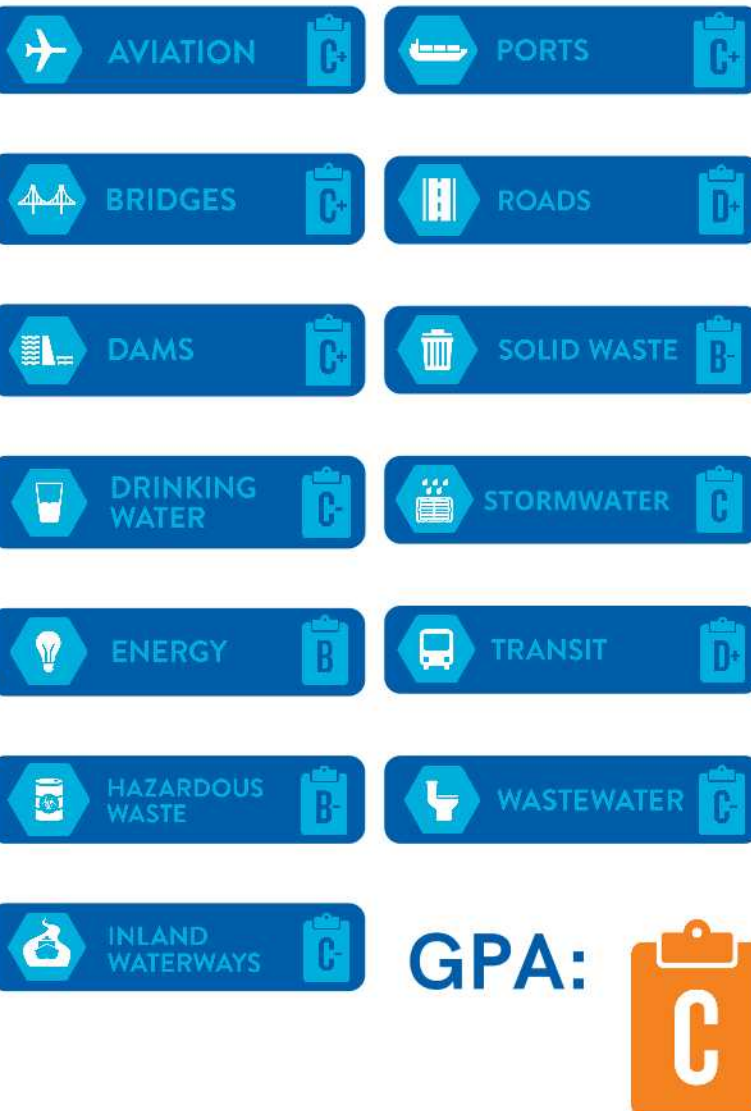


WISCONSIN GRADES



ABOUT THE GRADES

The 2020 Report Card for Wisconsin's Infrastructure was written by a committee of more than 50 civil engineers across Wisconsin who volunteered their time to collect and analyze data, prepare and review their findings and present their conclusions. The committee worked with staff from ASCE and ASCE's Committee on America's Infrastructure to provide a snapshot of infrastructure, as it relates to us locally. Infrastructure is graded based on eight criteria: capacity, condition, funding, future need, operation and maintenance, public safety, resilience, and innovation. ASCE grades defines these grades as follows:



SOLUTIONS TO RAISE THE GRADE

- 1 Wisconsin must increase overall investment across all infrastructure sectors to ensure safe, resilient, and reliable systems to maintain and improve the quality of life and economic health for the state's residents.
- 2 Leadership at the state and federal levels must have targeted discussions and build consensus to facilitate necessary updates for outdated infrastructure based on the needs of Wisconsinites.
- 3 Along with increased investments, efficiencies and new technologies can help bridge the gap in infrastructure needs, encourage new methods of design and construction, and defray costs while providing for a better future for Wisconsin.
- 4 Project priorities and investments should be based on asset management tools.

ABOUT ASCE WISCONSIN

The American Society of Civil Engineers (ASCE) is America's largest and oldest national engineering society. In Wisconsin, ASCE has over 2,000 members that work in all levels of government, academic, and the private sector to design, construct and maintain Wisconsin's infrastructure. We uphold the vision of civil engineers as active community members and stewards of our infrastructure. We bring value to our members by providing technical and informative meetings that promote professional development. In addition to scholarships, mentorship, and K-12 education, our outreach programs offer networking opportunities for students and professionals throughout the state.

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ASCE
WISCONSIN SECTION



INFRASTRUCTURE MATTERS

Access to reliable, safe infrastructure improves the quality of life and "sets the table" for sustainable economic growth. As an example, tourism in Wisconsin has grown substantially from 2014 to 2019. Business and recreational travelers, both domestic and international, spent \$12.5 billion in 2018 and generated \$2.0 billion in taxes paid to federal, state and local governments. This revenue helps fund jobs and public programs such as police, firefighters, teachers, road projects and convention centers (The US Travel Association, 2018 Data). Tourism requires clean surface water to support recreation, fish habitat and other wild life. Safe roadways, efficient air travel, and recreation trails all support and help promote tourism. Lodging and food service are essential which require cost effective sanitary sewer systems and a safe water supply.

Positive economic growth hinges on the availability and capacity of underlying systems that must support it, namely our infrastructure. Clean water (surface and drinking water), roads, bridges, transit systems, airports, water and sewer systems, dams, ports, and energy systems are categories of infrastructure that directly affect our ability to live, work, play and produce economic expansion and development. Infrastructure provides the foundation of our state's economy and is integral to preserving our high quality of life.

Much of Wisconsin's infrastructure requires capacity or maintenance upgrades or is reaching the end of its expected lifespan. You will see this reflected in Wisconsin's grades. The energy grid, transportation systems, sewers, and drinking water systems of decades ago need upgrading to better prepare for security threats, larger storm events, increased use of renewable fuels, and a changing population.

The 2020 ASCE Wisconsin Report Card is a tool created to help residents, businesses, and policymakers understand the state of Wisconsin's infrastructure. The information helps start the conversation about how to improve the future of our infrastructure.

HOW YOU CAN GET INVOLVED

- Get the full story behind this Report Card at www.infrastructurereportcard.org/Wisconsin.
- Find out the condition of the infrastructure near you on the Save America's Infrastructure app available on iTunes and GooglePlay.
- 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.

WISCONSIN'S INFRASTRUCTURE REPORT CARD

www.infrastructurereportcard.org/wisconsin

AVIATION



Aviation is an integral part of Wisconsin's transportation system, moving people and goods throughout the state, nation, and world. The state has eight commercial airports and 90 general aviation airports. In recent years, commercial airlines transported more than 5.5 million passengers to and from Wisconsin. The state's largest commercial airport, Milwaukee's Mitchell International Airport, was ranked 52nd nationwide in total passengers. In 2018, Wisconsin's aviation industry saw an increase at commercial service airports and operations in towered airports, but a slight decrease in freight traffic. In general, the condition of commercial aviation airports meets or exceeds standards and capacity is sufficient. Ninety percent of airport pavement on primary runways and taxiways are rated at fair or above. However, general aviation airports need investment and attention. In the most recent five-year Capital Improvement Plan, Wisconsin airports have identified a need of \$1.13 billion in construction projects from 2019-2025. Airport owners need to be able to finance a portion of their projects, find new revenue options, and utilize reliable, robust federal funding to meet future needs.

BRIDGES



Wisconsin's 14,275 bridges provide the state with critical infrastructure connecting residents with their jobs, schools, businesses, and places of worship as well as hospitals and other emergency response services. In 2018, 7.4 percent of Wisconsin bridges were considered structurally deficient. While the bridge safety rating was better than the national average, we still have more than 1,000 bridges in our state that are considered structurally deficient. That amount has essentially remained the same for the past eight years. A 2019 report by the American Road and Transportation Builders Association identified 1,955 bridges in Wisconsin that require repair, with an estimated price tag of \$1.4 billion. Delays to these repairs will increase this cost as damage increases and the value of money decreases. Developing policy solutions and alternative project delivery methods, as well as utilizing advanced, high-performance materials for bridge construction and repair to help achieve cost savings are all crucial steps. Finally, the state should utilize Wisconsin's asset management system to increase bridge preservation efforts.

DAMS



Dams in Wisconsin provide recreational areas, fish and other wildlife habitat, hydroelectric power, a water source for agricultural operations, navigation, wetland restoration, and flood control. Wisconsin has approximately 3,900 dams in the Wisconsin Department of Natural Resources (DNR) database. Nearly 200 dams are considered "high hazard" meaning loss of life would be probable should the dam fail. The annual budget for dam safety is approximately \$750,000 per year which allows for 6.25 Full Time Equivalent Staff. Wisconsin spends \$200 more per regulated dam than the national average. However, increased resources are needed to ensure public safety and minimize economic impact from future dam failures. To improve safety and strengthen Wisconsin's dam infrastructure, the state should educate the public about the location of the dams and the safety risks and hazards, and inform public officials on the growing need for maintenance and rehabilitation funding. The state of Wisconsin should also increase its share of funding and secure additional federal funding to improve regular dam inspections, improve state dam safety programs, and provide for repair and removal grants. Additionally, the state should update Emergency Action Plans for all "high hazard" and "significant hazard" dams.

DRINKING WATER



Wisconsin has more than 11,000 public water systems to serve Badger State residents, which is among the largest amount in the nation. More than 80 percent of these are located in areas where people do not remain for long periods, such as campgrounds or gas stations, while five percent of these systems serve more than 4 million residents. In general, municipalities and water utilities are encountering a number of natural and manmade water quality issues and must contend with aging water treatment and distribution systems to serve their communities in the future. Lead, bacteria, nitrates, Per- and Polyfluoroalkyl Substance, arsenic, and radium are some of the water quality concerns that have come to light in recent years. It is estimated that \$8.6 billion will be needed to address infrastructure deficiencies over the next two decades and this value is expected to grow over time unless immediately addressed. Increased investment in drinking water infrastructure is needed to ensure customers have better access to safe and reliable water supply for future generations.

ENERGY



Wisconsin's utilities provide energy to commercial, industrial, and residential ratepayers throughout the state. The mix of electrical power generation continues to evolve with new gas-fired plants, wind power, and utility scale solar power compensating for the retirement of coal-powered plants. In general, Wisconsin's energy needs will be met through 2024. Energy shortages are unlikely but could occur if plans for additional transmission and generation needs are not fulfilled in the future. Rate increases are common in Wisconsin and the current average retail electricity rate was 10.58 cents per KWH, higher than the Midwest and national averages per KWH. However, this additional funding is directed towards needed capital projects for generation, distribution and transmission. Utilities and government agencies are working to develop consensus greenhouse gas emission goals and the required infrastructure to attain them. Plans for power generation must consider future demand as well as public concern for the environment.

HAZARDOUS WASTE



Wisconsin has been a leader in hazardous waste clean-up, brownfields, and emerging contaminant issues. The partnership between the Wisconsin Department of Natural Resources and the U.S. Environmental Protection Agency ensures cleanup of contamination from hazardous waste and polychlorinated biphenyls through the One Cleanup Program. Of the EPA's 1,178 National Priority List sites, 36 (3.1 percent) are located in Wisconsin. More than three-quarters of those 36 sites (28) are progressing toward being delisted. The state of Wisconsin has been proactive to protect and preserve the environment from hazardous waste. Establishing and maintaining funding along with prioritizing sites with the highest risk to the health and safety of the public are the primary concerns regarding hazardous waste sites in Wisconsin. To improve its grade, Wisconsin should establish a process to identify the remaining hazardous waste sites with highest risk to prioritize remedial action and guide the level of response. Additionally, the state should consider increased funding for state-led sites, explore additional resources to decrease backlogged claims for the Dry Cleaner Environmental Response Fund, establish a state trust fund to support loans for Brownfields projects, and implement recommendations from a 2015 Brownfields Study Group.

INLAND WATERWAYS



Inland waterways consist of the navigation channels and associated structures that support commercial transport of materials between ports, terminals, or other locations. The major inland waterway in Wisconsin is the Mississippi River, consisting of 213 miles of navigation channels. In 2017, 25.8 million tons of cargo was transported over barges on this "freight highway," consisting primarily of iron ore, steel scraps, and food products. Wisconsin's locks and dams along the inland waterways are beyond the intended end of their design life. Targeted funding allowing component replacement has kept the locks and dams functional for the time being. However, increased frequency of scheduled and unscheduled maintenance has contributed to decreased system performance and major rehabilitation of these structures is needed to ensure long-term durability. Since 2011, the percentage of vessels experiencing delay has increased from 6 percent to 35 percent and the average delay per lockage increased from 20 to 70 minutes. Fortunately, additional revenue sources including public-private partnerships are being considered to support investments to inland waterway infrastructure in Wisconsin.

PORTS



Wisconsin's port facilities range from simple harbors to multi-modal distribution hubs with transport using Great Lakes, rivers, roads, rail, and air routes. Wisconsin is home to 20 harbors, including eight major ports, including the shared Superior, WI - Duluth, MN Port. The ports of Wisconsin support approximately 10,000 jobs and generate more than \$1.6 billion annually in economic activity. The overall condition of Wisconsin's major ports is adequate for the demands currently placed on the state, but facilities will require adequate funding to install, replace, or maintain safe infrastructure. Numerous actions are required to improve Wisconsin's ports, which include updating the general port infrastructure to meet realities of extreme changes in water levels and working to complete dredging activities. Multi-modal options to the ports should be considered including access for land-based transportation, such as rail and road transportation. Additional priorities to improve the port systems include preparing to accommodate the newest generation of ships, enhancing utilization of federal grants, and streamlining the project permitting process.

ROADS



Wisconsin encompasses more than 115,000 miles of drivable roadways. More than one-third of these roads are in fair or below condition and deterioration is likely to continue over the next 10 years. If additional funding is not provided, 50 percent of the roads may experience increasing pavements rated at poor or below. More than two-thirds of major roads, concentrated in urban areas, were rated as fair or below in roadway condition. Deficient roads cost drivers \$6 billion annually due to wear and tear on vehicles, wasted fuel due to congestion, and the overall cost of crashes on roadways. There is an estimated \$13 billion shortfall over the next decade if roadway improvements are not funded. Roadway features in Wisconsin are likely a contributing factor in approximately one-third of fatal traffic crashes. This is tremendously significant to drivers on rural roadways throughout the state where the fatality rate doubles the national average.

SOLID WASTE



Municipal solid waste is generated by Wisconsin households, businesses, and other institutions. The amount of municipal solid waste generated per person in Wisconsin is consistent with the national average rate of approximately 5 pounds per person per day. The predominant method for managing municipal solid waste in the state is landfilling. Landfills generally have sufficient capacity and are in good condition, a result of robust state regulatory oversight. Combined recycling and composting rates in the state are comparable to national averages, at approximately one-third of waste generated. Recycling programs rely on revenue from the sale of recyclables, prices of which are driven by volatile international markets that are currently at historically low values. Recycling rates have stagnated in recent years and municipal recycling programs could benefit from increased state funding. A balance between economic, social, and environmental impacts is needed for all solid waste management efforts to succeed in the future.



STORMWATER



Stormwater runoff and the subsequent effect of its volume, intensity, and associated pollutant loading continues to challenge Wisconsinites and our way of life. Wisconsin is home to 15,000 inland lakes and impoundments, 53,000 streams, about 200 miles of boundaries on the Mississippi River, nearly 2,700 miles of trout streams, and more than 1,000 miles of Great Lakes coastline including 192 coast beach miles. The quality of these natural resources depends, in large part, on the state's stormwater infrastructure. Presently, 120 Wisconsin municipalities have implemented stormwater utilities to fund their local stormwater programs. Annual utilities generally collect between \$10 and \$150 per year on average from single family homes, with the average payment approximately \$60 per year. Bolstering funding levels of these municipal stormwater utilities is also key to improving our grade. Adequate funding through utilities, grants, and other programs, and effective use of those funds is critical towards the success of all systems. Additionally, the state should closely rate and monitor the condition of natural waterways and utilize data and research to budget effectively and efficiently.

TRANSIT



Efficient transit service is a major component of a multi-modal transportation system and a key to public safety, commerce, and easing traffic congestion. In Wisconsin, transit takes on many forms ranging from urban fixed route bus transit systems to rural taxi service. For many, that means alternative means of transportation to work, school, and recreation, filling a critical transportation need for transit-dependent people. Unfortunately, funding challenges from federal, state, and local entities present public transit systems in Wisconsin with tremendous financial hurdles to overcome. Improving our transit begins with Congress reauthorizing the Federal Surface Transportation Program, including creating a stable source of federal funding through an improved Highway Trust Fund. The state needs to provide an increased, dedicated source of transportation funds to defray local transit costs and ease the property tax burden on Wisconsin residents. Additional measures must be taken to improve the low transit grade which includes incorporating transit initiatives into land use and transportation planning, including high-speed bus and rail corridors, and creating regional transit authorities.

WASTEWATER



Wisconsin's municipal wastewater utilities are facing challenges due to aging infrastructure, growth, and new wastewater discharge regulations. The estimated future needs for municipal wastewater infrastructure maintenance and upgrades for Wisconsin total \$6.3 billion. Utilities are raising rates to cover necessary costs and to combat dwindling grant funding. In Wisconsin, the average annual rate increase of nearly five percent is higher than the national average; however, the true cost of service is often still not reflective of raised rates. The highest rate increases occur in small rural communities of 1,000 to 2,000 residents. Meanwhile, approximately 25 percent of Wisconsin residents do not have access to sanitary sewers, mainly relying on on-site septic or other treatment systems. Municipalities and wastewater utilities will face significant capital costs to meet new phosphorus water quality standards for lakes, reservoirs, rivers, and streams. Collection and treatment systems are seeing the impacts of increased inflow and infiltration from more intense and frequent storm events due to climate change. Anticipated new regulatory requirements for previously undiscovered compounds like Per- and Polyfluoroalkyl Substances will also add to the financial burden on wastewater treatment facilities and ratepayers.