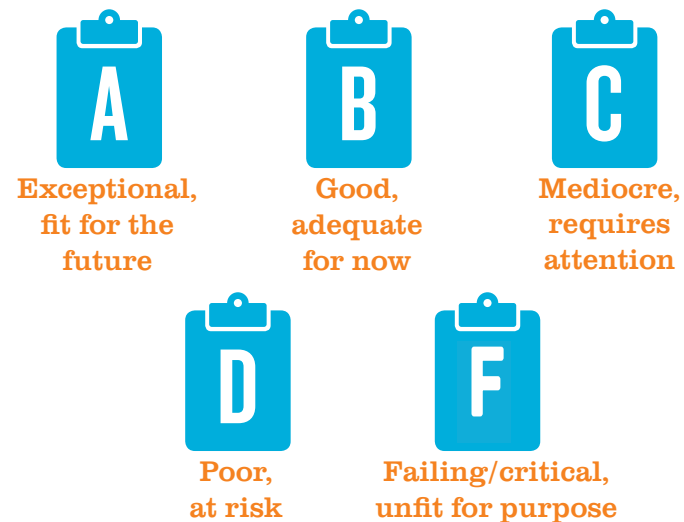


# MISSISSIPPI GRADES



## 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 Ensure that infrastructure investment is strategically focused on efforts that maximize good-paying jobs, promote the state's economic competitiveness, and enhance usability so that all Mississippians continue to proudly call our state home.
- 2 Design, operate, maintain, and expand infrastructure in accordance with federal leadership by using consensus-based codes, specifications, and standards that reduce the potential loss of jobs, economic opportunity, and critical natural resources. Under President Trump's Administration, FEMA and other federal agencies have begun to pivot toward mitigation measures to ensure better use of taxpayer dollars, which is a strategy Mississippi should also employ.
- 3 Develop a comprehensive education campaign on the true costs and savings associated with investment in critical infrastructure and disseminate around the state through publicly accessible channels and platforms such as Mississippi Public Broadcasting and social media forums.
- 4 Establish a grant program for 21st century technical career training in the drinking water and wastewater sectors that retains Mississippi's talent and mainstreams tools for data-driven decision-making, such as asset management software, life-cycle cost analysis, and affordable rate structuring.
- 5 Mississippi's highways and scenic back roads are the state's critical arteries to our homes, businesses, and outdoor recreation, so users must contribute a fair share to aid in maintenance and fill the gap that isn't covered by state spending.

## About ASCE-Mississippi

The Mississippi Section of ASCE was founded in 1969 and currently has almost 1,000 members from all disciplines and sectors of civil engineering. ASCE is the nation's oldest and largest engineering society. Its membership comprises civil engineers at all career stages, in all sectors and disciplines. Civil engineers plan, design, construct, operate, and maintain society's economic and social engine – the built environment – while protecting and restoring natural environments. ASCE, by advancing technical excellence, advocating lifelong learning, and developing leaders, enables its members, partners, and the public to continually improve the infrastructure around us, building a better quality of life.

## CONTACT US

 [reportcard@asce.org](mailto:reportcard@asce.org)  
 [infrastructurereportcard.org/mississippi](http://infrastructurereportcard.org/mississippi)

2020



## REPORT CARD FOR MISSISSIPPI'S INFRASTRUCTURE

## Infrastructure Matters

From the roads and bridges on which we drive, to the water we drink, and the levees that protect our homes from flooding, infrastructure is a vital part of each Mississippian's everyday life. Infrastructure not only powers our homes when we flip a light switch, it powers our economy by enabling goods to travel from our ports to our grocery store shelves via rails and roads. Mississippi's transportation infrastructure ensures we can move between our homes, workplaces, and schools and that emergency services can respond quickly in times of need. Our infrastructure systems play a critical role in the State's economic prosperity and help preserve – and can enhance – the quality of life for all Mississippians. While many Mississippians might not think about infrastructure every day, Mississippi's civil engineers do! We work hard to build and maintain our infrastructure systems for the public's health, safety, and welfare.

Over the past 15 years, our infrastructure systems have faced numerous unprecedented challenges in the form of hurricanes, tornadoes, droughts, and floods. Yet, every time Mississippians are faced with a challenge, they rise to meet it. Our infrastructure systems have helped us meet these challenges; now it's our time to help our infrastructure systems. To continue to raise, retain, and attract the best and brightest, Mississippi must invest in strategic infrastructure efforts. After all, we want Mississippi to continue its long-standing tradition of hospitality, good Lord willing, even if the creek *does* rise.

## How You Can Get Involved

- 1 Get the full story behind this Report Card at [www.InfrastructureReportCard.org/Mississippi](http://www.InfrastructureReportCard.org/Mississippi).
- 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](http://www.infrastructurereportcard.org/take-action).

THINK IT.  
GROW IT.  
INVEST IN IT.  
THAT'S THE  
MISSISSIPPI WAY.  
Let's invest in Mississippi's  
infrastructure now.

**ASCE**  
AMERICAN SOCIETY OF CIVIL ENGINEERS

# 2020 INFRASTRUCTURE REPORT CARD FOR MISSISSIPPI

## AVIATION



Mississippi's aviation system is critical to the state's economy; the industry employs over 20,000 people with a total payroll of \$721 million and a total economic output of \$2.5 billion. There are 73 public use airports in the National Plan of Integrated Airport Systems (NPIAS), 68 of which are non-primary and five are primary. Of the five primary airports, two - Jackson and Gulfport - have performed runway overlay projects over the last five years. Aviation infrastructure in Mississippi is heavily dependent on support from the federal government. The state experienced a 34% decline in passengers from 2007 to 2017, which impacts the amount of funding for aviation infrastructure the state receives from passengers and the federal government. As popular airports experience less demand, the life of the existing infrastructure is extended which leaves no significant operation and maintenance (O&M) needs unmet. However, O&M is not eligible for federal funding and, as a result, is deferred in more rural and low-income communities.

## BRIDGES



Mississippi has 17,072 bridges. More than 400 timber pile bridges have been closed to the public since 2018, when the federal government determined these structures had been insufficiently inspected and posed a risk to the traveling public. A total of 3,127 of Mississippi's bridges are weight-restricted; some are posted for a four-ton load, approximately the average weight of a pick-up truck. To address safety concerns, the Mississippi Legislature convened a special session in August 2018 and voted to provide approximately \$100 million annually for bridge maintenance and rehabilitation. While this additional funding is helpful, it does not come close to addressing the \$1.6 billion funding gap for bridges in the state or reversing the years of underinvestment.

## DAMS



Mississippi's dams provide flood control, navigation, water supply, recreation, and other benefits to the state's population. The National Inventory of Dams (NID) records 6,081 known dams in Mississippi that are owned by a variety of federal, state, or municipal agencies, as well as private owners. 381 of these dams are high hazard potential, a classification not reflective of condition, but rather indicates that should the dam fail, loss of life and/or significant economic damage is expected. 130 of Mississippi's high hazard potential dams need repair and more than 90% depend on the scarce financial resources of local governments or private owners. To best prepare downstream communities for possible failure, all high hazard potential dams should have emergency action plans (EAPs). However, in Mississippi, just 71% have EAPs on record. Also of concern is that 36% of state-owned dams are in poor or unsatisfactory condition. Approximately \$1.21 billion dollars is needed to repair Mississippi's non-federally owned dams.

## DRINKING WATER



Drinking water infrastructure in Mississippi includes water treatment plants, groundwater wells, storage tanks, and transmission lines that store and provide quality drinking water to consumers across the state. In 2015, the United States Environmental Protection Agency (EPA) estimated that Mississippi needs \$4.8 billion over the next 20 years to fund safe drinking water infrastructure for the people of Mississippi. Much of the state's current drinking water infrastructure is beyond or nearing the end of its design life, with older systems losing as much as 30-50% of their treated water to leaks and breaks. Adequate funding and prioritization of drinking water infrastructure improvements are needed to ensure Mississippians continue to enjoy quality drinking water for years to come.

## ENERGY



Mississippi's energy infrastructure, approximately 75% of which is privately owned and 25% of which is cooperatively owned, is closely related to the state's economic development goals. The energy infrastructure portfolio includes nearly 14,000 miles of natural gas pipelines, four major gas storage facilities, 31 natural gas-fired power plants, and more than 4,000 miles of high and low voltage transmission lines. The pipelines have proven to be reliable with few long-term maintenance challenges. The transmission and distribution lines, however, experience periodic disruptions. On average, households experience more than 19 hours of electrical outages per year, most often the result of weather and falling trees. Potentially exacerbating reliability challenges: Mississippi's electric cooperatives serve an average number of 8.1 consumers per mile of line, compared to the national average of 32 for investor-owned utilities and 41 for municipal-operated systems. This may increase vulnerability and result in longer outages when extreme weather-related events occur throughout the state.

## INLAND WATERWAYS



Mississippi has 870 miles of inland waterways, including the Tennessee Tombigbee Waterway, Yazoo River, Mississippi River, Pearl River, and the Gulf Intracoastal Waterway. The top two cargo passage lock and dams in the state, the John C. Stennis and the Whitten Lock and Dam, are located on the Tennessee-Tombigbee Waterway. Over the next 20 years, approximately \$4.9 billion will be the needed investment for Mississippi inland waterways, or nearly \$250 million annually. Adequate reinvestment and modernization of the state's inland waterways is critical; nearly 2,000 vessels pass through the state's locks every year, carrying over 4.3 million tons of domestic and foreign commodities, including coal, petroleum products, paper, concrete, steel, grain, and farm products.

The 2020 Infrastructure Report Card for Mississippi overall GPA is a D+. There are solutions to many of the challenges presented in the Report Card, with achievable steps toward improving grades.

## LEVEES



Mississippi is home to over 900 miles of concrete and earthen levees that protect approximately 4 million people and \$21.8 billion in property. Of the state's 114 individual levee systems, 25 were constructed by U.S. Army Corps of Engineers (USACE) and are regularly inspected. Of these 25, 14 levee systems are rated unacceptable, meaning the condition of the system may prevent it from performing as intended or a serious deficiency has gone unaddressed. Little to no information is available about the conditions of non-USACE levees. The lack of publicly available information regarding Mississippi's locally owned levees poses a challenge when assessing the overall condition, funding, and safety of levees in the state.

## PORTS



Mississippi's ports are critical to the state's economic wellbeing. A 2016 study conducted by the Mississippi Department of Transportation (MDOT) noted that Mississippi's ports support over 125,700 jobs and nearly \$5.4 billion in income while generating nearly \$17 billion in economic stimulus annually. There are 16 coastal and inland ports in Mississippi; the three largest are: the Port of Gulfport, the Port of Pascagoula, and Port Bienville. These ports serve as the United States' ingress and egress points for millions of tons of goods every year. Two of these ports are considered deep-draft while the third is shallow-draft. The three largest Mississippi ports are investing in their infrastructure, but none are capable of receiving larger draft Post-Panamax ships. These ships are becoming increasingly common; if Mississippi wishes to capture the market they represent, public discussion must take place on increasing the dredging depths to accommodate larger vessels.

## RAIL



The railway system provides over a quarter of the freight services in Mississippi. Comprised of five Class I, one Class II, and 20 Class III rail lines, the network experiences a large amount of through freight traffic and provides travel options to a modest number of passengers. Privately-owned Class I railroads provide the most service, perform adequately, and are fit for the future. The Class II/III railroads are challenged with deteriorating tracks largely due to lack of funding, although limited dollars are available through several state programs. Priority for continued grade crossing improvements—including the addition of warning devices and resurfacing--should be a feature of future railroad capital programs. Throughout the state, about 65% of these grade crossings have no active warning devices and 10% have no warning devices at all. Fortunately, projects are continuously in progress to improve track awareness for public safety that will also provide more efficient rail operations.

## ROADS



Roadway projects in Mississippi are largely paid for with an 18.4 cents-per-gallon tax on gasoline, a rate that has not been raised for over 30 years. As a result, inflation and other factors have decreased the spending power of the state's gas tax, leading to an inability to pay for necessary rehabilitation and maintenance projects around the state. In 2018, nearly 40% major urban road miles in the state were in poor condition, double the national rate, and 25% of the rural road network was also in poor condition. The average motorist spends \$820 in extra vehicle repairs and operating costs because Mississippi roadways are in poor condition. Also of major concern: the state's fatality rate in 2018 was one the highest in the nation, with 1.63 deaths per 100 million vehicle miles travelled, compared to 1.13 nationally. Raising the gas tax and indexing it to inflation would help close the annual gap of at least \$400 million. Meanwhile, the state is developing innovative tools that increase the accuracy of roadway evaluation to improve the design of maintenance and rehabilitation projects, while also enhancing resource efficiency.

## SOLID WASTE



Mississippi generates over 6 million tons of municipal waste per year. There are 19 permitted landfills for non-hazardous industrial and municipal solid waste and 145 commercial rubbish disposal facilities. The average person in Mississippi generates 5 pounds of solid waste per day, which is above the national average of 4.4 pounds per person per day. Fortunately, Mississippi's landfills have on average 55 years of remaining capacity left, although some individual facilities have less than 20 years and require more immediate expansion. The Mississippi Department of Environmental Quality has seen a substantial downward trend in violations and fines over the past 20 years, an indication the state is trending in the right direction for protecting public health. One area of potential improvement lies in recycling. Just 5% of the waste generated in the state of Mississippi is diverted to recycling, compared with approximately 35% of municipal solid waste nationally.

## WASTEWATER



While most wastewater treatment systems in Mississippi operate within their design capacity, over the past five years 1,180 failures were reported for onsite systems while 2,715 notices of violation were issued for wastewater treatment plants. Insufficient funds to cover routine operation and maintenances expenses result in backlogged upgrades that would improve treatment efficiency. While some utilities are raising rates to meet budget deficiencies, much of the state's wastewater infrastructure is heavily dependent on federal funding; new approaches to closing the budget gap and financing wastewater improvements, particularly O&M and efficiency upgrades, should be considered. Increasing wet weather conditions, inconsistent maintenance, and a lack of rehabilitation pose extreme threats to the state's wastewater infrastructure.