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Memo

To	Pam Ryan, Program Development Director	**Project**	Gateway Advisory Services
From	Karoly Krajczar	**Project no.**	CTL
Date	31 March 2006	**Re**	Assessment of Transit-only Option for Port Mann Bridge

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A. Introduction

In February 2006, the Livable Region Coalition (LRC) released a paper "Transportation for a Sustainable Region: Transit or Freeway Expansion," which raised a number of concerns related to the Province's Gateway Program, quoting examples, but no formal structured analysis to support the thesis that transit expansion can accommodate existing and future traffic demand along the Highway 1 corridor.

While the Gateway Program has been developed in the context of regional plans that assume significant investment in transit, these plans do not include some of the transit improvements identified by the LRC. As such, the Gateway Program has conducted analysis that examines a "transit-only" strategy for reducing congestion along the Highway 1 corridor. Halcrow has been asked to provide an independent review of the "transit-only" analysis based on our professional opinion as well as our knowledge of the Gateway Program sub-area transportation planning model and the Livable Region Strategic and Transport 2021 plans.

Halcrow has extensive transportation modelling and forecasting experience worldwide, providing advice to governments, project sponsors and lenders for conventional and privately financed schemes. Moreover, our staff has extensive experience in Greater Vancouver dating back to involvement in the Livable Region Strategic and Transport 2021 plans.

B. Methodology and Results

The Gateway Program used two independent methods to assess the impact of a "transit-only" strategy on Highway 1 traffic congestion levels: (i) a target-based or "sketch planning" assessment; and (ii) a transportation model-based analysis. While the model-based approach represents a more detailed and robust method, forecasts based solely on models have been viewed with increasing scepticism by academics, transport planners and the financial community. The use of a non-model-based forecast, such as a sketch planning estimate, provides a useful benchmark and is considered good practice.

Sketch Planning Method

The sketch planning method considered the effect of a hypothetical 20% transit mode share for relevant market segments on the Port Mann Bridge. This target was selected as it represents a high level of transit usage that significantly exceeds the current regional transit mode share of 11% and the mode share south of the Fraser River (which is less than 5%). That said, the mode share target is not unrealistic and could be achieved for select origins and destinations if very high levels of transit service were provided. For the purpose of this analysis, relevant market segments were identified as trips that could be served by new and improved transit routes between: (i) Surrey/Langley and the Northeast Sector; and (ii) the Fraser Valley and the Millennium Line at Lougheed Town Centre (providing connectivity to Burnaby and Vancouver). Trucks, inter-regional traffic, commuters with diverse origins and destinations were not considered relevant market segments for public transit.

Currently, AM peak hour demand heading westbound on the Port Mann Bridge is approximately 4,800 vehicles today (with a 1,000 vehicle "queue" resulting from more demand than the existing two lanes on the bridge can accommodate). Assuming 20% transit mode share targets for the relevant market segments resulted in a 9% transit mode share on the bridge (430 passengers). This produced a reduction of approximately 350 vehicles from the Port Mann Bridge, resulting in 4,450 vehicles per hour – still well above existing capacity (650 vehicle queue). Note that this transit mode share is similar to that at George Massey Tunnel, which offers frequent express bus service and transit priority measures. This comparison is more impressive when you consider the Massey Tunnel does not have to compete with SkyTrain.

Model-Based Method

The second approach used the EMME/2 transportation model to examine six potential high-frequency express bus routes crossing the Port Mann Bridge, supported by extensive transit priority (less than 10 minute frequency per route resulting in 40 buses per hour on the Port Mann Bridge, which is approximately twice the level of transit service at the Massey Tunnel). These routes provided service between the Surrey and Langley area destined to either Coquitlam Centre or Lougheed Town Centre (connecting to the Millennium Line).

The EMME/2 model includes detailed statistics on regional land use and road and transit networks and has been used in Greater Vancouver for the past 20 years to evaluate the effectiveness of new infrastructure, transit services and transportation demand management initiatives (e.g., parking management strategies, road pricing, etc.). Variants of this model have been used for regional planning studies such as Livable Livable Region Strategic and Transport 2021 plans through to recent investment grade transportation studies such as the Richmond-Airport-Vancouver Rapid Transit, the Golden Ears Bridge and the Gateway Program[1].

This analysis produced higher transit ridership estimates (660 passengers) than predicted by the first approach. However, the model-based analysis showed that the majority of transit ridership on the new routes was either diverted from SkyTrain or newly induced by the high-frequency bus services. The impact on vehicular traffic was significantly lower than the sketch planning method, as the improved accessibility resulted in increased overall travel demand between affected origins and destinations. As

[1] For the Gateway Program, the EMME/2 model was refined and updated for the Highway 1 corridor based on the latest demographics and travel survey data and validated to stringent standards required for investment grade transportation studies. Additionally, future land use forecasts and background road and transit network assumptions were carefully reviewed to ensure consistency with regional and municipal plans.

such, the model-based analysis reduced vehicular traffic on the Port Mann Bridge by less than 100 vehicles.

C. Summary and Conclusions

In summary, the Gateway Program analysis found that a "transit-only" solution could generate between 430 and 660 AM peak hour transit passengers in the westbound direction over the Port Mann Bridge if implemented today. However, it would have low to marginal impacts on the existing Highway 1 congestion problem (reducing AM peak hour westbound traffic by less than 350 vehicles). It is interesting to note that the Port Mann Bridge would require twice the level of transit service to achieve the same transit mode share as the Massey Tunnel. This appears to be related to competition with SkyTrain and the more diverse nature of travel demand in the Highway 1 corridor.

Our review of the Gateway Program analysis found the forecasting methodologies, underlying assumptions and final results to be reasonable. The use of a two independent methods is considered to be good practice and provides a level of comfort when interpreting the forecast. Note that the transit assumptions used for the analysis were well-beyond existing transit mode share targets and transit expansion plans for the Highway 1 corridor. Additionally, the analysis was based on current travel demand levels. Forecast population and employment growth is expected to increase the demand for travel across the Port Mann Bridge in the AM peak hour, which would quickly surpass the vehicle reduction estimates for the "transit-only" option.