

[SEWER REHAB]

Solving the Sinkhole Epidemic

Addressing the heart of the problem: damaged sewer lines

By Jayne Bringer

Orland Park, Ill., a suburb of Chicago, had dealt with multiple sinkholes over the past few years by using bandage-type repairs. However, because the sinkholes were symptomatic of a greater problem with a large storm sewer, village officials decided to implement a permanent solution and rehabilitate the line using trenchless cured-in-place pipe (CIPP) technology.

The pipe was suffering from severe corrosion, and a few locations had collapsed. CIPP provided a more permanent solution to the sinkhole problem, and rehabilitation was less expensive than a dig-and-replace method, as the line ran



CIPP technology saved the village money and disruption.

through many yards, close to houses and under sheds and fences.

“We decided to bring in Insituform Technologies to evaluate the situation,” said John Ingram, Orland Park’s superintendent of public works. “We

were looking at replacing the line but wanted to get Insituform’s perspective on rehabilitating it without the hassle of digging and all of the disruption for the residents that goes with replacing a line.”

The village ultimately went with the company’s solution because it was less expensive and disruptive, Ingram said.

The Sinkhole Situation

Kevin Coburn, Insituform’s business development manager for the Chicago region, said that Orland Park discovered what too few municipalities realize: Sinkholes almost always are the direct result of defects in underground pipes and almost never of wet weather, freeze-thaw cycles or the other conditions often suggested by officials and TV weather forecasters.

Cracks or holes in sewer and water lines cause the soil around the pipe to infiltrate in, according to Coburn. As the pipe continues to carry away the soil, a void is created around and above the pipe. The surface above the void eventually collapses into the pipe, creating a sinkhole that many mistakenly think is caused by water flowing out of the pipe. Beyond the extreme cases where sinkhole damage can be life-threatening, the soil washing into the pipe puts additional pressure on the entire storm sewer system.

“Maintaining and rehabilitating sewer and water lines are the most efficient ways to prevent sinkholes,” Coburn said. “If you address the deterioration of the pipe, you automatically address the cause of the sinkholes, and you also address the additional costs of treating the contaminated water in your treatment plants.”

Project Challenges

The shape of the 1,285-ft storm sewer in Orland Park presented another challenge; the arch-shaped corrugated metal line was about 53 in. tall and 73 in. wide. But according to Coburn, the selected CIPP lining system is capable of adapting to a variety of pipe shapes and sizes—from 6 to 96 in., specifically.

The felt tube manufactured by Insituform is coated on one side with a polyethylene layer and then treated with a resin-based solution during the “wet-out” process. The tube is inserted into the pipe and then cured into a hard, permanent pipe inside the host pipe using hot air, water or steam.

The project was conducted around the clock and required special planning. In addition, because it was located in a park-like setting between residential homes, the project implemented an “over-the-hole” wet-out process, meaning it was performed on site and immediately before tube insertion.

“The crews on the site were fantastic,” Ingram said. “Their demeanor, their interaction with the residents and with us, keeping us informed every step of the way—it was just an awesome project.” **[SWS]**

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