ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

# A Comprehensive Assessment of America's Infrastructure



2025

# REPORT CARD FOR AMERICA'S INFRASTRUCTURE

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

## ABOUT ASCE

The American Society of Civil Engineers, founded in 1852, is the country's oldest national civil engineering organization. It represents more than 160,000 civil engineers in private practice, government, industry, and academia who are dedicated to advancing the science and profession of civil engineering, and protecting public health, safety, and welfare.

*Cover photo: Highway aerial drone sunrise over busy road way in Austin, Texas; Roschetzky Photography*



# ASCE 2025 REPORT CARD FOR AMERICA'S INFRASTRUCTURE

## Introduction

America's infrastructure is the foundation on which our national economy, global competitiveness, and quality of life depend. While often taken for granted when it is working properly, every American household or business immediately feels the impact of just one inefficiency or failure in our built environment. Our infrastructure includes an interconnected system of highways, streets, public buildings, mass transit, ports, airports, inland waterways, water systems, waste facilities, the electric grid, broadband networks, dams, levees, and other public and private facilities. Maintaining these networks is essential to meet economic demands and protect public health and safety. For American families and businesses to thrive, we need a first-class infrastructure system that moves people and goods safely, sustainably, efficiently, and affordably by land, water, and air; energy transmission systems that deliver clean, dependable, low-cost power; and water systems that reliably and safely drive industrial processes, as well as the daily functions of our communities.

Since 1998, ASCE has issued a quadrennial assessment of the United States' infrastructure networks, known as the *Report Card for America's Infrastructure*. For more than two decades, the message behind the unflattering grades was consistent: federal, state, and local governments, in addition to the private sector, have not been prioritizing our interdependent infrastructure systems. In sum, the bill on our infrastructure systems was past due. We needed to reverse the nation's growing infrastructure investment gap to remain competitive in the global marketplace, allow local businesses to thrive, and keep our families safely connected. That message grew louder with each evaluation, through our most recent Report Card release in early 2021.

However, in late 2021, the trend began to change. Congress passed the Infrastructure Investment and Jobs Act (IIJA), the most comprehensive federal investment in the nation's infrastructure in U.S. history. The law included many of the solutions to raise

the grades featured in ASCE's 2021 Report Card, including robust resources for water infrastructure, transportation, and related areas. A few years later, IIJA investments and policy changes are already improving the performance of our transportation, water, energy, and waste networks. As a result, nearly half of the grades are increasing for the 18 categories we assess in this *2025 Report Card for America's Infrastructure*. This forward momentum is due in large part to the actions of the federal government in partnership with state and local governments and the private sector.

Unfortunately, while significant advancements are being made, we still face a substantial investment gap. The shortfall grows as existing infrastructure systems continue to age and demands on those systems increase. In addition, passage of the IIJA has shed light on key issues affecting our industry. Projects should be modernized or replaced by prioritizing **resilience** to withstand extreme weather. Resilience-focused measures may add to upfront costs but save on sudden, less predictable, and large financial impacts from disaster-related damages. Infrastructure projects take a long time to develop, and stakeholders may hesitate to pursue resilient designs without assurances that current funding levels will be **sustained in the future**. These are just a few of the challenges we continue to face.

The *2025 Report Card for America's Infrastructure* provides a snapshot of how our infrastructure systems are faring and offers solutions for improving the performance of each category. For the second consecutive report, Report Card grades show that U.S. infrastructure is trending in the right direction thanks to comprehensive support, innovative solutions, and bold leadership. Continued action will further improve these networks, unlocking the full potential of our nation's economy and creating opportunities for all Americans.

**Founded in 1852, the American Society of Civil Engineers (ASCE) is the country's oldest and largest civil engineering organization. It represents more than 160,000 civil engineers in private practice, government, industry, and academia who are dedicated to advancing the science and profession of civil engineering and protecting public health, safety, and welfare. ASCE comprises 75 domestic and 17 international sections, 159 branches, and 131 younger member groups. The Society advances civil engineering technical specialties through nine institutes and leads with its many professional and public-focused programs. ASCE stands at the forefront of a profession that plans, designs, constructs, and operates society's economic and social engine—the built environment—while protecting and restoring the natural environment.**

# Key Findings

**The *2025 Report Card for America's Infrastructure* demonstrates that recent federal investments have positively affected many of the infrastructure sectors Americans rely on every day. As a result, incremental improvements were made across some of the historically lowest-graded categories in the Report Card. Almost half of the 18 assessed categories saw increased grades and contributed to an overall grade improvement from C- to C. This is promising momentum, but sustained infrastructure investments are necessary to equip stakeholders with certainty for long-term planning and execution of policies and projects that fully realize the benefits of robust resources.**

## GRADING SCALE

### A — EXCEPTIONAL, FIT FOR THE FUTURE

The infrastructure in the system or network is generally in excellent condition, typically new or recently rehabilitated, and meets capacity needs for the future. A few elements show signs of general deterioration that require attention. Facilities meet modern standards for functionality and are resilient to withstand most disasters and severe weather events.

### B — GOOD, ADEQUATE FOR NOW

The infrastructure in the system or network is in good to excellent condition; some elements show signs of general deterioration that require attention. A few elements exhibit significant deficiencies. Assets are generally safe and reliable, with minimal capacity issues and minimal risk.

### C — MEDIOCRE, REQUIRES ATTENTION

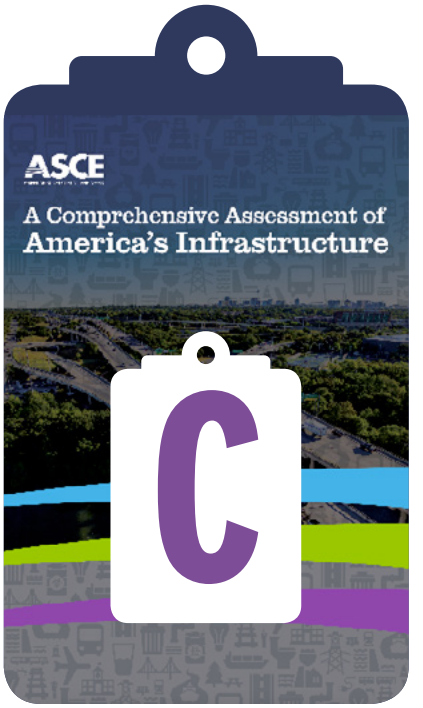
The infrastructure in the system or network is in fair to good condition; it shows general signs of deterioration and requires attention. Some elements exhibit significant deficiencies in conditions and functionality, increasing vulnerability to risk.

### D — POOR, AT RISK

The infrastructure is in fair to poor condition and mostly below standard, with many elements approaching the end of their service life. A large portion of the system exhibits significant deterioration. Condition and capacity are of serious concern with strong risk of failure.

### F — FAILING/CRITICAL, UNFIT FOR PURPOSE

The infrastructure in the system is in unacceptable condition with widespread, advanced signs of deterioration. Many of the components of the system exhibit signs of imminent failure.




The 2025 grades range from a B in ports to a D in stormwater and transit. For the first time since 1998, no Report Card categories were rated D–. Among the 18 categories assessed, eight saw grade increases. Many of those categories had been chronically stuck at D- or D for years. This improvement was possible due to the government and private sector prioritizing investments in systems that historically had received little attention. Two categories—energy and rail—were downgraded because of concerns related to capacity, future needs, and safety. Broadband was introduced as a graded category in 2025, coming in at a C+. Although evidence points to improvements throughout infrastructure's system-of-systems, nine categories remained within the D range—a clear sign that more needs to be done to improve the health of America's built environment.

Though distinct in function, the 18 infrastructure categories operate collectively to provide essential services for people and communities. Several key trends appeared in our review that indicate continued gaps despite recent infrastructure upgrades. The following trends are worth noting:

1. **Aging infrastructure systems are increasingly vulnerable to natural disasters and extreme weather events, creating unexpected and often avoidable risks to public safety and the economy.** Climate-related challenges are widespread, affecting even regions previously resistant to these events: floods become more intense and occur more often, hurricanes create higher wind loads, and wildfires encroach more unpredictably. Investments in resilient infrastructure are consistently proven to be an effective use of limited public dollars, because they reduce costs in the long term, especially by minimizing rebuilding needs after a significant event. For instance, by adopting the most up-to-date codes and standards, communities will be better equipped to handle disasters and more responsibly deploy public resources.

2. **Recent federal and state investments have had a positive impact, but the full force of increased funding will take years to realize. Sustained investment is key to providing certainty and ensuring planning goes to development, as well as making larger infrastructure projects attainable.** Before recent federal legislation, like 2021's Infrastructure Investment and Jobs Act (IIJA), many of our infrastructure networks had been neglected for decades at the federal level. As time passed and investments failed to keep pace with demands, the backlog of maintenance projects grew. Meanwhile, **demands on infrastructure systems have intensified** apart from maintenance. Community expansion and usage trends, economic growth, unpredictable events, and new technologies have called for new plans and project design. These raised stakes require the federal government to continue prioritizing infrastructure investments. Therefore, federal decision-makers will need to preserve momentum from continued partnerships with state and local governments that match investments and facilitate planning. **Considering the extensive time it takes to study, design, and complete projects, sustained investment at current or higher funding levels will be necessary for infrastructure to continue to improve.**

3. **Unreliable or unavailable data on key performance indicators continues to impact certain infrastructure sectors.** Sectors like school facilities, broadband, energy, levees, stormwater, and public parks continue to lack extensive public data. Robust information on asset conditions, capacity, operations, safety, or resilience enables proactive public discussion on infrastructure. Many infrastructure categories lack a basic inventory of assets and therefore are unable to implement asset management practices. Data—publicly available, routine, and reliable—should be standard across all infrastructure sectors to target investments and allow decision-makers to wisely allocate limited funding to needs. Through enhanced data, both efficiency and effectiveness of assets can be better achieved.

ASCE applauds Congress, state and local policymakers, and the private sector for demonstrating leadership over the past several years and prioritizing our nation's infrastructure. Those investments are starting to have an impact, but our work is not yet complete. As decision-makers look to the future of America's infrastructure, they should weigh the consequences of insufficient support in our most vital networks. For decades, investment at all levels of government and the private sector has failed to keep up with the increasing demands and projects necessary to reach a state of good repair. By incentivizing innovation and maintaining—or in some cases adding—investment, America will sustain recent momentum on our infrastructure systems and ensure they are built for the needs of the 21st century.

## About The Report Card for America's Infrastructure

Every four years, America's civil engineers provide a comprehensive assessment of the nation's 18 major infrastructure categories in ASCE's *Report Card for America's Infrastructure*. Using a simple A to F school report card format, the Report Card examines current infrastructure conditions and needs, assigning grades and making recommendations to raise them.

The ASCE Committee on America's Infrastructure is made up of 52 dedicated civil engineers and infrastructure professionals from across the country, with decades of expertise in all categories, who volunteer their time to work with ASCE Infrastructure Initiatives staff to prepare the Report Card. The Committee assesses all relevant data and reports, consults with technical and industry experts, and assigns grades using the following criteria:

## Methodology

**CAPACITY**
Does the infrastructure's capacity meet current and future demands?

**CONDITION**
What is the infrastructure's existing and near-future physical condition?

**FUNDING**
What is the current level of funding from all levels of government for the infrastructure category as compared to the estimated funding need?

**FUTURE NEED**
What is the cost to improve the infrastructure? Will future funding prospects address the need?

**OPERATION AND MAINTENANCE**
What is the owners' ability to operate and maintain the infrastructure properly? Is the infrastructure in compliance with government regulations?

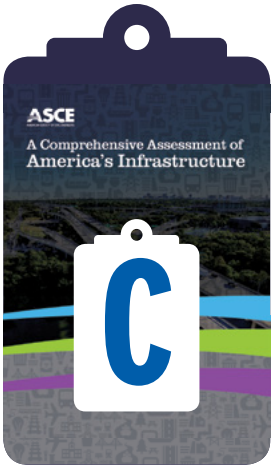
**PUBLIC SAFETY**
To what extent is the public's safety jeopardized by the condition of the infrastructure and what could be the consequences of failure?

**RESILIENCE**
What is the infrastructure system's capability to prevent or protect against significant multi-hazard threats and incidents? How able is it to quickly recover and reconstitute critical services with minimum consequences to public safety and health, the economy, and national security?

**INNOVATION**
What new and innovative techniques, materials, technologies, and delivery methods are being implemented to improve the infrastructure?

In addition to this national Report Card, ASCE's sections and branches prepare state reports on a rolling basis. Visit **InfrastructureReportCard.org** to learn about your state's infrastructure.

# The 2025 Report Card for America's Infrastructure




**OVERALL GPA**

| | | | |
|---|---|---|---|
| Aviation D+ | Bridges C | | |
| Broadband C+ | Dams D+ | Drinking Water C- | Energy D+ |
| Hazardous Waste C | Inland Waterways C- | Levees D+ | Ports B |
| Public Parks C- | Rail B- | Roads D+ | Schools D+ |
| Solid Waste C+ | Stormwater D | Transit D | Wastewater D+ |

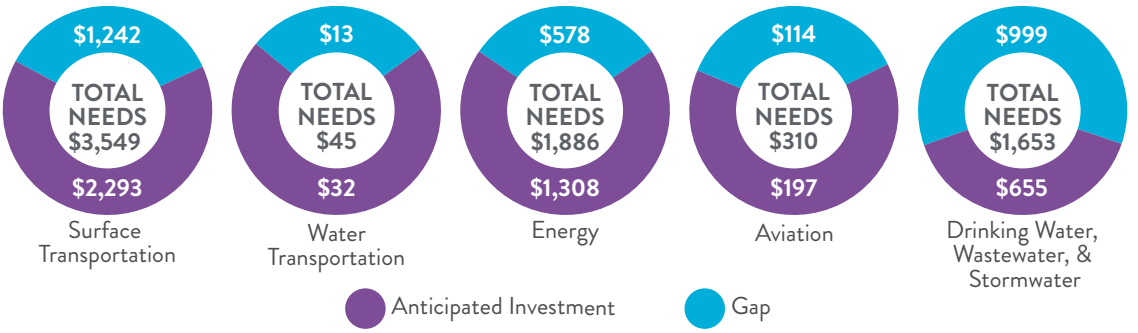
# Investment Pays

In 2024, ASCE provided its latest economic estimate on the investment needed for infrastructure categories to reach and maintain a state of good repair, which would be reflected in the Report Card with a B. This data shows progress made in infrastructure, while highlighting increasing needs ahead.

ASCE's 2024 *Bridging the Gap*[1] study, which captures 11 of the 18 Report Card categories, calculated that American families would save $700 annually if Congress "continues to act" with investment levels established in recent fiscal years. That includes appropriation amounts set by the 2021 Infrastructure Investment and Jobs Act (IIJA), 2022 Inflation Reduction Act (IRA), and other legislation. For example, in the two Water Transportation categories - Inland Waterways and Ports – $45 billion would support a full state of good repair, and $32 billion was the anticipated investment over the next 10 years. That leaves a $13 billion gap.

For all 11 infrastructure categories in Bridging the Gap, ASCE estimated $2.9 trillion of additional investment would be necessary to achieve good repair. That gap between planned and necessary investments was less than ASCE's 2020 economic study estimated, illustrating the progress made through recent federal investments.[2]

## Ten-Year Gaps with Continue to Act Scenario, 2024-33[3]




*Total Needs - Anticipated Investment = Gap* *Dollars in 2022 Billions* *Columns may not add due to rounding.*

With the *2025 Report Card for America's Infrastructure*, ASCE estimates investment needs total $9.1 trillion for all 18 Report Card categories to reach a state of good repair. Public data and ASCE's 2024 *Bridging the Gap* study forecast $5.4 trillion in public and private investments in the 10-year period, 2024 through 2033, if Congress continues recent funding levels. **This leaves a gap of $3.7 trillion in investments for America's infrastructure if we keep investing at current funding levels.** However, if Congress were to snap back to investment levels in place prior to recent increases in federal spending, that gap would increase significantly. In fact, ASCE's *Bridging the Gap* study, which assesses just 11 of the 18 categories in the 2025 Report Card, finds that the snapback gap would equal the entirety of the 2025 Report Card gap: $3.7 trillion. That figure does not include broadband, dams, levees, hazardous and solid waste, parks, and schools, which represent, at a minimum, an additional gap of $746 billion for a total of $4.4 trillion.

Additionally, in that snapback scenario, ASCE estimates meaningful economic harm: $5 trillion lost in gross economic output over 20 years, from 2024-2043, and a reduction of $244 billion in U.S. exports in those same years. Pre-2021 levels of federal investment also mean a job loss of 344,000 in one snapshot year of 2033. The reduced investments would result in $1.9 trillion in lost disposable income for American families within the 20 years studied.

# Cumulative Investment Needs

## BY INFRASTRUCTURE CATEGORY BASED ON MAINTAINING CURRENT FEDERAL INVESTMENT LEVELS

**ALL VALUES IN BILLIONS**

| Infrastructure System | Needs[1] | Funded, 2024-33[2] | Funding Gap, 2024-33 |
|---|---|---|---|
| Aviation[3] | $310 | $197 | $113 |
| Bridges[4] | $538 | $165 | $373 |
| Broadband[5] | $61 | $61 | $0 |
| Dams[6] | $185 | $20 | $166 |
| Drinking Water[7] | $670 | $361 | $309 |
| Energy[8] | $1,886 | $1,308 | $578 |
| Hazardous & Solid Waste[9] | $162 | $146 | $16 |
| Inland Waterways & Ports[10] | $45 | $32 | $13 |
| Levees[11] | $97 | $7 | $91 |
| Public Parks[12] | $106 | $62 | $44 |
| Rail[13] | $145 | $113 | $32 |
| Roads[14] | $2,233 | $1,549 | $684 |
| Schools[15] | $1,100 | $671 | $429 |
| Transit[16] | $618 | $466 | $152 |
| Wastewater + Stormwater[17] | $983 | $293 | $690 |
| **TOTAL** | **$9,139** | **$5,450** | **$3,689** |

1. Total needs are estimated as deferred maintenance necessary to reach a system-wide state of good repair. Estimates from publicly available data and not adjusted for inflation.
2. Assumes investments continue at levels from recent appropriations, as shown by public data and based on authorized amounts set by the 2021 Infrastructure Investments and Jobs Act, 2022 Inflation Reduction Act, and other legislation. State and local investments continue at FY2024 levels. Values not adjusted for inflation.
3. Data taken from ASCE *Bridging the Gap* 2024 study.
4. Data taken from ASCE *Bridging the Gap* 2024 study.
5. Data taken from Cartesian and the Fiber Broadband Association.
6. Data taken from the Association of State Dam Safety Officials, Congressional Research Service, U.S. Department of Agriculture, Federal Emergency Management Agency, Congressional Budget Office, and the Associated Press.
7. Data taken from ASCE *Bridging the Gap* 2024 study.
8. Data taken from ASCE *Bridging the Gap* 2024 study.
9. Data taken from the U.S. Environmental Protection Agency, U.S. Department of Defense, U.S. Department of Energy, and Association of State and Territorial Solid Waste Management Officials (ASTSWMO).
10. Data taken from ASCE *Bridging the Gap* 2024 study.
11. Data taken from ASCE *2021 Report Card for America's Infrastructure* and the Congressional Budget Office.
12. Data taken from the National Parks Service, the National Association of State Parks Directors, the Trust for Public Land, Property and Environmental Research Center, and Congressional Research Service.
13. Data taken from ASCE *Bridging the Gap* 2024 study.
14. Data taken from ASCE *Bridging the Gap* 2024 study.
15. Data taken from the 21st Century Schools Fund.
16. Data taken from ASCE *Bridging the Gap* 2024 study
17. Data taken from ASCE *Bridging the Gap* 2024 study.

# Recommendations to Raise the Grade



SUSTAIN INVESTMENT



PRIORITIZE RESILIENCE



ADVANCE POLICY & INNOVATION

## SUMMARY

To raise America's infrastructure grades over the next four years, ASCE urges a comprehensive agenda that sustains investment, prioritizes resilience, and advances forward-thinking policies and innovations.

**Continued—and in some cases, increased—investment** is necessary despite recent resources slowing the growth of America's infrastructure investment gap. Reducing federal and state investment levels, or delaying that support, will escalate the costs and risks of an aging infrastructure system, a scenario American families and businesses cannot afford. Infrastructure investments must be made with consideration of a project's full life cycle, including the impact of more frequent extreme weather.

Public safety and efficient use of public dollars are advanced by building projects that can withstand increasingly severe weather events and natural and man-made hazards. Therefore, **the implementation of best practices for resilience** when planning across a project's intended life cycle is critical.

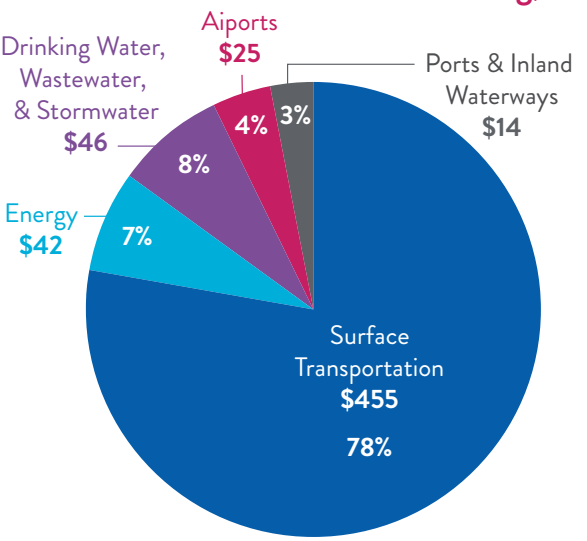
To realize the benefits of recent infrastructure investments, we must **advance forward-thinking policies and innovations** necessary to build systems today that will provide clean drinking water, ensure safer transportation systems, and produce reliable electricity and broadband over the next 100 years.

## SUSTAIN INVESTMENT



Since ASCE last assessed the condition of the nation's infrastructure systems, Congress passed two sweeping packages to improve the networks that move people and goods across the country, provide clean drinking water to millions of Americans, and ensure that households and businesses have reliable electricity. One of those measures, the 2021 IIJA, set a new standard for federal infrastructure spending. However, the legislation will expire in 2026, and Congress will decide how programs under the IIJA will be funded going forward. The IIJA's $580 billion in new investment has provided an initial and consequential step in bridging the funding gap between the nation's infrastructure needs and preexisting support. The use of financing options to leverage public dollars, like tax-exempt municipal bonds, continues to increase, and private equity plays an increasingly important financing role.

### $580 Billion in New Infrastructure Funding, 2022–2026[4]




*Dollars in 2022 Billions*

Government decisions will support or stymie our momentum on infrastructure. A decline in funding from levels in the IIJA and 2022's Inflation Reduction Act (IRA) would cost taxpayers and businesses. American households should expect to pay an average of $700 more annually over the next 20 years if federal infrastructure investment snaps back to levels from before those laws.[5] Municipal bonds may also lose investor appeal if Congress adjusts their tax-exempt status.

If the U.S. is serious about achieving an infrastructure system fit for the future, necessary steps must be taken that start with continued, long-term investment. Infrastructure improvements are time-intensive, often requiring multiple years to distribute resources and develop projects from feasibility study to design, on to shovels in the ground, and eventually to grand openings. To close the $3.7 trillion 10-year investment gap, meet future needs, and restore our global competitive advantage, we must sustain, or in many cases increase, infrastructure funding and financing options across all levels of government and the private sector.

## INFRASTRUCTURE INVESTMENTS MUST BE CONSISTENTLY AND WISELY ALLOCATED, BEGINNING WITH THE FOLLOWING STEPS:

- Congress should maintain investment levels provided by the IIJA when the law expires in 2026 and fully fund authorized programs during the annual appropriations process.
- Infrastructure owners and operators must charge rates reflecting the true cost of using, maintaining, and improving infrastructure. They will need to educate the public on the actual cost to deliver those services so they can understand set rates.
- Federal, state, and local governments should expand the use of public–private partnerships for appropriate projects and find opportunities to leverage additional financing tools.
- Congress must reinstate confidence in critical infrastructure programs by addressing the long-term viability of the Highway Trust Fund and ensuring that the State Revolving Funds for Clean Watersheds and Drinking Water are not experiencing revenue losses due to Congressionally designated projects.
- Project owners should include life-cycle costs associated with planning, financing, designing, constructing, operating, maintaining, and decommissioning projects to properly evaluate the full infrastructure cost and the need to plan for the total cost over a project's lifespan to get the most value out of their investments.



## PRIORITIZE RESILIENCE



Across the U.S., disasters of greater intensity, duration, and frequency have wreaked havoc on communities of every size and location. **In 2024, a total of 27 extreme weather events caused 568 deaths and over $182 billion in damages; since 1980, the U.S. has experienced 403 events amounting to at least $1 billion in damages with a total cost exceeding $2.9 trillion.**[7] In addition to life and property losses, disasters strike assets across the infrastructure network, including buildings, roads, bridges, electrical lines, water resources, and rail. Severe flooding, wind, fire, snow, ice, and earthquakes damage and destroy these critical lifelines for residents, businesses, and communities at large.

Measures to mitigate the impacts of natural disasters have led to an increased focus on resilience. The costs associated with building stronger infrastructure and structures demonstrate prudent investment. Every dollar spent on resilience and preparedness saves communities $13 in post-disaster costs, according to a 2024 study.[8]

More work is needed to integrate resilience that protects against the impacts of extreme weather events. Better outcomes can be realized in disaster recovery and response through project planning and development that prioritizes resilience. This practice enables policymakers to ensure public dollars are used efficiently over a project's lifespan.

### ADVANCEMENTS IN RESILIENCE ACROSS ALL INFRASTRUCTURE SECTORS CAN BE MADE BY:

- Enabling communities, regardless of size, to develop and institute their own resilience pathway across all infrastructure portfolios. This is accomplished by streamlining asset management, incorporating life-cycle cost analysis into routine planning processes, and integrating future conditions, factoring climate impacts into long-term goal setting and capital improvement plans.
- Incentivizing and enforcing the use of the most up-to-date codes and standards, which mitigate risks of major events such as floods, hurricanes, fires, sea level rise, and more.
- Encouraging asset management practices to ensure investments are spent wisely.
- Understanding that our infrastructure is a system-of-systems and encouraging a dynamic, "big picture" perspective that weighs trade-offs across infrastructure sectors while instilling safety from resilience as the highest priority.
- Prioritizing projects that improve the sustainability, safety, and security of systems and communities to ensure continued reliability and enhanced resilience.
- Improving land-use planning across all levels of decision-making to strike a balance between the built and natural environments.
- Enhancing the resilience of various infrastructure sectors by including nature-based or "green" infrastructure solutions.

## ADVANCE POLICY AND INNOVATION



Infrastructure improvements rely on both public and private sectors to address needs and advance solutions. Policies provide a basis for projects to be integrated in communities, states, and regions, and those policies should be responsive to the needs of the public and encourage both safety and innovation. To do this effectively, cooperation across all levels of government and the private sector is paramount for a successfully integrated infrastructure network. As engineers work to deliver the infrastructure of the future, new policies will need to accommodate emerging societal trends and environmental conditions, as well as incorporate forward-thinking innovations that can expedite project delivery and enhance safety. Furthermore, policies must recognize and address the need to reduce delays in the project permitting process and ensure that the U.S. has the workforce required to build the infrastructure necessary for the 21st century and beyond.

### POLICYMAKERS AND INFRASTRUCTURE LEADERS MUST WORK TOGETHER TO:

- Innovate policies and practices across all levels of government that address common issues in project development and delivery across infrastructure sectors, locations, and environmental conditions.
- Assess current government permitting processes, identify "pain points," and inform strategies to modernize compliance across all infrastructure sectors—working in parallel rather than series—while ensuring appropriate safeguards and protections are in place.
- Address the engineering and construction workforce shortage by implementing strategies and policies that recognize both short-term and long-term recruitment and retention challenges, as well as prioritize STEM opportunities in K-12 education.
- Ensure reliable data is collected and released to the public frequently regarding the condition, capacity, operations, maintenance, safety, and resilience of all infrastructure systems.
- Leverage proven and emerging technologies to make the best use of limited financial and personnel resources.
- Support research and development of innovative materials, technologies, and processes to modernize and extend the life of infrastructure, expedite repairs or replacements, and reduce costs into the future.




## Aviation

U.S. domestic air passenger enplanements increased steadily throughout the last decade, from 629.5 million in 2010 to 811.4 million in 2019. Following the COVID-19 pandemic, air travel has fully recovered to 819.5 million in 2023 and continues to increase. Passenger traffic is forecasted to grow 58% to 1.28 billion annual passengers by 2040. The pandemic did not impact air cargo, and 2021 saw the most cargo in history, with 125.3 million metric tons carried. Funding from the Infrastructure Investment and Jobs Act (IIJA), which provided $25 billion over five years, and local investments are enhancing passenger experience, especially at larger airports. Still, delays continue to be a major problem because of ongoing workforce and modernization challenges. Although modest funding increases in the latest Federal Aviation Administration (FAA) reauthorization is a positive step, the continued failure to raise the cap on the Passenger Facility Charge represents a missed opportunity, because the projected funding gap is $114 billion over the next 10 years and additional resources will be needed to address this deficit.

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## Bridges

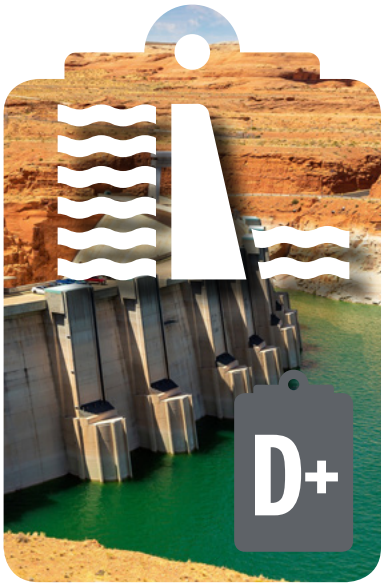
There are more than 623,000 bridges across the country, of which 49.1% are in “fair” condition, 44.1% are in “good” condition, and 6.8% are in “poor” condition. Unfortunately, the nation continues to see the number of fair bridges surpassing those in good condition. As bridges in fair condition continue to age—presenting the possibility of being further downgraded—they also exemplify an opportunity because they can be preserved at a lower cost than bridges in poor condition. Bridges received a substantial boost through the Infrastructure Investment and Jobs Act (IIJA), including $27.5 billion for the Bridge Formula Program and $12.5 billion for the Bridge Investment Program. Despite this infusion of federal funding, bridge-related system rehabilitation needs are estimated at $191 billion. Therefore, strategic asset management planning and routine maintenance are essential to keeping bridge conditions from further declining and avoiding costly repair or rehabilitation work. While the effects of extreme weather events pose threats to bridges, innovative techniques are improving their security and resilience.

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## Broadband

As the fabric of work, society, and commerce has moved into the digital realm, a fast and reliable connection to the internet has become essential. In 2000, only 1% of U.S. adults had broadband access at home, compared to 80% today. America's economy requires reliable broadband access, with research showing that the nation would have lost $1.3 trillion in economic growth between 2010 and 2020 if broadband speeds and adoption had remained at 2010 levels. While the total amount of public spending on broadband is difficult to estimate, the private sector has invested approximately $2.2 trillion in broadband infrastructure since 1996, with the Infrastructure Investment and Jobs Act (IIJA) recently providing an additional $65 billion in federal dollars. Yet, broadband access and adoption continue to face several challenges. Estimates show that 10% of households (12.7 million) do not have a broadband subscription, whether at home or on a mobile device. As new investments are deployed to connect the remainder of Americans to broadband, extreme weather poses challenges to internet reliability and new technologies create a rapidly changing environment.




## Dams

There are more than 92,000 dams in the U.S. that generate electricity, supply drinking water, and protect communities and critical infrastructure. Nearly 17,000 of these dams are considered high hazard potential, meaning there is likelihood of deadly harm to residents and property in the case of a dam failure. The cost of maintaining, upgrading, and repairing these structures has increased significantly since the beginning of the 21st century because of an increase in extreme weather events, growing populations downstream, and the outdated design challenges of aging structures. The average age of our nation's dams is over 60 years, while 7 of 10 dams nationwide are expected to reach 50 years by 2025. The Infrastructure Investment and Jobs Act (IIJA) provided approximately $3 billion to improve dam safety, although Congress redirected $364 million of that funding for other purposes. Furthermore, federal dam safety programs continue to receive annual appropriations below their authorized funding levels. Despite these challenges, IIJA funding, combined with other Congressional actions, provided a needed boost to overall dam safety and rehabilitation. However, without a more significant commitment to dam safety through increased annual investment in inspection, monitoring, planning, and necessary dam repairs, the cost to bring the nation's dams into a state of good repair will continue to rise and downstream communities will face a greater risk of danger from potential dam failure.




## Drinking Water

The nation's water infrastructure is aging and underfunded. More than 9 million existing lead service lines pose health concerns, and in 2023, the Environmental Protection Agency (EPA) determined that the nation's water infrastructure needs stand at $625 billion over 20 years. That exceeds EPA's 2018 assessment by more than $150 billion. The 2021 Infrastructure Investment and Jobs Act (IIJA) invested more than $30 billion for drinking water capital improvements, removal of lead service lines, and addressing emerging contaminants such as per- and polyfluoroalkyl substances (PFAS). However, funding shortfalls continue in state revolving funds that support drinking water. Challenges to utilities include aging infrastructure, emerging contaminants, and the increasingly severe effects of extreme weather. Many drinking water utilities are actively improving infrastructure through innovations such as asset failure prediction technologies, which improve the ability to identify issues before they become failures. Unfortunately, only about 30% of utilities have fully implemented an asset management plan, and just under half are in the process of implementing one. Federal agencies and programs are also able to provide financial and technical support to utilities meeting new regulations and replacing dangerous pipes, so the burden of rate increases does not fall too harshly on the public water systems of small communities.

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## Energy

As Americans increasingly depend on electrification in their daily lives, energy demand is experiencing its highest growth in two decades. An increase in electric vehicles (EVs) and a rise in data centers will demand 35 gigawatts (GW) of electricity by 2030 alone, up from 17 GW in 2022. This rapid acceleration, compounded by federal and state net zero greenhouse gas emissions goals, means utilities will need to double existing transmission capacity to connect new renewable generation sources. Transmission investments have risen by $5 billion from 2017 to 2022, and the Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA) are supporting renewable technologies and grid hardening measures. New investments come as weather accounts for 80% of electricity outages since 2000, most of which occurred in the last decade and within distribution systems that deliver power in the last miles from transmission systems to homes and businesses. Interregional connections accelerated by streamlined regulatory review, rigorous design standards, and resilient technologies must be implemented to ensure reliability in the years ahead.

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## Hazardous Waste

The nation's hazardous waste infrastructure is required to manage approximately 36 million tons generated each year. While concerns remain about long-term capacity and resilience, overall hazardous waste infrastructure has significantly improved in recent years due to major investments under the Infrastructure Investment and Jobs Act (IIJA). Those investments included $3.5 billion for the Superfund program and $1.5 billion for the Brownfields program, resulting in accelerated cleanup of contaminated properties, enhanced protection of public health and the environment, and economic benefits. However, as individual per- and polyfluoroalkyl substances (PFAS) have recently been designated as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or Superfund program, addressing PFAS contamination will put significant pressure on hazardous waste infrastructure, increasing future requirements for site investigations and remediation, treatment capacity, and the development of new treatment technologies.

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## Inland Waterways

The U.S. inland waterways span the Mississippi River and its tributaries, to the Great Lakes, the Columbia–Snake River system of the Pacific Northwest, the Sacramento and San Joaquin Rivers on the West Coast, as well as the Gulf and Atlantic Intracoastal Waterways. The system is the hidden backbone of the nation's freight network, which serves both our industrial and agricultural sectors. Inland waterways also provide flood mitigation and drought relief through dams that are responsible for providing municipal and industrial water supply for 136 multifunction reservoirs. Operated and managed by the U.S. Army Corps of Engineers (USACE), in coordination with the Maritime Administration (MARAD), the system encompasses 12,000 miles of inland navigation and 11,000 intracoastal channels. Inland waterways play a vital role in the global supply chain by moving $158 billion of goods annually, facilitating the transport of one-third of the nation's gross domestic product (GDP). Inland waterways allow commodities to move cost-effectively, reducing the strain on congested roadways and rail systems, and with fewer greenhouse gas emissions. Federal funding has increased in recent years, but a backlog persists with $7.5 billion in construction projects and ongoing lock closures.

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## Levees

Twenty-three million Americans nationwide live and work behind a levee. The nation's levees guard against flood risk to critical infrastructure systems and protect $2 trillion worth of property, seven million buildings, and five million acres of farmland. The National Levee Database contains over 24,000 miles of levees across the U.S., but nearly two-thirds have not been assessed for risks posed to the communities behind them. More than half of the nation's levees are operated and maintained at the state and local level. While a national effort to enhance levee safety continues to take shape, including the development of draft National Levee Safety Guidelines, improvements to the National Levee Database, and development of best practices for levee management, more must be done to support states in regulating levees. There are currently limited funding streams for levees and levee safety, as programs like the National Levee Safety Program and Levee Rehabilitation Grant Program have received little federal funding in recent years. The states are also responsible for promoting consistent but flexible best practices for levee operation and management as well as improving and expanding access to funding sources for levee rehabilitation and repair.

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## Ports

Ports are an essential component of the U.S. economy, supporting $2.89 trillion in GDP. The ports sector continues to adjust to the disruptions brought about by the COVID-19 pandemic, which caused an initial decline in containerized imports followed by a surge due to an increase in consumer-driven economic activity. Ports facilitate the movement of goods and connect American manufacturers and households with international trade. U.S. ports support more than 21.8 million jobs, including maritime industry professionals and suppliers. Recent federal investments nearly doubled annual funding levels for programs such as the Port Infrastructure Development Program to $450 million per fiscal year, allowing America's ports to more robustly assess, balance, and address their waterside and landside needs. Meanwhile, ports are increasingly contending with the current and future impacts of extreme weather events, which present unique challenges to their coastal facilities that are susceptible to sea level rise.

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## Public Parks

Parks, forests, and other public spaces in America improve the mental and physical health of those who visit, create jobs, and support the overall well-being of communities. Parks promote higher property values, sometimes increasing real estate prices by 8%–10% for nearby homes, help improve drinking water sources, moderate heat islands, and make significant contributions to stormwater management. Although park systems have recently received significant investment from the federal government, deferred maintenance has continued to rise. Meanwhile, parks continue to face challenges posed by workforce shortages as they simultaneously experience record visitation numbers.

Recently, the federal government has prioritized investments in public lands through the American Rescue Plan Act (ARPA), the Infrastructure Investment and Jobs Act (IIJA), and the Great American Outdoors Act (GAOA). These investments are expanding access, updating aged systems, and growing park inventory. Advances in technology have improved asset management and allowed park authorities to better consider overall life-cycle cost estimates for park assets.

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## Rail

The U.S. rail network consists of approximately 140,000 miles of track and serves freight and passenger services. Freight rail supports the movement of 1.5 billion tons of goods annually. Amtrak reported 28.6 million passengers in 2023, up from 22 million in 2022. Ridership on the Northeast Corridor shows fast growth, with passenger services on the national network increasing in frequency, speed, and scope. The Infrastructure Investment and Jobs Act (IIJA) authorized $66 billion for rail projects from Fiscal Year 2022 to 2026, making vital improvements such as intercity passenger rail service expansion, Amtrak corridor development, and road–rail crossing grade separation possible. Train safety incidents show a promising long-term trend, down 23% in the 23 years from 2000 to 2023, but recent incidents like 2023's derailment in East Palestine, Ohio, raise concerns and is just one of 10,577 incidents that year. Recent programs and actions implemented by the U.S. Department of Transportation can improve the rail network, which calls for a balance between modern advancements in the sector, such as precision-scheduled railroading, and sufficient staffing to ensure public safety.

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## Roads

Roads connect communities and play a vital role in the nation's economy. Although Americans' travel patterns have shifted in the years following the COVID-19 pandemic, vehicle miles traveled (VMT) have rebounded. Some 39% of major roads in the U.S. are in poor or mediocre condition, an improvement from the 43% recorded in 2020. Driving on deteriorated and congested roads still costs the average driver over $1,400 per year in vehicle operating costs and lost time. While once again declining, the number of people dying on America's roads remains high, totaling 40,990 in 2023. Furthermore, the impacts of extreme weather events present challenges for maintaining existing roads and planning future projects. Recent investments, including more than $591 billion since late 2021 from the Infrastructure Investment and Jobs Act (IIJA), are a positive step. The nation's roadways still face a $684 billion funding gap over the next 10 years. Sustained and robust infrastructure investment is needed to maintain and improve the roadway network for the future.

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## Schools

America's more than 98,000 public PK–12 schools serve 49.4 million students. However, these buildings that America's children rely on are aging. Nationwide, schools average 49 years old, but detailed data on their condition is scarce. Only 10% of total school spending in School Year 2021–2022 was directed to facility expenses, a total that has been low for decades, and a majority of which is dedicated toward new construction versus maintenance of existing buildings. The annual funding gap to reach a state of good repair for the nation's public schools has grown from $60 billion in 2016 to $85 billion in 2021. Critical needs at school buildings include water upgrades to remove lead and installation of cooling systems amid increasing temperatures. A 2021 study estimated that 13,700 additional schools must add air conditioning, representing more than $40 billion in investment needs. Moving forward, better management of existing assets will be needed along with the most up-to-date building codes and standards. Those upgrades can be accommodated with high-quality public data on school facilities and greater predictable funding dedicated to infrastructure.

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## Solid Waste

The nation's solid waste management system - trash and recycling - is managed by both the public and private sector and is funded by user fees and some government grants or dedicated program funds. Little data exists on solid waste, in part because of its management by private companies. Available information from federal and state government is updated infrequently. Based on public data, funding and capacity are currently sufficient to address immediate needs despite steady growth in the volume of municipal solid waste (MSW) - from 251 million tons in 2010 to 292 million tons as measured in 2018. Meanwhile, demand for recyclable materials has weakened, and alternative funding sources or market incentives have not been scaled. After rising in previous decades, recycling rates are plateauing, having grown from 14.5 million tons in 1980 to 65 million in 2010 and 69 million in 2018. Potential risks to public health are emerging contaminants such as per- and polyfluoroalkyl substances (PFAS) found in legacy landfills. These chemicals will require improved monitoring and treatment. To enhance America's solid waste systems, decision-makers should update policies and practices to use MSW as a resource and mobilize improved catalysts for residential and commercial waste diversion.




## Stormwater

Across the U.S., stormwater utilities are working to manage the infrastructure that conveys rain or snowmelt from communities to nearby bodies of water. However, over the last decade, the length of impaired rivers and streams has increased from about 424,000 miles in 2010 to more than 588,000 miles in 2019, and in 2022, more than 703,000 miles. Although some of this may be attributable to increased monitoring and more stringent state-level assessment criteria, more than 60% of the nation's stormwater utilities have explained that aging infrastructure poses a significant concern for their long-term needs. To locally fund growing capital and maintenance costs, stormwater utilities are increasing fees as the average bill across the country is on the rise, though it is not keeping pace with the demands. Nationally, the U.S. Environmental Protection Agency's 2022 Clean Watersheds Needs Survey (CWNS) estimated the 20-year need for large stormwater systems (Municipal Separate Storm Sewer Systems) had increased from $23.8 billion in 2012 to $115.3 billion a decade later. To address this need, Congress passed the Infrastructure Investment and Jobs Act in 2021 and the Inflation Reduction Act in 2022 with $46 billion in new funding for the stormwater, wastewater, and drinking water sectors between 2022 and 2026. While this funding has been useful, it still leaves a significant gap.



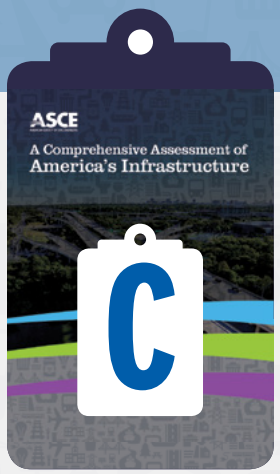

## Transit

Public transit is essential to America's transportation network, with residents taking 34 million trips each weekday in 2023. However, ongoing and unexpected circumstances have positioned transit for a hard-to-predict future. The pandemic caused steep declines in ridership, as much as 80% in April 2020. By 2023, transit ridership only increased to 73% of pre-pandemic levels. Both federal pandemic aid and infrastructure investment were pivotal in maintaining transit services. The Infrastructure Investment and Jobs Act (IIJA) provided transit with $108 billion in support, which is being used to address deferred maintenance and break ground on long-sought capital projects. However, due to years of deferred maintenance, a funding gap of $152 billion still exists over the next ten years for the nation's transit systems. In addition, while states and localities are working to expand transit access, rising costs, a lack of support for operations, and the impact of work-from-home jobs create challenges. Greater transit access, reliable service, and increased ridership will depend on sustainable funding and communities incorporating transit into multimodal transportation plans.




## Wastewater

The nation's sewers are estimated to be worth over $1 trillion and include nearly 17,500 wastewater treatment plants that operate to protect public health and ensure the well-being of communities. As the ability to detect and address emerging contaminants has improved, environmental regulations have tightened, and public opinion on pollution has changed, the wastewater sector is increasingly expected to produce advanced treatment outcomes, even as systems age. However, over the last decade, the sector's renewal and replacement rate for large capital projects decreased from 3% to 2% while the average number of collection system failures for combined water utilities increased from 2 to 3.3 per 100 miles of pipe, indicating the impacts of aging infrastructure. The number of combined sewer systems has modestly decreased from 746 to 738 (2004 to 2023), and occurrences of sanitary sewer overflows have also decreased from 0.7 to 0.16 overflows per 100 miles of utility pipe (2015 to 2021). To fund these needs, the average bill for residential wastewater customers is increasing from $35 to nearly $65 per month from 2010 to 2020, but locally generated funds still fall short. In 2024, the wastewater and stormwater annual capital needs were $99 billion, whereas the funding gap was $69 billion, meaning only about 30% of the sectors' infrastructure capital needs are being met. Assuming the combined wastewater and stormwater sector continues along the same path, the gap will grow to more than $690 billion by 2044.




## SOURCES

1. American Society of Civil Engineers, Bridging the Gap: Economic Impacts of National Infrastructure Investment, 2024-2043, 2024.
2. American Society of Civil Engineers, InfrastructureReportCard.org, Economics.
3. *Bridging the Gap*, 2024.
4. Ibid.
5. Ibid.
6. National Oceanic and Atmospheric Administration, Billion-Dollar Weather and Climate Disasters, 2024.
7. U.S. Chamber of Commerce, Allstate, & U.S. Chamber of Commerce Foundation, The Preparedness Payoff: The Economic Benefits of Investing in Climate Resilience, 2024.



*Photo: Yusheng Deng*



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