

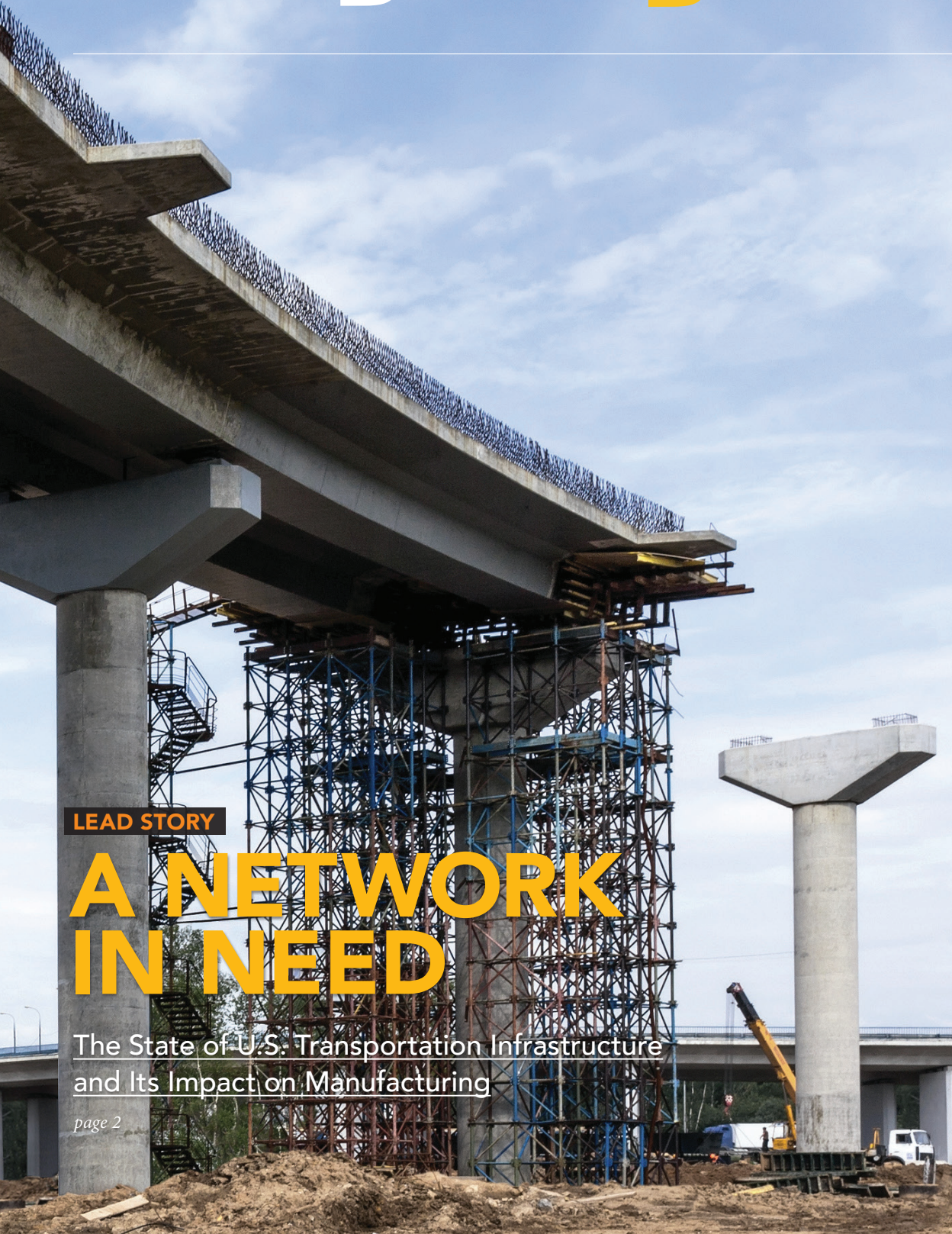
Grayway

LEAD STORY

A NETWORK IN NEED

The State of U.S. Transportation Infrastructure
and Its Impact on Manufacturing

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WELCOME



Stephen Gray
President &
Chief Executive Officer

Delivering high-quality buildings to our customers on time is an absolute must for the success of our company. The same goes for the U.S. manufacturing industry. Even slight delays in shipping of materials or products to retailers or end users can be catastrophic to companies competing in the fast-moving global marketplace. While the vast majority of our leaders agree the U.S. needs a transportation infrastructure to meet the growing needs of our economy, it seems no one can agree how to make that happen. This issue of the GrayWay discusses the burgeoning problems with U.S. transportation infrastructure, why it's not being addressed, and what should be done today to ensure our infrastructure is ready for the demands of tomorrow.

*Gray practices methods
which protect our environment.*



BUILDING A 21ST-CENTURY TRANSPORTATION INFRASTRUCTURE



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A NETWORK IN NEED

The State of U.S. Transportation Infrastructure and Its Impact on Manufacturing



IT IS NO SECRET THAT AMERICA'S AGING INFRASTRUCTURE is in dire need of attention—it's one issue our nation's business, economic and elected leaders find consensus on across the board. It's obvious why a poorly maintained infrastructure is bad for manufacturing—if interstate lanes are blocked by construction for long periods of time, or the speed limit is reduced on a bridge due to structural deficiencies, it creates bottlenecks, congestion and puts a kink in delivery schedules.

For the U.S. manufacturing industry—and the economy overall—to remain globally competitive, it's imperative to have a 21st-Century infrastructure that not only allows for timely delivery of product to market, but is reasonably priced as well.

So what are the biggest problems and how severe are they? Every four years, the American Society of Civil Engineers (ASCE) issues a report card on the state of U.S. infrastructure, and the results are nothing short of alarming. Overall, ASCE gives the U.S. infrastructure a D-plus grade point average.

ASCE broke it down further by type of transportation infrastructure to hone in on where the real problems lie and how much investment each system needs now to be ready for the demands of the future. Each category was evaluated on the basis of capacity, condition, funding, future need, operation and maintenance, public safety and resilience.

Earning a grade of D were aviation, roads, inland waterways and transit. Ports, bridges and rail fared somewhat better with C averages.

The report points to the vast increase in commercial enplanements—33 million more in over an 11-year period—for the clogging and congestion at terminals, costing about \$22 billion in delays in just one year, according to the Federal Aviation Administration (FAA). Congestion and delays to the economy will rise from \$34 billion in 2020 to \$63 billion by 2040 if federal funding stays as is.

Highways remain congested—some 42 percent fall into this category. This costs the economy about \$101 billion in wasted time and fuel each year. The Federal Highway Administration says it would cost about \$170 billion annually to make significant improvements. And without structurally sound bridges, highway traffic slows even more. Currently, about one in nine of the country's over 600,000 bridges are classified as structurally deficient.

"The Federal Highway Administration says it would cost about \$170 billion annually to make significant improvements."



France ranks 8th in quality of overall infrastructure by the World Economic Forum. The United States is 11th.

Some U.S. manufacturing sectors rely on inland waterways for the delivery of large amounts of freight but the system hasn't been updated since the 1950s. With backed-up waterways, barges sit for hours, costing manufacturers precious time and money. And because 95 percent of international trade is shipped via waterways it's essential for U.S. ports to be ready to handle the ever-increasing volume. Despite this, federal funding has declined for port upgrades, placing most of the burden on state port authorities and private investors.

The number of Americans who use the public transportation system continues to increase, and that's not expected to slow down any time soon. While investment is up in transit, deteriorating fleets and facilities are costing the economy tens of billions of dollars.

There is one bright spot on the ASCE report card, however: rail. While this mode of transportation received an average C grade, rail companies have invested heavily in upkeep and renewal of rail lines and yards, fueled by an increase in demand for its services due to congestion in other parts of the transportation network.

Maintenance and rehabilitation of transportation infrastructure is largely funded by the federal government, with the exception of rail. The Highway Trust Fund was established by Congress in 1956 and generates revenue via a fuel tax to fund infrastructure improvements, mostly for roads and bridges. The tax currently stands at 18.4 cents per gallon of gasoline and 24.4

cents per gallon of diesel fuel, but has not been raised since 1993. The revenue generated by this tax is insufficient to pay for a good portion of infrastructure projects waiting in the queue.

In an election year, it's not uncommon for political hopefuls to cite the issue as one they will prioritize if elected to office. But no matter how much infrastructure is discussed, Congress continues to all but ignore the problem.

The U.S. House of Representatives recently passed yet another short-term extension to the Highway Trust Fund—a move experts agree is inadequate.

“Current funding levels alone will never help the U.S. climb out of its growing infrastructure gap,” said Robyn Boerstling, director of transportation and infrastructure policy for the National Association of Manufacturers. “There is a ten-year backlog of essential infrastructure projects that must move forward and a status quo trajectory will not be sufficient. Manufacturers often remind policymakers and elected officials that the potential to increase productivity, grow the economy and increase jobs are important incentives to address the nation's well-documented infrastructure challenges. It is time for manufacturing voices to be heard.”

And while the U.S. drags its feet, key competitors in Europe and Asia are investing in infrastructure, threatening the U.S.'s leading position in the global marketplace. According to the World Economic Forum, the U.S. ranks 11th in quality of overall infrastructure, behind other developed countries like France and Japan.



Andy Hermann
Past President,
ASCE

Andy Hermann, a seasoned bridge engineer by profession and past president of ASCE, speaks frequently on the topic on behalf of ASCE across the country. He says the organization has gone to great lengths to not only study where the problems lie within America's infrastructure, but has commissioned studies on what happens if the U.S. fails to act.

“What if we just keep on investing at the same rate we have for the last five-to-ten years, up to 2040?” he said. “What happens to the country? What happens to families? What happens to businesses? If we just keep on going at this rate, it's going to have a pretty nasty effect on those categories.”

ASCE's Failure to Act report predicts a \$3.1 trillion loss in gross domestic product; a \$1.1 trillion loss in U.S. trade value; and the loss of 3.5 million American jobs.

“You're also looking at a loss of \$2.4 trillion in consumer spending and—when you bring it down to the family level—it's going to hit each family for \$3,100 a year by 2020,” Hermann explained.

While the future looks bleak if nothing is done, Hermann says the solution is quite simple: more federal investment.

“If we invest \$157 billion a year, we could eliminate those drags on the economic growth,” he said. “It's a no-brainer, but nobody really wants to act on it.”

Why not? Hermann says it basically comes down to politics.

“Infrastructure rehabilitation and maintenance is simply not sexy,” he said. “You can't get the governor to cut a ribbon on a bridge paint job.”

Furthermore, he says, the American people don't want to pay extra, and politicians don't want to force them.

“We've benefited from our grandparents and great-grandparents investments and we're just not holding up our end of the deal,” he said. “We're

supposed to be improving and maintaining it for the future.”








On a more positive note, Hermann says states are stepping up to do what they can to supplement the federal investment shortfall and plan for future infrastructure needs, including state tax increases.

“One of the things we've found from bond issues or sales tax increases, if you tell the public what you're going to use that money for, they are much more inclined to vote for it,” he said.

Hermann gave Orange County, Calif. as an example. The county voted for a ten-year sales tax and the revenue generated from the tax was specifically earmarked for infrastructure projects. At the end of this ten-year period, more projects still needed to be executed, so Orange County put the sales tax back up for a vote.

“The people said yes,” Hermann said of the vote's outcome. “So, people are satisfied if they can see things getting done. They want to see something happening with their money, and it not just dissolving into other government programs.”

ASCE Infrastructure Grades

 ROADS	D
 RAIL	C+
 BRIDGES	C+
 PORTS	C
 INLAND WATERWAYS	D-
 TRANSIT	D
 AVIATION	D
AMERICA'S G.P.A.	D+

ASCE Report Card

RAIL TO THE RESCUE

Is One of America's Oldest Modes of Transportation Part of the Solution to Its Infrastructure Woes?

It's been over 210 years since the steam engine locomotive was invented—the single-most important development of the Industrial Revolution that put the United States on a trajectory to becoming the world's leading economic superpower. In fact, without rail, there may have been no Industrial Revolution, and the United States would not hold this position today.

While a significant amount of U.S. transportation infrastructure is built and maintained by public money through the Highway Trust Fund, rail enjoys the somewhat unique position of being funded by privately held companies. This is especially advantageous at a time when the U.S. Congress is unwilling and unable to pass a long-term transportation bill to fund desperately needed infrastructure projects.

Perhaps it is because of this that rail is experiencing a resurgence of sorts as the go-to freight transportation option for today's manufacturers who risk losing market share or even going out of business when other modes of transportation—water, air, highway—fail to provide an efficient means of delivering product to market.

And it's not just freight rail that is lightening the load on highways, airways and waterways. Passenger rail service plays a vital role as well. As more and more people choose rail as a means of travel, highways become less congested, making room for more freight trucks to move through the network.

Companies like Amtrak have doubled ridership over the past decade and both freight and passenger rail are making significant investments in upgrades.



Jason Reiner
Assistant Vice President
of Industrial Development
for Norfolk Southern
Corporation

Jason Reiner is assistant vice president of industrial development for Norfolk Southern Corporation, which operates 20,000 rail miles in 22 states, mostly east of the Mississippi. He says while congestion on the highways means more business for Norfolk, any breakdown in the transportation network has both a positive and negative effect on rail.

"We are an alternative to congestion," he said. "In fact, we market that. Your truck drivers are sitting in traffic too long, your product's not moving, you can't find drivers. And so you have a truck and an interstate that's wide open, but you don't have a driver behind the wheel. The railroads offer an alternative for that, which is good news, bad news. It moves the challenge."

"Now, where we have capacity, we just picked up a bunch of business because the interstates are full, but now we start to have infrastructure challenges," he said.

It's at those times, Reiner said, when investment decisions are made.

"We make investment decisions based on need so we can respond fairly quickly," he said. "If we see a need arise, and we see congestion, as a private entity, we can make fairly prompt investment decisions based on standard business practices."

There are two types of investments Norfolk makes on an ongoing basis to keep up with demand for their service: the addition of siding so that trains can run in both directions, and in increasing capacity at rail yards so cargo cars can be mixed and switched quicker, and get on their way to their destination faster.

Norfolk recently invested some \$160 million to increase capacity at its Bellview, Ohio rail yard—the largest investment the company has made in an infrastructure project in nearly 20 years.

Norfolk Southern Corporation
operates 20,000 rail miles
in 22 states, mostly east
of the Mississippi.



And while private investment by freight rail companies is helping to ease congestion throughout America's transportation network, some argue there is even more potential to do so by investing in passenger rail service.



Marcia Hale
President,
Building America's
Future

One such person is Marcia Hale, a former advisor to President Bill Clinton and current president of Building America's Future, a nonpartisan infrastructure coalition that studies infrastructure issues in the U.S. and advocates for the need for immediate investment.

Hale says the addition of high-speed rail, like what is found in Europe and Asia, could be a game-changer when it comes to alleviating congestion on highways, waterways and airways.

"I have always contended that if more Americans traveled to Europe and saw their high-speed rail trains, they'd say, 'Why don't we have that here?'" Hale said. "And if we could only get one high-speed rail line in this country, then Americans would say, 'Why not here?' We can't just keep building highways everywhere. If we're going to build them, we need to keep them upgraded."

Hale says European countries fund high-speed rail projects through a so-called "infrastructure bank," established decades ago to provide private funding for infrastructure projects. She says Mark Warner, U.S. senator from Virginia, has introduced a bill to establish a similar infrastructure bank but, so far, it has not moved in Congress.

There is, however, evidence high-speed rail could be coming to America, and soon. Hale says two high-speed rail projects are currently being discussed by private investors: one extending from Las Vegas to Los Angeles, and the other from Dallas to Houston. She says if these projects come to fruition, it could alleviate a significant amount of transportation congestion, especially at airports.

"Some of the biggest proponents of high-speed rail are the airlines," she said. "While you would think the airlines would be competitors, at least in Texas, they don't see it that way. There are many flights between Dallas and Houston and many of those gates could be freed up if you had true high-speed rail in that area of the country."

Hale says not only would high-speed rail serve to alleviate congestion, it could be a boon to manufacturing in other ways as well.

"If you get one of those lines up and running, I think it would be quite an eye-opener," she said. "And just think of the jobs that could be provided in manufacturing engines and cars and rail lines and the steel that's needed."

"Some of the biggest proponents of high-speed rail are the airlines."

—Marcia Hale



European countries have been utilizing high-speed passenger rail service for decades. The U.S. still lacks a high-speed rail line.

THE NEW FACE OF MANUFACTURING

Promising Manufacturing Innovations that Could Revolutionize Infrastructure Maintenance and Rehabilitation



When it comes to the state of U.S. infrastructure, Americans have a tendency to focus on the negatives. What isn't discussed nearly as much are the innovations and new ideas that are being developed now, or may be in the future.

That is why the American Society of Civil Engineers (ASCE) went on a quest to find the most innovative ideas and solutions that promise to revolutionize infrastructure maintenance and rehabilitation in America, and improve transportation efficiencies. They call these ideas and innovations "Game Changers."

One "game-changing" innovation is the use of additive manufacturing—or 3D printing—as a way to reduce construction waste and labor costs. According to ASCE, researchers are currently experimenting with oversized 3D printers to make large

concrete pieces that are thicker and require less setting time. The pieces may also be manufactured with a hollow center, cutting material cost and waste. 3D printing is also being considered for the manufacturing of fast-setting metal structures for use in the construction of bridges.

Another exciting innovation involves the use of ground tire rubber blended with asphalt to produce a longer-lasting material for road construction. The rubberized asphalt is being tested on arterial streets in The City of Huntington Beach, Calif., and is expected to extend the lifespan of the pavement by an additional ten to 20 years.

To learn more about game-changing infrastructure innovations, go to: <http://ascegamechangers.org/>

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COLDWATER, MICH.

Gray has been selected by the Clemens Food Group to design and build a 550,000 s.f. fresh pork processing facility on a 100-acre site in Coldwater, Mich. The plant will partner with family-owned pork producers in the region and is strategically located within a two-hour driving distance to all pork producers engaged in the project.

The plant is expected to generate \$255.7 million in total capital investment and bring some 800 new jobs to Michigan. A portion of that investment—\$12.5 million—was approved by the Michigan Strategic Fund to be used for infrastructure developments, land purchase, and workforce training and development—part of an incentive package offered to Clemens by the state of Michigan. The Coldwater plant is projected to be operational in late 2017.

Based in Hatfield, Pa. since 1895, the Clemens Food Group is a sixth-generation, family-owned integrated pork production operation including farming, processing, transportation and logistics.



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