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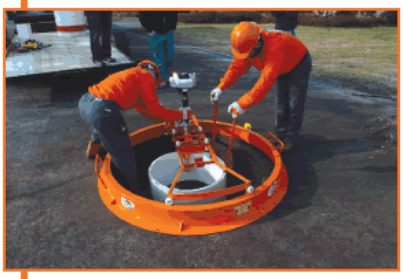
Mr. Manhole case study for NASSCO Times

By Ken Wysocky



Storm water inflow and infiltration is a primary concern for the Allen County Sanitary Engineers in northwestern Ohio, just as it is for thousands of other sanitary sewer operators across the country.

But in one respect, the system is quite different from most of its counterparts because it employs a new tool in its quest to reduce infiltration: Mr. Manhole, a system that can replace a leaking manhole chimney section in less than one hour. In fact, the Mr. Manhole replacement system is playing an important role in helping Allen County meet a mandate from the U.S Environmental Protection Agency to eliminate six chronic sanitary sewer overflows that periodically spill into the Ottawa River, which flows into Lake Erie, notes Bill Horvath, the system's wastewater collection superintendent.

"We've probably replaced 50 to 75 of our approximately 4,000 manholes using Mr. Manhole, and we're very pleased with the results," notes Horvath, who oversees roughly 200 miles of sanitary sewer lines. "We can do six to eight manholes a day, which is triple or quadruple our normal productivity.

"And the average cost is $500 to $800 per manhole, depending on the depth and whether we re-use the casting and lid," he adds. "That's about half the normal cost of a manhole replacement."

The system's centerpiece is a cutter extractor, an auger-driven tool that mounts on a conventional track skid-steer. In minutes, the cutter's replaceable blade dry cuts through concrete and asphalt and removes the old lid, the casting and road overcut in one piece.

"It takes the whole thing out like a doughnut, right down to the top of the cone," Horvath observes. "And you can re-use the casting, too, which is important because they're expensive and they just don't go bad."

The cutter extractor adjusts to fit a wide range of casting sizes, and the extractor plate swivels, allowing it to align with out-of-level castings. Also, the diameter of the cutter adjusts to fit the proper overcut distance.

After the extractor removes the casting, a new Vylon insert liner is installed, which eliminates the need for adjusting rings. Then a gasoline-powered ring saw with an adjustable cutting depth trims the liner at an angle that matches the slope of the road. It can cut liners from 12 to 50 inches in diameter. Then crews apply a top sealant, re-install the casting, and pour a new concrete collar.

Before the invention of Mr. Manhole, Horvath says a crew of four men could only replace about two manholes a day because they'd have to use jackhammers to chip out the roadway, then fiddle around with plastic adjusting rings to try and get the manhole level with the slope of the road.

"The nice thing about Mr. Manhole is that it seals the chimney section tight," Horvath explains. "It's one solid piece, with no joints. If you have a manhole that leaks 10 gallons of water a minute, and you eliminate that leakage, that's pretty significant.

"The other advantage is it doesn't leave a bump in the road," he continues. "The new lid is flush with the existing street to within 1/8 of an inch. The public feedback is unbelievable. People call us and thank us, which doesn't happen very often."

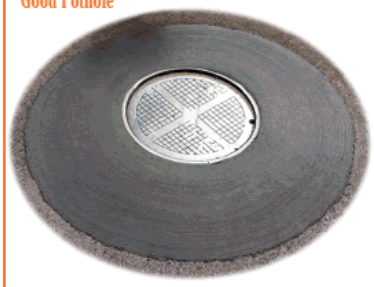
Another benefit: Horvath's crews don't have to fix manholes whenever a road is repaved. Instead, crews pave right over the troublesome manhole. Later, a crew can go back when it's convenient and locate the manhole with a metal detector, then cut it out and replace it, he says.

Moreover, because the replacement is so fast, traffic disruption is minimal. And the money saved on each replacement can be used to make additional improvements.

"In the next 20 years, we plan to spend about $20 million on system improvements to meet the EPA mandate," Horvath notes. "We'll eventually buy the Mr. Manhole cutter and extractor so we can do replacements with our own staff.

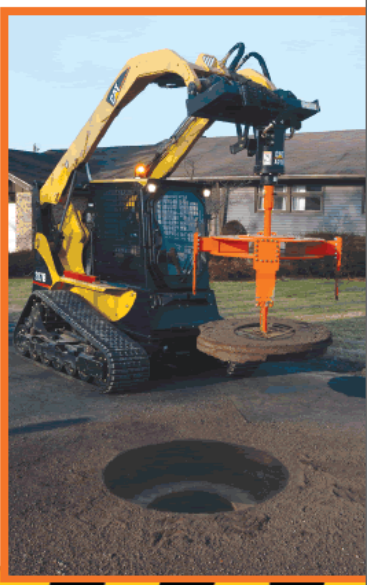
"Right now, a Mr. Manhole crew handles it because they're based in our town of Lima," Horvath adds. "We're their guinea pig and I'm not ashamed to say it—this is cutting-edge technology. In fact, it's so accepted that we've even adopted the method into our sewer specifications for replacement or new construction."

Good Pothole



"...it doesn't leave a bump in the road"

Bad Pothole



To learn more about Mr. Manhole, visit www.mrmanhole.com.