

In Brief



FEDERAL UPDATE

The Expanding Definition of Infrastructure

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Infrastructure comes in all shapes and sizes: roads, rails, and highways; miles of drinking water and wastewater pipes; power stations and the endless transmission lines that crisscross the country. But while infrastructure enables services that are essential to us, there have always been dividing lines over how we handle infrastructure policy. There is healthy debate over what level of government bears responsibility for which physical assets, and what we call different kinds of infrastructure. Until recently, these discussions have been limited to transportation spending reauthorizations and early campaign promises. But the past year

has brought that debate closer to the forefront of policy discussion.

The nation's recent dearth of infrastructure investment at the federal level has been well-documented. Multiple organizations have investigated the status of the US infrastructure apparatus, including the American Society of Civil Engineers (ASCE), which has scored the overall conditions of American infrastructure with a C- and has continued to push for a greater investment into our infrastructure systems to keep them from falling behind.¹ Although Congress's inability to agree on major infrastructure legislation has become a Beltway joke

in recent years (see: infrastructure week), policy leaders have made efforts to increase the volume on the debate. Part of this debate is the reexamination of what we categorize as infrastructure and how this impacts our policies for managing physical assets.

Infrastructure defined

The definition of "infrastructure," while always murky, has become more malleable in recent years. *Core infrastructure* may be one of the earlier terms used to define infrastructure more accurately in the context of public policy. A recent Congressional research report notes that "core infrastructure



generally refers to physical structure and equipment that have the potential to directly improve productivity, as they are closely associated with the cost of producing goods and services.” The report goes on to include roads, railways, airports, and utilities as core infrastructure.

Federal data collecting agencies like the Bureau of Economic Analysis (BEA) or Congressional Budget Office (CBO) have their own methods for defining infrastructure when tracking federal investment. The BEA tracks “government gross investments,” dividing them into three categories: 1) physical structures that might be conventionally thought of as core infrastructure, like highways, bridges, roads, and so on; 2) equipment (such as hardware); and 3) intellectual property (as in research and development). The CBO adds education and training to its measurements of federal infrastructure investments, even including spending on childhood and post-secondary education and training.²

Other definitions of infrastructure are based on precedent. Another CRS report states, “There is no agreed

meaning of ‘infrastructure.’ The term generally refers to long-lived, capital-intensive systems and facilities. Some definitions are limited to systems and facilities that have traditionally been provided largely by the public sector directly, such as highways and drinking water systems.”³ Here, the operative word is “traditional.” Debate over how much we invest and what we officially refer to as infrastructure could reshape how we define traditional or conventional infrastructure.

Outside of core infrastructure, *critical infrastructure* is another term that has found its way into the lexicon. The Patriot Act included language stating that critical infrastructures are “systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters.” Like the definition of core infrastructure, critical infrastructure seems to encompass the physical assets that provide essential services to our communities.

These two definitions beg a central question: Who decides what is an essential or vital service? The question is particularly interesting when considering the definition of “critical infrastructure” above, as it pertains to “national public health or safety.”

New types of infrastructure

Two new categories of infrastructure have entered the conversation over recent years. First, in a nod to the growing impact of climate change, *green infrastructure* was introduced as a new concept for building necessary physical assets that better work with the natural environment and are more resilient and sustainable. Green infrastructure often addresses the management of our water resources.

In contrast, our traditional water management infrastructure—the pipes, gutters and tunnels that keep our water, wastewater, and stormwater moving the way we need it to—have been referred to as *gray infrastructure*. The Water Infrastructure Improvement Act defines green infrastructure as “the range of measures that use plant or soil systems, permeable pavement, or other permeable surfaces or substrates,

stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspire stormwater and reduce flows to sewer systems or to surface waters.⁷⁴ Examples include manmade wetlands that act as water treatment plants or rain gardens designed to pool water, allowing the moisture to seep into the ground instead of being managed by traditional water overflow structures.

One of the newer terms for infrastructure that has just started picking up momentum in the national policy discussion is *human infrastructure*. Human infrastructure entered the national debate earlier in the year through the president's introduction of the American Families Plan and the American Jobs Plan.⁵ As the term would suggest, human infrastructure refers to the investments that we make into our citizens to make them more productive and efficient.

Of course, “how” we improve an individual’s capacity for productivity is up for debate, but generally it’s done through greater access to education, training, community services, and healthcare. Specifically, the president has proposed four years of free community college, universal preschool for three- and four-year-olds, and a subsidy for childcare expenses. Proponents of investing in human infrastructure have a straightforward argument: The more time and resources an individual has, the more likely it is that they will be able to increase their own productivity.

Allocating resources?

Conventional infrastructure receives the lion’s share of investment from the federal government. The most recent legislation addressing infrastructure, the Infrastructure Investment and Jobs Act (IIJA), skews heavily toward conventional infrastructure

investment. Of the more than \$500 billion in new investment money in the IIJA, \$110 billion has been set aside for roads, bridges, and major projects. Public transit and railways will receive \$39 billion and \$66 billion, respectively.⁶

It should be noted that the IIJA is a retooling of a larger proposal that was significantly more ambitious in terms of investment. Before it was pared down, there was an additional approximately \$1.5 trillion earmarked for housing, schools, research and development, and community-based care. All these provisions were cut during negotiations, but it shows that lawmakers are stretching the definitions they use when crafting infrastructure policy.

Further, “new infrastructure” provisions have made it into the IIJA. Funding for electric vehicle charging stations and improvements to the accessibility of broadband Internet made it into the bill, along with spending for the power grid. At the time of this writing, the debate over a budget reconciliation bill is ongoing. This budget bill represents another opportunity for Congress to decide how infrastructure will be defined and how we allocate resources. The budget bill is very much taking on the debate over “what” infrastructure is, with many proponents pushing for the inclusion of more human infrastructure provisions, like the expansion of Medicaid and subsidizing child and elder care.

Conclusion

The policy debate over investing in infrastructure is like building several miles of highway or a new bridge—it’s slow, vital, and affects a lot of people. It has taken years for Congress to tee up what some would call a moderate-sized investment in infrastructure. And as of this writing, the IIJA still has some obstacles to overcome. New challenges

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and demands will determine the size and scope of what we put our resources toward collectively—the spread of COVID-19 and the strain on our healthcare system comes to mind. Ultimately, our evolving world will decide what we deem as essential infrastructure, meaning that the term may remain nebulous by design. Perhaps we need flexible definitions for issues that are so important. ■

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¹ 2021 Report Card for America’s Infrastructure, American Society of Civil Engineers.

² CBO Report: *Budgeting for Federal Investment*.

³ CRS Report: *Infrastructure Investment and the Federal Government*.

⁴ *Water Infrastructure Improvement Act*, Public Law 115–436—January 14, 2019.

⁵ The White House: FACT SHEET: American Families Plan.

⁶ The White House FACT SHEET: Bipartisan Infrastructure Investment and Jobs Act.