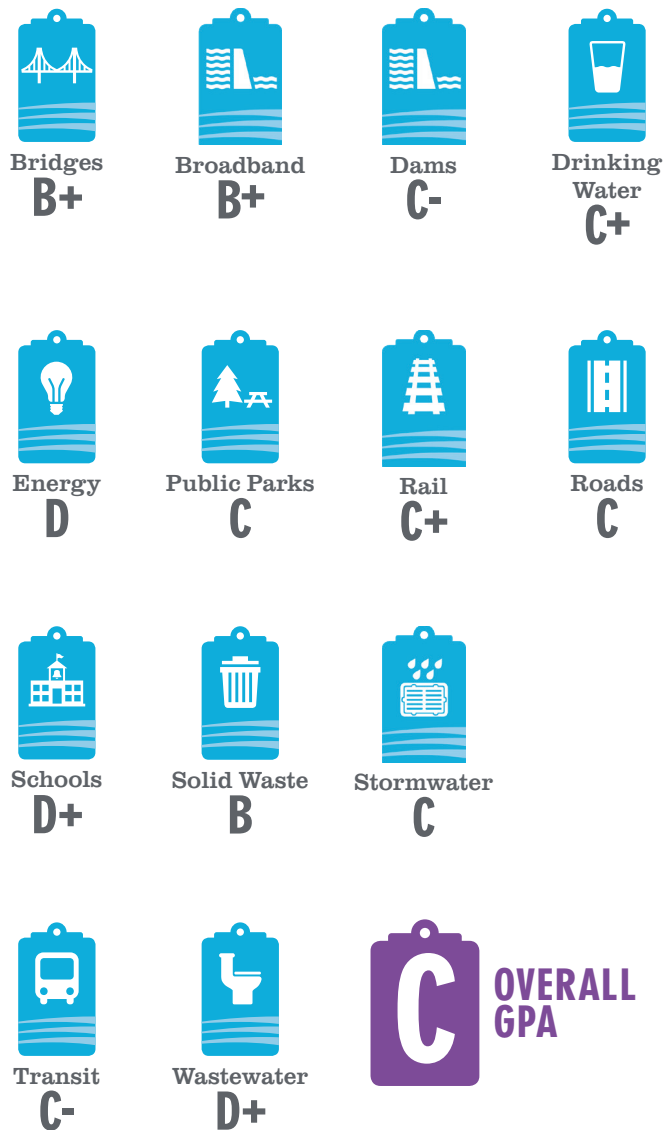


Virginia Grades



About the Grades

The 2026 Report Card for Virginia's Infrastructure was written by a committee of more than 50 civil engineers across Virginia 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 National and ASCE's Committee on America's Infrastructure to provide a snapshot of our state's infrastructure, as it relates to us locally and on a national level. The Report Card Sections are graded based on the following eight criteria: capacity, condition, funding, future need, operation and maintenance, public safety, resilience and innovation. ASCE defines these grades as follows:



Solutions to Raise the Grade

- Investment:** Increased investment is needed to meet growing demands driven by population growth and more intense storm events. Targeted funding will help ensure that drinking water, transportation infrastructure, and energy infrastructure can continue to operate safely and reliably under increasing stress.
- Resilience:** Recent storms such as Tropical Storm Ophelia and Hurricane Helene have demonstrated Virginia's resilience while highlighting the need for the state to prepare for the next major storm event, including updating emergency action plans for all departments and municipalities.
- Safety:** Virginia faces significant safety risks, with 402 high-hazard dams and rising vehicle fatalities per 100,000 residents over the past decade. Strengthening dam inspection programs and adopting comprehensive roadway safety strategies will be essential to reducing risks and improving public safety statewide.
- Capacity:** Added capacity for aging water-related and wastewater infrastructure is critical, especially as population growth continues. Many wastewater and stormwater systems are past their design life cycle and need upgrades, which will help to address water quality, flooding, and erosion concerns.
- Technology:** Relying on improving technologies such as groundwater recharge of treated wastewater at treatment plants and artificial intelligence (AI) will help to stretch limited funding and ensure investments are made efficiently.

About ASCE-Virginia

ASCE Virginia Section was founded in 1922. Our objective shall be the advancement of the science and profession of Civil Engineering. The ASCE Virginia Section has seven branches: Blue Ridge Branch (1967); Bull Run Branch (1969): Counties of Frederick, Clarke, Warren, Loudoun, Fauquier, Prince William, Stafford, Spotsylvania, Culpeper, and Rappahanock; Lynchburg Branch (1975); Norfolk Branch (1955): Counties of Accomack, Greensville, Isle of Wight, Nansemond, Northampton, Southampton, Surry, and Sussex. Cities of Chesapeake, Norfolk, Portsmouth, Suffolk, and Virginia Beach; Peninsula Branch (1966); Richmond Branch (1955); Roanoke Branch (1955).

Five Student Chapters are located within the Virginia Section. Student Chapters are located at University of Virginia, Virginia Military Institute, Virginia Polytechnic Institute and State University (Virginia Tech), Old Dominion University, and Liberty University.

How You Can Get Involved

Get the full story behind this Report Card at www.infrastructurereportcard.org/Virginia.

Ask your elected leaders what they're doing to keep up with your neighborhood's infrastructure. Use your zip code to get your list of elected officials at www.infrastructurereportcard.org/take-action.

INFRASTRUCTURE MATTERS

The Commonwealth of Virginia has a growing economy supported by steady population growth. Strategic investments have strengthened the state's infrastructure, including expanding broadband access and advancing the replacement of the Long Bridge rail bottleneck in Northern Virginia. While these achievements represent meaningful progress, continued population growth is placing greater pressure on Virginia's infrastructure.

The Commonwealth has made notable progress in the condition and performance of its bridges, broadband, roads, and solid waste systems, driven in part by historic state and federal investments. The Infrastructure Investment and Jobs Act (IIJA) has helped close longstanding funding gaps across Virginia's infrastructure, providing approximately \$12.6 billion for projects statewide as of January 2025. State road and bridge funding increased from \$294 million in FY2022 to \$500 million in FY2025, enabling agencies to better maintain and improve infrastructure across Virginia's diverse landscape. These investments have accelerated critical improvements while helping position the Commonwealth to meet future infrastructure needs.

Virginia continues to face significant infrastructure challenges driven by increasingly severe weather, aging assets, and varying local capacity. In particular, more frequent extreme weather is increasing straining infrastructure systems across the Commonwealth. In recent years, Tropical Storm Ophelia produced two to four feet of storm surge, causing tidal flooding that closed roads in Norfolk, Virginia Beach, and Mathews County. In 2024, Hurricane Helene triggered flash flooding that prompted evacuations across seven counties, isolated communities, and led to more than 70 rescues, and two fatalities. Heavy rainfall has also furthered the risk of combined sewer overflows in cities such as Richmond, Lynchburg, and Alexandria, where aging systems can discharge untreated wastewater during major storms.

Virginia's diverse geography and population distribution also create unique operational and maintenance challenges. Specifically, rural communities often lack the financial and technical resources needed to maintain aging infrastructure. To address these needs, the Virginia Office of Drinking Water funds leak detection equipment through Drinking Water State Revolving Fund set-asides, while the Virginia Rural Water Association provided 764 hours of leak detection technical assistance during the reporting period. Despite these efforts, many rural systems continue to face funding shortfalls for maintaining treatment plants, pump stations, storage tanks, and pipelines.

Significant investment needs remain across other sectors. The Commonwealth's \$5 million Dam Safety grant program for 2026 is small relative to the estimated \$5.42 billion needed to rehabilitate Virginia's dams, forcing many owners to defer critical maintenance. Similarly, the 2022 Clean Watershed Needs Survey reported approximately \$45.77 billion in wastewater infrastructure needs statewide.

Recent investments have delivered measurable improvements across many sectors, but aging assets, continued population growth, increasingly frequent extreme weather, and persistent funding gaps underscore the need for sustained investment. Maintaining Virginia's economic competitiveness, public safety, and quality of life will require a long-term commitment to preserving existing infrastructure while building more resilient systems for the future.

Contact Us

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REPORT CARD FOR VIRGINIA'S INFRASTRUCTURE

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

The 2026 Report Card on Virginia’s Infrastructure

gave the state an overall G.P.A. of C. Virginia’s civil engineers studied thirteen infrastructure categories. Of those thirteen, three infrastructure categories are in good condition, seven are in mediocre condition, and three categories are in poor condition.

The good news is there are solutions to all these challenges, and we can raise the grades of Virginia’s infrastructure. By learning more today about the conditions of the infrastructure you use every day, you too can help raise the grade.



Bridges

B+

Over the last several years, Virginia has made meaningful progress on bridge conditions. Between 2020 and 2025, the total percentage of poor condition bridges dropped from 3.5% to 3.1%. In 2024 alone, the Virginia Department of Transportation (VDOT) rolled out multiple targeted initiatives for the state’s bridges, including the State of Good Repair–Bridge Program, the High-Priority Projects Program, and the Highway Construction District Grant Program. The 2026 Six Year Improvement Plan allocates \$2.3 billion for bridges, and when combined with other funding sources, total bridge funding rises to roughly \$800 million per year, a significant gap relative to bridge preservation and State of Good Repair program needs. Despite these constraints, Virginia stands out for how it approaches bridge maintenance and design, embracing innovative materials, and utilizing forward looking design practices. Those innovations are helping stretch limited dollars and improve long term performance, but sustained investment will be essential to continue progress.



Broadband

B+

Broadband has become fundamental for Virginians, whether is be for education, work, healthcare, or even civic participation. Internet service providers (ISPs) design, construct, and maintain broadband networks to bring high-speed internet to Virginia households, businesses, and community anchor institutions (CAIs). However, many areas of rural Virginia still lack access to broadband infrastructure, as it remains challenging to build in relatively remote locations. In response, he Virginia Office of Broadband (“Office of Broadband”) has made it a priority to utilize a combination of federal and state dollars to fund broadband infrastructure deployment to unserved locations in the Commonwealth and achieve the goal of universal broadband access in Virginia. As of 2026, the Commonwealth has awarded funding to extend broadband infrastructure to more than 400,000 locations. The Office of Broadband expects Virginia to achieve universal broadband by 2030, using the Commonwealth’s \$1.48 billion allocation from the Broadband Equity Access and Deployment program.



Dams

C-

Virginia’s dam system includes about 2,712 dams, most of them small and privately owned. A substantial share of dams lacks clear documentation, including missing ownership, purpose, hazard classification, and condition, which makes it harder to manage risk, understand accountability, and prioritize maintenance. However, the share of dams with undetermined hazard potential improved from 70% in 2022 to 65% in 2026. Condition data is limited, with roughly 68% of dams lacking a condition rating, and about 14% of rated dams in poor or unsatisfactory condition. Inspection activity has declined since 2022, with fewer than half of high-hazard-potential dams inspected since 2022 and only about 13% of all dams inspected since that time. Funding remains the dominant constraint: a \$5 million grant for 2026 is insufficient relative to an estimated \$5.42 billion rehabilitation need for the Commonwealth, resulting in deferred maintenance and rehabilitation, allowing deterioration to continue.



Drinking Water

C+

The main source of drinking water for municipal systems in Virginia is 1,780 groundwater wells. Other sources include 170 surface water intakes on lakes, reservoirs, rivers and streams. The Commonwealth has over 2,800 community and non-community waterworks. While statewide population growth is not broadly straining drinking water infrastructure, rapid growth in some localities—particularly near Richmond—is increasing maintenance demands and affecting service reliability. Additionally, funding remains a significant challenge. Average customer rates are well-below the level typically needed to support long-term capital investment, forcing many systems to rely on municipal subsidies and state or federal grant and loan programs. While recent federal investments through the IJA and related drinking water programs have provided important support, particularly for emerging contaminants and disadvantaged communities, aging infrastructure, affordability constraints, and a shrinking licensed operator workforce creates years-long risks for Virginia’s drinking water systems.



Energy

D

Virginia is a net energy consumer, meaning The Commonwealth consumes more energy (electric and non-electric) than it produces. In 2023, Virginia was the nation’s largest net importer of electricity among all states. With the addition of a growing data center presence and other projected demands due to increased electrification, the state is on the verge of an electricity reliability crisis. However, the state shows promise in its operation and maintenance, federal and state funding streams, and efforts to improve the resilience of the grid to combat increasingly frequent extreme weather events. The Commonwealth also boasts strong energy innovation programs, especially in new nuclear technologies. There is an urgent need to address Virginia’s capacity challenges to ensure a reliable future, which could be addressed with new grid technologies such as distributed energy resources, virtual power plants, energy storage systems, grid enhancing technologies, and modernized pricing models.



Public Parks

C

The Commonwealth of Virginia is home to a strong network of public park infrastructure, with over 17% of Virginia’s land area publicly managed by federal, state, and local governments, and nonprofits. Park districts across the Commonwealth are developing policies with dynamic, forward-thinking best practices to ensure parks serve users into the future. Despite these positive trends, Virginia parks continue to struggle with the demands of deferred and ongoing maintenance. A 2025 audit of Virginia State Parks found that deferred maintenance exceeds \$350 million, a \$90 million increase since previous reporting in 2021. Virginia is rich in natural resources, and its park agencies must continue to fight for needed funding to keep its resources safe and available to the public.



Rail

C+

Virginia’s rail system consists of approximately 3,460 miles of track and 1,471 bridges operated by two Class I and nine Class III (short line) railroads. Passenger rail services are operated by Amtrak (intercity) and the Virginia Railway Express (commuter). Passenger and freight rail services operate in shared tracks, with efforts underway to separate tracks along key segments. Virginia’s freight rails moved 132 million tons in 2017 and are forecasted to move 211 million tons in 2045, a 60% increase. Virginia has introduced several rail initiatives based on factors driving changes in the rail industry to include freight movement, population characteristics, transportation technology, the natural environment, and operational challenges. Despite a one-time influx of federal funding from the Infrastructure Investment and Jobs Act, sustained funding will be needed to meet the goals stated in Virginia’s 2045 Vision.



Roads

C

Virginia’s roadway network includes approximately 164,000 lane-miles, with about 75% maintained by the Virginia Department of Transportation (VDOT) and the remaining 25% by local governments. While the Commonwealth has established a diversified transportation revenue stream, long-term funding pressures persist due to rising construction costs, evolving travel patterns, improving fuel efficiency, and growing maintenance needs. Recurring maintenance shortfalls have required the transfer of construction funds to operations and maintenance, highlighting structural funding challenges. Although Virginia continues to perform well in national rankings, increasing urban congestion, rising maintenance costs, and below-average roadway safety metrics continue to strain the system. Ensuring long-term sustainability will require additional and more diversified revenue sources, along with stronger partnerships among federal, regional, and local stakeholders. Improving roadway safety will also require continued investment in safer roadway infrastructure, programs that encourage safer driving behaviors, post-crash care, and modern vehicle safety technologies.



Schools

D+

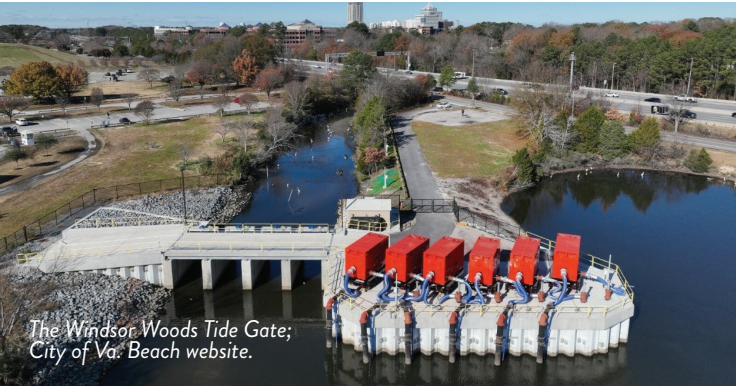
Virginia’s school infrastructure needs major modernization. Aging facilities and chronic underinvestment are widening gaps in safety, reliability, educational adequacy, and resilience. More than half of Virginia’s school buildings are over 50 years old, and many still rely on HVAC, electrical, and plumbing systems beyond their expected life, leading to frequent failures, emergency repairs, and disrupted instruction. Northern Virginia divisions manage overcrowding and continued use of modular classrooms, while Southwest and Southside communities maintain oversized, aging campuses they cannot afford to modernize. Urban and coastal divisions contend with roof leaks, drainage failures, and recurrent flooding. Statewide estimates show an annual maintenance and operations shortfall of \$1.11 billion and capital investment gap of \$2.62 billion. Raising the grade will require a permanent state construction program, consistent statewide facility data, and broader implementation of resilient, high performance design.



Solid Waste

B

Virginia’s municipal solid waste (MSW) system provides reliable, compliant service through a mature regulatory framework, stable funding, and a professional mix of public and private operators. A statewide network of more than 200 permitted facilities supports waste management activities and provides generally sufficient near-term disposal and processing capacity. Since 2022, targeted capital investments have improved operational reliability and regional system performance, while compliance trends have improved through fewer violations and more timely corrective actions. However, Virginia’s per-capita MSW generation rate remains high at approximately 6.65 pounds per person per day, well above the U.S. average of about 4.9 pounds per person per day. Statewide diversion rates have declined, increasing pressure on disposal capacity while organics diversion infrastructure remains underdeveloped. Therefore, future priorities must include reducing waste generation, expanding markets for recyclable and organic materials, strengthening resilience to extreme events, and improving data collection and reporting to measure progress.



The Windsor Woods Tide Gate; City of Va. Beach website.



Stormwater

C

Virginia’s stormwater program continues to advance across all major performance criteria despite rising costs driven by aging infrastructure, regulatory expansion, and climate pressures. System capacity and condition assessments have improved with strengthened Municipal Separate Storm Sewer System (MS4) oversight and expanded asset tracking that enables better identification and prioritization of system needs. There has also been a broader adoption of stormwater utilities, user-based fees, and increased state and federal funding that support continued capital improvements and resilience initiatives like those in Arlington County and the Hampton Roads Area. While significant funding gaps and aging assets remain, Virginia has demonstrated measurable progress in program maturity, financial structure, and data-driven management.



Transit

C-

Virginia’s transit agencies were significantly impacted by the COVID-19 pandemic, and ridership continues to rebound toward pre-pandemic levels, totaling 145 million trips in 2025 compared with 172 million in 2019. The Commonwealth has 41 transit agencies providing bus, rail, paratransit, ferry, and other services, but more than 1.1 million Virginians lack access to fixed-route transit. Transit asset conditions have improved since 2022, although 16% of inventoried assets have met or exceeded their useful life benchmark, and agencies continue to report funding shortages for state of good repair and future expansions. Virginia has made progress through investments such as the completion of the Silver Line, Potomac Yard Metro Station, Richmond Highway Bus Rapid Transit, and planned Alexandria Bus Rapid Transit improvements. However, safety targets remain unmet, workforce shortages challenge operations and maintenance, and flooding, hurricanes, and extreme heat threaten infrastructure. Continued investment in service coverage, state of good repair, safety, resilience, and innovation is essential.



Wastewater

D+

Virginia is served by approximately 584 municipal wastewater treatment facilities concentrated in urban areas, while an estimated 1.1 million rural households rely on on-site septic systems. Much of this wastewater infrastructure is nearing or exceeding its design life and is increasingly in need of repair or replacement. With a population exceeding 8.8 million and continued growth anticipated, existing systems face mounting capacity and performance pressures. Municipalities are working to comply with the Virginia State Mandate, including addressing the Commonwealth’s three remaining combined storm and wastewater collection systems, which discharge untreated sewage into waterways during heavy rainfall events. These challenges are compounded by an aging wastewater workforce and difficulties recruiting and retaining well-trained operators. Funding constraints remain a critical barrier to routine maintenance, workforce development, and capital investments needed to modernize infrastructure. Although Virginia is advancing innovative wastewater treatment approaches, increasing storm frequency and severity continue to heighten infrastructure risk statewide.