

CASE STUDY / **MAJOR MIDWEST RIVER BRIDGE AND APPROACH ROADWAYS**

# IMPROVING INTERSTATE ACCESS FOR A LARGE FREIGHT ENTERPRISE

An enormous amount of freight moves through intermodal centers and industrial logistics facilities in north-central Illinois by way of inland ports connected to Lake Michigan. To reduce the number of trucks on local road networks, CenterPoint Properties proposed the construction of a new long-span bridge and approach roadways for easier access to I-80.



# BRIDGING THE GAP

Developing a new bridge required interconnecting with local road expansion projects and gaining the approval on the design from a wide range of organizations.

## PROJECT STATS

### CLIENT

Granite Construction-  
Kraemer North America

### LOCATION

Will County, Illinois

### ANTICIPATED COMPLETION

Spring 2023

# 1.9K

LENGTH, IN FEET, OF  
EIGHT-SPAN BRIDGE

# 20K+

TRUCKS TO BE  
SERVED PER DAY

# 100%

FULLY INTEGRATED  
DESIGN-BUILD APPROACH

CenterPoint Intermodal Center — Joliet/Elwood in Illinois is considered the largest inland port in North America and includes more than 6,400 acres of warehouse, distribution and manufacturing facilities. Upon full build-out, the intermodal facility expects to generate upwards of 20,000 trucks per day in and out of the area.

In an area with an extensive network of navigable waterways and railway access, accelerated growth has led to logistic challenges and extensive delays for the massive number of trucks that must reach the interstate system, particularly I-80 to the north. Currently, the substandard local road network and obsolete infrastructure is utilized by trucks to travel from the inland port to I-80. This causes delays and unsafe conditions throughout the region, ultimately resulting in displeasure to the public.

To solve this issue, CenterPoint began seeking a partner to expedite the financing, design and construction of improvements that would remove trucks from the local roadway network and reduce travel time to and from the intermodal facility. CenterPoint partnered with United Bridge Partners to form the Houbolt Road Extension Joint Venture (HREJV). The solution

included a 1,900-foot, eight-span bridge, with a 430-foot main span over the Burlington Northern Santa Fe Railroad and the navigable portion of the Des Plaines River.

These improvements would require significant intersection and approach roadway improvements to accommodate the new four-lane roadway connecting to the arterial system at I-80. This would allow trucks coming in and out of the facility to reach the highway and facility faster and safer while avoiding the public road system.

To quickly address these concerns, the bridge and associated approaches would need to be designed and approved within nine months. Because the bridge would cross over a navigable waterway, the design required the approval of a variety of government agencies, including the U.S. Coast Guard, the U.S. Army Corps of Engineers, the Illinois Department of Natural Resources (IDNR), the Illinois Department of Transportation (IDOT), the Burlington Northern Santa Fe Railroad and the City of Joliet, Illinois.

## DELIVERING SUCCESS

Due to the accelerated schedule of the project, the request for proposals allowed only a 40-day window to





develop design innovations and a construction cost for the work. Through this fast-tracked process, our team, as the designer of record, partnered with the contractor to brainstorm ideas and develop the design details necessary for the contractor to prepare a lump-sum bid for the bridge and approaches.

Initially, the owner provided a preliminary design of the long-span bridge that was developed by the client's owner's engineer. During our evaluation of the preliminary design — and vetting out during numerous one-on-one meetings with the owner — we were able to identify several opportunities to improve the design to achieve significant cost and schedule savings while also improving the longevity and quality of the project. Some of these enhancements included eliminating multiple spans of the bridge, removing retaining walls, and utilizing innovative river pier construction techniques and cost-saving girder designs. Upon project award, we expedited

the approvals of the various stakeholders and government agencies and coordinated plan-in-hand meetings for over-the-shoulder reviews to facilitate accelerated permit approvals. In this way, we were able to convey the design changes and acquire the necessary buy-in from these critical stakeholders.

As part of the design-build delivery process, in which construction overlaps design, permit approvals were required at various times to meet the start of construction for each of the eight construction packages. The last package was approved and permits obtained within nine months of the start of design, meeting the accelerated approval process for the final construction package.

Other coordination efforts included developing innovative stormwater conveyance solutions that eliminated unneeded detention but required coordination with adjacent private developments. This solution reduced

the downstream impacts to swales maintained by IDOT, which in turn eliminated the need for additional permits. We also identified modifications to the profile to eliminate impacts to an intersection under IDOT's jurisdiction, avoiding delays for additional permits and balancing earthwork on both sides of the river.

## **CROSSING TO COMPLETION**

During the proposal stage, our team submitted 16 alternative technical concepts to reduce cost and expedite the construction schedule of the bridge and approach roadways. This resulted in nine approvals and significant cost savings. The project will give CenterPoint a faster, more efficient truck route to I-80.

Finally, HREJV will operate and maintain the bridge and lease it back from the City of Joliet. As part of the arrangement, HREJV will charge a toll for bridge use.

