

GATEWAY PROGRAM

PRELIMINARY ECONOMIC COSTS AND BENEFITS

Prepared for:

**BC Ministry of Transportation
Gateway Program**

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Economic Costs and Benefits

This report provides an initial assessment of the economic benefits and costs associated with the Gateway Program.

1. Capital Costs

The Gateway Program will be a very significant project, involving capital expenditures of approximately \$3 billion. The Highway 1/Port Mann Corridor is by far the largest component of Gateway, followed by the South Fraser Perimeter Road.

Of the \$400 million earmarked for the North Fraser Perimeter Road, \$180 million has already been committed by the Province for the new Pitt River Bridge crossing and interchange.

The total capital cost estimate of \$3 billion is based on initial conceptual planning for the Gateway Program, and will be refined in response to scope changes resulting from the upcoming public consultation process. Detailed cost estimates for individual Gateway segments will also be developed and refined through preliminary design and engineering.

2. Project Benefits -- Methodology

This analysis focuses on two areas of major user benefits. The first area is the travel time savings (avoided delays) for Gateway users because of reduced levels of congestion. The second area is the reduction in vehicle operating costs associated with these avoided delays.

These two areas of benefit represent only a portion of the total economic benefits arising from Gateway. For example, safety benefits from improved design standards have not yet been quantified, but are to be added as preliminary design engineering progresses. In addition, the analysis does not quantify the Gateway Program's impact on regional economic development through the improvement of commercial goods movements and the increased mobility of business traffic.

To estimate the benefits in travel time savings and reduced vehicle operating costs, the Gateway Program engaged the international transportation consulting firm Steer Davies Gleave, supported by Vancouver-based transportation planning and economic consulting experts. The consultants have used a sophisticated transportation planning model (EMME2) to predict Gateway's impact on traffic patterns (route choice) and overall travel times, on both Gateway and other local roads. Their analysis has

considered several development scenarios involving a variety of alternate construction and operating assumptions.¹

Exhibit 1 — Preliminary Analysis of Gateway Benefits and Costs

Capital Costs¹

Highway1/PortMann Corridor	\$1.5 billion
South Fraser Perimeter Road	0.8 billion
North Fraser Perimeter Road	0.4 billion
Contingency	<u>0.3 billion</u>
	\$3 billion

Benefit-Cost Analysis

User Benefits (present value²):

• Travel time savings, vehicle operating costs	\$8 billion ³
• Safety improvements	<u>additional</u>
	\$8+ billion

Life-cycle costs (present value²) \$2.7 billion⁴

Ratio of user benefits to life-cycle costs 3 to 1

Additional Regional Economic Impacts

Employment during construction ³	17,000 person-years
Increased GDP during construction ³	\$1.7 billion
Impact on longer-term economic growth	additional

1 Source: Gateway Program..

2 Present value analysis based on 35-year time horizon, 4.5% real discount rate.

3 Source: Traffic Demand Modelling and Forecasting Studies performed for Gateway by Steer Davies Gleave and Banjar Management. Figures presented are based on SDG/Banjar's Scenario 16. Key assumptions underlying Scenario 16 include (a) the Gateway program is constructed in its entirety by 2012, (b) the Highway 1 Corridor is electronically tolled, (c) traffic grows to 2031 before leveling off to 2041, (d) benefits and costs are discounted at 4.5% annually in real terms, (e) other currently-planned local road improvements (planned through 2021) are implemented, (f) the planning horizon is through the Year 2041, and (g) numerous other detailed modeling assumptions. These assumptions have been made for the purposes of this economic assessment only and do not necessarily reflect development decisions.

4 Life-cycle costs include capital and operating costs. The present value (in 2005) of life-cycle costs is lower than the \$3.0 billion in capital costs because of the discounting of future capital expenditure to 2005, as part of the present value analysis.

¹ The results described in this chapter are based on the Banjar Management's "Scenario 16". See footnotes to Exhibit 1 for further details.

3. Project Benefits -- Results

Based on the assumptions noted in Exhibit 1, the Gateway Program is predicted to result in user benefits (travel time savings, reduced operating costs) with a present value of \$8 billion. This very high level of projected benefits illustrates that the travel time and vehicle cost savings resulting from the Gateway Program will be very large. Safety benefits, to be quantified as more detailed design engineering is completed, will increase the estimated benefits above the current \$8 billion estimate.

4. Comparison of Benefits and Costs

As illustrated in Exhibit 1, the \$8 billion (present value) in user benefits are estimated to outweigh the \$2.7 billion (present value) in Gateway costs by a benefit-cost ratio of approximately 3 to 1. This is a very positive result, and reflects Gateway's major impact in reducing future traffic congestion.

As previously noted, this analysis does not yet include all of the benefits associated with Gateway. As these additional benefits are quantified, Gateway's benefit-cost ratio is expected to increase.

5. Additional Regional Economic Impacts

The economic consultants to Gateway estimate that, during the construction phase, the project will generate approximately 17,000 person-years of employment and will result in an additional \$1.7 billion in GDP .

While difficult to quantify, Gateway's longer-term impact on the economic development of the region will clearly be very significant. The South Fraser Perimeter Road, linking Highway 1 to major international transfer points (US border, Deltaport), will be particularly important in this regard.

6. Financial Considerations

This initial assessment is focused on Gateway's economic benefits, costs and other impacts, rather than on financial considerations (e.g. options for financing the Gateway Project). However, it is worth noting that, for the assumptions on which the economic analysis is based projected traffic volumes and toll revenues would likely to be sufficient to fund the Highway 1 Corridor portion of Gateway. Thus there is at least the potential to fund a significant component of Gateway without public funding, if desired.

This preliminary finding needs to be confirmed through further analysis.

7. Conclusion

The economic case for the Gateway Program is very strong. The preliminary benefit-cost ratio of 3 to 1 reflects very large user benefits (travel time savings, reduced vehicle costs). Safety and other benefits, once quantified, will further improve Gateway's benefit-cost ratio.

In addition, Gateway will have very significant positive impacts on the regional economy, during both its construction and operating phases.