



ULI Member Global Infrastructure Survey Findings

APRIL 20—MAY 17, 2021

ULI CURTIS INFRASTRUCTURE INITIATIVE

About ULI

The Urban Land Institute is a global, member-driven organization comprising more than 45,000 real estate and urban development professionals dedicated to advancing the Institute's mission of shaping the future of the built environment for transformative impact in communities worldwide.

ULI's interdisciplinary membership represents all aspects of the industry, including developers, property owners, investors, architects, urban planners, public officials, real estate brokers, appraisers, attorneys, engineers, financiers, and academics. Established in 1936, the Institute has a presence in the Americas, Europe, and Asia Pacific regions, with members in 80 countries.

The extraordinary impact that ULI makes on land use decision-making is based on its members sharing expertise on a variety of factors affecting the built environment, including urbanization, demographic and population changes, new economic drivers, technology advancements, and environmental concerns.

Peer-to-peer learning is achieved through the knowledge shared by members at thousands of convenings each year that reinforce ULI's position as a global authority on land use and real estate. In 2020 alone, more than 2,600 events were held in cities around the world.

Drawing on the work of its members, the Institute recognizes and shares best practices in urban design and development for the benefit of communities around the globe.

More information is available at uli.org. Follow ULI on Twitter, Facebook, LinkedIn, and Instagram.

About the ULI Curtis Infrastructure Initiative

"The purpose of [the Curtis Infrastructure Initiative is] to contribute toward the building of a better future by providing resources of inspiration, discovery, and innovation."—James J. Curtis III, ULI Life Trustee

The ULI Curtis Infrastructure Initiative aims to build a movement to promote infrastructure solutions that are equitable and resilient and that enhance long-term community value. By creating new global and strategic partnerships, providing technical assistance, building capacity at the local level, and acting as a feedback loop to promote the most innovative and effective best practices, the Curtis Infrastructure Initiative will ensure the success of ULI's mission to positively shape the future of the built environment for transformative impact in communities worldwide. A thoughtful approach to infrastructure planning and implementation addresses the pressing needs of today and improves diverse communities for the long term.

A building block for communities everywhere, infrastructure encompasses transportation, critical utilities, and the means of communication. But beyond these foundational physical and digital structures and facilities, infrastructure broadly includes the key spaces that build community—anchor institutions, the civic commons, and housing. Because infrastructure provides the means for connection, creative placemaking, and opportunity, smart infrastructure investment is an imperative for cities now and in the future.

Together we can build the future of equitable and resilient communities. Learn more about the Curtis Infrastructure Initiative at uli.org/infrastructure.

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Introduction

To better understand perceived quality and infrastructure priorities by the real estate and land use industry as well as how infrastructure investment will affect real estate development trends, the Urban Land Institute through its Curtis Infrastructure Initiative conducted a survey of its members between April 20 and May 17, 2021. The survey also explores what infrastructure means to ULI members based on the initiative's goal to leverage infrastructure investment to better effect a sense of community and place.

Globally, the G20 Initiative estimates that by 2040 more than \$94 trillion in infrastructure investment will be needed within the energy, telecommunications, transportation, and water sectors in order for the G20 countries to match the performance of their peers, but so far they have budgeted only \$79 trillion in investments, leaving a \$15 trillion funding gap.^{1,2} Within the United States, the G20 estimates that at least \$12 trillion worth of investments is needed; but if existing baseline funding trends continue, only \$8.5 trillion is anticipated to be funded, leaving a \$3.8 trillion investment gap.³

The numbers identified by the G20 do not account for additional investment required to maintain and grow needed social infrastructure such as affordable housing, available child care services, and stronger anchor institutions, which are fundamental to build transformative spaces that foster a sense of community and place.

There were 338 total ULI member responses, with a majority (232) from the United States. This survey resulted in a response rate that enables a 95 percent confidence of the total responses with a margin of error of about 5 percent. The respondents' professional roles included real estate development/finance (28 percent), real estate services (22 percent), design/planning (20 percent), public/policy (17 percent), and others (which included retired professionals and students (11 percent)). This is largely representative of ULI membership at large.

There were too few responses to enable conclusions to be drawn between specific professional roles or regions such as the Asia Pacific region or the Europe, Middle East, and Africa (EMEA) region, even though a majority of the completed global ULI member responses—about 69 percent, or 73 responses—were from EMEA. The remainder were located within the Asia Pacific region, Canada, Mexico, or South America. So, comparisons identified within this report are primarily between more developed nations that make up the G7 and emerging economies like

¹ The G20 or Group of Twenty is an international forum for the governments of 19 countries and the European Union. This includes Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, South Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, United Kingdom, and the United States.

² Global Infrastructure Hub. Sydney, Australia: A G20 Initiative, 2018. <https://outlook.gihub.org/>.

³ Global Infrastructure Hub. Sydney, Australia: A G20 Initiative, 2018. <https://outlook.gihub.org/countries/United%20States>.

China, Hong Kong, Singapore, Turkey, Qatar, and Saudi Arabia.⁴ This type of response is consistent with the distribution of ULI’s global membership as previously identified.

Key Takeaways

- ULI members see increasing affordable housing, adapting to and mitigating climate change, increasing renewable and green energy, maintaining existing infrastructure, and improving public transportation as the top priorities. Conversely, they view improving stadiums and entertainment venues, modifying roadway capacity, and improving overall logistics networks as low priorities.
- ULI members perceive infrastructure quality higher globally than within the United States. In particular, U.S. members perceived public transportation (bus, subway, and rail), child care and preschool services, and road and bridge quality as poor while their global counterparts all rated these infrastructure categories as at least adequate.
- Members from the United States prioritized social infrastructure investments and general state of good repair while global members prioritized more infrastructure investments in climate-related categories.
- Survey respondents overwhelmingly believe that the government—particularly at the federal or national level and city or local level—is critical for both funding and prioritizing infrastructure delivery. The private sector can play an important role in this effort but does not set the public-good priorities.
- Housing affordability, changes as a result of COVID-19 such as work from home, and climate change were the most mentioned real estate trends that were expected to influence infrastructure investment over the next five years.
- There was no consensus about the definition of infrastructure, but responses related to connectivity, physical assets, basic necessities, the foundation of society, and quality of life were the most common.

Quality, Priorities, and Implementation

The survey asked multiple-choice questions designed to better understand ULI members’ perception of the quality of infrastructure as well as priorities for investment within the metropolitan area or areas where they primarily work. This survey summary reports out the responses to these questions using the mean of the total answers to better understand the most important areas for focus, and the responses “excellent quality” or “top priority” were weighted higher as part of the analysis.

Using the mean versus the mode allowed for better understanding of significant differences in ULI members’ view of the quality of infrastructure and their priorities since most infrastructure responses were identified as either at least adequate or a priority. These two questions are reported out distinguishing between U.S. members and global members. The other two

⁴ The G7 or Group of Seven is an informal group of wealthy democracies made up of Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.

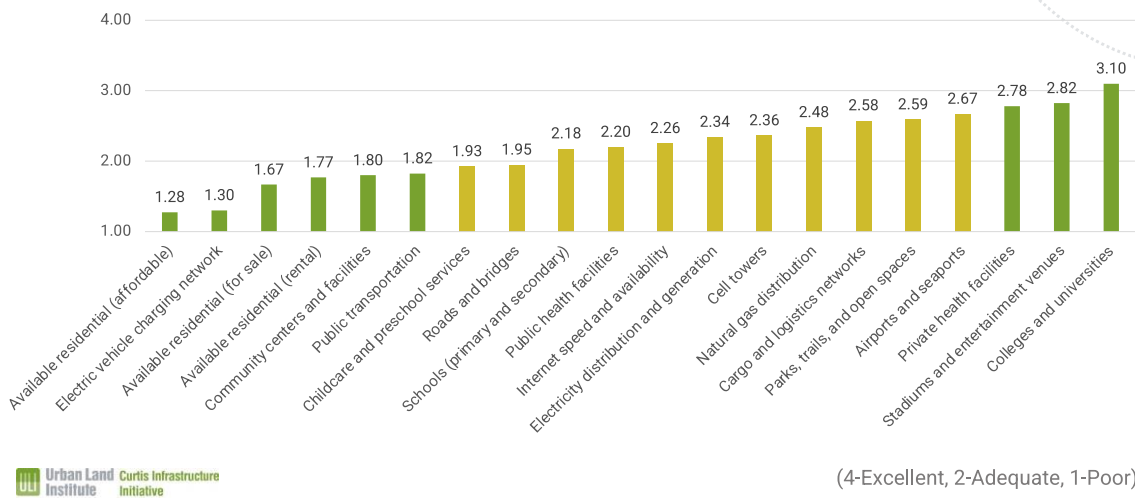
questions were related to how ULI members view how these top priorities identified should be funded and financed as well as delivered. These are reported out in this report with the total aggregate as a percentage since there is not a significant difference between the U.S. and global members.

Infrastructure Quality

ULI member responses show that the perceived quality of colleges and universities, stadiums and entertainment venues, and private health facilities was rated the highest, while the quality of available residential (subsidized, income qualified, or social housing), the electric vehicle charging network, community centers and facilities, and public transportation was rated the lowest. Available for sale and rental housing, beyond just affordable (subsidized, income-qualified housing or other social housing program), also was rated as below adequate. No other infrastructure category was rated below adequate when a 95 percent standard error interval was taken into account.

Perceived Quality of Local Infrastructure by ULI Members

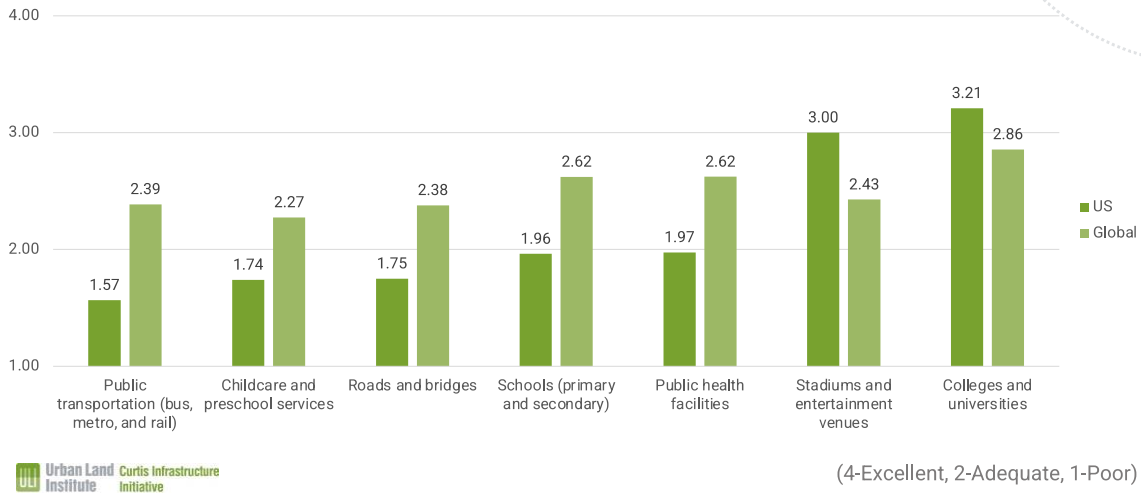
Thinking about the metropolitan areas or cities where your work is primarily concentrated, how would you rate the quality of its infrastructure? (n=338)



However, this changes when the U.S. members and the global members are separated. Generally, the global ULI members rated their infrastructure higher than their U.S. counterparts. Several significant differences include the differences in perception surrounding public transportation, child care and preschool services, and roads and bridges. In each case, U.S. members rated these infrastructure categories below adequate. U.S. ULI members only rated the colleges and universities as well as stadiums and entertainment venues as higher perceived quality.

Significant Differences of Perceived Quality of Local Infrastructure

Thinking about the metropolitan areas or cities where your work is primarily concentrated, how would you rate the quality of its infrastructure? (n=338)

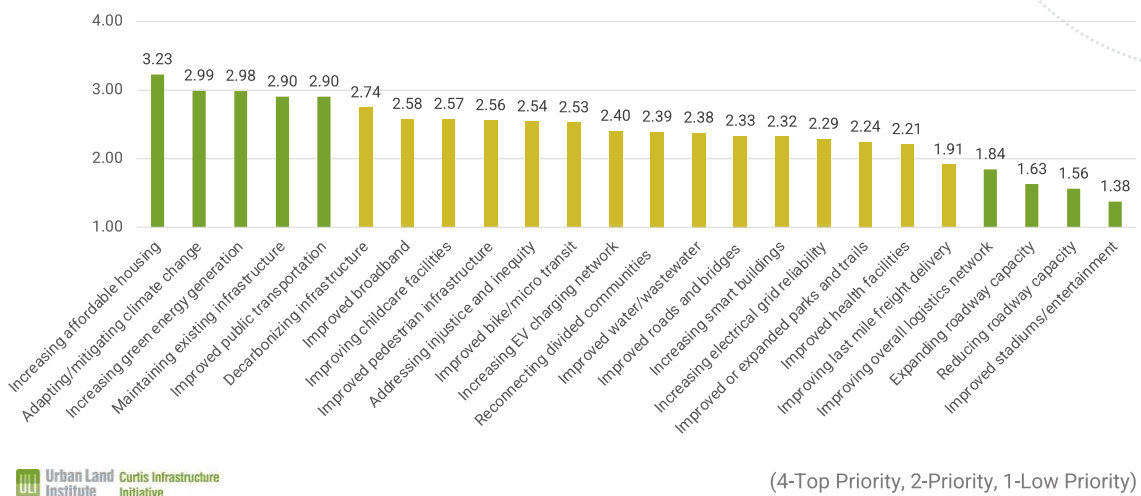


Infrastructure Priorities

The highest infrastructure priority identified by ULI members overwhelmingly was increasing the stock of affordable housing. This was followed by adapting to and mitigating climate change, increasing renewable and green energy generation, and improving public transportation.

Top Identified Infrastructure Priorities by ULI Members

Again, thinking about the metropolitan area or city where you work or your work is primarily concentrated, what are the highest-priority infrastructure investment needs within the next 5 years? (n=338)

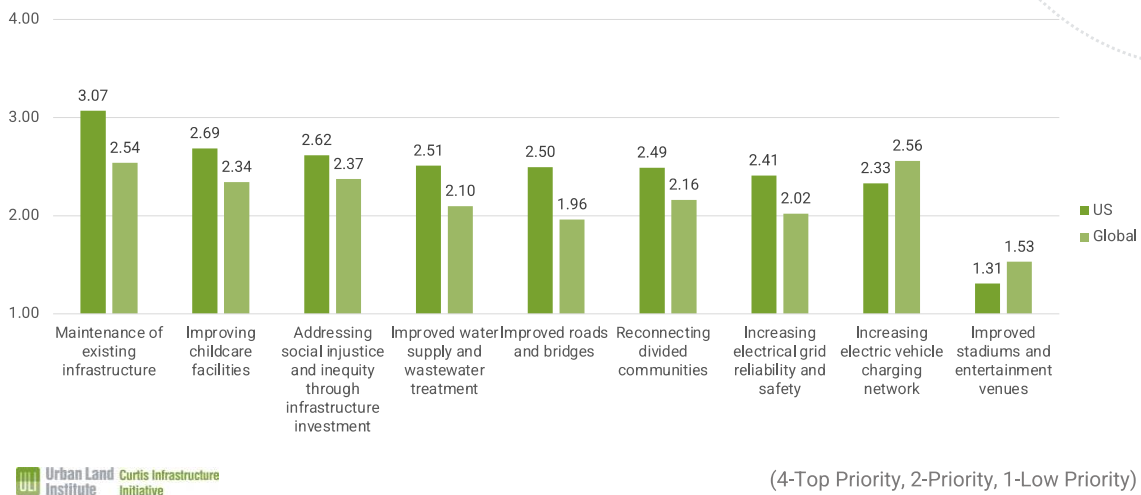


Low priorities identified were improved stadiums and entertainment venues, both reducing and expanding roadway capacity, and improving the overall logistics network. Improving last-mile freight delivery was within the margin of error being rated a priority. However, it is not as high as the other infrastructure categories that were all ranked at least as a priority or higher.

The most striking difference between the U.S. and global ULI member responses was that maintenance of existing infrastructure was rated by U.S. members as a significantly higher priority than by their global counterparts. This put maintenance of existing infrastructure within the U.S. members' top five priorities whereas this was not within global members' top five priorities. Instead, decarbonizing existing and new infrastructure was one of their top priorities.

Significant Differences in Identified Infrastructure Priorities

Again, thinking about the metropolitan area or city where you work or your work is primarily concentrated, what are the highest-priority infrastructure investment needs within the next 5 years? (n=232)



This type of difference was consistent versus the two respondent groups. Members from the United States prioritized social infrastructure investments and general state of good repair while global members prioritized more infrastructure investments in climate-related categories such as increasing electric vehicle charging networks. This may be due to the higher perceived quality of most of the infrastructure category types globally, therefore requiring less overall prioritization to meet the need. Overall, climate-related infrastructure was rated among the top needs. U.S. members also prioritized addressing social injustice and inequity higher likely due to the ongoing national conversation about racial injustice and the U.S. legacy of disinvestment within communities of color. But addressing social injustice was also a priority area of global ULI members.

Additional priorities mentioned included more specific priorities related to improving the pedestrian, bicycle, and microtransit users' experience, specific freeway capping projects, improving governmental approval processes, increasing accessibility for people in wheelchairs and for other people with disabilities, increasing the use of natural infrastructure,

undergrounding wires, improving parking regulations, reducing urban sprawl and decentralization, and leveraging investments for economic development and mobility opportunities.

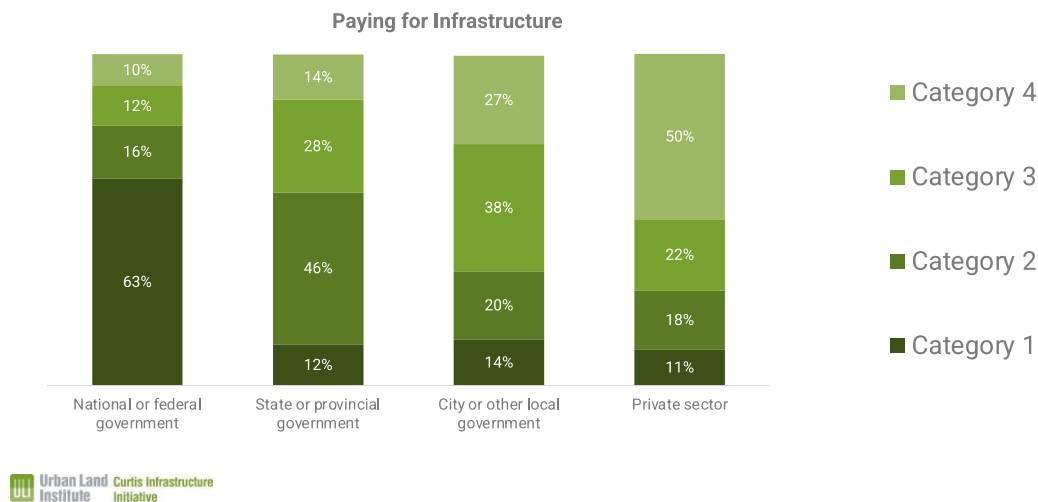
U.S. ULI members prioritized infrastructure categories higher in two other areas—improved roads and bridges as well as increasing the electrical grid’s reliability and safety. Only improved stadiums and entertainment venues were rated significantly higher by global ULI members than by their U.S. counterparts, but both groups thought that these were a low priority.

Infrastructure Implementation

Overwhelmingly, ULI member respondents identified the national or federal government (63 percent) as the most important source of funding for the top infrastructure priorities identified (category 1). Conversely, the private sector (50 percent) was identified as the least important source in financing or funding the top infrastructure priorities.

Financing and Funding Top Infrastructure Priorities

To finance or fund the top infrastructure priorities you identified for the next 5 years, please rank the following sources in order of their importance, with 1 indicating the most important. (n=338)



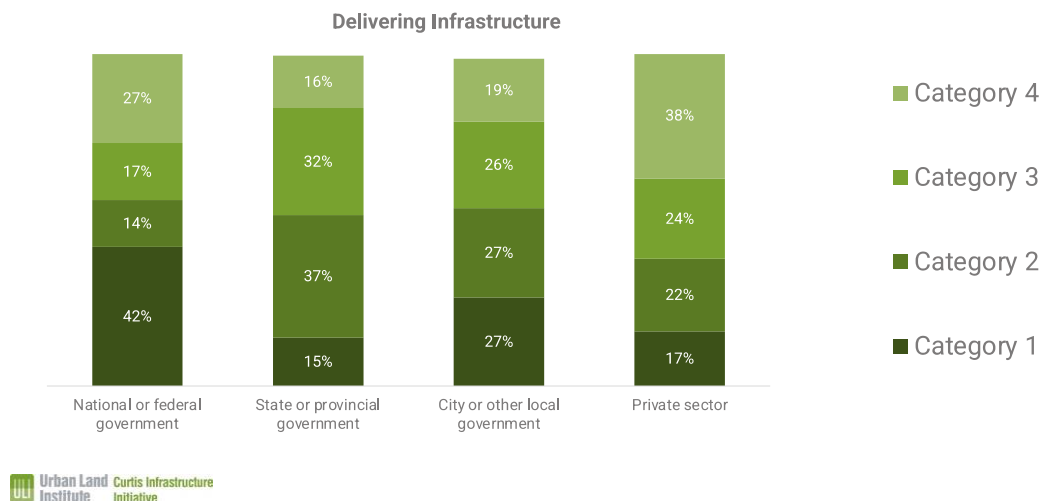
Broadening the selection to include both category 1 (the most important) and category 2, the national or federal government increases to 79 percent, then the state or provincial government becomes the second most important with 59 percent of the respondents, then the city or other local government with 35 percent of the responses, and finally the private sector with 29 percent of the responses. This may speak to the importance of government—at all levels—playing a leadership role in financing and funding those investments that create a public good but that might not have a return on investment within a period that is typical within standard market-driven transactions (e.g., market-rate housing versus subsidized housing or building an internal street grid for a real estate development versus a regional approach to mobility). However, half of the respondents indicated that the private sector plays a role in financing and funding infrastructure investment.

ULI members’ responses for delivering those top infrastructure priorities identified were more mixed and complex. The national or federal government (42 percent) was identified as the most important and the state or provincial government (15 percent) was identified as the least important in project delivery. The government—at all levels—grows considerably when category 1 (the most important) and category 2 are combined: the national or federal government increases to the most important with 56 percent of the responses, the city or other local government is the second most important with 55 percent of the responses, the state or provincial government is the third most important with 52 percent of the responses, and the private sector is the least important with 38 percent of the responses.

As with the funding and financing question, this speaks to the complex nature of infrastructure delivery and that a need exists for public/private partnerships to deliver on ULI members’ top priorities, including affordable housing, adapting to and mitigating climate change, increasing renewable and green energy generation, and improving public transportation.

Delivering Top Infrastructure Priorities

To deliver the top infrastructure priorities you identified for the next 5 years, please rank the following actors in order of their importance, with 1 indicating the most important. (n=338)



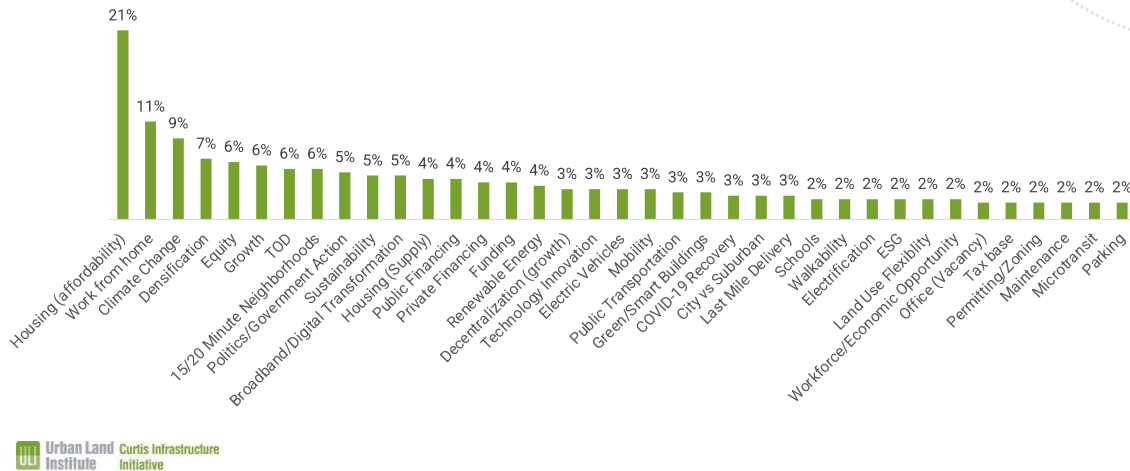
In addition, as described in the “What Infrastructure Means to You” section, many respondents viewed infrastructure in the more traditional categories of transportation, critical utilities like energy and water, and communications versus social infrastructure. ULI members—particularly real estate developers—likely do not see the government as the best to deliver market-rate for-sale or rental housing. But, as identified in the “Real Estate Trends” section, the government plays the lead role in setting overall land use policy, taxes, and priorities that the private sector responds to positively or negatively in the development of real estate projects.

Real Estate Trends

Respondents were asked, “What real estate trends do you think will factor the most into shaping infrastructure investment within your metropolitan region or city where your work is primarily concentrated over the next five years?” These responses were also somewhat more consolidated into a small handful of core, recurring trends.

Real Estate Trend Affecting Infrastructure Investment

What infrastructure trends do you think will factor the most into shaping infrastructure investment within your metropolitan region or city where your work is primarily concentrated over the next 5 years?



The most frequently mentioned trend by far was housing affordability, which came up in 56 of 269 responses. These responses touched on not only the need to build more traditional affordable and workforce housing, but also the potential impacts of housing demand across the spectrum outpacing supply, including sprawl, decentralization, and a traffic-congestion/roadway expansion spiral (i.e., induced demand). Some sample responses that touched on this theme include the following:

- “Lack of ability for young professionals, families, etc., to purchase or even rent adequate housing within the main metro area will see dramatic need for increased transit accessibility and capacity, otherwise risking significant push for road widening, etc., which is known to be counterproductive . . .”
- “Lack of available affordable residential housing—people go to less desirable areas to live and then that affects transportation . . .”
- “Affordable housing; inclusionary zoning.”
- “High housing prices, inadequate housing production for low- and middle-income households.”

The next most common trend was the effect of work from home, which should be no surprise given that it has been at the forefront of real estate conversations for the last year or more due to changes spurred by the COVID-19 pandemic. These responses included the potential for decentralization of metro areas, the need for improved digital infrastructure, and changing use

patterns of roads and transit systems, which could prove either positive or negative. Some responses from this trend included the following:

- “Larger work-from-home population, decentralization of commutes. Hub-and-spoke office setup.”
- “Work from home—requires improved digital infrastructure; return to the office—requires greater public transportation and child care.”
- “Changing trends in work habits (emergence of more remote working) . . .”
- “Hybrid work that allows employees to remote-work up to 50 percent of the time, which will reduce the burden on our infrastructure and lessen the carbon emissions.”

A potential trend mentioned nearly as much as work from home was climate change, a trend that arguably has great potential to disrupt the real estate and land use industry, though it has a further event horizon. Generally, these responses were less specific than those in other categories, but they broadly mentioned climate change as an influencing trend, as well as the need to mitigate or adapt our infrastructure and real estate to it.

Many other potential trends were mentioned to a lesser degree, including the following:

- Densification and decentralization (separately);
- Growth trends (inter and intra metro), and city versus suburban migrations;
- Equity;
- Transit-oriented development (TOD), as well as 15/20-minute neighborhoods;
- Broadband/digitization and innovation (separately);
- Public and private financing/funding of projects (separately); and
- COVID-19 recovery.

What Infrastructure Means to You

The full question that respondents were asked was: “The Curtis Infrastructure Initiative seeks to broaden the definition of infrastructure to better build community and place. With this in mind, what does infrastructure mean to you?” This question generated a great variety and quality of responses, summarized below.

The two most common themes of responses by far either reflected the concept of connectivity or referenced infrastructure as built, physical assets. These two themes were reflected in 90 of the 269 responses (33.5 percent). The survey-takers whose responses touched on the theme of connectivity referred to both traditional physical connection (moving people or goods) as well as utilities (moving electricity or water) and also digital connection (phone, internet, and so on). Some responses from this group include the following:

- “A connected network that supports the health, well-being, and success of the American livelihood.”
- “Connecting and lifting people whether it is highway, broadband, or education.”
- “Connecting people to finite resources—power, water, roads, broadband, transit.”

Though similar in nature to the idea of basic necessities, the theme of infrastructure as the foundation of society was recurring and specific enough to merit its own category. The category is fairly self-explanatory, and responses focus heavily on infrastructure being the one thing without which human civilization cannot exist.

- “The stuff that makes other stuff possible.”
- “The foundational systems upon which society functions.”
- “Physical or institutional frameworks that facilitate how our society functions.”

The next most common set of themes, accounting for 50 out of 269 responses (18.6 percent) to the question, were also related—quality of life and social infrastructure. There were responses in many other categories that may have touched tangentially on quality-of-life topics; however, the 28 responses we organized under this category are the responses that primarily focused on the idea of infrastructure as a means to improve quality of life. Some responses from this category include the following:

- “Any real estate building having relevance for the quality of urban areas and public spaces.”
- “Capacity that enables communities to enjoy high quality of life and economic opportunity.”
- “Health care, parks and open space, transit, communications, and all the other normal items.”
- “Facilities needed to build and sustain livable communities and places.”

There also were a number of responses (22/269) to the question of “what does infrastructure mean to me?” which touched on the ideas of social infrastructure, which often intersects with the ideas of quality of life. Some examples from this category include the following:

- “It is an expansion of social and cultural infrastructure, which are the systems, projects, events, and spaces that allow a community or culture to realize, develop, and practice community.”
- “The physical foundation (or skeleton) that supports community health and growth.”
- “It should definitely be broadened to include housing for a range of income levels, child care/senior care, and educational facilities.”
- “Providing the means for community creation, access, and mobility.”

The aforementioned responses constitute 208 of the 269 responses (77.3 percent) to the question “what does infrastructure mean to you?” However, several other themes—though less recurrent—did appear in the responses. These included the following:

The idea of infrastructure as a public service/means to serve the public good (19/269), including responses such as:

- “That which regularly and actively underpins and sustains the public good.”
- “The investments that cannot or shouldn’t be done by private money because they influence the well-being and success of the whole society.”

Defining the purpose of infrastructure as existing to support private investment (15/269).

Example responses included the following:

- “All things that make society better able to support all citizens to be fully employed and contributing to the greater good and that are not things that the market economy can naturally create for itself through some form of commerce.”
- “Anything which supports the successful operation of the built environment.”

Infrastructure as a means to meet sustainability goals (14/269). Sample responses included the following:

- “Enabling access to sustainable urban living.”
- “Recycling, renewable energy . . .”

Infrastructure as a tool to create equity in society, especially a need for more restorative development to address the legacy of inequitable infrastructure investment and create equity with future investments (10/269). Sample responses included the following:

- “Public/private investments for a more equitable society.”
- “Providing adequate programs, structures, amenities, and services for all people, ages, and abilities.”
- “Could include intangibles that address equity issues.”

Finally, several responses referenced the growing movement behind creating 15/20-minute neighborhoods, creating dense and walkable spaces within cities that meet all the needs of residents.

Conclusion

The survey enables a better understanding of the perceptions of ULI members on the current state of global infrastructure and what critical infrastructure should be prioritized for investment in the years ahead.

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