# Contents

1. Protect the Green Zone 5
   1.1 Our Green Zone Assets 9
   1.2 Protecting the Agricultural Land Base 9
   1.3 Regional Greenways 10
   1.4 Environmental Stewardship Programs 10
   1.5 The Green Zone as the Urban Growth Boundary 11

2. Build Complete Communities 12
   2.1 Housing Choice and Complete Communities 12
   2.2 Jobs and Complete Communities 13
   2.3 Building a Network of Centres 18

3. Achieve a Compact Metropolitan Region 22
   3.1 Population Growth in the Region 22
   3.2 Growth Concentration Area Targets 23
   3.3 Transportation Infrastructure Required to Support a Compact Region 24
   3.4 Achievement of Densities in Centres and Transportation Corridors to Support Transit 25
   3.5 Limiting Growth Across the Eastern Boundary of the GVRD 28

4. Increase Transportation Choices 29
   4.1 Transit Targets 29
   4.2 Car Ownership Patterns 30
   4.3 Transportation Infrastructure 31
   4.4 Paying for Transportation Improvements 32
   4.5 Improving the Region’s Air Quality and Managing Greenhouse Gas Emissions 33

Appendix A: Livable Region Strategic Plan Indicators
Introduction

The Livable Region Strategic Plan is Greater Vancouver’s regional growth management strategy. It was adopted by the GVRD Board with the formal support of all member municipalities in 1996. It provides a framework for making regional growth management, transportation, utility and other decisions, in partnership with the GVRD’s member municipalities, senior levels of government, and the private sector.

The population of the region has topped the 2,000,000 mark and is now 2,016,000. In the 1990s the region averaged over 40,000 new residents per year. By 2021, an additional 800,000 people could be joining us. The overall aim of the Livable Region Strategic Plan is to help the region develop in a way that protects the natural environment and at the same time guides the location of urban activities to create a high quality of community life and supports a growing economy.

The Local Government Act requires that an annual report be prepared on the Livable Region Strategic Plan. The 2000 Annual Report on the LRSP provides an opportunity for evaluating what progress we are making in achieving our regional planning objectives. This report examines progress made in achieving each of the four objectives of the LRSP:

• Protect the Green Zone
• Build complete communities
• Achieve a compact metropolitan region
• Increase transportation choices

The Strategic Plan is implemented primarily through the land use decisions of individual member municipalities. Each member municipality has now prepared a Regional Context Statement, which demonstrates how their local planning policies help achieve the Livable Region Strategic Plan goals.

Implementation also depends on the infrastructure spending priorities and policies of regional government. TransLink is the regional authority responsible for providing transportation services and infrastructure. TransLink’s Strategic Transportation Plan is required to be consistent with the LRSP, and its implementation priorities are key to achievement of regional planning objectives. The GVRD is responsible for trunk sewers and regional water supply. The provincial government has a role to play in implementation through its programs and location of facilities such as colleges and universities, social services, and government offices. The private sector, through the development industry, and through the location of commerce- offices, shops, and industry, also plays a fundamental role in shaping the region.

The LRSP has been in place for almost five years. As well at looking at change over the last year, this report scans the 1990s and examines whether or not change and development is leading us towards achievement of the LRSP objectives.

In June 1999, the GVRD Board of Directors endorsed "A Monitoring Program for the Livable Region Strategic Plan." This program identified a series of indicators to help track progress in meeting LRSP objectives and policies. These indicators are included in the annual report and are highlighted with their indicator number (example: Indicator G5) in the text. A complete list of indicators is contained in Appendix A.
This annual report offers both qualitative and quantitative assessment of our collective progress. It is also presents a combination of implementation monitoring (did we implement what we set out to implement?) and performance monitoring (what do the indicators or benchmarks tell us about our collective progress?). The LRSP is a vision guiding us to 2021 and beyond. In many instances, progress is difficult to assess even over a decade. The data sometimes presents mixed or unclear messages. The intent is to use the available information to see if we are heading in “the right direction.”

Summary Findings

PROTECT THE GREEN ZONE

Objective: The Green Zone protects Greater Vancouver’s natural assets, including major parks, watersheds, ecologically important areas and resource lands such as farmland. The Green Zone also establishes a long-term boundary for urban growth.

GREEN ZONE CONTINUES TO BE RECOGNIZED AS A HIGHLY VALUED REGIONAL ASSET

The Green Zone makes up over 200,000 hectares, or about two-thirds of the area of Greater Vancouver. Its importance is highlighted in the local plans and policies of all member municipalities. Through preparation of their Regional Context Statements, a number of municipalities have identified additional lands to be included in the Green Zone and these efforts will increase the total area of the Green Zone. One of the key challenges is to maintain and enhance the recreational and ecological values of the Green Zone in the face of continued population growth in the region. Many municipalities and the GVRD are taking initiatives to construct greenways, protect stream corridors, and promote environmental stewardship of the Green Zone:

• from 1991 to 1999 the area of protected habitat within the Green Zone increased from 30,430 to 91,730 hectares, largely as a result of the Nature Legacy Program;

• the GVRD continues to increase park and reserve holdings of lands of recreational and/or ecological value;

• a major greenway project under construction is the 17 kilometre greenway connecting the Fraser Foreshore in New Westminster and the Burnaby Mountain Conservation Area;

• a number of municipalities and the GVRD are involved in stream protection programs and watershed management plans.

AGRICULTURAL LANDS ARE AN INTEGRAL PART OF THE GREEN ZONE

The amount of land in the agricultural land reserve is estimated to be about 54,000 hectares in 1999. While a small number of applications to remove land from the reserve have been supported by the Land Reserve Commission, the size of the reserve has decreased only slightly in recent years.
Agricultural production in the GVRD accounts for 27% of the value of provincial produce. A number of municipalities and the Agricultural Advisory Committee are conducting studies on measures to maintain and enhance viability of agricultural industry in the context of long term change in the metropolitan area.

**GREEN ZONE AS THE URBAN GROWTH BOUNDARY**

Recent trends show a slowing of the rate of urban sprawl as a result of an increase in proportion of multi-unit dwellings and strong market interest to build in established areas. Continuing efforts to contain sprawl will be critical to the success of the Green Zone as an urban growth boundary. To advance environmental protection and biodiversity, significant gains can be made if new development can be contained within existing drainage catchment areas.

**BUILD COMPLETE COMMUNITIES**

**Objective:** The plan supports the public’s desire for communities with a wider range of opportunities for day-to-day life. Focused on town centres, more complete communities would result in more jobs closer to where people live, shops and services near home, and a wider choice of housing types. Arranging land use in a convenient way helps minimize the need for long trips and makes alternatives to car use more practical.

**MORE VARIETY IN HOUSING CHOICE**

Significant gains have been made in recent years on the choice in housing stock. Approximately 75% of all new housing built in the region are multi-unit dwellings (town house, duplexes, and apartment buildings). A generation ago the reverse would have been true. In 1986, 53% of the region’s housing stock was single family dwellings but by 1999 this proportion declined to 45%. Continued efforts are needed to encourage the supply of ground-oriented medium density housing throughout the region.

**HOUSING AFFORDABILITY REMAINS A CHALLENGE IN THE REGION**

Many municipalities are introducing innovative policies to reduce the cost of housing, such as the easing of secondary suite regulations, promoting more choice in housing type, looking for ways to reduce development costs, and increasing the supply of land zoned for multi-unit developments. It is likely that the stock of low cost rental housing stock will come under increasing pressure as older blocks of rental units get replaced with new construction.

Homelessness is now recognized as a national problem. The federal government is providing financial assistance to help the Greater Vancouver Regional Steering Committee on Homelessness to develop and pursue an action plan.

**NATURE OF WORK CONTINUES TO CHANGE**

The nature of work continues to change with more part-time workers, more self-employed and more working at home.
The GVRD is well placed to attract high technology industry. High technology industry has been showing trends to both concentrate and disperse. How we accommodate this industry in the region will influence our attractiveness as a metropolitan region. If high technology office activity can be attracted to sites in regional centres, for example, this will offer transportation choice, support the transit system, and improve livability of the region.

**THE DEVELOPMENT OF REGIONAL TOWN CENTRES**

The development of regional town centres has been considerable in recent years. New housing as well as shopping, education and community facilities are all progressing well. TransLink’s Strategic Transportation Plan puts emphasis on improving the bus and SkyTrain network to and between centres.

Regional centres, however, have not been as successful in getting new office jobs. Superior transit access and improving the amenity of centres compared to other job locations will continue to be important drawcards for centres.

**ACHIEVE A COMPACT METROPOLITAN REGION**

**Objective:** The plan seeks to avoid widely dispersed development and accommodates a significant proportion of population growth within the central part of the region. Concentrating growth allows more people to live closer to their jobs, leads to more efficient use of public transit, utilities and community infrastructure, and slows the consumption of rural land for urban development.

**TARGETS ACHIEVED IN GROWTH CONCENTRATION AREA**

The LRSP has a long-term objective of containing 70% of new growth within the Growth Concentration Area. During 1999, approximately 11,000 units were built in the GVRD, and 69% were located within the Growth Concentration Area (the Burrard Peninsula, the NE Sector, North Surrey, and North Delta). To continue to achieve this target, a range of housing infill projects will be needed, such as mixed retail/housing developments on underused commercial sites, single family zoning offering more flexibility for townhouses and duplexes, continuing initiatives to increase the stock of secondary suites, and transit-oriented development around key transit interchanges.

The increased proportion of multi-unit dwellings compared to detached housing, and higher household size have helped reduced the demand for greenfields site. This means less land is needed to accommodate a greater number of people and helps curb sprawl:

- looking at distribution of new dwellings through the region through the 1990s there has been a strong concentration around regional centres and along major transit corridors;

- the large increase in housing around regional town centres has helped contribute to compact region objectives-from 1986 to 1996 a total of 25,800 dwelling units were built in regional town centres and the downtown area;

- data on eastern boundary crossings from Highway 1 show the rate of increase has been slowing down in recent years, suggesting that there has not been any significant increase in commuting to Greater Vancouver from further east in the Fraser Valley.
INCREASE TRANSPORTATION CHOICE

Objective: The plan supports the increased use of public transit and reduced dependence on the single-occupant automobile. It relies upon modest expansion in road facilities, and significant expansion in transit facilities and services.

TRANSIT TRIPS SHOW SLIGHT INCREASE

The number of transit rides per capita has dropped slightly through the 1990s but shows a slight increase from 1998 to 1999, with 65 trips per person per year. For the journey to work, 14.3% took transit in the GVRD, but within the Growth Concentration area 17.5% took transit (1996 figures).

LIVING IN THE DOWNTOWN AND IN REGIONAL CENTRES PROMOTES WALKING AND TRANSIT TRIPS

The proportion of people walking to work and taking transit is significantly higher in the downtown and in regional centres. The work travel patterns of residents living near centres shows that 18% of the region’s population lives within walking distance of the downtown or a regional town centre but these people account for 40% of all transit, walk, or bike trips in the region.

Walking to work is increasing, especially in regional town centres as more job opportunities become available. For example, in Metrotown, 12% of residents walk to work, twice the regional average, and 31% take transit, which was more than double the regional average. In the West End, the number of residents walking to work actually outnumbered the number driving with almost 40% walking to work.

TRANSLink’s Strategic Plan Supports LRSP

In April 2000, TransLink adopted its a Strategic Transportation Plan which provides for a significant increase in bus services and moderate increase in regional road expenditure. The Provincial government has also lent support to the LRSP through investment in the transit corridors identified in the LRSP. Many municipalities are continuing to improve their cycling network and are increasing awareness of the importance of safe, attractive pedestrian environments. The Province and TransLink are providing grants to encourage cycling infrastructure improvements.

Paying for transportation improvements will continue to be a difficult challenge. User pay will be part of the answer to help curb demand, but also ways to increase efficiency of the transit system through clustering of jobs and housing in centres and transit corridors will become increasingly important.

SIGNIFICANT IMPROVEMENTS IN AIR QUALITY

Air quality improvements have been significant in recent years as a result of improvements to industry and vehicle emissions. Maintaining high air quality will continue to depend to a large extent on success in reducing the energy used for mobility and for heating buildings.
1. Protect the Green Zone

1.1 Our Green Zone Assets

The Green Zone serves two key purposes. First, it protects Greater Vancouver’s natural assets, including major parks, watersheds, ecologically important areas and resource lands such as farmland. Secondly, it establishes a long-term boundary for urban growth.

The Green Zone makes up about two-thirds of the land area of the GVRD. Through Regional Context Statements, a number of municipalities have identified additional lands for inclusion in the Green Zone so the area is likely to increase. Protected habitat areas within the Green Zone now make up 91,370 hectares, equivalent to about one-third the total land area of the GVRD. The land base of protected habitat areas has tripled through the 1990s largely as a result of the Nature Legacy Program. (Indicator G1)

The GVRD’s Regional Park system in the year 2000 contained 11,383 hectares, up from 8,957 hectares in 1986. In the 1990s there were major additions to several parks as a result of the Nature Legacy Program and the Heritage Parkland Acquisition Funds. Three new parks were added—Widgeon Marsh, Iona Beach, and Glen Valley. There are now a total of 22 parks in the regional park system.

1.2 Protecting the Agricultural Land Base

Within the GVRD in 1999, there were 53,773 hectares in the Agricultural Land Reserve. These lands are part of the Green Zone. The Land Reserve Commission tracks annual applications to convert agricultural land to non-agricultural uses. In 1999/2000, the Land Reserve Commission approved applications to permit a total of 189 hectares to be released from the ALR and added 21 hectares through applications for inclusion, for a net loss of 168 hectares in the GVRD. In 1998/99, there was a net gain of 5 hectares to the ALR. These figures show that the Agricultural Land Reserve is essentially remaining intact and only relatively small tracts of land have been removed from the ALR. (Indicator G2)
The legislative tool for protecting agricultural land in British Columbia is the Agricultural Land Reserve Act. The administration of this act is the responsibility of the Land Reserve Commission. However, the primary "gatekeepers" of the Agricultural Land Reserve are individual municipalities. Inquiries to remove land from the ALR are first received by municipalities. They turn down most inquiries since they do not conform to ALR policies.

The mandate of the Agricultural Advisory Committee (AAC) is to advise the GVRD Board and the Land Reserve Commission on region-wide agricultural issues, and also to raise the profile of agriculture. The AAC has members representing the different agricultural sectors as well as municipal representatives. The AAC organizes the annual Farm Open House Day and agricultural displays at "County celebration" in Campbell Valley Regional Park. They have also initiated a study to investigate ways of increasing the viability of agricultural land in a metropolitan setting. A number of member municipalities are also preparing plans and studies on their agricultural industries.

Agricultural industry in the GVRD accounts for 27% of all agricultural output in the Province. *(Indicator G3)*

### 1.3 Regional Greenways

The GVRD Board adopted the Greenway Vision in June 1999. The vision shows how a network of recreational and ecological greenways can link areas of Green Zones and regional parks to enhance recreational opportunities and the ecological health in the region. There is an estimated 762 kilometres of greenways completed across the region. *(Indicator G6)*

More detailed greenways planning has been initiated in a number of sectors of the GVRD to realize the Greenway Vision. In the Burrard Peninsula / Richmond area, the GVRD initiated a greenways planning process in early 1999 with the cities of Vancouver, Burnaby, New Westminster and Richmond. This draft greenways plan is expected to be completed for municipal review by the end of 2000.

A major greenway initiative in the construction stage is the Brunette - Fraser Regional Pilot Greenway. It is a partnership effort involving the GVRD, the City of Burnaby, City of New Westminster, TransLink and the SkyTrain Project Office to develop a 16.6 km greenway connecting Green Zone areas between Burnaby Mountain Conservation Area Park and the Fraser foreshore in New Westminster. The greenway will approximately parallel the SkyTrain guideway along the Fraser River foreshore in New Westminster to Lougheed Highway near Gaglardi. Construction is proposed over a 6-year period from 2000 - 2005.

### 1.4 Environmental Stewardship Programs

Over the past year many municipalities have continued to make advances on environmental protection both within and outside the Green Zone. Municipal development approval processes have incorporated tree retention/replacement programs, stream protection measures, and other environmental mitigation measures.

The GVRD is pursuing environmental stewardship objectives through utility development and operations, the watershed management plan, the Lower Seymour Conservation Reserve Management Plan, parks planning, and other activities.
The Fraser Basin Council in conjunction with the GVRD and the Ministry of Municipal Affairs hosted a Sustainability Indicators Workshop in April 2000 to share experience and help develop indicators to monitor progress in environmental protection. A number of municipalities are currently developing monitoring programs and GVRD Parks is monitoring the health of flora and fauna in the regional parks and reserves within the Green Zone. *(Indicator G5)*

Water consumption is showing trends toward declining consumption per household in the region. However, when compared to other regions, it is likely that further reductions are achievable especially if demand management systems (pricing, plumbing code changes, etc.) are in place. The degree that we can conserve water will be an important factor in protecting the Green Zone and avoiding the construction of additional water reservoirs. *(Indicator G8)*

**1.5 The Green Zone as the Urban Growth Boundary**

All member municipalities, through their Regional Context Statements, have identified areas to be included in the Green Zone. Fine tuning of the Green Zone edges can occur through the Regional Context Statement process. There have not been any requests to date for removal of lands from the Green Zone by municipalities.

As the population continues to grow there will be increased pressure to use the Green Zone for urban land uses. Encouraging compact development in new areas and continuing to encourage densification in established areas of housing, commercial, and industrial uses will help dampen this pressure. Recent trends in housing development show encouraging trends of more compact development both through infilling in established areas and a larger proportion of more compact forms of housing such as town houses in fringe areas. For commercial development, there are some trends working against compact development such as stand-alone large format retailing stores, and offices locating at low densities in office parks.

*Stream enhancements were created through a partnership between the Beecher Creek Streamkeepers (8th Northview Scouts) and the City of Burnaby*
One of the indicators used to assess whether we are achieving complete communities is the availability of housing choice. Significant gains have been made during the 1990s on the choice in type of housing. Approximately 75% of all new housing built in the region have been multi-unit dwellings (town house, duplexes, and apartment buildings). A generation ago the reverse would have been true. *(Indicator B1)*

The LRSP contains a policy aimed at expanding the supply of medium density ground-oriented housing units such as triplexes, small-scale conversions, townhouses, rowhouses, and duplexes. This allows more people to enjoy the benefits of their own outdoor space without the expense of a single family home. In recent years, the number of ground-oriented units has increased significantly. In 1998 and in 1999 about 1000 duplexes and row houses were built in each year, compared to about 1500 single family units per year. However, the number of ground-oriented units that could be supplied within the capacities of present official community plan is roughly 400,000, well below the LRSP target of 491,000 ground-oriented units in the Growth Concentration Area in 2021.

Increasing the supply of ground-oriented medium density housing across the region will come as a result of the confluence of a number of factors currently in play:

- continued demand for such housing (especially as the population ages);
- continued design and development innovation by the development industry in making this type of housing attractive and compatible with existing neighbourhoods; and
- on-going efforts by local government to encourage the provision of this housing through land use policies and zoning regulations that allow for greater flexibility.

Housing affordability remains a challenge in the region. Approximately one-quarter of homeowners spend over 30% of their household income on shelter costs, while about 50% of all renters spend over 30% of their income on shelter.

Many municipalities are introducing innovative policies to reduce the cost of...
housing, such as the easing of secondary suite regulations, promoting more choice in housing type, and increasing the supply of land zoned for multi-unit developments. Many of the under-utilized development sites, such as car lots and commercial properties with a low level of investment, have been converted to multi-unit housing developments. This land use change has not resulted in the loss of low cost rental housing. However, it is likely as the supply of these parcels diminishes, that the stock of low cost rental housing will come under increasing pressure as older blocks of rental units get replaced with new construction. From 1986 to 1996 the proportion of owner-occupied accommodation rose from 56% to 59.4%. (Indicator B7)

Homelessness is now recognized as a national crisis, and its symptoms are evident here in the region, not only in the visibly homeless population, but also in the incidence of people at risk of homelessness, due to factors of housing affordability, mental health, domestic violence, or addictions. Member municipalities are participating in a regional planning initiative to understand the nature of the problem and offer both "urgent need" and longer-term solutions. The federal government is providing funding for this planning process as well as service/facilities that address "absolute homelessness".

2.2 Jobs and Complete Communities

How many jobs, what types of jobs, and where the jobs are located are central to the objective of creating complete communities. Encouraging a diversity of jobs close to home in all parts of the region will continue to be a priority. Nobody aspires to be a rat-racer. Minimizing the work trip can be difficult and there are many factors to consider besides job location when it comes to deciding where to live - price, type, and tenure of housing, transportation costs, location of schools, location of other household member’s work, proximity to recreation and services, and relatives. However, the available information suggests that people will try to minimize their work trip length if the opportunity is available. This is particularly true for people in their more mobile stages of life- singles, childless couples, and those renting their accommodation.

The work travel patterns of residents living near centres shows that 18% of the region’s population lives within walking distance of the downtown or a regional town centre and these people account for 40% of all transit/walk/cycling trips in the region.

Changing Nature of Work: Number and Types of Jobs

The GVRD labour force has almost reached 1,000,000. In 1999, the number of jobs in the region was 986,400, up by 26,000 from 1998. During the 1990s the number of jobs increased by 17.4%. The nature of employment continues to change. The trend is away from a conventional "9 to 5 job" and toward more part-time work, more self-employed, and more work at home arrangements:

- the number of part-time jobs increased by 36.3% during the 1990s and now make up almost 20% of all jobs;
- the unemployment rate fell slightly from 8.4% in 1991 to 7.7% in 1999, with 82,300 people unemployed;
- participation rates fell from 69.3% in 1991 to 66.3% in 1999, with male participation rates accounting for most of the drop. (Participation rate refers to the total labour force expressed as a percentage of the working age population of 15 years of age and over);
- the number of self-employed people rose by 51.8% in the 1990s, to 137,450 people in 1999;
- the number of people working at home rose by 25%, to about 70,000 in 1999.

It is difficult to determine the implications of the trends toward part-time work and self-employment. While it does show more flexibility and choice in types of jobs, it also probably means "under-employment" for some people. From a transportation perspective, many of these trends should mean less pressure on peak hour traffic. However, it may
mean more bus services needed in off-peak times. For part-time workers, there will be a greater need to avoid long journeys to work in order to try to minimize travel costs and time.

The graph below shows the net change in the number of jobs by sector in the GVRD over the 1990s. Only three sectors had a net loss in jobs; the primary sector (including agriculture), the construction sector, and public administration. The sectors showing the most growth were retail trade, the professional, scientific, and technical sector, and accommodation and food services.

The decline of manufacturing jobs apparent in the 1980s appears to have reversed itself and there has been modest growth in a number of manufacturing activities. In 1999 there were almost 100,000 jobs in the manufacturing sector in the GVRD. The largest manufacturing sector in the region is food and beverage manufacturing employing 13,000 people. Other traditional sectors such as clothing, wood products, and printing continued to be strong (26,000 jobs). Computer and electronic manufacturing and transportation equipment manufacturing accounted for 13,000 jobs. Growth in manufacturing sectors and warehousing throughout the 1990s shows that there will be a continuing demand for industrial land for more traditional industry. Those municipalities that offer a good supply of industrial land well served by transportation will be well placed to provide a diversity of jobs for their residents.

High technology industry continues to attract attention throughout the region. While high technology jobs are found in a range of industry sectors, BC Employment estimates about two-thirds to be in service sectors (such as information technology, research etc) and about one-third in goods-producing sectors such as aviation, electronics, and computer manufacture. The number of high technology jobs in the region is estimated at about 35,000, less than 4% of all jobs.

However, high technology industry growth rates are high and are likely to remain high in the foreseeable future. The GVRD is well placed to attract high technology industry. How the region accommodates this industry will in turn impact our attractiveness. If Greater Vancouver can attract high technology offices to sites in regional centres, for example,
this will enhance the centres as places to live and work, offer transportation choice for the journey to work, support the transit system, and improve the livability of the region.

**BUILDING A VIGOROUS ECONOMY**

The regional focus is to promote partnerships to help make the economic pie bigger in a way that does not compromise livability of the region. Building a strong, diverse economy continues to be a priority for member municipalities. Many municipalities are currently undertaking studies to determine what comparative advantages their municipality can offer. This will help enable them to be more strategic in promoting their municipality as an employment location for particular sectors. These studies are leading to a better understanding of local strengths and weaknesses, such as characteristics of the labour force, and availability of land and buildings for different activities.

In 1999-2000, the GVRD has supported the development of a vigorous regional economy through many specific partnerships and projects, including continued participation in the Greater Vancouver Economic Partnership, support for the expansion of toll-free telephone calling throughout the region, working with the film industry on regional issues, and support for the development of an Economic Strategy for Agriculture in the Lower Mainland (in progress 2000-2001).

**CHANGES IN JOB DISTRIBUTION**

An examination of changes in regional job distribution reveals a few important trends:

- in general the data on work trips in the GVRD indicates a trend toward dispersal of jobs;
- the number of work trips beginning and ending outside the City of Vancouver has increased from 35% to 52% of all region’s work trips from 1971 to 1996 (suburb to suburb trips);
- the proportion of trips from outside Vancouver to Vancouver now makes up one fifth of all commuting trips;
- in 1981, 28% of employment in the region was concentrated in the downtown but by 1996 this proportion had dropped to 21%. There was only a slight increase in the proportion of jobs located in regional centres during this period. Overall, the concentration of jobs in downtown and the regional town centres dropped from 44% to 37% between 1981 and 1996.

The accompanying graph shows how the labour force and location of jobs has changed from 1991 to 1996. "Labour force" refers to the number of workers residing in a municipality, both employed and unemployed. "Jobs" refers to the number of jobs located in a municipality. Surrey had the largest net increase in the number of jobs but their growth in labour force exceeded the number of new jobs. In Vancouver the number of new jobs slightly exceeded the growth in labour force. Some municipalities such as Coquitlam and Langley Township “grew” jobs at about the same rate as labour force. Burnaby, Delta, and Richmond increased jobs at a much greater rate than labour force. Interestingly, adding local jobs will not necessarily lead to a higher proportion of jobs occupied by local residents. For example, while Richmond gained over 30,000 jobs from 1981 to 1996, the proportion of local jobs occupied by Richmond residents declined from 43% to 37%.


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<td>Delta</td>
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<td>City &amp; Township of Langley</td>
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<tr>
<td>Maple Ridge/Pitt Meadows</td>
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<td>Coquitlam/Port Co,Port Moody</td>
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<tr>
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<td>Richmond</td>
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<td>Surrey/White Rock</td>
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<td>Vancouver/UEL</td>
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The table below shows what proportion of residents work in their own subregion. The proportion varies from approximately one-third of residents in the Coquitlam, Port Coquitlam, and Port Moody area working in their subregion, compared to almost three-quarters of Vancouver residents working in the Vancouver subregion. (Indicator B6)

Another way to explore jobs/housing balance is to look at what proportion of the local jobs is actually occupied by local residents. For example, in Maple Ridge/Pitt Meadow 75% of all local jobs are occupied by local residents. Surrey/White Rock and the North Shore have the next highest proportion with 65% of the jobs occupied by locals in their areas.

The dispersion of jobs throughout the region is beneficial insofar as it increases accessibility of jobs for the region’s labour force. The GVRD is a single economic region and what happens within a particular municipal boundary is not necessarily a good indication of whether or not accessibility is being achieved. The regional priority is to promote access for GVRD residents to a range of jobs but at the same time encourage an increasing number of work trips to be made by transit, walking, and cycling. That is why the concept of building up the job base in accessible locations such as downtown Vancouver and the regional town centres that can be served by transit is so important to achieving the complete communities objective. It is basically a strategy of “concentrated dispersal”.

The concept of a compact region is also important as jobs often lag behind population growth resulting in bedroom communities on the fringe. The degree that the region can steer growth within the Growth Concentration Area will influence job accessibility.

<table>
<thead>
<tr>
<th>Subregion</th>
<th>Total no of work trips</th>
<th>Working in home subregion</th>
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<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Vancouver/UEL</td>
<td>215,170</td>
<td>156,220</td>
</tr>
<tr>
<td>Surrey/ White Rock</td>
<td>119,215</td>
<td>71,040</td>
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<td>Burnaby/New Westminster</td>
<td>92,135</td>
<td>34,590</td>
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<tr>
<td>Coquitlam, PortCo, Port Moody</td>
<td>72,150</td>
<td>22,125</td>
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<td>North Shore</td>
<td>70,980</td>
<td>31,450</td>
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<td>Richmond/Delta</td>
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<td>City and township of Langley</td>
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<tr>
<td>Maple Ridge/Pitt Meadow</td>
<td>26,305</td>
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</table>

Source: 1996 Census of Canada
High Tech Sector Jobs: What are their space requirements?

The high tech sector is a relatively small but rapidly growing sector. A BC provincial report identifies 52,000 jobs Province-wide in the high tech sector in 1999 with roughly two-thirds of these jobs located in the GVRD. This makes up about 3.5% of all jobs. Employment growth rates for high tech industries are high, showing a growth rate of 10% from 1998 to 1999. Throughout the 1990s high tech growth rates have outpaced growth in other sectors.

Data for BC shows that approximately two-thirds of all high tech jobs are in the service sector, and about one third are in the manufacturing sector. The site and space needs and preferences vary widely depending on the individual company. Here are some general observations for the various high technology sectors.

**Information technology sector:** This sector largely consists of software creation and expertise in information technology system management, and engineering services. There is no physical good- the product is generally transmitted electronically. They require office space with good high-speed fibre optic connections. Space configuration varies considerably - some prefer high rise buildings while others prefer single-storey layouts. Examples are Seagate Software in Vancouver’s Yaletown and Nortel Networks in Richmond.

**Biotechnology research and development sector:** Like the information technology sector, there is generally no physical goods produced but rather testing and research. Most biomedical R&D facilities require laboratories and special ventilation and cannot usually go in conventional office spaces. Their preferred location is in industrial areas/business parks or in hospital precincts. Examples are QuadraLogics located in False Creek Flats in the City of Vancouver and MDS Metro Laboratory Services in Discovery Park, Burnaby.

**High technology manufacturing sector:** These industries make products that use raw materials, or the products made by other manufacturing industries to make new products. Examples are aircraft/aerospace manufacturing, assorted electronic manufacturing and pharmaceutical manufacturing. They need production space, storage space, as well as the ability to handle goods movement. These types of companies are best accommodated in industrial/business parks. Examples are Avcorp Industries on River Way in Delta and Creo Products in Discovery Park, Burnaby.
2.3 Building a Network of Centres

The LRSP identifies the building of a network of centres across the region as one of the best ways to accomplish complete communities objectives. This form of metropolitan development would result in a concentration of housing, jobs, shops, and services in a network of centres throughout the region that offer good access by transit, car, walking, and cycling.

At the neighbourhood scale, it could take the form of a mini "Main Street" where children can walk safely to the shops and the library. At the sub-regional scale it takes form in a "city centre" of shops, entertainment, office jobs, community facilities, good transit access, and range of housing types.

By building a network of centres around the region, the region can help create lively and interesting places and help reduce the need for getting around by car. While the convenience of the car is hard to beat for some trips, people do value the option of being able to do at least some of their trips by walking, cycling, or transit. This is especially important for the poor, children, teenagers and seniors who do not always have access to a car.

All member municipalities have incorporated the centre concept into regional context statements, official community plans and zoning. Regional centres are generally progressing well, especially in terms of offering a choice in housing and community facilities.

Housing growth around the centres has been impressive in recent years. Approximately 11,000 units were added around the downtown and 15,000 around the other regional town centres from 1986 to 1996.
The table below shows the change in the number of dwelling units in the Metropolitan Core and the regional town centres from 1986 to 1996. Estimates from 1996 to 1999 show continued strong growth in the housing markets in the metropolitan core and several of the regional town centres. Together the centres accounted for 17.5% of all dwelling units constructed in the region between 1986 and 1996. (Indicator B3)

There has been less interest in the office market in centres. In the absence of this interest, many municipalities are allowing office park developments, often on industrial lands.

The proliferation of dispersed office locations, however, can have a number of consequences both in the short term and long term. They are likely to contribute to traffic problems due to car dependency- this is already a major problem in the fringe areas of Toronto and several American cities, such as the high-tech corridor, Route 128, near Boston. Transit solutions are difficult due to dispersed layouts and their "edge city" locations away from transit corridors. They are generally isolated from housing and effectively rule out most opportunities for walking and cycling; they can offer only limited restaurant and services and therefore create more car trips generated at lunch time; they tend to use more land due to low density layout and large parking lots, and they often push out traditional industrial uses due to higher land costs.

The challenge remains as to how to make centres more attractive to the office market. There is evidence that many companies are putting more value on access and atmosphere- as evidenced by the shortage of high tech office space in the downtown. As the regional centres mature and offer attractive, convenient settings, they will offer a distinct advantage over single use office parks.

<table>
<thead>
<tr>
<th>Regional Town Centre</th>
<th>1986</th>
<th>1996</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metropolitan Core</td>
<td>38,646</td>
<td>49,704</td>
<td>11,058 (29%)</td>
</tr>
<tr>
<td>Maple Ridge Town Centre</td>
<td>348</td>
<td>437</td>
<td>89 (26%)</td>
</tr>
<tr>
<td>Surrey City Centre</td>
<td>5,481</td>
<td>7,167</td>
<td>1,686 (31%)</td>
</tr>
<tr>
<td>Langley Town Centre</td>
<td>2,630</td>
<td>4,130</td>
<td>1,500 (57%)</td>
</tr>
<tr>
<td>Richmond Centre</td>
<td>7,198</td>
<td>12,225</td>
<td>5,027 (70%)</td>
</tr>
<tr>
<td>Coquitlam Centre</td>
<td>348</td>
<td>2,434</td>
<td>2,086 (599%)</td>
</tr>
<tr>
<td>Lonsdale</td>
<td>10,703</td>
<td>11,386</td>
<td>683 (6%)</td>
</tr>
<tr>
<td>Downtown New Westminster</td>
<td>2,274</td>
<td>3,811</td>
<td>1,537 (68%)</td>
</tr>
<tr>
<td>Metrotown</td>
<td>9,939</td>
<td>12,087</td>
<td>2,148 (22%)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>77,567</td>
<td>103,381</td>
<td>25,814 (33%)</td>
</tr>
</tbody>
</table>

*Source: 1986, 1996 Census of Canada*
The Metropolitan Core and the Regional Town Centres

The LRSP identifies a network of 9 employment concentrations: the metropolitan core consisting of the downtown and Central Broadway and 8 regional town centres. The plan also identifies a network of municipal town centres, which serve smaller areas than the regional town centres.

This section looks at progress in developing the regional town centres. There are several key aspects to building successful centres—housing, jobs, shopping and services, transportation, and an attractive public realm are all key building blocks.

Housing Around Centres

Most of the new housing in and around centres is medium and high density housing offering a mix of rental and owner-occupied housing. This helps achieve the LRSP goal of providing a variety of housing types to suit a variety of lifestyles—such as new entrants to the labour force looking for easy access to work and seniors looking for the convenience of shops, and community facilities.

Jobs as a Key Building Block

Jobs are one of the key building blocks for regional town centres. For example, the large employment base in the downtown is ringed by neighbourhoods such as the West End, Yaletown and Coal Harbour. As a result of this proximity, many workers have the opportunity to walk to work. Almost 40% of workers living in the West End walk to work. Region-wide, only 6% of residents walk to work.

Many of the regional centres have a good job base in the retail sector. However, office job growth has not yet happened in many centres. In order to achieve the LRSP objectives of the regional town centre as a ‘complete community’ hub it is important to try to reverse dispersal trends and attract as many jobs to centres as possible. Most office uses, including high-technology office uses, are very well suited for centre locations. Superior transit access and high amenity of centres compared to other job locations will continue to be important drawcards for centres.

Community and Cultural Facilities

Another essential building block for centres is the provision of a broad range of cultural, education, recreation and social service facilities. There are many excellent examples around the region. Richmond City Hall was completed this year and is much more than civic offices—it is a community meeting place and a cornerstone to the enhancement of their centre. TechBC, the new technical university, is in its early days in Surrey City Centre but this facility will certainly be a catalyst to centre development. In Coquitlam, several facilities are combining to make the centre a complete community—Douglas College, a high school, several sporting facilities, and a new City Hall.

The cultural strategy for the GVRD addresses the need for more cultural facilities and the need to distribute these facilities across the region. The town centres will continue to offer key locations for these facilities.
Balancing Car, Transit and Pedestrian Access

The regional town centres have the potential to offer highly accessible locations. They are well situated to provide a transit node as well as good vehicle access. Downtown Vancouver, Metrotown, New Westminster and Surrey are all served by SkyTrain. In Richmond, a rapid bus service was initiated this year and a study looking at longer-term transit options is currently underway. Coquitlam Town Centre will be served by a planned eastern extension to the SkyTrain system. Over time it will be important to develop a sub-regional system to improve access to and between the regional town centres so that these centres function more as nodes rather than single points on a transit line. TransLink’s Strategic Transportation Plan has identified increased bus service to the regional town centres as a priority.

The pedestrian environment is a key aspect of a centre’s transportation system. To be attractive, the centre needs to provide pleasant and safe access in and around the centre, to adjacent housing areas, and to transit stations and bus stops.

The Public Realm

It takes time to build an attractive centre. Each new development needs to pay attention to how it will enhance the urban fabric of the centre. The scale of buildings and the relationship to the street and to other buildings are key aspects of creating a sense of place. Weather protection, street furniture, planting, street-oriented cafes and restaurants, and pocket parks all add to the walkability and vitality of the centre.

Coquitlam Public Library: Many community facilities have been added to Coquitlam Centre in recent years

River side greenway adjacent to residential development in New Westminster
3. Achieve A Compact Metropolitan Region

3.1 Population Growth in the Region

During the 1990s the population increase in the region was 340,000. Almost half of this growth occurred in two municipalities: Surrey grew by 84,000 while the City of Vancouver grew by 72,000. Growth rates in established areas continue to be impressive. While many central cities throughout the world continue to lose population, the City of Vancouver has consistently added several thousand people per year during the 1990s. Several municipalities added population to their established areas, especially around the centres. This type of intensification supports all LRSP objectives, not only compact region objectives, by offering better access to jobs and supporting transportation choice.

Between 1996 and 1999 the rate of growth slowed compared to the first half of the 1990s. The GVRD population grew by 84,000 during this period, which is equivalent to an average increase of 28,000 per year. In the early to mid-1990s average annual growth of the region exceeded 40,000 people per year. Recent growth rates are the result of the stabilization on inter-provincial migration rates. As economies have recovered elsewhere in Canada, the net population increase to the region resulting from inter-provincial migration has declined. The average annual growth rate is now slightly below a trend leading to the LRSP 2021 management target of 2,676,000 (which would require an increase of 30,000 per year).
3.2 Growth Concentration Area Targets

The Livable Region Strategic Plan contains the following growth management population and employment targets for the year 2021:

<table>
<thead>
<tr>
<th>2021 Targets</th>
<th>Population</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth Concentration Area</td>
<td>1,832,000</td>
<td>951,000</td>
</tr>
<tr>
<td>Regional Total</td>
<td>2,676,000</td>
<td>1,317,000</td>
</tr>
</tbody>
</table>

The designated Growth Concentration Area (GCA) consists of the Burrard Peninsula (Vancouver, UBC and environs, Burnaby, and New Westminster), the Northeast Sector (Coquitlam, Port Coquitlam, Port Moody, and Anmore), and North Surrey/North Delta. The GCA includes the current central urbanized core of the region, plus two major subregions that are expected to make the transition from suburban to urban form within the life of the plan.

If the policy targets are achieved, approximately 70% of total regional population and employment will reside within the GCA in the year 2021. This concentration of urban form and activity is intended to both support and be supported by large-scale public investment in regional transportation infrastructure, including road, rail rapid transit, and bus network improvements.
These investment plans are described in both the original regional transportation plan, Transport 2021 (1993), and TransLink’s current Strategic Transportation Plan (2000). Between 1996 and 1999, the Growth Concentration Area population grew by about 54,000, or about 64% of total regional growth. This is slightly below the proportion required to achieve the regional target, but does not yet present a growth management concern. Short-range numbers will fluctuate above and below the target proportion throughout the life of the plan. Indeed, data for the most recent year (1998-1999) indicate that the growth concentration area received 68.4% of total population growth. *(Indicator C1)*

In the same period (1996-1999), the region also added about 61,000 jobs, or an average of 20,000 per year. This is almost precisely the annual average increment required to achieve the growth management target of 1,317,000 jobs in 2021. In the long run, however, it is unlikely that strong job growth can continue without a population growth recovery.

The current policy environment, as expressed in the LRSP, official community plans, and regional context statements remains suitable to achieve the general goal of holding about 70% of regional population and employment within the Growth Concentration Area in 2021. Furthermore, the communities of the Growth Concentration Area have committed to provide sufficient zoned housing capacity to hold approximately 1.8 million people in 2021, almost precisely in line with the original LRSP growth targets. If these capacities are taken up as expected, the GCA will hold enough people and jobs by 2021 and jobs to adequately support planned major transportation investments.

### 3.3 Transportation Infrastructure Required to Support a Compact Region

The LRSP also contains a policy that addresses the need for transportation services and facilities to be provided in a way that supports a compact region. As with most of the Transportation Choice policies (see next section), the implementation of this policy will be accomplished largely through the plans and programs of TransLink, the regional transportation agency formed in 1999. The primary statutory purpose of the authority is to provide a regional transportation system that supports the LRSP.
TransLink’s commitment to the Livable Region Strategic Plan—and especially with respect to this Compact Metropolitan Area policy—is evident in the Strategic Transportation Plan (STP), adopted by TransLink in April 2000. In at least four major aspects, the STP supports the population and employment growth targets within the designated growth concentration area:

(a) improved express bus services, primarily within the growth concentration area and Richmond;
(b) new “B-Line” services in the same areas (B-Line differs from express bus in that it provides rapid, limited-stop service all along a corridor);
(c) an overall “CityBus” (regular buses and trolleys) strategy that focuses most improvements on the growth concentration area; and
(d) the commitment to develop rail rapid transit services in the corridors identified in the LRSP.

Beyond the regional level, the provincial government has similarly demonstrated its partnership commitment to this element of the Livable Region Strategic Plan not only through the creation of TransLink, but also through the funding and development of (a) the Millennium SkyTrain Line; (b) the Highway 1 HOV Project; and (c) the Port Mann Bridge HOV Lane (under construction)—all of which are generally consistent with the requirements of the LRSP.

3.4 Achievement of Densities in Centres and Transportation Corridors to Support Transit

Transit and urban form need to work together. The LRSP contains policies to help ensure that an improved regional public transit network (representing very significant public investment) is provided with enough potential riders in the right locations to justify the significant public investment associated with the improvements.
INCREASE IN RESIDENTIAL DENSITY 1991-99

Source: Statistics Canada, Census 1996. 1996 - 1999 data is derived from Municipal and GVRD estimates, based on CMHC dwelling completions, except Delta, which is estimated by applying 1996 rate of change in density to the CMHC data.
The map on page 26 shows dwelling density change during the 1990s. The increase of densities in the regional centres and in the SkyTrain corridor is apparent. Future population and employment growth in the metropolitan core and the eight regional town centres is supported in all respective official community plans. The population of these major centres is planned to increase by 60% between 1996 and 2021 (from about 275,000 to 440,000) and employment is expected to increase by 57% (from 305,000 to 480,000). Between 1996 and 2021, the eight regional town centres are planned to increase their share of total regional population from 8.6 to 10.1%, and their share of total regional employment from 11.4 to 15.0%. These increases will provide higher population and employment densities to support major public transit services linked between these centres.

3.5 Limiting Growth Across the Eastern Boundary of the GVRD

Another means of achieving a compact region is to set a goal of limiting growth in traffic volumes across the eastern boundary of the regional district. The LRSP states as a target the achievement of travel across the GVRD eastern boundary in the peak hour and direction of not more than 5500 mixed traffic vehicles south of the Fraser River and 2000 mixed traffic vehicles north of the Fraser River. This applies specifically to road traffic entering Langley Township and Maple Ridge from the east along Highways 1, 1A, and 7 in the morning peak rush hour (7:00 to 8:00 A.M.) on a typical weekday. (Indicator C4)

The numbers (5,500 and 2,000 vehicles) represent the approximate capacities of the highways in question, and current traffic volumes are well within these capacities. Planning by the Fraser Valley Regional District to maintain a balance between job growth and population growth will be essential to achieve the target over the longer term. The FVRD is currently preparing a regional growth strategy addressing these issues; the strategy will eventually require cross-acceptance by the GVRD Board.
4. Increase Transportation Choices

4.1 Transit Targets

The Livable Region Strategic Plan supports the use of public transit and reduced dependence on the single-occupant vehicle. Its relies on an improved transit system, a modest expansion of road facilities, and the development of transportation demand management measures to support environmental and growth management objectives, and increase accessibility for GVRD residents.

Use of the transit system on a per capita basis has remained fairly steady in recent years, with a slight increase in 1999. The total number of trips taken has increased at a rate that approximates population growth in recent years. *(Indicator T7)*

Transport 2021, the region’s long term transportation plan, identifies a transit target for the whole region of 18% by 2021 for all trip purposes in the morning peak. Current information on transit use by all trip purposes is not yet available, but the table below shows the mode split for transit for the journey to work in 1996. For the Growth Concentration Area, a transit share of 17.5% of all trips has been achieved. However, the proportion using transit outside the GCA was 8%. The number of people walking and cycling was also significantly higher within the GCA.

### Travel Modes in the Growth Concentration Area, and Rest of GVRD, 1996

<table>
<thead>
<tr>
<th></th>
<th>Driver</th>
<th>Car passenger</th>
<th>Transit</th>
<th>Walk</th>
<th>Cycle</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GCA (no.)</strong></td>
<td>361,025</td>
<td>34,680</td>
<td>94,91</td>
<td>35,845</td>
<td>9,875</td>
<td>5,010</td>
<td>541,350</td>
</tr>
<tr>
<td>%</td>
<td>66.7%</td>
<td>6.4%</td>
<td>17.5%</td>
<td>6.6%</td>
<td>1.8%</td>
<td>0.9%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Rest of GVRD(no.)</strong></td>
<td>224,020</td>
<td>18,140</td>
<td>22,600</td>
<td>11,000</td>
<td>3,140</td>
<td>2,395</td>
<td>281,295</td>
</tr>
<tr>
<td>%</td>
<td>79.6%</td>
<td>6.4%</td>
<td>8.0%</td>
<td>3.9%</td>
<td>1.1%</td>
<td>0.9%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>GVRD total</strong></td>
<td>585,045</td>
<td>52,820</td>
<td>117,515</td>
<td>46,845</td>
<td>13,015</td>
<td>7,405</td>
<td>822,645</td>
</tr>
<tr>
<td>%</td>
<td>71.1%</td>
<td>6.4%</td>
<td>14.3%</td>
<td>5.7%</td>
<td>1.6%</td>
<td>0.9%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Source: 1996 Census of Canada (24-hour trips)*
Looking at how people reach jobs located within centres, a similar pattern of expanded transportation choices is evident. About 50% of work trips to downtown Vancouver are made by transit, walking or cycling. For jobs located in Metrotown for example, 30% are accessed by transit, walking, or cycling while the average for the GVRD is 23%. Clustering jobs in centres helps support transit, enables some people to walk or bike to work, maximises walk trips for lunch time errands, and at the same time lessens the resources and land required for parking. *(Indicator T9)*

### 4.2 Car Ownership Patterns

A region’s overall travel demand is strongly influenced by car ownership patterns. In January 2000, there were 1,172,866 licensed vehicles in the GVRD. Overall, the rate of car ownership is about 1.5 cars per household. In the 1970s and 1980s car ownership was growing at a much faster rate than the population with serious consequences on the rate of traffic growth. Fortunately, through the 1990s car ownership rates have remained fairly constant. However, continued population growth does mean an absolute increase in cars in the region every year.

![Vehicle Ownership Per GVRD Household, 1991-2000](source: ICBC BC Stats)

Rates of car ownership vary considerably throughout the region. In Vancouver 22% of households do not own a car, while in Surrey and Delta only 5% of households do not own a car. The number of households with two or more cars in Vancouver was 26% while in Surrey and Delta it was double this percentage at 52%.
4.3 Transportation Infrastructure

**TRANSPORT SUPPLY**

The main priority in TransLink’s Strategic Transportation Plan (STP) is to increase transit services, particularly bus services. According to the plan, approximately $1 billion expenditure will be dedicated to transit improvements over the next five years. Throughout the 1990s capacity in transit had not kept pace with population growth. In 1993/94 there were 811 buses serving the Vancouver region in peak periods. By 1998/99 the number had risen to 872. The number of SkyTrain cars has increased from 116 to 136 cars. Planned expansions to transit will result in an increase in the bus fleet by 48% by 2005.

The provincial government is currently expanding the SkyTrain system with the Broadway/Lougheed Corridor line. By the end of 2001, a new line will run from New Westminster to Lougheed Mall and then west to Commercial Drive/Broadway station. Extensions are planned over the next few years to Coquitlam and to Granville Street in Central Broadway.

Studies have recently been initiated to determine the business case and potential funding for the north/south rapid transit system linking Richmond, the airport, and downtown Vancouver. The 98B, a similar service to the 99B began service between Richmond and Downtown Vancouver this year.

Another significant decision in transit supply made this year was the ordering of a new trolley fleet to replace the aging fleet which is now about 20 years old.

**REGIONAL ROAD NETWORK**

TransLink is responsible for funding the maintenance, rehabilitation, and development of approximately 2,100 lane-kilometres of roads throughout the Greater Vancouver Regional District. These routes make up the Major Road Network. The municipalities have jurisdiction over the major roads and their day-to-day operations. TransLink’s role is to help coordinate, plan, and fund the network.

The efficient movement of goods is important to the economic competitiveness of the region.

The Strategic Transportation Plan identifies the following spending program for roads and bridges between 1999 and 2005:

- $208 million for maintenance and repair
- $173 million for small capital road improvements
- $160 million on major new road and bridge construction

The priority for major project funding will be on efficient goods movement and transit priority.
4.4 Paying for Transportation Improvements

In TransLink’s Strategic Transportation Plan, it is recommended that a combination of vehicle charges, parking charges, and transit fare increases be used to help pay for transportation improvements and help reduce car travel. Transportation pricing is one of the policies contained in the LRSP to help lessen the demand for car travel.

People value the convenience and comfort a car offers. Individually it is in each person’s interest to use the most convenient means of transport available - and that often means the private car. However there are collective benefits for all residents of the region in achieving livability goals if we travel less by car. The challenge lies in reconciling immediate benefits of mobility with the longer term and more distant benefits of being a less-car dependent region. Current transportation pricing does not reward the driver for driving less. The costs of owning a car including the insurance do not vary according number of kilometres driven. Parking charges, vehicle charges based on emissions or use, distance-based insurance, and fuel taxes are all ways of making a direct pricing link to costs and kilometres travelled.
4.5 Improving the Region’s Air Quality and Managing Greenhouse Gas Emissions

Between 1985 and 1998, emissions of common air contaminants within the GVRD decreased significantly. As a result of improved vehicle emission controls, AirCare, and a reduction in industry emissions, the total amount of contaminants emitted from the GVRD decreased by 40% between 1985 and 1998, even as our population increased by 41%.

The GVRD ambient air quality goal is "good" air quality, where the Air Quality Index (AQI) is less than 25. The graph in Appendix A, section T12, depicts long-term ambient air quality trends, showing the number of hours of "fair" and "poor" air quality (AQI is greater than 25) for six monitoring stations situated throughout the GVRD between 1985 and 1999. Prior to 1994, most exceedences of the air quality index were caused by ground-level ozone. A large jump in the number of hours of "fair" and "poor" air quality occurred in 1994, when the GVRD began including measurements of fine particulate within the Air Quality Index. As such, the difference between the two lines indicates an improvement in monitoring abilities, rather than a deterioration in air quality. At present, most exceedences of the Air Quality Index are caused by fine particulate. Despite the broken sets of lines, both "halves" of the graph clearly show a steady improvement in the hours of fair air quality over time.

Unfortunately, long-term trends appear to show that average ambient levels for ground level ozone are now increasing slightly, after declining from 1985 to 1994. As more information becomes available about the health impacts of chronic low-level exposure to ground-level ozone and fine particulate, data about the average concentrations of common air contaminants are becoming increasingly important.

The GVRD is a member of the Federation of Canadian Municipalities’ "Partners for Climate Protection” program, which aims to reduce greenhouse gas emissions from municipal operations and from the community at large. This program is intended to assist Canada in meeting its obligation under the Kyoto Protocol to reduce national greenhouse gas emissions by 6% from the 1990 level of emissions by the years 2008-2012. Canada’s emissions of greenhouse gases in 1998 were calculated to be 113% of 1990 levels.

Within the GVRD, emissions of greenhouse gases totaled 15,110,000 tonnes in 1990, and 15,770,000 tonnes in 1998, an increase of 4.4%. Significant declines of greenhouse gas emissions from the industrial sector overall were offset by sizable increases in emissions from the heating of residential and commercial buildings and from automobiles and trucks. Other mobile sources (marine vessels, airplanes, trains, agricultural, off-road and yard equipment), and electric power generation were also responsible for smaller increases in greenhouse gas emissions over the 1990-1998 period.

Maintaining high air quality will continue to depend to a large extent on success in reducing the energy used for transportation and for heating buildings.
# Appendix A

## LIVABLE REGION STRATEGIC PLAN: MONITORING PROGRAM INDICATORS

### Protect the Green Zone

<table>
<thead>
<tr>
<th>G1</th>
<th>Area of Green Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>G2</td>
<td>Area of Agricultural Land Reserve</td>
</tr>
<tr>
<td>G3</td>
<td>Total value of farm-gate sales</td>
</tr>
<tr>
<td>G4</td>
<td>Number of new non-farm dwelling units in the Green Zone</td>
</tr>
<tr>
<td>G5</td>
<td>Number of endangered or threatened species (provincial red list)</td>
</tr>
<tr>
<td>G6</td>
<td>Length of Regional Greenway Vision completed</td>
</tr>
<tr>
<td>G7</td>
<td>Size of protected conservation areas</td>
</tr>
<tr>
<td>G8</td>
<td>Volume of water consumed per capita</td>
</tr>
<tr>
<td>G9</td>
<td>Liquid Waste Discharge Ranking Index</td>
</tr>
</tbody>
</table>

### Build Complete Communities

<table>
<thead>
<tr>
<th>B1</th>
<th>Number and proportion of total and new households, by structure type, by sub-region</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2</td>
<td>Number and proportion of total and new dwellings in municipal and regional centres and corridors</td>
</tr>
<tr>
<td>B3</td>
<td>Number and proportion of total and new households within 400 meters of 'good' transit</td>
</tr>
<tr>
<td>B4</td>
<td>Benchmark price for housing, by structure type by sub-regions</td>
</tr>
<tr>
<td>B5</td>
<td>Number and proportion of jobs in municipal and regional centres</td>
</tr>
<tr>
<td>B6</td>
<td>Jobs: housing balance of member municipalities</td>
</tr>
<tr>
<td>B7</td>
<td>Proportion of rental housing in region's housing stock</td>
</tr>
<tr>
<td>B8</td>
<td>Proportion of population living in communities with average population density of 50 people per hectare or more</td>
</tr>
</tbody>
</table>

### Achieve a Compact Metropolitan Region

<table>
<thead>
<tr>
<th>C1</th>
<th>Total population and share of annual population growth, for the GCA and GVRD</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>Number and proportion of ground-oriented housing inside and outside the GCA</td>
</tr>
<tr>
<td>C3</td>
<td>Non-residential building permit values</td>
</tr>
<tr>
<td>C4</td>
<td>Number of vehicles crossing the GVRD eastern boundary, in-bound</td>
</tr>
<tr>
<td>C5</td>
<td>Total employment and share of employment growth, for the GCA and GVRD</td>
</tr>
<tr>
<td>C6</td>
<td>Growth in regional sewerage trunk lines, for the GCA and GVRD</td>
</tr>
<tr>
<td>C7</td>
<td>Number of portable classrooms per 1,000 school children, inside and outside GCA</td>
</tr>
</tbody>
</table>

### Transportation Choices

<table>
<thead>
<tr>
<th>T1</th>
<th>Total and per capita number of car kilometres driven</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2</td>
<td>Vehicle ownership per household</td>
</tr>
<tr>
<td>T3</td>
<td>Participation in regional ride-share program</td>
</tr>
<tr>
<td>T4</td>
<td>Lane-kilometres of major road network and provincial and federal highways, total and per capita</td>
</tr>
<tr>
<td>T5</td>
<td>Kilometres of streets with sidewalks and kilometres of bike lanes</td>
</tr>
<tr>
<td>T6</td>
<td>Commuter trip length and time</td>
</tr>
<tr>
<td>T7</td>
<td>Total and per capita transit ridership</td>
</tr>
<tr>
<td>T8</td>
<td>Growth in total and per capita transit capacity</td>
</tr>
<tr>
<td>T9</td>
<td>Mode Split</td>
</tr>
<tr>
<td>T10</td>
<td>Proportion of children driven to school versus using other transportation modes</td>
</tr>
<tr>
<td>T11</td>
<td>Air Quality: Impact of Emission Reduction Programs</td>
</tr>
<tr>
<td>T12</td>
<td>Air Quality: Air Quality Index (AQI)</td>
</tr>
<tr>
<td>T13</td>
<td>Air Quality: Greenhouse Gas Emissions</td>
</tr>
</tbody>
</table>
Livable Region Strategic Plan Strategy: PROTECT THE GREEN ZONE

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G1 Area of Green Zone</strong></td>
<td>Protect Green Zone areas from urban development and seek to add new areas to the Green Zone</td>
</tr>
<tr>
<td><strong>G2 Area of Agricultural Land Reserve</strong></td>
<td>Protect Green Zone areas at risk from urban development, and minimize pressure on the Green Zone through management of urban areas</td>
</tr>
<tr>
<td><strong>G3 Total value of farm-gate sales</strong></td>
<td>Enhance planning for agriculture as part of the region’s economic base</td>
</tr>
<tr>
<td><strong>G4 Number of new non-farm dwelling units in the Green Zone</strong></td>
<td>Minimize pressure on the Green Zone and protect the Green Zone from urban development</td>
</tr>
<tr>
<td><strong>G5 Number of endangered or threatened species (provincial ‘Red List’)</strong>*</td>
<td>Enhance the viability of the region’s ecology</td>
</tr>
</tbody>
</table>

---

**G1 Area of Green Zone**

The area of the GVRD Green Zone was calculated to total 205,520 hectares in 1998. This figure requires updating, as some municipalities have added land through the development of Regional Context Statements. No land was removed from the Green Zone during 1999.

Data Source: GVRD Regional Development
Indicator Update Frequency: Annual

**G2 Area of Agricultural Land Reserve**

The total area within the GVRD permitted by the Land Reserve Commission to be excluded from the Agricultural Land Reserve in 1999-2000 (fiscal year, 31 March 1999 to 1 April 2000) was 189 ha. The total area permitted for inclusion in the same period was 21 ha. Therefore a net figure of 168 ha was permitted for exclusion from the ALR. There were no denials for inclusion or exclusion for the GVRD ALR in 1999/2000. In 1998/99 59 ha were permitted for exclusion, and 64 ha were included, a net gain to the GVRD ALR of 5 ha.

The Land Reserve Commission estimates that the area of the GVRD ALR is 53,773 ha. (Some boundary changes since 1995 are not reflected in this figure).

Data Source: Land Reserve Commission
Indicator Update Frequency: Annual

**G3 Total value of farm-gate sales**

Farm gate sales figures are collected as part of the 5-yearly Census of Agriculture carried out by Statistics Canada. The most recent statistics for the GVRD are therefore those published in 1996, showing $498,443,000 of sales in 1995. This grew by 44% from the 1990 figure of $346 million and represented 27% of the value of provincial agricultural output in 1996, produced on less than 2% of the province’s agricultural land base.

Data Source: Statistics Canada, 1996 Census of Agriculture
Indicator Update Frequency: 5-Year

**G4 Number of new non-farm dwelling units in the Green Zone**

Data options currently being evaluated.

**G5 Number of endangered or threatened species (provincial ‘Red List’)***

This indicator may need to be revised to provide a better measure of change. For example, an increase in the number of species may reflect better monitoring of habitat, rather than any change in the status of previously identified threatened species.

In GVRD Parks, 31 ‘red listed’ species have been identified as either resident or seasonal migrants. Altogether 28 vertebrate animals listed as endangered are found in GVRD Parks, of 75 endangered vertebrate animal species that exist in the whole of British Columbia, representing 17 species of birds, 3 freshwater fish 1 amphibian and 7 mammals. This provides some evidence of the importance of species habitat areas in parks.

Data Source: GVRD Parks, August 2000; Environmental Trends in British Columbia 2000, MELP.
Indicator Update Frequency: Annual
### Livable Region Strategic Plan Strategy: PROTECT THE GREEN ZONE

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Regional Greenway Vision completed (recreational component)</td>
<td>Develop a region-wide trail network, and an interconnected system of wetlands and upland habitat</td>
</tr>
</tbody>
</table>

The Greenway Vision, adopted by GVRD in June 1999, will see the development of recreational and ecological corridors to link areas of the Green Zone. It is estimated that 762 kilometres of regional recreational Greenway already exist or have been identified for development in the near future. A further 230 kilometres have been identified for development in the future.

Data Source: GVRD Parks
Indicator Update Frequency: Annual

<table>
<thead>
<tr>
<th>G7</th>
<th>Size of protected conservation areas (including environmental greenways)</th>
<th>Protect the viability of the region’s ecology</th>
</tr>
</thead>
</table>

There are no currently available accurate figures for this indicator. The Georgia Basin Ecosystem Initiative, with the participation of the GVRD, is developing a regional Biodiversity Strategy, which will identify a number of different aspects of the status of protected areas within the Region.

A 1999 study of the GVRD Parks shows that 31% (over 9300 hectares) are wetlands, considered to be one of the most important ecosystems for ensuring continued biodiversity.

Data Source: GVRD Parks
Indicator Update Frequency: Annual

<table>
<thead>
<tr>
<th>G8</th>
<th>Volume of water consumed per capita</th>
<th>Fulfill Greater Vancouver’s role in maintaining environmental quality in the Georgia Basin</th>
</tr>
</thead>
</table>

Average water consumption per person (although the statistics reflect all uses, not just those used by individuals or at home) has fallen slightly through the 1990s. This is thought to reflect the change in industry, and reduced watering through the application of regulations to restrict summer use.

**Water Consumption Per Person, (all uses, litres per day), GVRD, 1990-1999**

![Water Consumption Chart](image-url)

Data Source: GVRD: Greater Vancouver Water District Water Consumption Statistics, 1999 edition. Statistics do not include Point Roberts, DFO or Provincial use, and are calculated by dividing demand by total population.
Indicator Update Frequency: Annual
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>G9 Liquid Waste Discharge Ranking Index</td>
<td>Minimize water pollution from urban development and fulfill Greater Vancouver’s role in maintaining environmental quality in the Georgia Basin</td>
</tr>
</tbody>
</table>

To date, no comprehensive index has been developed to measure the individual effect of liquid waste discharges throughout the GVRD as a whole. The BC Ministry of Environment has used a water quality index in the past, though limited information is currently available. The GVRD collects information on water quality from a number of locations, and a number of different measures are monitored.

As an example, the graph below shows fecal coliform counts from measurement stations in False Creek (east of Cambie bridge) for the past ten years, May to September measurement periods. Significant variation occurs year-on-year, linked to a variety of factors, including climatic effects. Overall the trend is for water quality in False Creek over the past decade to improve. This is largely attributed to the reduction of untreated sewerage discharges from the north shore of False Creek resulting from redevelopment of the area and the City of Vancouver’s policy to separate sewers.

**False Creek East: Range of Fecal Coliform Counts, May-Sept, 1990-99**

Data Source: GVRD Sewage and Drainage
Indicator Update Frequency: Annual
**Livable Region Strategic Plan Strategy: BUILD COMPLETE COMMUNITIES**

### Indicator | Relevant LRSP Objectives
--- | ---
B1 Number and proportion of new dwellings, by structure type, by sub-region | Seek a diversity of housing types across the region

During 1999 over 11,000 new dwellings were built within the GVRD, 69% of which were located within the Growth Concentration Area. Over half the units (55%) were apartments, 80% of which were built in the Growth Concentration Area. 31% were single detached homes, 5% were semi detached, and 8% were row condominium units.

#### Completions of New Dwellings, GVRD, 1999

![Graph showing completions of new dwellings, GVRD, 1999](image)

Data Source: Canada Mortgage and Housing Corporation, “Housing Now” monthly statistics, 1999

Indicator Update Frequency: Annual

---

B2 Number and proportion of total and new dwellings in municipal and regional centres and corridors | Seek development of a network of high-quality, mixed-activity urban centres, and achievement of adequate densities in centres and transportation corridors to support planned transit services

The graph below shows additional housing units built in regional centres, 1986-1996. By 1996 these represented 15.6% of all housing in the region. Corridor analysis currently in progress.

#### Housing in Regional Centres, 1986-1996

![Graph showing housing in regional centres, 1986-1996](image)

Data Source: Statistics Canada, 1986 and 1996 Census

Indicator Update Frequency: 5-Year
## Livable Region Strategic Plan Strategy: BUILD COMPLETE COMMUNITIES

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B3</strong> Number and proportion of total and new dwellings within 400 meters of ‘good’ transit</td>
<td>Seek to ensure new housing is accessible by transit</td>
</tr>
<tr>
<td>Data options currently being evaluated.</td>
<td></td>
</tr>
</tbody>
</table>

**B4 Benchmark price for housing, by structure type by sub-regions**

Currently there is no satisfactory data available by sub-region, only by municipality. The median price for different types of housing is shown here for five years from 1995 to 2000. This shows that house prices fell from the mid 1990s, but have started to rise slightly in the past year or so.

**Median House Prices, Greater Vancouver, 1995 – 2000**

![Median House Prices Graph]

Data Source: GVRD Key Facts, from Real Estate Board of Greater Vancouver MLS House Price Index, April of each year.
Indicator Update Frequency: Annual

**B5 Number and proportion of jobs in municipal and regional centres**

Detailed information on the numbers of jobs in regional centres is not available. Change in the proportion of floor space located in different types of centre in 1981 and 1996 can be seen in this graph. While regional centres have increased their proportion of regional floor space, the most rapid growth has been in dispersed businesses and industrial parks.

**Distribution of Commercial and Industrial Space, 1981 and 1996**

![Distribution of Commercial and Industrial Space Graph]

Data Source: GVRD Key Facts, from Real Estate Board of Greater Vancouver MLS House Price Index
Indicator Update Frequency: Annual
**Livable Region Strategic Plan Strategy:** BUILD COMPLETE COMMUNITIES

### Indicator | Relevant LRSP Objectives

**B6 - Jobs: housing balance of member municipalities**
Seek a better balance in jobs and labour force location throughout the region

The graph below shows the numbers of people working within specified sub-regions. In Vancouver and UEL 73% of people work in the same sub-region that they live in, but this falls to 31% in the sub-region of Coquitlam, Port Coquitlam and Port Moody.

#### Numbers of Employees Working Within Their Residential Home Region, 1996

- Maple Ridge, Pitt Meadows
- City and township of Langley
- Coquitlam, Port Coquitlam, Port Moody
- North Shore
- Burnaby, New Westminster
- Richmond, Delta
- Surrey, White Rock
- Vancouver, UEL

Data Source: Statistics Canada, 1996 Census
Indicator Update Frequency: 5-Year

**B7 - Proportion of rental housing in region’s housing stock**
Seek a diversity of housing tenures in each part of the region

The proportion of rented accommodation in the GVRD has fallen slightly from 44% in 1986 to 40.6% of households in 1996. A much higher proportion of rented accommodation existed in the Burrard Peninsula (Vancouver, the University Endowment Lands, Burnaby and New Westminster) than elsewhere in the region: 55.1% of 1996 households in this area rented their home.


Data Source: Statistics Canada, 1996 Census; BC Housing
Indicator Update Frequency: 5-Year

**B8 - Proportion of population living in communities with average population density of 50 people per hectare or more**
Seek development of a network of high-quality, mixed-activity urban centres supported by an appropriate level of public transit and a range of community services and cultural facilities

Data options currently being evaluated. Definitions of 'community', and the areas to be included or excluded from any density calculation will be important factors if this indicator is to be reported in future
Livable Region Strategic Plan Strategy: ACHIEVE A COMPACT METROPOLITAN REGION

Indicator | Relevant LRSP Objectives
--- | ---
Total population and share of annual population growth, for the Growth Concentration Area and GVRD | Seek to achieve population growth management targets for 2006 and 2021

Population growth in 1999 was significantly lower than in earlier periods of the decade. Between censuses population figures can only be estimated, and the proportion of the population located in the Growth Concentration Area of the GVRD is around 68%, in line with 69% of new dwellings being built here (see indicator B1).

### Additional Residents in GVRD 1991-1999, and Percentage in Growth Concentration Area

![Bar chart showing additional residents in GVRD 1991-1999 and percentage in Growth Concentration Area.

### Population Growth in Municipalities, 1991-1999

![Bar chart showing population growth in municipalities from 1991 to 1999.](chart)

Data Source: BC Stats, PEOPLE 25
Indicator Update Frequency: Annual
Livable Region Strategic Plan Strategy: ACHIEVE A COMPACT METROPOLITAN REGION

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population and share of annual population growth, for the Growth Concentration Area and GVRD</td>
<td>Seek to achieve population growth management targets for 2006 and 2021</td>
</tr>
</tbody>
</table>

Overall, population has risen from just over 1,500,000 at the turn of the last decade to an estimated 2,000,000 this year.

Data Source: BC Stats, PEOPLE 25
Indicator Update Frequency: Annual
Livable Region Strategic Plan Strategy: ACHIEVE A COMPACT METROPOLITAN REGION

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number and proportion of ground-oriented housing inside and outside the Growth Concentration Area</strong></td>
<td>Seek further opportunities for ground-oriented housing, particularly in the GCA</td>
</tr>
</tbody>
</table>

The four sets of graphs below show the additional numbers of apartments and ground-oriented housing added to the housing stock in the GVRD in each of the past four years. The left-hand column, in each case, represents the housing completed inside the Growth Concentration area. The right-hand column represents housing outside the GCA. That part of the graph below the zero line shows the numbers of units demolished, and therefore not net additions to the housing stock.

**Net Additions to Housing Stock: Growth Concentration Area and Rest of GVRD, 1996-1999**

Data Source: Canada Mortgage & Housing Corporation
Indicator Update Frequency: Annual

**Non-residential building permit values, for the Growth Concentration Area and GVRD**

Seek a distribution of business investment that supports LRSP objectives

Commercial and industrial development has followed a different pattern to that of housing. At present, it is not possible to quantify commercial and industrial development inside the Growth Concentration Area but this may change in the future. The graph below shows commercial and industrial development by GVRD Subregions.

**Building Permit Values, Commercial and Industrial Development, GVRD Subregions, 1996-1999 ($millions)**

Data Source: GVRD Key Facts, 1996 - 1999
Indicator Update Frequency: Annual
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of vehicles crossing the GVRD eastern boundary, in-bound</td>
<td>Seek travel levels across the GVRD eastern boundary that are consistent with development of complete communities in the Fraser Valley</td>
</tr>
<tr>
<td>C4</td>
<td>Statistics showing the numbers of vehicles crossing all the eastern boundary roads are not available for 1999, but the data for Highway 1 represents around 65% of all traffic crossing the eastern boundary. The graph shows that while there has been an increase in traffic volumes, the rate of increase has been less for commuting into Greater Vancouver from further east in the Fraser Valley.</td>
</tr>
</tbody>
</table>

### Morning Peak (7-8am) Traffic Volumes; Highway 1 at GVRD Eastern Boundary

![Morning Peak Traffic Volumes Graph](image)

Data Source: TransLink.
Indicator Update Frequency: 4-Year

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total employment and share of employment growth, for the GCA and GVRD</td>
<td>Seek to achieve employment growth management targets for 2006 and 2021</td>
</tr>
<tr>
<td>C5</td>
<td>Data options currently being evaluated.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth in regional sewerage trunk lines, for the GCA and GVRD</td>
<td>Implement the LRSP through delivery of GVRD services</td>
</tr>
<tr>
<td>C6</td>
<td>Information is available to cover this indicator, but it includes replacement of older sewers as well as new pipes. A more appropriate measurement is the growth in the area of the Fraser Sewerage Area. While development may not yet have taken place within this area, the change in status indicates probable future growth. As all of the Growth Concentration Area is already in the sewer area, all new additions are outside the GCA.</td>
</tr>
</tbody>
</table>

The legal sewerage area boundary has increased by 1249 ha since 1995. Nearly all of this expansion occurred in the Fraser Sewerage Area which is now roughly 65,230 ha. (about two thirds of all the area covered by the sewerage system in Greater Vancouver). This represents a 1.9% growth in 5 years.

Data Source: GVRD Regional Utility Planning
Indicator Update Frequency: Annual

<table>
<thead>
<tr>
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<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of portable classrooms per 1,000 school children, inside and outside GCA</td>
<td>Achieve an equitable distribution of public services and facilities</td>
</tr>
<tr>
<td>C7</td>
<td>Data options currently being evaluated.</td>
</tr>
</tbody>
</table>
## Livable Region Strategic Plan Strategy: TRANSPORTATION CHOICES

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1 Total and per capita number of car kilometres driven</td>
<td>Increase transportation choices to reduce automobile-dependence</td>
</tr>
</tbody>
</table>

There are no detailed annual surveys to provide this information. Five-yearly data is not available from the Census. The total number of vehicles registered in the Region is thought to give a good indication of the total kilometers driven.

### Vehicle Registrations, GVRD, 1991-2000

Data Source: Insurance Corporation of British Columbia
Indicator Update Frequency: Annual

<table>
<thead>
<tr>
<th>Year</th>
<th>Registrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>800000</td>
</tr>
<tr>
<td>1992</td>
<td>900000</td>
</tr>
<tr>
<td>1993</td>
<td>1000000</td>
</tr>
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<td>1994</td>
<td>1100000</td>
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<td>1998</td>
<td>1500000</td>
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<tr>
<td>1999</td>
<td>1600000</td>
</tr>
<tr>
<td>2000</td>
<td>1700000</td>
</tr>
</tbody>
</table>

### Vehicle ownership per household

Vehicle ownership per household has remained at almost the same level for the past five years, but an increasing population means that there are more cars on the roads, and emissions from vehicles have therefore continued to rise.

### Vehicles Per Household, GVRD, 1991-2000

Indicator Update Frequency: Annual

<table>
<thead>
<tr>
<th>Year</th>
<th>Vehicles Per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>1.50</td>
</tr>
<tr>
<td>1992</td>
<td>1.60</td>
</tr>
<tr>
<td>1993</td>
<td>1.70</td>
</tr>
<tr>
<td>1994</td>
<td>1.80</td>
</tr>
<tr>
<td>1995</td>
<td>1.70</td>
</tr>
<tr>
<td>1996</td>
<td>1.60</td>
</tr>
<tr>
<td>1997</td>
<td>1.50</td>
</tr>
<tr>
<td>1998</td>
<td>1.40</td>
</tr>
<tr>
<td>1999</td>
<td>1.30</td>
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<tr>
<td>2000</td>
<td>1.20</td>
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</tbody>
</table>
### Livable Region Strategic Plan Strategy: TRANSPORTATION CHOICES

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<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>T3</strong> Participation in regional ride-share program</td>
<td>Pursue transportation demand management strategies</td>
</tr>
<tr>
<td>Monitoring of the ride-share program started in 1999. In the month of July 2000, 565 passengers, in 75 van pools made 22,600 passenger trips. In addition 14 shuttles were operating to the University of British Columbia.</td>
<td></td>
</tr>
<tr>
<td>Data Source: TransLink; Jack Bell Foundation</td>
<td></td>
</tr>
<tr>
<td>Indicator Update Frequency: Annual</td>
<td></td>
</tr>
</tbody>
</table>

| **T4** Lane-kilometres of major road network and provincial and federal highways, total and per capita | Plan and implement an automobile-restrained transportation system |
| No significant new road building took place in 1999. The figure for the length of highway remains at 2,100 lane kilometres for the year 2000. |
| Data Source: TransLink |
| Indicator Update Frequency: Annual |

| **T5** Kilometres of streets with sidewalks and kilometres of bike lanes | Seek enhancements to local streets to favour transit, bicycle and pedestrian uses |
| No statistics exist on the length of streets with sidewalks. No satisfactory source of information has been identified which includes a measurement of the length of bike lanes. |

| **T6** Commuter trip length and time | Seek a better balance of jobs and labour force throughout the region |
| Currently no statistics exist to report this indicator for 1999. TransLink is currently preparing results from a 1999 Trip Diary survey which will give information on trip length and time by mode. |

---

**Work Trip Commuting Distances, GVRD, 1996 (km)**

[Graph showing percentage of commuter trips by distance]

Data Source: Statistics Canada, 1996 Census
Indicator Update Frequency: 5-Year
### Livable Region Strategic Plan Strategy: TRANSPORTATION CHOICES

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>T7</strong> Total and per capita transit ridership</td>
<td>Plan and Implement a transit-oriented transportation system</td>
</tr>
</tbody>
</table>

Use of the transit system (per capita ridership) has remained steady for six years, with a slight increase in 1999. The total number of trips taken - (paid journeys) - has increased at a rate that approximates to the overall population increase.

![Graph showing Total Transit Ridership (right hand scale) and Average Trips Per Person (left hand scale) 1991-2000](image)

**Data Source:** BC Stats PEOPLE 25; TransLink  
**Indicator Update Frequency:** Annual

| **T8** Growth in total and per capita transit capacity | Plan and implement a transit-oriented transportation system |

Bus and SkyTrain capacity have both been increased during the past four years, although passenger numbers have not risen as fast as capacity has increased (see Indicator T7).

![Graph showing Increase in Capacity of Transit System, 1995/6 to 1998/99 (Total Annual Service Hours)](image)

**Data Source:** TransLink  
**Indicator Update Frequency:** Annual  
**Note:** SeaBus and Westcoast Express figures are included, but are too small to appear on this graph.
### Livable Region Strategic Plan Strategy: TRANSPORTATION CHOICES

<table>
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<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>T9 Mode split</td>
<td>Increase transportation choice and implement a transit-oriented transportation system</td>
</tr>
</tbody>
</table>

Figures for 1999 were not available at the point of preparation of this report. In 1996 the mode split for journeys to work are shown for the Central Business District (Downtown Vancouver and the Broadway Corridor) and the rest of Greater Vancouver.

#### Journey to Work: Method of Travel, 1996

![Mode split chart](chart)

Data Source: Statistics Canada, 1996 Census
Indicator Update Frequency: 5-Year

---

| T10 Proportion of children driven to school versus using other transportation modes | Provide a variety of local transit services and networks in support of complete communities |

The proportion of children being driven to school in the morning and afternoon rose 53% over the 1985-1994 period. Currently no statistics exist to report this indicator for 1999 but new data will be available in 2001.

#### Proportion of Children Driven to School Versus Other Transportation Modes, GVRD, 1985, 1994

![Children's transportation chart](chart)

Data Source: TransLink
Indicator Update Frequency: 5-Year
**Livable Region Strategic Plan Strategy: TRANSPORTATION CHOICES**

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<tbody>
<tr>
<td><strong>T11</strong> Air Quality: Impact of Emission Reduction</td>
<td>Reduce air pollution and fulfill Greater Vancouver's role in maintaining environmental quality in the Georgia Basin</td>
</tr>
</tbody>
</table>

Air pollution controls and other initiatives included within the GVRD Air Quality Management Plan have reduced emissions of common air contaminants over time. Our actual level of emissions over time is indicated by the lowest line, and shows that the total amount of contaminants emitted from the GVRD decreased by 40% between 1985 and 1998, even as our population increased by 41%. The four coloured areas above this line indicate the quantity of emissions which have been prevented over time as a result of various emission control efforts, while the top line indicates what emissions would have been in the absence of these programs.

**Estimated Emission Reductions, GVRD, 1985-2000**

Data Source: GVRD Air Quality Department
Indicator Update Frequency: Annual

Note: This data is estimated, reflecting actual emissions (bottom line) and the contribution different elements of the Air Quality Management Plan have contributed to the reduction in emissions during this period.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>T12</strong> Air Quality: Air Quality Index (AQI)</td>
<td>Reduce air pollution and fulfill Greater Vancouver's role in maintaining environmental quality in the Georgia Basin</td>
</tr>
</tbody>
</table>

The GVRD ambient air quality goal is "good" air quality, indicated by the Air Quality Index (AQI) being 25 or less. The graph below depicts long-term ambient air quality trends, showing the number of hours of "fair" and "poor" air quality (AQI is greater than 25) for six monitoring stations situated throughout the GVRD between 1985 and 1999. Prior to 1994, most exceedances of the air quality index were caused by ground-level ozone. A large jump in the number of hours of "fair" and "poor" air quality occurred in 1994, when the GVRD began including measurements of fine particulate within the Air Quality Index. As such, the difference between the two lines indicates an improvement in monitoring abilities, rather than a deterioration in air quality. At present, most exceedances of the Air Quality Index are caused by fine particulate. Despite the broken sets of lines, both "halves" of the graph clearly show a steady reduction in the hours of "fair" and "poor" air quality over time.

Unfortunately, long-term trends appear to show that average ambient levels for ground-level ozone are now increasing slightly, after declining from 1985 to 1994. As more information becomes available about the health impacts of chronic low-level exposure to ground-level ozone and fine particulate, data about the average concentrations of common air contaminants are becoming increasingly important.

**Combined Hours of Fair and Poor Air Quality (AQI>25) for Six Stations Within the GVRD.**

Data Source: GVRD Air Quality Department
Indicator Update Frequency: Annual
Livable Region Strategic Plan Strategy: TRANSPORTATION CHOICES

<table>
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<tr>
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<tr>
<td>T13</td>
<td>Reduce air pollution and fulfill Greater Vancouver’s role in maintaining environmental quality in the Georgia Basin</td>
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</tbody>
</table>

**Air Quality: Greenhouse gas emissions**

The GVRD is a member of the Federation of Canadian Municipalities’ “Partners for Climate Protection” program, which aims to reduce greenhouse gas emissions from municipal operations and from the community at large. This program is intended to assist Canada in meeting its obligation under the Kyoto Protocol to reduce national greenhouse gas emissions by 6% from the 1990 level of emissions by the years 2008-2012. Canada’s emissions of greenhouse gases in 1998 were calculated to be 113% of 1990 levels.

Within the GVRD, emissions of greenhouse gases totaled 15,110,000 tonnes in 1990, and 15,770,000 tonnes in 1998, an increase of 4.4%. Significant declines of greenhouse gas emissions from the industrial sector overall were offset by sizable increases in emissions from the heating of residential and commercial buildings and from automobiles and trucks. Other mobile sources (marine vessels, airplanes, trains, agricultural, off-road and yard equipment) were also responsible for smaller increases in greenhouse gas emissions over the 1990-1998 period. Much of the variability between years results from varying levels of power production at the Burrard Thermal Generating Plant.


![Graph showing greenhouse gas emissions from 1990 to 1998](image)

Data Source: GVRD Air Quality Department

Indicator Update Frequency: Annual
Regional Development
Policy and Planning Department
Greater Vancouver Regional District
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web site: www.gvrd.bc.ca/maps/gvrdreports.htm#rd

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The Greater Vancouver Regional District includes the municipalities of Anmore, Belcarra, Bowen Island, Burnaby, Coquitlam, Delta, Langley City, Langley Township, Lions Bay, Maple Ridge, New Westminster, North Vancouver City, North Vancouver District, Pitt Meadows, Port Coquitlam, Port Moody, Richmond, Surrey, Vancouver, West Vancouver, White Rock and Electoral Area A.