

20<sup>th</sup> International Emme Users' Conference  
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**Traffic Management during Construction of the Canada (RAV) Line**

**Title of the paper**

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**BIOGRAPHICAL SUMMARY FOR MAIN AUTHOR** (100 words mini-CV)

Edwin Hull has more than 40 years experience in traffic and transportation engineering, including 27 years in Canada and 4 years in Asia. His expertise ranges from urban transportation planning and modelling to traffic signal operations, and from the transportation impacts of development to resolving neighbourhood traffic management issues. He has been an EMME user since 1985. His biggest claim to fame was being described by Mike Florian as a “prehistoric” EMME user at the 1st Asian Users Conference in Shanghai in 1999.

**AUDIOVISUAL SUPPORT NEEDED**

(A PC with Office XP, a projector, and a microphone will be provided. Please mention any other needs.)

**ABSTRACT** (500 words)

## Traffic Management during Construction of the Canada (RAV) Line

### Application of Variable Demand Assignment Procedures

**Submitted by Edwin Hull and Billy Kwok**

This paper describes the development, validation and application of a Variable Demand Assignment model for use in developing Traffic Management Strategies during construction of the cut-and-cover section of the Canada (Richmond-Airport-Vancouver) Rapid Transit Line in Greater Vancouver.

The cut-and-cover section of the Line runs along the centre or east side of Cambie Street. During construction the number of traffic lanes within the active construction zone will be reduced from six to two. The model operates as a sub-area model within the Greater Vancouver Regional Model with a more detailed zone system and network within the broad Cambie Street corridor. The model explicitly synthesises the capacities of all turning movements within a subarea that is approximately 7.5 km long and 3.5 km wide. Capacities were based on laning at intersections and signal phasing and timing plans. Special procedures were developed to synthesise the capacities of movements using shared traffic lanes and of permitted left turns.

The model was validated to reconciled AM and PM intersection turning counts at 115 signalised intersections and to passing traffic counts at major bridges and other regional screenlines using the shareware demand adjust macro. Finally, a turn movement adjustment factor was determined based on the difference between the count and “validated” modelled volumes.

The model was applied to various scenarios representing lane reductions, roadway closures and traffic management mitigation measures resulting from cut-and-cover tunnel construction within the existing six-lane arterial Cambie Street pavement. The validated AM and PM peak hour fixed matrices were assigned using a demand elasticity-based variable demand assignment technique. Final traffic volumes were generated by adjusting raw model output to include the validated turn movement adjustment factors.

Adjusted model volumes were then input to microsimulation models for operational evaluation.

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