Greater Vancouver Gateway Council

mcts

Major Commercial Transportation System

Phase 1 Report

August, 2001

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About the Greater Vancouver Gateway Council

The Gateway Council comprises senior executives from industry and governments who subscribe to a common vision that Greater Vancouver become the Gateway of Choice for North America. The Gateway Council and its members work together to ensure the Gateway efficiently provides the highest level of customer satisfaction.

For more information about the Gateway Council, visit

www.gvgc.org

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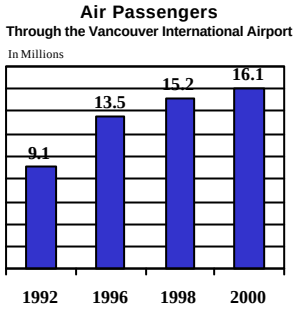
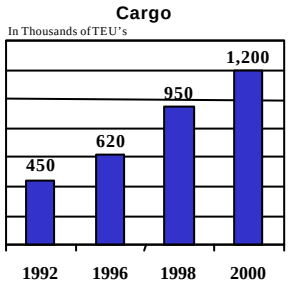
1.0 Introduction



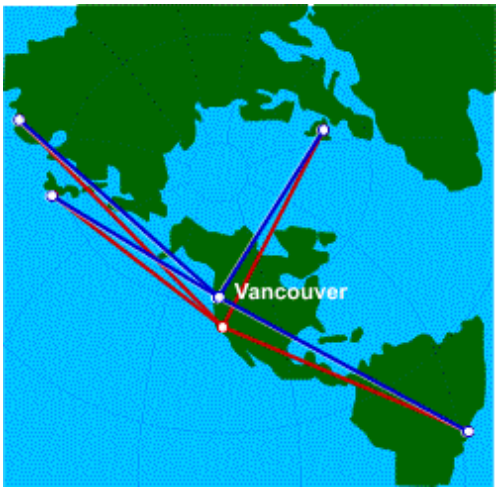


1.1 The Greater Vancouver Gateway

The Greater Vancouver Gateway is one of the largest and fastest growing transportation complexes on the West Coast of North America. As a significant player in the global logistics chain, it transports over 100 million tonnes of cargo, 16 million air passengers and 1 million cruise ship passengers every year.

The Gateway is an integral part of the economic fabric of our region and is composed of people, services and facilities that provide key linkages from Vancouver to global markets. Our future success in attracting new companies to locate within Greater Vancouver depends on the quality of our global linkages. Emerging hi-tech secto rs, for example, depend on the Gateway's ability to efficiently export products, organize sales missions and ensure retail operations receive goods on time. The Gateway itself is a globally competitive industry. Including airport and seaport/rail facilities, a cluster of specialized suppliers and manufacturers with strong linkages to universities and training facilities have carved a niche for transportation products and services.

The impacts of the Greater Vancouver Gateway clusters on the region are significant. Every time a container ship docks, over three person years of employment are created. Every time a Canadian-based 747 lands, one person year of employment is generated. Including spin-off jobs, the Gateway accounts for one in twelve jobs in the Greater Vancouver Region. It has demonstrated significant growth in several key areas of the Gateway's business during a period of relative stagnation in the B.C. economy. In addition to its employment impacts, the Gateway contributes over $1 billion in tax revenues annually and has a total economic output of over $8 billion every year.



The Vancouver Gateway is poised to take advantage of its location -1,250 km closer to Tokyo than LA and 850 km closer to Hong Kong than San Francisco

1.2 Competition for Goods Movement

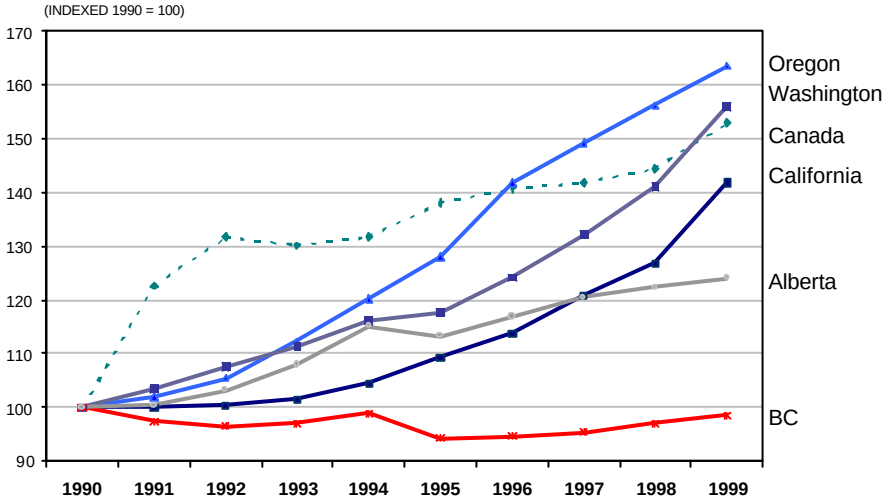
Greater Vancouver's ability to move freight efficiently is therefore directly linked to the economic potential of the region.

The Greater Vancouver Gateway has enjoyed tremendous growth over the past decade. Much of this success is due in part to ports and airport investment in the infrastructure needed to handle the flow of goods and people. In total, over $2 billion in world-class facilities have been constructed over the past decade, including passenger and cargo terminals. From these sets of facilities have accommodated growth in volumes and an critical mass of activity to generate market reach to serve the Vancouver region.

The Gateway however competes for services with a number of other city-regions -- such as Seattle, San Francisco and Los Angeles, among others. As freight becomes increasingly **time and price sensitive**, this competition will increasingly favour those cities with the capability to reach global destinations quickly. Greater Vancouver's ability to move freight efficiently is therefore directly linked to the economic potential of the region.

The importance of the Greater Vancouver Gateway to compete with its neighbours is particularly important due to its lack lustre economic performance over the past decade vis-a-vis its neighbours (see Figure 1-1). While its provincial GDP per capita stagnated through the 1990's, its immediate neighbours saw 25-60% increases. BC now ranks the lowest amongst its immediate neighbours in per capita GDP.

Figure 1-1: Relative Growth: Per Capita Provincial/State GDP (1990 = 100)



The stagnation in economic growth through the 1990's yields serious challenges for the competitiveness of gateway facilities. Capitalizing on economic growth, neighbouring jurisdictions have undertaken significant planning and investments to ensure the future growth of goods movement. A major impoetus has been an influx of US federal transportation funding. In June, 2001, a record $59 billion for federally-

supported transportation programs was approved. This amount appropriated amounts set out in programs known as TEA-21 and AIR-21. The measure would provide a large majority ($31.7 billion) for the core highway program, $6.7 billion for transit investment and $3.3 billion for the airport construction program.

A significant number of projects are in vicinity of major airport and port facilities in urban centres such as Los Angeles, San Francisco, Portland and Seattle.

The largest single project is the $2.4 billion Alameda Corridor Project to provide better access from the ports to freeway in Los Angeles. This route will include the elimination of all at-grade highway crossings of the railroad, while consolidating the 90 miles of branch line tracks into one 20-mile corridor. A distinct improvement to the region will be the elimination of traffic conflicts at nearly 200 at-grade highway crossings of the tracks, saving an estimated 15,000 hours of delay per day for vehicles sifting and waiting to cross at the trains pass. Through this project, increased rail and truck traffic will encourage the Ports' growth, while significantly decreasing growth on the environment and neighbouring communities. Furthermore, the construction of this route has heralded a significant renewal in warehouse construction for distribution facilities.

Closer to Vancouver is the Freight Action Strategy for the Seattle-Tacoma (FAST) Corridor. The goal of this program is similar to that of the Alameda Corridor in the Los Angeles-Long Beach area: to get freight from the ports through urban congestion out onto mainline railroads. The FAST project is focused on the North-South travel between Everett and Tacoma, and will include I-5 and the rail corridor. Six different governmental agencies are co-ordinated for about $782 million in freight mobility improvements.

Investments such as the Alameda and FAST corridors are strategically important for the improvement of freight transport in their respective cities. As a result, they pose a significant threat to Greater Vancouver's Gateway facilities and to the capability of our region to support long term economic growth.

1.3 Regional Transportation System: Connections to the Gateway

Greater Vancouver Gateway facilities rely heavily upon the regional transportation system (see Figure 1-2). Gateway movements are highly multi-modal in nature, requiring marine, rail and road links from the ports and airport to major industrial activity centres. For example, goods that come in via the airport may be trucked to an intermodal facility and taken by barge along the Fraser River.

The transportation routes linking gateway facilities to the world is the platform of the regional economy. Any inhibitors to free flowing movement of goods along these routes is a detriment to our regional

prosperity and quality of life. The effectiveness of the regional transportation system is currently hampered by constraints such as intersection points where different modes meet (e.g. rail/road, rail/marine) and the amount of traffic along specific routes. In particular, the system is constrained by the increasing number of vehicles in the region and thus congestion during peak periods.

Any friction within the regional transportation system affecting commercial movement translates directly into added costs to doing business in the region. This subsequently has a negative impact on our regional competitiveness and reduces the capability of our region to secure the jobs within the Gateway industry vis-à-vis competing jurisdictions.

1.4 The Need for a Major Commercial Transportation System (MCTS)

To further capitalize on the opportunities provided by the Greater Vancouver Gateway and goods movement, careful planning and delivery of improvements for freight transportation are needed.

As a multi-modal user of the regional transportation system, goods movements are reliant on the availability of capacity on road, marine and rail routes. This characteristic of goods movement demands a consistent means of prioritizing the demands of the commercial transportation system with a multi-modal approach.

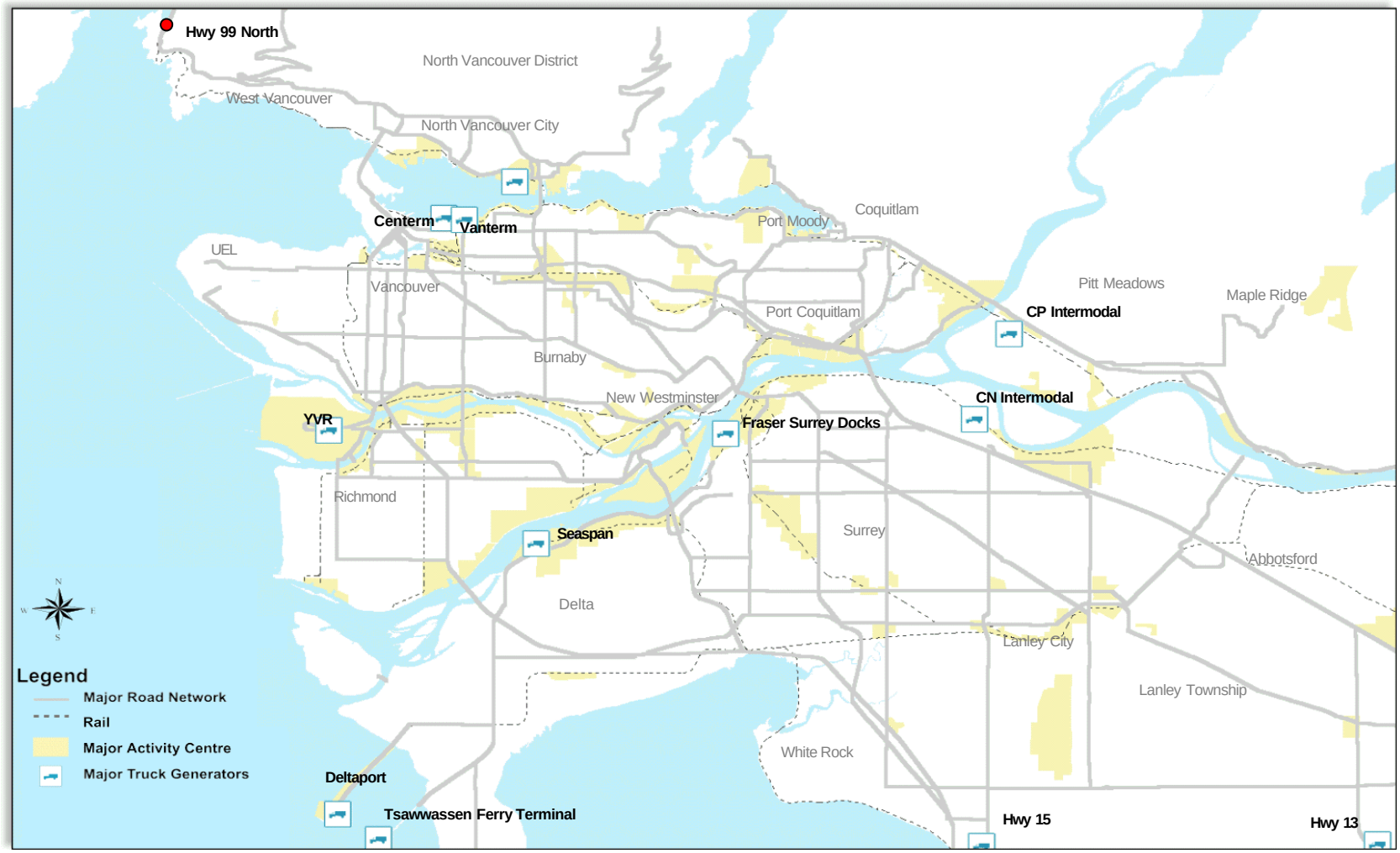
The Greater Vancouver Gateway Council is proposing a Major Commercial Transportation (MCTS) to define the routes integral to commercial good movement.

However, goods movement are just one of the many different users on the regional transportation system. For example, commuter vehicles, service vehicles and buses are some of the other primary users of roads in our region. Though transportation planning has long stressed the need for effective, efficient, safe and reliable goods movement, the focus of planning has primarily been on the commuting public. While reducing overall congestion, this approach does not directly address issues affecting commercial transportation demands.

In response, the Greater Vancouver Gateway Council is proposing a Major Commercial Transportation System (MCTS) to define the multi-modal routes integral to commercial goods movement. The MCTS is a truly innovative concept in the global logistics chain to address the need for relentless upgrading and monitoring of the Gateway's competitiveness and productivity. The MCTS will aid to support growth of the Gateway cluster and improve local conditions for business investment.

The Gateway Council represents a broad cross-section of the transportation industry, covering all major modes and facilities. As major users of the regional transportation system, the Gateway Council, along with primary stakeholders, has initiated preliminary analyses to input into the regional transportation and planning process.

Figure 1-2: Major Activity Centres and Gateway Facilities



1.5 Defining the Major Commercial Transportation System

Work on defining the Major Commercial Transportation System (MCTS) began in 1999 in a Technical Memorandum to the TransLink *Strategic Transportation Plan 2000-2005*[1]. Since this submission, the Greater Vancouver Gateway Council has initiated further work to refine definition and prioritization to advocate for the integration of the MCTS into transportation planning processes.

1.5.1 Vision & Objectives

The vision for the MCTS was established in 1999 to be:

> *"An efficient and internationally competitive regional commercial transportation system for the Gateway."*

Based on this vision, the MCTS established five main objectives. The MCTS would:

- Provide a **continuous network** for efficient commercial vehicle operations in the region.
- Accommodate **future growth** in goods, services and international passenger movements.
- Enable **24-Hour** unrestricted commercial vehicle traffic use.
- Provide **rail** movements operating **free of road intersection constraints**.
- Enhance **connectivity** to north-south and east-west trade corridors.

However, in order to realize these objectives, work had to be undertaken to help to plan and define the network and system definition.

1.5.2 Definition Process

A definition process was initiated by the Greater Vancouver Gateway Council in light of the constraints facing transportation funding and planning in the region. With a competition for limited resources for transportation projects, the MCTS definition process had a main objective to achieve a focused and cooperative development from various levels of government and transportation operators for freight movements.

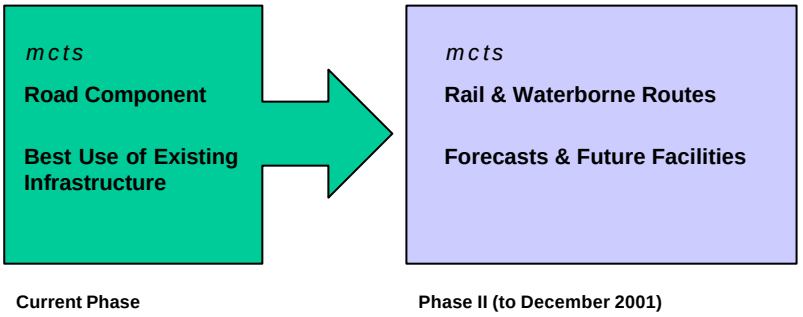
[1] See *Major Commercial Network (MCN) Technical Memorandum November, 1999*

A process was initiated through a Working Group and Technical Committee that comprised key stakeholders (see Appendix A).

The current and first phase of the project was completed in July, 2001 and is summarized in this report. The first phase of the project dealt with how the existing demand is accommodated on the current road network. Analysis focused on current activity centres and routes to examine ways to make best use of existing infrastructure. This included an examination of the existing road network, identifying the most critical routes for gateway movements.

A second and subsequent phase will look into the future for requirements that will impact the MCTS. Through an examination of forecasted movements by transportation mode, facility master plans and regional land use planning, the inter-relationship and impacts on the location, volume and modes demanded for goods movement on the MCTS will be profiled.

Figure 1-3: MCTS Definition Process



1.5.3 Application of MCTS

The definition of the Major Commercial Transportation System is only one step in achieving its integration and implementation in transportation planning and management. The definition process only identifies the routes most important to freight movements in an objective and replicable manner.

The implementation of MCTS in transportation planning and management depends upon the interests and mandates amongst various levels of government, industry, operators and business groups. Potential applications of the MCTS include:

- **Advocacy** by freight transportation operators and users for the set of routes most critical to their operations;
- **Prioritization** of funding and planning for transportation improvements at all levels of government; or

- **Active monitoring** of MCTS network performance and benchmarking.

For example, the analyses of the MCTS in these two phases will serve as a platform for advocacy by the Greater Vancouver Gateway Council as it continues to work with all levels of government towards improved freight transportation in the region. This includes discussions with municipalities, submissions to the new TransLink Strategic Transportation Plan, GVRD's updated Livable Region Strategic Plan and dialogue with Federal and Provincial governments on infrastructure needs.

The MCTS will serve as a platform for advocacy by the Greater Vancouver Gateway Council for improved freight transportation in the region

1.6 Report Purpose

The purpose of this report is to provide a briefing to a wide range of audience – from municipal planners and politicians, to executives of a transportation operators and agencies. The report contents have three main areas:

- Document the rationale for the definition of the MCTS
- Summarize the road prioritization process (Phase 1) completed in July, 2001
- Outline the next steps (Phase 2) for defining the rail and waterborne routes

2.0 Current Truck Network

An examination of the current level of road usage was undertaken as the first phase in defining the MCTS network. The focus in the first phase was specifically on road usage, with the understanding that other modes (rail, marine) would be analyzed in greater detail in the second phase.

The primary objective for examining the current road network was to identify and define high level routes most important for gateway goods movement. The following chapter summarizes the definition process, as well as outlines some of the implications for regional transportation planning.

2.1 Identification of Priority Routes

2.1.1 Criteria

An important issue in examining the regional route segments was determining a **consistent criteria** for inclusion or exclusion from the system. At the onset, the Technical Committee decided not to reinvent the defined Major Road Network (MRN) from TransLink, nor include every municipally designated truck route. Instead, the analysis would seek to isolate those segments critical to movement of goods into major activity centres from areas outside of the region.

The criteria therefore was based on three main questions for goods movement accommodated on existing routes:

1) Does a route have a **large number of truck movements** moving between regional activity centres (e.g. industrial parks) and gateway facilities (e.g. port/airport) or borders?

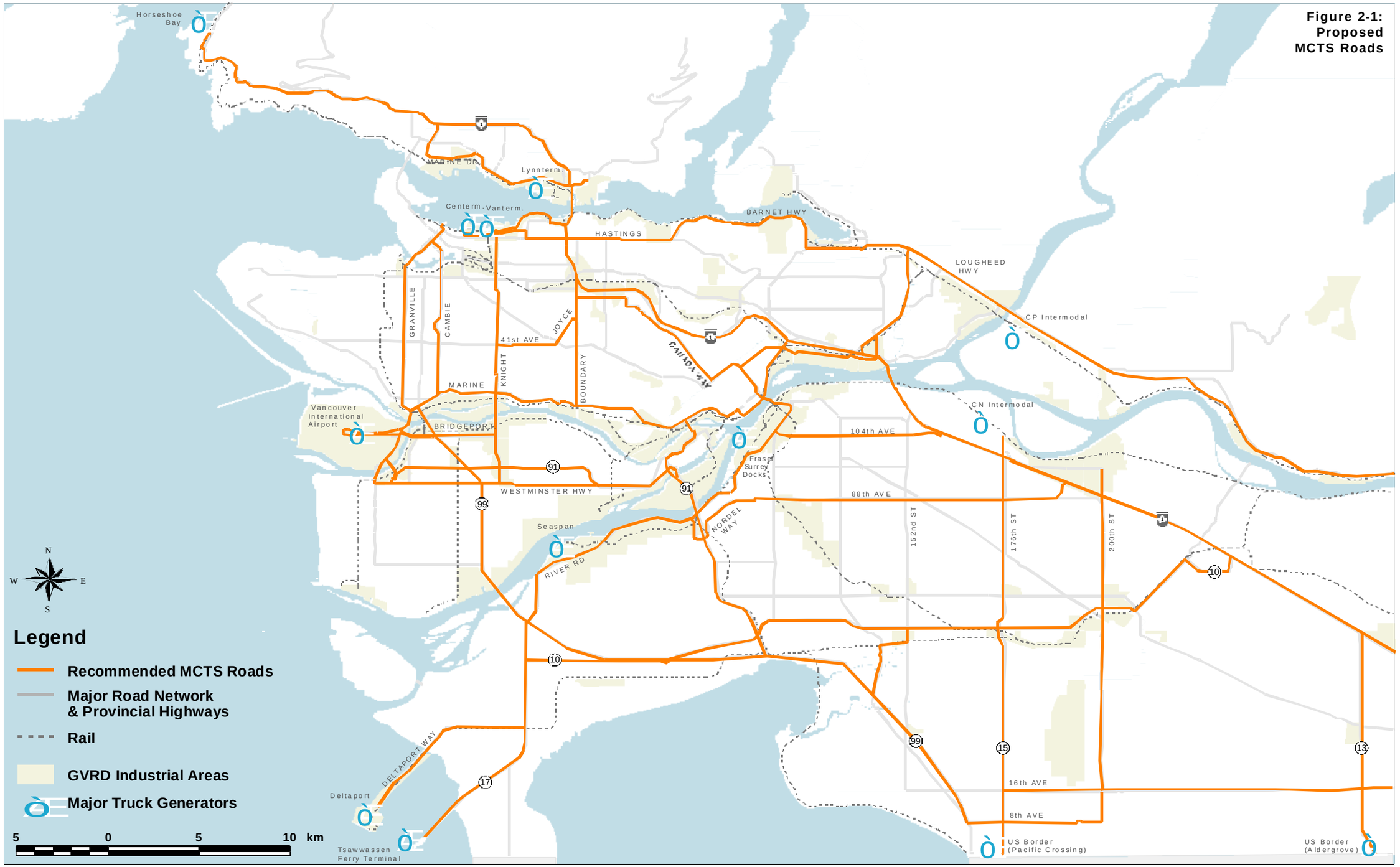
2) Does a route provide **connections** between key routes and facilities?

3) Does a route provide **secondary role** as a reliever route for major corridors?

2.1.2 Route Segments

Based upon these three criteria, a number of route segments were identified as having greatest importance for goods movement in the region. These existing routes are illustrated by the map in Figure 2-1 and listed in Appendix B.

Figure 2-1: Proposed MCTS Roads



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Due to their strategic importance as corridors for existing truck movements, these routes represent the base network upon which the Gateway currently relies on to provide efficient transportation from Vancouver to global markets.

2.2 Improving Efficiency on MCTS Roads

The definition of MCTS roads in Figure 2-1 provides the baseline for examining how greater efficiency can be achieved to increase the competitiveness of the Vancouver gateway and its businesses.

The efficiency and performance of the existing system depends on the performance of three periodic functions -- regular maintenance and provision of minor capital projects, and ongoing examination of the importance of specific route segments for commercial operations. The following section describes the context by which this can occur.

2.2.1 Road Maintenance

Provincial Highways

Provincial highways are typically limited control access routes that enable them to carry higher volumes of traffic within the region. Provincial highways are therefore classified within the recommended MCTS roads in Figure 2-1. Under the Ministry of Transportation, the Provincial Government is charged with building and maintaining major highways in the region. Improving efficiency of the MCTS will therefore require close coordination with the Ministry of Transportation and its agencies.

TransLink Major Road Network

TransLink is responsible for providing a regional transportation system that moves people and goods, and supports regional growth strategy, air quality objectives and economic development for the Greater Vancouver region.

The Major Road Network (MRN) has been established to support regional level transportation. TransLink's role is to ensure maintenance of and fund minor capital projects to improve the efficiency of the network. The definition of the MRN is based on serving multiple modes and groups and is anticipated to be refined over time as the network, activity centres and land use patterns change.

There are strong synergies in the objectives of both the MRN and MCTS – particularly to support regional economic development. For greater efficiencies to be achieved on MCTS roads, however, the compatibility with the network definition needs to be examined:

- **MCTS routes within MRN**: The large majority of route segments that were deemed critical for goods movement fall within the MRN. These are the routes that transportation planning will focus on in order to meet the existing demands of Gateway and commercial transportation.

- **MCTS routes outside of MRN**: A small number of MCTS routes[2] are currently not part of the MRN, but have through the definition process for the MCTS been deemed important for goods movement. These route segments require further evaluation to merit their inclusion in the MRN and validation by localized surveys.

In addition, there are some MRN routes that meet regional objectives, but may not meet the criteria for "major commercial" transportation needs. Though these are of secondary importance in the MCTS definition process, their exclusion should not understate their role in commercial transportation to provide linkages to activity centres.

Municipal Truck Routes

Municipalities also owners of a large portion of routes important for freight transportation. Additionally, municipalities have roles to designate truck routes, manage land use and target growth of employment within their boundaries. These three responsibilities have strong inter-relationships that the MCTS can help to focus.

The majority of municipalities in the GVRD have designated truck routes within their boundaries. Municipal by-laws specify hours of operation, maximum gross vehicle weight and other restrictions on trucks operations. A comparison between designated truck routes and the MCTS indicated the following:

- **MCTS road segments on designated Truck Routes**: The large majority of MCTS route segments that were deemed critical for goods movement fall within municipally designated truck routes[3]. It is important to note however the MCTS route segments that follow municipal truck routes often cross many municipalities and thus are subject to different weight, time of day and other operating restrictions.

- **MCTS road segments not on designated Truck Routes**[4]: The exclusion of MCTS routes from municipally designated truck

[2] See Appendix B

[3] In municipalities that have designated routes in truck by-laws.

[4] Alderbridge Way (Richmond - West of No. 3 Road to connect to Dinsmore), River Road (Richmond - Between No. 2 Road & No. 3 Road), Cambie (Richmond - River Road to Shell Road), 104th Avenue

routes does not mean trucks are necessarily banned from operating on those roads. Municipalities generally have specific conditions that allow for origin/destination trips within non-designated truck routes. However, further planning of MCTS will require close examination to ensure growth of traffic on route segments not currently designated for trucking is viable..

While the MCTS roads represent only high level routes, it should be stressed that this analysis should not be perceived as a statement that other truck routes are extraneous to the interests of commercial trucks. Instead, they form an important secondary layer to commercial transportation that allows goods to move to destinations within the region.

2.2.2 Best Use of Existing Infrastructure

In order to support the commercial goods movements through the region, the MCTS requires a two-fold approach to capital investment. As outlined in TransLink's Strategic Transportation Plan, this approach for capital projects plans for major capital projects (e.g. bridges, new lanes and routes) while taking on less costly minor projects in the near term.

The MCTS road segments outlined are the greatest priority for freight movements. This prioritzation means that infrastructure investments that will provide upgrades in the short term to improve efficiencies without adding new capacity along this routes will provide the greatest impact for freight movement efficiencies. These improvements include signal improvements, left turn bay construction, network continuity, among other projects. In addition to these improvements, the following measures on MCTS routes may assist in improving efficient movement of goods through the region:

- **High Priority Vehicle (HPV) Lanes:** Where appropriate, lanes dedicated to commercial movements, or shared with transit vehicles, could be introduced in the region.
- **Grade separation:** Introduction of grade separations as applied to both vehicular and rail traffic would provide an added measure for free flowing traffic.
- **Hours of Operations:** Management of overall network demands by encouraging staggered hours of operation in order to move discretionary movements to an off-peak period.

(Surrey - Scott to Hwy 1), Hwy 10 (Surrey - 176th to 192nd), 88th Avenue (Surrey - east of 176th), 32nd Avenue (Surrey - 176nd to 192nd), 8th Avenue (Surrey - Hwy 15 to 200th), Braid Street (New Westminster)

2.2.3 Ongoing Refinement of Network Definition

In addition to physical improvements to make the best use of existing infrastructure, ongoing management of the MCTS requires a periodic re-examination of the routes most critical to truck movements through the region.

The analyses of routes depicted in Figure 2-1 was based on 1999 truck data. Future updates of the route definition will need updated data on usage. Furthermore, an expanded deployment of real-time data acquisition programs[5] will provide additional data on time of day, delay and speed along specific routes.

2.3 Rail & Marine Modes

The Major Commercial Transportation System also includes the waterborne and rail routes that provide important functions to serve the inflow and outflow of commercial goods in the Vancouver region. These networks are shown in Figure 2-1, and will be further analyzed in Phase 2 of the MCTS definition process. Among the analyses that will be conducted are examining issues at the intersections of different modes, such as at-grade crossing between rail and roads.

[5] Real-time data acquisition programs include use of GPS units such as Port Vancouver's AVL program, deployed on trucks over a six month period.

3.0 Next Steps

The MCTS is an innovative means to examine freight movements in the region from a multi-modal perspective. The first phase of the MCTS definition process only provides snapshot of the existing demand for roads by goods movement through the Vancouver region. A subsequent phase that will be concluded in late 2001 will involve a set of multi-modal analyses, forecasts into the future, linkage to long term capital requirements, and an examination of the benefits an efficient MCTS will bring to the region.

3.1 Forecasts & Facility Plans

In the second phase, the MCTS will look out 30 years to integrate the forecasts and facility plans of major flows of goods in and out of the region. As freight transportation continues to grow rapidly in the region, its future impacts on road, rail and marine networks will be spatially driven. Future facility expansion at the airport, for example, will increase demands on access to Highway 99. The key questions that will be answered in this phase are:

- What are the volumes and modes of Gateway traffic moving in and out of the region?
- Where will be the focus of Gateway related facility development be?
- Will there be new facilities (e.g. terminals, foreign trade zones) developed away from existing activity centres?
- What areas within the region will be the most prominent destinations for gateway traffic?
- What kinds of shift between modes of transportation can be anticipated?
- How much traffic can be anticipated to be processed in off-peak hours?

Based on the results of these questions, the impacts on the road, rail and marine MCTS routes will be examined in order to assist in planning for future requirements.

3.2 Capital Infrastructure Requirements

The ability to connect cargo and passengers to their destinations more efficiently is a key drive for generating business. Gateways which offer modern, productive infrastructure attract transportation carriers.

Determining the set of future capital requirements for the MCTS is heavily dependent on the focus of activity that is anticipated.

A preliminary examination of the capital requirements over the next twenty years calls for will call for significant investments for new bridges, routes and other major capital improvements. Competitors in Seattle, San Francisco, Los Angeles and San Diego already have earmarked investments to improve their competitiveness for international cargo movements.

Specific initiatives and associated costs will be reconfirmed in the second phase of the MCTS definition process in order to input into discussions with all players and levels of government on a private/public sector infrastructure investment strategy.

3.3 Regional Planning

The demands associated with gateway transportation will rely on for improved intermodal transportation efficiency and infrastructure. The integration of Gateway transportation planning with regional development is of considerable importance. In the next year, two key planning processes will be underway with the Livable Region Strategic Plan update and formulation of the Longer Range Strategic Transportation Plan. For the MCTS vision to be implemented, it will be important for the MCTS to be integrated into both plans.

3.3.1 Livable Regional Strategic Plan

The Livable Regional Strategic Plan (LRSP) is the primary document by which municipalities in the region have as a guideline for future growth and development. The updated LRSP is an important interface with the MCTS project because of the municipal land use designations that would result from its directions, and growth targets set for municipalities.

The LRSP has significant implications for the future of the MCTS. These include:

- Orientation of industrial development associated with gateway facilities has a direct bearing on the amount of intra-regional traffic.
- Focus of residential development and interface with industrial and gateway functions.

Additionally, it is anticipated that the GVRD will include in the plan a set of growth strategies that will aid in the economic competitiveness of the Vancouver region.

3.3.2 Longer Range Transportation Strategic Plan

TransLink's Strategic Plan process has thus far unveiled a plan to 2005. A Longer Range Strategic Plan will look further out to 2030 and provide a comprehensive examination of the key priorities that will impact transportation planning.

Specifically, the MCTS process in Phase 2 will serve as an input this process to by identifying areas which need improvement, such as:

- improvements to access to the ports and airport
- improvements to the road system that will serve goods movement.

It is anticipated that output of the MCTS definition process by the Greater Vancouver Gateway Council will assist in the Major Road Network Priority Program, with a primary objective to give higher priority to goods movement in the future.

3.4 Continued Stakeholder Input

As the Greater Vancouver Gateway Council moves forward into the second phase, a continued focus will be maintained in dialogue with other users, agencies and all levels of government to work toward the vision for a globally competitive and efficient transportation system for the region.

A number of planning processes from stakeholders such as BC Ferries, Transport Canada's Transportation Blueprint and reorganization of the Ministry of Transportation will yield opportunities to further develop and refine the MCTS concept and its recommended road component.

Appendix A
MCTS Technical Committee

Co-Chairs:

Mr. Tony Nardi, B.C. Wharf Operators Association

Mr. Jim Crandles, Vancouver Port Authority

Members:

Mr. Peter Bianconi, Vancouver International Airport Authority

Mr. Dennis Bickel, Vancouver Port Authority

Mr. Frank Blasetti, BC Transportation Financing Authority

Ms. Deb Day, MRTAC

Mr. Steve Anderson, British Columbia Ferry Corporation

Mr. Jim Hester, Ministry of Transportation & Highways

Mr. Dante Marining, Canadian Pacific Railway

Mr. Robert Milbourne, Greater Vancouver Chambers of Commerce

Mr. John Mills, Transport Canada

Mr. Ralph Perkins, Greater Vancouver Regional District

Mr. Clive Rock, TransLink

Mr. Solomon Wong, InterVISTAS

Secretary:

Mary Clappa, West Georgia Consultants

Appendix B
MCTS Road Network

The Road network in Figure 2-1 was constructed based on a profile of existing movements, and on qualitative criteria of connectivity and redundancy. This Appendix describes this criteria, plus lists the routes that were concluded to be the most critical ones for goods movement through the region.

Profile of Existing Movements

A base layer was created based on isolating the movements based on vehicles per day figures from the Lower Mainland Freight Truck Study and a sub-study on Gateway routes.

An examination of EMME/2 links demonstrated that 10% of links covered 85% of Gateway movements. Based on 1999 usage profile in the Lower Mainland Freight Truck Study, this represented about 125-150 gateway vehicles per day on routes.

Connectivity

Connectivity of the routes was one of the founding principles of the MCTS concept. When examining the data of existing truck movements, this was applied to the route map in two ways:

- **Continuous routing**: In keeping with ensuring a continuous MCTS routes, road segments that provided connections between two routes identified by the threshold on existing movements.
- **Connectivity for modelled routes**: Any model artefacts were corrected to remove any 'gaps' that may have occurred due to the threshold.

Secondary Routes

Based on input from the Technical Committee, application of secondary routes was applied to select links in the region. The purpose of secondary routes in the MCTS would be to provide for a reliever routes for major corridors. The addition of Barnett Highway in Burnaby is one example of an east-west corridor added based upon the principle of redundancy. In so doing, this route formed a northern edge of the MCTS routes.

Identification of Routes

38 routes were identified based on the criteria as listed below in the table. As well, the designation of the route within the TransLink MRN/Provincial Highways, and municipal by-law truck routes is listed adjacent to the name of the route.

Figure: MCTS Road Routes

Street	Municipalities/Areas Covered	Description	MRN & Provincial Highways (Yes / No)	Truck Route in By-Law (Yes/No)
Marine Dr.	Vancouver/Richmond	Granville to Boundary	Yes	Yes
Joyce / 41st	Vancouver	Kingsway to Boundary	No	Yes
Port Road	Vancouver	Powell/Rogers to McGill/Renfrew	No	Yes
Hastings / Powell	Vancouver	Clark to Dundas - Nanaimo to Barnet Hwy	No	Yes
Granville	Vancouver	Canada Place to Marine Dr	Yes	No (but this is a Pax route)
Cambie	Vancouver	Seymour to Marine Dr	Yes	No (but this is a Pax route)
Knight St.	Vancouver/Richmond	Clark/Powell to Hwy 91	Yes	Yes
Boundary	Vancouver	Hwy 1 to Marine Dr	Yes	Yes
Hwy 1	North Shore/Vancouver/Burnaby/Coquitlam/Surrey/Langley	Horseshoe Bay to Fraser Valley	Yes	Yes
Grant McConachie Way	Richmond	Airport Connector/Arthur Laing to Terminal Building	Yes	No
Russ Baker Way	Richmond	Arthur Laing via No2 Road Bridge to Westminster Hwy	Yes	Not No. 2 Road Bridge
Westminster Hwy	Richmond	No 2 Road to Hwy 91	Yes	Yes
Alderbridge Way / Elmbridge / Gilbert	Richmond	Dinsmore Bridge to Hwy 91	Not West of No. 3 Rd	Not West of No. 3 Rd
Hwy 91/91A	Richmond	Hwy 99 to Queensborough	Yes	Yes
Hwy 99	Richmond/Delta/Surrey	Marine Dr to 6th Ave	Yes	Yes
Bridgeport	Richmond	Airport Connector to Knight St	Not West of No. 3 Rd	Yes
Sea Island Way	Richmond	Hwy 99 to Russ Baker Way	Yes	Yes
River Road/S. Fraser Perimeter	Delta/Surrey	Hwy 99 to Patullo Bridge	Yes	Yes
Hwy 17	Delta	Hwy 99 to Tsawwassen Ferry	Yes	Yes
Deltaport Way	Delta	Hwy 17 to Roberts Bank	Yes	Yes
Hwy 91	Delta	Hwy 91A via Annacis Island to Hwy 99	Yes	Yes
104th Avenue	Surrey	Hwy 1 to Scott Road	Not West of 99A	Not West of 99A
88th Ave/Nordel Way	Surrey/Delta	Hwy 15 to Hwy 91	0.9	Yes
Ladner Trunk/Hwy 10/Langley Bypass	Delta/Surrey/Langleys	Hwy 17 to Hwy 1	Yes	Not between 176th and 192nd
16th Ave/North Bluff Road	Surrey	Hwy 15th to 200th St to Aldergrove	Yes	Yes
8th Ave	Surrey	Hwy 99 to 200th St	Not East of 176th St	Not East of 176th St
99A-Colebrook-152nd St.	Surrey	Hwy 99 to 56th Ave	No	Not Colebrook
Hwy 15	Surrey	104th St to Pacific Border Crossing	Yes	Yes
200th St	Langleys	6th to 92nd Ave	Yes	Yes
Hwy 13	Langleys	Hwy 1 to Aldergrove Truck Crossing	Yes	Yes
Barnet Hwy	Tri-Cities/Burnaby/New West	St John St to Lougheed Hwy	Yes	Yes
Lougheed Hwy	Pitt Meadows/Maple Ridge/Tri-cities/Burnaby/New West	Laity St/ Haney Bypass to Fraser Valley	Yes	Yes
United Blvd	New West/Coquitlam	Braid/Brunette to Hwy 7	Yes	Yes
Brunette Ave	Tri-Cities/Burnaby/New West	Hwy 1 to Patullo	Yes	Yes, n/a
Front St	New West	Patullo to Queensboro	No	Yes
Marine Way	Burnaby/New West	Boundary to Queesboro	Yes	Yes
Braid St	New West	Garfield St to 8th Ave	No	8th Ave (Yes) / Braid (no)
Canada Way	Burnaby/New West	Boundary Rd to 10th Ave	Yes	Yes
Upper Levels Hwy	North Shore	2nd Narrows to Horseshoe Bay	Yes	Yes, n/a
Dollarton	North Shore	2nd Narrows to Dollarton/Riverside	Yes	Yes, n/a
Lower Level Road	North Shore	2nd Narrows to Capilano/ Hwy 1	No	Yes, n/a