Issue: In 2017, the American Society of Civil Engineers gave the nation’s infrastructure an overall grade of D+ in their every-four-years Infrastructure Report Card. Key infrastructure categories, including aviation, dams, drinking water, inland waterways, levees, roads and transit, all received individual grades of D or lower. ASCE said the nation’s infrastructure can be improved and restored but only with “strategic, sustained investment, bold leadership, thoughtful planning, and careful preparation for the needs of the future.” The devastating hurricanes of 2017 brought into stark relief the importance of planning and preparation to ensuring a more resilient infrastructure for the future.

The Evidence

2017 provided plenty of evidence that the nation’s infrastructure is in bad shape and may be getting worse. Each month seemed to bring new details:

- In January, the U.S. Department of Transportation reported [2] that the backlog of needed highway and transit infrastructure projects around the country had reached $926 billion and many billions more will be needed over the next two decades to keep up with demand.
- In February, the American Road and Transportation Builders Association’s review of USDOT data noted that [3] 55,710 bridges in the United States are now considered structurally deficient. Those are spans crossed by vehicles 185 million times a day. August brought the 10-year anniversary [4] of the collapse of the I-35W bridge over the Mississippi River in downtown Minneapolis that brought calls around the country to invest in repairing and replacing aging infrastructure. The occasion prompted the realization from some that while there have been some improvements over the last decade, much remains to be done to bring the nation’s bridges to a state of good repair.
- Also in February, an analysis of Census data [5] showed the American commute is getting longer and the longest commutes in the nation are also the fastest growing.
- Heavy rains at the beginning of 2017 that caused extensive flooding and a crisis at the Oroville Dam [6] in California brought new calls to invest in aging dams around the country. Later in the year, the failure of a lock on the Ohio River [7] caused it to be closed to commercial navigation. The closure caused a massive backup of towboats and barges and a headache for shippers hauling newly harvested soybeans from the Midwest to export terminals along the Gulf Coast.
- The impact of the Flint water crisis continued to be felt as testing revealed [8] even higher lead levels in communities across the country. A report released in the fall [9] said outdated EPA drinking water regulations fail to regulate known carcinogens and other chemicals in our water.
- One day in June shone a bright spotlight [10] on the nation’s aging public transit systems. June 27 saw the derailment of a subway train in Manhattan that injured more than 30 people and significant delays for commuters on the Washington, D.C., area’s Metro system. New York Gov. Andrew Cuomo subsequently declared a state of emergency [11] for the Metropolitan Transportation Authority (MTA), which operates the New York City subway, and said the state would allocate an additional $1 billion in funding to the agency’s capital plan. Metro officials in D.C. meanwhile tried to convince [12] officials in the D.C.-Maryland-Virginia region to provide $15.5 billion in long-term funding, the amount they say is needed just to cover the agency’s most
critical capital needs. After at first declaring his opposition to giving Metro more money, Maryland
Gov. Larry Hogan in September offered an additional $500 million per year over the next four
years as long as D.C., Virginia and the federal government match that amount.

- A series of devastating hurricanes in September caused significant damage in Florida, Texas and
Puerto Rico and brought new warnings from engineers and urban planners about the lack of
resilience in the nation’s infrastructure. Car-centric Houston struggled to recover after
countless numbers of vehicles were lost to Hurricane Harvey’s raging floodwaters. Hurricane
Maria reportedly left Puerto Rico without an operating electrical system, closed airports and
seaports, damaged numerous roads and public transit systems, and destroyed radar and air
and water navigational aids.

- In October, the National Highway Traffic Safety Administration announced that in 2015 and
2016, the nation saw the worst spike in traffic deaths in more than 50 years. In 2016, 37,461
people were killed in motor vehicle crashes—a 5 percent increase over 2015.

But it was the release of the American Society of Civil Engineers’ Infrastructure Report Card in March that provided perhaps the most comprehensive look at where the nation’s infrastructure stands in 2017. Issued every four years since 1998, the report card assesses 16 categories of infrastructure and gives a cumulative grade as well. That cumulative grade has yet to exceed a D+ and did not in 2017 either.

On a CSG webinar in April 2017, Greg DiLoreto, who oversaw the 2017 report card and served as a past ASCE president, said leadership has been lacking over the last few decades, particularly at the federal level.

“Now while some investment and progress has been made, particularly at the state level, it’s not enough to prepare our nation for a 21st century economy by relying on 20th century infrastructure and 20th century funding,” he said.

The grade for the nation’s roads, a grade of D, was one of six infrastructure categories that remained unchanged from the 2013 report card. Transit received a grade of D-, reflecting a $90 billion backlog in maintenance on the nation’s transit systems.

The report card said the United States faces a $2 trillion investment gap over the next 10 years. In other words, federal, state and local governments need to spend a total of $200 billion a year more than what they are currently spending.

In addition to additional investment, the report card said more leadership and planning and preparation for the future is needed. ASCE recommends fixing the federal highway trust fund by raising the federal motor fuel tax, authorizing and funding programs that improve specific categories of deficient infrastructure, supporting infrastructure owners and operators and urging them to charge rates and fees that reflect the true cost of using, maintaining and improving all infrastructure. The report card also recommends requiring all projects greater than $5 million that receive federal funding use life cycle cost analysis and develop a plan for funding the project that includes its maintenance and operation until the end of its service life.

Another presenter on the April webinar, Brian Pallasch, ASCE’s managing director for government relations and infrastructure initiatives, said there is a need to create incentives for state and local governments and the private sector to invest in maintenance and a need to identify a pipeline of infrastructure projects that are attractive to private sector investment and public-private partnerships. He said it is necessary to prepare for the future utilizing new approaches, materials and technologies to ensure infrastructure is resilient and sustainable. Emerging technologies and shifting social, environmental and economic trends, including things like autonomous vehicles,
should be factored into the equation when building new infrastructure to assure its long-term utility, he said.

DiLoreto and Pallasch said they were encouraged by signs early in 2017 that President Donald Trump and Congressional leaders could work together on an infrastructure investment initiative. But as 2017 came to a close, a comprehensive plan had yet to emerge—it’s now expected in mid-January—and there were indications that the president had decided to turn away from an expected emphasis on financing and relying on the private sector to contribute significantly to any such effort. Some say that’s a more realistic approach anyway since public-private partnerships probably would not be applicable on many projects.

As DiLoreto put it on the April webinar: “Financing is not funding and what we’re short of in this country is funding. ... Certainly in the public sector, we have access to the municipal bond market. We can borrow money to finance our projects. It’s the funding that we have problems with. So while you can finance it, we also need to understand how we’re going to fund that infrastructure as it goes along.”

As noted elsewhere in this Top 5, states took it upon themselves in a big way in 2017 to seek additional revenues for transportation. But it’s clear from the ASCE report card and a variety of other evidence that emerged in 2017 that it will take an all-hands-on-deck from all branches of government—and, where applicable, the private sector—to begin to solve America’s infrastructure challenges in 2018 and beyond.

Further Reading: General Infrastructure

- TRIP, a national transportation research group [23]
- “America Hasn’t Seen a Spike in Traffic Deaths This Bad in 50 Years.” [25] Streetsblog USA, October 11, 2017.

Further Reading: Airports

Further Reading: Bridges

• “2017 Bridge Inventory: States get proactive on funding, expect to lower rate of poor bridges.” [38] Equipment World’s Better Roads, November 6, 2017.
• “RIDOT: Bridge condition slowly improving in RI.” [40] WPRI-TV, August 1, 2017.

Further Reading: Broadband & Digital


Further Reading: Complete Streets


Further Reading: Congestion & Mobility

• “Traffic's going to worsen, but don't worry, there's a $40B plan.” [58] HeraldNet, January 12, 2018.
• “‘Dynamic tolls’: How highways can charge $40 for driving just 10 miles.” [60] USA Today,
December 7, 2017.

- "Would truck-only lanes help metro Atlanta traffic?" [63] WSB-TV, August 2, 2017.

Further Reading: Dams


Further Reading: Drinking Water

- "America has a water crisis no one is talking about: Outdated infrastructure is making water too expensive for millions of families." [74] Vox, May 9, 2017.

Further Reading: Freight Infrastructure


Further Reading: Inland Waterways

- "River traffic is increasing, but infrastructure lags." [79] Iowa Farmer Today, September 14, 2017.
Further Reading: Ports

- “Mark Sanford to host congressional colleagues in Charleston to tout infrastructure needs,” [84] McClatchy, October 3, 2017.

Further Reading: Rail


Further Reading: Resilience

- “Harvey to be a Turning Point for Equitable Transit-Oriented Development in Houston,” [88] OffCite, December 7, 2017.
- “Senate Democrats Seek Transportation Funds in Next Disaster Aid Bill,” [89] AASHTO Journal, November 9, 2017.


Further Reading: Transit


“Regional leaders back stopgap funding option for Metro,” [118] WTOP, November 9, 2017.

Ray LaHood Independent Review of Washington Metropolitan Area Transit Authority [119], October 23, 2017


“Metro says it needs $15.5 billion over 10 years. And that’s just so it doesn’t get worse,” [123] The Washington Post, September 16, 2017.


“In the US, transit deserts are making it hard for people to find jobs and stay healthy,” [125] City


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