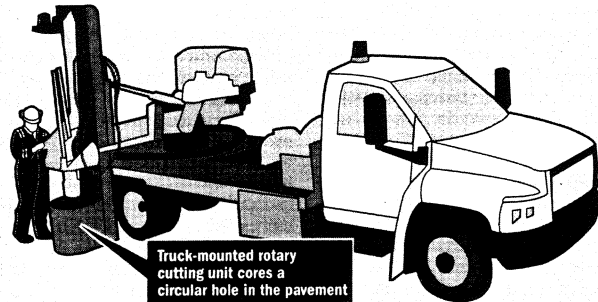


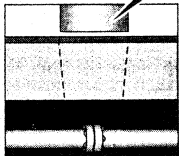
The key to painless repairs for city streets

Carving out the street

Enbridge says that repairs can be done under the street in just an hour instead of half a day using the following technique:



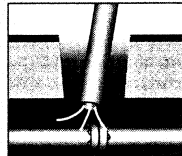
Truck-mounted rotary cutting unit cores a circular hole in the pavement



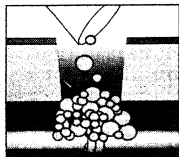
1. In minutes, the truck cores a hole into the sidewalk or roadway that can be up to 45.7 centimetres in diameter and 55.8 centimetres deep.



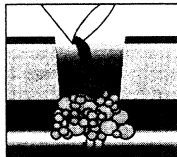
2. Using a metal handle in the centre of the hole, the cylindrical core is extracted and then set aside.



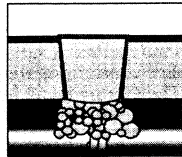
3. After high-pressure water is shot into the hole to loosen the soil, the mixture is sucked out into a tank. Then, long-handled tools are used to complete the repairs.



4. A 2.5- to 5-centimetre layer of pea gravel is added to the base of the hole to level the core.



5. 'Utilibond', a super-glue-like cement, is mixed with 2 litres of water and poured slowly into the hole. It will flow up and around the core and act like a seal.



6. The core is lowered back into the hole. 30 minutes later, the area is power washed, and the bond will have gained enough strength to hold 22.6 tonnes. The road can be reopened to traffic.

SOURCE: WWW.UTILICOR.CA

TRISH McALASTER / THE GLOBE AND MAIL

Keyhole cutting will improve roads and limit construction delays for the city, supporters say

BY JEFF GRAY

A drill the size of a Christmas tree tipped with a 46-centimetre spinning cylinder, grinds into the asphalt on St. Clair Avenue West, carving a perfect circle into the road's surface.

Workers with Enbridge Gas Distribution force a metal handle into the centre of the circle and pull out a cut-out cylinder of asphalt and concrete, yanked from the road like a cork from a wine bottle.

Then, workers use a truck called a Hydrovac to shoot water at high pressure into the hole, loosening the soil inside, while a tube sucks the resulting mixture up into a tank, exposing a natural-gas pipe about 1.2 metres down within minutes.

From above ground, using specially designed long-handled tools, Enbridge workers attach an anode, or a device that sucks stray electrical current — which hastens corrosion — away from the steel pipe.

It's a job that used to mean digging a large hole and blocking a lane of traffic for half a day or more. But using this new "keyhole" technique, the company says, the road can be reopened in under an hour. When the work is done, crews just replace the concrete cork into the hole using a special "super glue" compound and leave the street almost as they found it.

Such testimonials have Toronto politicians and city works staff interested in whether keyhole technology could be put to use on a



KEVIN VAN PAASSEN/THE GLOBE AND MAIL

Enbridge workers Brent Beaumont, left, and Ryan Fehr use a keyhole cut to make repairs under St. Clair Avenue West. The technique involves making a 46-centimetre hole and using long tools to fix the problem.

wider scale, reducing the number of utility cuts that have turned some streets into patchwork quilts and lowering the blood pressure of drivers stuck on construction-constricted streets every summer. Some say, however, this keyhole technology is still imperfect, and no surefire way to unlock the city's roadwork gridlock.

Rob Fennell, Enbridge's general manager for Toronto, likens keyhole technology to arthroscopic surgery, but for the pipes beneath the road instead of your knee. And like the medical procedure, he says, it leaves much less scarring.

For old-fashioned digs, for in-

stance, a paving contractor temporarily patches the larger holes in the road made by a utility. Another crew is then required to return to the site and do a more permanent repair.

But the city's backlog for this type of work means that the ugly, bumpy temporary patch could sit for as long as a year — creating fertile ground for potholes.

With a keyhole cut, the city doesn't have to touch the road afterward, Mr. Fennell said: "We're in and we're out."

He said a draft report by the National Research Council on keyhole road repairs' ability to stand up over time is "positive," and should be released in June. According to Mr. Fennell, Enbridge performed more than 1,000 keyhole cuts on Toronto roads last year as part of a pilot project with city staff.

Departing works committee chairwoman Jane Pitfield says she has been pushing city roads and water officials to consider keyhole cutting, which she says would drastically improve the quality of Toronto's pavement.

"It leaves the road in better condition than it was when they cut into it," she said after Enbridge made a presentation to the works committee last week. "Which is not the case with our sort of haphazard utility cutting."

But Councillor Michael Del Grande says senior Toronto works officials, while still supportive of the keyhole idea, have complained to him privately about Enbridge's "overall poor workmanship."

Chunks of pavement have been left by the side of the road for as long as a week, he said, damaging them and meaning that some key-

hole cuts haven't healed the way they were supposed to, leaving gaps for water to seep under the road. Mr. Fennell promised to investigate, and said the company is still refining its procedures.

Frank Trinchini, manager of contract services for Toronto Water, said that with the nature of the work his department does, only about 5 per cent of digs could be switched to keyhole cuts anyway.

"You can't fix a watermain break, and you can't fix a sewer with this,"

Mr. Trinchini said.

But Mr. Fennell insists keyhole technology is the "way of the future." Enbridge started experimenting with the technique over 10 years ago and has since spun off the technology for others to use. Several utilities in cities in the United States have also started making keyhole cuts.

But even Enbridge is using keyhole cuts only for certain jobs. They can be used for fixing joints, installing anodes and lighting the way when tunnelling — an estimated 30 to 40 per cent of their work, said Chris Topos, Enbridge's keyhole cutting operations supervisor. Mr. Fennell said he hopes to get that number to 75 per cent as his staff develop new techniques.

'... A utility or a telecom company can lay fibre-optic cable and we have no right to stop them. That is totally wrong.'

Mayor David Miller agreed keyhole cutting could spare Toronto's roads from being hacked up at random, and thus force fewer drivers to sit idle in construction delays.

"We're very interested in it," Mr. Miller said. "We're hoping to see what potential it has for us."

But he said widespread keyhole cutting can't solve the underlying problem: Lax federal regulations that mean the city cannot control when or if utilities dig up its roads and congest traffic.

The mayor said the city is considering imposing a "pavement degradation" charge that would make companies pay every time they open up a road. (Utilities already pay the cost of the repairs.) Companies that use keyhole techniques might be charged less, he added.

"We can rebuild a road on a 30- or 40-year cycle, and the day after, a utility or a telecom company can lay fibre-optic cable and we have no right to stop them."

"That is totally wrong," said Mr. Miller. "These are our roads."