

Sustained cold weather has stymied pothole repairs

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WATERLOO REGION — As stretches of area roads turn into fields of craters, experts say fixing potholes during extended periods of cold weather is still an inexact science.

Asphalt used to fix roads during the winter has to be mixed with solvents in order to keep it from freezing. Those in the business call it "cold mix," though even it doesn't fare that well with water or wildly fluctuating temperatures.

"If it's wet, if it's going through freeze-thaw cycles, or if it's being run over by traffic, the hole is going to need to be re-patched several times throughout the winter," said Bill Garibaldi, deputy commissioner of integrated planning and public works with the City of Waterloo.

George Elliot, commissioner of public works and transportation for the City of Cambridge, said cold mix asphalt isn't meant to be a long-term fix, but it's the only thing that works quickly in cold temperatures.

"It's known to sometimes bump right out of a (pothole) after a couple of hours, but it could last weeks."

Even if the cold mix sets properly in the pothole, Garibaldi said, "tires grip the asphalt and they tend to want to pull the asphalt out."

In all instances, Elliot said "water is the enemy." Whenever it freezes inside a crevice in the roadway, it expands the crack into a pothole over time.

Materials used to fix potholes in wintertime tend to be short-term temporary fixes, according to Susan Tighe, the University of Waterloo's resident pavement technology expert.

"The idea is that in the spring, when the asphalt plants open, we mill off that (broken) surface and fix it with a patch of hot-mix asphalt."

Tighe said cold-mix asphalt is placed in potholes more to prevent motorists from damaging their vehicle or veering out of a lane of traffic. It's expected crews will have to return to the same pothole several times throughout the winter to refill it.

Hot-mix asphalt cools too quickly to set properly when it's used in the wintertime and must be brought in by the truckload from Toronto.

Elliot said Franklin Boulevard contains some of the worst potholes in Cambridge this winter, and a six-kilometer stretch of it will likely require a truckload — 20 tonnes — of hot asphalt this spring for repairs.

When Cambridge is running low on cold- or hot-mix asphalt, Elliot said they can "reheat" old asphalt from their yard and use it to fill road cavities.

"I don't buy into this theory that this year is any worse than any other year from a pothole standpoint," Garibaldi said.

"Generally, people either forget or it's appearing on a road they may not be used to or appearing in a different area."

What's unique this winter, Garibaldi and Tighe said, is the depth of the frost, brought on by sustained cold temperatures. It has penetrated six feet into the ground in some places.

While the main side-effect of a deep frost is frozen pipes, the frozen earth can also cause sections of road to sink slightly, or "heave."

The affected sections of roadway usually return to their original position after the ground thaws completely in the spring.

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Patching up potholes, like this one on Bridge Street in Kitchener, has been a challenge for public works this winter.