



MORTY'S TRENCHLESS ACADEMY

Trenchless Technology Leads to Award for City Project



ENGINEERS IN THE CITY OF BLOOMINGTON, ILLINOIS PUBLIC WORKS DEPARTMENT received an award for the HoJo and Wittenberg Sewer Improvements Project, which used trenchless technology to make the construction of a gravity sewer more cost-effective than replacing a failing pump station. The American Public Works Association, Illinois Chapter awarded it Project of the Year for Environmental Projects in 2018.

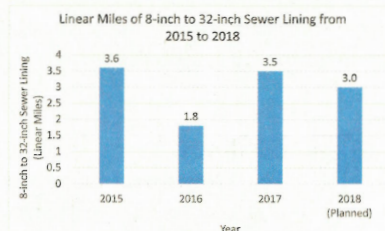
The Howard Johnson (HoJo) Pump Station, which Bloomington put into service in 1977, began nearing the end of its useful life in 2013. When studying the options, engineers realized they had an opportunity to make the city's infrastructure more sustainable, because they could use trenchless technology to install gravity flow sewer pipes to eliminate the HoJo Pump Station. The same process could be used to eliminate the Wittenberg Pump Station, upstream from the HoJo Pump Station. The task would have been extraordinarily expensive if not for trenchless technology, because the sewer pipes needed to go underneath two interstates.

Engineers planned to use the technology in two different ways to make the construction of the gravity sewer cost-competitive with replacing two pump stations. Their first strategy repurposed 1,600 ft of previously-abandoned 12-in. force main. The repurposed 12-inch force main helped make the mile-long connection between the HoJo Pump Station and yet a third abandoned pump station. Engineers also planned to use an epoxy resin liner to line the original ductile iron force main. The engineers' second strategy leveraged the advantages of horizontal directional drilling to minimize the impacts to Interstate 55 and Interstate 74, which carry 47,000 vehicles per day. In two pulls, contractors installed 1,035 ft of 14-in. high-density polyethylene pipe (HDPE) that served as the casing. Then, they installed an epoxy resin liner as the

carrier pipe in order to satisfy Illinois Department of Transportation requirements for crossing sewers under highways. Each of these strategies provided significant cost savings and limited the impacts to the adjacent property owners.

The HoJo and Wittenberg Sewer Improvements Project is a great example of how The City of Bloomington Public Works Department maintains its commitment to providing excellence in stewardship and service. The department is figuring out the best ways to leverage trenchless technology by giving importance to educating staff. Using their talent and creativity, employees have found and will continue to find unique and cost-effective uses for trenchless technology in order to tackle projects with ordinary or extraordinary challenges. The Public Works Department provides training for trenchless technology in-house. This approach begins with ensuring that staff knows that digging doesn't solve all problems and raising awareness for what can be accomplished with the technology. The training ranges from informal chats in the hallway to formal training from the best in the industry.

Seventeen employees attended the three-day Pipeline Assessment Certification Program, offered by the National Association of Sewer Service Companies (NASSCO), in June 2018. By training employees on the North American Standard for defect identification and assessment, the department will be able to increase the amount of sewer work that can be provided in-house. Two employees participated in the Inspector Training and Certification Program, also offered by NASSCO. The certification allows the city to line sewers using cast-in-place pipe (CIPP). Sewer lining adds longevity to aging sewers by creating a new pipe within the old pipe, saving replacement costs and avoiding service interruptions. Crews lined 1,100 ft of 36-in. pipe in the city's downtown area without impacting downtown businesses and residences.



Contractors ran 670 feet of HDPE pipe under I-55/I-74 to use as a casing.

In conjunction with the CIPP program, Public Works set the bar for Central Illinois by performing lateral launches using closed-circuit television for every service prior to lining. This allows the city to disconnect abandoned sewer services that would have otherwise formed a sinkhole. During one project, crews identified 56 abandoned sewer services in 3 blocks within the city's downtown area that they were able to disconnect. That project eliminated 56 potential sinkholes due to the creative use of trenchless technology by city staff.

The City of Bloomington, Illinois Public Works Department maintains 254 miles of sanitary sewers, 85 miles of combined sewers, 9 miles of sanitary sewer force mains, and 244 miles of storm sewers in a community of 76,610 people. These pieces of infrastructure are fully funded by user fees that have an annual 3 percent increase to keep up with ever-increasing costs of infrastructure construction. This year, Bloomington's operating, maintenance and capital budgets included \$3.7 million for the storm-water management fund and \$7.2 million for sanitary sewer fund. There is no question that trenchless technology is a necessary tool for making the best use of these available funds.

This article was contributed by **LUKE THOLE, CIVIL ENGINEER, AND MICHAEL HILL, MISC. TECHNICAL ASSISTANT, FOR THE CITY OF BLOOMINGTON PUBLIC WORKS DEPARTMENT IN ILLINOIS.**