GREENEST CITY



QUICK START RECOMMENDATIONS

CITY OF VANCOUVER | greenest CITY

APRIL 27, 2009

the greenest city in the world

GETTING A QUICK START

The future of humanity hinges on cities dramatically reducing their devastating impact on the planet. This urgent and monumental challenge is being met with bold environmental policy changes and by unprecedented investment in green enterprises, creating real economic benefits for cities that aggressively develop best tools and practices.

Vancouver is well-positioned to lead the world in this transformation. Our goal is to be the Greenest City in the World by 2020. We've historically been ranked among the top 10 green cities*, but risk losing ground, and opportunities to more ambitious cities. To be the greenest city we need a focused plan and must mobilize city hall, citizens, businesses and community groups to take action.

In February, Mayor Gregor Robertson launched the Greenest City Action Team, composed of 14 experts on environment and economy, with a mission to gather best ideas and practices and make recommendations to City Council.

This is the Team's first – urgent – report: a Quick Start, setting out a host of actions, all of which can be initiated and most of which can be completed in time for Vancouver's Olympic moment in February 2010.

The report concentrates on three general areas:

1. **Jobs and the Economy –** includes actions that create green jobs and build Vancouver's economic strength. These range from finance and smart regulation to energy efficiency and producing clean energy.
2. **Greener Communities –** identifies actions to improve our green transportation options and that support and enhance clean, green neighbourhoods, the natural environment and greenspaces.
3. **Human Health –** focuses on protecting and improving health in Vancouver, through measures such as ensuring the purity of our water, providing access to healthy (and especially local) food and eliminating or reducing toxins and other pollutants.

This report rests on a single, critical assumption: there is no time to lose. Vancouver is already in the world's spotlight in anticipation of the 2010 Winter Games. That event will be an opportunity to promote the city to prospective residents and potential businesses as an international exemplar.

The challenge ahead is considerable and complex, but achievable. This document shows how to ensure we make a Quick Start to become the world's greenest city.

With Vancouver about to step into the international spotlight, we have a unique opportunity to shine as the world's greenest city.

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introduction

HOW QUICKLY CAN VANCOUVER LIVE UP TO ITS REPUTATION?

Vancouver is, by almost every measure, the world's most livable city; the *Economist* magazine confirmed as much in its most recent survey. Vancouver boasts a natural setting of exquisite beauty, a diverse and creative population and an economy that – even in recession – is enviable in most corners of the world. Vancouver also has the smallest carbon footprint of any city in North America and a track record of environmental leadership. This is the home of *Greenpeace* and the *David Suzuki Foundation*. The very idea of an "ecological footprint" was conceived here by University of B.C. Professor William Rees and Mathis Wackernagel.

Yet despite a plethora of parks and a paucity of freeways, Vancouver is not the greenest city in the world – and that is our goal. By a number of measures, we lag behind North American neighbours such as Toronto and San Francisco and are far behind world leaders such as Stockholm, Copenhagen and Amsterdam. We also fail in the ultimate measure: Vancouver is not sustainable. Our citizens consume at a rate that our finite world cannot maintain – a condition that we have the capacity to change.

Change we must – and for two reasons. **First** and most obviously, it is the right thing to do. We have a collective responsibility to future generations. We cannot leave them with a world trashed by pollution and stripped by overconsumption.

Second and most urgently, the world is wrestling with a long overdue economic transition. The innovators who are first to test and prove the elements of a truly sustainable economy will not just save the world; they will ensure their future as social and economic leaders for generations to come.

Leading European cities already recognize that green is no longer the colour of sacrifice; it's the colour of money and job creation. There are synergies, not trade-offs, between the environment and the economy. Green policies that conserve energy also save money. Initiatives that reduce pollution also improve the environment, protecting health and wellness. Green companies are the ones that will (and should) grow most quickly, and green jobs are the only ones with ultimate security.

Vancouver is already a leader in green building, planning and technology; we must also become a bigger magnet for trade and investment in green business.

To that end, Vancouver Mayor Gregor Robertson created the Greenest City Action Team, to create a plan to make Vancouver the greenest city in the world within 10 years. This goal requires social, structural and institutional changes that cannot be made overnight. But every such journey begins with determined first steps.

That's what you will find in this report: an ambitious but pragmatic list of smart, green policies and actions, most of which can be initiated immediately. Many of these actions

The U.S. is already well on its way to generating significant amounts of renewable energy. We must also make large strides towards sustainability, to create jobs whle doing the right thing.

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can produce visible – and admirable – results by the time the world's gaze falls on this Olympic Host City in February of 2010.

The 10 chapters in this report begin with a context statement and continue with a list of action items. Some of these can be implemented immediately by City staff – in many instances the Greenest City Action Team has identified things the City is already doing, things that just need more energy or political support. Other recommendations require decisive political action, including new by-laws or regulations that fall within the responsibility of Vancouver City Council.

Still other suggestions rely on Vancouver's ability to partner with neighbours, community groups, businesses and, in many important cases, other levels of government.

Because their involvement is crucial, Vancouverites will need to engage to a degree never before seen. After all, it will be our actions that make the difference. We will be the ones riding our bikes, taking the bus, doing energy efficiency retrofits to our homes, and buying fresh local foods.

This is not an "action plan" in the traditional sense. The implementation of policies and the setting of priorities must fall, appropriately, to Vancouver City Council and to the City employees who will ultimately make any formal plan a success. But this is surely a plan for potential action – an inspirational list of Quick Start actions to accelerate the City's progress on the path to sustainability.

What does it mean to be the greenest city in the world? No one indicator or metric can capture the breadth and depth of endeavour required. It makes more sense to think of the greenest city competition as an environmental decathlon.

In the Olympic decathlon, competitors earn scores in 10 different events, from sprints and hurdles to javelin and high jump. To win gold, athletes must excel in a range of events, while ensuring that they do not have an Achilles heel in any of the sports involved.

The greenest city needs to have: a small carbon footprint; clean air; clean water; an abundance of parks and green-spaces; locally produced food; an absence of toxic hotspots; a transport system dominated by walking, cycling, and transit; and compact, mixed-use neighbourhoods.

Later this year, the Greenest City Action Team will deliver a more comprehensive 10-year vision, including measurable benchmarks to help monitor and refine Vancouver's progress toward the vanguard of environmental sustainability.

But we urge all Vancouverites not to wait, and we commend the actions within for getting a Quick Start. A cleaner, greener, healthier and wealthier Vancouver awaits.

The Woodward's development includes several world-leading best practices, many of them envirionmental – such as green walls, low GHG emissions and high urban density levels (and with unprecedented overlapping of mixed-use components). This is the type of development of which Vancouver needs more.

recommended actions

The recommendations here fall into three categories: work that can be started now by City staff; projects that require more policy direction or legislation from City Council; and actions that need direct leadership, advocacy or negotiation from the Office of the Mayor with partners and/or other levels of government.

JOBS AND THE ECONOMY

	Action Staff	**Policy** Council	**Advocacy** Mayor's Office
GREEN ECONOMY			
1. Create a Green Economic Development Strategy	●		●
2. Establish the Greenest City Action Fund		●	
3. Commission a Green Tape Review	●	●	
4. Adopt and Leverage a Green Procurement Strategy	●	●	
5. Revitalize the False Creek Sustainability Precinct	●		●
GREEN JOBS			
6. Implement a Green Jobs Pilot Project	●		●
7. Require Green Building Retrofits	●	●	
8. Create a Solar Thermal Hot Water Pilot Project	●		
9. Advocate for Federal and Provincial Stimulus for Green Jobs			●
ENERGY EFFICIENCY AND RENEWABLE ENERGY			
10. Engage Large Emitters in Reducing Greenhouse Gas Emissions	●		●
11. Develop an Integrated Energy Strategy	●		
12. Pursue an Adaptive LED Street Light Project	●		
13. Provide Priority Permitting for Green Buildings	●	●	
14. Take a Leadership Role on Climate Policy Advocacy			●

GREENER COMMUNITIES

GREENER NEIGHBOURHOODS	Action Staff	Policy Council	Advocacy Mayor's Office
15. Offer Greenest City Neighbourhood Grants	●		
16. Sponsor a Greenest Neighbourhood Vision Contest	●		●
17. Co-sponsor a Children's Greenest City Art Contest	●		●
18. Re-establish the Mayor's Greenest City Awards	●		●
19. Re-invigorate the One Day Vancouver Social Marketing Program	●		●
NATURE AND GREENSPACE			
20. Encourage Landscaping with Native Plants	●		
21. Increase Public Access to Green Space	●		
22. Restore Shoreline and Inter-tidal Zones	●		
23. Advocate for a Healthy Pacific Ocean			●
MOBILITY			
24. Make Streets Safer for Pedestrians and Cyclists	●	●	●
25. Create a Public Bike Sharing Program	●		
26. Enable Zero-Emission Mobility: The Future of Clean Transportation	●	●	●
27. Build on Olympic Transportation Initiatives	●		
28. Conduct Car-Free Vancouver Trials	●		
29. Advocate for Immediate Investments and Improvements in Public Transit			●
CLEAN CITY			
30. Implement City-wide Composting	●	●	
31. Shift to Biweekly Garbage Collection	●	●	
32. Tackle Packaging Waste	●	●	●
33. Keep Vancouver Spectacular All Year Round	●		
34. Advocate Waste Reduction Laws and Policies			●

HUMAN HEALTH

CLEAN WATER	Action Staff	Policy Council	Advocacy Mayor's Office
35. Expand the Distribution of Water Saver Kits	●		
36. Promote Tap Water and Discourage the Use of Bottled Water		●	●
37. Advocate Expedited and Integrated Wastewater Treatment			●
LOCAL FOOD			
38. Plant the City Hall Organic Community Garden	●		
39. Allocate Additional Land for Community Gardens and Orchards	●		
40. Support Farmers Markets	●	●	
41. Create an Edible Landscaping Policy	●	●	
PROTECTING HUMAN HEALTH FROM ENVIRONMENTAL HAZARDS			
42. Map Toxic Hotspots	●		
43. Enact a Toxins "Right to Know" By-law		●	
44. Strengthen Protection from Pesticides	●	●	●

jobs and the economy

GREEN ECONOMY

We are at a vital turning point in terms of our economic and environmental future, a point at which we must evolve from the polluting fossil-fuel based system of the past into the clean, renewable, and efficient economy of the future. Vancouver has the values, the knowledge, and the technology to make the shift to sustainability, but we must act quickly to prevent today's problems from becoming tomorrow's catastrophes.

The wealth and job creation opportunities involved in moving to clean energy, low or no carbon buildings, zero emission vehicles, zero waste, and 'cradle to cradle' products are enormous. Year after year, areas as diverse as organic foods, wind power, solar power, and green consumer products are experiencing record growth. Vancouver can capitalize on these tantalizing opportunities but will need a focused effort in key areas to succeed.

While the City of Vancouver's concern with green and environmental issues is not exclusively economic in nature, it is clear that a strategic and responsible pursuit of environmentally sound policies can give the City a significant economic advantage. Green companies are, by their nature, more sustainable; green industries can help insulate Vancouver (and British Columbia) against the sometimes severe impacts that volatile international commodity markets can have on a resource-based economy.

CREATE A GREEN ECONOMIC DEVELOPMENT STRATEGY

Vancouver has a suite of assets that make us a potential world leader in the clean tech, green tech, and green enterprise sectors. These assets include highly educated and environmentally concerned citizens, the province's tremendous natural capital (including low carbon electricity), some supportive policies from other levels of government, and existing strengths in specific sectors such as fuel cells, green building design, and power technology.

Clean and green sectors continue to experience strong performance despite the global economic downturn. In 2008, green-tech companies received $8.4 billion in venture capital financing worldwide, a 38% increase over 2007.

Vancouver should create a comprehensive green economic development strategy that focuses on four key areas:

1. Helping existing businesses go green;
2. Supporting local entrepreneurs in developing green businesses;
3. Attracting green businesses to locate in Vancouver; and
4. Creating green jobs.

Vancouver is already a showcase for green performance in building, planning and technology; it must also continue to be a magnet for green economic energy. This approach will position us as a leader in the rapidly developing post-carbon economy.

An important initial step would be making an inventory of existing green businesses, entrepreneurs, and jobs. The Vancouver Economic Development Commission has already started on part of this task. Creating a Green Economy Task Force to develop and implement the strategy would also be useful.

As part of the green economic development strategy, Vancouver should develop a suite of incentives designed to attract, support, and promote green enterprises and green investment. In particular, we are one of the key North American entry points for the Asia-Pacific region, with many features making us attractive to Asian investors. We have including long-standing ties with China, a large Asian population, a relative openness to immigrants and immigration, a major Pacific Rim airport, an attractive international reputation, and high quality of life, and an economy with strong fundamentals.

To those attributes, we could add tax incentives, purchasing agreements, density bonuses, and marketing initiatives. The Vancouver Economic Development Commission should make the recruitment of green businesses one of their top priorities for 2009-2011.

LEADERSHIP: San Francisco operates a *Green Business* program that encourages and recognizes businesses that demonstrate environmental leadership, exceed minimum regulatory requirements, and take voluntary steps to conserve natural resources and prevent pollution.[1] San Francisco also offers tax and financial incentives to support existing green businesses and to attract new clean technology industries.

The benefits of partnering with green businesses on specific initiatives go beyond jobs, and can create exciting new programs to benefit city residents. For example, the information technology company Cisco recently piloted a new *Ecomap of San Francisco*, at no cost to the City.[2]

Chicago and **San Francisco** were the first North American cities to establish economic development offices in China. San Francisco opened its office in Shanghai in November 2008, with a three-year budget of $1.5 million, funded entirely by the private sector. San Francisco has already attracted two major Chinese businesses, including Trina Solar, a New York Stock Exchange-listed company with 5,000 employees that manufactures solar modules.[3]

Toronto has prepared a green economic sector development strategy that encourages the retention, growth, and attraction of companies or organizations that offer products and/or services that directly or indirectly reduce the impact on the environment.[4]

ESTABLISH THE GREENEST CITY ACTION FUND

Vancouver should actively seek funding partners (the provincial and federal governments, private donors, and businesses) to establish a Greenest City Action Fund to support investments in green infrastructure, energy efficiency, green jobs, environmental education, and green business.

Marquee projects and programs could include a world-class environmental education centre (*e.g.* a Sustainability World to complement Science World), development of the False Creek Sustainability Precinct, grants for Green Neighbourhood projects, the acquisition of land for public green spaces, development of small-scale sources of renewable energy (geothermal, biomass, solar, etc.), training for green jobs, incentives for green businesses, and a major energy efficiency retrofit program for residential buildings.

The Neighbourhood Energy Utility (NEU) in False Creek uses heat captured from sewers to heat nearby buildings.

Vancouver is the first city in North America to use this technology, which could be a prototype for other green energy projects.

LEADERSHIP: In 2003, **Stockholm** established the *'Miljomiljarden'* or Environmental Billion initiative, dedicating one billion Swedish kronor to improving environmental conditions. The money was spent on 158 projects that have helped make Stockholm a world leader in environmental protection, including:

- decontamination of polluted land, lakes and watercourses;
- more efficient energy consumption and waste management;
- environmental information;
- more efficient environmental work in the city; and
- activities that promote the preservation of biodiversity.

In 2008, Stockholm created the *'Klimatmiljarden,'* or Climate Billion initiative, allocating one billion Swedish kronor to projects and policies that will reduce the city's greenhouse gas emissions.[5] A portion of these funds was provided by the Government of Sweden through its Local Investment Program for addressing climate change. Stockholm recently was named the Greenest City in Europe.

COMMISSION A GREEN TAPE REVIEW

Residents and businesses have complained about regulatory obstacles to innovative green technologies and approaches, such as green roofs, rainwater harvesting, greywater use, composting toilets, and urban agriculture. After a 2008 internal review, the City revised by-laws to eliminate several barriers to green buildings. Vancouver should commission a comprehensive review of the City's by-laws, programs, and practices to facilitate and accelerate the move towards environmentally preferable technologies, buildings (including passive design), transport, and businesses.

ADOPT AND LEVERAGE A GREEN PROCUREMENT STRATEGY

The City of Vancouver can start to walk the talk, spending its $1 billion municipal budget in ways that promote positive environmental outcomes. A cutting-edge green procurement strategy would go far beyond the current Ethical Purchasing Policy.[6] From using 100% post-consumer recycled paper to prioritizing car-sharing over new vehicles, a comprehensive green procurement strategy could save money, reduce waste, promote emerging technologies, and help new green enterprises.

The strategy should also address sustainable business meetings. For example, a high-tech video-conferencing facility at City Hall could reduce employee travel. A recent report on green procurement policies in seven leading European Union nations showed substantial reductions in costs and in greenhouse gas emissions.[7] Although some green items have higher purchase prices, these can be offset through lower operating costs.

Vancouver could also leverage its green purchasing power through Metro Vancouver.[8] A number of cities in California have joined this kind of green procurement initiative, reducing costs and increasing benefits to the environment. By joining Green Cities California, municipalities agree to tangible environmental actions, including:

- Purchasing 100% post-consumer recycled paper;
- Prohibiting the purchase of bottled water for municipal operations and government-sponsored events;
- Adopting a carbon offset plan for air travel by municipal employees; and
- Purchasing and promoting local food for municipal operations and events.[9]

Local gardens and landscaping are distinct and highly beneficial features in many Vancouver neighbourhoods. Green spaces are known to improve social conditions as well as provide positive aesthetics.

REVITALIZE THE FALSE CREEK SUSTAINABILITY PRECINCT

Vancouver should revitalize the False Creek Sustainability Precinct and Great Northern Way redevelopment programs, creating a flagship partnership including the City, the Province, and the business and academic communities. The City could employ bold land-use planning, innovative infrastructure, and creative financing approaches to attract the best and brightest from around the world to help plan and develop an exemplary sustainable community – one that transcends incrementalism. Initial steps could include re-zoning the area, re-engaging the community, designing the district energy system, and planning extensive connections to public transportation.

GREEN JOBS

Green jobs are one of the cornerstones of the 21st century economy, with opportunities ranging from green-collar jobs building public transit infrastructure and green buildings – to the engineers harnessing clean renewable energy and creating a smart electricity grid. The employment created by investing in areas such as energy efficiency retrofits, infrastructure for electric and fuel cell vehicles, and installing micro-renewable technologies, such as solar hot water heaters, cannot be exported to cheap-labour locales. The jobs will stay in Vancouver. The green economy will also inspire entrepreneurs to develop low-carbon, light-footprint goods and services.

Money invested in the green economy works over-time, double-time, and even triple-time. Not only will Vancouver create green jobs, but it will save energy, protect the climate and the environment, and improve people's health. Green jobs offer more than just a substantial and sustainable paycheque. They provide people with a sense of personal satisfaction that they are contributing to a better world.

Vancouver has the tools needed to be at the forefront of the green jobs revolution – clean energy, political leadership, and a highly educated, green, and tech-savvy populace. Now it needs strategic investments and smart policies to accelerate the development of this sector and take advantage of this once-in-a-lifetime tectonic shift in economic structure.

IMPLEMENT A GREEN JOBS PILOT PROJECT

As part of a broader Green Jobs Strategy, Vancouver should establish a partnership with community organizations, vocational training programs, unions, and businesses to provide green job training and opportunities for young adults. The program should have a special focus on providing "green pathways out of poverty," recruiting and training people with barriers to employment (*e.g.*, lack of job skills, lack of education, language/cultural barriers, or history in juvenile/criminal justice system).

Initial opportunities include energy efficiency projects such as weather-stripping, tree planting, deconstruction, electronics refurbishing, and public transportation infrastructure projects.

LEADERSHIP: Chicago has had a *Green Corps* program since 1994 that provides tools, training, and technology to the unemployed and underemployed, with a particular focus on ex-offenders. For example, program participants are being trained to install solar equipment.

Oakland recently launched the Oakland Green Jobs Corps, awarding $250,000 to three community groups that will train young adults to take jobs in renewable energy and energy efficiency. Addressing social and environmental problems with one solution, the Green Jobs Corps aims to provide a shining national example of using the rising green wave to "lift all boats."[10] **Portland** recently developed a green jobs strategy that targets and attracts particular industry sectors.

False Creek and Great Northern Way could become model sustainable communities and should be reinvigorated as special "green zones".

REQUIRE GREEN BUILDING RETROFITS

Vancouver's new building code will ensure that new construction is the greenest in Canada. However, existing buildings generate the lion's share of greenhouse gas emissions. Energy efficiency upgrades should be a permit condition for all large renovations exceeding a specified dollar or square foot threshold.

In 2006, 12.4 million Canadian households spent $43.9 billion on renovations, or about $3,540 per household. Each year, almost one third of all owner-occupied houses in the Lower Mainland undertake substantial home improvements, with an average cost of over $10,000. However, only in a small fraction are energy efficiency improvements a priority.[11] Natural Resources Canada reports that average energy savings from home energy efficiency renovations are 28%.[12]

There are unprecedented levels of financial assistance available from the provincial and federal governments (Livesmart BC and EnerGuide) and from BC Hydro/Terasen Gas for energy efficiency upgrades. Homeowners can receive more than $10,000 in grants and rebates from these programs. This Quick Start would create green jobs, save energy, reduce greenhouse gas emissions, and improve the comfort and value of existing homes in Vancouver.

There is also an opportunity for energy efficiency upgrades when a property is sold. Toronto, for example, requires electrical upgrades of homes with older knob and tube electrical systems. (This initiative may require the provincial government to pass an amendment to the Vancouver Charter.)

LEADERSHIP: The City of Berkeley requires the following actions when a property is renovated or sold:[13]

- Toilets – 1.6 gal/flush or less, or flow-reduction devices
- Showerheads – 3.0 gal/minute or less
- Faucet aerators – 2.75 gal/minute or less for kitchens and bathrooms
- Water heater blankets – Insulation of R-12 value; leave 3" of space around vent hood at the top
- Hot and cold water piping – Insulate at least the first two feet from the heater to R-3 value
- Hot water piping in pumped, re-circulating heating systems – Insulate all exposed pipes to R-3 value
- Exterior door weatherstripping – Permanently affix weather stripping, and door sweeps or door shoes
- Furnace duct system – Seal joints and add insulation wrap to R-3 value minimum
- Fireplace chimneys – Must have dampers, doors or closures
- Attic insulation – Insulate to R-30 value or higher
- Common area lighting (multi-unit buildings)
- Replace incandescent bulbs with compact fluorescent lamps (CFLs).

Additional low-cost, high-impact measures for consideration in Vancouver might include replacement of gas pilot lights with electric ignitions, programmable thermostats, exterior wall insulation, and sealing doors, windows, and other identifiable leaks.

CREATE A SOLAR THERMAL HOT WATER PILOT PROJECT

Vancouver should engage a number of partners, including Solar BC, in a pilot project to install solar thermal hot water systems on residential buildings. Solar thermal hot water has a shorter payback period than solar photovoltaic; a pilot project would help establish a solar thermal hot water industry, triggering workforce training for installation and maintenance.

As well, the Vancouver Board of Parks and Recreation should install a solar thermal hot water system at Brockton Oval in Stanley Park. This location has good solar exposure and a large number of visitors, making it an ideal site for a demonstration project.

Traditionally, landfill methane is burned to reduce odour and climate impact. More recently, landfills capture methane for use by local industries as a source of energy. Vancouver's landfill gas is used to produce electricity, as well as heat for nearby greenhouses.

ADVOCATE FOR FEDERAL AND PROVINCIAL STIMULUS FOR GREEN JOBS

U.S. President Barack Obama's stimulus package includes more than $50 billion for green jobs and $500 million for green job training. As well, President Obama recently announced $8 billion in federal support for the development of high-speed passenger trains in key transportation corridors, including the Pacific Northwest.

Connecting Vancouver to Seattle, Portland, and other US cities via high-speed train would open up exciting opportunities in tourism, clean tech, high tech, green business, and other economic sectors, in addition to reducing GHG emissions and traffic congestion. Vancouver should urge both the federal and provincial governments to make similar investments, supporting the kinds of initiatives that are proposed in this report.

ENERGY EFFICIENCY AND RENEWABLE ENERGY

The main sources of greenhouse gas emissions (GHG emissions) in Vancouver are:

Buildings	54%
Passenger vehicles	30%
Mobile equipment	9%
Solid waste	4%
Heavy trucks	3%

Ninety percent of GHG emissions in Vancouver come from large emitters, buildings, and transportation, so these are areas we need to concentrate on to reduce our carbon footprint.

The City has two climate change programs, one for the city as a whole, and one for municipal operations. For the city as a whole, Vancouver is committed to reducing GHG emissions 33% below 2007 levels by 2020, and 80% below 1990 levels by 2050. For municipal operations, the City aims to reduce GHG emissions 20% below 1990 levels by 2010 and to become carbon neutral by 2012.[14]

Vancouver's per capita emissions are down 15% from 1990, but a 24% increase in population means that total GHG emissions have risen 5%. Per capita GHG emissions by Vancouver residents (4.9 tonnes/capita) are substantially lower than other North American cities, thanks largely to B.C.'s hydroelectric grid. But Vancouver's per capita GHG emissions are still up to twice as high as other cities such as Oslo, Stockholm, and Barcelona.

The City recently put in place strong green building policies, including strict energy efficiency requirements for new commercial and residential buildings and a commitment to achieving LEED® Gold for new municipal government facilities.[15] Longer term, the City's goal is for all new construction to be GHG neutral by 2030.

Other GHG reduction initiatives include an anti-idling by-law, a district energy system and power from sewage at the False Creek Neighbourhood Energy Utility, and public engagement through the One Day program. The City's EcoDensity program, with innovative initiatives such as laneway housing, is another example.[16]

Municipal initiatives also include generating electricity from methane captured at the Vancouver landfill, retrofitting civic facilities to reduce energy use, and using biodiesel blends in the City's vehicle fleet. Despite all of these actions, existing policies and programs need to be substantially strengthened to meet our current climate protection goals.

Fast and comfortable high-speed trains are rivalling air travel as a more efficient and sustainable means of travel between major cities. The U.S. Federal Government is proposing a west coast high-speed train between Eugene, Oregon and Vancouver.

ENGAGE LARGE EMITTERS IN REDUCING GREENHOUSE GAS EMISSIONS

The 10 largest emitters currently produce approximately 10% of Vancouver's total greenhouse gas emissions. Vancouver should partner with these and other large GHG emitters (all those exceeding 1,000 tonnes per year) to identify and implement efficiency, fuel-switching, and other emission reduction strategies. The City would help assess opportunities and expect companies to implement actions that are operationally and financially viable.

As a major energy consumer, the City should seek further ways to reduce energy use, save money, reduce GHG emissions, and protect the environment. The City has already made excellent progress by working with BC Hydro, Ameresco (an energy service company), and other partners to reduce energy use at municipal and Park Board properties. Energy management software might also help optimize energy savings at City facilities.

DEVELOP AN INTEGRATED ENERGY STRATEGY

Vancouver should develop a comprehensive energy strategy that integrates district energy, and demand-side and supply-side management approaches. With a goal of making all new construction carbon neutral, the City should identify green building approaches that minimize energy demand, as well as searching out opportunities to harness or develop renewable energy such as waste heat recovery, bio-mass (with a focus on local sources where viable), seasonal energy storage, energy from waste, on-site renewable energy, and conventional grid improvements.

The City should map district heating opportunities to identify neighbourhoods that warrant detailed exploration (starting with Northeast False Creek and the Women's and Children's Hospital areas). It should clarify the role and tools for local governments in fostering the expansion of district systems that move continually toward lower carbon energy sources.

The net result would be an integrated infrastructure with a reduced ecological footprint over its life cycle and significant economic, environmental and social benefits. Examples in Canada and around the world show that integrated grid systems can reduce energy use by more than 50%. Vancouver may be able to join the QUEST initiative (Quality Urban Energy Systems for Tomorrow) in order to pursue this action.

PURSUE AN ADAPTIVE LED STREET LIGHT PROJECT

Vancouver should partner with BC Hydro on a demonstration project involving adaptive LED technology for streetlights. These highly efficient lights, which also reduce light pollution without sacrificing public safety, could be installed along key corridors for the 2010 Winter Games.

This would extend the highly successful project already implemented in partnership with BC Hydro. The City of Vancouver used long-lasting LED lights to replace incandescent traffic lights, saving an estimated $357,000 per year in energy and maintenance costs and leading other cities around the world to follow suit.[17]

Buildings are the source of 54% of GHG emissions in Vancouver. The City is committed to meeting LEED® Gold for new municipal buildings. All buildings should be GHG neutral by 2030.

PROVIDE A PRIORITY PERMITTING PROCESS FOR GREEN BUILDINGS

Vancouver should establish clear criteria for what qualifies as a green building (*e.g.* large developments that outperform the city's energy by-law by 25%), and then accelerate the permitting process. The City could add dedicated staff or reassign existing staff to this function.

LEADERSHIP: The District of Saanich offers priority permit processing, promotion assistance, rebates on building permit fees, and other incentives for new single family homes built to energy efficient standards.[18]

TAKE A LEADERSHIP ROLE ON CLIMATE POLICY ADVOCACY

Vancouver should take a leadership role among Canadian cities in urging the federal government to take a principled, science-based, and ecologically responsible approach to the international climate change negotiations expected to culminate in Copenhagen in late 2009. These negotiations are intended to produce the successor to the *Kyoto Protocol*, establishing new standards for nations to reduce their greenhouse gas emissions.

Vancouver should urge the provincial government to adopt a feed-in tariff for new sources of renewable energy. This policy, pioneered in Germany, requires energy suppliers to buy electricity from new renewable sources at a premium price for a fixed period of time.

Feed-in tariffs provide investment security, support all viable renewable energy technologies, and have made Germany one of the top three nations in the world in both wind and solar energy generation. This policy is now common throughout Europe and is widely regarded as one of the most effective policies for spurring the rapid growth of renewable energy. Ontario's new *Green Energy Act* is an excellent recent example.

In 2008, Vancouver started using solar trash cans on a trial basis. LED traffic signals and street lights are another innovative project which could be started quickly. City staff began evaluations in 2002 and prohibitive costs identified then have moderated considerably.

FOOTNOTES

* Grist Green City list: **http://www.grist.org**

1 See **www.municode.com/Resources/gateway.asp?pid=14134&sid=5**

2 See the Connected Urban Development website for a preview of the San Francisco mapping project: **www.connectedurbandevelopment.org/connected_and_sustainable_ict_infrastructure/eco_map/san_fran_ecomap**

3 See **www.sfced.org/international/chinasf**

4 The report, prepared by The Delphi Group and Gartner Lee, is at **www.toronto.ca/business_publications/pdf/green_economic_development_22may2007.pdf**

5 For information on Stockholm's Environmental Billion project, see **www.miljomiljarden.se/home/pageasp?sid=64&mid=2&PageId=314**

6 For details on Vancouver's Ethical Purchasing Policy, see **vancouver.ca/policy_pdf/AF01401.pdf**

7 **ec.europa.eu/environment/gpp/pdf/statistical_information.pdf**
Further information on European leadership in green procurement is available at **www.procuraplus.org** and **ec.europa.eu/environment/gpp/index_en.htm**

8 Metro Vancouver has a sustainable procurement policy, but it could be stronger. See **www.metrovancouver.org/bids/Pages/default.aspx**
Additional information is available through the Fraser Basin Council's Sustainability Purchasing Network. See **www.buysmartbc.com**

9 See also the Responsible Purchasing Network **www.responsiblepurchasing.org**

10 For more information on Oakland's Green Jobs Corps, see **www.ellabakercenter.org/downloads/rtf/oakland_green_jobs_corps_summary.pdf**

11 A survey of renovations in Greater Vancouver in 2007 by the Canada Housing and Mortgage Corporation provides the following information on the frequency of specific projects:
41% room remodeling (led by bathrooms and kitchens)
18% outdoor features (patios, pools, fences, landscaping, driveways)
18% plumbing
15% windows and doors
13% roofs and gutters
12% electrical equipmen
9% structural additions
6% exterior walls
6% heat or AC systems

12 Natural Resources Canada. 2006. Energy Efficiency Report to Parliament.

13 Renovations of homes or apartment buildings with a total permit value of $50,000 or more must undertake energy efficiency improvements verified by an inspector. **www.ci.berkeley.ca.us/ContentDisplay.aspx?id=16030**

14 City of Vancouver. 2007. Climate Protection Progress Report. **vancouver.ca/sustainability/documents/Progress2007.pdf**

15 City of Vancouver. 2008. Report on Green Homes Program (One and Two Family Dwellings). **vancouver.ca/ctyclerk/cclerk/20080626/documents/pe5.pdf**

16 See **vancouver-ecodensity.ca**

17 For further details of this successful partnership, see **www.bchydro.com/powersmart/success_stories/government_facilities/vancouver_city_of.html**

18 See **www.saanich.ca/business/development/greenbuilding/GreenBuilding.html**

greener communities

GREEN NEIGHBOURHOODS

Vancouver has a number of successful initiatives intended to assist residents in greening their neighbourhoods, including the *Green Streets* program, country lanes, boulevard planting, rain gardens, traffic calming, and stream day-lighting. These programs should be expanded, with the addition of financial aid for participation by neighbourhood associations, community groups, and small businesses.

OFFER GREENEST CITY NEIGHBOURHOOD GRANTS

Vancouver should re-establish and expand the program that provided grants to residents, community groups, and small businesses to design and implement projects that reduce the city's ecological footprint, increase green space and natural habitat, or boost urban food production. Applications could be reviewed annually or semi-annually by staff or a jury of local experts, or the City could partner with the Vancouver Foundation, Vancity, or other established grant-making organizations to administer the program. Projects could be highlighted on the Greenest City website.

LEADERSHIP: San Francisco offers more than $1 million annually in small environmental grants (up to $10,000) to community groups and small businesses. **Toronto** has a Live Green grants program that awarded $700,000 to community groups in 2008 and has a budget of $2.2 million for 2009.[19] Toronto supports projects including geothermal retrofits of older buildings, installation of solar photovoltaic panels, and construction of a neighbourhood greenhouse and several green roofs.

The Toronto Atmospheric Fund (TAF), created in 1991 with a municipal endowment of $25 million, has worked with local partners to reduce emissions by tens of thousands of tonnes and has saved the City of Toronto approximately $20 million.[20]

SPONSOR GREENEST NEIGHBOURHOOD VISION CONTEST

Vancouver should sponsor a Greenest Neighbourhood Vision competition with a commitment to assist the winner in implementing its vision. Elements of the successful proposal could include renewable energy at the block level (geothermal, solar, etc.), infill housing density, community gardens, fruit trees, storm water diversion, composting, traffic calming, and other green innovations.

LEADERSHIP: The Danish government held a Greenest Community competition in the late 1990s that was won by the island of Samso, an agricultural community of roughly 4,300 residents that is now a global pioneer among sustainable communities, achieving energy independence through individual and community support for wind, solar, and biomass energy development.

We need to continue to protect additional green spaces. Vancouver is known for our famous parks, many of them concentrated in large acreages. 11% of the City is parkland but many other leading cities have more.

CO-SPONSOR A CHILDREN'S GREENEST CITY ART (OR MULTIMEDIA) CONTEST

In collaboration with the Vancouver School Board and possibly community partners such as ArtStarts in Schools, Vancouver should sponsor a city-wide contest soliciting posters or interactive entries from school children. Prizes could be awarded to the best in each age group. An art show and/or special event featuring winners could be held with a partnering organization (*e.g.* Vancouver Art Gallery or Vancouver Public Library). The City could use these images to illustrate the Greenest City 10-year action plan report or on the website.

RE-ESTABLISH THE MAYOR'S GREENEST CITY AWARDS

Vancouver should establish the Mayor's Greenest City Action Heroes awards for best practices in categories including youth, citizen, neighbourhood, and business. The first step might be to approach potential co-sponsors (ideally a media partner like the *Vancouver Sun*) and other corporate sponsors. An early call for nominations for awards would also be a priority.

RE-INVIGORATE THE ONE DAY VANCOUVER SOCIAL MARKETING PROGRAM

To reach its green goals, Vancouver will need a comprehensive social engagement strategy, some part of which can be fulfilled by re-invigorating or re-thinking the One Day Vancouver social marketing program.

This would help communicate the vision and goals of the Greenest City initiative and encourage people to make the changes that reduce their ecological footprint and improve their quality of life. The One Day Vancouver social marketing program can help unify and harmonize the green message across all departments and initiatives[21] so that City programs support one another (*e.g.* citizens who sign-up for Earth Hour learn about a new bike route nearby or about energy efficiency retrofit incentives).

NATURE AND GREENSPACE

Vancouver is blessed with an extraordinary natural landscape. Residents and visitors enjoy access to fantastic green spaces such as Stanley Park, 200 neighbourhood parks and many kilometers of public beaches and pathways. Yet, biodiversity is under strain from human development and activities. And while 11% of Vancouver is protected in parks, many major cities (including Calgary, Ottawa, and San Francisco) do better.

ENCOURAGE LANDSCAPING WITH NATIVE PLANTS

Vancouver should partner with community organizations to provide education and incentives to residents to use native plants for landscaping. This would reduce water use and restore habitat for native biodiversity, from birds to butterflies. It could also support a campaign against invasive plant species – such as English ivy, Scotch broom, and Japanese knotweed – that often out-compete native species.

Trees are amazing ecosystems and support a variety of other lifeforms such as insects, mosses and birds. A tree can not only help the environment but also help cool a city with shade in summer, and improve the neighbourhood culture.

INCREASE PUBLIC ACCESS TO GREEN SPACE

Vancouver should work to increase its protected park space, establishing as a goal that at least 90% of residents should have access to public green space (including parks, gardens, and schoolyards) within 300 meters of their homes – a benchmark used by leading European cities. At present, 85% of Vancouver residents live within 300 meters of parks or schoolyards, a figure that falls to 71% if schoolyards are excluded.

RESTORE SHORELINE AND INTERTIDAL ZONES

Vancouver should partner with the Vancouver Aquarium, non-governmental organizations (NGOs), and other levels of government on regular shoreline clean-ups and inter-tidal zone restoration, aiming to restore healthy populations of native shellfish in Burrard Inlet and English Bay. The Vancouver Aquarium started the Great Canadian Shoreline Cleanup in 1994. Last year alone, over 63,000 Canadians participated, removing 135,467 kg of litter from 1,280 shorelines.

Another vital area of focus is the Fraser River, where there are tremendous opportunities, such as: improving public access to the waterfront, restoring the riverbank, remediating soil and extending Vancouver's outstanding system of waterfront trails and parks.

Adding green space and improving river access should be a priority wherever industrial land is being redeveloped or rezoned.

ADVOCATE FOR A HEALTHY PACIFIC OCEAN

Vancouver should solicit federal and provincial assistance in improving water quality in English Bay, Burrard Inlet, and the Strait of Georgia. It has been a century since humpback whales were seen in Vancouver waters, and decades since the demise of the famous *Vancouver Sun* salmon fishing derby. A long-term goal should involve bringing healthy populations of these iconic marine species back to Vancouver.

LEADERSHIP: Stockholm has improved wastewater treatment and cracked down on toxic discharges to the degree that healthy salmon run once again in Stockholm's downtown waterways. In 2008, the governors of **California**, **Washington** and **Oregon** signed the West Coast Governors' Agreement on Ocean Health, covering issues such as invasive species, cleaning up marine debris, and non-point source pollution.[22]

The ocean and intertidal zone surrounds our city and yet we have no cohesive plan to steward these ecosystems.

For example, our sewer system is outdated and untreated flow can still infiltrate the harbour, Fraser River, False Creek and English Bay. Although we are updating the system on an annual basis, we could expedite the process.

MOBILITY

Of all trips taken in Vancouver, the mode of transport used is as follows:

Single occupancy vehicle	50%
Vehicle with passengers	12%
Transit	17%
Walking	17%
Bike	3%

Since 1994, the number of walking trips have increased 44%, cycling trips have increased 180%, and transit trips have increased 20% (the fastest growth of any major Canadian city). At the same time, private vehicle trips fell 10%. These gains were made largely due to increased housing in the downtown core (near where people work), investments in additional capacity for public transit, and improvements to the bikeway system. However, outside the downtown core, walking and cycling drop substantially, while demand for public transit services currently outstrips supply.

To cite just one illustrative statistic, the percentage of bus routes with 10-minute service or better is:

Toronto	59%
Montreal	58%
Metro Vancouver	12% [23]

Major transportation initiatives underway or on the drawing board include completion of the Canada Line from downtown along Cambie to the airport (2009), the planned UBC line ($2.8 billion), the addition of new bus rapid transit routes (Canada Line and 41st to UBC, and Hastings Street from Downtown to SFU), and the purchase of more buses. Cycling and walking improvements are ongoing but need to be expanded and accelerated.

MAKE STREETS SAFER FOR PEDESTRIANS AND CYCLISTS

To increase the attractiveness of cycling and walking, Vancouver should:

- Implement and evaluate the Burrard Bridge trial, and make necessary adjustments to improve it.
- Implement a network of protected bike lanes (*e.g.* using bollards/barriers) on existing bike routes and establish secure, climate-protected bike parking facilities at strategic locations.
- Reduce the speed limit to 40 kilometres per hour (km/h) on non-arterial streets, and 30 km/h on bike routes. This commitment was made more than a decade ago in Vancouver's Long Term Transportation Plan (1997). A request to the provincial government was made through the Union of BC Municipalities in 1999 for authority to institute blanket 40 km/h speed limit for non-arterial streets, but is still pending provincial changes to legislation (the *Motor Vehicles Act)*. Implementation will require signage and public education.[24]
- Establish corridors dedicated exclusively to pedestrians and cyclists in the city core. Some of the new street arrangements put in place for the 2010 Winter Games should continue as extended trials after the Games have ended.
- Work with partners such as the Vancouver Area Cycling Coalition and BEST (Better Environmentally Sound Transportation) to expand current cycling education programs.

Several major cycling routes still have no established corridor, bike lane, signals, signage or lock ups – unlike other major cities. A biking infrastructure needs to be developed as a total system which supports sustainable commuting.

LEADERSHIP: In **Copenhagen**, cycling accounts for 36% of all trips to work and school. Put another way, more than 500,000 people commute daily by bicycle. Aiming to reach 50% by 2015, Copenhagen has created a bicycle friendly culture through dedicated bike lanes, safety efforts, marketing campaigns to make cycling cool, and extensive steps to make cycling easy and convenient (*e.g.* synchronized traffic lights for cyclists, called green waves).

In **Amsterdam**, people use bicycles more often than motor vehicles, and 60% of inner city trips occur on bicycles.

CREATE A PUBLIC BIKE SHARING PROGRAM

Vancouver should implement a public bike sharing system comparable to the successful initiatives pioneered in European cities such as Paris and Stockholm, and adopted by Washington, D.C. and Montreal. The system would provide free or affordable access to thousands of bicycles as alternatives to private vehicles.

ENABLE ZERO-EMISSION MOBILITY: THE FUTURE OF CLEAN TRANSPORTATION

Transportation powered by renewable energy dramatically reduces greenhouse gas emissions and air pollution. Options for zero-emission transport include hydrogen fuel cell and electric scooters, cars, trucks, buses, and trains. Imagine a city where public transit is powered by 100% renewable energy; where your car-sharing co-op offers electric vehicles that plug in to ordinary household outlets; and where electric vehicles are integrated with a smart power grid, so you can charge the battery when electricity prices are low and sell electricity back to the grid when prices are high.

Vancouver is a global leader in the hydrogen fuel cell industry, thanks to Ballard Power and other companies. To its credit, Vancouver was one of the first cities in the world to demonstrate the use of a fuel cell bus and the first major Canadian city to pass a by-law allowing the use of neighbourhood zero-emission electric vehicles. The City, which now requires all new single-family homes and off-street bicycle storage rooms to have dedicated electric plug-in outlets, is considering the costs of supplying plugs for new and existing multi-family residential buildings. Vancouver owns a plug-in hybrid electric vehicle in its municipal fleet.

Now, Vancouver should:

- Accelerate the building of infrastructure for electric vehicles by creating dedicated public charging points/ parking spaces in the urban core (Easy Park and on-street), and encouraging private parking garage owners to create charging points;
- Provide free parking and charging for electric scooters and electric vehicles;
- Purchase fuel cell, electric, and plug-in hybrid vehicles for the municipal fleet;
- Work with Metro Vancouver to create a regional zero-emission transportation strategy;
- Fast-track permitting for charging stations;
- Consider becoming an early municipal partner in the Rocky Mountain Institute's Project Get Ready;[25] and
- Support the development of infrastructure required for fuel cell vehicles.

An electric vehicle infrastructure needs to be put in place to support the coming wave of electric vehicles. The City will start testing a Mitsubishi MiEV electric vehicle *(shown)* later this year.

BUILD ON THE OLYMPIC TRANSPORTATION INITIATIVES

The City should establish a program aimed at having 90% of all primary and secondary school students walk, ride, or take public transit to school during the 2010 Winter Games. With Games-time traffic restrictions, this represents an opportunity to improve children's health, reduce traffic congestion, and decrease both air pollution and greenhouse gas emissions. This initiative can build on existing Walking Schoolbus programs by adding Cycling Schoolbuses and Transit Schoolbuses.[26]

The Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games would be a logical partner. The Insurance Corporation of BC is also a potential partner, although it discontinued its excellent Way to Go! School Program in 2008.[27]

The City should also:

- Conduct a passenger ferry pilot project with boats travelling from Ambleside on the North Shore to Jericho, Granville Island, and Coal Harbour (many other water-based cities offer this service, including San Francisco, New York, and Sydney, Australia);
- Develop a strategy for maintaining elements of the Olympic transportation plan after the Games have concluded, such as downtown streets dedicated exclusively to pedestrians and cyclists; and
- Create an online ride-sharing initiative for the Games, in partnership with VANOC, that will continue after the Games.

CONDUCT CAR-FREE VANCOUVER TRIALS

Vancouver should experiment with car-free streets and car-free days in locales ranging from Robson Street to Stanley Park. This initiative should build on the success of the City's Block Party program and Car-Free Vancouver Day (scheduled for June 14, 2009) with its celebrations in the West End, along Commercial Drive, on Main Street, and in Kitsilano.[28] These initiatives are immensely popular in cities ranging from Bogota, Colombia to Ottawa. Toronto has combined street closures with the Green Toronto Festival, a two-day celebration of the environment featuring children's activities, concerts, and hundreds of exhibitors ranging from environmental groups to green businesses.[29] Vancouver could experiment this summer with some of the closures that will be in place during the 2010 Winter Games.

ADVOCATE FOR IMMEDIATE INVESTMENTS AND IMPROVEMENTS IN PUBLIC TRANSIT

Vancouver should urge TransLink, the provincial government, and the Government of Canada to accelerate public transit improvements that are part of the BC Transportation Strategy. In particular, Vancouver urgently needs more buses for oversubscribed routes, as well as additional buses for new B-Line routes. Vancouver strongly supports TransLink's proposal to raise an additional $450 million per year for expanded service.

Accelerating the timeline for rapid transit along the Broadway corridor to UBC is also an urgent priority. This is one of the most congested transportation corridors in the province, bus service is at maximum capacity, and there are financial advantages to be gained by commencing the project during this economic downturn while construction costs are lower and interest rates are low. This also would help the hard-hit construction sector, which by some accounts may not recover to pre-recession levels until 2014.

Vancouver urgently needs more buses for oversubscribed routes. The best solution for our busiest traffic route – the Broadway Corridor – is to have a dedicated rapid transit line.

Vancouver should also continue working with TransLink to make public transit more attractive. Vancouver should:

1. Work with TransLink to expand the successful experiment with all-door boarding on the 98 and 99 B-Lines to all buses;
2. Implement steps that will give buses priority on busy streets (and advocate for their implementation in other municipalities); and
3. Encourage improved amenities such as washrooms, coffee carts, and protection from the elements at SkyTrain stations, Ladner Exchange, and Airport Station.

CLEAN CITY

From 1990 to 2002, Metro Vancouver increased its solid waste diversion rate to 50% through recycling, yard waste composting, citizen education, and extended producer responsibility. Diversion rates have increased only slightly since, to approximately 52%. Residents of Metro Vancouver produce **1.5 tonnes of solid waste per capita** with 0.8 tonnes recycled or otherwise diverted from landfills. Per capita rates of waste generation are still higher than the BC and Canadian averages, although waste diversion rates are higher in Metro Vancouver.[30] Vancouver collects yard trimmings and offers subsidized composting bins and worm composters.

However, Vancouver does not have a comprehensive system for collecting and composting organic waste, even though this accounts for a substantial proportion of waste and is the chief component responsible for greenhouse gas emissions from landfills.

Metro Vancouver has endorsed the Zero Waste Challenge and is aiming for 70% diversion by 2015. Vancouver faces two key waste-reduction challenges: First, despite many years of providing public information on the need to reduce, reuse, and recycle, the consumption of goods and materials that end up as solid waste remains high. Second, fluctuating demand and prices for recyclable materials highlights the need to focus on waste reduction rather than recycling.

LEADERSHIP: San Francisco has already achieved a 70% waste diversion rate, is on target to meet its 2010 goal of 75% diversion, and is aiming for 100% diversion by 2020. In Stockholm, less than 10% of "waste" goes to landfill. Most is recycled, composted, or used to generate heat. **Edmonton**, a continental leader in waste management, is working toward 90% diversion by 2012, through comprehensive composting and recycling, a re-use centre, and a gasification plant that will generate electricity.

IMPLEMENT CITY-WIDE COMPOSTING

A composting program has been the most frequent citizen suggestion to the Greenest City Action Team website. Metro Vancouver is currently working on an initiative to collect food waste from homes and businesses and truck it to one or more centralized composting facilities. But local composting efforts may use less energy and generate fewer GHG emissions. Vancouver should offer funding for one or more composting pilot projects at the neighbourhood scale, ideally in concert with local community gardens. The City should also be prepared to use its Delta landfill site to process compost in the event that this is a more efficient option than the one chosen by Metro Vancouver.

Vancouver should also continue to encourage backyard composting, possibly expanding the distribution of subsidized composters (currently sold for $25).

The City has apartment and backyard composters available at low prices. A wider effort should include composting on a neighbourhood scale and developing a city-wide system to handle food waste.

SHIFT TO BIWEEKLY GARBAGE COLLECTION

Vancouver should follow the lead of cities such as Victoria and Toronto, which have already reduced garbage collection to once every two weeks. This would save energy and reduce greenhouse gas emissions. The financial savings should be applied to composting programs.

TACKLE PACKAGING WASTE

Vancouver should establish policies that require reusable, recyclable or compostable cups, fast food packaging, plastic bags, and other similar items.

LEADERSHIP: Toronto now requires retailers to charge five cents for plastic bags (retailers keep the money and are encouraged to dedicate it to environmental initiatives), and requires stores and restaurants to find sustainable substitutes for disposable fast food and take-out packaging. **San Francisco**, **Oakland**, and **Berkeley** require all food vendors to replace polystyrene foam (Styrofoam) with biodegradable/compostable disposable food service ware and packaging.[31] San Francisco requires reusable bags, recyclable paper bags, or compostable plastic bags.

KEEP VANCOUVER SPECTACULAR ALL YEAR ROUND

Vancouver currently runs an anti-litter program every May. In 2008, more than 15,800 volunteers (including individuals, businesses, schools, and neighbourhood groups) in 146 teams filled 7,000 garbage bags with litter. Making Keep Vancouver Spectacular a year-round program would help raise and sustain community consciousness of litter, recycling, and waste reduction; would help build community; and would put more 'eyes on the street.'

ADVOCATE WASTE REDUCTION LAWS AND POLICIES

The City should continue to advocate for federal and provincial laws and policies that support the goal of zero waste (*e.g.* extended producer responsibility laws) and prohibit hazardous substances. For example, European laws require manufacturers of computers, other electronic items, appliances, and motor vehicles to take back their products at the end of their useful life, resulting in the redesign of products to be more durable, repairable, and free from toxic substances.

Keep Vancouver Spectacular is a very successful program that engages citizens to clean up neighbourhoods. Currently, it's a once-a-year event but could be made into a year-round program.

FOOTNOTES

19 See **www.toronto.ca/livegreen/inspired_grantsrecipients.html**
20 See **www.toronto.ca/taf**
21 See **www.onedayvancouver.ca**
22 See **westcoastoceans.gov**
23 See **www.morebusesnow.com/campaign.html**
24 City of Vancouver. 2006. Transportation Plan Progress Report, May 15, 2006, p. 85.
25 See the Rocky Mountain Institute's Smart Garage Project, **www.projectgetready.org**
26 For more information on walking schoolbuses, see **www.walkingschoolbus.org**
27 See **www.waytogo.icbc.bc.ca**
28 See **vancouver.ca/engsvcs/filmandevents/events/blockparty** and **www.carfreevancouver.org**
29 See **www.toronto.ca/greentorontofestival/index.htm**
30 City of Vancouver 2004. Solid Waste Division Annual Report 2003. **vancouver.ca/engsvcs/solidwaste/PDF/ann_report2003.pdf**
31 San Francisco's by-law on eliminating the use of polystyrene foam can be seen here: **www.sfenvironment.org/downloads/library/foodservicewaste.pdf**

human health

CLEAN WATER

Vancouver drinking water meets all requirements of the *Guidelines for Canadian Drinking Water Quality*, yet 20% of Vancouverites drink primarily bottled water, based on perceptions of taste, odour, or quality of tap water. The completion of the Seymour-Capilano filtration plant in 2009 will reduce the natural turbidity of Vancouver's drinking water, reducing the need for chlorine and enhancing the taste, odour, and appearance of tap water.[32]

Vancouver's per capita water consumption (358 litres/capita/day) is the fourth highest among Canada's 20 largest cities and more than double the level of leading European cities.[33] At approximately 60 cents per 1,000 litres, Vancouver's water is among the cheapest in the industrialized world.[34] That price, and the flat rate for detached dwellings, provide no incentives for conservation or efficient use. The rate of metering is the lowest of any major Canadian city.

Although multi-unit residential buildings and commercial customers are metered, few detached single family dwellings or duplexes have water meters, so a household that wastes water pays the same as a family that conserves. Demand management programs (*e.g.* watering restrictions) have reduced per capita water consumption by approximately 20%.[35]

Metro Vancouver is served by a mix of primary and secondary sewage treatment facilities. The Iona sewage treatment plant, which serves the city, provides only primary treatment and is the largest source of pollution into the Strait of Georgia. An upgrade is required to comply with provincial and federal legislation but dates are still to be determined in the Regional Liquid Waste Management Plan.

As well, the Province requires all combined sewer overflows to be eliminated by 2050. Vancouver is striving to replace 1% of the system per year, with an interim goal of eliminating False Creek combined sewer outflows (CSOs) by 2020. Work is behind schedule.[36]

EXPAND THE DISTRIBUTION OF WATER SAVER KITS

Vancouver should make water saver kits more widely available, and offer them for free to low-income residents. The indoor water saver kits include a low-flow showerhead, toilet tank displacement bags, faucet aerators, leak detection kits, and Teflon tape. These kits sell for $12 (with the City providing a $2 subsidy) and reduce water use by 15-20%, meaning they pay for themselves in a year (i.e. 100% return on investment). The outdoor water saving kits are also $12 and include an automatic sprinkler timer, a hose nozzle with eight settings, hose washers, and sprinkler/rain gauges.

Although the city has one of the best water systems in the world, 20% of residents prefer bottled water because of a perception it tastes or smells better.

PROMOTE TAP WATER AND DISCOURAGE THE USE OF BOTTLED WATER

One in five Vancouver residents drinks primarily bottled water, despite costing more than 1,000 times the price of tap water. Bottled water wastes energy (in manufacturing and transportation), generates unnecessary GHG emissions, and creates a significant volume of waste that ends up in landfills. At least two dozen Canadian municipalities in six provinces – from Burnaby to Charlottetown – have restricted the sale or use of bottled water.

The Federation of Canadian Municipalities recently passed a resolution urging "all municipalities to phase out the sale and purchase of bottled water at their own facilities where appropriate and where potable water is available."[37] Metro Vancouver has a Tap Water Campaign, launched in 2008, with a goal of increasing the use of tap water for drinking purposes by reducing sales of bottled water by 20% by 2010.

Vancouver should promote the consumption of tap water and take steps to reduce the consumption of bottled water. Options include eliminating bottled water at City of Vancouver facilities and City-sponsored events or imposing a user fee to reflect the financial and environmental costs of disposing of plastic water bottles. The City's water fountain infrastructure should be upgraded to ensure that a viable alternative is available.

ADVOCATE EXPEDITED AND INTEGRATED WASTEWATER TREATMENT

Vancouver should urge Metro Vancouver, the provincial government, and the Government of Canada to accelerate the upgrade schedule for both the Iona and Lions Gate (North Shore) Wastewater Treatment Plants. Iona, which handles Vancouver's sewage, is the single largest source of pollution in the Strait of Georgia, while the Lions Gate plant is a major polluter of Burrard Inlet.

The upgrade to secondary or tertiary treatment should include the capacity to produce bio-gas and capture waste heat for the purpose of heating homes. By incorporating this approach to integrated resource management, Vancouver can significantly reduce the overall cost of wastewater treatment for residents.

LEADERSHIP: In **Stockholm,** 100% of sewage receives tertiary treatment, removing 98% of the phosphorous and 70% of the nitrogen. Stockholm's wastewater treatment plant produces 4.1 million cubic metres of bio-gas annually, which powers the city's vehicle fleet and a large number of buses. Heat captured from the wastewater treatment system provides enough energy to heat 60,000 homes.

The Dockside Green project in **Victoria** is a mixed-use residential and commercial development that has won worldwide acclaim. As well as being the first LEED® platinum community, Dockside Green has its own wastewater treatment facility enabling the treatment of all sewage on site and saving Dockside residents hundreds of dollars on their property tax bills.

Vancouver is known for having an abundant and high quality water supply. However, with a growing population, we need to stop taking our water for granted and start to conserve better.

LOCAL FOOD

In 2007, the City adopted the Vancouver Food Charter, based on five principles: community economic development; ecological health; social justice; collaboration and participation; and celebration.[38] The goals of the Food Charter include encouraging:

- Consumers to purchase more locally produced food;
- Regional farmers to direct more of their production to local markets;
- Restaurants to feature more local, sustainable food;
- Retailers to shift their inventory to local and sustainably produced food;
- Increased levels of "edible gardening;"
- Enhanced backyard and neighbourhood-level composting; and
- Efforts to recover larger volumes of edible food.

Vancouver is committed to creating 2,010 new food-producing plots by 2010 as an Olympic legacy. When this pledge was made in 2006, Vancouver had approximately 950 plots in 18 community gardens.[39] Since then, 1,620 new plots have been created, mostly on private or semi-public lands.

However, a lack of access to land and other challenges have resulted in long waiting lists for new and existing community gardens and limited progress toward the goal on City-managed lands. Many community gardens are in temporary locations, and will need to be replaced when developments proceed.

Vancouver has four farmers markets – Trout Lake, Main Street Station, West End, and Kitsilano – that are each open one day a week during the growing season. A winter farmers market is held on alternate Saturdays at The WISE Hall. However, the markets operate in a climate of uncertainty because of a lack of long-term licences and City by-laws that were not written with farmers markets in mind.

PLANT THE CITY HALL ORGANIC COMMUNITY GARDEN

Vancouver recently announced that it would replace a portion of the extensive lawn at City Hall with an organic community garden to symbolize the City's dedication to cultivating a network of community gardens.

ALLOCATE ADDITIONAL LAND FOR COMMUNITY GARDENS AND ORCHARDS

Vancouver should require all City departments with land holdings to identify land that could be opened for community gardening. At least three new community gardens should be established annually, perhaps in partnership with a non-government organization – a community animator – that could assist residents in creating and managing the gardens. Partnerships with the Vancouver School Board should be fostered to encourage more gardens on school land.

Clusters of up to 30 fruit trees could be planted in parks such as Sunset, Fraserview, Quilchena and Cambie Park. These orchards could be managed and maintained in partnership with community groups such as the Environmental Youth Alliance, the Vancouver Fruit Tree Project Society, or a Community Centre Association.

The City Hall community garden is in the planning, tendering and community consultation stage. It's a symbolic but important step towards encouraging more local food production.

SUPPORT FARMERS MARKETS

Vancouver should create long-term security for farmers markets including:

- Establishing long-term licences for existing farmers markets;
- Suggesting locations for a year-round indoor farmers market; and
- Reducing barriers such as the current requirement to take down their signs every week.

Partnerships with the Vancouver School Board could create additional opportunities for farmers markets.

CREATE AN EDIBLE LANDSCAPING POLICY

Vancouver should specify that a minimum proportion of all trees, bushes, and other plants on City-owned or -leased land be edible species (fruit, nuts, berries, herbs, edible flowers, etc.). Vancouver would be the first city in the world to require edible landscaping.

Growing food in the city enhances people's understanding of natural processes and vital ecosystem functions such as pollination. Imagine the joy of walking along a boulevard or through a park and being able to eat handfuls of fresh blueberries! Potential benefits include health, culture, and community-building. The food could be available to residents for their own enjoyment, or could be gathered by community groups for food banks and shelters. Existing edible landscaping guidelines could be used as a basis for developing policy.

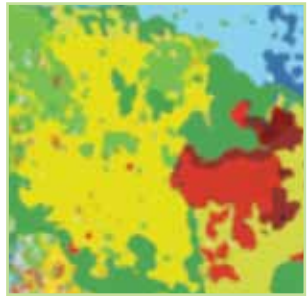
PROTECTING HUMAN HEALTH FROM ENVIRONMENTAL HAZARDS

While ambient levels of some major pollutants (sulfur dioxide and nitrogen dioxide) have declined in Metro Vancouver, ozone is increasing and nitrogen dioxide remains a problem in downtown Vancouver. Most particulate emissions come from vehicles burning diesel fuel, marine vessels, non-road sources (construction, industrial, and commercial engines) and incineration from industrial or other facilities, including waste incinerators. Studies indicate that air pollution continues to cause a substantial number of deaths, diseases, and other adverse health effects (*e.g.* premature births) in Vancouver.[40]

Drinking water quality is good. On occasion, fecal coliform levels in some waters popular for recreational activities approach or exceed health standards because of marine vessels, wildlife, pets, CSOs, and sanitary sewer spills.[41]

MAP TOXIC HOTSPOTS

In partnership with academics, communities, and other levels of government, Vancouver should develop a map that identifies areas with high emissions or ambient levels of pollution from vehicles or businesses, contaminated sites, and other toxic hotspots. Determining the source and concentration of dangerous pollutants helps address citizens' right to know and provides an essential first step in resolving pollution and contamination problems. A toxic hotspot map would also serve as a useful education tool, both for residents and businesses.



Mapping toxic hotspots will help people understand areas of concern and prioritize steps to solve problem areas.

ENACT A TOXINS "RIGHT TO KNOW" BY-LAW

Vancouver should pass a by-law that guarantees citizen access to information on environmental health hazards by requiring public and private sector sources to report releases of toxic substances. This information would enable informed choices about employment and living conditions and has helped reduce exposure to toxic substances in other jurisdictions. Adequate reporting would also bring pressure for companies and agencies to improve environmental performance, and would fill gaps left by federal and provincial environmental legislation (*e.g.* the National Pollutant Release Inventory only applies to large sources of toxic releases).

Access to information on hazardous substances would:

- Contribute to a more comprehensive picture of environmental conditions and potential health problems;
- Enhance the City's capacity to target problems and to assess plans for land use changes and residential development;
- Improve emergency preparedness by making information on hazardous substances available to first responders and emergency personnel;
- Help the City to prevent spills, reduce the use of toxins of high concern (*e.g.* known carcinogens) and promote environmentally conscious procurement policies;
- Motivate businesses and agencies to reduce the use and generation of toxic substances through substitution and other solutions.[42]

Administration and enforcement costs could be recovered with program fees, such as those charged by the cities of Eugene, Oregon and New York City.

LEADERSHIP: Toronto implemented an Environmental Reporting, Innovation, and Disclosure Program in 2008 [43], requiring all private and public sector operations to report their use of 25 identified toxic substances. By the end of 2011, a public database will enable residents to identify operations employing toxic substances in their neighbourhood.

STRENGTHEN PROTECTION FROM PESTICIDES

Vancouver currently allows the use of a broader range of potentially harmful pesticides than any other Canadian municipality.[44] We should amend our pesticide by-laws to instead become the strongest. The City should also strongly advocate that the provincial government implement the Union of BC Municipalities recommendation to ban the sale of pesticides for cosmetic and non-essential purposes.

Residents of many other Canadian municipalities enjoy stronger protection from pesticides than Vancouverites.

FOOTNOTES

32 City of Vancouver. 2008. Drinking Water Quality Report 2007. **vancouver.ca/engsvcs/watersewers/pdf/WQReport_2007.pdf**

33 Environment Canada. 2008. Municipal Water Use Database.

34 Environment Canada. 2008. Municipal Water Use Pricing Database.

35 City of Vancouver. 2006. Waterworks Long Range Plan: **vancouver.ca/engsvcs/watersewers/pdf/waterworksLRP.pdf**

36 **vancouver.ca/engsvcs/watersewers/pdf/2007AnnualReport.pdf**

37 The FCM passed a resolution against bottled water on March 7, 2009. See **www.fcm.ca/english/View.asp?mp=1&x=1083**

38 For more information on the Vancouver Food Charter, see **vancouver.ca/commsvcs/socialplanning/initiatives/foodpolicy/policy/charter.htm**

39 Details on the 2010 community garden initiative can be seen here: **vancouver.ca/commsvcs/socialplanning/initiatives/foodpolicy/projects/2010gardens.htm#links**

40 Canadian Medical Association. 2008. No Breathing Room: National Illness Costs of Air Pollution. **www.cma.ca/index.cfm/ci_id/86830/la_id/1.htm**

41 **vancouver.ca/engsvcs/watersewers/pdf/2007AnnualReport.pdf**

42 Canadian Environmental Law Association. 2006. Creating Community Right-to-Know Opportunities in the City of Toronto.

43 See City of Toronto, Healthy People Healthy Environment available at **www.toronto.ca/health/hphe/enviro_info.htm**

44 See Collingwood **www.environmentnetwork.org/webready/index.html** Peterborough **www.peterborough.ca/Assets/By-Laws/2005/05-077+Pesticide+by-law+-+amended+by+06-056.pdf**

conclusion

Vancouver's economic future depends on far more than our province's valuable natural resources. As our international neighbours grow more innovative, our prosperity relies on our ability to attract and retain creative people and innovative businesses that energize our economy.

A Vancouver that boasts clean air and clean water, with thriving ecosystems and accessible green spaces, will also be a Vancouver well prepared to support a healthy and prosperous population. The City has already become internationally known for good urban planning practices. We can build on that success for the benefit of our own citizens and, by example, for the benefit of all.

These Quick Start recommendations lead us toward that goal. The next steps fall to Council and to City staff. With Council's blessing, these actions could be prioritized according to the availability of City resources and delegated to the responsible bodies.

Ideally, this report should be distributed widely, so that City employees and potential partners can identify those items within their areas of responsibility and bring forth proposals for speedy implementation.

By initiating action, the City of Vancouver can inspire citizens, neighbourhoods, communities, businesses, non-government organizations, First Nations, regional, provincial and federal governments, and other cities around the world, who are also wondering what their next steps should be.

It will take an unprecedented effort to make Vancouver the world's greenest city. But the ultimate dividend is priceless. We can then say to our children and grandchildren that we did everything in our power to solve our city's ecological challenges and to ensure that the world they inherit from us is as beautiful, diverse, and healthy as the world we inherited from our parents.

Join us in our effort to make Vancouver the greenest city in the world. For more information and updates, please see: **vancouver.ca/greenestcity**

Vancouver has a valuable reputation as a city which cares deeply about our environment. We need to think strategically about how we can provide the same quality of life for our grandchildren as we inherited.

CITY OF VANCOUVER | greenest CITY

the greenest city team

Gregor Robertson, Mayor of Vancouver, (Co-chair)

David R. Boyd, Environmental lawyer, (Co-chair)
author of *Sustainability within a Generation*

Dr. Penny Ballem, Vancouver City Manager

David Cadman, Vancouver City Councilor,
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Vancouver Organizing Committee for
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Dr. David Suzuki, Award-winning scientist,
environmentalist, and broadcaster

Mossadiq S. Umedaly, Chair of BC Hydro,
former CEO of Xantrex Technology

Tamara Vrooman, CEO, Vancity

In February 2009, Mayor Robertson formed the Greenest City Action Team and challenged it to come up with a visionary plan for the city. The members are not only some of the best and brightest minds locally, but most also have an international reputation for insight and innovation.

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