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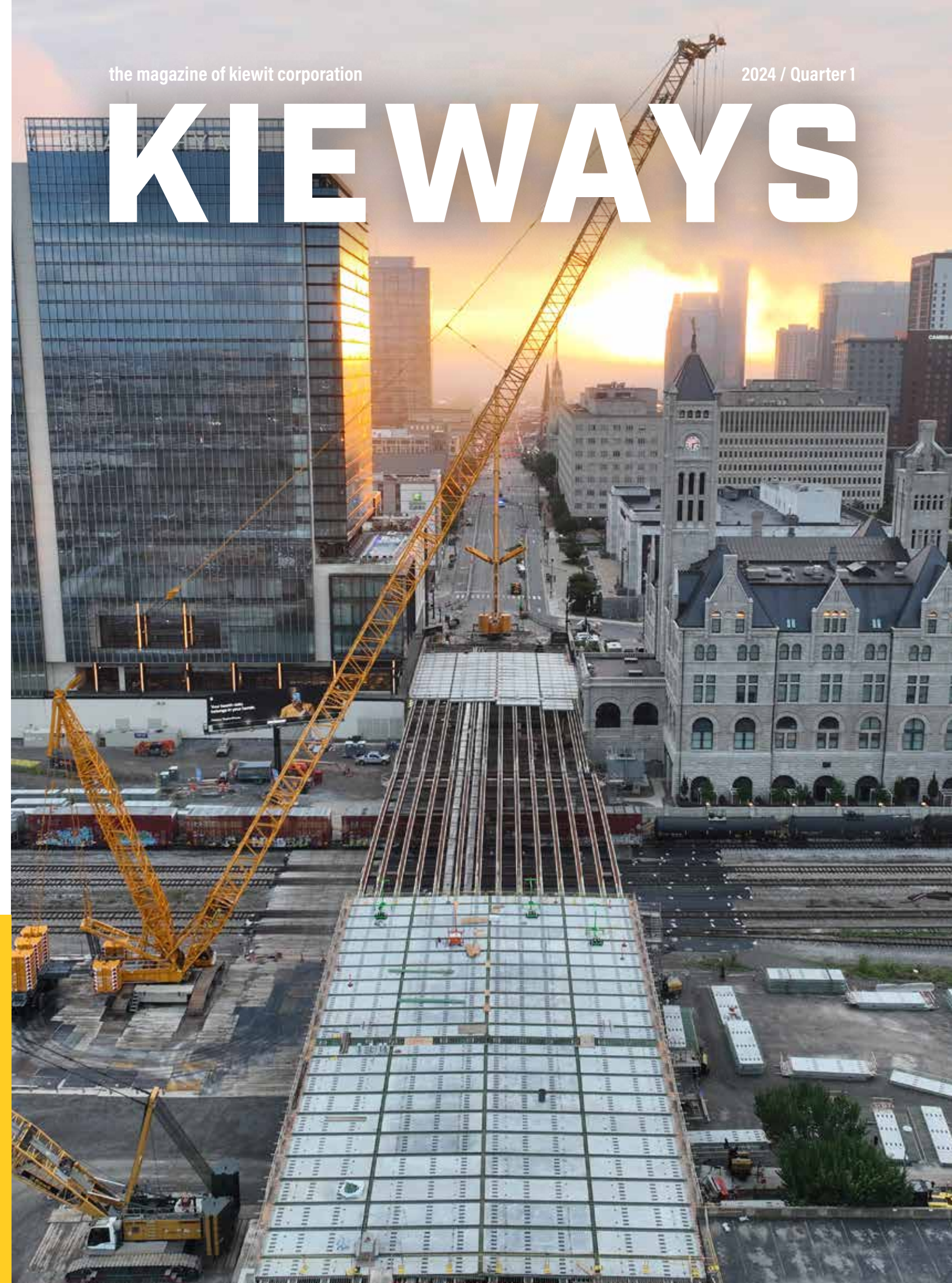


SINCE 1884

the magazine of kiewit corporation

2024 / Quarter 1

KIEWAYS





A REFINED APPROACH

The Rodeo Renewed facility is scheduled to switch entirely to renewable diesel in 2024 after a brief shutdown



Kiewit is one of North America's largest and most respected construction and engineering organizations. With its roots dating back to 1884, the employee-owned organization operates through a network of subsidiaries in the United States, Canada, Mexico and Guam. Kiewit offers construction and engineering services in a variety of markets including transportation; oil, gas and chemical; power; building; water; industrial; mining and marine. Kiewit had 2023 revenues of \$171 billion and employs 31,100 staff and craft employees.

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KIEWAYS

Kieways is a quarterly magazine issued by Kiewit Corporation. To subscribe, go to kieways.com.

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OPPORTUNITY AWAITS

Each new project is an opportunity for Kiewit to both use and build our expertise. That's what you'll see highlighted in this issue of Kieways. Our formula for successfully delivering any job we do has always been focused on executing the Kiewit fundamentals and providing our people new, exciting ways to build their skills and grow their careers.

In this issue, we head to Chicago, where we recently finished the first phase of renovations for the CTA Blue Line. This decades-old train system needed to be faster, safer, and more accessible to commuters. Find out what it took to pull it off within a couple months of the Chicago Marathon on Page 20.

On the West Coast, a Kiewit subsidiary is integrating new technologies to help Phillips 66 step into the sustainable space and meet growing demands. On Page 10 you'll read about what it takes to build the largest renewable diesel refinery in the Western Hemisphere.

In Tennessee, the completely rehabilitated Broadway Bridge is open to traffic after an 11-month-long build right through the middle of downtown Nashville. See how the project team navigated tight spaces on a tight timeline on Page 14.

Finally, we're celebrating one year with Weeks Marine and the official addition of Kiewit's eighth operating market — Marine. From dredging to coastal resiliency, we dive into the opportunities this expansion provides on Page 6.

Thank you for reading our first issue of 2024. Thanks to our clients, partners and employees for making 2023 and all the projects on these pages a success.

RICK LANOHA

President and Chief Executive Officer



ON TRACK
The Blue Line renovations are only a small part of a multi-phase series of repairs for the CTA. More phases are scheduled through 2024 and beyond

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REVITALIZING THE BLUE LINE

Just in time for the Chicago Marathon, the project team worked continuously to improve CTA's Forest Park Branch.

KIEWIT NEWS

What began in 1884 with two hard-working brothers has grown into a construction and engineering industry leader. As a multi-billion dollar organization, Kiewit can tackle projects of all sizes, in any market. Here's a brief collection of recent news and information from around the company.

OUR MARKETS:

-  BUILDING
-  INDUSTRIAL
-  MARINE
-  MINING
-  OIL, GAS & CHEMICAL
-  POWER
-  TRANSPORTATION
-  WATER

OUR VALUES:

-  PEOPLE
-  INTEGRITY
-  EXCELLENCE
-  STEWARDSHIP

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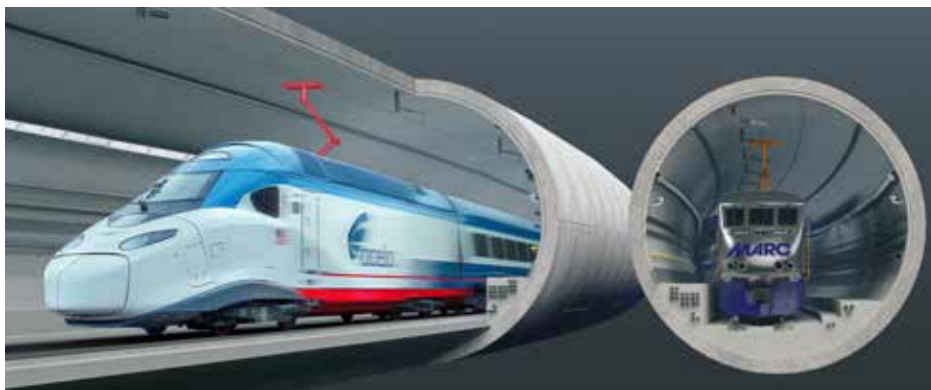


KIEWIT AND THURGOOD MARSHALL COLLEGE FUND HOST 29 STUDENTS

Twenty-nine students from Historically Black Colleges & Universities (HBCUs) traveled to Kiewit's Westlake, Texas, office to participate in the third annual Thurgood Marshall College Fund (TMC) + Kiewit Immersion Program. The event took place March 4-5 and had support from more than 15 Kiewit employees, including senior leaders.

Through the course of the two-day event, students heard from various presenters about Kiewit culture, careers in construction and engineering, strengths, mental health and wellbeing. The event wrapped with a tour of the Southeast Connector project.

TMC — the nation's largest organization exclusively representing the Black College Community — identified potential attendees based on their majors and academic performance. Thirteen students have accepted internship offers with Kiewit as of March 20 and will receive scholarship support from the company.



AMTRAK SELECTS KIEWIT TO REPLACE AGING INFRASTRUCTURE WITH A NEW TUNNEL IN BALTIMORE

Kiewit has been selected as part of a joint venture partnership with J.F. Shea to build Amtrak's brand new, state-of-the-art passenger rail tunnel that will serve electrified Amtrak and MARC commuter trains in Baltimore.

The new Frederick Douglass Tunnel will support faster travel speeds for more than 12 million annual passengers and replace Amtrak's existing 150-year-old B&P Tunnel.



GROSS RESERVOIR EXPANSION PROJECT TEAM WRAPS UP 20 MONTHS OF HARD WORK AND PREPARATION

Crews have completed the first phase of the expansion project, including the demolition and foundation preparation, to prepare the existing dam for a facelift, which begins this year.

The scope of work included drilling and blasting the rock face on the downstream side of the dam to make room for the new construction.

Along both sides of the face, crews also placed concrete to fill voids and provide a foundation (shaping blocks) so the roller-compacted concrete (RCC) could form the new dam. Rock anchors were installed throughout the left and right side foundation, and all the shot rock produced by the demolition was hauled away using Caterpillar 770 and 745 haul trucks.

The project will raise the existing dam and nearly triple the storage capacity for the reservoir. It will also be the tallest dam in Colorado.



THE UNIVERSITY OF NEBRASKA OPENS NEW KIEWIT HALL FOR ENGINEERING AND CONSTRUCTION EDUCATION

Construction of the largest academic facilities project at the University of Nebraska-Lincoln is complete and open in time for the spring semester.

Kiewit Hall will be home to the university's construction management programs. The building features classrooms with innovative technology, instructional labs, academic student services, as well as an outdoor plaza. This premier facility is part of a multi-phased expansion of the university's College of Engineering facilities.

LOOKING AHEAD ON THE I-205 ABERNETHY BRIDGE PROJECT

Crews are making steady progress on widening and upgrading the I-205 Abernethy Bridge.

This monumental project will be Portland's first earthquake-ready interstate bridge across the Willamette River. With more than 100,000 commuters crossing it every day, the bridge modifications will ease congestion and improve safety for the traveling public.

A crucial part of the project expected this year is widening the bridge in each direction by eight feet to accommodate a future third lane. The bridge slide work will not begin until next year, but highway prep will start in 2024. Interchange improvements will include realigning and widening OR 99E and I-205, making it easier for drivers to navigate. Crews will also start building the new bridge support columns, and the old columns will be dismantled, all while the bridge remains open.





*A YEAR AFTER WMI ACQUISITION,
KIEWIT DIVES FURTHER INTO THE*

MARINE MARKET

It's been a year since Kiewit Corporation finalized its acquisition of Weeks Marine, Inc. (WMI), a leading maritime contractor in North America. As a result, Kiewit is formally expanding its expertise.

"We've gone from specializing in seven market segments to focusing on eight, with marine being the eighth market as a result of our 2023 acquisition of Weeks Marine," said Executive Vice President Dave Miles.

With a 10-year opportunity forecast of \$128 billion, the marine market is full of opportunities, explains Miles.

"Before Weeks, Kiewit performed a number of marine projects on both the east and west coast and in the Gulf of

Mexico, but most of that work was in support of heavy, large construction projects," he said. "However, the acquisition of Weeks has really put us in a different position, specifically in dredging projects around North America."

Dredging plays a critical role in the maritime market, as it is the most efficient way to create and maintain safe navigation channels. The material dredged is often used for environmentally beneficial purposes, such as the creation of fish and wildlife habitats.

According to "The Mike Hooks Report: An Analysis of the FY22 U.S. Federal Dredging Market," only 52 companies were awarded federal dredging contracts, with a number of those contracts going to Weeks Marine. These statistics include small-scale and inland dredging, which Weeks does not participate in. Only a small number of contractors own dredges capable of tackling the more complex contracts Weeks traditionally takes on.

"The Weeks acquisition added 600 marine units to an already sizeable marine fleet," explains Kiewit Vice President of Equipment Steve Curry. "This included seven cutter suction hydraulic dredges, four trailing suction hopper dredges, marine and land boosters, along with a variety of other dredging support equipment."

While many of the dredging opportunities are public contracts — with U.S. Army Corps of Engineers being the leading federal agency responsible for dredging activities in the United States — it's not uncommon for dredging to be

part of a scope for an oil and gas facility.

"When you talk about oil, gas and chemical (OGC), you don't really think about marine," said Executive Vice President Tom Shelby, "but the fact of the matter is we now have the premier marine contractor associated with OGC work up and down North America on our team."

According to Shelby, while Kiewit was building on-ground work for many OGC facilities, Weeks was contracted to build the clients' jetties and offloading facilities.

"With Weeks joining our team — its people, expertise, technology and equipment — we're able to create and grow a phenomenal workforce well into the future," Miles said. "We weren't equipped to take a lot of those opportunities on until we brought them into the family of our companies. Now, our marine portfolio is going to easily put us into the position of being the best marine contractor in North America going forward." **K**



Kiewit's acquisition of Weeks Marine creates maritime powerhouse

When Kiewit acquired Weeks Marine, it brought together Engineering News-Record's (ENR) top two marine contractors, resulting in a formidable force poised to make waves in the industry. Within its marine market, Kiewit focuses on three key areas: coastal resiliency, dredging and marine construction.



DREDGING

Dredging plays a pivotal role in improving waterways, ensuring effective navigation, and mitigating the impacts of sedimentation and debris. Precise removal of sediment helps maintain critical channels for maritime traffic while fostering environmental sustainability. Dredging supports international trade, tourism, and coastal communities.

COASTAL RESILIENCY

These projects aim to enhance ecosystems' ability to withstand and recover from climate change impacts and hazards such as storms, floods, and erosion. Activities may include constructing seawalls, beach renourishment, elevating infrastructure or creating new wildlife habitats.

MARINE CONSTRUCTION

This encompasses a wide range of activities related to building and maintaining structures in, on or around water. Due to the unique challenges of working in aquatic environments, marine construction requires specialized expertise and equipment. Examples include wharfs, harbors, breakwaters, terminals, piers, overwater or coastal bridges and immersed tube tunnels.

PHILLIPS 66 RODEO RENEWED

TRANSFORMING A REFINERY WITH SUSTAINABLE INNOVATION



In the heart of California's refining landscape, Phillips 66 is making waves with its ambitious Rodeo Renewed project. This venture is not just about refurbishing an old refinery; it's a bold step towards a greener, more sustainable future for the refining industry. Cherne Contracting, a Kiewit subsidiary experienced in the refining industry, is tasked with building an entirely new renewable diesel pre-treatment facility — the largest in the Western Hemisphere — with limited and constantly diminishing space.

A PARADIGM SHIFT IN REFINING

The San Francisco Refinery, owned and operated by Phillips 66, has long been a fixture in the region. It sits in Rodeo, California, a small designation within Contra Costa County next to competing facilities. The Rodeo Renewed project, however, is more than a routine upgrade — it's a comprehensive conversion aimed at aligning with modern environmental standards and embracing the future of energy.

According to Phillips 66, the Rodeo Renewed project is set to enhance the refinery's capabilities, incorporating cutting-edge technologies to produce cleaner fuels. The company is simultaneously converting existing diesel infrastructure and building new facilities at Rodeo Renewed. The goal is clear: reducing the carbon footprint and contributing to a more sustainable energy landscape.

LESSONS LEARNED

Undoubtedly, the Rodeo Renewed project faces its share of challenges. Complexities in integrating new technologies, regulatory hurdles, and the sheer scale of the conversion are just a few considerations.

Esai Dominguez, Cherne's project manager for Rodeo Renewed, described the greatest limitation for the team: "Each day our footprint is getting smaller and smaller." Construction at the refinery is a balancing act between available space and work needing to be performed. For

1. Cherne crews collaborated with teams from multiple other districts for the project. 2. The refinery is 25 miles northeast of San Francisco, and part of Contra Costa County. 3. A shrinking footprint made for creative building solutions through the different phases.

example, after the foundations were in place for the site, each steel column added to the construction reduced the space that craft workers could operate within. The first steel column was placed in October 2022, with more ironworkers coming on to the project site each day to work on the structures.

"The structures for the new facility are unique in that they are larger, heavier and more complex to build than previous work we've done in the refining industry," said Dominguez. Cherne is experienced with this type of work, but building the largest renewable diesel pre-treatment unit in the Western Hemisphere had unforeseen challenges.

In January 2023, Cherne began placing equipment for use in the pre-treatment unit and placed over 600 pieces throughout the year. These included between 30 and 40 pieces that significantly reduced the building footprint available to the team. The new biodiesel equipment is 40 to 46 times the typical scale of the same pieces in a traditional diesel configuration. After the equipment was installed,

The essence of renewable diesel

One of the key features of the Rodeo Renewed project is the adoption of advanced technologies. Rodeo Renewed is an investment into the conversion of feedstocks into biofuels, marking a significant departure from traditional refining methods.

Unlike traditional diesel, which is derived predominantly from fossil fuels, renewable diesel is sourced from organic materials such as vegetable oils, animal fats or recycled cooking oil. This shift toward bio-based feedstocks marks a fundamental departure from conventional refining practices, emphasizing a circular economy approach.

Renewable biodiesel is often lauded for its lower carbon footprint, since its production involves harnessing the

natural processes of photosynthesis, where plants absorb carbon dioxide from the atmosphere. As a result, the net carbon emissions from burning renewable diesel are significantly reduced when compared to traditional diesel, which relies on extracting and refining fossil fuels.

One noteworthy aspect of renewable biodiesel is its compatibility with existing diesel infrastructure. Renewable diesel can be used in diesel engines without any modifications, offering a seamless transition to a more sustainable fuel source. Additionally, the performance characteristics of renewable diesel, such as its lubricity and combustion properties, could influence the overall efficiency of engines.

there were still multiple construction phases left, including pipefitting, electrical and insulation.

“On an average day we have 350 pipefitters at peak in here all competing for space and trying to complete their work, and as soon as they finish, our electricians come in to take their place,” said Dominguez.

According to Dominguez, the key to navigating the increasingly congested refinery was preparation and collaboration. Experts from 14 Kiewit districts collaborated with Cherne on the project, and the large variety of craft workers made the construction go more smoothly. About 650 craft from all trades, including carpenters, pipefitters, electricians, boilermakers, operators, laborers, masons, millwrights and ironworkers, all contributed to the facility.

PAVING THE WAY FOR SUSTAINABLE REFINING

The Rodeo Renewed project is forging a path toward sustainable and environmentally conscious refining. The marriage of technology, collaboration and environmental

responsibility positions this initiative as a marker of change in an industry often associated with environmental challenges.

Phillips 66 and Cherne are not just renovating a refinery — they are helping redefine the future of refining. Once the facility is complete in early 2024, after a brief shutdown, the San Francisco Refinery will switch to 100% renewable diesel. The success of this venture could very well set the tone for a new era where sustainability and innovation meet in the refining industry.

Community engagement and environmental stewardship are integral aspects of the Rodeo Renewed project. In conjunction with Contra Costa County, Phillips 66 and Cherne are actively collaborating with state regulators and residents to ensure transparency.

As the Rodeo Renewed project continues to unfold, it beckons the industry to reimagine the possibilities of refining, where renewable diesel isn't just an alternative but a catalyst for a greener, more sustainable tomorrow. **K**

1. Cherne began placing equipment in January 2023, a few months after the project start date. 2. Working space is at a premium at Rodeo Renewed, with over 650 craft from all trades at the facility. 3. Pieces for the renewable diesel conversion were many times larger than what the team had previously placed in similar facilities.

Once completed, the converted facility will initially have a renewable diesel production capacity of 800 million gallons per year; the conversion aims to reduce emissions while producing lower carbon intensity fuels.





Downtown Nashville, Tennessee, draws visitors from around the world. Its famous Broadway Street is a destination for those looking for history or a honky tonk, a local microbrew or a bite of barbecue, or an array of other attractions.

For 75 years, the Broadway Bridge — also known as the State Route 1 (US 431) Broadway Viaduct — has served as a main thoroughfare for vehicles and pedestrians headed downtown.

In recent years, though, despite two rehabilitation projects, it was time for the bridge to be retired. A brand-new replacement bridge project, led by Kiewit for the Tennessee

Department of Transportation (TDOT), offers two important benefits: increasing vertical clearance, including over five busy CSX railroad tracks, and accommodating future development in downtown Nashville.

Construction on the new bridge began in December 2022 and was completed in October 2023.



GETTING A HEAD START

The new, more streamlined design features five spans compared to the previous 17, providing less substructure and more open, usable space. For those who call the downtown residential “Gulch” area home, it’s opened up greater access to green space and bike trails.

Even before the project broke ground, the team was focused on getting ahead of a tight schedule — knowing they would have only an 8-week bridge closure in the summer.

That timing also was important because of where the bridge is located.

“With it being downtown, every other piece of real estate around it in the next few years will likely be developed into high-rises or other structures, so TDOT had a small window of opportunity to complete the project,” said Project Manager Mike Svoboda.

During the pre-construction phase, Kiewit worked in collaboration with TDOT, CSX and designer Gresham Smith to develop solutions to the complex technical challenges and unique considerations given the project’s location.

This included identifying early work packages, using innovative construction methods to build the substructure prior to the 8-week closure and minimizing the impact to local stakeholders.

Using the CMGC (Construction Manager/General Contractor) alternative delivery method, the one-team approach from the project’s pre-construction continued

throughout the timeline and was a key component of success.

FEW SURPRISES, NO DELAYS

Working over the busy railroad lines added complexity to the planning. To ensure the process would work smoothly and without delays, Kiewit worked closely with the railroad for more than a year.

Planning Manager Brent Madden and his team prepared hundreds of pages of documents with 3D drawings illustrating each phase of their work, from demolishing large portions of the bridge and getting heavy crane access to the site to moving large girders in, installing rebar and placing concrete.

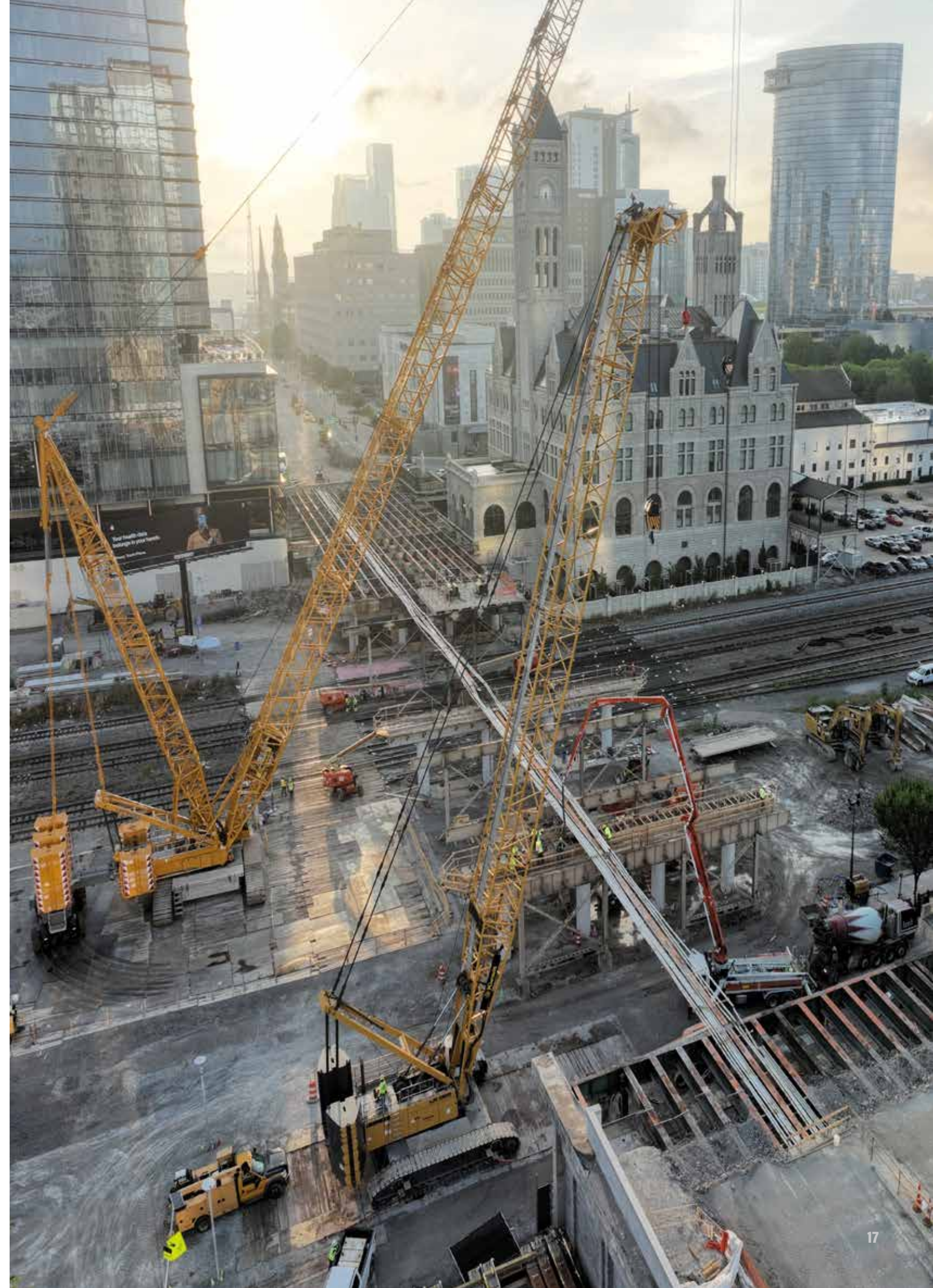
“At the end of the day, we had 22 separate means-and-methods construction submittals for the railroad — one totaling 300 pages — that had to be reviewed and approved,” said Madden.

“It gave less room for interpretation by doing it this way, rather than relying on a narrative or just relying on 2D plans. We were really showing, in 3D, where all the equipment was, how we were going to access it and even how the workers would be positioned on the job.”

Those drawings were what the railroad and the Kiewit crew had in their hands as the work was performed. The planning meant there were few surprises and no delays during the job.

ACCESSING TIGHT SPACES

Working in tight quarters meant that sometimes, despite





planning ahead, the team had to adjust to unique field conditions.

Construction Manager Chris Polk found himself in that situation when it was time to set the final girder on span No. 4, located next to the historic Union Station Hotel. There was only half an inch clearance to spare, so he needed to get creative.

"I started looking at it and was thinking, 'Wow, that doesn't look like it has very much room,'" Polk said. "So we started pulling string lines and just sort of dissecting it to make sure we had enough room to get it in there. It's pretty common to have such a tight situation, but I don't think anybody ever realized how tight it was prior to that moment."

With help from hotel staff, Polk got permission to access a guest room on the third floor. With his crew on the ground, the team guided the girder into place from an open window.

Another kind of delicate work involved navigating existing AT&T fiber-optic lines attached to the length of the bridge. To demolish the old girder and set the new girder, the team had to carefully work around the lines — something out of the ordinary for this kind of job.

Things got tricky when the team had to pull out the old girder, Polk said.

"You're talking about inches between AT&T lines, not to mention the torches that are cutting the beam out. It was a slow process to make sure we didn't damage anything."

Not only did the team do the task cleanly, but they also maintained uninterrupted service to the downtown area.

TRACKING BY THE MINUTE

There was one unexpected event outside the team's



1. Kiewit used precast concrete panels for the deck as part of the accelerated bridge construction process. The bridge was raised about two feet over the railroad to meet new construction standards. 2. Kiewit meticulously disassembled the original bridge to preserve the existing AT&T fiber-optic lines and maintained uninterrupted service to the downtown area.

control. One month prior to the closure, the Southeastern Conference announced it would hold its SEC College Football Kickoff Media Days at one of the hotels adjacent to the construction site, only 10 days into the bridge closure.

"It was the first time it was ever held in Nashville," said Svoboda. "It was a pretty big deal for the city to make a good showing for them."

Kiewit consulted their detailed schedule and knew precisely where they needed to be by the time the event would be in town.

"We were tracking those first 10 days by the minute," said Svoboda. "We rearranged our schedule to focus on just making sure we got the work done adjacent to the hotel and that we were far enough ahead. We didn't fully shut down, but we shut down any operations that had any kind of noise because they were broadcasting all day."

'AN OUTSTANDING JOB'

Polk says the job couldn't have happened without the dedication of the crew, which numbered 110 at the project's peak.

"Hands down, this was some of the best craft we've had, and those were the people that made this thing happen," he said.

Svoboda agrees.

"This project really highlights the strength of Kiewit's people and culture," he said.

"If you look at the way the job performed on safety, quality and production, it's hard to believe that a majority of this team had never worked together prior to the closure," he said. "They really just did an outstanding job on all fronts." **K**

"The collaborative efforts among the project team showcased unwavering commitment, meticulous planning and creative ingenuity, ensuring the seamless execution of the Broadway Bridge project."

MILLER BERNHARDT

Project Manager, Tennessee DOT

CONNECTING CHICAGO

REVITALIZING THE BLUE LINE

In the late 1950s, the original Forest Park Branch of Chicago's elevated train system was constructed, establishing a vital link of the Blue Line to connect Chicago-O'Hare International Airport to downtown.

Due to its location in one of the lower-lying areas of the city, this area is prone to flooding. After six decades of transporting daily commuters, the wear and tear has resulted in the highest number of "slow zones" along any train line in the city.

Recognizing the need for a transformative solution, the Chicago Transit Authority (CTA) entrusted Kiewit Infrastructure Co. with the \$105 million Forest Park Branch of the Blue Line reconstruction project, focusing on enhancing speed, safety and accessibility along a 1.5-mile stretch between the UIC-Halsted and Illinois Medical District stations.

Over a swift 11-week period, in time to return service for the Chicago Marathon, the project team worked continuously, replacing rails, ties and ballast, and improving the track drainage system and traction power.

ACCELERATING AT HALSTED STATION

When crews began work on the Blue Line, service between these stations was suspended and riders were transferred to bus shuttles to complete their trip. Due to the strain this shuttle service put on CTA's resources, one month before the outage CTA requested that Kiewit expedite the work at the UIC-Halsted station, aiming for completion in 28 days — one month earlier than initially planned.

"We didn't shy away from it. We priced it, talked to our key subcontractors and looked into what it would take," said Blake Richards, senior project manager.

The timeline acceleration was a complete team effort. Kiewit teams pivoted their plans and worked alongside the design team and CTA to resequence work and increase resources.

"We had originally planned to have two main headings of people and equipment working along the rail line, and they would start at one end of the project and work their way to the other," said Kayleigh Weber, project manager.

To deliver a portion of the project early, and still build the rest of the job on time, Kiewit added an additional heading,

a set of equipment and crew. Collaboratively, CTA agreed to handle the tamping with their equipment, bypassing the delay associated with waiting for the scheduled delivery of Kiewit's equipment, which was initially set to align with the original completion date.

By mid-August, the UIC-Halsted station was reopened to the public.

REGULATORY BLOCKS

Long before the service outage began along the Blue Line, Kiewit teams were working to plan the work, procure materials, team up with vendors and subcontractors and obtain permits for the project.

"We worked very closely with the city, CTA and the designers to collaboratively make one team to get those permits done," said Joe Sanfilippo, project manager.

Permits were required for the drainage work and to install drilled shafts — crucial foundation work — at the Morgan Street and Racine stations. Ideally, these permits would have been obtained before the outage, since that work could not begin without them.

A sign of teamwork

65,000 Craft hours

102,000 Sub hours

90,000 Tons excavated

36,000 Tons of new ballast

15,000 FT track

74 Day shutdown

24 Drilled shafts

Kiewit's in-house engineering team, Kiewit Infrastructure Engineering (KIE), also lent a hand to this ultimate team effort. KIE designed the temporary signals that alerted trains to the route change caused by the reconstruction project. These signals were vital to keeping crews safe as they worked along typically active rail lines.



Chicago proud

Kiewit has an extensive history of working with the CTA, dating back to the 1930s, including 48 projects totaling around \$1.5 billion since 2000. The team's knowledge in managing transportation projects was evident as they completed work along the Forest Park Branch.

"We just keep passing the torch along with what the CTA expects of Kiewit and what we expect of the CTA to continually deliver exceptional projects with them," said Mark Barkowski, area manager. "It's like you don't miss a beat. And that's what I think the success is, to continually keep that strong relationship and for CTA to continually award us the most challenging projects because they know the work that's going to get done is something that the office can be proud of, that's what it's all about."

For some, working on CTA projects has been a common theme in their Kiewit career, and their expertise makes all the difference.

"Joe Sanfilippo knew exactly how to solve CTA's problems. He knew their specs and what the CTA designers valued along with what their operations folks needed. Blending that all together, we were able to make quick changes in the field and provide a high quality end product for the CTA team. I don't think we could have done the job without him, our Construction Manager Mike Zibert and the many other experienced Chicago native field staff and subcontractors on our team," said Weber.

Throughout changes to the scope of the project, the design and the schedule, CTA was able to rely on this team's vast knowledge and long-term dedication to delivering exceptional work.

"Based on several previous successful projects and the provided approach for the Forest Park project, CTA was confident that Kiewit would build a functional track system as intended," said Steven Mascheri, CTA's vice president of capital construction.

O'HARE BRANCH

FOREST PARK BRANCH

The CTA has eight lines total, with over 100 million riders each year (Chicago Transit Authority, 2023).

The CTA Blue Line includes two branches, O'Hare and Forest Park, with 33 stations on the route. This project phase serviced five total stops, and the renovated segment is highlighted below.

Kiewit has worked on 48 projects for the CTA since 2000, keeping millions of riders safe.

ILLINOIS MEDICAL DISTRICT
RACINE
UIC - HALSTED
CLINTON
LASALLE



A tamping machine is used to align and compact the ballast underneath the railroad ties, keeping commuters' rides smooth.

"We planned on performing a lot of early work prior to the shutdown to level resources needed during the shutdown," said Weber. "We didn't get the required work permits from the client until the week before the shutdown, so we had a lot of acceleration, long hours and it put a lot of pressure on the team during the shutdown."

The permit for drilling at the Morgan Street substation was obtained first, and even though it significantly resequenced the work, crews began drilling on that site the same day. However, the challenges kept coming.

AROUND-THE-CLOCK SOLUTIONS

When the drilling began, it was discovered that the soil conditions were not as expected, meaning the ground was not amenable to the foundation design.

In order to support the new station and substation, the tip elevation of the drilled shafts was raised to land on a suitable soil layer. These solutions had to be vetted by numerous project partners before moving ahead to drilling. To facilitate this redesign, the CTA mobilized drill rigs and performed a new soil boring program on 12 hours' notice.

In addition to the geotechnical issues, the team faced other unforeseen conditions underground. After excavating the site, the sub grade testing revealed low soil bearing capacity. To mitigate the issue, additional geotechnical membranes and fabric were added to reinforce all three miles of the trackbed.

"We had a large number of field design changes, a majority of which happened in that accelerated section

"There was a very collaborative approach between not just the Kiewit team but also the owner and their designer to solve problems in real time."

BLAKE RICHARDS

Senior Project Manager

for the Halsted station, so we had very limited time to get engineering answers," said Weber. "But the CTA and their designers were really great partners."

To keep work moving in the field, the team implemented a Field Change Notice, an expedited information request. "When we found problems in the field, our team and the CTA field inspectors took pictures and discussed the issues as they happened," said Richards. "There was a very collaborative approach between not just the Kiewit team but also the owner and designer to solve problems in real time."

Upon completion, about 15,000 feet of slow zones were removed, increasing this section's travel time by two minutes. The project included the removal and reinstallation of about 100,000 tons of materials. Additionally, the Racine station, where Kiewit completed the foundation work, will receive key accessibility improvements such as an elevator. In the end, Kiewit overcame project challenges, worked collaboratively with the CTA to resolve field changes, and provided solutions to finish the outage before the Chicago marathon.

"The project is viewed as a success by meeting an aggressive schedule and complicated scope of work while minimizing disruption to our ridership and operations team," said Mascheri. "This was attained by open and transparent communication with Kiewit and the project team followed by quality execution of the work." **K**

