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Testimony Prepared for
House Committee on Transportation and Infrastructure
Hearing on Investing in our Nation's Transportation Infrastructure and Workers: Why it Matters
September 29, 2022

Chairman DeFazio, Ranking Member Graves, committee members, thank you for inviting me to talk with you today. I am Adam Hersh, Ph.D., Senior Economist at the Economic Policy Institute, a non-partisan, 501(c)3 nonprofit think tank in Washington, DC.

Today, I will talk about 2 things:

1. Why infrastructure matters
2. What impacts we can see and expect from recent major legislation to expand infrastructure investment, and

First, I want to recognize that this Congress, over the past 18 months, passed 3 monumental pieces of legislation that are critical for American transportation and infrastructure and by so doing have started America on a path to higher, more broadly shared, and more sustainable prosperity. These are the American Rescue Plan Act (ARPA), the Infrastructure Investment and Jobs Act (IIJA), and the Inflation Reduction Act (IRA).

Considering that the previous administration along the 115th and 116th Congresses failed to advance any new infrastructure agenda—despite grandiose pledges and repeated "Infrastructure Weeks"—these 3 acts mark not just monumental political achievements, but also the promise to fundamentally transform the American economy and improve everyone's quality of life.[i] When these spending plans are fulfilled, you will have touched the lives of every single person in America with upgraded and expanded access to safer roads, less time spent in traffic congestion, cleaner drinking water and sanitation, modernized schools, dependable and sustainable energy grids, cleaner air and better health, lower costs of doing business, a revitalized manufacturing sector, more money in their pockets because of the investments in America this Congress has made.

Still, all you have done is far from enough. We need to be doing much more to meet the needs of our current economy and provide the foundation for America's future prosperity and security. America faces a yawning infrastructure deficit and if we don't rise to meet this moment, we risk being left behind economically.

1. Why Infrastructure Matters

Infrastructure constitutes the essential public goods at the heart of our economy that allow people, goods, and ideas to be more easily exchanged, as well as to address the costs of negative

externalities arising in such complex social organization.[ii] This is the "truck, barter, and trade," that Adam Smith wrote about in his book, *The Wealth of Nations*; infrastructure lowers the cost of moving people and goods as well as creating more opportunities to trade information and spark innovation. Policy debates often focus on infrastructure's impact in terms of the jobs and investment that can be created today. Yes, every job created directly in infrastructure construction creates an additional 17.8 jobs in other sectors of the economy and fuel domestic manufacturing.[iii] But infrastructure is even more essential to creating the opportunity and productivity that propels economic activity into the future, yielding economic dividends for years to come by connecting people, goods, and information together more efficiently.

Consider your own consumption of a very basic infrastructure good like bridges. You may have crossed a dozen or more to get to this hearing today. You probably cross dozens more on every trip home for your district work periods. You probably don't notice them passing by while you are busy on your mobile phone, but they are essential to everyday life in America and they are in trouble. A Department of Transportation survey of nearly 620,000 bridges nationally finds that 3 in 5 in less than "good" condition, while 2 in 5 are more than 50 years old.[iv] Practically, this means most American bridges have reached or are approaching structural deficiency or functional obsolescence. Some states are significantly worse off than the average: in West Virginia 79% of bridges are in less than good condition, 74% in Kentucky, and 66% in Pennsylvania (see **Table 1**). Even in relatively well-situated states like Ohio and Florida, 39% and 38% of bridges, respectively, are still problematic—totaling more than 15,000 bridges.

Bridges are just one type of critical infrastructure. There are many more that are also essential in everyday life for American families and businesses. Until now, Congress has allowed America's infrastructure to go to rot, failed to supply it in adequate amounts, and—whether by design or malign neglect—too often forced select communities most in need of affordable transportation to bear the costs of infrastructure projects while excluding them from the benefits. These include:

- Roads and other surface transportation assets
- Drinking, waste, and irrigation water systems
- Energy generation and transmission
- Public transit, passenger rail, and airports and aviation systems
- Coastal and inland waterways and ports
- Access to high-speed internet
- Conservation and public recreation space

America has been disinvesting in infrastructure assets for years, and our growing deficiencies impose staggering economic costs.[v] The American Society of Civil Engineers (ASCE) estimates that the loss of functionality from America's depreciated infrastructure assets will cost the United States $10 trillion in GDP, 3 million jobs, and $2.4 trillion in lost exports by 2039 due to increased costs of doing business, lost time and wasted fuel, health impacts, and other individual costs that add up to a big deal in the aggregate.[vi]

The ASCE projects that the U.S. economy will need $6 trillion in infrastructure investment, sustained over 10 years, may be too low. The aging infrastructure we have is ill-prepared to cope with increasingly frequent severe weather events, wildfires, and flooding we can expect moving forward as the climate warms—and certainly if we fail to limit that warming to 2 degrees Celsius

above pre-industrial levels—which will cause it to deteriorate faster. And the ASCE analysis did not factor in additional investments that will be needed to deploy decarbonization technologies at the ambitious pace and scale needed to meet emissions targets. The U.S. Global Change Research Program estimated that, if unabated, climate change will permanently reduce U.S. GDP by 10 percent.[vii] Economic losses will result from harm to physical assets, reduced industrial and agricultural productivity, increased mortality and health impacts on labor force participation, and socio-political destabilization around the world. Other researchers estimate an additional $400-600 billion investment a year is needed to achieve carbon net neutrality.[viii]

The good news is that you have the power to change this in ways that will yield outsized effects on the U.S. economy and the lives of families across this country. Research on the longer-term return on investment from public infrastructure finds that, on average, every $100 spent on infrastructure generates an additional $17 benefit, though some research finds a return on investment as high as 73 percent.[ix] The broad economic benefits may be even larger than these estimates suggest. Typical economic models, such as those used by the Congressional Budget Office (CBO) to score legislation, can paint a misleading picture by accounting for costs but not the full range of real-world benefits, making unrealistic assumptions about how people and markets behave, and assessing investment returns over too short a time horizon.

In the real world, infrastructure investments deliver an immediate economic surge, but also simultaneously achieve other objectives, for example:

- Expanding broadband internet access to rural and other neglected communities will not only create immediate jobs installing communications equipment, but will help bring to every corner of the country employment, education, health care, and social opportunities afforded by connectivity.
- Overhauling public water systems to eliminate lead and other toxics not only will create a lot of jobs and lower utility prices for families and businesses, but also yield lifelong impacts on educational attainment, earnings, and productivity for those living in affected communities.
- Reinvesting in and expanding sustainable public transportation systems will create direct jobs, but also open new opportunities for labor force participation and higher wages and productivity — connecting people to jobs that were literally out of reach — reduce greenhouse gas emissions and improve air quality and therefore health and education outcomes.

This Congress has taken significant steps in the right direction to do this with ARPA, IIJA, and IRA, allocating new resources to these long-neglected foundations of national economic prosperity. But it is also important to note that the foundations of a dynamic and efficient economy go deeper than hard physical infrastructure assets. The pandemic "she-cession" has laid bare how essential caregiving "soft" infrastructure also is for the overall economy and that inadequate and unequal access to quality care has caused preventable harm to individuals, families, and on aggregate economic performance. America's lack of paid caregiving infrastructure represents a glaring obstacle to achieving the country's full economic potential that future Congresses must address.

2. Benefits of ARPA, IIJA, and IRA Infrastructure Measures

ARPA delivered critical resources to American state, local, tribal, and territorial governments in a time of acute crisis so that they could maintain continuity in essential public and private transportation and infrastructure services when revenue streams tanked;[x] expanded and accelerated local infrastructure projects to offset demand losses in other sectors of the economy; and provided support for struggling small businesses and families to keep the lights on. Moody's analytics found that ARPA increased employment by more than 4 million jobs and nearly doubled the rate of GDP growth in 2021, and delivered sufficient aggregate demand to ensure that the Great Lockdown of 2020 did not repeat in a double-dip recession.[xi]

The Infrastructure Investment and Jobs Act reauthorized funding for existing infrastructure and provided nearly $550 billion in new investments in surface transportation, public transit and rail, water, and broadband internet infrastructure, along with new investments in renewable energy and electric vehicles.[xii] By my estimates, the additional infrastructure spending in IIJA supports 772,400 jobs annually.[xiii] **Table 2** details the number of jobs associated with each program under the IIJA, with most jobs coming from road and surface transportation projects, though all program areas provide significant job creation effects.[xiv] **Table 3** looks at the kinds of jobs that IIJA will create broadly across the economy. Of course, the construction industry comprises the largest share of employment, with nearly 176,000 jobs annually. But the investments also stimulate 175,000 jobs annually in the manufacturing sector, nearly 100,000 jobs in transportation industries, and more broadly across other industries through induced demand. Critically, Buy America and prevailing wage provisions in this and other legislation help set a high standard for contractors to ensure that America's investments create good jobs with fair wages and contribute to the revitalization of our manufacturing base. Moody's Analytics estimates that, at the peak of the expenditures, U.S. GDP will be roughly 0.8 percentage points higher as a result of IIJA.[xv]

Ink is still drying on the Inflation Reduction Act, but it is clear this is the most ambitious action Congress has taken to confront the impending climate change crisis with more than 100 programs that will restore, expand, and modernize a broad range of infrastructure systems. These investments will bring the costs of transportation, electricity and other utilities, building heating and cooling for families and businesses in America. The spending will do so while supporting domestic manufacturing and development of new domestic industries where U.S. businesses will lead innovation and critical components of energy goods and systems will better insulated from disruption in global supply chains. University of Massachusetts economists estimate that IRA will generate 912,000 jobs per year, on average, for 10 years from the public and private investments that the policies incentivize.[xvi] Rhodium Group economists estimate that IRA will reduce energy costs for the average household by $730 to $1135 annually.[xvii]

Conclusion

While this Congress has taken great strides to tackle pressing crises while reinvesting in the infrastructure at the foundation of America's long-term economic prosperity. Achieving our economic goals will require not just significantly more resources, but embracing new approaches to the public role in how we fund and incentivize infrastructure and technological investments. Thank you.

Table 1

State	All	Good	Fair	Poor	Rank	% Fair + Poor
AK	1,626	739	761	126	18	**55%**
AL	16,162	6,416	9,171	575	26	**60%**
AR	12,955	6,136	6,145	674	16	**53%**
AZ	8,497	5,334	3,056	107	2	**37%**
CA	25,810	12,091	12,172	1,547	17	**53%**
CO	8,917	3,056	5,409	452	33	**66%**
CT	4,353	1,253	2,875	225	42	**71%**
DC	248	78	166	4	39	**69%**
DE	872	320	538	14	29	**63%**
FL	12,740	7,871	4,414	455	3	**38%**
GA	15,034	11,239	3,502	293	1	**25%**
HI	1,177	284	819	74	49	**76%**
IA	23,835	9,320	9,911	4,604	27	**61%**
ID	4,579	1,315	3,030	234	43	**71%**
IL	26,873	12,748	11,702	2,423	15	**53%**
IN	19,367	7,916	10,411	1,040	25	**59%**
KS	24,931	13,231	10,406	1,294	8	**47%**
KY	14,482	3,915	9,554	1,013	46	**73%**
LA	12,733	5,498	5,664	1,571	21	**57%**
MA	5,252	1,330	3,478	444	48	**75%**
MD	5,456	1,780	3,425	251	38	**67%**
ME	2,505	678	1,472	355	45	**73%**
MI	11,314	3,951	6,094	1,269	32	**65%**
MN	13,497	7,806	5,089	602	5	**42%**
MO	24,569	9,455	12,884	2,230	28	**62%**
MS	16,782	9,660	6,025	1,097	6	**42%**
MT	5,278	1,624	3,287	367	41	**69%**
NC	18,822	7,791	9,728	1,303	24	**59%**
ND	4,281	1,901	1,931	449	19	**56%**
NE	15,336	7,952	6,164	1,220	11	**48%**
NH	2,531	1,339	1,002	190	9	**47%**
NJ	6,805	1,791	4,559	455	47	**74%**
NM	4,033	1,441	2,393	199	31	**64%**
NV	2,071	1,184	858	29	7	**43%**
NY	17,557	6,350	9,596	1,611	30	**64%**
OH	27,003	16,437	9,343	1,223	4	**39%**
OK	23,197	9,824	11,166	2,207	22	**58%**
OR	8,255	2,802	5,057	396	34	**66%**
PA	23,202	7,798	12,292	3,112	35	**66%**
RI	784	168	486	130	51	**79%**
SC	9,427	4,095	4,855	477	20	**57%**
SD	5,897	1,950	2,951	996	37	**67%**
TN	20,377	8,621	10,875	881	23	**58%**
TX	55,701	28,040	26,887	774	14	**50%**
UT	3,080	858	2,158	64	44	**72%**
VA	14,042	4,668	8,873	501	36	**67%**
VT	2,846	1,493	1,282	71	10	**48%**
WA	8,388	4,291	3,674	423	13	**49%**
WI	14,336	7,356	6,058	922	12	**49%**
WV	7,317	1,711	4,145	1,461	50	**77%**
WY	3,121	967	1,949	205	40	**69%**

Table 2

Jobs supported by Infrastructure Investment and Jobs Act and budget reconciliation bill spending, average per year over 10 years

Category	Jobs
Infrastructure Investment and Jobs Act	
Roads, bridges, major projects	196,074
Safety	19,607
Public transit	69,517
Rail	72,933
Electric vehicle (EV) infrastructure	16,686
Reconnecting communities	1,782
Airports	26,394
Ports and waterways	23,138
Water infrastructure	79,964
Broadband infrastructure	60,605
Environmental remediation	35,412
Power infrastructure, including grid authority	81,206
Resilience	89,125
Subtotal	772,444
Budget reconciliation bill	
Universal pre-K	197,659
Child care	341,711
Clean energy tax incentives	153,664
Electric vehicle (EV) rebates	41,043
Agriculture/forestry	69,593
Clean energy accelerator/green bank/infrastructure bank	12,531
Civilian Conservation Corps	6,951
Federal procurement of clean technology	21,016
Weatherization	9,060
Place-based clean energy economic development and environment	8,072
Education (postsecondary)	321,989
Long-term care	545,598
ACA Premiums	102,768
Dental, vision, hearing	251,109
Public housing, preservation, supply, and affordability	115,261
Lawful permanent residences for immigrants	80,288
Community college infrastructure	7,633
Critical Supply Chain Resilience Fund	26,359
Manufacturing USA	2,279
National Institute for Science and Technology Laboratories	3,038
Extension Partnerships	5,317
Regional Innovation Hubs	7,596
Community Revitalization Fund	6,717
Auto supply chain	17,308
Manufacturing financing	12,800
Small Business Administration and minority business development	18,433
Rural Partnership Fund	2,636
Pandemic preparedness: HHS, DOE, DOD	12,508
Research and development	149,450
Workforce	82,177
Child nutrition	56,559
Paid leave	143,371
CTC/EITC/CDCTC	414,182
Subtotal	3,246,677
Total	4,019,122

Notes: Research and development includes research programs for infrastructure, the National Science Foundation Technology Directorate, climate research, Department of Energy demonstrating funding, ARPA-Climate initiatives, historically Black colleges and universities, and STEM centers of excellence and education programs. Pandemic preparedness includes designated funding for the Departments of Health and Human Services, Energy, and Defense. CTC/EITC/CDCTC denotes Child Tax Credit/Earned Income Tax Credit/Child and Dependent Care Tax Credit.

Source: EPI analysis of White House 2021b, 2021c, and 2021d.

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Table 3

Jobs supported annually by the 2021 Infrastructure Investment and Jobs Act (IIJA) and budget reconciliation bill, by industry

	Jobs		
Industry	IIJA	Budget reconciliation	Total
Agriculture, forestry, fishing and hunting	2,393	47,294	49,686
Oil and gas extraction	652	1,354	2,006
Mining (excl. oil and gas)	2,353	3,823	6,176
Utilities	3,018	5,704	8,722
Construction	175,501	136,708	312,210
Manufacturing	174,628	381,628	556,256
Food	383	14,526	14,909
Beverage and tobacco product	73	2,288	2,361
Textile mills and textile product mills	827	3,806	4,633
Apparel, leather and allied products	304	7,586	7,890
Wood products	5,119	23,262	28,381
Paper products	1,499	5,114	6,613
Printing and related support activities	1,296	5,876	7,172
Petroleum and coal products	793	1,129	1,922
Chemical manufacturing	2,704	17,180	19,883
Plastics and rubber products	8,416	11,852	20,268
Nonmetallic mineral product	7,741	7,550	15,292
Primary metal	7,166	13,458	20,624
Architectural and structural products; boiler, tank, and shipping containers	8,179	34,188	42,367
Other fabricated metal products	14,861	31,393	46,254
Agricultural, construction, commercial and service, and metalworking machinery	1,356	9,481	10,837
Engine, turbine, and power transmission equipment	439	9,525	9,964
HVAC and misc. industrial machinery	6,134	57,971	64,105
Computer and peripheral equipment	127	6,418	6,545
Communications and audio and video equipment	254	1,700	1,954
Navigational, measuring, electromedical, and control instruments	1,031	2,722	3,753
Semiconductor and other electronic components; reproducing magnetic and optical media	2,615	12,722	15,337
Household appliances	761	14,365	15,126
Other electrical equipment, appliances, and components	46,144	45,732	91,876
Motor vehicle and motor vehicle parts	24,927	21,924	46,851
Aerospace products and parts	4,127	1,120	5,248
Railroad, ship, and other transportation equipment	11,060	792	11,852
Furniture and related products	2,239	4,834	7,073
Miscellaneous manufacturing	14,053	13,112	27,165
Wholesale trade	24,133	63,158	87,291
Retail trade	17,862	158,596	176,458
Transit and ground passenger transportation	99,474	8,644	108,119
Other transportation and warehousing	39,184	59,513	98,697
Information	12,747	27,979	40,726
Finance and insurance	11,766	33,538	45,304
Real estate, rental and leasing	6,157	22,264	28,420
Professional, scientific, and technical services	45,922	161,092	207,013
Management of companies and enterprises	10,392	50,774	61,166
Employment support services and building services	31,100	89,287	120,387
Waste management and remediation and other administrative and support services	33,339	52,536	85,875
Educational services	998	225,870	226,868
Health care and social assistance	674	1,069,517	1,070,191
Arts, entertainment, and recreation	5,876	31,323	37,199
Accommodation and food services	9,502	110,030	119,532
Other private services	5,555	55,880	61,435
Public administration	59,221	450,164	509,384
Total	772,445	3,246,675	4,019,119

Source: EPI analysis of White House 2021b, 2021c, and 2021d and BLS 2020.

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[i] Emily Cochrane and Eileen Sullivan. 2020. "The Many Times It's Been 'Infrastructure Week' in Washington." *New York Times*. April 1. Accessed September 15, 2022. https://www.nytimes.com/2020/04/01/us/politics/coronavirus-infrastructure-week-timeline.html.

[ii] Technically, economists define a "public good" as non-rival and non-excludable, although in common usage public goods may also refer to rival, non-excludable goods.

[iii] Bivens, L. Josh. 2019. "Updated employment multipliers for the U.S. economy." *Economic Policy Institute*. January 23.

[iv] EPI analysis of Department of Transportation. 2022. *National Bridge Inventory: Bridge Condition by County 2022*. June 15. Accessed September 15, 2022. https://www.fhwa.dot.gov/bridge/nbi/no10/county22.cfm; ASCE. 2021. *Making the Grade: America's Infrastructure Report Card 2021: Bridges*. Accessed September 15, 2022. https://infrastructurereportcard.org/wp-content/uploads/2020/12/Bridges-2021.pdf.

[v] Ayres Steinberg, Sarah, and Adam Hersh. 2013. "New Ryan Budget Cuts Investments in America's Future." *Center for American Progress*. March 13. https://www.americanprogress.org/article/new-ryan-budget-cuts-investments-in-americas-future/; Bivens, L. Josh. 2017. "The potential macroeconomic benefits from increasing infrastructure investment." *Economic Policy Institute*. July 18.

[vi] ASCE. 2021. *Infrastructure Report Card*. Accessed https://infrastructurereportcard.org/.

[vii] U.S. Global Change Research Program (USGCRP) 2018. *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II*. https://nca2018.globalchange.gov/.

[viii] Pollin, Robert, Shouvik Chakraborty, and Jeanette Wicks-Lim. 2021. "Employment Impacts of Proposed U.S. Economic Stimulus Programs: Job Creation, Job Quality, and Demographic Distribution Measures." *Political Economy Research Institute*. https://peri.umass.edu/publication/item/1397-employment-impacts-of-proposed-u-s-economic-stimulus-programs.

[ix] See Bivens, L. Josh. 2017. "The potential macroeconomic benefits from increasing infrastructure investment." *Economic Policy Institute*. July 18. https://www.epi.org/publication/the-potential-macroeconomic-benefits-from-increasing-infrastructure-investment/; Heintz, James. 2010. "The Impact of Public Capital on the U.S. Private Economy: New Evidence and Analysis." *International Review of Applied Economics*. Vol. 24, no. 5, 619–32; Berechman, Joseph, Dilruba Ozmen, and Kaan Ozbay. 2006. "Empirical analysis of transportation investment and economic development at state, county and municipality levels." *Transportation*. Vol. 33, pp. 537–551.

[x] In addition to supporting public health, public security, and education services, and providing aggregate demand support more generally—through the business and household sectors—with indirect economic benefits for transportation and infrastructure industries.

[xi] Moody's Analytics. 2022. "Global Fiscal Policy in the Pandemic." *Moody's Analytics*. February 24. Accessed https://www.moodysanalytics.com/-/media/article/2022/global-fiscal-policy-in-the-pandemic.pdf.

[xii] Adam S. Hersh. 2021. "'Build Back Better' agenda will ensure strong, stable recovery in coming years." *Economic Policy Institute*. September 16. https://www.epi.org/publication/iija-budget-reconciliation-jobs/.

[xiii] To be clear, these average annual number of jobs supported cannot be summed together over 10 years. If, for example, all of the spending ramped up in Year 1 and then persisted, then 772,400 jobs would be supported in the first year and then this number would persist but not grow. Over the 10-year window, one could cumulate these job numbers and classify them as "job-years"—a measure of total hours of work supported by this spending over the next decade. For more on the estimation methodology, see Adam S. Hersh. 2021. "'Build Back Better' agenda will ensure strong, stable recovery in coming years." *Economic Policy Institute*. September 16. https://www.epi.org/publication/iija-budget-reconciliation-jobs/.

[xiv] These tables are reproduced from a report that also analyzed the potential effects of President Biden's broader Build Back Better agenda.

[xv] Moody's Analytics. 2021. "Macroeconomic Consequences of the Infrastructure Investment and Jobs Act & Build Back Better Framework." *Moody's Analytics*. November 4. https://www.moodysanalytics.com/-/media/article/2021/macroeconomic-consequences-of-the-infrastructure-investment-and-jobs-act-and-build-back-better-framework.pdf.

[xvi] Robert Pollin, Chirag Lala, Shouvik Chakraborty. 2022. "Job Creation Estimates Through Proposed Inflation Reduction Act." *Political Economy Research Institute*. August 4. Accessed https://peri.umass.edu/publication/item/1633-job-creation-estimates-through-proposed-inflation-reduction-act.

[xvii] John Larsen, Ben King, Hannah Kolus, Naveen Dasari, Galen Hiltbrand, and Whitney Herndon. 2022. "A Turning Point for US Climate Progress: Assessing the Climate and Clean Energy Provisions in the Inflation Reduction Act." *Rhodium Group.* August 12. Accessed https://rhg.com/research/climate-clean-energy-inflation-reduction-act/.