

Solutions to Raise the Grade

- Improve multi-modal freight and landside connections to ports to strengthen the entire freight system and reduce congestion that is costly to industries, local governments, and the state's economy when moving goods.
- Increase in-state capacity for electricity generation to improve supply, reduce costs, ease regional market effects, and recoup expenses by supporting renewable power generation with financial incentives, regulations that promote growth, and industrial/logistics resources.
- Continue to support the RhodeWorks plan and its emphasis on reaching a state of good repair for bridges and advocate for additional long-term federal and state funding programs for infrastructure to deliver consistent, reliable funding that is adjusted for inflation.
- Continue to develop infrastructure resiliency plans that address natural disasters and man-made extreme events. Incorporate the impacts of climate variations (sea level rise, extreme storm events) into the design, operation, maintenance, and expansion of all types of infrastructure to improve community resilience – reducing the time and extent that households, businesses, and critical services in Rhode Island are affected during and after natural and man-made disruptions.
- Mainstream tools for data-driven decision-making across all of Rhode Island's infrastructure sectors, including asset management software, life-cycle cost analysis, and affordable rate structuring.
- Pivot new construction, rehabilitation, and post-disaster rebuilds towards the use of consensus-based codes, specifications, and standards.

About ASCE-Rhode Island

The Rhode Island Section of ASCE was established in 1920 with the mission to advance the science and profession of civil engineering in a manner consistent with the American Society of Civil Engineers. Our membership consists of civil engineers at all career stages and in all sectors and disciplines.

With our commitment to serve the public in mind, the Report Card released by RI ASCE is a public, voluntary service to citizens and policy makers to inform them of infrastructure needs in their communities.



BRIDGES



DRINKING WATER



ENERGY



PORTS



RAIL



ROADS



WASTEWATER



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Infrastructure Matters

Good infrastructure is among the key elements that contributes to a high quality of life. From our roads, bridges, ports, and rail, which impact our ability to move people and cargo; to our drinking water and wastewater, which impact the health of our residents and businesses; to our energy sources, which power our daily lives - Rhode Island's infrastructure is essential to supporting the needs of those who call it home or are welcomed to its shores. While many Rhode Islanders might not think about infrastructure every day, Rhode Island's civil engineers do! We work hard to build and maintain our infrastructure systems for the public's health, safety, and welfare.

As a state with a significant coast line, Rhode Island must adequately invest in its critical infrastructure, such as wastewater facilities, drinking water systems, and port structures, to ensure they can protect the natural environment and withstand sea level rise and impacts from extreme weather events. In addition, Rhode Island has been challenged by underinvestment in roads and bridges, leading to structural deficiencies. However, leaders in the state are addressing these challenges head on, by prioritizing investment in roads and bridges to improve safety and reliability. Beyond mitigation, Rhode Island looks to the future by proactively improving its rail systems and maintaining its leadership in the growing renewable energy industry.



www.infrastructurereportcard.org/RhodeIsland



Rhode Island is home to the highest percentage of structurally deficient (SD) bridges in the country. In 2019, 22.3 percent of bridges were structurally deficient and Rhode Island residents and out-of-state drivers crossed these bridges a combined average of nearly four million times a day. In an effort to reverse decades of underinvestment, the state established a sweeping program, RhodeWorks, designed to make significant upfront investments in road and bridge infrastructure. The program is funded through a combination of new truck tolls and innovative financing tools. By utilizing an asset management approach that includes condition reports and life cycle forecasting, RIDOT is prioritizing improvements and updating the department's inventory to a state of good repair. Modest progress has been observed during the first three years of the program; the number of SD bridges decreased from 192 in 2016 to 174 in 2019.



Over the years, Rhode Island's largest water utility has increased capital spending to rehabilitate its water mains, reduce the risk of pipe leakage and contamination, and ensure that safe, high-quality drinking water is distributed to its customers. Utilities in the state have adopted innovative asset management technology to detect structural leaks and make repairs, saving both time and money. Despite these strategic investments, several infrastructure challenges remain. Lead connection pipes remain in service on many private properties. Providence Water has several programs to address lead service connections, including testing, financing for replacement, and treatment to prevent leaching.

As a state with significant coastline, Rhode Island is particularly vulnerable to the impacts associated with climate change, including sea level rise and the growing frequency and severity of significant weather events. To increase resiliency and promote asset conservation, the state conducted an extensive assessment of the vulnerability of its water supply structures to environmental stressors and identified steps to mitigate impacts.



The energy story in Rhode Island is one of legacy and innovation. Forty-four percent of Rhode Island's gas lines are over 50 years old, ranking the network as the fourth oldest in the country. However, infrastructure owners, including National Grid, are making improvements and closely monitoring older infrastructure. Electric rates remain high – currently 20 cents per kWh – driven up by the regional supply. of natural gas which has been limited by pipeline capacity and major plant closures within New England. However, the state is committed to reigning in costs. Rhode Island is tied with Vermont for the third most energy efficient state in the country, according to a recent report. Most notably, Rhode Island is nationally recognized as a leader in renewable energy. Home to the country's first operational offshore wind farm the Ocean State is repositioning to capture its own energy rather than relying on imported natural gas.



Rhode Island's railroads date back to the mid-19th Century, but recent improvements have ensured the system will remain a vital backbone for the state well into the future. In recent years, Rhode Island has seen the arrival of high speed rail, extended commuter service, and revitalization of historic freight lines. Automobile deliveries to Quonset Point have continued to set records, with 34,550 vehicles arriving by rail in 2019, making them the most carried freight. Other industries which benefit from the rail as a cost effective and energy efficient transportation option are plastics, lumber, metals, and seafood. Ridership has increased modestly with trip incentives, updated facilities, and more capacity coming online. While the Freight Line Improvement Plan has been implemented to reduce congestion and eliminate height and weight restrictions throughout the state, bottlenecks still exist. In general however, Rhode Island's rail infrastructure is meeting current needs and is well positioned to handle increased demand.



Rhode Island's seaports, terminals, and working waterfronts support a wide range of activities, including cargo movement, ferry boat operations, commercial fishing fleets, and pleasure cruises. The Narragansett Bay is home to the Port of Providence, the Port of Davisville, the Tiverton Marine Terminal, and Newport Harbor, providing access to the Atlantic Ocean and the Block Island Sound, while the Port of Galilee is located on the Block Island Sound.

Ongoing investment is necessary to upgrade outdated infrastructure, plan for future growth, and protect facilities against sea level rise. State residents recognize the economic significance of these seaports and have approved bond measures to support upgrades and increased land development, including projects that increase access along departure roads to support reliable cargo movement.



For many years, roadways in Rhode Island suffered from chronic underinvestment, and the maintenance backlog grew. Fortunately, Rhode Island significantly increased investment in its roads beginning in 2016, in an effort to improve safety, travel time reliability, and to reduce congestion. The state has pledged \$5 billion through its RhodeWorks program to bring transportation infrastructure into a state of good repair by 2025. The Ocean State has also incorporated considerations for climate change into its planning efforts.

Despite increased funding, there continues to be an investment gap for road and highway improvements – a problem shared by many states. The Rhode Island Department of Transportation (RIDOT) has identified more than \$378 million in unfunded pavement maintenance and reconstruction needs. Rhode Island's share of rural roads in poor condition is ranked as the highest in the nation.



Most of Rhode Island relies on municipal wastewater treatment plants for sewage disposal. Routine maintenance and upgrades have protected outdated facilities from falling into disrepair, but many of the pipelines are in need of renewal and replacement.

Over the last two decades, Rhode Island's primary wastewater facility has been working towards a 40-year construction project to water pollution associated with wastewater discharges. Focused efforts on water quality monitoring and infrastructure maintenance have prevented further degradation of Rhode Island's waterways. However, there remains more than \$1.8 billion needed in the wastewater sector for infrastructure investments and operational improvements. Additionally, impact studies reveal wastewater plants across the state will need infrastructure improvements in order to withstand increased flooding due to climate change. Substantial investments will be needed to ensure Rhode Island's 19 municipally-owned treatment facilities can withstand elevated water levels.

How You Can Get Involved

1. Get the full story behind this Report Card at www.infrastructurereportcard.org/RhodeIsland
2. Find out the condition of the infrastructure near you on the Save America's Infrastructure app, available on iTunes and Google Play.
3. Ask your elected official 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/get-involved/tell-your-legislators/

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