

KnoxNews

To print this page, select **File** then **Print** from your browser

URL: http://www.knoxnews.com/kns/traffic/article/0,1406,KNS_358_5527295,00.html

Tire-bursting sinkhole plugged

In 24 hours, crews rip open then reopen piece of Pellissippi

By **DON JACOBS**, jacobs@knews.com
May 9, 2007

State workers reopened Pellissippi Parkway on Tuesday night, 24 hours after the discovery of a sinkhole that extended 30-feet deep under the southbound lanes.

That should be a welcome sight for drivers who were forced Monday night and Tuesday to use the shoulder of the road to get around the gaping hole. During morning and afternoon rush hours, traffic was backed up for more than a mile.

Workers poured 36 dump truck loads of rock weighing about 720 tons into the hole. About 40 yards of concrete was sloshed into the hole to fill voids between the rocks. Topping off the mixture was 60 tons of asphalt, said Bud Slaton, Tennessee Department of Transportation maintenance engineer.

The sinkhole opened up about a quarter-mile south of the Oak Ridge Highway intersection with Pellissippi. The northbound lanes on Pellissippi Parkway were not impacted.

The hole, just a few feet across at its top when it opened around 7:30 p.m. Monday, spread beneath the pavement and was excavated by the Tennessee Department of Transportation.

Slaton said motorists discovered the sinkhole when it busted tires on cars.

About 800 cubic yards of dirt and debris were cleaned out of the hole. Excavation of the 60-foot long, 20-foot wide hole was finished about 7:30 a.m. Tuesday, Slaton said.

Slaton said the rock was brought in from a quarry in Oak Ridge. The concrete presented a problem because the state does not have a contract with a local provider.

Slaton said trucks had to bring concrete in from Jefferson City to fill the hole.

The concrete and rock will create a bridge over the weakened area, which could be scores of feet deeper above the bedrock, said Saieb Haddad, TDOT geotechnical engineer. In upcoming days, workers will drill holes 4-inch in diameter on two sides of the patched road and pump concrete into the earth.

Haddad said the holes have to be drilled to bedrock, which could be as deep as 100 feet. Pumping concrete underground, he said, will add density to the area and help stabilize the ground.

In the next few weeks, Haddad said, workers will attack the real culprit for the sinkhole - ditches on either side of the road.

"The problem is the limestone, which reacts with water over time," Haddad said.

"It could happen anywhere. It could happen in your back yard. But it happens more on highways because of the drainage ditches on each side of the road. The ditch is the source for the sinkhole."

Haddad said the concrete drainage ditches become clogged with vegetation and water pours over the ditch, into the earth. Several gaping holes into the dirt were visible Tuesday along the concrete ditch near the sinkhole in the road.



J. MILES CARY
 NEWS SENTINEL

Heavy equipment scoops dirt from the sinkhole in the southbound lanes of Pellissippi Parkway on Tuesday morning. The lanes were closed for most of Tuesday and were reopened about 24 hours after the sinkhole's discovery.

Water that overwhelms the underground drainage system is pushed to the surface, Haddad said. As that water retreats with time, it causes a vacuum action that pulls the soil down with it, creating voids under the asphalt.

To decrease the chances of water overwhelming the underground drainage system, Haddad said he will recommend ripping out the concrete ditches for several hundred yards along each side of Pellissippi Parkway. Then workers will line the ditch with a plastic-like sheeting that will not allow water to percolate into the ground.

"We should line all the ditches along roads in the Knoxville area," Haddad said.

Haddad said workers lined ditches with the sheeting during the widening of Interstate 40 between West Hills and Papermill Drive to avoid sinkhole formation along the route.

The same technology is being used on the \$190 million SmartFIX40 project to widen I-40 downtown, he said.

Don Jacobs may be reached at 865-342-6345.



Copyright 2007, Knoxville News Sentinel Co.
[Want to use this article? Click here for options!](#)

Copyright 2007, KnoxNews. All Rights Reserved.