

Speeding up by slowing down: it works

A one-month pilot project to speed up rush hour traffic on Whitemud Drive by asking drivers to slow down produced positive results. Digital roadside signs were used to suggest lower speeds that varied with traffic volume at morning and evening peaks on a westbound stretch of the Whitemud between 111 Street and 159 Street.

"When drivers followed the advisory speed, congestion at on-ramps reduced considerably," said Wai Cheung, Transportation Services' technical specialist in advanced traffic analysis. "There was more room between vehicles on the freeway for merging vehicles to slide safely into the flow of traffic."

On-ramp congestion can cause drivers to brake quickly, creating a 'wave' of braking that moves upstream on the freeway. Congestion often remains long after the initial event that causes it.

"The net effect of giving drivers what we call advisory driving speeds was that average speeds during peak periods actually increased by up to 30 km/h," says Dr. Tony Qiu, associate engineering professor and director of the University of Alberta's Centre for Smart Transportation.

Advisory driving speeds shortened the duration of overall peak congestion from an hour to only 40 minutes. It also reduced travel time between 122 Street and 159 Street during peak flow periods by 10 per cent or more.

During the pilot – August 11 to September 4 – there was also a significant drop in the number of vehicle collisions. There were two collisions, rather than the usual five or six during the same period over the previous three years.

The City of Edmonton and University of Alberta Faculty of Engineering joined forces for the pilot.

The project involved real-time vehicle flow and speed data from sensors embedded in the freeway and its ramps. U of A-developed software processed the data and provided recommendations to the City's Traffic Operations Centre, which then wirelessly sent updated advisory speeds to dynamic roadside message signs for drivers.

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