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Highlights

The Local Government Act requires the GVRD to prepare an annual report on the Livable Region Strategic Plan (LRSP). The 2001 Annual Report provides an opportunity to evaluate our progress in achieving each of the four main objectives of the LRSP:

- Protect the Green Zone
- Build Complete Communities
- Achieve a Compact Metropolitan Region
- Increase Transportation Choices

The Sustainable Region Initiative and LRSP Review

- The LRSP is now five years old and a review of the plan is underway. The Sustainable Region Initiative is the working title given to a new GVRD initiative. Its intent is to provide a new framework and vision for the region based on a concept of sustainability that encompasses economic and social, as well as environmental dimensions. The initiative is expected to bring forward a more fully integrated set of plans for the region.

Advancing Partnerships to Implement the LRSP

- The LRSP is implemented primarily through the land use decisions of member municipalities. All member municipalities have prepared a Regional Context Statement to demonstrate how their local policies will help achieve Livable Regional Strategic Plan goals. Planning decisions that balance municipal economic objectives with the goals of the LRSP will continue to show benefits both locally and regionally.

- Implementing regional transportation policies is mainly the responsibility of the Greater Vancouver Transportation Authority (GVTA) through the Strategic Transportation Plan (STP). One of the critical funding mechanisms of the STP, the vehicle levy, failed to be implemented when the Province refused to provide a workable collection mechanism. Stable funding sources for the GVTA, implementation of trip reduction measures, and transit-supportive land use patterns are necessary in order to achieve the LRSP objective of a higher proportion of trips made by transit, walking, and cycling.

- In the last year, the federal government has shown increased interest in urban issues through the establishment of a Prime Minister’s Caucus Task Force on Urban Issues, Transport Canada programs to fund sustainable transportation projects, green municipal funding schemes, and new housing grant programs. The GVRD Board is active in promoting the dialogue of advancing federal objectives in urban regions and is participating in new programs.

Protect the Green Zone

- The Green Zone comprises more than 200,000 hectares, or about two-thirds the area of the GVRD. There are about 54,000 hectares in the Agricultural Land Reserve (ALR). In 2000, 16 hectares were removed from the ALR and the size of the reserve has decreased only slightly in recent years.
• Two new Greenway pilot projects are currently being pursued by the GVRD Parks Department in partnership with other agencies. The Brunette Fraser Regional Greenway is a joint initiative with the GVRD, the City of New Westminster, City of Burnaby, GVTA and the SkyTrain Project Office. A second pilot project connecting the Fraser River with Boundary Bay is in the planning stages. The South Surrey Interceptor Greenway is a joint initiative with GVRD Parks, the Corporation of Delta and the City of Surrey.

**Build Complete Communities**

• Significant gains have been made in recent years on the choice in housing stock. Approximately 68 per cent of all new housing built in the region is multi-unit dwellings (town house, rowhouse, and apartment buildings).

• Many municipalities are introducing innovative policies to reduce the cost of housing, such as easing of secondary suite regulations, promoting more choice in housing type, and increasing the supply of land zoned for multi-unit developments.

• Housing affordability remains a challenge. Rental vacancy rates decreased to 1.4 per cent in 2000 from 2.7 per cent in 1999.

• Provincial/local partnerships provide much-needed social housing projects. The federal and provincial governments are providing financial assistance to address homelessness.

• Regional town centre investment in housing and community facilities has been considerable in recent years. However, regional centres have not been as successful in attracting office construction. A recent GVRD study has shown that very little office growth has occurred in regional town centres in the 1990s, with most new office construction occurring in the metropolitan core and in business parks. The development of regional town centres as significant job locations will provide residents with jobs close to home, and help support centre businesses and a cost-effective regional transit system.

**Achieve a Compact Metropolitan Region**

• The LRSP has a long-term objective to contain 70 per cent of new population growth in the Growth Concentration Area (the Burrard Peninsula, the NE Sector and North Surrey/Delta). In 2000, approximately 9,100 units were completed in the region, and 61 per cent were located in the Growth Concentration Area.

**Increase Transportation Choice**

• The number of transit rides per capita dropped slightly through the 1990s. However, GVTA data does show a modest increase in the proportion of trips taken by transit in the morning peak period, from 11.3 per cent of all trips to 12.5 per cent of all trips. The LRSP target for 2021 is 18 per cent of all peak period trips taken by transit.

• The proportion of people walking to work and taking transit is significantly higher in downtown Vancouver and in regional centres. For example, in Metrotown, 12 per cent walked to work, twice the regional average, and 31 per cent took transit to work, which was also twice the regional average.
• Many municipalities continue to improve their cycling network, and there are many examples around the region of projects designed to enhance the pedestrian environment. From 1994 to 1999, the number of trips made by walking and cycling increased by 30 per cent, compared to a 15 per cent increase in vehicle trips.

**IMPROVING THE REGION’S AIR QUALITY AND ADDRESSING CLIMATE CHANGE**

• Air quality improvements have been significant in recent years as a result of reductions in emissions from industry and vehicles.

• Greenhouse gas emissions show a reduction over the past year, but have been climbing through the 1990s. Solutions to reduce greenhouse gas emissions will need to focus on transportation and heating of residential and non-residential buildings.

*A new neighbourhood in the Metropolitan Core: land use patterns that support transportation choices*
1. Introduction

The Livable Region Strategic Plan is Greater Vancouver’s regional growth strategy. The plan was endorsed by all member municipalities in 1996. It provides a framework for making regional growth management and transportation decisions in partnership with the GVRD’s member municipalities, the provincial government, the federal government and other agencies.

The population of the region as of July 2001, was estimated to be 2,030,000, an increase of 19,000 from July 2000. In the 1990s, the region averaged about 35,000 new residents per year and was the fastest growing metropolitan region in Canada during the decade.

The overall aim of the LRSP is help the region develop in a way that maintains and protects the environment and at the same time guides the location of urban activities to create a high quality of community life.

The Local Government Act requires the GVRD to prepare an annual report on the plan. The 2001 Annual Report provides an opportunity to evaluate our progress made in achieving each of the four objectives of the LRSP:

- **Protect the Green Zone.** 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.

- **Build complete communities.** 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 and accessible by transit, shops and services near home, and a wider choice of housing types. Planning land use in a convenient way helps minimize the need for long trips and makes alternatives to car use more practical.

- **Achieve a compact metropolitan region.** The plan avoids widely dispersed development and accommodates a significant proportion of population growth in the central part of the region. Concentrating growth allows more people to live closer to their jobs, make better use of public transit and community services, and slows consumption of non-urban land.

- **Increase transportation choices.** The plan supports the increased use of public transit and reduced dependence on the single-occupant automobile. It relies on modest expansion in road facilities, strategically improved transit service, and the development of transportation demand management measures to support environmental, growth management and accessibility objectives.

Each of these objectives is backed up by implementation policies. The LRSP Plan is implemented primarily through the land use decisions of individual member municipalities.

This 2001 Annual Report also includes a new section on the region’s air quality in order to emphasize the links between air quality and the pattern of urban development and transportation choices.

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 present mixed or unclear messages. Our intent is to use this data at least to see if we are heading in the right direction. This annual report offers both qualitative and quantitative assessment of our collective progress. It also presents a combination of implementation monitoring (did we implement the policies and programs we set out to implement?) and performance monitoring (what do the indicators or benchmarks tell us about our collective progress?). Both annual and five-year indicators are included in the report and are highlighted with their indicator number (example Indicator G5) in the text. A complete list of indicators is contained in Appendix A.
2. Advancing Partnerships to Implement the LRSP

Implementing the LRSP depends on successful partnerships with member municipalities, the GVTA, provincial and federal governments, First Nations, as well as with the private sector and voluntary organizations. This section reviews initiatives, opportunities, and challenges that arose in 2001, that will influence regional planning.

The Sustainable Region Initiative

The LRSP is now five years old and a review of the plan is underway. The Sustainable Region Initiative is the working title given to a new GVRD initiative. Analogous to the Creating Our Future endeavour of the 1990s, the Sustainable Region Initiative will seek to provide a new framework and vision for the region based on a concept of sustainability that encompasses economic, social and environmental dimensions. Changes have been made to the GVRD's administrative structure to fully integrate the utilities and utility planning with broader regional planning. The Sustainable Region Initiative is therefore expected to bring forward the foundation for a more fully integrated set of plans for the region.

As a first step, in September 2001 the GVRD Board resolved to review the LRSP and the Air Quality Management Plan in the context of social, economic and environmental sustainability as a fundamental objective. The Board also resolved to engage the community in the review and to conduct events and activities in partnership with member municipalities, GVTA, and community groups.

The public launch of the sustainability initiative was held at the Green Buildings and Sustainable Communities conference in October 2001. More than 400 people attended the one-day conference and about 200 attended an evening presentation. It was an exciting beginning to the initiative with participants focusing on practical ways to remove obstacles to sustainability in Greater Vancouver. Among the many presentations, municipal staff from the Cities of Richmond, Surrey, Vancouver, Burnaby, and North Vancouver presented some “works in progress” as well as completed projects. These gave a good sample of the many innovative projects happening around the region.

The Sustainable Region Initiative is taking a three-level approach.

- **Corporate** An examination of internal corporate policies and actions and looking at tools such as triple-bottom line reporting to determine what the GVRD may need to change to be a sustainable organization.

- **Regional responsibilities** A review of the long-range plans, including the LRSP to see what needs to change to help advance sustainable development.

- **Partnerships** Stepping forward to partner with municipalities, other agencies, the provincial and federal government, the private sector, and the public to advance regional sustainability.
LOCAL INITIATIVES

The Local Government Act provides a mechanism to promote consistency between local plans and regional growth strategies through the preparation of Regional Context Statements. All member municipalities have now prepared a Regional Context Statement. While the objectives and policies in the Regional Context Statements are general in nature, they broadly demonstrate how local municipalities will pursue the Livable Region Strategic Plan principles through their Official Community Plans, zoning by-laws, and day-to-day decision-making.

Most planning decisions taken by member municipalities have been consistent with the LRSP policies. Some municipalities have remarked that the Regional Context Statements in addition to their Official Community Plans are providing a useful mechanism to send the right signals out to the development industry. However, there are many cases where one objective, such as the pursuit of commercial property development, is taking precedence over the many local and regional planning objectives. Commercial property development is important to all municipalities due to the existing municipal financial structure but more “win-win” planning decisions are needed that support financial and job objectives and at the same time advance local and regional planning objectives.

Many municipalities have already begun to embrace sustainability ideas and are looking for ways to promote community well-being, environmental protection, and economic prosperity at the same time. It is likely that many municipalities will be taking a closer look at their fiscal and planning tools such as development cost levies, building codes, development controls, and parking by-laws to ensure that these mechanisms are helping to advance sustainability objectives. A number of municipal staff are already working on these issues on their own and as part of working groups with the GVRD such as the Stormwater Task Group, a watershed-based planning working group, and a working group that is looking at ways to help ensure that major developments are supportive of the regional transportation planning objectives.

GVTA: DELIVERING TRANSPORTATION SERVICES TO THE REGION

The provincial government transferred responsibility for regional transportation services to the GVTA in 1999. This was a major step towards linking transportation planning to regional planning and integrating road and transit financing to help achieve LRSP objectives. In 2000, the GVTA and GVRD endorsed the Strategic Transportation Plan. This five-year plan demonstrated how the objectives of the LRSP would be supported through the delivery of an enhanced transit system and strategic spending on regional roads. However, one of the STP’s critical funding mechanisms, the vehicle levy, failed to be implemented when the Province refused to provide a workable collection system through ICBC. Nonetheless, transit fare increases proceeded as scheduled in June 2000.

The GVTA needed to resolve funding issues by the end of 2001 to set its budget for 2002. To this end, it embarked on a consultation process to ask the public whether they wanted to cut road and transit services, or increase funding to finance road construction and transit services. The GVRD and TransLink Boards voted, in November 2001, to support maintaining transit and road funding through a combination of increased fuel taxes, property taxes, and transit fare increases.
In August 2001, the Auditor General released the results of his review of the GVTA. He recommended that the province should follow through with its commitment to help the GVTA efficiently collect the revenue it needs to maintain and expands its service levels. The report also recommended that the GVTA improve its governance and administration to promote good governance, accountability and decision-making.

Governance and funding issues will be key issues for the GVTA and GVRD in the coming year. Difficult short-term decisions are required to overcome immediate revenue shortfalls, and these decisions may lead to declines in transit use and increased traffic volumes. However, it is hoped that a growing acceptance by the public for a range of “pay as you drive” measures will help to fund both road improvements and a properly-funded transit system, and that they will come to regard the transportation system as a publicly-valued aspect of the livable region.

**PROVINCIAL ROLE**

Draft Community Charter legislation to reform local governance is being prepared for debate in the spring 2002 session. At this point it is difficult to determine what these changes will mean for the implementation of the LRSP. Government press releases state that the Community Charter is designed to prohibit the provincial government from off-loading costs onto local taxpayers and will give local governments greater autonomy and better planning tools to reduce pressure on property taxes. A Core Services Review is also underway that could result in cuts to many existing provincial programs.

The provincial and federal governments also play important roles through their policies, their decisions on where to locate government offices, health and education facilities, and their infrastructure investment. For example, in recent years some post-secondary institutions have been located in regional town centres. It is hoped that TechBC, a new technical university, will be a major catalyst for growth in the Surrey City Centre.

The GVRD is working with the provincial government and its municipal partners to help advance many urban issues at the federal level, such as federal participation on transportation funding, assistance with the leaky condominium crisis, immigrant support services and social housing issues.

**PARTNERING WITH THE FEDERAL GOVERNMENT**

In the last year, the federal government has shown an increased interest in urban issues through the following actions:

- The Prime Minister announced the formation of a Prime Minister’s Caucus Task Force on Urban Issues. They will deliver an interim report by April 2002;

- Transport Canada launched a “Showcase” program to fund a number of projects across Canada that promote sustainable transportation. Several member municipalities have submitted funding applications for their projects;

- The federal government, through the Federation of Canadian Municipalities, is providing “green municipal funds” for studies and investment in sustainable solutions in the delivery of municipal services. Some member municipalities as well as the GVRD and GVTA have applied for these funds;
• The Minister Responsible for CMHC announced a four-year program for affordable housing, for new construction and conversion, and for which local governments would be eligible for grants;

• The GVRD Board directed staff to prepare and circulate a position paper on the relationship between the federal role in urban affairs and the advancement of regional planning objectives. Many member municipalities provided comments on the draft. This paper enables the region to take a pro-active stance and will provide a comprehensive and widely supported perspective on the issues. The paper was presented to the Union of British Columbia Municipalities conference in September 2001, at the Federation of Canadian Municipalities National Conference in October 2001, and to the Prime Minister's Task Force on Urban Issues in November 2001.

THE VOLUNTARY SECTOR

The voluntary sector is becoming increasingly involved in urban issues and is making a valuable contribution to the debate and pursuit of many LRSP principles and broader sustainability goals. SmartGrowth BC was established in 2001 to help educate residents on problems of sprawl and to help community groups participate more fully in local planning decisions. On the transportation front, the Gateway Council has identified commercial transportation priorities and Better Environmentally Sound Transportation (BEST) and other groups have been actively promoting transit, cycling and walking.

The International Council for Sustainable Cities (ICSC) is becoming more involved in regional issues and is leading an initiative to craft social indicators for the region. The federal government has offered a number of new grant programs to encourage capacity building in the voluntary sector.

The Georgia Basin Futures Project is an extensive research project organized by the Sustainable Development Research Institute at UBC and is designed to address the challenges of sustainable development in the Georgia Basin. One of its main objectives is to use interactive computer modeling to promote public dialogue on alternative futures for the region. In 2001, QUEST, their interactive computer model was made available on their Internet site at www.basinfutures.net.
3. Implementing Livable Region Strategic Plan Policies

3.1 Protect the Green Zone

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 sets a long-term boundary for urban growth.

**Our Green Zone Assets**

The Green Zone has a total area of about 205,000 hectares. 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. (Indicator G1)

In 2000, the GVRD's regional park system contained 11,474 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. Blaney Bog, with an area of 91 hectares, was added in 2000.

**Regional Greenways Program**

The GVRD Board adopted the Greenway Vision in 1999 following consultation and support by member municipalities. The vision shows how a network of recreational and ecological greenways can link Green Zones and regional parks to enhance recreational opportunities and ecological health.

Five detailed greenways sector plans have been completed including Fraser Valley, North Shore, Burrard Peninsula and Richmond, Pitt Meadows and Maple Ridge, and Northeast Sectors. The remaining sector plan, covering the South Shore (Delta, White Rock and Surrey), is slated for completion in 2002. Sector plans will be combined into an overall Greenways Plan for the GVRD in 2003.

The GVRD Parks Department, in partnership with other agencies, is currently pursuing two new greenway pilot projects. The Brunette Fraser Regional Greenway, a joint initiative of the GVRD, the Cities of New Westminster and Burnaby, GVT and the SkyTrain Project Office, will provide a connection between Burnaby Mountain Conservation Area Park and the new Sapperton Landing Waterfront Park in New Westminster. Many sections of the 16.6 km route are already completed or are being pursued at this time.

A second pilot project connecting the Fraser River with Boundary Bay is in the planning stages. The South Surrey Interceptor Greenway is a joint initiative of the GVRD Parks, GVRD, the Corporation of Delta, and the City of Surrey.

It is estimated that 762 kilometers of regional recreational Greenway already exist or have been identified for development in the near future. A further 354 km have been identified for development in the future. As the Greenway sector plans are completed and pilot projects implemented, important connections and trail development will occur. (Indicator G6)

**Environmental Stewardship Programs**

Many municipalities continue to make advances on environmental protection both within and outside the Green Zone. Municipal development approval processes have incorporated tree retention/replacement programs, habitat protection, stream protection measures and stream daylighting.
The GVRD is currently preparing a management plan for the Lower Seymour Conservation Reserve. This is a 5,200-hectare reserve for water utility infrastructure and possible future water storage. It also provides for a variety of recreational and educational activities in an ecologically rich and diverse landscape.

The GVRD Parks Department will refocus the parkland acquisition strategy over the next few years around the theme of regional sustainability. Acquisition target sites will be sought which, for example, support protection of species at risk, rehabilitation of derelict sites, and opportunities for building responsible stewardship ethics.

In 2001, the Fraser River Estuary Management Program (FREMP) published a comprehensive monitoring report on progress made in achieving the plan’s objectives. The report showed that the water quality and the habitat base of the Fraser River is improving. Recreational use of the river and the length of recreational corridors along the estuary has increased from 108 kilometers in 1985 to 138 kilometers in 2000.

**Protect the Agricultural Land Base**

Within the GVRD in 2000, there were 53,756 hectares in the Agricultural Land Reserve. The Land Reserve Commission tracks annual applications to convert agricultural land to other non-agricultural uses. In 2000/2001, the commission approved applications to permit 16 hectares to be released from the ALR. There were no additions to the ALR in the last year. In 1999, there was a net loss of 168 hectares in the GVRD and in 1998/99, there was a net gain of five 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. (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 because they do not conform to Official Community Plan and ALR policies.

The mandate of the GVRD Agricultural Advisory Committee (AAC) is to advise the GVRD Board on region-wide agricultural issues, and also to raise the profile of agriculture. The AAC has industry representatives appointed by municipal councils, provincial and GVRD resource members, as well as a GVRD Board representative. The AAC organizes annual events to promote awareness of agricultural activity. They have also initiated a study to investigate ways of increasing the economic viability of farming and processing. Some member municipalities have recently formed local Agricultural Advisory Committees to help manage their agricultural resource base.
3.2 Build Complete Communities

Housing Choice and Complete Communities

Under the objective of “Complete Communities,” the LRSP contains a policy stating that the GVRD will seek through partnerships a diversity of housing types, tenures and costs in each part of the region.

Historically, housing choice in the Greater Vancouver region has been limited to either single family houses or apartment living, with few other housing types available. The LRSP contains a policy aimed at expanding the supply of a variety of ground-oriented housing units, such as townhouses, rowhouses and duplexes. These types of accommodation help provide affordable alternatives to single family housing. Significant gains have been made in recent years on the choice in housing stock. In 1986, 53 per cent of the region’s housing stock was single detached dwellings, but by 2000, 44 per cent was single detached dwellings. In the last five years, about 68 per cent of all new housing built has been multi-unit dwellings (townhouse, rowhouse, and apartment buildings). (Indicator B1)

In 2000, about 9,100 new dwellings were completed in the region and 64 per cent were multi-unit dwellings. Nearly half the units were apartments (48 per cent), 36 per cent were single detached homes, and 16 per cent were semi-detached or row houses.

Housing affordability remains a challenge in the region. Many municipalities are introducing innovative policies to reduce the cost of housing, such as allowing secondary suites in single family zones, promoting more choice in housing type, and increasing the supply of land zoned for multi-unit developments.

Rental vacancy rates in the region have declined to 1.4 per cent in 2000, compared to 2.7 per cent in 1999. (Indicator B7)
Inlet Centre Affordable Housing Project, Port Moody

The City of Port Moody selected this project proposal for 96 affordable housing units, serving the needs of seniors requiring light supportive care, families in need, mature women at risk and those experiencing life-threatening illness. It was submitted by the Greater Vancouver Housing Corporation (GVHC) in partnership with the Crossroads Hospice Society, the Burtquiltam Lions Care Centre and the BC Women's Housing Coalition/Women in Search of Housing. The development of this project is contingent upon the GVHC leasing the property from the City at a reduced rate and receiving necessary funding from BC Housing under the HOMES BC program. The lease and housing agreements are currently being finalized. Located in the Inlet Centre Neighbourhood, where much of Port Moody's future higher density residential and commercial development will be focused, the proposed project will be within walking distance of existing community services such as the City Hall and Library, the Port Moody Recreation Complex, Eagle Ridge Hospital, Heritage Shoppers Village, Shoreline Park with walking and bicycle trails, public transit and schools, providing a wide range of opportunities for day-to-day life for future residents.

A recent GVRD study of secondary suites has concluded that there are between 54,000 and 70,000 secondary suites across the region, representing between 19 per cent and 25 per cent of the total number of renter households. Existing profile data for secondary suites indicates that tenants represent a higher proportion of single persons (as compared to other renter households in the community), and a higher proportion of adults without children, and have household incomes substantially lower than owner households.

Secondary suites represent a significant component of affordable housing, particularly in providing affordable, ground-oriented housing. The 21 member municipalities within the GVRD have a broad range of approaches and policies in addressing secondary suites. In recent years there have been two clear trends in municipal policy regarding secondary suites. First, there has been a movement from leniency of enforcement of illegal suites to passing by-laws that permit legalization of suites. Second, there has been a movement from neighbourhood-by-neighbourhood policy to general municipal policy.

Coquitlam, for example, has made considerable progress in finetuning the secondary suite program regulations and has developed innovative solutions for new construction and more workable solutions for existing houses. They have also prepared an easy-to-use information package, including a video, for residents.
The Province has funded the development of 7,100 units of affordable housing under the Homes BC Program since 1994. Partnerships with non-profit organizations, with local governments, and with private donors help to leverage additional units through discounted land and equity. These programs have been critical to prevent homelessness, particularly in light of the lack of availability of affordable rental housing.

The impact of the leaky condominium crisis on households continues to be felt and the province is continuing to seek help from the federal government.

In December 1999, the federal government announced a $753 million package of programs to address absolute homelessness in urban areas across Canada. The Vancouver region was identified by the federal government as one of ten major urban centres in Canada experiencing a crisis in homelessness. In 2001, the GVRD endorsed the Regional Plan on Homelessness which gives the Greater Vancouver Regional Steering Committee guidance on how to allocate the $25 million of federal funds. Twenty projects recommended by the steering committee were approved by the federal minister in October, 2001. These 20 projects represent a range of capital projects, outreach and support services, and some local planning/needs assessment projects. The federal funding is more than matched dollar for dollar by provincial contributions. A GVRD research project on homelessness is currently underway and part of its purpose is to provide quantified estimates of the number of shelterless people in the region.

**Jobs and Complete Communities**

The region's labour force was 1,109,000 in 2000. The unemployment rate averaged 5.7 per cent in 2000, marking its lowest level since the early 1980s. In 2000, Greater Vancouver averaged 65,000 unemployed persons, which was significantly below the 82,000 average over the 1991-2000 period.

In 2000, the number of jobs totaled 1,044,500. This total represents an increase by 39,000 from 1999, equivalent to approximately twice the population growth. 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 the professional, scientific, and technical sector, accommodation and food services, and information/cultural/recreation services.

The decline of manufacturing jobs apparent in the 1980s has reversed, and in recent years there has been significant growth in a number of manufacturing sectors. In 1999, there were almost 100,000 jobs in the manufacturing sector. In 2000, manufacturing jobs took another leap and added 14,000 jobs, more than any other sector. The increases have largely been in non-durable sectors such as food, beverage, clothing, and printing. Growth in manufacturing sectors 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 in a good position to attract these jobs.

High technology industry continues to attract attention throughout the region. While high technology jobs are found in a range of industry sectors, B.C. 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 and electronics. The number of high technology jobs in the region is estimated at about 40,000, making up about four per cent of all the jobs in the region.

In 2001, the downturn in the dotcom and telecommunication industries has had an impact on Greater Vancouver high technology sectors. However, when the industry recovers, the region is well placed to continue to attract high technology industry. A recent study by KPMG Consulting showed that the Vancouver region enjoyed significantly lower labour and business costs compared to a number of American cities. Another of the region’s strengths is the specialization in specific sectors of high technology such as multimedia, biotechnology, Internet applications and information management systems.

**JOB AND LABOUR FORCE BALANCE**

Striking a better balance between location of jobs and labour force is one of the key policy objectives of complete communities. To achieve this objective, there needs to be a good balance of jobs and workers in each subregion. To reinforce the accessibility objective, as many jobs as possible should be served by transit. The chart below shows the number of jobs located in each subregion in relation to the resident labour force. Vancouver, Burnaby/New Westminster, and Richmond show a greater number of jobs than resident labour force.
Jobs and Labour Force by Subregion, 1996

Source: 1996 Census of Canada

The table below shows what proportion of residents work in their own subregion. The proportion varies from approximately 25 per cent of residents in the Coquitlam, Port Coquitlam, and Port Moody area working in their subregion, compared to 70 per cent of Vancouver residents working in their subregion.

Percentage of Employed Work Force in Home Subregion, 1996

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<tbody>
<tr>
<td>Vancouver/UEL</td>
<td>354,745</td>
<td>261,425</td>
<td>182,597</td>
<td>78,823</td>
<td>70%</td>
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<tr>
<td>Surrey/White Rock</td>
<td>105,300</td>
<td>150,510</td>
<td>62,120</td>
<td>88,390</td>
<td>41%</td>
</tr>
<tr>
<td>Richmond</td>
<td>100,255</td>
<td>70,750</td>
<td>39,310</td>
<td>31,430</td>
<td>56%</td>
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<tr>
<td>North Shore</td>
<td>67,710</td>
<td>89,260</td>
<td>27,493</td>
<td>61,746</td>
<td>31%</td>
</tr>
<tr>
<td>Maple Ridge/Pitt Meadows</td>
<td>20,090</td>
<td>33,315</td>
<td>12,833</td>
<td>20,467</td>
<td>39%</td>
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<tr>
<td>Langley City/Township</td>
<td>44,560</td>
<td>52,120</td>
<td>19,168</td>
<td>32,947</td>
<td>37%</td>
</tr>
<tr>
<td>Delta</td>
<td>40,985</td>
<td>49,535</td>
<td>15,533</td>
<td>33,997</td>
<td>31%</td>
</tr>
<tr>
<td>Coquitlam/PoCo/Port Moody</td>
<td>53,450</td>
<td>88,145</td>
<td>21,100</td>
<td>67,010</td>
<td>24%</td>
</tr>
<tr>
<td>Burnaby/New Westminster</td>
<td>132,495</td>
<td>110,890</td>
<td>37,405</td>
<td>73,565</td>
<td>34%</td>
</tr>
</tbody>
</table>
A surplus of local jobs does not necessarily mean a higher proportion of workers being able to work in their own municipality, as shown in the previous chart. Minimizing the length and time of a work trip can be difficult for the metropolitan resident as there are many factors to consider besides job location when it comes to deciding where to live. These factors include price, type, and tenure of housing, transportation costs, location of schools, location of other household members' work, proximity to recreation and services, and relatives. Information on journey to work patterns suggests that people will try to minimize their work trip length if the opportunity is available.

Given the high degree of metropolitan commuting among subregions, it is important that job concentrations are located with good subregional access in mind. The Greater Vancouver region operates as a single economic unit and what happens within a particular municipal boundary is not necessarily a good indication of whether or not a jobs/labour force balance is being achieved. The regional priority is promoting access for GVRD residents to a range of jobs. That is why building up the job base in accessible locations (such as the metropolitan core and the regional town centres) that can be served by transit is so important to achieving the complete communities objective. The concept of a compact region is also important as jobs often lag behind population growth, resulting in bedroom communities on the fringe.

**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 the complete community's objective. This pattern of metropolitan development would result in a concentration of jobs, shops, and services in a network of centres throughout the region that offer good access by transit, car, walking and cycling.

By building this network of centres, we can help create lively and interesting places and help reduce the need for getting around by car. 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 their Regional Context Statements, official community plans and zoning. The 2000 Annual Report reported on the success of regional centres in offering a choice in housing. The number of housing units has increased substantially in several centres. The aerial photographs (page 22 and 23) show Richmond and Coquitlam Centre. These centres have been very successful in attracting retail and housing investment during the last decade. (Indicator B2)

However, much less progress has been made in attracting offices to the regional town centres. In 2001, the GVRD commissioned consultants to study overall trends in office floor-space distribution in the region over the 1990s and to identify public policy strategies that can encourage office development in the regional town centres.
The study found that the total regional office market consists of approximately 43 million square feet. Of this, 26 million square feet is in the Metropolitan Core (Downtown Vancouver and Central Broadway), 4.5 million square feet is in the regional town centres and 13 million square feet is in the rest of the GVRD. The share of office space in the regional town centres declined from 11 per cent to 10 per cent between 1990 and 2000, while the share in business parks grew from 20 per cent to 30 per cent. The Metropolitan Core declined from almost 70 per cent to 60 per cent. (See Map on Page 30 showing office space distribution during the 1990s).

From 1990 to 2000, approximately 14 million square feet were added to the Greater Vancouver region office market. The Metropolitan Core’s inventory grew by more than six million square feet, the eight regional town centres grew by 937,000 square feet, and the business parks grew by just under seven million square feet. These figures reveal important trends. The “good news” is that the Metropolitan Core continues to be an attractive location for office and captured almost as much space as all the business parks in the 1990s. A strong and diversified metropolitan core with superior access to the regional transit system is a fundamental part of the regional network of centres. The study found that the metropolitan core was able to attract a significant portion of high technology offices, contrary to the notion that high technology offices need large floorplates and large amounts of parking. (Indicator B5)

The bad news is that the regional town centres received very little of the office floorspace growth in the 1990s. The study found that office parks offered lower land and building costs compared to town centre locations. It also found flexibility in building design and layout as well as ample parking. Sites in the town centre were difficult to assemble. Good highway access was more important than good transit access to firms locating in business parks.
The proliferation of dispersed office employment, however, can have consequences both in the short term and long term. It is likely to create traffic problems due to the high proportion of workers using private vehicles. Transit solutions are difficult and costly due to dispersed layouts and their "edge city" locations away from transit corridors. They are generally isolated from housing and effectively rule out 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 study noted that a number of developers and tenants felt that the availability of transit services would become a more important locational factor in the future, when road congestion increases. However, in the shorter term, road congestion is not serious enough for office owners and tenants to relocate to less car-dependent locations.

The study offered a number of recommendations to improve the attractiveness of regional town centres:

- Provide larger development sites by encouraging site assembly and high density commercial zoning.
- Look for ways to facilitate development and to reduce regulatory burdens in town centres by reducing infrastructure needs of new developments. For example, can parking standards be lowered due to availability of transit? Are road capacity increases necessary?
- Consider zoning some sites for office use only.
- Encourage the development of large public facilities to locate in town centres, such as hospitals, sports complexes, universities and colleges.
- Maintain high standards of urban design and attractive streetscapes.
- Ensure that town centres have multiple fibre-optic cable providers.
Coquitlam Centre takes shape

These two aerial photographs show the development of the Coquitlam Centre during the 1990s. Over 2000 housing units were built. The centre's community services and facilities include a college, a high school, a community centre, theatre, parks, daycare, City Hall and RCMP headquarters. The shopping centre was recently expanded.

Pedestrian friendly retail development

Shops of all sizes, from "ma and pa" shops to large format retailing, are an important part of the mix of activity in centres. This development at the corner of Granville and Broadway shows how large format retailing can be combined in a multi-use building, while at the same time preserving the pedestrian-friendly streetscape. Photo courtesy of the Bentall Corporation.
Centres have a broad range of facilities

Several universities and colleges have located in the metropolitan core and in the regional town centres to take advantage of good regional transit access. The Technical University of British Columbia is located in Surrey City Centre on the SkyTrain line. It specializes in information technology, management, and interactive arts. Tech BC will occupy part of this office tower, slated for completion by September 2003. It is 26 storeys and one million square feet. Graphic Courtesy of the City of Surrey and TechBC

New life for old buildings

In 2001 the Federal Building on Columbia Street re-opened its doors as the new home of the New Westminster Police Department. The adaptive re-use of this heritage building, a former post office and federal office building, signals the return of a strong City presence on Columbia Street, once the site of New Westminster's first City Hall. In an effort to retain this important heritage building and bring a key "anchor" tenant into the downtown, City of New Westminster staff worked to bring this important building back to life and encourage an innovative mix of uses. As part of a unique public and private partnership, a portion of the building was transferred to a private developer to convert the area above the police station into residential units. With over 100 full-time Police Department employees shopping and doing business in the Downtown, the economic spin-offs are considerable. Photo Courtesy of the City of New Westminster

Richmond Centre

These two aerials show the development of Richmond Centre from 1992 to 2001. Over 5,000 housing units were added to the centre. Community facilities include the City Hall, a library, sports complex with swimming pools and skating rinks, an athletic complex, and a seniors centre.
3.3 Achieve a Compact Metropolitan Region

The LRSP 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, makes better use of public transit and community services, and slows the consumption of new land.

Population Growth in the Region

The population of the region as of July 2001 was estimated to be 2,030,000, an increase of 19,000 since July 2000. From 1991 to 2000, the Greater Vancouver region grew by 358,000, with Surrey and Vancouver accounting for almost half of this growth. The LRSP contains a growth management target for the region of 2,676,000 by 2021. If the average growth rate experienced in the 1990s continues, then it is likely that the 2021 projection will be met. However, if current growth rates persist, the 2021 population will fall short of the target. (Indicator C1)
GROWTH CONCENTRATION AREA TARGETS FOR 2021

The following growth management population and employment targets for 2021 are contained in Table 1 of the Livable Region Strategic Plan.

<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 LRSP policy targets are achieved, approximately 70 per cent of total regional population and employment will reside within the GCA in 2021. As of 2000, it is estimated that 68 per cent of the population resides within the GCA. From 1991 to 2000, about 65 per cent of the region's growth was located with the GCA. For 2000, the proportion of growth within the GCA was lower than previous years at 61 per cent. (Indicator C2)

The OCPs and Regional Context Statements of member municipalities within the Growth Concentration Area show adequate residential and employment capacity to achieve 2021 targets. These municipalities continue to encourage creative densification and infill projects.
TRANSPORT INFRASTRUCTURE REQUIRED TO SUPPORT A COMPACT REGION

Achieving compact development helps support an efficient, cost-effective transportation system. The LRSP contains a policy that addresses the need to provide transportation services and facilities that supports a compact region. This means providing infrastructure that helps support compact development and at the same time resisting investments that could encourage development beyond designated urban areas.

GVTA’s commitment to the Compact Metropolitan Area policy is evident in the Strategic Transportation Plan (STP), adopted by the GVTA in April, 2000. The STP supports the population and employment growth targets within the Growth Concentration Area through its planned investment in the major road network, its allocation of bus services, and its commitment to develop a plan for rapid transit services that provides good intra-regional access to the regional town centres.

The provincial government has similarly demonstrated its partnership commitment to this element of the LRSP through the funding and development of the Millennium SkyTrain Line and completion of the Highway 1 HOV Project and the Port Mann Bridge HOV Lane.

ACHIEVEMENT OF POPULATION AND EMPLOYMENT DENSITIES TO SUPPORT TRANSIT INVESTMENTS

Transit and the spatial pattern of development need to work together. The LRSP contains policies to help ensure that an improved regional public transit network (which represents a very significant public investment) is provided with enough potential riders to justify the public expenditure. An analysis of the pattern of residential development in the 1990s was undertaken for the 2000 Annual Report. The significant quantity of new housing added around the metropolitan core, the regional town centres and along the SkyTrain corridor helps support the transit system. However, as discussed, the job growth in the regional town centres is lagging behind residential growth. Many office jobs are located outside of centres in locations that are difficult and costly to serve by public transit. For the transit system to work efficiently to serve the journey to work, both the “origins” and the “destinations” must be accessible by transit.

LIMIT 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 region’s eastern boundary. The LRSP contains the following 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.” These targets reflect the approximate capacities of the
existing road infrastructure. 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 to 8 a.m.) on a typical weekday. (Indicator C4)

This is a long-range limitation since current volumes are not approaching the target numbers. The limit could be achieved by avoiding the future provision of any substantial increase in capacity (i.e., no new traffic lanes).

3.4 Increase Transportation Choices

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

ACHIEVING TRANSIT RIDERSHIP TARGETS

The LRSP seeks to implement a transit-oriented and automobile-restrained transportation system. This is to be achieved through an increase in transit supply, a moderate increase in roads especially to accommodate goods movements, and through trip reduction strategies.

TRANSIT SUPPLY

The main priority in the GVTA’s Strategic Transportation Plan (STP), approved by the GVTA and GVRD Board in 2000, was to increase transit services, particularly bus services. Throughout the 1990s, capacity in transit had not kept pace with population growth. Approximately 75 per cent of the five-year STP budget ($1 billion expenditure) was dedicated to transit improvements. The STP indicated a planned increase in transit service hours from 4.71 million service hours in 2000 to 6.21 million in 2005, a 32 per cent increase. This transit service increase along with planned road improvements was to be funded by transit fare increases as well as a vehicle levy (in addition to current funding sources). The transit fare increases were implemented in June 2000. The GVRD and GVTA Boards both approved the vehicle levy, but it was not implemented after the Provincial government decided not to facilitate a workable collection method of the levy.

Between April 1999 and September 2000, GVTA added about 300,000 new service hours to the transit system to implement STP objectives. However, due to funding shortfalls created by failure to secure the vehicle levy, in October 2001 approximately 160,000 service hours were cut. Accordingly, the net increase by the end of 2001 was 140,000 service hours.
The provincial government is expanding the SkyTrain system with the Broadway/Lougheed Corridor line. The first section of the Millennium Line, through New Westminster, is scheduled to be in operation by late 2001. The next section of the Millennium Line, to Commercial Drive Station, will be in operation by summer 2002. Extensions are planned over the next few years to Coquitlam and to Granville Street in Central Broadway, but funding sources for these extensions are uncertain.

Studies in 2000/2001 examined the timing for a rapid transit link between Downtown Vancouver, Richmond, and the airport. The public/private partnership potential of this line is also being investigated. The 98B express bus service, a similar service to the 99B in the Broadway corridor, began service between Richmond and Downtown Vancouver in September 2001.

**Transit Ridership**

Use of the transit system on a per capita basis has remained fairly steady in recent years, but has declined slightly compared to the early 1990s, from 67 trips per capita in 1991 to 64 trips per capita in 2000. (Indicator T7)

In 2001, Greater Vancouver residents experienced the longest transit strike in BC history, lasting from April to August. More than 560,000 trips are made by transit on a daily basis counting in all trip purposes and approximately 17 per cent of all work and post-secondary education trips are made by transit. Tens of thousands of transit riders had to find other means to get to work, businesses suffered, especially in areas of the region with high transit use such as downtown Vancouver and Lonsdale Quay, and many people felt isolated when their only means of transportation was no longer available.

During the strike, traffic volumes increased by up to 15 per cent on some arterials and most people’s journey time increased. Gas sales increased by about 10 to 15 per cent as did greenhouse gas emissions. The possible long-term effects of the strike on ridership are not clear, but anecdotal evidence shows a decrease in the ridership on some bus routes across the region. Cycling, walking and carpooling increased during the transit strike and it is estimated that these modes will continue to make up a higher proportion of trips than before the strike.

**Total and Per Capita Transit Trips, 1991-2000**

*Source: BC Stats and GVTAG*
Transit Targets

Are we on the right trajectory to achieve transit mode split targets in 2021? Transport 2021, the region's long-term plan identifies a transit target for the whole region of 18 per cent by 2021 in the morning peak period. Data provided by GVTA through trip diary surveys conducted in 1994 and 1999 show a slight increase in the proportion of trips made by transit in the morning peak, from 11.3 per cent of all trips to 12.5 per cent in 1999. The gain is encouraging but much progress is needed to meet the 2021 target. (Indicator T9)

Travel Reduction Measures and Achievement of LRSP Transportation Choice Objectives

The LRSP emphasized that increases in transit use would not happen as the result of an increase in transit supply alone. Developing the fabric of the region in a way that makes public transit work, as well as trip reduction measures are needed to help make transit use more convenient.

While land use development has partly been supportive through intensification of residential development, the office employment distribution patterns have not been as supportive. Land use changes take a long time to show results, but the work travel patterns of residents living in or near downtown Vancouver and the regional town centres does show the importance of transit-supportive land use. About 18 per cent of the region's population lives within walking distance of the downtown or a regional town centre, and these people account for 40 per cent of all work trips made by transit, walk or cycling.

Looking at how people reach jobs located within centres, a similar pattern of expanded transportation choices is evident. About 50 per cent of work trips to downtown Vancouver are made by transit, walking or cycling. For jobs located in Metrotown, for example, 30 per cent are accessed by transit, walking, or cycling while the average for the GVRD is 23 per cent. Clustering jobs in centres helps support transit, enables some people to walk or bike to work, maximizes walk trips for lunchtime errands, and lessens the resources and land required for parking.

On trip reduction measures, very few have been implemented although Transport 2021 identified the need for a range of measures, including tolls, parking charges, employer-based programs and fuel taxes. The revenues derived from transportation pricing measures were intended to help fund road and transit infrastructure improvements as well as help encourage more people to use alternatives to the single-occupant vehicle.

Public comments expressed during the vehicle levy debate demonstrate the difficulty of introducing these measures. However, public opinion polls continue to show that the majority of people are in favour of "pay as you drive" measures as long as revenues are spent on cost-efficent ways to improve the transportation system.

The GVTA is exploring the use of parking charges to help reflect the real costs of driving, and the province is studying the possibility of introducing tolls on some Lower Mainland highways. There is a provincial fuel tax dedication of 10 cents a litre, which is a major source of funding for the GVTA.

Many other cities have developed innovative university/college and employer passes to encourage transit use, and these programs have shown impressive shifts from car to transit use. It is hoped that the GVTA will continue to move toward these types of solutions.
OFFICE SPACE CONSTRUCTION, 1990-2000

**METROPOLITAN CORE**
1990 Total Office Space Inventory: 20,536,109
2000 Total Office Space Inventory: 25,845,541
New Building Area 1990-2000: 5,309,000 sq.ft.

**REGIONAL CENTRES**

**METROAVERN (BURNABY)**
1990 Total Office Space Inventory: 1,265,000
2000 Total Office Space Inventory: 1,787,000
New Building Area 1990-2000: 522,000 sq.ft.

**RICHMOND TOWN CENTRE**
1990 Total Office Space Inventory: 845,200
2000 Total Office Space Inventory: 875,200
New Building Area 1990-2000: 30,000 sq.ft.

**LONSDALE (NORTH SHORE)**
1990 Total Office Space Inventory: 718,300
2000 Total Office Space Inventory: 783,300

**NEW WESTMINSTER**
1990 Total Office Space Inventory: 497,800
2000 Total Office Space Inventory: 537,800
New Building Area 1990-2000: 40,000 sq.ft.

**SURREY CITY CENTRE**
1990 Total Office Space Inventory: 30,000
2000 Total Office Space Inventory: 310,000
New Building Area 1990-2000: 280,000 sq.ft.

**LANGLEY TOWN CENTRE**
1990 Total Office Space Inventory: 130,000
2000 Total Office Space Inventory: 130,000
New Building Area 1990-2000: 0 sq.ft.

**COQUITLAM TOWN CENTRE**
1990 Total Office Space Inventory: 50,000
2000 Total Office Space Inventory: 50,000
New Building Area 1990-2000: 0 sq.ft.

**MAPLE RIDGE TOWN CENTRE**
1990 Total Office Space Inventory: < 25,000
2000 Total Office Space Inventory: < 25,000

Legend:
- **Metropolitan Core**
- **Regional Town Centre**
- **SkyTrain Station**
  - 10,000 - 75,000 sq.ft.
  - 75,000 - 150,000 sq.ft.
  - 150,000 - 500,000 sq.ft.
  - 500,000 - 1,000,000 sq.ft.
BUSINESS PARKS / TECH CENTRES

A. GREAT NORTHERN TECHNOLOGY PARK
- Completion Date: 1999
- Building Area: 120,000

B. BRIDGE BUSINESS CENTRE
- Completion Date: 1997
- Building Area: 102,000
- Completion Date: 1998
- Building Area: 149,000
- Completion Date: 1999
- Building Area: 109,000
- Completion Date: 2000
- Building Area: 80,000

C. LAKE CITY COURT
- Completion Date: 1999
- Building Area: 41,145
- Completion Date: 2000
- Building Area: 220,000
- New Building Area 1990-2000: 261,000 sq.ft.

D. WILLINGTON BUSINESS PARK
- Completion Date: 1991
- Building Area: 50,000
- Completion Date: 1992
- Building Area: 146,000
- Completion Date: 1999
- Building Area: 197,000
- New Building Area 1990-2000: 393,000 sq.ft.

E. CANADA WAY BUSINESS PARK
- Completion Date: 1996
- Building Area: 100,000
- Completion Date: 2000
- Building Area: 155,000

F. DISCOVERY PLACE
- Completion Date: 1990
- Building Area: 110,000
- Completion Date: 1991
- Building Area: 30,000
- Completion Date: 1996
- Building Area: 59,000
- Completion Date: 1997
- Building Area: 54,000
- Completion Date: 1998
- Building Area: 150,000
- Completion Date: 1999
- Building Area: 257,000
- Completion Date: 2000
- Building Area: 40,000
- New Building Area 1990-2000: 700,000 sq.ft.

G. GLENLYON BUSINESS PARK
- Completion Date: 1996
- Building Area: 260,000
- Completion Date: 1997
- Building Area: 51,000
- Completion Date: 1998
- Building Area: 58,000
- Completion Date: 1999
- Building Area: 112,000
- Completion Date: 2000
- Building Area: 43,000
- New Building Area 1990-2000: 524,000 sq.ft.

H. RICHMOND CORPORATE CENTRE
- Completion Date: 1998
- Building Area: 50,000

J. COMMERCE COURT INTERNATIONAL
- Completion Date: 1997
- Building Area: 74,000
- Completion Date: 1998
- Building Area: 71,000

K. CRESTWOOD CORPORATE CENTRE
- Completion Date: 1990
- Building Area: 154,000
- Completion Date: 1992
- Building Area: 134,000
- Completion Date: 1993
- Building Area: 77,000
- Completion Date: 1994
- Building Area: 80,000
- Completion Date: 1996
- Building Area: 81,000
- Completion Date: 1997
- Building Area: 81,000
- Completion Date: 1999
- Building Area: 75,000
- Completion Date: 2000
- Building Area: 82,000

Data Source: Royal LePage Advisers Inc.
“The GVRD Office Market - Supply, Demand and Spatial Distribution”, September 2001
MAJOR ROAD NETWORK

GVTA has assumed responsibility for the major road network. At the end of 2000, there were 2,200 kilometres of major roads. The Strategic Transportation Plan has allocated $330 million for improvements and additions to the major road network from 2000 to 2005. In 2001, a reduction in the road budget was also necessary to meet the budget shortfall. (Indicator T4)

Most GVTA funding for roads since 1999 has involved intersection safety improvements, road widening, turn lanes and traffic signal upgrades. The largest project was the nearly $2 million upgrade of Scott Road from 98th Avenue to 100th Avenue in Surrey. Other projects include $1.5 million to reconstruct the Stanley Park “S” Curve in Vancouver, over $900,000 for Garden City Road in Richmond and $645,000 to widen 64th Avenue in Langley Township. Typically, GVTA funds up to half the cost of improvement projects, but in some cases, municipal and other funding boosts the total value to three times the GVTA contribution. The Port Mann HOV lane opened in 2001.

VEHICLES KILOMETRES TRAVELLED

Total and per capita vehicle kilometres travelled is an important indicator for air quality, congestion and vehicle use patterns. The GVTA estimates that the average daily per capita vehicle kilometres travelled is 24 kilometres.

Source: ICBC, BC Stats

CAR OWNERSHIP PATTERNS

The region's overall travel demand is strongly influenced by car ownership patterns. In January 2001, there were 1,191,511 licensed vehicles in the GVRD, an increase of 18,645 cars over the year, or 1.6 per cent annual growth rate. This was higher than population growth rate for the year but lower than the labour force growth rate. 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.
Rates of car ownership vary considerably throughout the region. The previous graph shows vehicles per household for the Burrard Peninsula, the GVRD as a whole, and the rest of GVRD which excludes the Burrard Peninsula. (Indicator T2)

WALKING AND CYCLING

The GVTA trip diary survey conducted in 1994 and in 1999 shows a significant increase in trips made by walking and cycling. These trips increased by 29 per cent, while automobile trips increased by 15 per cent for the same time period.

Many municipalities have been improving pedestrian environments, particularly in commercial areas. Safe Routes to School Programs and the Way to Go Program focus on improving pedestrian safety around schools. The trip diary information showed a slight increase in the proportion of children walking to school, compared to 1994 figures.

Part of GVTA’s mandate is to help encourage cycling use in the region. GVTA’s capital budget for cycling projects in 2001 was $1 million. A total of 14 municipalities applied for cost sharing on bicycle projects, resulting in a contribution of $957,000 from GVTA. Municipalities will complete these projects during fall 2001, and spring 2002. Many municipalities have made important upgrades to their cycling networks to increase the opportunity to cycle for recreation, commuting, to run errands and for school trips.
4. Improving the Region’s Air Quality and Addressing Global Climate Change

The movement of air within the Lower Fraser Valley is bounded by the Pacific Ocean (Strait of Georgia) to the west, the Coast Mountains to the north and the Cascade Mountains in Washington State to the south. This geographical triangle is known to meteorologists as the Georgia Coast Cascade Air Basin. The mountains surrounding the Air Basin act like a barrier that prevent air contaminants from blowing away, making this area susceptible to poor air quality events. Consequently, the air we breathe is a product of the activities of the approximately 2.5 million people living in three political regions (the GVRD, Fraser Valley Regional District and Whatcom County) within two different countries.

The LRSP’s four main objectives all work toward reducing common air contaminants and greenhouse gas emissions. The Green Zone’s forests provide a carbon sink and the presence of the Green Zone helps lead to more compact development. The complete communities objective and transportation choice objective work towards arranging buildings and land use more efficiently in order to use less energy in both heating and in transportation. In turn, the plan’s environmental objectives in terms of livability and biodiversity are impacted by air quality.

Reducing Air Contaminants

The GVRD adopted an Air Quality Management Plan (AQMP) in 1994 as part of the LRSP process. Adopting 1985 as the base year, the AQMP was designed to reduce emissions of air contaminants by 38 per cent by the year 2000. To achieve this reduction target, the AQMP contains a set of 54 sector-specific Emission Reduction Measures (ERMs) designed to reduce air emissions from point sources (e.g. large industrial facilities and power generating utilities), area sources (e.g. agricultural, solvent evaporation, space heating) and mobile sources (e.g. motor vehicles, aircraft, railways, marine vessels and small engines). It also includes 33 recommendations for the GVRD and other agencies regarding cooperative approaches to implementing the ERMs and developing further air quality management strategies. (Indicator T11)

The GVRD has worked with the provincial and federal governments, and industry stakeholders to implement the ERMs in the plan. GVRD air quality monitoring and emission inventory programs are proceeding as recommended, and public and stakeholder involvement in program development, particularly through the efforts of the Air Quality Advisory Committee, continues. Provincial and federal agencies have supported the plan through the establishment of AirCare, the AirCare On Road program for trucks, and passing legislation and programs for cleaner vehicle fuels and tailpipe emissions.

For 1999, the estimated reduction in total emissions of the five common air contaminants from 1985 levels was 38 per cent, achieving the goal set for the AQMP one year in advance of the 2000 objective. For 2000, the projected reduction in emissions from 1985 levels is approximately 40 per cent. These overall emission reductions are dominated by the reduction in carbon monoxide emissions from motor vehicles. The closure of refineries also helped improve air quality. It is important to note that the success in reducing emissions has been achieved in the face of rapid regional growth in population, economic activity and motor vehicle use.
Preliminary assessment of trends in regional ambient air quality between 1985 and 1998 show that average concentrations of most measured air contaminants went down. These trends indicate that the measures in the GVRD’s AQMP have generally been effective. Most strikingly, average levels of carbon monoxide (CO) have declined by more than 40 per cent since 1987. Average levels of inhalable particulate (PM10) have also declined steadily since monitoring began in 1994. The trend is not universal however; average concentrations of ground-level ozone appear to be increasing.

The GVRD has met the target set out in the AQMP, and in many ways, our ambient air quality is better than it used to be. However, under certain weather conditions, air quality can still deteriorate to unacceptable levels.

Further, it has proven difficult to reduce ambient levels of two contaminants with potential serious health and environmental impacts of ozone and fine particulate. Adverse health effects associated with inhalation of ozone and particulate matter range from a reduction in overall breathing efficiency to hospitalisation and death. While these effects are most evident as a result of short-term exposure to high levels of these contaminants, recent studies suggest that there may be no exposure level to particulate matter that is entirely safe for everyone. The B.C. Medical Health Officers estimate that between 15 and 150 deaths per year in the Lower Mainland may be attributable to air pollution.

**GREENHOUSE GAS EMISSIONS**

Currently, there are no regulatory controls on greenhouse gases (GHG) in the region, and emissions of these gases have increased in the 1990s. Because of the profound impact that climate change is projected to have on our region and upon the world as a whole, the GVRD has been turning its attention to looking for ways to reduce GHG emissions. This action is also in response to Canada’s international commitment under the Kyoto Protocol.

With the expected rise in future population and economic activity in the region, emissions are forecast to increase in the future, unless further emission reduction measures are implemented.

In the region, emissions of greenhouse gases totaled 15,330,000 tonnes in 1999. Of this total, 40 per cent of emissions came from transportation sources and mobile equipment (e.g. cars, trucks, airplanes, lawn mowers). Another 29 per cent resulted from heating and cooling buildings, and running natural gas water heaters and stoves. Industrial sources produced a further 24 per cent of total emissions. (Indicator T13)

**TRANSPORTATION**

A key challenge to reaching GHG emission reduction targets is transportation, largely as a result of increasing use and size of private automobiles. The LRSP makes the connection in its complete communities, compact region, and transportation choice policies to reducing the need for urban travel and making transportation alternatives more attractive.

Little work has been done to date on quantifying the relationship between the way communities are planned and the extent to which transportation energy consumption can be reduced as a result. However, a study on this subject was recently completed in the Toronto area for the Canada Mortgage and Housing Corporation (Greenhouse Gas Emissions from Urban Travel: Tools for Evaluating Neighbourhood Sustainability, February 2000). Travel from a variety of neighbourhoods in inner area, middle ring, and outer ring suburbs was
modeled. The neighbourhood located in the outer suburb with conventional subdivision design had the highest rate of GHG emissions from urban travel at 11 tonnes annually per household. The neighbourhood located in the inner urban area with the most compact, mixed-use pedestrian-oriented design had the lowest rate of GHG emissions from urban travel at 3.5 tonnes annually per household. As part of the GVRD sustainability review process, a similar study is planned for the Greater Vancouver region.

In addition to distances travelled, the mode of transportation has a big effect on the amount of greenhouse gases emitted:

<table>
<thead>
<tr>
<th>Transportation Mode</th>
<th>Tonnes of GHGs emitted from 15 km round-trip commute per year (230 days)</th>
<th>Tonnes of GHGs emitted from 60 km round-trip commute per year (230 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Occupant Vehicle</td>
<td>1.1</td>
<td>4.42</td>
</tr>
<tr>
<td>3-person car pool</td>
<td>0.37</td>
<td>1.48</td>
</tr>
<tr>
<td>Diesel bus w/ 20 passengers</td>
<td>0.33</td>
<td>1.33</td>
</tr>
<tr>
<td>Diesel bus w/ 60 passengers</td>
<td>0.11</td>
<td>0.44</td>
</tr>
<tr>
<td>SkyTrain w/ 20 passengers</td>
<td>0.02</td>
<td>0.07</td>
</tr>
<tr>
<td>SkyTrain w/ 60 passengers</td>
<td>0.01</td>
<td>0.02</td>
</tr>
<tr>
<td>Trolley bus w/ 20 passengers</td>
<td>&lt;0.01</td>
<td>n/a</td>
</tr>
<tr>
<td>Trolley bus w/ 60 passengers</td>
<td>&lt;0.01</td>
<td>n/a</td>
</tr>
<tr>
<td>Bicycle</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td>walking</td>
<td>0</td>
<td>n/a</td>
</tr>
</tbody>
</table>

BUILDINGS

After transportation, buildings are the second largest source of greenhouse gas emissions in the region. “Green” approaches to the location, design, construction and operation of buildings can dramatically reduce emissions from this sector. In addition to locating new buildings in areas of good public transit access, buildings can be designed in order to maximize free heating energy from the sun, and to incorporate fuel-free heating technologies like ground-heat geothermal and solar air heating.

New and renovated buildings can be designed to incorporate high insulation walls and roofs, and high-efficiency heating and cooling systems. Low-emission construction materials like “Eco-smart” concrete can be used to construct or renovate the building itself. In sufficiently built-up areas of the region, district heating systems make it possible for a large number of buildings to access a single, large, efficient heating plant. Finally, significant gains can be made in almost every building simply by maximizing energy efficiency in the operation of existing heating and cooling equipment. Similar approaches to reducing emissions can also be applied to municipal and regional infrastructure.

POWER GENERATION

To date, greenhouse gas emissions from power generation has not been a significant concern within the region because of B.C. Hydro’s long-standing reliance on hydropower for electricity. However, new energy demand in the electricity sector is anticipated to be met with natural gas-fuelled turbines rather than the expansion of hydroelectric or other zero-emission technologies (e.g. small hydro, wind, solar). This will correspondingly result in an increase in emissions.
In recent years, many state and provincial governments have made it possible for people to choose what kind of electricity they buy. In some areas, significant numbers of customers have signed up for green-energy plans, agreeing to pay more for their electricity in return for having a portion of this power.

**A Harmonised Approach**

Reducing greenhouse gas emissions and local levels of fine particulate and ozone may seem like taking on three separate and difficult tasks. However, there is an advantage to tackling these challenges together, because many greenhouse gas reduction strategies that affect fuel combustion (by far the largest source of greenhouse gas emissions) will also reduce levels of fine particulate and ozone in the Lower Fraser Valley Airshed. By reducing our contribution to global climate change, we can not only increase the energy-efficiency of our economy, but we can also improve our health, prevent crop damage, and increase visibility in the Georgia Coast Cascade Air Basin. In similar fashion, it is far more effective to achieve our transportation, land-use and air quality goals by looking at these issues in an integrated manner.

---

**How well do our emissions of greenhouse gases compare with other places?**

Due in large part to the vast and increasing amounts of fossil fuels burned to power the world’s economy, greenhouse gases such as carbon dioxide, methane and nitrous oxide are accumulating in the earth’s atmosphere and accelerating global climate change. While the result is a common problem shared by all the world, people in different regions of the world are making widely different contributions to total global emissions.

Including all human-caused (“anthropogenic”) sources, emissions of greenhouse gases per GVRD resident totalled 7.7 tonnes in 1999. This is much lower than the 15 tonnes per capita (1995 data) emitted in British Columbia as a whole. Higher emissions in the rest of the province are a result of land and energy-intensive resource industries (e.g. oil and gas extraction and transmission, aluminum smelting, mining, forestry), the need to transport people and goods over longer distances, and the need to provide additional heating and cooling in less temperate climates.

Along with Newfoundland, Quebec, Ontario and Manitoba, B.C.’s 1995 per capita emissions of greenhouse gases were lower than Canada’s 1995 national total of 21 tonnes per capita. This comparatively “good” performance results from the fact that most, or all, of the electricity generated in these provinces comes from zero-emission hydroelectric sources (or nuclear, in the case of Ontario). Because of its extensive oil and gas industry, and its reliance on coal for electric power generation, Alberta’s 69 tonnes of emissions per capita were more than four times higher than B.C.’s.

If B.C. expands its oil and gas industry, our provincial emissions could increase significantly. While over 90 per cent of B.C.’s current electricity needs are currently supplied by hydropower, 90 per cent of all new electricity demand is forecast to be supplied by burning natural gas.

While our per capita emissions as residents of the region or as British Columbians are low compared to that for Canada as a whole, our per capita emissions as Canadians are extremely high when compared to most other countries. By 1998, Canadian greenhouse gas emissions per capita has climbed to almost 23 tonnes, slightly better than those of Australia (26 tonnes) and the United States (25 tonnes). However, Canadian per capita emissions were much larger than those from the Netherlands (15 tonnes), Germany (13 tonnes), the United Kingdom (12 tonnes), Japan (11 tonnes) and France (10 tonnes). In all of these countries, lower per capita emissions have resulted in part from lower levels of consumption for transportation and heating. Greater use of energy-efficient technologies (e.g. rail transport, district heating), and less resource industry also contribute to these lower totals.

Developing countries in warm climates consume far less energy on a per capita basis for transportation, industry and heating. In 1998, China and India (whose combined populations account for more than one-third of the world’s population), had per capita greenhouse gas emissions of only three tonnes and one tonne respectively.
## Appendix A

**LIVABLE REGION STRATEGIC PLAN:**
**MONITORING PROGRAM INDICATORS**

### Protect the Green Zone

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

### Build Complete Communities

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1 Number and proportion of total and new households for the GCA and GVRD</td>
<td></td>
</tr>
<tr>
<td>B2 Number and proportion of total and new dwellings in municipal and regional centres and corridors</td>
<td></td>
</tr>
<tr>
<td>B3 Number and proportion of total and new households within 400 meters of 'good' transit for the region</td>
<td></td>
</tr>
<tr>
<td>B4 Benchmark price for housing for the region</td>
<td></td>
</tr>
<tr>
<td>B5 Proportion of office floor space in municipal and regional centres</td>
<td></td>
</tr>
<tr>
<td>B6 Proportion of labour force working in home subregion</td>
<td></td>
</tr>
<tr>
<td>B7 Proportion of rental housing in region's housing stock</td>
<td></td>
</tr>
<tr>
<td>B8 Proportion of neighbourhood population with average population density &gt; 50 people per hectare</td>
<td></td>
</tr>
</tbody>
</table>

### Achieve a Compact Metropolitan Region

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1 Population growth and share of annual population growth, for the GCA and GVRD</td>
<td></td>
</tr>
<tr>
<td>C2 Number and proportion of ground-oriented housing inside and outside the GCA</td>
<td></td>
</tr>
<tr>
<td>C3 Non-residential building permit values, by sub-region</td>
<td></td>
</tr>
<tr>
<td>C4 Number of vehicles crossing the GVRD eastern boundary, in-bound</td>
<td></td>
</tr>
<tr>
<td>C5 Total employment and share of employment growth, for the GCA and GVRD</td>
<td></td>
</tr>
<tr>
<td>C6 Growth in regional sewerage trunk lines, for the GCA and GVRD</td>
<td></td>
</tr>
</tbody>
</table>

### Increase Transportation Choices

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1 Total and per capita number of vehicle kilometers driven</td>
<td></td>
</tr>
<tr>
<td>T2 Vehicle ownership per household</td>
<td></td>
</tr>
<tr>
<td>T3 Participation in regional ride-share program</td>
<td></td>
</tr>
<tr>
<td>T4 Lane-kilometres of major road network and provincial and federal highways, total and per capita</td>
<td></td>
</tr>
<tr>
<td>T5 Kilometres of streets with sidewalks and kilometres of bike lanes</td>
<td></td>
</tr>
<tr>
<td>T6 Commuter trip length and time</td>
<td></td>
</tr>
<tr>
<td>T7 Total and per capita transit ridership</td>
<td></td>
</tr>
<tr>
<td>T8 Growth in total and per capita transit capacity</td>
<td></td>
</tr>
<tr>
<td>T9 Mode Split</td>
<td></td>
</tr>
<tr>
<td>T10 Proportion of children walking to school versus using other transportation modes</td>
<td></td>
</tr>
</tbody>
</table>

### Air Quality

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQ1 Impact of Emission Reduction Programs</td>
<td></td>
</tr>
<tr>
<td>AQ2 Trends in Annual Ambient Pollutant Concentrations</td>
<td></td>
</tr>
<tr>
<td>AQ3 Trends in Maximum Levels of Common Air Contaminants</td>
<td></td>
</tr>
<tr>
<td>AQ4 Greenhouse Gas Emissions</td>
<td></td>
</tr>
<tr>
<td>AQ5 Trends in Mean Ambient Concentrations of Carbon Dioxide (Northern Hemisphere)</td>
<td></td>
</tr>
</tbody>
</table>

*positive  negative  unchanged  undetermined  not available*
### Livable Region Strategic Plan Strategy: PROTECT THE GREEN ZONE

| Indicator                                                      | Relevant LRSP Objectives                                                                 |
|                                                               |                                                                                         |
| G1 Area of Green Zone                                         | Protect Green Zone areas from urban development and seek to add new areas to the Green Zone |
| The area of the GVRD Green Zone was calculated to total 205,520 hectares in 1998. No land was removed from the Green Zone in 2000 or in 1999. This figure requires updating, as some municipalities have added land through the development of Regional Context Statements. |
| Data Source: GVRD Regional Development                         |                                                                                         |
| Indicator Update Frequency: Annual                             |                                                                                         |
| G2 Area of Agricultural Land Reserve                          | Protect Green Zone areas at risk from urban development, and minimize pressure on the Green Zone through management of urban areas |
| The total area within the GVRD permitted by the Land Reserve Commission (ALR) permitted to be excluded from the Agricultural Land Reserve in 2000-2001 (fiscal year, 1 April 2000 to 31 March 2001) was 16 ha. In 1999/2000 a net figure of 168 ha was permitted for exclusion. The previous period (1998/1999) saw a net gain of 5 ha to the GVRD Agricultural Land Reserve. |
| Data Source: Land Reserve Commission                           |                                                                                         |
| Indicator Update Frequency: Annual                             |                                                                                         |
| G3 Total value of farm-gate sales                             | Enhance planning for agriculture as part of the region's economic base                    |
| 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 1995, 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     | Minimize pressure on the Green Zone and protect the Green Zone from urban development    |
| Data options currently being evaluated.                        |                                                                                         |
| G5 Number of endangered or threatened species (provincial "Red List") | Enhance the viability of the region's ecology                                            |
| 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 the whole of British Columbia there are 223 endangered or threatened vertebrate animal species ("red and blue listed"). Of that total, as many as 56 are found in GVRD Parks. This provides some evidence of the importance of species habitat areas in parks. |
| Data Source: GVRD Parks                                        |                                                                                         |
| 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>G6 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 kilometers of regional recreational greenway already exist or have been identified for development in the near future. A further 354 km have been identified for development in the future. As the greenway sector plans are completed and pilot projects implemented, important connections and trail development will occur.

Data Source: GVRD Parks
Indicator Update Frequency: Annual

<table>
<thead>
<tr>
<th>G7 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 GVRD Parks shows that 31% (over 9300 hectares) are wetlands. Since that time the GVRD has added Blaney Bog to the Park Reserve inventory which provides approximately 66 more hectares of wetland. Other wetland sites are currently being considered for acquisition through partnerships. Wetlands are thought 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 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, 1990-2000

![Water Consumption Graph]

Data Source: GVRD: Greater Vancouver Water District Water Consumption Statistics, 2000 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>

The GVRD has committed to the implementation of its Liquid Waste Management Plan (LWMP). The LWMP sets out 49 commitments, including 20 related to monitoring, which encompass all aspects of liquid waste management. Many of the monitoring programs are will be designed to measure the effects of liquid waste discharges onto the receiving environment.

For example, each year, the GVRD monitors the water in False Creek to measure the impact of combined sewer overflows on False Creek. The graph below shows fecal coliform counts from May to September in False Creek (east of Cambie Bridge) for the past ten years. Significant variation occurs from year to year due to a variety of factors including weather effects. Overall, the water quality in False Creek during the past ten years has improved as shown on the graph. This is mainly due to the reduction in the number and amount of combined sewer overflows resulting from the separation of storm and sanitary sewers in the City of Vancouver.

### False Creek East: Range of Fecal Coliform Counts, May-Sept, 1990-2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
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<td>1999</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data Source: GVRD Sewage and Drainage
Indicator Update Frequency: Annual
Number and proportion of new dwellings, by structure type, within and outside the GCA

B1

Seek a diversity of housing types across the region

During 2000 over 9,100 new dwellings were built within the GVRD, 61% of which were located within the Growth Concentration Area. Nearly half the units (48%) were apartments, 66% of which were built in the Growth Concentration Area. 36% were single detached homes, 5% were semi detached, and 11% were rowhouses.

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

Number of total and new dwellings in municipal and regional centres and corridors

B2

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.

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>B3 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>B4 Benchmark price for housing, by structure type for the region</td>
<td>Seek a diversity of housing types and costs in each part of the region</td>
</tr>
</tbody>
</table>

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 2001. This shows that house prices fell from the mid 1990s, but have started to rise slightly in the past two years.

**Median House Prices, Greater Vancouver, 1995 – 2001**

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 Proportion of jobs in municipal and regional centres | 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 |

Detailed information on the numbers of jobs in regional centres is not available. Changes in total inventoried office floor area between 1990 and 2000 indicate that while the Metropolitan Core inventory of office space grew by over 5.3 million sq.ft, and the rest of the GVRD (excluding regional centres) grew by 6.7 million sq.ft., the regional town centres grow by only 937,000 sq ft.

**Distribution of Office Floor Space, 1990 and 2000**

Data Source: Royal LePage “The GVRD Office Market Report 2001”
Indicator Update Frequency: Annual (goal)
### 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>B6</strong> Proportion of Labour Force working in home subregion</td>
<td>Seek a better balance in jobs and labour force location throughout the region</td>
</tr>
</tbody>
</table>

The graph below shows the numbers of people working within specified sub-regions. In Vancouver and UEL 70% of people work in the same sub-region that they live in, but this falls to 24% in the sub-region of Coquitlam, Port Coquitlam and Port Moody.

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

![Bar chart showing numbers of employees working within their residential home region, 1996.](chart)

- Working Within Home Subregion
- Commuting Out of Home Subregion

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 40.5% 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. Rental vacancy rates have decreased to 1.4% in 2000.

**Annual Apartment Vacancy Rates in the GVRD, 1991 - 2000**

![Graph showing annual apartment vacancy rates, 1991-2000.](graph)

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

| **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.
Overall, population has risen from just over 1,500,000 in 1991 to an estimated 2,030,000 this year. Population growth in 1999 and 2000 was significantly lower than in earlier periods of the decade. Between censuses population figures can only be estimated.

Data Source: BC Stats, PEOPLE 26
Indicator Update Frequency: Annual
### Population growth and share of annual population growth, for the Growth Concentration Area and GVRD

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1: Population growth 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>

The proportion of the population located in the Growth Concentration Area of the GVRD is around 68%, higher than the 61% of population located in the CGA in 2000. (see indicator B1).

#### Additional Residents in GVRD 1991-2000, and Percentage in Growth Concentration Area

<table>
<thead>
<tr>
<th>Year</th>
<th>Growth Concentration Area (GCA)</th>
<th>Outside GCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>64%</td>
<td>36%</td>
</tr>
<tr>
<td>1992</td>
<td>67%</td>
<td>33%</td>
</tr>
<tr>
<td>1993</td>
<td>64%</td>
<td>36%</td>
</tr>
<tr>
<td>1994</td>
<td>65%</td>
<td>35%</td>
</tr>
<tr>
<td>1995</td>
<td>64%</td>
<td>36%</td>
</tr>
<tr>
<td>1996</td>
<td>66%</td>
<td>34%</td>
</tr>
<tr>
<td>1997</td>
<td>62%</td>
<td>38%</td>
</tr>
<tr>
<td>1998</td>
<td>63%</td>
<td>37%</td>
</tr>
<tr>
<td>1999</td>
<td>68%</td>
<td>32%</td>
</tr>
<tr>
<td>2000</td>
<td>61%</td>
<td>39%</td>
</tr>
</tbody>
</table>

Data Source: BC Stats, PEOPLE 26
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>Number and proportion of ground-oriented housing inside and outside the Growth Concentration Area</td>
<td>Seek further opportunities for ground-oriented housing, particularly in the GCA</td>
</tr>
</tbody>
</table>

The two 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 and the number of demolitions for apartments and ground-oriented (GO) housing. 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.

Changes to Housing Stock: Growth Concentration Area and Rest of GVRD, 1996-2000

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

Non-residential building permit values, for the GVRD subregions
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, 1996-2000 ($millions)

Data Source: GVRD Regional Development
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>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>
</tbody>
</table>

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.

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

Data Source: Greater Vancouver Transportation Authority (GVTA)

Indicator Update Frequency: 4-Year

**Total employment and share of employment growth, for the GCA and GVRD**

Seek to achieve employment growth management targets for 2006 and 2021


Data Source: Statistics Canada, 1996 and 1991 Census

Indicator Update Frequency: 5-year
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.

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 65,220 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
**Livable Region Strategic Plan Strategy: TRANSPORTATION CHOICES**

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

The total number of vehicles registered in the Region is thought to give a good indication of the total kilometers driven. GVTA estimates the per capita daily vehicle kilometres travelled to be 23 kilometres. The total number of trips made by GVRD residents grew from 4.8 million in 1994 to 5.5 million in 1999.

**Vehicle Registrations, GVRD, 1991-2001**

Indicator Update Frequency: Annual

**T2 Vehicle ownership per household**

Increase transportation choices to reduce automobile-dependence

Vehicle ownership per household has remained at almost the same level for the past five years, although the past year showed a slight decrease in vehicle per household ownership. It is important to note that 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, 1992-2001**

Indicator Update Frequency: Annual
<table>
<thead>
<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: GVTA and 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 |
| The regional road network is comprised of about 2,200 lane kilometers of roadways. GVTA currently budgets $29 million for maintenance, rehabilitation and improvements plus another $15 million for developing new major road projects such as the South Fraser Perimeter Road and the Fraser River crossing. Most GVTA funding for roads since 1999 have involved intersection improvements, road widening, turn lanes and traffic signal upgrades. The largest project has been nearly $2 million to upgrade Scott Road from 98th Avenue to 100th Avenue in Surrey. Others have included $1.5 million to reconstruct the Stanley Park "S" Curve in Vancouver, over $930,000 for Garden City Road in Richmond and $846,000 to widen 64th Avenue in Langley Township. |
| Data Source: GVTA |
| 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 |

**Work Trip Commuting, GVRD, 1999**

- **Number of Commuter Trips**
- **Percent of Commuter Trips**

Data Source: GVTA, 1999 Trip Diaries

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

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevant LRSP Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>T7 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 five years, with a slight increase in 1999/2000. The total number of trips taken - (paid journeys) - has increased at a rate that approximates to the overall population increase in the past year.

**Total Transit Ridership (right hand scale) and Average Trips Per Person (left hand scale) 1991-2000**

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

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**T8 Growth in total and per capita transit capacity**

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).

**Increase In Capacity of Transit System, 1995/6 to 2000 (Total Annual Service Hours)**

Data Source: GVTA
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>
<thead>
<tr>
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</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 are from GVTA. Census data from 1996 the mode split for journeys to work are shown for the Metropolitan Core (Downtown Vancouver and the Broadway Corridor) and the rest of Greater Vancouver. Automobile use as a method of travel for journey to work has decreased, both in the CBD and the rest of the GVRD. Note that 2001 Census occurred during a transit strike, therefore the 5-year indicator is likely to be faulty when based on census data.

**Journey to Work Trip Diary, 1999**

**Journey to Work: Census, 1999**

**Proportion of children walking to school versus using other transportation modes**

The proportion of children walking/biking to school in the morning and afternoon increased slightly between 1994 and 1999, but is still substantially lower than the 53% walking/biking to school in 1985.

**Provide a variety of local transit services and networks in support of complete communities**

**Proportion of Children Driven to School vs. Other Transportation Modes, GVRD, 1985, 1994, 1999**

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Source: GVTA, 1999 Trip diary
Indicator Update Frequency: 5-Year

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

Data Source: GVTA
Indicator Update Frequency: 5-Year
Air pollution controls and other initiatives included within the GVRD Air Quality Management Plan have reduced emissions of common air contaminants over time. Point source reductions are also partially caused by closure of refineries during this time period. 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, 1985-1999**

*Overall GVRD Emission Reduction due to AQMP Implementation*  
*Total of VOC, NOx, SOx and Particulate (CO Excluded)*

Data Source: GVRD Air Quality Emissions Inventory Program  
Indicator Update Frequency: 5 Years  
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.
This indicator shows trends in selected air pollutants, including carbon monoxide (CO), inhalable particulate matter (PM10) and ground-level ozone (O3). Each pollutant value is the average of those measured at seven sites within the GVRD. The values presented in the following figures are averages from these seven stations, and are termed the "regional average".

Regional average ground-level ozone (O3) levels appear to have decreased slightly in the early 1990s, but have generally risen since that time, until 2000 when there was a large decrease. In 1998 and 1999, average ozone levels were over 20% higher than 1987 base year levels. Average inhalable particulate (PM10) levels have declined steadily since monitoring began in 1994. Carbon monoxide (CO) levels have declined more than 40% since the 1987 base year.

Note: Base year for CO and O3 is 1987. Base year for PM10 is 1994.
Data Source: GVRD Air Quality Monitoring and Assessment Program
Indicator Update Frequency: Annual
Health impacts from air pollution are commonly assessed by comparing short-term air pollution measurements to objectives defined by the federal government and by objectives set by the GVRD. For 1-hour averages of CO and O3 Desirable Objectives define a long-term goal for air quality while Acceptable Objectives are intended to provide adequate health protection. Pollutant concentrations are considered "good" at or below the Desirable Objective, "fair" above the Desirable Objective, and "poor" above the Acceptable Objective. For inhalable particulate concentrations, a 24-hour interim objective has been adopted by the GVRD. The values presented in the figures below are averages from seven stations, and are termed "regional average".

The above graph indicates that short-term 1-hour carbon monoxide (CO) averages have steadily decreased over the period 1987 to 2000. Regionally, the maximum and 99th percentile concentrations have remained below the Desirable Objective in all years. The 99th percentile is a good indicator of high concentrations, and is not influenced by year-to-year meteorological variability as much as the maximum concentration.

The above graph shows that regionally averaged maximum ozone concentrations have exceeded the Desirable Objective in all years since 1987. Unlike average ozone levels, which were shown to have increased since 1987, Figure 3 indicates that the maximum and 99th percentile regionally averaged concentrations have both declined.
The table shows the relevant LRSP Objectives associated with Trends in Maximum Levels of Common Air AQ3 Contaminants.

24-Hour Inhalable Particulate (PM-10) Trends in GVRD, 1994 - 2000

The inhalable particulate (PM-10) trend graph for 24-hour average concentrations (above graph) indicates that 99th percentile regional concentrations have remained below the GVRD Interim Objective from 1994 through 2000. Maximum regional concentrations did exceed the GVRD Interim Objective in 1996 and 1998, but appear to have declined in the two most recent years. The values presented in the figure above are averages from six stations, and are termed the "regional average."

Data Source: GVRD Air Quality Monitoring and Assessment Program
Indicator Update Frequency: Annual
In 1999, emissions of greenhouse gases from the GVRD were 15,334,000 tonnes, 1.5% higher than the 15,110,000 tonnes emitted in 1990 and lower than the 15,770,000 emitted in 1998. By comparison, Canada's emissions of greenhouse gases in 1999 were calculated to be 15% higher than 1990 levels. Within the GVRD, significant declines of greenhouse gas emissions from the industrial sector overall (excepting cement manufacture and electrical power generation), 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 1990-1999 period.

Of the 15,334,000 tonnes of human-caused emissions, 40% came from transportation sources and mobile equipment (e.g. cars, trucks, airplanes, lawn mowers). Another 29% resulted from heating and cooling buildings, and running natural gas water heaters and stoves. Industrial sources produced a further 24% of total greenhouse gas emissions. The largest source of year-to-year variation in total GVRD greenhouse gas emissions is the Burrard Thermal Generating Station. For the five years shown on the graph, greenhouse gas emissions from Burrard Thermal have ranged from 660,000 tonnes in 1997 (when Burrard Thermal operated at 16% of its capacity), to 2,150,000 tonnes in 1995 (52% of capacity).

Data Source: GVRD Air Quality Emissions Inventory Program
Indicator Update Frequency: 5 Year
Average atmospheric concentrations of carbon dioxide (CO2) are measured at Mauna Loa, Hawaii, which is thought to be the site most representative of the Northern Hemisphere’s overall CO2 concentration. As shown in the figure below, average atmospheric concentrations have increased by 6% in 14 years, rising from 349 to 269 parts per million with the earth’s atmosphere. Before large-scale emissions of greenhouse gases from human activities (ie. burning fossil fuels) began in the 18th and 19th centuries, there were approximately 270 parts per million of CO2 in the atmosphere. Ambient levels of greenhouse gases are not monitored within the GVRD itself, but local trends are expected to be broadly similar to those shown below.
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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.