JOINT ECONOMIC COMMITTEE
CONGRESSMAN DON BEYER, CHAIRMAN

Infrastructure and its Impact on the U.S. Economy

The U.S. economy—which in 2020 produced $21 trillion-worth of goods and services—is powered by the interconnected web of roads, waterways, electrical grids, and communications, education, healthcare and childcare systems that make up its infrastructure.[1] This infrastructure is in a state of disrepair, and "dangerously overstretched," with a funding gap valued in the trillions.[2] The United States invests less in infrastructure than its peers and substantially less than it used to. To compete in the 21st century, we must learn from our own past success and replicate the bold public investments that have supported each transformation of our economy in the past.

The word "infrastructure" was originally a technical term from railway engineering that referred to the structure supporting train tracks. Today, it broadly refers to "long-lived, capital-intensive systems and facilities."[3] What counts as infrastructure has evolved drastically through time, and often along with the needs of our economy. During the time of the New Deal, for example, academics and policymakers debated whether universal access to electricity could count as public infrastructure.[4] Today that narrative continues to shift, as infrastructure investments are now understood to be a fundamental part of efforts to transform our economy away from fossil fuel dependence. At the same time, the COVID-19 pandemic has made it all too clear that our connection to our jobs may depend just as much on broadband and care workers as on roads and bridges—while also highlighting the tragically incomplete and unequal reach of our existing infrastructure.

For the American economy to thrive, the federal government must make sustained public investments that will allow businesses and families to invest in their own economic futures. The nature of those investments also desperately needs to be reimagined. While no one can say for sure what the economy of the future will look like, we know already that it will be built on sound public investments in the social, financial and physical structures that allow all Americans to thrive and contribute, especially in communities that were overlooked or even harmed by the infrastructure projects of the past.

President Biden has indicated that to address the looming infrastructure crisis and jump start the American economy still struggling through a pandemic, a robust infrastructure package should be a legislative priority. The American Jobs Plan and American Families Plan are historic investments in infrastructure, including roads and bridges, drinking water, broadband access, green infrastructure, electricity, housing, child care, education and our caregiving infrastructure. This brief is an introduction to some of the key ways that infrastructure interacts with the American economy.

The COVID-19 pandemic has expanded our understanding of infrastructure

The pandemic exposed the shortcomings and inequities in our digital infrastructure and transit systems. Reliable internet quickly became even more vital than it had been as schools turned online and some workers began commuting virtually. The racial and economic divides in learning widened, in large part due to disparities in access to computers and reliable internet. One study found that the shift to remote school set white students back by one to three months in math and students of color back by three to five months, while the state of Connecticut reported that attendance among students of color, students with disabilities and lower-income students had declined five percent.[5]

At the same time, many families lost access to the child care systems that had supported them in the past, and parents—particularly mothers—left the workforce in droves to care for children and other family members. By January 2021, 1.6 million women with school-aged children who had left the workforce at the beginning of the pandemic still had not returned.[6] The need for quality roads and bridges has long been obvious, but the systems that have sustained our economy during the pandemic are just as vital. Some of the changes from the last year in education and work will likely persist, even after the health threat of COVID-19 has abated.[7] Whether people commute via Zoom or the subway, all workers and students are in need of safe, reliable infrastructure.

U.S. infrastructure is in a state of disrepair

Secretary of Transportation Pete Buttigieg has stressed that the United States' "infrastructure status quo is a threat to our collective future."[8] The American Society of Civil Engineers (ASCE) scores the United States' physical infrastructure a C-. This low score manifests in water mains that break every two minutes, resulting in daily losses of up to six billion gallons of treated water, and over two in five roadways that are in poor or mediocre condition.[9] Of the 17 different infrastructure categories graded by the ASCE, 11 were in the D range, including transit, wastewater, roads and schools.[10] According to the American Road and Transportation Builders Association (ARTBA), there are 171.5 million daily crossings over more than 45,000 structurally deficient U.S. bridges.

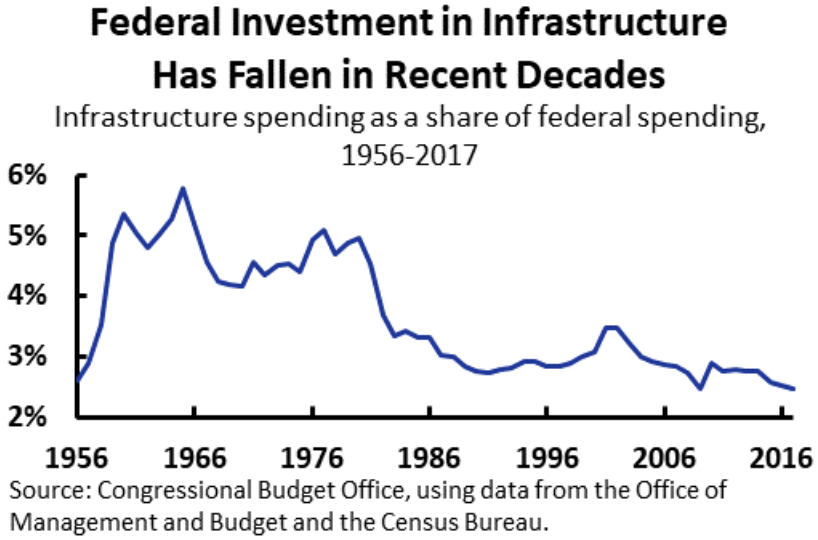
Appendix Table A1 details several measures of the quality of physical infrastructure by state. In 11 states, structurally deficient bridges make up more than 10 percent of all bridges.[11] In 19 states, more than one in five households live in buildings with elevated lead risk. Several states have infrastructure in especially dire condition. In West Virginia, for example, almost one in five people are served by a water system that has had a serious drinking water violation in the past year and over 20 percent of bridges are structurally deficient, making it the state with the worst ranking for both measures. In Iowa, over 26 percent of people live in housing with elevated lead risk and a staggering 4,571 bridges (19 percent of total bridges in the state) are structurally deficient.

This physical infrastructure reality results from years of insufficient funding. The ASCE estimates that the current funding gap amounts to $2.59 trillion over a decade.[12] If left unaddressed, "By 2039, America's overdue infrastructure bill will cost the average American household $3,300 a year, or $63 a week." [13] Bennett et al. (2019) note that as a share of gross investment, basic infrastructure spending has fallen since the 1950s, and the average age of publicly-owned infrastructure has increased substantially in recent decades.[14] For example, since the 1970s, the average age of highways has nearly doubled to almost 30 years.[15]

Human capital infrastructure is also in need of federal attention. In the United States, four out of five parents of young children report that finding quality, affordable child care in their area was a serious problem.[16] More than 50 percent of families with young children lived in areas where the demand for licensed child care far outpaced the local supply, known as "child care deserts."[17] The United States remains the only high-income country in the world that does not offer or mandate universal paid sick leave, which translates to one in four working people—approximately 35 million people—not having paid sick leave.[18] When it comes to healthcare, studies suggest that about 30 million people in the United States do not have health insurance.[19] Failures in our human capital infrastructure have enormous costs on the United States' economic prospects.

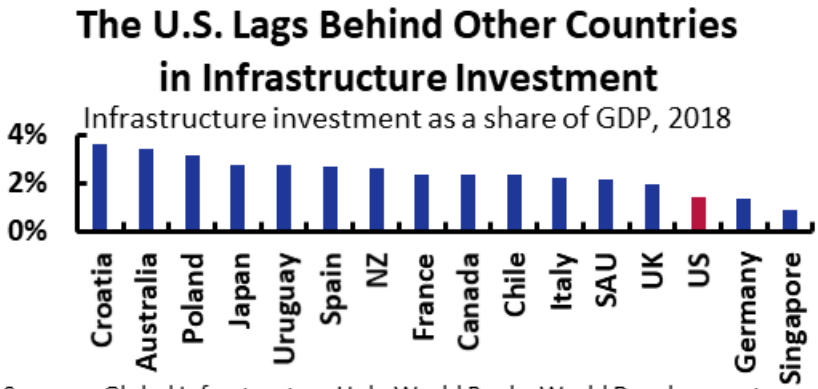
Government investment in physical infrastructure is at historic lows

According to the Congressional Budget Office, federal investment in transportation and water infrastructure made up only 2.47 percent of federal spending in 2017, the lowest level since 1956.[20] In the 2010s, federal investment in this type of infrastructure averaged 2.69 percent per year, whereas in every previous decade save for the 1990s, federal spending in infrastructure amounted to more than 2.85 percent of federal spending.



Government investment in other types of infrastructure has also declined sharply in the past decades. For example, since the 1990s, the United States' public housing stock has fallen by 250,000 units—only a fraction of which have been replaced. Today, there are only 1.1 million public housing units.[21] The "massive backlog of unmet capital [housing] needs due to decades of federal underfunding" has left a funding hole of $26 billion according to a 2010 study, which is likely much higher today. [22] Similarly, public schools cut capital spending by $19 billion—25 percent—between fiscal years 2008 and 2016. A 2014 U.S. Department of Education study found that to bring all K-12 school infrastructure into good condition would cost almost $200 billion.[23]

The United States also spends markedly less on infrastructure than other countries. According to the Global Infrastructure Hub, in 2018 the United States invested only 1.47 percent of its GDP on physical infrastructure, the 14th lowest among 16 high-income countries. Eleven of the 16 countries spend over 50 percent more on physical infrastructure as a share of GDP than the United States.[24]



Sources: Global Infrastructure Hub, World Bank - World Development Indicators

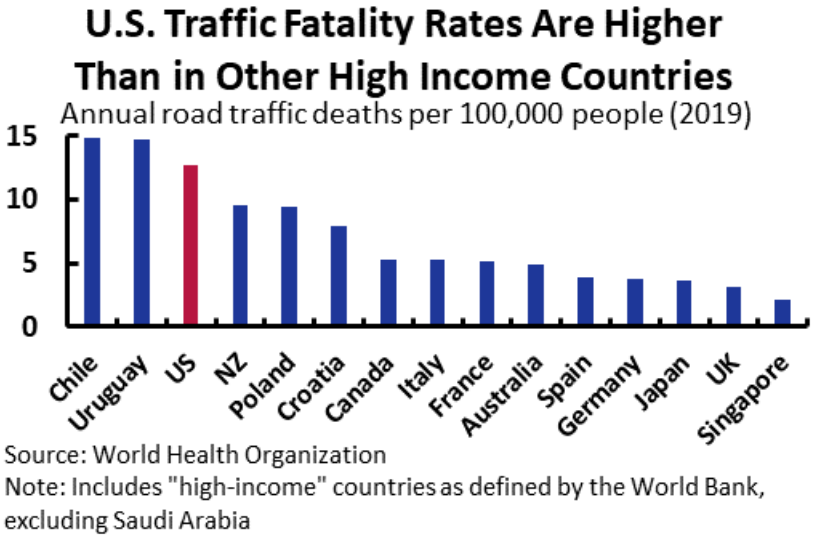
Notes: Data are restricted to "high-income" countries as defined by the World Bank. GDP and infrastructure investment are measured in constant 2015 USD.

This underfunding has led to maintenance backlogs, increased travel times and unreliable services and utilities, all of which profoundly affect quality of life and economic activity.

U.S. infrastructure has fallen behind the competition

To remain competitive, the United States is in need of a substantial investment in infrastructure. Lower levels of infrastructure spending by the U.S. compared to other countries have resulted in a decline in the quality of infrastructure, with the U.S.'s infrastructure now ranked 13th in the world (well below 2018's ranking of 9th).[25] For example, during the last 10 years, the average age of U.S. publicly-owned physical infrastructure has increased while the average age of physical infrastructure in Canada has fallen.[26] The United States has one of the highest traffic fatality rates among its peers, more than twice the rate of Canada and three or four times the rate

of some European countries.[27] The U.S. Department of Transportation estimates that poor road conditions and obsolete road designs are a factor in about 14,000 highway deaths each year.[28]



These factors have contributed to a decline in the United States' economic competitiveness overall. In 2019, the United States' competitiveness ranking fell from first to second, according to the World Economic Forum. They attribute this shift largely to a deterioration in human capital infrastructure, including health infrastructure, in which the U.S. ranks 55th, and education and training infrastructure[1], in which it ranks 9th.[29] However, U.S. infrastructure ranks poorly in other areas as well. The United States ranks 17th in quality of road infrastructure, 23rd in electricity supply quality and 30th in reliability of water supply. Without greater investment in these systems, the United States will continue to fall behind.[30]

Infrastructure investment is investment in workers

The jobs created in infrastructure are competitive, consistently paying workers with low incomes up to 30 percent more than other jobs.[31] For example, jobs such as paving equipment operators, plumbers and power-line installers all pay significantly more to people who might otherwise be employed as assemblers, counter attendants or cashiers.[32] At the same time, investment in education infrastructure, like community colleges and training programs, increase the accessibility of jobs that may require extensive training.

In addition to jobs in construction, engineering and manufacturing, infrastructure jobs include caregiving jobs. Investment in caregiving work will help to promote an economic recovery among those who may otherwise experience lasting economic scarring from the COVID-19 pandemic. Currently, 86 percent of direct care workers are women and 59 percent are people of color, groups that have been disproportionately impacted by the pandemic. About one in five care workers lack health insurance, and more than half rely on public assistance like Medicaid or

[1] The World Economic Forum refers to education and training in their competitiveness rankings as "skills."

SNAP benefits to make ends meet.[33] Table A2 in the Appendix includes information on the demographics and compensation of home care and child care workers by state. The results are striking. Home care and child care workers make less than a living wage in all but five and ten states, respectively. In 18 states, home care workers make less than 80% of the living wage in that state. Improving jobs, pay, benefits and training in care work will help those in the industry and increase the number of people who plan to enter the industry in the future.

In the context of a rapidly aging American population, this is all the more important. Over the next decade, care work is predicted to be the fastest-growing segment in the U.S. labor market.[34] Improving jobs and training in care work also has the additional benefits of increasing worker productivity and decreasing worker turnover, thus improving the quality of care and patient health outcomes.[35]

Investments in child care also have wide-ranging, well-established economic benefits. In addition to benefitting child care workers, expanded access to child care increases women's participation in the workforce.[36] Increases in women's labor force participation have been found to make cities more productive and increase wages for both men and women.[37]

Infrastructure investment boosts productivity, while low interest rates make it cost-effective

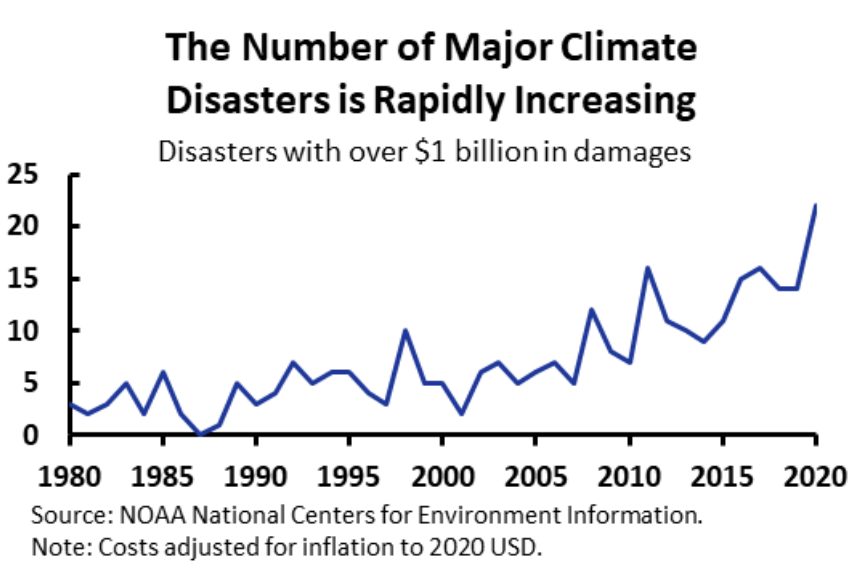
Infrastructure investments can increase private-sector productivity. A literature review of 33 different studies that measured the rate of return to U.S. physical infrastructure investment found average and median rates of return of 17% and 13% respectively. Moreover, the measured rate of return for investments in physical infrastructure has grown over time as newer and more sophisticated calculation methods have found greater benefits.[38]

Economists have measured particularly high rates of return for certain types of human capital infrastructure, including investment in childhood education and health. Indeed, these policies are so cost-effective that they often pay for themselves through higher tax revenues from the increased incomes earned by beneficiaries of the programs later in life.[39] One study found that every dollar spent on an early childhood program targeting disadvantaged families in North Carolina resulted in up to $7.30 in benefits in education, health, social behaviors and employment.[40]

Low interest rates continue to make timely investment in infrastructure particularly cost-effective.[41] These economic conditions also make concerns about crowding out private investment much less relevant. Indeed, present-day conditions make it more likely for public infrastructure investment to "crowd *in*" private activity by promoting overall economic growth, a primary determinant of business investment.[42]

Infrastructure investment can help strengthen U.S. climate resilience

Climate change is becoming increasingly costly. In 2020, the United States experienced 22 extreme weather and climate-related disasters that cost over $1 billion each, for a total in damages of almost $100 billion.[43]



Historically, investment in infrastructure and protection of the environment have been perceived as conflicting, or at best unrelated, with the former considered a foundational element of economic production and the latter an amenity—incidental to the economy and economic issues of wages, growth and competitiveness. The increasing severity and frequency of catastrophic wildfires, droughts, floods and hurricanes have laid waste to this false disconnect. In truth, the economy and the environment are inextricably linked and mutually reinforcing. Infrastructure investments not only facilitate growth, they also affect the production of greenhouse gases and other harmful pollutants in both direct and indirect ways.

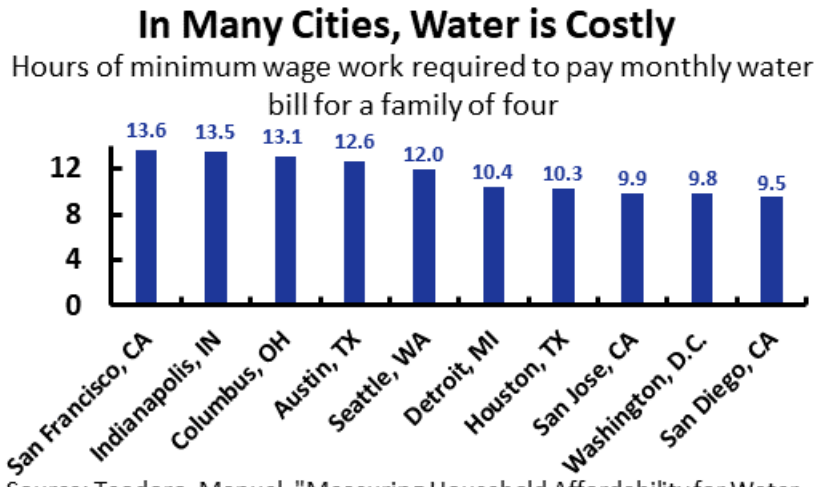
President Biden's American Jobs Plan prioritizes building resilient infrastructure, protecting land and water resources and investing in communities vulnerable to climate change. This includes $50 billion in investments specifically aimed at strengthening protections against climate disasters, $35 billion in research and development for climate-related technology and $174 billion in electric vehicle incentives.[44] A focus on energy efficient transportation, like public transit and electric vehicles, helps extend environmental benefits to investments like roads and bridges that have traditionally lacked an environmental focus. Altogether, these investments have the potential to profoundly impact the global trajectory of climate change.

Infrastructure investment promotes racial and economic equity

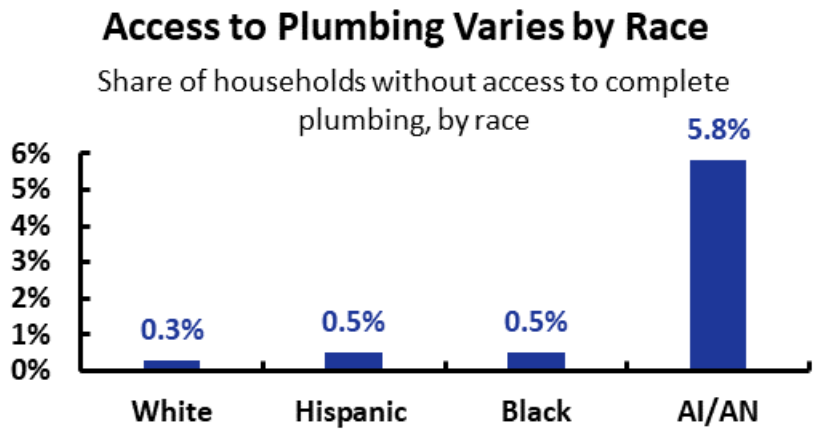
Lower-income communities and communities of color are less likely to have access to quality infrastructure and are thus most impacted by the failures in our existing systems—be those roads, bridges, sewer systems or the internet. These failures affect the ability of members of those communities to participate in online classes, get to work, start a business or spend time with their families, worsening overall quality of life. [45]

Research suggests that commute times, a proxy for access to reliable and affordable transportation, are strongly correlated with a person's ability to move from the bottom to the top of the economic ladder.[46] However, there are persistent inequalities in transportation access, with people of color and lower-income people experiencing longer commute times and higher commute costs.[47]

For water infrastructure, decreased federal funding has led to increasing prices. In some cities, water and sewer service for a four-person family can cost the equivalent of 13 hours of work per month at the minimum wage.[48] This contributes to severe racial disparities in water access. Black and Latino households are almost twice as likely as white households to lack complete plumbing, while Native American households are 19 times as likely.[49] Although no level of blood lead concentration is safe, especially for children, one in six Black children living in poverty have elevated blood lead levels—more than twice the rate of white children in poverty.[50]

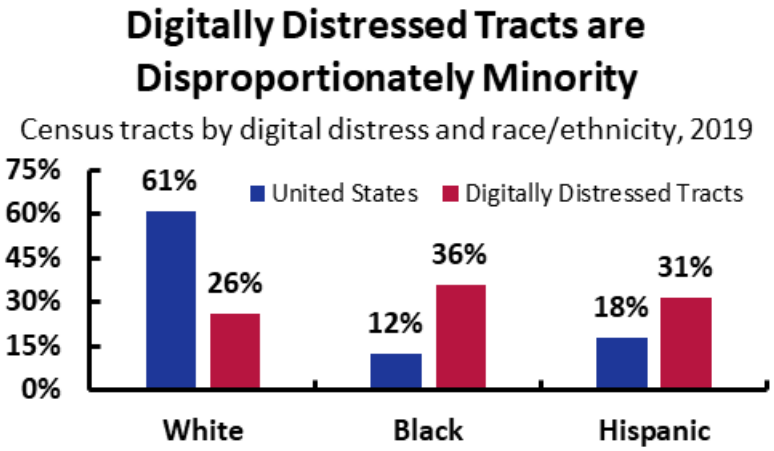


Source: Teodoro, Manuel, "Measuring Household Affordability for Water and Sewer Utilities," 2018, *Journal AWWA*



Source: "Closing the Water Access Gap in the United States: A National Action Plan," 2019, US Water Alliance
Note: "AI/AN" refers to American Indian and Alaska Native

Internet access is also unequal and can be a function of high cost of internet, poor-quality access overall or an inability to afford computers. Dr. Roberto Gallardo at the Purdue Center for Regional Development has created a term, 'digital distress,' to capture these different dimensions. He defines digital distress as neighborhoods (census tracts) that have a high percent of homes not subscribing to any internet or subscribing only through a cellular plan, and a high percent of homes with no computing devices or relying only on mobile devices. Using these measures, census tracts can be ranked by a score from 0 to 100, where a higher score indicates higher digital distress. Tracts are considered digitally distressed if their score is greater than 50.[51] As Table A3 indicates, digital distress varies considerably across the United States. Certain states, like Mississippi, Louisiana, Alabama, Arkansas and New Mexico are particularly affected. Additionally, digital distress is correlated with race. While 61 percent of Americans identify as white, only 26 percent of those in digitally distressed neighborhoods identify as white. Meanwhile, 12 percent of Americans identify as Black, but 36 percent of those in digitally distressed neighborhoods are Black.



Early care and education has been shown to have long-lasting effects on educational success much later in life and increase labor force participation among parents, particularly women.[52] However, access is highly unequal. One study that analyzed state-funded preschools found that not one of the 26 states analyzed provided both high quality and high access preschool for Black and Latino 3- and 4-year-olds.[53]

In addition to these disparities in access, historical infrastructure investments have at times actively harmed vulnerable communities. For example, the construction of the interstate highway system served as an intentional tool in many places to enforce racial segregation, displace Black families and destroy Black homes, churches, schools and businesses, with lasting effects. In St. Paul, Minnesota, the construction of Interstate 94 displaced one-seventh of the city's Black residents.[54] In Flint, Michigan, over 58 percent of the families displaced to build Flint's

highways were Black, while in Los Angeles, California, the highway system was expressly designed to maintain racial segregation.[55]

It is crucial for future infrastructure investments to prioritize equity. The American Jobs Plan is designed to address historical harm, with proposals that include eliminating all lead pipes and service lines in our drinking water systems, $20 billion to reconnect neighborhoods cut off by historic investments and $100 billion in workforce development programs targeted at underserved groups to help develop the skills workers need today.[56] The American Families Plan ensures free universal pre-school for all three- and four-year-olds and two years of free community college.[57]

Green infrastructure investment is central to equity concerns. It has become clear that the pernicious effects of climate change will harm people of color and lower-income people disproportionately. For example, air pollution, which kills over 100,000 Americans annually, kills Black people at far greater rates than white people, even after controlling for income.[58] Meanwhile, communities of color are more severely impacted by climate disasters while benefitting least from disaster recoveries. In the fall of 2017, several months after Hurricane Harvey, white residents who applied for assistance from FEMA were more than twice as likely as Black residents to report that their application was approved.[59] Green infrastructure investment, as prioritized in the American Jobs Plan, has the potential to greatly expand the equity effects of infrastructure investment.

Now is the time for federal investment in infrastructure

Today's low interest rates and low employment levels mean that infrastructure investment is at its most cost-effective now. Lawmakers should take advantage of favorable economic conditions by investing in a broad set of policies aimed at addressing our nation's declining infrastructure quality. In addition to providing the nation with crucial public goods, if targeted correctly, these investments will promote racial and economic equity and help lay the groundwork for stronger, cleaner future growth.

Appendix

Table A1.

Physical Infrastructure Quality by State

State	Percent of Population Served by Unsafe Water Systems	Share of Houses with Elevated Lead Risk	Number of Structurally Deficient Bridges	Share of Bridges that Are Structurally Deficient
Alabama	0.7%	11.9%	620	3.8%
Alaska	5.0%	7.5%	141	8.6%
Arizona	0.9%	6.8%	132	1.6%
Arkansas	0.1%	11.0%	663	5.1%
California	0.0%	17.6%	1536	6.0%
Colorado	0.3%	12.5%	481	5.4%
Connecticut	0.6%	26.7%	248	5.7%
Delaware	0.0%	14.8%	19	2.2%
Florida	1.6%	8.4%	408	3.2%
Georgia	0.4%	9.4%	374	2.5%
Hawaii	0.0%	11.2%	84	7.3%
Idaho	1.5%	13.1%	286	6.3%
Illinois	0.1%	25.1%	2374	8.8%
Indiana	0.4%	21.1%	1111	5.7%
Iowa	0.0%	26.1%	4571	19.1%
Kansas	1.2%	21.5%	1321	5.3%
Kentucky	1.7%	15.6%	1033	7.2%
Louisiana	3.6%	13.5%	1634	12.7%
Maine	1.1%	23.6%	315	12.7%
Maryland	0.0%	18.0%	273	5.0%
Massachusetts	0.0%	31.2%	472	9.0%
Michigan	2.6%	22.5%	1219	10.8%
Minnesota	0.5%	19.8%	661	4.9%
Mississippi	5.5%	10.7%	1386	8.2%
Missouri	0.6%	18.8%	2190	8.9%
Montana	0.4%	17.8%	377	7.2%
Nebraska	0.0%	22.6%	1302	8.5%
Nevada	0.1%	5.2%	28	1.4%
New Hampshire	0.3%	20.9%	215	8.6%
New Jersey	4.9%	24.5%	502	7.4%
New Mexico	3.3%	12.2%	207	5.1%
New York	0.3%	33.6%	1702	9.7%
North Carolina	0.0%	10.8%	1460	7.8%
North Dakota	0.1%	16.8%	444	10.3%
Ohio	1.0%	24.8%	1377	5.1%
Oklahoma	4.0%	15.0%	2326	10.0%
Oregon	0.5%	16.2%	395	4.8%
Pennsylvania	0.4%	29.1%	3353	14.6%
Rhode Island	0.0%	31.9%	148	19.0%
South Carolina	0.0%	9.8%	745	7.9%
South Dakota	1.9%	20.2%	1038	17.7%
Tennessee	1.7%	12.7%	881	4.4%
Texas	1.6%	10.0%	818	1.5%
Utah	0.1%	11.6%	62	2.0%
Vermont	0.4%	24.4%	66	2.3%
Virginia	0.0%	13.7%	577	4.1%
Washington	0.4%	14.8%	416	5.0%
West Virginia	19.6%	20.8%	1545	21.2%
Wisconsin	3.3%	22.8%	979	6.9%
Wyoming	0.5%	16.4%	218	7.0%

Sources: America's Health Rankings analysis of 2018 data from the U.S. Census Bureau and American Community Survey; Federal Highway Administration 2020 National Bridge Inventory (NBI), American Road & Transportation Builders; America's Health Rankings analysis of 2020 data from the Environmental Protection Agency (EPA) Enforcement and Compliance History Online (ECHO) and Safe Drinking Water Information System (SDWIS)

Notes: Housing is at elevated lead risk if the structure is a certain age or older. Bridges are considered "structurally deficient" if at least one of the key elements (deck, superstructure, substructure or culverts) is in poor condition or worse. During inspection, the conditions of bridge elements are rated on a scale of 0 (failed condition) to 9 (excellent condition) where 4 is considered "poor" condition. "Unsafe water systems" refer to community water systems with a serious drinking water violation in the past year.

Table A2.

Care Worker Demographics and Pay												
		Home Health Care and Personal Care Aids					*Child Care and Preschool Workers*					
State	Living Wage, USD	Number of Workers	Percent That Are Women	Percent That Are People of Color	Median Hourly Wage, USD	Hourly Wage as a Percent of Living Wage	Number of Workers	Percent That Are Women	Percent That Are People of Color	Median Hourly Wage, USD	Hourly Wage as a Percent of Living Wage
Alabama	13.77	20,300	93.9%	53.4%	9.58	70%	9,550	96.4%	29.7%	12.77	93%
Alaska	15.06	6,480	72.0%	49.6%	16.66	111%	2,350	80.6%	48.0%	14.04	93%
Arizona	14.94	69,060	84.2%	41.1%	12.70	85%	16,160	95.1%	23.6%	13.63	91%
Arkansas	13.29	20,170	92.5%	35.5%	10.97	83%	8,970	97.1%	22.5%	14.02	105%
California	18.66	597,500	82.3%	50.2%	14.05	75%	91,230	93.6%	38.3%	15.53	83%
Colorado	16.35	36,610	82.7%	22.8%	13.83	85%	16,410	93.0%	14.1%	15.60	95%
Connecticut	15.98	34,060	86.6%	46.3%	13.62	85%	11,030	95.1%	24.9%	13.28	83%
Delaware	15.32	8,040	76.2%	72.4%	11.65	76%	2,550	95.6%	39.5%	15.48	101%
District of Columbia	20.12	11,330	78.2%	89.6%	15.04	75%	2,730	93.9%	74.7%	14.75	73%
Florida	14.82	72,680	90.5%	45.4%	11.61	78%	54,390	95.9%	26.4%	12.78	86%
Georgia	15.36	42,050	90.1%	62.4%	11.17	73%	24,410	97.7%	34.9%	10.33	67%
Hawaii	19.43	9,020	85.7%	82.4%	13.35	69%	2,870	96.1%	73.9%	11.92	61%
Idaho	13.95	17,530	77.4%	11.0%	11.65	84%	3,990	98.8%	3.7%	13.20	95%
Illinois	15.37	91,130	86.7%	54.7%	13.46	88%	35,140	95.1%	31.5%	12.62	82%
Indiana	13.44	40,280	83.1%	29.4%	11.63	87%	13,170	97.4%	14.8%	12.13	90%
Iowa	13.62	21,890	78.1%	23.7%	13.23	97%	10,870	97.8%	7.2%	13.27	97%
Kansas	13.51	24,250	87.0%	34.8%	10.97	81%	7,220	96.4%	13.1%	13.63	101%
Kentucky	13.48	23,630	88.0%	14.0%	11.89	88%	11,460	95.5%	16.1%	12.26	91%
Louisiana	14.06	36,020	91.2%	75.5%	9.04	64%	9,110	99.1%	38.9%	13.35	95%
Maine	14.92	16,510	76.6%	14.6%	13.80	92%	4,130	89.5%	6.6%	15.19	102%
Maryland	17.25	32,690	81.7%	62.9%	13.51	78%	15,930	97.2%	43.7%	15.30	89%
Massachusetts	17.74	109,350	85.4%	40.0%	16.38	92%	24,780	91.4%	19.8%	14.81	83%
Michigan	13.63	68,510	88.1%	38.6%	11.85	87%	24,060	95.7%	21.9%	14.92	109%
Minnesota	14.9	102,490	78.2%	31.4%	14.00	94%	17,760	95.8%	13.8%	13.55	91%
Mississippi	13.43	18,570	86.9%	61.5%	10.25	76%	7,580	96.7%	49.5%	12.42	92%
Missouri	13.72	73,510	89.9%	34.4%	11.44	83%	17,610	97.2%	11.8%	12.67	92%
Montana	13.94	7,850	82.7%	5.0%	12.82	92%	3,250	81.5%	13.0%	14.58	105%
Nebraska	13.57	11,890	76.6%	35.2%	12.70	94%	8,750	94.0%	13.7%	12.50	92%
Nevada	13.67	14,990	86.8%	32.0%	11.69	86%	4,830	93.3%	21.2%	12.82	94%
New Hampshire	14.47	7,440	85.2%	12.2%	13.54	94%	4,110	96.2%	1.8%	15.59	108%
New Jersey	16.2	56,630	88.7%	62.8%	12.76	79%	33,430	95.0%	25.9%	14.16	87%
New Mexico	13.97	31,090	77.6%	28.5%	10.52	75%	4,350	91.3%	28.3%	14.71	105%
New York	18.62	469,370	88.2%	68.8%	14.86	80%	70,910	93.2%	46.5%	14.00	75%
North Carolina	14.72	62,700	86.6%	45.6%	10.74	73%	29,590	98.2%	33.0%	11.81	80%
North Dakota	13.08	6,210	91.9%	43.1%	16.22	124%	4,280	91.3%	9.9%	12.65	97%
Ohio	13.16	91,910	83.8%	36.3%	11.41	87%	26,140	96.1%	16.6%	12.49	95%
Oklahoma	13.53	18,560	87.0%	44.3%	9.80	72%	11,800	96.8%	29.3%	12.37	91%
Oregon	16.85	32,120	82.9%	21.4%	14.33	85%	10,530	93.9%	15.1%	13.75	82%
Pennsylvania	13.39	197,570	83.4%	40.6%	12.40	93%	31,510	97.2%	20.9%	10.99	82%
Rhode Island	14.79	6,970	73.6%	17.6%	14.39	97%	2,860	95.3%	28.2%	12.08	82%
South Carolina	14.58	28,350	91.4%	56.4%	11.00	75%	9,840	97.0%	27.3%	12.35	85%
South Dakota	12.61	3,100	86.8%	11.9%	13.08	104%	3,740	98.3%	10.2%	12.45	99%
Tennessee	13.25	26,560	88.8%	40.9%	10.88	82%	16,370	97.3%	21.9%	14.11	106%
Texas	14.01	309,540	89.4%	37.8%	10.11	72%	77,090	95.6%	24.5%	11.87	85%
Utah	14.52	14,740	85.5%	12.3%	13.14	90%	6,910	95.2%	11.5%	14.36	99%
Vermont	14.93	7,260	73.2%	1.9%	14.87	100%	2,110	95.9%	3.0%	16.37	110%
Virginia	16.61	53,190	89.1%	52.0%	10.69	64%	21,480	95.4%	36.2%	13.45	81%
Washington	16.34	58,000	82.6%	40.1%	15.14	93%	16,380	94.0%	27.8%	15.02	92%
West Virginia	13.38	15,400	81.2%	8.0%	9.97	75%	3,400	96.9%	1.4%	11.51	86%
Wisconsin	14.02	72,790	82.4%	33.7%	12.32	88%	14,220	95.1%	12.6%	12.05	86%
Wyoming	13.19	3,670	95.3%	15.4%	13.35	101%	1,970	94.7%	12.8%	12.31	93%

Source: Calculations by Professor Lenore Palladino using data from the OES (2020) and the ACS Public Use Microdata sample (2019). MIT Living Wage Calculator.
Note: Living wage refers to the hourly rate that an individual with no children must earn to support his or herself, working full-time year-round, based on typical expenses in the location.

Table A3.

Digital Distress by State, 2019		
State	Percent of Tracts in Digital Distress	Percent of Population Living in Digital Distress
Alabama	19.85%	13.5%
Alaska	7.23%	5.2%
Arizona	7.07%	5.7%
Arkansas	17.52%	11.4%
California	2.22%	2.0%
Colorado	1.13%	0.6%
Connecticut	2.06%	1.1%
Delaware	2.34%	1.8%
District of Columbia	3.37%	2.9%
Florida	3.65%	2.8%
Georgia	9.06%	5.0%
Hawaii	1.28%	0.4%
Idaho	1.01%	0.3%
Illinois	6.16%	3.6%
Indiana	5.38%	3.4%
Iowa	1.58%	1.0%
Kansas	4.08%	2.6%
Kentucky	5.25%	3.3%
Louisiana	20.27%	14.0%
Maine	0.28%	0.1%
Maryland	3.47%	2.1%
Massachusetts	1.58%	0.9%
Michigan	6.90%	3.7%
Minnesota	0.30%	0.1%
Mississippi	34.25%	28.7%
Missouri	6.48%	3.9%
Montana	2.23%	2.0%
Nebraska	0.76%	0.4%
Nevada	4.13%	2.9%
New Hampshire	0.34%	0.2%
New Jersey	2.96%	2.1%
New Mexico	14.29%	13.5%
New York	2.86%	2.4%
North Carolina	5.54%	4.1%
North Dakota	0.98%	0.5%
Ohio	5.89%	3.2%
Oklahoma	11.38%	8.9%
Oregon	0.24%	0.2%
Pennsylvania	3.01%	2.2%
Rhode Island	1.67%	1.6%
South Carolina	10.60%	7.7%
South Dakota	3.60%	3.2%
Tennessee	9.75%	6.8%
Texas	13.31%	10.2%
Utah	0.68%	0.4%
Vermont	0.00%	0.0%
Virginia	3.79%	2.5%
Washington	0.48%	0.4%
West Virginia	1.86%	1.1%
Wisconsin	4.03%	2.5%
Wyoming	0.00%	0.0%

Source: JEC Democratic staff calculations based on data from the 2019 5-year American Community Survey.

Notes: Digital distress is calculated from the share of homes not subscribing to any internet or subscribing only through a cellular plan and the share of homes with no computing devices or relying only on mobile phones. This is modeled after the index developed by Dr. Roberto Gallardo at the Purdue Center for Regional Development.

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