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Housing is Critical Infrastructure: Social and Economic Benefits of Building More Housing

June 2021

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About the Study

Housing is Critical Infrastructure: Social and Economic Benefits of Building More Housing was prepared by Rosen Consulting Group for the National Association of REALTORS®. This report highlights the size of the existing underbuilding gap, consequences of underinvesting in housing, benefits of building more housing, the role of housing infrastructure in communities and the need for a once-in-a-generation response to address the nation's housing shortage and affordability crisis.

About Rosen Consulting Group

Rosen Consulting Group (RCG) is a leading independent real estate economics consulting firm. Founded in 1990 and with offices in Berkeley and New York, RCG provides strategic consulting and unbiased investment guidance through all market cycles. RCG is a trusted advisor to leading banks, insurance companies, institutional investors, public and private real estate operators and industry trade groups. For more information go to www.rosenconsulting.com.

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Executive Summary

Following decades of underbuilding and underinvestment, the state of America's housing stock, which is among the most critical pieces of our national infrastructure, is dire, with a chronic shortage of affordable and available homes to house the nation's population. The housing stock around the nation has been widely neglected, with a severe lack of new construction and prolonged underinvestment leading to an acute shortage of available housing, an ever-worsening affordability crisis and an existing housing stock that is aging and increasingly in need of repair—all to the detriment of the health of the public and the economy. The scale of underbuilding and the existing demand-supply gap is enormous and will require a major national commitment to build more housing of all types by expanding resources, addressing barriers to new development and making new housing construction an integral part of a national infrastructure strategy.

Underbuilding Housing

- While the total stock of U.S. housing grew at an average annual rate of 1.7% from 1968 through 2000, the U.S. housing stock grew by an annual average rate of 1% in the last two decades, and only 0.7% in the last decade.
- The large gap in housing production contributed to an escalation in the cost of renting and rapid house-price increases—often the largest expense for households—exacerbating a growing affordability crisis in many parts of the country.
- Even inclusive of the mid-2000s construction boom period, compared with the prior historical period (1968-2000) when housing completions averaged approximately 1.5 million housing units per year, the underbuilding gap in the U.S. totaled more than 5.5 million housing units in the last 20 years.
- Alternatively, when the loss of existing units, through demolition, natural disaster or functional obsolescence is combined with the underproduction of new housing units relative to household formation, the implied cumulative housing demand-supply gap totals 6.8 million units.
- Comparing the last two decades of annual housing production with the prior historical period (1968-2000), every major region of the country heavily underbuilt housing.
- In order to fill an underbuilding gap of at least 5.5 million housing units during the next 10 years, while accounting for historical growth, building would need to accelerate to a pace that is well above the current trend, to more than 2 million housing units per year. This would represent an increase of more than 700,000 units per year, or approximately 60%, relative to the pace of housing production in 2020 of less than 1.3 million units.

Negative Consequences of the Underbuilding Gap

- Historically, from 1968 to 2020, the sector of economic activity that includes housing construction and renovation, residential fixed investment (RFI), accounted for approximately 5.0% of total GDP. However, during the past 12 years (since 2008), RFI accounted for only 3.0% of GDP, representing a significant decline in investment in housing infrastructure relative to the size of the national economy.
- In terms of lost economic activity, this prolonged shortfall in residential fixed investment translated to a \$4.4 trillion gap in housing investment during the past two decades (2001-2020), compared with a business-as-normal scenario in which residential investment remained at the long-term average of 5% of GDP (1960-2020).
- Underbuilding and the growing affordability crisis dramatically limited the pace of household formation, particularly among millennials in the past decade.
- In fact, the number of adults aged 25 to 34 years living at home with parents surged by 2.5 million since 2010 and more than doubled from 2000 to 2020, increasing by 4 million people.
- The underbuilding gap dramatically shifted the age of the existing U.S. housing stock during the past two decades, increasing ongoing maintenance costs and making it more likely that these units will begin to reach the point of functional obsolescence in the coming years, a factor that would further reduce available housing.
- Underbuilding placed a significant strain on the for-sale housing market in recent years, as the inventory of homes available for sale steadily declined prior to the pandemic.
- More recently, the COVID-19 pandemic greatly exacerbated this issue. In January 2021, the months' supply of inventory plunged to 1.9 months, or 1.0 million homes available—the lowest level since tracking began in 1999—and one third of the historical average. Inventories remained extremely low through March.
- Perhaps most critically, the extreme shortage of for-sale inventory contributed to an untenable scenario in which robust demand is competing for a limited supply, driving housing prices higher, reducing affordability and making homeownership less accessible for low-and-moderate-income households.
- The demand-supply gap in housing during the last two decades, and a constrained supply of housing units generally, fueled rapid price increases that outstripped income growth across the country. The significantly more rapid pace of home-price growth meant that many households were no longer able to afford the monthly payments needed to purchase the median-priced home.

- In addition to the for-sale housing market, renter households faced severe negative consequences from the past two decades of underbuilding. Even before the large financial burdens placed on renters by the COVID-19 pandemic, more than 40% of renter households were cost burdened, while nearly one quarter were 'severely burdened,' or spending more than 50% of their income on housing.
- In this strained environment, addressing the underbuilding gap that the nation faces would help alleviate some of these affordability challenges and promote economic opportunity.
- Like roads and bridges, affordable housing is a long-term asset that provides a safe, quality living environment for families. Increasing and preserving the supply of affordable housing—especially in areas connected to good schools, well-paying jobs, health care and transportation—will help more families climb the economic ladder and help communities meet their workforce needs.
- Dramatically increasing the pace of new home construction and expanding the supply of all types of housing is the only way to substantially reduce the size of the current demand-supply gap and thereby stabilize housing costs in a more affordable range.

Infrastructure for Inclusive Communities

Economic, Fiscal and Social Benefits of New Housing Construction

- Potential economic impacts that could be generated by significantly expanding new housing construction would extend into numerous areas of the economy, including significant employment gains in the immediate term, increased income generated and spent in the local economy, tax revenue directed towards federal, state and local entities, and other positive fiscal and socioeconomic impacts.
- The economic multiplier effects of spending on new housing construction are comparable to, or even larger than, many other types of infrastructure spending, such as construction of highways and streets.
- To reduce the supply deficiencies in the national housing market resulting from the past two decades of underbuilding, during the next 10 years, approximately 550,000 additional new housing units would need to be constructed per year over and above the historical trend of 1.5 million new units annually.
- The total economic impact of building 550,000 additional new homes per year for the next 10 years would support an estimated 2.8 million new jobs, spread across numerous sectors in the economy, and generate approximately \$411 billion per year in additional economic activity (including direct, indirect and induced measures).
- This additional new residential construction would also be expected to generate more than \$53 billion dollars in new annual tax revenue, including \$18 billion in state and local taxes and \$35 billion in federal taxes, reflecting a wide range of activity, including considerable new federal income taxes related to the new job creation.
- One of the most visible examples of infrastructure construction without community engagement or holistic planning was the highway construction boom of the 1950s and 1960s.
- While the major investment in the interstate highway system proved to be a critical step in the nation's economic growth and competitiveness, the negative ramifications of pursuing infrastructure projects without taking a holistic, community-centric approach are still visible in many cities today in hyper-segregated neighborhoods of concentrated poverty.
- The uneven energy burden on different socioeconomic groups is another important case of inequality resulting from narrowly-focused infrastructure development. Specifically, inequality in the cost burden of utility bills, as well as access to and resilience of existing energy infrastructure, effectively reduces housing affordability and limits the productivity and economic development for many communities around the country.
- Improved planning and coordination between housing, transportation and utility infrastructure, combined with an increased emphasis on community input and engagement, would improve quality of life and promote economic development for low-and-moderate-income households and communities of color.
- Large-scale investment in infrastructure for the 21st century provides a once-in-a-generation opportunity to avoid the mistakes of the past and instead build infrastructure and housing together in a way that plans for inclusive and sustainable growth that binds communities together instead of dividing them along racial lines.

Policy Considerations: The Crisis Demands a Once-in-a-Generation Response

- The scale of the problem is enormous, and any serious effort to fill the underbuilding gap and address the affordability crisis will require a major national commitment to build more housing.
- While there is a wide range of potential policy pathways that could help to increase the pace of housing construction, considering the magnitude of the problem, measurable progress will likely require an all-of-the-above strategy that supports housing of all shapes and sizes across the full income spectrum.
- Considering the need to accelerate the pace of construction far beyond both current and historical production, it will be necessary to dramatically expand resources for new development and address many of the most critical barriers to housing

development. Among many other promising ideas, housing infrastructure investments should seek to:

- Address large shortages in capital and lending for the development of affordable housing by expanding resources and maximizing the potential of existing programs.
- Incentivize shifts in local zoning and regulatory environments to substantially increase the quantity and density of developable residential space.
- Increase housing supply by promoting conversions of older or underutilized commercial space.
- Expand capacity for residential construction by applying federal resources to help address construction capacity challenges such as rising construction costs and labor and materials shortages.
- Perhaps most importantly, addressing the national underbuilding gap will require a coordinated approach to planning, funding and development of all forms of infrastructure to not only build more housing, but also build better housing that will be more inclusive and well-integrated into local communities. In particular, mechanisms to achieve these goals include strengthening and expanding the existing Affirmatively Furthering Fair Housing (AFFH) framework, a comprehensive recognition of the need for genuine community engagement in all types of infrastructure development and systematic adoption of planning tools such as fair housing and equity impact analyses.

While supply solutions represent long-term infrastructure solutions vital to the future of the nation, these approaches will necessarily take time to implement, and will undoubtedly need to be combined with a range of demand-side efforts and structural changes to expand access, level the playing field and address the ongoing challenges of racial and socioeconomic equity in our housing and communities.

Housing is Critical Infrastructure: Social and Economic Benefits of Building More Housing

I. Introduction: Housing Is Critical Infrastructure

The infrastructure that forms the backbone of the American economy has fallen into disrepair, exacerbating a wide range of short- and longer-term social and economic challenges. Following decades of underbuilding and underinvestment, the state of our national housing stock, which is among the most critical pieces of that infrastructure, is dire, with a chronic shortage of affordable and available homes to house the nation's population.

The Department of Homeland Security defines critical infrastructure as:

"the physical and cyber systems and assets that are so vital to the United States that their incapacity or destruction would have a debilitating impact on our physical or economic security or public health or safety. The nation's critical infrastructure provides the essential services that underpin American society."

Our nation's housing, both affordable and market-rate, public and private, clearly fits this definition, providing for one of the most fundamental of essential services for our people. Moreover, beyond the essential need for shelter, few things are as central to American society and the American Dream as housing and the opportunity to pursue the path of homeownership, especially for those middle-class workers who form the core of the creative and productive American labor force.

Yet, similar to so many other areas of U.S. infrastructure, the housing stock around the nation has been widely neglected, with a severe lack of new construction and prolonged underinvestment leading to an acute shortage of available housing, an ever-worsening affordability crisis and an existing housing stock that is aging and increasingly in need of repair—all to the detriment of the health of the public and the economy. At the same time, the inventory shortage is driving home prices out of reach for a growing number of households, especially among communities that have been historically shut out of homeownership. This dynamic will make it that much more difficult to close the existing racial homeownership gap in the years to come.

Given the critical need to build more housing all around the country, leading research institutes, policy think tanks, academics and local and federal leaders are increasingly recognizing that *housing is infrastructure* and that building more housing should be an integral part of the national strategy to build infrastructure for the 21st Century:

- "Affordable housing should be viewed as infrastructure with an adequate supply assured through planning and implementation just as communities assure the availability of adequate retail, office, industry, schools or streets." – The Urban Lawyer
- "In rural America...infrastructure spending targeted toward housing—preservation or new—can boost the outlook for Main Street while providing an anchor for our most vulnerable families to achieve stability, and a shot at the middle class." – Housing Assistance Council
- "Affordable housing is a component of the nation's infrastructure and a long-term asset that helps communities and families by connecting them to resources and opportunities." – Representative Maxine Waters, Chair of the U.S. House of Representatives Financial Services Committee
- "Communities across the United States face a severe shortage of affordable homes...One of the enduring lessons of the COVID-19 pandemic is the fundamental necessity of a home. In addition to providing safety and sanctuary, homes have become the center of much of our economy and education." – Bipartisan Policy Center
- "Safe, decent, and affordable housing is a vital part of our nation's infrastructure." – National Council of State Housing Agencies
- "Investments in affordable homes increase economic mobility, strengthens communities, creates jobs and lifts local economies." – National Low Income Housing Coalition
- "Public housing plays a critical role in our nation's public infrastructure, providing families with a stable home and helping them gain access to other services, including education and health." – Council of Large Public Housing Authorities

The vast scale of underbuilding and the enormous demand-supply gap will require a major national commitment to build more housing of all types by expanding resources, addressing barriers to new development and making new housing construction an integral part of a national infrastructure strategy.

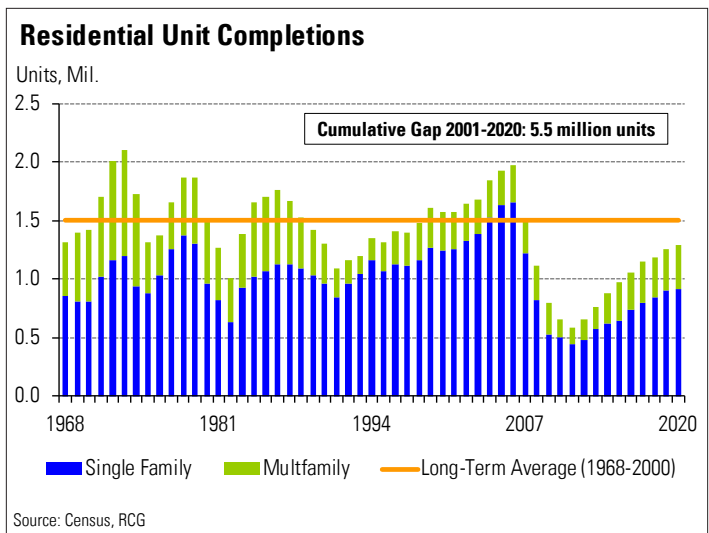
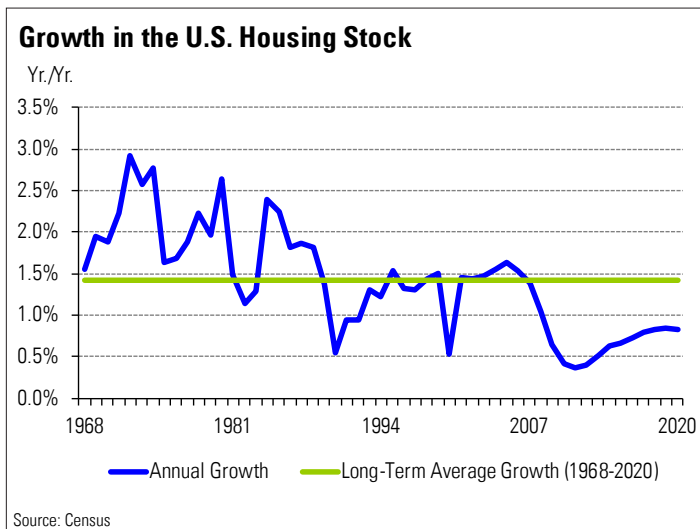
In order to demonstrate the nature and urgency of the problem, this report seeks to highlight: 1) the size of the existing underbuilding gap; 2) the negative consequences of underinvesting in housing; 3) the economic, fiscal and social benefits of building more housing; 4) the role of housing infrastructure in building inclusive communities and; 5) the need for a once-in-a-generation, holistic and coordinated policy response to address the nation's chronic housing shortage and deteriorating housing affordability crisis.

II. Underbuilding Housing

The United States is in the midst of a severe housing shortage as a result of a persistent underproduction of housing during the last decade. From 1968 through 2000, the annual number of new housing units completed in the United States averaged 1.5 million. However, housing construction in the U.S. averaged only 950,000 new units from 2008 to 2020 and remained less than 1.3 million units in 2020, despite a recent, considerable increase in construction activity.¹

Chronic Underproduction of Housing Units

While the total stock of U.S. housing grew at an average annual rate of 1.7% from 1968 through 2000, the U.S. housing stock grew by an average annual rate of 1% in the last two decades and **only 0.7% in the last decade, or less than half of the longer-term historical growth.**² When compared with the long-term average (1968-2020), which includes the period of dramatic underbuilding immediately following the Great Recession, the shortfall in housing completions totaled 5.8 million housing units since 2008. In order to better account for the period of elevated housing construction during the mid-2000s that preceded the onset of the Great Recession, RCG also examined the pace of housing production during the past 20 years. Even inclusive of the mid-2000s construction boom period, compared with the prior historical period (1968-2000), when housing completions averaged approximately 1.5 million housing units per year, **the underbuilding gap in the U.S. totaled more than 5.5 million housing units in the last 20 years.**³ Alternatively, focusing on the period prior to the construction boom and bust of the 2000s as a baseline for a more typical period of historical construction in the U.S., the underbuilding gap in the past 12 years (2008-2020), increased dramatically to 7.2 million housing units compared with the historical period from 1968 to 2000. The large gap in housing production has contributed to an escalation in the cost of renting and rapid house-price increases—often the largest expense for households—exacerbating a growing affordability crisis in many parts of the country.



Historical Residential Completions (Units)

Period	Average Annual Completions
1968-2000	1,501,000
2001-2020	1,225,000
Annual Gap	276,000
Cumulative Gap Since 2001	5,520,000

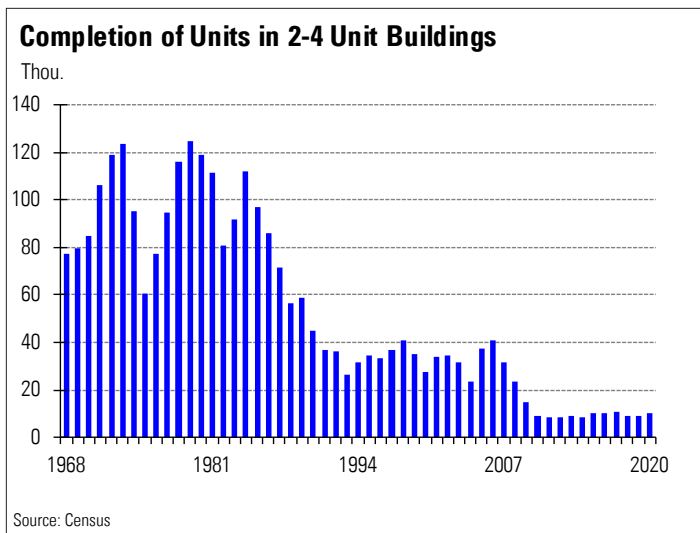
Sources: Census, RCG

It is also critical to note that the underproduction of the last decade took place in all building types, especially smaller, two-to-four-unit multifamily buildings. From 2001 to 2020, the average gap in single family housing production was slightly more than 100,000 homes per year, when compared with the long-term average from 1968 to 2000, **for a cumulative gap of approximately 2 million single family homes.** This gap placed severe strain on the single-family housing market and created a variety of issues, including an acute lack of inventory of homes available for sale, which in turn contributed to a rapid decline in single family housing affordability and limited access to homeownership. While this underproduction of single-family housing contributed to numerous major challenges in the for-sale housing market, these issues were compounded by the fact that new multifamily construction also did not keep pace with historical trends, creating a growing housing supply shortage and exacerbating the affordability crisis across the United States. From 2001 to 2020, the average annual gap in multifamily housing production for units in 5+ unit structures was 120,000 units, when compared with the long-term average from 1968 to 2000, **or a cumulative gap of nearly 2.4 million multifamily units.** The significant underproduction of

Residential Underbuilding from 2001 to 2020 (units)

Building Type	Long-Term Average (1968-2000)	2001-2020 Average	Annual Gap	Cumulative Gap (2001-2020)
Single Family	1,041,000	940,000	101,000	2,020,000
2-4 Unit	74,000	19,000	55,000	1,100,000
5+ Unit	387,000	267,000	120,000	2,400,000
Total Completions	1,501,000	1,225,000	276,000	5,520,000

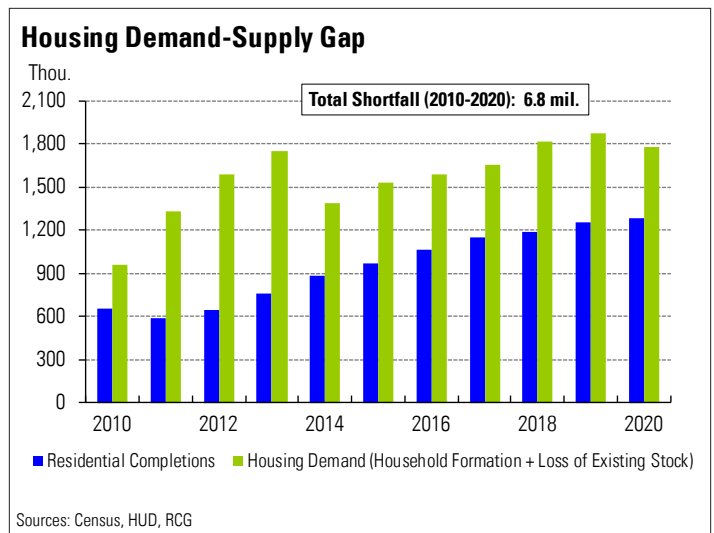
Sources: Census, RCG



multifamily housing, and elevated demand from households priced out of the single-family market, placed a large burden on renter households and limited the ability for these households to save for major life events or spend money on goods or services other than housing needs. The starkest underbuilding shift was for units in two-to-four-unit structures, a segment known as the ‘missing middle’ of housing production, which includes duplexes, triplexes and as well as smaller apartment and condominium buildings. **Production of two-to-four-unit structures fell by nearly 75% during the last two decades, when compared with the long-term average from 1968 to 2000.** The underproduction of these small multifamily buildings led to a large undersupply of what were historically more affordable homes and apartments, further exacerbating the affordability crisis across the country.

Demand-Supply Gap

While the underproduction of units measured through comparing historical trends with more recent trends provides a straightforward assessment of the issue, this metric of historical building does not directly account for demand-side factors. As an alternative method of calculating the underbuilding gap, RCG also compared housing production to household formation. Using these measures, **household formation alone exceeded housing production by nearly 3.2 million housing units from 2010 to 2020.** However, this method does not take into account the destruction (e.g. storms, fires, floods, etc.), demolition or functional obsolescence of aging existing homes. Moreover, it does not consider the number of households occupying vacation and second homes. In practice, both factors detract significantly from the available stock of housing. To account for this, RCG used data from the U.S. Department of Housing and Urban Development (HUD), which reported that between 2009 and 2017, the U.S. housing stock permanently lost 2.6 million housing units, for an annual average of approximately 325,000 units lost.⁴ Applying this average pace of losses to the more recent period would translate to **more than 3.6 million housing units lost from 2010 through 2020.** When this loss of existing units is combined with



the underproduction of new housing units relative to household formation, the **implied cumulative housing demand-supply gap totals 6.8 million units** (where the Demand-Supply Gap = Household Formation + Lost Housing Stock – New Completions).

While there is certainly a range of potential estimates for the size of the current problem, depending on the specific analysis, when considering both the historical underproduction and the metrics to capture the demand-supply gap, RCG believes that placing the current housing undersupply gap at approximately 5.5 million units provides a reasonable, albeit somewhat conservative, gauge of the magnitude of the problem, and a useful framework to guide solutions for the current housing shortfall.

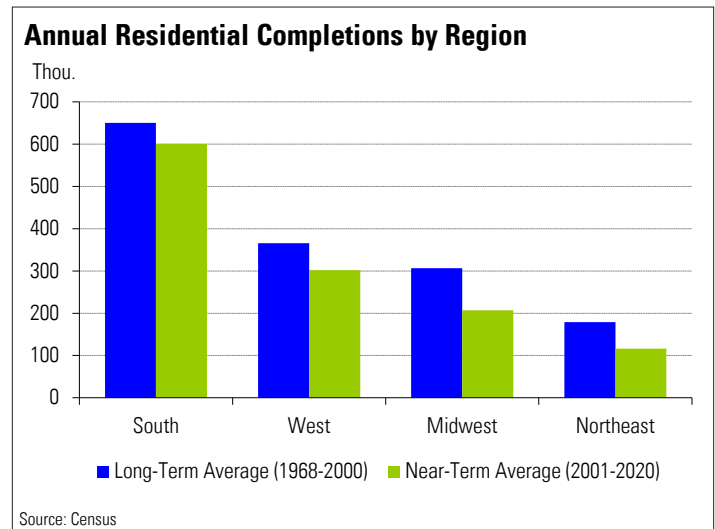
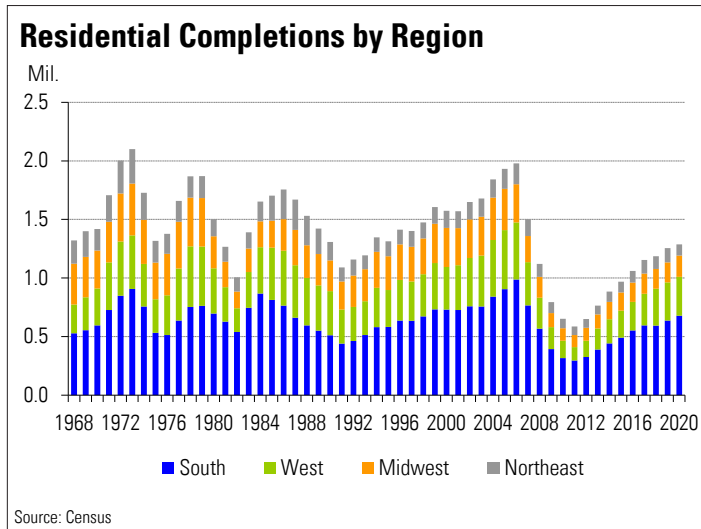
For reference, other sources placed the housing gap between a low of 3.8 million, generated by Freddie Mac in early-2021, and higher estimates of more than 7.0 million, generated by the Up for Growth National Coalition as of 2018, based on an assessment that was limited to the gap in the 23 most underbuilt states. Additionally, sources more narrowly focused on specific segments of the market, such as the National Low Income Housing Coalition, placed the gap for affordable rental units alone at 6.8 million, as of 2021.⁵ Therefore, an estimated housing production gap of 5.5 million units is well within the bounds set by major research organizations within the housing space.

Housing Shortfall by Geography

The shortfall in residential housing production extended across all regions of the country. Comparing the last two decades of annual housing production with the prior historical period (1968-2000), housing construction slowed significantly in every major U.S. region.⁶ Notably, relative to historical trends, out-migration and slower population growth account for some of the slowdown in housing production in the Northeast and Midwest regions. At a sub-regional level, using the number of units permitted, compared with the pace of jobs added by metropolitan area from 2012 to 2019, it is clear that

the underbuilding gap extends across almost every major city in the country. Based on a simplifying assumption of two-earner households, it would be reasonable to expect demand for one housing unit for every two jobs created in a given housing market. However, by this measure, even metropolitan areas typically thought of as having relatively low barriers to building significantly underbuilt housing

compared with the pace of job growth in recent years. For example, relative to job gains, the Riverside-San Bernardino-Ontario metropolitan area in Southern California underbuilt by an estimated 107,000 units from 2012 to 2019, while Las Vegas-Henderson-Paradise, NV only produced three-quarters of a housing unit for every two jobs



Most Underbuilt Markets by Metro Area Size (Pre-Pandemic)

Residential Permitting vs. Job Increase From 2012 to 2019

Metro Size	Metropolitan Areas	State	Jobs Added	Units Permitted	Units Permitted / 2 Jobs*	Underbuilding Gap (units)
Major [3 mil. +]	Riverside-San Bernardino-Ontario	CA	390,000	87,300	0.45	107,700
	San Francisco-Oakland-Hayward	CA	440,400	107,000	0.49	113,200
	Detroit-Warren-Dearborn	MI	200,600	56,600	0.56	43,700
	San Diego-Carlsbad	CA	212,300	69,700	0.66	36,450
	Miami-Fort Lauderdale-West Palm Beach	FL	437,200	151,000	0.69	67,600
	Chicago-Naperville-Elgin	IL-IN-WI	369,500	129,300	0.70	55,450
	New York-Newark-Jersey City	NY-NJ-PA	1,102,100	402,400	0.73	148,650
	Philadelphia-Camden-Wilmington	PA-NJ-DE-MD	266,400	99,900	0.75	33,300
	Boston-Cambridge-Newton	MA-NH	240,000	105,100	0.88	14,900
	Phoenix-Mesa-Scottsdale	AZ	437,400	201,500	0.92	17,200
Large [1 mil. to 3 mil.]	Grand Rapids-Wyoming	MI	78,800	20,800	0.53	18,600
	San Jose-Sunnyvale-Santa Clara	CA	215,000	59,100	0.55	48,400
	Sacramento-Roseville-Arden-Arcade	CA	176,900	51,900	0.59	36,550
	Providence-Warwick	RI-MA	44,700	14,700	0.66	7,650
	Cincinnati	OH-KY-IN	117,000	42,100	0.72	16,400
	Las Vegas-Henderson-Paradise	NV	224,000	88,900	0.79	23,100
	Salt Lake City	UT	132,000	57,000	0.86	9,000
	Cleveland-Elyria	OH	53,300	23,000	0.86	3,650
	Milwaukee-Waukesha-West Allis	WI	49,200	22,000	0.89	2,600
	Columbus	OH	141,100	63,500	0.90	7,050
Moderate [500,000 to 1 mil]	Modesto	CA	29,100	1,000	0.07	13,550
	Springfield	MA	26,600	1,100	0.08	12,200
	Scranton-Wilkes-Barre-Hazleton	PA	9,900	900	0.18	4,050
	Lancaster	PA	31,000	3,100	0.20	12,400
	Lansing-East Lansing	MI	18,800	3,100	0.33	6,300
	Worcester	MA-CT	24,100	4,000	0.33	8,050
	Allentown-Bethlehem-Easton	PA-NJ	38,900	7,000	0.36	12,450
	Stockton-Lodi	CA	51,600	12,500	0.48	13,300
	Fresno	CA	73,500	20,000	0.54	16,750
	Oxnard-Thousand Oaks-Ventura	CA	29,400	8,200	0.56	6,500

Note: *A value of 1.0 implies that one unit would be permitted for every two jobs, a rough proxy for household demand.

Sources: Census, RCG

added. **From coast to coast, border to border, in cities large and small, in urban communities and in suburbs, it is clear that the United States has fundamentally underbuilt housing,** a fact that has led to ever-increasing affordability challenges and financial instability for millions of households.

New Supply Needed to Close the Gap

Looking ahead, in order to fill an underbuilding gap of approximately 5.5 million housing units during the next 10 years, while accounting for historical growth, new construction would need to accelerate to a pace that is well above the current trend, to more than 2 million housing units per year (approximately 550,000 more than the 1.5

million historical average). This would represent an increase of more than 700,000 units per year, or approximately 60%, relative to the pace of housing production in 2020 of less than 1.3 million units. To provide further context, nationally, new housing starts reached a seasonally adjusted annual rate of slightly more than 1.7 million units in March 2021. This increase was a significant acceleration from previous years, and marked the highest pace of housing starts since 2006. However, emphasizing the need for large-scale investment to expand housing production, **even if building were to continue at the current pace—the most rapid pace in more than a decade—it would still take more than 20 years to close the 5.5-million-unit housing gap.**

Housing Completions Needed Annually to Close the Underbuilding Gap (Units)			
Variable	10-Year Period	15-Year Period	20-Year Period
Return to Historical Norm (1968-2000)	1,501,000	1,501,000	1,501,000
Additional Units to Close Gap (2001-2020)	552,000	368,000	276,000
Total Annual Completions Needed	2,053,000	1,869,000	1,777,000

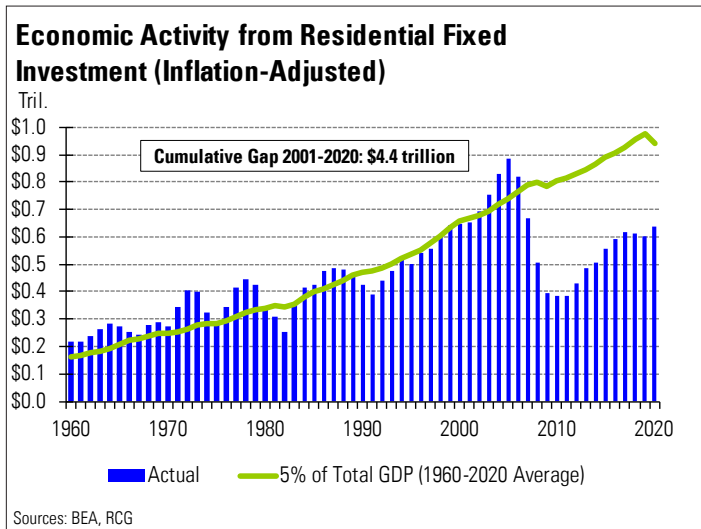
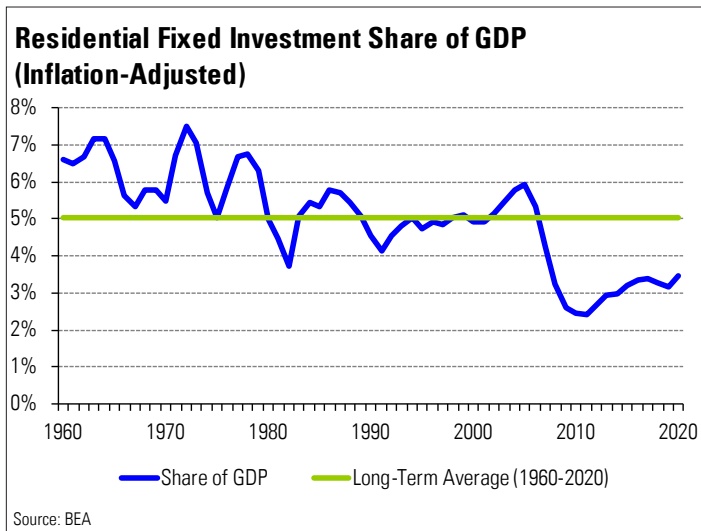
Sources: Census, RCG

III. Negative Consequences of the Underinvesting in Housing

The underbuilding gap of the last two decades produced a wide range of negative externalities and contributed to a series of major consequences that have severely affected communities across the U.S.

Residential Underinvestment

The vast scale of the underbuilding and the associated lack of residential investment cost the U.S. economy trillions of dollars in lost economic activity in recent years. Historically, from 1960 to 2020, the sector of economic activity that includes housing construction and renovation—residential fixed investment (RFI)—accounted for approximately 5.0% of total GDP.⁷ However, during the past 12 years (since 2008), RFI accounted for only 3.0% of GDP, representing a significant decline in investment in housing infrastructure relative to the size of the national economy. Even including the period of elevated building in the mid-2000s, RFI averaged 3.8% of GDP during the past 20 years.



Lost Economic Activity from Residential Underinvestment

Time Period	RFI Average Share % of GDP	Gap (Missing Residential Investment 2001-2020 in Tril.)
2001-2020 (Actual)	3.8%	n/a
1960 to 2020 Avg.	5.0%	\$4.4
1960 to 2000 Avg.	5.6%	\$6.4

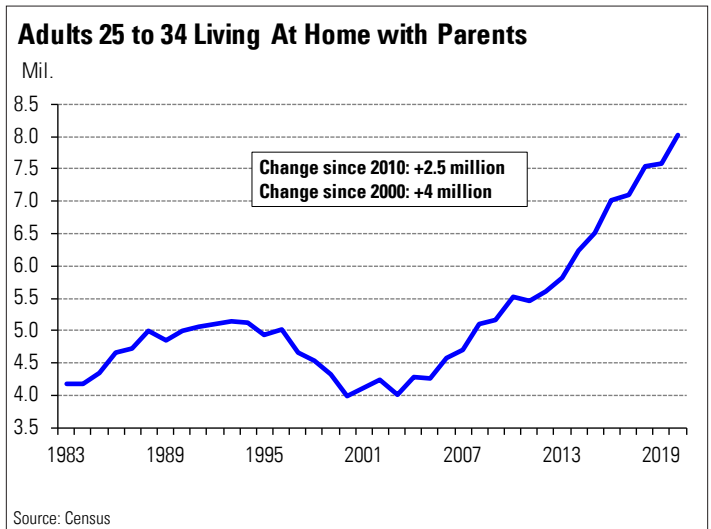
Note: Residential Fixed Investment (RFI)

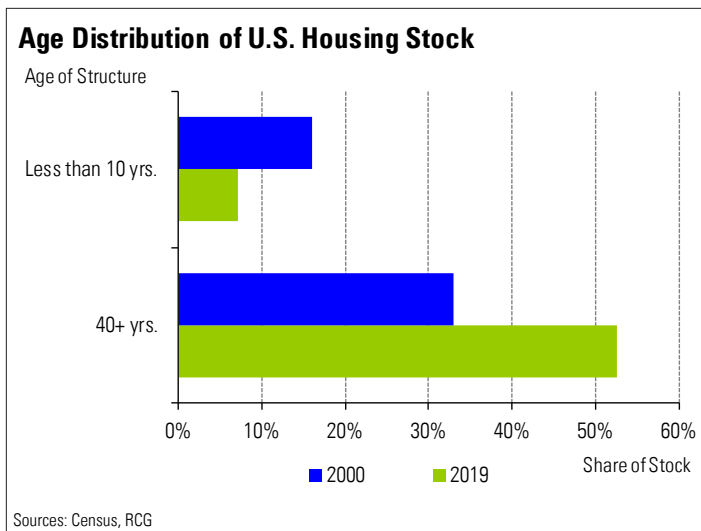
Sources: BEA, RCG

In terms of lost economic activity, **this prolonged shortfall in residential fixed investment translated to a \$4.4 trillion gap in housing investment** during the past two decades (2001-2020), compared with a business-as-normal scenario in which residential investment remained at the long-term average of 5% of GDP (1960-2020). Alternatively, if the RFI during the past two decades is compared with the prior historical period (1960-2000), when the share of GDP averaged 5.6%, this gap would be significantly larger, with an estimated underinvestment in housing of approximately \$6.4 trillion.

Limited Household Formation

Underbuilding and the growing affordability crisis dramatically limited the pace of household formation, particularly among millennials in the past decade. In fact, the number of **adults aged 25 to 34 years living at home with parents surged by 2.5 million since 2010 and more than doubled from 2000 to 2020, increasing by 4 million people**. Even based on a conservative assumption of two adults per millennial households, the increase since 2010 would represent an enormous pool of 1.25 million potential households, reflecting the large scale of pent-up housing demand that could be unlocked if there was sufficient affordable and available housing. Moreover, it is worth noting that this does not consider what would likely be significant demand from single-person millennial households. The addition of this demand from unformed households to the aforementioned figures would significantly increase the underbuilding gap, further highlighting the need for dramatic policy intervention.





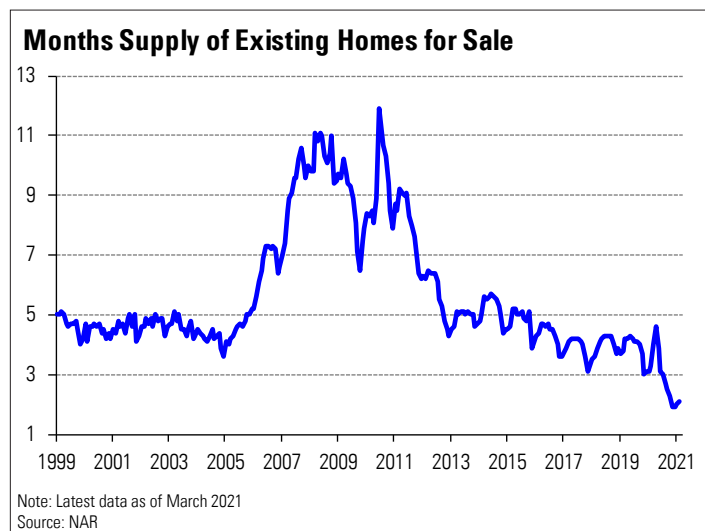
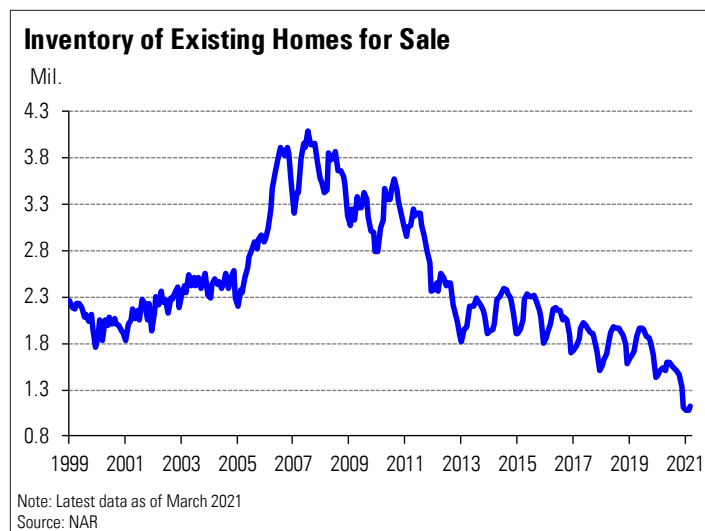
Aging Existing Housing Stock

In addition to the negative impact on the ability of new households to form, the underbuilding gap dramatically shifted the age of the existing U.S. housing stock during the past two decades. As of 2000, prior to the early 2000s housing boom and subsequent extended period of underbuilding, one third of the U.S. housing stock was more than 40 years old, while slightly more than 16% was 10 years old or newer. **In contrast, by 2019, the majority of housing units were 40 years old or older, while the share of homes built in the last 10 years declined rapidly to less than 7.5%.** The aging stock of housing not only increases ongoing maintenance costs, but also makes it likely that more units will begin to reach the point of functional obsolescence in the coming years, a factor that would further contribute to the loss of existing stock, as described earlier, and further reduce available housing, expanding the demand–supply gap. This problem is even more apparent in some of the major northeastern cities in the U.S., such as New York, Boston and Philadelphia, where more than 60% of the housing stock was built more than 50 years ago, as of 2019. However, the issue is most acute in many industrial hubs such as Buffalo, Pittsburgh and Cleveland, where this share is 70% or more. The aging housing stock across the country poses a significant challenge going forward as these homes continue to deteriorate and are increasingly removed from the housing stock, further contributing to the underbuilding gap and hampering the ability for households to form and access the types of housing that best meet their needs.

Unsustainable Strain on the Housing Market

In addition to these issues, underbuilding placed a significant strain on the for-sale housing market in recent years, as the inventory of homes available for sale steadily declined prior to the pandemic, before reaching historic lows amid the pandemic. Specifically, during the period from 1996 through 2016, the months’ supply of existing for-sale housing averaged 6.1 months, which translated to a monthly inventory of 2.5 million homes available for sale. However, from

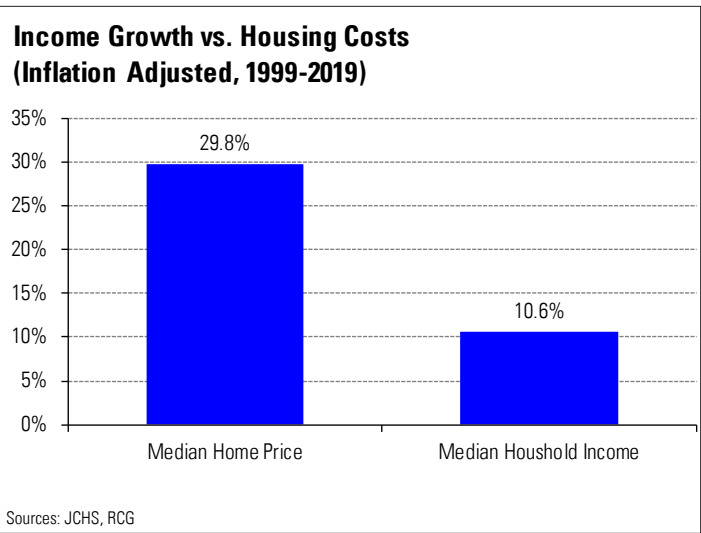
2017 to 2019 the average months’ supply of inventory declined to 3.9 months, or a monthly inventory of 1.8 million homes available for sale. In and of itself, this posed a major challenge to the U.S. housing market as the supply of for-sale housing and access to the American Dream of homeownership was severely constrained by a lack of inventory. While there were numerous factors contributing to this trend, the prolonged period of underbuilding was undoubtedly a major factor that contributed significantly to the problem. More recently, the COVID-19 pandemic greatly exacerbated this issue. In January 2021, the **supply of inventory plunged to 1.9 months, or 1.0 million homes available—the lowest level since tracking began in 1999—and one third of the historical average.** The situation did not improve significantly through March, and the number of homes available for sale was 28.2% less than in March 2020. This extremely constrained level of supply limits the ability for households to a) shift to homeownership and buy a home, b) move up or c) downsize, and in-turn, vacate the stock they currently occupy. This inhibits the normal functioning of the housing market and limits ‘filtering’ of homes and apartments—or the natural tendency for housing units to transition to a greater level of affordability over time. As buildings age, higher-income occupants



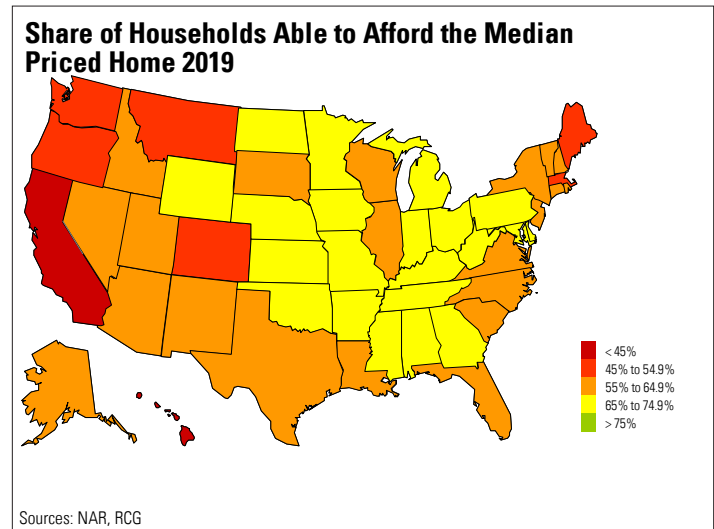
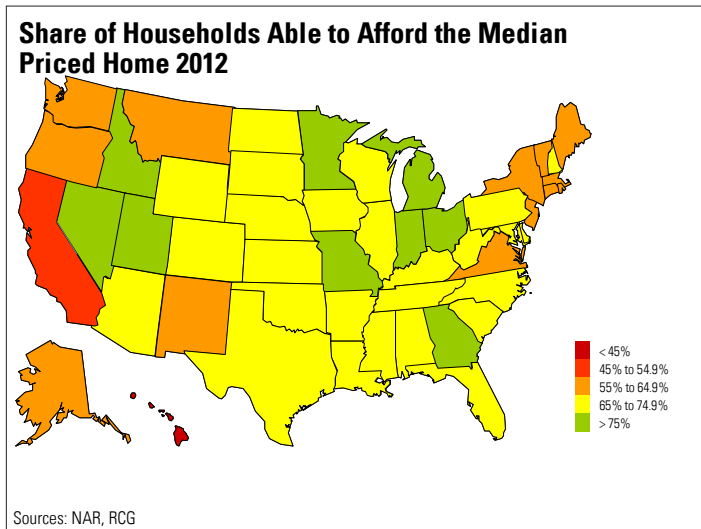
transition to newer units, and existing tenants transition to more affordable units. Perhaps most critically, the extreme shortage of for-sale inventory contributed to an untenable scenario in which robust demand is competing for a limited supply, driving housing prices higher, reducing affordability and making homeownership less accessible for low-and-moderate income (LMI) households.

Housing Affordability Crisis

The demand-supply gap in housing during the last two decades, and a constrained supply of housing units generally, fueled rapid price increases that outstripped income growth across the country. Even prior to the rapid home-price growth during 2020, from 1999 to 2019, **the median home price in the U.S. increased by nearly 30%, cumulatively, while the median household income increased by less than 11%** during that same period. This significantly more rapid pace of home-price growth meant that many households were no longer able to afford the monthly payments needed to purchase the median-priced home. Using the RCG measure of affordability, which utilizes traditional mortgage and down payment assumptions to determine the share of households able to afford the median-priced home, **housing affordability decreased in 45 of the 50 states from 2012 to 2019.**⁸ In fact, among these states, the share of households able to afford the median-priced home declined by an average 7.2 percentage points. The largest declines were in the Mountain West, including Nevada, Utah and Idaho, as well as states with sizable population growth like Georgia. In all of these states, the share of households able to afford the median home price declined by more than 15 percentage points (as seen in the nearby maps). Broadly, single family housing affordability declined across the country, from the Sunbelt to the Snowbelt. In this strained environment, addressing the underbuilding gap that the nation faces would help alleviate some of these affordability challenges and promote economic opportunity.



In the for-sale housing market, improving single family affordability would expand pathways for wealth building and homeownership, especially for segments of the population which have been unable to do so in recent decades. This includes those with large student loan burdens, low-to-moderate income households and households of color. In fact, with a gap between Black and White (Non-Hispanic) homeownership of nearly 30 percentage points, the national racial homeownership gap is as wide as it was in the 1960s, before the passage of the Fair Housing Act of 1968, when housing discrimination was still legal.⁹ Considering the current challenges, expanding the supply of available and affordable housing will be critically important to support increased racial equity in housing going forward, as communities of color and those with low-to-moderate incomes not only faced the largest housing-cost burdens before the COVID-19 pandemic, but were disproportionately affected by job losses and financial hardships resulting from the pandemic and the related shutdown of in-person business activity. More broadly, increasing access to affordable and sustainable homeownership would provide a wide range of social, educational and financial benefits to households, and positive externalities for neighborhoods and communities across the nation.¹⁰



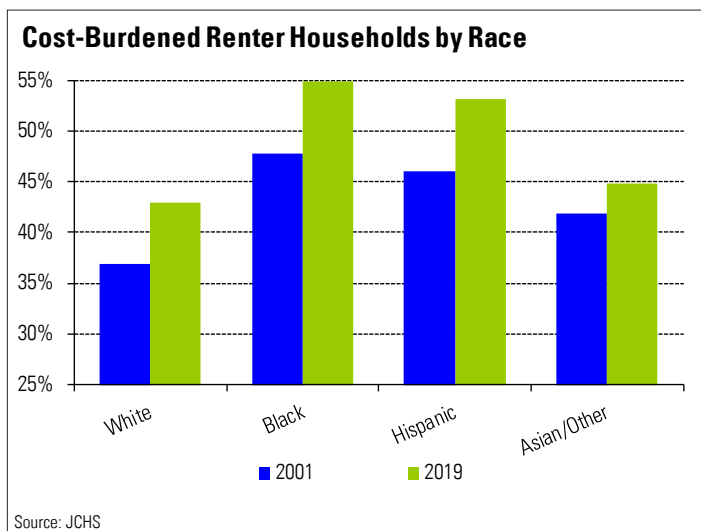
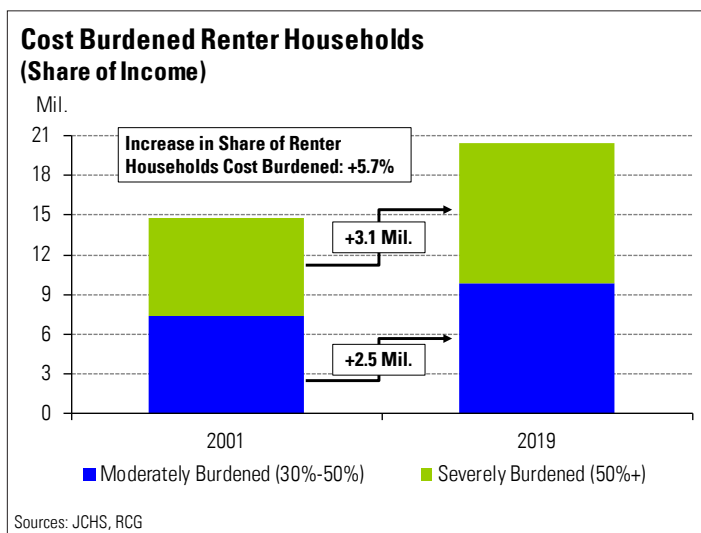
In addition to the for-sale housing market, renter households faced severe negative consequences from the past two decades of underbuilding. *The State of the Nation's Housing, 2020* report, from the Harvard Joint Center for Housing Studies, found that the number of cost-burdened renter households—those spending 30% of their income or more on housing—increased by 37.8% from 2001 to 2019.¹¹ **This translated to a 5.6 million increase in the number of cost-burdened renter households, and a 6% increase in the share of renter households around the country who were burdened.** As of 2019, even before the large financial burdens placed on renters by the COVID-19 pandemic, more than 40% of renter households were cost burdened, while nearly one quarter were ‘severely burdened,’ or spending more than 50% of their income on housing. The severely burdened group alone grew by nearly 3.1 million households from 2001 to 2019. It should also be noted that this increase was not proportional across racial categories. **The increase from 2001 to 2019 in the number of cost-burdened households was significantly greater among minority households than among white households,** with the largest increase occurring among Hispanic households at 81.4%, followed by Asian/Other at 59.6% and Black at 50.4%. By

comparison, the number of cost-burdened, white renter households increased by 21.0% from 2001 to 2019, while the total number of cost-burdened renter households grew by 40.4%. Additionally, the number of ‘severely burdened’ Hispanic households nearly doubled during the nearly two-decade time period. These increases exemplify the necessity for housing infrastructure solutions that can tackle the need for more supply on a large scale and can more equitably address the housing shortfall and affordability crisis.

Critical National Infrastructure

Treating housing as infrastructure, and attempting to relieve the cost burdens placed on millions of renter households, as a result of the large undersupply of housing, could provide substantial benefits for households and the economy. Notably, it would provide funds for other living costs, such as child care, health care, education or student loan payments, and raise the quality of life for renters currently struggling with mounting housing costs. Reduced cost burdens would also allow renters to save or spend on other items, producing increased economic activity and tax revenue for the economy at large. Finally, by allowing households to save and build wealth through greater housing affordability, addressing the underbuilding gap would help provide a path towards homeownership for households looking to do so.

For these reasons, and in order to address a national crisis of a size and scale that is severely limiting financial stability and economic opportunities for millions of Americans, the housing underproduction gap must be treated as a critical piece of infrastructure in the United States. Like roads and bridges, affordable housing is a long-term asset that provides a safe, quality living environment for families. Increasing and preserving the supply of affordable housing—especially in areas connected to good schools, well-paying jobs, health care and transportation—will help more families climb the economic ladder and help communities meet their workforce needs. When it comes to housing, this means our children’s future, health, education, social and racial equity, opportunities for economic mobility, among many other potential benefits, but the scale and complexity of the problem in many local areas make it increasingly difficult to tackle without large-scale national solutions.



IV. Benefits of Making New Housing Construction an Integral Part of a National Infrastructure Strategy

Economic Impact of New Construction

Sources of Economic Activity

The potential economic impacts that could be generated by significantly expanding new housing construction would extend into numerous areas of the economy. In the immediate term, significant local employment gains would be generated from single family homebuilding and multifamily development. Benefits from new employment include income generated and spent in the local economy. New disposable income generated per employee is typically spent on a variety of items such as food, clothing, transportation, health care and a range of other services, creating a positive multiplier effect that further adds to economic activity throughout the local and regional economy. Additionally, wages and salaries of workers are subject to federal, state (where applicable) and sometimes local income taxes, while increased spending fueled by this income is subject to sales taxes (in most states). Together these factors would generate a large, positive fiscal impact across all levels of government.

During the planning and construction process, there are a variety of sectors and subsectors that benefit from increased activity associated with new housing construction, including professional and business services, financial activities, retail trade and transportation services. Supply chain operations within these sectors also benefit from increased spending directed towards labor, materials, architectural and engineering services, overhead, insurance, taxes and other costs associated with construction. Similar to employee wages and salaries, the profits of these businesses may be subject to federal, state or local taxes. Moreover, many states also collect sales tax on materials sold to homebuilders and multifamily developers, while most local jurisdictions charge fees for approving building permits and extending utility services, and in some cases, a range of other revenue sources or in-kind benefits for the local community.

Upon completion of new housing units, new household formation, supported by greater availability and affordability of housing, provides an additional source of ongoing spending and revenue within the local economy. In the case of new rental units, monthly rent payments also provide a source of ongoing economic activity, while home purchases are typically accompanied by considerable additional consumer spending on goods such as home furnishings, which further add to total economic activity.

Methodology

In order to measure the potential economic benefits generated by large-scale infrastructure investments in new construction activity, RCG used IMPLAN, a nationally recognized input-output modeling system, to provide economic multipliers to determine the impact that construction of certain property types has on employment, income and overall economic activity across the nation. Multipliers for construction activities are generally considered temporary in nature for individual projects; however, given the ongoing levels of demand and the large underbuilding gap, the need for a prolonged period of elevated construction activity would be expected to translate to much longer-lasting benefits compared with the economic impact derived from any individual development project.

Of particular importance from the perspective of infrastructure spending and the potential macroeconomic benefits for the national economy, **the economic multiplier effects of spending on new housing construction are comparable to or even larger than many other types of infrastructure spending such as construction of highways and streets.** In fact, based on national data from IMPLAN, every \$1 million in direct spending on the construction of multifamily units would be expected to create 19.6 new full-time jobs and to generate approximately \$359,000 in new federal, state and local tax revenue (including direct, indirect and induced measures).¹² Similarly, every \$1 million in spending on the construction of a single-family home would generate 17.6 new jobs and approximately \$347,000 in new taxes. In comparison, the economic impact of multifamily and single-family home construction is somewhat greater than the same spending on the construction of highways and streets, which would generate 14.4 new full-time jobs and \$303,000 in new tax revenue.

As highlighted previously, to reduce the supply deficiencies in the national housing market over the next 10 years, approximately 550,000 additional new housing units would need to be constructed per year over and above the historical trend of 1.5 million new units annually. The costs associated with this new development are estimated based on recent construction costs in 2019. Specifically, the National Association of Home Builders reported that the average cost for the construction of a single family home was approximately \$296,700 in 2019.¹³ The average cost for construction for multifamily units nationally was estimated at \$233,500 per unit, which incorporates the national average cost per square foot from RSMeans of \$205 and the average multifamily unit size from the U.S. Census Bureau of 1,139 square feet for housing units completed in 2019.¹⁴ Notably, construction costs increased sharply through 2020 and early 2021, particularly for lumber. As such, average construction costs per home and per unit likely understate the direct spending and therefore the total magnitude of the economic impact of new construction activity. Lastly, generally consistent with the trend from 1968 through 2020, when 71.8% of new housing completions represented single family housing and 28.2% represented multifamily, RCG applied a

distribution of 70% single family and 30% multifamily in order to estimate the potential economic impact from increased new construction. Note that this assumption is based on historical trends and is intended to provide a reasonable, broad estimate of construction rather than a prescriptive view of what will or should be built. Indeed, this historical distribution could certainly shift over time and across stages of the business cycle, based on numerous demand and supply factors including consumer demand preferences, interest rates and mortgage credit availability, land and capital availability, local zoning requirements, as well as construction costs and technology.

National Economic Benefits

Based on these estimates of national housing construction costs and the distribution of single family and multifamily completions, **RCG estimates that building 550,000 additional new homes per year for the next 10 years would support an estimated 2.8 million new jobs nationwide**, spread across numerous sectors in the economy, **and generate approximately \$411 billion per year in additional economic activity** (including direct, indirect and induced measures).

Notably, these estimates of the potential macroeconomic impacts of the kind of large-scale construction of new housing that would be necessary to rebuild the nation's housing infrastructure are based only on the needs of refilling the underbuilding gap with new supply, and do not include the considerable additional costs of deferred maintenance for the aging stock of existing housing.

Economic Impact of New Construction		
Impact for every \$1 Million of Direct Spending		
Property Type	Employment	Tax Revenue
Multifamily	19.6	\$359,000
Single Family	17.6	\$347,000
Highways and Streets	14.4	\$303,000

Notes: Taxes include combined local, state and federal revenues; constant 2019 dollars
Sources: IMPLAN, RCG

Economic Impact of New Homes Construction		
550,000 Additional New Homes Constructed Annually		
Impact	Employment (mil.)	Economic Activity (bil.)
Direct	1.4	\$152.7
Indirect & Induced	1.4	\$258.7
Total	2.8	\$411.4

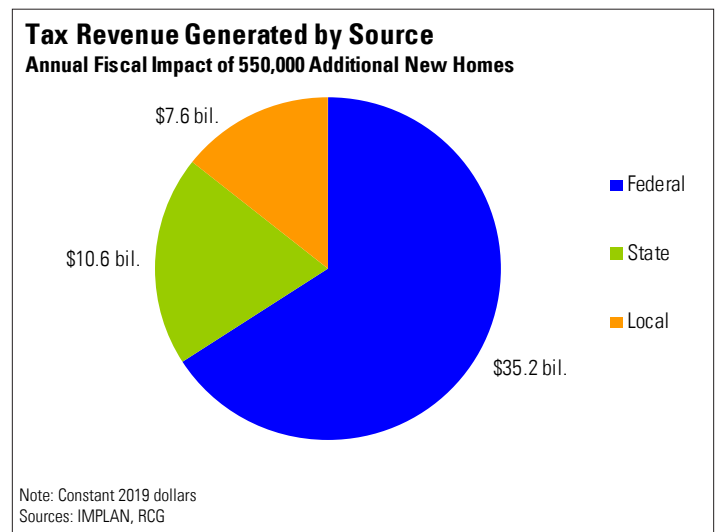
Note: Constant 2019 dollars; annual economic activity
Sources: IMPLAN, RCG

Fiscal and Social Benefits

Federal, State and Local Tax Revenue

Beyond the critical housing need and the enormous, potential economic benefits, rebuilding our national housing stock at the scale needed to fill the underbuilding gap would generate large fiscal, social and community benefits. In addition to new employment and economic activity, the construction of 550,000 additional new homes per year would be expected to **generate more than \$53 billion dollars annually in new tax revenue, including \$18 billion in state and local taxes and \$35 billion in federal taxes**, reflecting a wide range of activity, including substantial new federal income taxes related to new job creation, as well as taxes on production and imports net of subsidies, sales taxes, property taxes and other forms of revenues generated through the construction timeline.

Of particular importance for communities around the country, taxes generated by new housing supply would add to local property tax revenue. In fact, property tax revenue accounted for approximately 72% of all local tax collections as of 2018, according to data from the U.S. Census Bureau, and is a major source of local funding for K-12 education, parks, first responders and many other essential community services.¹⁵



Housing Affordability

Dramatically increasing the pace of new home construction and expanding the supply of all types of housing is the only way to substantially reduce the size of the current demand-supply gap and thereby stabilize housing costs in a more affordable range. Increasing the supply of available homes, including single family, multifamily, market rate and affordable housing across the full income spectrum, would be the best way to bring the pace of rent growth and home price appreciation more in line with the trajectory of household incomes. Moreover, this kind of large-scale

effort would begin to unlock the backlog of pent-up housing demand by supporting household formation, especially among the millions of millennials currently living at home with parents.

From a macroeconomic perspective, new household formation and greater levels of affordability would be expected to lead to significant potential for increased overall personal consumption expenditures, as individuals with more disposable income seek to improve their day-to-day lives. This factor would not only benefit these households and businesses in their local communities, but would also stimulate additional economic activity across the national economy. Greater levels of economic activity across the nation would further help to reduce joblessness in a period of continued, profound economic weakness for large segments of the population.

The positive impact of major initiatives to accelerate new housing construction would likely extend far beyond these more direct economic measures. Among other benefits, increased housing affordability would:

- Translate to improved labor market mobility, making it possible for households to seek out new job opportunities wherever they are available.
- Provide greater financial stability, enabling individuals and families to keep up with other rising costs of living such as education, health care and child care.
- Enable more households to save for college, retirement or unexpected future expenses.
- Increase the ability of many households to save for the down-payment on a future home purchase, expanding access to the American Dream of homeownership, narrowing the racial homeownership gap and providing opportunities for building wealth that could help to close the national racial wealth gap over time.
- Help to reduce or prevent homelessness in communities around the nation.

Importantly, the combination of increased economic opportunities, expanded availability of affordable housing, greater mobility and financial stability would be particularly beneficial for low-and-moderate income households and communities of color currently facing the greatest housing cost burdens.

V. Infrastructure for Inclusive Communities

Interstate Highway System: Lessons from the 20th Century

One of the most visible examples of infrastructure construction without community engagement or holistic planning was the highway construction boom of the 1950s and 1960s. As cars became more widely owned during the 20th century, cities looked to catalyze growth by building highways. The Federal Aid Highway Act of 1956 provided states with the means to acquire private property and federal funds to build highways.¹⁶ Many states used this program to build highways without fully considering the effects on housing or communities as a whole. **While the major investment in the interstate highway system proved to be a critical step in the nation's economic growth and competitiveness, the negative ramifications of pursuing infrastructure projects without taking a holistic, community-centric approach are still visible in many cities today in hyper-segregated neighborhoods of concentrated poverty.** Critically, these negative impacts were disproportionately felt in Black communities. In some cases, building these highways coincided with courts striking down the use of racial zoning to keep communities segregated, as highways accomplished what zoning no longer legally could.¹⁷ While there are numerous examples around the country, the examples of St. Paul, MN and Syracuse, NY are particularly insightful in highlighting the importance of a holistic approach to infrastructure that plans for sustainable community development, incorporates community input and engagement and considers the need for new and affordable housing that complements and enhances other types of infrastructure.

St. Paul, Minnesota

In the 1930s, the Rondo neighborhood of St. Paul, MN was a thriving community, home to about half of the Black population in St. Paul. The housing was relatively affordable, and the neighborhood produced art and local newspapers, and was a home to the St.

Paul chapter of the NAACP. From the 1930s onward, however, local commuters pushed for a highway connection from St. Paul to Minneapolis. The State of Minnesota leveraged the Federal Aid Highway Act of 1956 to connect the cities of St. Paul and Minneapolis by building a highway (Interstate 94) directly through the middle of the Rondo neighborhood (as shown in the nearby map).¹⁸

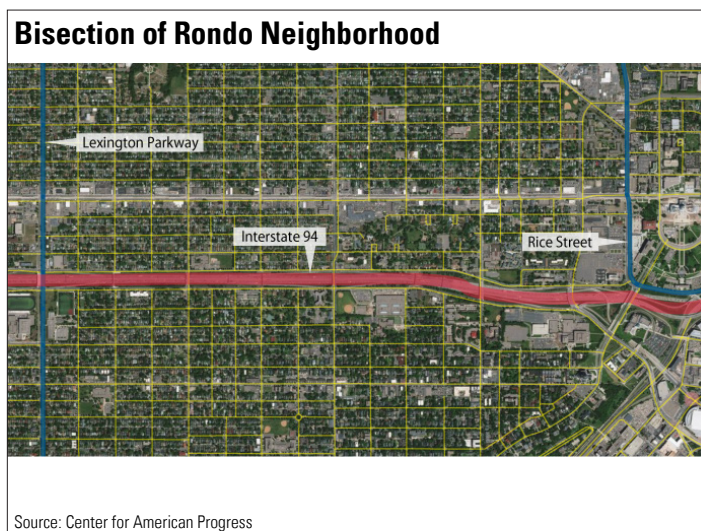
To facilitate the construction, more than 650 homes were demolished (with some residents forcibly removed) and 100 Black-owned businesses were closed.¹⁹ Construction of I-94 was completed in 1968. While it is difficult to quantify the full impact of the construction of I-94, the wide range of negative economic consequences from this and similar highway projects around the country included the loss of property with inadequate compensation, lost opportunities to build equity and financial stability, lost opportunities to build and grow businesses and lost opportunities to pass that wealth down through generations. More broadly, the impacts included, "helping to cement hyper-racial segregation in housing and schools; concentrating poverty and excluding low-income, inner-city residents from communities of opportunity; and entrenching the physical, psychological and economic division of communities."²⁰ Ultimately, the Rondo community has still not recovered, and severe negative consequences of splitting the epicenter of the Black community in St. Paul were acknowledged in a formal apology by the state Department of Transportation Commissioner Charlie Zelle in 2016.

In stark contrast to the history in St. Paul, a thoughtful, coordinated approach to infrastructure development that includes housing and considers the impact on communities could prevent the types of negative effects that the Rondo community experienced and instead support community engagement and inclusive growth in our communities—a key lesson that will be crucial to achieving a strategy of investing in our national infrastructure in the coming years.

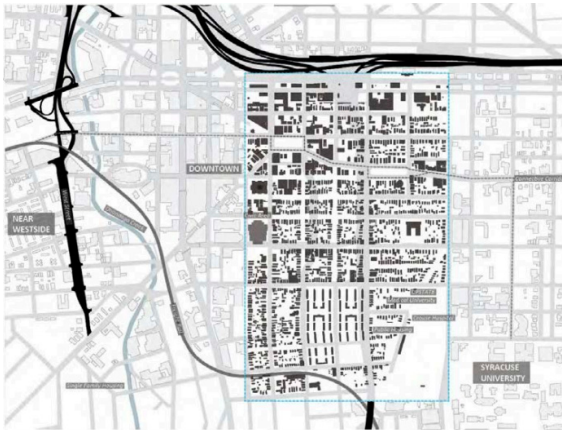
Syracuse, NY

The city of Syracuse grew rapidly through the first half of the 20th Century. However, consistent redlining pushed many lower-income residents, especially Black residents, to live in the 15th ward district of the city.²¹ When the Federal Aid Highway Act of 1956 was enacted, city planners pursued a highway construction strategy intended to support and further catalyze the growth. However, the Federal Aid Highway Act did not require cities to build the additional highways in the context of a holistic, community-based approach.

To provide a traffic artery to the center of Syracuse, city planners designed Interstate-81 to bisect the 15th ward (as shown in the nearby figures). While the 15th ward was a low-income neighborhood, it also provided affordable housing for the community and was a cultural epicenter. However, the creation of I-81 displaced more than 1,300 residents and severely hindered the cohesion and long-term growth of the community.²² Further, the approach was largely unsuccessful in terms of the broader growth of Syracuse. From 1950 to 2010, the



Syracuse Before I-81



Source: Syracuse University

Syracuse After I-81



Source: Syracuse University

population of Syracuse shrank from more than 220,000 to 145,000.²³ While the true opportunity cost of razing the 15th ward is unknown, the construction of I-81 contributed heavily to the destabilization of the Black community in Syracuse. In fact, decades later, Syracuse is one of the most racially segregated communities in the county, with one of the highest shares of Black and Hispanic residents living in neighborhoods of extremely concentrated poverty among major metropolitan areas.²⁴

The state of New York recently recognized the damage done by the highway. I-81 has aged to the point of requiring substantial repairs, and the city will remove the downtown section in an effort to mend the damage done to the 15th ward. The removal of the elevated, downtown section of highway is scheduled to start in 2022.²⁵ However, over 50 years of negative economic and social consequences might have been avoided if this analysis had been done prior to construction of I-81.

Highway Removal

While it is difficult to measure the exact social and economic cost of the highway construction in St. Paul and Syracuse, there are many other examples that highlight the potential for community growth and reinvestment after inner city highways were removed. For example, in 2002, a 0.8-mile section of the Park Freeway was removed in Milwaukee, WI. This reallocation of space increased property values and private investment. From 2001 to 2006, the average land values in the freeway footprint grew by more than 180% per acre. Property values in the surrounding district grew by 45% compared with a citywide increase of 25%.²⁶ In fact, the \$25 million government expenditure to remove the freeway has garnered more than \$886 million in investment, with projected total investments exceeding \$2 billion as of 2019.²⁷ While it is unclear the extent to which this reinvestment recovers the local economic losses and stalled growth sustained by the highway construction, the magnitude of reinvestment provides an indication of the significance of the lost economic activity in the area related to the highway.

Similarly, in Rochester, NY, a section of the Inner Loop Highway was removed in 2017 to create a boulevard with commercial and residential development. In total, more than 500 housing units (more than half either subsidized or below-market rent) and 152,000 square feet of commercial space will be created. It is estimated that the \$22 million cost of the project will yield almost \$230 million in economic development.²⁸ These numbers are particularly important for the local community, as many low-and-moderate income households are expected to benefit from the redevelopment.

Planning for Inclusive Communities

Examples of the many negative effects for communities resulting from ill-planned highway development are not limited to St. Paul, Syracuse, Milwaukee and Rochester. Similar examples exist in Orlando, New Haven and Miami (among many others).²⁹ Looking ahead, while an influx of federal dollars for infrastructure development could provide great opportunities for many communities, doing so without community input, holistic planning, transit-oriented development and, critically, consideration for how to alleviate the shortage of affordable and available housing supply in cities around the country, could lead to more of these types of setbacks. Instead, **large-scale investment in infrastructure for the 21st century provides a once-in-a-generation opportunity to avoid the mistakes of the past and instead build infrastructure and housing together in a way that plans for inclusive and sustainable growth of communities around the country.**

Energy Infrastructure: Planning for Affordability, Efficiency and Resiliency

The uneven energy burden on different socioeconomic groups is another important case of inequality resulting from narrowly focused infrastructure development. Specifically, **inequality in the cost burden of utility bills, as well as access to and resilience of existing energy infrastructure, effectively reduces housing affordability and limits productivity and economic development for many communities around the country.** Of particular note, low-and-moderate income communities are often slower to recover from natural disasters that disrupt their energy. Improved planning and coordination between housing and utility infrastructure would improve the lifestyles and economic development for LMI households and communities of color.

Pricing and Household Energy Efficiency

Due to market dynamics and government pricing, utility costs can be regressive, creating a greater economic burden on lower-income households and adding to the total cost of housing. Specifically, utility use is typically billed on a per-use basis. However, there is often a minimum monthly payment that can include fixed contributions for a range of priorities, such as solar panel subsidies, wildfire protection, etc. (dependent on the state). This payment system is effectively regressive, as LMI households must spend a higher percentage of their income not only on a basic level of necessary energy utilization, but also on those fixed costs. This effect is compounded further because many LMI households occupy older and less energy-efficient homes or rental units. These households often lack the means (and authority in the case of rental units) to improve insulation and must therefore use additional energy to maintain the same internal temperatures relative to more costly, modernized or newly built housing units. Many states also require a utility deposit for those with lower credit ratings.³⁰ This further reduces housing affordability and limits the ability of low-income households to move past basic needs and attain greater financial stability. A thoughtful approach to building

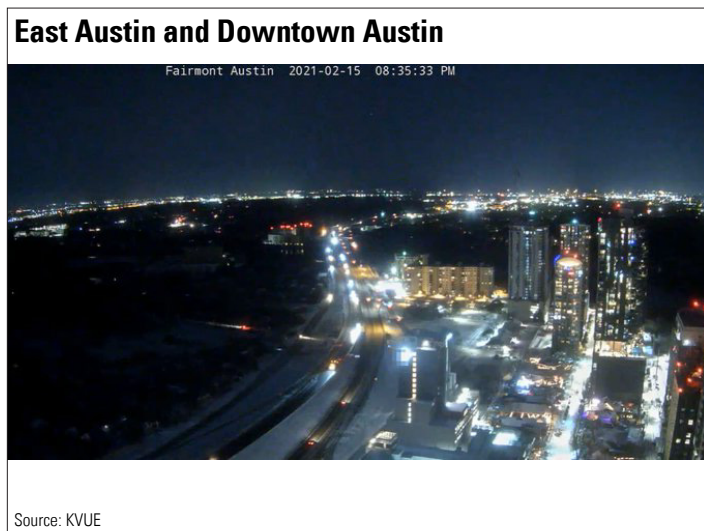
affordable and energy efficient housing in coordination with planning for upgrades to the physical energy infrastructure could help improve inequality and expand economic opportunities for LMI households.

Energy Resilience: Texas Blackouts

Inequality in terms of energy access and the resilience of the energy grid in many communities around the country highlight another major opportunity to “build back better” by making housing an integral part of infrastructure planning. In the event of local or regional power outages, households which live closer to priority assets (e.g., hospitals) are typically much more likely to have their power preserved or restored sooner than those living farther from priority assets.³¹ Because the households in closer proximity to priority assets tend to be higher-income households, it is often LMI households that have to wait the longest for restoration of power. A recent example of this disparity was the February 2021 Texas blackouts. Notably, Downtown Austin did not experience any blackouts, while the less-affluent East Austin area endured long, rolling blackouts (as illustrated in the nearby figure).³² While downtown Austin does hold emergency centers and vital buildings, the downstream power also supplied energy to empty office buildings, outdoor lighting and those households with the financial means to live in Downtown Austin. There may be an absence of explicit bias with regards to energy supply, but in practice, there is often a distinct correlation between affluence and prioritization of energy access and restoration that reflects a lack of historical coordination in terms of planning for equitable housing and energy across communities.

Ultimately, the burden of energy infrastructure costs is inequitably distributed across socioeconomic groups. Lower-income households face reduced housing affordability because of the need to pay a higher percentage of their income on utility bills because of both fixed costs and limited energy efficiency typical among older and more affordable housing units. At the same time, these households tend to have less secure access to power and may be forced to endure longer restoration times in the event of outages. This inequitable utility burden across socioeconomic groups limits economic opportunities and community development for less affluent communities.

Looking ahead to the energy infrastructure of the next century, a coordinated and thoughtfully planned approach to utility access, energy efficiency and reliability, as an integral part of planning for new housing supply and community development, would enhance financial stability, maximize economic opportunities for LMI households, improve racial equity and offer greater long-term social and economic benefits and competitiveness for communities around the country.



VI. Policy Considerations: The Crisis Demands a Once-in-a-Generation Response

Amid the urgency of our ongoing public health crisis, a more systemic, longer-term crisis festers. As a result of decades of underbuilding and underinvestment in our critical national housing infrastructure, there are simply not enough homes available to affordably house our nation's population. Sadly, there is no silver bullet to solving the chronic national shortage of housing. What is clear, however, is that **the scale of the problem is enormous, and any serious effort to fill the underbuilding gap and address the affordability crisis will require a major national commitment to build more housing.**

While there is a wide range of potential policy pathways that could help to increase the pace of housing construction, considering the magnitude of the problem, **measurable progress will likely require an all-of-the-above strategy that supports housing of all shapes and sizes across the full income spectrum**, including affordable and market-rate housing, urban and suburban housing, new construction, redevelopment and conversions of underutilized non-residential structures, as well as a mix of single family homes, townhomes, duplexes, and multifamily apartments and condominium buildings both large and small.

In particular, increased development of below-market or subsidized affordable units is necessary to address the urgent requirements of low-income households most in need. However, housing that is affordable to middle-income households, young families and essential workers is also in critically short supply. Moreover, with thoughtful planning that integrates new development with planning for other forms of community infrastructure such as transit, new housing focused on higher-income households can also help to significantly ease supply-side pressure by freeing up existing housing units.

Considering the need to accelerate the pace of construction far beyond both current and historical production (even to tackle the problem over a period of 10 or 15 years), it will be necessary to dramatically expand resources for new development and address many of the most critical barriers to housing development. Among many other promising ideas, housing infrastructure investments should seek to:

- Address large shortages in capital and lending for the development of affordable housing by expanding resources and maximizing the potential of existing programs. Examples include:
 - Increase and expand the scope of the Low Income Housing Tax Credit (LIHTC) program, which has been highly successful at building multifamily housing but often requires intense competition or multiple rounds of applications for projects to receive the funding needed to move forward with development.

- Incentivize investment in distressed urban, suburban and rural neighborhoods through the Neighborhood Homes Investment Act (NHIA), which would create a new federal tax credit for the development and renovation of single-family homes and two-to-four-unit buildings.
- Bolster resources and accelerate or expand existing programs such as HUD Community Development Block Grants (CDBG), USDA rural housing services, Federal Housing Administration (FHA) multifamily insurance, the National Housing Trust Fund (HTF), Opportunity Zones, etc.
- Incentivize shifts in local zoning and regulatory environments to substantially increase the quantity and density of developable residential space.
 - Encourage cities and states around the country to responsibly eliminate or reduce hurdles that prevent or delay building, particularly limitations on density.
 - Examples include: upzoning existing residential areas, eliminating minimum lot sizes, rezoning commercial sites to accommodate residential construction, implementing density bonuses, reducing parking requirements for transit-oriented developments and adopting fast-track review and by-right development.
 - Strategies could include grants, loans, contingent funding, new local financing mechanisms such as zoning improvement tax credits and coordinated efforts to plan for housing alongside other types of infrastructure.
- Increase housing supply by incentivizing conversions of older or underutilized commercial space through tax credits or other means.
 - Following decades of structural shifts in the national economy, many parts of the country have a sizable stock of underutilized commercial space, including former manufacturing facilities and older and largely vacant malls. Moreover, in the wake of the pandemic, shutdowns added significantly to vacancy in the hardest-hit commercial real estate sectors, including retail, hotel and office buildings.
 - However, conversions can prove time consuming and costly, particularly in cases where environmental cleanup or historical preservation is a component of the conversion.
 - Beyond incentives for rezoning at the municipal level, federal tax credits for converting existing underutilized non-residential properties to new housing could prove particularly effective in reducing funding gaps and making conversions possible, thereby helping to narrow the residential underbuilding gap over time.
 - Notably, this approach would not only address the goals of creating housing and adding jobs but could also help mitigate some of the most pressing challenges in the hardest-hit commercial real estate sectors, which could

otherwise require an extended period of time to recover from pandemic-related shutdowns.

- Expand capacity for residential construction by applying federal resources to help address construction capacity challenges such as rising construction costs and labor and materials shortages.
 - In addition to the regulatory environment, which adds significantly to the time and money required to produce new housing, labor and materials availability and costs represent major hurdles that delay projects, limit the financial viability of new housing construction and, ultimately, will continue to set a ceiling on the pace of housing production without major steps to address these issues.
 - There are numerous factors contributing to the sharp rise in material costs (especially lumber), and the challenges of limited labor and materials availability, including supply-side pressure resulting from the recent acceleration in construction (although, as previously mentioned, even at the current 'increased' pace of construction it would still take 20 years to fill the underbuilding gap), as well as COVID-related national and international supply-chain disruptions that have added to material shortages and costs.
 - While particularly challenging, potential steps to alleviate these strains could include minimizing trade/tariff restrictions on construction materials, while also leveraging federal resources to expanding domestic infrastructure for manufacturing, production and distribution of essential construction materials.
 - Tax incentives for construction training and apprenticeship programs could also help expand the construction labor force. This would not only increase national capacity to build housing and address the affordability crisis, but could help get people back to work in an economy with outsized levels of unemployment and underemployment by training workers in valuable skills for an essential industry.
 - As highlighted previously, additional construction labor income would generate a positive multiplier effect throughout the economy, increasing national economic activity and federal income tax revenue.
- Perhaps most importantly, addressing the national underbuilding gap will require a coordinated approach to planning, funding and development of all forms of infrastructure to not only build more housing, but also build better housing that will be more inclusive and well-integrated into local communities.
 - Solving one of the nation's most pressing issues of the 21st century will require an interconnected web of national solutions, including coordinated efforts across agencies to maximize funding and plan thoughtfully and holistically for transportation, energy, housing and community development.

- Without access to affordable housing, investments in transportation and other forms of infrastructure will fall short of creating vibrant communities. Instead, building on lessons of the past, a coordinated and intentional national focus could help to bridge communities and promote inclusivity, community revitalization and housing opportunities for households of all backgrounds.
- In particular, mechanisms to achieve these goals include strengthening and expanding the existing Affirmatively Furthering Fair Housing (AFFH) obligation (established by the Fair Housing Act of 1968) by reinstating the 2015 AFFH framework, while making the process more efficient and less burdensome for communities, and seeking to ensure that the obligation to proactively consider housing and equity implications of new development is an integral part of all types of infrastructure planning in order to overcome existing patterns of segregation and foster inclusive communities.
- In addition, substantive progress will likely require a comprehensive recognition of the need for genuine community engagement in all types of infrastructure development (including the importance of understanding the existing and historical community landscape and identifying the challenges, trade-offs and equity impact involved in new development) through community task forces and advisory committees, as well as systematic adoption of planning tools such as fair housing and equity impact analyses.

Collectively, these policy pathways, and likely many other promising ideas to address the chronic national shortage of supply, are critically important, and combined with thoughtful and integrated planning, certainly have great potential to ease the national housing affordability crisis. However, while supply solutions represent long-term infrastructure solutions vital to the future of the nation, these approaches will necessarily take time to implement, and will undoubtedly need to be combined with a range of demand-side efforts and structural changes to expand access, level the playing field and address the ongoing challenges of racial and socioeconomic equity in our housing and communities.

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