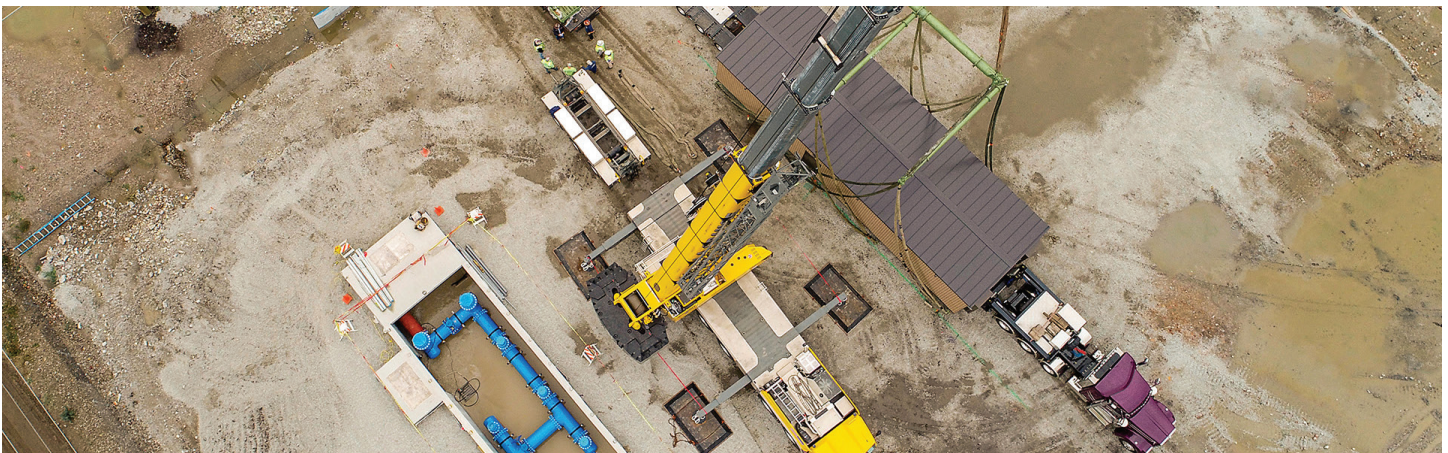


CASE STUDY

Design-Build Project Secures Clean, Affordable Water Supply for Village of Homewood

An Illinois community applied a progressive design-build approach to bring its water system online fast, supporting reliable water services at a stable rate.



Challenge

With the end date of its water supply agreement drawing near, the Village of Homewood, Illinois, was facing the possibility of increased water supply rates and reduced reliability. After assessing long-term plans, Homewood decided not to re-sign with its current provider. This gave the village enough time to work out an agreement to receive its treated Lake Michigan water from a different provider: Chicago Heights, which receives treated Lake Michigan water from nearby Hammond, Indiana.

Solution

Homewood partnered with Burns & McDonnell to design and construct an 11 million-gallon-per-day booster pump station and nearly 2.5 miles of 30-inch transmission main, using a progressive design-build approach. The \$12.25 million

Project Stats

Client

Village of Homewood,
Illinois

Location

Homewood, Illinois

\$12.25M

PROJECT BUDGET

2.5

MILES OF
TRANSMISSION MAIN

11

MGD BOOSTER
PUMP STATION

project — the largest public works project in Homewood’s history — was financed within the village’s existing rate plans.

Under the progressive design-build delivery framework, the team seamlessly facilitated collaboration between the village and the design-build team at the earliest possible stages of the project. This collaborative approach allowed the design to progress with input from all interested parties. As the design evolved, our team was able to make design decisions within the context of the capital budget and life cycle cost, meeting the village’s cost and schedule goals.

To begin this project, our team completed soil borings, surveys, wetland analysis and hydraulic and geotechnical analyses of the transmission main route. We continually coordinated with the Illinois Department of Transportation, the U.S. Army Corps of Engineers, Illinois Department of Natural Resources, Metropolitan Water Reclamation District of Greater Chicago, the Village of Thornton, the City of Chicago Heights and the Illinois Environmental Protection Agency to discuss permitting and easement requirements. Our team also led the corrosion control study to mitigate the risk of corrosion within water service lines to maintain clean water standards for the community.

Incorporating a progressive design-build approach, instead of design-bid-build or other traditional delivery methods, was crucial for the project’s success. This approach saved the village five months of time that would otherwise be spent in the bid phase. Additionally, the monetary savings were significant. The project team identified critical construction permits early in the project and had construction staff meet with state agencies to receive final permits before construction began. With this process, the team reduced four months from the project schedule and allowed for on-time delivery of the new water source to the village.

The project was initially projected to be \$14 million but through the design-build approach, \$1.75 million was saved with the truncated and expedited schedule. Value engineering allowed the project to stay under the initial budget and to deliver on the expedited schedule. Additionally, the team was able to identify critical procurement needs early in the process to address supply chain and inflationary issues seen during the pandemic. By creating a plan to receive the 2.5 miles of pipe for the project early, the village avoided \$600,000 of additional costs.

Our collaborative and relationship-focused approach was the solution needed to keep this project on budget and on schedule. Through frequent communication with Homewood and taking the time to understand the challenges the village was facing, the team addressed any concerns in a timely manner and with attention to detail. Timing for this project was also critical. Without the fast-paced design-build approach, construction for this project would have stretched well into the pandemic, resulting in lost time and costly measures that would be associated with site shutdowns. The part of the project completed during the pandemic required additional steps to encourage employee health and keep the job site running safely. With nearly 18,000 hours worked, the construction team achieved no recordable accidents.

Results

Throughout the design-build project, our team consistently evaluated the project, keeping cost and schedule front of mind. Through that approach, we were able to present value engineering ideas to the village, thus saving millions of dollars and months off the overall schedule. This allowed our integrated design and construction team to make suggestions for alternate installation methods, designs and materials that would enhance project value, thus enabling a fully transparent and collaborative project delivery.

Construction and startup of the transmission and booster station are now complete and water is flowing for village residents and businesses. This major investment in critical infrastructure enabled Homewood to continue providing clean and reliable water service for residents and businesses throughout the community at a reduced and stable water rate.

About Burns & McDonnell



Burns & McDonnell is a family of companies bringing together an unmatched team of engineers, construction and craft professionals, architects, and more to design and build our critical infrastructure. With an integrated construction and design mindset, we offer full-service capabilities. Founded in 1898 and working from dozens of offices globally, Burns & McDonnell is 100% employee-owned. For more information, visit burnsmcd.com.