



GREENEST CITY

2020 ACTION PLAN
PART TWO: 2015-2020



“Cities around the world must show continued leadership to meet the urgent challenge of climate change, and the most impactful change we can make is a shift toward 100% of our energy being derived from renewable sources. The future of Vancouver’s economy and livability will depend on our ability to confront and adapt to climate change.

Moving toward 100% renewable energy is another way that Vancouver is working to become the greenest city in the world.”

Mayor Gregor Robertson



GREENEST CITY 2020 ACTION PLAN

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THE GREENEST CITY. A RENEWABLE CITY.

Ambitious, necessary, and possible—this is the Greenest City 2020 Action Plan (GCAP) for Vancouver.

It is our road map to becoming the greenest city in the world by 2020.

The GCAP outlines ten goal areas and 15 measurable targets to guide Vancouver toward becoming the greenest city in the world by 2020. The plan was approved by City Council in 2011. Since then, 80% of the high priority actions named in the plan have been completed, such as creating a food scrap collection program, increasing farmers markets and community gardens, and creating 3,200 green jobs since 2010. See the status of each of the 2011-2015 actions on page 78.

This work is not the City's alone. Our collaboration with residents, businesses and communities has made progress towards our ambitious vision of a truly sustainable future possible. Vancouver shares this vision with cities around the world and is a model for green, sustainable living.

We're proud of what has been achieved, but there is a significant amount of challenging work yet to do before we meet the GCAP targets and become a truly sustainable city.

At this half-way point of the implementation of the GCAP, we are also upping the ante.

The fact is cities are responsible for three-quarters of global greenhouse gas emissions. Globally, cities are acknowledging that averting the worst impacts of climate change will require cutting greenhouse gases by at least 80% by 2050. Vancouver has joined 16 other cities in the Carbon Neutral Cities Alliance to commit to achieving these aggressive long-term carbon reduction goals. We have also made the commitment to transform Vancouver into a city powered completely by renewable energy before 2050. To achieve these goals, long-term actions are needed to take advantage of renewable energy opportunities in Vancouver's building and transportation systems.

Together, Vancouver's communities, businesses and organizations have shown the world what it means to build a healthy, connected and sustainable future. We will continue to show the world that Vancouver is leading in the global movement for a more sustainable world.

VANCOUVER, WE HAVE WHAT IT TAKES.

The race to become the greenest city in the world is a friendly but fierce competition. It's friendly because when one city succeeds, we all benefit from the shared knowledge, improved health of our planet, and new opportunities for the green economy. The race is fierce because the stakes are high. In fact, the earth requires a world full of greenest cities if we hope to maintain our collective standard of living for generations to come.

There are four key ingredients required for us to succeed: vision, leadership, action and partnerships.

Vision

The GCAP is a strategy for staying on the leading edge of city sustainability. Our vision is to create opportunities today while building a strong local economy, vibrant and inclusive neighbourhoods, and an internationally recognized city that meets the needs of generations to come. This is a vision that has an important role for each of us.

Leadership

Leadership is required from City staff and elected officials, from organizations operating in a diversity of sectors, and from Vancouver residents —many of whom have contributed to the development of this plan. The City will need to lead the way in its own operations as well, demonstrating what a green city looks like in City-run buildings, facilities and operations. Leadership from other levels of government and other public sector agencies will also be critical to our success.

Action

A plan like this is only useful when it is acted upon. The GCAP gives clear targets and baseline numbers to indicate where we were when this plan was created and where we are going. The highest priority actions for the first four years are mainly complete, and new priority actions and strategies have been identified to achieve our GCAP targets. We have begun to look beyond 2020 — with plans to green transportation through 2040 and to build a city that runs completely on renewable energy before 2050.

Partnerships

The City of Vancouver can't achieve the GCAP alone. The City's limited sphere of influence and resources means that partnerships continue to be key to achieving this plan. The development of the GCAP and accomplishments to date have demonstrated the power of partnerships in building our future city.

PLANNING A GREEN CITY

The GCAP is divided into ten goal areas, each with a long-term goal and 2020 targets. Recently, we've also set long-term targets for Climate and Renewables to 2050.

The goal areas and actions work together to form one integrated plan. For example, increasing composting and gardening helps to achieve the Green Economy, Zero Waste, and Local Food targets. Improving transit service supports Climate and Renewables, Green Transportation and Clean Air targets. Actions with such co-benefits have been prioritized.

The following pages include: summaries of each goal area; quantitative progress towards each 2020 target; the status of the initial actions; and the next round of high priority actions that need to be taken to achieve our 2020 targets.

In this document you may notice the goals are presented in a different order than they were in 2011. They are now grouped based on their correlation to supporting three, high-level, aspirational goals: zero carbon, zero waste and healthy ecosystems. With such a complex plan, these simple aspirational goals are an easy way to remember what we're striving for.

GREENEST CITY FRAMEWORK

ZERO CARBON	Green Buildings	Climates and Renewables	Green Economy	Lighter Footprint
	Green Transportation			
ZERO WASTE	Zero Waste			
HEALTHY ECOSYSTEMS	Access to Nature			
	Clean Water			
	Local Food			
	Clean Air			

HISTORY OF A GREEN CITY

Vancouver's path to be the greenest city in the world started decades ago. Thanks to the passion of the people who choose to call Vancouver home, it will continue long after 2020.

Pre-2009: Vancouver's History of Environmental Sustainability

Decades ago, Vancouver residents decided that the way of the past was not for us. We chose a different path.

Together, over the years, we've made the kinds of choices that have turned our home into one of the world's most livable cities.

In the 1960s, residents of Vancouver's Strathcona neighbourhood stopped the construction of a freeway into downtown that would have levelled their community and altered the shape of the city forever. Because of this action, Vancouver is one of few cities in North America that does not have a major highway cutting through its core. We are the birthplace of Greenpeace, the home of David Suzuki, and one of the first cities in the world to recognize the significance of climate change. In 1990, the ground breaking Clouds of Change Task Force recommended that Vancouver begin to reduce its carbon dioxide emissions.

We created dense neighbourhoods that have made urban lifestyle a model for other cities around the globe. Our air and water is among the cleanest of any urban city. We have a spectacular urban forest. The natural beauty of our city is a valued asset that we preserve and protect.

2009-2011: The Development of GCAP

In 2009, a group of local experts were brought together to form Mayor Robertson's Greenest City Action Team to take this work to the next level. Together, they researched best practices from leading green cities around the world and established goals and targets that would make Vancouver the world's greenest city. This work was published in two reports: the Quick Starts Report which recommended 44 immediate actions (of which two-thirds were implemented) and, Vancouver 2020: A Bright Green Future, which set ten long-term goals and thirteen 2020 targets. City staff were tasked with coming up with a complete plan.

More than 35,000 people from around the world participated in the development of the resulting GCAP through social media, online, and in face-to-face workshops or events.



External advisory groups were formed for each goal area with representatives from key partner organizations such as business and industry associations, other levels of government, non-government organizations and academia. Staff consulted with these groups and included community input from the engagement process as they developed their implementation plans.

In the end, over 60 City staff, more than 120 organizations, and thousands of individuals contributed to the creation of the GCAP.

Involvement by participants built their enthusiasm for taking the ideas that were generated and realizing them in their own neighbourhoods and businesses. The development of the plan not only set the course toward realizing a livable, prosperous, and sustainable future for our city, but it also became best practice in citizen collaboration and built the kinds of partnerships required to achieve the GCAP goals and targets.

2011-2015: Actions for a Greenest City

Of the high priority actions identified as most necessary to achieve the GCAP targets, 80% are now complete.

We have taken steps to reduce our waste and recycle more. We restored beaches, shorelines and waterfronts throughout Vancouver to clean up our waters and bring back wildlife. We took steps to clean our air and improve our transit options.

Here are some of the key achievements of the first four years of the GCAP:

- Greenhouse gas emissions (GHGs) have been reduced by 7% across the city, an 18% decrease per capita since 2007.

- We passed one of the greenest building codes in North America. Homes built in Vancouver will now use 50% less energy than those built elsewhere in the province.
- We increased the proportion of trips made by sustainable transportation within the city to 50% of all trips.
- We expanded our walking and cycling network, including completing the final leg of a 28 kilometer cycling path along the ocean.
- We established a two million dollar Greenest City Fund in collaboration with The Vancouver Foundation to support community-led projects to green Vancouver.
- We opposed the Kinder Morgan pipeline, which would see a sevenfold increase in oil tanker traffic in Vancouver's harbor, putting our shoreline and the climate at risk.
- We opposed the creation of a new coal export terminal on the Fraser River, and banned any future coal facilities from being built in Vancouver to protect residents from toxic dust and the planet from rapid climate change.

Since 2011, a dozen complimentary strategies and plans have been approved, embedding green even more deeply into how the City does business. From the Food Strategy to the Transportation 2040 Plan and Urban Forest Strategy Framework, the City has delved deeply into the development of a holistically green city. (See page 74 for a full list).

While we are proud of successes to date, implementation of GCAP has not been without its challenges.

First, in many cases, the City faces limited jurisdictional control. Our success, therefore, relies in part on action taken by other levels of government, residents, businesses and our community partners. Second, as an integrated and diverse city, clear communication, consultation and engagement in multiple languages and formats with many stakeholders is a necessity for buy-in.

Third, Vancouver is a growing city with a vibrant economy. This growth obviously places increasing demands on our resources. By setting targets to reduce carbon and waste in absolute terms, the GCAP is more ambitious than if applied to a city that is stable or declining in size.

Fourth, accurately tracking progress, which is a foundational piece of the GCAP, requires constant attention. The point isn't to look good, it's to get results. Being able to clearly track and report on results is imperative. At times, measuring our progress presents a challenge. When the GCAP was established, we chose the best available data to establish our plan and determined how we would track progress. Much of that data was collected and provided by external agencies. We have since found in certain cases that some sets of data are not available or that changes made by other agencies leave us with data that is inconsistent (e.g., changes to the Federal Government census or the frequency with which TransLink releases mode share data). In some cases the available data has improved. Our Climate and Renewables Goal now tracks progress using the latest science, allowing us to increase the accuracy of our numbers.

Despite these challenges, we've built great momentum for our continued journey to be the greenest city in the world by 2020. Vancouver is well positioned to achieve our green goals, and it continues to be a collective effort to make this vision a reality.

MOVING FORWARD

Our accomplishments are huge, and we are recognized internationally as a leading sustainable city as a result of our work (see list of international awards and rankings on page 75). Community members, businesses, and organizations have played a tremendous role in our success to date. This holistic buy-in to our collective vision of a green city has been the envy of other cities and the focus of many of the national and international awards we have received.

"Green" is no longer hypothetical, we are making it happen. With five years left, we've worked with the community to identify new actions that will help us meet the targets set out in GCAP.

Summary Of New Actions

Over 50 new actions have been identified that will help us move closer to realizing our targets and distinguish Vancouver as the greenest city in the world by 2020.

Over the course of a year, in collaboration with over 300 internal and external advisors, staff identified these high-priority actions and opportunities for advocacy. The public provided their input during the summer of 2015. Over 46,000 people were included in this process, of which over 13,000 of which were considered engaged (in-person and social media feedback). The actions in this strategy have been further refined based on direct, written input from over 850 community members (written feedback).

A Lighter Footprint

One GCAP goal is to reduce the ecological footprint of Vancouver residents' by 33%. The Lighter Footprint chapter (pages 62-67) defines this target and outlines actions being taken. The reality is that many of the goals in the GCAP contribute in some way to this target.



Throughout this document you will see this green symbol next to each action that contributes to this goal.



BEYOND 2020: A PATH TO A RENEWABLE CITY

Climate change remains the most pressing environmental issue of our time. Images from New York City in 2012 during Hurricane Sandy and from Calgary during the 2013 Alberta floods remind us that major city centres will experience severe climate change related weather conditions with increasing frequency. In Vancouver, we saw this first-hand in 2007 when powerful storms caused severe damage to 40 hectares of forest in Stanley Park, in 2012 when a king tide breached the seawall to cover Kitsilano Pool, and in 2014 when the City took proactive action to protect against king tide flooding near Jericho Beach. These experiences are a window into what a changing climate will look like locally. Significant action is needed now. Significant action is needed by us.

On March 23, 2015, Vancouver City Council voted unanimously to support a shift toward the city deriving 100% of its energy from renewable sources, including energy for transportation and buildings. The motion followed a call for a nation-wide shift to renewable energy by more than 70 leading Canadian academics, and similar action by at least ten other world-class leading cities such as San Francisco, Sydney, Stockholm and Copenhagen.

Bold new approaches will be applied to meet the needs of our growing population and economy in a sustainable way. The GCAP will continue to lay the foundation, with a new stronger emphasis on actions that reduce man-made carbon emissions. Throughout this update, the path to renewable energy will be highlighted as it relates to different goal areas.



1/ CLIMATE AND RENEWABLES

GOAL: ELIMINATE DEPENDANCE ON FOSSIL FUELS.

2020 TARGET:

REDUCE COMMUNITY-BASED GREENHOUSE GAS EMISSIONS BY 33% FROM 2007 LEVELS.

Indicator: Total tonnes of CO₂e emissions in Vancouver.

Baseline (2007): 2,805,000 tCO₂e

Actual (2014): 2,610,000 tCO₂e

2050 TARGETS:

1. DERIVE 100% OF THE ENERGY USED IN VANCOUVER FROM RENEWABLE SOURCES.

2. REDUCE GREENHOUSE GAS EMISSIONS BY 80% BELOW 2007 LEVELS.

INTRODUCTION

Climate change is one of the greatest threats in human history to human health, the economy, and the environment.

Climate science shows the primary cause of this change is human activity, such as burning fossil fuels to power vehicles, consuming energy in the heating and cooling of our homes, the industrial processes that produce consumer goods, the methane released from garbage in our landfills, and much more.

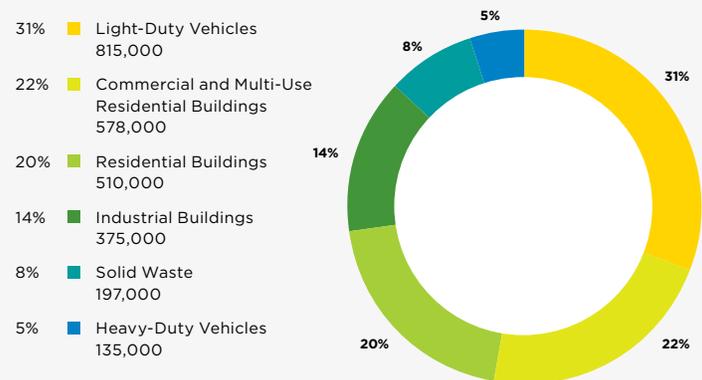
Over the past century, our dependence on fossil fuels has released enough carbon dioxide and other greenhouse gases to alter the natural balance of the earth's atmosphere, thereby changing the climate. If we fail to take action on climate change, scientists predict serious consequences such as decreased food production, water shortages, and increased infestations of temperature-sensitive pests like the pine beetle that have devastated forests in BC.

Climate change is a serious challenge to which real solutions exist.

We have technology and resources to heat our homes efficiently. We have systems for making sure reusable, recyclable, and compostable items don't end up in the landfill. We are planning for neighbourhoods that are quieter, greener, more walkable and social — where the grocery store is a few blocks from your house, you meet your neighbours more often and sit in traffic jams less.

Our journey to a 100% renewable energy future is just starting, but we're not starting from scratch. We already have the knowledge, skills and technologies to meet our transportation and building energy needs in a renewable way. We can enjoy cleaner air, more vibrant communities, healthier lives, and create new job opportunities at the same time.

VANCOUVER'S 2014 GHG EMISSIONS SOURCES
(Total 2,610,000 Tonnes CO₂e)



LOOKING BACK: SUCCESSES, CHALLENGES, AND THE EXTERNAL LANDSCAPE

Significant work has been done to reduce Vancouver's carbon emissions, which in 2014 were 7% lower than in 2007.

The City's flagship Neighbourhood Energy Utility in Southeast False Creek uses waste heat from the sewer to heat homes, reducing GHGs from building energy by approximately two-thirds. Building on this success, the City adopted a Neighbourhood Energy Strategy in 2012 which maps out how other low carbon energy systems can be built across Vancouver.

In 2013, 60% of the methane (a potent GHG produced during decomposition of waste in the absence of oxygen) was captured at the Vancouver landfill and used to heat commercial hot houses for local food production at an adjacent property. The City is investing \$25 million dollars in technology designed to capture this gas and put it to beneficial use. To meet the provincial government's 75% landfill gas recovery requirement by 2016 the City continues to invest in the expansion of landfill gas collection infrastructure, improvements in predictive modeling of gas generation, and the maximization of gas capture.

The Corporate Climate Leaders Program (delivered in partnership with Climate Smart) and the Business Energy Advisor Program (delivered in partnership with LiveSmart BC and CityGreen) were successful in supporting small and medium enterprises to assess and act on GHG reduction opportunities.

The City has limited to no jurisdiction over many emission sources and looks to the federal and provincial governments to take action in the areas of electricity generation, vehicle fuels and efficiency, and the taxing of carbon. The Province has backed away from its intent to have carbon neutral electricity generation in BC as outlined in the BC Energy Plan, leaving a significant shortfall in anticipated GHG reductions. The City's 33% reduction target is ambitious, and weakening of provincial climate policy applies new pressures to the reductions the City must realize if we are to meet our target.

GHG reduction successes related to the built environment and from transportation infrastructure are covered in the Green Building and Green Transportation chapters.

MOVING FORWARD: PRIORITY ACTIONS

1.1: Continue to work with partners to convert two existing steam heat networks to renewable energy.

Reducing the amount of fossil fuels used to heat major industrial and institutional sites is imperative if Vancouver is to reach its GHG reduction target. The City is currently working with Children's & Women's Hospital and Creative Energy (previously Central Heat) to achieve this.

1.2: Work with partners to develop four new neighbourhood energy systems.

Taking a neighbourhood energy approach lays the foundation for future gains. Pursuing neighbourhood energy systems prevents the city from being locked into a fossil fuel future.

1.3: Develop and begin implementing a renewable energy strategy.

The City needs to understand what actions must be taken to make the transition to clean energy. This means understanding what today's infrastructure investments mean for our future. The need for a plan is driven not only by environmental responsibility, but also by fiscal prudence.

Global Warming Potential of Methane has Changed

The global warming potential (GWP) of a gas is a measure of how much heat a gas traps in the atmosphere in relation to carbon dioxide. A gas with a GWP of ten would trap ten times as much heat as carbon dioxide. To put it another way, one tonne of a gas with a GWP of ten is equivalent to ten tonnes of carbon dioxide.

In 2014 the Province of BC updated its reporting procedures to reflect international changes to the GWP of methane. The GWP for methane was updated from 21 to 25, an increase of about 19%. To be clear: the methane gas itself has not changed, the change reflects our better understanding of atmospheric science. Accordingly, the 2007 emissions baseline for the GCAP has been recalculated with the new GWP for methane, as have emissions in all subsequent years.

ADVOCACY

- **Advocate the provincial government to continue the carbon tax and increase its rate by \$5 per tonne per year.**

An increase in the provincial carbon tax would drive further reductions in energy use, provide potential funding for green initiatives, and continue to support green economic growth.

- **Advocate the provincial government to continue its commitment to the Greenhouse Gas Reductions Target Act.**

The development of liquefied natural gas (LNG) in British Columbia has significant consequences for provincial GHG emissions. The development of fossil fuel resources can only be justified if the provincial government maintains its commitment to the Greenhouse Gas Reduction Targets Act, and does so without alteration.

- **Advocate the provincial government to continue and strengthen the Renewable & Low Carbon Fuel Standard.**

The transportation sector is responsible for about one-third of Vancouver's GHG emissions, yet is one of the most challenging sectors in which to reduce GHGs. The increased use of renewable and low carbon fuel is critical if transportation-related carbon emissions are to be reduced.

- **Advocate the provincial government to establish and implement a low-emission and zero-emission vehicle standard.**

Personal vehicle travel accounts for 31% of Vancouver's GHG emissions. The introduction of low and zero emissions mandates would make British Columbia a more appealing place for vehicle manufacturers to sell their low and zero-emission models, making it easier for the public to buy the cars they want.

- **Advocate Metro Vancouver to establish a regional Climate Action Fund.**

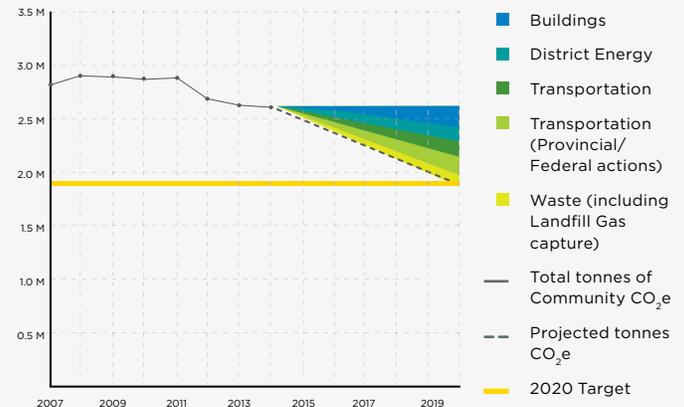
The City of Vancouver cannot act unilaterally on climate change. It is imperative to ensure that, as a region, municipalities and businesses have access to the funding they need to mitigate or adapt to climate change.

PROJECTIONS TO 2020

In 2014 Vancouver GHG emissions were 7% below 2007 levels. The work we have undertaken to date sets us up for significant future emissions reductions.

Based upon the effectiveness of current policies and the anticipated impact of future actions it is expected that Vancouver will achieve its 2020 GHG reduction target, while if all future efforts were suspended, anticipated business-as-usual growth would see community emissions go back up to 2012 levels by 2020.

PAST, PRESENT AND PROJECTED COMMUNITY GREENHOUSE GAS EMISSIONS TO 2020
(Total Tonnes of Community CO₂e Emissions)



CONCLUSION

We've made good progress to date towards our 33% emissions reduction target, but there is still a lot to be done.

Early action has seen our emissions drop while our population has increased. With the groundwork we have laid, we can expect more emission reductions to come. However, each step further down the path to reduced emissions becomes harder, particularly with cheap and abundant conventional fuels. This is why we must start to plan now for a 100% renewable energy future.

What A 100% Renewable Vancouver Looks Like

Imagine a 100% renewable Vancouver. People become more fit as they walk and cycle to most of their destinations. Gas stations are gone and instead vehicles charge while people work, rest and play. Buildings old and new are less drafty, more comfortable and the small amount of energy needed to heat them comes from renewable sources. Low carbon neighbourhood energy networks, like the sewer heat recovery system in Southeast False Creek, are common and supply most buildings with renewable power. Organic waste is used to make compost or biogas for heat and power.

This is the Vancouver we are building for 2050.

COMMUNITY STORY

“Green cities create green opportunities – they’re about green habits, green commutes, and green choices. In that light, MEC’s new head office represents more than just its built form or exceptional energy performance. It’s about how the space enables and supports our terrific employees to ‘live’ the MEC brand – to be active themselves and tread more lightly on the planet. It’s been super gratifying to see our people embrace the opportunities here and bring our building to life.”

Sandy Treagus

CFO of Mountain Equipment Co-Op



GREEN JOBS RELATED TO CLIMATE AND RENEWABLES

- Sustainability manager
- District energy system engineer and technician
- Geothermal energy technician
- Biomass energy technician
- Solar energy technician
- Power engineer
- Policy analyst and researcher
- Educator

A RENEWABLE CITY: CLIMATE AND RENEWABLES

The most ambitious long-term goal set out in the GCAP is to eliminate dependence on fossil fuels before 2050.

To meet this goal, the City has adopted two complementary new targets: To derive 100% of the energy used in Vancouver from renewable sources before 2050, and to reduce GHG emissions by 80% below 2007 levels before 2050. The goals are complementary because the most cost effective way to approach our renewable energy goal is to continue with our strong focus on energy conservation, energy efficiency and GHG reduction. This is because it typically costs less to conserve energy than it does to generate new renewable power.

Although all ten GCAP goal areas include actions that ultimately support these two goals, specific actions relevant to our 2050 targets are included in the Climate and Renewables, Green Building and Green Transportation chapters.

By leading the switch to renewable energy to power our businesses, heat our homes and fuel our transportation network, Vancouver will also be doing its part as a member of a global effort to mitigate the impacts of climate change. We will be setting the standard for what a successful, thriving, prosperous city looks like.

A RENEWABLE CITY: 2050 PRIORITIES FOR CLIMATE AND RENEWABLES

2050 PRIORITY FOR POWER SUPPLY:

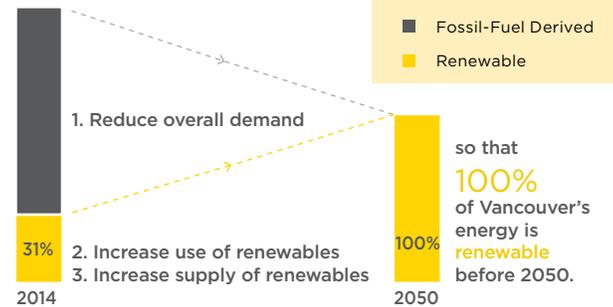
- Ensure grid supplied electricity is 100% renewable.

Vancouver uses power generated throughout the province, most of which is already very clean. The cheapest way to meet future power demand is to avoid the demand in the first place. Ensuring that our electrical grid maximizes its capabilities and minimizes the need for new transmission and power generation infrastructure is critical. We must work to ensure our electricity not only remains clean but becomes cleaner.

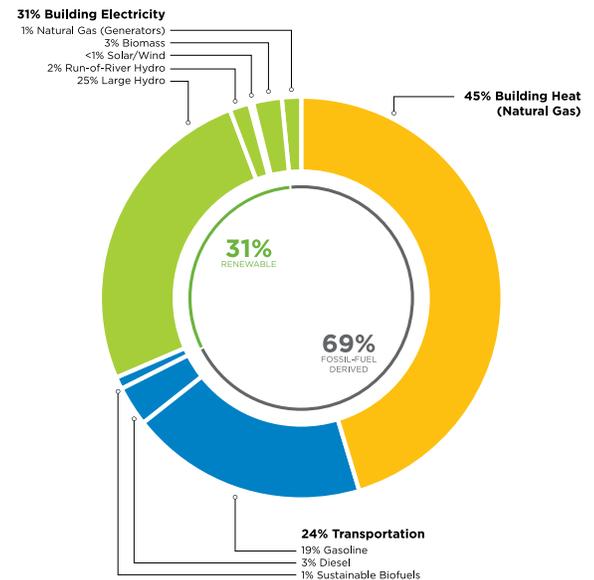
Refer to the Renewable City Strategy for more details on the longer term plans.

OUR PATH TO A RENEWABLE CITY

We will be taking action to:



HOW RENEWABLE IS VANCOUVER'S CURRENT ENERGY SUPPLY? (Sources of Energy Used In Vancouver)





2/ GREEN BUILDINGS

GOAL: LEAD THE WORLD IN GREEN BUILDING DESIGN AND CONSTRUCTION.

2020 TARGETS:

1. REDUCE ENERGY USE AND GHG EMISSIONS IN EXISTING BUILDINGS BY 20% OVER 2007 LEVELS.

2. REQUIRE ALL BUILDINGS CONSTRUCTED FROM 2020 ONWARD TO BE CARBON NEUTRAL IN OPERATIONS.

Indicator: Total tonnes of CO₂e from residential, commercial, and industrial buildings.

Baseline residential, commercial and industrial buildings (2007): 1,570,000 tCO₂e

Actual residential, commercial, and industrial buildings (2014): 1,463,000 tCO₂e

* Baseline now includes data for industrial emissions (i.e., those from large production facilities like breweries, and sugar processing plants, as well as emissions from very large commercial or institutional buildings and large scale centralized heat plants such as Creative Energy).

INTRODUCTION

Canadians spend close to 90% of their time indoors; the buildings we live and work in are a big part of our lives.

They are also a big part of our greenhouse gas emissions (GHG). The electricity and natural gas used by buildings and industry make up over 55% of Vancouver's GHG emissions.

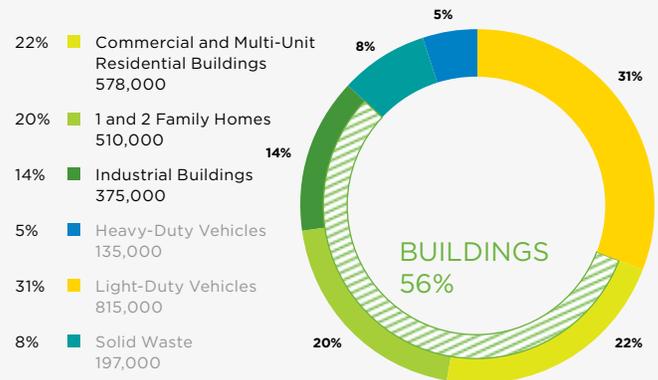
Vancouver is already a North American leader in green building and low-carbon energy system design, but it is essential that we continue to improve and innovate in order to meet our carbon neutral new buildings target. This will require continued improvement in new building policies and practices to minimize the energy demand of buildings and enable us to meet the remaining energy needs cost effectively with renewable energy.

At the same time, we must accelerate improvements to the environmental performance of existing building stock by replacing old inefficient equipment like boilers, ventilation systems, and

lighting with modern efficient systems. Insulation, windows and air tightness of buildings should be improved in conjunction with planned renovations.

Two main challenges get in our way. First, in British Columbia, we have access to relatively inexpensive energy sources. Second, the landlords and developers who make decisions about new designs or retrofits don't often pay the utility bills and don't immediately benefit from efficiency savings that can take time to show return on initial investments. These factors reduce the incentive for energy conservation. There is a growing need for more education, training and capacity building for the design, construction and operations of energy-efficient green buildings.

VANCOUVER'S 2014 GHG EMISSIONS FROM BUILDINGS
(Total 1,463,000 Tonnes CO₂e)



LOOKING BACK: SUCCESSES, CHALLENGES, AND THE EXTERNAL LANDSCAPE

The green building landscape has evolved considerably since our 2007 baseline year. The price of natural gas has dropped significantly while the price of electricity increased. The result of this shift has been a growing market focus on electricity conservation (which results in very limited GHG emission reductions) and a more challenging business case for natural gas efficiency measures and retrofits to existing buildings. Reduced natural gas prices have been partially offset by the BC Carbon Tax, highlighting the importance of this policy tool.

Energy models, required for all new single family homes in Vancouver, reveal that prescribed improvements for energy efficiency in single family homes (such as increased insulation, better air sealing, improved windows and more efficient heating systems) have reduced GHG emissions from new houses by over 50% as compared to those built to the 2007 requirements. Comprehensive incentives for home energy retrofits coupled with active City promotion of opportunities resulted in significant improvements to efficiency of over 10% of existing owner-occupied houses in Vancouver.

The most significant change to energy use in buildings and GHG emissions in Vancouver has been our focus on establishing and expanding low-carbon neighbourhood energy systems, as discussed in the Climate and Renewables chapter. City policy has shifted the design of new condominium and apartment towers away from electric baseboard heating to water based heating systems that enable buildings to connect to, and benefit from, neighbourhood systems. While this has resulted in a significant decrease in the use of electricity in these buildings, it has only led to modest reductions to overall building GHG emissions in the short term. Once low-carbon neighbourhood energy systems are established and provide heat to these buildings, significant GHG emission reductions will follow as the use of natural gas for heating is replaced with the use of renewable energy.

MOVING FORWARD: PRIORITY ACTIONS

ACTIONS FOR EXISTING BUILDINGS

2.1: Update the retrofit requirement options in Vancouver's Building By-Law to further reduce energy use and greenhouse gas emissions.

As new technologies emerge, more cost effective and easier to implement measures for reducing building energy use will be incorporated into the Building By-law. For large office and condominium buildings, options to encourage whole building improvements must be developed as the impact of these is far more significant. For example, a tenant in a building that has recently had its energy control system “tuned-up” or recommissioned may not need to undertake in-suite energy improvements.

2.2: Launch a Green Condominium Program and expand the Green Landlord Program.

Launch a Green Condominium Program and expand the Green Landlord Program. Apartment and condominium buildings account for nearly 30% of building related GHG emissions. While only 2-4% of buildings undergo a significant renovation in any given year, these building projects present opportunities to significantly reduce energy use, cost, and related GHG emissions by over 40%.

2.3: Launch a Home Energy Efficiency Empowerment Program and a Home Energy Technology Program.

City promotions of federal and provincial incentives for home energy renovations have been very successful. New approaches to promote and support homeowner participation in energy renovation incentive programs will be developed. New technologies are emerging that are low cost, easy to install, and promise to reduce home energy use, cost, and GHG emissions. The City aims to demonstrate that these technologies will save homeowners more in one year than they cost and thereby catalyze large scale adoption.

2.4: Require annual energy benchmarking and reporting for large residential and commercial buildings.

Require annual energy benchmarking and reporting for large residential and commercial buildings. The City is working with the Province and other local governments in BC to develop a consistent approach to mandatory building energy benchmarking and annual reporting for large commercial and residential buildings. Access to better data will enable owners to improve building operations and the City to improve its programs to support action.

2.5: Launch a program for green industry partners.

Industrial emissions from 250 facilities account for nearly a third of all building-related GHG emissions in Vancouver. A green industry partners program would support voluntary energy efficiency improvements of large Vancouver-based industries.

ACTIONS FOR NEW BUILDINGS

2.6: Develop a carbon-neutral new buildings strategy.

A clear roadmap that looks beyond the next policy update will be essential to enable a rapid transition in an industry that involves long lead times. New policy tools will need to be identified, new design and buildings skills will be required, local supply chains will need to evolve in order to remain competitive, and developers will need a clear understanding of future expectations in order to inform their plans and decisions today.

2.7: Restructure the City's green building rezoning policies to specifically target GHG emission reductions and introduce GHG emission targets for new buildings.

Currently the efficiency measures in Vancouver's rezoning policies focus on energy reduction not GHG reduction. To achieve carbon neutral new buildings, these policies will need to be restructured and realigned to target stepped reductions in GHG emissions with an emphasis on improving building envelopes as these are the most reliable and user-friendly way of reducing energy use.

2.8: Update minimum energy efficiency requirements for new buildings in the Vancouver Building By-Law.

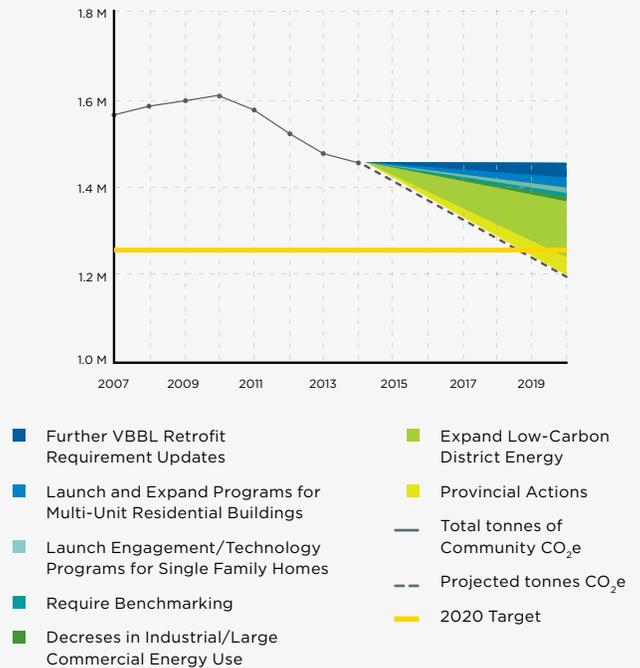
Expanding the proven approach of prescriptive energy efficiency requirements in the Building By-Law to townhouses and low-rise multi-unit residential and mixed use buildings will build upon existing success and move Vancouver closer to carbon neutral new construction by 2020.

PROJECTIONS TO 2020

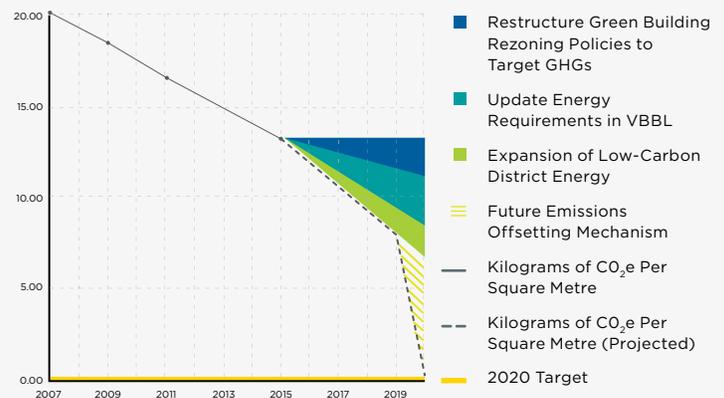
In addition to the eight actions planned for Green Buildings from 2015 to 2020, Actions 1.1 and 1.2 for new and expanded low carbon neighbourhood energy systems will reduce the overall carbon intensity of new development by 1.9 kg per square meter.

Beyond the impacts of these reductions, achieving carbon neutral new construction by 2020 will require the development of an emissions offsetting mechanism between 2018 and 2020. It is important to note that continued reduction in new building energy use and the increased use of renewable energy will need to continue for the next ten to fifteen years.

PAST, PRESENT AND PROJECTED GHGS FROM RESIDENTIAL, COMMERCIAL AND INDUSTRIAL BUILDINGS TO 2020
(Millions of Tonnes of CO₂e)



PAST, PRESENT AND PROJECTED GHGS FROM NEWLY CONSTRUCTED BUILDINGS TO 2020
(Kilograms of CO₂e Per Square Meter)



CONCLUSION

Vancouver has made significant strides toward improving the energy performance of new and existing buildings since GCAP was adopted.

Models indicate new one and two family homes produce half of the GHG emissions than they did in 2007. The majority of large new office and condominium towers are being built to achieve LEED Gold certification and many are starting to connect to low carbon neighbourhood energy systems.

The City has developed collaborative relationships with BC Hydro, FortisBC, Landlord BC, the Building Owners and Managers Association and many others to successfully encourage and support owners of existing buildings and homes to make improvements to reduce their energy costs and GHG emissions.

Despite many global award-winning successes, considerable additional effort will be required to achieve our GCAP Green Building targets and position Vancouver for a successful transition to 100% renewable energy.

COMMUNITY STORY

“This project is a visual realization that living with a smaller footprint does not require giving up enjoying your home. This project surprised us, as all utility items have been run by the installed solar rooftop panels with a produced net energy gain since May 2015”.

Larry Deschner

Laneway Home Resident



GREEN JOBS RELATED TO GREEN BUILDINGS

- Building commissioning agent
- Building operator
- Energy modeller
- Energy manager
- Green roof technician
- Green renovator and constructor
- Insulation specialist
- Energy-efficient lighting specialist
- Drafter and architect
- Weatherization specialist
- Policy analyst and researcher
- Educator

A RENEWABLE CITY: GREEN BUILDINGS

Buildings use 64% of all energy in Vancouver and natural gas is the predominant source of space heat and GHG emissions.

Before 2050 we will transition all new and existing buildings to 100% renewable energy.

A RENEWABLE CITY: 2050 PRIORITIES FOR GREEN BUILDINGS

2050 PRIORITY FOR LOW CARBON ENERGY SYSTEMS

- Expand existing and develop new Neighbourhood Renewable Energy Systems.

New high density neighbourhoods provide the opportunity to maximize clean energy systems, while also reducing overall demand on other parts of our energy system. On-site renewable energy ensures that growth in energy demand is manageable and does not require excessive changes to our current energy systems.

2050 PRIORITY FOR NEW CONSTRUCTION

- New buildings to be zero emission by 2030.

This will help ensure that new demand can be better managed and that there are still renewable energy resources such as clean electricity, waste wood and biomethane available to support other future needs such as space heating and clean transportation.

2050 PRIORITY FOR EXISTING BUILDINGS

- Retrofit existing buildings to perform like new construction.

This will keep improvements to energy efficiency in buildings from being limited to the timeframes on which buildings are replaced. This approach allows for a gradual improvement of individual buildings. Taken together, all existing buildings will improve faster than if they wait for replacement.

Refer to the Renewable City Strategy for more details on the longer term plans.

Passive House

Passive House is an energy efficient building design approach and a globally recognized certification system for near-net zero energy buildings. It applies to all forms of buildings and requires an 80-90% reduction in energy use for heating as compared to typical North American practices. Passive House buildings focus on great insulation, high performing windows, and good ventilation. They harness natural heating from sunlight to minimize the need for purchased energy. Passive Houses require quality craftsmanship and provide excellent comfort and indoor air quality for occupants while minimizing energy costs. In a Passive House, ten tea lights provide enough heat for a 200 square foot living room in the middle of winter!

When the City allows for increased development, like the three- to six-storey apartment buildings on Hastings Street or townhomes along Cambie Street, it requires developers to build to a green building standard of excellence. In addition to LEED Gold certified buildings, the City also recognizes Passive House certified buildings as a demonstration of real leadership in environmentally responsible design. Because of this requirement, increases in density in turn, make transit service and local shopping more viable for a community, and help to fund amenities like parks and community centers.





3/ GREEN TRANSPORTATION

**GOAL: MAKE WALKING, CYCLING AND PUBLIC
TRANSIT PREFERRED TRANSPORTATION OPTIONS.**

2020 TARGETS:

**1: MAKE THE MAJORITY OF TRIPS (OVER 50%)
BY FOOT, BIKE, AND PUBLIC TRANSIT. (ACHIEVED)**

Indicator: Percent mode share by walk, bike or public transit.

Baseline (2008): 40%

Actual (2011): 44%

Baseline (2013): 48%*

Actual (2014): 50%

**Note: Methodology updated in 2013.*

**2: REDUCE DISTANCE DRIVEN PER RESIDENT
BY 20% FROM 2007 LEVELS. (ACHIEVED)**

Indicator: Total vehicle km driven per person.

Baseline (2007): 5,950 km/person/year

Actual (2014): 4,680 km/person/year (-21%)

2040 TARGET:

MAKE AT LEAST TWO THIRDS OF ALL TRIPS BY FOOT, BIKE AND PUBLIC TRANSIT.

INTRODUCTION

How we move around a city makes a big difference to our quality of life.

The air we breathe, the amount of land we need, our physical health, and the cost of travel are all impacted by our transportation choices. Green transportation includes transit, as well as active transportation like walking and cycling. It is also about the places we see and the experiences we have on the way to our destinations.

To achieve the Green Transportation goal, we need to make Vancouver a city where moving on foot or by bike is safe, convenient, and enjoyable. Transit should be fast, frequent, reliable, accessible, and comfortable, getting you where you need to go when you need to get there. Streets, public spaces, and neighbourhoods should be vibrant places that are alive with people, plants, and activities.

LOOKING BACK: SUCCESSES, CHALLENGES, AND THE EXTERNAL LANDSCAPE

The Transportation 2040 Plan was created to build upon the direction and ideas generated during the Greenest City planning process. The plan reaffirms the GCAP mode share and distance driven targets, outlines a 2040 target for at least two thirds of all trips originating in the city to be made by foot, bike, and/or transit.

The City continues to be a leader in North America for sustainable transportation. As of spring 2015, 50% of all trips originating in the city are made by foot, bike, and/or transit. Between 2008 and 2014, the number of daily bike trips doubled from 50,000 to 100,000 per day.

The opening of the rapid transit Canada Line in 2009 increased transit use significantly. Land use and urban design also play an important part in these mode-share changes. We build walkable communities that are well served by transit and have taken a new approach to cycling with an increased focus on building low-stress bike routes that feel comfortable for people of all ages and abilities. Car sharing continues to expand, making it easier for people to embrace multi-modal “car-light” lifestyles that don’t require owning a car.

One million people will move to the region in the next 30 years — about 35,000 people per year. Without a significant increase in transit capacity, taking transit may not be viable and our mode share percentage could drop. Stable, long-term transit funding is required to continue the uptake in green transportation options.

Limited data availability and reliability can make it difficult to set the right targets and track progress. Current modelling tools leave much to be desired, especially for measuring and forecasting active transportation trips and GHG emissions. The City is continually refining its monitoring program, and is working with partners to improve data collection and forecasting tools in these areas.

MOVING FORWARD: PRIORITY ACTIONS

3.1: Improve walking and cycling infrastructure on the False Creek bridges and implement spot improvements throughout the existing walking and cycling networks.

Key projects in the next few years include upgrades to the False Creek bridges, potential changes to the Dunsmuir and Georgia viaducts to enhance walking and cycling, and spot improvements throughout the existing walking and biking networks.

3.2: Implement a Bike Sharing Program.

Bike share programs extend the reach of transit and walking trips while also providing people with a healthy transportation option.

3.3: Extend Millennium Line SkyTrain under Broadway to Arbutus Street.

By providing faster, more reliable, higher capacity service, the Broadway SkyTrain extension is expected to attract three times the riders of the 99 B-Line bus service today.

3.4: Implement transit improvements including new B-Line routes, more bus service and station upgrades.

Moving beyond the status quo to achieve regional transit mode share targets will require transit ridership to double. This is only possible with significant investment to increase transit capacity. Improvements will bring faster, more frequent, higher capacity, and more reliable service to many more people living and working in the city.

ADVOCACY

• Advocate the provincial and federal government for funding to improve transit.

In 2014, the region’s mayors worked together with TransLink and municipal staff from throughout the region to develop the Mayors’ Council Transportation and Transit Plan. The plan was approved almost unanimously and outlines benefits for all modes of transportation in every part of the region.

Timely implementation of this plan requires additional funding from all levels of government.

In early 2015, a regional plebiscite took place in which residents of Metro Vancouver were asked to vote for a 0.5% regional sales tax to help deliver the plan. Despite support from a broad coalition of organizations—representing local businesses, goods movement, emergency services, environmental stewardship, students, seniors, affordable housing, and others—the plebiscite did not

pass. However, dialogue around the decision indicates that most residents are strongly in favour of transit improvements in the city and region.

The City will continue to advocate stable, long-term funding sources from all levels of government. Staff are also actively pursuing other strategies to help fund the Millennium Line extension under Broadway, the City's top transportation priority.

PROJECTIONS TO 2020

MODE SHARE

The City is on track to surpass its original 2020 mode share target that at least half of all trips in the city are made on foot, bike and/or transit. This target was established using data from TransLink's regional trip diary to establish a baseline. According to this data source, overall sustainable mode share climbed from 40% in 2008 to 44% in 2011.

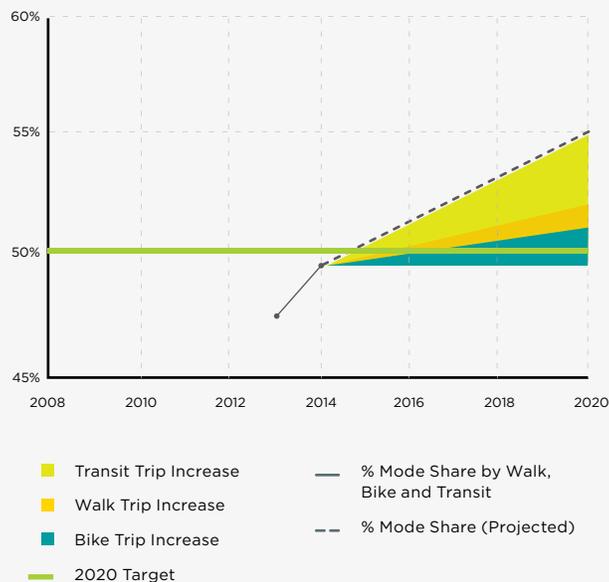
In 2014, the City began tracking mode share annually using a new methodology which is better at capturing walking trips. This new method indicates that about 50% of all trips in the city are currently made on foot, bike or transit. It's expected that with focused effort, this percentage can increase to 55% by 2020.

MODE SHARE IN VANCOUVER				
	Source: TransLink Trip Diary		Source: City of Vancouver Panel Survey	
	2008	2011	2013	2014
TRANSIT	22%	23%	18%	18%
WALK	15%	17%	26%	26%
BIKE	3%	5%	4%	5%
TOTAL	40%	44%	48%	50%

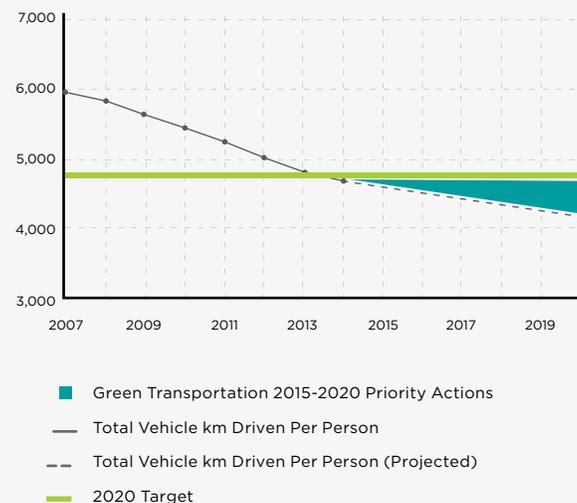
DISTANCE DRIVEN PER RESIDENT

We have already met our 2020 target to reduce distance driven per resident 20% from 2007 levels — from 5,950 km per year per resident in 2007 to 4,680 km per year per resident in 2014.

PAST, PRESENT AND PROJECTED MODE SHARE BY FOOT, BIKE OR TRANSIT TO 2020



PAST, PRESENT AND PROJECTED ANNUAL VEHICLE KILOMETERS DRIVEN PER PERSON TO 2020



CONCLUSION

As of 2014, both of the original GCAP transportation targets has been achieved.

Half of all trips in Vancouver are taken on foot, by bike or on public transit, and the average distance driven per resident declined 20% from 2007 levels. The Transportation 2040 Plan outlines a detailed path forward to achieve even more ambitious goals to reach our vision of a green, renewable transportation system. Moving forward, both major investments and small improvements are planned throughout the network to increase the capacity, safety, and flexibility of Vancouver's walking and cycling network.

The future of transit is less certain. Vancouver's system is well-used and largely at — and in some cases beyond — capacity, with significant latent demand. To reach our longer-term targets, secure long-term funding and support is required from other levels of government.

COMMUNITY STORY

“Vancouver is a beautiful city and I feel proud to help keep it that way. Walking to work is such a small thing that I can do every day to contribute to the initiative. On top of that, walking to work makes me feel healthier both in body and mind, and I am lucky enough to have a great view on the way!”

Chris Girard

Web Developer



GREEN JOBS RELATED TO GREEN TRANSPORTATION

- Public bicycle operator and technician
- Car-share manager and scheduler
- Transit operator
- Transportation engineer
- Road and public realm maintenance crew
- Policy analyst and researcher
- Educator

Good transportation systems are fundamental to the fabric of a vibrant city.

Currently, light-duty vehicles in Vancouver use over 347 million litres of gasoline each year, producing over 800,000 tonnes of carbon dioxide – that’s 36% of the city’s total GHG emissions.

Before 2050, the vast majority of trips in the city will be made by foot, bike or transit, and many of the remaining trips will be made using low or zero emissions vehicles.

A RENEWABLE CITY: 2050 PRIORITIES FOR GREEN TRANSPORTATION

2050 PRIORITY FOR LAND USE TO SUPPORT GREEN TRANSPORTATION

- Use land-use and zoning policies to develop complete compact communities and complete streets that encourage active transportation and transit.

Ensuring that land use and transportation work together is critical to achieving success since one drives the need for the other and vice versa.

Whether one walks, cycles, takes transit or drives — almost everyone is a pedestrian for at least part of each journey. Safe, comfortable sidewalks contribute to vibrant public spaces and are also key to achieving our renewable energy goal.

Making cycling a practical, convenient, everyday way of getting around for people requires direct, low-stress routes that link destinations, as well as safe places to park at the beginning and end of each journey.

2050 PRIORITY FOR TRANSIT

- Improve transit services as set out in Transportation 2040.

Transit is vital to our success as a multi-model city, complementing walking and cycling by extending travel range, linking neighbourhoods, and providing enhanced mobility for those who need it. High capacity rapid transit is particularly important to achieve our mode share targets, since it can effectively replace longer trips that would otherwise be made by driving.

2050 PRIORITY FOR PERSONAL MOTOR VEHICLES

- Transition light-duty vehicles (cars and light trucks) to be predominantly electric, plug-in electric, or sustainable biofuel powered.

Cars will continue to be an important part of our city for a long time to come, but as our population and job base continue to grow there simply isn’t road capacity for more vehicles. As we transition to a future less reliant on personal motor vehicles, it is important to use the road network as efficiently as possible and make use of clean renewable energy for vehicle trips that do take place.

2050 PRIORITY FOR COMMERCIAL TRANSPORT

- Better manage commercial vehicle journeys and transition heavy-duty (commercial) vehicles to sustainable biofuels, biomethane, hydrogen and electricity.

The efficient movement and delivery of goods and services is important at a variety of scales. At the local level, it is key to a thriving economy and high quality of life. At larger scales, it supports Vancouver’s role as a major port and Asia-Pacific gateway.

Refer to the Renewable City Strategy for more details on longer term plans.



4/ ZERO WASTE

GOAL: CREATE ZERO WASTE

2020 TARGET:

REDUCE SOLID WASTE GOING TO LANDFILL AND INCINERATOR BY 50% FROM 2008 LEVELS

Indicator: Annual solid waste disposed to landfill or incinerator from Vancouver.

Baseline (2008): 480,000 tonnes

Actual (2013): 394,600 tonnes

INTRODUCTION

Managing waste has become part of our daily routine.

From plastic packaging, to out-dated televisions and bins of debris outside construction sites, waste can seem like an inevitable result of how we live our lives. It doesn't have to be.

We need to think about waste differently. Our waste contains valuable, recoverable and recyclable materials that are a potential resource. Recovery, reuse and recycling can provide long-term benefits. We can recover materials from our waste stream to reduce the need to mine more metals from the earth or harvest more trees from the forest. As resources become scarce and ecosystems become more fragile, conserving and recovering what we already have becomes more important.

A zero waste future is not only possible, it's a critical part of solving today's climate crisis and addressing other environmental challenges. Methane is a powerful climate-altering GHG released when items like food scraps and grass clippings are buried in landfills and decompose anaerobically (without oxygen) instead of in their natural state through composting. Just as the transportation of goods produces GHG emissions, so does the transportation of waste as more and more trucks are needed to pick up and haul our garbage to landfills or incinerators.

LOOKING BACK: SUCCESSES, CHALLENGES, AND THE EXTERNAL LANDSCAPE

In 2008, residents and businesses in Vancouver sent approximately 480,000 tonnes of waste to landfill and incinerator. By 2013, the total amount decreased to approximately 395,000 tonnes of waste, a reduction of 85,000 tonnes of waste (-18%).

Over the last four years, the City introduced a new Green Bin program to collect and divert compostable food scraps. Starting in 2010, residents receiving City service were invited to add uncooked fruit and vegetable scraps to their Green Bin for biweekly collection with yard trimmings. In fall of 2012 all types of food scraps and food soiled paper products were added to the Green Bin collection program. Then, in 2013 the City switched Green Bin and garbage collection frequencies so that Green Bins are now collected every week and garbage is collected biweekly. In 2014, the City initiated programs to address recovery of food scraps from multi-family buildings and businesses. On January 1, 2015 a Metro Vancouver region-wide ban on the disposal of organic waste with garbage came into effect. The City supported the ban with a by-law requiring all properties in Vancouver to have an organic waste diversion plan, and the disposal ban is enforced at the City's disposal facilities.

An Extended Producer Responsibility (EPR) program for recycling packaging and printed paper from residential properties was launched by the Province in 2014. This increased the types of materials that can be recycled. EPR programs shift the burden of dealing with materials from taxpayers to producers and users of products. The producer becomes responsible for managing the environmental impact of their products across its whole life cycle, from the selection of materials and design to its end-of-life. EPR is a key tool to help close the loop between product production and disposal.

MOVING FORWARD: PRIORITY ACTIONS

4.1: Increase overall diversion of organics by continuing to support the expansion of food scraps recycling to all sectors and support Metro Vancouver's 2015 disposal ban on organic materials to landfill and incinerator through education and enforcement. 

This action involves providing outreach and support to multi-unit residential, commercial and institutional properties serviced by private waste haulers as they implement food scraps diversion programs. It also requires continuous improvement to existing organics diversion programs for single family and duplex homes and other properties receiving City collection service. It supports the highest and best use of compost from organics originating from all sectors.

4.2: Increase the diversion of wood waste from landfill and incineration by expanding the Construction and Demolition (C&D) Waste Diversion Strategy to increase reuse and recycling of C&D waste. 

About 34% of total waste disposed in Vancouver is comprised of construction and demolition materials. This action includes fully implementing green demolition policies aimed at achieving at minimum 75% recycling of demolition waste from pre-1940 homes, expanding the regulation to include demolition waste recycling requirements for all home demolitions regardless of age, and supporting Metro Vancouver's disposal ban on clean wood waste.

4.3: Reduce street litter and abandoned garbage in public spaces, including illegal dumping, and increase the diversion of these materials by implementing a comprehensive litter management strategy including an expanded Keep Vancouver Spectacular program.

This more visible activity is important for reinforcing and supporting the zero waste goals. Implementing this action will require stakeholder engagement, community support, and program partnerships. In addition, it will involve the exploration of new requirements targeting commonly disposed and difficult to recycle materials such as coffee cups and fast food packaging.

4.4: Support Metro Vancouver’s Zero Waste Challenge through the development of education and enforcement strategies for all sectors, with a focus on waste prevention and material reuse initiatives.

Waste minimization and reuse can prevent the generation of GHGs, create green jobs, and support the shift required to change behaviors. Capitalizing on the energy around food scraps recycling as a starting point can help to create awareness and action around reducing waste and consumption in general.

ADVOCACY

- **Advocate the provincial government to continue implementing EPR recycling programs, in accordance with the Canada-wide action plan for EPR, with specific focus on carpet, textiles, and furniture.**

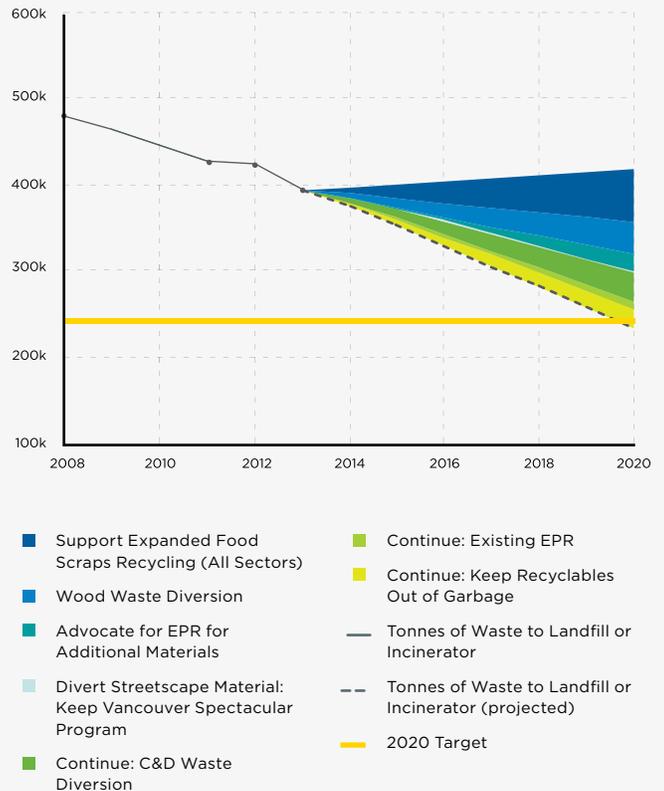
Under a Canada-wide action plan for EPR developed by the Canadian Council of Ministers of the Environment, the Province is committed to EPR programs for: electronics; hazardous wastes; mercury-containing products; automotive products; packaging; and printed paper (including materials recycled in existing curbside programs). Advocacy is needed to encourage the Province to move forward with program details for other items.

This action involves specific focus on new EPR programs covering carpet, textiles and furniture. With the development of EPR programs for these materials, we can expect to divert an additional 19,000 tonnes of material from disposal by 2020 based on regional waste data scaled to Vancouver and assuming a 75% capture rate.

PROJECTIONS TO 2020

The following projections reflect the updated priority actions described previously, as well as the initial actions described in the GCAP. Capture rates are uncertain and affect results of projections estimated.

**PAST, PRESENT AND PROJECTED WASTE TO LANDFILL OR INCINERATOR TO 2020
(Tonnes of Waste to Landfill or Incinerator)**



CONCLUSION

The priority actions identified for the Zero Waste goal represent important systemic and behavioural changes that are required to reach our targets.

With full engagement by all partners the actions are achievable and support the City's goal in moving toward a closed-loop, cradle-to-cradle economy where resources are put to the highest and best use.

The City is reaching the limits of what can be recovered from the residential portions of the waste stream through its own programs. Moving forward, we will need to focus on areas outside of our direct control such as regulatory processes and increased waste diversion within industrial, commercial, institutional, construction and demolition waste streams. Other areas of focus will include: ensuring compliance in all sectors; minimizing commercial waste leaving the regional waste management system to avoid disposal ban requirements; and improve the ability to accurately track solid waste flows and tonnages from all sectors.

COMMUNITY STORY

“We’re just getting started, but we’re excited about sharing knowledge in our community around there being more to zero waste than recycling. That’s where repair comes in—not everyone engages with zero waste, but everyone has had something break in their lives. We think it’s important to start a dialogue on the true meaning of zero waste and the actual problem we face as a society, which is overconsumption. We’ve been surprised by the repair skills that we’ve all personally learned in a short amount of time and the enthusiasm people have to teach others how to repair.”

Jessica Beketa, photographed with Karen Byskov, Jayde Chang, and Shea O’Neil

Repair Matters



GREEN JOBS RELATED TO ZERO WASTE

- Waste reduction consultant
- E-waste specialist
- Building deconstruction labourer
- Recycling facility operator
- Lending library staff
- Reuse centre staff
- Waste technician
- Waste collector
- Organic diversion specialist
- Recycling materials handler
- Supply chain manager
- Building manager
- Policy analyst and researcher
- Educator



WHAT IS EXTENDED PRODUCER RESPONSIBILITY (EPR)?

EPR requires companies to set up and pay for recycling programs for the products and packaging they make and sell. It's called extended producer responsibility because the responsibility of these companies, or producers, is stretched beyond the cash register to the waste phase of the product life cycle. As a policy approach, EPR provides incentives to producers to incorporate environmental considerations in the design of their products and packaging.

EPR has many goals. Ideally, it shifts the cost and responsibility of waste management from cities to companies and creates feedback loops that lead to greener design. Consumers pay up front, establishing a pool of funds that EPR programs use to pay for collection infrastructure and invest in the recycling industry. They also create greater transparency and accountability to ensure materials are managed safely and reduce the burden on taxpayers.

EPR is common in Europe, particularly for packaging and e-waste. Fortunately, BC is also a world leader in EPR, with progressive laws and policies that require EPR programs for a growing list that includes: packaging; beverage containers; electronics; batteries; light bulbs; thermostats; smoke alarms; tires; used motor oil; oil filters; gasoline; antifreeze; paint; pesticides; solvents; and medications. BC is also committed to developing EPR programs for textiles, carpet, furniture, and construction and demolition waste starting in 2017. These EPR programs are accountable to the BC Ministry of Environment and must publish annual financial and environmental reports that are vetted by third party auditors.

Every year, BC's EPR programs keep over 150,000 tonnes of resources out of landfills and incinerators, prevent GHG emissions equivalent to taking 38,500 cars off the road for a year, and save the energy equivalent of 440,000 barrels of oil. Some 2,400 jobs have been created province-wide to handle the \$40 million worth of materials collected through these programs. These benefits are expected to more than double by 2022 as EPR expands to new types of products and packaging.



5/ ACCESS TO NATURE

GOAL: VANCOUVER RESIDENTS ENJOY INCOMPARABLE ACCESS TO GREEN SPACES, INCLUDING THE WORLD'S MOST SPECTACULAR URBAN FOREST.

2020 TARGETS:

1. ALL VANCOUVER RESIDENTS LIVE WITHIN A FIVE-MINUTE WALK OF A PARK, GREENWAY OR OTHER GREEN SPACE.

Indicator: Percent of city's land base within a five minute walk to a green space.

Baseline (2010): 92.6%

Actual (2014): 92.7% (+0.1%)

2. PLANT 150,000 NEW TREES.

Indicator: Total number of additional trees planted.

Baseline (2010): 0

Actual (2014): 37,000

2050 TARGET:

INCREASE CANOPY COVER TO 22%.

Baseline (2013): 18%

Note: Development of a biodiversity target is currently underway.

INTRODUCTION

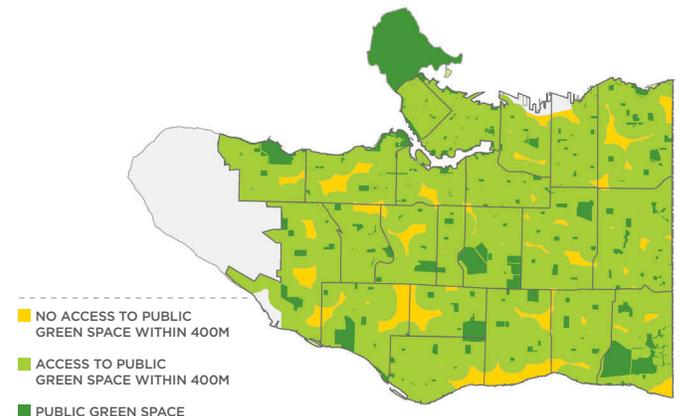
Just over a hundred years ago, Vancouver had western redcedar and Douglas-fir forests growing hundreds of feet tall.

Today, the beauty of the natural world continues to influence Vancouver's identity and contribute to our reputation as one of the world's most livable cities.

Anyone who has walked through a park on the first sunny day of spring has experienced the importance of green spaces to the health of individuals and communities. Whether they take the form of a community garden, a city park, a greenway along your block, or the seawall, green spaces have been shown to benefit our physical and emotional health by reducing blood pressure, cholesterol, and stress.

These spaces also contribute to our sense of community by creating places for recreational activities, for children to play, and for neighbours to meet and socialize.

VANCOUVER ACCESS TO PUBLIC GREEN SPACE



LOOKING BACK: SUCCESSES, CHALLENGES, AND THE EXTERNAL LANDSCAPE

Canopy cover, the area of the city covered by trees as seen from the air, is commonly used by cities to measure the health of the urban forest and the benefits it provides (such as air quality and rainwater absorption). Over the last two decades, Vancouver's tree canopy declined to 18% coverage. In early 2014, an Urban Forest Strategy Framework was adopted with a goal of growing Vancouver's canopy back to 22% by 2050, consistent with goals established in many other North American cities. Achieving this goal involves tree retention, species selection, climate adaptation, and long-term planning and maintenance. Long term plans for street tree succession, forest naturalization in parks, and planting more trees on private property are currently being developed.

Since 2013, the TreeKeepers Program has supported private property planting through a Citizen Forester training program, a junior Citizen Forester program delivered in several Vancouver schools, a robust volunteer training and management program, and the production of educational materials. To date, 37,000 of the targeted 150,000 trees have been planted on streets, in parks, and on private property.

Converting street right-of-ways to mini-parks was explored as an option for increasing green space. While significant support was identified in some locations tested, the projects did not proceed due to strong opposition from some nearby residents or businesses. At Yukon Street and 17th Avenue a corner lot has been purchased where a full/partial street closure will be piloted in conjunction with a new park. This approach had a successful start and may be replicated in areas of the city where people do not have access to a park within a five-minute walk of their home.

The original GCAP targets focused on the quantity of green space. The Park Board has made additional plans and goals to further enhance the quality of Vancouver's natural spaces. Plans include: Rewilding Vancouver: An Environmental Education and Stewardship Action Plan (2014); The Vancouver Bird Strategy (2015); and a Biodiversity Strategy (under development) that establish targets, principles, practices and actions in support of habitat protection, restoration and enhancement.

The Park Board works to ensure the Access to Nature goals are met. Vancouver is the only municipality in Canada with an elected park board, the Vancouver Board of Parks and Recreation that operates independent of City Council. It has exclusive possession, jurisdiction, and control over more than 230 public parks in Vancouver and a large public recreation system.

MOVING FORWARD: PRIORITY ACTIONS

5.1: Complete the new park at Yukon Street and 17th Avenue.

Recent completion of local community plan made the installation of new green space a high priority. The project has a side benefit of traffic calming on the Yukon bike route

5.2: Acquire four hectares of park land at Cambie Street and the Fraser River.

This will address the lack of access to nature in this neighbourhood and increase access to the Fraser River, which has been identified as a long-term City priority.

5.3: Realize a new -ten hectare park system in East Fraserlands.

The park system achieved through this redevelopment has been underway for many years. It will improve accessibility to nature within a five-minute walk of many residents, provide greatly improved access to the Fraser River, and include a focus on providing habitat for birds.

5.4: Strategically expand private property, street and park tree planting.

Priority planting locations will consider existing gaps in city-wide canopy, potential benefits for vulnerable populations, areas of high urban heat, walkability/liveability of commercial and neighbourhood streets, food security, biodiversity, park naturalization, and many other considerations.

5.5: Create a new inventory system for trees on City land.

The current system, VanTree, is nearing the end of its useful life and is only capable of holding an inventory of street trees. To better quantify the urban canopy we need a system that inventories all publicly managed trees.

5.6: Update tree management plans, planting standards, and best practices.

This will ensure Vancouver's management practices result in long term urban forest health and decreases conflicts with other priorities.

5.7: Develop additional policies and decision-making criteria to retain healthy, mature trees.

Policies must be developed to ensure retention of large, healthy trees on private land, as a decline in canopy is associated with a decline in benefits such as the filtering of air pollutants.

COMMUNITY STORY

“From a young age, nature has been really important to me. Over the years, I have taken hundreds of thousands of photos of nature, particularly birds. So many people are stuck in busy city lives, and never get the chance to see or appreciate the incredible natural world. By sharing my work online, I hope to give people from Vancouver and beyond the chance to see how incredible the natural world is. Once they have seen the beauty of it, there is a larger chance they will want to protect it. The number of people that have seen my photos has really surprised me on one particular social media site called Flickr, my photos have nearly two million views and counting.

Since I’m 14, I will get the opportunity to see Vancouver in the decades to come, and I hope that it will stay at least as green as it is right now.”

Liron Gertsman

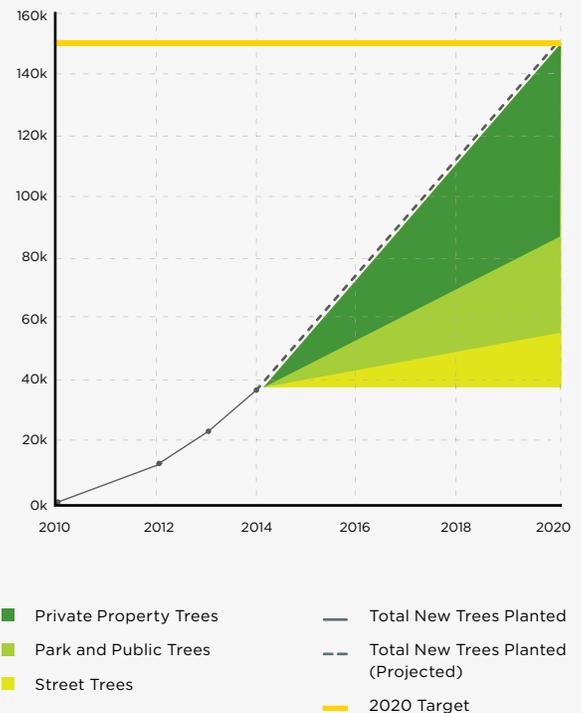
High School Student, Bird Photographer



PROJECTIONS TO 2020

The following projections reflect the updated priority actions described previously, as well as the initial actions described in the GCAP. It includes private property tree planting, park and public trees, and street trees.

PAST, PRESENT AND PROJECTED NUMBER OF NEW TREES PLANTED TO 2020
(Total New Trees Planted)



CONCLUSION

While there has been considerable success in the number of trees planted to date, additional effort is needed to meet our 2020 target, particularly on private land.

The Urban Forest Strategy Framework provides tools for growing and maintaining a healthy, resilient urban forest for future generations. Both canopy cover and the number of trees should be considered as measures of the health of the urban forest.

New park space continues to be acquired and alternative models are being applied to decrease the distance between residents and green space. Increasing Vancouver's natural spaces also provides important added ecosystem services, such as stormwater drainage and shoreline protection, on which the city depends. These are increasingly important as we deal with more intense weather events due to climate change.

COMMUNITY STORY

“Through street art and neighbourhood dialogues, the Rainway Project reconnects us with the local salmon streams that are now buried under concrete and piped into sewers. This journey of reconnecting to the local watershed needs to also become a journey of reconciliation.”

Rita and Shahira

The Rainway Project



GREEN JOBS RELATED TO ACCESS TO NATURE

- Habitat restoration specialist
- Tree planter/landscaper
- Arborist
- Integrated pest management
- Landscape architect
- Contractor/labourer
- Policy analyst and researcher
- Educator

THE VALUE OF TREES AND OTHER NATURAL INFRASTRUCTURE

Ecosystems like forests and wetlands provide many essential services — including flood control, water purification, and temperature control. To ensure these ecosystem functions and associated benefits continue, cities can integrate networks of natural lands, working landscapes, and other open spaces as “natural infrastructure.”

Here are just a few examples of the role natural infrastructure plays:

- **Clean air and water.** Plants, trees, and soil filter out many pollutants that would otherwise go into our air and water.
- **More natural space means less stormwater runoff.** A single mature tree can intercept more than 15,000 litres of water a year, lowering city infrastructure costs.
- **Enhanced quality of urban life.** Studies show areas with trees have lower crime rates than barren places.
- **More habitat space.** Natural spaces provide homes and food for millions of organisms above and below the ground.
- **New food opportunities.** People have been known to forage in our urban forests and fish in our local waters. Fruit trees have a role to play in food secure communities.
- **Lifted spirits.** Nature can help us relax and feel calm.





6/ CLEAN WATER

GOAL: VANCOUVER WILL HAVE THE BEST DRINKING WATER OF ANY CITY IN THE WORLD.

2020 TARGETS:

1. MEET OR BEAT THE STRONGEST OF BRITISH COLUMBIAN, CANADIAN OR APPROPRIATE INTERNATIONAL DRINKING WATER QUALITY STANDARDS AND GUIDELINES.

Indicator: Total number of instances of not meeting drinking water quality standards.

Baseline (2006): 0 instances

Actual (2014): 0 instances

2. REDUCE PER CAPITA WATER CONSUMPTION BY 33% FROM 2006 LEVELS

Indicator: Total water consumption per capita.

Baseline (2006): 583 L/person/day

Actual (2014): 490 L/person/day (-16%)

INTRODUCTION

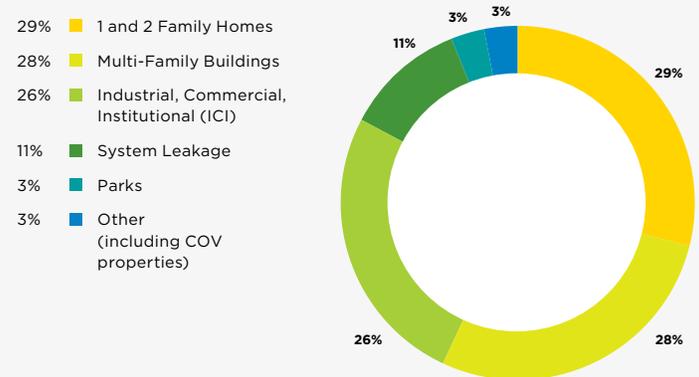
In Vancouver, it can be easy to take our high-quality and abundant drinking water for granted.

Not only are we next to the Pacific Ocean, but fresh water is all around us: the Fraser River; many mountain lakes; and significant seasonal annual rain fall.

However, a growing population, thriving economy and climate change will place a greater demand on our drinking water in the future. The drinking water for our region's 2.4 million residents comes from reservoirs that are fed by a watershed drainage area spanning 524 square kilometers. Rainwater and snow pack melt funnel through streams in the catchment area and flow into the reservoirs. Expected impacts of climate change, such as reduced snow pack and drier summers, will reduce this supply.

Together, the City of Vancouver and Metro Vancouver are responsible for ensuring that current residents and future generations continue to have access to clean drinking water.

VANCOUVER WATER USE BY SECTOR (2014)



LOOKING BACK: SUCCESSES, CHALLENGES, AND THE EXTERNAL LANDSCAPE

Vancouver continues to meet or beat drinking water quality standards and guidelines. The City has worked to ensure public access to drinking water, focusing on areas of greatest need, leading and advocating through partner agencies for proactive water system renewal and monitoring, and creating environmentally friendly drainage systems.

Vancouver's water consumption reductions between 2006 and 2014 were accomplished through fixture retrofits (as part of incentive programs and as required through Vancouver Building By-Law), seasonal water pricing policies, lawn sprinkling regulation enforcement, educational programs and pilot programs, for multi-family buildings, irrigation businesses, and the industrial, commercial and institutional (ICI) sector.

Per capita annual savings across all sectors have averaged approximately 2% per year since 2006. This observed trend is consistent with what has occurred in many Canadian communities with similar conservation programs. Water consumption in 2014 was atypical of the last decade, with an increase of 4% over 2013 levels. Analysis revealed that the increase is primarily due to increase in water use of ICI customers. Challenges for water conservation in Vancouver include low cost of water, the lack of conservation-oriented pricing in the metered sectors, and a misperception of abundant water supply.

MOVING FORWARD: PRIORITY ACTIONS

6.1: Include testing from drinking water fountains in the City's routine water quality monitoring program.

The City owns a vast network of water mains and over 250 public drinking water fountains. Pro-active monitoring helps ensure high quality drinking water throughout this system and provides an additional safeguard for public health.

6.2: Reduce institutional, commercial and industrial (ICI) water consumption through policy and compliance measures.

The recent trend of increased water consumption within ICI is partly a result of economic growth. Within this reality, the priority is to increase water efficiency retrofits, change behaviour, and prevent water waste through leaks. This is a mutually agreeable strategy which will help ICI customers control their water costs while reducing total per capita use and prolonging the life span of the source waters

6.3: Reduce residential water consumption through incentives, education and compliance measures.

Despite warmer and drier than usual summers when discretionary water use is typically high, consumption trends have remained relatively flat over the last couple years. This success is attributed to the heavy focus of past program efforts in this sector. Continuing to educate on the need for water conservation and enforcing lawn sprinkling regulations will help achieve further water savings.

6.4: Reduce water system loss and civic use.

Unmetered, non-revenue water makes up 17% of total city-wide water use and includes distribution system leakage, civic uses (i.e., hydrants and water main maintenance), and water used in unmetered civic buildings and parks. Although this is comparable to other well-run utilities there is room for improvement.

Protecting Local Waters

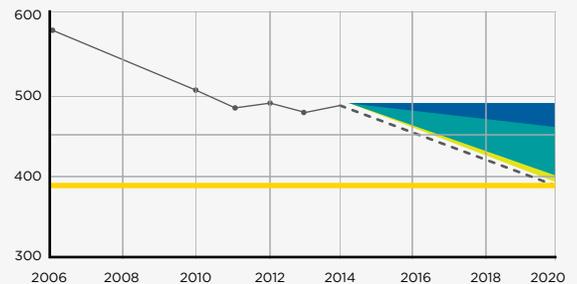
While outside of the scope of the work needed to meet the Clean Water targets, we are also protecting receiving waters as part of our obligation through the Metro Vancouver Integrated Liquid Waste and Resource Management Plan. These receiving waters support sensitive aquatic habitats and are a recreation outlet for many residents. We are replacing existing combined sewer systems with a separated sewer system to eliminate combined sewer overflows, administering and enforcing municipal and regional liquid waste source control by-laws and programs to restrict contaminants from entering receiving water bodies, and working with industry sectors to manage water pollution.

The City also continues to work on a Citywide Integrated Rainwater Management Plan and in partnership with the Musqueam First Nation's Musqueam Creek Integrated Rainwater Management Plan. These plans will identify opportunities and tools to respond to contaminant concerns from road and urban surface runoff, resulting in a reduction of pollutants like oil, grease, and sediment from reaching receiving waters.

PROJECTIONS TO 2020

To reach the GCAP target of 390 liters of water per person per day, an additional 17% reduction is required. The projected water consumption chart indicates that required reduction is achievable through the suite of programs and policies identified in the outlined actions.

**PAST, PRESENT AND PROJECTED
WATER CONSUMPTION PER CAPITA
(Total Water Consumption Per Capita In Litres Per Day)**



- Reduce Water Consumption in ICI Sector
- Reduce Water Consumption in Residential Sector
- Water System Losses and Management; Civic Uses
- Total Water Consumption Per Capita (L/person/day)
- - - Total Water Consumption Per Capita (L/person/day) (Projected)
- 2020 Target

CONCLUSION

The City must continue rigorous testing of the drinking water in distribution systems to ensure we keep our high standard and maintain public confidence in our drinking water.

The public must also have access to drinking water throughout the City through thoughtful installations of well-maintained drinking water fountains.

The proposed programs were reviewed by an external professional to ensure they are robust and mature compared to other cities leading in conservation policy. In the past four years, the City has launched programs for the residential sector (with a focus on outdoor water use), delivered pilot scale fixture retrofit and audit programs, and leveraged partnerships with utility companies. Building on the lessons learned from the pilots, the City will lead the implementation of additional sector-specific programs.

The City will also evaluate funding options including conservation pricing models for our fully metered sectors.

Vancouver has excellent water quality, but we will need to be vigilant if we want to ensure our current water supply meets the increasing pressures of climate change, population growth and a growing economy. Future programming will have a greater focus on ICI water use, including water efficiencies in parks and civic properties. Now is the time to focus our water conservation efforts.

COMMUNITY STORY

“I co-founded Youth4Tap to promote tap water. A year later, we had eliminated bottled water from our school vending machines, installed three water refill stations, educated over 3,000 people and had grown to a city-wide movement. It’s amazing how far a small idea can take you.”

Tesicca Truong

Student



GREEN JOBS RELATED TO CLEAN WATER

- Programs manager
- Municipal water utility operator
- Policy analyst and researcher
- Educator
- Engineering assistant
- Water sampler
- Water quality program coordinator



CLIMATE CHANGE AND WATER SUPPLY

Drinking water is provided to the region by two protected freshwater lakes in the North Shore mountains and one in Coquitlam. Despite projections of over a million additional people in the region and more than 600,000 new jobs by 2050, these sources are expected to provide adequate water. However, climate change may threaten the rainfall and snowfall patterns that supply these watersheds.

Expanding the water supply or finding a new one is financially and ecologically expensive. Conservation is the best way to live within our means and avoid the need for source expansion.



7/ LOCAL FOOD

GOAL: VANCOUVER WILL BECOME A GLOBAL LEADER IN URBAN FOOD SYSTEMS.

2020 TARGET:

INCREASE CITY-WIDE AND NEIGHBOURHOOD FOOD ASSETS BY A MINIMUM OF 50% OVER 2010 LEVELS.

Indicator: Total number of neighbourhood food assets in Vancouver.

Baseline (2010): 3,340 food assets

Actual (2014): 4,556 food assets (+36%)

INTRODUCTION

Food matters. Like water and air, we can't live without it.

What and how we eat can be a daily reminder of our interconnection with the earth's natural systems and with each other.

Food systems—the way we grow, process, transport, and consume food—have been central to the sustainability of communities for millennia. The fossil fuels used to transport mangos from Mexico, the energy used in cooling systems for food storage, and the amount of

land used to feed animals and produce meat and dairy products all consume resources and produce waste. In fact, food represents one of the largest sources of GHG emissions. It also accounts for almost half of our ecological footprint if emission calculations are extended to include factors related to food.

For more than a decade, the City of Vancouver has been working in partnership with the Vancouver Food Policy Council (a residents advisory council) and countless community organizations to support a just and sustainable food system. Food is an issue that galvanizes communities and catalyzes action like few other topics can. In fact, citizen interest in community gardens, farmers markets, urban farming, beekeeping, and other community food projects has never been greater.

VANCOUVER'S PUBLIC LOCAL FOOD ASSETS: BY THE NUMBERS

INDICATOR	2010 BASELINE	2015 ACTUAL	2020 GOAL
Community Garden Plots	3,260	4,450	5,500
Urban Orchards	3	43	60
Urban Farms (Businesses)	1	18	35
Farmers Market	4	11	22
Community Food Market	3	14	20
Community Kitchens	69	69	80
Community Composting	0	3	5
Food Hub	0	0	1
TOTAL	3,340	4,608	5,158

LOOKING BACK: SUCCESSES, CHALLENGES, AND THE EXTERNAL LANDSCAPE

There has been considerable growth in interest in the local food movement in recent years; citizens are eager to buy, grow and be involved with sustainable and local food.

In 2013, the Vancouver Food Strategy was adopted, providing the City with a comprehensive road-map for action to create more sustainable food systems. The goals outlined in the Vancouver Food Strategy express how we want our food systems to take shape in the future, including supporting food friendly neighbourhoods, empowering residents to take action, improving access to healthy food, and making food a centrepiece of the green economy. The Park Board also passed the Local Food Action Plan (LFAP) in July 2013 to support local food efforts in parks and community centres.

Community and collaborative garden plots and other urban agriculture projects continue to increase on Park, City, and non-City land. We have streamlined the application process and license agreements across departments and increased outreach to solicit ideas for urban agriculture locations and projects. Over the summer of 2014, funds were provided to over 35 gardens to improve and upgrade infrastructure and material at their gardens. We are increasing our efforts to engage with diverse ethno-cultural groups, exploring diverse garden types, and creating engaging, welcoming and beautiful spaces. Citizens are also taking initiative and developing urban agriculture projects at schools, churches, co-ops and non-profit spaces.

Farmers markets are expanding, increasing their reach, and growing their impact on families and farmers thanks to updated and streamlined policies and guidelines. Community food markets, which provide fresh affordable foods to people who may not be able to shop at a farmers market, have doubled in number and contribute positively through access to healthy and affordable foods in neighbourhoods.

The Vancouver Food Policy Council continues to play a seminal role in acting as convenor and connector and providing a forum for sustainable food related conversations. Likewise, the Park Board's Sustenance Festival each October raises awareness and celebrates the sustainable food movement in Vancouver.

MOVING FORWARD: PRIORITY ACTIONS

7.1: Adopt and implement urban farming policy to further enable commercial food production in the city and increase the number of urban farming businesses from 18 to 35.

There are no policies or regulations to govern emerging urban farming activity. Creating an urban farming policy and guidelines will create a consistent approach to urban farming inquiries, a clear regulatory process, and guidance on best practices.

7.2: Increase the number of farmers markets from 11 to 22 and community food markets from 14 to 20.

Farmers markets and community food markets benefit producers by providing reliable market outlets, supporting local green jobs, providing opportunities for farmers to connect directly with consumers, and reducing transportation and packaging requirements. Consumers benefit by getting to know their food producers and processors, and improved diet and nutrition via access to fresh food.

7.3: Increase number of community garden plots from 4,423 to 5,500 and community kitchens from 69 to 80 with particular emphasis on encouraging broader participation by ethno-cultural groups.

A large number of community garden and kitchen programs have been developed independently of the City's involvement, with positive impacts for individuals, families and communities. Moving forward, additional resources may be allocated to gardens on non-City land to capture the enthusiasm of non-profit organizations.

7.4: Support the Food Bank in their relocation to a new facility and incorporate components of a food hub as envisioned in the Vancouver Food Strategy.

Securing a long-term building and location will allow the Food Bank to scale up operations and focus on priority initiatives and services for individuals and their families while increasing the number of food assets in Vancouver.

ADVOCACY

- **Advocate the provincial government for the preservation and enhancement of the Agricultural Land Reserve (ALR) to protect sustainable food production and to support local economic development.**

Ensure that Metro Vancouver, and other municipalities in the region are preserving and enhancing the ALR through the Regional Growth Strategy and other planning policies that protect the agricultural and industrial land that is important for food processing, storage and distribution facilities.

- **Support the provincial government in creating a comprehensive anti-poverty program that brings attention to the links between food, health and income.**

Shelter and food costs have risen significantly over the past decade. However, income assistance rates have remained virtually unchanged. Even when earning more than minimum wage, families have limited resources for other necessities after paying for both shelter and healthy food. It is well documented that income is closely tied to health. Low-income residents spend less on food, eat fewer servings of vegetables, fruit, and milk, and are less likely to get the nutrients they need for good health.

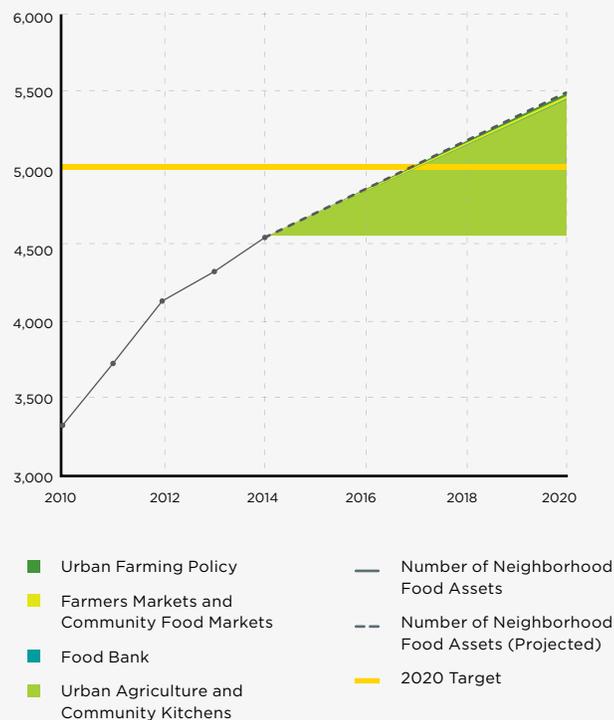
- **Advocate a National Food Strategy based on the goals of a just and sustainable food system.**

This includes reducing hunger, increasing healthy and safe food, shifting to ecological production and promoting food issues as a key component to health, nutrition, education and housing policies and plans.

PROJECTIONS TO 2020

The Local Food goal to increase city-wide and neighbourhood food assets by a minimum of 50% over 2010 levels will most certainly be met and exceeded well in advance of the 2020 target. The largest contributor to the goal is urban agriculture and community garden plots, which continue to increase with the streamlined application process and license agreements across departments. Food assets such as farmers markets and community food markets are also increasing.

PAST, PRESENT AND PROJECTED
NEIGHBOURHOOD FOOD ASSETS TO 2020
(Number of Food Assets)



CONCLUSION

There has been considerable growth in interest in the local food movement in recent years.

Citizens are eager to buy, grow, and be involved with sustainable and local food. Vancouver has demonstrated a willingness to develop policy and initiatives that foster and promote sustainable food systems. The Vancouver Food Strategy and the Parks Board Local Food Action Plan provide the framework and guidance to implement achievable actions. With support across the organization and successful partnerships with non-profit, business, and other levels of government, together we are building a healthy, just and sustainable food system.

Creating a Healthy, Just, and Sustainable Food System

The City is working to create healthy, just and sustainable food system. This will have many environmental, social and economic benefits.

Increasing local and sustainably produced food will mean:

- reducing or eliminating pesticides, fertilizers and hormones
- ensuring safe and fair working conditions for farm workers
- providing humane conditions for animals
- protecting and enhancing habitat and biodiversity
- reducing energy consumption and polluting emissions in food production, processing, distribution and waste management

Reference: Vancouver Food Strategy (pg. 9)

COMMUNITY STORY

“The Hua Foundation’s Choi Project aims to put healthy, local, real food back on the Chinese dinner table. We work with growers, independent green grocers, and traditional style restaurants to highlight, increase the usage of, and create more access to local and sustainable food options that are also culturally relevant. In addition to our business partners, we engage community members through cooking and growing workshops to increase food literacy and pass on basic skills around food.”

Kevin Huang

Hua Foundation



GREEN JOBS RELATED TO LOCAL FOOD

- Urban farmer
- Urban beekeeper
- Farmers market coordinator
- Commercial food recovery coordinator
- Community kitchen operator
- Restaurant manager with a focus on local and sustainable food
- Local food processor
- Horticulturalist
- Local food retailer
- Policy analyst and researcher



FOOD ASSETS

Food assets are community infrastructure that improve people's access to healthy, local food. This includes community garden plots, farmers markets, community orchards, community composting facilities, community kitchens, community food markets, and urban farms.



8/ CLEAN AIR

GOAL: BREATHE THE CLEANEST AIR OF ANY MAJOR CITY IN THE WORLD.

2020 TARGET:

ALWAYS MEET OR BEAT THE MOST STRINGENT AIR QUALITY GUIDELINES FROM METRO VANCOUVER, BRITISH COLUMBIA, CANADA AND THE WORLD HEALTH ORGANIZATION.

Indicator: Total number of instances of not meeting air quality standards for ozone, particulate matter (PM2.5), nitrogen dioxide and sulfur dioxide from both the Kitsilano and Downtown air quality monitoring stations combined.

Baseline (2008): 27 instances

Actual (2014): 0 instances

INTRODUCTION

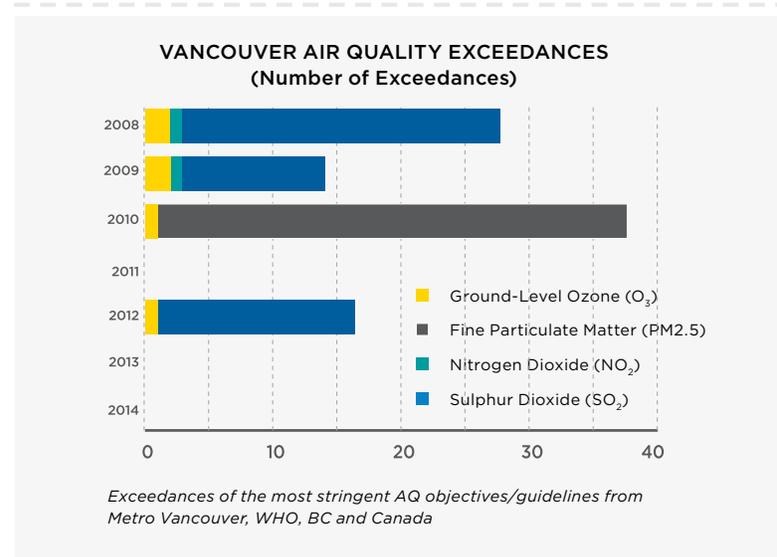
Breathing might be one of the most natural things we do.

We move air in and out of our lungs anywhere from 720 to 1,200 times an hour. Clean air can be easy to take for granted, even though it has a huge impact on our health and well-being.

The quality of our air affects the health of everyone in our community, particularly young children, pregnant women, seniors, and other vulnerable populations. Although Vancouver enjoys relatively clean air compared to other major North American cities, even low levels of particulate matter, sulphur dioxide, nitrogen dioxide and carbon monoxide can negatively impact our health.

A growing Vancouver could lead to more air pollution through exhaust from trucks, buses, ships, trains, planes, and industrial operations. It will take work to accommodate a growing population and economy while improving our air quality.

In addition, warmer, drier summers are expected in Vancouver due to our changing climate. These conditions will likely lead to an increase in forest fires in region, the smoke from which will have impacts to Vancouver's air quality.



Clean Air, Let's Keep It

Vancouverites breathe some of the cleanest air of most of our urban counterparts. This is something that's easy to take for granted.

Many major world cities like London and Paris have recently had very serious air quality issues. In 2015, London issued an advisory for the public to reduce physical activity and Paris implemented limited vehicle traffic to the city centre.

As our population and economy grow, we need to work to protect our air quality. While the City continues to work with other levels of government on areas like emission standards and enabling the shift to electric vehicles, you can avoid wood burning appliances, use VOC-free paints and cleaning products, and increase the number of trips you take on foot or by bike instead of by car.

LOOKING BACK: SUCCESSES, CHALLENGES, AND THE EXTERNAL LANDSCAPE

Vancouver's air quality is good in comparison to other major North American cities and better than it was 25 years ago. However, health impacts still occur at current pollutant levels. Pollutant sources in Vancouver are part of a complex picture that includes many stakeholders. The most significant sources of regional air pollution are: vehicles; industrial operations; agricultural operations; homes and marine vessels. Significant pressures on air quality within Vancouver include: a growing population; large planned industrial projects in the region; the expansion of port facilities and increased tanker traffic to support oil pipelines.

Metro Vancouver is mandated by the Province to manage air quality within the region through the Integrated Air Quality and Greenhouse Gas Management Plan. Metro maintains a network of 28 permanent air quality monitoring stations including two within City of Vancouver limits: one downtown and one in Kitsilano.

The City's action to establish a framework for the integration of air quality considerations into city planning has been expanded upon by Metro Vancouver. It now includes health considerations that go beyond air quality. Two documents will aid this planning effort: the Health Impact Assessment Guidebook for BC's Lower Mainland and the City of Vancouver's Healthy Cities Strategy. These documents now supersede the original high-priority action to develop an air quality protection plan that supports Metro Vancouver planning.

Significant improvements can be made to air quality by reducing car trips and increasing how much we walk, bike and use public transit. Where personal vehicles are used, shifting to low or zero emission vehicles, such as electric vehicles (EVs), can provide significant air quality benefits. Wood burning appliances are also a particular concern, and we support Metro's ongoing woodstove exchange program.

New regulations from the International Maritime Organization limit the sulphur content of ships' fuel to 0.1%, one-tenth the previous limit. Sulphur dioxide (SO₂) emissions are controlled entirely by fuel quality, and the change in IMO standards will support the ongoing downward trend in SO₂ concentrations. Metro Vancouver is also developing new SO₂ objectives to replace those that were based on health science from the 1970s. In fact, Metro Vancouver's board adopted a more stringent SO₂ objective in May 2015, in advance of a more stringent set of federal objectives. These more protective objectives may increase the number of exceedances

reported in future years, but that does not necessarily mean air quality has become worse.

The City does not have jurisdictional control over port operations, where much of the industrial development is expected to take place, and as such, the City works with the Port Authority and Port Metro Vancouver to influence its actions.

MOVING FORWARD: PRIORITY ACTIONS

8.1: Work with Metro Vancouver to ensure there are at least two permanent air quality stations within city limits.

While it is not possible to directly assess the impact that increasing or decreasing the number of stations would have on the number of exceedances, without a complete network of air quality stations it will be impossible to inform the public about air quality and issue appropriate advisories.

8.2: Develop an electric vehicle (EV) infrastructure strategy to support EV uptake.

People want to charge EVs in variety of places. Without the ability to charge electric vehicles at home, work and 'on the go,' EVs will not be used on a wide enough scale to maintain our air quality and realize large reductions in GHG emissions.

8.3: Investigate labeling gas pumps for their GHG and air quality impacts.

Making sure that the public understands the impact that gasoline and diesel fumes have on the environment is the first step toward having people better manage fuel handling. Providing this information at the source is the quickest way to have an immediate effect.

8.4: Work with Metro Vancouver to ensure air quality data and information is available for sources and locations across the city.

This can be done through the collection and analysis of local data and data which replaces that lost through the discontinuation of AirCare. Without such data, it will be impossible to record progress or develop new policies for air quality improvement.

ADVOCACY

- **Advocate provincial government to introduce Right-To-Charge provisions under the Strata Property Act, the Residential Tenancy Act and other housing-related legislation as necessary to guarantee residents access to home EV charging.**

Current legislation allows strata councils and landlords to block the installation and/or use of EV charging equipment in multi-family buildings. Since over 60% of Vancouver's residents live in multi-family buildings, Right-to-Charge rules will open up significant opportunities for EV uptake.

- **Advocate provincial government to make changes to the Utilities Commission Act to enable the resale of electricity for electric vehicle use.**

Current restrictions on the resale of electricity limit business opportunities that arise through the installation of EV charging stations. Making changes to the Utilities Commission Act to allow public EV station owners to charge a fee for the electricity is likely to be the single biggest move to speed the installation of public charging in BC.

- **Advocate provincial government to make tougher in-use diesel engine standards.**

Diesel engines are a significant source of particulate matter (PM). To reduce the health impacts caused by the inhalation of PM it is imperative that efforts are increased to accelerate the replacement, retirement, or retrofit of older diesel engines and address vehicles of any age that are emitting excessively due to poor maintenance or tampering of emission control systems.

- **Advocate Metro Vancouver and the federal government to set tougher sulphur dioxide (SO₂) and PM 2.5 objectives.**

New international regulations on the sulphur content of fuels for large marine vessels are expected to yield significant improvements, however, these improvements will be countered by an increase in the volume of marine traffic and continued emission from other sources. As such, tougher SO₂ objectives for the region must be set if air quality is to be maintained.

Particulate matter measuring less than 2.5 microns ("PM2.5") has significant impacts on human health, including heart disease. PM2.5 levels are impacted by diesel fuel combustion from both road transportation and marine transportation. While newer engines have significantly improved PM2.5 emissions, increases in marine traffic and/or vehicle traffic could negate these improvements. The City will advocate Metro Vancouver and the Federal Government to tighten PM2.5 objectives.

HOW VANCOUVER IS ADDRESSING AIR POLLUTION

PRIORITY ACTIONS 2015-2020	CO	PM	NO ₂	SO ₂	VOCs
Work with Metro Vancouver to ensure there are at least two permanent air quality stations within city limits.	•	•	•	•	•
Develop an electric vehicle (EV) infrastructure strategy to support EV uptake.	•	•	•		•
Investigate labeling gas pumps for their GHG and air quality impacts.					•
Work with Metro Vancouver to ensure air quality data and information is available for sources and locations across the city.	•	•	•	•	•
ADVOCACY ACTIONS					
Advocate the provincial government to introduce Right-To-Charge provisions under the Strata Property Act, the Residential Tenancy Act and other housing-related legislation as necessary to guarantee residents access to home EV charging.	•	•	•		•
Advocate the provincial government to make changes to the Utilities Commission Act to enable the resale of electricity for electric vehicle use.	•	•	•		•
Advocate the provincial government to make tougher in-use diesel engine standards.		•	•		
Advocate Metro Vancouver and the federal government to set tougher sulphur dioxide (SO ₂) and PM 2.5 objectives.		•		•	

CO - CARBON MONOXIDE | PM - PARTICULATE MATTER | NO₂ - NITROGEN DIOXIDE
SO₂ - SULPHUR DIOXIDE | VOCs - VOLATILE ORGANIC COMPOUNDS & GROUND LEVEL OZONE

CONCLUSION

There is no room for complacency about Vancouver's air quality given the pressures that increased population and further industrialization will create.

Now is the time to focus on the pollutants of most concern. The City must pursue the identified strategies and actions in partnership with Metro Vancouver, other levels of government, business, NGOs and citizens to maintain and, ideally, improve our air quality.

In working with Metro Vancouver, the City has developed a number of actions that will ensure that data is available to monitor air quality and develop new policies, while tackling VOC emissions directly. The reduction of VOC emissions will play a fundamental role in keeping our air clean. The City will also continue to advocate, and support, tougher diesel engine regulations to control particulate matter emissions, as well as fuel standard regulations for marine vessels aimed at reducing SO₂ concentrations.

COMMUNITY STORY

"I am SO excited to have my new electric vehicle because now when I drive I feel this freedom from the oil companies. It is truly an exhilarating sensation to know one is not harming the environment. I felt a bit emotional when I drove down West 4th Avenue past the original Greenpeace office...Growing up and coming of age in the 1960s, in Vancouver, nothing has really surprised me in contributing to Vancouver's efforts to become the Greenest City, after all, we are the home of Greenpeace."

Suzanne Fairley

Electric Car Owner



GREEN JOBS RELATED TO CLEAN AIR

- GHG emissions auditor
- Air quality modeller
- Marine charging station manufacturer and installer
- Vehicle charging station manufacturer and installer
- Electric vehicle mechanic
- Environmental service provider
- Air quality tester
- Policy analyst and researcher
- Educator

EMITTER	POLLUTANTS	RESPONSIBLE JURISDICTION
 <p>MARINE VESSELS</p>	<p>Sulphur Dioxide Nitrogen Dioxide Particulate Matter</p>	<p>Environment Canada Port Metro Vancouver</p>
 <p>LIGHT DUTY VEHICLES</p>	<p>Nitrogen Dioxide Ground-Level Ozone</p>	<p>Metro Vancouver City of Vancouver</p>
 <p>NON-ROAD EQUIPMENT</p>	<p>Nitrogen Dioxide Particulate Matter Ground-Level Ozone</p>	<p>Metro Vancouver</p>
 <p>RESIDENTIAL WOOD COMBUSTION</p>	<p>Particulate Matter</p>	<p>Metro Vancouver City of Vancouver</p>
 <p>CONSUMER PRODUCTS</p>	<p>Ground-Level Ozone</p>	<p>Metro Vancouver</p>



9/ GREEN ECONOMY

GOAL: SECURE VANCOUVER'S INTERNATIONAL REPUTATION AS A MECCA OF GREEN ENTERPRISE.

2020 TARGETS:

1. DOUBLE THE NUMBER OF GREEN JOBS OVER 2010 LEVELS.

Indicator: Total number of green jobs.

Baseline (2010): 16,700 jobs

Actual (2013): 19,900 jobs

2. DOUBLE THE NUMBER OF COMPANIES THAT ARE ACTIVELY ENGAGED IN GREENING THEIR OPERATIONS OVER 2011 LEVELS.

Indicator: Percent of businesses engaged in greening their operations.

Baseline (2011): 5% of businesses engaged

Actual: Survey to be conducted in 2016

INTRODUCTION

Transitioning to a green economy is an enormous economic and business opportunity.

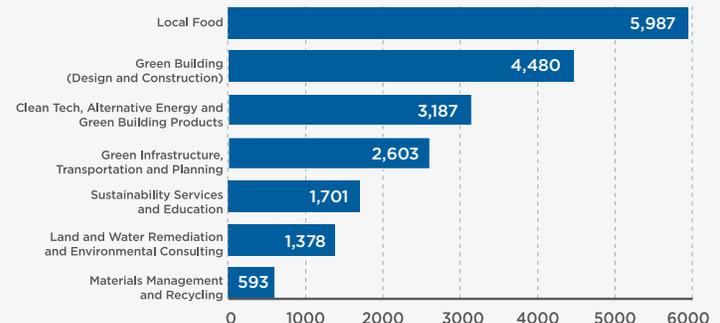
By 2030, 73 percent of all global energy investment will be in clean energy — that's \$630 billion per year. In fact, there are already more clean energy jobs in Canada than in oil and gas .

Vancouver is among the leading cities around the world looking to capitalize on these trends. We've quietly enjoyed more than three percent annual economic growth over the past five years — a rate envied anywhere in the western world — and our economy will be the fastest growing in Canada over the next five years. Vancouver's green economy includes sectors such as green buildings, clean tech, recycling and local food. It generated \$1.9 billion of economic activity in 2014, contributing to Vancouver's global reputation for green and sustainable leadership. This green perception is a key driver of Vancouver's global brand, valued at \$31.5 billion in 2015 .

Green is embedded in what we do. Vancouver has always been a place for sustainability and innovation, with world-changing ideas and businesses such as Hootsuite, TED Talks, and D-Wave (designers of the world's first quantum computer). Green jobs can be found across traditional and new industry sectors, and business has proven to be our most powerful driver for change. Businesses in Vancouver's green economy are delivering solutions to sustainability challenges, testing alternatives to traditional ways of operating, and sharing these innovations around the world.

The extent to which Vancouver remains competitive, resilient and generates opportunities for residents will be defined by our efforts to mitigate and adapt to climate change and by our efforts to future-proof our economy.

NUMBER OF GREEN JOBS IN VANCOUVER BY SUB-SECTOR (2013)



LOOKING BACK: SUCCESSES, CHALLENGES, AND THE EXTERNAL LANDSCAPE

Vancouver's efforts to double the number of green jobs in the city by 2020 is led by the Vancouver Economic Commission (VEC), an independent economic development agency.

The green economy in Vancouver is robust and growing significantly faster than most other sectors. The number of green jobs in Vancouver increased by 19% in three years, from 16,706 in 2010 to 19,929 in 2013. Today 4.9%, or one in twenty, of Vancouver residents has a green job.

Green businesses have identified many challenges, including lack of access to capital and specialized talent as well as challenges with zoning and building codes that make it difficult to accommodate the unique need for labs, inventory, and commercial space.

Business leaders and government officials visiting Vancouver are impressed by our growing green economy. They return to their cities with proof that transitioning to a green economy isn't necessarily expensive, and that greening the economy can be good for business as well as social and physical well-being.

MOVING FORWARD: PRIORITY ACTIONS

9.1: LAUNCH A CLEAN TECH ACCELERATOR.

A clean tech accelerator will support innovators and entrepreneurs developing new technologies to develop their business plans, source capital, and attract talent. Up to 10,000 square feet of research, incubation and business accelerator space will be available to clean tech entrepreneurs and start-ups. The space will be designed with labs, offices, and open areas for collaboration, research and learning.

9.2: GROW THE GREEN & DIGITAL DEMONSTRATION PROGRAM (GDDP).

This program helps young companies accelerate the commercialization of their innovation and get to markets faster by providing access to municipal assets or infrastructure for the purposes of test pilots, proof-of-concept, or demonstrations.

9.3: HELP TRANSFORM THE FALSE CREEK FLATS INTO THE GREENEST PLACE TO WORK IN THE WORLD.

The VEC will continue to work with business, government, community organizations and academic institutions in the False Creek Flats on four essential paths: circular economy; smart logistics; renewables and retrofits; and support for innovative green business.

9.4: DEVELOP A STRATEGY AND ACTION PLAN TO ATTRACT GREEN INVESTMENT CAPITAL.

Vancouver start-ups don't have the same access to investment capital as their American peers. This access is essential in a business' first ten years. The VEC will focus on providing access to angel investment, venture capital, private equity and large institutional funds to clean tech, clean energy, green buildings, and other sustainability-related enterprises.

9.5: ORGANIZE AND HOST TARGETED BUSINESS TRADE MISSIONS (INBOUND AND OUTBOUND) AND LEVERAGE LARGE CONFERENCES AND EVENTS (LOCAL AND GLOBAL) TO GROW THE GREEN ECONOMY.

Business trade missions and events are important in promoting the city's economy and business opportunities, including those related to the green economy.

9.6: DEVELOP, LAUNCH AND MAINTAIN A GREENING BUSINESSES PLATFORM.

An online digital platform that engages, educates and recognizes Vancouver businesses that reduce the environmental footprint of their operations will help to reach the 95% of businesses that may not have a green product or service, but can still be involved in the green economy by reducing their footprint.

ADVOCACY

- **Advocate Metro Vancouver to support land use planning and solutions-based, outcome-oriented, codes at the regional level.**
- **Advocate national and North American carbon pricing.**
- **Advocate the federal government for flexible immigration policies that attract well-educated green talent and entrepreneurs from around the world, and for programs that continue to make Vancouver one of the most immigrant-friendly cities in the world.**
- **Advocate the federal government for climate change policy.**

PROJECTIONS TO 2020

TARGET 1: GREEN JOBS

The VEC has developed a Green Jobs Roadmap that identifies initiatives that generate new investment and increase the proportion of green activity leading to new jobs in Vancouver's green economy (a mix of new jobs as well as market transformation of existing sectors).

By focusing on improving productivity, strategic investments in R&D and infrastructure, and providing supportive policy and programs, Vancouver can increase demand for local green products, technologies, and services and, in turn, increase the number of green jobs at a rate that is much higher than under "business as usual" conditions.

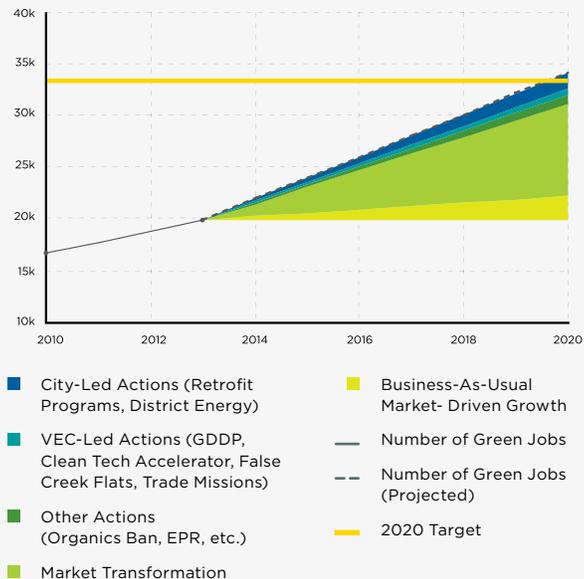
Significant progress in increasing the number of green jobs has been made since 2010 with 6.3% average annual growth from 2010 to 2013. The expected growth scenario models business growth and market transformation, which together contribute to approximately 85% growth by 2020 (over 2010). Business "as usual" growth accounts for approximately 23% of the increase, and market transformation of sectors is responsible for an estimated 77%. Market transformation jobs (those jobs that arise from an industry as it transforms towards greener practices) are largely from the Green Building sector (due largely to the impacts of the Vancouver Building Bylaw), as well as the development of the UBC-Broadway Corridor Rapid Transit Line and local food procurement initiatives.

TARGET 2: GREEN BUSINESSES

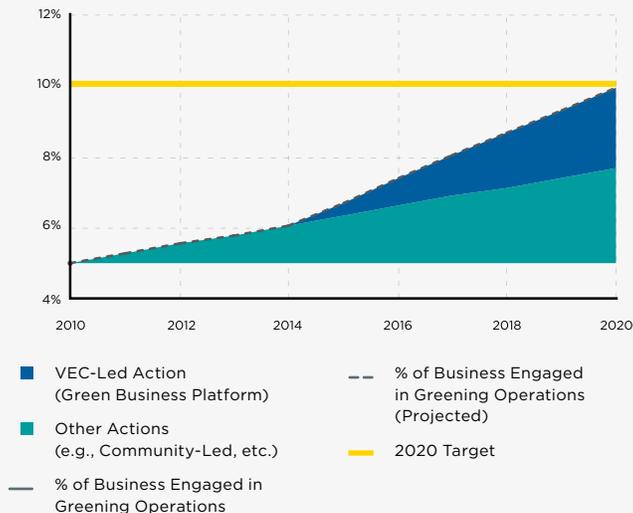
The baseline for this target is based on a benchmark telephone survey in 2011, conducted with a random sample of 500 private sector businesses. The study provided insights into business behaviour with respect to multiple sustainability indicators including energy, materials, water, fleets, sustainable purchasing and innovation. The survey identifies a minimum threshold beyond which point businesses can be assumed to be actively engaged in greening their operations. In 2011, 5% of businesses that responded to the survey passed this threshold. The next survey will be conducted in 2016.

The projections below show the percentage of businesses engaged in greening their operations through 2020. It assumes a 3% annual growth in the number of businesses and the expected uptake in the Green Business Platform.

PAST, PRESENT AND PROJECTED GREEN JOBS TO 2020
(Number of Green Jobs)



PAST, PRESENT AND PROJECTED BUSINESSES ENGAGED IN GREENING OPERATIONS TO 2020
(% of Businesses Engaged in Greening Operations)



CONCLUSION

While we are on track to double the number of green jobs by 2020, success is dependent on a reasonably strong local and global economy, a supportive policy environment, and full implementation of the initiatives in the VEC's Green Jobs Roadmap.

We envision a clean tech accelerator that supports innovation and grows green jobs in technology and clean energy, the development of an innovative zone that is the "greenest place to work in the world", and a green business community that has the financing needed to expand market share and increase employment.

We will continue to foster a local business community that is engaged with the GCAP and is doing their part to reduce environmental footprints through a dynamic digital platform, as well as growing the number of green businesses that trade with key markets in Asia, the US, and the EU thanks to a robust business mission program.

Funding these programs will be critical in achieving the green economy goals. We will continue to look at alternative funding models to augment the support that will be in place. Strong partnerships are a necessary part of the success story, so we will continue to expand our partner network to build capacity in areas that directly address the targets.

In the next three years, the VEC will conduct two comprehensive surveys to measure and report on both the number of green jobs in Vancouver and the number of businesses that are greening their operations.

COMMUNITY STORY

"We think a lot about how our actions as a business and family affect the environment we live in. Having a purely local shop creates an environment where local makers can showcase their goods all year and not just at local craft fairs once or twice a year. We reclaim wood, steel and vintage pieces when we're building our custom furniture. We also run workshops to make people more aware of what's available locally and how they can reuse products that are found in their home or in their communities. Living close enough means we can bike to work every day!"

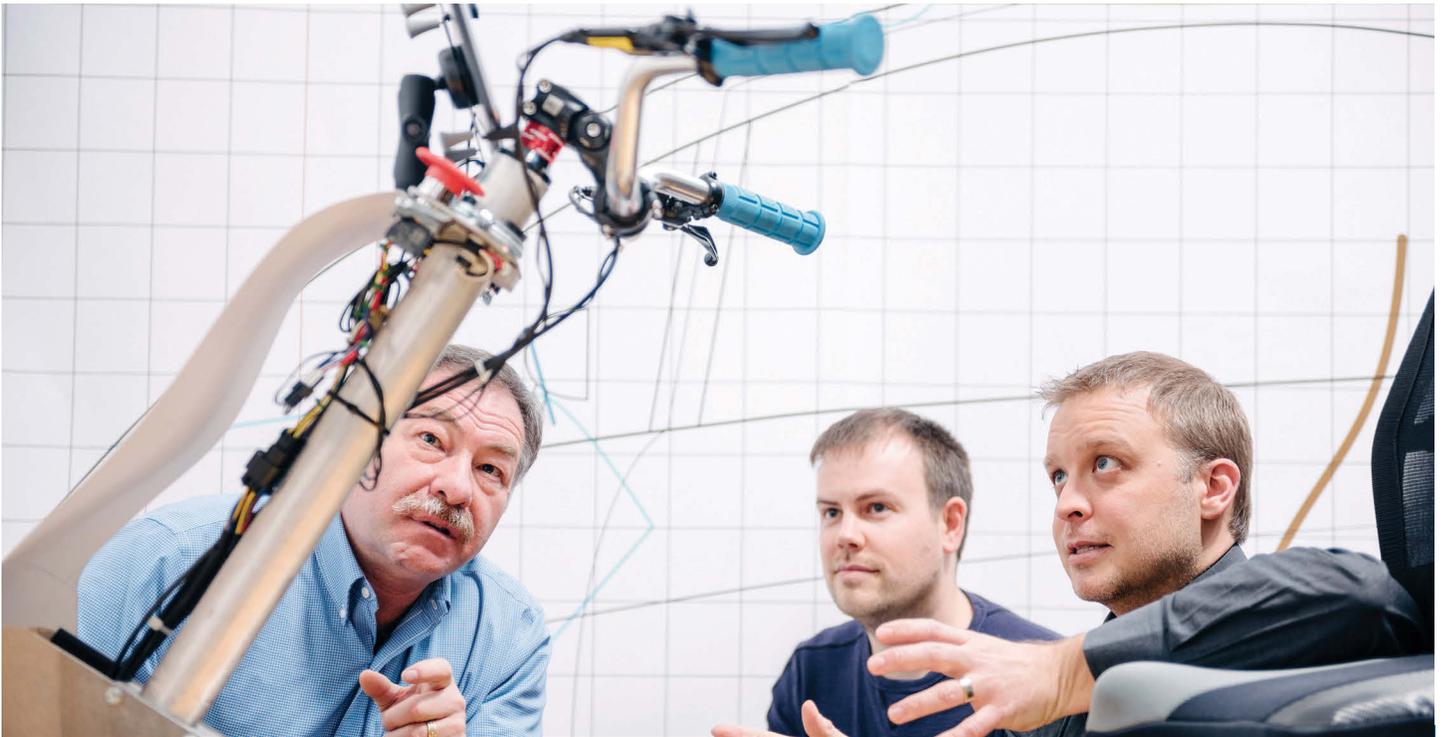
Ryan, photographed with his wife Anna

Studio126



GREEN JOBS RELATED TO GREEN ECONOMY

- Green business development officer
- Business energy advisor
- Green funds manager
- Carbon offsets aggregator
- Carbon trader
- ICT networking specialist
- Smart grid engineer and technician
- Smart meter manufacturer
- Green purchasing manager
- Demonstration zone coordinator
- Industry association director
- Policy analyst and researcher
- Sustainability educator



WHAT IS A GREEN JOB, HUB, ECO-INDUSTRIAL NETWORK, AND CIRCULAR ECONOMY?

Green Jobs — The United Nations Environment Programme (UNEP) describes green jobs as those that “contribute substantially to preserving or restoring environmental quality... reduce energy, materials and water consumption... decarbonize the economy and minimize or altogether avoid generation of all forms of waste and pollution.” Job sectors range from clean technology and green buildings to education and materials recovery. Green jobs also include jobs in traditional sectors with businesses that have significantly greener processes or operations than industry standards.

Vancouver has added jobs in the local food industry to this description, as growing an urban food system is central to the GCAP vision for a sustainable economy. Local food is defined here as all food and beverage (including wine and beer) produced within British Columbia.

Hubs — Hubs, also referred to as co-location models, exist where multiple related businesses work under one roof to reduce operating costs and allow for better resource sharing. In recent years, hubs have sprung up in the False Creek Flats in large floor-plate warehouses originally built for big rail-based manufacturing and distribution industries. Now, these many of these warehouses are homes for collectives of smaller businesses such as studios or distribution agencies.

Eco-Industrial Networks — This term refers to business partnerships where the waste or by-products from one industry are used as the input to another.

Circular Economy — A circular economy is economic activity geared toward keeping materials in circulation and out of the landfill. You may be familiar with it through the related concept of “cradle-to-cradle” design.





10/ LIGHTER FOOTPRINT

GOAL: ACHIEVE A ONE-PLANET ECOLOGICAL FOOTPRINT.

2020 TARGET:

REDUCE VANCOUVER'S ECOLOGICAL FOOTPRINT BY 33% OVER 2006 LEVELS.

Supporting indicator: Number of people empowered to take action on Greenest City 2020 Action Plan (GCAP) goals through City-led or supported initiatives.

Baseline (2011): 600 people empowered to take action

Actual (2014): 10,700 people empowered to take action

INTRODUCTION

Everything we need comes from our one planet

— what we eat, the things we buy, the way we transport ourselves, the electricity that powers our homes, the metals and plastics in our computers, the air we breathe...it's a long list.

The amount of productive land and sea resources we use to meet these needs is called our "ecological footprint." It measures the impact of our actions against the reality of our planet's finite ability to provide for us.

Imagine if you had just less than two hectares of land and sea, an area smaller than the size of two football fields, to provide you with all of the goods and services you consume and to absorb all of the waste you produce in the course of your life this year. If you divide up the earth's biologically productive capacity by the number of people on our planet, this is the amount available to each of us. It's equivalent to an area the size of Stanley Park supporting about 200 people. Yet on average, Vancouver residents use about three times more land and sea resources than the earth could sustain if everyone lived like us. In other words, our current ecological footprint is unsustainable.

Reducing our ecological footprint is about living within ecological limits, and it is also about using a "fair Earth share" of resources. It is about striving for a one-planet footprint and a city that is vibrant, healthy, and just.

LOOKING BACK: SUCCESSES, CHALLENGES, AND THE EXTERNAL LANDSCAPE

Ecological footprint reduction takes place primarily through the work of GCAP goal areas that address GHG reductions, such as: Climate and Renewables; Green Transportation; Green Buildings; and Zero Waste (marked with  throughout this document). The actions included in the Lighter Footprint goal specifically target areas not otherwise addressed and seek to build the culture change required.

Measuring ecological footprint is challenging. For example, an estimated 40% of Vancouver's ecological footprint is derived from food choices, but a lack of local food consumption data makes it difficult to measure annual change. We are working with partners to bridge this data gap.

In the meantime, we've chosen to measure a supporting indicator: the number of people empowered through City programs to take action to reduce their ecological footprint.

We have promoted solutions for lighter footprint through multiple programs. The Greenest City Fund, a \$2M granting program developed in partnership with The Vancouver Foundation, supports community-led projects to green the city. The Award of Excellence for Greenest City Leadership now recognizes outstanding achievements made by individuals and organizations that advance the City's GCAP goals. The Greenest City Curriculum is a suite of courses at community centres and libraries that support people in sustainable living actions. The City's Green Events Program helps reduce the environmental impact of city-permitted events.

Two student-oriented programs, Greenest City Scholars (a partnership with UBC offering paid internships to graduate students working on City projects) and CityStudio (an innovation hub where staff, experts, and university students from six universities and colleges co-create projects that support City programs) support students to take action to green the city.

The sharing economy has grown and has the potential to reduce consumption and waste while creating social connections. The City continues to work to understand how to enable the sharing economy to achieve City priorities such as reducing ecological footprint.

MOVING FORWARD: PRIORITY ACTIONS

10.1: Continue to expand the Greenest City Fund and CityStudio Programs.

Build on successful programs empowering residents to take action. Support ideas generated and implemented by the community through a continued grant program. Support students and community members to design and execute projects on the ground.

10.2: Develop a municipal sharing economy strategy.

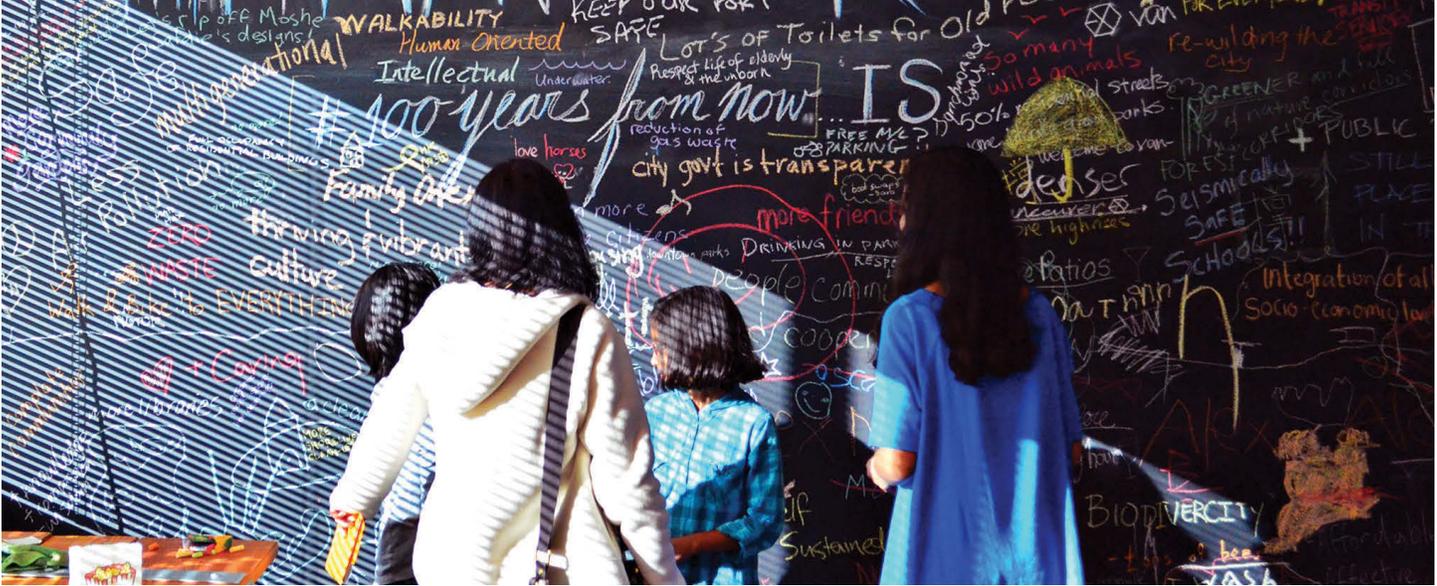
We need to understand how the City can support the sharing economy in a way that supports City priorities and create a regulatory framework that protects residents, reduces risks, and addresses equity and access issues.

10.3: Support a community of action on Lighter Footprint by sharing information and facilitating and encouraging community leaders.

We need to continue to support organizations that help educate, engage and empower residents to take action, and create necessary culture change.

10.4: Explore how partnerships and connections to programs and infrastructure can reduce the ecological footprint of food consumption.

The City supports Metro Vancouver's food waste campaign to promote waste and consumption reduction. The City can also explore how program partnerships with Metro Vancouver or other agencies can influence low ecological footprint diets.



ADVOCACY

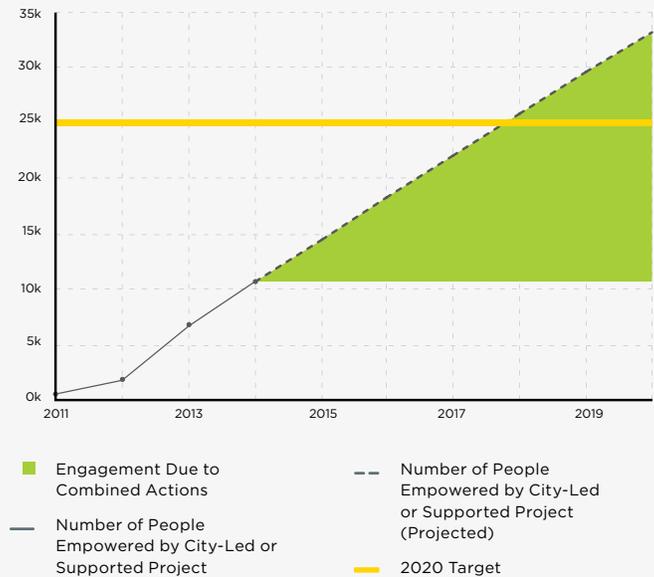
- **Improve data accuracy and access to data for the calculation of the ecological footprint by advocating for the federal government to reinstate the long-form census.**

The elimination of the long-form census in 2010 and replacement with a voluntary National Household Survey (NHS) has made it more difficult and expensive to access the data needed for planning public programs and projects. Without the census, cities must conduct their own surveys and gather data for planning purposes. Other Statistics Canada surveys have also been eliminated or compromised due to budget cuts, including: the Survey of Labour and Income Dynamics; the National Longitudinal Survey of Children and Youth; the Workplace and Employee Survey; and the Survey of Household Spending, Food Availability and Production in Canada.

PROJECTIONS TO 2020

While there are numerous community-led initiatives that are empowering residents, it is difficult to quantify the impact. Therefore, our projections only include data from the CityStudio and Greenest City Fund programs because the numbers are trackable. Ultimately, the way this metric is currently measured does not reflect the total number of people taking action to reduce ecological footprint; it reflects only a small subset of people engaged in City-led initiatives.

PAST, PRESENT AND PROJECTED NUMBER OF PEOPLE EMPOWERED BY CITY-LED OR SUPPORTED PROJECTS TO REDUCE ECOLOGICAL FOOTPRINT (Number of People Empowered)



CONCLUSION

Achieving the Lighter Footprint goal requires everyone to take action.

The focus for the next four years is on the collective impact toward reducing ecological footprint of the actions in the other GCAP goal areas, addressing gaps, and supporting culture change. It relies on empowering residents to take action.

We will work on expanding opportunities to empower residents and community leaders through programs like the Greenest City Fund and CityStudio, and through information sharing and facilitation. We will also focus on reducing food waste and looking at food recovery to reduce ecological footprint. Enabling the sharing economy will help us reduce consumption levels and improve community resilience.

Looking at the role that City regulations play in enabling Lighter Footprint action will also help to meet our goals. Finally, we can advocate the reinstatement of long-form census, which will improve data accuracy and availability needed to measure progress toward reducing ecological footprint.

COMMUNITY STORY

“I was surprised when our household ecological footprint survey, completed by 20 households on our block, showed despite our cycling, recycling and composting, most of us are consuming much more than our fair Earth-share of the world’s resources. Even more surprising have been the public spirited spinoffs effect of our project. One neighbour, a carpenter, built beautiful wooden planters for blueberries, sweet peas and other bee-friendly flowers in the laneway. Another established a handsome, and well used, lending library outside her house, with adjacent bench and flower planters.”

Jim Boothroyd
Green Bloc Project



GREEN JOBS RELATED TO LIGHTER FOOTPRINT

- Neighbourhood pilot program coordinator
- Community-based repair person
- Engagement and monitoring tool developer
- Sustainability consultant
- Community planner
- Grants administrator
- Policy analyst and researcher
- Educator

SHARING IS CARING - A LIGHTER LIFE WITH LESS STUFF!

The sharing economy has been getting a lot of people excited lately, but what is it about?

People have been sharing for years, from car-pooling, to house-swapping, to other informal forms of sharing, but the latest advances in technology have helped to unlock the potential of even more idle-assets. Now, it is easier to share these things and more. This can help people get access to things they may not normally have, and also be able to afford things they may not otherwise have been. Sharing can also help to reduce the ecological burden of ownership and instead reduce waste and greenhouse gases by sharing an existing asset. Sharing can help the City achieve its Greenest City goals by providing options for access over ownership that will help to make the future of the city lighter, less wasteful, and more connected.





11/ WALKING THE TALK: GREENING OUR OPERATIONS

2020 TARGETS:

1. ZERO CARBON: 50% REDUCTION IN GHGS FROM CITY OPERATIONS OVER 2007 LEVELS.

Baseline (2007): 530,000 tCO₂e

Actual (2013): 373,000 tCO₂e (29% reduction)

2. ZERO WASTE: 70% WASTE DIVERSION IN PUBLIC-FACING CITY FACILITIES, AND 90% WASTE DIVERSION IN ALL OTHER CITY-OWNED FACILITIES.

Note: A waste reduction target for all City operations is currently under development.

Baseline (2013): 65% in public-facing facilities, 85% in other City-owned facilities

Actual (2014): 64% in public-facing facilities, 83% in other City-owned facilities

3. HEALTHY ECOSYSTEMS: REDUCE WATER USE IN CITY OPERATIONS BY 33% OVER 2006 LEVELS.

Baseline (2006): 22 billion litres

Actual (2014): 19 billion litres (12% reduction)

INTRODUCTION

While the City has always been active in making its operations more sustainable, we've picked up the pace in order to walk the talk and become the Greenest City.

We've developed a Green Operations Plan (GOP) that includes both corporate-wide initiatives, and department specific actions. Each department is taking action toward our targets in ways unique to what they do. For example, our Solid Waste Department is capturing harmful gas from the Vancouver landfill and putting it to beneficial use. Our Fire Department is right-sizing its fleet by sending smaller vans out to medical calls instead of big trucks. Our Park Board has installed wind screens around our outdoor pools that not only keep pool users more comfortable, but also save energy (\$33,000 was saved in the first three months alone). And we're just getting started.

Since the baseline year in 2007, we've reduced operational GHGs by 29%. In 2014, our waste diversion at corporate and public-facing facilities was 83% and 64% respectively. We continue to reduce environmental impacts, from reducing waste and traffic disruption with trenchless water main construction (where feasible) to renewing our print services contract to reduce printer units and better track printing. We've also banned the neonicotinoids class of pesticides. Thanks to the coordinated action of departments across the City organization, we are well on our way to reaching our targets.

MOVING FORWARD: PRIORITY ACTIONS

11.1: Continue implementing the fleet and trip optimization initiative.

The City has one of the greenest municipal fleets in the country with over 30 electric, 45 hybrid, and 29 compressed natural gas vehicles. The City is incorporating GPS and telematics technology to help optimize service delivery, route and fleet maintenance planning, and identify opportunities to reduce the fleet size. By redesigning business processes and optimizing the use of available modes of transportation for City operations, the City aims to improve productivity and service, reduce travel needs, reduce fleet costs, and support corporate environmental goals.

11.2: Continue implementing the newly developed deconstruction standards.

Much like the mandatory deconstruction policy for pre-1940s homes, the City has created deconstruction standards for all City-owned facilities, requiring a minimum 75% diversion rate. Depending on the project, the diversion rate could be much higher. An audit is conducted for each building and the diversion rate is then set depending on the building type and materials used. The City has also implemented a tracking system to ensure the diversion has taken place.

11.3: Develop and implement a toxic substances management plan for City operations.

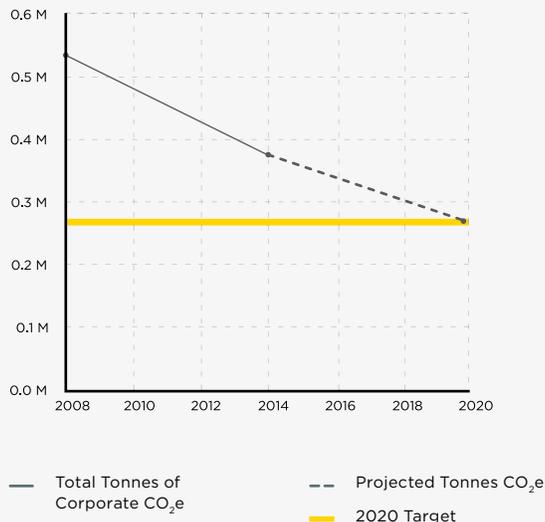
The City has been working to reduce the use of toxic substances for years, by purchasing green janitorial supplies, banning pesticides, and switching to low VOC paint for road lines and other marking needs. Because of the importance of this work to protect the health and safety of our employees, residents, and the environment, a new and more formal initiative to further reduce the use of toxic substances has begun. Once we are confident that we're walking our talk in this area, we will look city-wide and create enabling policy to reduce the use of toxic substances in the community.

CONCLUSION

The City is demonstrating leadership in green by looking closely not just at what we do across the community but also by looking at our own practices.

We're taking action through corporate-wide efforts like moving to paperless transactions and implementing a sustainable purchasing policy. We're also taking action at the department level. The City will continue to look for greener ways to do the work we do in order to provide the services that enable the sustainable and thriving community we envision.

PAST, PRESENT AND PROJECTED CORPORATE GREENHOUSE GAS EMISSIONS TO 2020
(Total Tonnes of Corporate CO₂e Emissions Incl. Landfill)



TO 2020 AND BEYOND

In 2011, the Greenest City 2020 Action Plan set the stage for a greener and more resilient Vancouver. Over 80% of the initial actions are already complete, moving us closer to achieving our ambitious targets (see status of each on page 78). We worked both with thought leaders and the community at large to identify over 50 new actions to be completed between 2015 and 2020 that will help us meet our targets and be the world's greenest city.

As we move forward, we also begin to look beyond 2020 to create a renewable city. By leading the switch to renewable energy to power and heat our homes and fuel our transportation network, Vancouver will also be doing its part as a member of a global effort to reduce climate change. We will be setting the standard for what a successful, thriving, prosperous city looks like and setting an example that other cities around the globe can follow.

Vancouver has the drive, ingenuity, and energy to create a new kind of city. One that is sustainable, resilient, green, and built to last. We are a city of entrepreneurs, of makers and leaders. We will show that it is possible for a city to thrive in balance with nature.

WE ALL HAVE A ROLE TO PLAY - GET INVOLVED

The success we've had to date is the result of a community-wide effort and the work of thousands of Vancouver residents.

There is a continued role for all to play in the success of this next set of priorities. Whether you're involved in the local business community, active in your neighbourhood, or interested in greening your own lifestyle, your efforts are essential to our shared success. If you're already involved, thank you. If you're not yet, join us: Vancouver.ca/greencity

Together, we're choosing to make decisions and take action to preserve the essence of who we are and how we choose to live our lives. Our collaboration with neighbours and communities has made possible the progression towards our ambitious vision of the future. Vancouver is sharing this hope with cities around the world by becoming a model for green, sustainable living.



APPENDIX 1:

SUMMARY OF PROGRESS TOWARD TARGETS

¹ The 2013 Green Jobs Study refined the definition and measurement of “green” jobs (due to changes in data available from Statistics Canada), resulting in a change in the 2010 baseline count. Methods have been reviewed by Ernst & Young, and targets going forward will be based on this recalculated total.

² Emissions totals for baseline year (2,755,000 tCO₂e), 2012 and 2013 have been revised due to updated Provincial Government guidance on how methane (which is emitted by waste decomposing in the landfill) acts as a greenhouse gas. Specifically, the global warming potential (GWP), which is the measure of how much heat a particular greenhouse gas traps in the atmosphere, has been updated. The new Provincial Guidance directs that the GWP of methane be updated from 21 to 25 to align with guidance released by the Intergovernmental Panel on Climate Change in its Fourth Assessment Report. Carbon dioxide has a GWP of 1.

³ 2014 emissions figure uses natural gas data from the most recent year available (2013). 2014 natural gas data was not made available by FortisBC in time for the publication of this report.

⁴ Mode share totals for baseline year (40% of trips in 2008) was based on data gathered through a TransLink “Trip Diary” survey that is conducted about once every five years. To obtain more regular statistics, the City began an annual survey of Vancouver residents that is slightly different in methodology but is believed to better capture the full range of travel by residents. This will be used to measure Green Transportation indicators going forward.

⁵ Solid waste data is compiled first at a regional level and then at the city level. As a result, Vancouver’s data is always one year behind the reporting period.

⁶ 5% of the city’s land-base is industrial land area, and is not considered part of the target.

⁷ “People empowered to take action” are defined as those who are enabled by City-supported programs to change their lifestyle or are implementing a community project that helps Vancouver achieve its Greenest City goals as a result of support provided by a City-led or City-supported program. Examples include learning to preserve food or ride a bike in a community centre class, as well as people involved in projects supported by the Vancouver Foundation and City of Vancouver Greenest City Fund. The definition excludes people participating in a dialogue or consultation, attending an event, using infrastructure (e.g., bike lanes, food scraps collection), or receiving a personal incentive (e.g., home energy retrofits).

⁸ Air quality metrics are measured by Metro Vancouver from data from two monitoring stations in Vancouver: one in Kitsilano and one at Robson Square. Four indicators of air quality are used for comparison to world standards. They are:

24 hour average particulate matter (PM 2.5) concentration
>25 ug/m³, one hour average nitrogen dioxide (NO₂) concentration
>200 ug/m³, 24 hour average sulfur dioxide (SO₂) concentration
>20 ug/m³, and eight hour ground-level ozone (O₃) concentration >52 ppb.

⁹ The BC Provincial government plans to set more stringent SO₂ and NO₂ objectives in the future, and Metro Vancouver will review its SO₂ objectives in 2015. New exceedances could occur next year, and air quality improvement remains a priority.

¹⁰ Food assets include: number of community garden plots, farmers markets, community orchards, community composting facilities, community kitchens, community food markets, and urban farms.

GOAL AND TARGETS	INDICATOR	BASELINE	2014	CHANGE OVER BASELINE	IMPROVED OVER BASELINE	2020 TARGET
CLIMATE AND RENEWABLES						
Target: Reduce community-based greenhouse gas emissions by 33% from 2007 levels.	Total tonnes of community CO ₂ e emissions from Vancouver	2,805,000 tCO ₂ e (2007) ²	2,610,000 tCO ₂ e ³	-7%	Yes	1,895,000 tCO ₂ e
GREEN BUILDINGS						
Target 1: Reduce energy use and GHG emissions in existing buildings by 20% over 2007 levels.	Total tonnes of CO ₂ e from residential and commercial buildings	1,145,000 tCO ₂ e (2007)	1,085,000 tCO ₂ e ³	-5%	Yes	920,000 tCO ₂ e
Target 2: Require all buildings constructed from 2020 onward to be carbon neutral in operations.						
GREEN TRANSPORTATION						
Target 1: Make the majority of trips (over 50%) by foot, bicycle and public transit.	Per cent mode share by walk, bike and transit	-- ⁴	50% of trips	-- ⁴	-- ⁴	50% of trips
Target 2: Reduce average distance driven per resident by 20% from 2007 levels.	Total vehicle km driven per person	5,950 km/person/year (2007)	4,680 km/person/year	-21%	Yes	4,760 km
ZERO WASTE						
Target: Reduce total solid waste going to the landfill or incinerator by 50% from 2008 levels.	Annual solid waste disposed to landfill or incinerator from Vancouver	480,000 tonnes (2008)	394,600 tonnes ⁵ (2013)	-18%	Yes	240,000 tonnes
ACCESS TO NATURE						
Target 1: Ensure that every person lives within a five minute walk of a park, greenway or other green space.	Per cent of city's land base within a 5 min walk to a green space	92.6% (2010)	92.7%	+0.1%	Yes	95% ⁶
Target 2: Plant 150,000 additional trees in the city.	Total number of additional trees planted	-- (2010)	37,000 trees	+37,000	Yes	150,000 trees
CLEAN WATER						
Target 1: Meet or beat the most stringent of British Columbian, Canadian and appropriate international drinking water quality standards and guidelines.	Total number of instances of not meeting drinking water quality standards	0 instances	0 instances	0	Yes	0 instances
Target 2: Reduce per capita water consumption by 33% from 2006 levels.	Total water consumption per capita	583 L/person/day (2006)	490 L/person/day	-16%	Yes	390 L/person/day
LOCAL FOOD						
Target: Increase city-wide and neighbourhood food assets by a minimum of 50% over 2010 levels.	Total number of neighbourhood food assets ¹⁰ in Vancouver	3,340 food assets (2010)	4,556 food assets	+36%	Yes	5,158 food assets
CLEAN AIR						
Target: Meet or beat the most stringent air quality guidelines from Metro Vancouver, British Columbia, Canada, and the World Health Organization.	Total number of instances of not meeting air quality standards for ozone, particulate matter (PM 2.5), nitrogen dioxide and sulfur dioxide from both the Kits and Downtown stations combined ⁸	27 instances (2008)	0 instances ⁹	-100%	Yes	0 instances
GREEN ECONOMY						
Target 1: Double the number of green jobs over 2010 levels.	Total number of green and local food jobs	16,700 jobs (2010)	19,900 jobs (2013) ¹	+19%	Yes	33,400 jobs
Target 2: Double the number of companies that are actively engaged in greening their operations over 2011 levels.	Percent of businesses engaged in greening their operations	5% of businesses engaged (2011)	Survey to be conducted in 2016	--	--	10% of businesses engaged
LIGHTER FOOTPRINT						
Target: Reduce Vancouver's ecological footprint by 33% over 2006 levels.	Proxy: Number of people empowered ⁷ by a City-led or City-supported project to take personal action in support of a Greenest City goal and/or to reduce levels of consumption (cumulative)	600 people (2011)	10,700 people	+10,100	Yes	To be determined

APPENDIX 2:

SUPPORTING STRATEGIES: SUSTAINABILITY EMBEDDED IN CITY PLANNING

The City of Vancouver is committed to becoming the greenest city in the world by 2020. This commitment to environmental sustainability is complemented by the Healthy City Strategy (social) and the Vancouver Economic Action Strategy (economic), forming the three pillars necessary for long-term sustainability.

Since 2011, an environmentally sustainable future has been front of mind during much of the City's strategic thinking. A number of recently approved City and regional strategies and plans support our bright green future.

SUPPORTING STRATEGIES

GOAL 1 – CLIMATE AND RENEWABLES

Renewable City Strategy (2015)

Neighbourhood Energy Strategy (2012)

Climate Adaptation Strategy (2012)

GOAL 2 – GREEN BUILDINGS

Vancouver's Building By-law (2013)

Building Retrofit Strategy (2014)

GOAL 3 – GREEN TRANSPORTATION

Transportation 2040 (2012)

GOAL 4 – ZERO WASTE

Metro Vancouver Integrated Solid Waste and Resource Management Plan (2010)

GOAL 5 – ACCESS TO NATURE

Urban Forest Strategy Framework (2014)

Bird Strategy (2015)

Rewilding Plan (2014)

GOAL 7 – LOCAL FOOD

Food Strategy (2013)

Park Board Local Food Action Plan (2013)

GOAL 8 – CLEAN AIR

Metro Vancouver Integrated Air Quality and Greenhouse Gas Management Plan (2011)

Metro Vancouver Regional Ground Ozone Strategy (2014)

GOAL 9 – GREEN ECONOMY

Green Jobs Roadmap (2015)



AWARDS AND RANKINGS: HOW DOES VANCOUVER COMPARE?

Since 2011, Vancouver's efforts to be the greenest city in the world by 2020 have been recognized both regionally and internationally. Vancouver is emerging as a leading sustainable city in the global context.

YEAR	ISSUED BY:	AWARD OR RANKING
2011	Economist Intelligence Unit and Siemens	Green City Index: 2nd in North America
2011	Corporate Knights	Most Sustainable Cities Ranking: Canada's Most Sustainable Mid-Size City
2011	Union of BC Municipalities	Climate & Energy Action Award
2011	Spacing Magazine	Top 100 Public Spaces in Canada
2011	Economist Intelligence Unit	Global Livability Index - Third
2012	Federation of Canadian Municipalities	Sustainable Community Award
2012	Canada's Top 100 Employers Project	Canada's Greenest Employer Award
2012	Recycling Council of BC	Public Sector Achievement Award
2012	United Cities and Local Government and City of Guangzhou	Guangzhou International Award for Urban Innovation
2012	Economist Intelligence Unit	Global Livability Index - Third
2013	World Wildlife Fund	Earth Hour City Challenge: Global Earth Hour Capital
2013	World Wildlife Fund	Earth Hour City Challenge: People's Choice
2013	Corporate Knights	Sustainable Cities Scorecard: Top 5
2013	Mediacorp Canada Inc	Canada's Top 55 Greenest Employers
2013	Tides Canada	Tides Canada Top Ten Award
2013	Ashoka U Exchange and Cordes Foundation	Innovation Award
2013	World Green Building Council	Global Government Leadership Award: Best Overall Green Building Policy
2013	100 Best Fleets	Government Green Fleet Award: Greenest Municipal Fleet in Canada
2013	Canadian Association of Municipal Administrators	Willis Award for Innovation
2013	Canadian Institute of Planners	Award for Planning Excellence – Sustainable Mobility, Transportation and Infrastructure
2013	Walkscore	Most Walkable City in Canada
2013	Canadian Institute of Transportation Engineers	Bill Curtis Award – Project of the Year
2013	Planning Institute of BC	Gold Award – Excellence in Policy Planning (City and Urban Areas)
2013	Economist Intelligence Unit	Global Livability Index - Third
2014	Global Green Economy Index	Top 10 Green City Perception Ranking
2014	Time Magazine	Healthiest City in the World
2014	Grosvenor Resilient Cities	Most Resilient City in the World (2nd)
2014	Federation of Canadian Municipalities	Green Champion Award (Municipal)
2014	Federation of Canadian Municipalities	Sustainable Communities Award: Transportation
2014	Mediacorp Canada Inc	Canada's Greenest Employers
2014	Government Green Fleet Award	Top 50 and Greenest Municipal Fleet in Canada
2014	Canadian Green Building Awards	Award-Winning Project
2014	Stewardship Centre for BC	Green Shores Gold Award
2014	Economist Intelligence Unit	Global Livability Index - Third
2015	World Wildlife Fund	Earth Hour City Challenge: National Earth Hour Capital
2015	Mercer Quality of Living Survey	5th overall globally; 1st in North America
2015	Mediacorp Canada Inc	Canada's Greenest Employers

GOAL 1 — CLIMATE AND RENEWABLES		RESPONSIBLE DEPARTMENT	SUPPORTS
2015-2020 HIGH PRIORITY ACTIONS			
1.1	Continue to work with partners to convert two existing steam heat networks to renewable energy.	Sustainability Group	CR, GB, LFP
1.2	Work with partners to develop four new neighbourhood energy systems.		CR, GB, LFP
1.3	Develop and begin implementing a renewable energy strategy.		CR, GB, GT, LFP
GOAL 2 — GREEN BUILDINGS		RESPONSIBLE DEPARTMENT	SUPPORTS
2015-2020 HIGH PRIORITY ACTIONS			
2.1	Update the retrofit requirement options in Vancouver's Building By-Law to further reduce energy use and greenhouse gas emissions.	Chief Building Official, Planning and Development Services, and Sustainability Group	GB, CR, GE, LFP
2.2	Launch a Green Condominium Program and expand the Green Landlord Program.		GB, CR, GE, LFP
2.3	Launch a Home Energy Efficiency Empowerment Program and a Home Energy Technology Program.		GB, CR, GE, LFP
2.4	Require annual energy benchmarking and reporting for large residential and commercial buildings.		GB, CR, GE
2.5	Launch a program for green industry partners.		GB, CR, GE, LFP
2.6	Develop a carbon-neutral new buildings strategy.		GB, CR, GE, LFP
2.7	Restructure the City's Green Building Rezoning Policies to specifically target GHG emission reductions and introduce mandatory GHG emission targets for new buildings.		GB, CR, GE, LFP
2.8	Update minimum energy efficiency requirements for new buildings in the Vancouver Building By-Law.		GB, CR, GE, LFP
GOAL 3 — GREEN TRANSPORTATION		RESPONSIBLE DEPARTMENT	SUPPORTS
2015-2020 HIGH PRIORITY ACTIONS			
3.1	Improve walking and cycling infrastructure on the False Creek bridges and implement spot improvements throughout the existing walking and cycling networks.	Transportation and Planning	CR, GT, CA, LFP
3.2	Implement a Bike Sharing Program.		CR, GT, CA, LFP
3.3	Extend Millennium Line SkyTrain under Broadway to Arbutus.		CR, GT, CA, LFP
3.4	Implement transit improvements including new B-Line routes, more bus service, and station upgrades.		CR, GT, CA, LFP
GOAL 4 — ZERO WASTE		RESPONSIBLE DEPARTMENT	SUPPORTS
2015-2020 HIGH PRIORITY ACTIONS			
4.1	Increase overall diversion of organics by continuing to support the expansion of food scraps recycling to all sectors and support Metro Vancouver's 2015 disposal ban on organic materials to landfill and incinerator through education and enforcement.	Waste Management and Resource Recovery	ZW, CR, CA, GE, LFP
4.2	Increase the diversion of wood waste from landfill and incineration by expanding the Construction and Demolition (C&D) Waste Diversion Strategy to increase reuse and recycling of C&D waste.		ZW, GB, LF, GE, LFP
4.3	Reduce street litter and abandoned garbage in public spaces, including illegal dumping, and increase the diversion of these materials by implementing a comprehensive litter management strategy including an expanded Keep Vancouver Spectacular program.		ZW, LF, GE
4.4	Support Metro Vancouver's Zero Waste Challenge through the development of education and enforcement strategies for all sectors, with a focus on waste prevention and material reuse initiatives.		ZW, LFP
GOAL 5 — ACCESS TO NATURE		RESPONSIBLE DEPARTMENT	SUPPORTS
2015-2020 HIGH PRIORITY ACTIONS			
5.1	Complete the new park at Yukon Street and 17th Avenue.	Parks and Recreation and Streets	AN, CW, CA, LF
5.2	Acquire four hectares of park land at Cambie Street and the Fraser River.		AN, CW, CA, LF
5.3	Realize a new -ten hectare park system in East Fraserlands.		AN, CW, CA, LF
5.4	Strategically expand private property, street, and park tree planting.		AN, CW, CA, LF, LFP
5.5	Create a new inventory system for trees on City land.		AN, GOP
5.6	Update tree management plans, planting standards, and best practices.		AN, CA
5.7	Develop additional policies and decision-making criteria to retain healthy, mature trees.		AN, CA

GOAL 6 — CLEAN WATER		RESPONSIBLE DEPARTMENT	SUPPORTS
2015-2020 HIGH PRIORITY ACTIONS			
6.1	Include testing from drinking water fountains in the City's routine water quality monitoring program.	Water and Sewers	CW, LFP
6.2	Reduce institutional, commercial and industrial (ICI) water consumption through policy and compliance measures.		CW, LFP
6.3	Reduce residential water consumption through incentives, education, and compliance measures.		CW, LFP
6.4	Reduce water system loss and civic use.		CW, LFP
GOAL 7 — LOCAL FOOD		RESPONSIBLE DEPARTMENT	SUPPORTS
2015-2020 HIGH PRIORITY ACTIONS			
7.1	Adopt and implement urban farming policy to further enable commercial food production in the city and increase the number of urban farming businesses from 18 to 35.	Social Policy	LF, AN, GE, LFP
7.2	Increase the number of farmers markets from 11 to 22 and community food markets from 14 to 20.		LF, GE, LFP
7.3	Increase the number of urban agriculture projects and plots from 4,423 to 5,500 and community kitchens from 69 to 80 with particular emphasis on encouraging broader participation by ethno-cultural groups.		LF, LFP
7.4	Support the Food Bank in their relocation to a new facility and incorporate components of a food hub as envisioned in the Vancouver Food Strategy.		LF, GE, LFP
GOAL 8 — CLEAN AIR		RESPONSIBLE DEPARTMENT	SUPPORTS
2015-2020 HIGH PRIORITY ACTIONS			
8.1	Work with Metro Vancouver to ensure there are at least two permanent air quality stations within city limits.	Sustainability Group and Metro Vancouver	CA
8.2	Develop an electric vehicle (EV) infrastructure strategy to support EV uptake.		CA, CR, GT, GE
8.3	Investigate labeling gas pumps for their GHG and air quality impacts.		CA, CR, GT, GE
8.4	Work with Metro Vancouver to ensure air quality data and information is available for sources and locations across the city.		CA, CR
GOAL 9 — GREEN ECONOMY		RESPONSIBLE DEPARTMENT	SUPPORTS
2015-2020 HIGH PRIORITY ACTIONS			
9.1	Launch a clean tech accelerator.	Vancouver Economic Commission	GE, CR, GT, GB, ZW, LF, CA
9.2	Grow the Green & Digital Demonstration Program (GDDP).		GE, CR, GT, GB, ZW, LF, CA
9.3	Help transform the False Creek Flats into the greenest place to work in the world.		GE, CR, GT, GB, ZW, LF, CA, LFP
9.4	Develop a strategy and action plan to attract green investment capital.		GE, CR, GT, GB, ZW, LF, CA
9.5	Organize and host targeted business trade missions (inbound and outbound) and leverage large conferences and events (local and global) to grow the green economy.		GE, CR, GT, GB, ZW, LF, CA
9.6	Develop, launch, and maintain a greening businesses platform.		GE, CR, GB, ZW, CW, CA, LFP
GOAL 10 — LIGHTER FOOTPRINT		RESPONSIBLE DEPARTMENT	SUPPORTS
2015-2020 HIGH PRIORITY ACTIONS			
10.1	Continue to expand the Greenest City Fund and CityStudio Programs.	Sustainability Group, CoV lead for other Greenest City targets and community partners	All goals
10.2	Develop a municipal sharing economy strategy.		All goals
10.3	Support a community of action on Lighter Footprint by sharing information and facilitating and encouraging community leaders.		All goals
10.4	Explore how partnerships and connections to programs and infrastructure can reduce the ecological footprint of food consumption.		All goals
GREEN OPERATIONS		RESPONSIBLE DEPARTMENT	SUPPORTS
2015-2020 HIGH PRIORITY ACTIONS			
11.1	Continue implementing the Fleet and Trip Optimization Initiative.	Sustainability Group and GOP leads	Zero Carbon, CR, GT, CA
11.2	Continue implementing the newly developed deconstruction standards.		Zero Waste, ZW, GB, LFP
11.3	Develop and implement a toxic substances management plan for City operations.		Healthy Ecosystem, GE, LFP

APPENDIX 5: STATUS OF 2011-2014 ACTIONS

CLIMATE LEADERSHIP (NOW CLIMATE AND RENEWABLES)	STATUS
2010-2014 HIGH-PRIORITY ACTIONS	
Work with developers and energy utilities to establish four new renewable energy systems for new, large site, high density developments	Ongoing
Work with existing energy system operators to facilitate at least one major industrial or institutional energy system conversion to a local renewable energy source	Ongoing
Work with key stakeholders to research the key opportunities and considerations associated with district-scale renewable energy sources with the aim of developing a policy framework to establish clear expectations as to the conditions under which the City will (or will not) consider each of these energy sources	Complete
Work to expand the Neighbourhood Energy Utility in South East False Creek to serve new developments and connect Science World	Science World - Complete Great Northern Way Campus - Underway
Corporate Climate Leaders Program, currently working with three large emitters as well as small- and medium enterprises to measure and develop action plans for energy and GHG reduction	Complete
Offer incentives for solar thermal installations	Complete
Work with private sector partners and utilities to develop additional district energy systems across the city, including ones to serve East Fraser Lands and North East False Creek	Underway
Cisco and Pulse Energy MoU partnership for improved energy management and reduction	Complete
Develop a Carbon Neutral City Operations Plan	Complete
Enhance landfill gas capture so that by the end of 2012 the City will achieve the 2016 regulatory target of 75% capture efficiency	Ongoing
GREEN BUILDINGS	STATUS
2011-2014 HIGH-PRIORITY ACTIONS	
Update Vancouver Building Bylaw with aim to increase energy efficiency and reduce greenhouse gas emissions	Complete
Develop and promote financing tools for building retrofits	Complete
Use price signals in permit fees to reward energy efficiency and greenhouse gas reductions in new and existing buildings	Cancelled
Green Rezoning Strategy requires that buildings are designed to LEED Gold standard for all new rezonings	Complete
Published passive design toolkit and green home renovation how-to guides	Complete
Require solar-ready homes and offer incentives for solar hot water in homes	Complete
LEED-ND Platinum for Olympic Village	Complete
First LEED Platinum certification for a community centre in Canada	Complete
United Nations Environment Program LivCom Award for South East False Creek	Complete
Laneway housing policy	Complete
Real time energy metering of venues during the Olympics and at nine City facilities	Complete
West House sustainable laneway home display during Olympics	Complete
Update the building code to increase energy efficiency of new buildings	Complete
West House ongoing monitoring project	Complete
Green building audio tours	Complete
Van Dusen Garden building targeting Living Building Challenge and net zero energy	Complete
GREEN TRANSPORTATION	STATUS
2011-2014 HIGH-PRIORITY ACTIONS	
Update the City's transportation plan	Complete
Develop a pedestrian safety study and action plan	Complete
Support transportation and active transportation planning	Ongoing

Continue to work with partners to deliver high capacity, fast, frequent, and reliable rapid transit for the Broadway Corridor from Commercial Drive to UBC	Underway
Launch a public bicycle sharing program	Underway
Downtown separated bike lane trials	Complete
Electric vehicle charging infrastructure	Complete
Land use initiatives promoting public and active modes	Underway
Update to City transportation plan	Complete
MIEV and LEAF electric cars launched to demonstrate and test these new technologies	Complete
Streetcar demonstration project during the Olympics	Complete
Work with car-share providers, including Modo and Car2Go, to encourage uptake of their services	Complete
ZERO WASTE	STATUS
2011-2014 HIGH-PRIORITY ACTIONS	
Collect all compostables from single family residential properties on a weekly basis and introduce every-other-week garbage collection and pilot collection of compostables from multi-family and commercial properties	Complete
Develop zero waste education and enforcement strategies for all sectors (single family households, apartments/condominiums, commercial businesses and institutions) to encourage behaviours that reduce waste, maximize reuse and recycling and recover resources from waste stream	Complete
Work with the Province to expand Extended Producer Responsibility (EPR) programs, especially for packaging, printed paper, plastic bags, and newsprint	Complete
Develop policy and incentives to encourage deconstruction for renovation and demolition projects	Complete
Composting of raw fruits and vegetables in single family and duplex residences; extension to additional compostable materials subject to Council approval	Complete
Collecting mattresses for recycling at the Vancouver transfer station and landfill	Complete
Neighbourhood composting pilot programs	Complete
Community based social marketing program to promote backyard composting	Cancelled
Enhanced waste diversion for City facilities	Complete
Pilot program for newspaper recycling on City streets	Underway
Building deconstruction pilot program	Complete
Clean wood waste diversion program at Vancouver landfill and transfer station	Complete
Diverting reusable items at the Vancouver transfer station and landfill	Complete
ACCESS TO NATURE	STATUS
2011-2014 HIGH-PRIORITY ACTIONS	
Convert street rights-of-way into 4-6 mini-parks	Complete
Identify land and build 2-3 new parks in priority neighbourhoods	Underway
Plant 15,000 new trees on City and other public property	Complete
Green Hastings Park	Underway
Urban Forest Management Plan	Ongoing
Street to mini-park conversion at Main and 18 Ave	Complete
Increased number of community garden plots and other forms of urban agriculture	Ongoing
Increased street tree planting	Ongoing
Encourage planting with native and edible plants	Ongoing
Green street program encouraging neighbourhood stewardship	Ongoing

CLEAN WATER	STATUS
2011-2014 HIGH-PRIORITY ACTIONS	
Require water metering on all new single and dual family home services (new construction and major renovations)	Complete
Develop and commence enhanced water education, incentive and conservation programs	Underway
Continue to expand public access to drinking water	Complete
Eliminate combined sewer overflows from sewage outfalls at Crowe and Burrard Streets and develop Integrated Stormwater Management Plan	Underway
Increase access to potable water through use of portable water stations and other activities	Complete
Program to encourage use of rain barrels for apartments	Complete
Explore bylaw revision to allow ticketing for lawn sprinkling	Complete
Lawn sprinkling education and awareness program pilot	Complete
Metro Vancouver's Capilano filtration plant construction	Complete
LOCAL FOOD	STATUS
2011-2014 HIGH-PRIORITY ACTIONS	
Support urban agriculture by:	a) to e) Complete
a) Creating 5-6 community gardens/yr	
b) Enabling 3 new urban farms	
c) Encouraging 2 new farmers markets	
d) Adding public fruit trees	
e) Investing in 3 neighbourhood food networks	
f) Support the development of a Vancouver Food Hub	f) Underway
Provide local food in City facilities, such as community centres, through the development and implementation of a local food procurement plan	Complete
Develop a Vancouver Food Strategy	Complete
Comprehensive review of policy and regulatory barriers to growing local food for personal consumption or economic development, and plan to remove barriers	Complete
Support farm markets by making it easier to host them in all zones	Complete
Greenest City grants for neighbourhood food projects	Complete
Increased number of community garden plots and other forms of urban agriculture - 450 community garden plots added in 2010, including a community garden at City Hall	Complete
Edible landscaping information and support program	Complete
Expand street food vending program	Complete
Support urban farming on City land, including SoleFood farm lease on City land	Complete
Plant fruit trees in parks, first orchard	Complete
Increase food carts on public right of way including local foods	Complete
Bee hives located on City Hall	Complete
Backyard chicken bylaw	Complete
Encourage local food in City procurement processes	Complete
Support food business incubator	Complete
CLEAN AIR	STATUS
2011-2014 HIGH-PRIORITY ACTIONS	
Encourage electric vehicle transport	Ongoing
Regulate uncontrolled wood burning appliances for residential buildings	Complete
Establish a framework for integration of air quality considerations into the City planning	Ongoing
Collaborate with Port Metro Vancouver, Metro Vancouver and BC Hydro on joint air quality issues	Ongoing

Electric vehicle charging station pilot program	Complete
Develop air quality protection plan that supports Metro Vancouver planning	Ongoing
Replace City waste transfer tractor trailers with cleaner fuel vehicles in partnership with Fortis BC	Complete
Develop and implement a green fleets plan for the City of Vancouver	Complete
GREEN ECONOMY	STATUS
2011-2014 HIGH-PRIORITY ACTIONS	
Develop green hubs (such as an incubator, accelerator, or research facility) along with demonstration platforms to showcase local companies and relevant incoming and outgoing trade missions to create international linkages	Underway
Develop a formal green pre-procurement program to create ongoing dialogue between the City's purchasing category managers and technology companies	Delayed
Establish a Green Enterprise Zone	Underway
Deliver a business program that aligns the Greenest City and economic development tools to achieve measurable improvements in the environmental performance of Vancouver businesses	Underway
The Metro Vancouver Commerce Olympic Business Program	Complete
Clean tech trade mission to China	Complete
Home weatherization and green jobs pilot project with EMBERS	Complete
Building and promoting Green Capital brand and Vancouver as a global leader for green business	Complete
Deconstruction and green jobs pilot projects	Complete
Green economic development strategy	Complete
Deliver robust green business retention, expansion, and attraction (BREa) program, including tracking of business activities	Complete
MoUs and collaborative efforts with global technology companies and local green enterprises to demonstrate and test technology and grow international market potential	Complete
Developing business plan for green technology centre and network	Complete
Development of Campus-City Collaborative to connect post-secondary institutions with each other and the City to work on Greenest City challenges	Complete
Ongoing support for community-based sustainability initiatives in the Downtown Eastside through capital allocations, project facilitation, business development support, etc. (e.g., RTS 9206)	Ongoing
LIGHTER FOOTPRINT	STATUS
2011-2014 HIGH-PRIORITY ACTIONS	
Pilot a green neighbourhood outreach and infrastructure program in a Vancouver neighbourhood	Underway
Actively support non-profits and social enterprises working to reduce ecological footprint	Ongoing
Work with the Open Data initiative to open Greenest City data	Ongoing
Greenest City Scholars program in partnership with UBC	Ongoing
Partner with UBC to develop innovative ways to engage the public on sustainability issues	Ongoing
Pilot an eco-concierge program	Underway
Launch the Greenest City Mayor's Award	Complete
Launch Greenest Neighbourhood engagement program	Complete
Partner with, and support local community organizations in their implementation efforts	Ongoing
Allocate \$100,000 per year as Greenest City grants	Ongoing
GREEN OPERATIONS	STATUS
2011-2014 HIGH-PRIORITY ACTIONS	
Plan and implement a comprehensive corporate waste reduction and diversion program for all City facilities	Complete
Develop a procurement policy and practice that supports the purchase and use of local food in City-run facilities	Complete
Look for opportunities to green community events that the City runs, sponsors, and permits	Complete
Plan and implement a program to significantly reduce greenhouse gas emissions and fossil fuel use in City-run buildings and vehicles	Complete

GREENEST CITY ADVISORS

The Greenest City 2020 Action Plan (GCAP) is the culmination of countless hours of work, as well as the invaluable expertise, leadership and creativity offered by hundreds of organizations and individuals. It is with great appreciation that we recognize all who are playing a role in building a green and renewable future for our city and our planet.

GCAP 2020 - STEERING COMMITTEE

GCAP STEERING COMMITTEE - 2015-2020 STRATEGY

Albert Shames, Director, Waste Management & Resource Recovery

Amanda Pitre-Hayes, Director, Sustainability Group

Bill Harding, Director, Parks, Vancouver Park Board

Brian Crowe, Director, Water, Sewers & District Energy

Bryan Buggiey, Director, Strategic Initiatives and Sector Development, Vancouver Economic Commission

Chris Underwood, Manager, Solid Waste Strategy

Dave Hutch, Manager, Planning and Research

Doug Smith, Assistant Director, Sustainability Group

Lon LaClaire, Acting Director, Transportation Division

Malcolm Shield, Climate Policy Manager, Sustainability Group

Mary Clare Zak, Managing Director, Social Policy and Projects Division

Pat Ryan, Chief Building Official & Building Review

Rena Kendall-Craden, Director, Corporate Communications

Sadhu Johnston (Chair), Acting City Manager

Sean Pander, Green Buildings Program Manager, Sustainability Group

GCAP STEERING COMMITTEE - 2011-2014 STRATEGY

Amanda Pitre-Hayes, Director, Sustainability Group

Brent Toderian, Director, Planning

Brian Crowe, Director, Water and Sewers Division

Chris Underwood, Acting Director, Waste Reduction and Recovery Management

Danica Djurkovic, Acting Director, Planning and Operations, Vancouver Park Board

David Ramslie, Senior Programs Manager, Sustainability Group

Jerry Dobrovolny, Director, Transportation Division

John Tylee, Director, Policy and Research, Vancouver Economic Commission

Lee Malleau, CEO, Vancouver Economic Commission

Mairi Welman, Director, Corporate Communications

Mary Clare Zak, Director, Social Policy Division

Neal Carley, Director, Streets Division

Peter Kuran, Deputy General Manager, Vancouver Park Board

Rowan Birch, Director, Waste Reduction and Recovery Management

Sadhu Johnston (Chair), Deputy City Manager

Sean Pander, Assistant Director, Sustainability Group

Tilo Driessen, Manager, Planning and Research, Vancouver Park Board

Will Johnston, Chief Building Official

GCAP 2020 - PLANNING TEAM

GCAP PLANNING TEAM - 2015-2020 STRATEGY

Amanda McCuaig, Communications Coordinator, Corporate Communications

Amanda Mitchell, Public Engagement Specialist, Corporate Communications

Amanda Pitre-Hayes, Director, Sustainability Group

Amy Fournier, Sustainability Specialist, Sustainability Group

Emory Davidge, Greenest City Public Engagement Coordinator, Corporate Communications

Jennifer Wahl, Sustainability Specialist, Sustainability Group

Keltie Craig, Sustainability Specialist, Sustainability Group

Lloyd Lee, Monitoring and Reporting Planner, Sustainability Group

GCAP PLANNING TEAM - 2011-2014 STRATEGY

Amanda Mitchell, Greenest City Public Engagement Coordinator, Sustainability Group

Amy Fournier, Project Analyst, Sustainability Group

Lindsay Cole, Greenest City Planner, Sustainability Group

Lisa Brideau, Sustainability Specialist, Sustainability Group

Olive Dempsey, Greenest City Public Engagement Coordinator, Sustainability Group

Ryan Merkley, Director, Corporate Communications

GCAP 2020 - EXTERNAL ADVISORY OVERSIGHT COMMITTEE

For the 2015-2020 refresh of the Greenest City Action Plan, an oversight committee was established comprised of representatives from the external advisory committees of each of the ten goal areas.

This group was invited to review an early draft of this strategy, to participate in a focused workshop, and to share their views with City Council.

GREENEST CITY ADVISORY GROUP (GCAG) - 2015-2020 STRATEGY

Andrea Reimer (Co-Chair), Vancouver City Councillor

Adam Vasilevich, Vancouver Public Space Network

Andrew Marr, Metro Vancouver

David Boyd (Co-Chair), Simon Fraser University

Elizabeth Sheehan, Climate Smart

Ian Bruce, David Suzuki Foundation

Muneesh Sharma, Building Owners and Managers Association

Neil Huff, Foresight Cleantech Accelerator Centre

Ray Cole, University of British Columbia

Roger Quan, Metro Vancouver

Sauna Sylvestre, Simon Fraser University Centre for Dialogue

Tara Moreau, Vancouver Food Policy Council

Vanessa Timmer, One Earth

This work builds on the foundational work completed by the Greenest City Action Team who set the original direction for Vancouver to become the Greenest City in the world by 2020.

GREENEST CITY ADVISORY TEAM (GCAT) – 2011-2014 STRATEGY

Alex Lau, Vice President, Golden Properties Ltd.

Andrea Reimer, Vancouver City Councillor

Cheeying Ho, Director, Whistler Centre for Sustainability

Dr. David Boyd, Environmental Lawyer

David Cadman, Vancouver City Councillor

Dr. David Suzuki, Scientist, environmentalist and broadcaster

Gordon Price, Director, SFU City Program and former City Councillor

Gregor Robertson, Mayor of Vancouver

Karen Cooling, National Staff Representative, Communications, Energy and Paperworks Union of Canada and Treasurer, Toxic Free Canada

Linda Coady, Distinguished Fellow, Liu Institute for Global Issues, UBC

Linda Nowlan, Director, Pacific Conservation, World Wildlife Fund – Canada

Lindsay Cole, Director, Sustainability Solutions Group

Mark Holland, Principal, HB Lanarc

Mike Harcourt, Former Premier of BC, Former Mayor of Vancouver, Honorary Chair of the International Centre for Sustainable Cities

Mossadiq S. Umedaly, Executive Chairman, Enecsys

Moura Quayle, UBC Sauder School of Business

Robert Safrata, CEO, Novex Delivery Solutions

Tamara Vrooman, CEO, Vancity

GOAL 1 – CLIMATE AND RENEWABLES

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GOAL 2 – GREEN BUILDING

GREEN BUILDING – EXTERNAL ADVISORS – 2015-2020 STRATEGY

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Jonathan Meads, Concert Properties

Jordan Fisher, Urban Development Institute

Kathy Wardle, Perkins + Will

Luke Smeaton, Lighthouse Sustainable Building Centre

Mark Sakai, Greater Vancouver Home Builders' Association

Monte Paulsen, Canadian Passive House Institute West

Ray Cole, University of British Columbia

Sarah Smith, Fortis BC

Thomas Mueller, Canadian Green Building Council

Toby Lau, BC Hydro

Tom Awram, Adera

Thomas Mueller, Canadian Green Building Council

Tom-Pierre Frappé-Sénéclauze, Pembina Institute

Tony Gioventu, Condominium Home Owners Association of BC

Trudy Rotgans, Province of British Columbia

GREEN BUILDING - INTERNAL ADVISORS – 2015-2020 STRATEGY

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Gregory McCall, Planning and Development Services

John Greer, Planning and Development Services

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Ryan The, Planning and Development Services

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Helen Goodland, Light House Sustainable Building Centre

Jeff Fischer, Urban Development Institute

Jennie Moore, BC Institute of Technology

Jennifer Sanguinetti, Smart Buildings & Energy Management BC Housing

Jessica Woolliams, Cascadia Green Building Council

Joe Stano, Canada Green Building Council

Joel Sisolak, Cascadia Green Building Council

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John Scott, CEI Architecture Planning Interiors

Jonathan Meads, Concert Properties

Juvarya Warsi, Vancouver Economic Commission

Katherine Muncaster, Province of British Columbia

Keith Sashaw, Vancouver Regional Construction Association

Kevin Hydes, Integral Group

Lorina Keery, Building Owners and Managers Association BC

Lyn Bartram, Simon Fraser University

Martin Nielsen, Busby, Perkins + Will

Michael Blackman, Association of Professional Engineers and Geoscientists / Read Jones Christoffersen Ltd.

Michael Yeates, Vancity

Mona Lemoine, Cascadia Green Building Council

Murray Mackinnon, Ledcor

Norm Shearing, Parklane Homes

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Peter Laforest, Building Owners and Managers Association BC

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Sophie Mercier, BC Building Envelope Council Member

Teresa Coady, Bunting Coady Architects

Thomas Mueller, Canada Green Building Council

Toby Lau, BC Hydro

Trudy Rotgans, Province of British Columbia

Warren Knowles, RDH Building Engineering

GREEN BUILDINGS - INTERNAL ADVISORS – 2011-2014 STRATEGY

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Pat Ryan, Planning and Development Services

Rachel Moscovich, Sustainability Group

Rick Michaels, Planning and Development Services

Ron Dyck, Planning and Development Services

Sailen Black, Planning and Development Services

Will Johnston (Chair), Chief Building Official

GOAL 3 – GREEN TRANSPORTATION

GREEN TRANSPORTATION - MAJOR PARTNERS

*TransLink, the regional transportation agency
Province of British Columbia*

*Metro Vancouver and neighbouring municipalities
(including Regional Mayor's Council)*

Vancouver Coastal Health and other health care agencies and providers

Schools and academic institutions

Port Metro Vancouver, a federal authority

Vancouver International Airport, a federal authority

Rail companies

ICBC, the provincial auto insurance provider

Trucking, taxi, and commercial transit providers

Transportation non-profit organizations

Local business and community associations

Enforcement and emergency service providers

GREEN TRANSPORTATION - EXTERNAL ADVISORS – 2011-2014 STRATEGY

Adam Cooper, University of British Columbia

Alice Miro, Heart and Stroke Foundation

David Feldhaus, Vancouver Electric Vehicle Association

Gordon Price, Simon Fraser University

Greg Yeomans, TransLink

*Heather McKay/Sara Lusina/ Azaria Botta
Vancouver Coastal Health*

Karen Parusel/Karen Fung, Vancouver Public Space Network

Keith Ippel, Vancouver Area Cycling Coalition

Kevin Millsip, Vancouver School Board

Kevin Volk, BC Ministry of Transportation

Larry Frank/Andrew Devlin, University of British Columbia

Margaret Mahan, Better Environmentally Sound Transportation

Mike Elwood, Electric Mobility Canada

Raymond Kan/Eve Hou, Metro Vancouver

GREEN TRANSPORTATION - INTERNAL ADVISORS – 2011-2014 STRATEGY

Andrew Pask, Social Policy Division

Brent Toderian (Chair), Planning and Development Services

Brian Beck, Sustainability Group

Dale Bracewell, Engineering Services

Jerry Dobrovoly (Chair), Engineering Services

Jo Fung, Engineering Services

Lon LaClaire, Engineering Services

Maggie Baynham, UBC Greenest City Scholar

Neal LaMontagne, Planning and Development Services

Paul Krueger (Staff Lead), Planning and Development Services

Tate White, UBC Greenest City Scholar



GOAL 4 – ZERO WASTE

COV WORKED WITH THE FOLLOWING ORGANIZATIONS TO ADVANCE FOOD SCRAPS DIVERSION

Waste Management Association of BC – private haulers

Non-WMABC private haulers

Landlord BC

Condo Home Owners Association

Co-Operative Housing Federation of BC

BC Non-profit Housing Association

Professional Association of Managing Agents

Strata Property Agents of BC

Building Owners and Managers Association

Canadian Condominium Institute, Vancouver Chapter

Vancouver Business Improvement Associations

BC Restaurant & Food Services Association

Vancouver Board of Trade

Tourism Vancouver

BC Food Processor Association

Hotel Association of Vancouver

DTES Kitchen Tables Project

Vancouver Farmer's Market

West End Neighbourhood Food Network

COV WORKED WITH THE FOLLOWING ORGANIZATIONS TO IMPROVE STREET CLEANLINESS AND ON-STREET RECYCLING

Various Vancouver Business Improvement Associations

Community Volunteer Clean Up Groups (i.e., West End Clean Up, Great Canadian Shoreline Cleanup and SurfRider Foundation)

Community Policing Centers (i.e., Hastings Sunrise, Grandview Woodland, West End, Collingwood)

Neighbourhood Houses (i.e., Gordon, Mt. Pleasant)

Youth Groups – Citywide Youth Council

Stewardship Agencies (i.e., Encorp)

Social Enterprise Micro-cleaners (i.e., United We Can, Coast, SYJA, Kettle, Mission Possible)

2014 CONSULTATION DIVERSION OF DEMOLITION WASTE

Octiscapes Demolition Excavation & Drainage

HeatherBrae Builders

3R Demolition

Re-Use Consulting

Embers Green Renovations

Broadway Roofing

Ledcor

Ellisdon

Pacific Blasting & Demolition

MWL Demolition

City of Vancouver - Supply Chain Management

City of Vancouver - Real Estate and Facilities Management

Metro Vancouver - Solid Waste Services

Hans Demo

T&T Demo

Litchfield

Green Coast Rubbish

Haebler Construction

Kinetic Construction

Basran Fuels

Smithers Industries

InnerCity Recycling

Lafarge

Gemaco Sales

Habitat for Humanity - ReStore

RichVan Holdings

Harvest Power/Urban Wood Waste

Ecowaste Industries

Pacific Carpet Recycling

Metro Vancouver

Fairway Demolition

LockBlock

ZERO WASTE - EXTERNAL ADVISORS - 2011-2014 STRATEGY

Avtar Sundher, Ministry of the Environment

Brock Macdonald/ Jordan Best, Recycling Council Of BC

Charles Gauthier, Downtown Vancouver BIA

Dennis Ranahan, Metro Vancouver

Helen Spiegelman, Zero Waste Vancouver

Kevin Millsip, Vancouver School Board

Louise Schwarz, Recycling Alternative

Norman Point, Musqueam Indian Band

Richard Tak, Vancouver Coastal Health

Robert Weatherbe, Recycling Alternative

Ruth Abramson, Provincial Health Services Authority

Sam Dahabieh, Simon Fraser University

ZERO WASTE - INTERNAL ADVISORS - 2011-2014 STRATEGY

Catherine Kinahan, Legal Services

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David Robertson, Engineering Services

Lynn Belanger, Engineering Services

Mani Deo, Engineering Services

Monica Kosmak, Engineering Services

Rowan Birch (Chair, retired), Engineering Services

Valerie Presoly, UBC Greenest City Scholar

GOAL 5 – ACCESS TO NATURE

ACCESS TO NATURE - EXTERNAL ADVISORS - 2011-2014 STRATEGY

Andrew Appleton, Evergreen

Catherine Berris, BC Society of Landscape Architects

David Zandvliet, Simon Fraser University

Dawn Hanna, Jericho Stewardship Group

Emily Jubenville, Vancouver Public Space Network

Kai Chan, University of British Columbia

Kevin Millsip, Vancouver School Board

Margaret Coutts, Nature Vancouver

Patricia Thomson, Stanley Park Ecology Society

ACCESS TO NATURE - INTERNAL ADVISORS - 2011-2014 STRATEGY

Alan Duncan (Staff Lead), Vancouver Park Board

Amit Gandha, Vancouver Park Board

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Bill Stephen, Vancouver Park Board

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Douglas Scott, Engineering Services

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Megan Stuart-Stubbs, Vancouver Park Board

Neal Carley (Chair), Engineering Services

Piet Rutgers (retired), Vancouver Park Board

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GOAL 6 – CLEAN WATER

CLEAN WATER - EXTERNAL ADVISORS - 2015-2020 STRATEGY

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Anthonia Ogundeke, Vancity

Anthony Lucas, Vancouver Hotel Association and Westin Bayshore

Bryn Jones, FortisBC

Caryn Westmacott, Brewery employee

Craig Jangula, Craft Breweries

Daniel Klemky, Building Owners and Managers Association

Daniel Ward, University of British Columbia SCARP

Glen Garrick, Vancouver Coastal Health

Graham With, Craft Breweries

Gwendal Castellan, Tourism Vancouver

Jennifer Tan, Vancity

Ken Beattie, BC Craft Brewers Guild

Kirby Ell, Irrigation Industry Association of BC

Lindsey Tourand, Bentall Kennedy

Muneesh Sharma, Building Owners and Managers Association

Paul Hemmings, Vancouver Hotel Association and Delta Hotels

Ron Macdonald, Vancouver School Board

Ted van der Gulik, Irrigation Industry Association of BC

Troy Vassos, Nova Tech Consultants

Victoria Schedel, International Facility Management Association - BC

CLEAN WATER - INTERNAL ADVISORS - 2015-2020 STRATEGY

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Craig Edwards, Facilities, Planning and Development

David Robertson, Engineering Services

Donny Wong, Engineering Services

Jennifer Bailey, Engineering Services

Kyra Lubell, Engineering Services

Lindsay Cole, Vancouver Park Board

Nick Page, Vancouver Park Board

Shelley Heinricks, Engineering Services

CLEAN WATER - EXTERNAL ADVISORS - 2011-2014 STRATEGY

Bob Jones, Metro Vancouver

Dr. Dirk Kirste, Simon Fraser University

Dr. Gunilla Oberg, University of British Columbia

Kirk Stinchcombe, Econnics

Oliver Brandes, POLIS

Dr. Patricia Daly, Vancouver Coastal Health

Stan Woods, Metro Vancouver

Dr. Tim Takaro, Simon Fraser University

Dr. Troy Vassos, NovaTech Consultants Inc.

CLEAN WATER - INTERNAL ADVISORS - 2011-2014 STRATEGY

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 Donny Wong, Engineering Services
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 Jack Chen, Finance
 Jennifer Bailey, Engineering Services
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 Peter Navratil (Staff Lead), Waterworks Design
 Piet Rutgers/Danica Djurkovic, Vancouver Park Board
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GOAL 7 – LOCAL FOOD

LOCAL FOOD - EXTERNAL ADVISORS - 2011-2014 STRATEGY

André LaRivière, Green Table Network
 Brent Mansfield, Vancouver School Board
 Cale Price, Vancouver Chef
 Carla Shore, C-Shore Communications Inc.
 Carole Christopher, Society Promoting Environmental Conservation
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 David Tracey, Vancouver Community Agriculture Network
 Doug Aason, Greater Vancouver Food Bank
 Helen Spiegelman, Zero Waste Vancouver
 Herb Barbolet, Simon Fraser University
 Janine de la Salle, Food Systems Planning, HB Lanarc
 Jeff Nield, Farm Folk City Folk
 Joanne Bays, Public Health Association of British Columbia
 Kim Sutherland, BC Ministry of Agriculture
 Maria Burglehaus, Vancouver Coastal Health
 Ross Moster, Village Vancouver
 T'Uy'Tanat-Cease Wyss, Skwxw'u7mesh Nation
 Tara McDonald, Your Local Farmers Market Society
 Trish Kelly, Horizon Distributors
 Yona Sipos, University of British Columbia

LOCAL FOOD - INTERNAL ADVISORS - 2011-2014 STRATEGY

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 Bill Manning, Vancouver Park Board
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 Douglas Scott, Engineering Services
 Erin MacDonald, Engineering Services
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 John Breckner, Real Estate Services
 Kevin Millsip, Vancouver School Board
 Liane McKenna (retired), Vancouver Park Board
 Mary Clare Zak (Chair), Social Policy Division
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GOAL 8 – CLEAN AIR

CLEAN AIR - INTERNAL AND EXTERNAL ADVISORS - 2011-2014 STRATEGY

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GOAL 9 – GREEN ECONOMY

GREEN ECONOMY -EXTERNAL ADVISORS - CIRCULAR ECONOMY - 2015-2020 STRATEGY

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 Brock Macdonald, Recycling Council of BC
 Cody Dimitrijevic, British Columbia Institute of Technology
 Derek Gaw, MakerLabs
 Dharini Thiruchittampalam, D.Studio
 Esther Speck, Speck Consulting

Fabio Scaldaferrri, Mattress Recycling
 Fiona McAlpine, Future Strategies
 Gregory Dreicer, Museum of Vancouver
 Irina Molohovsky, Frameworq
 Jennifer Cutbill, Design Week
 Jenniffer Sheel, Viva Vancouver
 Jeremy Van Nieuwkerk, Shrapnel Design
 Karen Storry, Metro Vancouver Zero Waste
 Karen Wan-Gauthier, Projects in Place Society
 Kaya Dorey, British Columbia Institute of Technology
 Lena Soots, CityStudio
 Lisa Papania, Simon Fraser University
 Louise Schwarz, Recycling Alternative
 Mahbod Rouhany, Re-vivify
 Maia Rowan, Emily Carr
 Matt Fiddes, Re-vivify
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 Sarah Van Borek, Emily Carr
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 Toby Russell, Capilano Textile Waste Management
 Valerie Presolly, Mountain Equipment Coop
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 Chris Godfrey, Telus
 David Swan, Eco Options
 Fez Rismani, Daily Delivery
 Frank Tallarico, Greater Vancouver Food Bank Society

Grace Quan, Hydrogen in Motion
Jared Girman, West Coast Reduction
Jay Giraud, Mojo
Jim Vanderwal, Fraser Basin Council
J-M Toriel, Big Green Island
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Braden Hall, FX/GX
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Dave Rurak, Ralph's Radio
David Porte, Porte Developments
Derek Gaw, Maker Labs
Ed Ferreira, CBRE
Elvy Del Bianco, Vancity
Emily Kaplan, GNW Trust
Gord Wylie, Chard Development
Hani Lammam, Cressey Development
Harvey Burrirt, Burrirt Bros.
Jamie Vaughan, Onni
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Louise Schwarz, Recycling Alternative

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Heather Tremain, reSource Rethinking Building
Helen Goodland, Light House Sustainable Building Centre
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Jennie Moore, BC Institute of Technology
John Lerner, EMBERS
Lee Loftus, BC & Yukon Construction Trades Council
Linda Nowlan, Environmental Lawyer & Consultant
Linda Oglov, Oglov Business Development
Lori Law, National Research Council-IRAP
Marcia Nozick, EMBERS
Mark Holland, HB Lanarc
Maureen Cureton, Vancity
Michael Heeney, Bing Thom Architects
Pascal Spothelfer, BC Technology Industry Association

Paul Austin, Sustainable Development Technology Canada
Paul Shorthouse, Globe Foundation
Richard Hallman, BC Innovation Council
Robin Hemmingsen, BC Institute of Technology
Sean Markey, Simon Fraser University
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Gordon Hardwick, BC Film Commission
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Lorina Keery, Building Owners and Managers Association BC
Maureen Cureton, Vancity
Michael Krafczyk, Translink
Sophie Agbonkhese, Strathcona BIA
Walt Judas, Tourism Vancouver
Wes Regan, Hastings Crossing BIA

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John McPherson, Vancouver Economic Commission
John Tylee (Chair), Vancouver Economic Commission
Jonathan Kassian, Vancouver Economic Commission
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Kira Gerwing, Planning and Development Services
Lee Malleau, Vancouver Economic Commission
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Peter Vaisbord, Community Services



GOAL 10 – LIGHTER FOOTPRINT

LIGHTER FOOTPRINT - EXTERNAL ADVISORS - 2015-2020 STRATEGY

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Janet Moore, CityStudio

Jennie Moore, BC Institute of Technology

Kevin Millsip, Consultant

Paula Leyton, Project Green Bloc

Rosemary Cooper, One Earth

Ruben Anderson, Consultant

Vanessa Timmer, One Earth

LIGHTER FOOTPRINT - INTERNAL ADVISORS - 2015-2020 STRATEGY

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Desiree Baron, Vancouver Public Library

Doug Smith, Sustainability Group

James O'Neill, Social Policy Division

Jennifer Wahl, Sustainability Group

Keltie Craig, Sustainability Group

Leslie Ng (Staff lead), Sustainability Group

Lindsay Cole, Vancouver Park Board

LIGHTER FOOTPRINT - EXTERNAL ADVISORS - 2011-2014 STRATEGY

Aftab Erfan, Deep Democracy

Alex Lau, Golden Properties

Bill Rees, One Earth/University of British Columbia

Emmanuel Prinnet, One Earth

James Boothroyd, David Suzuki Foundation

Janet Moore, SFU-Semester in Dialogue

Jason Mogus, Communicopia

Jennie Moore, CityStudio

Kevin Millsip, Vancouver School Board

Meg Holden, Simon Fraser University

Nancy McHarg, Hoggan and Associates

Ruben Anderson, Metro Vancouver

Susanna Haas Lyons, UBC Greenest City Conversations Project

Vanessa Timmer, One Earth

LIGHTER FOOTPRINT - INTERNAL ADVISORS - 2011-2014 STRATEGY

Amy Fournier, Sustainability Group

Andrew Pask, Social Policy Division

Avery Titchkosky, UBC Greenest City Scholar

Baldwin Wong, Social Policy Division

Barb Floden, Vancouver Park Board

Brenda Proskan, Community Services

Colin Fenby, Corporate Communications

Cornelia Sussmann, UBC Greenest City Scholar

Daphne Wood, Vancouver Public Library

Jennifer Bailey, Engineering Services

Joseph Li, Corporate Communications

Joyce Uyesugi, Planning and Development Services

Laurie Best, Web Redevelopment Project

Lindsay Cole (Staff Lead), Sustainability Group

Maggie Wang, UBC Greenest City Scholar

Mairi Welman (Chair), Corporate Communications

Nancy Eng, Corporate Communications

Paul Henderson, Engineering Services

Polly Ng, UBC Greenest City Scholar

Sean Pander, Sustainability Group

“Huge wealth can be created even as you make people healthier, reduce the sickness that comes from particulates in the air and the cancer that comes with it...more and more city leaders are coming to that conclusion...

it’s why Vancouver set a goal of obtaining 100% of its energy from renewable sources by 2050.”

John Kerry, US Secretary of State





For More Information:

Visit vancouver.ca or call: 311

Hỏi chi tiết

資料查詢

Obtenga Información

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