As both the public and private sectors in the U.S. await signs that President Donald Trump will make good on his campaign promise to spend a trillion dollars on improving infrastructure nationwide over the next decade, the American Society of Civil Engineers is calling for immediate action.

In its much-anticipated “2017 Infrastructure Report Card,” released in March, the Society gives the U.S.’s infrastructure—across the board—an overall grade of “D+.”

“We can no longer afford to defer investment in our nation’s infrastructure. To close the $2.0 trillion 10-year investment gap, meet future need, and restore our global competitive advantage, we must increase investment from all levels of government and the private sector from 2.5% to 3.5% of U.S. Gross Domestic Product (GDP) by 2025,” the Society states in its report. The 2017 report seems to be its most strongly worded to-date. “Infrastructure is the foundation that connects the nation’s businesses, communities, and people, driving our economy, and improving our quality of life.”
For the U.S. economy to be the most competitive in the world, we need a first-class infrastructure system—transport systems that move people and goods efficiently and at reasonable cost by land, water, and air; transmission systems that deliver reliable, low-cost power from a sustainable range of energy sources; and water systems that protect the public health,” the Society states. “Yet today, our infrastructure systems are failing to keep pace with the current and expanding needs, and investment in infrastructure is woefully inadequate. Elected leaders on both sides of the political aisle need to make good on promises they have made to improve our nation’s infrastructure and ensure these pledges don’t fall by the wayside after each election cycle.”

The Society publishes the report every four years. It assesses infrastructure capacity, in terms of both current and future demands, its physical condition, the cost for improvement, current and anticipated funding, operations and maintenance loads. The report also assesses the impact on public safety, its resilience when confronted with hazards or threats, and the amount of built-in innovation.

Of the 16 sectors analyzed, only 4 scored above a “D+” grade. Bridges, Ports and Solid Waste each received “C+” grades, since they have each seen some improvement over the past few years. The Rail sector, which also has seen modest gains in investment, received the report’s only “B” grade. Conversely, the report’s lowest grade was given to the Transit sector, which scored a “D-.”

“Our nation is at a crossroads,” the Society states. “Deteriorating infrastructure is impeding our ability to compete in the thriving global economy, and improvements are necessary to ensure our country is built for the future. While we have made some progress, reversing the trajectory after decades of underinvestment in our infrastructure requires transformative action from Congress, states, infrastructure owners, and the American people.”

While the report is sobering, the outlook is far from bleak, Hill International experts say. After all, pundits on both sides of the...
U.S. congressional aisle agree that investment in improving America’s aging infrastructure is imperative. After a fractious election and contentious start to Trump’s new administration, infrastructure may well be the one spending initiative everyone can agree on. In addition, infrastructure as a whole already has seen a noticeable uptick in planned, ongoing and completed projects in recent years, helping to propel the U.S. out of one of the most serious economic downturns in its history. And, as momentum in U.S. infrastructure builds, it could jump-start similar initiatives in both developed and developing countries around the world.

Hill International, with a decades-long roster of infrastructure projects, is well positioned to manage much of the anticipated work, said President and Chief Operating Officer Raouf S. Ghali. “Hill already has won several new contracts or contract extensions in the infrastructure sector over the last two quarters, and expects even more opportunities in the coming months, as the Trump administration’s plans are made public,” Ghali added.

Infrastructure Grades

Rail: B
Bridges: C+
Ports: C+
Energy D+
Hazardous Waste: D+
Parks: D+
Schools D+
Wastewater: D+
Aviation: D
Dams: D
Drinking Water: D
Roads: D
Transit: D-

Vince Gallagher, a Hill Senior Vice President and Director of its Federal Transit Group, agreed that infrastructure projects have increased in recent years, particularly in terms of transit and light rail projects. “Between 2002 and 2012, transit route miles have increased 32 percent, with light rail growing faster than any other transit mode,” he explained.

Gallagher said the future for his sector—transportation—can be inferred, at least in part, from a report by the U.S. Department of Transportation, “2015 Status of the Nation’s Highways, Bridges and Transit: Conditions and Performance.”

“Based on 2012 data, this report identifies an $836 billion backlog of unmet capital investment needs for highways and bridges, and $90 billion for transit systems,” Gallagher said.

“The purpose of transit is to benefit the residents and improve their lives by increasing their mobility—not to guarantee a return on the capital investment. The 2015 U.S. DOT report indicated that $26 billion is needed, per year, to improve the condition of transit rail and bus systems. But, in 2012, total spending to preserve and expand transit systems was only $17 billion,” he added. “So, the investment not only needs to continue, but must be increased to meet future growth demands.”

“A stellar transportation system is key to economic success,” Gallagher continued. “For too many years, the country has not adequately funded the existing systems, and they are in a state of disrepair. The federal gas tax has been the same since 1993, although inflation has increased almost 66 percent over this same period of time.”

States and cities are taking action themselves, Gallagher said. “The states and cities have recognized this significant shortfall in overall funding, and have been stepping up to increase funding. Both Pennsylvania and New Jersey, for example, recently enacted much-needed laws to increase the funding available for roads and transit. It would be great if a bipartisan solution can be found to address the overall funding needs of America. Not many states and cities can do it alone without some federal assistance.”

“Over the past several years, cities have taken positive steps to take control of their transit needs, as more citizens vote for increased taxes to meet the local demands. This is seen in such cities as Denver, Phoenix, Los Angeles, Atlanta and Seattle, and in Santa Clara County, California,” Gallagher continued. “So, the ‘demand’ and the ‘will’ are present in some places; we’ll need to see if there is a way to successfully fund the many projects across this country.”

The need for modern, safe, affordable transportation will continue to be important to both cities and growing suburbs, Gallagher said. “Rapid population

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growth is forecasted to occur over the next 30 years. Our big cities are luring more people—not just millennials—by offering them more opportunities for jobs and personal enrichment,” he explained.

“Excellent public transportation systems are a very positive attraction to settle in cities, since driving on our highways and roads has become more of a challenge. As a result, cities that have a plan to accommodate growth with improved public transportation will be in a better position to attract people.”

Between 2002 and 2012, transit route miles have increased 32 percent, with light rail growing faster than any other transit mode.

- Vince Gallagher
Senior Vice President and Director
Federal Transit Group
Hill International

NEW YORK RAMPING UP

Cities like New York, Gallagher added, already have begun planning ahead. “They recognize that their investments are investments in their future.”

“The completion of the No. 7 Subway Line extension to Hudson Yards, and Phase 1 of the Second Avenue Subway, have increased capacity and together provide more mobility to the traveler,” he said.

John Drygulsky, a Hill International Vice President and Hill’s Project Director for the No. 7 Subway Line extension, said the project provided an important transit link for commuters traveling from Flushing, Queens to Manhattan and the West Side’s Jacob K. Javits Convention Center, the High Line and Hudson River Park. Until now, subway service on the “Flushing Line” stopped at Times Square. Extending the 100-year-old line to the city’s far West Side has not only been a boon to commuters, but also is a vital part of the redevelopment of the adjacent Hudson Yards.

Hudson Yards, former industrial site, is being repurposed as a mixed-use development that will encompass 55 million square feet of office, retail, entertainment and residential space. Hudson Yards, in turn, is expected to further the far West Side’s rejuvenation.

Nearby, Hill’s “Gateway” project assignment for Amtrak, will add two new tunnels connecting New Jersey and New York, potentially doubling train traffic capacity in and out of New York City.

Hill is providing program management services to the National Railroad Passenger Corporation, known as Amtrak, in connection with the massive Gateway Program, a set of strategic rail infrastructure improvements that will improve service and increase capacity on rail lines running from New Jersey, under the Hudson River, into New York City. The program will increase Amtrak’s track, tunnel, bridge and station capacity and, eventually, create four main-line tracks between Newark, New Jersey, and Penn Station in New York City, including the construction of a new, two-track tunnel under the Hudson.

“No. 7 Subway Line Extension - Hudson Yard Station Upper Mezzanine, NY

“The transformation has been incredible,” Drygulsky said. “There are more projects going on there than I’ve ever seen in my life, and I’ve lived in New York City all of my life.”

The value of the project, and its impact, have not gone unnoticed. The No. 7 Line Extension recently garnered a coveted “Best Project” award from Engineering News-Record.

John Drygulsky (Left)

“By eliminating the bottleneck in New York and creating additional tunnel, track, and station capacity in the most congested segment of the Northeast Corridor, the Gateway Program will provide greater levels of service, increased redundancy, added reliability for shared operations, and additional capacity for future increases in commuter and intercity rail service,” said John Milano, P.E., Hill Senior Vice President and Northeast Regional Manager.
The West Is Leading The Way

As infrastructure projects on the U.S.’s East Coast have increased over the past couple of years, projects on the West Coast have been in full swing. “On the West Coast, we’re also seeing more and more. Los Angeles residents approved a $140 billion tax referendum to fund various modes of transportation over the next 40 years, and Seattle has a $54 billion program to expand light rail. In addition, Honolulu is building their first heavy rail system at a cost exceeding $9 billion,” Gallagher said.

Hill Senior Vice President Mike Smith, who leads Hill’s Western Region, concurred. His region has been busy with infrastructure work, especially transportation projects, for the past few years, and he expects that trend to continue.

“Measure M, the tax referendum passed in Los Angeles, was one of the biggest in the country, and other cities and counties are following suit. Similar referendums in Phoenix, San Jose and Seattle will generate billions of dollars in infrastructure work,” Smith said.

“In Phoenix, Hill was awarded a $55 million contract to help manage extensions to the Phoenix Valley Metro light rail system. The agency initially built 20 miles for its starter system, and added 3 miles on each end of the alignment over the past several years, resulting in the current 26-mile system.

But recently, voters approved a tax that will increase funding for infrastructure projects, specifically for transportation programs. As a result, the light rail system will continue to expand to approximately 66 miles for the overall master plan system,” Smith explained.

“In Seattle, we were selected by Sound Transit to provide project and construction management for an extension of its light rail system to the Microsoft campus,” Smith continued. “And, in San Jose, California, the Santa Clara County Transportation Authority has awarded Hill a $35 million contract for various infrastructure projects, including highway, road, light rail and even pedestrian walkways and bike trails. Voters also passed a tax initiative that will fund these types of projects in the long term.”

In southern California, planning is underway for the next leg of an extension of the Foothill Gold Line. “We just finished Phase 2A on time and under budget. That phase opened up for revenue operation last year,” Smith said. “The next phase, Phase 2B, is now in the preliminary design phase.”

Work on the Gold Line is one of several projects being funded by Measure M. Approved in November 2016 by more than 70 percent of Los Angeles voters, Measure M also will fund the creation or extension of other transit lines, as well as a push toward city- and region-wide interconnection. Further south, Hill is managing expansion of highway and grade separation projects in Orange County. “There is quite a bit of working going on there, and we’re helping to manage the work to ensure that the County, and its taxpayers, get what they’re paying for,” Smith said.

The Gold Line project has received several “best project” awards from such industry leaders as the American Society of Civil Engineers, the Construction Management Association of America, the American Council of Engineering Councils, the Western Council of Construction Consumers, the California Transportation Foundation, and Engineering News-Record, among others. Passenger rail...
and highway/bridge aren’t the only areas in which Smith is seeing growth. Airports, energy transmission lines and substations, and county facilities such as new jails all are generating bigger waves in the rising tide of western-region infrastructure work, he said.

“We expect that there will be a huge upswing in all of the infrastructure sectors,” Smith said. U.S. airports are undergoing expansions and other improvements, Smith said. “It all comes down to the volume of travel, now and in the future,” he said. “To meet the anticipated demand, airports need to either upgrade their facilities, or replace outdated facilities with new ones.”

“Airports need to modernize to stay competitive in order to attract—and remain attractive to—the major airlines whose passengers use the facilities. Both airports and the major (airline) carriers both want to ensure that customers have a good experience, and facilities plays a large part in that,” Smith explained.

Cargo or freight carriers also have seen major upticks in recent years, as online shopping has become increasingly mainstream. That trend also will continue over the next several years, propelling the air freight industry to even greater heights, Smith said.

In Los Angeles, a Hill joint venture recently was awarded a $42.5 million contract from Los Angeles World Airports (LAWA) to provide project controls services for improvements to LAWA over the next five years. LAWA, a department of the City of Los Angeles, is currently in the midst of a multi-billion-dollar capital improvement program at Los Angeles International Airport (LAX).

The Tom Bradley International Terminal project is the centerpiece of this ambitious program, which includes new gate and concourse areas and a Great Hall for luxury dining and retail. Additionally, several major airfield and facility projects are underway as part of the program.

“Hill has been working with LAWA for the past few years. This new contract is part of a comprehensive capital program involving improvements to just about every part of the airport, from runways to terminals, to people movers and roadways,” Smith said. “The improvements will allow for more and safer air traffic, an easier commute to and within the airport, and an improved customer experience.”

The project will help the world’s fifth busiest airport—and the second busiest in the U.S.—meet growing passenger demand. In 2015, LAX had its busiest year ever—serving 74.9 million passengers—up 6 percent from 2014. By 2036, as many as 95 million passengers will use LAX annually. In addition, the airport needs to be ready to handle a potential spike in passenger traffic in 2024, if Los Angeles is chosen to host the 2024 Summer Olympics. (Los Angeles and Paris are competing to host the immense event; the International Olympic Committee will make and announce its decision this fall.)

“The city needs to make sure it has world-class facilities, and not just at its airports. Rail systems, highways and other infrastructure all need to be ready,” Smith said.

The biggest challenge ahead may be meeting the staffing demand that’s likely to be created. “Whether on the consultant side, or the client...
While both Gallagher and Smith feel that public-private partnerships and other funding mechanisms may play a larger role in future infrastructure projects, the bulk of the costs—especially in terms of transportation projects—still will be paid with public money.

“Federal funding for highways, bridges, transit and airports has typically been funded with overwhelming bipartisan support, in my opinion, because the economic benefits outweigh the capital investment. I remain hopeful that the new Congress will work with the new Administration to develop a balanced and adequately funded program that will improve the quality of life and create good paying jobs for the residents in the many communities across this country,” Gallagher said. “Also as a New Yorker, President Trump understands the importance and benefits of transit and rail investments.”

Smith is equally optimistic. “It’s a great time for us now, and we’re quickly expanding from mostly transportation-related infrastructure work to other types of infrastructure work.”

For proponents of such work, including the American Society of Civil Engineers, the upswing can’t come soon enough. “Smart investment will only be possible with leadership, planning, and a clear vision for our nation’s infrastructure,” the ASCE states on its website.

“Leaders from all levels of government, business, labor, and nonprofit organizations must come together to ensure all investments are spent wisely, prioritizing projects with critical benefits to the economy, public safety, and quality of life, while also planning for the costs of building, operating, and maintaining the infrastructure for its entire lifespan.”

A Risk-Based Management Approach To Project Execution

Newcomers to the infrastructure sector probably won’t fare well, Gallagher said. And, while he’s seen the industry move toward more risk-based approaches, project success often depends largely on experience—whether a certain problem has been identified and navigated before. “A risk-based management approach to project execution requires the owner, designer, contractor and owner’s representatives to identify, analyze, mitigate and manage the known and unknown project risks,” Gallagher said. “This is an important element of the project manager’s “tool box” in planning and executing the project within budget and schedule.

“Despite an emphasis on risk-based management, we still see projects coming in over budget and experiencing schedule delays. In my opinion, it is a combination of a lack of management capacity and capability, and the project not being proactive enough to recognize changes in market and resource conditions,” Gallagher continued. “The best way to help our clients navigate changes is to keep them informed and only provide factual data.

That’s what we do,” Gallagher said. While both Gallagher and Smith feel industry awards, including:

**American Council of Engineering**
- Engineering Excellence Honor Award, Foothill Gold Line

**American Society of Civil Engineers**
- Outstanding Transportation Project Award, Outstanding Rail Project of the Year Award, Foothill Gold Line

**American Society of Highway Engineers**
- Outstanding Highway Engineering Award, Montour Run Bridge No. 6 Replacement

**California Transportation Foundation**
- Best Rail/Transit Project Award, Foothill Gold Line

**Construction Management Association of America**
- Project Achievement Award, Foothill Gold Line
- No. 7 Subway Line Extension
- San Francisco Intl. Airport - Data Center Facility

**Engineering News-Record**
- Best of the Best Project Award, Regional Best Project Award, No. 7 Subway Line Extension
- Best Project Award, Foothill Gold Line Bridge

**New York State Society of Professional Engineers**
- Construction Project of the Year, No. 7 Subway Line Extension

**Western Council of Construction Consumers**
- Exceptional Project Achievement Award, Foothill Gold Line
- Project Excellence Award, San Francisco Intl. Airport - Data Center Facility
- Distinguished Award for Infrastructure, Foothill Gold Line Bridge
- Interstate 5/Gene Autry Way Interchange

Los Angeles International Airport - Tom Bradley Terminal, CA
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We gratefully acknowledge Vince Gallagher, Mike Smith, John Milano and John Drygulsky for their contributions to this special edition of News from the Hill: Focus on Global Infrastructure

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