

# Investing in America's Critical Infrastructure Components

Blake Gibbons April 14<sup>th</sup>, 2022

## EXECUTIVE SUMMARY:

Current infrastructure in the United States is lagging far behind other competitive nations and is posing serious risk to national security, access to economic opportunity, declining healthcare, among other deficiencies. According to the American Society of Civil Engineers, American infrastructure is currently ranked at a C+ as “there is a water main break every two minutes” and “43% of our public roadways in poor or mediocre condition...”.<sup>1</sup> Crumbling infrastructure doesn't just mean an inconvenienced public navigating potholes, it means weakened components for a bad actor to target, decreased health from poor quality water or environmental control, loss of economic productivity in experienced delays and much more. This policy proposal seeks to provide solutions to repairing and maintaining critical infrastructure components domestically as well as providing dynamic and new technologies to combat the global climate crisis and the role that the United States plays in it. Critical infrastructure is defined by the Department of Homeland Security as “the vast network of highways, connecting bridges and tunnels, railways, utilities and buildings necessary to maintain normalcy in daily life. Transportation, commerce, clean water and electricity all rely on these vital systems.” This paper will detail the current scope of the problem, alternatives, and recommendations or a “recommended preferred alternative”. In addition to detailing the scope of the problem and providing recommendations, this paper will also include affected stakeholders and dive into the scope and alternatives with the duration and intensity of the issue.

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<sup>1</sup> <https://infrastructurereportcard.org>

## SCOPE OF PROBLEM

Infrastructure is crumbling nationwide due to a lack of funding and oversight of the nation's assets. Large scale investment in critical sectors has not occurred since the New Deal in the early 1900s which has caused serious gaps and flaws with domestic national security due to logistical issues arising from failures in infrastructure and sustainable or "green" investment has never been done on a large scale other than incentives and allocations for experimentations with alternative fuels and materials. Both aspects of infrastructure improvement, capital and sustainability, are critical to repair soon as traffic fatalities and delays increase as well as increased intensity of climate events due to carbon pollution. This policy paper seeks to outline the following strategies to revitalize America's infrastructure as well as maintaining it in the years after.

1. Implement a sustainable form of federal funding to be used on infrastructure investments such as waste and drinking water, transportation, and the electrical grid. Funding shall be increased annually to match inflation rates and shall come from multiple funds to provide for redundancy. The national gas tax should be increased to match present inflation rates and new funding sources should be examined such as tapping into the Department of Homeland Security as poor infrastructure is a national security risk.
2. Develop accountability standards for maintenance and inspection of systems to insure day-to-day operability.
3. Create strategic priority completion goals of issues requiring immediate attention that have the largest impact on national security. Climate factors should be included in this analysis.

## STAKEHOLDER ANALYSIS

The following table provides information on the names, associated level of government of focus, sector, position on the issue, and power related to the issue for thirteen stakeholders related to critical infrastructure.

<b>Name</b>	<b>Level</b>	<b>Sector</b>	<b>Position</b>	<b>Power</b>
American Public Transit Association (APTA)	National	Non-profit	High Support	Medium
Insurance Institute for Highway Safety (IIHS)	National	Non-profit	High Support	High
U.S. Department of Defense (DOD)	National	Government	High Support	High
Oil & Automobile Companies	National	Commercial	High Opposition	High

Republicans & Moderate Democrats	National & State	Government	Medium opposition	High
Democrats & Liberal Republicans	National & State	Government	High Support	High
Public Transit Authorities	Local & State	Government	High Support	Low
U.S. Environmental Protection Agency (EPA)	National	Government	High Support	Low
Electric Vehicle Manufactures	National	Commercial	High Support	Low
Internet Service Providers	Local	Commercial	Medium Support	Low
Water Providers	Local	Commercial & Governmental	Medium Support	Low
Airports	Local & State	Commercial	High Support	Low
Ports & Waterways	Local & State	Governmental	High Support	Low

## AFFECTED AUDIENCES

As infrastructure is a widely defined word which can be interpreted many sorts of ways, the affected audience is almost everyone who lives in an area or interacts with an area that has services provided by a local or state government such as transportation, water, sewage, or from a private company regulated under government policy such as energy and internet communications. As infrastructure can be misconstrued with social aspects such as healthcare, daycare, or economic impact payments, this paper strictly focuses on critical infrastructure which is everything capital that can be invested in and constructed which lowers our affected audience slightly by not by large margins.

## DURATION OF POLICY ISSUE

Critical infrastructure has already begun to see increased investments in capital projects across the nation, but more is needed to maintain completed projects as well as expedite the rebuilding process especially when it comes to sustainable development. Separating infrastructure into the two sectors previously mentioned yields the following estimate completion times:

- Critical Infrastructure Rebuilds: Ten (10) Calendar Years
- Sustainable Rebuilds and Developments: Fifteen (15) Calendar Years

Critical Infrastructure Rebuilds were given the timeline of ten calendar years as much of the current infrastructure already has right of way acquired and many projects just need repairs and or modifications with some projects needing new right of way and completely new constructions.

Sustainable Rebuilds and Developments were given a timeline of fifteen calendar years as there is not as much funding currently available and greater overhauls are needed to achieve the desired results of clean energy and material production. Increasing funding for this component of infrastructure policy can speed up the implementation process but it will require more monetary and labor resources for redevelopments of power plants, lines, and materials.

Concrete data on how long it will take to rebuild infrastructure and raise our rating from a C+ to a B level or A level are hard to come by but data from the U.S. Chamber of Commerce shows that it takes on average five years for federal permits to be completed for large projects and two years for smaller projects which means delays are likely to occur.<sup>2</sup> There have been recent talks however of reducing the requirement for permitting and environmental regulation, but these talks are up in the air and unlikely to materialize soon.

## ISSUE INTENSITY

As mentioned earlier, according to the American Society of Civil Engineers, American infrastructure is currently ranked at a C+ and infrastructure from all sectors is in serious decline and in a critical state of repair. Outdated and poorly maintained infrastructure are causing deficiencies in national security, safety, and the economy. As such, policy implementation and funding improvements are desperately needed in the fields of transportation, water, electrical, broadband, and more.

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<sup>2</sup> <https://www.uschamber.com/infrastructure/transportation/roadmap-modernizing-americas-infrastructure>

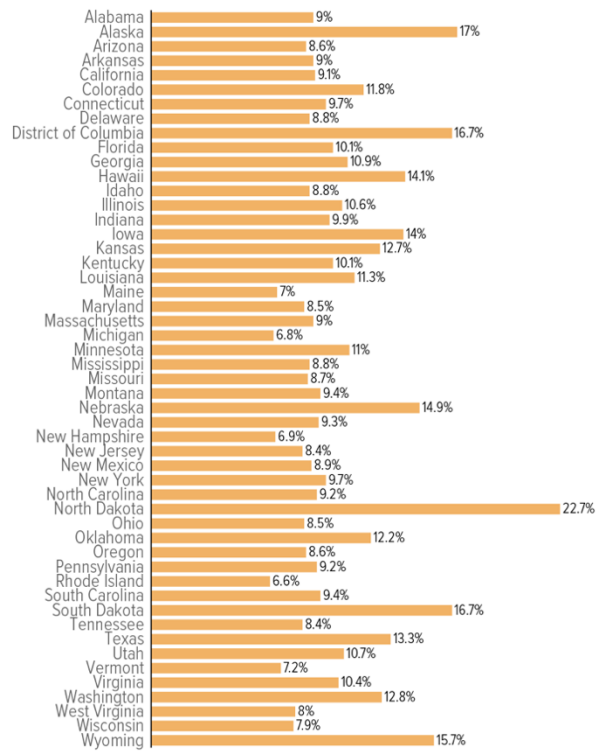
**POLICY ALTERNATIVES**

**CURRENT POLICY STATUS**

Infrastructure in the U.S. is currently funded through a mix of federal and state dollars infused with public-private partnerships (PPPs) to construct projects competitively. In addition to grants awarded by the federal government, many projects are matching which means that the state must pitch in a certain percentage of the funding in order to receive federal dollar. For example, if a state wants to replace a series of overpasses, the federal government may require the state to contribute twenty percent to the cost of the project while leaving the federal government to pay for the rest of it. Unfortunately, gas taxes at the state level vary drastically and the federal gas tax hasn't been raised since 1995<sup>3</sup> which means that with rising inflation rates and material cost increases, less projects are able to be funded and maintained.

**State Investment Varies**

Capital spending as a share of total state spending, 2016



Note: Census Bureau data on capital spending include the costs of construction and of the purchase of buildings, equipment, and land and of major alterations.  
Source: U.S. Census Bureau

<sup>3</sup> <https://www.eia.gov/tools/faqs/faq.php?id=10&t=5>

States fund infrastructure different from other types of spending and are more likely to go into debt more often and rely on user fees such as tolls to fund for these projects.<sup>4</sup> Even from state to state, funding sources and amounts vary which leave some states with better infrastructure over others.

## MUNICIPALITY/STATE CASE STUDIES

Since infrastructure is such a broad topic and has many implications depending on what is classified under it, a state may be number one in transportation infrastructure but not in water or electric for example. A good way to quantify this however is to examine state spending on transportation and public works improvements since electric and broadband are often covered under private companies. It's no surprise then to see that states that invest more in these sectors than other states have better outcomes in overall ranking. According to U.S. News and Reports, Nevada, Oregon, and Washington are in the top three for overall cumulative infrastructure.<sup>5</sup>

As states have vastly different economies and needs, flat gas taxes or spending on infrastructure are not feasible and thus large differences in investments by states is required by demographic constraints.

## NATION COMPARISONS

Looking on a larger scale and comparing the U.S. infrastructure and investment policies to those of other comparable nations is a good starting ground for revamping federal policy. In a report published by the World Economic Forum, the United States ranks in thirteenth place for overall infrastructure safety with Singapore, Netherlands, and Hong Kong in the top three.<sup>6</sup> Why

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<sup>4</sup> <https://www.cbpp.org/research/state-budget-and-tax/its-time-for-states-to-invest-in-infrastructure>

<sup>5</sup> <https://www.usnews.com/news/best-states/rankings/infrastructure>

<sup>6</sup> <https://www.washingtonpost.com/transportation/2021/04/30/us-infrastructure-ranking/>  
[https://www3.weforum.org/docs/WEF\\_TheGlobalCompetitivenessReport2019.pdf](https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf)



are these nations in the top three and the United States is not even in the top ten? The report details that many countries have placed more of an emphasis on expanding and modernizing rail networks compared to prioritizing automobile travel. The report also shows that the U.S. has not paid enough attention to investing in infrastructure and has not kept itself accountable with the needs of the business partners and residential units which require high quality public goods.

## POLICY RECOMMENDATIONS

What can be done to make sure that infrastructure is not only up to a safe and reliable level on par with other nations but also to make sure that it does not get as bad as it currently is in the future? Two policies are needed with new ideas within them. The first being an infusion of cash flow into state and local projects from the federal government with minimal matching to allow for all states and municipalities to take advantage. The second component of revamping infrastructure via policy is to create accountability and performance metrics to prioritize spending and monitor maintenance.

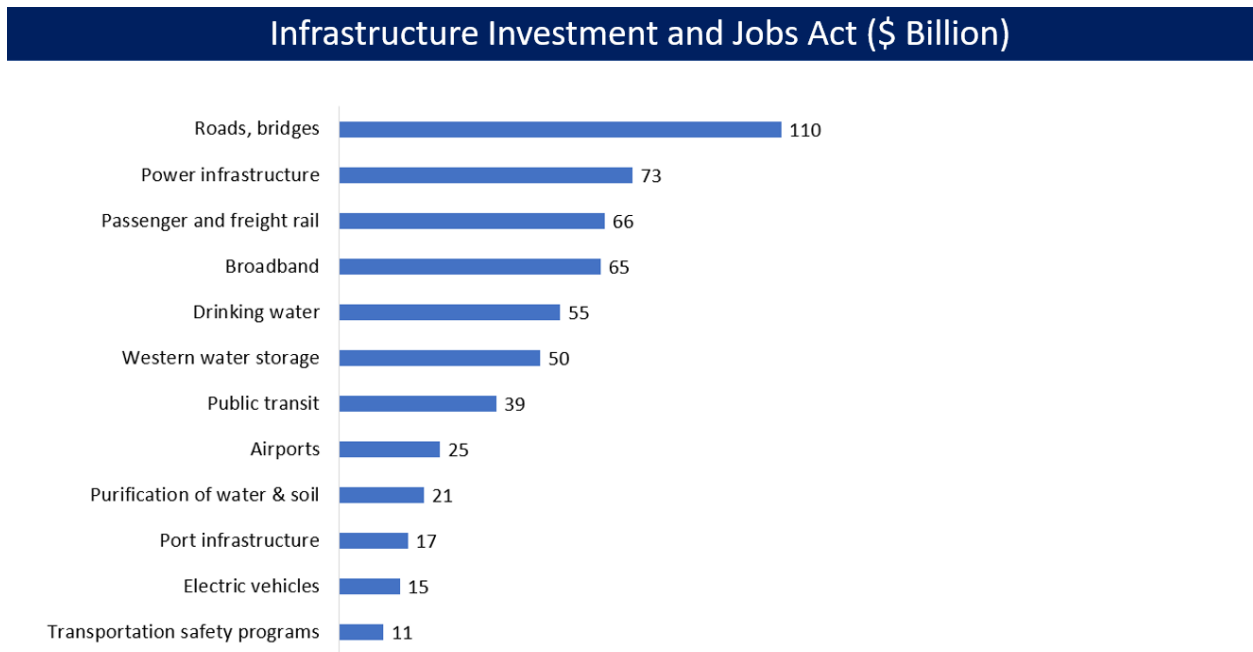
## CASH INFUSIONS

The first component of revamping infrastructure policy in the United States is already well underway with the historic bipartisan infrastructure bill being passed on November 15<sup>th</sup>, 2021. The bill known as the Infrastructure Investment and Jobs Act (IIJA) allocated over seven hundred billion dollars to be infused into ten infrastructure categories over the next eight years.<sup>7</sup> One hundred and ten billion dollars are being allocated for construction and maintenance of

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<sup>7</sup> <https://www.whitehouse.gov/briefing-room/statements-releases/2021/11/06/fact-sheet-the-bipartisan-infrastructure-deal/>

roads and bridges, the largest category of the bill by far, with the second and third largest allocations going towards power infrastructure at seventy-three billion and passenger/freight rail at sixty-six billion dollars.



## ACCOUNTABILITY AND PERFORMANCE METRICS

Accountability and performance data is seldom found in state and federal law in the United States but can be found in our neighbor to the North in Canada. The province of Alberta Canada passed the Infrastructure Accountability Act on December 8<sup>th</sup>, 2021, to increase transparency and accountability in the region while creating a twenty-year strategic plan to guide decisions over the long-term.<sup>8</sup> Similar policy can and should be implemented in the U.S. preferably at the federal level but can be implemented at the state level as well.

<sup>8</sup> <https://open.alberta.ca/publications/i01p6>

Inaction on behalf of critical infrastructure given the state of the nation's crumbling roads, bridges, water lines, etc. will result in widening gaps of national security deficiencies as well as the potential for human casualty and threats to the economy. In addition, inaction to improve and fix infrastructure will slow the economy by limited access to opportunity and hinder logistics between entities – defense included<sup>9</sup>

## CONCLUSION AND DISCUSSION

In sum, this policy brief provides data, comparable policy, and recommendations on the current state of public infrastructure in the United States. Examining data on the local, state, and federal levels, we see evidence of mismanagement of maintenance and priorities being diverted away from maintenance and capital construction over to other sectors. Cash infusions from the federal government seek to bring infrastructure to a state of good repair as well as improving efficiency, modernization, and climate resiliency. While IIJA and the current discussion regarding infrastructure is a good thing, it's not enough to repair all projects or construct all items on states wish lists. More subsequent funding will be needed to accomplish these goals if they are deemed critically necessary. Additionally, IIJA does not allocate enough for climate resiliency or clean energy transitions. President Biden's "Build Back Better" plan calls for these policy implementations, but discussions have stalled over the cost, who is responsible for payment, and with international tensions escalating requiring attention to be diverted.

To make sure that IIJA is successfully implemented and to prevent infrastructure from becoming this poor again, accountability and performance measures should be created and

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<sup>9</sup> <https://www.brookings.edu/blog/the-avenue/2018/05/10/do-our-infrastructure-systems-put-people-at-risk/>

implemented to gather data and monitoring of infrastructure condition to prioritize funds, increase transparency, as well as providing a metric to call for future funding as needed.

This situation is quickly becoming urgent and failures in short-term investment will result in catastrophic challenges and will exponentially increase cost and potential lives lost. The Center for Strategic & International Studies states “There are two paths ahead. The path not taken for ages—revitalizing U.S. infrastructure—will require courage and compromise. But it leads toward renewal, prosperity, and security. The current path—neglecting U.S. infrastructure—is easy and dangerous. It leads toward unpreparedness, fragility, and decline. The choice is simple: the city on the hill can shine again, or the world can watch as its lights go out.

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