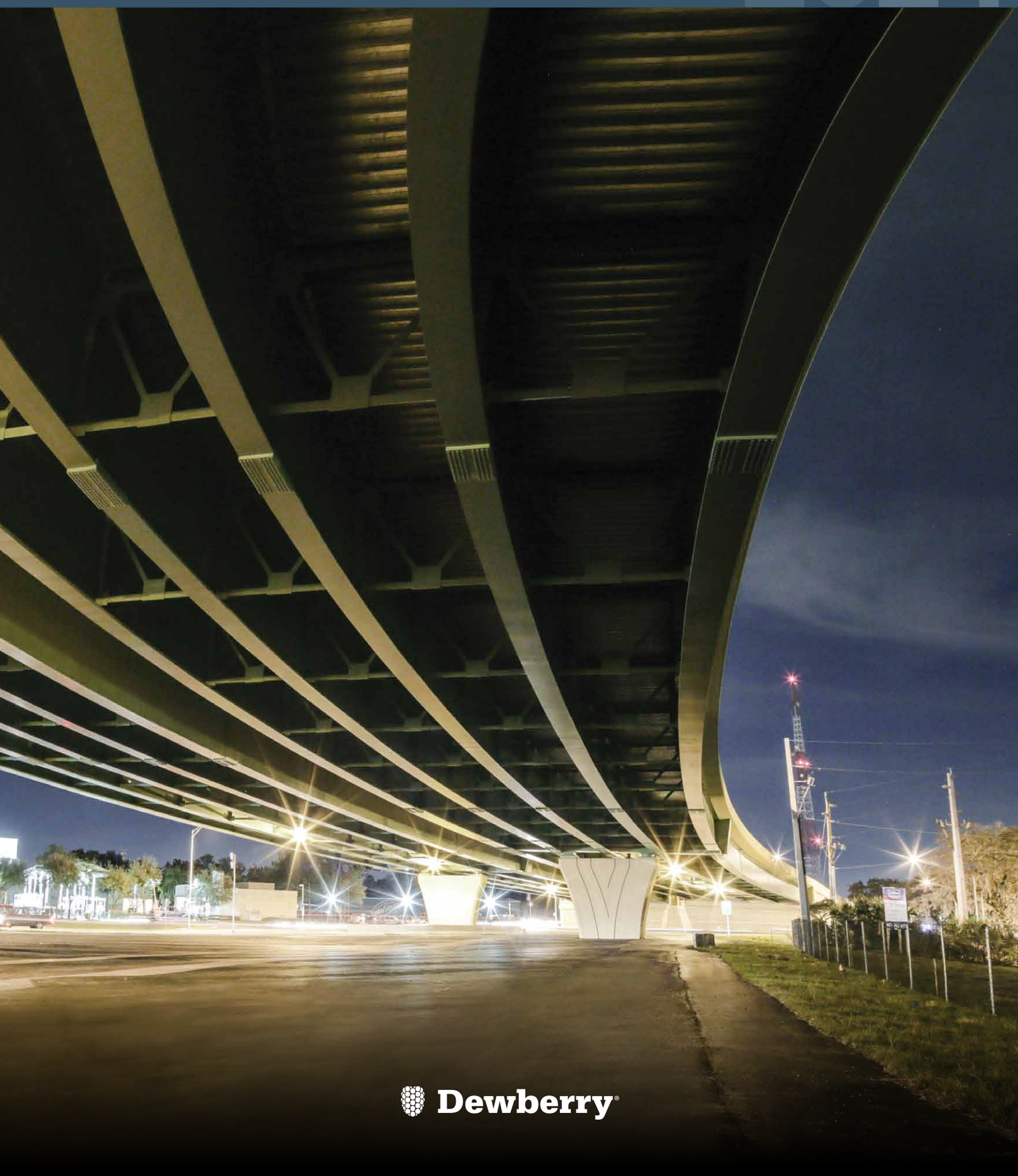
DIMENSIONS®

PROJECT DELIVERY REPORT 2024



Dewberry®

OUR COMMITMENT

In my many decades as a client of engineering firms, one of the biggest challenges I faced was the complacency that can set in with long-standing relationships. Dewberry values these long-term relationships and works hard to keep them, in part through ongoing training and process enhancement. During my tenure on the board, I've witnessed significant effort and resources allocated to developing leadership talent and effective project teams. These include project manager and client manager training programs and scenario-based programming. This year, Dewberry also launched a company-wide mentorship program that enables employees to seek guidance from those beyond their local office or technical team.

As you'll read in this issue, Dewberry's workforce development efforts underpin projects of increased complexity. At the James River Crossing in Virginia, Dewberry's design team helped make choices critical to completing the longest-ever horizontal directional drill project and saving the client millions. Adept planning and communication skills are helping Dewberry's clients meet the growing demands of our data-intensive world. Complex coordination and task management are being demonstrated by Dewberry's project at the U.S. Marine Corps Air Ground Combat Center in Twentynine Palms, California, and at Tyndall Air Force Base in Florida.

In its client manager training, Dewberry educates professionals on how to help clients understand project delivery methods that might expedite their work. We also help clients face project challenges such as understanding new regulations and securing public approvals and funding. Executive leadership is visiting project sites and hearing directly from our teams about safety protocols, evaluating and addressing risks, and performing timely, corrective actions.

We are fortunate to be a part of a dynamic industry. To watch something get designed and then built that contributes positively to a community is a privilege. I'm proud to be associated with Dewberry, a company that strongly emphasizes making its projects and clients successful.

GERALDINE KNATZ, PH.D
Member, Board of Directors

DIMENSIONS® PROJECT DELIVERY REPORT

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IN THIS REPORT

ON THE COVER
State Road 423/434 (John Young Parkway) Extension, Orange County, FL

COLLABORATION AND INNOVATION DRIVE BEST VALUE FOR JAMES RIVER CROSSING'S DESIGN-BUILD PROJECT

by Paul Longo, PE, Assoc. DBIA®
Senior Associate, Senior Project Manager

The Hampton Roads Sanitation District (HRSD) serves nearly two million people in cities and counties throughout southeastern Virginia and the Eastern Shore. In 2016, the district launched the Sustainable Water Initiative for Tomorrow (SWIFT), an innovative, multi-year water purification project designed to replenish the Potomac Aquifer, the region's primary source of groundwater. This ambitious initiative will improve local surface water quality; provide a sustainable source of groundwater; and address environmental challenges such as Chesapeake Bay restoration, sea level rise, and saltwater intrusion.

The James River Crossing (JRX) project is a key component of SWIFT. The project involves construction of a raw wastewater force main across the James River from Newport News to Suffolk. In selecting the JRX design-build team, led by Dewberry and Garney Construction, HRSD recognized that our solution would provide the best value by mitigating risks and addressing key challenges with innovative trenchless solutions. We are the lead engineer for the project, responsible for the engineering analysis of the force main installation while working closely with key engineering partners.

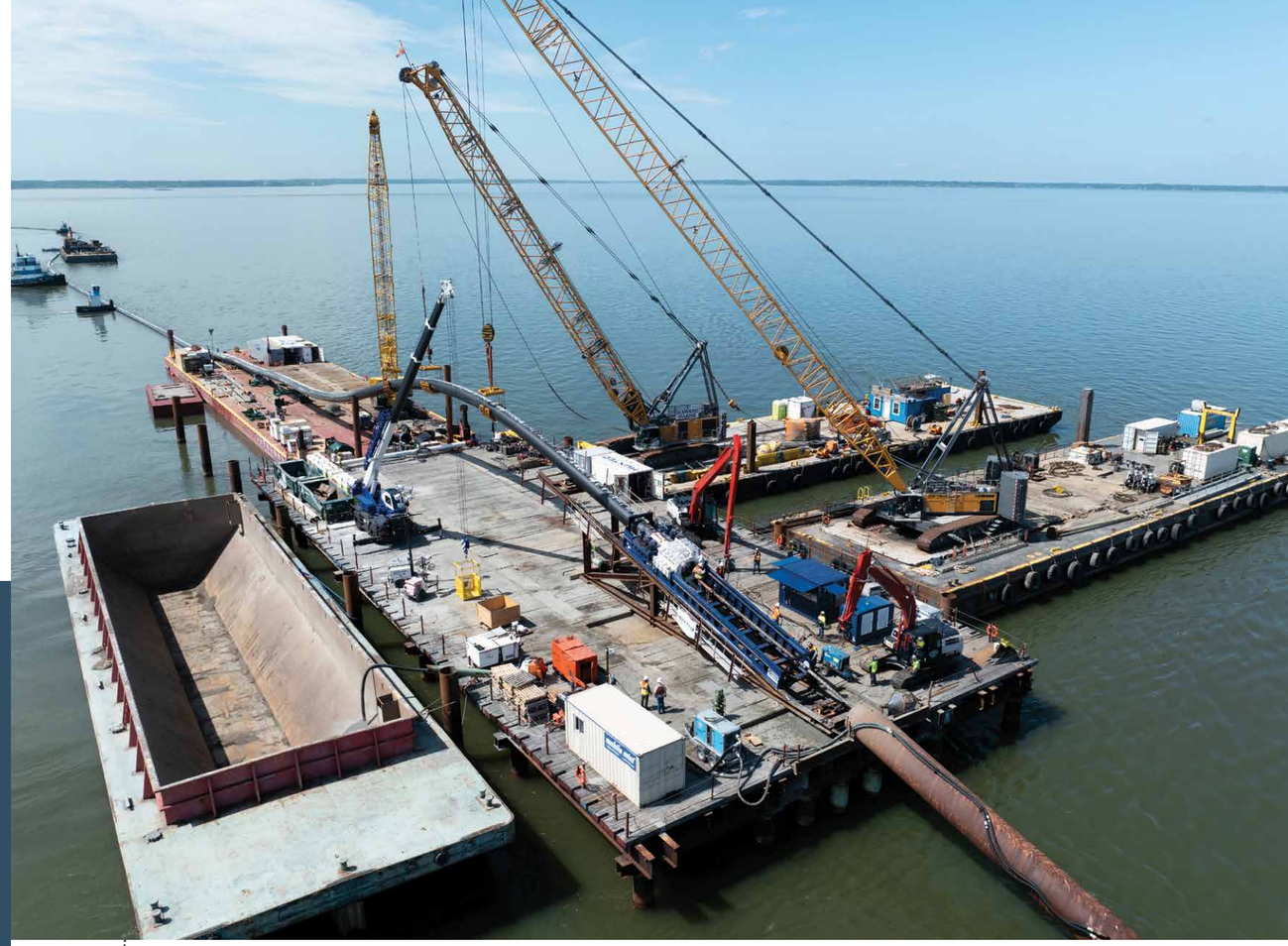
CHOOSING THE DESIGN-BUILD METHOD

HRSD chose design-build delivery due to the complexity associated with marine pipeline construction, trenchless pipeline installation, and complex permitting requirements. Leveraging design-build allowed HRSD to select a comprehensive team of builders and engineers to collaborate early on and provide the best value for the project and its customers.

The Dewberry and Garney Construction team has been collaborating since 2020 to design, permit, and construct the first phase of the high-density polyethylene (HDPE) force main installation. When fully completed, the pipeline will connect the new Boat Harbor Pump Station with the Nansemond Treatment Plant located on the opposite bank of the James River. This new infrastructure is essential to SWIFT's goals of replenishing the Potomac aquifer, reducing ground subsidence, and limiting the impacts of sea level rise across the region.

LEVERAGING INNOVATION TO PROVIDE COST SAVINGS

A critical component of JRX involved the installation of the new force main under the Newport News shipping channel, one of the busiest shipping channels in the world. The basis for the design-build request for proposal was to perform a water-to-water horizontal



The Garney/Dewberry team completed a record breaking horizontal directional drill (HDD) under the Newport News shipping channel as part of our $145-million JRX project. Photo courtesy of Garney Construction.

directional drill (HDD) of approximately 3,200 linear feet (LF) using an HDPE pipe under the channel. Early on, our team identified this HDD installation as one of the biggest project challenges and worked diligently to identify industry leaders with the technical expertise, specialized equipment, and experience to perform this one-of-a-kind HDD. Huxted Trenchless and Brierley and Associates, nationally recognized leaders in the trenchless industry, were brought onto the team during the proposal phase to support this work.

Our design-build team analyzed the feasibility of extending the HDD to the shoreline, adding more than 2,300 LF for a new total length of more than 5,700 LF, which is equivalent to 19 football fields. This is a new world record for an HDPE installed via HDD at this diameter and length. Our innovative approach ultimately saved more than $10 million by eliminating fixed work platforms, marine construction, and port coordination. In addition, the extension of the HDD significantly mitigated environmental impacts and supported a streamlined permitting process.

As of May 2024, the world-record HDD was completed, involving more than 50,000 manhours, zero safety incidents, no inadvertent environmental impacts, and a product pipe that passed pressure test. The JRX project is an excellent example of how engaging industry leaders, strong collaboration, and outside-the-box thinking can drive best value for accomplishing design-build projects. We are looking forward to continuing to collaborate with the rest of the JRX team to conduct the next phase of the project, including marine cut installation for the remaining 3.5 miles.

A FOCUSED EFFORT ON SAFE WORK PRACTICES USING GEMBA WALKS

by Dennis Haglan, PE
Senior Vice President, West Operating Unit Manager

A Japanese term meaning “the actual place,” Gemba walks are a management practice that enables health, safety, and environment (HSE) and senior leadership to walk a project site together, observe and learn about work being completed, and ask questions about tasks and jobsite safety. In 2024 our HSE team began conducting Gemba walks at project sites across the nation.

While these walks focus on confirming that our field employees have the tools and support they need to stay safe, they enable executive and senior leadership to engage with project staff and explore opportunities to improve the delivery of high-quality projects.

A Gemba walk has the added benefit of showing the contractor and the client our commitment to jobsite safety.

SUPPORTING A SAFE WORK ENVIRONMENT

I had the opportunity to participate in a Gemba walk at our North Area Recovery Station (NARS) project in North Highlands, California, with employees working on the site, leadership from our Rancho Cordova office, and an HSE manager. We are performing the construction management and inspection services for this project, and safety is a vital part of that role. NARS has been in operation since 1972 and upgrades are needed to address the greater Sacramento region’s increase in waste quantities and meet the latest legislative requirements. Improvements aim to increase customer safety and traffic efficiency, including a new waste tipping building, new scales, ADA sidewalk improvements, and fire sprinkler improvements.

On the day of the walk, the team met at the jobsite and completed a daily risk assessment where it was evident the client has high expectations for safety. We also learned that the general contractor holds subconsultants accountable for safety at the site. Throughout the walk, we discussed what to be aware of when working on a construction site, especially with the amount of equipment moving in and out of the site. We also identified the need for fall protection training for our construction management group. This was a great opportunity to see the project site, learn what our team is doing, and review how to continue providing support to prioritize safety at the jobsite.

CONTINUOUS IMPROVEMENT FOR FUTURE PROJECTS

Once the walk is complete, leadership regroups to share thoughts and observations with the HSE team to align best practices and opportunities for improving safety at Dewberry. By involving senior leadership on jobsite walks, the team is given the opportunity to demonstrate its support and commitment to employee safety. The lessons learned and observations from these walks will be used to develop initiatives and protocols for continuous improvement for future projects.

The project site has confined spaces, which adds considerations and requirements for delivering the project safely.

Participants walking the construction site wear the proper personal protection equipment for this project.

FUNDING TRANSPORTATION PROJECTS IN A POST-BIL WORLD

by Eric Lord
Associate, Senior Project Manager

Rebecca Neilon, PE
Senior Engineer

The Bipartisan Infrastructure Law (BIL), also known as the Infrastructure Investment and Jobs Act (IIJA), includes the largest ever federal investment in public transportation, with more than $100 billion dedicated to building roads, bridges, and notably, electric vehicle (EV) charging infrastructure.

The statute dedicates $7.5 billion for EV charging technology, including $5 billion for high-speed chargers placed along U.S. roads through the National Electric Vehicle Infrastructure (NEVI) program. The other $2.5 billion was set aside for competitive grants to add more EV charging stations in residential, business, and commercial districts via the Charging and Fueling Infrastructure (CFI) program.

BIL will expire in 2026 if not renewed. We have been monitoring what a post-BIL world will look like, so that we can deliver accurate and actionable advice to our clients, to include other sources of future funding.

BENEFITS AND SPURRING CHANGE

The massive influx of government grants has altered the construction landscape, generating action and excitement from states and municipalities that had long sought funds for repairs and upgrades. It's also mitigated pre-BIL challenges concerning what to develop and where.

Looking again at EVs, drivers have historically hesitated to adopt these vehicles due to charger limitations, while high costs and questionable market demand have hindered charger deployment. NEVI helps jumpstart such deployment, which in turn has increased EV adoption.

The law also created the CFI program, which expands the availability of EV charging stations by directing funds to governments, public higher education institutions, and other entities. The latest round of disbursements constitutes the largest grant round for EV charging infrastructure ever.

Some of our commercial clients have won request for proposal-driven competitions to secure grants for their projects. One such client recently hired us to provide design-build services for six Pennsylvania sites.

ABUNDANT CONSTRUCTION OPPORTUNITIES

While many big projects have been built, the law has limitations, as many jurisdictions have not felt BIL's impact directly. However, many pre-BIL infrastructure development programs should continue to operate, including Rebuilding American Infrastructure with Sustainability and Equity (RAISE) and Infrastructure for Rebuilding America (INFRA).

BIL's potential sunset may compel state and local governments to ramp up their infrastructure spending, including for transportation and EVs. It might also invite more private investors to help close the gaps. In fact, this is already happening, and funding will continue flowing from state and utility incentives as well as private partnerships or investments. Recently, seven auto manufacturers formed a joint venture to deploy charging stations across the U.S., with some funding coming from non-BIL sources.

Also, companies pay traffic mitigation fees to government entities based on how much traffic their construction projects will add. Those funds can then be deployed for additional infrastructure projects, sometimes through government agencies' capital improvement programs for building or repairing infrastructure.

PREPARATION IS KEY

In a post-BIL world, these agencies will need to survey the many available recurring grants and assess which ones match their specific priorities.

The best practice is to conduct this assessment a few years in advance, so that design specifications and other project requirements align seamlessly with grant requirements.

We are guiding our clients through these competitive funding programs, using various tools to help them secure grants. Our full-time grant-writing team actively monitors agencies' websites and catalogs impending funding opportunities. Additionally, we advise clients on how to align underfunded projects in their capital improvement plans with funding program objectives.

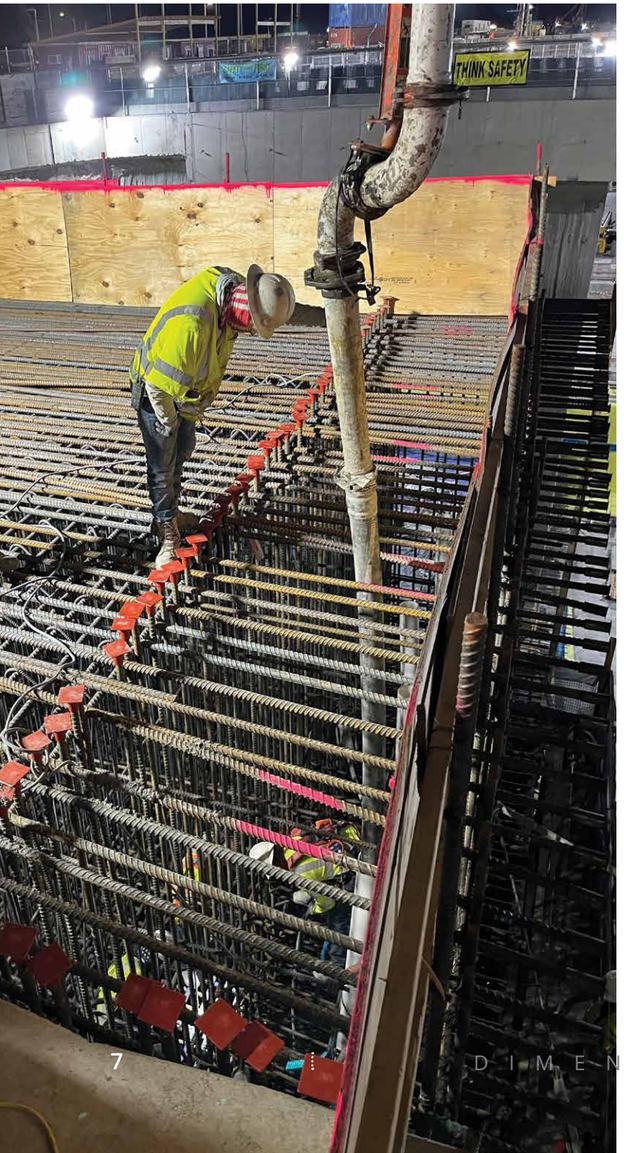
SPEED TO DELIVERY

With a post-BIL landscape on the horizon, expedited delivery systems are likely to gain popularity due to an eagerness to spend available funding. Streamlining design and construction times benefits clients by helping them serve their communities more quickly. Continuing to harness the potential around this government funding is a key strategy to helping our clients achieve their visions.

QUALITY ASSURANCE FROM FOUNDATION TO FINISH

by Christian Brumm, PE, PMP, CCM
Senior Associate, Senior Project Manager

Douglas D. Frost, PE
Senior Vice President, Senior Project Manager



In 2020, Hampton Roads Connector Partners (HRCP) selected Dewberry to provide quality assurance (QA) services for the Virginia Department of Transportation's (VDOT) Hampton Roads Bridge-Tunnel (HRBT) Expansion—the largest highway construction project in Virginia's history. With a budget of over $3.9 billion, it is also one of the biggest infrastructure improvements in the country. Our role is to certify that the expansion meets industry standards of reliability, functionality, and safety, and to verify compliance with contract requirements—whether that involves plans and specifications, special provisions, approved designs, or reference documents.

The design-build project involves widening a 12-mile corridor of Interstate 64 connecting the cities of Hampton and Norfolk and replacing 28 bridge structures. Overall, the improvements aim to increase capacity, improve travel time reliability, and alleviate a major regional bottleneck.

The most technically challenging component is a 3.5-mile stretch that traverses the Hampton Roads harbor. For this segment, the HRBT expansion will add new marine trestles and tunnels to enhance the existing roadway that travels above and beneath the water, connecting with two man-made islands along the way. The new twin tunnels being bored are each about 1.5 miles long and will augment two existing tunnels of approximately the same length, increasing the number of tunnel lanes from four to eight.

The $70-million tunnel boring machine custom-built for the project is roughly the height of a four-story building and longer than a football field. Named "Mary," the machine completed the first tunnel in April 2024, operating 24 hours a day for approximately one year and installing 1,191 pre-cast concrete liner rings throughout its journey.

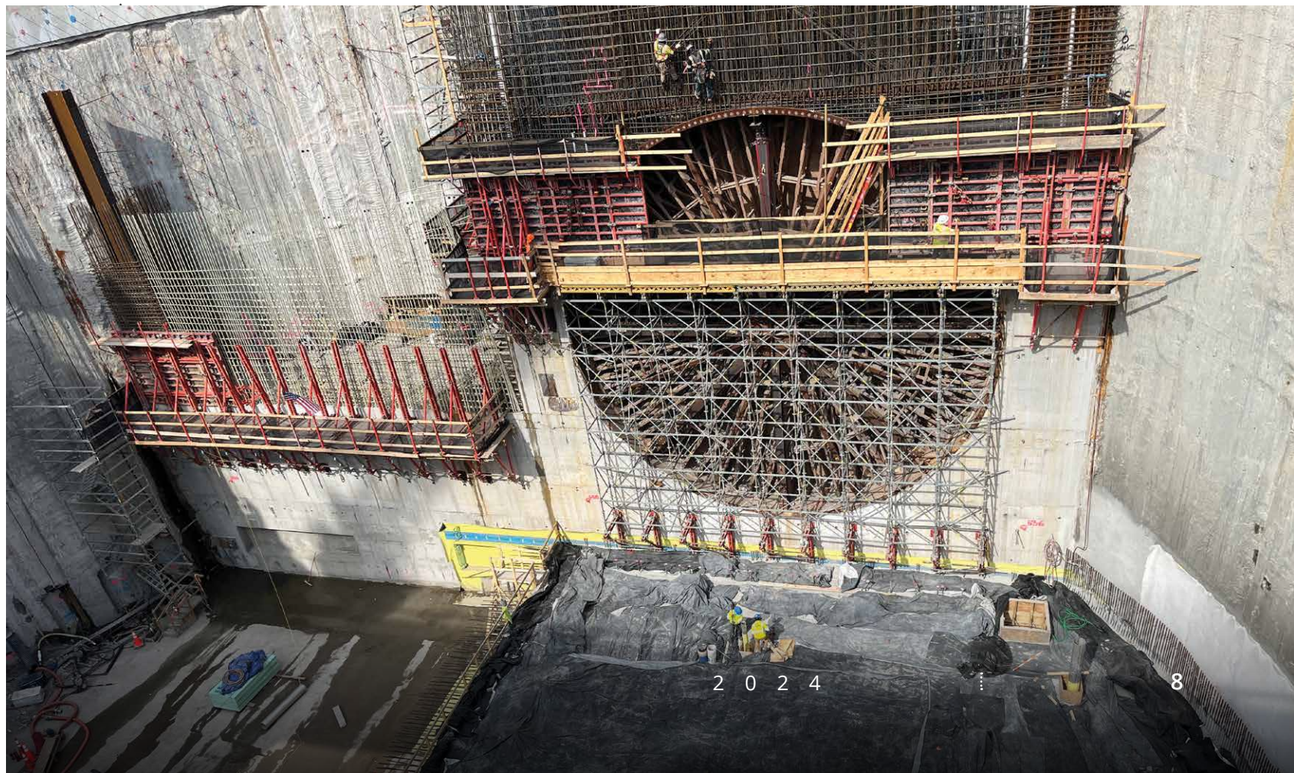
MAINTAINING QUALITY FOR A MEGA PROJECT

The QA role spans the entire project life cycle, confirming that expected criteria are met at each phase to deliver a project outcome that adheres to established quality benchmarks. To address the project's scale and complexity, we assembled a 24-person QA team and implemented a comprehensive quality management system plan covering the design, procurement, and construction stages. Among other duties, we are responsible for creating inspection and testing plans, performing regular audits, and preventing the occurrence or recurrence of noncompliant work.

Additionally, our team maintains meticulous records to document compliance with contractual obligations, coordinating with VDOT and all levels of project staff. Our involvement begins at the precast plants, where we oversee the production of project components, such as tunnel liner segments, bridge piers, and other roadway precast structures. We check that concrete, rebar, liner seals, and other essential parts meet quality standards.

During project assembly, we are engaged with each element of the work, from deep pile installations to shallow foundations and concrete finishes to lighting, traffic signals, and even the paint welds and bolt torques. Successful project delivery requires intimate familiarity with all designs and specifications, emphasizing proactive measures wherever possible to minimize risks, reduce errors, and enhance overall safety and durability of the construction. The HRBT Expansion project is set for substantial completion in February 2027.

VDOT's Hampton Roads Bridge-Tunnel Expansion is the largest highway construction project in Virginia's history.



DATA CENTERS ON THE RISE: SUCCESSFUL DELIVERY REQUIRES CAREFUL PLANNING

by Rich Brittingham, RLA
Vice President, Business Unit Manager

Mai-Khanh Humble, PE
Project Manager

Few property types better illustrate the adage of "location, location, location" than data centers. Today, with the advent of artificial intelligence (AI) amplifying what was already a strong demand for data storage and exchange, finding and developing suitable locations for new facilities is an increasingly challenging process.

With the pool of potential sites limited by inherent requirements for acreage, utility and telecommunications infrastructure, and power availability to support reliable operations, new data centers function best when located in proximity to legacy data storage facilities that can minimize transfer latency and provide redundancy in the event of a disruption. As a result, data center development is concentrated in parts of the country where these critical resources are already in place.

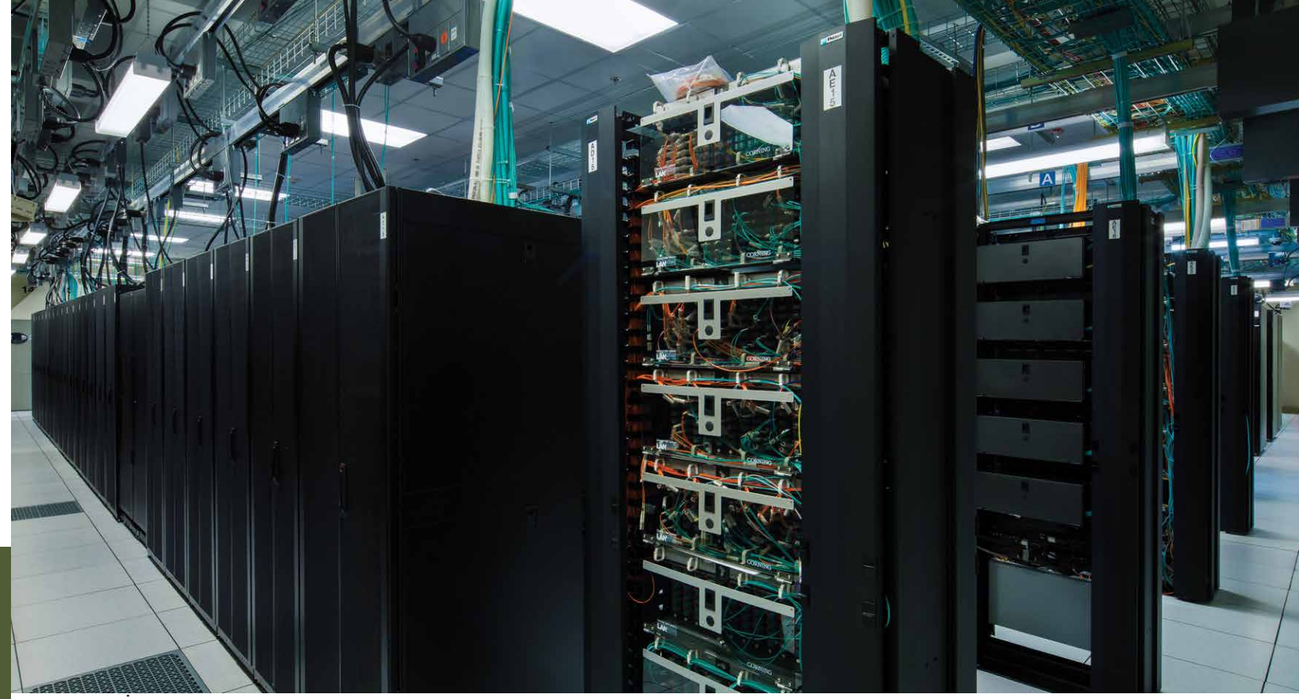
Identifying and securing a suitable parcel is only part of the process, as the project owner must find the most practical and economically feasible path to bring the data center from concept to construction and commissioning—not a simple task in an industry where speed is literally and figuratively of the essence.

BE SITE SAVVY

As with any other challenging land development effort, smart master planning, creative design expertise, and advanced technological tools are key to successful data center projects. Varied, sometimes disparate considerations—development density and layout, perimeter security, environmental impacts, compatibility with adjacent properties—can be fully analyzed and resolved into a solution that optimizes the site's attributes and mitigates conflicts.

Integrating new data centers into their surroundings has taken on heightened importance, particularly if the site is bordered by or close to residential areas and other sensitive properties. While many jurisdictions have adopted codes and standards aimed to "soften"

> **"While any new development will have standard requirements for elements such as environmental impacts and stormwater, many of our clients are going above and beyond minimum requirements to help foster a positive relationship with the community."**



Though the availability of reliable power will remain the biggest driver for data center site selection, not all facilities largely dedicated to AI, as an example, will require the same level of proximity to other data centers.

a data center's appearance through architectural detailing, landscape screening, and other measures, a conscientious conceptual planning effort will find the best strategy to minimize the project's impacts as much as possible.

STRATEGIC APPROACHES

One planning trend is focused on countering perceptions of data centers as environmental disruptors by making these sites as sustainable as possible through a campus layout that maximizes tree preservation and avoids impacts to wetlands and other existing features. Incorporating aspects such as connectivity with existing, adjacent public use trails can present the opportunity to combine stormwater management ponds with other landscaping to create a more park-like setting for the data center's public face.

Communication is also essential to delivering a successful data center project. Many owners proactively engage with the community from the outset to help gain buy-in and dispel misinformation. Likewise, the design and construction team can use collaborative tools to refine the process and quickly address unexpected issues. This investment in time and resources will go a long way toward overcoming many of the common obstacles to new data centers and keep these fast-paced projects moving forward.

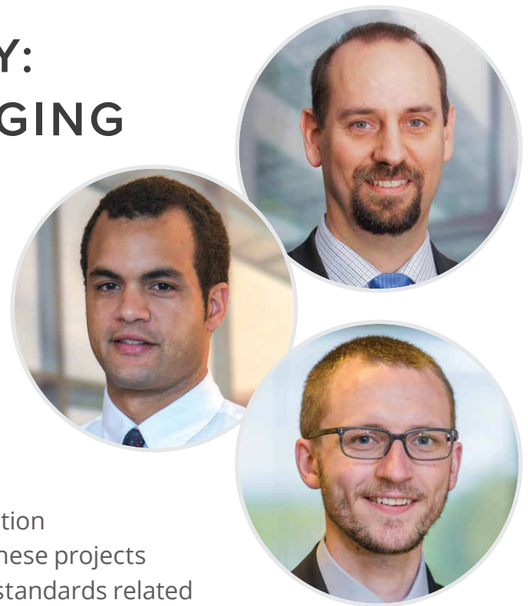
FUTURE FACTORS

The need for these meticulous, creative approaches will only increase in importance as reliance on digital infrastructure to support fast, technologically complex applications grows.

The delivery of data center projects will likely evolve as well. Though the availability of reliable power will remain the biggest driver for data center site selection, not all facilities largely dedicated to AI, as an example, will require the same level of proximity to other data centers. This will open the door to locating these facilities in more remote locations, as well as the creative adaptive reuse and repurposing of existing properties, a nascent trend in some parts of the country.

What is certain is that data centers and their associated infrastructure have already become as essential to daily life as conventional infrastructure, like water, sewer, and highways. Data centers are not simply part of the future; they're helping to make the future happen.

RISK AND COMPLEXITY: DELIVERING CHALLENGING DEFENSE PROJECTS



by Ron Jakominich, PE
Vice President, Senior Project Engineer

Andy Kioko, PE
Senior Associate, Senior Project Manager

Chad Weaver, PE
Senior Associate, Department Manager

Military and Department of Defense (DoD) construction projects can be particularly challenging to deliver. These projects present significant operational demands and strict standards related to security, safety, and performance—requiring meticulous upfront planning and extensive coordination. Two notable examples from different military installations illustrate how we provided design engineering services while managing risks and addressing the inherent complexities of military and DoD project delivery.

TWENTYNINE PALMS: BALANCING RISK WITH OPPORTUNITY

In Twentynine Palms, California, a new wastewater treatment plant is being built at the Marine Corps Air Ground Combat Center. As part of the A&R Pacific-Garney Federal Joint-Venture (JV) design-build team, we are acting as the lead designer for the project and delivering engineering services during construction. The project will replace an existing system with a two million-gallons-per-day plant using disinfection and tertiary filtration to produce an effluent that meets California Code of Regulations Title 22 standards for recycled water, expanding reuse opportunities and reducing groundwater consumption.

Although risks are inherent in any project, a key aspect of project planning is to identify potential risk factors that fall outside of the typical challenges. For Twentynine Palms, the risk category "performance guarantees" required special attention due to the responsibility of the design-build team to operate the plant initially.

To mitigate this risk, we advocated and gained approval for an alternative and more effective treatment technology. We also specified our own performance guarantees on parts of the equipment, transferring risk to vendors who can better control it. Additionally, we are conducting early water quality sampling to verify that influent water is consistent with criteria defined in contract documents, allowing time to address any potential variability.

TYNDALL AIR FORCE BASE REBUILD: OVERCOMING LOGISTICAL COMPLEXITY

In 2018, Hurricane Michael devastated Tyndall Air Force Base on Florida's Gulf Coast. With most of the 30,000-acre base obliterated, it essentially had to be rebuilt. That presented a rare opportunity. The silver lining to a disaster is the chance to rebuild stronger.

The $5-billion project prioritizes resilient design to withstand future storms and was divided into 12 zones, each with a series of projects involving multiple contractors. Under a design-build contract, we partnered with CHA to form a JV design team under prime contractor Lane Construction. Our role is Zone 4.1, the utilities and infrastructure package, which includes eight miles of new and rehabilitated roads and extensive water, sewer, drainage, electrical, and communications systems.

Unlike other projects that focus on single buildings or specific areas, utilities and infrastructure intersect everywhere, requiring us to coordinate with nearly every reconstruction effort on the base. Coordinating with all of the different projects and connection points is a challenge, especially with ongoing construction that often includes field changes that need to be managed.

Utilities and infrastructure are the backbone of all other projects, none of which could go online until we completed each connection point. Our driving tool was a matrix of every building and its utilities/infrastructure need-by-date. We built construction schedules by working backward from these deadlines to determine start dates, design completion targets, and resources needed for achieving each timeline. To meet the earliest project deadlines, we fast-tracked four separate parts of the package.

FLEXIBLE SOLUTIONS, PROFESSIONAL GROWTH

Successfully delivering each project requires rigorous team collaboration and creative problem-solving. We need to be nimble in how we adapt to challenges. With Twentynine Palms, we found a way to leverage our strengths and expertise to provide a successful solution that also reduced risk exposure to the team.

The Tyndall Air Force Base rebuild is an exercise in managing several moving parts simultaneously. We regularly receive calls from the contractor about unexpected obstacles or changes in the field, and we create workarounds on the fly. It is a continuous evolution, making constant design adjustments and working closely with Lane to provide them with the design support to manage such a dynamic environment.

While challenging, both projects afforded valuable professional growth and career-changing experiences within our organization. The complexities our teams faced in each project offered a platform for mentoring junior staff and providing opportunities to gain valuable problem-solving skills.

The $5-billion Tyndall Air Force Base project prioritizes resilient design to withstand future storms. Photo courtesy of Aero Photo.

EVOLVING DELIVERY METHODS FOR JUSTICE FACILITIES

by Jonathan Tallman, AIA, GGP, GPCP, NCARB
Associate Principal, Market Segment Leader

The justice market segment presents unique challenges and opportunities with respect to delivering design and construction projects. It would be reasonable to expect project delivery mechanisms for courts, rehabilitation centers, and public safety facilities such as police stations to reside exclusively in the public sphere. But there isn't a one-size-fits-all approach.

For example, one of our municipal clients lacks the resources to fund its large-scale justice projects. Existing or even augmented tax revenue won't close the gap, and there's no assurance that a voter-approved bond would be approved quickly. This client is not alone. Municipalities, counties, and states across the country cannot simply ignore their populations' needs. To satisfy their civic obligations, they must find a path forward.

THE POWER OF P3

When addressing funding challenges, a public-private partnership (P3) can change the game. A P3 is an agreement between a public and private entity, whereby each side shares assets, skills, risks, and rewards to develop a physical space—usually to serve the general public. Financing typically comes from the private sector. The flexibility of these arrangements allows for win-win engagements that yield financial benefits for private groups (often developers) and societal benefits for public groups.

When leading a P3, a developer brings funding to the table, enabling communities to build needed facilities that they couldn't otherwise afford. Often, developers own the building at the outset, essentially serving as a financial institution for the government, which makes annual payments on a 30-year or 40-year mortgage loan. These yearly payments steadily rise throughout the loan period. For example, if a municipality's first payment is $2 million, its final payment (after 30 or 40 years) might be $6 million or higher. As a result, governments have more financial flexibility on the front end, giving them ample time to amass the dollars necessary to make much larger payments down the road—a reprieve for public entities that need to move quickly.

P3 agreements can be structured in hundreds of ways, though developers typically are responsible for all maintenance and operational costs for P3-delivered buildings. Responsibilities might include overseeing maintenance and hiring staff, as well as paying wages. Meanwhile, a steady stream of mortgage interest fees helps drive developers' profits, enabling them to take on more P3 projects elsewhere.

THE RISING POPULARITY OF BOT

The popularity of delivery methods is partly due to ever-changing development costs and the influence and fluctuation of interest rates. The recent high interest rates have resulted in higher mortgage fees and, by extension, higher interest payments. This, in turn, makes it more difficult for some public entities to service their loan. It might be more financially beneficial in the long run to pay for a project near the outset rather than paying down a debt that's front-loaded with significant interest costs.

The Build-Operate-Transfer (BOT) approach pairs developers or contractors (or both) with localities seeking a P3 development model with more financial flexibility. In this scenario, a developer builds and operates a building and then rents it to a government entity, which might be granted the option to buy the facility at some point when it has the financial means.

When fully activated, BOTs help both parties: developers can unload an aging and depreciating asset, while government entities can claim a still-viable building for a relatively manageable sum of money. However, there are no guarantees, as a developer might opt to hold a valued asset for the long term. Or a locality might secure significant public financing after only a few years, facilitating an earlier-than-expected acquisition.

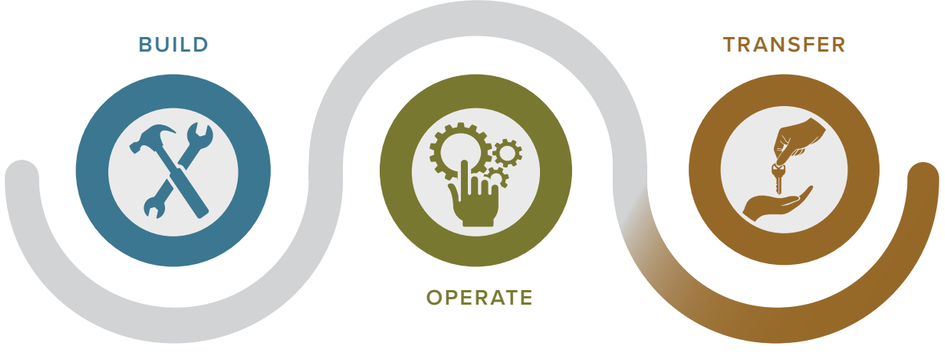
In terms of commonly understood delivery systems, a P3 is similar to design-build, while BOT is similar to the Construction Manager (CM) at Risk approach. In P3s, the developer or builder hires and oversees the architect, allowing for a speedier construction process. But some BOTs enable government entities to contract directly with the architect, introducing a more deliberative project that helps align the design with the locality's aesthetic and/or functional priorities.

BETTERING COMMUNITIES ONE PROJECT AT A TIME

Over the years, P3s have been a boon for justice clients. Developers bring innovation and resources to the table. They improve returns on investments by cutting unnecessary costs. They are the delivery experts in the room, with the know-how to overcome obstacles both seen and anticipated. Furthermore, the architects they partner with add justice architectural design expertise that address the essential and evolving needs of these highly specialized facilities.

Through enhanced safety and other benefits, justice facilities help power communities. Lacking needed funds, some localities have to delay these development projects and then must face the resulting societal and economic costs. P3s close the financial gap, putting more communities on firm footing.

“Lacking needed funds, some localities have to delay these development projects and then must face the resulting societal and economic costs. P3s close the financial gap, putting more communities on firm footing.”



RESPONDING TO MARKET CONDITIONS IN HIGHER EDUCATION

by Devin Keeler, PE, LEED AP
Vice President, Higher Education Market Segment Lead

Robert “Skip” Notte, PE, LEED AP
Vice President, Education Market Segment Lead

During the Great Recession in 2007, the American birth rate fell significantly. For 18 years, higher education stakeholders have anticipated a steep enrollment drop by 2025. This phenomenon is known as the enrollment cliff, and the reduction in the number of students applying to college is expected to have a significant impact on the higher education marketplace.

Overall enrollment is expected to decline next year and accelerate thereafter. Changing market conditions have hastened this demographic trend due to a number of factors, including college affordability, institutional trust, and a shift in perceived value of a four-year degree.

CHALLENGES CREATED BY MARKET CONDITIONS

During the COVID-19 pandemic, institutions were receiving state and federal funding, such as additional grants and temporary relief funds, which delayed having to make difficult decisions in advance of the well-documented enrollment cliff. This funding has now expired, negatively impacting some schools, especially small, regional, liberal arts-focused, and private institutions.

Rising costs further amplify the operational issues that institutions face while operating their current facilities. Prices have significantly increased, impacting budgets for materials, equipment, energy, and staffing. These factors also drive the cost of capital improvement projects even higher. While rising costs alone are a significant challenge to all institutions, some institutions are facing additional pressure with a reduction in tuition revenue due to lower enrollment. As a result, we have seen institutions close their doors, merge with other institutions, and increase tuition rates to address budget shortfalls.

RESPONDING TO MARKET CONDITIONS

Due to lower enrollment, it is critical for institutions to be clear eyed in how to maximize the assets they have been entrusted to manage and allocate funds as efficiently as possible.

Return on Investment

For many institutions, it has been difficult to provide an affordable, high-quality education while also improving facilities without raising tuition rates. Colleges and universities are also under increasing pressure to demonstrate how their degree will help secure a high-paying job for the graduate. One approach that institutions have embraced in an attempt to control costs and reduce project schedules is public-private partnerships (P3), involving collaborations between government agencies and the private sector to allow large-scale projects to be completed with private funding. We have worked with clients on several infrastructure projects as part of a P3 team to expedite the delivery of new residence halls on college campuses. P3s have worked well for clients who are driven by schedule as this project delivery can typically be completed more quickly and meet immediate needs while minimizing debt load.

Embracing Students’ Values

Students are inclined to enroll at institutions that reflect the same values they hold such as sustainability and addressing climate change. With this goal in mind, North Carolina State University in Raleigh, an institution that is growing its enrollment, is working on a project that upgrades the existing building automation systems (BAS) for 15 million gross square feet of facilities. We are helping the university address the varying mechanical systems installed across campus, including BAS devices, programming, and manufacturers’ equipment. This project also helps fulfill NC State’s commitment to reduce energy consumption and its carbon footprint, creating a safe, secure, and inviting campus community.

Cutting-Edge Technology

Higher education institutions can also attract students and support their needs by adding flexibility and technology within their facilities. We have partnered with multiple institutions to renovate spaces to provide access to a wide range of emerging technology including industrial large-format 3D printers, makerspaces, hyperloops, high-performing data centers, electrification of fleet services, and more. Colleges and universities are hoping that access to these facilities will be the differentiators that entice future students and researchers.

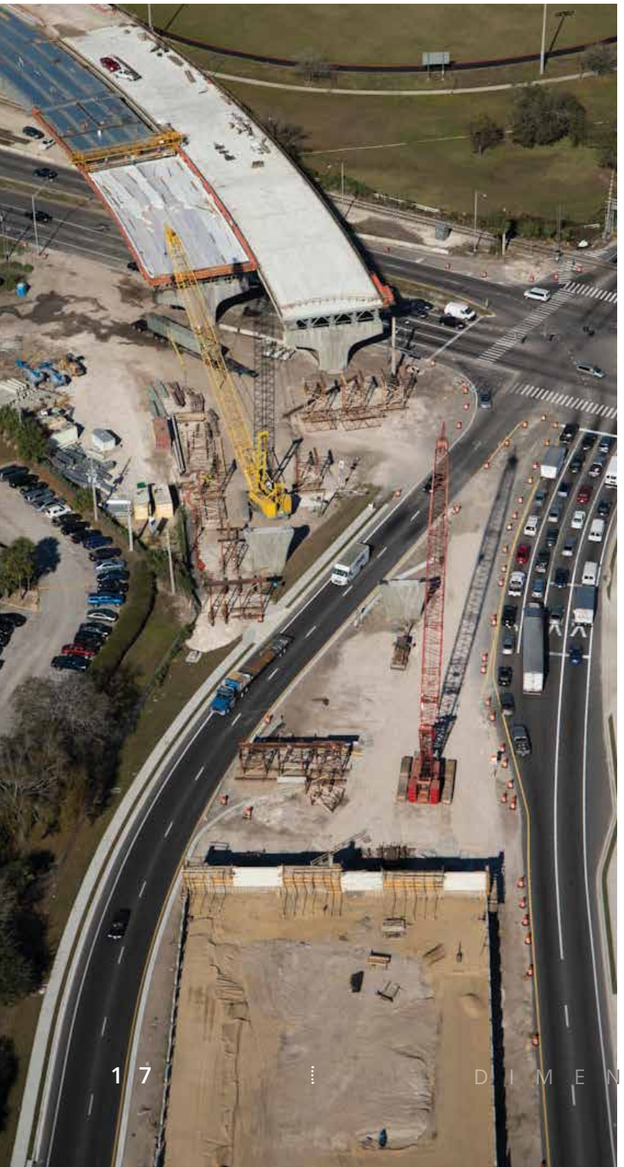
Market conditions are creating many challenges among higher education institutions, including rising operational costs and decreased funding. How higher education institutions respond to these challenges will determine their future success. As engineers and architects, we look forward to developing strategies collaboratively with our clients to meet the challenges of tomorrow.

We are working with NC State in Raleigh on a project that upgrades the existing BAS for 15 million gross square feet of facilities.

MOVING FLORIDA FORWARD ONE TRANSPORTATION PROJECT AT A TIME

by Don Hammack, PE
Vice President

Josh Pedersen, PE
Associate Vice President



Enacted into law in 2023, Moving Florida Forward funds 20 critically important roadway projects across the Sunshine State, combining $3 billion in new funding with $4 billion redirected from the state's general revenue fund to be used by the Florida Department of Transportation (FDOT). With costs ranging from $100 million to $400 million, these projects cover highway improvements that already have earned broad public support and are at various stages in the development pipeline.

A COMBINATION OF HIGH STAKES AND URGENCY

These investments are not evergreen. This is a use-it-or-lose-it scenario to augment infrastructure for generations. With a population growing at the country's second-fastest rate, traffic congestion is top-of-mind for residents. Some estimates show roughly 1,000 people moving to Florida each day.

The program's urgency necessitates accelerated delivery systems that put shovels in the ground quickly, so that many increasingly congested communities can reap the benefits as soon as possible.

These conditions allow for the implementation of delivery approaches that benefit clients operating under tight timeframes. Flexibility and innovation are the keys to success, and FDOT has explored traditional design-bid-build, design-build, and phased—or progressive—delivery methods. In phased build, more stakeholders are in the same room at the same time, thereby resolving challenges more efficiently.

DESIGN-BUILD'S BENEFITS

Moving Florida Forward marks a departure from when we first began working with FDOT in 1985. Back then, design-bid-build was the standard delivery method. Design-build gradually gained in popularity—beginning with bridges—as entities realized they needed to complete projects more quickly.

Fast-forwarding to today, we recently teamed with Jr. Davis Construction for Florida's Poinciana Parkway project—a new alignment, limited access regional expressway corridor linking the North-Central Osceola County transportation system to Polk County. Design-build facilitated communication with our construction partner, enabling us to work through unique challenges such as minimizing impacts to the wetlands and inhabiting species.

Similarly, we designed the State Road 423/434 extension project that expanded a four-lane road to six lanes. The assignment's complexity required a design-build approach, enabling us to work alongside Southland Construction to generate processes for iterative problem-solving before the first shovels hit the ground.

Design-build also allows for more seamless execution of innovation. For example, we developed a steel cap alternative to the proposed concrete integral caps to significantly reduce shoring requirements, construction duration, and impacts to traffic and a railroad, which proved to be a win-win for our client.

These and other projects highlight a key reason why Moving Florida Forward has been, and will continue to be, successful. The steadily growing popularity of design-build is not incidental; Florida clients past and present understand and appreciate the value of this method.

We designed the State Road 423/434 extension design-build project, pictured left and below, that expanded a four-lane road to six lanes in Orange County, Florida.

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SUSTAINABILITY STANDARDS FOR RESILIENT PROJECT DELIVERY

by Jenni Betancourt, AIA, LEED AP BD+C, WELL AP, GGP, NCARB
Associate Principal, Director of Sustainability

Incorporating sustainable practices into our project delivery is a thorough, intentional collaboration taking place across services, markets, and regions. We prioritize sustainability in our projects by leveraging our Minimum Sustainability Standards, which aid project teams in working toward challenging goals such as net zero energy (NZE) design and innovative projects that promote more equitable communities.

Our Minimum Sustainability Standards help us to organize our projects around maximizing passive design strategies that accomplish clients' sustainability goals while reducing operating costs and being responsible stewards of the environment. With 3D analysis, we show our clients how fenestration placement, shading treatment, material selections, and orientation can directly reduce energy loads, lower carbon emissions, and contribute to long-term energy resilience. For the Countryside, Illinois, Municipal Complex project, we applied our standards with solar and geothermal strategies to achieve LEED Gold® and NZE certifications. The integration of sustainable strategies and interdisciplinary collaboration allows for data-informed design decisions, ultimately leading to resilient and lasting solutions for our clients.

We encourage our clients' participation in pilot projects that bring new and forward-thinking perspectives to the development of sustainable strategies in our communities. In Polk County, Florida, the Cherry Hill Water Production Facility project promotes innovative developments that are shaping the future of the water industry. The facility is the first in Florida to conduct feasibility testing at a water treatment plant. The testing will investigate direct potable reuse (DPR) as a future water supply option to offset over-pumping groundwater and reduce environmental impacts and will serve as a template for future DPR funding. Our team provided design, planning, permitting support, and construction administration services for the facility. By making smart choices now, we're preparing for a more resilient future.