Overview

The $1.2 trillion Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law, was signed into law by President Biden on November 15, 2021. It is one of the largest long-term federal investments in US infrastructure and one of the more important bipartisan accomplishments in recent years. The expanse and complexity of the bill, the large amounts of monies to be spent, and the centrality of infrastructure to the strength of the US economy, raise the stakes for public and private sector leaders. Efficient and effective investments need to be made. The objective becomes even more complex amidst inflation and slowing US growth, and the enduring effects of the pandemic on the workplace and daily life.

Given the IIJA’s significant public investment and the importance of infrastructure to ensuring US competitiveness, this Solutions Brief addresses a number of issues regarding implementation of the IIJA. Specifically, it:

- Evaluates progress on the stated goals of the bill and progress on spending to date, including special attention to its newer programs.
- Discusses challenges to implementation of infrastructure legislation, including costs, transparency, and issues inherent in collaboration among federal, state and local government and the private sector.
• Proposes solutions to improve the implementation of both the IIJA and future legislation.

The good news is that while some spending has been released to the states for urgent needs, these remain early days in implementation. Consequently, there is an opportunity to correct course in terms of speed, efficiency and transparency, made even more urgent by the damage from the hurricane season to date.

In several aspects of infrastructure, the US has fallen behind our major economic competitors in recent decades. Examples abound of weaknesses in our physical infrastructure.\(^2\) The American Society of Civil Engineers considers 7.5 percent of US bridges structurally deficient and 40 percent of US roads in poor or mediocre condition.\(^3\) More generally, the COVID-19 pandemic has strained many supply chains and backlogged ports, a problem that superior infrastructure could help solve.\(^4\) Equally, some major economic competitors such as China, Japan and South Korea are able to build major infrastructure projects faster than the US system permits.\(^5\)

Regulatory paralysis is one of the causes of our infrastructure deficiencies. Leaders in the public and private sector need to collaborate on regulatory policy to ensure that the US spends tax dollars on infrastructure wisely, efficiently and remains globally competitive. It takes too long and costs too much to deliver infrastructure projects, preventing the US from achieving the improvements that a future-focused, competitive economy requires.

In addition, infrastructure spending faces other hurdles because of the significant economic challenges the nation is currently facing. Labor is relatively scarce in many industries, including construction, and high costs for materials and shipping delays are proving challenging as well. An environment of inflation and supply shortages make it more difficult to build cheaply and on time. The COVID-19 pandemic has changed commutes and daily routines, making it more difficult to assess where additional transportation infrastructure may be needed. Further, agencies may need to ramp up capacity quickly to handle increased flows of funding.

Recognizing these important factors, CED has long promoted significant upgrades to our infrastructure of all types and its smart implementation. This Solutions Brief builds on CED’s previous insights and solutions, which provided an early framework for a bipartisan bill (Solutions Brief: A US Infrastructure Plan—Building for the Long Haul) and delineated important steps for a smart and efficient rollout (Solutions Brief: Building Infrastructure in Real Time—Avoiding Regulatory Paralysis).
Insights for What’s Ahead

RECOMMENDATIONS FOR IMPROVING THE IIJA IMPLEMENTATION

Infrastructure is one area where the world-leading US economy has faltered. Modernizing US infrastructure and meeting the challenges of the present and future economy takes leadership from stakeholders in the public and private sectors. The challenge is large and complex and crosses local and regional boundaries. The IIJA offers an important opportunity for policymakers and private sector leaders to work collaboratively to fix the US’ faltering infrastructure. To do so, they will need to avoid pitfalls that have hampered infrastructure upgrades in the past, including streams of duplicative red tape, and adapt to the challenges presented by supply chain issues, labor shortages and rising inflation.

Set priorities

- Public and private sector leaders on the federal, state, and local levels need to collaborate closely to set priorities for infrastructure projects.

- Accelerating broadband coverage and completing energy grid projects should receive priority attention. These two new, critical areas of infrastructure funding in the IIJA are in danger of delays.

Address regulatory paralysis: modernize and streamline regulation

- Regulation must promote competition. Streamlining regulatory procedures and cutting red tape across federal, state, and local governments is key to increasing investment, decreasing cost, and maximizing efficiency.

- The federal government should use the One Federal Decision process, as encouraged by the IIJA, even in areas where it is not explicitly required by the law.

- Limit standing for lawsuits against permitting and limit the use of last-minute lawsuits to impose maximum delay.

- Limit the time to sue to the two years specified in FAST-41, or an even shorter time, such as 60 or 90 days from the issuance of a permit.

- Limit the time and length of environmental statements to two years and 300 pages, respectively. The federal government should undertake a review of projects funded by IIJA that require a full Environmental Impact Statement.

- Policymakers should streamline the decision-making process on power transmission and reduce the number of authorities with capacity to block the project.

- Stakeholders in the public and private sectors should work together to reach lower-bound estimates on each state’s allotment of essential broadband funding to move forward.

Increase private/public coordination, build administrative capacity, and share data

- Rigorous cost-benefit analysis is essential, as is increased coordination. The federal government can provide technical expertise, but locally based on-the-ground input from private and public stakeholders on both costs and benefits is needed as well. Maximum competition on immediate costs and long-run project health is needed to get the best infrastructure at least cost.
• State and local leaders should pursue public-private partnerships (PPPs) where they are appropriate—they can supplement public expertise and resources and facilitate consideration of maintenance and full-life-cycle cost.

• State and local agencies should seek participation from local private sector firms with expertise on maintenance and operations costs. Maintenance and renewal must be included in the analysis of benefits and costs.

• State and local agencies should make use of creative contracting arrangements where appropriate for projects that may have substantial implementation, operating or maintenance costs.

• Within existing legal frameworks, states should take advantage of the skills of private-sector experts and independent workers with specific prior experience in contract management, including contracting with them, as appropriate, as independent contractors, to help respond quickly to builders and keep projects moving.

• The federal government should consolidate competitive grant applications where possible.

• Project designers should coordinate between types of infrastructure, take advantage of synergies, and address potential conflicts early.

• Federal, state, and local decision makers (including across states and localities) must coordinate to avoid duplication and delay during project approvals, for example, through regional planning organizations.

• The federal government should embrace alternative contracting methods like Integrated Project Delivery (IPD) or collaborative contracting where contractors, designers and owners can work together to maximize the project scope while minimizing cost and scheduling delays.

**Improve transparency**

• Ensure that federal help desks for state and local agencies are well-staffed and provide information, updates, and answers efficiently.

• States should invest funds provided by IIJA with state-level oversight.

• The federal government should educate state and local agencies on federal transparency and reporting requirements.

• States should create databases of information that reflect federal funds in use by project.

• The federal government should continue to update the IIJA guidebook with more detailed timetables, and the Build.gov website with timely information on where and how the money is being spent.

• The Administration should consider assigning an oversight team for the implementation of the law that collaborates with individual agency inspectors general.

**Address supply chain issues, materials costs, and delays**

• State and local agencies should collaborate with private sector leaders from local construction firms on tackling supply problems.
• Federal trade negotiators should work with trading partners to reach agreements that will allow the US to reduce tariffs on key construction inputs.

• The Administration should extend the waiver of “Buy American” provisions for construction inputs which may be delayed by those provisions.

• Public and private sector leaders on the federal, regional, state and local levels should work together to determine how best to direct infrastructure funding towards improving supply chains.

**Address the labor shortage**

• Public and private sector leaders, including from unions, on the federal, state and local levels should collaborate on training the labor force for IIJA projects, including through apprenticeships.

• Public and private sector leaders should work together to identify and recognize occupational licenses across state lines in reciprocity agreements for key construction or civil engineering occupations where location has little impact on the job substance and review other areas where they may be able to streamline requirements.

• Local and regional business leaders should consider whether former internal experts and recently-retired government employees may now be available to provide expert, essential services as independent consultants.

• Federal policy leaders should reform the H1-B non-immigrant visa program by replacing the random lottery with a modified wage-ranking approach and prioritize high-skilled workers needed in infrastructure.

**Structure and Goals of the IIJA**

Of the $1.2 trillion Congress authorized under the IIJA, $650 billion reauthorizes previously-existing programs and $550 billion consists of new spending. The Administration’s goals for the IIJA include rebuilding America’s roads, bridges and rails; expanding access to clean drinking water; ensuring every American has access to high-speed internet; tackling the climate crisis; advancing environmental justice; and investing in communities that too often have been left behind. The legislation is also intended to help ease inflationary pressures and strengthen supply chains by making long overdue improvements to our nation’s ports, airports, rail and roads, and to promote good-paying union jobs and grow the economy sustainably and equitably.6

Congress allocated most of the funding over a five-year period to FY 2026. There are three sources for the funding: the Highway Trust Fund, essentially given to agencies to spend over the five years; guaranteed appropriations (funds added in the IIJA that will
either establish new programs or bolster existing funding with no need for future action; and, general funds that have been authorized but require future action by Congressional appropriations committees.7

The IIJA distributes federal funds through a combination of formula grants for states, where amounts have been determined based on factors such as population or state size; and competitive grants that cities, towns and municipalities can compete for or directly apply to receive.8 Well-planned spending on infrastructure improves Americans’ daily lives and serves as a catalyst for economic growth. The state of American infrastructure affects our global competitiveness as well.

Major categories of spending used in the most recent federal guidebook to the law, covering both previously-existing and new programs, include the following:9

<table>
<thead>
<tr>
<th>Transportation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads, bridges, and major projects</td>
<td>$326 billion</td>
</tr>
<tr>
<td>Passenger and freight rail</td>
<td>$63 billion</td>
</tr>
<tr>
<td>Public transit</td>
<td>$83 billion</td>
</tr>
<tr>
<td>Airports and Federal Aviation facilities</td>
<td>$25 billion</td>
</tr>
<tr>
<td>Ports and waterways</td>
<td>$17 billion</td>
</tr>
<tr>
<td>Safety</td>
<td>$38 billion</td>
</tr>
<tr>
<td>Electric vehicles, buses and ferries</td>
<td>$19 billion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Climate, Energy and the Environment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy and power</td>
<td>$75 billion</td>
</tr>
<tr>
<td>Water</td>
<td>$64 billion</td>
</tr>
<tr>
<td>Resilience</td>
<td>$38 billion</td>
</tr>
<tr>
<td>Environmental remediation</td>
<td>$22 billion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Broadband</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Broadband</td>
<td>$64 billion</td>
</tr>
</tbody>
</table>

Published analysis that separates reauthorized spending from the new shows that the $550 billion in new spending is relatively weighted more towards the climate, energy, environment and broadband priorities.10 Much of the transportation funding, particularly in roads, bridges, and major projects, comes from pre-existing programs.
Where the IIJA allocates $550 billion in new infrastructure investment
(billions of dollars)

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount (billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previously-Passed Transportation Funding</td>
<td>650</td>
</tr>
<tr>
<td>Roads, Bridges, and Related Programs</td>
<td>111</td>
</tr>
<tr>
<td>Energy, Power, and Electric Grid</td>
<td>107.5</td>
</tr>
<tr>
<td>Rail</td>
<td>66</td>
</tr>
<tr>
<td>Broadband</td>
<td>65</td>
</tr>
<tr>
<td>Water and Wastewater</td>
<td>55</td>
</tr>
<tr>
<td>Public Transportation</td>
<td>39.2</td>
</tr>
<tr>
<td>Airports</td>
<td>25</td>
</tr>
<tr>
<td>Natural Disaster Prevention and Mitigation</td>
<td>23.3</td>
</tr>
<tr>
<td>Remediation</td>
<td>21</td>
</tr>
<tr>
<td>Army Corps of Engineers</td>
<td>16.7</td>
</tr>
<tr>
<td>Safety</td>
<td>11</td>
</tr>
<tr>
<td>Ports and Coast Guard</td>
<td>7.8</td>
</tr>
<tr>
<td>Cybersecurity, Other</td>
<td>10.1</td>
</tr>
</tbody>
</table>

Source: Infrastructure Investment and Jobs Act Implementation Resources, gfoa.org, The Conference Board, 2022

Overall, this mix of spending reflects both longstanding infrastructure priorities in surface transportation, aviation and water, as well as priorities that reflect a broader view of infrastructure needs for the 21st century economy: climate, clean energy and high-speed internet connectivity. The main investments in reducing climate change directly are found in the energy and power programs, which focus on low-carbon sources of electricity like wind, solar and nuclear power, and strengthening the US electric grid and electric storage capacity to better facilitate the use of variable renewable energy sources.

Additional attempts to reduce emissions come in the transportation funding that subsidizes electric vehicles and the networks for charging them. Further, a focus on improving mass transit or passenger rail may induce passenger-mile substitutions away from private automobiles.

Crucially, many of the environmental goals in the IIJA depend on a high-quality electric grid. Renewable energy sources, which are variable and often located near specific geographic features, need long-range transmission of energy. And electric vehicles are only as reliable as the electric grid that powers them. This Solutions Brief will give special attention to power transmission.

The resilience funding in the IIJA is designed to protect infrastructure from disasters like floods or fires. Resilience funding can often have a high cost-benefit ratio, with small investments preventing much more extreme or costly effects further on.

**Economic Impact of Infrastructure Spending**

The IIJA should be expected to have several macroeconomic impacts. In the long run, infrastructure projects are a form of capital accumulation, which can often enhance the performance and productivity of the economy. For example, if workers can move goods throughout the country more easily thanks to improvements to cargo infrastructure,
output rises, with the investment delivering benefits long after the initial construction is over. In a country like the United States, where infrastructure quality lags many other measures of economic health, more infrastructure spending at the margin can have a particularly high return on investment. Additionally, some kinds of investment provided by the IIJA, like climate mitigation, may not be sufficiently provided by the private sector because of collective action problems or externalities. These factors suggest that IIJA spending has a lot of upside in the long run.

In the short run, however, the $550 billion in new spending presents challenges for policymakers. It increases aggregate demand—the desire to exchange money for goods and services. This can increase employment, but also contribute to inflation. For example, in an economy with high unemployment, IIJA-funded projects might extend employment offers to people who otherwise would not have been employed. But in a time of low unemployment, infrastructure spending might bid up the prices of scarce materials and labor, and consequently, the costs of the projects. The result is less infrastructure modernization at higher costs. In recent months, the Federal Reserve has been acting quickly to reduce aggregate demand and contain inflation, which has exceeded its targets. However, when the IIJA was initially passed, the Federal Reserve had not yet begun raising interest rates.

The Fed’s efforts have come at a cost: higher interest rates slow private sector investment, both commercial and residential. The pullback in private sector investment has led The Conference Board’s forecast team to project a recession in late 2022.

**Progress towards Implementing the IIJA—Status of Funding**

The Administration’s main hub for documenting and tracking IIJA implementation is Build.gov. Among the site’s major features are a guidebook documenting all the programs included in the law, which has been updated once (in May 2022) since its original publication and a Maps of Progress feature (last updated to September 6) showing which projects have received IIJA funding and where they are located. In addition to formatted PDFs and interactive maps, the data for these features are available in raw form. The site also includes technical guidance for state and local agencies on available funding opportunities and which federal agency websites cover each program.

The Build.gov Maps of Progress data show that the Administration had announced or distributed $118 billion by September 6, the most recent period for which the Administration has announced spending totals. However, some agencies have made announcements since September 6, reflecting continued progress for an estimated total of at least $120 billion by September 23. Most programs in the IIJA contain funding for five fiscal years, from 2022 to 2026, frequently with amounts allocated for each fiscal year in that period. However, new programs take time to establish, especially if they require implementation through notice-and-comment rulemaking or include a competitive grant process. The text of IIJA for many programs allows the funds designated for a particular fiscal year to remain available until four years after the end of that fiscal year; for example, funds made available for fiscal year 2023 will often remain available until September 30, 2027.
In broad terms, the IIJA seems to be moving relatively faster in announcing funding recipients in transportation and energy than the American Reinvestment and Recovery Act of 2009 (ARRA), a law that also funded similar priorities. The ARRA, passed in FY 2009, expended just 8.7 percent of its Department of Transportation appropriations in FY 2009, and just 2.9 percent of its Department of Energy appropriations.\textsuperscript{14} By contrast, about ten percent of total IIJA funding had already been assigned to specific projects before the close of FY 2022. (Some, but not all, of this disparity is attributable to the fact that the IIJA passed three months earlier into its fiscal year than the ARRA, which became law in February 2009.) However, in some cases programs have not met the timeline set out by the Administration, as noted below.

See Appendix for an overview of implementation progress for each of the law’s major priorities, as categorized and quantified by the Building a Better America guidebook editions from Build.gov, and the data made available on that website.\textsuperscript{15} This overview also includes information from agency announcements not yet reflected in the guidebooks or in Build.gov data.

- **Roads, bridges and major projects**
  Total funding: $326 billion. Total announced in Build.gov data as of September 6, 2022: $56.0 billion. Total including subsequent agency action: $57.5 billion.\textsuperscript{16}

- **Passenger and freight rail**
  Total funding: $63 billion. Total announced as of September 6, 2022: None.

- **Public transportation**
  Total funding: $83 billion. Total announced as of September 6, 2022: $13.2 billion.

- **Airports and Federal Aviation Administration facilities**
  Total funding: $25 billion. Total announced as of September 6, 2022: $3.9 billion.

- **Ports and waterways**
  Total funding: $17 billion. Total announced as of September 6, 2022: $8.0 billion.

- **Transportation safety**
  Total funding: $38 billion. Total announced as of September 6, 2022: $4.0 billion.

- **Electric vehicles, buses and ferries**
  Total funding: $18.6 billion. Total announced as of September 6, 2022: $2.2 billion.

- **Clean energy and power**
  Total funding: $75 billion. Total announced as of September 6, 2022: $5.6 billion.

- **Water**
  Total funding: $64 billion. Total announced as of September 6, 2022: $10.0 billion.

- **Resilience**
  Total funding: $38 billion. Total announced as of September 6, 2022: $11.7 billion.

- **Environmental remediation**
  Total funding: $22 billion. Total announced as of September 6, 2022: $3.1 billion.

- **Broadband**
  Total funding: $64 billion. Total announced as of September 6, 2022: $0.6 billion; the Affordable Connectivity Program is not designated to specific projects.
Case Studies in IIJA Implementation: Broadband and the Electric Grid

Broadband and the electric grid, two areas that have not been funded in many past infrastructure bills, are both critical components of the IIJA. The COVID-19 pandemic led many institutions and firms to move many operations online, making broadband connectivity more important to work, education and commerce. Recent problems with electric grid reliability in states such as Texas and California highlight the vulnerability of the electric grid, underscoring the importance of resilience. The need to prioritize resiliency has also become clear in the face of increasing cyberattacks, such as the damaging Colonial Pipeline attack in 2021.

Accelerating broadband funding

Broadband is the IIJA priority most in danger of significant delays. Most importantly, the Federal Communications Commission (FCC) cannot allocate funding for the Broadband Equity, Access, and Deployment program (BEAD) because it does not yet have the data to determine how to allocate the funding. In 2020, in the Broadband DATA Act, Congress directed the FCC to map the availability of high-speed broadband.17 In accordance with this law, the IIJA requires that BEAD funds be distributed “on or after the date on which the broadband DATA maps are made public.”

Unfortunately, the FCC has been unable to produce the maps quickly, in part because Congress did not fund that mandate until 2021, but also because the data have proven difficult to assemble and a first draft of the broadband maps, expected to be released later this year, likely will be subject to challenges by stakeholders claiming the maps are inaccurate. Inaccurate maps could lead to overbuilding of infrastructure (and unnecessary use of limited subsidies) in some areas and underbuilding in others. Because the maps are directly linked to funding, if a state’s unserved populations are not properly counted, the state could lose funding it would otherwise be entitled to.

Currently, a round of data for the maps has been compiled and has been subject to “bulk” challenges starting September 12. These are requests for modifications to large numbers of locations at once from large stakeholders, including states or broadband providers. After the bulk challenges are complete, the FCC expects to release a first draft of the maps in November. At that point, members of the public or other stakeholders without access to the bulk challenge process may make additional challenges.18 As a result, the maps may not be ready to use for disbursing funds until the middle of 2023.19

Funding for BEAD follows this formula: first, ten percent of the $42.5 billion is allocated to each state in proportion to its share of unserved locations in high-cost areas; then each state (plus the District of Columbia and Puerto Rico) receives $100 million, while smaller US territories receive $25 million. A small fraction is reserved for administrative expenses. Finally, the remainder—about $33 billion—is allocated by a state’s share of the total number of unserved locations, whether they are high cost or otherwise. “Unserved” is defined as lacking service with a speed of at least 25 megabits per second for downloads and 3 megabits per second for uploads, and “high-cost areas” are defined as those where broadband service costs would be higher due to geography, remoteness or other factors.
While there can be no substitute for the final FCC maps—a clear requirement of the law and a priority for many members of Congress—the FCC and the National Telecommunications and Information Administration (NTIA) should collaborate to provide states with as much of the funding that they are entitled to as quickly as possible.

One way to distribute some, but not all, BEAD funding could work as follows: upon each iteration of the FCC’s data, the agency could supply the following figures: first, the maximum possible number of unserved locations, and unserved locations in high-cost areas, across the entire United States. And second, the minimum possible number of unserved (or unserved in high-cost areas) locations in each state. Dividing the latter by the former results in a lower bound of each state’s possible share of BEAD funding.

Then the NTIA could award each state with that lower bound immediately, knowing that FCC’s final maps would ultimately result in the state being awarded at least that much, and leave the remaining funds as a reserve. This would not preclude states from receiving the remainder of their funds later. Rather, as additional iterations of the map are published, and estimates become more precise, funds could continue to be released based on the lower-bound estimates until all challenges are resolved. Stakeholders should work together to reach lower-bound estimates on each state’s allotment of BEAD funds, allowing NTIA to distribute some of the funding as the FCC works expeditiously to finalize its maps.

**Completing energy grid projects and ensuring resiliency against disruption**

While the Department of Energy has moved forward with many of the programs established by the IIJA, comment periods have delayed many Funding Opportunity Announcements (FOAs) into the fall, which will delay the first disbursement of funds for many projects into FY2023.

Completing energy projects is vital to avoiding disruptions that can cause significant damage to the economy. But worryingly, precedent shows that construction of electric grid projects can be extraordinarily challenging. Energy transmission projects regularly fail to come to fruition even when they are funded and have the support of the federal government.

A review of 30 transmission line projects since 2005 shows that they take an average of 10 years to complete, and some are expected to take as long as 30 years. In 2011, President Obama attempted to prioritize and accelerate seven long-distance transmission projects. Only two have been completed. Many transmission projects span multiple jurisdictions and are subject to a variety of reviews as well as many potential litigants, each and any of which can delay or bring an end to a project.

For example, consider recent efforts to connect hydroelectric power in Quebec with energy users on the US East Coast. While this would help serve many people with abundant clean energy, including those in major cities like Boston and New York, the transmission lines would necessarily travel through a variety of jurisdictions, and getting each of those jurisdictions on board has been a challenge. Transmission from Quebec has been stymied by opposition in New Hampshire and in Maine. An effort
to route Quebecois power through New York State is now also facing opposition from local groups upstate.  

Another interstate power project, the Grain Belt Express, would connect wind power in Kansas to the eastern power grid at the Indiana-Illinois border. As wind power is a variable source of energy, this connection to more predictable sources of power would help mitigate volatility in demand and supply. The transmission line would convey some electricity to Missouri, but most of its 4,000 megawatts of energy would move further east. Opposition, especially in Missouri, has thus far been able to legally prevent the project going forward. Local legislators in Missouri have heard testimony on a bill that might stop the project, or, if it goes forward, require that 50 percent of the electricity goes to Missouri, leaving the other half for all other states that would benefit from the transmission line. Demands on interstate projects by states can be non-uniform, or even, mutually exclusive, again showing the need for greater federal coordination on projects of national importance.

Few individual infrastructure projects ever meet unanimous approval. But the greater the number of potential vetoes on a project, the greater the likelihood that essential projects may fail. The federal government has a role in ensuring that the broader need for interstate commerce is adequately represented against the interests of local control. In the case of grid transmission—as with highways, railroads and pipelines—there is a compelling federal interest. To support the IIJA’s Building a Better Grid initiative, a solution is for federal and state lawmakers to come to an agreement to reduce the number of deciders on energy projects that have been crippled by large number of decision-makers.

Other Challenges to Implementation

In many cases, the federal government has begun allocating money to infrastructure projects that the IIJA authorized. However, challenges remain to using those federal funds effectively and quickly, including workforce issues, supply challenges, administrative challenges and permitting issues.

Workforce issues

Labor demand in the construction industry has risen dramatically. Over 7.7 million workers are already employed (seasonally adjusted) in construction, approximately an all-time high; job openings in construction reached 440,000 in April 2022, according to the Job Openings and Labor Turnover survey, the highest the survey has recorded. Further, the Associated Builders and Contractors estimate that the construction industry will need to attract 650,000 additional workers in 2022, on top of the normal pace of hiring and that the trend continues in 2023 with an additional 590,000 workers needed on top of the normal pace of hiring. However, there are relatively few unemployed in the construction industry. As of August 2022, there were just 401,000 unemployed workers in construction, an unemployment rate of 3.9 percent. Further, demand for labor in construction raised average hourly earnings in the sector by $1.74 in August 2022 to $34.82 from $33.08 in August 2021. In sum, workers for public infrastructure projects are more scarce and expensive than during prior infrastructure pushes, such as the ARRA, which became law during a labor market trough after the 2007-2009 financial crisis.
Significant investments in infrastructure will require dedicated workers in a variety of specialty and non-specialty occupations, from civil engineers to electricians to construction laborers. To address these needs, the following strategies may help address the labor shortage:

- Public-private partnerships are key to increasing the trained labor force for IIJA projects. Employers, community colleges and other training providers should participate in the Administration’s Talent Pipeline Challenge, which supports workforce development in broadband, construction and electrification. State and local governments should use American Rescue Plan and/or IIJA funding to support these efforts, taking advantage of the ability to use the funds for workforce development under several grant programs, and partnering with local employers and institutions of training or learning. These initiatives should also ensure that both urban and rural communities communicate effectively with their residents regarding the path to available training as well as the opportunities the additional training provide.

- States should recognize occupational licenses across state lines in reciprocity agreements for key construction or civil engineering occupations, where the substance of the job is unchanged by geography.

- State and local agencies should consider, as appropriate and within existing legal requirements, whether former internal experts may now be available to provide expert, essential services as independent consultants to further expand the workforce with skills and experience.

- Federal policymakers should reform the H1-B non-immigrant visa program by replacing the random lottery with a modified wage-ranking approach, and prioritize high-skilled workers needed in infrastructure, like architects or engineering technicians.

Supply challenges

Obtaining materials for construction projects may also present challenges to effective implementation. In general, materials have experienced more delays and become more expensive since the beginning of the COVID-19 pandemic. As of August 2022, the Bureau of Labor Statistics Producer Price Index for construction materials had risen an extraordinary 45 percent from pre-pandemic levels, though it has retreated from the all-time high set in May. In addition to increases in price, materials shortages have affected builders in other ways, for example, by forcing them to look for replacements, find alternative suppliers or endure delays. Supply chain problems from the pandemic have directly impacted industries that will construct projects using IIJA funding; for instance, semiconductor shortages have impeded broadband providers, leading the FCC to study the issue last year.

Recommendations to improve access to materials for IIJA projects include:

- Early in the planning process for projects, state and local agencies should request advice from construction firms with local expertise and information critical to understanding potential issues with material prices or delays, to avert, or at least prepare for, supply chain issues further down the road.
• Federal trade negotiators should work with trading partners to reach agreements that will allow the US to reduce tariffs on key construction inputs.

• The Administration should extend the waiver of “Buy American” provisions for construction inputs, at least in markets where few suppliers can meet the domestic content threshold, or where suppliers can only do so with significant delay.33

• Competitive grant selections should target roadway funding to improve connections to ports, factories, airports and other major supply chain nodes. Further, target funding to border hubs to help supply chain integration and efficiency of cross-border trade with Canada and Mexico.34

Public/private coordination and administrative challenges

Even if sufficient funds are allocated to procure labor and materials without delay, and labor and materials are easily available, considerable administrative challenges can slow a well-funded project or even preclude it from breaking ground. Infrastructure projects often span multiple jurisdictions, requiring the cooperation of several governments. They often require coordination between utilities of different kinds—for example, to ensure a tunnel dug for transportation does not damage underground pipes or wiring, which might have to be modified or relocated as part of the project.

State and local agencies that receive IIJA funding and allocate it to specific projects need expert personnel to make awards and respond quickly to questions from builders and contractors or make decisions about design details. The depth and breadth of infrastructure funding in the IIJA is likely to pose a challenge to many states. While states have pre-existing capacity, especially in surface transportation spending, they will require more capacity to administer funds from new programs.

Designing an optimal incentive structure for infrastructure builders can be challenging for state and local agencies. While it may be immediately beneficial to award contracts to the least expensive bidder, infrastructure projects have many stages and many types of costs. If money is saved during construction, but makes operation or maintenance more expensive, then the agency has not economized on cost for the overall life of the project.

To address these challenges, policymakers can consider the following:

• Rigorous cost-benefit analysis is essential, as is increased coordination. The federal government can provide technical expertise, but locally based on-the-ground input from private and public stakeholders on costs and benefits is needed as well. Maximum competition is needed to get the best infrastructure for the least cost.

• While federal monies may crowd out consideration of PPPs, state and local leaders should pursue them where they are appropriate—they can supplement public expertise and resources, and facilitate consideration of maintenance and full-life-cycle cost.

• Early in the planning process for projects, state and local agencies should seek input from local private sector firms with expertise on maintenance and operations costs, and solicit advice on how to design projects for the long haul.
- Within existing legal frameworks, states should take advantage of the skills of private-sector experts and independent workers with specific prior experience in contract management, including contracting with them, as appropriate, as independent contractors to help respond quickly to builders and keep projects moving.

- The federal government should consolidate competitive grant applications where possible, as in the National Infrastructure Project Assistance grants program (Mega), the Nationally Significant Multimodal Freight and Highways Projects grants program (INFRA), and the Rural Surface Transportation Grant program (Rural).

- Project designers should coordinate between types of infrastructure, for example, by using “dig once” arrangements that include buried broadband conduits, which are relatively cheap to include in a project that is already digging for other purposes.\(^{35}\)

- Federal, state and local decision makers (including across states and localities) must coordinate to avoid duplication and delay during project approvals, for example, through regional planning organizations.

- For projects that may have substantial operating or maintenance costs, state and local agencies should make use of creative contracting arrangements, including design-build-operate, or even design-build-finance-operate-maintain, which can help reduce challenges that might otherwise result from having different entities perform the different tasks. A simple lowest-bid contract for building, for example, might result in a project that is cheaper to build initially but have higher maintenance costs in the long run. State and local agencies should consult with private sector experts on the maintenance costs of different initial construction options.

- Government agencies at the federal, state and local levels should encourage the use of Integrated Project Delivery (IPD) or collaborative contracting as a way to receive early industry input and alignment on the project outcomes. This approach requires that the owner, contractor and designers work together in a single, multi-party contract arrangement to expedite project delivery while working to minimize cost. Early collaborative contracting arrangements have proven to improve project outcomes substantially.

**Permitting**

One of the most time-consuming aspects of a construction project, if it requires a federal permit, is an environmental review under the National Environmental Policy Act (NEPA). NEPA, which became law in 1970, requires an environmental assessment (EA) or environmental impact statement (EIS) for many projects that include a federal permit. These statements do not ultimately bind the federal agency to a particular decision; instead, they are meant to inform the process. However, over time, this process has become increasingly lengthy. The average EIS between 2010 and 2018 took 4.5 years to complete.\(^{36}\)
The long length of the statements and time to completion reflects, in part, the fact that the statements are open to a variety of legal challenges by opponents. Using NEPA lawsuits to delay decisions can effectively give opponents a status quo in their favor, even for a project that the government would like to permit.\textsuperscript{37}

To move projects quickly, reforms to permitting as outlined in CED’s Solutions Brief, \textit{Building Infrastructure in Real Time}, should be adopted, in particular:

- Section 11301 of the IIJA codifies the One Federal Decision process for major projects. When possible, the federal government should use the One Federal Decision process even in areas where it is not explicitly required by law.
- Limit the time to sue to the two years specified in FAST-41, or an even shorter time, such as 60 or 90 days from the issuance of a permit.
- Limit the time and length of environmental statements to two years and 300 pages, respectively. The federal government should undertake a review of projects funded by IIJA that require a full Environmental Impact Statement.

\textbf{Transparency}

As IIJA implementation proceeds, transparency by state and local agencies is critical to ensure that the public knows how and where money is spent. Accurate information about infrastructure spending is useful for cost-benefit analysis, for comparison of best practices, and for accountability to prevent waste or abuse of funds. However, oversight over a substantial number of new funds can strain the resources of state agencies. For example, in implementing the ARRA, the California State Auditor testified in 2009 that her office would require 14 additional audits as a result of the funds, and she cited a lack of financial support for additional oversight staff as a challenge in interviews with the Government Accountability Office (GAO). Colorado and Massachusetts also cited similar issues.\textsuperscript{38}

Some lessons in effective state administration of funds can be applied from the ARRA. In deploying ARRA money, New York City founded an ARRA Big City Network, which was able to share information and best practices, as well as provide feedback to the federal government.\textsuperscript{39}

Additionally, a Big City Network survey on federal reporting requirements shed light on the best ways to help state and local governments with transparency and reporting. Respondents indicated that forms for federal oversight were easier when standardized, uniform, and, where possible, pre-populated (if the federal government already has access to some of the data expected in the filing.) And respondents considered a reliable federal help desk the single most important way to improve communications about federal reporting.\textsuperscript{40}

State transparency about the use of IIJA funds has thus far been lacking. In most cases, states do not have websites detailing the projects awarded IIJA funds in their state. California’s website, an extension of one made for a previous state transit bill, presents data on funds the state has received through the IIJA by major category, and the money devoted to planned or in-progress projects, casting at least some light on the state’s use of funds.\textsuperscript{41} California’s website also includes a map showing the recipients of both state
and federal funds and which IIJA program was used for the funding. Data from the map can be downloaded in the .csv format, making it usable by a variety of spreadsheet and database software.\textsuperscript{42} This level of detail, however, is the exception, not the rule. States will have several years to use IIJA funds, and reliable data on the use of those funds is a worthy investment.

To aid in transparency, policymakers should consider the following:

- The federal government should ensure that federal help desks for state and local agencies are well-staffed and are efficiently providing information, updates, and answers.

- States should invest funds provided by IIJA in state-level oversight.

- The federal government should educate state and local agencies on federal transparency and reporting requirements.

- States should create databases of federal funds used, by project and by federal program, with locations and timelines for those projects.

- The federal government should continue to update the IIJA guidebook and include goals for the timing of federal program rollouts, as in the first version of the guidebook. More detail will provide greater incentives for government to keep to timetables and ensure that IIJA implementation remains as fast and efficient as possible. The federal government should also continue to update the build.gov website with timely information on where and how the money is being spent.

- Given the wide variety of federal agencies involved in the process, and the need for oversight across all of them, the Administration should consider assigning an oversight team for the implementation of the law that collaborates with individual agency inspectors general.
Conclusion

Federal agencies have, in most but not all cases, begun distributing IIJA funds to state and local agencies. However, in some cases agencies have been slower than the timelines originally promised in the Administration’s guidebook, and at least one major priority—broadband—could be delayed significantly.

Even as funds are distributed, significant work remains to be done for those funds to be deployed effectively on the important priorities IIJA addresses. The solutions outlined above can help state and local agencies control costs, procure the needed labor and materials to get the job done, repair disrupted supply chains, and administrate effectively and with transparency. Further, they can help local business leaders identify important areas for cooperation with state and local governments on a timely and efficient implementation.

For many years, US infrastructure spending has lagged behind many of our principal economic competitors, and in some cases our infrastructure standards have also fallen. Inadequate funding has been one of the chief barriers in the recent past, but the IIJA is a major step forward to ensure strong infrastructure for a 21st century economy. Solving issues of coordination, regulation, contracting, and transparency to ensure timely and effective implementation of the IIJA are essential to using the major funding to serve as a catalyst for economic growth in an era of strong global competition.
Appendix

Below is an overview of implementation progress for each of the law’s major priorities, as categorized and quantified by the Building a Better America guidebook editions from Build.gov, and the data made available on that website. This overview also includes information from agency announcements not yet reflected in the guidebooks or in Build.gov data.

Roads, Bridges, and Major Projects

Total funding: $326 billion. Total announced in Build.gov data as of September 6, 2022: $56.0 billion. Total including subsequent agency action: $57.5 billion.

<table>
<thead>
<tr>
<th>Program</th>
<th>Funding Amount</th>
<th>New?</th>
<th>Implementation (if new)</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Highway Performance Program</td>
<td>$148,000,000,000</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Surface Transportation Block Grant Program</td>
<td>$72,000,000,000</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Bridge Formula Program</td>
<td>$26,675,000,000</td>
<td>Yes</td>
<td>Funds Apportioned January 2022.46</td>
</tr>
<tr>
<td>Congestion Mitigation and Air Quality Improvement Program</td>
<td>$13,200,000,000</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Bridge Investment Program</td>
<td>$12,200,000,000</td>
<td>Yes</td>
<td>Notice of Funding Opportunity ended in September 2022.47</td>
</tr>
<tr>
<td>Local and Regional Project Assistance Grants (RAISE)</td>
<td>$7,500,000,000</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Nationally Significant Freight and Highway Projects (INFRA)</td>
<td>$7,250,000,000</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>National Highway Freight Program</td>
<td>$7,150,000,000</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Carbon Reduction Program</td>
<td>$6,419,999,998</td>
<td>Yes</td>
<td>Guidance announced Spring 2022.48</td>
</tr>
<tr>
<td>National Infrastructure Project Assistance (Megaprojects)</td>
<td>$5,000,000,000</td>
<td>Yes</td>
<td>Combined application process with INFRA closed May 23. Awards expected Winter 2022.49</td>
</tr>
<tr>
<td>Tribal Transportation Program</td>
<td>$2,966,800,000</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Metropolitan Planning</td>
<td>$2,280,000,000</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Rural Surface Transportation Grant Program</td>
<td>$2,000,000,000</td>
<td>Yes</td>
<td>Combined application process with INFRA closed May 23. Awards expected Winter 2022.50</td>
</tr>
</tbody>
</table>

The Department of Transportation has already released at least $57.5 billion of the $326 billion in funds appropriated in the IIJA. Much of the bill’s funding for roads and bridges came from pre-existing policies, and the largest new program, the Bridge Formula Program, made use of formula grants, which give an amount to state or local agencies based on characteristics of the jurisdictions they serve (such as population). Formula grants are generally quicker to implement than competitive grants, especially...
for programs such as the National Highway Performance Program, which already existed prior to the IIJA, and are being used in the new Bridge Formula Program.

The competitive grant process for all major programs is under way, though several programs will not award funds designated for fiscal year 2022 until after that year concludes at the end of September. The largest new competitive grant, $2.36 billion for the Bridge Investment Program in FY 2022, is reviewing applications that were due in September.51 As the agency has announced about 18 percent of the total funding in the first of the five fiscal years the IIJA is intended to cover, highway funding is roughly on track.

### Passenger and Freight Rail

Total funding: $63 billion. Total announced as of September 6, 2022: None.

<table>
<thead>
<tr>
<th>Passenger and Freight Rail Programs</th>
<th>Program</th>
<th>Funding Amount</th>
<th>New?</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Federal-State Partnership for Intercity Passenger Rail Grants</td>
<td>$36,000,000,000</td>
<td>No</td>
<td>NOFO expected October for national grants, December for Northeast Corridor grants.52</td>
</tr>
<tr>
<td></td>
<td>Amtrak National Network Grants</td>
<td>$15,750,000,000</td>
<td>No</td>
<td>Award in Fall 2022</td>
</tr>
<tr>
<td></td>
<td>Amtrak Northeast Corridor Grants</td>
<td>$6,000,000,000</td>
<td>No</td>
<td>Award in Fall 2022</td>
</tr>
<tr>
<td></td>
<td>Consolidated Rail Infrastructure and Safety Improvement Grants</td>
<td>$5,000,000,000</td>
<td>No</td>
<td>NOFO open until December 2022.53</td>
</tr>
<tr>
<td></td>
<td>Restoration &amp; Enhancement Grant Program</td>
<td>$250,000,000</td>
<td>No</td>
<td>No NOFO yet available</td>
</tr>
</tbody>
</table>

None of the rail programs under the IIJA had distributed IIJA funds by July 6, despite the fact that none of the rail programs is new. For example, the Federal Railroad Administration (FRA) released last year’s Consolidated Rail Infrastructure and Safety Improvement Grants Notice of Funding Opportunity (NOFO) at the end of August in FY 2021 on a date close to that of the FY 2022 release.54 Relatively late NOFOs for FRA funds translate into relatively late dates for awarding funds. For example, the funds for Intercity Passenger Rail grants for FY2021, numbering $233 million, were awarded to specific projects in August 2022. The much-expanded funding from the IIJA of $7.2 billion for FY 2022 was not included in that round.55 The Amtrak funding awaited the release of Amtrak’s Service and Asset Line Plans in May.56 Further, the IIJA requires that the FRA develop an inventory of Northeast Corridor projects to establish a predictable project pipeline for fund distribution no later than one year after IIJA enactment—that is, November 15.57

In addition, the Restoration and Enhancement Grant Program, which has not yet made a NOFO available, is behind the goal of a summer NOFO set out on Build.gov. Rail funding in the IIJA is late relative to the fiscal years for which it has nominally been awarded. However, in establishing a project pipeline for the future, the FRA is seeking to set conditions that could result in a more organized process in the future.
Public Transportation

Total funding: $83 billion. Total announced as of September 6, 2022: $13.2 billion.

<table>
<thead>
<tr>
<th>Program</th>
<th>Funding Amount</th>
<th>Implementation (if new)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urbanized Area Formula Grants</td>
<td>$33,390,947,107</td>
<td>No</td>
</tr>
<tr>
<td>State of Good Repair Formula Grants</td>
<td>$21,640,412,832</td>
<td>No</td>
</tr>
<tr>
<td>Capital Investment Grants</td>
<td>$8,000,000,000</td>
<td>No</td>
</tr>
<tr>
<td>Formula Grants for Rural Areas</td>
<td>$4,109,463,374</td>
<td>No</td>
</tr>
<tr>
<td>Bus and Bus Facilities Formula Grants</td>
<td>$3,161,294,400</td>
<td>No</td>
</tr>
<tr>
<td>Enhanced Mobility of Seniors and Individuals with Disabilities</td>
<td>$2,193,105,343</td>
<td>No</td>
</tr>
<tr>
<td>Ferry Service for Rural Communities</td>
<td>$2,000,000,000</td>
<td>Yes, NOFO closed September 2022.58</td>
</tr>
<tr>
<td>Bus and Bus Facilities Competitive Grants</td>
<td>$1,966,392,169</td>
<td>No</td>
</tr>
<tr>
<td>All Stations Accessibility Program</td>
<td>$1,750,000,000</td>
<td>No</td>
</tr>
<tr>
<td>Rail Vehicle Replacement Grants</td>
<td>$1,500,000,000</td>
<td>Yes, FTA expects NOFO posted in September.59</td>
</tr>
</tbody>
</table>

The DOT is responsible for all programs in the Public Transportation category. Most of the funding DOT is distributing is in pre-existing programs, including Urbanized Area and State of Good Repair formula grants. Only two of its larger programs—Ferry Service for Rural Communities and Rail Vehicle Replacement Grants—are new. For both these new programs, NOFOs were ready in 2022, but behind the schedule set out in the initial Build.gov guidebook, which expected them in the spring, rather than in summer and fall, respectively.

Airports and Federal Aviation Administration Facilities

Total funding: $25 billion. Total announced as of September 6, 2022: $3.9 billion.

Airport funding in the IIJA is divided into three programs, which supplement typical sources of funding to the Federal Aviation Administration (FAA), such as taxes and fees on air travel. The act contains two grant programs: $15 billion for Airport Infrastructure Grants, and $5 billion for the Airport Terminal Program. It also contains $5 billion for FAA facilities. The FAA has already announced $2.9 billion in IIJA funds to airports under the grant programs and has outlined how it will be using the $1 billion for FAA facilities given under the first year of the IIJA’s funding. As the funding is intended to cover five fiscal years, the totals announced are roughly in line with the intended schedule set by Congress.
Ports and Waterways
Total funding: $17 billion. Total announced as of September 6, 2022: $8.0 billion.

The ports and waterways funding in the IIJA is largely for Federal government agencies themselves, rather than states or the private sector. The bulk of the funding, $8.8 billion, is for the Army Corps of Engineers for work on ports and waterways, while the General Services Administration receives $3.4 billion for land ports of entry. Both have already allocated funds to projects reported on Build.gov, including a project to expand and renew Soo Locks, a waterway that connects Lake Superior to Lake Huron, and a project to maintain navigation and flood control along the Missouri River.62

Transportation Safety
Total funding: $38 billion. Total announced as of September 6, 2022: $4.0 billion.

The DOT is implementing the transportation safety programs. Much of the safety funding is for pre-existing programs, especially the Highway Safety Improvement Program, which comprises $15.6 billion of the funds. However, there are also new competitive grant programs, including Safe Streets and Roads for All ($5 billion) Railroad Crossing Elimination ($3 billion) and Natural Gas Distribution Infrastructure Safety Grants ($1 billion). For all three items, the DOT has posted a NOFO.

Electric Vehicles, Buses, and Ferries
Total funding: $18.6 billion. Total announced as of September 6, 2022: $2.2 billion.

Funding for electric vehicles in the IIJA is concentrated in four major programs: Low or No Emission Bus Grants ($5.6 billion), the National Electric Vehicle Infrastructure (NEVI) Formula Program ($5 billion), the Clean School Bus Program ($5 billion) and the Charging and Fueling Infrastructure Grants ($2.5 billion). Of these, all but the first are new. The Environmental Protection Agency is responsible for the Clean School Bus Program, while the DOT is implementing all other major programs.

DOT awarded the Low or No Emission Bus Grants in August.63 All 50 states have submitted their required plans for the NEVI formula program on schedule.64 However, the Charging and Fueling infrastructure grants have the potential to fall behind schedule; the text of the IIJA (section 11401) explicitly requires that the program be established “not later than 1 year after the date of enactment” of the Surface Transportation Reauthorization Act of 2021 (Division A of the IIJA), before November 15, 2022.
Clean Energy and Power

Total funding: $75 billion. Total announced as of September 6, 2022: $5.6 billion.

<table>
<thead>
<tr>
<th>Program</th>
<th>Funding Amount</th>
<th>New?</th>
<th>Next implementation step (Build.gov)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Marketing Administration Transmission Borrowing Authority</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Regional Clean Hydrogen Hubs</td>
<td>$8,000,000,000</td>
<td>Yes</td>
<td>FOA to Open in Q3 2022</td>
</tr>
<tr>
<td>Civil Nuclear Credit Program</td>
<td>$6,000,000,000</td>
<td>Yes</td>
<td>Application submission deadline in Q3 2022</td>
</tr>
<tr>
<td>Program Upgrading Our Electric Grid and Ensuring Reliability and Resiliency</td>
<td>$5,000,000,000</td>
<td>Yes</td>
<td>FOA to Open in Fall 2022</td>
</tr>
<tr>
<td>Preventing Outages and Enhancing the Resilience of the Electric Grid / Hazard Hardening</td>
<td>$5,000,000,000</td>
<td>Yes</td>
<td>FOA Open to Open in Fall 2022</td>
</tr>
<tr>
<td>Weatherization Assistance Program</td>
<td>$3,500,000,000</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Four Regional Clean Direct Air Capture Hubs</td>
<td>$3,500,000,000</td>
<td>Yes</td>
<td>FOA Open in Q3 2022</td>
</tr>
<tr>
<td>Smart Grid Investment Matching Grant Program</td>
<td>$3,000,000,000</td>
<td>Yes</td>
<td>FOA to Open in Fall 2022</td>
</tr>
<tr>
<td>Battery Materials Processing Grants</td>
<td>$3,000,000,000</td>
<td>Yes</td>
<td>Funding Opportunity Closed in October 2022</td>
</tr>
<tr>
<td>Battery Manufacturing and Recycling Grants</td>
<td>$3,000,000,000</td>
<td>Yes</td>
<td>Funding Opportunity Closed in October 2022</td>
</tr>
<tr>
<td>Carbon Capture Demonstration Projects Program</td>
<td>$2,537,000,000</td>
<td>Yes</td>
<td>FOA Open in Q3 2022</td>
</tr>
<tr>
<td>Transmission Facilitation Program</td>
<td>$2,500,000,000</td>
<td>Yes</td>
<td>FOA Open in Q3 2022</td>
</tr>
<tr>
<td>Carbon Storage Validation and Testing</td>
<td>$2,500,000,000</td>
<td>Yes</td>
<td>FOA Open in Q3 2022</td>
</tr>
<tr>
<td>Advanced Reactor Demonstration Program</td>
<td>$2,477,000,000</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Carbon Dioxide Transportation Infrastructure Finance and Innovation Program</td>
<td>$2,100,000,000</td>
<td>Yes</td>
<td>Guidance Released in Q4 2022</td>
</tr>
</tbody>
</table>

The clean energy priorities in IIJA include many new programs; the Department of Energy is implementing the largest of these, shown above. These new programs have been slower to implement than some other components of the law. Some of the largest energy components of the act, a trio of electric grid programs, are in the very early request for information stage.\(^65\) Much of the clean energy and power funding announced so far comes through pre-existing programs, including a large investment of $2 billion in a single project, an advanced nuclear reactor in Wyoming.\(^66\)

Other components have generally been moving forward, soliciting input, with goals for funding opportunity announcements (FOA) from Build.gov largely set for late 2022. In a few cases—such as the Regional Clean Hydrogen Hubs, for which the initial version of the Building a Better America guidebook expected to have a FOA in Summer 2022, the Energy Department has not kept scheduling.
Water
Total funding: $64 billion. Total announced as of September 6, 2022: $10.0 billion.

The largest component of the water funding ($48.4 billion) consists of revolving funds for a variety of water quality projects, including drinking water safety, wastewater and stormwater treatment, lead removal, and other contaminant removal. The Environmental Protection Agency, responsible for those funds, quickly distributed them to states—though it remains up to states to allocate that money quickly and effectively. The states (or tribes or territories) receive a capitalization grant, with no state match required. Then they may use the funds to compensate or lend to eligible entities (typically utility companies) to implement the projects. The law includes requirements that the funds be used towards their stated purpose and also that states can use up to 49 percent of these funds for grants or forgiven loans. It limits two percent of the funds for use on administrative expenses or salaries.

Additionally, the Department of the Interior implements some smaller programs under the water category, such as the Aging Infrastructure Account, which repairs water infrastructure and has disbursed $240 million to specific projects.\(^{67}\)

Resilience
Total funding: $38 billion. Total announced as of September 6, 2022: $11.7 billion.

Resilience funding in the IIJA is well under way. The DOT has distributed funds from the largest program, the Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) formula grant. This $7.3 billion fund is apportioned to states in order to help them shore up transportation infrastructure against disasters—especially evacuation routes, routes to hospitals, or other modes of transportation that would be critical in a disaster.\(^{68}\) Further, $7 billion more in resilience funding goes to projects announced by the Army Corps of Engineers, primarily in flood mitigation.\(^{69}\) A NOFO for a third large ($3.5 billion) program, the Federal Emergency Management Agency’s Flood Mitigation Assistance, opened on September 30, 2022.\(^{70}\) Other agencies administering resilience funding include the Department of the Interior and the Department of Agriculture in management of lands and forests and the National Oceanic and Atmospheric Administration in forecasting and coastal security. Some resilience funding—about $1.3 billion—is dedicated to cybersecurity.

Environmental Remediation
Total funding: $22 billion. Total announced as of September 6, 2022: $3.1 billion.

The abandoned mine reclamation fund ($11.2 billion, Department of the Interior), the orphaned well site plugging ($4.7 billion, Department of the Interior), and the superfund program ($3.5 billion) have all begun disbursing IIJA funding.

Broadband
Total funding: $64 billion. Total announced as of September 6, 2022: 0.6 billion; the Affordable Connectivity Program is not designated to specific projects.
Congress allocated most broadband funding in the IIJA to two programs: the National Telecommunications and Information Administration’s (NTIA) Broadband Equity, Access, and Deployment (BEAD) Program, which is funded at $42.5 billion, and the Federal Communications Commission’s (FCC) Affordable Connectivity Program, which is funded at $14.2 billion. Other programs include $2 billion for tribal broadband through the NTIA, a $2 billion rural broadband program through the Department of Agriculture, and $2.6 billion in digital equity grants through NTIA.

The Affordable Connectivity Program, established through the Consolidated Appropriations Act of 2021 and initially known as the Emergency Broadband Benefit Program, responded to the COVID-19 pandemic, when more workplaces, commerce, and schools shifted online. However, the IIJA repurposed it into a longer-run broadband affordability program. The Affordable Connectivity Program provides qualifying households with up to a $30 per month discount toward internet service (payable to the broadband provider the customer chooses) and up to a $100 discount to purchase an internet-connected device. The program does not fund specific infrastructure projects; instead, it aids households in paying for broadband services in areas that have access to high-speed internet. The website is active, and the Administration is attempting to boost enrollment through outreach. In an update on the outreach push in July, the administration announced that 1,000,000 households had signed up for the benefit over a two-month period. As of September, 13.6 million households total had enrolled.

By contrast, BEAD, the largest program, intended to expand broadband infrastructure more directly, is in danger of multi-year delays in allocating funding. BEAD is designed to improve access to broadband among unserved or underserved communities, and it appropriates $42.5 billion toward that end, which will be distributed to states according to a formula which prioritizes unserved locations, with additional weight on unserved locations in high-cost areas.

In principle, this has much in common with many of the new IIJA programs that have moved quickly. Formula grants are often calculated quickly and then distributed to lower levels of government within months. However, this formula grant is contingent on data that has not been finalized, and may not be finalized for quite some time, which will push back the release of BEAD funding and by extension the projects it is intended to fund.
Endnotes

1 Congress.gov, Infrastructure Investment and Jobs Act.

2 For example: in August 2022, in Jackson, Mississippi, pumps in the water treatment plant failed, leaving the city’s 150,000 residents without reliable running water. And a damaging ransomware incident with the Colonial Pipeline in 2021 demonstrated the vulnerability of our infrastructure to cyberattacks. Finally, a recent ranking of global airports put no US airports in the top twenty. See: Alyssa Lukpat and Cameron McWhirter, Jackson, Miss., Is Out of Running Water After Treatment Plant Pumps Fail, Wall Street Journal, August 30, 2022; Department of Energy Office of Cybersecurity, Energy Security, and Emergency Response, Colonial Pipeline Cyber Incident; Taylor Rains, The top 20 best airports in the world according to passengers, Business Insider, June 18, 2022.

3 American Society of Civil Engineers, Infrastructure Report Card

4 Committee for Economic Development of The Conference Board, A Road Map to Achieving Free but Secure Trade with Resilient Supply Chains, July 2022.


6 The White House, President Biden’s Bipartisan Infrastructure Law.

7 Government Finance Officers Association, Infrastructure Investment and Jobs Act Implementation Resources.

8 Jones Lang LaSalle, How to leverage infrastructure bill funding.

9 The White House, Building a Better America: A Guidebook to the Bipartisan Infrastructure Law for State, Local, Tribal, and Territorial Governments and Other Partners.

10 Government Finance Officers Association, Infrastructure Investment and Jobs Act Implementation Resources.


13 White House, Maps of Progress, July 2022.


15 Building a Better America: A Guidebook to the Bipartisan Infrastructure Law for State, Local, Tribal, and Territorial Governments and Other Partners. See also: the May update of the same guidebook. Data from Maps of Progress.

16 Department of Transportation, Biden-Harris Administration Announces $1.5 Billion from the Bipartisan Infrastructure Law for 26 Transportation Projects Nationwide, September 15, 2022.

17 Congress.gov, S.1822 Broadband DATA Act.


19 Ryan Tracy, Drew FitzGerald, and Anthony DeBarros, Faster Internet Is Coming to America—as Soon as the Government Knows Where to Build It, Wall Street Journal, August 14, 2022. Masha Abarinova, FCC expects its revamped broadband maps will be ready this fall, Fierce Telecom, April 1, 2022.


22 David Brooks, N.H. Supreme Court agrees with state’s rejection of Northern Pass transmission line, Concord Monitor, July 19, 2019; Reuters, Maine voters reject Quebec hydropower transmission line, November 3, 2021.

24 Allison Kite, Missouri Senate committee takes up bill targeting Grain Belt Express transmission line, Missouri Independent, April 5, 2022.


26 Associated Builders and Contractors, Construction Industry Faces Workforce Shortage of 650,000 in 2022, February 23 2022.


33 Department of Transportation, Temporary Waiver of Buy America Requirements for Construction Materials, May 19, 2022.

34 Committee for Economic Development of The Conference Board, A Road Map to Achieving Free but Secure Trade with Resilient Supply Chains, July 2022.

35 North Carolina Division of Broadband and Digital Equity, Dig-Once Policies.


37 Committee for Economic Development of The Conference Board, Building Infrastructure in Real Time, September 2021.


40 ARRA Big City Network, GATB Survey, November 2011.

41 California State Transportation Agency, IIJA by the Numbers.

42 California State Transportation Agency, Rebuilding CA Project Map.

43 Building a Better America: A Guidebook to the Bipartisan Infrastructure Law for State, Local, Tribal, and Territorial Governments and Other Partners. See also: the May update of the same guidebook. Data from Maps of Progress.

44 Building a Better America: A Guidebook to the Bipartisan Infrastructure Law for State, Local, Tribal, and Territorial Governments and Other Partners. See also: the May update of the same guidebook. Data from Maps of Progress.

45 Department of Transportation, Biden-Harris Administration Announces $1.5 Billion from the Bipartisan Infrastructure Law for 26 Transportation Projects Nationwide, September 15, 2022.

46 Building a Better America: A Guidebook to the Bipartisan Infrastructure Law for State, Local, Tribal, and Territorial Governments and Other Partners

47 Federal Highway Administration, Bridge Investment Program.

48 Federal Highway Administration, President Biden, USDOT Announce New Guidance and $6.4 Billion to Help States Reduce Carbon Emissions Under the Bipartisan Infrastructure Law, April 21, 2022.

49 Department of Transportation, President Biden, U.S. DOT Announce $2.9 Billion of Bipartisan Infrastructure Law Funding for Major Infrastructure Projects of Regional or National Significance, March 23, 2022.
50 Department of Transportation, President Biden, U.S. DOT Announce $2.9 Billion of Bipartisan Infrastructure Law Funding for Major Infrastructure Projects of Regional or National Significance, March 23, 2022.
51 Federal Highway Administration, Bridge Investment Program.
52 Federal Railroad Administration, Calendar of Upcoming FRA Publications.
53 Federal Register, Notice of Funding Opportunity for the Consolidated Rail Infrastructure and Safety Improvements Program, September 2, 2022.
54 Federal Register, Notice of Funding Opportunity for the Consolidated Rail Infrastructure and Safety Improvements, August 31, 2022.
55 Federal Railroad Administration, Biden Administration, USDOT Announce Over $233 Million in Grants to Upgrade Intercity Passenger Rail Service, August 18, 2022.
57 Federal Railroad Administration, Federal-State Partnership for Intercity Passenger Rail Program; Northeast Corridor Project Inventory, June 24, 2022.
58 Federal Transit Administration, Fiscal Year 2022 Passenger Ferry Grant Program, Electric or Low-Emitting Ferry Pilot Program, and Ferry Service for Rural Communities Program Notice of Funding, July 8, 2022.
59 Department of Transportation, Key Notices of Funding Opportunity.
60 Federal Aviation Administration, Bipartisan Infrastructure Law – Airport Infrastructure.
61 Federal Aviation Administration, Bipartisan Infrastructure Law – Air Traffic Facilities.
63 Department of Transportation, Biden-Harris Administration Announces Over $1.6 Billion in Bipartisan Infrastructure Law Funding to Nearly Double the Number of Clean Transit Buses on America’s Roads
64 Department of Transportation, Biden-Harris Administration Announces All 50 States, DC and Puerto Rico Have Submitted Plans for National Electric Vehicle Charging Network
65 Department of Energy, Biden-Harris Administration Launches $10.5 Billion Investment to Strengthen America’s Electric Grid, August 30, 2022.
67 Department of the Interior, Biden-Harris Administration Announces Over $240 Million from Bipartisan Infrastructure Law to Repair Aging Water Infrastructure, May 9, 2022.
68 Federal Highway Administration, Biden Administration Announces New PROTECT Formula Program, $7.3 Billion from Bipartisan Infrastructure Law to Help Communities Build Resilient Infrastructure, July 29, 2022.
69 Build.gov, Maps of Progress
71 The Affordable Connectivity Program, Official Website
72 Dan O’Shea, Affordable Connectivity Program sees 1M signups - White House, Fierce Telecom, July 21, 2022.
73 Universal Service Administrative Co., ACP Enrollment and Claims Tracker.
SUSTAINING CAPITALISM

Achieving prosperity for all Americans could not be more urgent. Although the United States remains the most prosperous nation on earth, millions of our citizens are losing faith in the American dream of upward mobility, and in American-style capitalism itself. This crisis of confidence has widened the divide afflicting American politics and cries out for reasoned solutions in the nation’s interest to provide prosperity for all Americans and make capitalism sustainable for generations to come. In 1942, the founders of the Committee for Economic Development (CED), our nation’s leading CEOs, took on the immense challenge of creating a rules-based postwar economic order. Their leadership and selfless efforts helped give the United States and the world the Marshall Plan, the Bretton Woods Agreement, and the Employment Act of 1946. The challenges to our economic principles and democratic institutions now are equally important. So, in the spirit of its founding, CED, the public policy center of The Conference Board, will release a series of 2021 Solutions Briefs. These briefs will address today’s critical issues, including health care, the future of work, education, technology and innovation, regulation, China and trade, infrastructure, inequality, and taxation.