

Thawrox™: Ministry Tests New De-icing Product

This winter, the Ministry of Transportation began testing a new de-icing product in the Huntsville area. The product, called Thawrox™, contains rock salt, magnesium chloride and a viscosity modifier that adheres the product to the road. The trials compare Thawrox™ salt against existing pre-wetting treatments to determine whether the product's performance makes it a suitable candidate as an alternate source of road salt.

The magnesium chloride in the product enables it to react faster with moisture than regular untreated sodium chloride road salt, preventing snow and ice from bonding to the pavement. Thawrox™ is promoted as a product that can be used at lower temperatures. However, because of the product's rapid reaction rate, it is used up quicker, leaving snow more susceptible to being refrozen into ice at extremely cold temperatures if a more rigorous salt distribution schedule is not adopted to offset the side effects.

Ministry best practices in winter maintenance recommend that road salt be applied at temperatures no colder than -18 degrees Celsius and under ideal conditions—such as minimal traffic and permitting weather—because road salt becomes less effective as temperatures drop below the recommended threshold. The Thawrox™ trials are being simulated under the same standards.

Trials commenced in January and continue until the end of the winter season. They are being conducted out of the Huntsville patrol yard by John Ballantine, patrol maintenance technician and project lead. The test site designates 11.9 km on Highway 11 north of the patrol yard for Thawrox™ and 11.9 km south for pre-wetted salts. Pre-wetted road salt is used as a control to help evaluate Thawrox™'s performance. To ensure that testing conditions are as equal as possible, both products are being used at the same application rate.

Many Thawrox™ product trials in Ontario have been positive. The ministry wishes to determine whether the product will be able to perform at least on par with current pre-wetting systems, adhere to the road surface and work faster than regular untreated salt.

A potential benefit that may result from the use of Thawrox™ would be the reduced need to modify existing salt spreaders to include pre-wet tanks, as no liquid is required to be added to the product. This could reduce costs incurred to optimize MTO's salt spreaders for pre-wetting treatments.

If results are favourable, the ministry could consider Thawrox™ as an alternative source when applying road salt on the highway. Look for Thawrox™ pilot results in a future Road Talk article. •



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For more information about the Thawrox™ test trials, please contact Jim Young at (905) 704-2976 or Jim.Young@ontario.ca

For more information about pre-wetting, please refer to the [Winter 2006](#) issue of Road Talk.

State-of-the-Art Technology for Highway 11 Runaway Truck Ramp

A new state-of-the-art runaway truck ramp was recently constructed on Highway 11 at Thibault Hill in North Bay, where transport trucks descend into a busy commercial area of the city. This is the only runaway truck ramp on the Ontario provincial highway system.

A runaway truck ramp was first constructed at this location in 1994 in response to a recommendation from a coroner's inquest.

The original 1994 runaway truck ramp was built with arrestor bed technology, which used a bed of gravel to stop trucks experiencing brake failure. While this technology did work very well, it required operators to enter the runaway truck ramp as they began their descent into the city. This meant that operators had to anticipate brake issues before they arose. It was also less effective during winter months.

The new runaway truck ramp features a dragnet system, which uses a series of cables held apart by metal spreaders that form a net to catch a runaway truck or bus. The system consists of seven nets attached to a series of energy absorbers similar to the system used to stop airplanes when landing on aircraft carriers.

The energy absorbers are anchored into a concrete barrier and contain a spool of coiled steel alloy tape, which is wound through a series of offset steel pins within the absorber. These components are used to dissipate the energy of the runaway vehicle and bring it safely to a stop. Drivers will experience braking forces similar to a hard traffic stop.

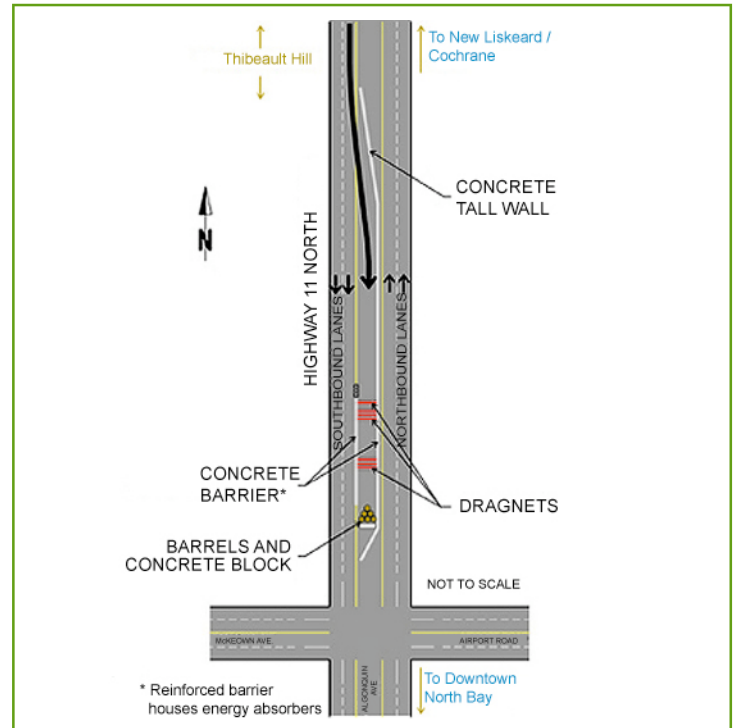
Since the dragnet system requires less distance to stop a vehicle, operators now have more time to determine the presence of a brake issue before committing to the runaway truck ramp as they descend into the city. The new ramp starts 140 metres from the bottom of the hill, compared to 370 metres for the former gravel ramp. Also, the new system is more effective in the winter and requires less maintenance.

As part of the new runaway truck ramp project, the ministry also constructed a brake check area about 2 km north of Thibault Hill. This area provides commercial vehicle operators with a safe spot to inspect their vehicles before entering the city.

Miller Paving Limited was the prime contractor for the new runaway truck ramp and brake check area. The dragnet system itself was manufactured by Entwistle Company from Hudson, Massachusetts and was distributed locally by Powell Contracting Limited.

The new runaway truck ramp and the brake check area became operational on December 19, 2008. A demonstration of the dragnet system will take place in June. The results of the trial will also be presented in a report and a high-speed video.

Improvements to the Thibault Hill Runaway Truck Ramp reflect the government's continuing commitment to research and innovation as a means to improve road safety.



Layout of the new Thibault Hill runaway truck ramp.



Runaway truck ramp dragnet system.

Please keep up with *Road Talk* for a follow up article on the results of the Thibault Hill Runaway Truck Ramp dragnet system. •

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