

TRANSPORTATION & INFRASTRUCTURE TODAY: "ASK THE EXPERTS"



PHOTO: NUCOR SKYLINE

© Images requested are those of the advertiser.

Nucor Skyline steel pipe used for pier footings on the Lansing bridge across the Mississippi River in Iowa.

# Critical Challenges

Workforce worries, supply chain issues and cost escalation loom as infrastructure projects scale up

By Tiffanie Reynolds

## WHAT'S INSIDE

- Infrastructure Funding Faces Challenges
- Rebuilding a Historic Bridge
- Small Cap Services, Big Impact
- A New Era of Infrastructure Development
- Thirty-Three Years of Growth and Excellence
- Revolutionize Rail Infrastructure
- Daylighting Designed for Safety + Sustainability



# Infrastructure Funding Faces Challenges

Many factors are expected to influence the construction industry's outlook for FY25. If we follow the dollars, the \$5 billion in funding recently announced by the Biden-Harris Administration as part of a broader \$40-billion investment earmarked for bridge repair, restoration and reconstruction in the IIJA legislation is one to watch. However, other influences, ranging from staffing to navigating evolving technologies to price escalation will very likely impact how infrastructure challenges are addressed next year. We asked some of the industry's respected leaders to weigh in on what to expect and how to navigate these influences.

## The Biden-Harris Administration recently announced \$5 billion for new infrastructure projects, namely bridges. How do you expect this to impact your business?



**Matt Clemson, Regional President of Oldcastle Infrastructure:** We do expect this will positively impact

demand in our business as we provide solutions encompassing precast pilings, three-sided bridges, box culverts and other drainage infrastructure that often comes as part of a bridge rehabilitation project. These bridge repairs will also positively benefit many businesses as they are key supply lines across many main corridors in our country for getting materials, goods and supplies from producers to businesses and consumers. This will help make those supply chains more resilient.

But it's not just large national bridges we should be focused on, but also the other 45,000 bridges in this country, many of which are in poor condition. We think it's important to play our part in this work through programs like the Bridge Formula Program (BFP) in Utah. For instance, the Lone Tree Bridge serves as a prime example. Originally conceived as a steel plate

structure, it was re-envisioned through the BFP as a precast concrete bridge, spanning 26 ft with a 13-ft rise. This modification not only sped up construction but also underscored the potential for innovation in bridge construction.

## What do you think is the most pressing issue impacting the industry in 2024 and looking towards 2025?



**Thomas J. Spearing III, Senior Vice President, Rail and Transit Sector Lead, Hill International, Inc.:** Looking

forward to 2025, infrastructure and transportation continue to face challenges such as aging infrastructure, climate change and increased demand for sustainable mobility. Many roads, bridges and transit systems are approaching the end of their lifespans, leading to frequent maintenance and higher costs. Addressing the demand for sustainable transportation means cities must explore expanding public transit options that require the adoption of advanced technologies.

Thankfully, from digital ticketing systems to real-time passenger information and automated operations, technology is enhancing efficiency and the customer experience. Innovations, such as predictive maintenance, energy-efficient trains and integrated transportation programs are further streamlining operations and reducing operational costs. However, the planning and execution of projects to meet these demands requires specialized knowledge and experience.

Currently, the industry is grappling with a growing skills gap. This gap threatens to slow down critical projects and can lead to delays, cost overruns and suboptimal project outcomes. Addressing the knowledge gap is one of the major challenges facing our industry today. We are seeing strains on the construction labor market that we have not seen before—and there are no simple solutions.

As infrastructure projects scale up they will require an investment in a workforce skilled in modern engineering, data analytics, cybersecurity and project management. Attracting younger talent and investing in training, education and mentoring programs are essential if we are to build the talent capable of keeping pace with the technological advancements to meet future transit demands.



**Mike Keller, Kalwall Corporation, Manager of Direct Sales:** A

critical challenge next year will be finding and interacting with qualified individuals who seek industry knowledge and want to work towards common goals on construction projects. Also, too many companies are trying to do more with less, which leads to unreliable construction documents, minimal attention to detail and unrealistic expectations for diligent material suppliers like Kalwall.



**Mike Moore, Senior Vice President-Texas, SEMA Construction:**

The most pressing issue facing the construction industry is how to effectively manage increased risks that companies have been faced with since COVID-19 and that continue to persist. This does not mean Risk Management having to do with insurance (although insurance continues to increase), but with the following risks:

- Lack of qualified craftsmen and supervision: The increase in the volume of work is at odds with a decreasing workforce.
- Price escalations of materials: Cost of materials continues to escalate with shorter escalation windows resulting in the compounding of price escalations.
- Material shortages and supply chain issues: Material shortages and inadequate freight capabilities can create delays and work inefficiencies.

The above risks are placed on the Contractor but how they manage these risks will determine an organization's success and sustainability.

### Is there a key aspect that deserves national attention regarding U.S. infrastructure or transportation?

**Spearing:** Today, the pressing challenges we face are being driven by increasing demand, aging systems, the shift to sustainability and the need for safety. Transportation networks, transit systems, roads, railways and bridges are struggling to cope with the strain, while many are decades old and in dire need of upgrades or replacements. Additionally, the growing need for environmentally sustainable infrastructure adds another layer of complexity, as governments aim to reduce carbon emissions and transition to greener modes of transportation. These investments require significant capital investment and innovative technology. At the same time, infrastructure systems such as electrical grids need upgrades to support this shift, as current grids may struggle to manage the increased demand from electric vehicles and electrified public transit systems.

Safety is also a major concern as we move forward. With railway technologies becoming increasingly complex over time, we are finding that one of the main challenges lies in balancing rapid infrastructure upgrades with safety protocols that address complex systems integration, particularly when introducing innovative technologies such as automated control systems, high-speed trains and electric or hydrogen-powered locomotives.

In the railway industry, independent safety assessments (ISAs) can help to address these challenges by providing objective evaluations of innovative technologies, operational practices and infrastructure projects. ISAs are independent judgments attesting that the safety requirements for the railway project are appropriate and adequate including the systems, civil works assets and operation and maintenance processes.

**Clemson:** In general, we're in a cycle of increased investment in infrastructure, and that's a positive. We have made some progress over recent years in improving the country's infrastructure and this current cycle will help some of

that progress continue. But we're not investing enough, to the tune of \$2.6 trillion over 10 years in the most recent ASCE report card, and we're underinvesting most heavily in the infrastructure underground that we don't see, primarily our water infrastructure.

We often don't think about our water infrastructure until we get a boil water advisory after a water main break, or when we hear of a sewage spill caused by a combined sewer overflow, or when we see that a city can't deliver clean drinking water to its residents. But then we forget about it. The IJJA allocated \$55 billion to improve drinking water and wastewater infrastructure, but that's just over 10% of the shortfall in funding needs in the sector. By investing more in our water systems, we can address growing population demands, increasing extreme climate effects and deficiencies from aging infrastructure. And that investment will benefit our transportation infrastructure by

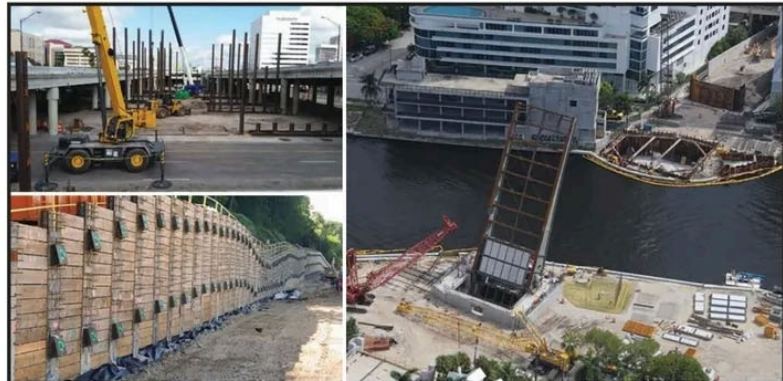
reducing the negative effects of extreme water events on that infrastructure. It pays for itself multiple times over.

### Do you think funding in water restoration is needed/critical or should the administration be placing emphasis elsewhere?



**Geoff Mestas, P.E.,  
DBIA, Vice President  
Alternative Delivery,  
SEMA Construction:**

Water resource and flood control projects are increasing in need every year, with droughts in the west, wildfires and a higher frequency of more erratic storm events. We are seeing more owners, cities and municipalities put a higher emphasis on this type of work and we feel that it is a strong market for growth, but also a vital part of our everyday lives that needs to be addressed. Like transportation infrastructure, we have aging reservoirs and dams that are at the end of



## BRIDGE AND HIGHWAY SOLUTIONS

- Offering the broadest range of steel foundation and geosteel products for bridge and highway construction
- Your source for a multitude of driven or drilled bearing piles
- Our products can be used in various applications including: bearing piles, bridges, gantry signs, temporary and permanent retaining walls, sight and sound walls, and anchors for slope stabilization



[nucorskyline.com/infrastructure](https://nucorskyline.com/infrastructure)

**NUCOR®**  
**SKYLINE**

their life expectancy and if not improved can pose a high risk to communities downstream of these facilities. Our underground pipe networks for transporting drinking and stormwater are also aging and many still utilize asbestos and lead pipes. These are critical elements to the functionality of our communities and will need to be addressed soon.

**Clemson:** Funding in water restoration is mission-critical in our country. There are few other infrastructure needs with greater scale, magnitude and severity than our aging water network. The WRDA 2024 works to strengthen flood control, wastewater and stormwater infrastructure. With flooding and drought becoming more extreme, our outdated water infrastructure continuing to age and the capacity of our systems increasingly insufficient to serve our communities' growing needs, it's imperative we direct more funding, study and technology to addressing these challenges. ♦

## Rebuilding a Historic Bridge Across the Mississippi

The Mississippi River Bridge in Lansing, Iowa, has a long history, dating back to the early 1900s. After going through many owners, names and refurbishments, the bridge is finally being rebuilt to bring it up to modern standards.

The new bridge, a steel-through truss bridge, will include upgrades such as an 8-ft shoulder, 12-ft driving lane widths, a 180-foot height above the water, and a reinforced concrete bridge deck.

Stalworth Underground, which provides specialty civil and building foundation and earth retention services out of Chicago, was contracted for the drilling portion of the project and reached out to Axios Civil and Nucor Skyline for their bridge foundation expertise. Together, Axios Civil and Nucor

Skyline supplied over 400 tons of 108-in. and 138-in. ID pipe piles to be used as drilled shafts on the bridge foundation. The shafts were drilled over 120 ft deep into rock sockets. Once the shafts were set into the bedrock, they were filled with reinforced concrete, and the pier footings and columns were set in place.

The pipe piles from Nucor Skyline's Newton, Ill., manufacturing facility were delivered via truck. Stalworth Underground and Kraemer North America installed the casing using a drill rig and a crane with a vibratory hammer to secure the casing at design depth. The bridge is expected to open in 2026.

To find out more about Nucor Skyline pipe piles for your next bridge project, please visit [www.nucorskyline.com](http://www.nucorskyline.com). ♦



## Small Cap Services, Big Impact

By Rebecca Blankenship, FDBIA, Vice President, Hill International

Progressive design-build (PDB) is an increasingly popular delivery option for rail and transit agencies delivering major infrastructure projects. In a nutshell, PDB is a hybrid delivery method that combines the early contractor involvement benefits of construction manager/general contractor (CM/GC) delivery with the all-inclusive responsibilities of design-build.

PDB utilizes a qualifications-based procurement process, enabling owners to select a design-builder prior to developing a baseline design, saving time and money. The design-builder and owner then collaborate to develop the project's scope and budget, ideally with the support of an owner's advisor

with PDB experience.

However, PDB is not suitable for every project. Achieving cost certainty can vary depending on the approach—whether choosing a fixed price with a flexible scope or a fixed scope with a flexible price. This flexibility requires a solid understanding of PDB, often necessitating training to ensure all stakeholders, including owners, are well-versed in the PDB process.

If your team wants to know more about PDB and how PDB you can realize a robust, responsive and responsible approach that not only meets but exceeds the requirements and expectations for your program, contact a qualified PM/CM

**Progressive design-build enables owners to save time and money.**

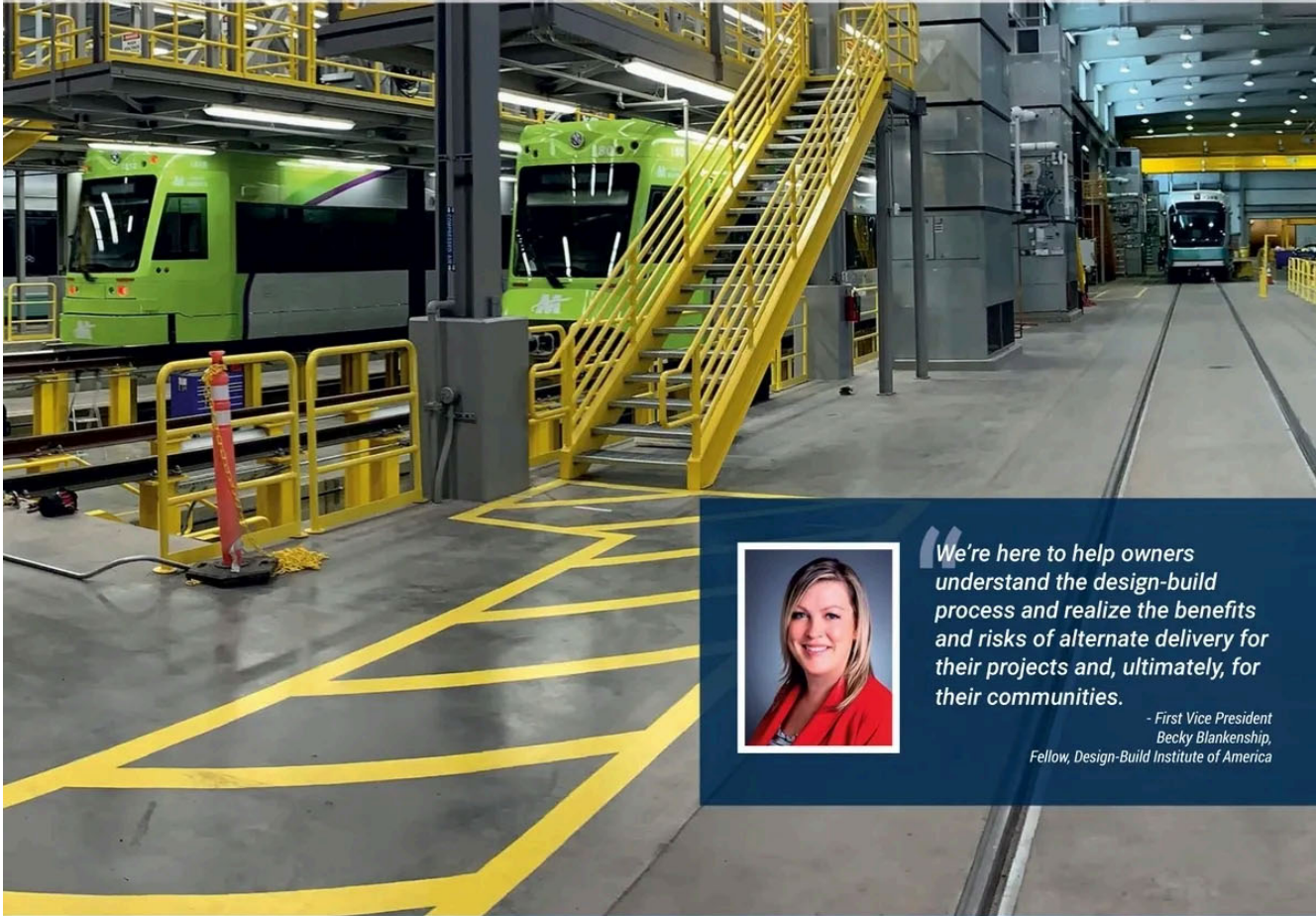
partner or the Design-Build Institute of America for more information. ♦

*Rebecca Blankenship, FDBIA, is a Vice President with Hill International and an expert in alternative delivery, having guided project teams through more than 30 PDB projects. She is a Fellow in the DBIA and has helped to deliver light rail and bus rapid transit projects employing design-build and other delivery methods.*

PHOTO: HILL INTERNATIONAL



FIND THE RIGHT PATH FOR YOUR TRANSPORTATION AND INFRASTRUCTURE PROJECTS  
**WITH HILL INTERNATIONAL**



*“We’re here to help owners understand the design-build process and realize the benefits and risks of alternate delivery for their projects and, ultimately, for their communities.”*

*- First Vice President  
Becky Blankenship,  
Fellow, Design-Build Institute of America*

## COLLABORATE · INNOVATE · DELIVER

**Alternative delivery methods offer owners multiple benefits—and multiple risks.**

Hill International’s delivery experts can help you identify the best delivery method for your specific project, from progressive design-build to traditional design-bid-build, and then make certain you realize the maximum cost and schedule benefits while minimizing your risk.

Alternative Delivery Advisory | Program Management | Project Management | Construction Management  
Project Management Oversight | Management Consulting | Facilities Management

[www.hillintl.com](http://www.hillintl.com)