

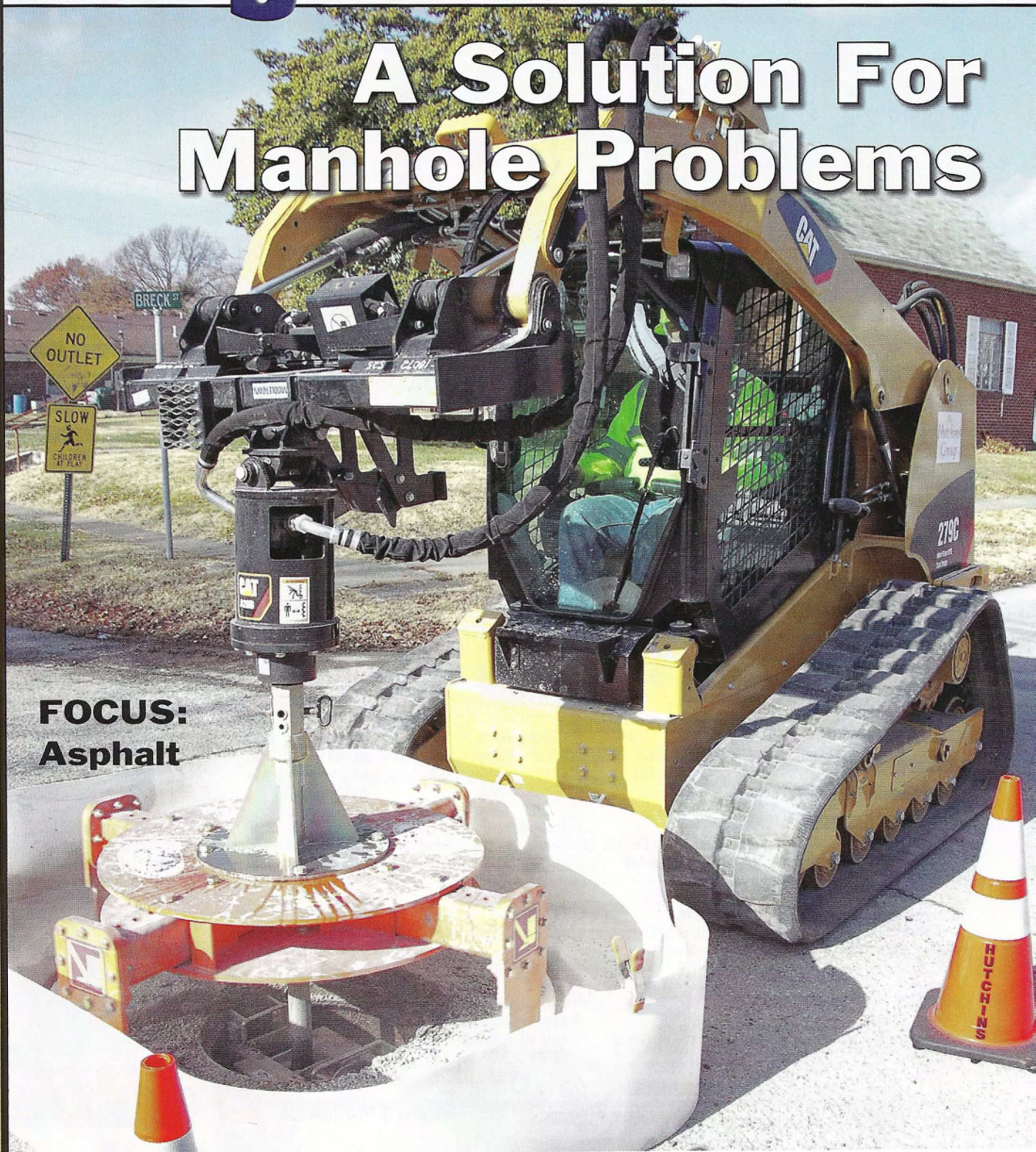
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A Solution For Manhole Problems

**FOCUS:
Asphalt**



Mr. Manhole leveling system provides leak-free, gas-proof, perfectly road-level fix

Story by Tom Hale -- Construction Digest,

It is well known that the aging infrastructure is full of collapsed or out-of-adjustment sewer manhole frames and lids, causing annoying bumps on roadways and traffic hazards. Many of these manholes develop leaks as a result of heavy traffic and from freezing and thawing, causing sanitary overflow problems and expensive repairs.

In repairing these manholes, crews face the challenges of sealing or otherwise repairing the chimney — the top part of the sanitary sewer manhole structure. Traditional repairs require workers equipped with jackhammers or saws to break up the roadway surrounding the manhole, re-level the manhole frame, and then refinish the roadway. This process is time-consuming, typically taking several hours.

However, municipalities and contractors across the country now have another option — the Mr. Manhole leveling system. Mr. Manhole, devised three years ago by Mike Crites, president/CEO of Crites Excavating Inc. and Critex LLC in Lima, OH, allows the removal and replacement of a manhole chimney section and leveling of the frame in less than one hour.

Crites says the Mr. Manhole system provides a leak-free, gas-proof, perfectly road-level fix. He notes that "a couple of thousand" manholes across the country have been repaired using this unique solution for manhole chimneys. Mr. Manhole rebuilds the chimney section of a manhole exactly level with the slope of the road. It also addresses inflow and infiltration problems by quickly removing the chimney and replacing it with a new structural sound, watertight assembly.

The Mr. Manhole system is a quick and effective remedy for municipalities coping with manhole problems, notes Derek Hutchins, president of The Hutchins Group, Louisville — the only certified Mr. Manhole installer in Kentucky. Plus, he adds that the leveling system is cost-effective, typically requiring just a four-person crew to make five to 15 repairs a day versus one to two repairs the traditional way.

In early December, Mr. Manhole was used for the first time in the Bluegrass State. The Hutchins Group used this relatively new process to repair 27 old, masonry manholes for the city of Hardinsburg in Hardin County. "The city's manhole frames and lids were low after years of asphalt paving, which created inflow and infiltration — which is a huge cost to a municipality," says Dave Coburn, vice president of operations for The Hutchins Group. "By raising them with the Mr. Manhole system, they will be able to solve this problem."

In conjunction with key Mr. Manhole tools, The Hutchins Group utilized a variety of Caterpillar machines it purchased from Louisville-based Wayne Supply Co. to perform the repairs. A Mr. Manhole cutter extractor, attached to a Cat 279C compact track loader equipped with a Cat A26B high-flow auger drive unit, was used to cut through the surrounding asphalt and concrete supporting the manholes.



A Mr. Manhole cutter extractor, attached to a Caterpillar 279C compact track loader equipped with a Cat A26B high-flow auger drive unit, cuts through pavement in Hardinsburg, KY.

How The Manhole Leveling Process Works

The cutter extractor, a 900-pound machine using replaceable carbide teeth, is capable of dry cutting through asphalt or concrete and removing most manhole frames with no manual labor in less than 20 minutes — a fraction of time required by conventional methods, says Trip Davis, marketing director/sales for Mr. Manhole. The cutter extractor is equipped with a speedplate which centers the cutter's shaft and keeps the unit cutting a true circle. It is capable of cutting diameters from 42 inches to 72 inches by adjusting the position of the cutting arms.

Once a circular hole is cut in the road and the manhole casting is removed, a Mr. Manhole white urethane sealant is applied to the polyurethane insert liner, and the liner is placed on the manhole cone to support the casting — elevating the casting to the proper slope of the road. A Mr. Manhole ringsaw is used to trim the insert liner to the exact height and slope of the road.

Then, an additional bead of sealant is applied to bond the frame to the liner and provide additional assurance against leakage. The manhole lid is replaced and ready-mix concrete is placed as a collar around the casting. One-half-inch epoxy-coated rebar are placed every 6 inches to provide reinforcement and the concrete is consolidated with a vibrator.

The final steps in the process include finishing and smoothing the concrete, and applying a black colorant to the surface of the concrete collar so that it matches the asphalt. A pourable black sealant is used to seal the edge of the rebuild.

The Mr. Manhole system is engineered to stand up to traffic and perform for many years. According to Mr. Manhole, its system has a 20-year design life, will not leak, and will always remain level with the road. The system can withstand loads in excess of four times that experienced by an HS20 loading, immediately upon completion of a rebuild. After that, the system continues to gain more load-carrying capabilities as the concrete cures.

Caterpillar 279C In The Spotlight

Derek Hutchins, president of The Hutchins Group, has worked closely with Jason Greer, rental/sales representative for Wayne — The CAT Rental Store in Louisville, to purchase Caterpillar equipment for his growing company.

For the Hardinsburg project, the Caterpillar 279C compact track loader was in the spotlight, helping to rebuild manholes with the assistance of the Cat A26B high-flow auger. The 279C, along with the 289C and 299C compact rubber track loaders, were introduced in 2008 as new additions to the Caterpillar's ever expanding line of compact construction equipment, according to Greer. The loaders feature durable, steel embedded tracks and all-steel undercarriage components that were designed in house while building upon Caterpillar's long history of track-type tractor undercarriage experience and technology to provide maximum undercarriage life in aggressive applications.

These machines also provide the industry's only true, fully suspended undercarriage that employs four independent torsion axles that provide superior comfort for the operator, improved load retention, quieter operation, and significantly reduced shock loads to both the machine and the operator. The optional deluxe, pressurized and sealed cab also provides a much quieter and cleaner environment for the operator while working in noisy and dusty applications. The 279C has a rated operating capacity of 3,200 pounds and an engine rating of 82 net-horsepower.

The Hardinsburg project also featured The Hutchins Group's use of a Caterpillar 303.5C CR mini hydraulic excavator and a Cat H65DS hydraulic hammer.

Wayne Supply Co. is one of the nation's oldest and largest Caterpillar dealerships. Established in 1913 and headquartered in Louisville, Wayne currently has 10 full-service branches and 12 Wayne - The CAT Rental Stores throughout Kentucky and southern Indiana.