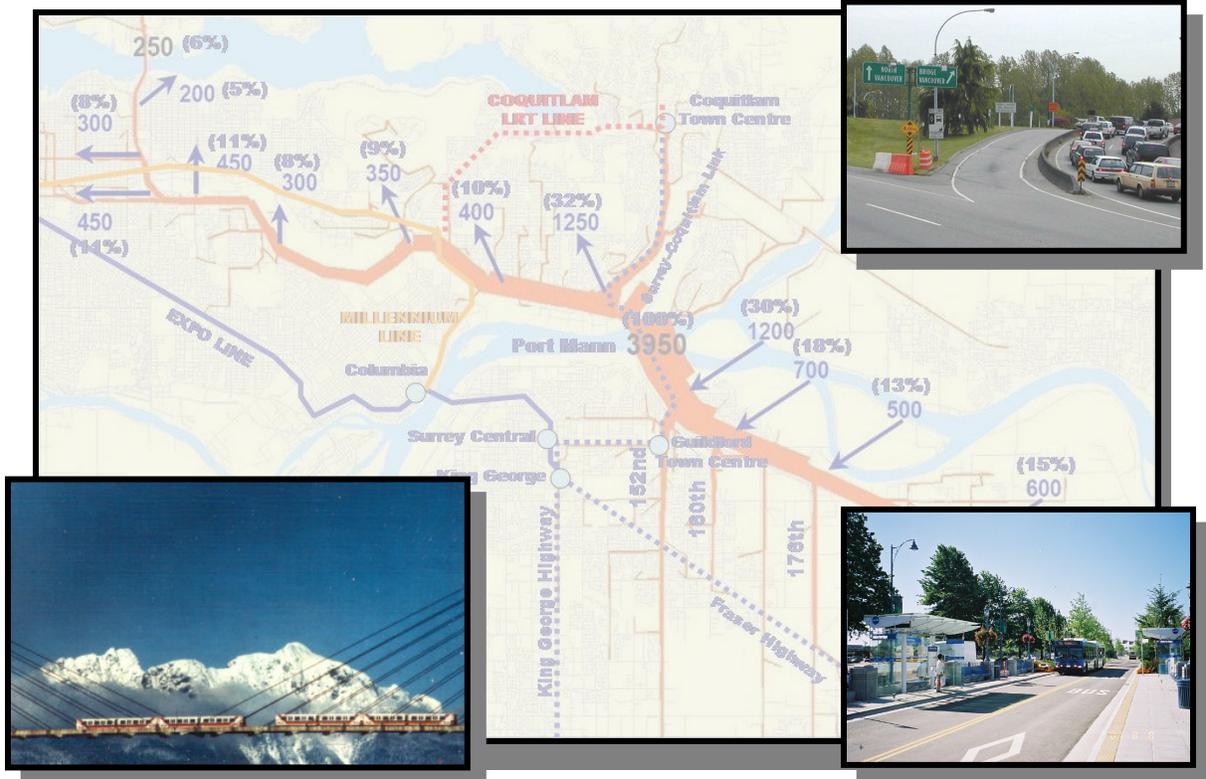


# Transportation for a Sustainable Region: Transit or Freeway Expansion?



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February 2006

<sup>1</sup> This report is partially based on a longer report, *Creating an Alternative Future: Transit Supply as an Alternative to Freeway Expansion on the Highway 1 Corridor* by Eric Doherty & James Fam.

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## Executive Summary

In 2004, BC's Minister of Transportation announced his intention to expand Highway 1 to a minimum of eight lanes between 200<sup>th</sup> Street in Langley and 1<sup>st</sup> Avenue in Vancouver. This freeway expansion was presented as the only possible solution to congestion due to increases in traffic on Highway 1.

This report analyzes the existing traffic patterns at two points on Highway 1, the Port Mann Bridge and at Douglas in Burnaby. A large proportion of the traffic on the Highway is shown to have both origins and destinations in areas that could be served efficiently by public transit. This catchment area for the traffic on Highway 1 is largely within the *Livable Region Strategic Plan* (LRSP) Growth Concentration Area which should have good public transit service.

An assessment of the present transit system in the region shows that there is no reasonable alternative to the automobile for many people in the traffic catchment area studied. That is, the LRSP objective of providing *transportation choice* so that people are not forced to drive is not being met.

The report suggests a series of possible transit investments that could significantly improve *transportation choice* as defined in the Livable Region Strategic Plan. All of these investments have been included in plans by the Greater Vancouver Regional District or TransLink. These proposed investments include:

- ***Increased Frequent Service Coverage***  
A 20% increase in TransLink's bus fleet to expanded 10 minute or better frequency bus service throughout the LRSP Growth Concentration Area and on routes serving Regional Town Centres.
- ***Accelerated Purchase of SkyTrain Cars***  
44 new SkyTrain cars should be purchased as soon as possible, up from TransLink's plan to purchase 34.
- ***Transit Priority Measures***  
Transit priority measures include bus lanes, traffic signal priority for transit vehicles, high occupancy vehicle lanes (where transit vehicles use the lanes). Transit priority measures are proposed for the following routes:
  - ***Surrey-Coquitlam Link***  
A Surrey to Coquitlam bus route would require a queue jumper lane on the westbound approach to the Port Mann Bridge.
  - ***King George Busway***  
A busway on the King George Highway would serve the Growth Concentration Area in Surrey and connect to SkyTrain, the Coquitlam- Surrey Link and other important transit routes.
  - ***Fraser Highway***  
The integration of transit priority measures into TransLink's current widening of the Fraser Highway from Surrey to Langley could include measures such as high occupancy vehicle lanes and transit signal priority.

By providing real transportation choice, these or similar transit investments could significantly reduce traffic congestion on Highway 1, if combined with other effective transportation demand management measures. *The capital cost of these proposed measures would be on the order of \$300 to 500 million, which is far less than the likely \$1500 to 2500 million cost of widening Highway 1.*

## 1.0 INTRODUCTION

Our region is at a transportation crossroads. There are two basic choices: One is to go back to the 1950s vision of Vancouver as a city of freeways, following the Los Angeles model towards automobile dependant sprawl, gridlock and environmental decline. The other is a future with public transit that gives people real choice about how they get around, without choking our communities on traffic and pollution.

In 2004, BC's Minister of Transportation suddenly announced a plan to expand Highway 1 to a minimum of eight lanes between 200<sup>th</sup> Street in Langley and 1<sup>st</sup> Avenue in Vancouver. This freeway expansion was presented as the only solution possible solution to congestion due to increases in traffic on Highway 1.

This report suggests a series of transit investments that would significantly improve *transportation choice* as defined in the Livable Region Strategic Plan (LRSP). These investments could also lead to a significant reduction in traffic delays on Highway 1 if combined with supportive land use decisions and a strong package of transportation demand management measures<sup>2</sup>.

These proposed investments should be considered in light of the commitment to environmental sustainability implicit in the Greater Vancouver Regional District's *Sustainable Region Initiative*. The Sustainable Region Initiative (SRI) calls for consideration of the future environmental, social and economic impacts in all transportation decisions.

### 1.1 Highway Expansion and Congestion

Widening freeways usually causes, not relieves, traffic congestion. The understanding of how building roads leads to more traffic and congestion dates back at least to Jane Jacob's 1961 urban planning classic *The Death and Life of Great American Cities*. Many recent studies have confirmed Jacob's assertion that the number of car drivers in large urban areas is elastic and will rapidly expand to congest expanded roads - often quicker than could possibly be accounted for by land use changes alone.<sup>3</sup> The cliché that 'you can't build your way out of congestion' is well supported by the evidence.

In contrast, if "roadways are not expanded and resources are invested in mobility alternatives, traffic growth will be reduced and more multi-modal transportation and land use patterns will be created."<sup>4</sup>

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<sup>2</sup> Transportation Demand Management (TDM) is a general term for strategies that result in more efficient use of transportation resources, such as reducing transit fares to increase ridership. The Victoria Transportation Policy Institute's TDM Encyclopedia provides information on dozens of TDM strategies [www.vtpi.org/tdm](http://www.vtpi.org/tdm).

<sup>3</sup> e.g. Noland and Cowart (2000), *Analysis of Metropolitan Highway Capacity and the Growth in Vehicle Miles of Travel* <http://www.epa.gov/otaq/transp/mtrhwycp.pdf>,

<sup>4</sup> Litman, Todd (2005) *Induced Travel Impact Evaluation: Evaluating Impacts Of Increasing Roadway Capacity To The Island of Montreal* [www.santepub-mtl.qc.ca/Environnement/transport/pdf/toddlitman.pdf](http://www.santepub-mtl.qc.ca/Environnement/transport/pdf/toddlitman.pdf)

## 1.2 Public Perception of Transit

In a 1997 survey performed for the City of Surrey, "More and better transit service were identified as the best ways to improve transportation in Surrey."<sup>5</sup> In contrast, TransLink's package of capital projects that included highway expansion was seen to raise a "red flag [due to] the impact of projects on air pollution and climate change."<sup>6</sup> The sorry state of transit services in Surrey is frequently raised at all candidates meetings, public forums and letters to the editor.

In short, there seems to be significant public understanding that public transit can be an alternative to roadway expansion and an impression that it may reduce traffic congestion. There also seems to be some public concern about the impacts of roadway expansion on air pollution and greenhouse gas emissions.

## 1.3 Greenhouse Gas Pollution

Canada has one of the world's highest levels of greenhouse gas (GHG) emissions per capita in the world, and it is still increasing. The federal government has committed to complying with the Kyoto Accord by reducing our emissions to below 1990 levels. TransLink has also acknowledged the issue of climate change as a significant transportation-related issue:

"[T]o meet the Kyoto targets in Greater Vancouver, GHG emissions for the transportation sector would need to be 35% lower than current trends by 2010".<sup>7</sup>

"Transportation sources create almost 40% of total greenhouse gas (GHG) emissions in the Greater Vancouver region. Increasing sustainable transportation choices will make an important contribution to reducing our GHG emissions and meeting national, provincial and local climate change targets."<sup>8</sup>

## 1.4 Funding Environment

TransLink's funding comes from a variety of sources including property taxes, gas taxes and capital grants from the provincial and federal governments. Recently the federal government announced a 'New Deal' for cities that, if implemented, will see considerable new revenue flow to TransLink from gasoline taxes.

There may also be possibilities of getting funding for public transit from the federal government as a way of reducing greenhouse gas pollution. Federal funding went to the Urban Showcase projects designed to "reduce greenhouse gas emissions and move us closer to our climate change goals".<sup>9</sup> One of the local projects included funding for transit priority measures along the Main Street corridor in Vancouver.

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<sup>5</sup> Surrey, City of. 1999 *Surrey Transportation Plan*. P. 8.

<sup>6</sup> IpsosReid (2003) *GVRD Residents' Opinions- Ten-Year Transportation Outlook and Three-Year Financial Strategy* [http://www.translink.bc.ca/files/temp/Nov03FinalRep\\_10Yr\\_Trans\\_Out.pdf](http://www.translink.bc.ca/files/temp/Nov03FinalRep_10Yr_Trans_Out.pdf)

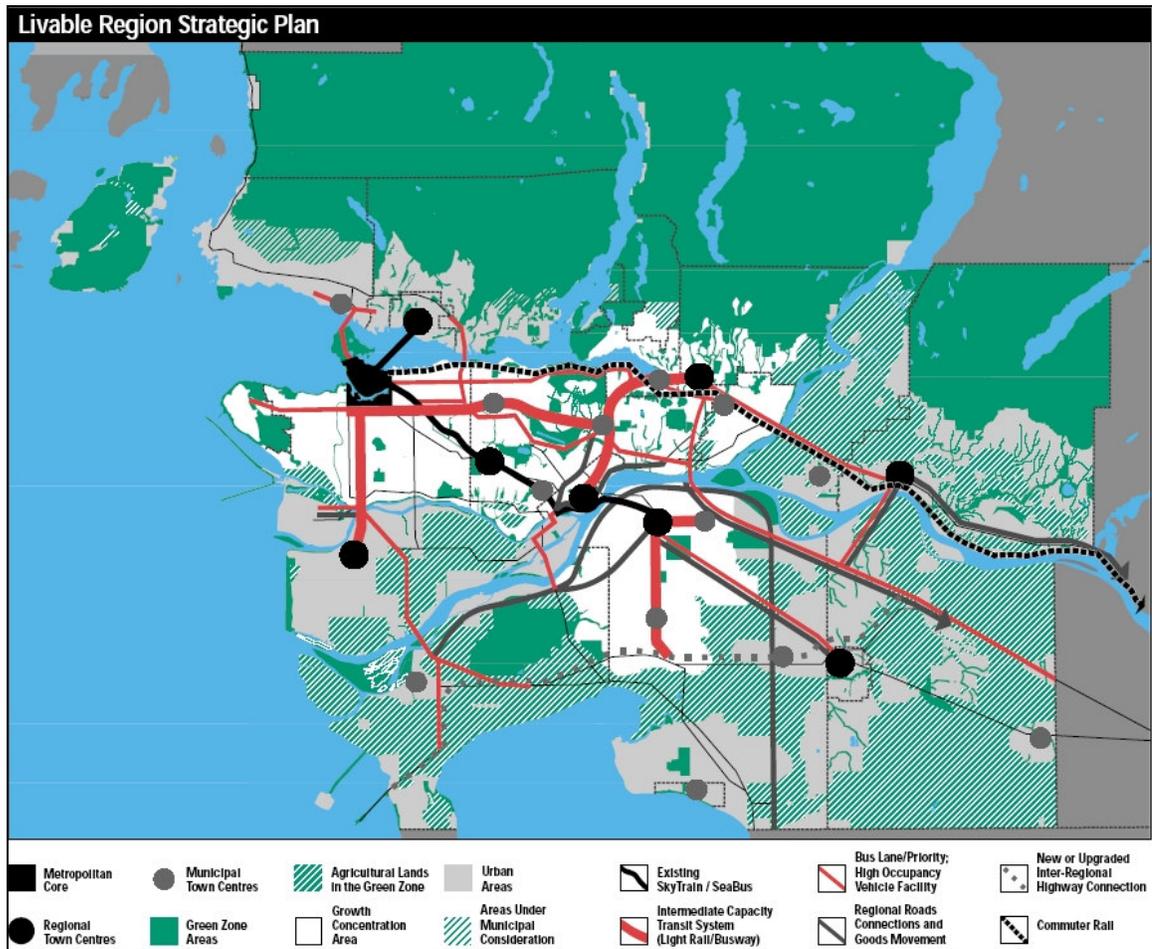
<sup>7</sup> TransLink (2004) *2005-2007 Three-Year Plan and 10-Year Outlook: Strategic Transportation Plan Amendment*.

<sup>8</sup> Urban transportation showcase. [http://www.translink.bc.ca/Plans\\_Projects/Urban\\_Showcase/default.asp](http://www.translink.bc.ca/Plans_Projects/Urban_Showcase/default.asp)

<sup>9</sup> *ibid.*

## 1.5 Livable Region Strategic Plan

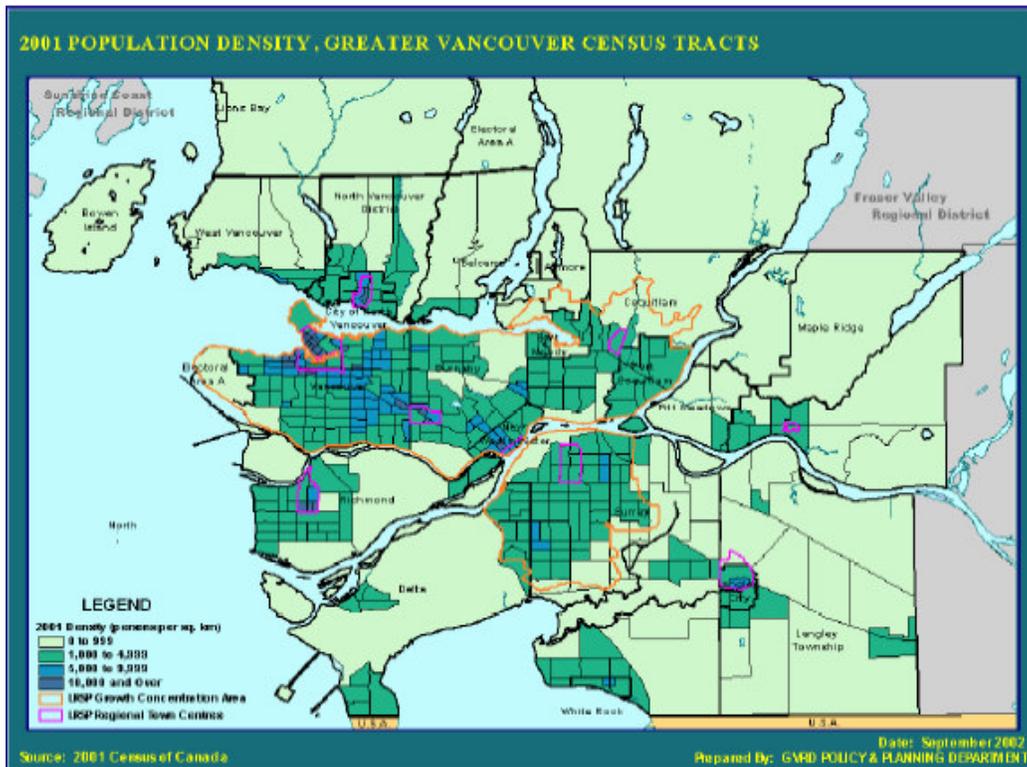
The GVRD's Livable Regional Strategic Plan (LRSP)<sup>10</sup> aims at focusing the region's population growth within an area known as the Growth Concentration Area (GCA), which includes Coquitlam, Port Coquitlam, Port Moody, North Surrey, and North Delta (see Figures 1.1 & 1.2). Data from the 2001 census shows that 67% of the population resided within the GCA, which is close to meeting the LRSP target. The GCA has a higher average density than other areas of the GVRD, which generally compliments transit use (see figure 1.1).



**Figure 1.1 Elements of GVRD's Livable Region Strategic Plan**

*Source: Greater Vancouver Regional District 1999*

<sup>10</sup> <http://www.gvrd.bc.ca/growth/lrsp.htm>



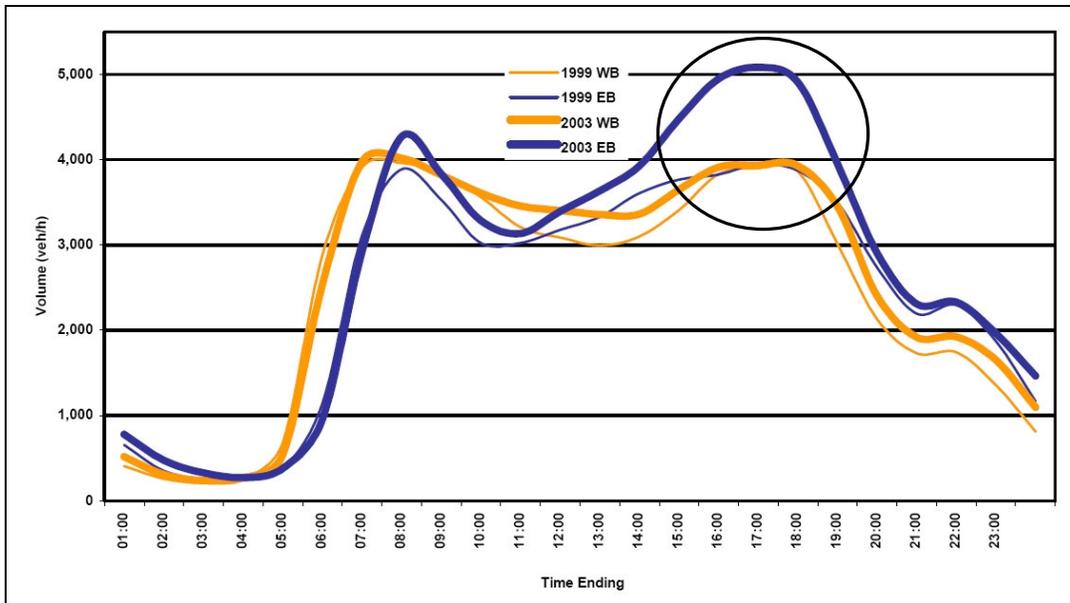
**Figure 1.2 Population Density, Growth Concentration Area and Town Centres**  
*Source: Greater Vancouver Regional District*

## 2.0 HIGHWAY 1 TRAFFIC ORIGINS AND DESTINATIONS

In order to discuss alternatives to the proposed freeway expansion it is necessary to understand where the traffic is coming from and going to. This section discusses the westbound traffic flows during the am peak (rush hour) at two points, the Port Mann Bridge and at Douglas in Burnaby.

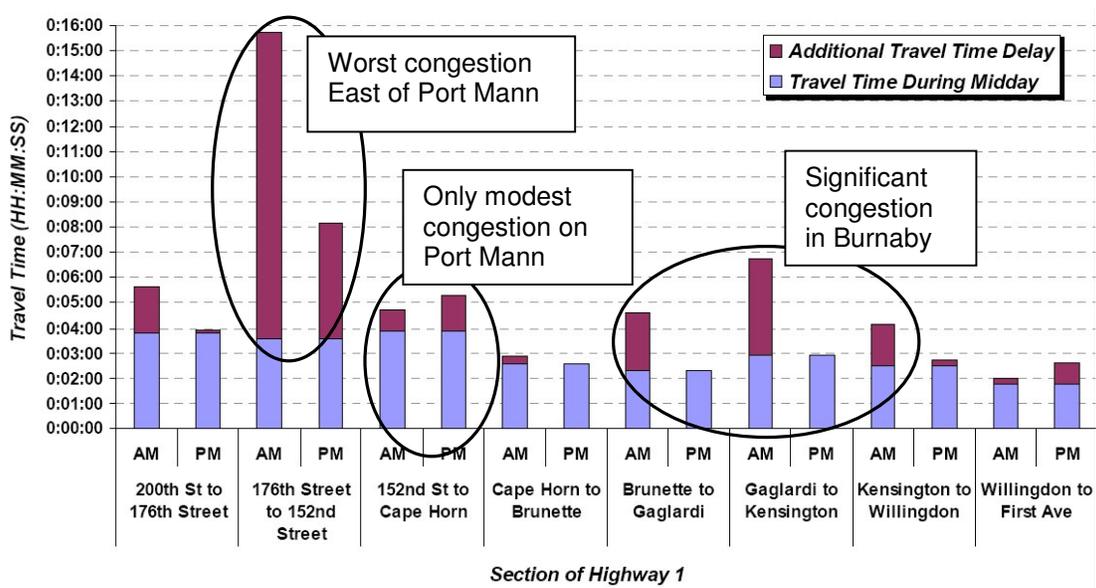
### 2.1 Traffic on the Port Mann Bridge

The Highway 1 corridor is most heavily used roadway in the region. Traffic across the Port Mann Bridge has increased by 65% since 1985 to approximately 127,000 vehicles per day. In 2001, an additional 5<sup>th</sup> lane was added in the eastbound direction exclusively for HOV (High Occupancy Vehicle) use. Figure 2.1 below shows the increased eastbound traffic flow in the afternoon peak, largely due to the added lane. Note that peak westbound flows did not increase significantly between 1999 and 2003.



**Figure 2.1 Traffic Increase due to Added Lane on Port Mann Bridge**  
 Source: *Travel Characteristics of Traffic on the Highway 1 Corridor, TransLink*

Figure 2.2 shows the westbound travel time and delay along Highway 1 collected from a travel time survey in the fall of 2003.

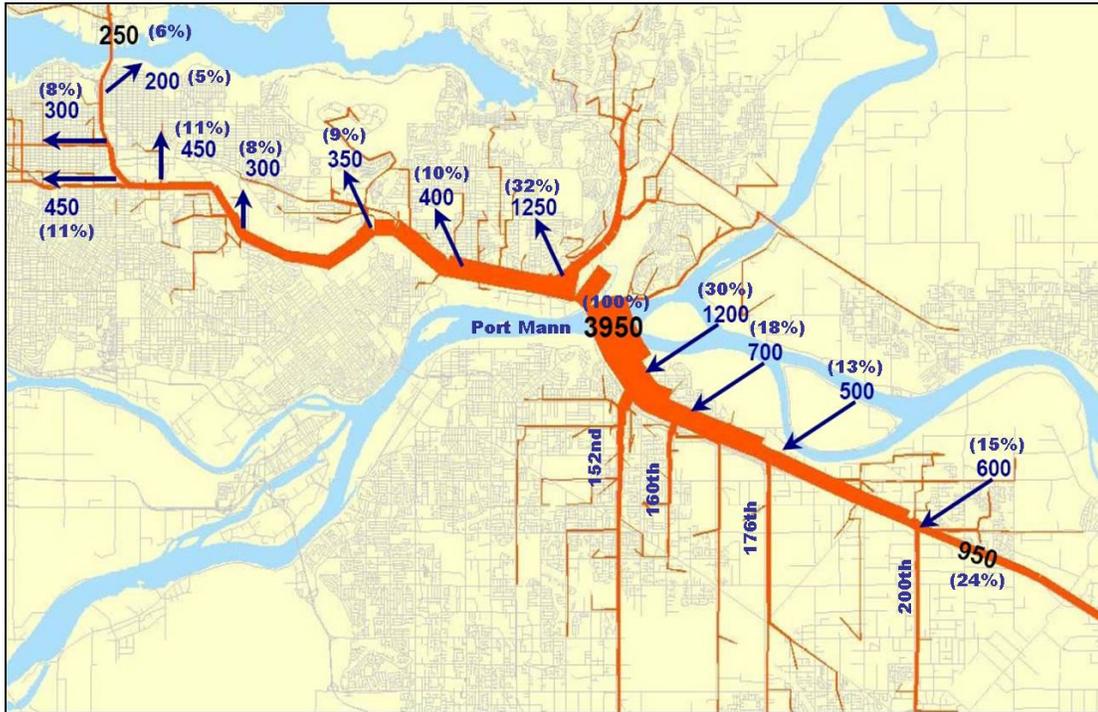


**Figure 2.2 Westbound Travel Time and Peak Period Delays on Highway 1**  
 Source: *Travel Characteristics of Traffic on the Highway 1 Corridor, TransLink*<sup>11</sup>

The travel time survey results show that the highest delay during the AM peak occurs at the section approaching the bridge between 176<sup>th</sup> St. and 152<sup>nd</sup> St., with almost 12 minutes of delay. In contrast, the section across the bridge shows only 0.5 minute of delay, which indicates almost

<sup>11</sup> [http://www.translink.bc.ca/files/board\\_files/meet\\_agenda\\_min/2004/07\\_21\\_04/4.12travel.pdf](http://www.translink.bc.ca/files/board_files/meet_agenda_min/2004/07_21_04/4.12travel.pdf)

free flow conditions. This is evident when traveling westbound across the Port Mann Bridge where traffic flow improves significantly past the merge of traffic at the 152<sup>nd</sup> St. Interchange.



**Figure 2.3 Origins and Destinations of Westbound Port Mann Traffic**

*Source: Travel Characteristics of Traffic on the Highway 1 Corridor, TransLink*

This map shows that:

- Only about a quarter (24%) of all westbound traffic across the Port Mann Bridge during the am peak originates east of 200<sup>th</sup> St. (200<sup>th</sup> is the exit for Langley City).
- About 30% of traffic across the Port Mann Bridge enters at 152<sup>nd</sup> St., the interchange closest to the bridge in Surrey.
- Almost a third (32%) of traffic across the Port Mann Bridge exits at the Cape Horn Interchange, the first interchange past the bridge which connects to Tri-Cities area.

## 2.2 TRAFFIC ON HIGHWAY 1 IN BURNABY

The Port Mann Bridge is the most congested point on Highway 1 in the Lower Mainland; however it does not carry the heaviest traffic volumes. The AM peak traffic volume in Burnaby is about 25% higher than on the Port Mann Bridge. Traffic on the freeway in Burnaby is quite congested; travel times from Galardi to Kensington are over twice as long in the AM peak as at mid day, as shown in figure 2.2 above.

One of the most contentious issues related to the Highway 1 expansion is the impact of traffic in municipalities north of the Fraser, including Burnaby and Vancouver.

Both the origins and destinations of traffic on the freeway are fairly widely dispersed, but the majority of traffic has both origins and destinations within the LRSP Growth Concentration Area. About 59% of traffic on the freeway at Douglas is destined for the City of Vancouver, and about 27% crosses to the North Shore. About 60% of the traffic originates in the Northeast Sector, Burnaby and New Westminister. Only about 37% originates south of the Fraser, and much of this comes from the Surrey Growth Concentration Area.

### 3.0 EXISTING TRANSIT SERVICE

*Surrey resident Lauren Plaviak would have to take a 90-minute bus loop to get to work, which is only 10 minutes away by car. "I wrote the bus schedule information down. But then I threw it in the garbage. Taking a bus isn't even an option."<sup>12</sup>*

*"[T]ransit service is not at levels to offer the majority of residents a real alternative to the automobile" TransLink<sup>13</sup>*

#### 3.1 Surrey to Coquitlam Service

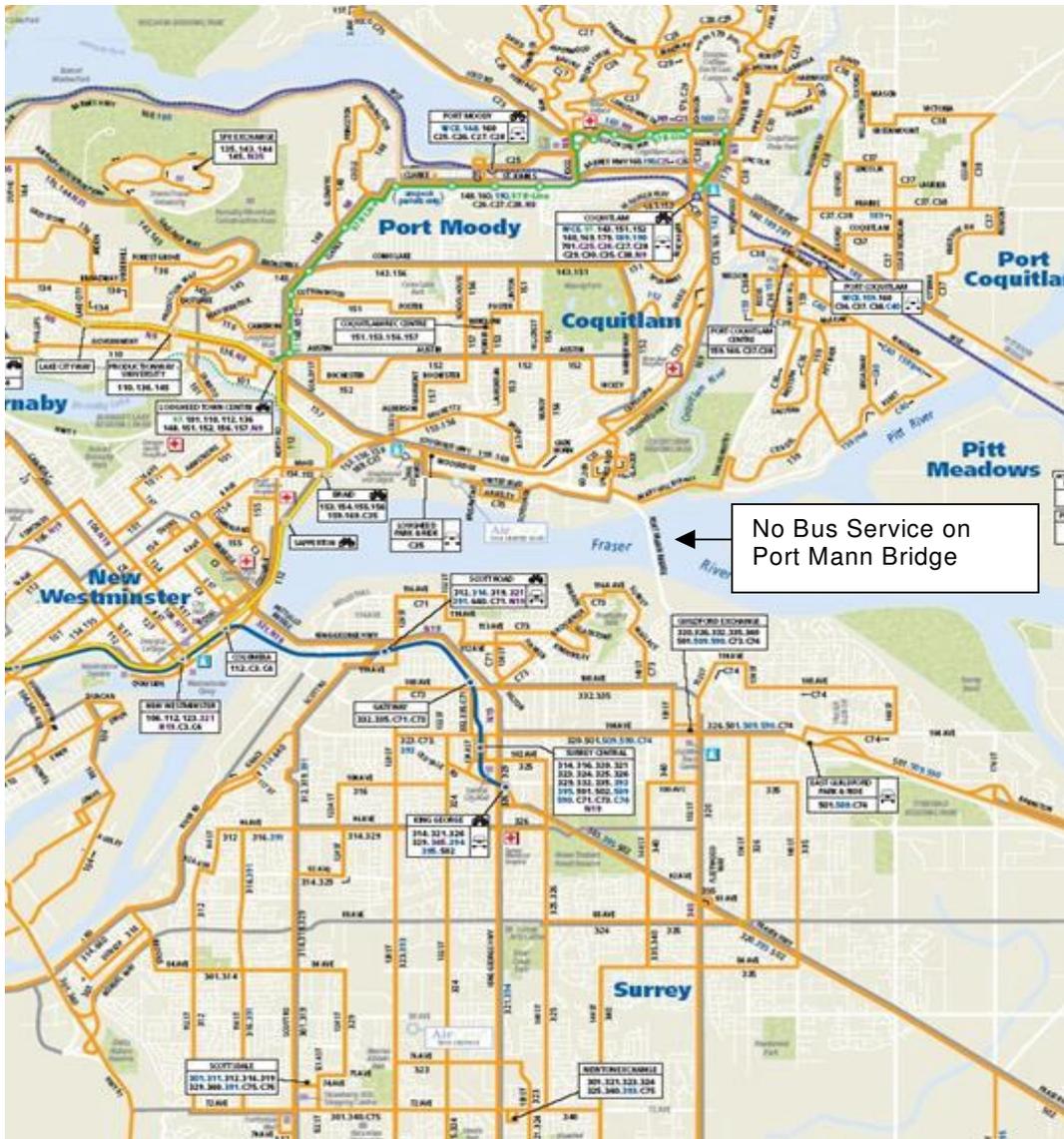
As discussed previously, a significant percentage of trips across the Port Mann Bridge are between these two areas. The route between the Surrey and Coquitlam Growth Concentration Areas is currently poorly served by transit. For example, a transit trip from Guildford Town Centre in Surrey to the Coquitlam Town Centre requires three to four transfers between buses and SkyTrains, with a trip time of 50 to 60 minutes.

Figure 3.1 below shows the existing transit service for the Surrey and Coquitlam areas.

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<sup>12</sup> Ward, Doug. November 01, 2005. 'When is the bus coming?' *Vancouver Sun*  
<http://www.canada.com/components/printstory/printstory4.aspx?id=fd21b095-e4c0-4d79-8e22-d0300b343e1b#Soundoff>

<sup>13</sup> 2005-2007 Three-Year Plan and 10-Year Outlook: Strategic Transportation Plan Amendment.



**Figure 3.1 Transit System Map for the Northeast Sector and Surrey Areas**

### 3.2 Service Frequency and Overcrowding

Transit riders are reluctant to transfer between buses with a service frequency less than ten minutes, if the service does not have timed connections at stations.<sup>14</sup> Most of the catchment areas of the proposed freeway expansion do not have ten-minute service frequency even at peak periods, including some areas with fairly high population density as indicated in Figure 4.4.

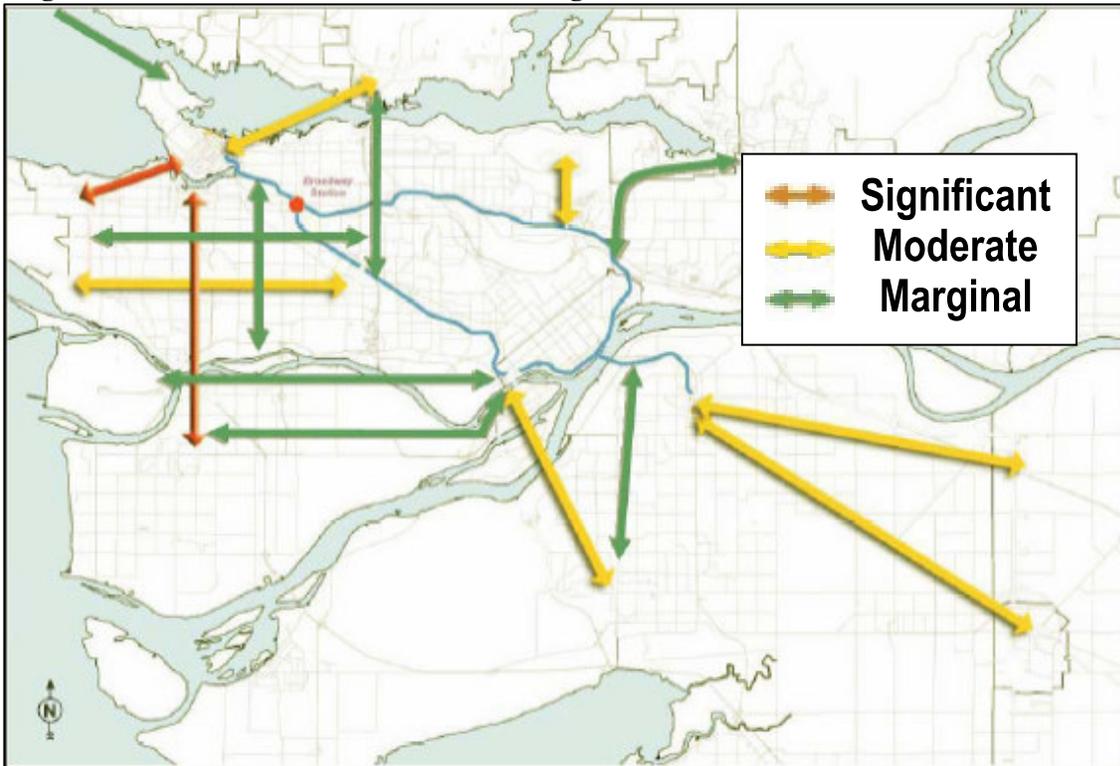
According to the most recent Translink rider satisfaction survey, both bus and SkyTrain riders were quite concerned with crowding<sup>15</sup>. However, as of November 2004, TransLink was planning

<sup>14</sup> Mees, P., (2000) *A Very Public Solution: Transport in the Dispersed City*. Melbourne University Press

<sup>15</sup> [http://www.translink.bc.ca/files/polls\\_surveys/cust\\_satisfaction/Q2\\_2005.pdf](http://www.translink.bc.ca/files/polls_surveys/cust_satisfaction/Q2_2005.pdf)

to increase SkyTrain ridership by 9.4% over three years with only a 0.2% increase in service hours, and to increase bus ridership by 10.9% with a 5.8% increase in service hours<sup>16</sup>. Overcrowding is probably already a significant factor in preventing a shift from the private automobile to public transit, and the situation will likely get worse without an increase in service hours far greater than what TransLink is budgeting for. Figure 3.1 below shows routes that are currently overcrowded according to TransLink standards, including routes in Surrey and the Tri-Cities area.

**Figure 3.1 Transit Routes with Overcrowding**



Source: *GVTA Transit Capacity Study (2005)*<sup>17</sup>

As illustrated in Figure 2.4, about 15% of the traffic on the Highway 1 is destined for Downtown Vancouver. The Millennium SkyTrain line provides service into East Vancouver. However, many passengers continue their journeys into downtown Vancouver by transferring to the Expo Line at Broadway Station. The transfer of passengers onto Expo Line trains contributes to busier periods within the AM peak hour at Broadway Station where average observed train passenger volumes could exceed capacity by up to about 13%. During these busy times, passengers on the platform sometimes have to wait for one or more trains before being able to board.<sup>18</sup>

The extreme crowding on the Expo Line is certainly contributing to reduced ridership on the Millennium line and connecting buses in Burnaby and Coquitlam. Likewise, overcrowding which

<sup>16</sup> 2005 - 2007 Three Year Implementation Strategy and Financial Plan: Finance and Audit Committee November 24, 2004.

<sup>17</sup> [http://www.translink.bc.ca/files/board\\_files/meet\\_agenda\\_min/2005/06\\_22\\_05/4.5transit.pdf](http://www.translink.bc.ca/files/board_files/meet_agenda_min/2005/06_22_05/4.5transit.pdf)

<sup>18</sup> *Review of Millennium Line Ridership Growth*, [http://www.translink.bc.ca/files/board\\_files/meet\\_agenda\\_min/2005/05\\_20\\_05/4.16.pdf](http://www.translink.bc.ca/files/board_files/meet_agenda_min/2005/05_20_05/4.16.pdf)

leads to pass-ups<sup>19</sup> is also an issue on many buses throughout the system. The #99 B-line which departs from Commercial Station, and which parallels a significant traffic flow from Highway 1 as shown in figure 3.6, regularly leaves passengers behind indicating an uncomfortable degree of overcrowding<sup>20</sup>.

It is reasonable to conclude that overcrowding is a significant barrier to getting drivers who now use the #1 Highway to change to riding transit. However, considerably more study would be needed to accurately quantify the significance of this barrier.

## **4.0 TRANSIT IMPROVEMENTS: ALTERNATIVES TO FREEWAY EXPANSION**

### **4.1 Transit and Congestion**

There is considerable disagreement about the degree to which public transit investments can reduce automobile use and traffic congestion. For example, Anthony Downs notes:

“although Portland, Oregon, doubled the extent of its light rail system's tracks in the 1990s, and significantly increased ridership on that system, traffic congestion became more intense than before. Why? First, a high percentage of the new light rail riders shifted from buses rather than private vehicles. Second, population growth in the region overcame any slight improvements in traffic congestion.”<sup>21</sup>

The obvious problem with Downs' assertion is that he implies that replacing buses with light rail was a significant improvement in transit quality. Since a *high percentage* of light rail passengers merely switched from buses, there is little indication that the investment in changing technology resulted in any great improvement for transit riders. Dr. Paul Mees refers to the assumption that any particular technology investment is the answer to transportation problems as 'technology fetishism'; he advocates focusing on the experience of the transit rider instead<sup>22</sup>.

In some cases, reducing transit cost and increasing service can quickly reduce traffic and congestion. For example, following the implementation of the University of British Columbia U-pass Program, which provides transit passes to all students at a reduced cost along with improved bus service, automobile traffic to and from the campus declined by 13%<sup>23</sup>. This was accomplished with only bus service to the campus and without a major investment in transit priority measures.

In some circumstances, improvements to public transit can constrain or even reduce the level of traffic congestion in the long run. The Victoria Transport Policy Institute asserts that:

If congestion increases, people change destinations, routes, travel time and modes to avoid delays . . . Reducing this point of equilibrium is the only way to reduce congestion over the

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<sup>19</sup> The term 'pass up' is used to refer to the situation where passengers are left behind at a transit stop or station because the transit vehicle is too crowded to safely carry more passengers. TransLink does not have precise data on the frequency of pass ups, but it was acknowledged to be a serious problem during TransLink's *Vancouver / UBC Area Transit Plan* consultation process.

<sup>20</sup> Observations by Eric Doherty who regularly commutes on the #99 from the Broadway/Commercial SkyTrain station to UBC.

<sup>21</sup> Downs, Anthony 2005 *Smart Growth: Why We Discuss It More than We Do It* Journal of the American Planning Association, Vol. 71, No. 4, Autumn 2005.

<sup>22</sup> Mees, P., (2000) *A Very Public Solution: Transport in the Dispersed City*. Melbourne University Press

<sup>23</sup> Urbansystems (2005) *U-pass review: Final report May 4 2005*.

long run . . . If alternatives are inferior, few motorists will shift mode and the level of equilibrium will be relatively high. If travel alternatives are relatively attractive, motorists are more likely to shift modes, resulting in a lower equilibrium . . . Congestion does not disappear, but it never gets as bad as would occur if quality transit service did not exist.<sup>24</sup>

TransLink seems to agree, asserting that transit improvements can "make a significant contribution to reduce road congestion."<sup>25</sup>

However, even if improved transit quality does not actually reduce congestion on a particular stretch of road, good public transit gives many people the ability to "choose whether or not to endure it".<sup>26</sup> This can reduce per capita time spent in congestion, which is one of the better ways of evaluating the severity (or cost) of congestion<sup>27</sup>.

## 4.2 Frequency of Service

Dr. Paul Mees suggests that it is possible to create cost effective transit systems with high ridership even in moderate density, urban regions such as Greater Vancouver. Mees asserts that a frequent service transit network can efficiently serve dispersed origins and destinations by allowing convenient transfers.<sup>28</sup>

Translink has recognized the importance of frequent service for allowing transfers. TransLink's *Transit Service Guidelines* recommend a frequency of 15 minutes or better for buses where there are not timed connections at stations.<sup>29</sup> However, Mees asserts that even at a reliable 10 minute frequency people are still somewhat reluctant to transfer, and recommends frequencies of eight minutes or less where feasible.

Given the dispersed origins and destinations for people traveling on Highway #1, and the importance of allowing people to reach both local and regional destinations; increasing the network of frequent service routes wherever ridership potential warrants is essential if transit is to provide a real transportation choice. Higher density areas in the Growth Concentration Area of Surrey and Coquitlam are examples of where this may be warranted.

## 4.3 Transportation Choice

Improvements to transit service should be aimed to *increase transportation choice*, as described in the Livable Region Strategic Plan. Transportation choice means that people can choose if they want to drive, or own, a car or not.

Transportation choice supports the other LRSP objectives of protecting of the Green Zone, and creating complete communities and a compact metropolitan region. In order to complement these objectives, transit investments need to be focused on serving the LRSP Growth Concentration

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<sup>24</sup> *Congestion Reduction Strategies: identifying and Evaluating Strategies to Reduce Traffic Congestion.* <http://www.vtpi.org/tm/tm96.htm>

<sup>25</sup> 2005-2007 *Three-Year Plan and 10-Year Outlook: Strategic Transportation Plan Amendment.* p. 18.

<sup>26</sup> Mees, P., (2000) *A Very Public Solution: Transport in the Dispersed City.* Melbourne University Press. P. 28.

<sup>27</sup> Victoria Transport Policy Institute. *Transit Evaluation* <http://www.vtpi.org/tm/tm62.htm>

<sup>28</sup> Mees, P., (2000)

<sup>29</sup> TransLink (June 2004) *Transit Service Guidelines: Public Summary Report.*

area and Regional Town Centres. Note that Highway 1 leaves the Growth Concentration Area not far east of the Port Mann Bridge and does not directly serve any Regional Town Centres.

The *current transit mode share during the rush period in the region is about 11%, which is well short of the 17% target* of the GVRD's Transport 2021 Long Range Transportation Plan. The LRSP strategy also anticipated bus fleet growth from approximately 950 buses in 1993 to around 1,800 in 2006; TransLink has also fallen short of meeting this target. TransLink expects the bus fleet size to increase from under 1,200 buses in 2005 to approximately 1,550 vehicles by 2009 and to 1,600 buses by 2013<sup>30</sup>.

Transit service to provide an alternative to the proposed expansion of Highway 1 would require a significant expansion of the transit fleet beyond that currently budgeted for.

Paul Mees' assertion that commuter transit and large Park & Ride facilities often contribute to automobile dependant sprawl and inefficient transit systems should also be considered.<sup>31</sup> Therefore, improvements to regular transit which runs from early morning until late in the evening should be given priority, rather than commuter transit which only operates during peak commuting times. Transit investments should primarily serve people who get to transit by foot or on bicycle, thereby giving more residents the choice of owning a car or not. Park and ride facilities can be part of the system, but should be small facilities close to residential areas so the drive to transit is short.

### **Specific Recommendations:**

#### **4.4 *Increased Frequent Service Coverage***

Expanded 10 minute or better peak period service should be provided throughout the LRSP Growth Concentration Area, particularly in key higher density corridors linking Regional Town Centres such as the Fraser Highway and King George Highway. Figure 4.1 below illustrates the proposed improvement of peak period service coverage by TransLink by 2013.

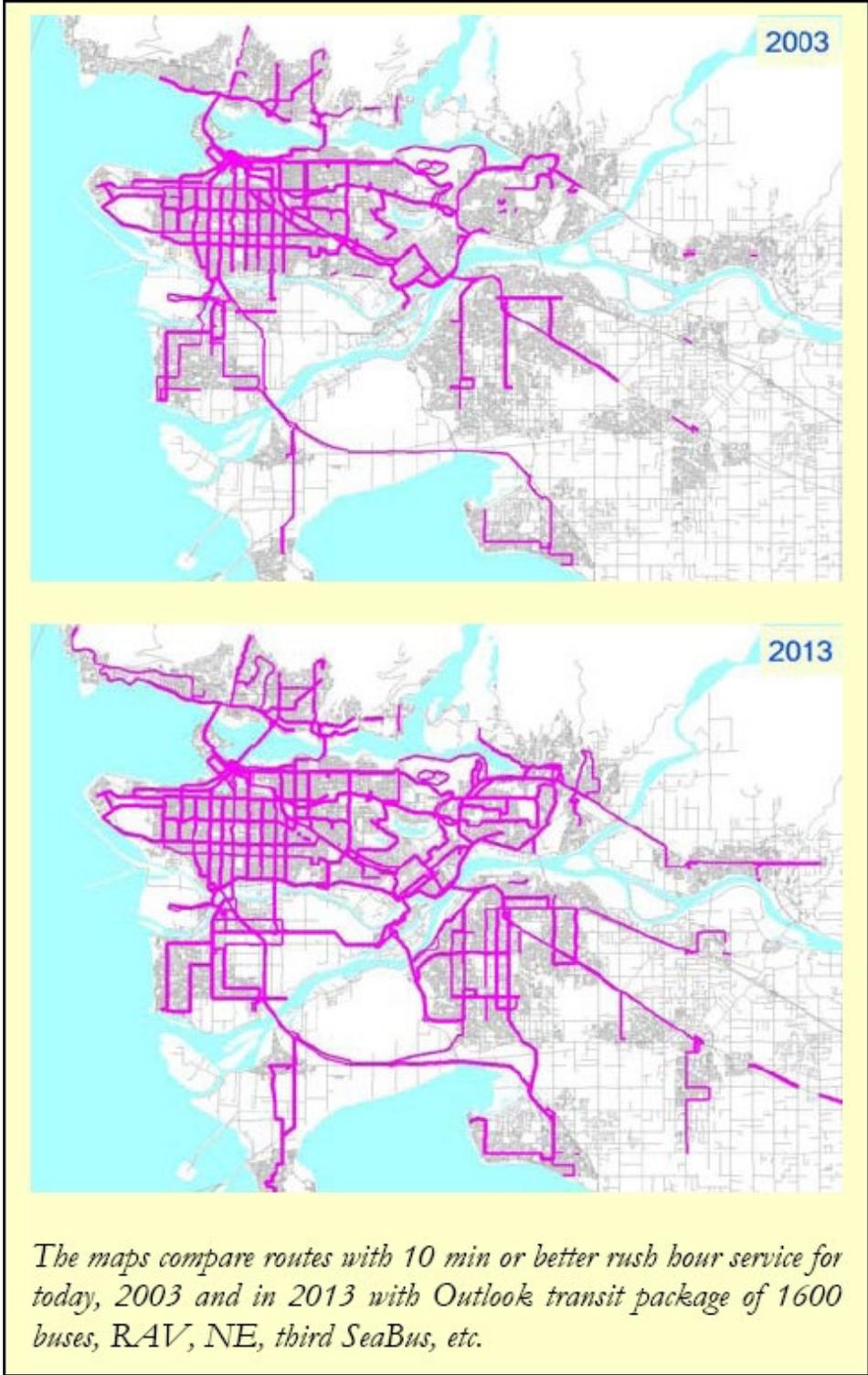
TransLink should accelerate the improvements for the Surrey and Coquitlam areas, which are among the fastest growing municipalities, and yet have among the poorest frequent service coverage.

As shown in Figure 2.1, the westbound 'peak traffic' periods on the Port Mann Bridge do not have much of a peak; rather the graph shows an uneven plateau. Traffic volumes are high from about 6:30 a.m. to about 6:30 p.m. To match this demand, ten-minute or better transit service should be expanded from at least 6 a.m. to 7 p.m. in higher ridership areas in the Growth Concentration Area (including areas of Surrey, Burnaby and the Northeast Sector).

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<sup>30</sup> TransLink (2004) *2005-2007 Three-Year Plan and 10-Year Outlook: Strategic Transportation Plan Amendment*.

<sup>31</sup> Mees, P., (2000) *A Very Public Solution: Transport in the Dispersed City*. Melbourne University Press



**Figure 4.1 Proposed Expansion of Transit Routes with 10-min Frequencies**  
*Source: Translink Three-Year Plan and 10-year Outlook (2004 31)*

#### **4.5 Transit Priority Measures**

Transit priority measures include bus lanes, traffic signal priority for transit vehicles, high occupancy vehicle lanes (where transit vehicles use the lanes), queue jumper lanes so buses can get past traffic particularly congested sections of roadway, as well as other measures. TransLink asserts that "A truly effective transit system is only possible with significant priority being given to buses on the crowded roads in the region to allow them to bypass traffic congestion, speed the service and make it more reliable, efficient and attractive"<sup>32</sup>.

- ***New Transit Link Between Surrey and Coquitlam***

As mentioned previously, the current transit connection between regional centres in Surrey and Coquitlam is circuitous and time inefficient. This Surrey – Coquitlam transit link is included in TransLink's 10 Year Outlook for transit priority improvements, and should be a very high priority. With this proposed link in place, the transit trip example mentioned previously from Guildford Town Centre to Coquitlam Town Centre should only require one transfer at the most, and the trip time could be reduced to 25-30 minutes. This is a significant improvement from the current transit service available and would provide an alternative for a very significant proportion of the people now driving across the Port Mann.

In order for a reliable and efficient transit route across the Port Mann Bridge, transit priority should be provided for the full length of the route but especially at the most congested approach to the bridge. The proposed transit routing from Surrey enters Highway 1 at the 152<sup>nd</sup> St. Interchange, which is the most congested (as shown in Figure 2.2). However, the provision of a queue jumper lane to allow buses to get ahead of the congestion at the westbound on-ramp would be effective, since the delays are insignificant west of the merging traffic at this (152<sup>nd</sup> St.) interchange. The queue jumper may extend along the shoulder of the on-ramp, or further south across the 152<sup>nd</sup> St. overpass. The latter may require widening of the overpass at a considerable cost, but only a fraction of what it would cost compared to the Port Mann Bridge twinning.

- ***King George Highway***

TransLink's 10-Year Outlook includes a busway on King George Highway. The King George Busway would largely serve the Growth Concentration Area in Surrey and connects to SkyTrain, the Coquitlam- Surrey Link and other important transit routes. Transit priority measures should be provided for the full length of the route, with particular attention to the area within the Growth Concentration Area. TransLink's plan for the King George Busway is projected to cost about \$120 million and is proposed to be operational by 2013. However this project is currently unfunded.

- ***Fraser Highway***

TransLink's current widening of the Fraser Highway from Surrey to Langley should include transit priority measures such as high occupancy vehicle lanes and transit signal priority. The Fraser Highway serves a sector of the Surrey Growth Concentration Area and connects to Langley City, a LRSP Regional Town Centre. This route was identified as a candidate for transit priority measures in the Livable Region Strategic Plan as shown in Figure 1.1.

Figure 4.2 on the following page highlights these transit improvements, along with the trip demand as illustrated by the OD map in the background.

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<sup>32</sup> TransLink (2004) 2005-2007 *Three-Year Plan and 10-Year Outlook* p.5

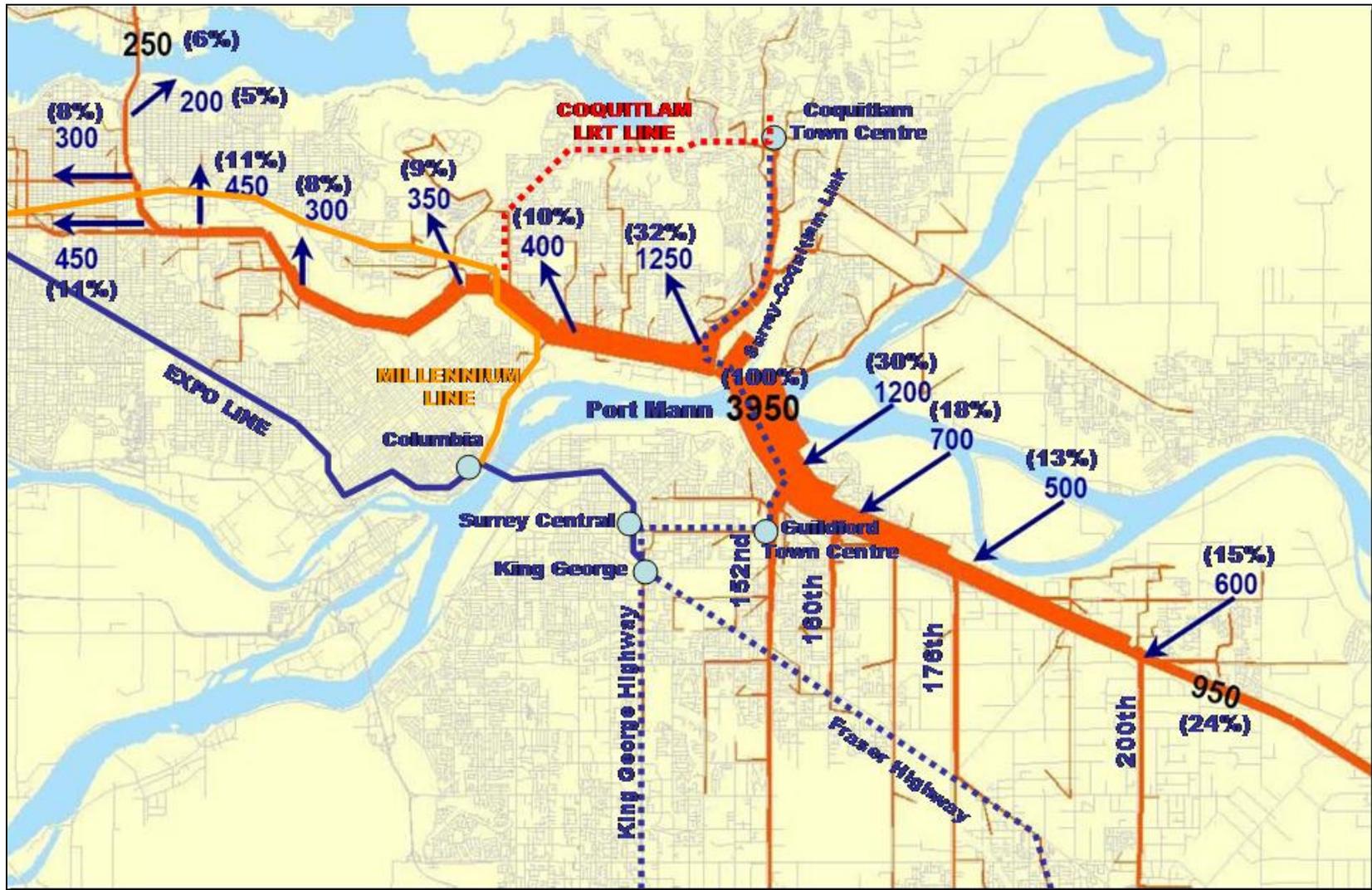


Figure 4.2 Proposed Transit Priority Measures for Surrey and the Northeast Sector

## 4.6 SkyTrain

As noted in section 3.2, severe overcrowding on the Expo Skytrain Line is a significant deterrent to ridership on both the Expo and Millennium lines.

As illustrated in Figure 4.2 about 19% of the traffic crossing the Port Mann Bridge passes through East Vancouver, which is served by the Expo Skytrain Line. A much larger percentage of traffic crosses the Millennium line at various points. Of particular note are the large traffic volumes with destinations in Burnaby relatively close to the Millennium Skytrain.

The SkyTrain System has a very large unused capacity; since the number of SkyTrain cars that TransLink now owns gives the busiest section of the Expo Line (from Downtown to New Westminster) a carrying capacity of about a third of the systems' design capacity. The capacity increase possible with additional SkyTrain cars is well in excess of the people carrying capacity of a typical 10-lane freeway.

TransLink proposes to purchase 34 new SkyTrain cars at a cost of \$181 million to deal with the present overcrowding and future increases in ridership.<sup>33</sup> This purchase should be completed as soon as possible. An expanded purchase should also be considered to give a greater capacity increase. Bus service with transit priority measures should also be considered as an interim measure to alleviate peak hour congestion on the busiest sections of the Expo Line.

## 4.7 Capital Cost Projection

This is a rough estimate of the capital costs of recommended investments, based on TransLink documents.

- A 20% increase in TransLink's bus fleet. This estimate is based on 120 additional low-floor 40 foot buses at \$468 000.00 each<sup>34</sup>, and 120 60 foot articulated buses at about \$700 000 each for a total estimated cost of \$170 million. Upgrading to less polluting technologies<sup>35</sup> would require an additional investment; for example diesel-electric hybrid technology would add about 50% to the capital expenditure but would reduce fuel costs.
- Ten additional SkyTrain cars at \$5.34 million each<sup>36</sup> (in addition to the 34 TransLink plans to purchase) \$53.4 million
- King George Busway \$140 million<sup>37</sup>
- Fraser Highway transit priority measures (in addition to the \$45 million<sup>38</sup> currently budgeted to increase general purpose capacity) \$10 million<sup>39</sup>.
- Surrey - Coquitlam link transit priority measures \$20 million<sup>40</sup>.

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<sup>33</sup> TransLink (2004) 2005-2007 *Three-Year Plan and 10-Year Outlook*

<sup>34</sup> *Procurement of Standard Low Floor Transit Buses – Preferred Proponents and Proposals* July 11, 2005 [http://www.translink.bc.ca/files/board\\_files/meet\\_agenda\\_min/2005/07\\_20\\_05/4.6report.pdf](http://www.translink.bc.ca/files/board_files/meet_agenda_min/2005/07_20_05/4.6report.pdf).

<sup>35</sup> e.g. see [http://www.translink.bc.ca/Plans\\_Projects/bus\\_demo.asp](http://www.translink.bc.ca/Plans_Projects/bus_demo.asp)

<sup>36</sup> Translink *Three Year (2005-2007) Implementation & Financial Strategy* December 2004.

<sup>37</sup> [http://www.translink.bc.ca/files/pdf/plan\\_proj/10year\\_project.pdf](http://www.translink.bc.ca/files/pdf/plan_proj/10year_project.pdf) \$20 million has been added to

TransLink's initial estimate to cover increased construction costs.

<sup>38</sup> [http://www.translink.bc.ca/Plans\\_Projects/Major\\_Regional\\_Road\\_Projects/](http://www.translink.bc.ca/Plans_Projects/Major_Regional_Road_Projects/)

<sup>39</sup> Transit priority costs are extrapolated from the estimated cost (\$7.7 million) of TransLink's Main Street Showcase transit priority project.

[http://www.translink.bc.ca/About\\_TransLink/News\\_Releases/news09260501.asp](http://www.translink.bc.ca/About_TransLink/News_Releases/news09260501.asp)

<sup>40</sup> Based on the assumption that the 152<sup>nd</sup> Street interchange overpass will not need to be replaced. Replacing or widening the overpass, if needed as some experts have suggested, would add an expense perhaps on the order of \$15 million.

- Other transit infrastructure and priority measures in the Surrey / Tri-cities growth concentration area \$20 million.

The total projected capital cost is \$413 million. However, given the large number of uncertainties it is more appropriate to give an estimated range between \$300 and 500 million.

*The total projected capital cost is in the order of \$300 to 500 million.* Net ongoing costs for transit systems include a number of factors such as the percentage of the capital cost that is financed which determines debt servicing costs, and the effectiveness of transit priority measures. An estimate of the net ongoing investment required for these suggested measures is beyond the scope of this report.

## 5.0 CONCLUSION

The estimated \$300 to 500 million cost of the transit investments proposed above is far less than the likely \$1500 to 2500 million cost of widening Highway 1, and could be implemented far more quickly.

Although this is only an initial examination of possible transit options<sup>41</sup>, there seems to be considerable potential for public transit to handle any increase in traffic flow that would otherwise lead to increases in congestion on the Highway 1 corridor. If these measures were implemented in combination with other transportation demand management approaches, including stricter land use controls, there would likely be a significant reduction in congestion on Highway 1.

The idea of expanding the freeway and improving public transit at the same time may be appealing to some. However, expanding freeways reduces public transit ridership and causes traffic congestion that slows buses. In addition, Paul Mees warns that the 'balanced' approach of expanding roads and public transit simultaneously leads to "more, and longer, trips by all forms of motorized transport"<sup>42</sup> which is the opposite of what the LRSP sets out to do. In any case, expanding Highway 1 and greatly improving public transit at the same time would be prohibitively expensive.

Our region could become a model for sustainable transportation, showing the rest of North America that real transportation choice is achievable. The alternative is to go back to the 1950s Los Angeles model of freeways, smog and sprawl.

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<sup>41</sup> TransLink's upcoming South of Fraser Area Transit Plan process may give an opportunity for a more in-depth examination of these and alternate concepts.

<sup>42</sup> Mees, P., (2000) *A Very Public Solution: Transport in the Dispersed City*. Melbourne University Press p. 29