

Keeping Greater Vancouver Moving: Discussion Paper

**A 10-Year Transportation Outlook &
Three-Year Financial Strategy**

October 6, 2003

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1. INTRODUCTION

What do we want for our region in 2013?

Our region is young and still growing, giving us the ability to think now about how its future will unfold. Greater Vancouver can become the place that people think about when they envision a sustainable region where a strong economy, a clean environment and healthy communities coexist. We have the opportunity to showcase our success, first when we host the United Nations World Urban Forum in 2006, then in 2010 at the first-ever, sustainable Olympics.

The Greater Vancouver Transportation Authority (GVTA) – also known as TransLink – was created to provide a safe, reliable and efficient transportation system that supports the region's strategies for accommodating growth, economic development and protecting air quality. Our current plan expires in 2005, but we need to update it now to meet today's transportation needs and set the direction for a longer term. This fall we are presenting this discussion paper that outlines a 10-Year Outlook and Three-Year Plan to set us in the right direction to build a transportation system with lasting benefits.

The Outlook and Three-Year Plan recognize the importance of providing attractive transit services that present a real option to automobile use, while also addressing the mounting gridlock on our roads and bridges, particularly to ease the movement of goods and services.

The 10-Year Outlook sets the stage for a discussion of which transportation projects and initiatives will help us build a region that meets future needs within the context of the Greater Vancouver Regional District's (GVRD) *Livable Region Strategic Plan* (LRSP). In 2004, TransLink will also develop a 25-year plan, which will be undertaken with the Greater Vancouver Regional District (GVRD) at the same time as the LRSP is revisited and updated.

The Outlook proposes a balanced approach with a mix of strategies that will meet a number of objectives including:

- Make transit a real option;
- Reduce gridlock, especially for goods movement;
- Maintain and enhance the environment;
- Share benefits and costs equitably.

The investments planned to be in place for the 2010 Olympics, and the sustainability theme of the Olympics itself provides a focus for a collective effort to move ahead. The 2010 Olympics also will allow the region to showcase many of these improvements. It also offers a unique opportunity to provide a wide range of travel choices that people might not ordinarily choose and, in doing so, helps to shape future travel behaviour.

While there are many opportunities, today the region's attractiveness as a place to live or to operate a business is being threatened by growth in traffic congestion and its related impacts on the economy, the environment and the quality of life that residents cherish.

This discussion paper reviews both the opportunities and the challenges the region faces as it deals with the economic, environmental and social implications of the transportation system. It presents an Outlook of where the region could be in 2013 if it adopts a clear vision and outlines how that vision can further the regional economy, environment and improve social equity by expanding travel choices. The paper also identifies specific actions in a strategy to improve and fund the system in the period 2005 to 2007.

This document is not a new "plan," but rather a further refinement of our current strategic plan. Its main purpose is to facilitate consultation and public dialogue over the fall of 2003. While in places the paper presents specific projects and initiatives with proposals to fund them, these are for review and discussion, and may be subject to significant change as a result of the dialogue. The overall objective of this consultation is to determine if there is a consensus to invest in the transportation programs and projects on the scale outlined in this paper and proposes how those investments may be funded.

This discussion paper is also related to, and complemented by, the GVTA's Internet-based model (www.translink.bc.ca) that allows the public to develop their own visions for the regional transport system in 2013 and suggest funding sources.

A New Long Range Transportation Plan in 2005

The GVTA will develop a new long-term transportation plan in concert with the GVRD's *Livable Region Strategic Plan* (LRSP), which will extend the vision for transportation in the region outlined in the 10-Year Outlook to 2030. This work will begin in 2004, with completion in early 2005, and will chart a course for transportation in the region to 2030. This linkage of plans with the GVTA's explicit mandate highlight the GVTA's role in ensuring that transportation priorities and projects being advanced by all levels of government serve to support the broader regional growth management strategy and the regional air quality management plan.

The longer-term plan for transportation will be developed in conjunction with other extensive long-term regional planning initiatives. Since 2001, the Greater Vancouver Regional District (GVRD) has been developing the Sustainable Region Initiative (SRI), a planning framework to move the region towards social, economic and environmental sustainability. The SRI will recommend implementation initiatives in the fall of 2003, while guiding the development of the region's growth management strategy (the LRSP) and air quality management plan, as well as other plans and programs.

One of the GVTA's statutory requirements is that its plans must support the LRSP, as well as the air quality and economic development objectives of the region. The development of the GVTA's new long-term plan will therefore be integrated with the update of the LRSP to ensure they are mutually supportive.

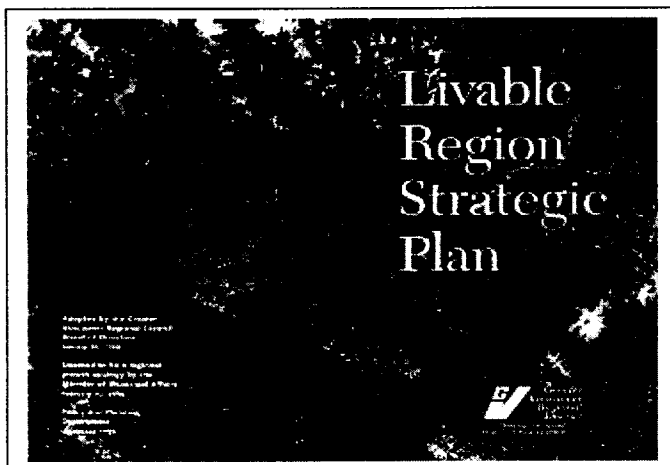
2. REGIONAL CONTEXT

This section outlines the regional planning context and the challenge presented by regional growth.

Policy and Planning Challenges

The *Livable Region Strategic Plan* (LRSP) was adopted by the GVRD Board in January 1996 and set out four key strategies:

- Protecting the green zone;
- Building complete communities;
- Achieving a compact metropolitan area;
- Increasing transportation choices.



The LRSP strategies were conceived as necessary components to work together and are interdependent to achieve the goal of a livable region.

The specific strategy for achieving the transportation choice component of the LRSP comes from the 1993 *Transport 2021* Long Range Transportation Plan, which included three related strategies:

- Manage land use;
- Manage transportation demand;
- Manage transportation supply.

These three strategies were adopted to provide significant efficiencies in the movement of both goods and vehicles, while offering a substantially more attractive and efficient system that would achieve a 17% transit market share of rush-hour travel in 2006, compared to 11% today.

While the plans from the early 1990's were well conceived, progress has been mixed on actions in each of these areas.

Land Use

On one hand, the LRSP has had significant successes in directing the majority of the region's population growth to the Growth Concentration Area (GCA) and shifting the housing mix towards apartments and townhouses. In addition, regional town centres have been able to attract higher density residential and commercial land uses.

On the other hand, rather than office employment being focused in the town centres, it is becoming increasingly dispersed through the development of business parks. Consequently, progress in advancing the concept of "complete communities" has not been as extensive as planned.

Demand-Side Management

There has been some expansion of carpool and vanpool initiatives and the implementation of some of the HOV measures identified in *Transport 2021*. However, there have been no measures to fund the transportation system and influence demand, such as bridge tolls and parking strategies. Similarly, there has been little implementation of the policies to provide goods movement vehicles with greater priority on the region's roads.

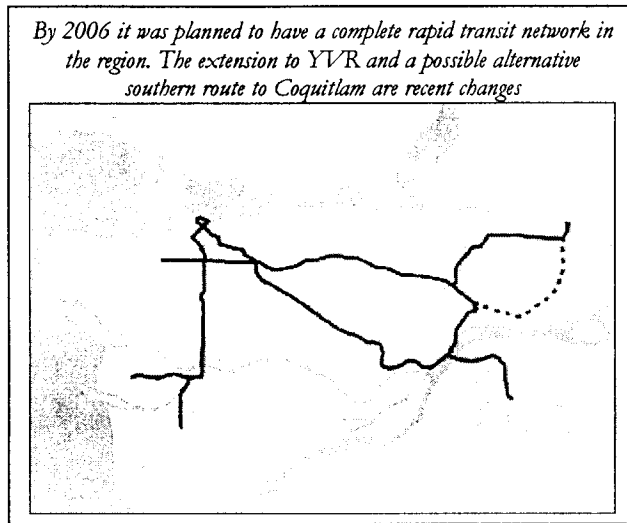
Supply - Road Expansion

Several road projects have been completed, such as the Barnet Highway HOV facility and HOV lanes on Highway #1, and others, including the North and South Fraser Perimeter Roads, are in the planning stages. Nevertheless, while the earlier plans did not outline detailed implementation timelines, overall, it is estimated that the region already has as much as a \$1 billion+ backlog of road investments today, and additional investments of up to \$4 billion to \$5 billion may be required over the next two decades.

Supply - Transit Expansion

Transport 2021 anticipated bus fleet growth from approximately 950 buses in 1993 to around 1,800 in 2006. Neither the bus fleet nor bus service has been on-track to meet that target and, in many parts of the region, transit service is not at levels to offer the majority of residents a real alternative to the

automobile. Today, the fleet size consists of approximately 1,200 buses.



The plans called for three rapid transit lines to be built by 2006 (Central Broadway to Lougheed Mall, New Westminster to Coquitlam Centre and Richmond to Vancouver). The province has constructed the Millennium Line¹, however the critical connections to both Coquitlam Centre, to the east, and the Central Broadway area (connecting to a Richmond-Airport-Vancouver line) to the west, remain to be built.

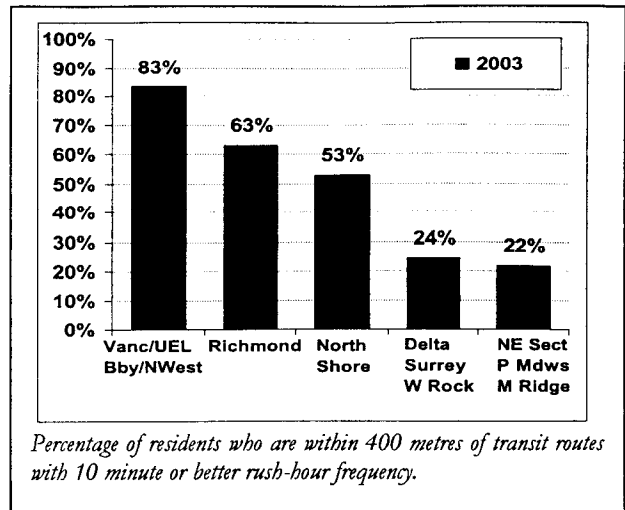
Responsibilities for Regional Roads

Today, there can be conflicts between local road functions, such as on-street parking and a road's role in moving transit and other traffic. It is necessary to review how regionally funded roads are regulated and how these sometimes competing local and regional priorities may be reconciled.

Transit Priority

The GVTA has identified the need for many more bus priority measures, including bus lanes, to improve transit service speed, reliability and cost-effectiveness. 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.

¹ The Millennium line is not a planned line per se; it was never identified as a needed facility in its own right. It is one part of the Central Broadway to Lougheed Mall line and one part of the New Westminster to Coquitlam City Centre line.



Goods Movement

There is an increasing requirement to develop practical policies to protect trucks from the effects of mounting congestion. These can be physical (e.g. special lanes), regulatory (e.g. allowing use of HOV lanes), or financial (e.g. preferential tolls, etc.).

Coordinated Planning

A mechanism must be established so that the GVTA may influence the scope, nature, priority, timing and funding of those projects under provincial jurisdiction (e.g. improvements to provincial highways in the region). This should also extend to policy decisions regarding matters such as HOV lanes, truck routes, etc. Similarly, there is a requirement for close linkage of regional land use and transportation planning.

Tolling

Tolling is likely to become part of the region's future; however, how it will be applied is a major issue yet to be resolved. Tolls can be used both to pay for specific new facilities and more broadly to address network needs and promote efficiency. The GVTA and the province must work together to develop a flexible policy that will meet the needs of this urban region.

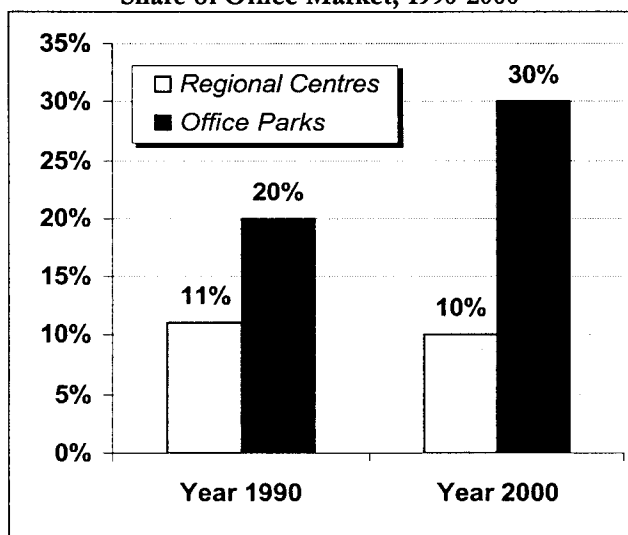
Parking Plan

Transport 2021 and the GVTA's own 2000 Strategic Transportation Plan (STP) called for the development of a regional parking strategy – one of the most powerful tools to manage the transportation system. However, coordinating the supply, regulation and pricing of parking in an equitable manner across the region's diverse communities raises many issues.

Town Centres and Employment

Town centres have not been able to attract employment to the levels planned. Rather, much of the employment growth has occurred in suburban office parks that are difficult and expensive to serve by transit. Generally, these office parks offer free parking, thus contributing to the mounting congestion. Such developments do not allow the region to maximize the return on investment in the development of high capacity transit linking town centres. While in recent years there has been strong demand for this type of development, for car dependence to be reduced, it is necessary to reverse or moderate these trends.

Share of Office Market, 1990-2000



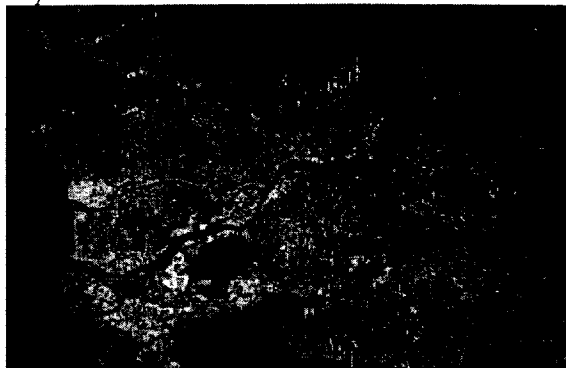
Coping with Growth

Population Growth and Land Use

The current (2003) population of Greater Vancouver is 2.2 million, with regional employment accommodating over 1.1 million. It is apparent that Greater Vancouver will continue to grow rapidly. By 2031, the population is projected to increase to around three million, with employment reaching approximately 1.5 million. The projected growth will place tremendous pressure on the existing transportation system and infrastructure.

Under the GVRD's *Livable Region Strategic Plan* (LRSP), 68% of the region's population is to be accommodated within an area known as the Growth Concentration Area (GCA). The GCA consists of the City of Vancouver, UBC, Burnaby and New Westminster, Coquitlam, Port Coquitlam, Port Moody, Anmore and North Surrey/North Delta. As of the 2001 Census, 67% of the

The region has been one of the fastest growing metropolitan areas in North America, adding 400,000 people and 295,000 jobs over the past decade.



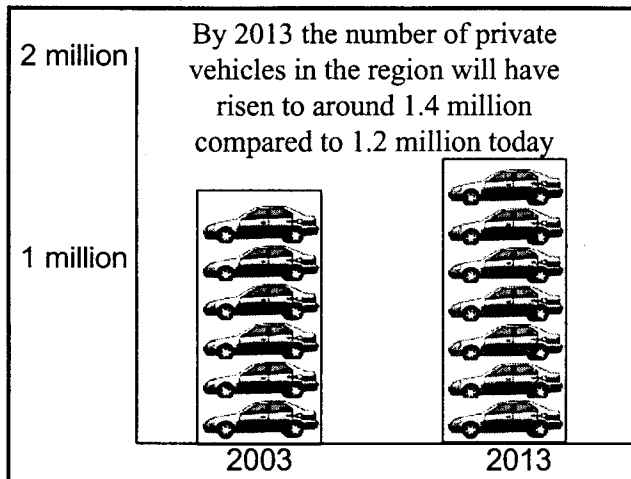
population resided in the GCA. GVTA policies have supported the GCA through directed transportation investments to assist in achieving these targets.

Another goal of the LRSP was to foster the development of eight regional town centres as the focal point for high density residential, region-serving employment, retail, cultural and community facilities. While the regional town centres have had some success in attracting high density residential and retail uses, as noted earlier, they have not been as successful in attracting office development.

Key Demographic Trends

There are a number of key demographic trends that will influence transportation in the region to 2020:

- The trend towards proportionately more multi-unit dwellings such as apartments and town houses is expected to continue; this potentially could result in more concentrated, higher density development, than currently exists;
- Car ownership varies across the region, but overall remains high (1.5 vehicles per household), and this trend will likely continue;
- The region's aging population will have implications on both the demand for, and the design of transit services and accessible transit.



- The nature of work is changing, with more people telecommuting, becoming self-employed, and working on a part-time basis;
- The rising costs of post-secondary education have increased the pressure to introduce universal transit pass systems, which can lower costs for students – a key share of the transit market;
- A larger number of small businesses with fewer employees is likely to be more difficult to serve by transit, which can best serve large concentrations.

Growth in Private Vehicles

The number of private vehicles (cars, trucks, SUVs and minivans) in Greater Vancouver has grown by as many as 30,000 vehicles per year in the last decade, with only minimal increases in road space. In part, this growth may have been driven by the inadequacy of existing transit services in many areas within the region – something that the initiatives discussed later in this document would start to address.

Importance of Goods Movement

Goods movement is a key component to the success of this region's economy. Vancouver, as Canada's largest port, its strategic location on the Highway 99/I-5 trade corridor, and the growing use of the Vancouver International Airport highlight the region's value as a freight transportation hub and trans-shipment point.

A recent study by the Greater Vancouver Gateway Council noted that over 360 million tonnes of cargo are moved to, from or within BC annually and is predicted to grow. Projections to 2021 estimate a 50% growth in cargo shipments made mainly by rail. However, it is important to note that both marine and rail shipments

include truck movements at both the origin and destination points. Therefore, it is anticipated that cargo shipped by truck will grow by over 50%, by 2021.

The Vancouver International Airport is another major economic engine for both the region and province. As the second busiest airport in the country for passenger and goods movement, it is expected that passenger volumes will grow by 40%, between 2002 and 2010, and that cargo traffic will increase at a rate of 7.5% a year.

In addition to growth in the gateway functions, there are other trends influencing the demand for road-based goods movement. One of these is the development of technology, particularly the advent of the Internet, which has facilitated the demand for just-in-time delivery of goods. Consequently, warehouse inventories have decreased, thereby encouraging a significant boost in truck movements, as trucks effectively become warehouses on wheels.

Overall, truck movements are expected to increase from around 16,000 movements in the peak hour today, to over 21,000 by 2013 – an increase of around 31%. The projected growth along with other factors compel the need to address road congestion while also trying to protect goods vehicles from the effects of overall congestion, by providing priority road access for goods movements.

Travel Beyond Greater Vancouver

Travel between Greater Vancouver and adjacent communities for work, business, school and leisure is increasing and this trend is expected to continue into the future. Today, the GVTA operates its West Coast Express (WCE) commuter train to Mission, which is outside of the GVTA service area. Mission contributes a portion of the costs of this service.

Key adjacent communities include the cities of Abbotsford and Mission, in the Fraser Valley Regional District, Squamish and Whistler, in the Squamish-Lillooet Regional District and Blaine, Lynden and Bellingham in Whatcom County, Washington. Increased inter-regional travel raises the policy issue of whether further expansion of GVTA services, or jointly provided services, into these jurisdictions – especially transit – should take

place and, if so, under what governance and funding arrangements.

Olympics may offer an opportunity to establish new travel patterns for decades to come.

Pressure on the Environment

As noted previously, the number of personal vehicles in Greater Vancouver has been growing faster than the population. At the same time, vehicles driven for personal use are becoming larger and burn more fuel. Carbon dioxide is the major greenhouse gas (GHG) produced by vehicles, a direct consequence of burning petroleum-based fuels.

The growth of both population and personal vehicle usage illustrates the greater challenge that this region faces – compared to other Canadian urban regions – to meet the Kyoto target of a 6% reduction over 1990 levels than other Canadian urban regions. Work undertaken for the federal government suggests that to meet the Kyoto targets in Greater Vancouver, GHG emissions for the transport sector would need to be 35% lower than current trends by 2010.

While the GVRD's most recent emissions inventory and forecast indicate that emissions of some "smog forming" contaminants are expected to decrease in the next few years, this is not the case for fine particulate matter (PM_{2.5}). Since fine particulate matter – especially diesel particulate matter – is one of the region's major air-quality related health concerns, it is important to ensure that emissions of this contaminant are minimized.

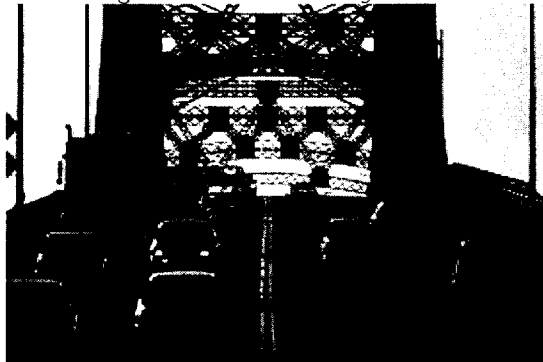
Forecasting the future of emissions is not only influenced by the growing numbers of vehicles and their increased use, but the impact of new emission control regulations, which will require cleaner diesel vehicles from 2007 on. It is also expected that hybrid vehicles will become more widely available. Although air quality in the region has been improving, there remains an increasing concern in the public mind over the impact of vehicle emissions on human health and reduced visibility, especially on warm summer days.

It is evident there are many pressures dictating the requirement to address our transportation deficit for the economic, environmental and social well being of the region. The coming decade offers the opportunity to shape the transportation system in the region and influence how the public chooses to travel. The 2010 Olympics also provides a unique opportunity to offer commuters a range of travel choices for the duration of the games that they might not ordinarily choose. If these choices are well planned and attractive, the

3. THE TRANSPORTATION SYSTEM TODAY

Greater Vancouver has a diverse and complex transportation system that serves its residents' desire for personal travel by automobile, transit, foot and bicycle, while also providing access to the region's ports and other gateway facilities.

Approximately 1.2 million private vehicles and more than 20,000 trucks use the region's roads daily. This number will grow to around 1.4 million by 2013

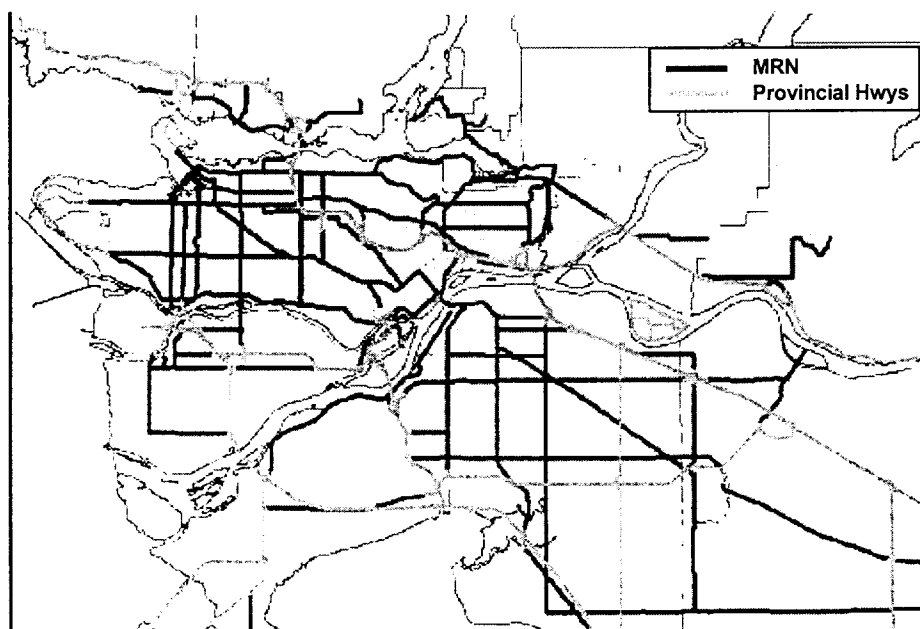


The Vancouver region has an extensive automobile network, with more automobiles and arterial/expressway lane-kilometres per resident and more off-street parking spaces per employee in comparison other major Canadian cities, such as Montreal and Toronto. By contrast, the Vancouver region has a lower per capita transit ridership compared to these cities. These factors, combined with the many water crossings, contribute to automobile dependence and growing traffic congestion. This congestion further impacts transit costs and reliability, and contributes to higher costs for the movement of goods, with lost productivity due to congestion estimated to be in the range of \$750 million to \$1 billion per year.

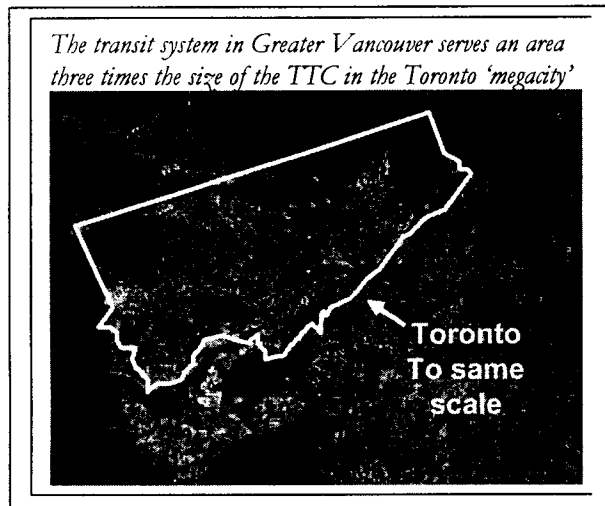
The Transit System

Greater Vancouver has a highly developed and sophisticated transit system that offers a seamless and integrated network of services – Coast Mountain Bus Company and West Vancouver Buses, SeaBus, SkyTrain, West Coast Express train and TrainBus services, Community Shuttles and HandyDART services.

The Major Road Network (MRN) consists of 2,200+ lane-kms of regional roads funded by the GVTA and municipalities and owned by municipalities. Examples include Granville St., Canada Way, and the Lougheed, King George and Fraser Highways. GVTA owns the Pattullo, Knight Street and Westham Island Bridges.



This system is widely regarded as one of the best examples of a successfully integrated transit system in western North America and, while lower than many urban regions in Canada, has per capita ridership levels that are the envy of many U.S. cities.



Greater Vancouver's transit system has the largest service area in Canada, stretching from Lions Bay to White Rock, and from Aldergrove to UBC. It has the third largest ridership in Canada with 135 million passengers projected for 2003. Nevertheless, it is not without its challenges – the fleet size is constrained, rapid transit development is behind schedule and, on a per capita basis, the provision of transit capacity lags behind other major Canadian metropolitan areas.

Traffic congestion and a lack of transit priority measures slow down the operation of transit vehicles, making it necessary to add significant time to transit schedules just to maintain system reliability.

The Road System

The road system consists of the regionally-funded Major Road Network (MRN), provincial highways and local roads. The regional roads in the MRN are owned and operated by the municipalities, and both the capital and maintenance costs of the roads are financially supported by the GVTA. The regional road network comprises almost 2,200 lane-kilometres of regional roads that serve goods movement and most of the intermunicipal traffic.

The province operates approximately 1,500 lane-kilometres of highways in the GVRD. Together, these two systems accommodate the most important road functions in the region. The Albion Ferry, which

The Transit System Today

- 135 million riders projected for 2003
- over 1,100 Coast Mountain Bus Company buses on 175 routes
- 37 West Vancouver buses
- 44 Community Shuttle buses
- SkyTrain rapid transit (210 cars and 49 kilometres of double track)
- 2 SeaBuses (400 passengers each)
- West Coast Express commuter rail (5 trains and 65 kilometres of shared track)
- 254 HandyDART minibuses for residents with disabilities
- 91 vanpools operated by the Jack Bell Foundation
- 20 park and ride lots, with close to 7,500 spaces
- 111 kilometres of bus and HOV lanes

operates two vessels between Fort Langley and Maple Ridge, is considered an extension of the road system.

Bicycling and Walking

The region's residents own more than 1.4 million bicycles, and bicycle use is facilitated through a developing network of bicycle paths and lanes. In addition, most of the transit system is bicycle accessible through the bus bike rack and bicycle locker programs. Approximately 2% of residents cycle to work daily, with bicycle use as high as 10% in the westside of Vancouver.

In the more developed parts of the region, such as downtown Vancouver and certain regional town centres, some residents prefer to walk to work and school. Pedestrian facilities in many parts of the region need upgrading to encourage more people to walk.

How We Get Around

In Greater Vancouver, close to 3.5 million trips are made each day. The majority of these trips are made by the approximately 1.2 million automobiles in the region.

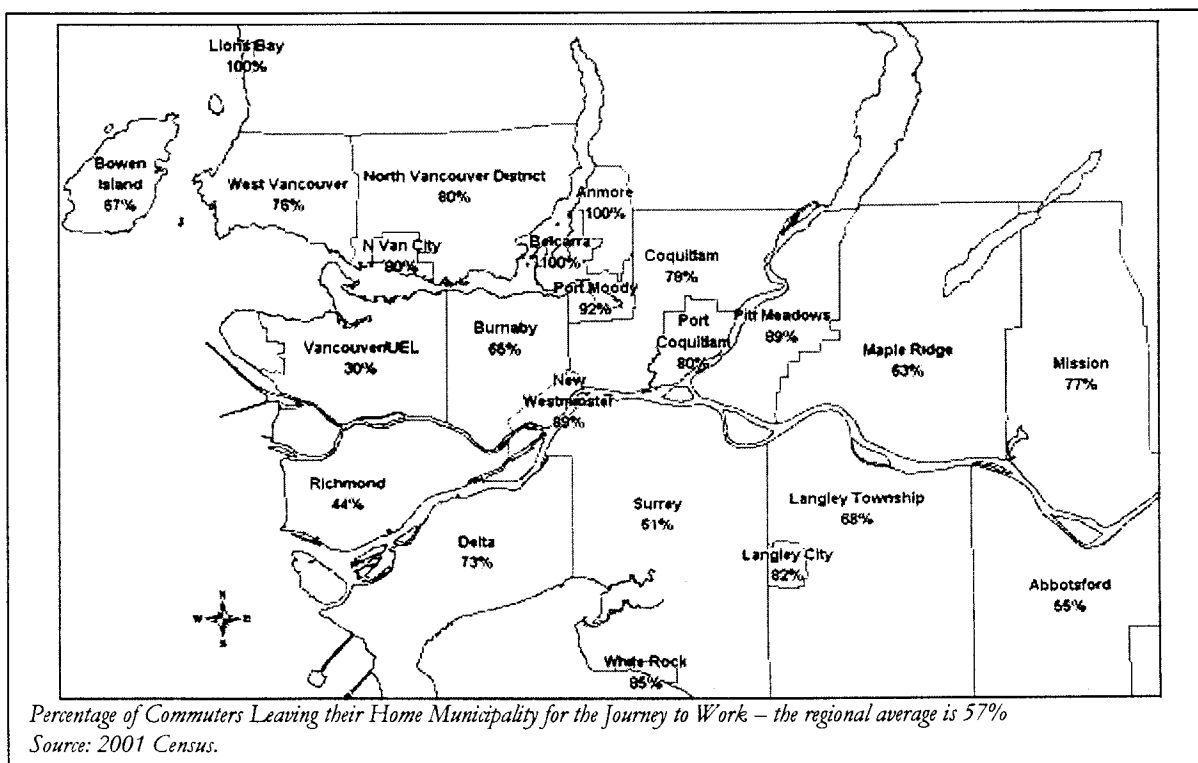
On a typical weekday, the mode share of travel is as follows:

- 74% by private automobile
- 13% by walking
- 11% by transit
- 2% by bicycle

Within these averages there are many variations. Transit travel, like general traffic, varies considerably by time of day. More significantly, it varies considerably by market and destination. For commuter trips into downtown, Vancouver transit's share of travel is around 50% of all motorized trips and has around a 30% market share to UBC. Other destinations that have good transit mode shares include SFU, Central Broadway and several of the regional town centres such as Metrotown. Travel in some of the more remote areas of the region are made predominantly by private vehicles. In part this is due to the nature of development and the lack of attractive alternatives to the automobile.

Over the past decade, the overall travel patterns of commuters have remained relatively static: transit's rush-hour share is unchanged at 11%; average travel distances to commute to work by car have remained unchanged at 14 kilometres. However, it is significant to note that average travel times have increased substantially, to 26.5 minutes from 19.5 minutes.

The region is also highly integrated – the 2001 census shows that almost 57% of rush hour commuters travel from their home municipality to another municipality to work. This demonstrates the need for an integrated regional approach to manage the growing demands, and substantiates that improvements to one municipality can benefit residents and businesses in another.



4. GREATER VANCOUVER BY 2013

This section of the discussion paper presents an overall vision for the development of the regional transportation system as it could be in 2013.

The vision has many elements including the substantial initiatives that are presently underway to improve the system, including the planned Richmond-Airport-Vancouver (RAV) and Northeast Sector (NES) rapid transit lines, bus expansion, and road improvements such as the new Fraser River Crossing. In addition, it articulates a number of other initiatives to increase the use of transit, better manage the transportation system and make further investments in services and facilities.

Each subsection also reviews the specific actions proposed for implementation in the period from 2005 to 2007 as part of an overall three-year strategy.

Making Transit a More Viable Choice

Increasing Transit Ridership

The 10-Year transit service strategy focuses on developing more frequent, attractive, clean and reliable services that are competitive with the automobile. This can be achieved not only in the traditional central part of the region, but also in many suburban areas, which have become more dense and conducive to transit use. Recent trends towards higher density development in some regional town centres and the emerging suburban pockets offer potential to improve ridership.

The transit strategy offers more frequent service to those markets in communities that are not well served today. It will result in providing a minimum of 10-minute peak period service to at least 50% of residents in all sub-regions of Greater Vancouver. At this level of service transit becomes a desirable alternative to the automobile. Balancing this is the need to provide an appropriate level of service for the large core transit dependent market, delivered in a cost-effective way.

Recent initiatives by the GVTA have focused on offering a broader range of bus services for different market segments. Bus services are now provided under four brand names, including Bus, B-Line, Express Coach and Community Shuttle. In addition, HandyDART provides door-to-door transportation for people who are unable to use conventional services. There are a number

of actions that can be taken to increase transit ridership. Some of these relate to the services that are provided including completing the rapid transit network, and expanding bus services and the Community Shuttle system.

Before describing the service strategy elements in more detail, it is important to focus on other initiatives that complement system expansion and make the system more attractive.

Expansion of U-Pass – As of September 2003, the U-Pass Program has been in effect at both UBC and SFU. By 2007, the GVTA intends to expand this program to many other post-secondary educational institutions in the region. This will increase the student population with an annual transit pass from around 60,000 today to approximately 85,000+.

Increased Employer Passes – Like the U-Pass Program, increasing the number of passes available to employees of large organizations or clusters of employers' offers the potential to significantly increase ridership. Efforts will focus on achieving this by 2007.

Specialized 'TravelSmart' Marketing – The GVTA will employ a TravelSmart marketing program to encourage residents in specific neighbourhoods to change their travel behaviour. The pilot program is part of the GVTA's application to Transport Canada's Transportation Showcase Program and will be targeted to the inner, middle and outer rings of the metropolitan region – Vancouver-Kitsilano; Burnaby-Sperling; Richmond-Centre; South Surrey/White Rock, and Coquitlam-Centre. This program is based upon successful strategies implemented in Germany and Australia, which have been able to achieve significant 10% to 20% mode shifts from automobile to transit, walking and cycling.

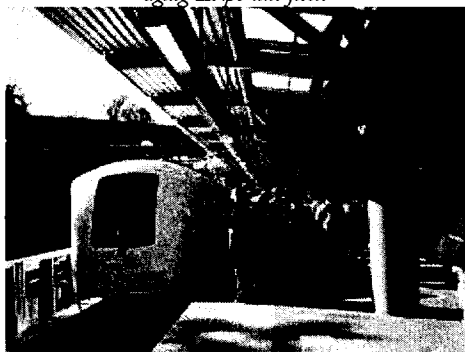
Improved Customer Information – The GVTA will further enhance its Internet and voice based services by providing timely and valuable real time information. This will make it easier for passengers to plan seamless and convenient trips to meet their specific needs.

Expanding the Transit Network to 2013

Completing the Rapid Transit Network

Developing a network of rapid transit lines to link downtown Vancouver and the major regional centres, has been at the core of the region's growth management strategy for decades. Rapid transit offers an attractive alternative to the automobile by encouraging greater use of public transit, as well as providing the catalyst for higher density development around stations. Encouraging the use of the existing system, as well as completing the rapid transit network, is a high priority over the next 10 years.

SkyTrain will need more cars due to ridership growth, and aging Expo line fleet.



SkyTrain When SkyTrain was introduced in 1986, it radically transformed the structure of public transportation in the region. Today, the 49-kilometre system carries over 200,000 people per day and is widely recognized for its frequent service, on-time reliability and its level of integration with other transit services.

SkyTrain needs additional capacity. Approximately 34 new SkyTrain cars, at a cost of \$181 million, will be required to accommodate the forecasted demand of 280,000 people per day in 2013, as a result of growth in the Burrard Peninsula and Surrey. Additional investment will be necessary to keep the existing system in a state of good repair. These include station upgrades, improvements to the automated train control and safety initiatives. The original fleet of 114 Mark I cars have been in operation since 1986. A replacement fleet of Mark II cars will need to be delivered before these vehicles reach the end of their useful lives. Due to the extensive manufacturing and testing processes required, the procurement process may need to be initiated closer to 2013.

Richmond-Airport-Vancouver (RAV) Rapid Transit:

The next component in the rapid transit network will be a line connecting Vancouver with Richmond and the Airport, a corridor that accommodates over 30% of the region's jobs. The 19.5-kilometre line is being developed in partnership, with the Vancouver Airport Authority, the province, the federal government and private sector. The line is projected to carry 90,000 people per day shortly after opening in 2009. Contract award is anticipated in 2004.

Northeast Sector (NES) Rapid Transit:

Extension of the rapid transit network from the existing Millennium Line to Coquitlam City Centre is a high regional priority. The line, which would considerably shape urban development in the Northeast Sector, is critical to the region achieving its growth management objectives. The GVTA and GVRD Boards have approved borrowing of up to \$400 million toward the project. Senior government funding will likely be required to complete the project before 2013. The GVTA will be working with the municipalities until early 2004 to determine the optimum route and technology, with the intention of proceeding with implementation of the project starting later in 2004. The target completion date is 2013.

West Broadway-UBC: The potential final leg of the rapid transit network on the Burrard Peninsula is the West Broadway-UBC line, connecting the existing Millennium Line with the Central Broadway Business District and UBC². Planning and engineering studies outlining alignments and technologies will be completed within the next five years, although it is unlikely that construction could begin until after 2013. The priority and requirement for this link to UBC should be addressed in the forthcoming longer-term growth management and long-range transportation plan processes.

King George Busway: Bus rapid transit extensions south and east of the existing SkyTrain terminus at Surrey City Centre are proposed to be operational by 2013, in order to increase transportation capacity in the rapidly growing City of Surrey. The projected capital cost is in the order of \$120 million,

² Extension to UBC is not included in the GVRD's Livable Regional Strategic Plan (LRSP).

which the GVTA would cost share with senior levels of government.

West Coast Express (WCE)

The introduction of commuter rail service in the Northeast corridor has resulted in a significant mode shift to transit. As the most popular service that the GVTA operates, WCE offers a highly competitive alternative to the automobile. Recent reductions in track usage fees have resulted in savings to the GVTA and opens the door to expanded service in the future. An additional locomotive, new stations in the Albion area and North Burnaby, improved park-ride facilities at some existing stations, and expanded TrainBus services could be introduced to potentially increase ridership even further, while making better use of the existing assets. The completion of the Fraser River Crossing will expand the market for commuter rail service to the Langley area.

Making Use of Waterways

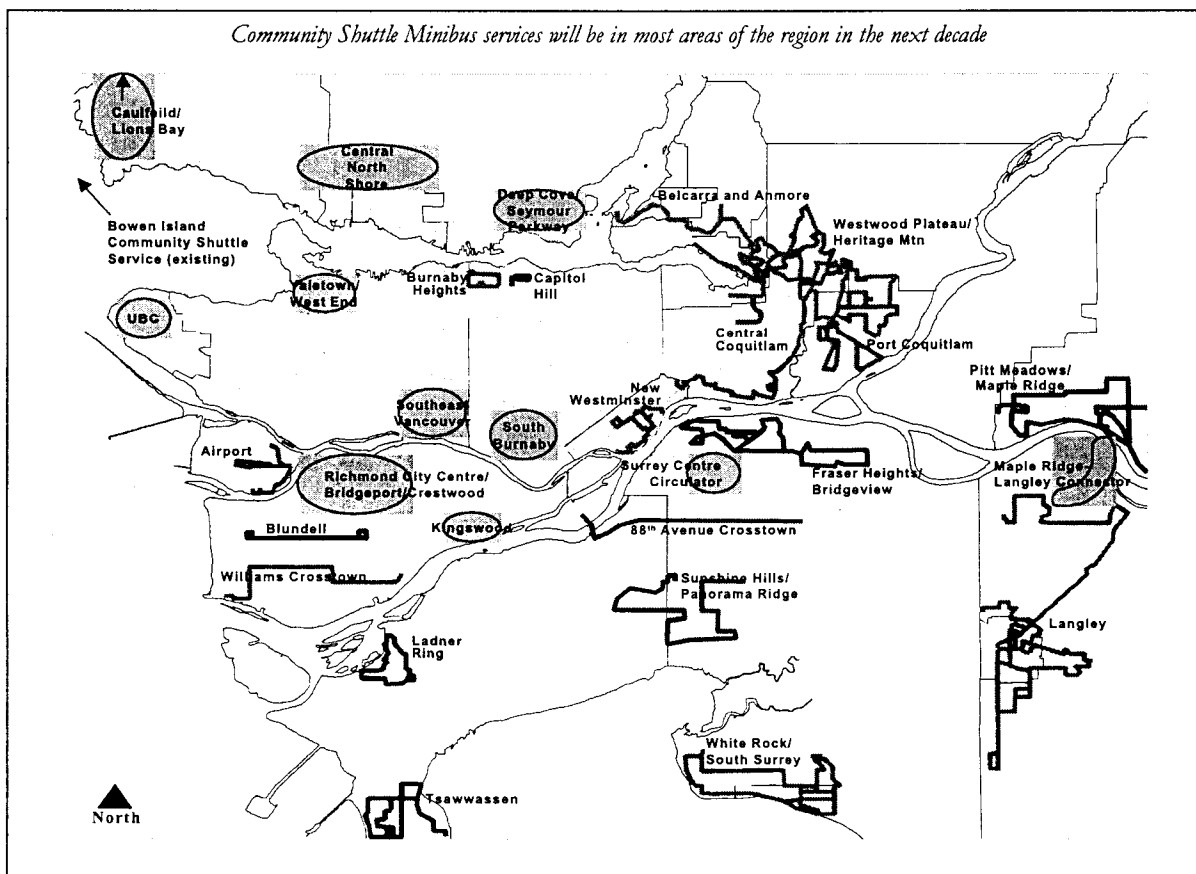
The numerous waterways in the region are often considered as barriers to transportation. Many cities in the world, however, have successfully integrated extensive water based transportation systems to move

people more efficiently while developing exciting new urban communities at the waters' edge. Over the next decade the GVTA proposes to expand the use of clean water transportation in three ways.

The GVTA can open its Waterfront Station to private carriers serving communities such as Nanaimo, Sunshine Coast and Howe Sound. Attractive passenger-only ferries will reduce traffic through Horseshoe Bay and West Vancouver, while encouraging greater use of GVTA services at the Waterfront hub.

Up to seven additional passenger-only ferry routes connecting Vancouver with communities such as Bowen Island, Ambleside and Deep Cove, offer the potential to reduce commuter traffic on the bridges, while enhancing existing urban communities.

The SeaBus, linking Waterfront Station with the Lonsdale Quay, has operated successfully for the past 26 years. With projected growth in development in Lower Lonsdale, an additional vessel at an approximate cost of \$10 million is proposed by 2009. The third vessel will also help



relieve the existing two vessels, providing better service reliability. Replacement of the original vessels will be determined after the results of a vessel condition assessment study are known.

Part of the evaluation of these options, which usually involve diesel vessels, will be to determine the effect on local air quality.

Expanding Bus Service

The bus network plays an essential role in Greater Vancouver's public transportation system by providing access to jobs, education, shopping, medical and recreational facilities. Buses also serve town centres and provide connecting service to and from SkyTrain, SeaBus and West Coast Express. Every weekday, the bus network carries 525,000 passenger boardings, representing over 70% of the total transit trips in the region.

The network is extensive, with 175 routes, 8,000 bus stops and 111 lane-kilometres of dedicated bus or HOV facilities. Over 85% of the region's population is within a 10-minute walk of a bus stop. Approximately 47% of bus riders do not own or have access to a vehicle, and bus use is highest among women, the elderly and youths.

Bus ridership is highest in Vancouver and Burnaby where the combination of lower car ownership and higher densities make bus service more viable. Usage tends to be lower in the fast growing eastern and southern suburbs, except for commuter trips to downtown Vancouver.

Bus Service Strategy: The GVTA is committed to making bus transit a more attractive option for travel in Greater Vancouver. Bus service expansion will be targeted at the following markets:

- **The metropolitan core:** This market is attractive because of the density of its growing residential and employment populations, low car ownership and relatively high parking costs.
- **Post-secondary and high-schools:** This market is highly mobile, yet has a relatively small percentage of cars and lower income levels. It includes age groups where the life-long travel habits and preferences are formed.
- **Core bus riders:** Approximately half of bus riders do not have access to an automobile and use transit, as their primary form of travel. Serving many of

these riders is a matter of social and economic equity.

- **Suburb-to-suburb:** The fastest growing travel market has low levels of bus ridership today, but increasing pockets of higher density urban development point to new market opportunities.

To meet growth, the bus fleet will need to expand to approximately 1,600 vehicles by 2013, an increase of 400 over the current fleet. Most of this expansion will occur between 2005 and 2010, as the introduction of the RAV and the NES rapid transit lines will complement the additional ridership anticipated. In addition, due to vehicles reaching the end of their useful life, over 1,300 vehicles will need replacing during the 10-year period, to ensure a reliable, attractive and accessible fleet.

Newer vehicles introduced into the fleet will also improve emissions performance. By choosing to replace trolley buses with new trolley buses, the GVTA has committed to ensure that zero-emission vehicles serve its most heavily used bus routes. At present over half the transit trips in the region are made on zero emission trolley buses or SkyTrain. However, lower density parts of the region are served by diesel buses, and, in consultation with the GVRD and other stakeholders, the GVTA is examining a range of options to reduce heavy-duty diesel emissions.

Three Year Transit Expansion Strategy

The 2005-2007 period would experience an expansion of bus, Community Shuttle and HandyDART services across the region, improvements to West Coast Express, the introduction of new accessible trolley buses, and the launch of rapid transit expansion and additional marine services.

Leverage the Rapid Transit

SkyTrain: A major expansion of the system was completed in 2002 with the opening of the Millennium Line and the introduction of 60 new Mark II cars. Over the next three years there will be modest improvements to the system. These include the following:

- Completion of the new Vancouver Community College (VCC) station in 2005 and extending the Millennium line to serve this station;

- Completion of the new entrance to the Granville Station in 2005;
- Upgraded lighting and other proposed station improvements between 2005 and 2007;
- A 5% increase in the peak-period capacity of SkyTrain through the full deployment of the new Mark II vehicles, including the use of some four-car trains.

Richmond-Airport-Vancouver (RAV) Line: The development of the Richmond-Airport-Vancouver rapid transit line will have the greatest impact on ridership in the region, with transit ridership increasing from 40,000 to 90,000 people traveling in this corridor by car or rapid transit will see substantial benefits. Assuming funding is secured and a successful RFP process is completed, construction could begin in 2005, with completion by 2009. The GVTA's share of the capital cost will be \$370 million (2003 dollars – includes interest during construction and inflation). RAVCO, a GVTA subsidiary, will enter into agreement with the successful proponent to develop, operate and maintain the line for 30 years.

Northeast Sector: The development of a Northeast Sector (NES) rapid transit line will proceed to more detailed alignment and engineering studies, following the selection of a preferred corridor and technology in 2004. The alignment and engineering studies will better define the cost, ridership and revenues for the new line. The GVTA has committed \$400 million to the project, although additional funding may be required from the provincial and federal governments, depending on the final project scope. In the 2005-2007 period, a project office will be established, the delivery model will be determined and some property will be purchased.

West Coast Express (WCE)

West Coast Express will expand its train and TrainBus services between 2005-2007 to capture a greater share of the longer distance travel market.

Key initiatives include the following:

- Proposed spare locomotive to ensure reliable train operation in 2006;
- Expanded park and ride at the Maple Meadows Station, concurrent with the opening of the new Fraser River Crossing in 2007;
- Expanded park and ride facilities at Port Coquitlam Station;
- Completion of a new station in the Albion area of Maple Ridge in 2007, with park and ride facilities;
- Expanded TrainBus service in the Northeast corridor in 2004-2007 in the mid-day and weekend periods, and potentially other premium long-distance bus services.

Marine and SeaBus

Work will be ongoing to launch three potential new Burrard Inlet ferry services in the 2005-2007 period, which may be undertaken through a private-public partnership. The GVTA will also facilitate the introduction of new coastal marine services from the Sunshine Coast and Nanaimo. In addition, a commitment to purchase a third SeaBus will be finalized, with delivery scheduled in 2009, in time for the Winter Olympics. The future of the Albion Ferry service will be decided as part of the Fraser River Crossing Project.

Bus and Community Shuttles

During the period 2005 to 2007, Coast Mountain bus service and the Community Shuttle Program will be expanded to respond to growing demand, and over 135 aging diesel buses and Community Shuttle vehicles will be replaced. At the same time, a new low-floor accessible trolley fleet will be introduced, rendering the system 100% wheelchair-accessible.

Key bus initiatives include the following:

Service Improvements

- Increased frequency on existing high demand services, and improving to 10 minutes peak period service on higher demand suburban corridors;
- New suburb-to-suburb links connecting Burnaby and North Vancouver, Maple Ridge and Langley via the new Fraser River Crossing, and Coquitlam and Surrey;
- A new B-Line service will be introduced in a high density urban corridor;
- New Community Shuttle services across the region to enhance service frequency and coverage, and to continue to improve the cost-efficiency of services. All areas of the region will have Community Shuttles;
- Additional improvements to the frequency and coverage with existing Community Shuttle services;

- New bus and Community Shuttle routes serving the City of Vancouver/UBC;
- Introduction of new bus services and improvements to existing services to coincide with major roadway infrastructure improvements, such as introduction of the new Fraser River Crossing and widening of the Fraser Highway in Surrey;
- Continued bus service improvements for existing SFU and UBC U-Pass Programs;
- Improved NightBus service in high demand corridors;
- Continued improvements to crowded peak and off-peak services;
- Facilitation of inter-regional transit service improvements, subject to appropriate funding agreements.

Fleet Expansion:

- Acquire 130 new articulated and conventional buses and Community Shuttle vehicles (includes spares), and up to 360,000 annual service hours for expanded service across the region;
- New electric trolley fleet;
- Replacement of approximately 380 buses, including new trolleys.

Transit Facilities:

- New Vancouver Transit Centre to replace Oakridge facility in 2005;
- New North Shore Transit Centre to replace North Vancouver facility by 2007;
- New heavy maintenance facility by 2007;
- Transit signal priority measures to upgrade the #97 and #99 B-Line routes;
- Completion of queue jumper lanes at Port Mann Bridge, Second Narrows Bridge (south end), and start on new lane northbound on Highway #99.

Marketing Programs

- The U-Pass program will be offered to publicly funded post-secondary schools close to public transit to improve the accessibility and affordability of the transit system for this large customer group.

HandyDART

It is proposed to expand HandyDART by 3% per annum with the addition of 24 vehicles over the three-year period, and the introduction of improved scheduling efficiencies to improve the response to

growing demands on this service. In addition, approximately 110 aging vehicles will need replacing.

Transit Benefits

Ridership is projected to increase from 135 million in 2003 to around 150 million in 2007, and will continue to climb between 2008 and 2013 as continued expansion occurs in the bus system and the RAV and NES rapid transit lines begin service.

The phased development of the system will advance services to a new level and lay the foundation for sustained improvement in both local and regional services over the next decade.

Cycling

The goal for cycling is to *encourage increased use of bicycles as a transportation mode*. The foundation of the GVTa's \$3 million annual Bicycle Program is facilitating partnerships with municipalities to fund and build new cycling infrastructure, provide good connectivity with transit, and coordinate regional information and plans. Cycling's share is significant and growing in many parts of the region, and additional investment in safe, accessible facilities will encourage this further.

In three years, the GVTa will invest over \$15 million for cycling initiatives. The GVTa will increase the annual capital program from its 2004 level of \$3 million to \$6 million by 2007. Of this, \$13 million will be cost-shared with municipalities for the development of approximately 150 kilometres of new cycling facilities in the region.

Some of the funding in the 2005-2007 period will go toward integrating cycling facilities with transit and contributing to upgrades of the BC Parkway. This includes the development of the Central Valley Greenway through Vancouver, Burnaby and New Westminster, linking to Coquitlam.

In addition, progress will be made to provide cycling facilities on the GVTa's Pattullo and Knight Street Bridges, the new Fraser River Crossing and RAV project bridge across the Fraser River. The arrival of new trolleys will result in the bus fleet being 100% bicycle rack accessible by 2007.

Addressing Road Congestion

This section of the Discussion Paper presents a 10-Year Outlook for the region's road system and details the specific proposals that are presented for implementation in 2005-2007.

Today, the GVTA is responsible for three bridges³ and provides a planning, coordinating, and funding role for the Major Road Network (MRN), as part of its responsibility for the regional transportation system. The MRN consists of approximately 2,200 lane-kilometres of regional roads that are owned by and are under the municipalities' direct control, although the GVTA jointly plans and funds these roads with municipalities. Collaboration with the region's municipalities is part of the process in establishing priorities and input is also sought from other major stakeholders, such as the Greater Vancouver Gateway Council and the Ministry of Transportation, since the MRN connects with the provincial highway system.

In addition to the funding of roads and bridges, the GVTA also funds the operation of the Albion Ferry service, which currently connects the road network across the Fraser River between Maple Ridge and Langley, east of the Port Mann Bridge.

Selective investment in the road system is important, as the growing number of vehicles in the region is creating increased travel times for auto users, bus transit users and trucks, and forecasts indicate that the problem will only escalate. Given the importance of goods movement to the region's economy, road investments should place a high priority on addressing the needs of the trucking industry.

If no transportation improvements were made by 2013, the length of severely congested rush-hour roads in the region is predicted to increase from approximately 360 lane-kilometers today to 570 lane-kilometers in 2013, an increase of almost 60%. Particularly hard-hit will be approaches to bridges and major arterials with much of the growth in congestion south of the Fraser and east of North Road.

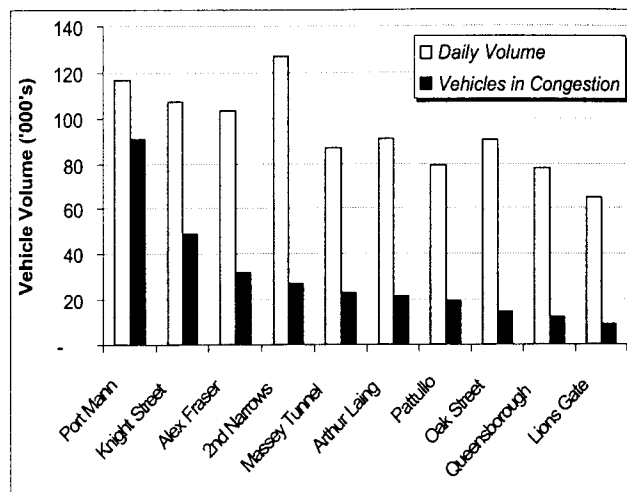
Proposed Road Initiatives

The 10-Year Outlook and three-year plan address the need for:

- Selective expansion of major road facilities, primarily to address goods movement;

³ Pattullo, Knight and Westham Island Bridges.

- Ongoing "spot" capital investment to improve operations and efficiency;
- Maintenance and rehabilitation of existing roads.



Worst Ten Crossings Based on Congestion

It should be noted that, in addition to direct road investments, an important aspect of relieving gridlock is by improving public transit. Investments such as the Richmond-Airport-Vancouver (RAV) and Northeast Sector (NES) lines, King George Highway Busway and transit priority lanes not only improve conditions for transit users, but also improve travel times and relieve congestion for motorists and goods shippers.

Regional Roads – GVTA Major Projects

Since 2000, annual funding for the GVTA's Major Capital Road Program has increased from \$5 million to \$35 million in 2003. The intent of the program was to leverage senior government partnerships and funding for those projects that have significant regional, provincial or national benefit, which the region could not afford to undertake solely. However, senior government partnerships have not yet emerged and with growing pressures to implement these essential improvements, it has become more urgent to draw upon the available funding from this program.

Given the pressure to proceed with investment in the region's road infrastructure and the limited ability for municipalities to cost-share in large projects, this Outlook proposes that the GVTA contribute up to 100% of funding for seven

projects, within the \$230 million envelope that is potentially available over the next three years.

From 2008 to 2013, it is proposed that an additional \$210 million be committed to major projects, for a total of \$440 million of accumulated GVTA major road capital funding by 2013. As part of the 10-Year Outlook, the GVTA will conduct the necessary technical studies, in partnership with municipalities and other levels of government, to identify and prioritize initiatives for these latter years. It is anticipated that the GVTA's \$210 million in capital for later years may be able to leverage over \$400 million in additional senior government funding.

While this approach places the majority of the financial burden for these projects on the region until 2007, it allows some of the projects to proceed immediately in 2004, regardless of senior government funding. However, the GVTA should continue to seek senior government partnerships and leverage funding as opportunities arise.

With the continuation of the \$35 million Major Road Capital annual allocation in the 2005-2007 Financial Plan, a total of \$230 million in accumulated capital will be available for Major Road investment in the period to 2007. The table shows candidate projects:

- The GVTA Board has approved, in-principle, the Fraser River Crossing (FRC) and project development is well underway. The new crossing will be predominately self-financed through tolls and therefore will not require significant additional capital from Major Road Capital funds.
- The Dollarton Bridge twinning, Fraser Highway widening and the North Fraser Perimeter Road are identified in the GVTA's current *Strategic Transportation Plan* that was approved by the GVTA and GVRD Boards in 2000.
- The Murray-Clarke connector is the completion of an unfinished portion of road that was part of the province's Barnet Highway HOV project.
- The Coast Meridian and Overpass project has been identified in the 'North East Communities of Greater Vancouver – Regional Transportation Priorities' that was released in early 2003.
- The 204th Street overpass has been identified as a longstanding requirement of the City of Langley and discussions between GVTA and MoT have identified this as a strong candidate for provincial cost-sharing.

Proposed Three-Year Road Capital Projects

(i) Fraser River Crossing (tolled)	\$600 m
(ii) North Fraser Perimeter Road	\$60 m
(iii) Fraser Highway Widening	\$45 m
(iv) Dollarton Bridge Twinning	\$8 m
(v) Coast Meridian with overpass to Kingsway	\$60 m
(vi) 204 th Street Overpass	\$18 m
(vii) Main Street Widening	\$5 m
(viii) Murray-Clarke Connector	\$25 m
Total	\$821 m

** These projects are presented as candidates for implementation as part of the public discussion. Cost-sharing may be sought from the province for some of these projects.*

- The widening of Main Street in the District of North Vancouver has been a longstanding requirement identified by the District and is also in the Greater Vancouver Gateway Council's list of major capital projects required to assist goods movement in the region.

While some of the projects outlined may be subject to revision, the investment⁴ of the available \$230 million in Major Road Capital will allow a number of the region's longstanding road projects to be implemented by 2007.

Regional Roads – Operations Maintenance and Rehabilitation

Each year, the GVTA will spend an estimated \$12,000 per-lane kilometre of road on the over 2,200 lane-kilometres of regional roads that it supports, in partnership with the municipalities in the region.

Typically, this totals to about \$27 million per year, and pays for the daily wear and tear on roads, street lighting, traffic lights and repaving. Examples of roads covered under this program are Granville Street, Marine Drive, Lougheed Highway, King

⁴ In addition to the above projects, improvements to Knight Street are planned as part of the federal Border Infrastructure Program. If Vancouver approves this, it will leverage GVTA funds along with provincial and federal government contributions.

George Highway and Scott Road. These funds ensure that all roads used for inter-municipal travel are maintained to a consistent standard throughout the region.

The adequacy of the current level of funding will be reviewed once sufficient data has been collected. In the meantime, it is recommended that an annual inflationary⁵ increase be applied to the unit rate starting in 2005.

Regional Roads – Minor Capital

In addition to maintenance funding, the GVTA provides a minor capital budget to pay for smaller capital projects, such as intersection improvements, bridge upgrades, road widening and pedestrian facilities.

\$170 Million on Minor Road Capital Projects Since 1999

Since its inception in 1999, over \$170 million has been spent on 226 projects. Examples of projects funded over the past four years include:

- Scott Road Hill reconstruction and widening – Surrey
- Southridge Drive (formerly referred to as Marine/10th Connector) – Burnaby
- 64th Avenue (202nd St. – 204th St.) widening – Langley Township
- Rehabilitation of Mount Seymour Parkway Bridge Deck – North Vancouver District
- Reconstruction of Columbia Street retaining wall – New Westminster
- Reconstruction of Stanley Park 'S'-Curve – Vancouver
- 232nd Street Bridge reconstruction – Maple Ridge

The annual funding for this program is \$20 million per year and is matched by municipalities, to leverage approximately \$40+ million of improvements. It is estimated that this will amount to over \$400 million in upgrades over the next decade.

As part of the preparation of this discussion paper, municipal staff were requested to identify potential projects that could be considered during the period 2005-2007, as an indication of overall requirements.

⁵ A mechanism such as a construction price index is used to determine this increase rather than the consumer price index (CPI).

The Minor Capital Program is intended to address improvements to the MRN to enhance efficiency and safety, which could include:

- New road construction or widening
- Intersection improvements, traffic signals
- Pedestrian facilities
- Structures
- Transit-related road improvements

Examples of potential projects⁶ under this Minor Capital Program include:

- Widening of King Edward underpass at Highway 1 (Coquitlam);
- River Road corridor improvement program (Delta);
- Replacement of the 232nd Street bridge (Maple Ridge);
- Granville Street bridge ramp improvements (Vancouver).

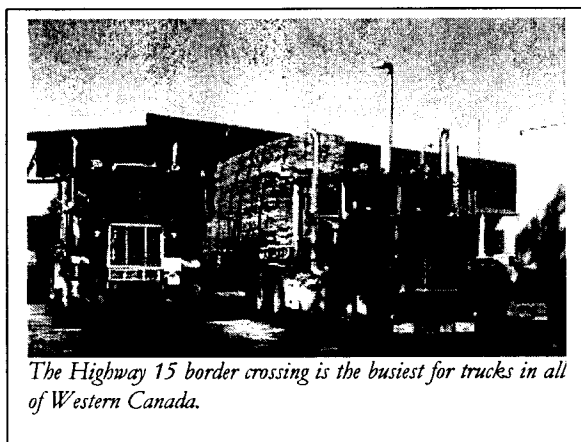
Capital for GVTA-Owned Bridges

During the period 2005-2007, it is proposed to allocate \$32.5 million for continued rehabilitation and ongoing maintenance to these bridges.

Improving Existing Regional Road Efficiency

In the next few years, it is proposed that the GVTA, with its municipal partners, will review the MRN's operational efficiency at key locations. This will identify opportunities to enhance network and intersection performance with improvements such as modified traffic signal timings, implementing signal co-ordination along appropriate corridors, and installation of left-turn bays, where required. This could also include the implementation of signal priority for transit use, where buses are given priority through a signalized intersection over other traffic.

⁶ At the time of preparation of this paper not all municipalities had identified potential projects for this period had provided cost estimates for all projects. This paper uses project information received as of September 2003.



It is also intended that problematic congestion along specific regional corridors be reviewed with affected municipalities. To reduce congestion, it may be necessary to consider and pursue, for example, the elimination of on-street parking along a portion or portions of a regional corridor. It may also be necessary to eliminate left-turn movements at or between intersections along a regional corridor.

Since the current regionally funded network consists of over 2,200 lane-kilometres throughout the region, it is anticipated that corridor management plans be developed annually for several regional roads. This would also provide valuable information in evaluating the overall corridor performance of regional roads.

Streamlined Border Crossings

The four border crossings in the vicinity of Greater Vancouver represent a major gateway facility, with passenger flows totalling 7.1 million annually and freight worth an estimated \$15 billion annually, for the Pacific Highway truck crossing alone.

Since 1999, the GVTA has been working in partnership with the International Mobility and Trade Corridor (IMTC) Project, a bi-national coalition of government and business entities, to identify and promote improvements to cross-border mobility and security. The U.S. government funds the IMTC, with matching grants from public agencies on both sides of the border. To expedite the flow of people and freight across the border, the IMTC has been involved with several new technology applications. Major developments include the following:

- The Canada/U.S. joint Nexus pre-clearance program, which was introduced in 2003;

Border Infrastructure Program Projects in GVRD

Location	Description	Cost \$M
Knight Street	Left turn bays at 6th Ave, 33rd Ave., 49th Ave., and 57th Ave.	11.5
Highway 10	Widening (122 St. - 172 St.)	42.0
Highway 15	Widening (32 Ave. - 88 Ave.)	80.0
Hwy 91 & 91A	Queensborough Bridge North interchange	33.0
	New Interchange at Hwy 91A / Howes St.	25.0
	New Interchange at Hwy 91 / 72 Ave	10.0

- ITS applications to increase cross-border freight throughput and enforcement, while reducing operating time and costs. These include electronic clearance and weigh-in-motion systems;
- Advanced traveller information signage along I-5 or Highway 99 to advise drivers of border conditions.

In addition, in 2003, the federal government and the province of British Columbia committed \$211 million to improve transportation access to the four border crossings. The GVTA has been working with the federal and provincial governments in the identification of and co-ordination for improvements. These include the widening, to four lanes, of Highway 10, between 122nd and 172nd Avenue and Highway 15, between 32nd and 88th Avenue, interchange improvements to Highways 91 and 91A and intersection improvements to Knight Street.

Regional Roads – Structures

The operations, maintenance and rehabilitation funding the municipalities currently receive from the GVTA does not cover costs associated with major structures on the MRN. At the time the MRN was developed, the issue of whether or not the GVTA would be either the provider of funding in the form

of limited 'grants' to municipalities on a selected basis, or the complete financier of regional road needs, including structures such as bridges, was never resolved.

There are two new programs that could potentially be implemented to deal with annual operating and maintenance costs, rehabilitation and replacement costs, as well as the costs of seismic retrofitting on MRN structures:

1. An allocation of approximately \$750,000 annually to fund the operating and maintenance costs for municipal structures on the MRN, and
2. Capital funding for the rehabilitation, replacement and seismic retrofitting costs of these structures. A \$9 million annual Capital Program (similar to the Major Capital Program for roads) could be established to accumulate the borrowing authority needed to address these projects as they arise.

It should be noted that with the implementation of such an ongoing program, the GVTA would essentially be funding almost all MRN costs. However, it would still have only have a limited role as to how these 'regional' roads are managed with respect to matters such as parking regulations, the provision of HOV and bus lanes, traffic regulations, and others. At this time, any decision to expand the funding of the MRN to include structures should be considered within the broader context of the role and responsibilities of the GVTA. Accordingly, the proposed allocations are not included in the Outlook financial projection.

2005- 2007 Roads Program - Summary

From 2005 to 2007, the GVTA will initiate a number of road projects with the following expenditures:

- \$60M - Minor capital funding for projects related to improving the efficiency and safety of the existing MRN;
- \$32.5M (3-year total) - Funding for capital work on GVTA-owned bridges;
- \$230M - Major capital for regionally significant road projects both on and off the MRN;
- \$81M (approx) for Operations, Maintenance and Rehabilitation.

Continue to Improve Efficiency

Transportation service and facilities require significant investment. As only a portion of the cost is borne by users, the GVTA must ensure that taxpayers' dollars are invested wisely and that there is continued focus on operating efficiencies.

Service Delivery

Throughout the fall 2001 financial consultation, many stakeholders expressed a desire for the GVTA to deliver bus service more efficiently. In response, the GVTA introduced the Community Shuttle service, which allows minibuses to operate on less-utilized transit routes. Over the next decade, it is expected that around 13% of bus services will be provided by Community Shuttles.

Consolidate and Refurbish Facilities

Several bus maintenance facilities have been identified as inefficient and needing replacement. The largest depot in Greater Vancouver (Oakridge) is more than 50 years old and requires major investment. Instead of rebuilding, the GVTA is relocating to a new site where a modern facility will be developed, eliminating the burden of maintaining existing operations during the rebuild. The new Vancouver depot will be completed in 2005. Investigations into disposal options for Oakridge will begin in late 2003.

On the North Shore, there are currently two small depots – one of which needs to be replaced, as it is also more than 50 years old. The GVTA will work with North Shore municipalities to define options for more efficient service delivery and depot space, and have a solution by 2007. Finally, it will be necessary to replace the Heavy Fleet Maintenance Centre in Burnaby. This facility currently shares the same site as an operating depot. By the end of the decade, it will be necessary to develop a separate Heavy Fleet Maintenance Centre and expand the Burnaby depot to accommodate the larger fleet.

Expanded Use of Assets

The GVTA's considerable asset base, including its people and facilities, offers opportunities for revenue generation. For example, opening the Waterfront Station to private ferry operators allows more efficient use of current assets and offers revenue generating opportunities. Similarly, a stand-alone heavy repair centre, might offer opportunities to provide services to private sector bus providers, as well as other transit systems across the province. Another way to expand use is through sponsorships and partnerships that offer revenue generation. The U-Pass is another example of a sponsorship that will provide some return to the GVTA.

Intelligent Transportation Systems (ITS) - Expanded Use of Technology

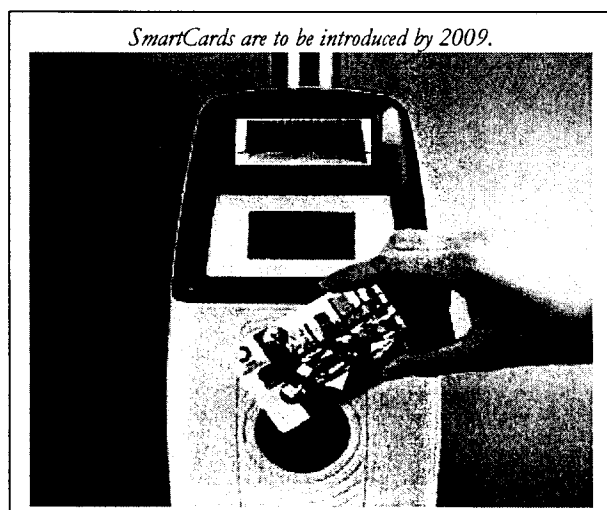
The application of transportation-related technologies has the potential for improving the performance and efficiency of the regional transportation system, as well as customer services. Transportation related technologies are referred to as Intelligent Transportation Systems (ITS). Delays, congestion and traffic accidents take a heavy toll in lost productivity, lives, and wasted energy. ITS enables people and goods to move more safely and efficiently through a state-of-the-art intermodal transportation system.

Technology will transform transportation in the next decade and the GVTA, through its Intelligent Transportation Corporation, will be implementing many initiatives to assist in greater efficiencies. Through its continuing work with the ITS Corporation, by 2009, travellers will see many smart systems that will improve system efficiency and their travel experience.

ITS applications for the GVTA services include the following:

Travel SmartCard

Already the GVTA has one of the most advanced transit ticketing systems in North America and this provides the backbone for expanding the system. By 2009, there will be an integrated stored value card that will allow transportation system users to ride transit, pay for tolls and parking, and potentially make other small cost transactions from vending machines, public telephones, etc. The GVTA will be actively working with partners in the transportation industry and in other sectors, such as finance and telecommunications, to make this a reality within a decade.



The benefits of this will allow users a more flexible approach to pricing and paying. For service providers, it will provide data to achieve efficiency, reduce both boarding times on transit and transaction times to pay tolls, as well as lowering costs in general.

Advanced Traveller Information Systems (ATIS)

ATIS will deliver data and information directly to travellers (e.g. through dynamic overhead signs), empowering them to make better choices about alternate routes or modes of transportation. This data will also provide accurate travel pattern information, allowing the system to be optimized and better planning decisions to be made.

Advanced Traffic Management Systems (ATMS)

ATMS employ a variety of relatively inexpensive detectors, cameras, and communication systems to monitor traffic, optimize signal timings on major arterials, and control the flow of traffic across the region or parts of the region to make better use of the infrastructure that we have.

Incident Management Systems (IMS)

IMS will allow quick and efficient response to accidents, hazardous spills, and other emergencies. All communications systems will link data collection points, transportation operations centres, and travel information portals into an integrated network that can be operated efficiently and "intelligently."

Transit Information Systems (TIS)

Technology will also be applied to transit to record passenger volumes and flows, travel times and other data to allow the system to adapt to better serve users' needs. This will also result in more and better sources to supplement the GVTA's existing Internet and voice-based trip planning systems.

Reduce Demands on the Network

While much effort will be directed to expanding the system, it is generally understood that it is impossible to build a way out of congestion, due to the high costs of capacity expansion. This was reflected in *Transport 2021*, which recognized the requirement to manage both the supply and demand of the transport system.

Research shows there are considerable gains to be achieved by reducing or shaping demands on the

transportation system. To further this aim, over the next decade, the GVTa will work on a number of innovative initiatives.

Coordinating Land Use and Transportation

In partnership with the GVRD and the region's municipalities, the GVTa will continue to promote better land use planning. This is critical because how people and activities are arranged in this vast region is a primary determinant of the demand for travel.

Employment Location

As noted earlier, the trend towards the growth of office parks in remote locations is a challenge. These developments are automobile-oriented and very difficult to serve by conventional transit. Continuation of this trend will lead to ineffective transit and gridlocked roads.

Density Around Transit

The GVTa will work with the GVRD and municipalities to explore a range of possible incentives to encourage employment, higher residential densities and lower cost housing near major transit developments.

Demand – Side Actions

There are many actions that can be taken to influence the demand side of travel:

Funding – Taxes and User Fees

To some degree how the transportation system is funded affects how much and when it will be utilized. For example, if the approach to funding relies more on transportation-related sources, such as fares, fuel or parking taxes or tolls, then these sources have an effect on the patterns of usage and the efficiency of the system itself that does not occur with more general taxes, such as property taxes.

If the system is funded directly from general sources, there is no direct financial "signal" to commuters to change travel behaviour. As a result, there will be no change in system usage, levels of congestion and system inefficiency. Funding from transportation related sources however can influence system use, as user costs vary with the amount of use and time and location of consumption.

In developing a funding strategy, a balance must be found between these two approaches. The broader community benefit of improved services suggests the need for some contribution from broad tax sources. However, the inclusion of a substantial element of

transportation-related funding can improve the system itself.

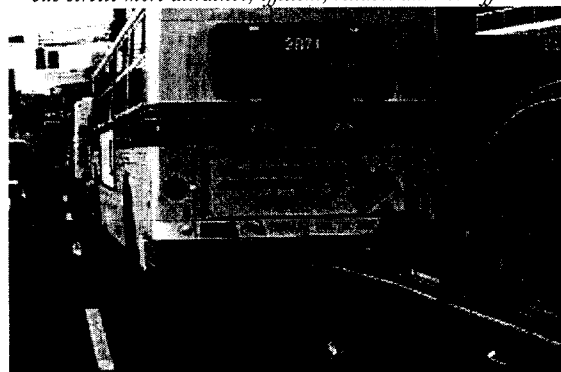
The funding package identified later in this discussion paper attempts to strike a balance between measures related to general benefits to the community and those related to use of the transportation system. The package also recognizes the reality of the funding sources presently available to the GVTa.

Road User Priorities

Previous plans have sought to establish road user priority, with a particular emphasis on transit vehicles, HOV and goods movement. In the last decade, there have been some improvements to HOV and transit vehicles, however, they were not as extensive as planned. As a result, the region has been subjected to slower, less reliable and more expensive bus services.

It is important to continue to press for greater transit and HOV priority, and the GVTa could also consider linking its road funding to municipalities to specific transit performance requirements on the region's road system.

A greater emphasis on measures such as bus lanes would make bus service more attractive, efficient, reliable and cost-effective.



Facilitating Goods Movement

While *Transport 2021* contained many recommendations to assist goods vehicles, few have been implemented. In order to supplement its greater investment in roads for goods movement, there should be a parallel approach to manage the road space, although the resolution of some of these issues will not be achieved by a "quick fix".

The following general approaches could be considered for implementation:

- Establish and coordinate a process with the municipalities and the province to permit truck traffic to better avoid congestion, wherever feasible, by separating truck flows from auto flows at bridge heads and on existing or new portions of the Major Road Network, consistent with cost-effectiveness;
- In consultation with municipalities, develop minimum service level standards for major truck links to trigger actions for improvements, if service drops below the accepted level;
- Work with the province and municipalities to consider the feasibility of opening existing HOV lanes to trucks in the off-peak period, provided that the performance or safety of transit and other users is not compromised.

AirCare Review in 2004

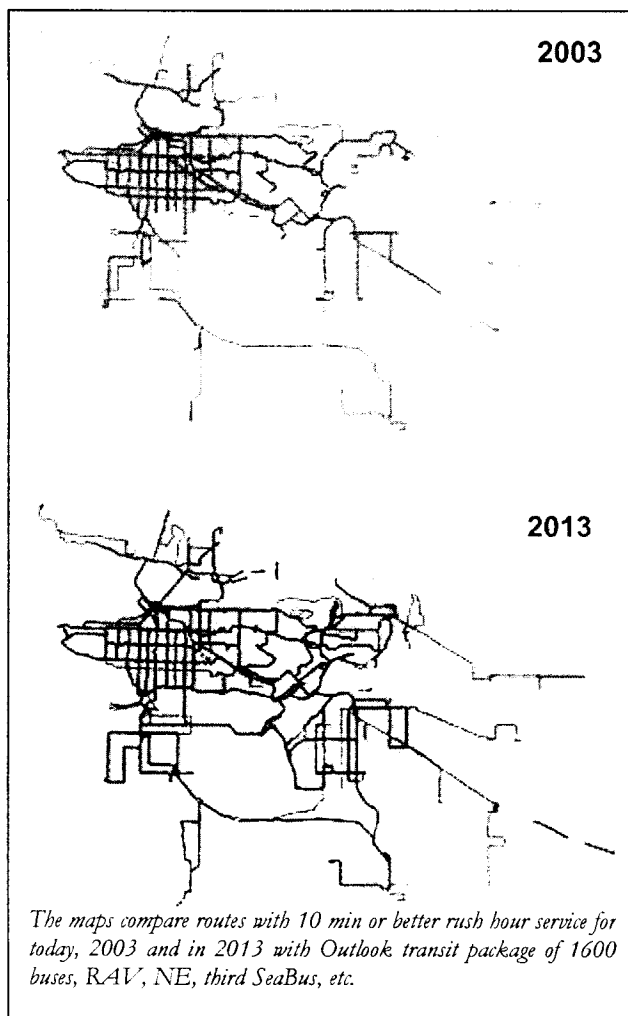
The current AirCare program is due for review in 2006. The GVTA is developing a process to review the program and determine the future of AirCare needs after 2006.

Because of the multi-jurisdictional nature of air quality management that includes the GVTA and its AirCare subsidiary, the GVRD (who prepare the region's Air Quality Management Plan) and the provincial government, this will be a joint review led by the GVTA.

It is anticipated that this review will take place by the summer of 2004, with a decision on the future of AirCare to be made early in the fall. In addition to government agencies, significant stakeholder and public involvement will be required for the health and environmental aspects of the program as well as broader considerations.

5. BENEFITS OF THE PACKAGE

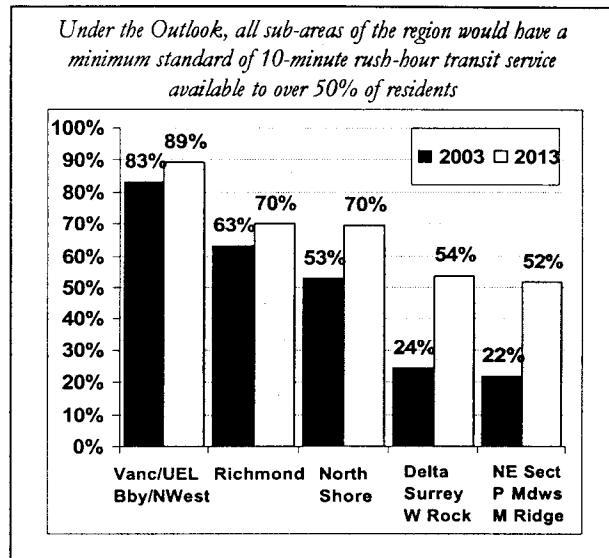
Many of the improvements outlined in this discussion paper are not new ideas. Some have been around for decades – however, implementation has been a challenge. This was recognized by the GVRD, which worked from 1996 to 1999 to establish the GVTA. Some improvements will be undertaken by the GVTA alone, while others will involve partnerships with different levels of government. If fully pursued, the Outlook would bring extensive, tangible improvements to transit users, goods vehicle operators, car drivers and cyclists.



Benefits to Transit Users

Many transit users will see major improvements in both the level of service, reliability and speed of transit

service. In particular this will not only be achieved in the central part of the region, but also in many suburban markets which are becoming more dense and much more conducive to transit use.



The recent trends to higher density development in some regional town centres and emerging suburban pockets offer good prospects to improve ridership.

The transit strategy would offer more frequent service to the central core communities as well many of the transit-conducive markets in communities that are not well served today. Overall, it will result in providing a minimum of 10-minute peak period service to at least 50% of residents in all sub-regions of Greater Vancouver. At this level of service, transit becomes a desirable alternative to the car.

As shown in the maps, a greater degree of the region, particularly in the Northeast Sector and South of the Fraser, will see rush-hour transit service at no more than 10-minute headways.

At this level of service, most passengers will not require a timetable – on average they would wait less than five minutes to board a bus or transfer between services. Today, the availability of this level of service varies widely, from an estimated 83% of the population in Vancouver, Burnaby and New Westminster, to around 22-25% in the Northeast Sector or South of the Fraser River. If the Outlook scenario were currently in place, the ten-minute standard of transit service would be available to over

50% of the population of each sub-region, within 400 metres of their residence.

Overall, approximately 65% of the region's population would enjoy this service level and transit would become a much more attractive and realistic option for another 400,000 residents.

Estimated Impact of on 2003 Population

Within 400m of 10 min transit service	Today's Transit	Service in 2013
Population	1,064,000	1,402,000
Dwellings	468,000	587,000
Area (Hectares)	353	568

Transit Ridership and Market Share

The Outlook Scenario would significantly increase transit ridership. It would increase by around a third, from an estimated 62,000 rush-hour trips in 2003, to 82,000 in 2013. Total annual ridership would climb to around 181 million in 2013, compared to 135 million today.

Transit's market share of all travel would increase from approximately 11% of rush-hour trips today, to approaching 13% in 2013. Greater increases would be seen in specific corridors such as the RAV and NE Sector corridors, to universities and colleges, to regional town centres and into downtown Vancouver. By the end of the period, transit travel into downtown Vancouver is projected to exceed automobile travel. These increases are significant, as most other major metropolitan areas in North America have declining market shares. However the region-wide figure of 13% is still less than the regional target of 17% that was expected by 2006. That target was based on a package of significant demand management actions such as region-wide bridge tolls and extensive HOV lanes.

Clearly, the proposed package of transit investments will broaden benefits to residents across the region for a variety of trips. In addition, as is outlined below, it will also lead to reduced travel time by car.

Benefits to Road Users

Even though the Outlook package of transit improvements would offer greater travel choices to considerably more residents and therefore boost the transit market share, there will still be more cars and trucks on the roads than today. In total, it is estimated that rush-hour auto trips will increase from 332,000 in

2003 to 380,000 in 2013, driven largely by population growth.

Without the overall package, an estimated 5,400 additional cars would travel on the road system during the morning rush-hour in 2013 – roughly the equivalent of the northbound rush-hour traffic emerging from the Massey Tunnel or crossing the Alex Fraser Bridge.

If the total package of GVTA-initiated projects, such as the Fraser River Crossing and North Fraser Perimeter Road, are completed along with the provincial projects, such as the South Fraser Perimeter Road, there will be significant travel time savings for users, and travel speeds are forecast to be the same as today (or around 5% higher than they would be under current trends).

Sample Travel Time Savings

Year 2013 Average Transit Travel Times (minutes)			
Origin-Destination	2003	With 10 Year Outlook	Est. Time Savings
Richmond Centre-Downtown Vancouver	44	28	16
Coquitlam Centre-Surrey City Centre	60	30	30
YVR – Lonsdale Quay	60	44	16

Year 2013 Average Auto Travel Times (minutes)			
Origin-Destination	2003	With 10 Year Outlook	Est. Time Savings
Maple Ridge – Surrey	65	30	35
Guildford			
Pitt Meadows – Richmond Centre	95	69	26
City of Langley- YVR	80	66	14

While the greatest time savings will often be achieved in corridors with the larger projects, the combined effects of road improvements and higher transit usage will lead to better travel times for many users.

Benefits for the Economy

The 'Outlook' scenario for 2013 and moving towards a healthy regional transportation system is critical to the regional economy in many ways:

- Transportation and related industries are a significant source of employment, local expertise and economic output;
- A regional orientation towards transit and a mature and well-maintained road network supported by a compact development pattern ensure people and goods move efficiently;
- Reductions in the cost of personal, business and public transportation, leaving resources available for investment elsewhere in the economy;
- The region will be a more attractive place to invest for service, manufacturing and transportation activities.

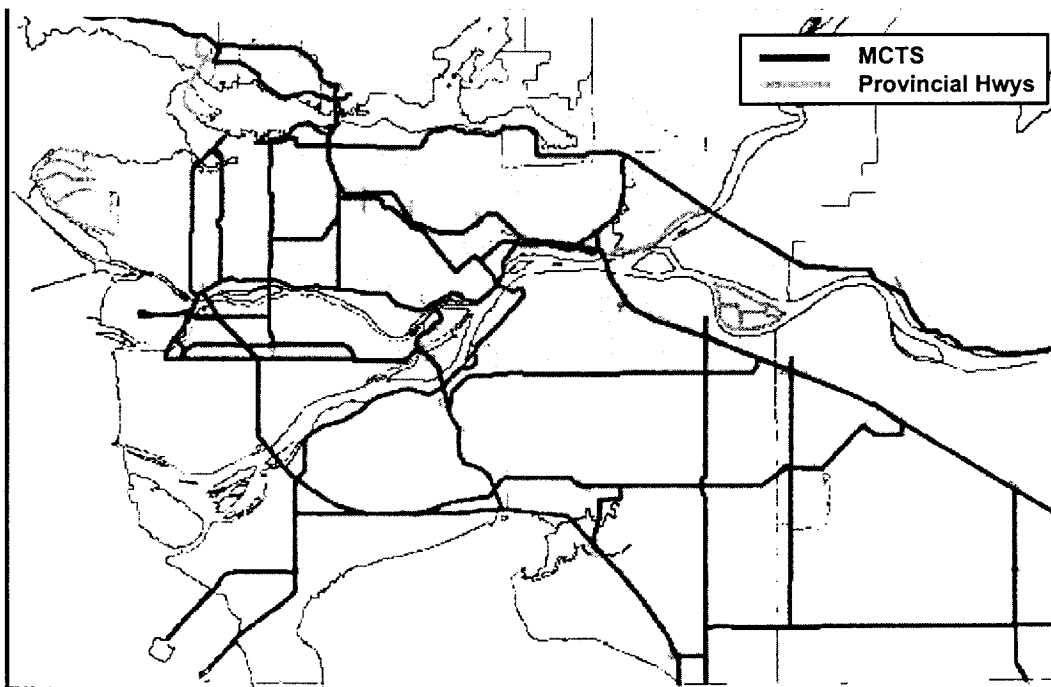
Transport 2021 estimated the cost of congestion (relative to free flowing traffic conditions) to be \$110 million annually, as of 1993. In 1999, the BC Trucking Association (BCTA) estimated the cost to the trucking industry alone at \$500 million annually. Some recent estimates place this in the range of \$750 million to \$1 billion today.

The 10-Year Outlook package would improve conditions for the regional economy in general and goods movement in particular by:

- Strategically expanding road facilities, including providing key "missing links" in the transportation network;
- Working with the province to determine the feasibility and implementation of measures such as dedicated goods-only lanes so that trucks *avoid* congestion by separating them from general traffic;
- Expanding bus and rapid transit service to ease traffic congestion by encouraging drivers to use alternative means of transportation in key markets.

It also greatly supports the efforts of the Greater Vancouver Gateway Council (GVGC) to deal with goods movements. The GVTA has been working with the GVGC to recognize those roadways critical to goods movement. These are outlined in the GVGC's Major Commercial Transportation System (MCTS), which identifies essential roads and other links to seaports, airports, and major rail or truck terminal facilities.

The Major Commercial Transportation System (MCTS) designates those roads and other facilities considered to be important to goods movement. It comprises of facilities designated by the Greater Vancouver Gateway Council. Many of the proposed road improvements will enhance the MCTS.



The implementation of projects along certain corridors, such as the North Fraser Perimeter Road, would provide much needed additional capacity for commercial goods movement, or provide a new route that would virtually eliminate neighbourhood infiltration by truck traffic. Such enhancements would give more priority to goods movement than currently exists.

Combined with these improvements, the proposed actions to allocate a greater priority to trucks on major roads will further enhance goods movement and the regional economy.

As part of the preparation of this discussion paper, the GVTA commissioned an economic analysis of the Outlook from InterVistas Consulting Inc. The following summarizes the potential economic impact of the Outlook. *Economic impact* is a measure of the spending and employment associated with a sector of the economy, a specific project, or a change in government policy or regulation.

Two of the most common ways to assess economic impact are in terms of the dollar value of output produced or person years (full-time equivalents or FTEs) of employment generated. Other measures include value-added (GDP) and value of capital used and/or created.

Types of Economic Impacts

Only economic impacts in British Columbia are examined. There are also likely to be economic impacts in the rest of Canada. For example, the rolling stock for SkyTrain or the RAV line may be manufactured in Ontario or Quebec.

Construction Impacts

The building of new roads or transit systems, or the upgrading of existing ones, will require the purchase of raw and finished materials, equipment, and will employ people in a range of fields. These activities will support employment, GDP and economic output.

These impacts have been estimated using economic multipliers produced by BC Statistics. The estimated employment, GDP and economic output generated by construction projects are shown below:

Economic Impacts of the Construction of the Transportation Projects in BC

Impact Type	Employment (Person Years)	GDP (\$m)	Economic Output (\$m)
Direct	19,716	1,427	3,418
Indirect	8,184	501	1,174
Induced	3,335	213	392
Total	31,235	2,142	4,984

On-going Operating and Maintenance Impacts

Once enhancements to the transportation system have been made, there will be new on-going operations and maintenance costs. These costs will have an economic impact in BC. The economic impact analysis has focussed only on those costs that are additional to those already being spent on the current system. The table below displays the employment, GDP and economic output associated with incremental operations and maintenance activities.

Economic Impacts of Ongoing Operations and Maintenance in BC

Impact Type	Employment (Person Years)	GDP (\$m)	Economic Output (\$m)
Direct	2,698	154	341
Indirect	947	54	124
Induced	369	24	44
Total	4,013	232	508

Impacts on Economic Development

It is well known that the ability of a region to attract trade and investment depends critically on the transportation and other infrastructure that is available. The economic impact of the GVTA investment program is not confined only to the jobs created during construction or the on-going jobs associated with operation of the new infrastructure. Investment in urban transportation infrastructure can attract new businesses to the region and create new jobs.

A recent U.S. Federal Transit Administration report found that every 1% increase in transit vehicles in service resulted in a 0.04% *annual* increase in regional value added per employee, and a .004% increase in per annum increase in economic growth. While these figures may seem small, when compounded over a ten year period, a 20% increase

in transit presence would add just under 1% to Vancouver's economic activity, or roughly \$300 million after 10 years.

While these seem to be abstract computations, it is possible to understand this concept with some other examples.

- The investment in the Canada Place cruise ship facility in 1986, along with airport investment, created 2,970 jobs associated with handling one million cruise ship passengers per year. These jobs paid roughly \$120 million in wages and contributed \$228 million in GDP.
- Investment in rail and highway infrastructure at the Roberts Bank port facility allowed the Port of Vancouver to increase its containership volume to over one million TEUs per annum. Increased container shipping through Vancouver has generated hundreds of trucking jobs, increased freight forwarder activity, increased ship chandlery (re-supply), etc.

Looking ahead, investment in urban transportation will have a number of effects on regional economic activity:

- The provincial roads gateway program is expected to play a major role in accommodating significant expansion of maritime container handling at the various Port of Vancouver sites. While specific economic impact figures are not available at this time, it is expected to be in the thousands, given that current container activity currently supports over 6,000 direct jobs.
- The streamlined border-crossing program is expected to support new or increased economic activity in several sectors. These include increased inbound tourism activity, Port of Vancouver's container services, and expected development of foreign trade zone activity at the Vancouver Airport and Port of Vancouver.
- The transit investment program will directly support tourism and the 2010 Olympic/Paralympics.
- The transit investment program and bicycle projects will have important quality of life effects in the region. Quality of life is a factor in business location decisions.
- The investment in roads and transit will improve regional productivity, consistent with the findings of the US Transit Administration study. Improved transit and road investment will reduce regional travel time, with SkyTrain, RAV and NES investments in particular resulting in large decreases

in travel times. Travel time reductions improve productivity of workers who must travel while performing their duties. An even larger impact is in terms of individual commuting time impacts. While such impacts are not included in GDP measures, the value of these savings to commuters is significant

Benefits for Society

The development of the regional transportation system in accordance with the Outlook proposal for 2013 would create significant improvements to the social aspects of the system. As noted previously, there would be a substantial increase in the availability of transit at levels that provide effective, fast and frequent service.

In particular, additional service to the existing strong transit core markets, combined with the targeted expansion in the maturing suburban areas, such as town centres and higher density areas, will make a substantial difference. Overall, it is estimated that it would result in rush-hour transit frequency of 10-minutes or better for over 32% more residents and 25% more households.

Moreover, these improvements will focus on many of the lower income suburban areas – offering many residents transit services that are a real alternative to the private vehicle. For example, in both the NE Sector communities and those south of the Fraser River, the percentage of residents who have access to 10-minute rush-hour transit service would increase to over 50% from around 22-24%.

Similarly, the extension of Community Shuttle (minibus) services will allow many residents to experience new types of service that are better suited to local community-based trips. Further, these vehicles are much quieter than conventional diesel buses and would therefore be a welcome improvement to many residential neighbourhoods.

In terms of the disabled population – apart from the expansion in HandyDART –the introduction of the new low-floor wheelchair accessible trolleys in Vancouver and Burnaby will provide significant improvements. Due to their low-floor design, these new vehicles will offer dramatic enhancements in accessibility for both wheelchair users and the ambulatory disabled. Access by public transit to

many facilities, such as Vancouver General Hospital (VGH), will become more feasible as a result.

In addition to trolley services, the expansion of rapid transit, with both the RAV and NES lines, will offer a smoother and easier ride for the disabled and will significantly improve their ability to move around the region over relatively long distances.

Community severance and isolation will continue to some degree as a result of mounting traffic volumes; however, it will still be lower than previously. While difficult to quantify in isolation, the traffic safety benefits of the Outlook package would also be appreciable.

Finally, improved information technology offering users better information and instructions on how to use services will benefit those residents who are transit dependent.

Benefits for the Environment

The Outlook outlines a range of transportation initiatives that will reduce the GHG, air quality and general environmental impacts of transportation. In particular, major expansion of bus service and the rail network and the implementation of a regional parking management strategy, will shift numerous travellers from the automobile to transit, substantially benefiting the environment.

Overall, it is estimated that there would be a reduction of up to 125 million kilograms of greenhouse gases due to less traffic.

There are a number of other significant initiatives the GVTA will undertake to address the environmental impacts of transportation:

- Replacing the region's zero emission electric trolleybus fleet with new state-of-the-art electric trolleybuses rather than diesels;
- Pilot test diesel electric hybrid buses, which reduce some air pollutants and also reduce GHG's by up to 50%, as an alternative to diesels for fleet expansion and replacement needs;
- Investigate the feasibility of other alternative fuels for GVTA transit buses;
- Introduce an alternative fuel vehicle program for GVTA, GVRD and other fleet vehicles;

- Examine the impact of the AirCare Program and determine the need for ongoing programs after 2006 to ensure that emissions can be further reduced;
- Re-instate the ACOR (AirCare On Road) emissions testing program for trucks and buses;
- Ensure that all new and replacement fossil-fuelled buses meet the 2007 emission standards.

6. FINANCE AND AFFORDABILITY

This section of the discussion paper first reviews the likely cost and impacts of the proposed 10-Year Outlook. It then discusses the proposed approach to funding the Three-Year Plan initiatives in this document.

Financial Implications of the 10-Year Outlook

The transportation initiatives presented in the 10-Year Outlook will require substantial investment. However, if the investments are not made, the region will pay in other ways – through increased travel times, reduced competitiveness, a lagging economy and environmental degradation. Consequently, it is not a question of whether there is a price to be paid, but rather, how to pay – directly or indirectly. In other words, do we want to commit to the region's plans in a tangible way to achieve a collective vision?

Potential 10 Year Capital Program Totals \$3.9 Billion (estimates are rounded)

- Replace 1,300 bus, Community Shuttle and HandyDART vehicles (\$600 m)
- Start the phased replacement of 114 SkyTrain Mark I vehicles with 72 Mark II's (\$300m)
- Expand conventional bus and Community Shuttle fleet to 1,600 vehicles and HandyDART fleet to 350 vehicles (\$200m)
- WCE – new stations and spare locomotive (\$10m)
- Transit depots and maintenance of other transit infrastructure (\$500 m)
- Bike Program* (\$54 m)
- SmartCard/other ITS applications (\$20m)
- 34 Mark II vehicles to expand service on existing SkyTrain lines (\$200m)
- New SeaBus (\$10m)
- RAV and NES rapid transit lines, and King George Busway (GVTA contribution - \$800 m)
- Roads – Major Projects (\$400m)
- Roads – Minor Projects and Bridges (\$25 m)
- Fraser River Crossing (\$600m – recovered by tolls)

**Cycling will increase in \$1m increments from \$3m per year in 2004 to \$6m per year in 2007*

A financial outlook has been prepared for 2013, based on three broad service and financial needs:

- Ensuring a state-of-good repair of existing infrastructure and fleet, fleet renewal, and maintenance of current service levels;
- Meeting capital project commitments for road, transit, and other initiatives;
- Expansion of infrastructure and services.

By examining the financial requirements over the next ten years, there are a number of needs for which there is little flexibility. For example, maintaining a state-of-good repair of the roads is critical for the safety of all commuters. Fleet renewal, as buses and trains wear out, is required to maintain service and control operation and maintenance costs.

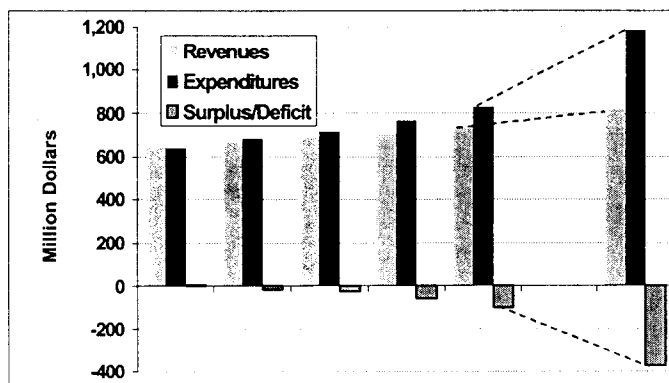
While there have been service efficiencies and reductions in the cost of current operations over the past few years, there is now limited scope for further improvements. Efficiencies will continue to be pursued but they cannot be relied upon to provide enough additional funding to meet projected growth.

Impact on GVTA Budget

Based on the program outlined earlier, by 2013, the GVTA annual budget would reach somewhere in the range of \$1.18 billion per year, a \$540 million increase over the current \$640 million annual operating budget. This estimate reflects the operating and debt service costs of the capital program described above and assumes that operating costs will increase at the rate of general goods and services inflation.

Closing the Gap

The range of funding sources available to the GVTA is the broadest of any of the major urban regions of the country. However, unless rates are increased, key revenues of fuel tax, transit fares, and property taxes will not grow at the level required to fund inflationary increases and the additional capacity required to meet population growth, let alone finance major new initiatives.



Year	2003	2004	2005	2006	2007	--	2013
Revenues	647	666	688	707	730		816
Expenditures	640	683	713	767	829		1185
Surplus/Deficit	7	-17	-25	-60	-99		-369

It is estimated that by 2013, assuming normal volume increases – without tax or rate increases – revenues would reach around \$820 million, leaving a funding gap of some \$370 million. If transit fares increased with inflation, this gap would be reduced by a further \$60 million, to around \$310 million. This still is a significant challenge.

EXISTING AND POTENTIAL REVENUE SOURCES

Existing sources currently used

- Transit fares
- Gasoline taxes
- Sales tax on paid parking
- Residential & commercial property taxes
- BC Hydro levy
- AirCare fees

Existing sources currently unused

- Project tolls
- Benefiting area taxes
- Motor vehicle or commuter levies
- Parking stall taxes

Potential sources for which the GVTA would require new powers

- System tolls, congestion tolls
- Increased gas tax
- Area licensing fees
- Right-of-way fees
- Regional sales taxes

Unless the program is reduced, there are two strategies that can be applied to close the gap further, both of which are likely to be required:

- Raise more revenue locally
- Secure senior government assistance

There are many existing and potential sources of revenue that the GVTA has the authority, or could request the authority, to access. These include a mix of both traditional and non-traditional sources.

All sources will need to be considered; however, it is likely that at least one 'new' source, such as a sales tax or some form of vehicle-related charge, such as tolls, will be required to help close the gap and raise revenues in the range of \$100 to \$200 million, by 2013.

In considering the scale of funding requirements, it is important to note that the capital budget identified for the Outlook program also serves to leverage considerable senior government and other partner funding in excess of a billion dollars⁷.

Role for Senior Government

There is no question that it is important that Greater Vancouver's transportation system functions effectively. It is also important to the provincial and national economies that the region and its ports remain competitive. At the same time, it is apparent that the magnitude of investment required will need both federal and provincial funding to implement the scale of the program.

By 2013, it is expected that the provincial economy will have recovered and the prospect for additional provincial funding to assist the region would be stronger. However, a more significant prospect may be the federal government's stirring interest in urban regions, which are now recognized as major drivers of the nation's economy. That interest was confirmed in a speech by federal Liberal Party leadership frontrunner Paul Martin to the Union of BC Municipalities conference on September 25

⁷ This includes \$900 million for the RAV project, an anticipated \$170 million in provincial funds for the NES project (which in turn may leverage a similar federal contribution) and the allocation of Border Infrastructure Funds in the region. (e.g. BIF funds are being used to fund part of the North Fraser Perimeter Road system and possible improvements to Knight Street)

when he said, "... no matter how long it takes, we are going to provide Canadian municipalities with a portion of the federal gas tax." Furthermore, the federal government's commitment to the Kyoto Accord on Climate Change is likely to influence it to become more active in funding urban transportation, where many of the GHG reductions can be made. For the federal Kyoto commitment to have substance, a particular emphasis must be placed on the funding of transit services.

For the past five years, both the GVTA and GVRD have been persistent in requesting the federal government to return some of the approximately \$300 million it raises annually from the residents of this region in fuel taxes. It now appears that the prospects have never been better. For instance, if the federal government were to offer a federal gas tax transfer of 5 cents/litre, it would make the Outlook package more affordable.

As noted earlier, the 2013 funding gap is \$370 million in 2013. The 2005-2007 funding strategy proposed in this discussion paper would provide \$110 million, all from existing sources available in the *GVTA Act*. A 5-cents/litre federal gas tax transfer commencing in 2008 would generate an additional \$130 million. Assuming the gas tax transfer and fares increase at inflation, the remaining balance required would be \$80 million.

Clearly, there is a financial dilemma – immediate funding is necessary, yet partnership funding is uncertain. Nevertheless, the requirement for these improvements is urgent and timelines to build major new facilities, such as bridges or rapid transit lines, can span up to a decade. The time required to purchase and operate new buses can take over two years, and for expansion to occur in 2005, orders must be placed early in 2004.

Consequently, it is proposed that the region commit to the 10-Year Outlook so there is a clear goal to strive for, while preserving the objectives outlined in our many regional plans. In addition, the necessary steps should be taken to ensure that funding is secured for the first three years to guarantee that there is some certainty of tangible action.

While making commitments for projects to be built and paid for in the future presents some risks, failure to secure immediate funding will put the transportation system in jeopardy. The latter course would simply

substitute the financial risk for threats to the economy, environment and overall livability.

Proposed Three-Year Strategy

Three-Year Capital Plan Summary

A \$1.9 billion capital investment program is required to implement the proposed 2005-2007 transportation strategy:

- Replacing 492 bus and custom vehicles, (including new trolleys - \$312 million);
- Maintaining infrastructure, including new Vancouver and North Shore depots and a new Heavy Fleet Maintenance Centre (\$200 million);
- Expand bus and HandyDART fleet by 156 vehicles (\$59 million);
- Progress payments towards the purchase of 34 Mark II vehicles (\$84 million);
- WCE new station and spare locomotive (\$10 million)
- GVTA contribution over the period for the construction of the Richmond-Airport-Vancouver and Northeast Sector rapid transit line (\$396 million);
- \$35 million per year allocation for Major Road projects (\$105 million total for 2005-2007 – a further \$125 million has been accumulated in earlier years);
- Completion of Fraser River Crossing (\$600 million - as the facility will be tolled the annual debt service cost will not be funded from GVTA sources);
- Minor Roads funding of \$60 million, leveraging over \$120 million of municipal projects;
- GVTA-owned bridges and Transit Priority Measures and Facilities (\$41 million);
- Bike Program (\$15 million).

Revenue and Expenditure Projections

A revenue and expenditure forecast has been prepared for the proposed three-year program. No new revenue sources or increases to current rates are assumed. As indicated in the following table, existing revenue sources are not adequate to fund the proposed road and transit improvements.

Expenditures are projected to increase by close to 30%, from the 2003 budget of \$640 million to \$829 million in 2007. The majority of the increase is in debt-service cost.

With no rate increases or implementation of a new funding source, revenues will increase by 13% to around \$730 million. The annual deficit will be close to \$100 million by 2007 and the accumulated reserve will be depleted in 2006.

The projections reflect the following key assumptions:

Revenues

- Transit fares at existing rates for all fare types;
- Transit ridership growing at the rate of about 3% per year;
- U-Pass Program revenue neutral;
- Fuel tax allocation increasing by 5 cents to 12-cents/litre April 1 2005 (no impact to consumer);
- Fuel sales volume increasing by 2% year;
- Existing property tax rates;
- Assessment base increasing by 2% per year.

Expenditures

- General goods and service inflation at 2%;
- Higher than inflation increases for fuel, electricity and insurance costs;
- Upcoming (2004) labour settlements at rates based on current estimates of public sector settlements;
- Transit service growth at 3%/year, with resulting impact on operating costs;
- OMR roads funding growing with inflation and assumed MRN growth;
- Replacement of assets at the end of their useful life;
- Long term borrowing at 6.75%;
- Continuation of current policy of financing all capital projects through debt.

Under the *GVT Act*, annual expenditures cannot exceed annual revenues (including the previous year's accumulated surplus). As noted earlier, annual deficits are projected to grow from \$25 million to close to \$100 million by 2007. The accumulated surplus is reduced to a minimal level in 2005 and is depleted in 2006. Increased revenues are required to achieve the benefits of the proposed transportation improvements.

Funding Principles

The following principles have guided the development of a proposed funding strategy:

- The package should represent a balance between user fees and general taxation, reflecting individual and general benefits;

2005 – 2007 Additional Revenue Requirements			
	2005	2006	2007
Expenditures			
Operating Costs	558	582	606
Debt Service Costs	155	185	223
Total Expenditures	713	767	829
Revenues (no fare or tax increases)			
Transit	263	271	285
Taxation			
Fuel	268	276	282
Property	129	131	134
Hydro	16	17	17
Parking	12	12	12
	425	436	445
Total Revenues	688	707	730
Annual Deficit	(25)	(60)	(99)
Accumulated Surplus/(Deficit)	22	(38)	(137)
<i>Note: Revenue figures do not include toll revenues for FRC.</i>			

- The package components should be based on sources available under the *GVT Act*;
- There is strong potential for senior government funding but will likely not materialize before 2007;
- The package should fully fund the 2005 - 2007 Plan (no deficit in any one year);
- Fare increases should be at the rate of inflation, to protect transit ridership;
- The accumulated reserve should be at a sufficient level to mitigate risk and allow for the creation of a capital reserve.

Funding Proposal

Increases to transit fares, property taxes, and the implementation of parking charges are proposed for consideration. It is assumed that new rates would be implemented in 2005, with fares increasing April 1, 2005.

Approximately \$92 million will be raised in 2005 by these revenue sources. This is projected to grow to \$99 million by 2007, reflecting ridership and taxation base growth.

Proposed New Revenue Sources (\$ millions)

	2005	2006	2007
6% fare increase April 2005	11	15	15
Parking charges	25	25	26
Property tax increase (\$61 for avg. home)	56	57	58
Total Revenue Increase:	92	97	99

Fares

As noted earlier in this paper, the GVTA has the largest service area of any urban transit system in Canada. To reflect this geography and the diverse services offered, the fare system is based on a series of zones that generally reflect the distance travelled and the availability of services that have 'premium' qualities, such as the West Coast Express. Most full-fare cash fares are presently \$2, \$3 and \$4, depending on the number of zones travelled.

Historically, the fare system was developed, in part, to ensure affordability for those on low incomes. In April 2002 monthly pass prices were frozen while cash fares for transit users were increased. This resulted in a shift toward monthly passes, which increased transit usage.

In September 2003, 60,000 students at UBC and SFU were issued inexpensive U-Passes, providing universal access across the regional transit system. Preliminary ridership counts indicate a significant ridership increase due to the U-Pass. The increased use of passes on the transit system has resulted in a decrease in the system's average fare from \$1.75 in 2002 to \$1.70 in 2003 and a projected value of \$1.68 in 2004.

Discounted fares are available to children, high school students and seniors. In addition, zone fares are only in effect on weekdays during the peak periods. At all other times, (i.e. evenings, weekends and holidays) passengers can travel throughout any part of the region on a one-zone fare. This includes trips as long as from Lions Bay to Langley.

Nevertheless, the affordability of transit fares continues to be of concern to some residents and also to the GVTA. Dealing with affordability presents a considerable challenge for the GVTA, because some of the issues may relate more to broader social concerns, such as poverty and income levels, than to

transportation. These concerns are better addressed by senior government as part of a broader social agenda, since the GVTA has limited powers to lessen the financial burden for some passengers without requiring cross-subsidies from other passengers. Nevertheless, as part of the Outlook, it is proposed that several specific actions be pursued to further affordability and to address a number of other ongoing fare issues:

- **Retain Government Transit Pass Program** – The GVTA will continue to press for seniors' transit and other government funded passes for low income seniors and the disabled to remain a provincially funded program. The province planned to abandon the seniors' program, but reinstated it after public concerns were raised in 2001.
- **Expanded U-Pass** – By the end of 2007 it is proposed to extend the U-pass program to substantially more public post-secondary institutions in the region.
- **Fares Increase only with Inflation** – It is planned that for the next decade fares will only increase with inflation – in effect they would remain constant in real terms.
- **Transfer Validity for Long Trips** – Some three-zone trips cannot be completed within the current 90-minute transfer validity. Action will be taken to ensure that the system is capable of allowing these trips to be completed – possibly by extending the transfer time for three-zone trips.
- **Fare Evasion** – Fraud places a greater financial burden on paying passengers. Actions will be taken in the period to continue to monitor and enforce the payment of fares to limit evasion and minimize the cost to other users and taxpayers alike.
- **Fare System and Policy Review** - A broad review of the whole fare system will be made concurrent with the planned introduction of 'SmartCards' later in the Outlook period. The introduction of 'smart' fare media will allow a much more refined system of fares that is better able to reflect features such as actual distance travelled, time of travel, while providing added savings to regular users, etc.

Transit fares were last raised in 2002. One-zone cash and ticket fares were increased by 25 cents

(14%) and there were corresponding increases to two- and three-zone fares. The monthly pass price was frozen.

The 2005-2007 funding strategy proposes an increase to transit fares to generate the equivalent of a 6% increase to all fare media types. The increase represents the cumulative impact of three years' inflation on operations costs and would provide \$15 million annually.

Cash transit fares are currently lower than those in Ottawa, the Greater Toronto area (GTA), and Montreal. For example a two-zone trip is \$3.00 in the GVRD while the equivalent trip is \$3.85 in the GTA, \$3.50 in Ottawa, and \$5.00 in Montreal.

Parking Charges

Under the *GVTA Act*, there are two basic types of parking tax available for use:

- **An "Ad Valorem" tax on Parking Fees** – Currently, the GVTA receives 7% on fees paid for parking in the region. The majority of parking for which fees are paid is within the City of Vancouver, particularly in the downtown area. This 7% currently amounts to approximately \$11.5 million annually. The GVTA has the authority to raise this tax by a further 14% to 21%. Any increase in the tax would have some impact on businesses in the downtown core.
- **Area/Stall Parking Tax** - The *GVTA Act* provides the GVTA with the authority to assess a parking tax on non-residential parking lots on the basis of either the parking spaces or surface area devoted to parking. The GVTA may determine which areas the tax will be assessed and may vary the rates by location. A requirement of introducing this tax is that a tax assessment process and roll be developed, with a process for the review of assessments.

In addition to being a source of revenue, parking taxes can also help to influence the way the transportation system is used. A properly implemented parking tax can reduce road congestion and improve travel times in some of the most heavily trafficked areas of the region, providing benefits for motorists and essential goods movements. It can also increase transit ridership, with benefits to air quality and the environment.

There are a number of considerations in choosing the appropriate mix and structure of such taxes.

Increasing the tax rate on fee-paid parking is easy to accomplish administratively. However, there are some equity concerns. Since most of the fee-paid parking in the region is in the City of Vancouver, particularly downtown, it has the potential to impact businesses, residents and visitors in those areas disproportionately. In the past, concerns have been raised about reduced competitiveness of retail businesses and commercial space in the downtown area, particularly if parking costs are relatively higher.

The parking area/stall tax may be a more equitable means of assessing a parking tax; however, it would take more time to implement and carries administrative and implementation costs. It may be possible for the area tax to have rates vary by location, accessibility, level of transportation investment (such as new rapid transit, roads, etc.) and the availability of special programs such as U-Pass. However, implementation would require the establishment of a parking assessment roll, which could take up to a year to develop, as well as ongoing administration costs. The feasibility and cost of establishing such a roll have yet to be detailed.

It is proposed to seek net additional revenues of \$25 million commencing in 2005 from parking sources to help fund the Three-Year Plan. Between now and December 2003, the GVTA will further investigate and consult on the feasibility, equity and transportation impacts of each of the two parking sources. Based on this, a recommendation will be made on the structure and mix of parking revenue sources that meets revenue needs while equitably delivering benefits to transportation users.

Parking rates in the Vancouver CBD are lower than in downtown Toronto and Montreal.

	Vancouver		Toronto		Montreal	
	Base	Prem	Base	Prem	Base	Prem
Hourly	\$2	\$3	\$4	\$10	\$6	\$6
Daily	\$10	\$13	\$14	\$20	\$12	\$18

Property Tax

The Fall 2001 funding consultation resulted in a 0.9% or \$22 increase to the average homeowner's property tax bill and generated \$20 million to fund transportation improvements. The GVTA

component of the average \$2,500 residential property tax (based on an average assessed value of \$309,000) is \$89. Recent market research indicates that there is a growing realization that an effective transportation system benefits all residents, and that some form of general taxation is an appropriate funding source. The only general taxation source available to the GVTA is property tax.

The proposed \$56 million increase to GVTA property tax equates to an average impact of \$61 per homeowner, a 2.5% increase to the average property tax bill. This is based on the current average residential value of \$309,000. Specifically, the impact to the residential property owner of the proposed increase would be \$19.75 per \$100,000 assessed value. For example, a homeowner with a \$275,000 property would have a \$49 increase to the GVTA component of his/her property tax bill.

Commercial properties would be impacted as well, based on the rate relationship defined by the *Municipal Act*. Commercial properties pay 2.5 times the residential rate.

The GVTA component of property taxes is low compared to the transportation component of property taxes in other municipalities. For example, in Toronto the transportation component is \$272 or 9% of the average residential property tax bill. The transit component of Ottawa property taxes is \$408 (13%).

Impact of Funding Package

The proposed funding package will increase revenues by \$92-\$99 million annually. By 2007, revenues grow to \$830 million, a \$183 million (28%) increase over the 2003 budget.

2005-2007 Projections with Proposed Funding Package (\$ million)			
	2005	2006	2007
Expenditures	713	768	830
Revenues			
• Transit Revenue	274	286	301
• Taxation	506	519	529
Total Revenues	780	805	830
Annual Surplus/(Deficit)	67	37	0

The proposed revenue package provides full funding for debt servicing for the RAV project, consistent with our existing accounting policy. Borrowing for the early stages of the NES rapid transit project (\$75 million assumed cash flow by the end of 2007) is also accommodated.

Revenues are projected to exceed expenditures by \$67 million in 2005 and \$37 million in 2006. These additional funds, when added to the anticipated 2004 year-end accumulated surplus of \$47 million, are sufficient to create a "transportation trust" fund. The fund is projected to grow from \$113 million in 2005 to \$151 million in 2007 and, as indicated below, would have a capital and operating component. The capital component will provide the flexibility to introduce more "pay-as-you-go" financing. The operating component is in the 10% range of annual expenditures, and provides a "cushion" against unanticipated revenue shortfalls and/or expenditure increases.

Transportation Trust (\$million)			
	2005	2006	2007
Capital Component	34	68	68
Operating Component	79	83	83
	113	151	151

7. CONCLUSION/NEXT STEPS

This discussion paper presents a three-year strategy within the context of an Outlook vision to work towards over the next decade and translate that vision into practical actions. It presents a balanced mix of both road and transit investments that will lead to less congestion, while offering a broader choice for personal travel than is currently available. In particular, there is an explicit emphasis on goods movement and significant expansion of transit options. New transit initiatives and improvements will offer such a broad and high-quality range of services, that many suburban residents will prefer transit to the private vehicle.

The overall approach would move the transportation system firmly in the direction of supporting the *Livable Region Strategic Plan (LRSP)*, thus advancing the economic, environmental and social sustainability of the region. The projects will require significant investment and the Outlook proposes that a three-year strategy be developed, while the longer-term requirements are addressed through dialogue with senior government and the development of longer-term plans in 2004 and 2005.

However, given the scores of projects and the numerous issues surrounding them, it is critical to also initiate work on a new Long Range Transportation Plan (25-30 year), in concurrence with the GVRD's update of the LRSP, and to address the policy issues summarized in this discussion paper. Moreover, the Outlook also notes that a tangible and substantive role for the federal government must be established before the end of the decade, for the program to be affordable.

If the direction of the Outlook vision and proposed three-year priorities are accepted, the GVTA will prepare a specific and detailed Three-Year Transportation and Financing Plan for approval and formal adoption in the spring of 2004.

8. HOW TO BECOME INVOLVED

The GVTA believes the people directly affected by its transportation decisions should participate in making those decisions. Consultations will also be held with municipal councils and GVRD committees.

Public consultation improves the GVTA decisions by including a variety of perspectives and expanding options. The GVTA will conduct a public consultation process beginning in October that is intended to facilitate understanding of the planning problems while providing a forum to share ideas and concerns.

Regional public meetings will take place through a series of public workshops and meetings to be held throughout the region. Information on the times and locations of these meetings will be advertised and also be available on www.translink.bc.ca.

'Build your Transportation Future' is an interactive website model available on www.translink.bc.ca that records public input on regional transportation priorities and preferred funding options.