



## CITY OF VANCOUVER

### ADMINISTRATIVE REPORT

Report Date: November 28, 2006  
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Meeting Date: December 12, 2006

TO: Standing Committee on Transportation and Traffic

FROM: General Manager of Engineering Services

SUBJECT: Highway 1 - Potential Vancouver Transportation Projects Near On/Off Ramps and Gateway Program Update

#### RECOMMENDATION

- A. THAT Council direct staff to consult with the community on potential City-initiated transportation projects in the vicinity of the Highway 1 on and off ramps including:
- i. Cycling improvements near the Cassiar Connector,
  - ii. HOV Queue Jumper Lanes on Grandview Highway,
  - iii. Left turn bays to allow left turns from Grandview Highway to Boundary Road,
  - iv. Streetscape improvements on 1<sup>st</sup> Ave near the Highway 1 on and off ramps, and
  - v. Safety improvements to the Highway 1 off ramp at Boundary Road.
- B. THAT staff report back on the results of the community consultation described in Recommendation A.

#### COUNCIL POLICY

City of Vancouver Transportation Plan (1997) principles and policies include:

- Maintaining road capacity at no more than the present level,
- Supporting the LRSP policy of implementing transportation demand management (TDM), to change the behaviour of travelers in order to make better use of the existing transportation system,

- Expanding the regional freeway network only for High Occupancy Vehicle (HOV) lanes, with no additional bridge capacity leading to the City,
- Providing HOV lanes (with 3+ occupants) in circumstances where they can be implemented as short queue jumpers, and
- Ensuring the quality of access for goods movement is maintained, especially for routes which are essential for access to the Port.

In November 2003, Council passed a motion advising TransLink that they oppose twinning of the Port Mann Bridge and expansion of Highway 1 as proposed by the Province.

At their meeting on June 13, 2006, Council passed a number of motions relating to the Gateway Program, including noting its unanimous opposition to twinning of the Port Mann Bridge and widening of Highway 1 and requesting the Provincial Government carry out a comprehensive review of alternatives to increasing Highway 1 road capacity.

## SUMMARY

Vancouver Council has expressed concerns regarding the Provincial plans to increase regional road capacity on Highway 1 and the Port Mann Bridge. However, the Provincial Government is proceeding with plans to advance this project. The second phase of Pre-Design Community Consultation was concluded on November 8<sup>th</sup>, 2006. This phase of Gateway's consultation sought input on "Access and Interchange Improvements" and included discussion on the desirability of high occupancy vehicle (HOV) lanes on Grandview Highway in Vancouver. Other work on advancing the Highway 1 / Port Mann project continues - the project is now in the pre-application stage of a harmonized Canada-BC Environmental Assessment.

Staff have identified a number of potential City-initiated transportation projects on corridors linking to Highway 1 on and off ramps. These projects would be consistent with and would further implementation of the City's Transportation Plan. They range from cycling improvements near the Cassiar connector to pedestrian and streetscape improvements on 1<sup>st</sup> Avenue. Also included would be an option for HOV queue jumpers on Grandview Highway, similar to the concept described by the Gateway Program in their Phase 2 community consultation.

There could be both cost-savings and more effective operations if these projects are coordinated with the Gateway Program. Accordingly, staff recommend that Council direct staff to proceed with public consultation on these City-initiated projects, and report back to Council on the results of this consultation.

## PURPOSE

The purpose of this report is to request that Council direct staff to consult with the community on potential City-initiated transportation projects in the vicinity of the Highway 1 on and off ramps on Grandview Highway, 1<sup>st</sup> Avenue, and Boundary Road. This report also provides Council with an update on the provincial Gateway Program's Pre-design Community Consultation Phase 2.

## BACKGROUND

The Provincial Government has been involved in planning the Gateway Program since 2002. Their Gateway Program consists of the following three major projects:

1. South Fraser Perimeter Road
2. North Fraser Perimeter Road
3. Port Mann Bridge /Highway 1 from Vancouver to Langley

The proposed Highway 1 project includes additional travel lanes and twinning the Port Mann Bridge. The existing HOV lanes on Highway 1 are proposed to be expanded to include one HOV lane in each direction from near Grandview Highway in Burnaby to near 200<sup>th</sup> Street in Langley.

Public consultation on the Gateway Program began in January 2006 with the release of their Project Definition Report and Pre-Design phase consultation. Staff prepared an Administrative Report titled "Gateway Program Pre-Design Phase - Highway 1 Corridor" dated May 29, 2006 for the June 6, 2006 meeting of the Standing Committee on Transportation and Traffic.

In reviewing staff's report, Council at its June 13, 2006 meeting passed a number of motions related to the Highway 1 corridor including:

1. THAT Council adhere to its unanimous opposition to twinning of the Port Mann Bridge and widening of Highway 1.

The full motion approved by Council is attached in Appendix A.

The May 2006 Administrative Report from staff noted opportunities and challenges relating to City and regional cycling facilities, high occupancy vehicle (HOV) facilities and safety near the Highway 1 on and off ramps. Additional opportunities also exist to improve neighbourhood and truck access on Grandview Highway and improve the streetscape and pedestrian environment on 1<sup>st</sup> Avenue.

## DISCUSSION

### Update on Gateway Program Status

Although the City of Vancouver has expressed concerns about the direction that the Provincial Government is taking on the Highway 1 part of the Gateway Program, the Gateway Program has continued with the next phase of the development of this project. Their "Pre-design Consultation: Phase 2" started in September 2006 and ended on November 8<sup>th</sup> 2006.

Phase 2 consultation included a "Discussion Guide on Access and Interchange Improvements" for their Port Mann / Highway 1 project - available on-line at [http://www.th.gov.bc.ca/gateway/presentations/phase2\\_PMH1/407451\\_Crop.pdf](http://www.th.gov.bc.ca/gateway/presentations/phase2_PMH1/407451_Crop.pdf). The Discussion Guide includes a section titled "McGill Street to Grandview Highway (Vancouver) Segment" which is attached as Appendix B. General "improvements" that are described include:

- Widening this section of the highway by one lane in each direction, and
- Modifying interchanges and/or ramps to make it easier to exit and enter the highway.

Specific proposals discussed include:

#### CASSIAR CONNECTOR

- Establishing three lanes in each direction within the existing tunnel, with one of the lanes becoming a dedicated westbound off-ramp and eastbound on-ramp at McGill Street.

#### HASTINGS STREET INTERCHANGE

- Possible ramp lengthening.

#### 1<sup>st</sup> AVENUE INTERCHANGE

- Lengthening of the on and off ramps.

#### GRANDVIEW HIGHWAY HOV LANES

- Adding potential westbound and eastbound HOV lanes on Grandview Highway to connect with Highway 1 HOV lanes.
- A feedback form was included in the guide which asks the public to indicate preference for Option A. - New Peak Hour HOV lanes or Option B. - No new HOV lanes.

Staff agree that there could be a potential role for HOV queue jumper lanes at this location.

A Gateway Program sponsored Open House was held in Vancouver on October 11<sup>th</sup>, 2006 to provide further information and obtain public comment on these proposals. The results of this consultation are currently being compiled by Gateway and will be released in an upcoming summary document.

## Potential City-initiated Transportation Projects

Staff feel that there are a number of potential transportation projects that should be coordinated with the Gateway Program. Some of these City projects could proceed regardless of whether or not Gateway's Highway 1 project is built. However, the cost of these projects could be reduced and their operational effectiveness improved, if they are coordinated with the design of the Gateway Program. The possible future projects described below are consistent with Vancouver's Transportation Plan (1997).

### I. CYCLING IMPROVEMENTS NEAR CASSIAR CONNECTOR

Staff and the Bicycle Advisory Committee have identified several accessibility and safety issues with the cycling facilities between the north end of the Cassiar Connector and the south end of the Second Narrows Bridge. Further feedback from the Bicycle Advisory Committee will be sought on defining the possible cycling projects.

### II. HOV QUEUE JUMPER LANES ON GRANDVIEW HIGHWAY

The intersection of Grandview Highway at Boundary Road is normally congested during peak periods. High occupancy vehicles (HOVs) are mixed with single occupant vehicles and are delayed in the same queues as general purpose traffic entering and exiting Highway 1. Once eastbound HOVs enter the Highway 1 on-ramp, they must cross two through lanes of traffic to access the median HOV lane on Highway 1.

Gateway Program staff have identified the possibility of including HOV flyovers that would provide direct connections to the median HOV lanes on the highway. Staff have also suggested that Gateway consider an eastbound HOV rejection lane before the Highway 1 on-ramp to reduce HOV violations.

Staff wish to consult with the public on the implementation of a new HOV facility at this location that could be created by:

- Re-designating one of the existing eastbound lanes to be an eastbound HOV queue jumper, and
- Adding of a short HOV queue jumper lane in the westbound direction to help terminate a possible new westbound HOV lane from Highway 1 on the east side of the intersection.

Combined with HOV measures being considered by the Gateway Program, there is an opportunity to provide significant travel time savings for HOVs.

### III. FACILITIES TO ALLOW LEFT TURNS FROM GRANDVIEW HIGHWAY TO BOUNDARY ROAD

Left turns are currently prohibited from Grandview Highway onto Boundary Road constraining mobility within the surrounding area. The westbound left turn prohibition forces trucks exiting Highway 1 at Grandview and destined to SE Marine Drive, to take more circuitous routes through Vancouver instead of using Boundary Road.

The westbound left turn prohibition pushes this movement onto streets that are further west such as Rupert Street. The eastbound left turn prohibition limits access to Burnaby's Still Creek neighbourhood. This restriction will become more of an issue with the Gateway Program's plans to eliminate the highway overpass east of Boundary Road that currently provides access to Still Creek. Accordingly, Burnaby staff support the introduction of left turns at this intersection.

Given these concerns, staff propose to consult the public on installing eastbound and westbound left turn bays with a protected signal phase.

#### IV. STREETScape IMPROVEMENTS ON 1<sup>ST</sup> AVE NEAR THE HIGHWAY 1 ON AND OFF RAMPS

Near the Highway 1 on and off ramps, 1<sup>st</sup> Avenue can be changed to create wider boulevards and/or medians for both the eastbound and westbound directions. Existing traffic volumes do not warrant the existing three lanes in each direction. Given this excess capacity, staff have identified several streetscape improvement opportunities for public consultation such as expanding existing boulevards and medians as well as improving existing pedestrian crossings.

#### V. SAFETY IMPROVEMENTS TO THE HIGHWAY 1 OFF RAMP AT BOUNDARY ROAD

Staff note that there are several operational issues with the intersection adjacent to the highway off-ramp at Boundary Road and 11<sup>th</sup> Avenue. Southbound vehicles using the off ramp are often travelling at high speed and conflict with a number of turning movements that are permitted at this intersection. Staff have identified some options to improve safety at this intersection, such as modifying the median on Boundary at 11th Avenue to prevent the eastbound left turn and "normalizing" the off ramp with Boundary Road.

#### FINANCIAL IMPLICATIONS

Staff would report back on estimated capital costs for potential City-initiated transportation projects after public consultation. Any projects approved by Council could be funded in future capital budgets, with possible cost-sharing from TransLink, ICBC, and senior governments.

#### ENVIRONMENTAL IMPLICATIONS

The Gateway Program's Port Mann / Highway 1 project is subject to environmental assessment under both the federal and provincial environmental assessment legislation. Currently, it is in the pre-application stage of harmonized review under the Canada-BC Environmental Assessment Agreement. A draft Terms of Reference for the Environmental Assessment of the Port Mann / Highway 1 project was released for public comment (with a deadline of December 8<sup>th</sup> for submissions). Two formal working groups are proposed for providing stakeholder input into Environmental Assessment in the draft Terms of Reference - a Biophysical/Technical Working Group and a Socio-Economic/Community Working Group.

Since the Environmental Assessment (EA) analysis is expected to be regional in scope, the General Manager recommends that staff not participate since it would be a significant draw on limited staff resources. Staff from the Greater Vancouver Regional District (GVRD), whose concerns with the Gateway Program are similar to those that have been expressed by the City, will be participating in the Working Group discussions. Nevertheless, City staff can continue to informally monitor the EA process and provide input to the GVRD representatives. Staff will report back on any specific Vancouver environmental impacts that the City may need to address.

## IMPLEMENTATION PLAN

If the recommendations outlined in this report are supported by Council, staff plans to consult with all stakeholders in early 2007. The results of this consultation and discussions with Gateway Program staff would be reported back to Council later in 2007.

## CONCLUSION

Although concerns have been noted by Council regarding the Gateway Program's plans for their Port Mann / Highway 1 project to increase regional road capacity, the Provincial Government is advancing this project. A second phase of Pre-Design Community Consultation was concluded on November 8<sup>th</sup>, 2006 and the project is now in the pre-application stage of a harmonized Canada-BC Environmental Assessment.

Staff have identified a number of potential City-initiated transportation projects on the corridors linking to Highway 1 on and off ramps. These projects are consistent with and would advance the City's Transportation Plan. Although they could proceed independently of the Gateway Program, there could be both cost-savings and more effective operations if they are coordinated with the Gateway Program. Accordingly, it is recommended that Council direct staff to proceed with public consultation on these City-initiated projects, and report back to Council on the results of this consultation.

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## Gateway Programs Motions Approved at Regular Council Meeting, June 13, 2006

1. THAT Council adhere to its unanimous opposition to twinning of the Port Mann Bridge and widening of Highway 1.
2. THAT Council request the Provincial Government, in consultation with municipalities, TransLink and the GVRD, carry out a comprehensive review of alternatives to increasing Highway 1 road capacity, including:
  - major expansion of the region's transit system;
  - implementation of an enhanced region-wide transportation demand management strategy, and
  - inclusion of regional rail and marine goods movement options.
3. THAT Council urge the Provincial Government to proceed first with the North and South Fraser Perimeter Roads, including the new Pitt River Bridge.
4. THAT Council accept Recommendations A to H (as set out below) of the Administrative Report dated May 29, 2006 entitled "Gateway Program Pre-Design Phase - Highway 1 Corridor" as points of dialogue for staff to seek opportunities to bring the Gateway Program's proposals for Highway 1 into alignment with the City's transportation policies:

A. THAT Council support the recommendations contained in the GVTA (TransLink) staff's April 10th, 2006 report titled "Regional Transportation Implications of the Provincial Gateway Program" (attached as Appendix A), with the exception of GVTA Staff Recommendation C which recommends conditional support for Highway 1/Port Mann Bridge widening, as this support would be contrary to existing City policy.

Should the Provincial Government decide to proceed with the changes to the Highway 1 corridor noted in the Gateway Program Definition Report, staff recommend:

- B. THAT Council support only the conditions to the GVTA staff recommendation C, that the Gateway Program include:
- (i) the introduction of tolls and other transport pricing mechanisms to fund, manage demand and promote efficiency in the use of the transportation system;
  - (ii) the introduction of a system of road user priorities to be reflected in the designation of specific lanes, priority access and other measures to promote the movement of transit, high-occupancy and goods movement vehicles ahead of single-occupant vehicles;
  - (iii) the Province does not promote the Patullo Bridge as a free alternative to the Port Mann Bridge, due to the traffic diversion effects that may arise;



- C. THAT Council request that the GVTA Board include in their recommendations:
- examination of distance-based tolls between the Port Mann and Second Narrows bridges;
  - completion of a regional HOV strategy;
  - consideration of additional cost-sharing for the westerly extension of rapid transit along the Broadway corridor;
  - identification of strategic transit system needs between 2021 and 2031; and
  - examination of opportunities to enhance regional transportation modelling, as listed in Appendix B.
- D. THAT Council endorse the recommendations from the GVRD April 21st, 2006 staff report titled "GVRD Response to the Provincial Gateway Program" (attached as Appendix C) supporting:
- the Ministry of Transportation being advised of support for the Gateway Program's overall goals;
  - the need for a regional demand management strategy; and
  - the need for a regional goods movement strategy, as listed in Appendix D.
- E. THAT the Ministry of Transportation and the Gateway Program be requested to fund integration, mitigation and safety improvements that may be needed on city streets as a result of Gateway Program projects.
- F. THAT the scope of the Gateway Program Cycling Plan be defined to include funding for cycling and pedestrian infrastructure in the vicinity of Highway 1's Cassiar Connector, including connections to Burnaby and North Vancouver.
- G. THAT Council support the Gateway Program's proposed inclusion of safety improvements to Highway 1 on-ramp and off-ramps, and that the Gateway Program be requested to consult with the City and the GVTA on the details of these proposals.
- H. THAT Council direct staff to forward copies of this report to the GVTA Board, the GVRD Board, the Ministry of Transportation, the Gateway Program and federal ministers responsible for Canada's Pacific Gateway Strategy.

Extract of “McGill Street to Grandview Highway (Vancouver) Segment” from  
“Gateway Program Discussion Guide on Access and Interchanges Improvements,  
Port Mann / Highway 1 Improvements, (September - November 2006)”



McGILL STREET TO GRANDVIEW HIGHWAY (VANCOUVER) SEGMENT

McGILL STREET TO GRANDVIEW HIGHWAY (VANCOUVER)

This section of Highway 1 runs from the McGill Street interchange to Grandview Highway, providing access to and from Vancouver for both eastbound and westbound traffic, as well as to the Port of Vancouver, North Burnaby and the Ironworkers Memorial Second Narrows Bridge. This section of Highway 1 has a high proportion of vehicles entering and exiting the highway relative to other sections in the Highway 1 corridor due to the high number of interchanges (4) over a relatively short distance.

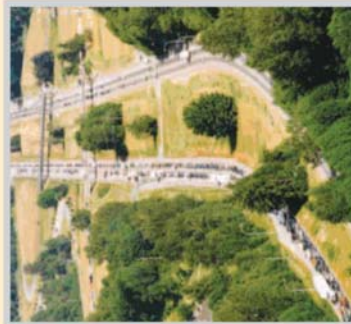
**Challenges** Currently, large numbers of vehicles entering and exiting the highway result in lane changes that contribute to congestion. These lane changes have greater impacts at ramps with short merge lanes, where vehicles are quickly channelled onto or off the highway.

**Proposed Improvements** The pre-design concept includes widening this section of the highway by one lane in each direction to create three general-purpose lanes in each direction. All of this section of the highway was originally built in the 1960s to accommodate additional lanes by widening into the median and as such no property acquisition is anticipated. Proposed access improvements include modifying interchanges and/or ramps to make it easier to exit and enter the highway. Specific improvements, from west to east, are described in the following pages.

PORT MANN BRIDGE/ HIGHWAY 1  
PROPOSED PRE-DESIGN PHASE 2 IMPROVEMENTS

The Improvements to Port Mann/Highway 1 access and interchanges work together to:

- Improve safety and reliability
- address congestion
- support opportunities for HOV and transit use
- improve local connections across the highway and within communities
- improve access to and exit from the corridor for goods movement
- Improve cycling and pedestrian facilities and connections



Aerial view of congestion on Highway 1.



Highway 1, looking west from the Grandview Highway overpass, showing existing conditions



Highway 1, looking west from the Grandview Highway overpass after improvement, showing widening into the median for the new lanes

**McGILL STREET TO GRANDVIEW HIGHWAY (VANCOUVER) SEGMENT**

**Cassiar Connector**

Located between the Ironworkers Memorial Second Narrows Bridge and the Cassiar Connector, this interchange primarily serves commuters travelling between the North Shore and Vancouver, as well as commercial vehicles accessing the Port of Vancouver's south shore terminals. Population and employment forecasts for the North Shore suggest that commuting traffic volumes will experience limited growth; however, the Port of Vancouver anticipates significant future growth, leading to increased commercial vehicle volumes at this interchange.

The Cassiar Connector currently operates with two lanes in each direction, but was constructed in 1992 to accommodate three lanes in each direction. The tunnel is extremely congested at peak times, due to large volumes of vehicles entering or exiting at the McGill Street interchange combined with large volumes of through-traffic to and from the Ironworkers Memorial Second Narrows Bridge.



The pre-design concept includes establishing three lanes in each direction, with one of the lanes becoming a dedicated westbound off-ramp and eastbound on-ramp at McGill Street. The dedicated ramps are the principal improvements which will accommodate current and future traffic flows, enable vehicles to enter and exit the Cassiar Connector to and from McGill Street more safely and efficiently, and provide a better connection for commercial vehicles between Highway 1 and the Port of Vancouver.



EXISTING  
Cassiar Connector looking west, with two lanes in each direction as per existing condition



PROPOSED  
Cassiar Connector looking west, after improvements, with three lanes in each direction

Pre-Design Community Consultation: Phase 2 • September – November 2006 5

**HOV LANES**

The Ministry of Transportation's primary objectives for HOV lanes are to:

- Increase movement of people
- Provide travel time savings
- Improve trip reliability
- Increase per-lane efficiency
- Minimize negative impacts on general-purpose lanes
- Maintain safety

Highway 1 High Occupancy Vehicle (HOV) lanes opened in 1998 and have significantly increased the person movement throughput along the HOV section of Highway 1 and its parallel routes during peak periods.

Planning for the Port Mann/Highway 1 Project includes extension of Highway 1 HOV lanes so that there is one lane in each direction from Grandview Highway to 200th Street for HOV users.



Pre-design concept proposes 3 lanes in each direction for general commuters and goods movers and one lane for HOV between Vancouver and Surrey



McGILL STREET TO GRANDVIEW HIGHWAY (VANCOUVER) SEGMENT

FEEDBACK FORM

Grandview Highway HOV Lanes



The red lines show the extent of the proposed HOV lane expansion on Grandview Highway (right turn available for vehicles from Grandview Highway eastbound to Boundary Road southbound)

1. Grandview Highway HOV Lanes

Please indicate which of the following two options you prefer. (See options on right-hand side of page.)

- Option A. New Peak-hour HOV lanes
- Option B. No new HOV lanes

Comments:

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Gateway Program: Access and Interchange Improvements

Hastings Street Interchange

This interchange was redeveloped as part of the Cassiar Connector project in the early 1990s and functions well. No improvements, other than possible ramp lengthening, are planned as part of the pre-design concept.

1st Avenue Interchange

Located south of the Cassiar Connector, this interchange serves traffic between Highway 1 and 1st Avenue, much of it travelling between Burnaby/Coquitlam and Vancouver. Regional plans to expand rapid transit (Evergreen Line) will help address growing demand for travel from the northeast sector, helping to limit growth in vehicle traffic travelling to Vancouver. However, even for today's traffic volumes, the existing eastbound on-ramp is too short for comfortable and efficient merging with highway through traffic. The westbound off-ramp's short length also causes traffic leaving the highway to slow down on the highway itself, rather than the off-ramp, causing safety concerns. In addition, large volumes of traffic exiting the highway at peak times can cause traffic to back up onto highway through-lanes. In conjunction with the proposed addition of one lane in each direction on the highway, proposed lengthening of the on- and off-ramps will allow vehicles to enter and exit the highway more safely and efficiently.

Grandview Highway HOV Lanes

HOV lanes on Highway 1 currently start and end just west of Willingdon Avenue. In consultation with the City of Vancouver and as part of planned HOV expansion on Highway 1, the potential to add peak-hour HOV lanes on Grandview Highway (westbound and eastbound) between Rupert Street and Boundary Road is being explored. Peak hours could potentially be between 7 a.m. and 9:30 a.m. and between 3 p.m. and 6 p.m. (matching the current eastbound parking restrictions). During these times, the curbside westbound lane, currently used for parking, could be designated as an HOV lane; the curbside eastbound lane could be re-designated from a general-purpose traffic lane to an HOV lane. Since these designations would apply to existing lanes, there would be no requirement to widen Grandview Highway. Extending HOV facilities beyond Highway 1 itself would make HOV use on Highway 1 more attractive and increase overall HOV use.

Grandview Highway HOV Lanes

Options	Pros	Cons
A. Include provision for potential implementation of peak-hour HOV lanes on Grandview Highway (details to be developed jointly with the City of Vancouver)	Better addresses congestion on Grandview Highway at Boundary Road in peak periods Reduces traffic on other routes connecting Vancouver and Highway 1 Expands and enhances the HOV system	Reduces parking on westbound Grandview Highway during peak hours Potential increase in traffic on Grandview Highway in peak periods (redirected from other streets) Removes general-purpose traffic lane on Grandview Highway eastbound during peak hours (lane would still be available for vehicles turning right)
B. Do not establish peak-hour HOV lanes on Grandview Highway	No change to current parking conditions on Grandview Highway westbound	Lost opportunity to expand HOV facilities Less effective than Option A at addressing highway and intersection congestion in peak periods



Grandview Highway looking west, with potential HOV lanes

6 Port Mann Highway 1 • Access and Interchange Improvements