KINGBIRD
INVESTMENT MANAGEMENT

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White Paper

THE UNDERPRODUCTION OF HOUSING ACROSS THE U.S.

The Case for Investing in Workforce Rental Housing

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Executive Summary

The US housing market is chronically undersupplied. This is a direct result of a long-term, secular trend that began after the 2008/2009 Global Financial Crisis (the "GFC") and has worsened each subsequent year. Prior to the GFC's end, the US had a peak estimated housing surplus of 2.9 million units. However, after the GFC ended and its effects on the residential construction sector became fixed within the economy, this surplus declined every year until housing demand surpassed supply in 2017, when a shortfall of 731,000 units materialized.[1] This shortfall has since grown to between 3.8 and 6.8 million, as of 2020.[2]

While the economic slowdown following the GFC was the immediate cause of this housing shortfall, it was ultimately worsened and secularized by three trends: 1) the implementation and intensification of zoning, land-use, and environmental regulations; 2) rising construction input costs, particularly land prices; and 3) consistent labor shortages. While construction input prices and labor supplies do go through cyclical fluctuations, the long-term, secular trend exhibited by these two factors has accelerated the housing shortage.

These trends have resulted in historically low vacancy rates and rapid rent and home price growth, relative to incomes, across the nation, as exhibited below.

National For-Sale and For-Rent Vacancy Rate

Source: US Census Bureau

Housing Cost Index vs Median Income Index
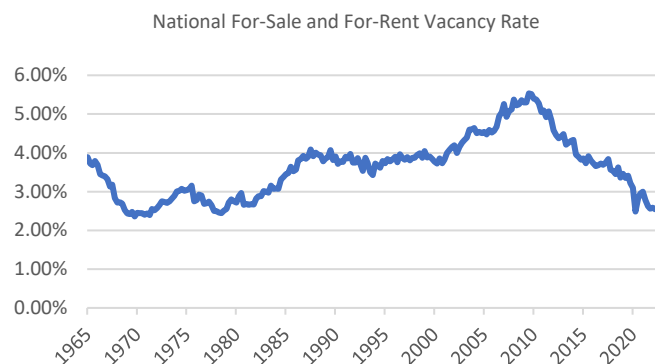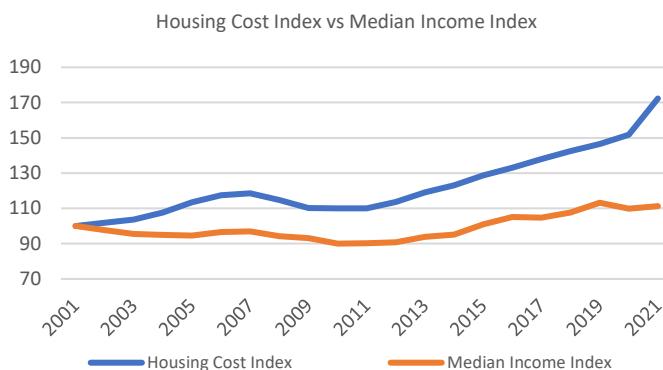
Source: CoStar, NMHC, S&P/Case Shiller, and US Census Bureau

While the housing supply shortfall is evident throughout the housing market, it has been most acute for the workforce renter segment, defined as renter households earning between $45,000 and $75,000 annually. This cohort is the largest renter segment, at 23.6% of renter households, yet the supply of existing and new high-quality, affordable rental housing available to them is constricted. As a result, the workforce rental vacancy rate is lower than the overall market and, consequently, rents in this sector grew at a faster pace than the market average.

This dynamic has rendered the workforce rental housing sector an ideal target for capital allocation within a well-diversified portfolio, as it improves cash distributions and enhances capital values for investors. Historically, investing in this high demand/low supply segment has yielded superior returns relative to other housing segments. Workforce housing focused funds returned an average net IRR of 16.4% between 2009 to 2019, whereas high-end housing funds yielded an average of 10.7%.[3]

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[1] Kingbird Analysis of Federal Reserve Board of St. Louis, US Census Bureau, ACS IPUMS, and CoStar Data
[2] Freddie Mac *Housing Supply: A Growing Deficit* May 2021 and National Association of Realtors *Housing is Critical Infrastructure: Social and Economic Benefits of Building More Housing* June 2021
[3] Kingbird Analysis of Preqin Data

Introduction

In efficient free market economics, the market will fill voids created by unmet demand. Demand drives the creation of supply. Aside from food, shelter (i.e., housing) is arguably an economy's most necessary product, yet the production of housing in the US has not kept pace with housing demand, leading to a significant and growing gap between high demand and consistently low supply. Since the 2008/2009 Global Financial Crisis specifically, housing production across the country has not kept pace with household growth, which has created a historically large housing shortfall, now estimated to be between 3.8 to 6.8 million units.[4] While this trend began with the GFC, it is secular rather than cyclical, and has now become ingrained in the US economy and, barring a structural change in the functioning of the residential construction sector, shows strong evidence of persistence in the long-term.

Unmet demand of this magnitude creates a market opportunity. Whenever supply consistently lags demand, as new supply becomes available, it is likely to be quickly consumed. Rapid consumption of new supply significantly de-risks new production and, thus, the possibility of investment principal loss is mitigated.

The purpose of this White Paper is to assess: 1) The gap between housing supply and demand; 2) The contributory factors thereof; 3) Their impact on the housing market going forward; and 4) How capital can be prudently allocated to capitalize on the supply/demand mismatch in the housing market.

Defining Housing Demand

Demand for housing is best quantified by the formation of new households. A *household* is defined as one or more people living in an individual dwelling unit, such as a family living in a home together, roommates sharing a rental unit, or an individual living alone. Household formation[5] occurs when an individual or a group of individuals move from one household into a separate household, such as when a young adult moves out of their parents' home to live alone, or with a roommate or partner, or when an immigrant (either an individual or family unit) moves into the country. These new households, by definition, need to move into a separate housing unit.

Because all households are not identical, they grow at a different rate than the population. For this reason, it is important to distinguish growth in households from population growth[6]. The US population increased by 150.4 million between 1960 and 2021, from 182.2 million to 332.6 million, for an average annual growth rate of 1.0%. If population growth was the sole contributing factor to household formation, the number of households would grow at an identical pace; however, between 1960 and 2021, the number of households grew by 74.3 million, or 1.5% on average per year, from 53.3 million to 127.6 million. This divergence in growth rates between population growth and household formation is a result of a second contributory factor: the declining number of people per household.[7]

Between 1960 and 2021, the average household size declined from 3.33 people to 2.51, as shown in Exhibit 1.[8] This decline is primarily driven by two factors. The first is the proliferation of nuclear family-oriented living arrangements, in which family households are increasingly constituted by parents and children only, rather than parents, children, and members of the extended family. For example, from the mid-1800s to the end of the 20st century, the share of US seniors living with their adult children declined significantly, from almost 70% to less than 15%.[9] This decline is the result of numerous factors, including enhanced resources and social safety net programs for the elderly, and increased employment opportunities for the young.

Exhibit 1: # of People Per Household

Source: US Census Bureau

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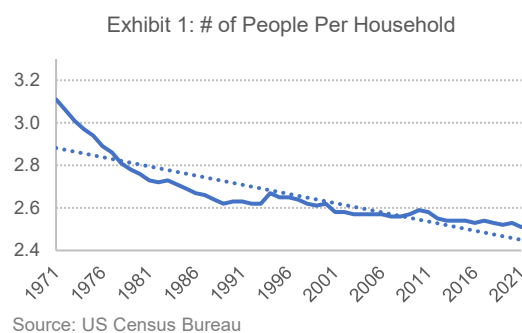
[4] Freddie Mac *Housing Supply: A Growing Deficit* May 2021 and National Association of Realtors *Housing is Critical Infrastructure: Social and Economic Benefits of Building More Housing* June 2021

[5] Household Formation is defined as the periodic change in the number of households in the US, $HF = N_t - N_{t-1}$, where HF is Household Formation and N_t is the number of households in period t.

[6] Population growth is the sum of net migration (i.e., immigration minus emigration) and net births (i.e., births minus deaths)

[7] Kingbird Analysis of US Census Bureau Data

[8] Kingbird Analysis of US Census Bureau Data

[9] Ruggles, Steven *The Decline of Intergenerational Coresidence in the United States, 1850 to 2000* American Sociology Review December 2007

The second cause is the rise of non-family households as a share of total households. A non-family household is comprised of a householder who lives alone or with individuals they are not related to, such as an unrelated roommate. Non-family households' share of total households increased from 14.6% in 1960 to 35.4% in 2021.[10] As non-family households are typically much smaller than family households, at a historic average size of 1.39 people versus 3.35 people, respectively, this increase in their share of all households has had a large effect on overall household size. This increase is largely due to higher rates of independence among new adults, and cohabitation of unmarried roommates or partners.

The combination of a growing population and a decreasing average household size led to an acceleration of household formation relative to population growth. Between 2010 and 2021, the US population expanded 7.0%, by 21.6 million, from 311.0 million people to 332.6 million. If the average household size remained static at 2010's 2.59 people per household, the number of households would have expanded by 1.1 million. However, the average number of individuals per household shrank to 2.51, resulting in annual household formation of 1.3 million households.

Defining Housing Supply

New housing supply (i.e., net housing deliveries) is the completion of new housing units, less demolished and newly uninhabitable units. A housing unit is any form of housing accommodation, such as an apartment, townhome, single-family home, condominium, or mobile home. Housing supply has two sources: 1) private construction, or non-governmental enterprises, which makes up 98.5% of new construction spending; and 2) public construction, or government funded construction, which is just 1.5% of construction spending. This White Paper will focus on private construction due to its prevalence as the primary source of new supply.

Housing supply is measured in two ways. The first, housing completions, are the number of housing units that are finished[11] in a given period. While completions are a useful indicator of active construction activity, they are backward looking due to the length of time necessary to construct a single-family home or high-rise residential building, typically 6-24 months. The second, housing starts, are forward looking and represent the number of units that began[12] construction during a given period.

I. The Supply Shortfall

The formation of a new household necessitates a vacant or newly constructed housing unit. Since the GFC, net new housing deliveries have not kept pace with household formation. Between 2010 and 2021 household formation exceeded net housing deliveries[13] by nearly 4.8 million units. **Each year during this period, more than 1.3 million new households were formed compared to 993,000 net housing units completed per year, on average.[14]** Without new units to move into, the remaining 332,000 households that formed annually have to move into already existing available inventory (i.e., the units that make up the current vacant supply). In 2008, approximately 4.5% of households with a head of household aged 25-34 years old, a proxy of new households, lived in a housing unit built in the past 3 years. This figure declined to 3.2% in 2020[15], driving US vacancy rates downward, as illustrated in Exhibits 2 and 3 below.

Exhibit 2: For-Rent Vacancy Rate
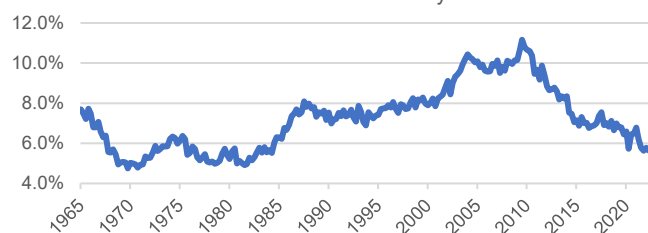
Source: US Census Bureau

Exhibit 3: For-Sale Vacancy Rate
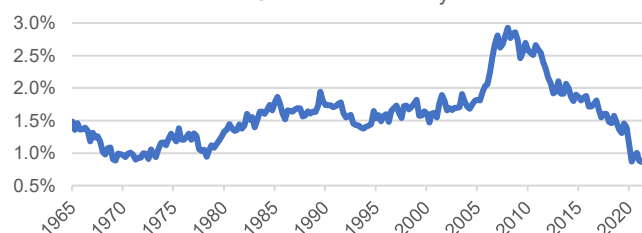
Source: US Census Bureau

[10] Kingbird Analysis of US Census Bureau Data
[11] Completion is defined as the earlier of flooring installation or realized occupancy
[12] A housing unit start is counted when excavation for the footing or foundation begins
[13] Housing completions less demolitions and newly uninhabitable units
[14] Kingbird Analysis of US Census Bureau Data
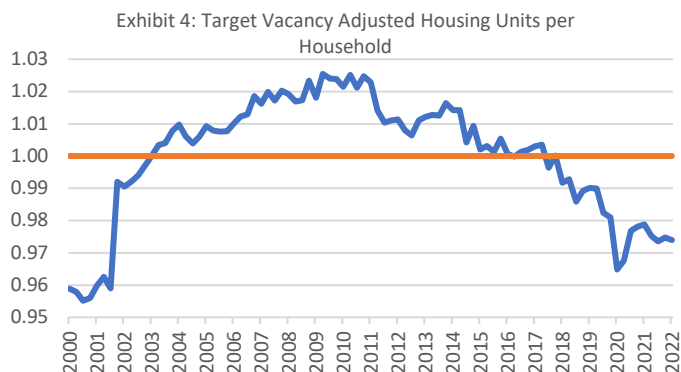[15] Kingbird Analysis of ACS 1-Year IPUMS Data

As of 2021, the combined vacancy rate in for-sale and for-rent housing was 2.5%, well below the estimated natural vacancy rate of 4.3%.[16] The natural vacancy rate is the ideal rate to promote healthy pricing, mobility, and natural rates of household formation. If the national housing vacancy rate was closer to this 4.3% level, housing would also be more affordable for new households, people could move more easily, and households would likely form earlier and quicker. In short, a vacancy rate of 4.3% promotes a healthy housing market and facilitates various demographic trends. The for-sale and for-rent vacancy rate has been below this 4.3% target since Q2 2014.

In order to begin to address the nation's housing shortfall, the vacancy rate[17] must trend toward its natural level. At a minimum, 3.4 million units are needed to close the vacancy gap, while an additional 400,000 units are needed to maintain the target vacancy rate, given the enhanced household formation that would be spurred by more favorable housing conditions.
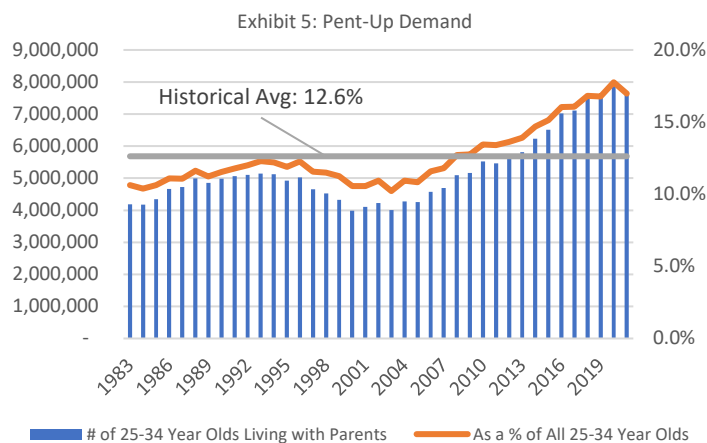
To close this gap within 5 years, while simultaneously meeting new demand, builders would have to accelerate the rate at which they deliver new units by approximately 71%. As previously outlined, only 993,000 units were delivered annually since 2010, but to close the housing gap the rate of delivery would need to be increased by 1.7 million units, to 2.6 million housing units annually.[18]

This lack of new supply can be easily visualized through the downward trend in the ratio of total housing inventory, adjusted for target vacancy, to the total number of households. Market equilibrium of this ratio is at 1, meaning there is at least one housing unit for every household, plus enough vacant units to maintain the target national vacancy rate. Exhibit 4 indicates this level is near historic lows and that the ratio has been below 1 since Q4 2017. The gap between the ratio's current value of 0.97 vacancy-adjusted units per household and 1 approximates the 3.8-million-unit minimum housing shortfall.

The consequence of running below market equilibrium is not only a lack of housing units for new and existing households, but also that some households never form or do so significantly later than they would if there was adequate supply available. This is especially prevalent among younger generations. As shown in Exhibit 5, historically, 12.6% of 25–34-year-olds have lived at home with their parents. This figure began to consistently rise in 2008 and was 17.0% as of 2021. As a result, the median age of household heads in the US increased from 49.0 in 2008 to 52.1 in 2021.[19]

Exhibit 4: Target Vacancy Adjusted Housing Units per Household

Source: Federal Reserve Bank of St. Louis

Exhibit 5: Pent-Up Demand

Historical Avg: 12.6%

# of 25-34 Year Olds Living with Parents — As a % of All 25-34 Year Olds

Source: US Census Bureau

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[16] The 4.3% target vacancy rate for for-sale and for-rent housing is calculated as for-sale and for-rent housing's historic average share of overall vacancy during periods when housing supply was greater than demand, multiplied by Freddie Mac's target 13% overall vacancy rate. The target vacancy rate of 13% encompasses all housing unit categories: for-sale, for-rent, seasonal housing units, and vacant units that are being held off the market. A healthy housing market features ample supply of each of these types of categories in order to promote mobility and household formation. If the two categories of housing units besides for-sale and for-rent did not have ample supply, they would reduce the supply of for-sale and for rent units.
[17] Adjusted for Seasonal Units and Vacant Units Being Held Off the Market
[18] The current trailing 5-year average annual rate of household formation is slightly more than 1.3 million ("AVG_{HF}"). Assuming this rate continues over the next 5 years ("$5YR_{HF}$"), means that 6.6 million new households will form naturally over the next 5 years $5YR_{HF} = AVG_{HF} \; x \; 5$. Adding this natural formation to the current household shortfall ("CHSF") of 400,000 yields a new housing demand ("NHD") of approximately 7.0 million $NHD = 5YR_{HF} + CHSF$. Adding the NHD to the current number of occupied housing units ("COHU") (129.1 million units) yields total housing demand of 136.1 million ("THD") $THD = NHD + COHU$. Finally, given a target vacancy rate of 13% (the 4.3% target for-sale and for-rent vacancy rate plus the target vacancy for all other housing categories), divide the THD by (1 - 13%). The result of 156.4 million is target number of housing units ("THU") $THU = \frac{THD}{(1-13\%)}$. The 13.1 million unit difference between the THU and the current housing inventory ("CHI") of 143.3 million is the total housing need ("THN") $THN = THU - CHI$. To arrive at the annual housing need ("AHN") of 2.6 million units, divide the THN by 5 $AHN = THN \; / \; 5$.
[19] Kingbird Analysis of US Census Bureau Data

This increase in adult children living at home represents pent-up housing demand that will, upon release, further amplify the current housing shortfall. Given the unfilled housing supply backlog and pending demand, one would expect that supply would increase to meet it. However, while the number of housing starts in the US grew steadily coming out of the 2008/2009 Global Financial Crisis — from 586,900 in 2010 to 1.6 million in 2021 — the COVID-19 pandemic and its follow-on economic and labor market effects have palpably strained the residential construction sector. Housing starts appear to have peaked in April 2022, with 164,300 units started (a level last seen in 2006) and have since declined to 140,500 units in August 2022.[20]

If this downward trend in new construction continues to the point that, over the next 5 years, the average monthly number of housing starts equalizes with the average from the past 5 years, then the US is poised to add a total of 6.3 million new housing units. This means that the US, based on current housing start trends, will only add 912,600 units per year[21]; well short of the 2.6 million units needed annually to achieve a market equilibrium and the ideal 4.3% natural vacancy rate that allows for the market to function efficiently.

Given the evidence cited, barring a structural change of the housing industry, this secular housing gap will persist and grow well into the future.

II.   The Supply Gap's Causes

The residential construction sector's consistent inability to meet housing demand is primarily caused by three underlying factors:

1) Onerous zoning, land use, and environmental regulations
2) Construction input price inflation
3) Labor shortages

The Growth and Impact of Zoning, Land Use, and Environmental Regulations on Housing Production

Increasingly stringent local zoning, land use, and environmental laws and regulations are arguably the most significant headwinds adversely impacting housing production. State and local regulations impose significant risk elements and unproductive costs and serve to limit not only where new housing can be developed, but also constrain the asset class, product type, density, material, and style of new developments.

Although the regulations began as well intentioned, and were designed to manage the widespread development of office and industrial land uses near existing retail and residential areas following the growth of the Industrial Revolution, the decades-long accumulation of regulations created an onerous process limiting new development nationwide; overly restrictive regulations, veto-empowered planning commissions, and punitive development exactions collectively served to limit future home and apartment supply.

While the localized nature of land use regulations makes comprehensive analysis of their proliferation a challenge due to their number and variation, it is clear they have increased substantially over time. Between 1980 and 2009, the number of zoning, land use, and environmental cases that passed through US courts annually increased 100.4%.[22] The number of households and housing units in the US expanded 39.5% and 49.9%, respectively, during that same period.[23] This mismatch in growth suggests that regulations and their enforcement grew substantially in "real" terms and indicates that, as regulations proliferate, the US housing supply situation worsens.
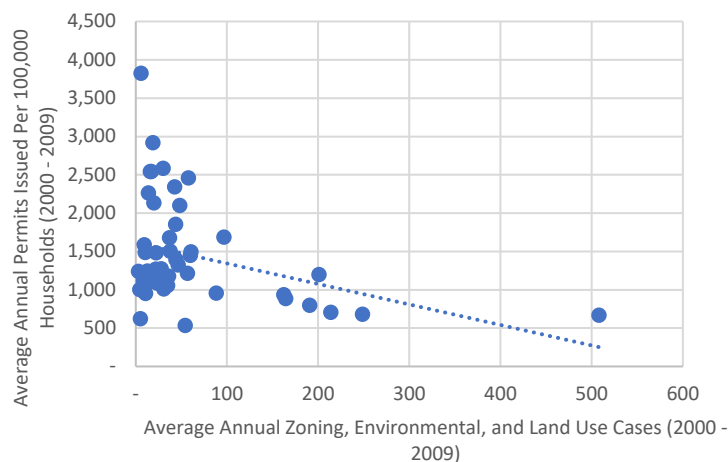
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[20] Kingbird Analysis of US Census Bureau Data
[21] There were 116,485 housing units started per month on average over the past 5 years. This means that 1.4 million units were started annually $1.4\ million = 116,485 * 12$. However, approximately 9.67% of those units were never completed, and, per Freddie Mac estimates, 350,000 units are lost to depreciation annually (https://www.freddiemac.com/research/insight/20181205-major-challenge-to-u.s.-housing-supply), yielding the 912,600 number $1.3\ million = ((1 - 9.67\%) * 1.4\ million) - 350,000$. This 9.67% "not completed" rate ("R_{UC}") was calculated by subtracting the number of housing completions ("C") that occurred a number of months after each period between Nov 2016 and Nov 2021 ("t") from each period's number of starts ("S_t"), based on the average number of months started units took to complete during each period's corresponding year ("ycm"), sourced from the US Census Bureau's New Residential Construction Start to Completion Length of Time data summing this result for each period, then dividing by the sum of all the periods' starts $R_{UC} = \frac{\sum S_t - C_{t+ycm}}{\sum S_t}$.
[22] Kingbird Analysis of Cato Institute Data
[23] Kingbird Analysis of US Census Bureau Data

Exhibit 6: Zoning, Environmental, and Land Use Regulations vs Permit Issuance

Average Annual Permits Issued Per 100,000 Households (2000 - 2009)

Average Annual Zoning, Environmental, and Land Use Cases (2000 - 2009)

Source: US Census Bureau and Cato Institute

The effects of these strict and abundant regulations cannot be overstated. As displayed in Exhibit 6, there is a negative relationship between the number of annual zoning, environmental, and land use court cases and the number of permits issued per state, relative to its number of households. States with a higher average number of cases typically have a lower level of permit issuance, when adjusted for household count. Less permits issued means fewer residential deliveries, exacerbating the housing shortfall locally.

Exacerbating this, between 2006 and 2018, 49% of metropolitan areas nationwide increased the burdens of their land use regulations by creating new or strengthening existing entities in the approval process and/or increased project review timelines. Another 18% of the nation's metropolitan areas saw no change in regulatory strictness. [24] [25]

Burdensome regulations impose significant financial disincentives on new construction; an estimated 32% of multifamily projects' total development costs are attributable to regulatory burdens, as shown in Exhibit 7 below, implying that multifamily building costs would be 32% less expensive if it was not for regulatory costs.

Exhibit 7: Estimated Cost of Government Regulation as a Share of Development

| Type of Cost	Lower Quartile	Average	Upper Quartile
Cost of applying for zoning approval	1.1%	4.0%	5.3%
Interest costs on refundable fees charged site work begins	0.0%	0.2%	0.2%
Other (non-refundable) fees charged when site work begins	1.9%	4.2%	5.5%
Development requirements that go beyond the ordinary	1.1%	5.9%	8.4%
Land dedicated to the government or otherwise left unbuilt	0.0%	2.1%	3.3%
Fees charged when building construction is authorized	1.1%	3.9%	5.4%
Cost of complying with affordability mandates	0.0%	1.7%	2.6%
Cost increases from changes to building codes	5.2%	7.0%	7.1%
Cost of complying with OSHA requirements	1.3%	2.3%	7.3%
Pure cost of delay	0.1%	0.7%	1.2%
Total Estimated Cost of Regulation as Share of Development	21.7%	32.1%	42.6%

Source: Cato Institute

This increase in costs has two core effects: 1) it disincentivizes construction which reduces supply; and 2) it forces developers or managers to charge higher prices or rents to offset the additional costs. For example, each regulation that a city in California enacts is associated with an estimated 4.5% and 2.3% increase in the cost of owner-occupied and rental housing, respectively.[26] Either effect reduces the supply of affordable housing.

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[24] Gyourko, J, Hartley, J, and Krimmel, J *The Local Residential Land Use Regulatory Environment Across U.S. Housing Markets: Evidence from a New Wharton Index* National Bureau of Economic Research 2019
[25] 33% of areas saw regulations ease via contractions in review times, the elimination of a governing body in the "by right" review process, and/or the reduction or elimination of impact fees. While these slight reductions in a third of metropolitan areas' land use regulations are a potentially promising signal, their limited scope and the fact that a majority of the nation's cities saw regulations stay the same or increase suggests the problem is poised to worsen rather than ease in the near and moderate term.
[26] Cato Institute *Zoning, Land-Use Planning, and Housing Affordability* October 2017

The effect of this regulatory burden on multifamily construction is made clear when the number of multifamily building deliveries are examined in conjunction with zoning, environmental, and land use court cases by region. As shown in Exhibit 8, of the four US regions — Northeast, South, Midwest, and West — those with the least number of court cases experienced the greatest number of multifamily completions, a clear negative relationship. The South, which had the fewest cases annually, on average, had the most average completions per year. The West, which had the second fewest, had the second most, while the Midwest, which had the third fewest zoning, environmental, and land use cases, had the third most multifamily deliveries. Finally, the Northeast region, which, between 1994 and 2009, had the highest number of regulations move through its courts, experienced the fewest successful deliveries of multifamily buildings among all four regions.

Exhibit 8: Zoning, Environmental, and Land Use Regulations vs Multifamily Deliveries
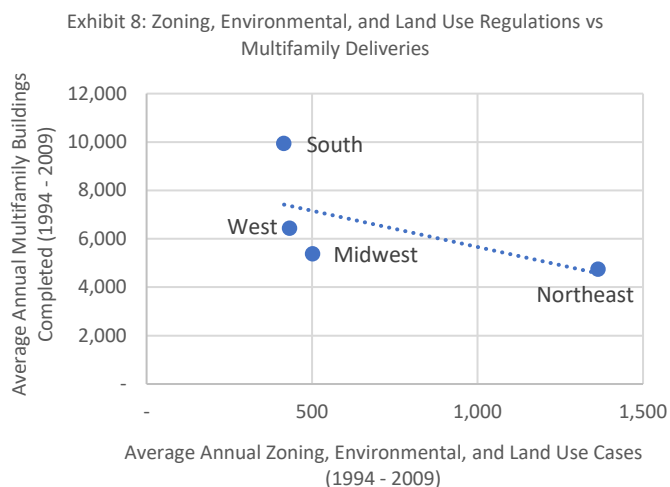

Source: US Census Bureau and Cato Institute

Further, many zoning, land use, and environmental regulations are specifically designed to limit the supply of multifamily housing as local homeowners believe it negatively impacts home values and actively advocate against their construction. Reflecting this, the number of multifamily buildings delivered annually in the US declined from 23,000 in 1994 to 12,000 in 2021.[27] [28] [29]

Although initially well intentioned, the prevalence of these regulations throughout the US has increased the cost and number of regulatory hurdles that must be overcome by builders. This limits the ability of developers to respond to the housing shortage and drives up construction costs. As these regulations are unlikely to go away in the near and intermediate term, and because in-place residents have limited incentive to support modifying prevailing rules that empower current residents, future and potential residents are severely disadvantaged. They are either forced to pay more to live in a community or are excluded altogether.

Construction Inputs Price Inflation

Pricing and demand have an inverse relationship, all else being equal; as costs rise, demand falls. This has been especially true in the construction sector. Since 2017, costs associated with building new housing rose faster than general inflation, as shown in Exhibit 9. These dynamics limit the ability of developers to construct moderately priced product. Increased costs can also halt new construction altogether, on occasion, as projects become unprofitable to continue.

As exhibited to the right, inputs to the residential construction — goods, services, and land — increased more rapidly than inflation, at an average annual pace of 1.6% versus inflation's 0.7% since 4Q2014. Land prices in particular have driven this phenomenon, accounting for 56.8% of the growth in these inputs' costs.[30]

Exhibit 9: Construction Costs vs Inflation
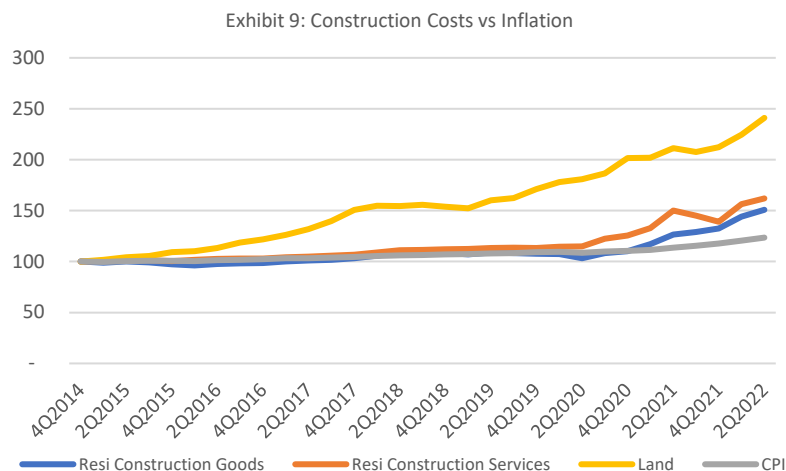
Source: Bureau of Labor Statistics and CoStar Commercial Repeat Sale Index

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[27] US Census Bureau
[28] A regression analysis of zoning, land-use, and environmental cases and multifamily deliveries between 1994 and 2009 yielded a correlation coefficient of -0.53.
[29] National Library of Medicine *NIMBYism as a barrier to housing and social mix in San Francisco* 2022
[30] Kingbird Analysis of Federal Reserve Bank of St. Louis, Bureau of Labor Statistics, and CoStar Commercial Repeat Sale Index Data

These long-term cost increases, when combined with the above-described zoning, land use, and environmental, regulations, have a direct effect on housing supply; as building materials become more costly and restricted, the economics of constructing housing, especially affordable housing, become more challenging and less feasible.

For instance, as land prices increased, single-family homes have progressively become larger and more expensive over time, even as lot sizes have declined in size. Between 1998 and 2021, land prices increased 327.8% cumulatively. Simultaneously, the average square footage, construction price, and per square foot construction price increased 26.2%, 160.82%, and 106.64%, respectively. In comparison, CPI increased 66.2% during this period.[31] Further, as Exhibit 10 shows, size and contracted construction pricing are highly correlated with land cost.

Exhibit 10	Of Completed Homes		
	Avg SF	Inflation Adjusted Avg Contract Price	Inflation Adjusted Avg Contract Price PSF
Correlation With Land Pricing	0.70	0.92	0.93

Despite the above, the average lot size of single-family homes has declined from 1.74 acres in 2009 to 0.90 acres in 2021.[32]

Decreased lot sizes are a direct result of a combination of strict and proliferating regulations and increasing costs; regulations dictate the size, number, and type of housing that can be built on a plot of land, limiting the ways in which builders can make up for the increased input costs of construction, thus forcing them to build larger, more expensive housing to recoup costs. Without regulations that, for example, require a given plot of land to only have one single-family home, a builder would be able to build two single-family homes or attached townhomes. This would allow builders to create additional but less expensive homes while still earning a profit.
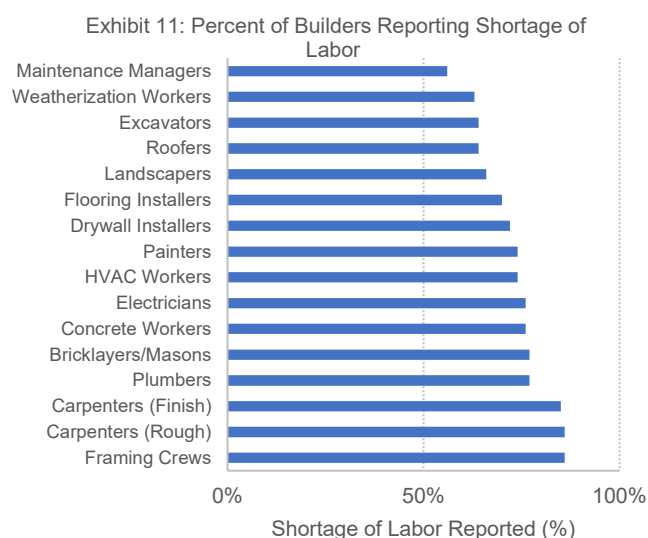
Multifamily development is experiencing its own set of regulatory headwinds as shown by the decline in multifamily building deliveries nationwide. As previously mentioned, in 1994, 23,000 multifamily projects were completed in the US, compared to only 12,000 delivered in 2021. The lack of multifamily development is unlikely to be resolved in the near future, as many regulations intentionally block development due to negative associations with overcrowding, affordable housing, and the potential to change the landscape of neighborhoods.[33]

Construction Labor Shortages

Residential construction employment has yet to recover from the Global Financial Crisis. Employment in the sector peaked at 1 million workers in 2006, then troughed at 528,000 in 2011. Only 921,700 were employed in the industry as of August 2022 – a similar employment level to July 2004.[34] As a result, an estimated 70% of construction firms have difficulty finding qualified employees, per Exhibit 11.

This labor shortage is a result of multiple long-term trends in the US that were exacerbated by the 2008/2009 Global Financial Crisis and the COVID-19 pandemic in 2020/2021. Many skilled construction workers, which are hard to replace, have recently or will soon enter retirement, with an estimated 22.7% of them aged 55 years or older.[35]

Despite this, there is a limited pipeline of young people with the skills necessary to replace these retirees. This is a result of the de-prioritization of vocational training programs in the American

Exhibit 11: Percent of Builders Reporting Shortage of Labor

Maintenance Managers
Weatherization Workers
Excavators
Roofers
Landscapers
Flooring Installers
Drywall Installers
Painters
HVAC Workers
Electricians
Concrete Workers
Bricklayers/Masons
Plumbers
Carpenters (Finish)
Carpenters (Rough)
Framing Crews

Shortage of Labor Reported (%)

Source: National Association of Homebuilders

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[31] Kingbird Analysis of US Census Bureau Data
[32] Kingbird Analysis of US Census Bureau Data
[33] National Library of Medicine *NIMBYism as a barrier to housing and social mix in San Francisco* 2022
[34] Kingbird Analysis of Federal Reserve Bank of St. Louis Data
[35] Kingbird Analysis of Bureau of Labor Statistics Data

education system. Public schools typically eliminate vocational programs when faced with budgetary issues. In addition, public schools put an emphasis on college attainment and white-collar employment over skilled trades. As a result, the share of US high school students enrolled in career and technical education programs has declined from 20.0% in 2009 to 18.7% in 2020.[36]
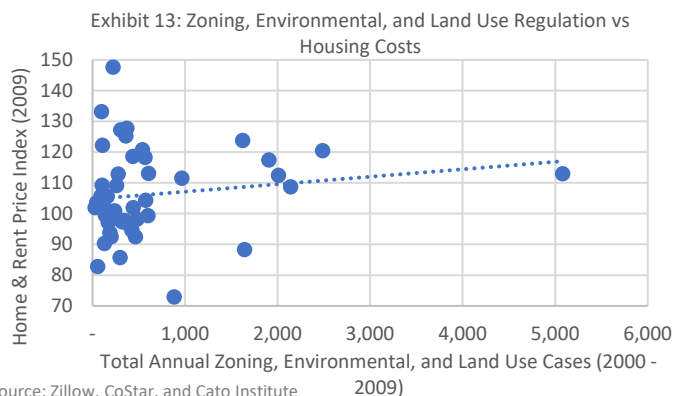
Slow productivity growth is another structural factor that impedes new supply in the housing sector. Construction sector labor productivity has been essentially flat, growing at an average annual pace of just 0.6% from 2011 to 2020. In contrast, overall private nonfarm labor productivity grew at an average rate of 1.1% per year.[37]

Fewer, less productive laborers mean less efficient labor supply which, in turn, hampers overall construction. This is best exemplified by the increase in the average length of time it takes for a housing unit to complete, which grew from 8.4 months in 1974 to 9.5 months in 2021, as displayed in Exhibit 12.[38]

Exhibit 12: Number of Months from Start to Completion
Source: US Census Bureau
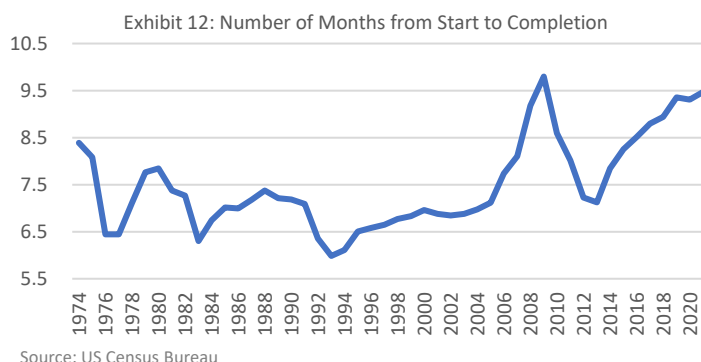
III. The Housing Supply Shortage's Impact on the US Residential Market

The ultimate result of the trends examined above is realized in rising prices of for-sale homes and in escalating rents. Burdensome regulations increase construction costs, delay timelines, and limit the type of product that can be built. Increased material, land, and labor inflation have increased construction budgets substantially. Labor shortages inflate payroll costs and extend construction timelines. These factors all limit supply and drive sales and rent prices upward.

Exhibit 13: Zoning, Environmental, and Land Use Regulation vs Housing Costs
Home & Rent Price Index (2009)
Total Annual Zoning, Environmental, and Land Use Cases (2000 - 2009)
Source: Zillow, CoStar, and Cato Institute

Exhibit 14: Home Price & Apartment Rent Growth
Asking Rent YoY Growth   S&P/Case-Shiller U.S. National Home Price Index YoY Growth
Source: CoStar Data and S&P/Case Shiller

As shown by Exhibit 13, the relationship between the cost of housing and development regulations is positive; states with more regulatory legal cases experience higher relative housing prices. Nationally, housing prices and development regulations have a correlation coefficient of 0.88, and 77% of the variation of housing costs is explainable by these regulatory factors.

A regression analysis of an index of rent and home prices, in conjunction with a construction cost index (goods, services, and land), reveals the two indexes are positively correlated at 0.98; hence, construction costs explain 96.5% of rent and home price variation. This is a statistically significant result that implies increases in home prices are highly correlated with surges in construction cost inputs.
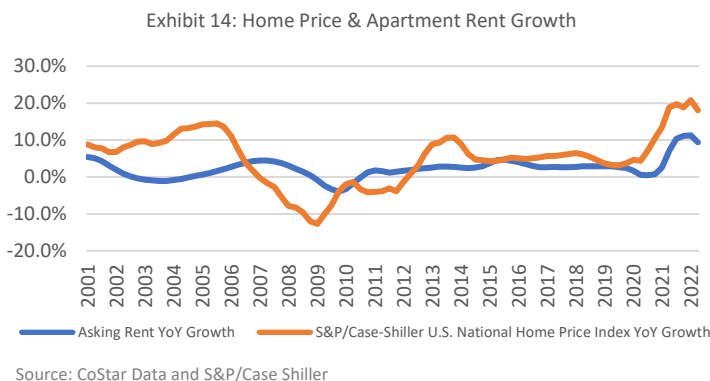
The combination of all the aforementioned factors has resulted in rapid rent and home price growth, as shown in Exhibit 14. This surge in home and rent prices is not solely a consequence of builders adjusting their prices upward to account for higher input costs. Rather, it reflects the economics of consumer demand and the real time dynamics of the marketplace. Low supply of an inelastic product means enhanced consumer competition and thus higher prices – renters and homebuyers both have to compete for a limited housing stock, driving up prices.

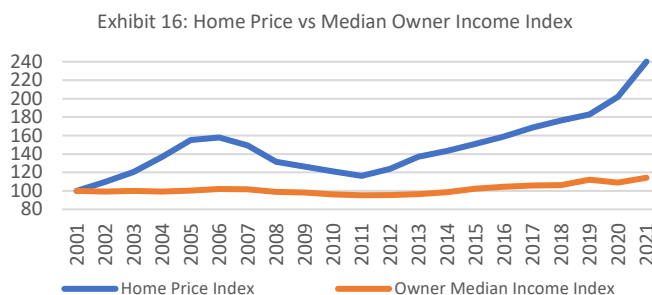[36] Kingbird Analysis of US Census Bureau and Perkins State Plans and Data Explorer Data
[37] Kingbird Analysis of Bureau of Labor Statistics Data
[38] Kingbird Analysis of US Census Bureau Data

Further, home and rent price growth has outpaced income growth. As shown in Exhibits 15 and 16 below, rents have grown at 4.2x the average annual pace of median renter household incomes. Home prices grew 6.8x faster than the median household income of homeowners.[39]

Exhibit 15: Rent Price vs Median Renter Income Index
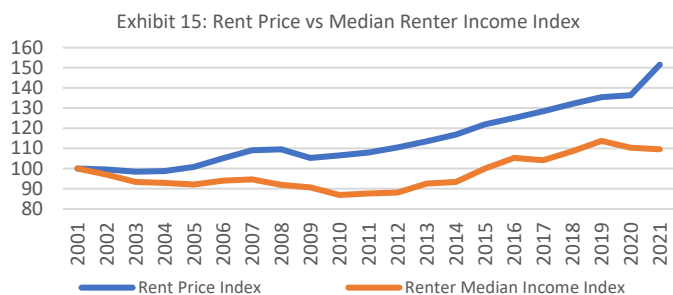
Source: CoStar, NMHC, and US Census Bureau

Exhibit 16: Home Price vs Median Owner Income Index

Source: S&P/Case Shiller, NMHC, and US Census Bureau

The COVID-19 pandemic exacerbated these dynamics by spurring historically rapid housing cost growth. In 2021, the national average rent grew 11.1% on an annual basis, while home prices increased 18.9% per year.[40] These outsized price increases are well above historical averages and, while only relevant in the near term due to their causal relationship with the COVID-19 pandemic, they nevertheless represent a continuation and intensification of long-term trends.

The Gap in Workforce Rental Housing

Among the groups most negatively affected by the housing gap is workforce households, those earning between $45,000 and $75,000 per year in household income. These households make up the largest group of renters, at 9.7 million, or 23.6% of total renter households.[41] Despite this, the supply of housing affordable to this cohort is inadequate to their growing need.

Exhibit 17: Units Affordable by Household Income Category
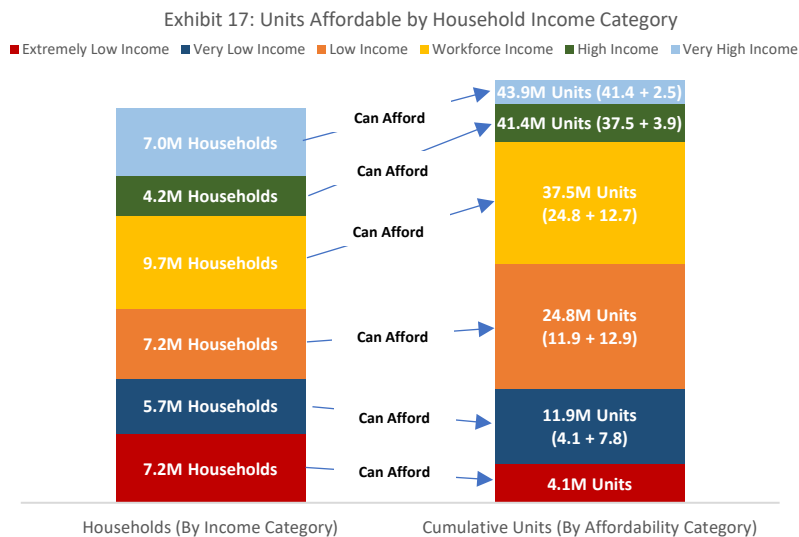
Source: Kingbird Tabulations of 2021 1-Year ACS PUMS Data

As new housing production has lagged household formation, rents were pushed to historic highs. This enhanced rent growth pushed renters out of apartments they could previously afford into lower rent units. This creates a "waterfall effect" in which renters at higher incomes push middle income renters into subpar housing product that consequently does not fit their lifestyle and needs. Simultaneously, lower income renters, who are often government supported, do not have the supply necessary to meet their cohort's demand. This forces lower income renters into more expensive housing, further limiting the supply in the middle.

This waterfall effect continues both downward and upward through the market, eventually pushing workforce renters into sub-optimal and/or unaffordable housing product, as shown in Exhibit 17.[42]

Although there are ostensibly 37.5 million housing units in the US that are affordable to the 9.7 million workforce households, the limited relative supply at the higher and lower end of the product ranges limits the supply available to the workforce housing renter segment. Higher income renters are trickling downward into less expensive housing, while lower income

[39] Kingbird Analysis of CoStar, S&P/Case Shiller, NMHC, and US Census Bureau Data
[40] Kingbird Analysis of CoStar and S&P/Case Shiller Home Price Index Data
[41] Kingbird Analysis of 2021 1-Year ACS PUMS Data
[42] Extremely Low Income: Renting Households Earning $1 – $16,665 annually; Very Low Income: $16,666 – $28,332; Low Income: $28,333 – $44,999; Workforce Income: $45,000 – $75,000; High Income: $75,001 – $99,999; Very High Income: $100,000+; Affordability defined as rent equal to 30% of lower and upper bound of income strata
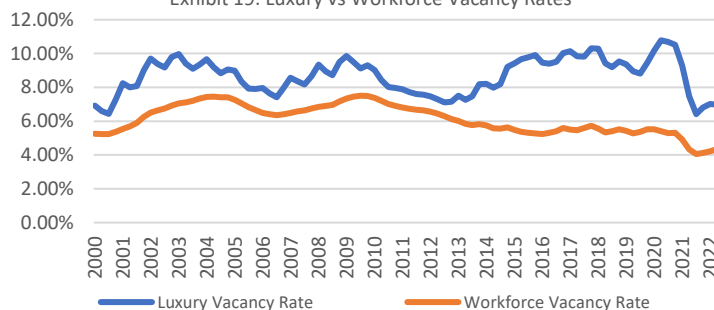
renters are being forced upward due to the lack of adequate supply at the lower end. In this way, the waterfall effect inhibits the ability of workforce renters to supplant those in lower-tier units and limits the supply of workforce units available to actual workforce income renters; this narrows the band of units that are affordable and available to the nation's largest renter cohort (accounting for 23.6% of renter households) from 37.5 million to 11.3 million, assuming a vacancy rate of 3.0% across all rental units. Note that over one-third of these units (34.8%) are of subpar quality relative to the rent price category that corresponds to these households' incomes.

Exhibit 18: Total Deliveries by Rent Price Segment

Legend: Luxury Deliveries / Workforce-Affordable Deliveries
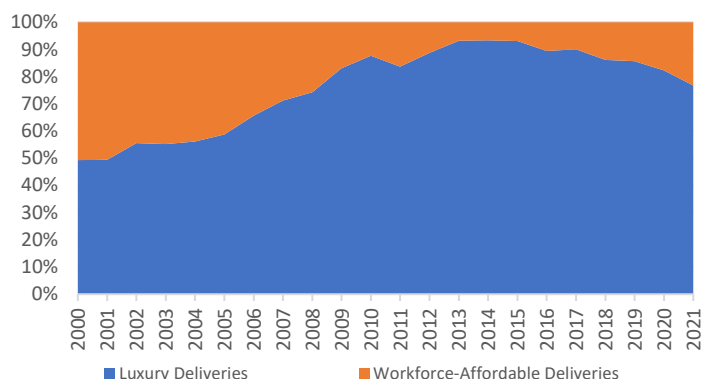
Source: Kingbird Analysis of CoStar Data

Exhibit 19: Luxury vs Workforce Vacancy Rates

Legend: Luxury Vacancy Rate / Workforce Vacancy Rate
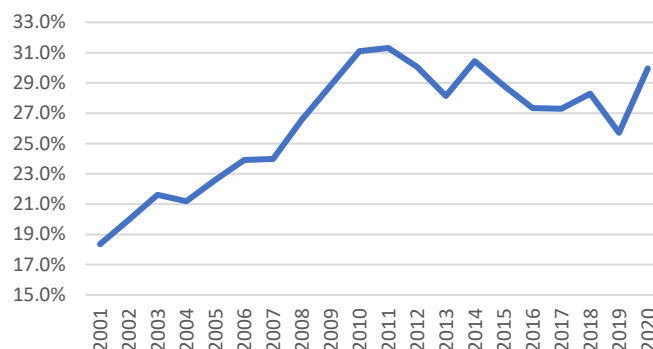
Source: CoStar

The workforce housing supply shortfall is worsened by builders' recent preference for developing luxury product. In 2009, at the tail end of the Global Financial Crisis, the luxury share of new deliveries increased by 881bps, from 74.3% in to 83.1%, its largest jump, as shown in Exhibit 18. Specifically, since 2010, there were approximately 3.3 million apartment unit deliveries across the US, 2.9 million (87.0%) of which were luxury. Only 432,000 (13.0%) were product affordable to workforce households.[43]

This lack of supply relative to demand decreased workforce-affordable vacancies to historically low levels at 4.3% as of Q2 2022, per Exhibit 19. This is well below the luxury vacancy rate of 7.0%.[44]

The result of this historically low vacancy rate is high rent growth. When vacancies are low, owners and managers can push rents on new and renewed units until they reach a rent level that optimizes revenue and vacancy.

Workforce apartments, given their low vacancy rate, have historically outpaced the rent growth of luxury units. Since the GFC, workforce rents grew at an average annual pace of 3.3%, compared to 3.2% for luxury rents, which is indicative of the asymmetric demand for lower quality product. Furthermore, workforce housing is resilient; during the 2020/2021 COVID-19 pandemic, luxury rents declined in three out of four quarters, while workforce rent growth remained positive.[45]

As depicted in Exhibit 20, this structural shortage in workforce housing resulted in a steady increase in the share of workforce households that are cost burdened (i.e., their monthly rent was greater than or equal to 30% of their monthly household income). This is due to rent increases instigated by forced migration into luxury buildings, as lower rent options become occupied or through rent growth at previously lower priced units. In 2001, 18.4% of workforce renters were cost burdened, but by 2020 this figure increased to 30.0%, with an average cost burden of 41.0% of household income.[46]

This large and increasing share of cost-burdened workforce renters, coupled with the low vacancies and high rent growth

Exhibit 20: Share of Workforce Renter Households That Are Cost Burdened

Source: Kingbird Tabulation of ACS IPUMS Data

[43] Kingbird Analysis of CoStar Data
[44] Kingbird Analysis of CoStar Data
[45] Kingbird Analysis of CoStar Data
[46] Kingbird Analysis of ACS IPUMS Data

exhibited by workforce apartments, signals the lack of choice for workforce households on all points of the rental price spectrum — affordable, workforce, and luxury.

Rental units that should be affordable to workforce renters are in high demand by both higher earning and lower income renters. This increased demand for such units implies two factors at play in the market; first, that units at both the top and bottom of the rent price spectrum are unavailable; and second, renters are forced to move into workforce units. This limits the supply of units affordable to and available for the workforce cohort, thereby pushing down their vacancy rate and pushing up their rents. With nowhere else to go, these workforce renters are forced to pay whatever rent the market will bear, which invariably means their share of income spent on rent will increase. If there were enough supply to satisfy the needs of all renters across the income range, this waterfall effect would not occur to such a degree and workforce renters would be more easily able to afford housing.

The confluence of the above factors points to one key point: demand for workforce housing is significantly outpacing supply. This fundamental disparity is poised to grow given current supply dynamics in the residential construction sector and the demand trends fueled by new household formation. Due to high construction costs and a lack of government policy interventions to subsidize rents and new development, workforce housing is the least likely to see high levels of new supply to match demand. This will exacerbate its current underserved status and further drive vacancies lower and rents higher.

IV.   Conclusion - Workforce Rental Housing is an Attractive Investment

The United States' residential sector is chronically underserved; since 2017, the nation has been experiencing a large and growing shortage of housing. In 2017, this shortage was an estimated 731,000 housing units, but as of 2020 has now grown to between 3.8 - 6.8 million units.[47] [48] The lack of supply relative to demand in the US residential sector, specifically within the workforce housing segment, has created an ideal, fundamentals driven environment for investing in workforce housing.

The central driver of this shortfall is a lack of development caused by onerous zoning, land use, and environmental regulations, ever-increasing construction costs, labor shortages, and macro demographic shifts.

The result of these interacting factors is a nationwide housing shortage driving historically low vacancy rates and record high rent and home price growth. The current combined vacancy rate for all for-sale and for-rent housing in the US is 2.5%; in 2021 rent and home prices grew on an average annual basis 11.1% and 18.9%, respectively.

Among the most minimally supplied segments is the workforce renter cohort, the largest group of renters. These renters, defined as those earning household incomes between $45,000 and $75,000 annually, are being squeezed from both the bottom and top of the apartment supply spectrum due to apartment supply constraints. This is further exacerbated by a dearth of new workforce housing product since development economics typically justify either luxury apartments, due to higher rents, or affordable housing, due to government subsidies. These phenomena limit the supply of units available to workforce households, driving vacancies down and rents up, which provides durable cash distributions and sustainable capital value appreciation, thus enhancing returns to investors.

This has proven true historically. Private real estate funds focused on workforce rental housing returned an average net IRR of 16.4% between 2009 to 2019 versus luxury housing focused funds' average net IRR of just 10.7%.[49] While past performance is not indicative of future results, the outlook for investments in the United States' workforce multifamily sector is positive, given its favorable demographic and supply/demand fundamentals.

When demand goes unmet, prices rise. Typically, when a market supply/demand void exists and investors see prices rising, they will quickly move into the marketplace, providing additional supply until market equilibrium is reached. Yet, while the unmet demand of the workforce rental sector is clear, the economy has failed to produce new supply at a level adequate to fill the workforce housing shortfall. As such, this supply gap has grown substantially and is poised to continue to do so, rendering the sector an ideal — and sustainable — target for investment.

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[47] Kingbird Analysis of Federal Reserve Board of St. Louis, US Census Bureau, ACS IPUMS, and CoStar Data
[48] Freddie Mac *Housing Supply: A Growing Deficit* May 2021 and National Association of Realtors *Housing is Critical Infrastructure: Social and Economic Benefits of Building More Housing* June 2021
[49] Kingbird Analysis of Preqin Data