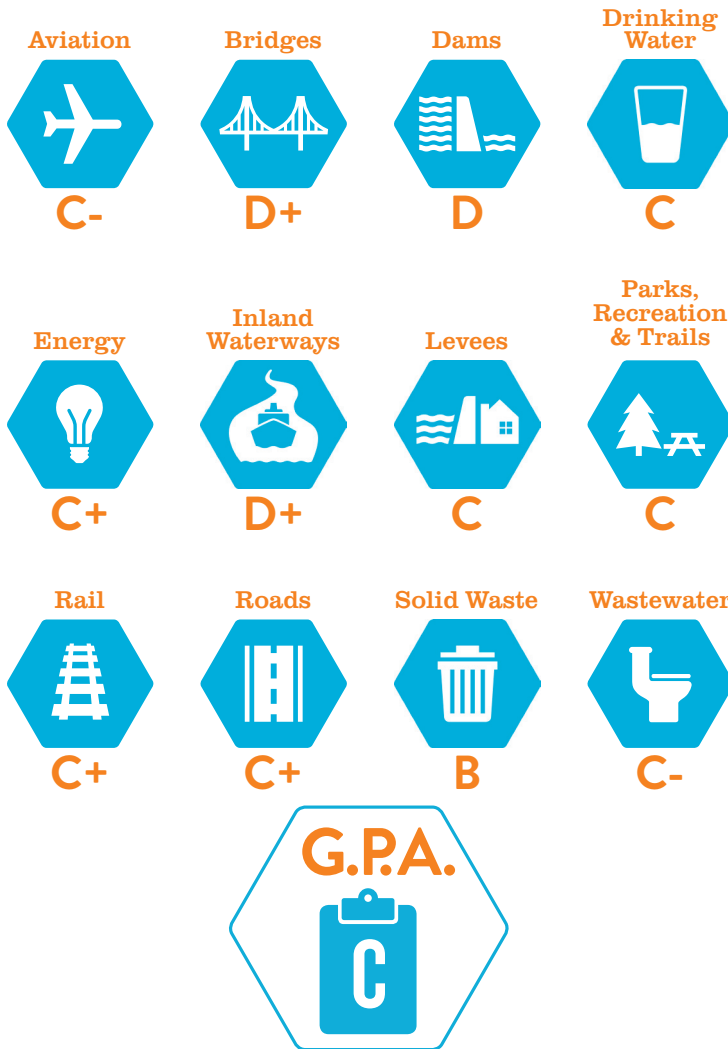
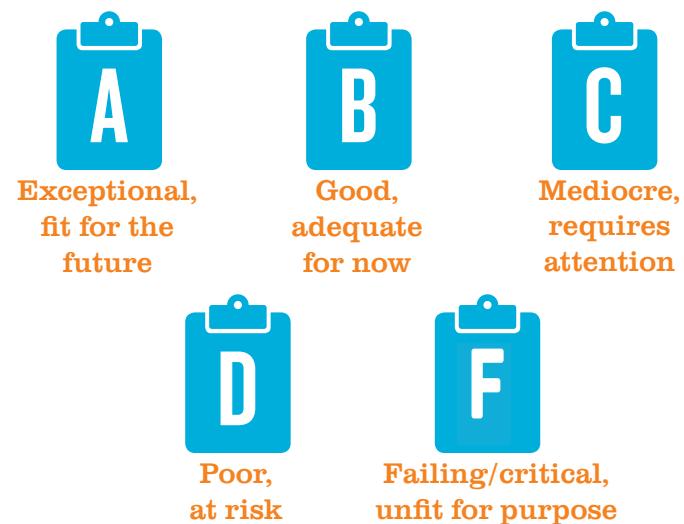


IOWA GRADES



About the Grades

Infrastructure is graded based 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:



SOLUTIONS TO RAISE THE GRADE

- 1 INFRASTRUCTURE = ECONOMY**
 Our location in the center of the nation and our networks of inland waterways, railways and roadways are important to Iowa's economy, helping deliver goods to world markets at competitive prices. The needs of aging systems as well as adding capacity and service for demand will require increased and sustainable investment.
- 2 INNOVATIVE AND SUSTAINABLE FUNDING SOLUTIONS**
 Funding for roadway and bridge infrastructure projects have historically been paid for with proceeds from gas and diesel taxes. As hybrid and electric vehicles become more common, the amount generated by these taxes will decrease. While gas and diesel taxes can provide enough revenue today, alternate funding methods must be pursued in the near future, before the funding losses become significant. Further, indexing the gas tax to inflation to keep up with rising costs is essential as well.
- 3 PRIORITIZE PUBLIC HEALTH AND SAFETY**
 "Safety First" must be the approach to all of Iowa's infrastructure decisions. Integrated asset management is the critical first step in developing a foundation for safe and reliable infrastructure in Iowa. Safety can further be improved by properly maintaining Iowa's infrastructure. Proactive investment in infrastructure yields savings down the line and ensures the health and welfare of Iowans.
- 4 PROACTIVE AND INNOVATIVE PLANNING**
 The backbone of our state's infrastructure was built 50 to 100 years ago. As rural dynamics shift, upgrades are necessary for modernization, resiliency, and to meet the needs of its changing users. Unique strategies, emerging technologies, and research and development is needed to help optimize the rural transportation network, to understand and account for shifting and social economic trends, and to help stretch limited funding available.

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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2019 REPORT CARD FOR IOWA'S INFRASTRUCTURE

Infrastructure Matters

The condition of Iowa's infrastructure has a very real impact on every person and business in the state. All Iowans depend on roads, bridges, aviation, rail, water infrastructure, energy systems, wastewater removal, and recreation facilities. The condition of these essential infrastructure elements directly impacts Iowans' quality of life, opportunities, and future.

The 2019 Infrastructure Report Card for Iowa was created to help Iowans understand the state's infrastructure. The Report Card provides a snapshot for residents and policymakers to engage in conversation about current conditions and where Iowa needs to be. In their research and review, the authors of the Report Card concluded much of Iowa's infrastructure is old and outdated with significant concerns over resilience. The authors hope this information provides the insight needed to start that conversation and ignite action to improve these 2019 grades and, as a result, the state's future.

The expert civil engineers who developed the Report Card understand not only the fundamentals of infrastructure, but also how the condition of these elements impacts daily living for Iowans. As civil engineers, their job is to plan, design, construct, and maintain our infrastructure networks. They are eager to help continue the conversation about current conditions as well as provide solutions.

How You Can Get Involved

- 1 Get the full story behind this Report Card at www.iowaasce.org.**
- 2 Find out the condition of infrastructure near you on the Save America's Infrastructure app available on the Apple App store and from GooglePlay.**
- 3 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.**

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

2019 INFRASTRUCTURE REPORT CARD FOR IOWA

The 2019 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



Iowa's air transportation system is performing sufficiently, provides adequate infrastructure for demand, and maintains safe operating conditions. However, pavement improvements have not kept up with needs, resulting in a decline in overall pavement condition. Additionally, improvement in the areas of safety and resiliency are necessary, as only about one-half of Iowa airports meet targets in these areas. Between 2012 and 2017, an annual average of \$41 million was invested in Iowa airport infrastructure. While funding is being used for maintenance and improvement, the overall condition of airport infrastructure has not significantly improved.

BRIDGES



The Iowa Department of Transportation (DOT) owns 4,130 bridges, counties own 18,759 bridges, and cities own 1,165 bridges. Iowa is first in the nation with the number of structurally deficient bridges, with just under 20% structurally deficient in 2018. Reducing the number of bridges with key elements in poor or worse condition is a priority for the Iowa DOT, counties, and cities. Iowa lawmakers acted in 2015 to provide enough funding for critical highway and bridge needs, and the system is just now beginning to see signs of investment. However, significant portions of the system must eventually be addressed.

DAMS



There are 4,018 Iowa dams in the U.S. Army Corps of Engineers' National Inventory of Dams and more than 100 additional dams listed on the Iowa Department of Natural Resources Dam online database. Iowa's State Dam Safety Program budget is below \$50 per regulated dam, much lower than the national average of \$700. Less than 30% of the state's high hazard potential dams have emergency action plans, compared with approximately 70% nationwide. Sediment in reservoirs behind dams, increasing public risk exposure, and climate change-related increases in flood frequency and severity add urgency to improve dams or remove them where appropriate.

DRINKING WATER



Iowa's drinking water supply infrastructure is in fair condition. Funding for operation and maintenance is generally sufficient, but additional revenue is needed to enable water distribution system replacement and treatment plant modernization. Rural water systems are relatively new in Iowa and generally have distribution systems that are less than 50 years old. However, in some municipal water systems, more than 50% of the distribution systems are 50 years or older, and some systems have pipes in excess of 100 years old. Surface and ground water sources are seeing excessive nutrient concentrations and will need to be addressed. Groundwater sources are also at risk of overuse.

ENERGY



Iowa has experienced an energy revolution as alternative sources decrease growth in coal generated electricity consumption. In 2017, wind provided 37% of Iowa's total electricity generation. In 2017, MidAmerican Energy and Alliant Energy, the state's two main utilities, announced nearly \$5 billion in wind power investment between them in addition to hundreds of megawatts (MW) of new wind projects planned by other developers. The ability of the electric grid to generate, transmit, and distribute a reliable supply of power at a constant voltage and affordable cost continues to be a key to our growth and development. However, supplemental production continues to help meet demands as well.

INLAND WATERWAYS



The Upper Mississippi (UMR) and Missouri River are vital to Iowa's economy as they provide an economical transportation mode to export products to worldwide markets. Waterways and ports contributed more than \$4.3 billion in revenue to the state's economy and supported an estimated 26,000 jobs. However, revenue and security of jobs are threatened by aging UMR navigation locks and dams and unpredictable water levels on the Missouri River system. The average age of the locks and dams in Iowa is 80 years old, or 30 years past their intended design life. Some progress has been made toward operation and maintenance repairs to the inland waterways system along Iowa's borders.

LEVEES



There are 747 miles of levees in Iowa documented in the National Levee Database in 191 levee systems. Many urban areas have received funding over the past decade to improve levee resilience and their ability to withstand major storm events. However, rural areas have struggled to obtain state and federal grant dollars to make necessary improvements. Between 1965 and 2017, Iowa's 99 counties experienced 1,120 presidential disaster declarations related to flooding. While most levees in Iowa are currently functioning adequately when exposed to normal storm flows, there are serious concerns about levee stability during major rain events, especially in rural areas. Recent record floods on the Missouri River are evidence of this.

PARKS, RECREATION, AND TRAILS



There are 72 state parks, 1,840 county parks, 1,866 miles of multi-use trails, 132 natural and man-made lakes, and over 1,000 city owned parks and other outdoor areas in Iowa. As of 2010, only 2% of Iowa's 56,239 square miles was available for public use, putting the state 49th in the nation. The Iowa Association of County Conservation Boards reports there is a \$664.4 million backlog of infrastructure, maintenance, expansion, and resource protection needs for parks and recreation entities across the state. Demand for trail expansion continues to grow. Fortunately, limited funding from federal, state, local, and even private sources, is available to address pressing needs.

RAIL



Rail transportation is important to Iowa's economy, helping deliver products to world markets at competitive prices. Iowa's rail capacity and condition are improving. In 2017, railroads operating in Iowa spent an estimated \$205 million to maintain and improve rail infrastructure. Iowa's short line railroads have undertaken several projects and investments to improve capacity. Passenger rail service is limited to two long-distance routes; however, Iowa and Illinois are working on a new line to run from Chicago to Council Bluffs. Limited freight and passenger access may inhibit rail's long-term growth. The ability to sustain current service while adding capacity and service for future demand will require increased investment.

ROADS



Iowa has over 114,800 miles of public roadway. The 10-cent gas tax increase in 2015 provided much needed funding for short-term critical needs. Pavement conditions have improved. Today, 29% of Iowa's major roads are in poor or mediocre condition and 15% of Iowa's rural roads are in poor condition. The number of fatalities and serious injuries has decreased. Congestion is not a major concern and Iowa has one of the lowest average travel times to work. Growth trends in population, freight traffic, and urbanization, combined with the advancing age of most Iowa roadways, will stress the system. Over the next 20 years, the projected funding shortfall to meet Iowa's roadway system needs is \$32.5 billion.

SOLID WASTE

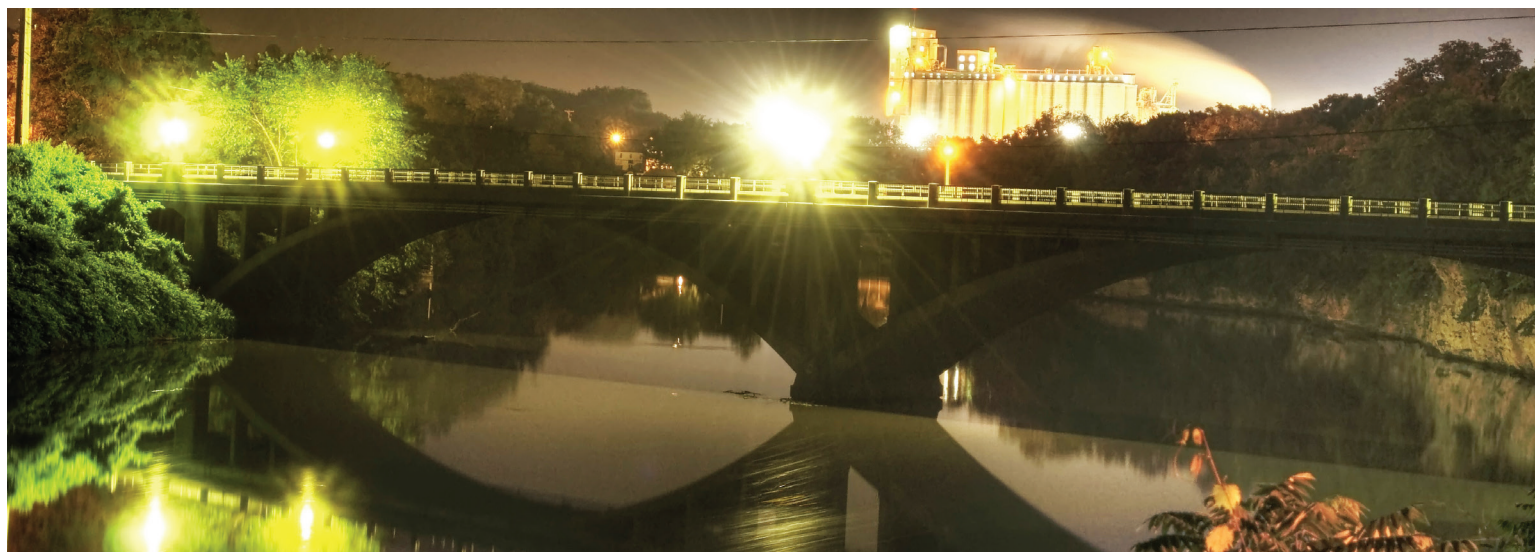


Iowa's solid waste management system provides an essential public service. There are 47 active landfill sites across the state, with one site in the process of closing. Average individual landfill capacity is estimated to be adequate until 2044. In general, Iowa's solid waste infrastructure is performing adequately, although per capita waste generation rate is increasing. In 2017, Iowans generated an average of .96 annual tons per capita, well above the national average of 0.82 annual tons per capita. While Iowa's diversion rates are above average, market threats to recycling programs present significant challenges to long-term viability. Several new techniques and technologies have the opportunity to further enhance solid waste management.

WASTEWATER



Adequate prioritization of Iowa's wastewater infrastructure is vital to protecting our abundant water resources. Iowa's aging wastewater infrastructure poses a threat to our water resources. The Environmental Protection Agency determined in 2012 that a total of \$2.4 billion is necessary for wastewater related infrastructure improvement in Iowa over the next 20 years. While significant funding resources are still needed to improve the treatment of wastewater and accomplish nutrient reduction, some investments have been made in the systems. From 2008 to 2012, approximately \$896 million was invested through various federal and state loan and grant programs and by individual utilities to complete significant improvements to the wastewater infrastructure in Iowa.



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