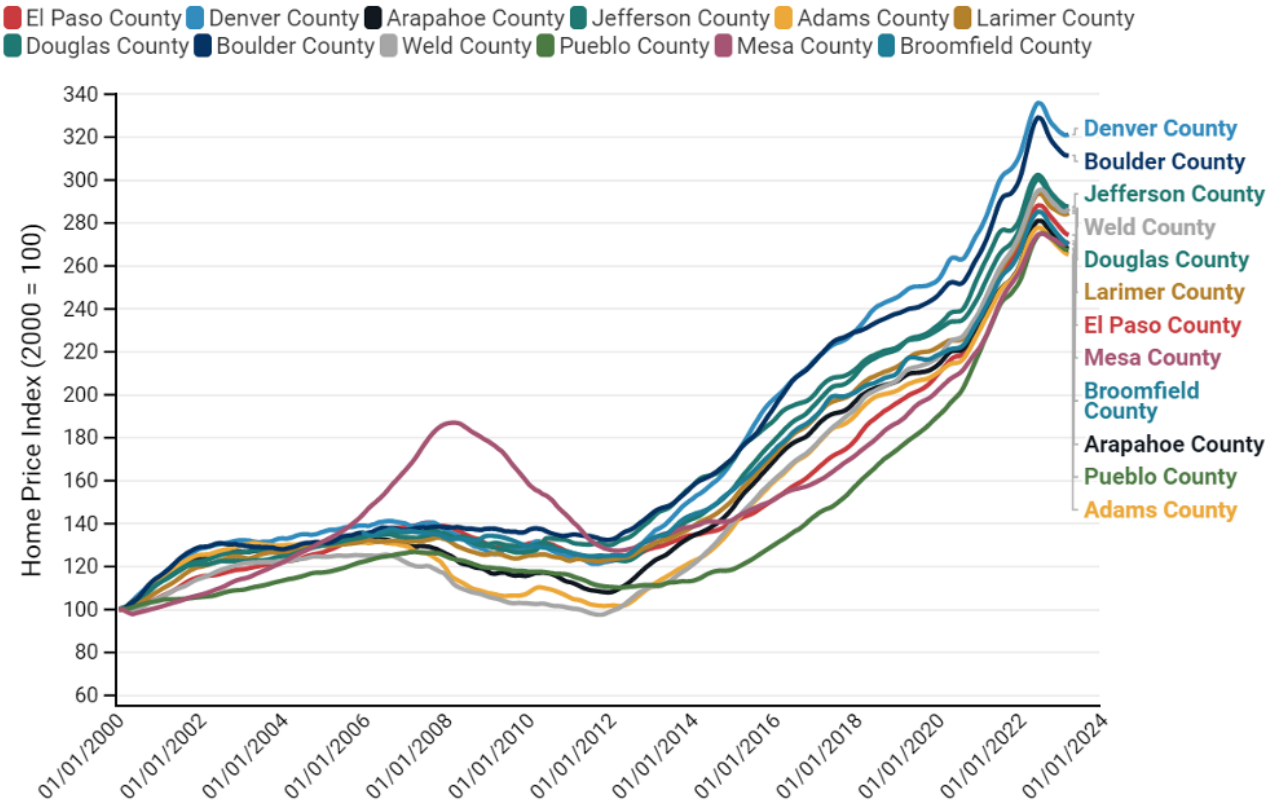
Figure 4

Figure 1

Home Prices

Figure 5 shows home price indices for the counties in the Denver Metro area and El Paso, Larimer, Mesa, Pueblo, and Weld County. Home prices in the Denver Metro area have increased by a range of 100.7% to 139.4% since 2013. Since mid-2022, home prices in the Denver Metro have begun to taper off but are still near historic highs.

Home Price Indices



Source: Zillow

Figure 5

As shown in **Figure 6**, since 2013, home prices have increased the most in Adams County (139.4%), and the least in Douglas County (100.7%).

Percent Change in Housing Unaffordability												
% Change as of Feb. 2023 Since:	Adams	Arapahoe	Boulder	Broomfield	Denver	Douglas	Jefferson	El Paso	Larimer	Mesa	Pueblo	Weld
Jan-13	139.4%	120.4%	115.1%	103.7%	136.8%	100.7%	103.7%	114.2%	118.2%	104.1%	140.3%	158.0%
Jan-14	117.2%	100.0%	97.4%	88.0%	111.4%	81.1%	88.0%	104.4%	104.7%	95.0%	136.0%	135.7%
Jan-15	91.2%	81.5%	81.9%	73.4%	88.4%	67.8%	73.4%	95.3%	87.0%	90.1%	125.0%	102.2%
Jan-16	66.3%	58.3%	59.8%	55.3%	61.6%	51.6%	55.3%	81.5%	64.6%	78.5%	105.3%	77.4%
Jan-17	50.7%	45.1%	44.0%	42.4%	48.1%	42.2%	42.4%	66.7%	49.5%	69.6%	85.9%	61.2%
Jan-18	39.1%	35.9%	35.8%	34.4%	39.2%	34.5%	34.4%	53.0%	39.9%	56.8%	69.1%	46.8%
Jan-19	31.6%	30.1%	30.9%	28.6%	30.6%	28.6%	28.6%	40.1%	33.1%	44.5%	53.1%	37.7%
Jan-20	26.2%	25.3%	26.2%	23.9%	26.3%	24.0%	23.9%	30.9%	27.6%	33.5%	40.5%	30.9%
Jan-21	15.4%	15.0%	17.0%	14.9%	15.8%	15.7%	14.9%	18.0%	19.4%	21.6%	21.4%	19.1%
Jan-22	1.8%	2.6%	2.9%	0.9%	2.4%	2.3%	0.9%	1.2%	3.4%	4.4%	5.3%	3.3%

Figure 6

Hours of Work Needed to Afford a Home Mortgage

To measure the impact on the average homeowner in Denver, Common Sense Institute calculated the number of hours that one would have to work while earning the average hourly wage in November of each year from 2013 to 2023 to cover the monthly mortgage payments shown in **Figure 7**. Over just the last 14 months, driven primarily by the increase in mortgage rates, an additional 25 hours of work per month is necessary to cover the mortgage on a newly purchased average priced home. These mortgage payments do not include escrow for insurance and property tax.

Denver Metro Area Home Prices, Mortgage Rates, Monthly Payment, Wage Rates, and Hours Required to Cover Monthly Mortgage Payment

Date	Average Home Price	30-Year Mortgage Rate	Mortgage Payment	Average Wage Rate	Hours of Work at the Average Wage Rate Required to Cover Mortgage Payment	% Annual Change in Hours of Work Required
Jan-13	\$218,976	3.41%	\$1,237	\$27.03	46	
Jan-14	\$241,001	4.43%	\$1,543	\$28.03	55	20.26%
Jan-15	\$266,794	3.67%	\$1,550	\$28.35	55	-0.69%
Jan-16	\$306,188	3.87%	\$1,810	\$28.98	62	14.23%
Jan-17	\$336,312	4.15%	\$2,043	\$28.56	72	14.55%
Jan-18	\$359,474	4.03%	\$2,148	\$29.76	72	0.92%
Jan-19	\$377,617	4.46%	\$2,374	\$31.93	74	2.98%
Jan-20	\$392,990	3.62%	\$2,231	\$32.83	68	-8.59%
Jan-21	\$428,669	2.74%	\$2,167	\$33.37	65	-4.44%
Jan-22	\$482,378	3.45%	\$2,672	\$36.60	73	12.42%
Feb-23	\$493,298	6.26%	\$3,776	\$38.59	98	34.01%

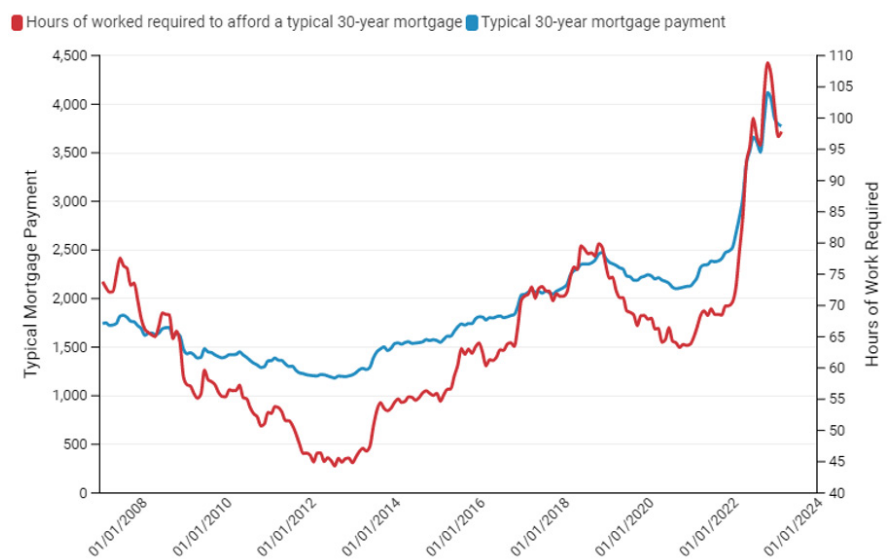
Freddie Mac, 30-Year Fixed Rate Mortgage Average in the United States [MORTGAGE30US], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/MORTGAGE30US>, Colorado - May 2021 OEWS State Occupational Employment and Wage Estimates (bls.gov).

Figure 7

Figure 8 shows the evolution of monthly mortgage payments on an average price home and the required hours of work necessary to cover the payment. Required hours fluctuated around 60 from January 2007 until the summer of 2020, after which, they increased dramatically as home prices increased. Beginning in the spring of 2022, mortgage rates have increased as the Federal Reserve addresses inflation, having a dramatic impact on the cost of purchasing a home.

Since the start of the pandemic the hours of work required to afford a mortgage on an average priced home increased 44 percent from 68 hours to 98 hours.

Mortgage Affordability in the Denver Metro Area



Source: Zillow, St. Louis Federal Reserve Bank, CSI Calculations

Figure 8

Colorado Property Owners Are Set for an Historic Property Tax Increase in 2024

Property values in Colorado have increased dramatically in recent years, particularly for the years 2020 to 2022, which include the July 2020 to June 2022 assessment period for county property taxes. The subsequent increases in assessed property values have produced much higher residential property tax obligations. These higher property tax bills are problematic for many reasons. So much so that Governor Jared Polis and members of the State Legislature announced a plan (SB23-303) on May 1st to reduce the growth rate in property taxes from current law. These reductions would be coupled with reductions in TABOR refunds and spending increases to education.ⁱⁱⁱ

Colorado homeowners and commercial property owners have started to receive their updated property assessments, showing they face increases anywhere from 30-65%. This new value will set the basis for how much property tax they will pay annually for the next two years, see **Figure 9**.

Prior to the repeal of the Gallagher Amendment in 2020 that established a formula for determining property tax increases, the recent surge in home prices would have resulted in a reduction in the tax rate, thereby softening the tax blow to homeowners. However, without the Gallagher formula, and the expiration of several temporary legislative fixes in 2021 and 2022, homeowners face property tax increases proportional to the increase in the value of their homes. Recent data released by several county assessors shows that the pending property tax increases will likely be larger than initially expected. And given home prices have declined nearly 5% since the end of the prior assessment period, some homeowners face paying taxes on an assessed value above their current home price.

2024 Colorado Property Tax Increase Estimates (\$Billion)					
	2022 Statewide Property Assessed Value	2023 Estimated Increase in Assessed Value		2024 Tax Increase	
		Legislative Council December Forecast	Estimate Based on Recent Assessor Data	Based on CO Leg Council Dec Forecast	Estimate Based on Recent Assessor Data
Total	\$150.166	23%	35%	\$2.831	\$4.404
Residential	\$70.180	30%	40%	\$1.764	\$2.352

Figure 9

- Recent estimates released by county assessors of the increase in property values indicate that property taxes are set to increase by between \$2.8 billion to \$4.4 billion in 2024 (between 23% and 35%). Residential property taxes alone will increase by between \$1.7 billion and \$2.3 billion statewide. Revised estimates will be possible when the state Division of Property Taxation releases its next annual report.
 - Property taxes primarily fund local governments and services, including County governments, schools, and fire districts. Though local governments face budget increases due to inflation,

a 35% increase in property taxes is 2.5 times larger than the rate of inflation (14%) over the assessment period.

- See **Figure 10**. The median-priced home in four Denver Metro counties including Adams, Arapahoe, Douglas, and Boulder, faces a property tax increase of more than \$1,000. Douglas County's projected increase is the highest at over \$1,759, over \$146 a month. Though these tax bills officially must be paid in 2024, property owners with a mortgage may already experience increases in their monthly payments in 2023 as mortgage companies request additional escrow funds to cover higher taxes and homeowner insurance premiums.
- This forthcoming property tax increase will compound with the impact of high inflation, which has already cost the average Colorado household \$14,800 since 2020.
- The recently introduced property tax reform bill, SB23-303 proposes to reduce the projected increase in property taxes, coupled with reductions in future TABOR refunds. The additional revenue to the state would be used to "backfill" local governments for losses in property tax revenue and to increase spending for education. The following bullets provide several takeaways from the bill fiscal note. These are preliminary estimates given they rely on forecasts from Legislative Council Staff's December 2022 projections, rather than the actual property values recently disclosed by county assessors.^{iv}
 - The growth rate in total property assessed value would change from 22.5% to 19.8% in FY23. Based on the most recent effective tax rate, this would reduce property tax revenue between FY23 and FY25 from \$48.6 billion to \$46.1 billion, or a difference of \$2.5 billion.
 - The increase in the TABOR cap growth rate of an additional 1% is projected to reduce TABOR refunds by \$525 million between FY24 and FY25. This increase in the state spending limit is estimated to grow to \$2.2 billion in FY2032, significantly reducing or even eliminating future TABOR.
 - Revenue retained under the increased TABOR growth cap that is not used to backfill local governments, would transfer to the State Education Fund to increase spending on education through the school finance formula. It is estimated to increase state spending on education by a growing amount annually increasing from \$94 million in FY23 to \$330.4 million by FY26.

The Colorado Division of Property Taxation within the Department of Local Affairs will release full county-level data as part of its annual report in the next several months. As more information becomes available, CSI will update property tax related estimates with new values.

Homeowners Face Historic Property Tax Increases

Recent data released by County Assessors show that many Colorado homeowners and businesses will face very large property tax increases next year. **Blue** lines reflect exact reported property valuation increases in the latest assessment period and **red** lines utilize estimates based upon reported ranges.

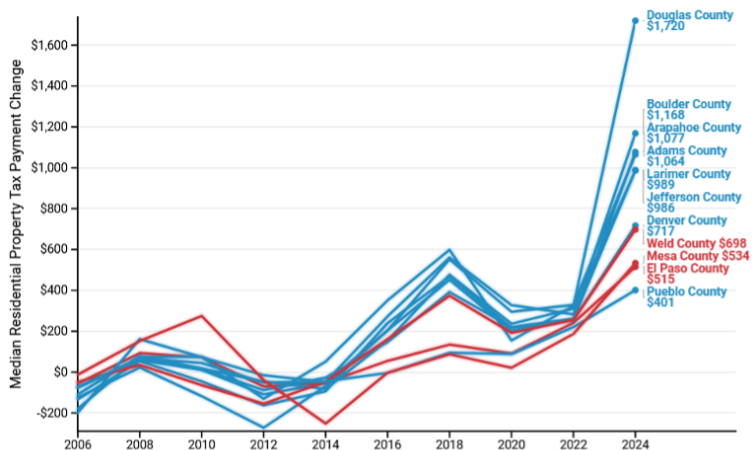


Figure 10

Methodology

To calculate the increase in property tax by county, CSI used Zillow monthly home price data, historical residential assessment rates, and 2021 average mill totals to estimate the median property tax payment in each county over time. CSI then applied ranges of local property value increases during the 2020–2022 assessment period released by county assessors^v to their respective counties' median Zillow home prices, calculated an effective 2023 residential assessment rate based upon the temporary changes imposed by SB21-293, and held the latest available mill levies constant. The results, which are presented throughout this report's tables and findings, are CSI's projections of median property tax payments by county in 2024. See **Figure 11**.

Change in Median Residential Property Tax Payment by County		
Date	2023-24 Median Property Tax Increase	2023-24 Median Tax Payment Increase
Douglas County	43%	\$1,720
Boulder County	31%	\$1,168
Arapahoe County	38%	\$1,077
Adams County	34%	\$1,064
Larimer County	36%	\$989
Jefferson County	32%	\$986
Denver County	29%	\$717
Weld County	34%	\$698
Mesa County	41%	\$534
El Paso County	31%	\$515
Pueblo County	31%	\$401

Figure 11

Hours of Work per Year to Pay Residential Property Taxes

Figure 12 shows the hours of work required to pay annual residential property taxes earning the average hourly wage in each county. The largest increase occurs in Douglas County with an increase of 45 hours between 2023 and 2024.

Hours of Work per Year Required to Pay Residential Property Taxes (Based on Median Home Assessments and Average Wage Rates)												
	Denver	El Paso	Arapahoe	Jefferson	Adams	Larimer	Douglas	Boulder	Weld	Pueblo	Mesa	Average
2007	61	45	81	79	92	76	103	94	69	56	43	73
2008	61	49	79	79	89	82	105	93	69	59	47	74
2009	60	50	79	79	89	86	104	93	71	59	47	74
2010	60	54	76	79	83	88	106	94	67	61	61	75
2011	59	55	75	77	82	91	104	93	66	63	62	75
2012	53	53	67	73	69	85	97	90	59	55	60	69
2013	52	53	65	71	67	78	93	87	53	50	57	66
2014	48	49	60	67	63	77	93	83	45	46	44	61
2015	48	47	60	66	63	72	93	83	46	46	42	61
2016	54	49	66	70	68	73	102	90	53	47	43	65
2017	54	47	67	70	68	71	103	91	49	44	44	64
2018	66	48	79	82	83	84	117	104	59	50	47	75
2019	62	46	74	77	78	85	110	98	54	47	47	71
2020	67	49	78	82	85	89	112	105	58	48	48	75
2021	64	48	75	79	82	84	108	101	60	44	47	72
2022	67	54	77	82	85	81	109	102	71	50	47	75
2023	64	54	74	79	81	79	105	98	74	49	46	73
2024*	84	76	102	104	109	107	150	128	98	66	63	99
% Chg. 2023 - 2024	31%	40%	38%	33%	34%	36%	44%	31%	33%	33%	35%	35%

**2024 wage rates are assumed to be the same as 2023 wage rates*

Figure 12

Housing Supply Shortage

The Denver Metro area has failed to build enough housing to keep pace with demand. Standard housing market reports like those developed by the National Association of REALTORS® track inventory based on homes listed for sale. What those reports do not capture is the total stock of homes needed to maintain a healthy housing market.

CSI estimates the number of homes needed in the Denver Metro area to achieve a healthy housing market under two scenarios. Each scenario is intended to measure the difference between the actual number of homes in a county relative to the number of homes needed to maintain a more stable market for the local population. The first scenario averages the values of a housing deficit or surplus based on the low estimate of homes held off the market for purchase by the local population. The second scenario averages the values of a housing deficit or surplus based on the high estimate of homes held off the market for purchase by the local population.

Housing units and households – Each scenario uses both the estimate of housing units and households from U.S. Census Bureau's American Community Survey (ACS) and the Colorado State Demography Office. We adjust the housing units by removing those that are considered uninhabitable by virtue of having no kitchen or lacking plumbing facilities.

Homes held off the market – Total homes held off the market reflect existing housing units not available for purchase by the local population. The estimate includes a range of second homes at the county level released by the National Association of Homebuilders,^{vi} along with an estimate of uninhabitable homes from ACS.

Desired ratio of total units to local population – To estimate the target number of housing units, the value of 1.1 housing units per household was used to represent a healthy market. This value is derived from the historic average ratio of vacancy rates for the U.S. and was the basis for a housing supply report done for the state of Oregon.^{vii} **Figure 13** shows the forecasted change in population and the number of households in 2028. Population is forecasted to increase by 202,645 by 2028, resulting in another 81,661 households.

Change in Median Residential Property Tax Payment by County

Region	Population			Households		
	2022	2028	Change	2022	2028	Change
Denver Metro	3,274,384	3,477,029	202,645	1,332,660	1,414,321	81,661
Adams	528,353	567,213	38,860	186,040	199,723	13,683
Arapahoe	661,724	704,187	42,463	254,509	270,841	16,332
Boulder	330,652	337,386	6,734	141,304	144,182	2,878
Broomfield	77,224	89,666	12,442	31,139	36,156	5,017
Denver	719,481	769,522	50,041	336,206	359,590	23,384
Douglas	373,864	404,492	30,628	138,468	149,812	11,344
Jefferson	583,086	604,563	21,477	244,994	254,018	9,024
El Paso	746,686	801,843	55,157	293,971	315,686	21,715
Larimer	367,097	395,713	28,616	157,552	169,834	12,282
Mesa	158,680	166,991	8,312	66,116	69,580	3,463
Pueblo	170,248	174,055	3,807	71,234	72,827	1,593
Weld	347,878	398,878	51,000	124,242	142,456	18,214

Figure 13

Using the scenarios discussed above, the deficit in housing units in the Denver Metro area in 2022 is estimated to have been between 66,105 and 135,956 units. **Figure 14** presents summary results for counties considered in this study. CSI will continue to monitor new data as it becomes available and will amend the estimates and methodology as required.

Housing Deficit/Surplus in Select Counties at the End of 2022

Region	Housing Stock 2022	Housing Deficit/Surplus in 2022		Deficit/Surplus as a Percent of 2022 Existing Stock of Housing Units	
		Scenario 1	Scenario 2	Scenario 1	Scenario 2
		Denver Metro	1,399,821	(66,105)	(135,956)
Adams	194,194	(10,450)	(20,140)	5.4%	10.4%
Arapahoe	270,269	(9,691)	(23,178)	3.6%	8.6%
Boulder	144,766	(10,669)	(17,893)	7.4%	12.4%
Broomfield	32,338	(1,915)	(3,528)	5.9%	10.9%
Denver	360,125	(9,702)	(27,672)	2.7%	7.7%
Douglas	145,007	(7,308)	(14,544)	5.0%	10.0%
Jefferson	253,122	(16,371)	(29,002)	6.5%	11.5%
El Paso	303,974	(19,394)	(34,562)	6.4%	11.4%
Larimer	164,655	(8,653)	(16,869)	5.3%	10.2%
Mesa	69,626	(3,102)	(6,576)	4.5%	9.4%
Pueblo	73,480	(4,877)	(8,544)	6.6%	11.6%
Weld	131,051	(5,615)	(12,155)	4.3%	9.3%

Figure 14

To cover the 2022 deficit and new demands for housing due to population growth by 2028, between 155,932 and 225,784 new housing units need to be built. New housing demand will occur in counties with deficits and some with surpluses, so merely adding the 2022 housing deficit with new demand for housing does not accurately depict the number of new housing units required to be built. In counties with surpluses a portion of the surplus homes will be occupied by the new demand.

Building Permits and the Housing Supply Deficit

To erase the estimated deficit and meet new population-driven demand for housing in the Denver Metro area by 2028, an additional 25,989 to 37,631 permits per year are needed, see **Figure 15**. CSI is tracking building unit permits by county on a quarterly basis to evaluate whether the level of permit issuance is sufficient to close the existing housing deficit and meet new demand for housing as the population grows. Currently, in the Denver Metro area, there is a projected deficit of 4,869 to 16,511 permits for 2023. Among the other counties we are following, Mesa County is issuing more permits than required to close the housing deficit.

Permits Required to Close the 2022 Deficit and New Housing Demand in 2028

Region	Number of Permits Required to Close the Deficit Plus New Demand for Housing in Deficit Counties by 2028		Number of Permits Required to Close the Deficit Plus New Demand for Housing in Deficit Counties per Year by 2028		Permits Issued in 2022 Actual	Permits Issued per Year 2023 Projected	Deficit/Surplus in Permitted Units Issued in Deficit Counties in 2023 Projected	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2			Scenario 1	Scenario 2
Denver Metro	(155,932)	(225,784)	(25,989)	(37,631)	24,568	21,120	(4,869)	(16,511)
Adams	(25,501)	(35,191)	(4,250)	(5,865)	2,811	2,276	(1,974)	(3,589)
Arapahoe	(27,656)	(41,143)	(4,609)	(6,857)	4,329	3,332	(1,277)	(3,525)
Boulder	(13,834)	(21,058)	(2,306)	(3,510)	1,621	1,732	(574)	(1,778)
Broomfield	(7,433)	(9,047)	(1,239)	(1,508)	538	212	(1,027)	(1,296)
Denver	(35,424)	(53,394)	(5,904)	(8,899)	8,296	8,404	2,500	(495)
Douglas	(19,786)	(27,022)	(3,298)	(4,504)	4,767	3,848	550	(656)
Jefferson	(26,298)	(38,929)	(4,383)	(6,488)	2,206	1,316	(3,067)	(5,172)
El Paso	(43,281)	(58,449)	(7,213)	(9,741)	8,683	5,432	(1,781)	(4,309)
Larimer	(22,162)	(30,379)	(3,694)	(5,063)	2,597	3,484	(210)	(1,579)
Mesa	(6,912)	(10,386)	(1,152)	(1,731)	969	2,560	1,408	829
Pueblo	(6,629)	(10,296)	(1,105)	(1,716)	497	296	(809)	(1,420)
Weld	(25,651)	(32,190)	(4,275)	(5,365)	6,137	4,844	569	(521)

Figure 15

Figure 16 shows the number of needed housing unit permits in the Denver Metro area to close the deficit by 2028 for 2 scenarios, and the number of permits issued monthly from January 2022 through February 2023. The red line shows the average monthly required permits to close the 2022 deficit and meet new housing demand by 2028 for scenario 1. The blue line is for scenario 2. In scenario 1, enough permits were issued on average from January 2022 through September to cover the housing deficit and meet new demand for housing by 2028. However, in the last few months of 2022 and the first few months of 2023, permitting has dropped off and will not be sufficient to cover the housing deficit and meet new demand for housing by 2028. In scenario 2, enough permits have been issued in only 1 month out of the last 14 to cover the housing deficit and new housing demand by 2028. Similar graphs for all counties in this study are provided in **Appendix A**.

Housing Units Permits Needed vs. Issued - Denver Metro

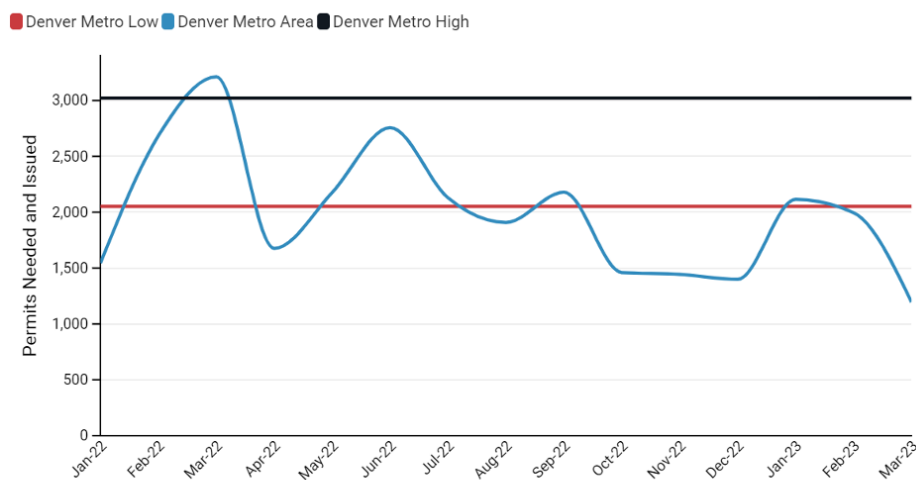


Figure 16

Types of Permits Issued

Figure 17 shows the number of housing unit permits issued in total, and the percentage of each type, issued from 2012 through November 2022. Annual permitted units issued have increased from 5578 in 2012 by 41 percent to 7,839 in 2022. The percentage share of permitted units issued in 2022 was 41.8 percent single-family and 58.2 percent multi-family in 2022. In 2023, through March, 38.7% are for single-family and 61.3% are for multi-family. In **Appendix B, figure 17** is reproduced for all counties individually.

Denver Metro Area Permits by Percentage of Type Issued

	Total 2022	% Share in 2022	Total YTD 2023	% Share in 2023	2023 Annualized	% Share in 2023
Denver Metro Total Units	24,568	NA	5,280	NA	21,120	NA
Denver Metro Single-Family Units	10,263	41.8%	1,178	38.7%	8,176	38.7%
Denver Metro Multi-Family Units	14,305	58.2%	2,920	61.3%	12,944	61.3%

Figure 17

Going Forward

As shown in **Figure 18**, many home builders are re-evaluating their plans for new housing. The NAHB/Wells Fargo Housing Market Index (HMI) (blue line) reflects builder confidence in the market for newly built single-family homes, which fell 63.3% from November 2020 to November 2022 before rebounding 43% from January 2023 to March 2023.^{viii} Despite the recent increase in the HMI, it is still 44.4% below November 2020.

The housing deficit remains and if builders reduce annual production, which looks increasingly likely based on the HMI, the deficit will not decrease. If population growth continues as forecasted, absent sufficient new housing units, the deficit will grow. Developers might consider changes to the mixture of housing they build, perhaps transition to building higher density and less expensive housing so that the deficit can be erased even in a high interest rate environment.

Increased property taxes are increasing the cost of owning a home in Colorado and making housing less affordable. For those on a fixed income (retirees for example) these increases could prove to have crucial impacts on their budgets. Property taxes are often cited as the reason people find a state attractive or unattractive and influences their decisions for relocation or staying put.

Homebuilder Confidence and Housing Starts

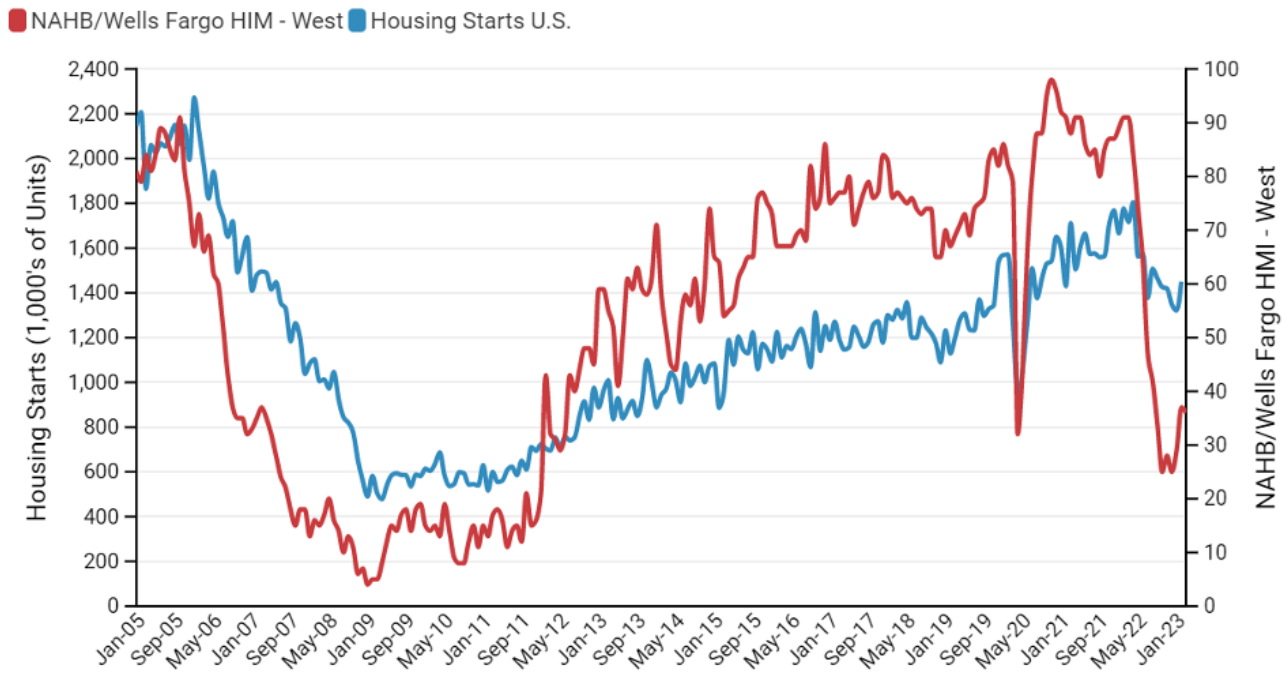


Figure 18

Appendix A

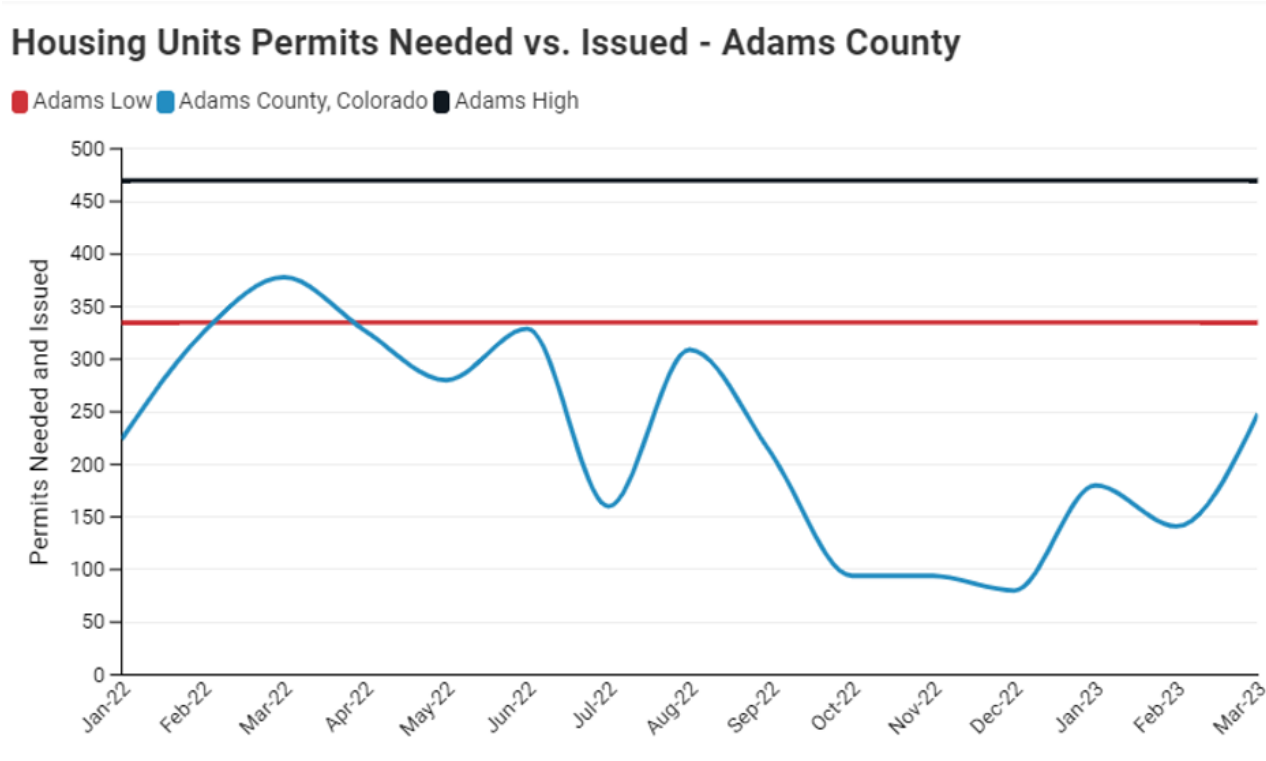


Figure 19

Housing Units Permits Needed vs. Issued - Arapahoe County

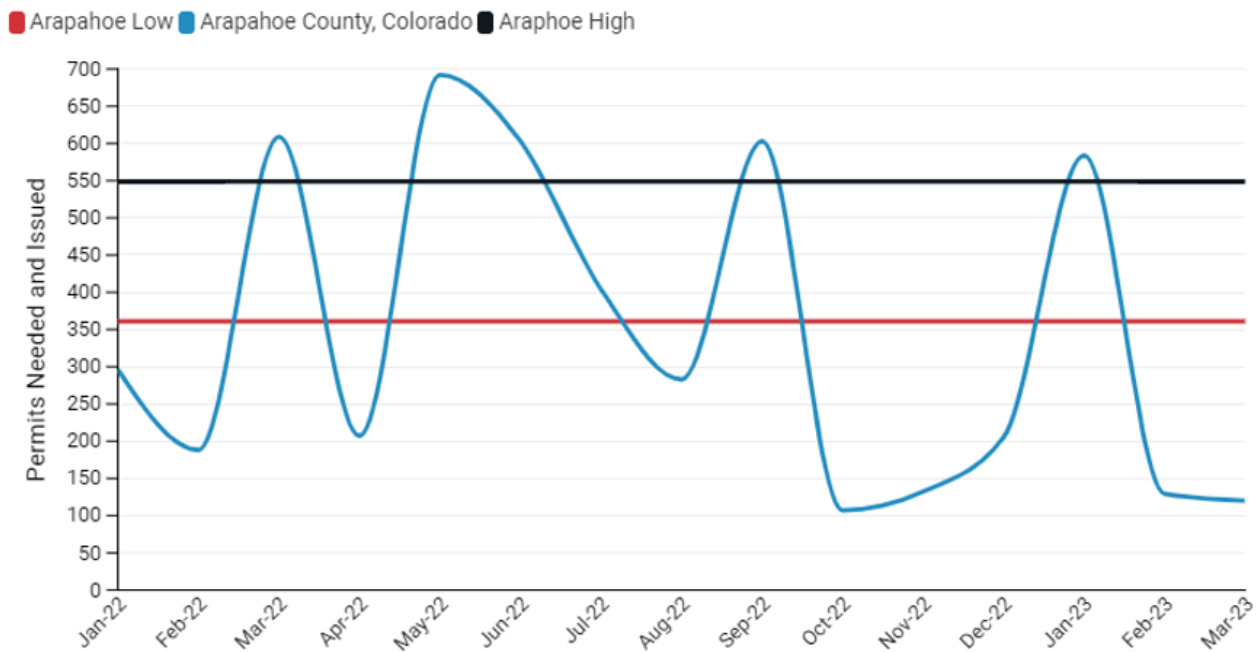


Figure 20

Housing Units Permits Needed vs. Issued - Boulder County

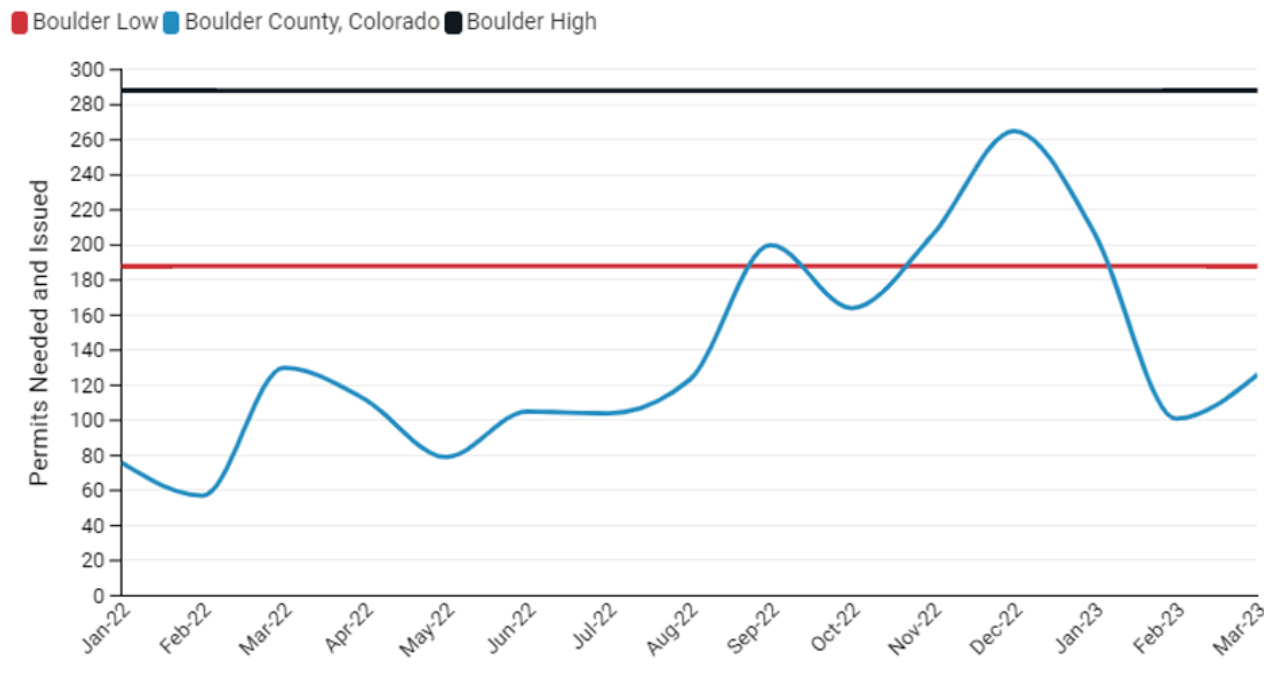


Figure 21

Housing Units Permits Needed vs. Issued - Broomfield County

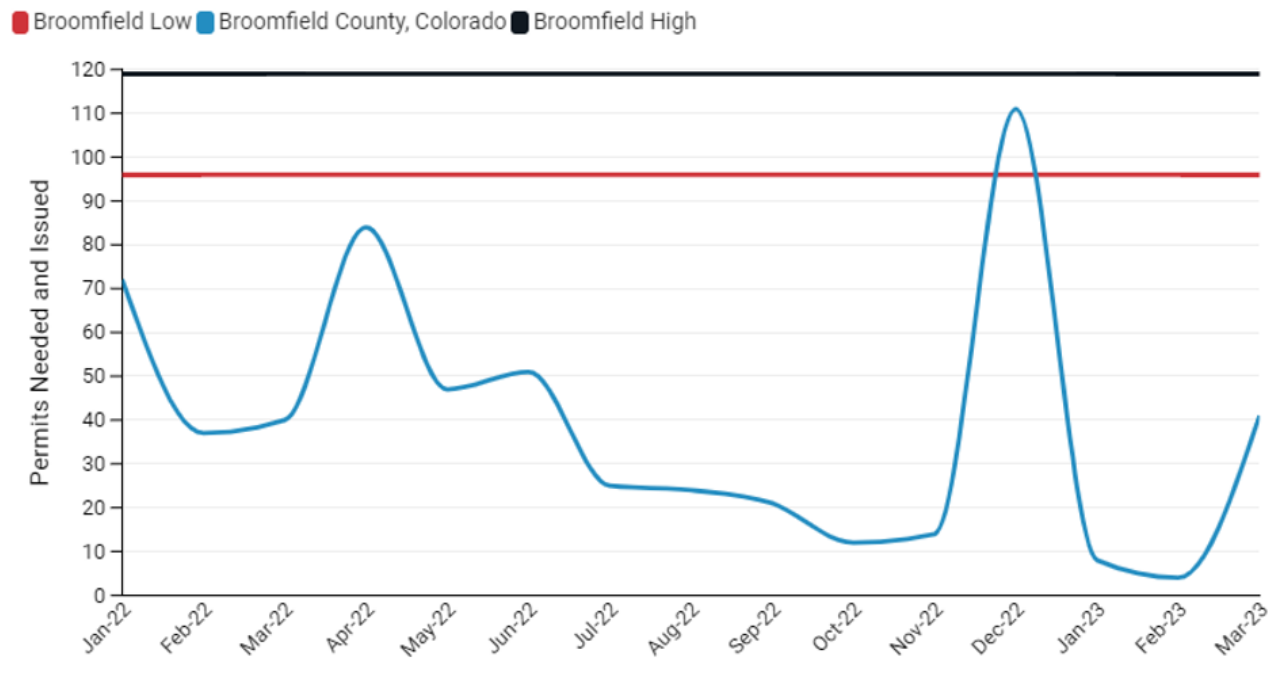


Figure 22

Housing Units Permits Needed vs. Issued - Denver County

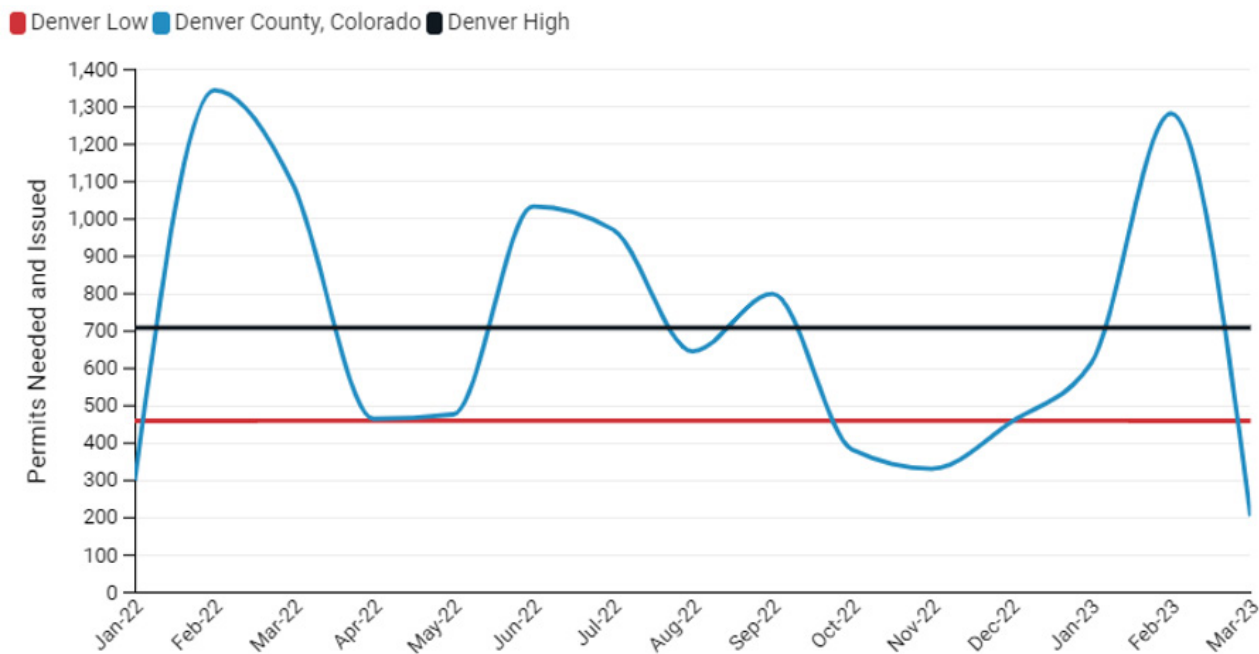


Figure 23

Housing Units Permits Needed vs. Issued - Douglas County

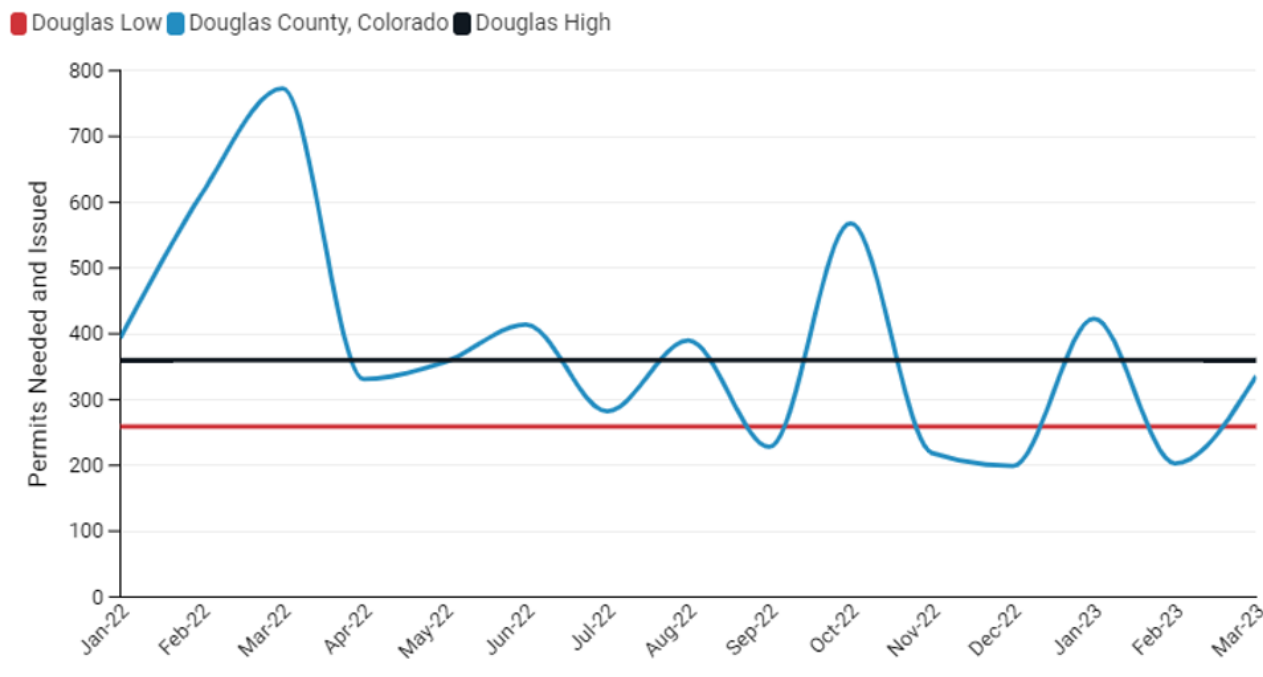


Figure 24

Housing Units Permits Needed vs. Issued - El Paso County

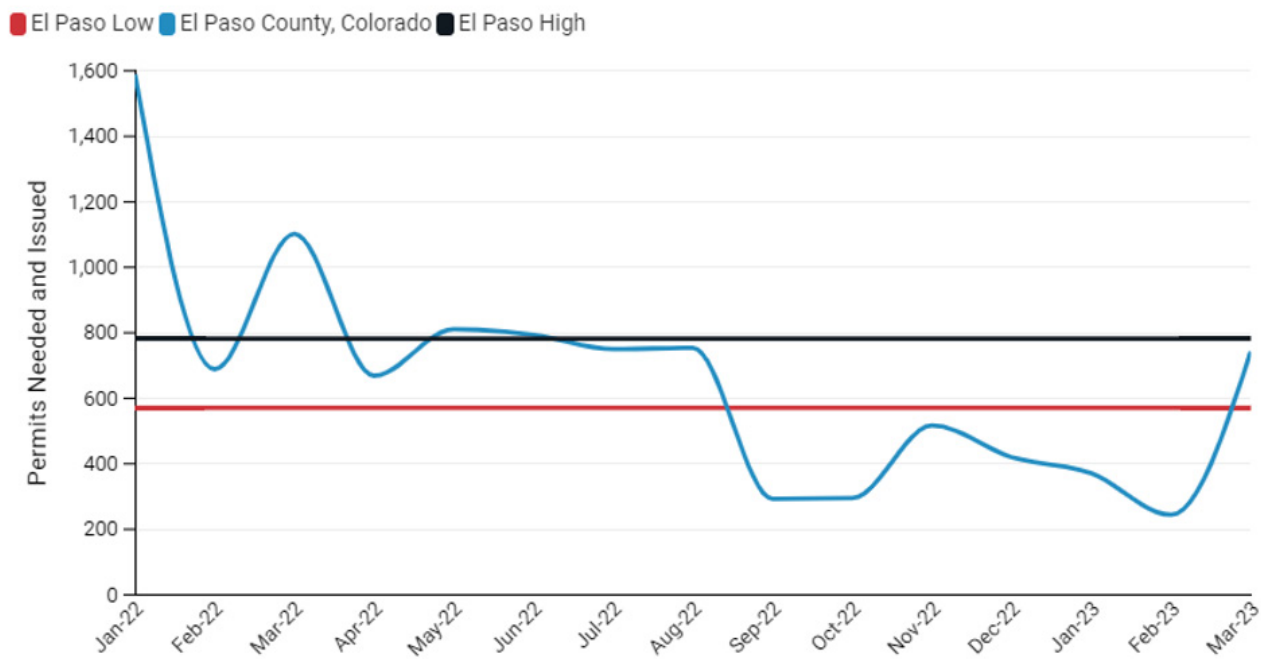


Figure 25

Housing Units Permits Needed vs. Issued - Jefferson County

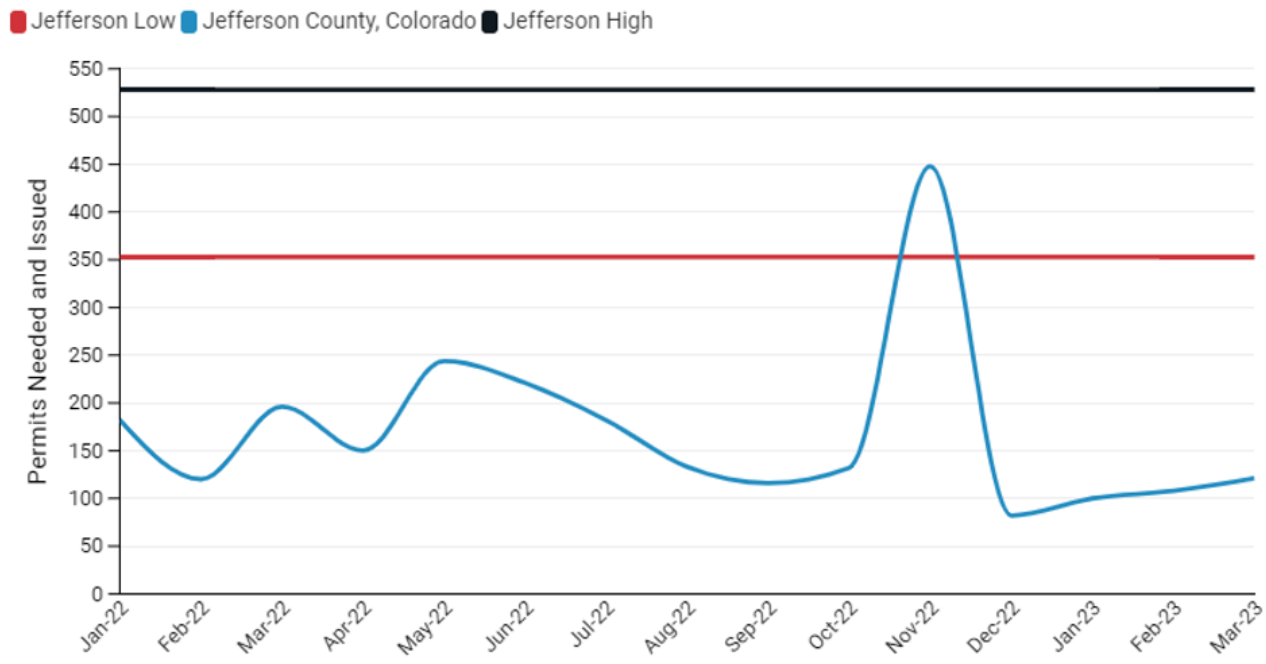


Figure 26

Housing Units Permits Needed vs. Issued - Larimer County

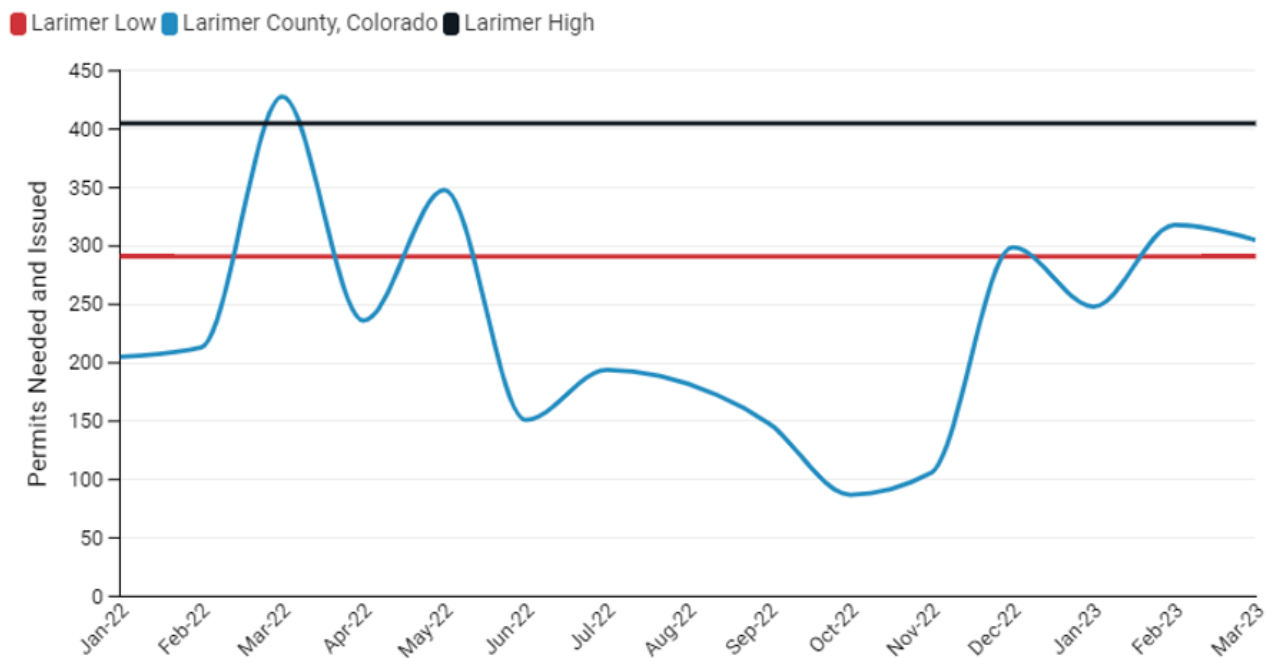


Figure 27

Housing Units Permits Needed vs. Issued - Mesa County

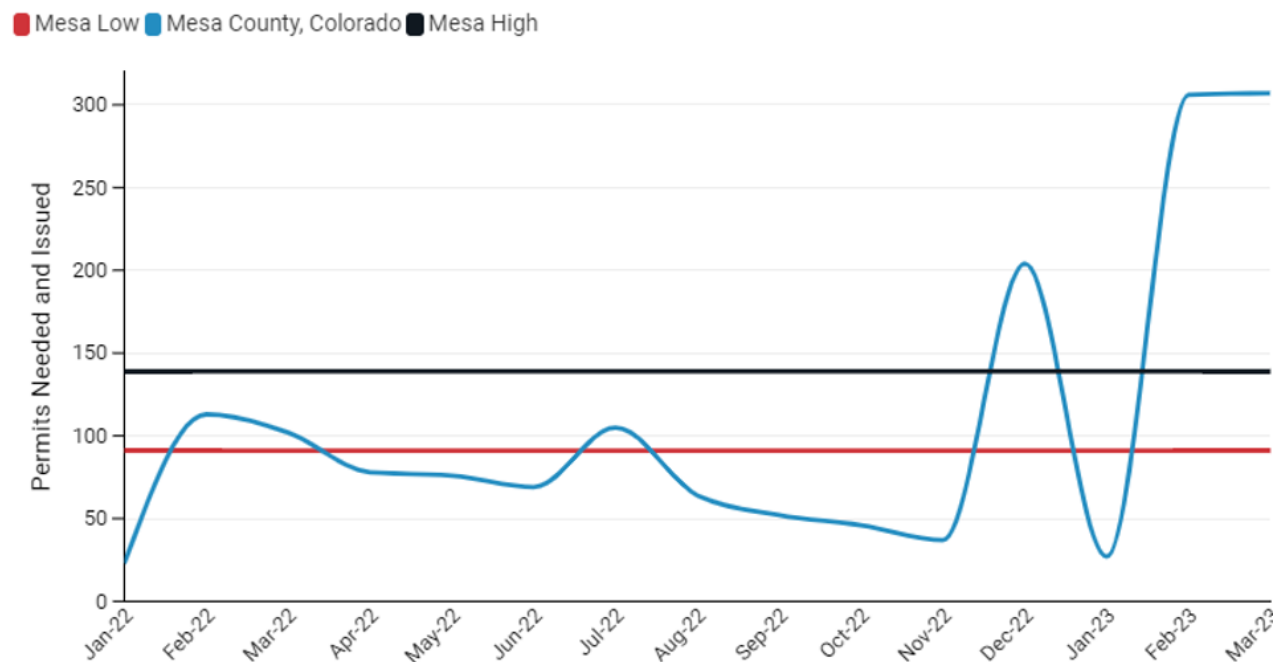


Figure 28

Housing Units Permits Needed vs. Issued - Pueblo County

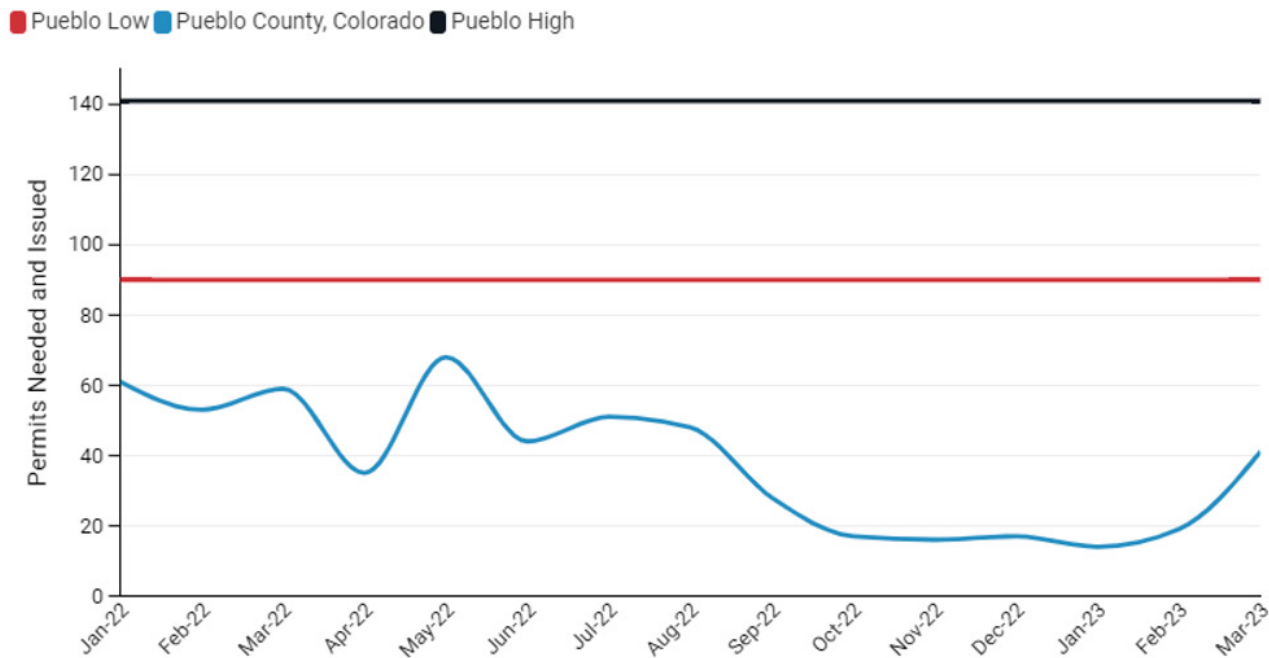


Figure 29

Housing Units Permits Needed vs. Issued - Weld County

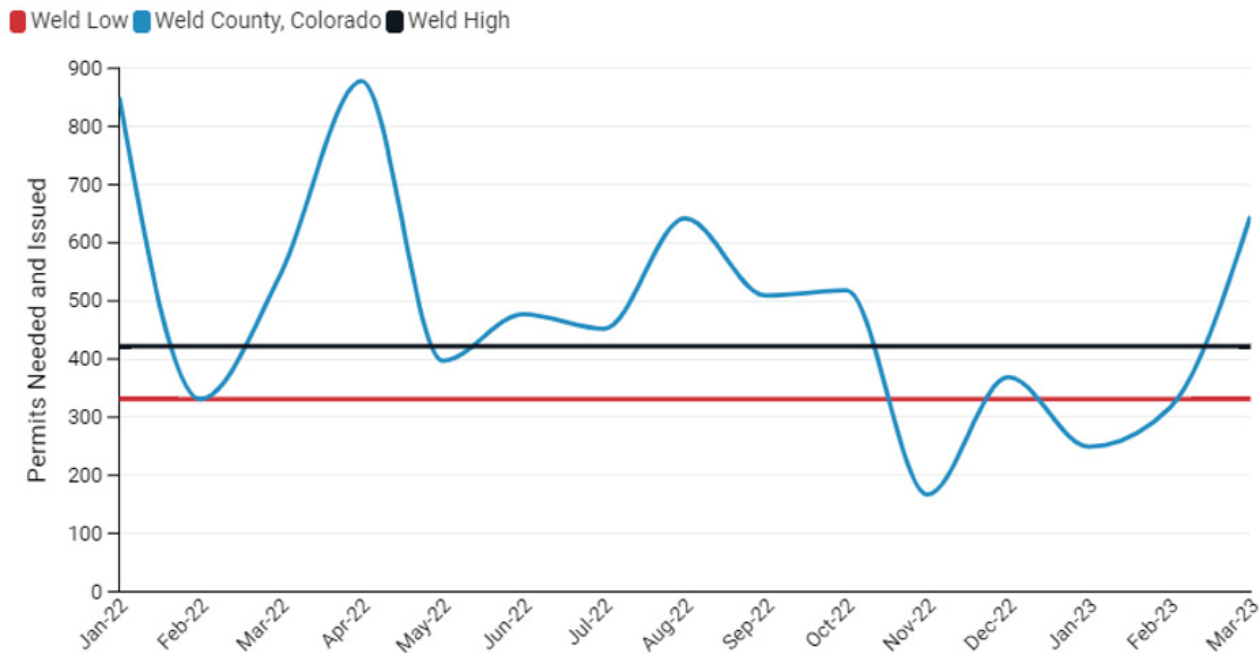


Figure 30

Appendix B

Denver Metro Area Permits by Percentage of Type Issued

	Total 2022	% Share in 2022	Total YTD 2023	% Share in 2023	2023 Annualized	% Share in 2023
Adams Total Units	2811		569		2,276	
Adams - Units in Single-Family Structures	2046	72.8%	341	59.9%	1,364	59.9%
Adams - Units in All Multi-Family Structures	765	27.2%	228	40.1%	912	40.1%
Arapahoe - Total Units	4329		833		3,332	
Arapahoe - Units in Single-Family Structures	1774	41.0%	332	39.9%	1,328	39.9%
Arapahoe - Units in All Multi-Family Structures	2555	59.0%	501	60.1%	2,004	60.1%
Boulder - Total Units	1621		433		1,732	
Boulder - Units in Single-Family Structures	648	40.0%	234	54.0%	936	54.0%
Boulder - Units in All Multi-Family Structures	973	60.0%	199	46.0%	796	46.0%
Broomfield - Total Units	538		53		212	
Broomfield - Units in Single-Family Structures	179	33.3%	8	15.1%	32	15.1%
Broomfield - Units in All Multi-Family Structures	359	66.7%	45	84.9%	180	84.9%
Denver - Total Units	8296		2,101		8,404	
Denver - Units in Single-Family Structures	1323	15.9%	362	17.2%	1,448	17.2%
Denver - Units in All Multi-Family Structures	6973	84.1%	1,739	82.8%	6,956	82.8%
Douglas - Total Units	4767		962		3,848	
Douglas - Units in Single-Family Structures	3219	67.5%	507	52.7%	2,028	52.7%
Douglas - Units in All Multi-Family Structures	1548	32.5%	455	47.3%	1,820	47.3%
Jefferson - Total Units	2206		329		1,316	
Jefferson - Units in Single-Family Structures	1074	48.7%	260	79.0%	1,040	79.0%
Jefferson - Units in All Multi-Family Structures	1132	51.3%	69	21.0%	276	21.0%
El Paso - Total Units	8683		1,358		5,432	
El Paso - Units in Single-Family Structures	3499	40.3%	546	40.2%	2,184	40.2%
El Paso - Units in All Multi-Family Structures	5184	59.7%	812	59.8%	3,248	59.8%
Larimer - Total Units	2597		871		3,484	
Larimer -Units in Single-Family Structures	1395	53.7%	303	34.8%	1,212	34.8%
Larimer - Units in All Multi-Family Structures	1202	46.3%	568	65.2%	2,272	65.2%
Mesa - Total Units	969		640		2,560	
Mesa - Units in Single-Family Structures	668	68.9%	120	18.8%	480	18.8%
Mesa - Units in All Multi-Family Structures	301	31.1%	520	81.2%	2,080	81.2%
Pueblo - Total Units	497		74		296	
Pueblo - Units in Single-Family Structures	497	100%	74	100%	296	100%
Pueblo - Units in All Multi-Family Structures	0	0.0%	0	0%	0	0%
Weld - Total Units	6137		1,211		4,844	
Weld - Units in Single-Family Structures	3319	54.1%	585	48.3%	2,340	48.3%
Weld - Units in All Multi-Family Structures	2818	45.9%	626	51.7%	2,505	51.7%

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