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Subsurface Utility Engineering boosts efficiency, roads seminar hears

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Innovative construction practices and techniques on highway and streets projects can minimize costs, traffic congestions and reduce friction with the travelling public or adjacent property owners, participants at a major transportation conference in Toronto were told.

"The BIA (Business Improvement Area) is really satisfied," said Toronto senior project engineer Luis De Jesus, a keynote speaker at one of the seminars at the recent Transportation Association of Canada annual conference and exhibition.

By that he meant the business response to the installation of two 300-mm-watermains under a four-lane two-kilometre section of Yonge Street from Eglinton Avenue to Lawrence Avenue.

The project also includes extensive sewer chamber rehabilitation, sewer lining, boulevard reconstruction and road resurfacing in the mixed commercial/high density residential area.

The project got underway this summer and has been progressing smoothly with the use of a Subsurface Utility Engineering (SUE) investigation, said Lawrence Arcand, manager of the SUE Services department of TSH/TBE Subsurface Utility Engineers Joint Venture.

Developed over the past two decades SUE combines traditional civil engineering utility data collection and depiction methods with new computer and optic technologies according to principles developed by the American Society of Civil Engineering (ASCE 38-02), he said.

Canada is in the process of writing its own version.

Just one example of the SUE investigative design work on the Yonge Street project was the use of zoom cameras to complete the assessment of more than 200 manholes. By using the zoom camera, field technicians were able to take accurate photos, without having to actually enter the manholes, said Arcand.

The cameras "provided an efficient method of determining and documenting the condition of the manholes and incoming pipes without the need for confined-space entry."

In Windsor, a centrally controlled system of portable variable message and closed-circuit television signs, plus fixed cameras on traffic lights is helping to manage traffic congestion problems, said Ministry of Transportation project engineer Roger Browne.

The \$300-million federal government/Ontario Let's Get Windsor Moving Strategy transportation infrastructure program is generating a lot of road construction, he said.

Nevertheless, the system is helping to keep the flow of traffic moving, said Browne.

The audience also learned how a consulting engineering firm came up with an alternative long-term traffic safety management system after a proposed automatic de-icing system for a bridge in northern Alberta was

rejected.

"At \$1 million it was just too expensive," said Totten Sims Hubicki Associates manager Mark Pinet in a reference to the Fixed Automated Anti-Icing System (FAAST) that was originally to be included in the rehabilitation of the Highway 2 Bridge.

Bridges are regularly several degrees colder than adjacent road sections and when they're located on curves or valleys such as the Highway 2 Bridge they can be the scene of numerous collisions, he explained.

However, as part its assessment TSH recommended the permanent installation of a sensor- and camera-operated DMS system rather than just renting the signs during the two-year construction, said Pinet.

"After two years they'd just be thrown away, so why not make them permanent."

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