



Over 70,000 miles of streams and 117,000 acres of lakes and ponds in Iowa have quality directly related to the state's stormwater management systems. In 2022, more than 55% of Iowa's assessed rivers and streams were impaired; another 23% require more investigation for a determination. With at least 95 stormwater utilities, Iowa has more per capita than any other state. Additionally, 27 Watershed Management Authorities cover about 40% of the state. To date, WMAs have implemented more than 800 projects to reduce the magnitude of downstream flooding and improve water quality. Future improvements are urgent; from 1953 to 2018, Iowa had more disaster declarations due to flooding than any other state in the nation, a trend that's likely to continue.

IOWA GRADES

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|------------------|--------------|
| AVIATION | PUBLIC PARKS |
| BRIDGES | RAIL |
| DAMS | ROADS |
| DRINKING WATER | SOLID WASTE |
| ENERGY | STORMWATER |
| INLAND WATERWAYS | WASTEWATER |
| LEVEES | |

SOLUTIONS TO RAISE THE GRADE

Support funding enhancements for present and future needs

Iowa's motor fuel tax is losing value to inflation and fleets are more fuel efficient. Iowa should modify motor fuel taxes to rise with inflation and direct money to locally owned bridges. Decision-makers should also approve a sales tax increase supporting the Natural Resource and Outdoor Recreation Trust Fund. 63% of Iowans approve of the change for \$45 million worth of shovel-ready projects.

Fortify water systems for greater resilience

Iowa sits between nationally important rivers with integral freight capacity, vital ecosystems, and powerful economic potential. From 1953 to 2018, Iowa had more disaster declarations due to flooding than any other state in the nation, a trend that's likely to continue. Resilience can't be addressed without greater investment in aging systems for wastewater, drinking water, stormwater, dams, and levees often under-capacity for treatment and conveyance.

Foster inter-government and non-political organization for improved capacities

Project delivery capacity, data collection and use, and stakeholder inclusion can be improved when decision-making expands beyond traditional silos. Iowa's energy grid, for example, could add fortitude if local communities participated more directly in renewable power generation and storage.



Iowa residents depend on wastewater infrastructure to collect, treat, and safely distribute waste. Specific wastewater needs are difficult to report until the federal government completes a new Clean Watershed Needs Survey expected late 2023. With available information, Iowa is holding steady. Since the 2019 ASCE Report Card for Iowa's Infrastructure, communities have constructed several new treatment plants replacing old structures and upgraded several treatment plants for tougher limits on chemicals and nutrients. Underground wastewater equipment in Iowa is often aging past their useful life, undersized for residential growth, or made of inferior materials and require costly removal and replacement. Iowa received money from recent federal legislation to improve water infrastructure, but much of the spending discretion and implementation lies with localities – the results of which are yet unseen.

ABOUT THE GRADES

Infrastructure is graded on eight criteria: capacity, condition, funding, future need, operation and maintenance, public safety, resilience, and innovation. ASCE grades on the following scale and defines these grades as:



Exceptional, fit for the future



Good, adequate for now



Mediocre, requires attention



Poor, at risk



Failing/critical, unfit for purpose

ABOUT ASCE-IOWA

The Iowa Section of the American Society of Civil Engineers is a community, over 900 strong, of like-minded individuals passionate about the field of civil engineering and determined to make the world a better place through service. By developing leadership, advancing technology, promoting the value of civil engineering, and advocating lifelong learning, ASCE enables its members, partners, and the public to improve infrastructure. Advocating for infrastructure and environmental stewardship, ASCE members encourage a better quality of life for all Iowans.

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ESSENTIAL INFRASTRUCTURE

Iowans depend on roads, bridges, aviation, rail, water systems, energy, solid waste, recycling, and recreation facilities. With this system of systems, engineering provides the essential foundation for safety, reliability, resilience, access, and equity. Engineer experts from the state produced the 2023 Report Card for Iowa's Infrastructure so residents and decision-makers understand trends with their state's infrastructure.

Following on the 2019 report card, this new iteration holds Iowa infrastructure steady at "C" grade overall, with roads climbing to "B-" and Solid Waste dropping to that grade. Landfill capacity is estimated to be adequate until 2044, but household waste increased to 1.22 tons per capita in FY 2021 and recycling rates are relatively low at 0.12 tons per capita.

The Iowa roads grade increased after successful state of good repair work funded by the 2015 gas and diesel tax increase. Iowa DOT focuses on a "fix-it-first" approach to project planning and spending

decisions. Iowa's bridges remained at "D+". Iowa's Department of Transportation notably achieved a 26% reduction in the total of poor condition structures. Yet, Iowa still has the highest number of structurally deficient bridges in the country, almost all of them local bridges. Today, all but 30 of Iowa's 4,599 poor bridges are owned by local governments which face severe funding constraints, requiring significant investment and upgraded project delivery capabilities.

Iowa can be better prepared for increased flooding frequency and severity. Iowa communities have already demonstrated forward-thinking by coordinating water investments and decision-making based on watersheds rather than political jurisdictions. Much more is needed, starting with the state legislature fully funding the Natural Resources and Outdoor Recreation Trust Fund. Targeted investments will enable infrastructure to withstand and protect against flooding and other natural disasters.

HOW YOU CAN GET INVOLVED

1. Get the full story behind this Report Card at www.iowaasce.org.
2. Ask your elected leaders what they're doing to make sure your infrastructure is reliable for the future. Use your zip code to find your list of elected officials at www.infrastructurereportcard.org/take-action.



The 2023 Infrastructure Report Card for Iowa overall GPA is a C. There are solutions to many of the challenges presented in the Report Card, with achievable steps toward improving grades. By learning more today about the condition of infrastructure used daily in Iowa, you can help raise the grades.

AVIATION

Aviation is key to many Iowans: visiting family on a commercial airline, utilizing a business-owned aircraft to reach remote places, maintaining agricultural fields from above, or receiving freight in cargo planes. The overall condition of Iowa's aviation infrastructure is relatively stable. Pavement conditions continue to deteriorate with age, though 73% of airport pavement remains in good or fair condition. While aviation funding has grown in recent years (\$64.4 million annually between 2010 and 2019), those investments are less than needs to replace or repair components in poor condition -- an estimated annual need of \$126.6 million. Efforts should continue to maintain the existing system as well as expanding capacity to meet growing demand.

BRIDGES

There are 23,799 bridges in Iowa, the seventh largest bridge stock in the nation. The Iowa Department of Transportation owns 4,195 bridges, counties own 18,365 bridges, and cities own 1,239 bridges. One in every five bridges in Iowa is rated poor, giving the state the worst ranking in the nation by number of poor bridges, and seventh worst by poor bridge deck area. Reducing the number of poor bridges is an Iowa DOT priority: over the last four years, it achieved a 26% reduction in state-owned poor bridges. However, all but 30 of Iowa's 4,599 poor bridges are owned by cities and counties. They face serious funding constraints and reduced their poor bridge numbers only by 5% and 4%, respectively. Locally-owned bridge improvements require significant investment and increased project delivery capabilities.

DAMS

There are currently 4,270 Iowa dams, over 4,030 of which are state regulated dams. Of the total dams in the state, 2,055 are privately owned. Iowa's State Dam Safety Program budget has remained unchanged for the last five years. The average budget for Iowa's regulated dams of \$29 each is significantly lower than the national average of \$799 per regulated dam. Approximately 54% of the state's high-hazard potential dams have emergency action plans, compared with approximately 83% nationwide. Iowa does not have a state loan or grant program to assist dam owners with rehabilitation projects and many structures are aging beyond their original design life.

DRINKING WATER

Approximately 92.3% of Iowans are served by public water systems (PWS), nearly all of which connect less than 3,300 residents and 71% less than 500 people. Public health violations are trending downward. In 2021, 70 systems had 107 violations compared to 151 PWS incurring 259 violations in 2011. Rural water systems are relatively new in Iowa, requiring lower maintenance, but municipal water systems report most of their distribution system is beyond expected usable life. Few, if any utilities are reinvesting in their underground infrastructure at the recommended rate of 1% to 3% of the value of their system. PWS need additional revenue for maintenance and replacements of older components, to expand water sources, and install more advanced treatment facilities for a growing list of chemicals and nutrients.

ENERGY

Iowa is served by three private, investor-owned utilities, 136 publicly owned utilities, and 43 rural electric cooperatives. About 60% of Iowa's total electricity generation came from wind in 2020. However, partially due to insufficient storage, excess wind energy is sent out-of-state more often than consumed at home. Natural gas -- not wind -- is the most used energy source in Iowa. In addition to building out renewable storage capacity, Iowa's energy network needs investments to modernize the grid and improve its resilience. "Last-mile" distribution lines are overwhelmingly the cause of outages. Iowa's aging grid exacerbates fragility. More powerful storms increase challenges, as the roughly 250,000 Iowans without power in the aftermath of the 2020 Derecho will remember.



INLAND WATERWAYS

The Upper Mississippi River (UMR) and Missouri River provide an efficient and cost-effective transportation mode to export Iowa products. Waterways and ports contributed more than \$18.7 billion in revenue to the state's economy and supported an estimated 101,000 jobs in 2018. However, revenue and security of jobs are threatened by aging navigation locks and dams. Their average age in Iowa is 85 years old, or 35 years past their intended design life. Unscheduled lock closures for maintenance cause delays and congestion, which can cost \$739 per hour for an average tow. These costs are passed on to the consumer. Unexpected closures from 2010 to 2020 averaged 3,881 hours annually across Locks and Dam 9 through 18 in Iowa. Recent funding appropriated to the Navigation and Ecosystem Sustainability Program (NESP) will improve navigational capacity and provide ecosystem restoration.

LEVEES

There are 181 documented levee systems totaling 862 miles in Iowa. These structures -- either earthen embankments or concrete and steel floodwalls -- protect an estimated 55,000 buildings with an associated property value of \$32.2 billion. Most major levees in Iowa are currently functioning adequately when exposed to normal storm flows, but there are serious concerns about levee stability during major rain events. This is especially true in rural areas, which are struggling to obtain state and federal grant dollars or raise required matching funds. Communities have begun to respond by investing in flood infrastructure on a watershed approach rather than piecemeal. Coordinated strategies can't come soon enough; it is estimated that Iowa needs \$10 billion of flood and watershed quality improvements.

PUBLIC PARKS

Visits to Iowa recreation sites have increased since 1995 and in 2021, rose to a record 16.6 million, increasing need for investment to manage and maintain parks. Unfortunately, a 2019 report revealed funding fell from \$6.6 million in 2010 to \$5.7 million in 2019 -- a 26% decrease adjusted for inflation -- before rising modestly to \$6.2 million in 2021. In 2017, the Iowa Association of County Conservation Boards identified a \$664.4 million backlog of project needs for parks and recreation entities. The Iowa Water and Land Legacy identified \$44.5 million in stalled shovel ready recreational projects. Iowa's Legislature can take immediate action by funding the National Resources and Outdoor Recreation Trust Fund, approved by 63% of voters.

RAIL

Iowa's rail network consists of over 4,000 total miles of track owned by five Class I railroads, one Class II railroad, and 13 Class III railroads. Amtrak operates two long-distance routes over freight rail lines; six depots board an average of 60,000 passengers annually. A new Chicago to Iowa City passenger rail line has been awarded federal funding. In general, Iowa's freight railroads have adequate capacity and are in good condition. However, chokepoints exist, sometimes the result of insufficient track capacity due to size and weight restrictions. Just 45% of public at-grade highway-rail crossings have flashing lights and/or gates, but the state is receiving federal funding from the 2021 Bipartisan Infrastructure Law to improve safety at unprotected locations.

ROADS

A 2015 increase in Iowa's fuel tax helped improve pavement conditions statewide. Today, 25% of Iowa's roads are in poor or mediocre condition, down from 29% in 2019. Iowa's rural roads have disproportionate deficiencies, but the state has made positive progress there too. Of Iowa's rural roads, 6% are rated in poor condition and 14% are rated in mediocre condition, compared to 15% and 19% respectively in 2019. Predictable freight movement will be critical with truck tonnage projected to grow by over 26% in the next 20 years. The federal Bipartisan Infrastructure Law will provide approximately 30% more highway-related funding for the Iowa Department of Transportation in the short term. However, inflationary pressures have left a \$111 million funding gap in the current highway five-year program.

SOLID WASTE

Solid waste infrastructure includes 47 active landfill sites in Iowa, with one site soon closing. Capacity is estimated to be adequate until 2044. The COVID-19 pandemic and 2020 derecho created a significant increase in per capita waste generation. Iowans produced approximately 3.91 million tons of municipal solid waste in fiscal year 2021, or 1.22 tons per capita. Iowa diverts waste material from landfills through recycling and composting rates in the top 10 nationally. This results in 233 pounds (0.12 tons) recycled per capita per year. Market threats to recycling programs and non-recyclability of many materials present challenges to long-term viability. New techniques and technologies have the potential to enhance solid waste management in the state.