

# METRO VANCOUVER **SUSTAINABILITY** REPORT



## VISION: OUR GUIDE FOR THE FUTURE

Metro Vancouver has a vision to achieve what humanity aspires to on a global basis – the highest quality of life embracing cultural vitality, economic prosperity, social justice and compassion, all nurtured in and by a beautiful and healthy natural environment.

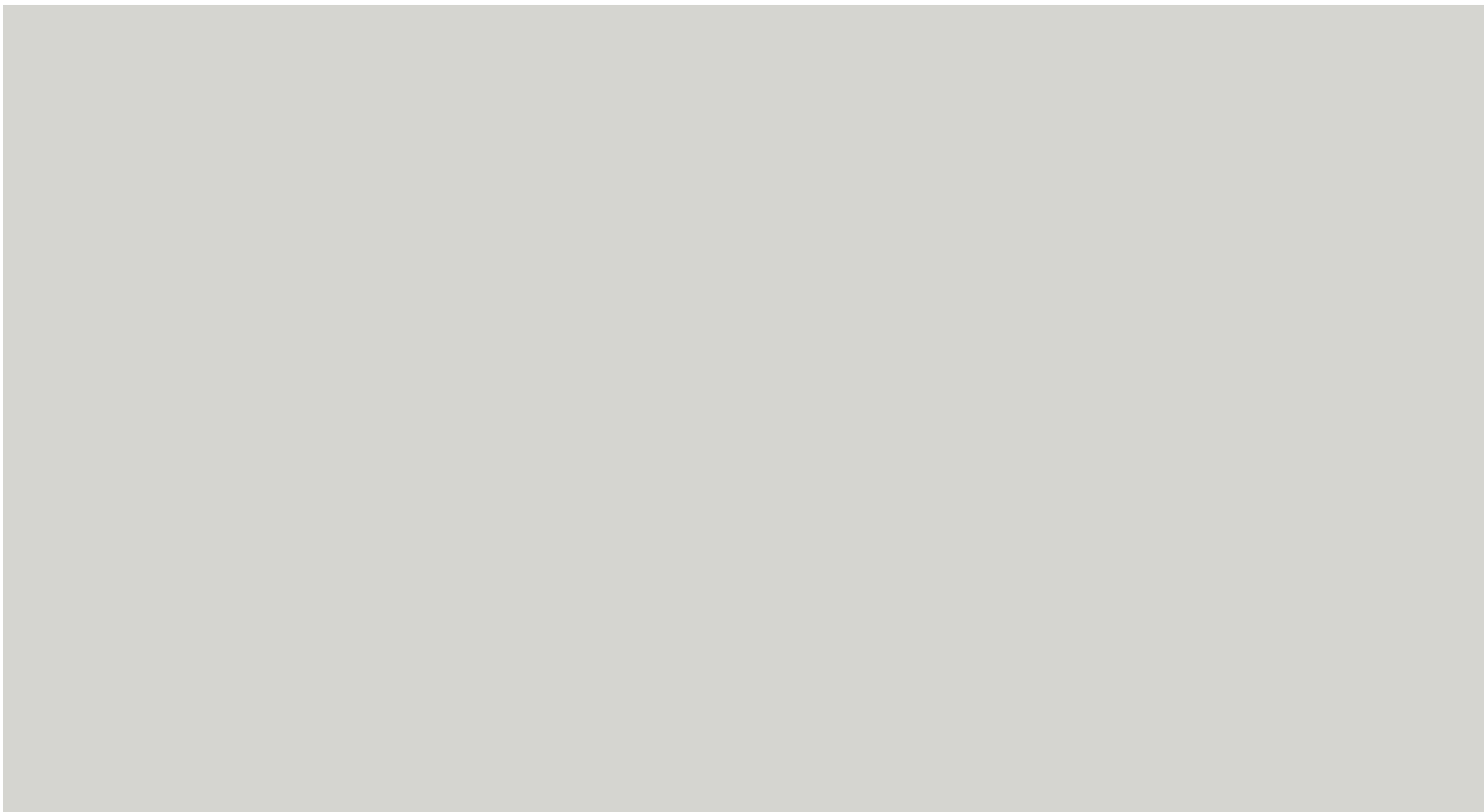
We will achieve this vision by embracing and applying the principles of sustainability, not least of which is an unshakeable commitment to the well-being of current and future generations and the health of the planet, in everything we do.

As we share our efforts in achieving this vision, we are confident that the inspiration and mutual learning we gain will become vital ingredients in our hopes for a sustainable common future.

Metro  
Vancouver  
Sustainability  
Report  
2009

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# This Report

Since 2002 Metro Vancouver has used the Sustainable Region Initiative as its framework for decision-making and a guide for translating sustainability principles into action. The purpose of this report is to help assess our progress towards becoming a sustainable region.

Reflecting the broad scope of the vision statement, sixteen issue areas have been identified for evaluation. There is a gradient in terms of Metro Vancouver's sphere of influence in relation to these topics. For some, Metro Vancouver's influence is very strong, reflecting its responsibilities to deliver and manage key regional utilities and services as well as to provide regional planning and regulatory functions. In other cases Metro Vancouver is a partner in the collaborative effort to make the region sustainable. Finally there are issues that are beyond the mandate of Metro Vancouver but are still essential in an evaluation of the region's sustainability.

The Metro Vancouver Board has identified priorities requiring concentrated effort and action and for these priorities, targets have been established. Indicators are provided in this report to assess progress on targets and reveal general trends related to the sustainability of the region.

A commitment to sustainability involves learning along the way. The issue areas and indicators in this report reflect present understandings and priorities. There will be some fluidity to the reporting process reflecting the fact that over time, there may be new areas of interest or concern and the development of better measures and indicators for marking progress that will be incorporated into future reports.

Metro Vancouver is one of a number of organizations contributing to understanding, monitoring and achieving sustainability in the region and we collaborate with and recognize the contribution of these organizations in our collective progress. In particular we note the Fraser Basin Council's Sustainability Snapshot, the Vancouver Foundation's Vital Signs as well as the on-going work of Regional Vancouver Urban Observatory at Simon Fraser University, the Design Centre for Sustainability at the University of British Columbia, and the Business Council of British Columbia.

## II.

# STATEMENT from the Chair

We've changed our name, from Greater Vancouver Regional District to Metro Vancouver, but not our commitment to making this region both livable and sustainable.

We are blessed to live in one of the world's great places – a place of stunning natural beauty, broad economic opportunity, and diverse, vibrant communities. With that blessing comes a responsibility to ensure that the next generation of residents in this region can enjoy a similar quality of life in the context of a healthy environment.

From the principles underlying the Sustainable Region Initiative, the Board has developed the *Sustainability Framework*. This is the framework that guides the policies and plans of Metro Vancouver as well as key decisions affecting our region.

*The Sustainability Report* is a companion piece to the Metro Vancouver *Sustainability Framework* providing an evaluation of the state of sustainability in the region.

Lois E. Jackson

Chair, Metro Vancouver Board of Directors



# STATEMENT from the CAO

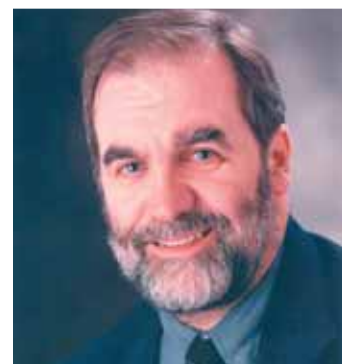
The scope of the *Metro Vancouver Sustainability Report 2009* reflects the breadth of issues that will determine the sustainability of the region. For each issue area we discuss the sustainability challenge and Metro Vancouver's role in meeting that challenge. Indicators have been chosen that provide a snapshot of the situation in the region as well as some that measure the effects of actions. For priority areas, targets and indicators have been established and we intend to provide ongoing updates to those indicators in future reports to measure progress in meeting those targets.

The employees at Metro Vancouver pride themselves in the delivery of high quality utilities and services to residents of the region. They also take great care in developing and implementing the suite of management plans that contribute to regional sustainability by maintaining and enhancing its environmental, social and economic qualities.

In addition, Metro Vancouver has been successful in developing forums and programs for engaging a diverse range of interests in defining the vision for this region and articulating what needs to be done to achieve it.

Striving for sustainability is a constant process of learning, adapting and working with others. We hope, therefore, that this report will generate questions and ideas that will challenge us to do better next time. But we also hope that it will confirm a sense of optimism that we at Metro Vancouver, and the region as a whole, are on the right track and beginning to make progress. Creating a sustainable region will not be easy; it will involve many partners, some disagreements and frustration, and a lot of work. But we should take heart from how far we have come and how many individuals and organizations have now chosen to take the same road. Our grandchildren will be happy we took up the challenge.

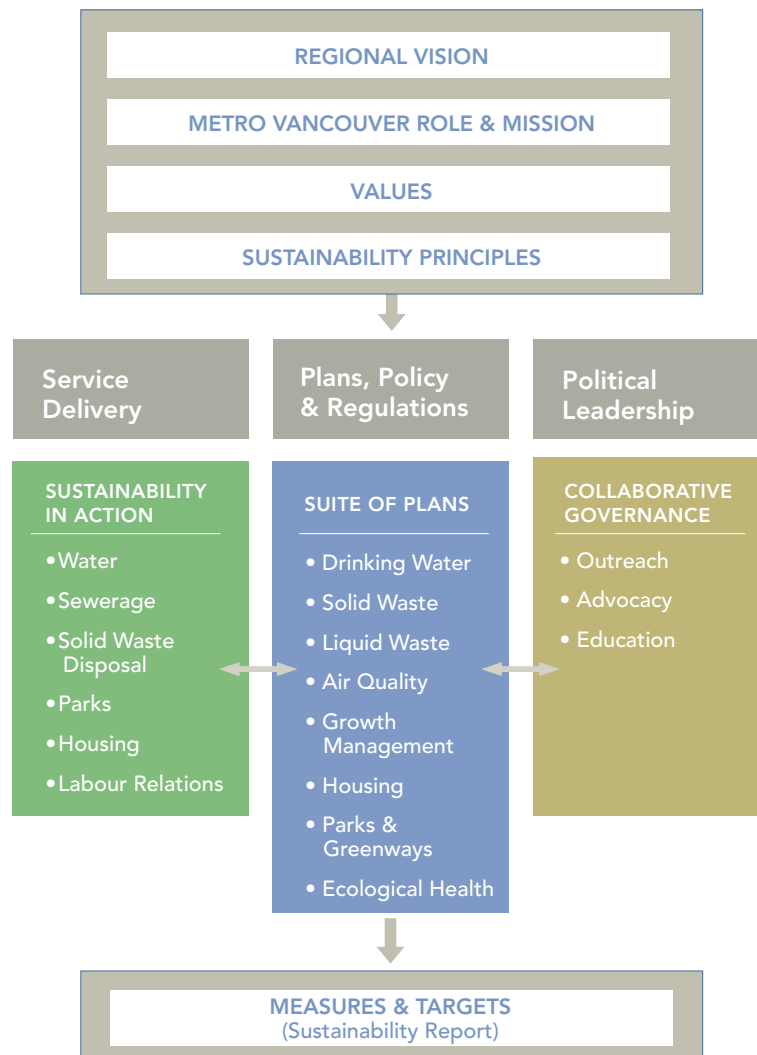
Johnny Carline  
Commissioner/CAO Metro Vancouver



# IV.

## SUSTAINABILITY Framework

Since 2002, Metro Vancouver has formally put the concept of sustainability at the centre of its operating and planning philosophy and committed itself to be a leader in making the region one which is explicitly committed to a sustainable future. This comprehensive endeavour has become known as the Sustainable Region Initiative, or more familiarly as the 'SRI'.

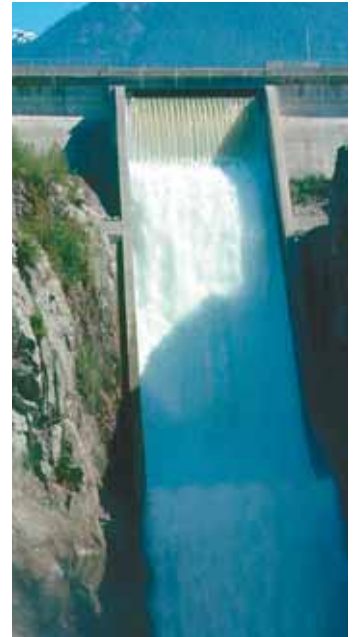


# THE ROLE OF Metro Vancouver

Metro Vancouver provides major utility services, specifically drinking water, sewerage and solid waste management, in addition to labour relation services to most municipalities in the region. Regional parks and affordable housing are services provided directly to the public.

Metro Vancouver's three main areas of planning and regulatory responsibility relate to: regional growth (land use through municipalities and transportation through TransLink); waste management (solid and liquid waste) and air quality management (a delegated Provincial function).

Finally, Metro Vancouver serves as the main political forum for discussion of significant community issues at the regional level. It acts as a facilitator, convenor, partner, advocate and a significant instrument for providing information and education to the community.



# SUSTAINABILITY Principles

In 2002, Metro Vancouver adopted the Sustainable Region Initiative (SRI) as its framework for decision making as well as the mechanism by which sustainability principles are moved from ideas into action. The SRI has been driven by the following overarching principles which state that decision-making must:

- have regard for both local and global consequences, and long term impacts;
- recognize and reflect the interconnectedness and interdependence of systems;
- be collaborative.

These provide the foundation for the three sets of operating principles that guide Metro Vancouver: conserve and develop natural, economic and social capital.

## 1. Protect & enhance the natural environment

- a) protect, restore and enhance natural ecosystems; exercise extraordinary care with ecosystems that contain species which are rare or endangered or are critical to living systems;
- b) allow extraneous material to be introduced to ecosystems only in such forms and quantities as can be absorbed by the receiving systems without material harm;
- c) use renewable resources at no greater rate than they can be replenished;
- d) use non-renewable resources only in ways that permit their beneficial re-use or at rates no faster than the rate of creation of renewable substitutes.

## 2. Provide for ongoing prosperity

- a) develop and efficiently use those activities and physical infrastructure that are critical to the long term economic health and creative strength of the region;
- b) use pricing mechanisms ('full pricing') which account for economic, environmental and social, short and long term, and local and global costs and benefits;
- c) ensure decisions and actions are affordable and do not accumulate liabilities for future generations;
- d) ensure the economic benefits and capacities are adequately distributed so as to avoid the development of concentrations of persistent economic hardship.

## 3. Build community capacity & social cohesion

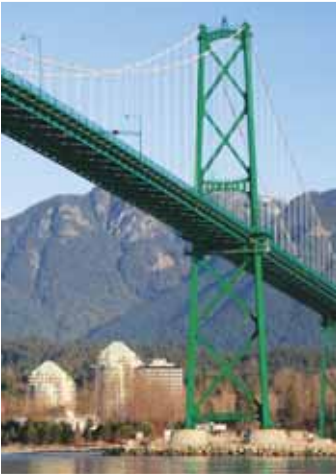
- a) develop and apply decision-making processes which are transparent, inclusive and respectful of the interests of all affected parties;
- b) identify the determinants of physical and mental health and encourage measures which promote long term health;
- c) foster a culture of learning so that successive generations can absorb and build on the accumulated knowledge and wisdom of prior generations;
- d) foster social cohesion through an appreciation of and involvement in the civic and cultural life of the community, emphasizing the involvement of young people and those who, through reasons of culture, or economic or physical circumstance, might not be engaged.

Metro Vancouver's management plans and strategies have been developed to incorporate and reflect these sustainability principles. When appropriate in this report, sustainability will be evaluated in light of the goals of these management plans. In other cases, interpretations of these principles are used.



# VII.

## Key Challenges



The Metro Vancouver region begins from an enviable position in moving towards sustainability. The natural landscape is an important element in the high quality of life that characterizes the region while providing habitat for a rich variety of wildlife. The economy has been diversifying and, in global terms, the region is relatively prosperous. The residents of the region are generally healthy and well educated. Cultural diversity is celebrated as one of the region's strengths. The task ahead is to maintain the livability of the region while becoming more sustainable. Some key challenges are:

### GROWING POPULATION

New residents to the region, from other parts of Canada and around the world, will continue to contribute to the region's labour pool and the culture of the region. However a growing population generally means more resources will be consumed, more waste will be generated, infrastructure needs to be expanded and more land will be used for residential and commercial development.

### GLOBAL ECONOMIC DOWNTURN

Until recently, the region has experienced a construction boom and expansion in other sectors resulting in very tight labour markets. This will change as global trends manifest themselves locally. Unemployment will likely rise while businesses in the region adapt to new economic realities.

### ENERGY

Commitments to reduce greenhouse gas emissions combined with uncertainties about future supplies of fossil fuels are conditions propelling a shift to a low carbon future. Making the shift will require identifying new renewable sources of energy and will have implications for the energy efficiency of buildings, community design and transportation infrastructure.

#### HIGH COST OF HOUSING

Housing costs in the region are among the highest in Canada and may be an obstacle to attracting and retaining high quality employees in the region. However, the housing problem is particularly acute for moderate to low income families because the stock of affordable, quality rentals is very low.

#### DEEP-ROOTED SOCIAL PROBLEMS

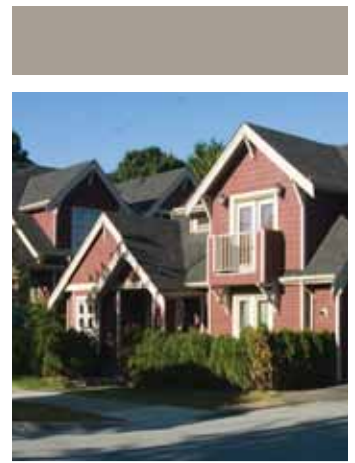
While Metro Vancouver is a relatively well-off region, there are residents who struggle with poverty, substance abuse, and mental health problems. These factors combined with the high cost of housing have manifested in a growing number of homeless people. The public is also concerned about the level of some types of crime.

#### CLIMATE CHANGE

Reducing greenhouse gas emissions has become a provincial objective that requires effective collective action at the regional level. In the meantime, present and anticipated climate-related events (like severe weather events, changes in snowpack levels, increasing frequency of flood events, and rising sea levels) are driving the need for adaptation policies and plans.

#### GOVERNANCE

Workable governance and financing structures will allow public agencies and governments to effectively deal with these issues and emerging ones. The challenges include engaging residents and businesses in setting regional priorities, moving ahead on issues involving different levels of government, overcoming the restricted revenue base for local governments, and developing new governance relationships with First Nations in the region.



# VIII.

## REGIONAL Context

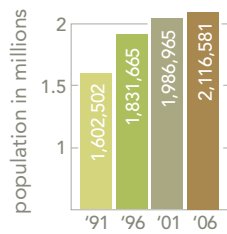


The Metro Vancouver region is composed of 21 municipalities and one electoral area.

The Metro Vancouver region is bounded on the north and west by the Coastal Mountain Range and the Strait of Georgia. The borders with the United States and the Fraser Valley Regional District establish the southern and eastern boundaries, respectively, of the region. The Fraser River and Burrard Inlet dissect the region, providing major economic, environmental and scenic assets as well as significant transportation arteries and challenges.



## The region's population is growing



POPULATION OF METRO VANCOUVER (1991 TO 2006)

Metro Vancouver's population may be 3.4 million by 2040. Growth has contributed to the economic prosperity of the region but the question arises, and this report examines, the degree to which population growth is affecting the sustainability of the region.

The average number of people in a household has remained the same since 1991: 2.6 people.

Source: Census Canada

## People are choosing to move here...



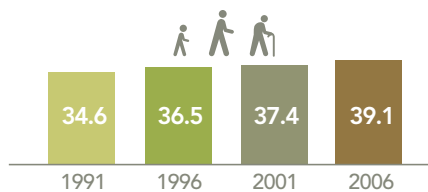
PLACE OF BIRTH OF METRO VANCOUVER RESIDENTS (2006)

...and the result is a vibrant and diverse community

English is the most common language spoken in homes in the region (58%). The next most common is one of the Chinese languages (Cantonese, Mandarin and others) spoken in 15% of the region's homes. More than 70 other languages are spoken by residents of the region.

Source: Census Canada

## The population in Metro Vancouver is getting older



MEDIAN AGE IN METRO VANCOUVER (1991 TO 2006)

This trend in the median age in Metro Vancouver will require changes in strategies for recruiting and maintaining a qualified labour force, providing housing and public services like health-care, as well as programming for recreational and cultural activities.

Source: Census Canada



# Drinking Water

Metro Vancouver's Drinking Water Management Plan was adopted in 2005 and contributes to a healthy sustainable region through wise stewardship of the region's drinking water resources. The goals of the plan are to:

- Provide clean, safe drinking water
- Ensure the sustainable use of water
- Ensure the efficient supply of water
- Manage and protect the watersheds that provide the region's water as natural assets

Almost all households in Metro Vancouver rely on water drawn from the Capilano, Seymour or Coquitlam reservoirs. These reservoirs are in closed watersheds where no industrial, agricultural or other non-controlled human activities are allowed. To ensure its safety, all water in the system is disinfected at the source and at points along the delivery system to eliminate harmful microorganisms.

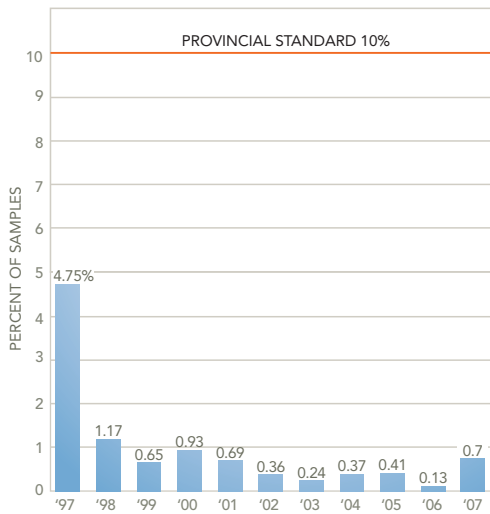
The quality of drinking water will be further enhanced to meet drinking water standards by filtering water from the Seymour and Capilano reservoirs and disinfection using ultraviolet light technology for all water supplied. These projects are now underway.

The trend in per capita water use during the peak summer period provides a measure of the sustainable use of water. The summer months are when reservoir levels are at their lowest and water usage is high, so water conservation efforts reduce pressures on the supply system.

Making a water supply system sustainable requires pricing systems which reflect appropriate economic principles (like full cost accounting and user pays) while avoiding unacceptable affordability problems for businesses and households. The affordability of the system is handled in the *Financial Management* section of this report.



## The drinking water is clean and safe

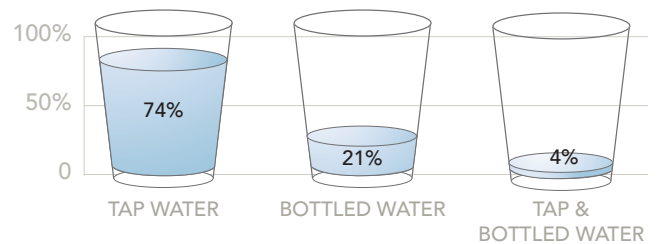


MUNICIPAL WATER SAMPLES TESTING POSITIVE FOR TOTAL COLIFORM BACTERIA (2000 TO 2007)

Each year more than 25,000 samples from the region's water systems are analyzed to ensure that water delivered meets public health standards. The provincial standard for drinking water requires that not more than 10% of the samples test positive for total coliform bacteria. Water delivered in Metro Vancouver is well under that standard. The increase in water samples testing positive for total coliform bacteria in 2007 has been attributed to high water temperatures during the summer coupled with low chlorine levels at the end of the distribution system.

Source: Water: Quality Control Annual Reports

## Tap water is the drink of choice



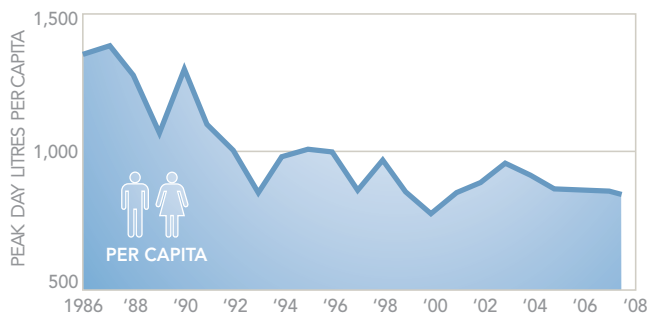
SOURCE OF DRINKING WATER AS IDENTIFIED BY METRO VANCOUVER RESIDENTS (2008)

Note: percentages do not add up to 100% due to rounding.

Source: Ipsos Reid August 2008



## Per capita water use is decreasing

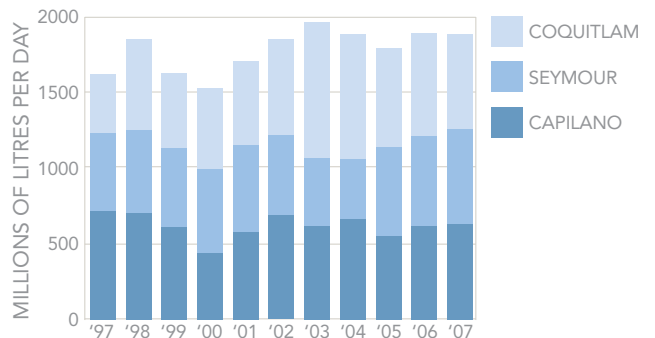


PEAK DAY PER CAPITA WATER USE IN METRO VANCOUVER (1987 TO 2007)

To ensure consistent delivery of water to all users, Metro Vancouver and member municipalities have implemented a range of demand management tools, including sprinkling restrictions, to reduce per capita water use during the summer when water usage rates are high. While the general trend in peak day water use is down, a hot dry summer still has an impact.

Source: Water Consumption Statistics Report 2007

## But the volume of water delivered has remained relatively constant



ANNUAL PEAK DAY FLOWS IN METRO VANCOUVER RESERVOIRS (1997 TO 2007)

Despite increases in population, the volume of water delivered has not increased due to lower per capita water usage rates. As long as the daily flows during the peak period can be maintained at current levels, the current capacity of the water supply system is sufficient.

Source: Water Consumption Statistics Report 2007

## TARGET:

Increase energy from liquid waste by 10% by 2012

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SUSTAINABILITY REPORT

# Liquid Waste

The Fraser River, Burrard Inlet and Strait of Georgia provide important habitat for a range of aquatic life, birds, and other wildlife in addition to having recreational, commercial and industrial uses. These water bodies are also the receiving environment for effluent from industrial operations and wastewater treatment plants as well as storm runoff from urbanized and agricultural areas.

A draft Liquid Waste Management Plan has been developed recognizing that liquid waste is in fact a resource from which materials, energy and even water may be recovered and reused. The goals of the plan are to:

- Protect public health and the environment
- Manage liquid waste affordably and effectively

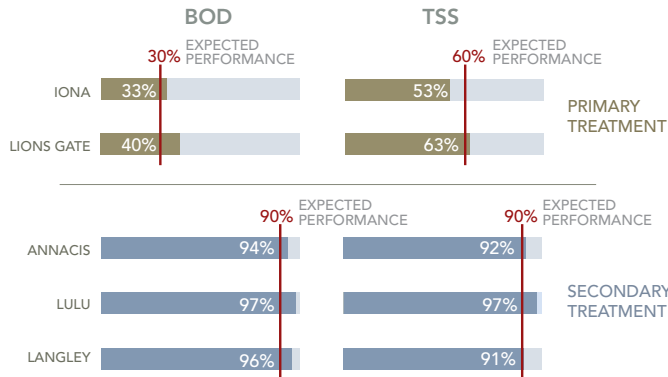
Wastewater treatment is designed to reduce the concentrations of biological contaminants but there is a vast array of contaminants in the wastewater stream which existing wastewater technologies are not designed to remove. Increasing public awareness, source controls, and regulation are other tools for reducing the contaminant loadings in the liquid waste stream.

By recovering energy and other valuable materials from the liquid waste stream, Metro Vancouver will seek to offset the costs of basic wastewater collection and treatment services as well as minimize the amount of waste disposed. A more extensive evaluation of the affordability of the system can be found in the *Financial Management* section.

In addition to the effluent from sewage treatment plants, as rain washes across streets and lawns a range of pollutants are picked up and carried into the storm sewer system and nearby waterways. Within the region, this has led to water degradation and possible loss of fish populations. The *Ecological Health* section discusses an initial assessment of the stress urban runoff poses to streams in the region.



### The wastewater treatment plants perform to expectations

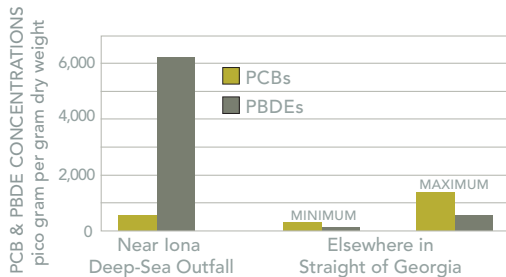


EFFICIENCY OF METRO VANCOUVER'S WWTPS IN REDUCING BIOLOGICAL CONTAMINANTS (2007)

Reducing biochemical oxygen demand (BOD) and total suspended solids (TSS) in wastewater effluent improves the ability of the receiving water body to assimilate these wastewaters. The wastewater treatment plants (WWTPs) on the Fraser currently provide secondary treatment. The Lions Gate and Iona plants are scheduled for upgrading to secondary treatment with the dates to be finalized in the new Liquid Waste Management Plan.

Source: Wastewater: Quality Control Annual Report 2007

### Persistent pollutants in the Strait of Georgia

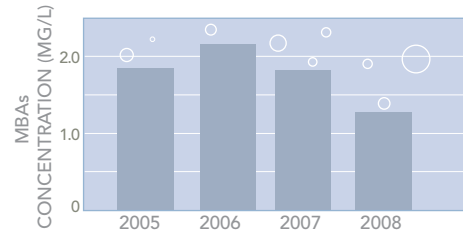


CONCENTRATIONS OF PCBs AND PBDEs IN SURFACE SEDIMENTS (2008)

PCBs and PBDEs are persistent toxics that accumulate in body tissue. PCBs were banned in 1977 but continue to be detected in the Strait of Georgia. However, the Institute of Ocean Sciences and Metro Vancouver have found that because the concentrations of PCBs in the Iona WWTP effluent are sufficiently low, the effluent is diluting the level of PCBs in nearby sediments. On the other hand, PBDEs, or flame retardants, are still widely used and concentrations of this contaminant are increasing in wastewater effluent and the Strait. The only way to reverse this trend would be to discontinue the use of PBDEs as was done for PCBs. Even if flame retardants were banned today, they would be part of the environment for decades.

Source: Metro Vancouver

### Laundry detergents have been a problem

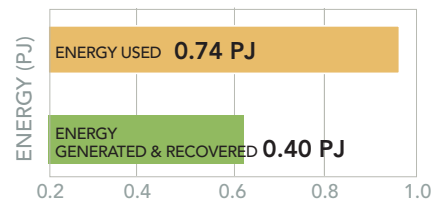


ANNUAL AVERAGE MBAS CONCENTRATIONS IN LIONS GATE INFLUENT (2005 TO 2008)

Monitoring done by Metro Vancouver detected high levels of surfactants, or methylene blue active substances (MBAS), in the effluent of Lions Gate WWTP. The residential source of this toxic contaminant is domestic laundry detergent. It appears that a public education campaign to encourage North Shore residents to use less laundry detergent has begun to reduce the level of MBAS in the influent.

Source: Metro Vancouver

### Wastewater generates energy



NET ENERGY RECOVERED BY METRO VANCOUVER WWTPS (2006)

Operations at Annacis Island Waste Water Treatment Plant (WWTP) produce biogas that is then used to generate electricity, meeting roughly 60% of the plant's electrical energy needs. Wastewater treatment requires significant amounts of energy and the energy needed rises in parallel to the level of treatment. Therefore recovering energy from the liquid waste stream will help reduce operational costs in the future. Recovery operations will be expanded in the future beginning with Lulu Island.

Source: Metro Vancouver

### WHAT ABOUT URBAN RUNOFF?



Given the nature of urban runoff and the extensive network of storm sewers in the region, it is difficult to directly measure the volume, quality or environmental impacts of rain runoff. However, municipalities are developing integrated stormwater management plans for each watershed in the region and adopting approaches to managing runoff, through innovative landscaping and building designs, that should reduce threats to stream health as well as property from high volumes of precipitation and runoff.

## TARGET:

Divert 70% of solid waste from disposal by 2015

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# Solid Waste

Metro Vancouver has adopted the “Zero Waste Challenge” which implies generating the minimum amount of waste and extracting the maximum practical benefits from discarded material. The goals of the recent draft of the Solid Waste Management Plan are to:

- Minimize waste generation
- Maximize reuse, recycling and material/energy recovery
- Extract maximum benefit from the disposed waste

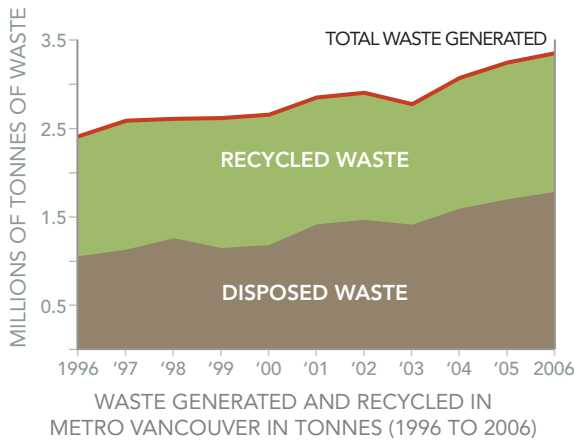
Metro Vancouver conducts educational and outreach programs to encourage households and businesses to implement the first three steps (reduce, reuse and recycle) of the five-step waste management hierarchy. Metro Vancouver also advocates for the expansion of the provincial ‘product stewardship program’ which shifts the responsibility for the reuse, recycling or disposal of a product to the producer. Metro Vancouver supports these initiatives with corresponding material bans within its waste management system.

The fourth and fifth steps of the waste management hierarchy are recovery and residual management. In terms of recovery, Metro Vancouver’s current major activity is energy recovery at its Waste-to-Energy facility in Burnaby while development of a major regional organic materials recovery facility is contemplated for 2009. The residual, approximately 1.3 million tonnes, is currently disposed at the Cache Creek and Delta landfills operated by Metro Vancouver and the City of Vancouver respectively. The former landfill is expected to be at capacity in about two years and options as to how to replace this facility have been under consideration and should be finalized in the Solid Waste Management Plan.

The affordability of solid waste management is evaluated in the *Financial Management* section of this report.



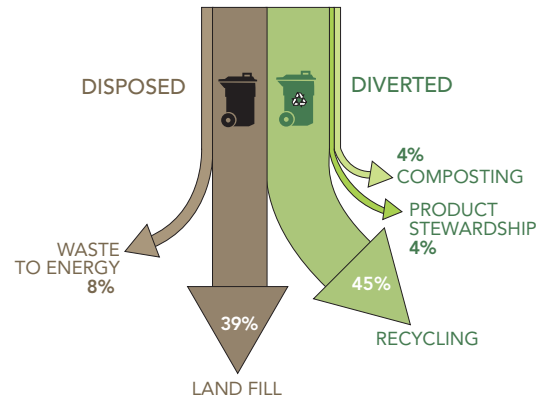
### Each year we generate more solid waste.



The trend in the weight of solid waste generated reflects the growing population and the economic prosperity of the region. While the amount of recycled materials has grown, the total amount of disposed waste has also increased.

Source: Solid Waste Management Annual Report

### Where does our waste go?

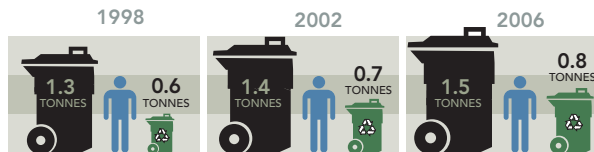


THE METRO VANCOUVER WASTE STREAM (2006)

In 2006, 3.3 million tonnes of solid waste were generated in the region. The diagram above illustrates that approximately 53% of the waste generated in the region was diverted into producer stewardship programs, centralized composting facilities, and recycling processes. The remainder goes to either the Waste-to-Energy facility or to landfills. In 1996, the rate of diversion was 44%.

Source: Metro Vancouver

### The amount of solid waste generated per capita continues to climb

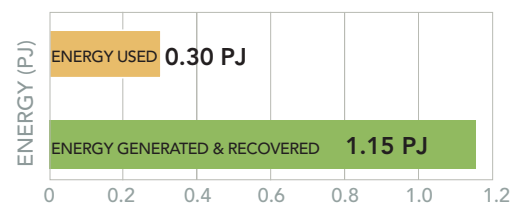


TREND IN SOLID WASTE GENERATED AND RECYCLED PER CAPITA IN METRO VANCOUVER

In 1998, the amount of solid waste generated per person was 1.3 tonnes, of which 0.6 tonnes was recycled. By 2006, the amount of solid waste recycled per person had increased but the amount of waste generated per person had also climbed. Waste disposed per person has remained constant at 0.7 tonnes.

Source: Solid Waste Management Annual Report

### Generating heat and electricity from waste

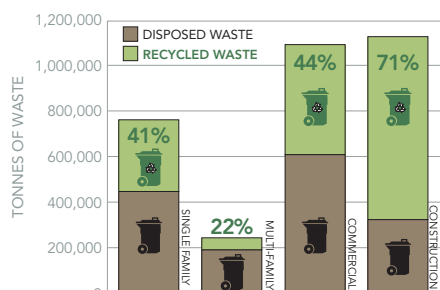


NET ENERGY RECOVERED BY METRO VANCOUVER SOLID WASTE OPERATIONS (2006)

Metro Vancouver's solid waste operations requires energy in the form of electricity, heat and fuels for trucking solid waste to the landfill. In 2006, energy use was 0.3 petro joules but this was more than offset by the energy generated from solid waste operations. The Waste-to-Energy facility (WTEF) generates steam and electricity from approximately 280,000 tonnes of garbage each year. Steam is sold to a nearby paper recycling plant while the electricity generated is sold to BC Hydro. Strict environmental testing and continuous emission monitoring show all regulatory standards are met and that the facility has no measurable impact on air quality, soil or vegetation in the vicinity.

Source: Metro Vancouver

### Recycling rates differ among sectors



WASTE DISPOSAL AND RECYCLING BY SECTOR (2006)

Source: Metro Vancouver

### THE ZERO WASTE CHALLENGE AT METRO VANCOUVER



Metro Vancouver is committed to increasing the recovery of materials from its own operations. Fly ash and bottom ash are residuals from the operation of the Waste-to-Energy facility in Burnaby. Valuable metals in the bottom ash are recovered and either sold or recycled while the rest is used as aggregate for building roadways at the Vancouver Landfill. Currently all of the fly ash is disposed in landfills. However more beneficial uses for both types of ash are being explored.

# Land Use and Transportation

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The Metro Vancouver region has grown by over a million people in the last 25 years. Change will continue as the region's population could grow to 3.4 million by 2040.

Metro Vancouver is developing a new regional growth strategy (RGS) which is an integrated land use and transportation plan for the region. The goals of the preliminary draft plan are to:

- Create a compact urban area
- Support a sustainable economy
- Protect the Green Zone
- Develop complete and resilient communities
- Support sustainable transportation choices

Creating a compact urban area avoids sprawl and its associated problems. The data show the total urbanized area of Metro Vancouver has not increased over the last five years. During the same time period, there was an increase in the percentage of commuters taking transit, walking or carpooling and a decrease in the median commute distance. These measures indicate progress towards a low carbon future that can be attributed to land use plans and transportation policies that have been implemented in the region.



### The area of urbanized land is not changing

HECTARES	2001		2006
Rural Residential	4,844	↓	4,408 hectares
Residential	30,243	↑	31,383 hectares
Commercial	16,297	↑	16,789 hectares
Other	15,357	↓	14,161 hectares
<b>TOTAL URBAN AREA</b>	<b>66,741</b>	→	<b>66,741 hectares</b>
Indian Reserves	1,471	→	1,471 hectares
Total Non-Urban Area	195,301	→	195,301 hectares
<b>TOTAL METRO VANCOUVER</b>	<b>263,513</b>	→	<b>263,513 hectares</b>

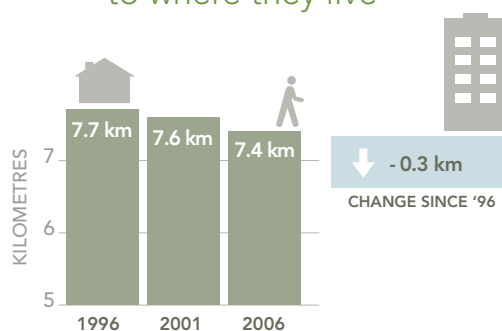
#### AREA OF METRO VANCOUVER BY LAND USE (2001 TO 2006)

In Metro Vancouver, there have been changes in land use within the urban area since 2001 but the amount of urban area has not changed. Important agricultural, conservation and ecological lands are protected from urban development in the area known as the 'Green Zone.'

One of the outcomes of minimizing the urban area will be an increasing population density in the urban lands. In 2006, the density in the urban area of Metro Vancouver was **28.6** people per hectare.

Source: Metro Vancouver

### People are finding jobs closer to where they live

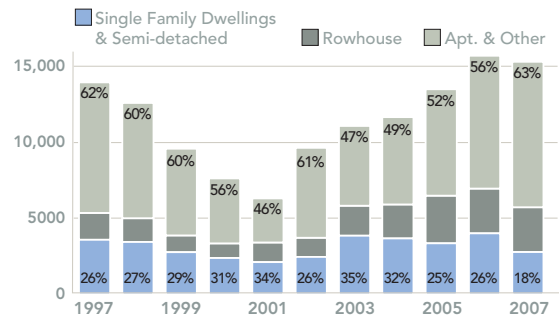


MEDIAN COMMUTE DISTANCE IN METRO VANCOUVER (1996 TO 2006) IN KILOMETRES

A shorter commute distance should reduce greenhouse gas emissions. The reduction in commute distance differs from the national trend and is the greatest decrease among Canada's largest metropolitan areas.

Source: Statistics Canada, 2006 Census

### The composition of housing in the region is changing



NET HOUSING COMPLETIONS (INCLUDING RENTALS) IN THE METRO VANCOUVER REGION (1997-2007)

A compact region requires increasing residential density and this in turn implies building more townhouses, row houses, and multi-storey residential buildings rather than single family and semi-detached dwellings. This has been the trend in the region for more than 10 years.

Source: CMHC Housing Now, Statistics Canada

### Commuters are beginning to choose alternatives to driving alone

	1996		2006
Walking	5.8%	↑	6.3%
Public Transit	14.3%	↑	16.5%
Driving Alone	6.6%	↑	7.1%
Bicycling	1.7%	→	1.7%
Other	70.6%	↓	67.3%

JOURNEY TO WORK BY MODE SPLIT, METRO VANCOUVER, (1996 TO 2006)

Note: these columns do not add to 100% due to a small "other" category.

Source: Statistics Canada, 2006 Census

# Air Quality

METRO VANCOUVER  
SUSTAINABILITY REPORT

Metro Vancouver's air quality is generally better than it was 20 years ago and compares favourably to that of other major North American urban areas. However this does not mean that air quality objectives are met all the time, and this has health consequences for some regional residents. Given projected population growth and expansion in some industrial sectors, the challenge of maintaining good air quality in the future could be difficult.

The Air Quality Management Plan (AQMP) was adopted in 2005 and provides a framework to maintain and improve air quality in the region. The goals of the plan are to:

- Minimize the risk to public health from air pollution
- Improve visibility
- Minimize the region's contribution to climate change

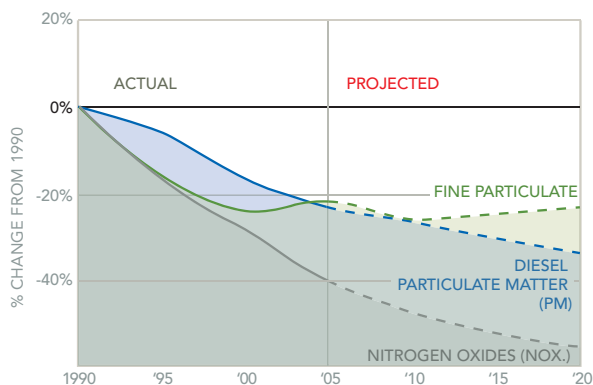
Achieving these goals will be accomplished by reducing emissions from major sources in the region, developing and implementing local air quality management plans, and enhancing the information and public awareness of air quality issues.

Stricter standards and improved technologies across a variety of sectors are largely responsible for the positive trends in emission reductions. However, the relationship between air emissions and the resulting air quality is difficult to gauge because pollutants react with each other and are affected by local climate factors.

An evaluation of the trend in the region's greenhouse gas emissions can be found in the *Climate Change* section of this report.



### In general, the emissions of air contaminants are decreasing

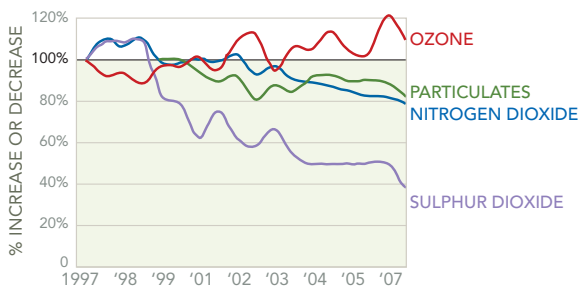


CHANGES IN AIR CONTAMINANT EMISSIONS, ACTUAL AND PROJECTED, FROM 1990 LEVELS IN METRO VANCOUVER (1990 TO 2020)

As shown above, NOx emissions were reduced by 40% between 1990 and 2005 and they are projected to decline by another 16% by 2020. Fine particulate and diesel PM emissions in the airshed have also been declining steadily but not as much as NOx.

Source: Metro Vancouver

### Ambient air quality has generally improved but ozone levels are on the rise

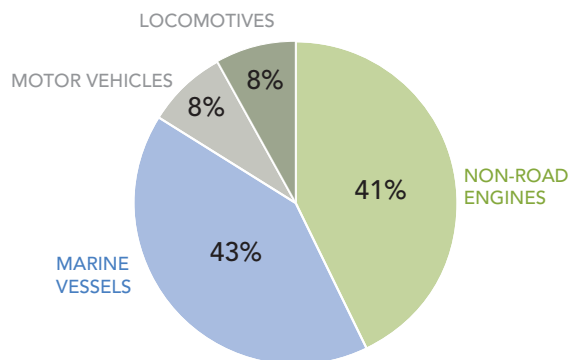


CHANGES IN VARIOUS AIR CONTAMINANT CONCENTRATIONS IN METRO VANCOUVER FROM 1997 LEVELS

As source emissions have declined, ambient (outdoor) air quality levels have generally improved. This trend is apparent in the levels of nitrogen dioxide and sulphur dioxides. While levels of particulates have declined, concentrations have been relatively constant in recent years. Regional ozone levels appear to have decreased slightly in the early nineties, but have generally shown an upward trend since that time.

Source: Metro Vancouver

### Bulk of diesel emissions do not come from vehicles on the road



INVENTORY OF DIESEL PARTICULATE MATTER IN METRO VANCOUVER (2005)

In 2005, marine vessels and non-road engines (e.g. construction, industrial and commercial equipment) produced the largest share of the diesel emissions in the region. It is anticipated that the regional ports will continue to introduce new measures to reduce emissions to offset the impact of anticipated growth in port activity.

Source: Metro Vancouver



### AIR QUALITY HEALTH INDEX



The new Air Quality Health Index uses data from Metro Vancouver's air quality monitoring network to calculate an hourly index. The index reports local air quality in relation to human health on a scale from 1 to 10. It provides guidance to individuals as to how they should adjust their exposure and physical activities in relation to air pollution levels. The index is calculated for locations throughout the region and is available at [www.airhealthbc.ca](http://www.airhealthbc.ca).



## TARGET:

Increase visits to Metro Vancouver outdoor recreation spaces to 10 million by 2012

METRO VANCOUVER  
SUSTAINABILITY REPORT

# Outdoor Recreation

An extensive network of municipal, regional and provincial parks offer a wide range of outdoor recreation opportunities for the region's residents and visitors. These same lands also provide habitat for a diverse range of plants and wildlife. Many organizations and institutions, including Metro Vancouver, use the access to these rich natural areas for environmental education programs providing children and adults alike the opportunity to learn about nature, conservation values, and sustainability.

In 2005 Metro Vancouver's Regional Parks and Greenways Plan was adopted with the following goals:

- Protect and enhance regional landscapes, biodiversity and heritage features
- Provide outdoor recreation opportunities and education programs, and foster community stewardship
- Support economic development and quality of life in the region.

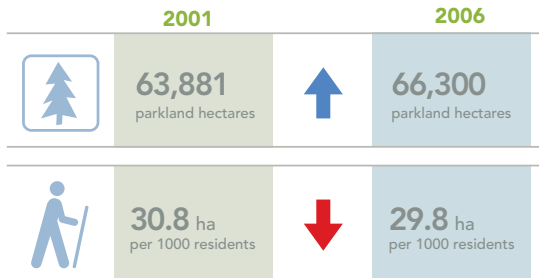
This plan provides the foundation that guides land acquisitions, programs and services, capital development, community partnerships, and volunteer initiatives within the regional parks.

Metro Vancouver has acquired almost 2,500 hectares of land for the regional park system since 2001. The challenge is to maintain the quality of parks and the experience of visitors as the population of the region grows and the number of park visitor increases.

The goal of protecting regional landscapes and biodiversity will be covered in the *Ecological Health* section.



## New lands have been added to parks in the region

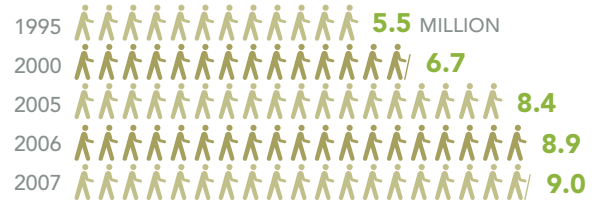


TOTAL AREA IN PROVINCIAL, REGIONAL AND MUNICIPAL PARKS IN METRO VANCOUVER AND NUMBER OF HECTARES PER 1000 RESIDENTS (2001 TO 2006)

Population growth in the region has resulted in a three per cent decline in the amount of regional parkland per person despite a four per cent increase in the amount of regional parkland in the last five years.

Source: Metro Vancouver

## Metro Vancouver regional recreational spaces are popular



TOTAL VISITORS TO METRO VANCOUVER'S OUTDOOR RECREATION AREAS (1995 TO 2007)

The number of visitors to these Metro Vancouver sites is an indication of the growing interest residents and visitors have in learning about nature and pursuing outdoor recreational activities. However, Metro Vancouver's regional parks are only one component of the range of parks and outdoor facilities in the region.

Source: Metro Vancouver

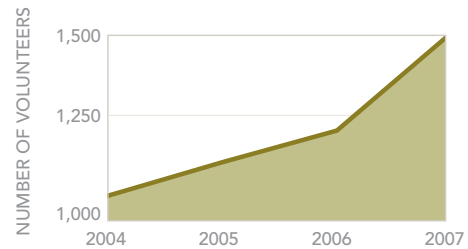


### PARKS AND SOCIAL CAPITAL:



Metro Vancouver regional parks are a contributing factor in building the social capital of the region. Each year, regional parks are used by community groups to stage private and special events, often with a recreational, conservation or cultural theme. In 2007, regional parks hosted 176 such events attended by 38,900 people and involving more than 10,900 hours of community service. Many of these special events were fundraisers for various charities that resulted in over \$755,000 channeled back into the community. Notable community fundraising events in 2007 included the "ALS Adventure Run" held in Belcarra Regional Park and the "Do it for Dad" event which used Burnaby Lake Regional Park.

## Volunteering in the parks is also popular



NUMBER OF VOLUNTEERS IN METRO VANCOUVER REGIONAL PARKS (2004 -2007)

Park volunteers contribute to conservation and restoration efforts within parks and to the quality and quantity of programming. People who volunteer generally feel a strong identification with the place or issue to which they contribute their time.

Source: Metro Vancouver



## TARGET:

Provide a better stock of affordable housing by 2015

METRO VANCOUVER  
SUSTAINABILITY REPORT

# Housing

High housing prices negatively affects the quality of life for many families and individuals living in the region while making it difficult for employers to attract the workers necessary to support a globally competitive regional economy.

In November 2007, the Metro Vancouver Board adopted an affordable housing strategy for the region with three goals:

- Increase the supply and diversity of modest-cost housing
- Eliminate homelessness
- Respond to the needs of low-income renter households

The strategy recognizes that the achievement of these goals requires concerted action across all levels of government.

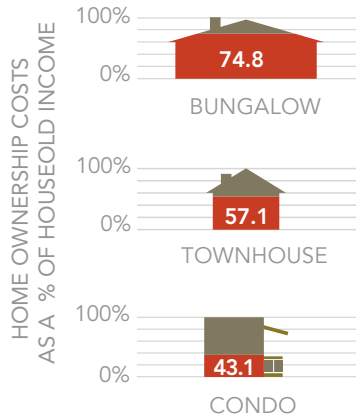
In addressing affordability, the situation of homeowners is different than those who rent. For households wishing to buy, affordability can be addressed to some extent by increasing the diversity of housing types. The prices for row houses, town houses and condominiums are generally lower than single-family detached houses.

Rental housing is the main source of accommodation for many households with low to moderate incomes. This includes seniors, students, young families, single parents and new immigrant households. The vacancy rate for rentals is very low, in part due to the lack of new rental construction. The result has been an upward pressure on existing rents, long waiting lists for subsidized housing, and an increase in the number of homeless people.

The recent homelessness count demonstrated that this is a problem throughout the region. While there is the possibility that the increasing number of homeless people captured in the counts might, in part, be the result of more effective enumeration, it still appears to be an inescapable conclusion that homelessness is a problem that is getting worse, not better.



### Owning a home is not an option for many households

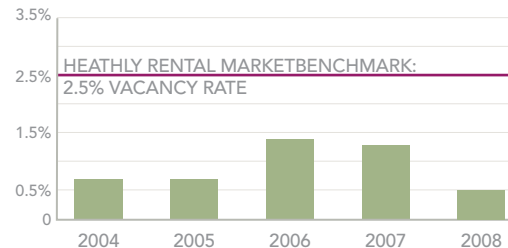


HOUSING AFFORDABILITY INDEX FOR METRO VANCOUVER: 3RD QUARTER 2008

The RBC Affordability Index calculates the portion of the median household income required to cover the cost of home ownership for different home types assuming a 25 year mortgage. Metro Vancouver has long been Canada's most expensive place to buy a home. The index indicates that despite recent price drops, purchasing a home is still out of reach for many households in the region. This means that in terms of affordable housing, rental units play an important role and that demand for rentals will continue to be high.

Source: Royal Bank Corporation (RBC) Housing Affordability Index

### ... and vacancy rates for rentals are at critically low levels

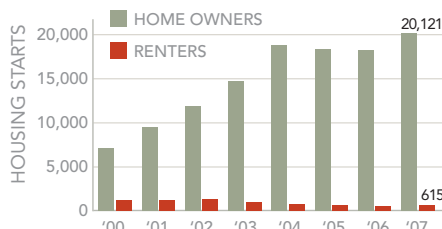


VACANCY RATES FOR PURPOSE BUILT RENTALS IN METRO VANCOUVER (OCTOBER 2004 TO 2008)

The benchmark for a healthy rental market is a 2.5 per cent vacancy rate. Vacancy rates in Metro Vancouver are much lower than that and have been for nearly a decade. While some of the rental housing demand is met through rented condos and other secondary sources, there is a critical shortfall in rental units affordable to households with low to moderate incomes.

Source: CMHC Canadian Housing Observer & Rental Market Reports

### Rental housing starts are not rising to meet demand



HOUSING STARTS FOR HOME OWNERS AND RENTERS IN THE METRO VANCOUVER REGION (2000 TO 2007)

In recent years, most new housing has been built for the ownership market while rental housing starts have continued to lag. In 2007, only 615 new purpose built rental units were constructed in Metro Vancouver. This represents less than 3% of all housing starts.

Source: CMHC Canadian Housing Observer 2007 & Housing Now 2008

### The number of homeless people living on the street and in shelters is increasing



HOMELESS POPULATIONS IN SHELTERS OR THE STREET IN METRO VANCOUVER (2002 TO 2008)

Every three years, the homeless people in Metro Vancouver are enumerated, providing a snapshot of the level of homelessness. The 2008 count found that the numbers had increased by 22% from the previous count and 137% from the original count. The static count of the homeless in shelters indicates the marginal increase in shelter space is not sufficient and that more people are either living on the street or relying on informal and temporary accommodations. Among the important findings of the recent count was that the number of homeless people increased in every municipality; almost half of the homeless people had been without a home for one year or more; and almost 100 fully-employed individuals were counted in the emergency shelters.

Source: Greater Vancouver Homeless Count

## TARGET:

Have in place sustainability financial mechanisms for all Metro Vancouver services by 2012.

### METRO VANCOUVER SUSTAINABILITY REPORT

# Financial Management

The primary basis for evaluating the sustainability of the financial management of Metro Vancouver is whether its projected budgets are affordable to the region's residents while providing the quality of service expected in a globally-oriented metropolitan area.

A large portion of the Metro Vancouver budget is dedicated to major capital projects for the region's water, sewage and drainage, and solid waste operations. These expenditures reflect an evaluation as to how best to maintain and expand the regional infrastructure to accommodate projected levels of demand while meeting public health, environmental and other expectations related to service provision. Continual investment in a well-maintained and resilient infrastructure contributes to the economic prosperity of the region and member municipalities.

Within the region, Metro Vancouver is not alone in charging taxes and fees to recover the costs of providing services and infrastructure; member municipalities and TransLink do as well. To evaluate the affordability of the aggregate expenditures of these regional bodies, a tool estimating the impact on the average household in the region has been developed.

## ACTION:

In 2006 Metro Vancouver instituted seasonal pricing for the delivery of water. In a three-year phase in, the rates charged to municipalities increased for water delivered during the peak period between June and September. Seasonal pricing has been implemented to cover the higher operational costs as well as the capital costs associated with high demand for water during the summer months.



## The cost impact of Metro Vancouver's utilities and services on the average household

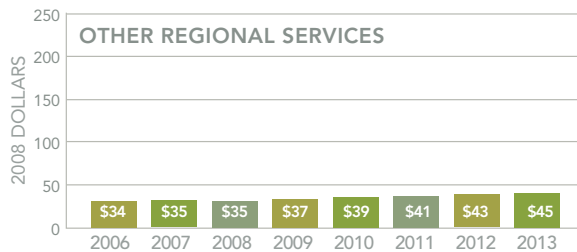
Metro Vancouver has developed a model for evaluating the affordability of its services by estimating the "impact on the average household" in Metro Vancouver. Building new and maintaining existing utility infrastructure contributes to the economic productivity of the region without impairing the financial situation of the region's residents. The impact on the average household conveys this information to decision makers in tangible terms

Source: Metro Vancouver



COST IMPACT PER "AVERAGE HOUSEHOLD"

The costs of labour and energy associated with the maintenance of aging infrastructure are the main drivers for the increases in the liquid waste budget. The major uncertainty is the date at which the upgrades to Iona and Lions Gate wastewater treatment plants will commence, in addition to changes in the long-term interest rates.



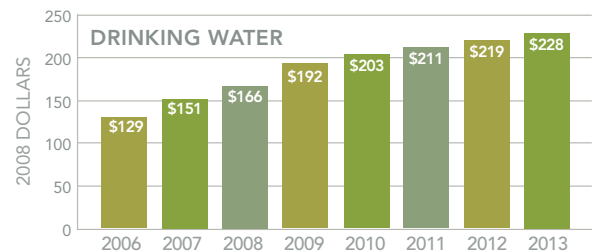
COST IMPACT PER "AVERAGE HOUSEHOLD"

Other regional services are those services that are funded directly through the Metro Vancouver portion of property taxes and include the costs associated with regional parks, air quality management and regulation, strategic planning, etc. The key drivers for this portion of Metro Vancouver's budget are inflation and the costs of implementing the Parks and Greenways Management Plan.



COST IMPACT PER "AVERAGE HOUSEHOLD"

The costs of managing the solid waste operations are affected primarily by third party contract inflation, rising fuel prices, and the financial implications of finding a short-term alternative landfill site. Uncertainties in the budget projections include: the date existing landfills will reach capacity, cost of fuel, cost implications of new diversion programs, and the capital spending requirements which may flow from a new Solid Waste Management Plan that is currently in preparation and the subject of community consultation and discussion.



COST IMPACT PER "AVERAGE HOUSEHOLD"

Bringing the new water filtration plant on line will mean that the planned expenditures of the water district increase sharply in 2009 with much smaller increases into the future. There are three key uncertainties in projecting the budgetary needs of the water district: unknown variation in water sales revenues that could affect cost recovery, financial implications from the tunneling portion of the new filtration project, and changes in long-term interest rates.

### Affordability is an important indicator of whether decisions about new spending are sustainable

EXPENDITURES PER HOUSEHOLD AND TOTAL REGIONAL EXPENDITURES AS A % OF MEDIAN HOUSEHOLD INCOME (2006-2008)

	2006	2007	2008
Metro Vancouver Expenditures per Household	\$370	397	421
Total Regional Expenditures per Household	\$5,073	5,308	5,349
% of Median Household Income	8.4%	8.4%	8.3%

This is a tool for estimating the financial impact of Metro Vancouver expenditures on a theoretical "average" household in the region. The total regional expenditures per household are the sum of expenditures by Metro Vancouver, member municipalities and TransLink allocated to this average household. Expressing this total as a percentage of the median household income in the region provides decision-makers a perspective on affordability.

Source: Metro Vancouver

# Climate Change

## TARGET:

Reduce greenhouse gas emissions in the region 15 per cent by 2015 and 33 per cent by 2020.

METRO VANCOUVER  
SUSTAINABILITY REPORT

## ACTION:

Metro Vancouver is developing a climate change strategy that will include strategies for its corporate operations as well as for the region as a whole. The strategies will encompass both mitigation measures to reduce greenhouse gas emissions and adaptation initiatives for anticipated impacts of climate change.

Global warming is the result of increasing concentrations of greenhouse gases (GHGs) in the earth's atmosphere, and the main human source of these emissions is the burning of fossil fuels. The federal and provincial governments have developed initiatives to improve vehicle fuel efficiency as well as new energy efficiency standards for buildings. These initiatives should reduce greenhouse gas emissions in the region.

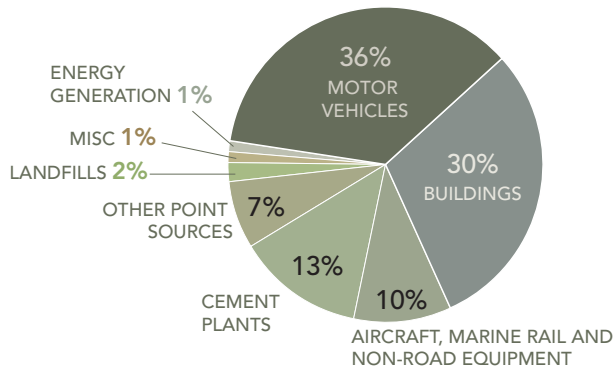
One of the goals of the Air Quality Management Plan is to:

- Minimize the region's contribution to climate change

In February 2008, the Metro Vancouver Board adopted targets to reduce regional greenhouse gas emissions 15 per cent from 2007 levels by 2015 and then 33 per cent by 2020. These targets are consistent with those set by the Province of British Columbia, but meeting these targets will require policies and actions beyond those initiated by the provincial and federal governments.



## Heating and driving account for the bulk of regional greenhouse gas emissions

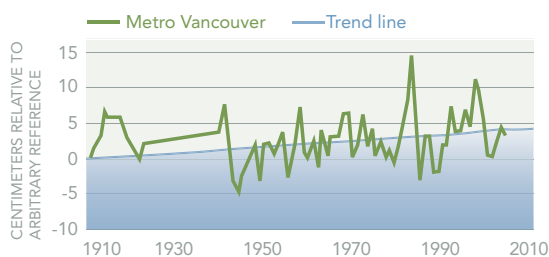


INVENTORY OF GREENHOUSE GAS EMISSIONS IN METRO VANCOUVER (2005)

In 2005, the region's contribution to global climate change was 15.6 million tonnes of equivalent carbon dioxide (CO<sub>2</sub>e.) As a highly urbanized area with relatively few heavy industrial emitters, heating buildings and the operation of motor vehicles are the important source of emissions – accounting for over 65% of total greenhouse gas emissions (GHGs) in the region.

Source: Metro Vancouver

## Sea level rise is one potential outcome of global warming

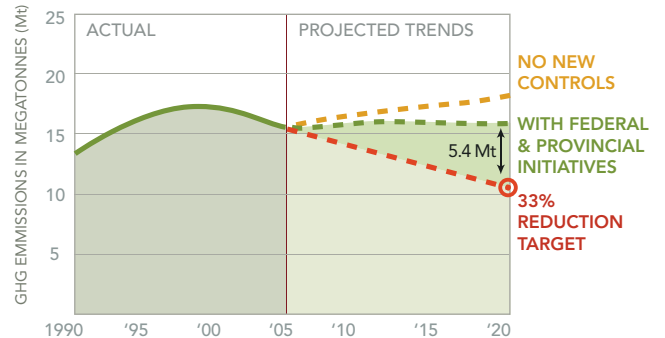


CHANGES IN ANNUAL MEAN SEA LEVEL FOR METRO VANCOUVER

Around the globe, the average rate of sea level rise is increasing because warming ocean temperatures as well as the melting of glaciers have led to an increase in the volume of seawater. For Metro Vancouver the trend is a 2 centimetre increase in the mean sea level every 50 years.

Reproduced from *Environmental Trends in British Columbia – 2007*

## The target is to reduce greenhouse gas emissions 33% by 2020



TREND IN METRO VANCOUVER REGIONAL GHG EMISSIONS

The left hand side of the figure above depicts actual regional GHG emissions. The decline in emissions from 2000 to 2005 is primarily attributed to reduced operations at the Burrard Thermal Plant. The right hand side illustrates three emission scenarios for the region to the year 2020. The upper line is the projection of emissions in the absence of any new policies or actions. The middle line is a projection of emissions based on initiatives announced by senior levels of government to reduce GHG emissions. This still leaves a gap between projected emissions and the target reduction of emissions of 5.4 megatonnes.

Source: Metro Vancouver



## TARGET:

Protect all endangered wetlands by 2015.

METRO VANCOUVER  
SUSTAINABILITY REPORT

# Ecological Health

The combination of Metro Vancouver's coastal location, climate and varied terrain has produced a rich variety of ecosystems. Some have global significance, for instance the Pacific Flyway, while others make very important contributions to the economic prosperity and the quality of life in the region.

Forests stabilize slopes in North Shore neighborhoods and reduce sediment loadings into the drinking water reservoirs. The rich soils of the Fraser Valley yield an abundance of foods and vegetation, wetlands mitigate local flooding problems by capturing storm water while birds help control pest and insect populations. These are but a few examples of how we rely on the region's natural capital to provide essential resources and services.

Maintaining the health of ecosystems is not simply of interest to those who enjoy nature but is critical in sustaining our region. In terms of ecological health, the region will be more sustainable if actions are taken to:

- Secure and protect important ecological areas
- Reduce pollution and greenhouse gas emissions
- Restore and create habitat

Metro Vancouver has been part of a broad regional effort to mitigate the impacts urban development has on nearby ecosystems. Investment in sewage treatment and actions to regulate air contaminants make positive contributions to the quality of the region's waters and air. In recent years, Metro Vancouver has, with various partners, taken steps to protect important wetlands, including Burns Bog.

Measuring the ecological health of the region is not well developed and the indicators presented here focus on just some of the areas of concern.

## ACTION:

After an absence of nearly 100 years, sockeye salmon returned to the Coquitlam River in 2007. This follows a multi-party approach to ensuring the conservation of this particular salmon run – a culturally important one to the Kwikwetlem First Nation – and the maintenance of a clean, safe drinking water source. More work is required before a full-scale run of salmon can be established but this is an important first step.



### Streams within Metro Vancouver are stressed

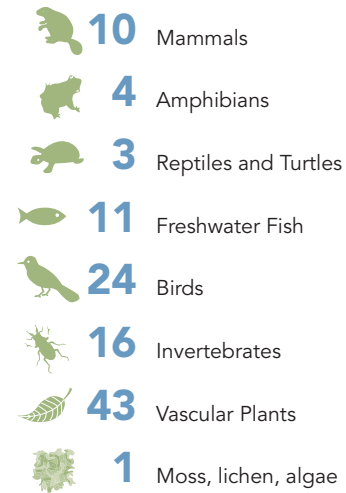


ASSESSMENT OF STREAM TEST SITES WITHIN METRO VANCOUVER (2002)

Storm runoff in urban areas and agricultural operations pick up a wide range of sediments, contaminants and other materials that affect water quality and the habitat of streams within Metro Vancouver. This initial assessment was based on how actual biological conditions at the test sites differed from expected conditions. The communities of animals studied, because they are a food source for fish, provide an environmental warning signal regarding the health of streams. Subsequent analysis of the same sites will indicate if there has been a change in the effect of storm runoff on the biological conditions of streams within the region.

Source: Sylvestre, S. et al. 2005. *Benthic invertebrate assessment of streams in the Georgia Basin*. Environment Canada.

### Changes in the conservation status of species in the region is an indicator of ecological health

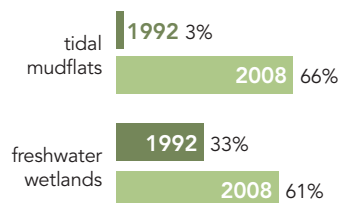


SPECIES AT RISK OF DISAPPEARING IN METRO VANCOUVER (2008)

B.C.'s Conservation Data Centre (CDC) is the agency tasked with monitoring the status of species that are at risk of disappearing in the province. The 112 species at risk in Metro Vancouver is a conservative estimate because not all species have been fully identified or assessed, and this list does not include marine mammals and fish which are under federal jurisdiction. Future reports will track the changes in the conservation status of these species.

Source: CDC September 2008

### The amount of protected wetlands has increased

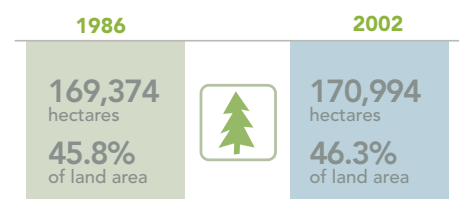


PERCENTAGE OF WETLANDS IN METRO VANCOUVER WITH HIGH LEVELS OF PROTECTION (1992 AND 2008)

Protecting wetlands is a critical component of ecosystem health because they are among the most productive ecosystems on earth, yet are routinely drained and paved over. There are 20,200 hectares of wetlands in the region and of these 63% are now protected. In this analysis, the criteria for a "high level of protection" is wetlands protected by a strong legal designation, a management strategy oriented primarily for conservation, and strict regulations on human activity.

Source: Ducks Unlimited Canada analysis 2008.

### The amount of tree canopy has not changed significantly



ESTIMATED AREA OF TREE CANOPY IN METRO VANCOUVER (1986 AND 2002)

Forests and trees within the Metro Vancouver region provide a range of benefits. Forests contribute to the purification of air and water in the reservoirs and remove and sequester carbon, while trees in urban areas provide shade and their root systems help absorb and filter storm water, thereby reducing pressure on the storm sewer system. (Note: the study area included the region's water features.)

Source: AXYS Environmental Consulting Ltd. 2006. *Assessment of regional biodiversity and development of a spatial framework for biodiversity conservation in the Greater Vancouver Region*.

## TARGET:

Increase actively farmed land by 2012

METRO VANCOUVER  
SUSTAINABILITY REPORT

# Agriculture

The combination of fertile soils, a temperate climate and local water sources make the Metro Vancouver region a highly productive agricultural area. Farmers in the region work 1.5% of British Columbia's agricultural lands but generate 28% of the province's gross farm receipts.

Metro Vancouver has not yet adopted a regional food system strategy but one should be developed in 2009. However, this issue was discussed in different forums hosted by Metro Vancouver in 2008 and it seems clear that at minimum the objectives of a regional food system strategy would be to:

- Protect farmland
- Enhance the viability of regional food production

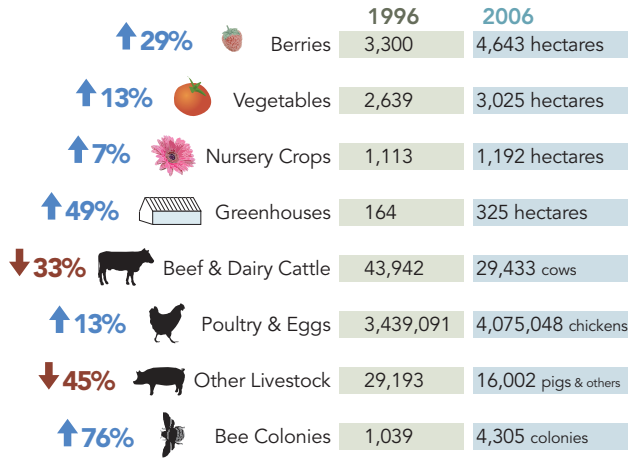
In 1973, British Columbia created the Agricultural Land Reserve (ALR) to protect good quality farmland in the province. In 2008, there was 61,228 hectares of ALR land in Metro Vancouver. Not all of these lands are actively farmed, but the ALR designation restricts activities allowed on these lands and how they can be subdivided. Since 1973, 6,159 hectares of land have been removed from the ALR in Metro Vancouver while 277 hectares were added.

## ACTION:

In 2006, the Metro Vancouver Board voted to not support the exclusion of 456 hectares of Barnston Island farmland from the Agricultural Land Reserve (ALR) because it would have undermined the regional growth strategy. The position of Metro Vancouver was instrumental in the decision by the Agriculture Land Commission to reject the application for exclusion.



### Farmers in the region produce over 130 different agricultural products

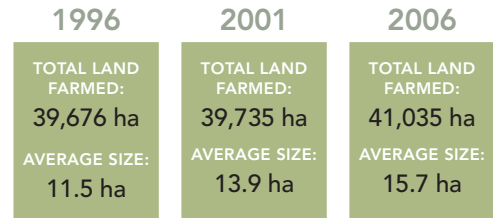


VARIETY OF AGRICULTURAL PRODUCTS FROM METRO VANCOUVER FARMS (1996 TO 2006)

The region's farmers produce a diversity of farm products for local consumption and export. The growth of greenhouse production and number of bee colonies is particularly significant in the Metro Vancouver region. Of the 2,618 farms in Metro Vancouver, **15.7%** reported that their operations were **organic**.

Source: Census of Agriculture

### The amount of land farmed has increased slightly

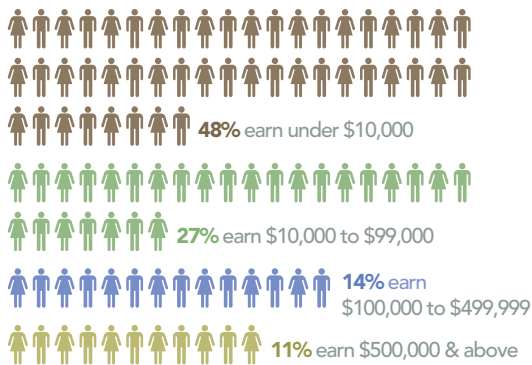


TOTAL LAND FARMED AND AVERAGE FARM SIZE IN METRO VANCOUVER (1996 TO 2006)

Both the amount of land farmed and farm size has increased. However 15.7 hectares is a relatively small farm. Farms in urbanized areas in Canada tend to be small but can pose significant challenges in realizing efficiencies in farming.

Source: Census of Agriculture

### Small farms mean earnings tend to be low

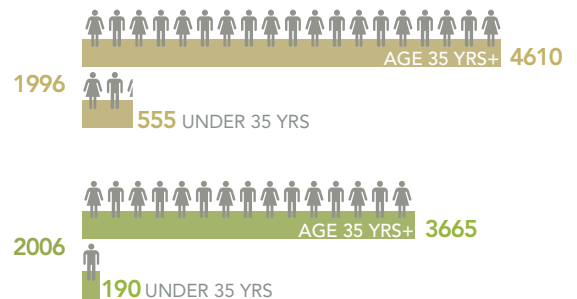


DISTRIBUTION OF GROSS ANNUAL FARM RECEIPTS IN METRO VANCOUVER (2006)

The high proportion of small farms in Metro Vancouver is reflected in reported gross annual farm receipts. Gross receipts are before expenses related to farming are deducted. To support a household, 50% of Metro Vancouver farmers rely on paid work off the farm.

Source: Census of Agriculture

### Young farmers are not entering the industry



TOTAL NUMBER OF FARM OPERATORS IN METRO VANCOUVER BY AGE (1996 AND 2006)

Small scale farming is more conducive to family and small business operations and so the age of farmers is an indicator of the viability of farming. In this region, there has been a 66% decrease in the number of farmers under the age of 35 over the past ten years. This would suggest that young people do not consider farming a viable economic venture or find the cost of entering the market prohibitive.

Source: Census of Agriculture

# Economy

Metro Vancouver has a predominantly urban economy - a diverse economic base with most jobs in the service sector. Construction activity has been an important driver of economic growth in the region but declines in new residential construction will act as a brake on growth in the near future.

An economic strategy has not been developed for Metro Vancouver, but for the purposes of this report the sustainability of the regional economy should be evaluated in terms of its ability to:

- Provide a high quality of life for attracting and retaining the labour force required in the region
- Maintain a positive business environment
- Ensure continued investment in urban infrastructure that supports economic productivity

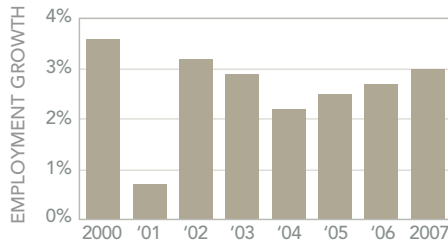
The region continues to score high on international rankings of livability, like Mercer's Quality of Living Survey. However, the relative cost of housing in the region relative to other urban centres in Canada is an issue in business recruitment.

Reflecting the global economic downturn, the economic growth of Metro Vancouver began to stall in 2008. The character of the regional economy may mediate the more severe downturns economies reliant on the forestry or manufacturing sector are experiencing.

Investment in well maintained transportation and utility infrastructure contributes to business productivity. Metro Vancouver's contribution to the regional infrastructure has been discussed in other sections of this report. Investment in the Pacific Gateway projects has been an important priority for the provincial and federal governments.



### The number of new jobs has been growing

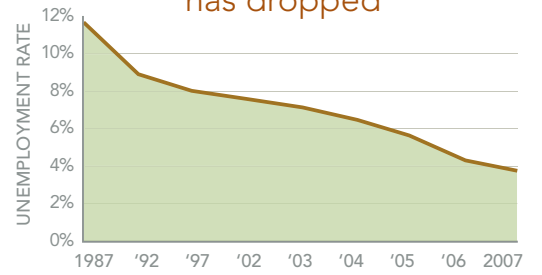


ANNUAL PERCENTAGE GROWTH IN METRO VANCOUVER EMPLOYMENT (2000 TO 2007)

The regional economy has created new jobs each year for more than seven years. Projections for 2008 and 2009 indicate that the growth in new jobs will continue, albeit at a much slower rate.

Source: BC Stats

### While the unemployment rate has dropped

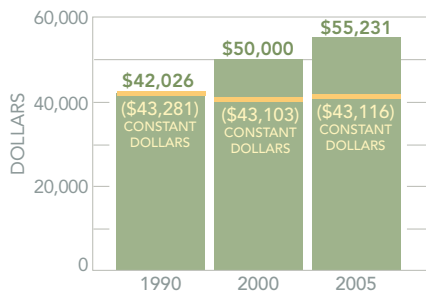


UNEMPLOYMENT IN METRO VANCOUVER REGION (1987 TO 2007)

This decrease in unemployment rates has been relatively steady over the past 10 years but the trend is unlikely to continue in the near term. A limitation of this data is that it does not include the chronically unemployed.

Source: BC Stats

### Median income in constant dollars has not changed

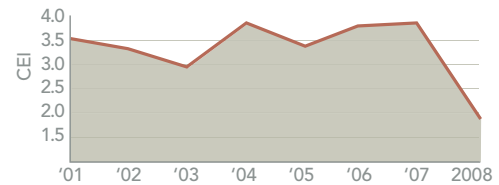


MEDIAN INCOME IN CURRENT AND CONSTANT (2002) DOLLARS FOR METRO VANCOUVER HOUSEHOLDS (1990 TO 2005)

While median household income in current dollars has increased since 1991, adjusting for the cost of living indicates that during a period of economic prosperity, the purchasing power of Metro Vancouver households did not necessarily improve.

Source: BC Stats

### Economic growth is slowing down

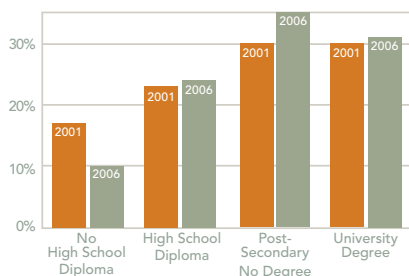


COINCIDENT ECONOMIC INDEX (CEI), ANNUALIZED, FOR METRO VANCOUVER

The Coincident Economic Index (CEI) has been developed by the Central 1 Credit Union to provide a summary measure of the current level and velocity of the economy of Metro Vancouver. It is used here to indicate the effect of the economic downturn on the regional economy.

Source: Central 1 Credit Union

### The trend in educational attainment is positive



EDUCATIONAL ATTAINMENT OF POPULATION, AGED 25 TO 64, IN METRO VANCOUVER (2001 AND 2006)

In 2006, the percentage of residents of Metro Vancouver with some post-secondary education or training increased from 60% to 66%. This is a positive trend for a knowledge-based economy.

Source: Census Canada

### The regional economy is relatively diverse

Industry Description	Number of Jobs
Wholesale and Retail Trade	191,400
Health Care and Social Assistance	117,200
Professional, Scientific and Technical Services	114,800
Manufacturing	110,300
Construction	96,600
Finance and Insurance, Real Estate, Rental and Leasing	90,400
Educational Services	90,000
Accommodation and Food Services	89,800
Information, Cultural and Recreation	78,000
Transportation and Warehousing	75,700
Business, Building and Other Support Services	56,000
Other Services	48,400
Public Administration	44,800
Agriculture, Forestry, Fishing, Mining, Oil and Gas Extraction	16,900
Utilities	5,500

EMPLOYMENT BY INDUSTRY WITHIN METRO VANCOUVER REGION (2007)

One measure of economic diversity is the range of industries that provide employment in the region. Employment in the service providing sector composes about 80% of total regional employment among a diverse range of industries. The relatively small scale manufacturers in the region employed 9% of the region's labour force.

Source: Statistics Canada, BC Stats

# Energy

METRO VANCOUVER  
SUSTAINABILITY REPORT

## ACTION:

Metro Vancouver has initiated a number of projects that will contribute clean energy to the region – two involve capturing gases generated in the process of treating wastewater. The first project collects, processes, and purifies biogas from Lions Gate Wastewater Treatment Plant for distribution to natural gas customers. The other project involves the enhanced production of biogas at Lulu Island Waste Water Treatment Plant for the co-generation of heat and electricity for use within the facility.

Most energy used in the region comes from non-renewable, fossil fuel-based sources, like oil and natural gas. Burning fossil fuels releases contaminants that contribute to air quality problems in the region and the Fraser Valley, as well as releasing carbon dioxide that contributes to global warming. In addition to these environmental liabilities, fossil fuels are forecasted to become more expensive in the future as relatively accessible energy sources are exhausted.

From both a long-term environmental and economic perspective, appropriate energy goals for the region are:

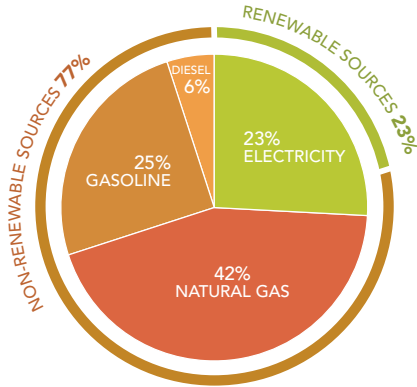
- **Conserve energy**
- **Identify and use new renewable sources of energy**

These actions are consistent with improving the region's energy security if new sources of renewable energy are developed within the region. These new sources could include geothermal, biogas, new sources of hydroelectricity as well as recovered heat and energy from industrial operations.



### Most of the region's energy is from non-renewable sources

TOTAL ENERGY USED IN 2007: 265,655 TERA JOULES (TJ)

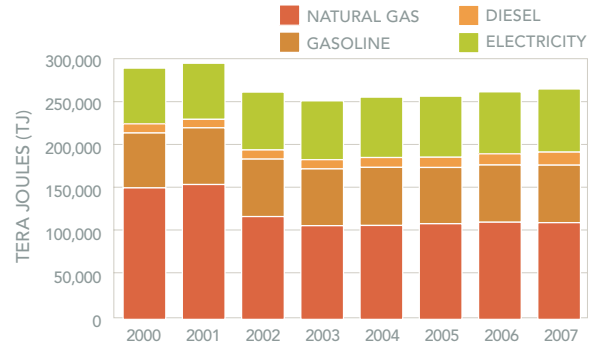


#### INVENTORY OF ENERGY USED IN METRO VANCOUVER (2007)

Natural gas, gasoline and diesel are non-renewable sources of energy. In its 2006 annual report, BC Hydro reported that 84% of the electricity it sold to its customers was from hydroelectricity operations and other renewable sources of energy while the remainder was supplied by thermal plants within the province or imported energy. At this time, there is not a system for tracking and measuring the amount of energy used from other renewable sources.

Source: Metro Vancouver

### Total energy use in the region has declined

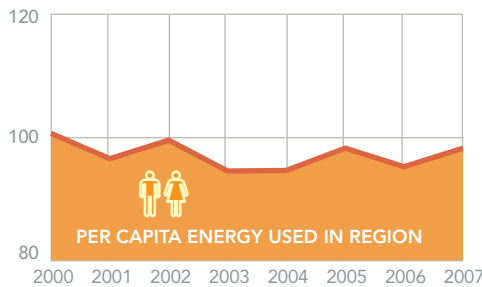


TOTAL ENERGY USED IN METRO VANCOUVER IN TERA JOULES (2000 TO 2007)

The primary explanation for the decline in total energy use since 2001 is the curtailed operations of Burrard Thermal Plant which uses natural gas to generate electricity. Aside from natural gas, energy use associated with other sources has climbed from 2000.

Source: Metro Vancouver

### Per capita energy use is relatively stable



NON-INDUSTRIAL ENERGY USE PER CAPITA IN METRO VANCOUVER IN GIGA JOULES (2000 TO 2007)

To provide a better sense of the trend in energy use related to residence and local businesses in the region, energy used by the industrial sector and Burrard Thermal Plant were deducted from the total energy used in the region before calculating per capita energy usage. Using this adjustment, there is a slight downward trend in per capita energy use in Metro Vancouver. Widespread efforts in energy conservation would be captured in a declining per capita energy use.

Source: Metro Vancouver

#### RENEWABLE ENERGY OPPORTUNITIES IN METRO VANCOUVER



A substantial amount of the non-renewable energy used in the region is for heating water as well as spaces in residential, institutional and commercial buildings. Rather than relying on natural gas for heating, there are numerous renewable sources including:

- Biomass and biogas
- Ground-, air- and water-source heat pumps
- Heat recovery
- Solar energy

There are a small but growing number of projects using these energy sources in Metro Vancouver.

District heating is a potentially important means for using these renewable energy sources. District heating, or community energy systems, distribute heat from a central source to a number of buildings providing both cost and energy efficiencies. There are 7 district heating systems in Metro Vancouver but more are coming on line.

# Public Health

METRO VANCOUVER  
SUSTAINABILITY REPORT

In addition to age, sex and hereditary factors, a range of local conditions contribute to the health of the region's residents. These include environmental factors (for instance, air quality), lifestyles (for instance, diet and exercise), living and working conditions, and broader socio-economic influences (for instance, income).

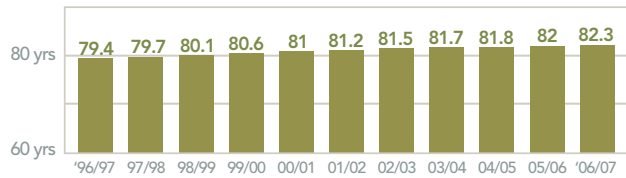
In the context of sustainability, appropriate regional objectives could include:

- improve average life expectancy
- decrease infant mortality rates
- increase overall levels of fitness and activity

Metro Vancouver has regional responsibilities in the provision of drinking water, managing the treatment and disposal of sewage, air quality management, and providing outdoor venues for recreational activities in the regional parks. These are reported on in the relevant sections of this report and only overall health outcomes are reported in this section.



## Metro Vancouver residents are living longer

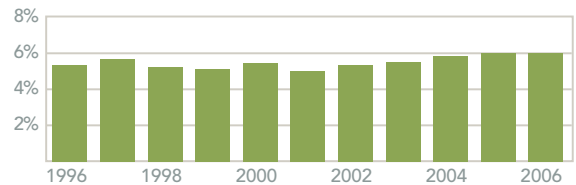


LIFE EXPECTANCY IN METRO VANCOUVER (1996 TO 2007)

Life expectancy tells us the average number of years that a child born here is likely to live based on current mortality rates in Metro Vancouver. Factors affecting an individual's longevity include access to health care, diet, environmental quality, income and wealth. The regional average masks disparities in life expectancies among communities within the region.

Source: BC Stats

## Infant mortality rates are low and relatively stable

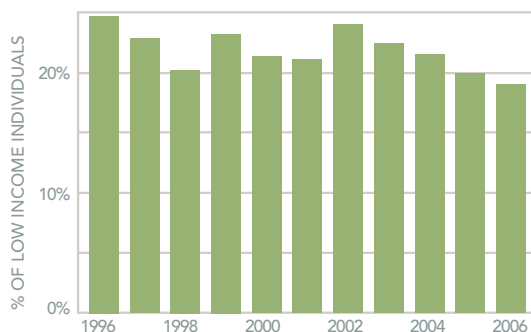


INFANT MORTALITY IN METRO VANCOUVER (1996 TO 2006)

In 2006, there were 93 deaths of infants (children less than one year old) in Metro Vancouver. More than just a measure of infant health, the rate of infant deaths is associated with socioeconomic conditions, access to health care, the effectiveness of preventative care and the health status of women of childbearing age. It is therefore one indicator of the general health status and well-being of the residents of Metro Vancouver.

Source: BC Vital Statistics

## Better health is associated with higher incomes



PERCENTAGE OF LOW INCOME INDIVIDUALS (BEFORE TAX) IN METRO VANCOUVER (1996 TO 2006)

In 2006, 19% of Metro Vancouver residents had incomes below the Low Income Cut-off (LICO) – these are individuals who are significantly worse off than the average individual living in the region. Income is considered a key determinant in health so improvements in population health would be associated with declines in this indicator.

Source: Census Canada

## FOOD BANKS SERVE THE DISADVANTAGED



Nutrition is an important component of good health. The Hunger Count is an annual survey of emergency food programs released by the Canadian Association of Food Banks. In 2007, estimates during the entire year were that between 34,000 to 39,000 of the region's residents rely on the services of the seven food bank agencies in Metro Vancouver. Of those served, 41 per cent were children.



# Arts & Culture

METRO VANCOUVER  
SUSTAINABILITY REPORT

A proposal for a regional cultural strategy is under consideration. The goals of this proposed strategy are to:

- Connect arts and cultural organizations to the public across the region
- Promote regional economic development
- Enhance the livability of the region

Artists create channels of communication that can facilitate a better understanding of the world around us, including an appreciation of the diversity of values and beliefs held by residents in Metro Vancouver.

Quantitative measures that provide a basis for evaluating the contribution of arts and culture to the sustainability of the region are difficult to obtain and must be developed in the context of the new strategy. The preliminary inventory of cultural facilities and the number of cultural workers are indicators of the capacity of the arts and culture sector in the region. They do not measure outcomes or impacts.



## Physical capital in arts and culture

- 33** Performing Arts/Theatres
- 16** Art Gallery/Visual Arts
- 11** Multi-discipline/Arts Centres
- 10** Studio/Rehearsal
- 47** Heritage (including museums)
- 54** Library Branches

This is a preliminary inventory of cultural facilities and only includes municipalities with populations of more than 75,000 in Metro Vancouver. A more thorough inventory would present a better picture of the array of venues available to cultural and community groups in the region.

Source: Keenleyside, P. 2007.  
 "The State of Cultural Infrastructure: policy and issues dialogue."  
 Centre of Expertise on Culture and Communities. SFU.

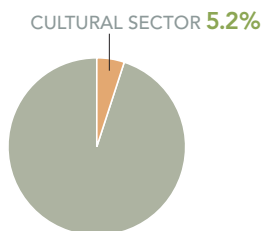


## The human element in arts and culture

	2001		2006
NUMBER OF CULTURAL WORKERS	54,500	+11%	60,306

TOTAL NUMBER OF PEOPLE EMPLOYED IN THE METRO VANCOUVER'S CULTURAL SECTOR (2001 AND 2006)

In addition to unpaid work that goes into creative processes and the volunteer efforts required to stage cultural events and festivals, there are opportunities for employment in the cultural sector. While the number of cultural workers in the region has increased, the percentage of the labour force employed in the cultural sector has remained the same for the past five years.



PERCENTAGE OF METRO VANCOUVER'S LABOUR FORCE EMPLOYED IN THE CULTURAL SECTOR (2001 AND 2006)



# Community Engagement

METRO VANCOUVER  
SUSTAINABILITY REPORT

Sustainability is not a condition that can be imposed on the region, rather it requires the on-going collaborative efforts of a broad cross section of individuals, organizations, businesses and governments both identify and embrace the changes required to achieve sustainability. Engaging the energies, talents, and knowledge of residents of the region is critical.

The goals of community engagement should be to:

- Increase community involvement in activities that contribute to the social capital of the region
- Provide the venues for all residents of the region to participate in establishing objectives

Conventional measures of positive trends in community engagement are increases in the rate at which people volunteer or participate in community activities, including voting, as well as their willingness to donate to charitable activities.

Metro Vancouver serves as the main political forum for discussion of significant community issues at the regional level. Public awareness programs and campaigns provide information and the means for individual and businesses to become actively involved in sustainability while the forums provide the venues to engage a wide range of interested parties in identifying the challenges and opportunities in achieving sustainability as well as the solutions that need to be adopted.



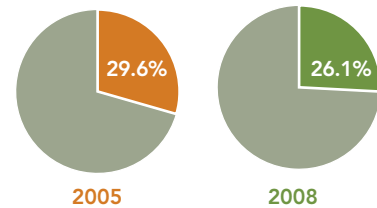
### Volunteer rates are one indicator of community engagement

In 2004 **42.6 %** of **Metro Vancouver** residents (15 years and older) did some **volunteer** work.

The social capital of urban areas is greatly enhanced by individuals engaged in a range of volunteer activities supporting health, environment, education, culture and social justice activities and organizations. The motivations for volunteering are numerous, but personal economic situations and other constraints may limit a person's ability to volunteer. Therefore changes in the volunteer rate may be a signal of broader changes in the region.

Source: Canadian Council on Learning

### While voter participation rate is decreasing



VOTER TURNOUT RATES IN MUNICIPAL ELECTIONS IN METRO VANCOUVER (2005 & 2008)

A high voter turnout generally corresponds with a high level of community engagement. In this instance, the regional indicator masks a wide range of voter turnout in the municipalities that comprise Metro Vancouver. In 2008, one municipality had a voter turnout of 68.6% while the lowest turnout rate was 16.7%. There was a similar disparity in 2005.

Source: CivicNet BC

### The trend in donations is increasing



MEDIAN DONATION TO CHARITABLE ORGANIZATION IN METRO VANCOUVER (2000 TO 2006)

While a donation made to a charity does not necessarily go to a local organization, the act of donating is generally recognized as an indicator of the sense of belonging and community engagement.

Source: Statistics Canada

### METRO VANCOUVER AND COMMUNITY ENGAGEMENT



Since 2006 Metro Vancouver has been hosting the *Future of the Region Sustainability Dialogues* and the *Sustainability Community Breakfasts* in centres throughout the region.

Then in June 2008, Metro Vancouver hosted Discussion Forums in five urban centres within the region. Communiqués from these forums were used to focus the discussion at the *Sustainability Summit* in October 2008. The summit is a region-wide event designed to provide strategic input on the development of regional priorities and actions. Summits will be held every three years.

