



GREENEST CITY

2020 ACTION PLAN

2018-2019 IMPLEMENTATION UPDATE



DASH-BOARD

GOAL AND TARGETS	INDICATOR	BASELINE	2018	CHANGE FROM BASELINE	IMPROVED OVER BASELINE	2020 TARGET
CLIMATE AND RENEWABLES						
Target: Reduce community-based greenhouse gas emissions by 33% from 2007 levels by 2020.	Total tonnes of community CO ₂ e emissions from Vancouver	2,765,000 tCO ₂ e (2007)	2,440,000 tCO ₂ e	-12%	Yes	1,865,000 tCO ₂ e
GREEN BUILDINGS						
Target 1: Require all buildings constructed from 2020 onward to be carbon neutral in operations.	Kilograms of CO ₂ e per square metre of newly built floor area	20.7 kgCO ₂ e/m ² (2007)	11.8 kgCO ₂ e/m ² (2017)	-43%	Yes	carbon neutral
Target 2: Reduce energy use and GHG emissions in existing buildings by 20% over 2007 levels.	Total tonnes of CO ₂ e from all community buildings	1,585,000 tCO ₂ e (2007)	1,415,000 tCO ₂ e	-11%	Yes	1,270,000 tCO ₂ e
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	40% ¹	53% of trips	+13%	Yes	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 (2007)	3,690 km	-38%	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 ²	480,000 tonnes (2008)	347,000 tonnes (2017)	-28%	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. ³	Per cent of city's land base within a five-minute walk to a green space	92.6% (2010)	92.7%	+0.1%	Yes	95%
Target 2: Plant 150,000 additional trees.	Total number of additional trees planted	- - (2010)	122,000 trees	+122,000	Yes	150,000 trees
Target 3: Restore or enhance 25 hectares of natural areas between 2010 and 2020.	Total hectares of natural areas restored or enhanced	- - (2010)	27 hectares	+26	Yes	25 hectares
Target 4: Increase canopy cover to 22% by 2050.	Per cent of city's land area covered by tree-leaf canopies	18% (2013)	Survey results available in 2020	- -	- -	22% (2050)
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 (2006)	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)	456 L/person/day	-22%	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 ⁴ in Vancouver	3,344 food assets (2010)	4,960 food assets	+49%	Yes	5,016 food assets
CLEAN AIR						
Target: Meet or beat the most stringent air quality guidelines from Metro Vancouver, BC, Canada, and the World Health Organization.	Total number of instances of not meeting of air quality standards for ozone, particulate matter (PM2.5), nitrogen dioxide and sulphur dioxide from both the Kits and Downtown stations combined ⁵	27 instances (2008)	227 instances	+200	No	0 instances
GREEN ECONOMY						
Target 1: Double the number of green jobs over 2010 levels.	Total number of green jobs	18,250 jobs (2010) ⁶	24,700 jobs (2016)	+35%	Yes	36,500 jobs
Target 2: Double the number of companies that are actively engaged in greening their operations over 2011 levels.	Per cent of businesses engaged in greening their operations	5% of businesses engaged (2011)	9% of businesses engaged (2017)	+4%	Yes	10% of businesses engaged
LIGHTER FOOTPRINT						
Target: Reduce Vancouver's ecological footprint by 33% over 2006 levels.	Total global hectares per capita	4.27 (2006)	3.40 (2015)	-20%	Yes	-33%
	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)	29,100 people	+28,500	Yes	To be determined
GREEN OPERATIONS						
Target Zero Carbon: 50% reduction in GHGs from City operations from 2007 levels	Total tonnes of CO ₂ e from City operations	495,000 tCO ₂ e (2007)	220,000 tCO ₂ e	-56%	Yes	247,500 tCO ₂ e
Target Zero Waste: 70% waste diversion in public-facing City facilities, and 90% waste diversion in all other City-owned facilities	Total diversion rate (public)	65% (2013)	86%	+21%	Yes	70% diverted
	Total diversion rate (other)	85% (2013)	90%	+5%	Yes	90% diverted
Target Healthy Ecosystems: Reduce water use in City operations by 33% from 2006 levels	Total water use by City facilities (m ³) ⁸	2,600,000 m ³ (2006)	2,329,000 m ³	-10%	Yes	1,740,000 m ³

¹ 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 both of the Green Transportation indicators going forward.

² 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.

³ Vancouver's Park Board is improving the measurement for five-minute access to green space. The City will transition to the new measurement in Vancouver's next environmental plan.

⁴ Food assets include: number of community garden plots, farmers markets, community orchards, community composting facilities, community kitchens, community food markets, and urban farms.

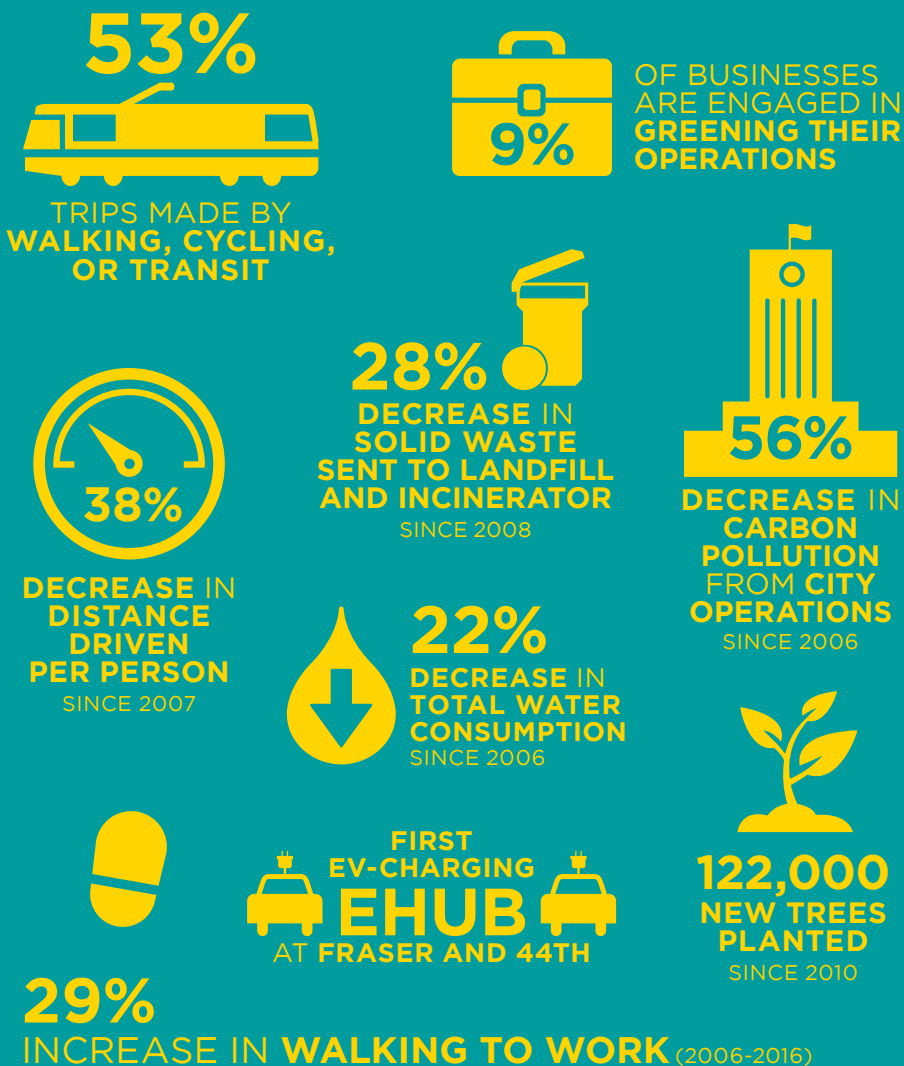
⁵ Air quality metrics are measured by Metro Vancouver from data from one monitoring station at Robson Square in Vancouver. The Kitsilano station is offline and awaiting relocation. Four indicators of air quality are used for comparison to world standards. They are: 24 hour average particulate matter (PM 2.5%) concentration >25 µg/m³, one hour average nitrogen dioxide (NO₂) concentration >200 µg/m³, 24 hour average sulphur dioxide (SO₂) concentration >20 µg/m³, and eight hour ground-level ozone (O₃) concentration >52 ppb.

⁶ The 2016 green jobs study refined the method for calculating the number of green jobs, resulting in a change in the 2010 count. Methods have been reviewed by Delphi Group, and targets going forward will be based on this recalculated total.

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 Without universal water metering of our civic facilities, metric tracking is a best estimate only, based on available data and extrapolation. Accuracy will increase through continued water meter installations at prioritized City buildings.

PROGRESS HIGHLIGHTS



AWARDS

2018 Arcadis Sustainable Cities Index:
Sixth Most Sustainable City in North America

2018 Economist Intelligence Unit Global Livability Index:
Sixth Overall Globally,
Second in North America

2018 World Wildlife Fund One Planet City Challenge:
Canadian Earth Hour Capital

2018 IPA Downtown Achievement Award – Planning:
Northeast False Creek Plan

2018 International Association for Public Participation Canada Core Value Awards – Indigenous Engagement Award: Britannia Renewal Master Plan

2018 International Association for Public Participation Canada Core Value Awards – Dazzling Notice Award (Honourable Mention):
Arbutus Greenway: Engaging a Diverse and Citywide Audience

2018 ITE Complete Streets Council:
Best Project Award (City of Vancouver's Complete Streets Framework)

2019 Mercer Quality of Living Survey:
Third Overall Globally,
First in North America

2019 Mediacorp Canada Inc.:
Canada's Greenest Employers

2019 American Planning Association – Pierre L'Enfant International Planning Award: Northeast False Creek Plan

2019 Planning Institute of British Columbia – Gold Award, Research & New Directions in Planning:
Coastal Adaptation Plan – Fraser River Foreshore

Green Shores for Coastal Development – Gold Rating:
New Brighton Park Shoreline Habitat Restoration Project

This Update is organized according to the 10 goals of the *Greenest City 2020 Action Plan*, which can be found at: vancouver.ca/GreenestCityActionPlan

OVERVIEW

In 2011, Vancouver set a goal to become the greenest city in the world by 2020. And we've been busy building a Vancouver that's amazing for everyone.

Enabling new buildings that are so efficient, you can keep your whole family warm with a hair dryer in the winter. Incentives for heat pumps that also keep you cool in summer. Turning waste into a resource, and water into something we manage holistically. Restoring natural spaces. Designing a city that makes it easy to leave the car behind, with

neighbourhoods where everything you need is close at hand. When you have to drive, making sure electric vehicle charging is available, no matter what type of dwelling you live in. Adapting Vancouver to the changes in climate we're already seeing, and making sure no one's left behind. Influencing green practices across the globe, and helping our local green businesses get ready for the world stage.

Read all about it in this year's Update!

CLIMATE CHANGE ADAPTATION

Picture the world's most polluted cities, and you may think of places like China or India. You probably wouldn't think of Quesnel or Prince George. Last August, both ranked in the top 10 list for worst air quality in the world, thanks to a historic wildfire season in BC. Here in Vancouver, we've seen a record number of air quality exceedances two years in a row now. This is likely to continue as hotter, drier summers become more common, and wildfires become more likely.

At other times of the year, we see rain. A lot of it. Last fall, storms flooded

parts of Vancouver, damaging City infrastructure and private property. In the past, these extreme cloudbursts might have happened once in 50 years, but heavy rainstorms are becoming more intense and more frequent. Climate change isn't something affecting faraway places, in the far-off future. We're feeling its effects, here and now.

We have to change the way we do business, and drastically cut our carbon pollution, to cause as little additional warming as we can. That led Council to declare a climate emergency: you can

"Vancouver is already experiencing the impacts of 1°C of warming, including more severe storms, flooding, and forest fire smoke. Every degree of warming will increase those impacts and make it increasingly difficult, and eventually impossible, to adapt."

Vancouver's Climate Emergency Response

read about that in the *Climate and Renewables* section. Even half a degree of warming will make a world of difference.

Even with that, we'll still have to adapt our city, because some level of climate change impacts are already locked in. Using the best, most up-to-date science available, we revised our Climate Change Adaptation Strategy in December 2018. A new strategy, with a new set of actions, and you'll see that many of them are connected to our Greenest City goals. Things like setting up clean-air shelters at community

centres (*Clean Air*). "Futureproofing" building codes so the next generation of homes are prepared for hotter summers (*Green Buildings*). Managing rainwater through green infrastructure (*Clean Water*). And making sure our City operations and processes are prepared for climate change, and that they look out for all communities in Vancouver, especially the ones hit hardest (see the Climate Equity story in *Climate and Renewables*).

Find out more at vancouver.ca/climateadaptation



1 CLIMATE AND RENEWABLES

GOAL: ELIMINATE DEPENDENCE ON FOSSIL FUELS

TARGET:

- Reduce community-based greenhouse gas emissions by 33% from 2007 levels.



INDICATOR	BASELINE	2018	CHANGE
Total tonnes of community CO ₂ e emissions from Vancouver	2,765,000 tCO ₂ e (2007)	2,440,000 tCO ₂ e	-12%

We've cut our carbon pollution, but it hasn't been enough. In January 2019, City Council unanimously recognized the climate emergency that the planet faces, and that we must do more to respond. In April 2019, City Council approved the Climate Emergency Response, with bold directions towards a renewable energy future. Learn more at vancouver.ca/climateemergency

THE CLIMATE EMERGENCY

The world's scientists have sounded the alarm: climate breakdown is coming. Here in Vancouver, we're already experiencing the impacts of 1°C of warming. More severe storms. Flooding. Forest fire smoke. Every degree of warming will increase these impacts and make it harder, and eventually impossible, to adapt.

1.5 TO STAY ALIVE

When Canada signed the Paris Agreement in 2015, we joined a global commitment to keep global warming below 2°C, and as close to 1.5°C as possible. In October 2018, the Intergovernmental Panel on Climate Change released a major report making a case to strive for 1.5°C. Every degree of warming beyond this pushes us closer to a time when climate change will threaten our global stability.

VANCOUVER MUST DO MORE

Hundreds of cities around the world have declared a climate emergency and committed to ramping up their action. Together, we also have the ability to influence the direction of senior governments. Vancouver is a leading city in this movement, with a solid foundation to build on: from world-leading climate action policies since the 1990s, to our Renewable City commitment to eliminate our dependence on fossil fuels and transition to renewable energy before 2050.

OUR RESPONSE

The Climate Emergency Response sets a target for Vancouver to be carbon neutral before 2050. It has six Big Moves to get us on track for this target.

WALKABLE COMPLETE COMMUNITIES

By 2030, 90% of people live within an easy walk/roll of their daily needs.

SAFE AND CONVENIENT ACTIVE TRANSPORTATION AND TRANSIT

By 2030, two-thirds of trips in Vancouver will be by active transportation and transit.

POLLUTION-FREE CARS, TRUCKS AND BUSES

By 2030, 50% of the kms driven on our roads will be by zero emissions vehicles.

ZERO EMISSIONS SPACE AND WATER HEATING

By 2025, all new and replacement heating and hot water systems will be zero emissions.

LOWER CARBON CONSTRUCTION

By 2030, the embodied emissions from new buildings and construction projects will be reduced by 40% compared to a 2018 baseline.

RESTORED FORESTS AND COAST

By fall 2020, develop "negative emission" targets to be achieved by restoring forest and coastal ecosystems.



In line with the Big Moves, 53 accelerated actions will help us ramp up our local action right away. The City will tackle land use and buildings, active transportation and electric vehicles, solid waste, and food and beverages. And we'll lead through our own City operations.

WORKING TOGETHER

To be successful, we'll need to work with our partners, industry and the community, and with the Federal and Provincial governments, to make sure we're all pulling in the same direction. In December 2018, BC released its new climate plan, CleanBC, emphasizing the need to work together to move away from fossil fuels toward renewable energy. Commitments in the first phase are designed to getting three-quarters of the way towards meeting BC's

2030 climate target (40% emissions reductions below 2007 levels). Many of those actions will also help Vancouver meet our targets.

CHALLENGES

Staying within 1.5°C will be a supreme challenge: possibly the biggest challenge humankind has ever faced. While the Big Moves in the Climate Emergency Response are all achievable, they will push the limits of what we think can be accomplished in the next decade. Council's adoption of the Climate Emergency Response has triggered the next phase of planning, and staff are working to identify the challenges and possible solutions. This will be done by fall 2020. In the meantime, the accelerated actions are quick-starts we can move forward with immediately.

It's understandable that people are worried about the cost of taking action. That said, if we don't cut carbon, if we don't adapt our city and our economy, the cost of not taking action will be far greater. In some cases, people are already saving money, through energy efficiency or more active transportation for instance. But there will be cases where taking early action costs more, like some types of heat pumps or electric vehicles. In these cases, the City and senior governments can play a role. We can help make these solutions more affordable now, to help build demand and bring costs down in the future.

CLIMATE EQUITY

Some groups in our community will be hit harder by climate change. Often they're also at greater risk, because of systemic exclusion and aren't as able to respond and adapt. At the same time, there is often so much to learn from groups who've already had to adapt the most.

In Vancouver, climate change impacts like extreme heat and wildfire smoke are already being felt excessively by some. Also, we need to include and support individuals, communities, and businesses as we move from fossil fuels to renewable energy, so that no one is left behind. Climate equity means taking climate action in ways that are

fair and just, and address affordability. For example, convenient, renewably powered public transit helps cut carbon and air pollution while also supporting affordable ways to get around for all residents.

The Climate Emergency Response will create a Climate and Equity Working Group with community organizations that represent systemically excluded and low-income people. This group will use the City's Equity Framework (currently being developed) to prioritize cultural safety, access, and inclusion. We are working hard to ensure the City's sustainability work supports fairness and access for everybody, as we plan our Big Moves, and as we face the challenges ahead together.



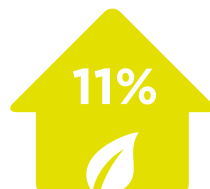


2 GREEN BUILDINGS

GOAL: LEAD THE WORLD IN GREEN BUILDING DESIGN AND CONSTRUCTION

TARGETS:

- Require all buildings constructed from 2020 onward to be carbon neutral in operations.
- Reduce energy use and greenhouse gas emissions in existing buildings by 20% over 2007 levels.



**DECREASE IN
GREENHOUSE
GASES
FROM
ALL BUILDINGS
SINCE 2007**

INDICATOR	BASELINE	2018	CHANGE
Kilograms of CO ₂ e per square metre of newly built floor area	20.7 tCO ₂ e/m ² (2007)	11.8 tCO ₂ e/m ² (2017)	-43%
Total tonnes of CO ₂ e from all buildings	1,585,000 tCO ₂ e (2007)	1,415,000 tCO ₂ e	-11%

Passive House isn't just for houses. Of the zero or near-zero emissions projects currently in the final review or permitting stages, 80% of these are multi-family, rental, or both.

2018-2019 SUCCESSES:

FUTUREPROOF HOUSING

Passive Houses are actually pretty simple.

Step 1: wrap your building with a really good envelope (all the stuff that keeps the outdoors out, and the comfort in).

Step 2: use low-carbon systems, like heat pumps and heat-recovery ventilators, to heat or cool the inside.

Bonus: now you're also more resilient to the impacts of climate change (as we mentioned in the *Climate Adaptation* section). As wildfires become more frequent, indoor air in green buildings will stay cleaner. As winters and summers become more extreme, you'll need less energy to stay warm or cool. And during power outages, you'll stay warmer (or cooler) for longer. What about my energy bills, you ask? You'll be using far less energy, so even swings in energy prices will impact you way less than now.

PROGRESSIVE ON PASSIVE HOUSES

Vancouver is known globally for its progressive green building policies. At the same time, industry leaders here have gone even further than what's required. In fact, all the Passive House projects to date in Vancouver have been voluntary! The earliest ones were single-family houses, and medium-sized purpose-built rental apartments. As of July 2019, there are over 50 zero or near-zero emissions projects in the final review or permitting stages. Together, these add up to almost 2.3 million square feet and nearly 2,300 housing units.

WHAT ABOUT EXISTING BUILDINGS?

Almost half the buildings standing now will still be around in 2050. And 90% of the carbon pollution from these buildings comes from burning natural gas in furnaces and hot-water boilers. The Climate Emergency Response recognizes we need to lower the carbon pollution from these buildings fast. So in spring 2019, Council approved a \$5 million fund to piggyback off of BC's retrofit programs and help building owners make the switch to electric systems, like heat pumps and on-demand electric hot water. These systems also have other benefits. No gas burning indoors means better air quality. They're safer in the event of an earthquake or fire. And heat pumps also work the other way: they can pump heat out and cool your building during the summer!

ICE BOX ROAD TRIP UPDATE

In the summer of 2017, we introduced the Ice Box Challenge. Put two massive blocks of ice inside two "buildings": one built to Passive House standards, one built to standard building code. Leave them outside in the hot sun for a few weeks. Which one do you think kept out the summer heat better? After their 18-day showdown in Vancouver, our Passive House Ice Box has been undefeated on the road, from Seattle, to Pittsburgh, Philadelphia, Washington D.C., and all the way to New York City. Next stop: Portland!



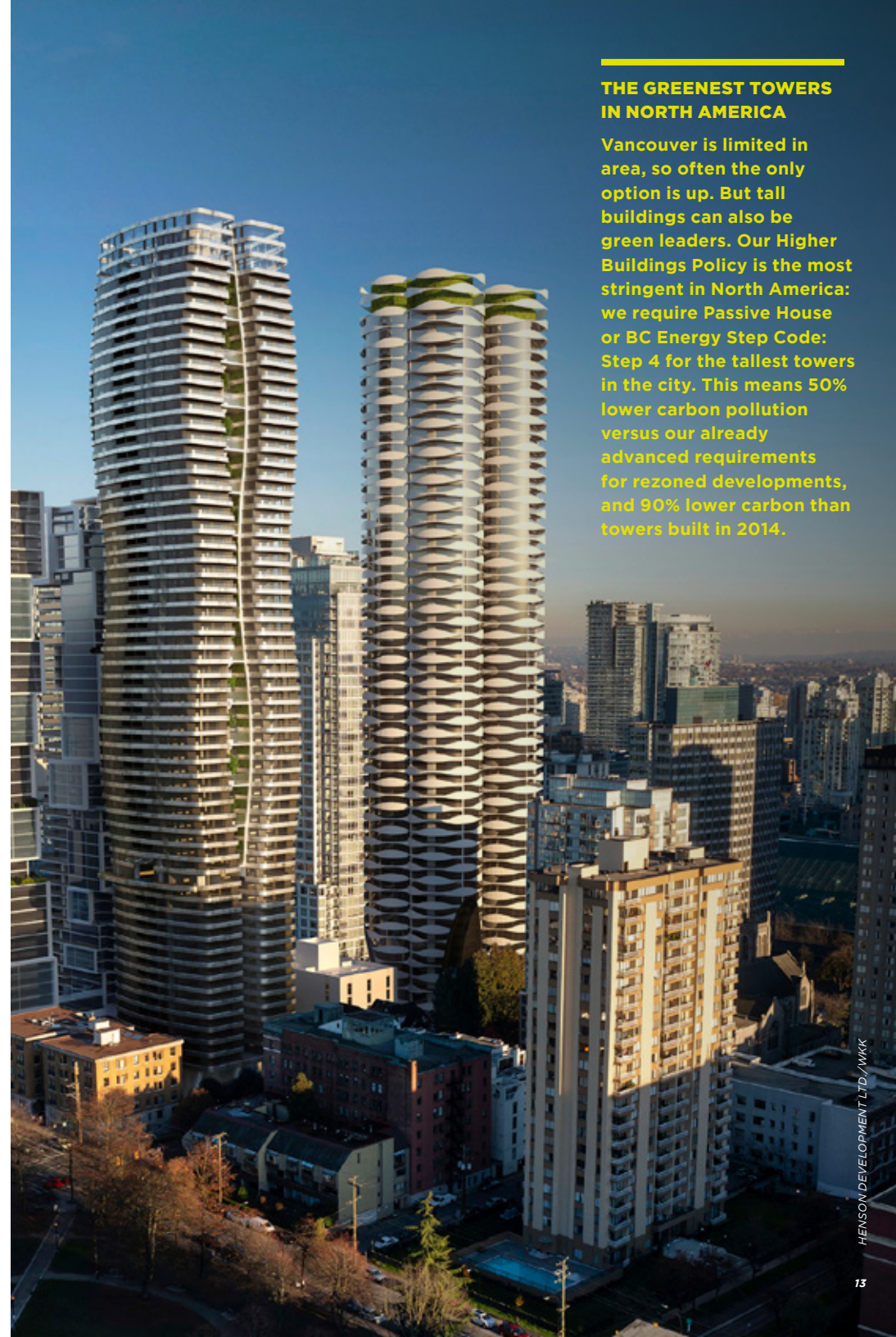
CHALLENGES

Housing affordability is a huge concern in Vancouver, and any solution is going to be complex. Green building technologies have a part to play in this: smarter construction means more efficient, affordable and sustainable homes and buildings. But many builders and designers are still unfamiliar with higher-efficiency building products and methods, like prefabricated components that can be manufactured and assembled more quickly and with better precision. The City and the Vancouver Economic Commission are working with Zero Emission Building Exchange, Canada Green Building Council, Passive House Canada, BCIT, and others, to help increase local knowledge of all the options out there, so we can see affordable green buildings really take off.

Building energy use is only half of the carbon-pollution story. The energy and pollution from making the materials themselves is called “embodied” carbon, and it can be substantial, especially with concrete, metals, and foam insulations. If the construction industry were a country, it’d be the third most carbon polluting in the world behind China and the US. This past spring, Vancouver’s Climate Emergency Response set a target to reduce embodied carbon from new buildings and construction projects between now and 2030 by 40%. The most recent update to the City’s Green Building Policy for Rezoning already requires developers to report embodied carbon for their projects. Measuring the problem will be the first step in exploring and shifting to better options, like lower-carbon concrete mixes and tall wood (mass timber) buildings.

“In addition to the awesome environmental case, Passive House means you get a higher quality building that provides both a better indoor environment for renters and lower operating costs.”

Andrew Stiffman, Project Manager, Spire Development



THE GREENEST TOWERS IN NORTH AMERICA

Vancouver is limited in area, so often the only option is up. But tall buildings can also be green leaders. Our Higher Buildings Policy is the most stringent in North America: we require Passive House or BC Energy Step Code: Step 4 for the tallest towers in the city. This means 50% lower carbon pollution versus our already advanced requirements for rezoned developments, and 90% lower carbon than towers built in 2014.



3 GREEN TRANSPORTATION

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

TARGETS:

- Make the majority (over 50%) of trips by foot, bicycle and public transit.
- Reduce average distance driven per resident by 20% from 2007 levels.



**DECREASE IN
DISTANCE
DRIVEN PER
PERSON
SINCE 2007**

INDICATOR	BASELINE	2016	CHANGE
Per cent mode share by foot, bike and transit	40% of trips*	53% of trips	+13%
Total vehicle km driven per person	5,950 km/person/year	3,690 km/person/year	-38%

* 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 both of the Green Transportation indicators going forward.

Commuting is getting more and more active. According to Census data, driving to work went down 20% between 1996 and 2016, while walking (+29%), cycling (+85%) and taking transit (+25%) all went up.

2018-2019 SUCCESSES:

CUTTING CORNERS (IN A GOOD WAY)

Anyone with a stroller, wheelchair, walker, cane, and other mobility aid knows how helpful curb cuts are. Originally meant for wheelchair users, curb cuts are sidewalk ramps at street corners that make it easier to cross. The City typically installs 100-200 of these every year as part of our regular improvements. In 2018, support from TransLink's Walking Infrastructure to Transit funding program helped us install an additional 140 curb cuts across the city to make public transit more accessible. Locations were chosen along walking routes near schools, hospitals, community centres, and senior's facilities, within 400 metres of the Frequent Transit Network, where transit service runs at least every 15 minutes in both directions throughout the day and into the evening, every day of the week.

800 ROBSON: THE NEW HEART OF DOWNTOWN

The plazas surrounding the Vancouver Art Gallery have long been a place to be social, to be creative. It's like the city's "living room". Now 800 Robson (the stretch between Howe Street and Hornby Street) will be a permanent, pedestrianized space for public events. City Council approved the final design in February 2019, with construction to start this year. The plaza will be simple and flexible to support a wide range of events, festivals, and vendors. New electrical and water connections mean

no need for noisy, polluting generators. And better lighting, a level surface for walking and rolling, and Vancouver's first all-walk crosswalks will make it safe and accessible to everyone.

PLANNING FOR FUTURE TRANSPORTATION IN NEW BUILDINGS

Not everyone owns a car now, and that's certainly going to be true in the future. Meanwhile, building new parking spaces can drive up construction costs. So, do new buildings in Downtown Vancouver need so many parking spaces, where there's great access to frequent transit, shared vehicles, bike share, and so many ways to move around?

Beginning in January 2019, the City stopped requiring new buildings downtown to have a minimum number of parking spaces (except for accessible parking spots). And we now require these new buildings to support sustainable transport choices which will help their occupants drive less. Bicycling and car sharing can all be encouraged by providing things like bike parking, passenger loading spaces, and memberships and dedicated spots for car share vehicles. By requiring developers to do this kind of planning in new buildings, we are aiming to improve not only sustainability and livability, but also active lifestyles, traffic congestion, and affordability.



CHALLENGES

We could see ride-hailing (like Uber and Lyft) on our streets as early as this fall. This may mean more transportation options, but other cities have seen fewer people taking transit—and more traffic congestion—as a result. In early 2019, City Council adopted seven ride-hailing principles, including increasing mobility, transportation accessibility, and affordability. These will guide the input we give to the Province, as they work on legislation this year to allow ride-hailing services to operate. The City will also continue to prioritize walking, cycling, and transit as the most affordable and reliable travel options to meet the City's Green Transportation goals.

This spring's Climate Emergency Response confirmed again how important green transportation is to the future of Vancouver. We had a long-standing goal for two-thirds of the trips in Vancouver to be made by walking, cycling, and transit by 2040. The Climate Emergency Response moves this target up 10 years. How will we get there by 2030? We'll need to take action on a combination of things, like making neighbourhoods more complete with amenities so people can walk or roll to their daily needs. Improving our network of walking, cycling and transit routes will make it safer and more convenient for people on the move to choose those options. A fair and comprehensive approach to mobility pricing would also encourage fewer vehicle trips and less congestion. For all of this, we'll continue to work with Metro Vancouver and TransLink, who are doing the work now to plan for how people will live, work and move around the region.

The Broadway Corridor connects the largest university (UBC) and the largest hospital (Vancouver General Hospital) in Western Canada. In 2016, there were approximately 113,000 jobs and 135,000 people living within the Corridor (including UBC).



TRANSIT: BUSIER THAN EVER

What does record transit ridership look like? Over 400 million boardings in the region in 2018. Buses remain the workhorse of the network. In June 2018, the NightBus District was launched to help late-night customers get home from downtown, starting at 2 am and running every 30 minutes or better, seven days a week. Meanwhile, the top five most crowded bus services in the region all go to UBC. The 11 bus routes that serve UBC carry almost half the bus riders in all of Vancouver and UBC. And sitting at number 1? The 99 B-Line: 60,000 daily riders help make it the busiest bus route in all of Canada and the US. That's why in early 2019, backed by overwhelming public

support, City Council endorsed SkyTrain as the only viable technology for the extension from Arbutus Street to UBC. Four out of five people surveyed for the Broadway Subway Project were very supportive of the extension to Arbutus and the top message heard by City staff was for the line to extend all the way to UBC from the get-go.



4 / ZERO WASTE

GOAL: CREATE ZERO WASTE

TARGET:

Reduce solid waste going to landfill and incinerator by 50% from 2008 levels.



**DECREASE IN
SOLID WASTE
SENT TO LANDFILL
AND INCINERATOR
SINCE 2008**

INDICATOR	BASELINE	2017*	CHANGE
Annual solid waste disposed to landfill and incinerator from Vancouver	480,000 tonnes (2008)	347,000 tonnes	-28%

* 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.

As part of the Zero Waste Place program, nearly 900 Grade 5 students designed and delivered waste-reduction plans for their schools, and measured the impact on their communities.

2018-2019 SUCCESSES:

REUSE AND RECYCLING ON THE RISE

People didn't waste the opportunity to pop by one of the City's nine Zero Waste Reuse and Recycling Drop-Off events last year. In 2018, we collected the most items in this event's history: over 1,800 residents dropped off 43 tonnes of electronics, small appliances, computers and accessories, and over 13 tonnes of clothing and textiles. To help us with future planning, we tested collecting car seats as well: over 540 seats were recycled. Thanks to our partner organizations and the over 230 volunteers who helped keep these materials from the landfill and make these events such a success.

NO FOAM CITY

In support of our Single-Use Item Reduction Strategy, starting January 1, 2020, food vendors will not be allowed to serve food and drinks in foam cups or foam take-out containers. Hospitals and community care facilities are exempt, and a one year temporary exemption for charitable food providers will apply. Many businesses are already ahead of the curve, and are choosing reusable dishware or alternatives accepted in Recycle BC's recycling programs or the City's Green Bin program. Look out this fall for the launch of our public awareness campaign, as we hit the streets to raise awareness about the foam ban.

WASTE CAN BE FUEL

Organic material that ends up in landfill decomposes and can add to our carbon pollution. This includes wood waste from construction and demolition. Instead of just letting it rot, what if we could use it as fuel? In 2018, the City determined there is potential to recover and process wood waste at the Vancouver Landfill, and use it to fuel local cement kilns, replacing traditional fuels like coal or natural gas, and cutting carbon pollution. Next up is confirming if a larger scale project to turn this waste into a resource is feasible.

ZERO WASTE: THE NEXT GENERATION

Today's kids will be tomorrow's grown-ups, so for *Zero Waste 2040* to be a success, everybody young, old and in between, will have to do their part. In 2018, the City contracted Elements Society to host Zero Waste Place workshops in local schools. Nearly 900 Grade 5 students learned to estimate how much waste is created in their school, design and deliver a school-wide waste-reduction plan, and measure the impact on their community. Meanwhile, for younger kids, the City supported Clean Up Your Act: an anti-litter and anti-graffiti school play by DreamRider Productions. Through over 40 performances, more than 7,800 students gained a sense of personal responsibility in protecting our waterways, wildlife, parks and green spaces and learned how to properly deal with garbage and recycling.



CHALLENGES

Food waste can no longer go into normal garbage. This has been the rule since 2015, and now all properties must have a system in place to separate wasted food from garbage. Vancouverites are pretty good at composting: the City collected over 48,000 tonnes from single-family houses and duplexes in 2018 alone.

But let's face it: even though composting is much better than landfill, we are still wasting a lot of edible food (more than half of what we produce, according a recent study by Second Harvest). It would

be better to simply not buy so much in the first place. If we planned a little, didn't buy more than we needed and actually ate all our leftovers, the average household could save over \$1,000 per year. That also means fewer resources wasted and less carbon pollution emitted as part of producing that food.

Looking ahead, we'll work with grocery stores to look at ways to rescue surplus food and redistribute it, as well as in-store support for the Love Food Hate Waste campaign. Remember: buy the food you love, and eat the food you buy!

In 2018, over 380 Neighbourhood Cleanup Parties helped to protect our waterways, parks and green spaces by collecting over 8,000 bags of litter.

COMMUNITY CLEANUP PROGRAM

Love Vancouver? Hate litter? In 2018, over 17,500 residents took part in a Neighbourhood Cleanup Party. You can too! When you host or join a cleanup, we provide you with the tools you need to get the party started, including garbage bags, gloves and other cleanup tools. If needed, we'll even pick up the litter you collect once you're done!





5 ACCESS TO NATURE

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

TARGETS:

- All Vancouver residents live within a five-minute walk of a park, greenway, or other green space.
- Plant 150,000 new trees.
- Restore or enhance 25 hectares of natural areas between 2010 and 2020.
- Increase canopy cover to 22% by 2050.



122,000
NEW TREES
PLANTED
SINCE 2010

INDICATOR	BASELINE	2018	CHANGE
Per cent of city's land base within a five-minute walk to a green space*	92.6% (2010)	92.7%	+0.1%
Total number of additional trees planted	-- (2010)	122,000 trees	+122,000
Total hectares of natural areas restored or enhanced	-- (2010)	27 hectares	+27
Per cent of city's land area covered by tree leaf canopies	18% (2013)	Survey results available in 2020	--

New Brighton Salt Marsh wins gold! The New Brighton Park Shoreline Habitat Restoration Project received a Gold rating under the Stewardship Centre for BC's Green Shores for Coastal Development program, based on factors including excellence in rehabilitation of coastal habitat, innovation and climate change adaptation.

2018-2019 SUCCESSES:

RENFREW RAVINE

We've written about salmon returning to Still Creek in past Greenest City Updates. It's the longest remaining visible creek in Vancouver, and it runs through Renfrew Ravine Park in East Van, the only park in Vancouver with a creek in a natural ravine. The Park Board has wanted to improve access to one of Vancouver's more wild and natural areas, while preserving its unique ecology. In 2018, the Park Board added new pathways, new timber staircases, bridges across Still Creek, and an elevated boardwalk.

After the boardwalk was completed, Grade 1 and 2 students from Norquay School joined in a day of planting and learning about traditional uses of plants. On a windy day in December, the children, along with Indigenous plant knowledge keepers, Still Moon Arts Society, and Still Creek Streamkeepers volunteers, worked alongside each other to plant native trees and shrubs: Western red cedar, vine maple, salmonberry and thimbleberry.

VANPLAY: A HOP, SKIP, AND A JUMP AWAY FROM NATURE

Vancouver's stunning, world-class parks are the result of more than a hundred years of committed effort by the Park Board. What's in store for the next hundred years? In July 2018, the Park Board released the second part of *VanPlay*, their master plan for the city's parks and recreation system. *10 Goals to Shape the Next 25 Years* sets a bold course towards more equitable, accessible, inclusive and resilient parks.

One focus will be connecting our natural spaces. For many areas of the city, access to the waterfront and green spaces is cut off. Goal 6 is to create a vast, green network that will connect our parks, waterfront, and recreation areas. Imagine natural corridors with green infrastructure to manage our rainwater, pathways for urban wildlife to move through the city, and walking, running, and bike paths so people can travel safely from park to shoreline to park. It will change the way we navigate our city.

Our 22 km Seawall is the longest continuous seawall in the world. Connecting green spaces in other parts of Vancouver is one of the 10 goals in *VanPlay*, the Park Board's master plan for the city's parks and recreation system.

* Vancouver's Park Board is improving the measurement for five-minute access to green space. The City will transition to the new measurement in Vancouver's next environmental plan.



CHALLENGES

In developing VanPlay, the Park Board heard loud and clear from Vancouverites how important access to nature, wild spaces, biodiversity and wildlife were to them. Natural areas were the third highest priority for action over the next 25 years, according to public feedback. There is a strong appetite for more wild, less curated spaces. At the same time, some considerations come into play. Naturally managed areas only really work in some locations: in others, we must maintain sight lines, for safety and other reasons. Maintaining natural areas can also be very different versus the parks of the past, in terms of the skills and the equipment needed.

There is a great opportunity here to learn from the land stewardship, planting, and management practices of local First Nations. As a community, we can also care for parks together. Park Partner organizations work with the Park Board on urban forest and enhancing biodiversity. Individuals can also become Park Stewards: the program supports community members who want to help preserve and maintain our parks' ecological health. Go to vancouver.ca/parks-recreation-culture/education-and-stewardship

to learn more, and to subscribe to the Park Board stewardship newsletter.

Our parks have to be for everyone. Greenest City tried to measure this using land base within a five-minute walk to green space. We know now this wasn't the right target to shoot for. It doesn't measure how many people can access green spaces, or how easy it is for them to get there. But this goal got the conversation started around how parks should be accessible for all residents. Even now, with challenges to park planning, legacies of social inequity, and limited resources, the Park Board has to prioritize their time and investment where it will make the biggest difference to the community. Introducing Equity Initiative Zones may help the Park Board make better decisions, for a just and equitable parks and recreation system. Equity Initiative Zones are a tool for park planners to help locate where they can focus their efforts more effectively and transparently. Some factors these zones will highlight are low recreational access, tree canopy, and park provision and walkability. This is one way VanPlay aims to create a just and equitable parks and recreation system.

RETURNING MUSQUEAM CREEK TO NATURE

Biodiversity is woven throughout our urban landscape. Migrating songbirds nest in our forests, salmon spawn in our remaining streams, and tall trees define some of our most important parks. Work is happening across our parks to restore and improve these habitats, by removing invasive species and protecting against further damage. Through the dedication of the Musqueam Nation and local community groups, over the past few decades we have seen the return of salmon to Musqueam Creek.

In 2018, the Musqueam Aquatic Habitat Restoration Group focused on the section of the creek ravine near Crown Street, in Musqueam Park. They removed over 500 pounds of invasive plants and 100 pounds of garbage from Musqueam Park, and planted nearly 200 native trees and over 500 native shrubs. A new split-rail fence limits access and slows erosion of the banks of Musqueam Creek. The Park Board planning staff and Musqueam Nation Fisheries Department also worked together in 2018 to create a stewardship plan, to ensure the creek is protected for years to come.





6 CLEAN WATER

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

TARGETS:

- Meet or beat the strongest of British Columbian, Canadian and appropriate international drinking water quality standards and guidelines.
- Reduce per capita water consumption by 33% from 2006 levels.



22%
DECREASE IN
TOTAL WATER
CONSUMPTION
SINCE 2006

INDICATOR	BASELINE	2018	CHANGE
Total number of instances of not meeting drinking water quality standards	0	0	0
Total water consumption per capita	583 L/person/day (2006)	456 L/person/day	-22%

The City's Water Ambassadors assessed irrigation systems at over 200 homes in 2018. Just minor adjustments to the timer and the sprinklers cut water used by 43% on average.

2018-2019 SUCCESSES:

ALTERNATE WATER SYSTEMS

Our drinking water is literally going down the toilet. Irrigation, toilet flushing, cooling towers and mechanical systems use the vast majority of drinking water in the City. These uses don't require such a high level of water purity. There are many other sources of water we could be using. Harvesting rainwater is an obvious example. And it's key to other City priorities like the Rain City Strategy, which aims to capture 70% and clean 90% of Vancouver's average annual rainfall before allowing it back into our ecosystems.

Alternate water systems safely collect, treat, and use rainwater for irrigation and toilet flushing, instead of using drinking water. In 2018, City Council approved new requirements for designing, operating and maintaining these systems to cut water use and safeguard public health. The City and Vancouver Coastal Health worked together to write a clear standard for rainwater harvesting. Along with the fact all alternate water systems (except in single or duplex family homes) will need operating permits now, this will help to keep these systems safe and well-maintained.

BIG BUILDINGS WILL USE LESS WATER

The City's Sustainable Large Sites policy now requires big buildings over a certain size, or buildings that are part of a rezoning over a certain threshold, to cut drinking water use both indoors (20%) and outdoors (50%). We encourage designers to look at all the water use as a whole, so they can use a combination of different ways to get these reductions. They could cut water use by using more drought-resistant plants, installing more efficient systems like low-flow bathroom fixtures, or by collecting and reusing non-drinking water for toilet flushing or irrigation.

LEAK BRIGADE TO THE RESCUE

The City is active in detecting leaks in our nearly 1,500 km network of buried pipes, but this doesn't find leaks on private property. So we analyzed 300 Vancouver homes that had water meters installed, and found that 3% of them had leaks larger than 50 litres per minute. One of them leaked more water in a month than City Hall actually uses! In 2018, we launched a new "Leak Brigade" program to help homeowners find and fix these leaks. To start, City teams



(of students) will go house-to-house in Kitsilano and Riley Park, using a device that uses sound to detect the presence of a leak. They'll listen to the curb stop valve, which is where a home connects to the city's water-main network. We'll let the homeowners know about any leaks found, and ensure they are fixed. If the first trial is successful, this could become a regular summer program.

CHALLENGES

Flow, gulp, rinse, splash. The story of Vancouver has to include the story of water. We are surrounded by it on three sides. We get drinking water from the snow on our local mountains. We are one of the rainiest cities in Canada (some days it feels like we are THE rainiest). That rain picks up pollutants from our streets, flowing through sewers and out to a regional facility in Richmond, where it gets treated. Sometimes, in the worst storms, it floods our streets, and overflows into local waterways. As the pipes and sewers beneath our feet get older, we need to better manage rainwater and where it goes once it hits the ground. As the

climate changes, we need to keep our drinking water and our local waterways clean. As the city grows, the City is being challenged to manage urban water in new ways.

The City is starting to look at managing all the water in Vancouver as one integrated system: "One Water". By understanding water resources both above and below ground, we can start to value water as a resource in all its forms: rainwater, groundwater, drinking water, and sanitary flow. We can improve our readiness to withstand and recover from extreme rain events, flooding, and droughts. One example is the alternate water systems already mentioned in this chapter: enabling safe rainwater reuse for irrigation and toilet flushing. And rather than just channeling water away in more and bigger pipes, we want to support green rainwater infrastructure solutions. Things like permeable surfaces, vegetation and soils, and engineered elements soak up, clean, evaporate and absorb rainwater. This helps keep roadway dust, plastic and contaminants out of our sewers and waterways.



THE WATERFALL AT QUEEN ELIZABETH PARK

Queen Elizabeth Park sees six million visitors in an average year, and one of the most popular features is the waterfall. In 2018, we installed a water meter and timer to turn it off at night, and to cut the amount of water used without affecting the experience. Water use has dropped by well over half: a savings of up to 60 million litres a year. The next step is to explore whether the water can be recirculated safely, saving even more water.

MARK DENISEVICH / FLICKR

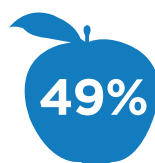


7 LOCAL FOOD

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

TARGET:

- Increase city-wide and neighbourhood food assets by a minimum of 50% over 2010 levels.



**INCREASE IN
NEIGHBOURHOOD
FOOD ASSETS**
SINCE 2010

INDICATOR	BASELINE	2018	CHANGE
Total number of neighbourhood food assets* in Vancouver	3,340 food assets (2010)	4,960 food assets	+49%

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

After 10 years of increasing food assets, 2018 was the first year total food assets declined. There is only so much land in Vancouver, adding pressure on existing community food assets and challenging the creation of new ones.

2018-2019 SUCCESSES:

MOVING FORWARD ON NEIGHBOURHOOD RESILIENCE

Your food is grown and harvested, processed and packaged, shipped and transported, warehoused and transported (again), stocked and sold, eaten and disposed of. It's part of a system that spans the globe. All this works fine in normal times. So how would Vancouver's food system deal with earthquakes, severe storms and climate-related events? In our region, many of the highways and rail lines that serve Vancouver are constructed in flood plains and seismic zones. They are vulnerable to extreme weather, landslides, avalanches and accidents.

Being resilient means being able to withstand and recover from shocks, which includes keeping our food systems running in emergency situations. At a City and a regional level, we are working on understanding which infrastructure will be essential for keeping food supplies coming into Vancouver after an emergency. This might include improving resilience in our road networks, IT systems, and access to water and power.

At the local level, strong connections with neighbours have a big role to play in helping us get through emergencies. In 2017, the City started the Resilient Neighbourhoods Program to learn and to test ideas with different community organizations in different neighbourhoods. For example, Britannia

Community Services Centre hosted local teens for a "Hunger Games" event, challenging them to work together using limited resources to set up shelters, identify edible plants, and communicate with each other. The 312 Main teamed up with students at Emily Carr University's DESIS lab to explore how sustainable food could be foraged and prepared for a neighbourhood in an emergency, in a project called *Recipe for a Disaster*.

KEEPING MEAL PROGRAMS RUNNING

For some people, accessing food day-to-day is already a challenge, so storing food for emergencies is unrealistic. How might an emergency event impact people who rely on free or low cost meals? In 2018, we supported a study of the three low-cost 365-day meal programs we run in the Downtown Eastside and Downtown South. The study found that our strengths were the flexibility and resourcefulness of the meal-program staff, the food suppliers, and the fact that food is stored on-site. One weakness was power and water supply: losing either would likely shut these programs down. This research produced a method for the City and other meal-service operators to understand the weak points in their operations, as well as good practices that could help them stay up and running during and after an emergency.



FOOD GROWING IN DEMAND

Until pretty recently, food gardens weren't typically part of condo and apartment buildings designs. Fast-forward to 2019, and many residents expect to have access to rooftop gardens in their buildings. As a result, developers now frequently include a shared garden space for residents to connect over growing food together. So as the city grows, so do food assets. When sites over 8,000m² are rezoned, or if a rezoning allows 45,000m² additional density or more, City policy requires that new development to have three food assets. Given resident demand for garden space, garden plots are the most common food asset that gets built, along with fruit trees and on-site composting.

CHALLENGES

Your neighbourhood grocery store has a big role to play in our local food system. Only a third of Vancouver's residents live within 400 metres of a large supermarket, but that doubles when you include small grocery stores. They also help build communities: a study in Renfrew-Collingwood showed that residents valued the familiarity and a sense of belonging at their local

grocery stores. But the reality is that many small grocers are struggling with the rising costs of running a business in Vancouver. The resilience of Vancouver's food system relies on keeping these important food assets. The City is working on several initiatives to better support them, including holding a small business roundtable, exploring property assessment and taxation options with the Province, and providing permitting support through our Commercial Renovation Centre.

This year, Vancouver joined hundreds of cities around the world in declaring a climate emergency and committing to reduce carbon pollution. Food is responsible for over a fifth of the carbon pollution produced by what we consume as a society. The City is looking at ways to promote diets that are healthier for our planet and for people. It's a complex issue. We know that food consumption is inherently personal, so anything we do must be sensitive to affordability and cultural factors. One in five Vancouverites lives in poverty and can't always choose the types of food they eat on a daily basis. When we promote environmentally friendly food, and work on increasing access to it, we need to be mindful of this reality.

CONNECTING AT RILEY PARK COMMUNITY GARDEN

Local food helps build local communities. The Riley Park Community Garden is a great example. A project of the Little Mountain Neighbourhood House, with ongoing collaboration and support from the Park Board, the garden is a community space where events and education (and of course gardening and growing food) bring people together. The food grown in the garden also supports neighbourhood organizations and charities, like the Donation Station at the Riley Park Farmers Market held right next door.





8 CLEAN AIR

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

TARGET:

- Meet or beat the most stringent air quality guidelines from Metro Vancouver, BC, Canada, and the World Health Organization.



INDICATOR	BASELINE	2018	CHANGE
Total # of instances of not meeting air quality standards for ozone, particulate matter (PM _{2.5}), nitrogen dioxide and sulfur dioxide from both the Kitsilano and Downtown stations combined*	27 (2008)	227	+200

* Air quality metrics are measured by Metro Vancouver from data from one monitoring station at Robson Square in Vancouver. The Kitsilano station is offline and awaiting relocation. Four indicators of air quality are used for comparison to world standards. They are: 24 hour average particulate matter (PM_{2.5}) concentration >25 µg/m³, one hour average nitrogen dioxide (NO₂) concentration >200 µg/m³, 24 hour average sulfur dioxide (SO₂) concentration >20 µg/m³, and eight hour ground-level ozone (O₃) concentration >52 ppb.

In BC, over 6% of cars sold in the first three months of 2019 were zero emission. That includes battery electric, plug-in hybrid, and fuel cell vehicles. Compare to just two years ago when that was about 1%. No signs of slowing down either: so far this year, BC has registered over 6,000 new EVs.

2018-2019 SUCCESSES:

EHUBS MAKE IT EASIER TO CHARGE UP

Installing a cluster of electric vehicle charging stations—an “EHub”—helps serve whole neighbourhoods where EV users may not be able to charge at home. Putting them close to shops and services makes even more sense. Our first full-scale EHub landed close to Fraser Street and East 44th Avenue in mid-2018. Two new DC Fast Charging stations (capable of providing up to 200 km of range in just an hour of charging) and two Level 2 stations are now within easy reach of local businesses and the neighbourhood. These will be great for charging up your EV while you go and grab the groceries for dinner. In partnership with the South Hill Business Improvement Association, it's one of the ways we're making it easier to charge on the go in Vancouver.

SENIOR GOVERNMENTS MAKE IT EASIER TOO

In our Climate Emergency Response, we set a target for pollution-free cars, trucks and buses. By 2030, half the distance travelled by vehicles every year on Vancouver's roads will be in zero emission vehicles (ZEVs). The City alone can't make this happen.

In the past, we've highlighted the challenges people have faced finding EVs at their local auto dealerships. We've also seen how private businesses who'd installed chargers weren't allowed to charge for the electricity used, meaning they couldn't easily recoup their costs. Many organizations have been working on these issues. For instance, we've been working with BC Hydro and the Provincial Government on this since 2013. This past year, the Provincial Government moved us in the right direction with its CleanBC plan, which will require all new light-duty cars and trucks sold in BC to be ZEVs by 2040. And in early 2019, they also lifted restrictions so that anyone operating an EV charging station can now charge a fee for using it.

Meanwhile, the Federal Government is also making it easier to get into an EV. As of May 1, 2019, a new \$5,000 “iZEV” rebate is available for qualifying zero emission vehicles. This can be stacked on top of Provincial incentives, meaning it's now possible to get a massive \$14,000 rebate off a new EV in BC!



CHALLENGES

As we mentioned in the *Climate Adaptation* section, wildfires in BC will become more intense. As we start seeing orange skies over Vancouver more often, we need to make sure the air we breathe is as clean as it can be. This means cutting the level of pollutants we're putting into our air ourselves. Getting residents to choose EVs will help, but cargo trucks and other larger vehicles have to get cleaner too, as they can also put out large amounts of particulate (soot) pollution. The City is using its own fleet to demonstrate how zero-emission heavy-duty vehicles can be a good option. We talk about this in the *Green Operations* section. Our Climate Emergency Response will also tackle how cargo deliveries can move through our city in quicker, cleaner and smarter ways.

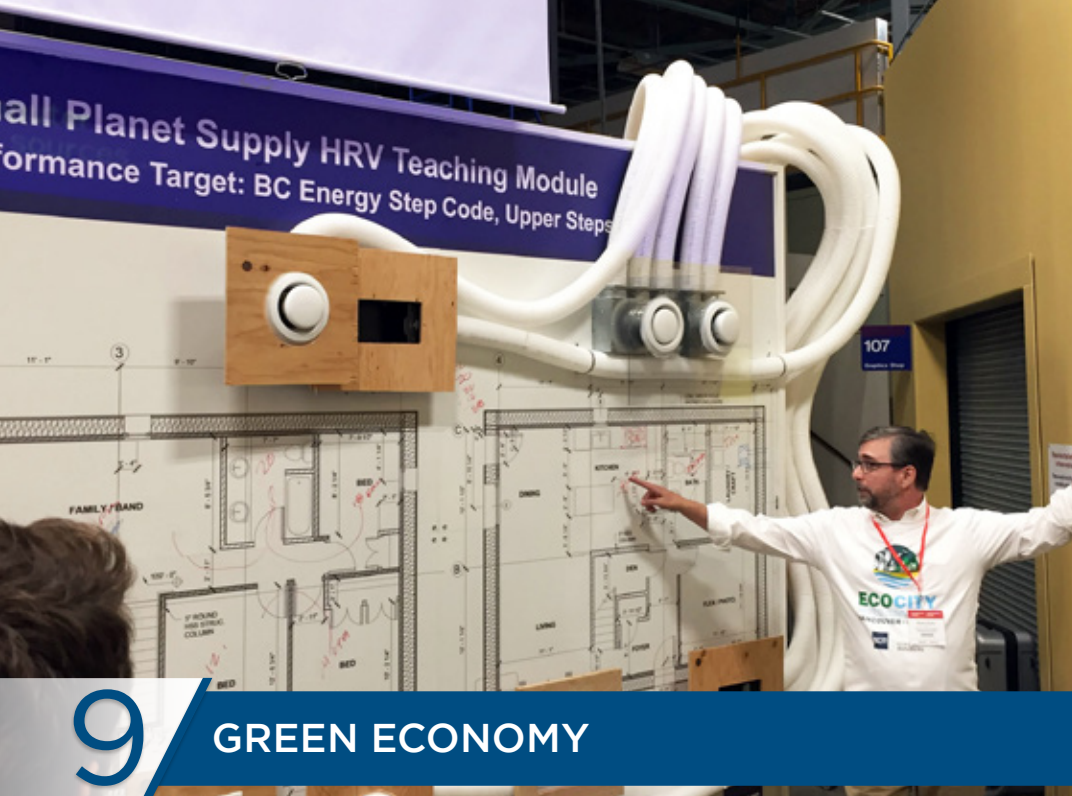
In 2017, the City began a two-year test program to support installing curbside chargers outside of homes in residential neighbourhoods. But this solution doesn't address the problem of being able to charge if you live in a rental or condo, or even if you have multiple EVs in a household. Instead, we need to look at charging at a neighbourhood level. As part of our Climate Emergency Response, we want to provide more charging near people's homes. That might include light-pole charging on your block, or using underused parking areas so neighbourhood residents can charge up overnight. This helps ensure more people have somewhere convenient to charge their vehicles, including those living in secondary suites or rental buildings without parking.

In summer 2018, the first retail hydrogen filling station in Canada opened in Marpole.



PARKING AN EV NOW EASIER

Considering getting an EV? Parking in Vancouver is getting a little easier for you. Starting later in 2019, 10% of the stalls in 18 EasyPark lots around the City—that's 174 stalls—will be reserved for vehicles with a Clean Energy Vehicle decal from the Province (charging not included).



9 GREEN ECONOMY

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

TARGETS:

- Double the number of green jobs over 2010 levels.
- Double the number of companies that are actively engaged in greening their operations over 2011 levels.



OF BUSINESSES ARE ENGAGED IN GREENING THEIR OPERATIONS

INDICATOR	BASELINE	2018	CHANGE
Total number of green jobs	18,250 jobs (2010)*	24,700 jobs (2016)	+49%
Per cent of businesses engaged in greening their operations	5% of businesses engaged (2011)	9% (2017)	+4%

* The 2016 green jobs study refined the method for calculating the number of green jobs, resulting in a change in the 2010 count. Methods have been reviewed by Delphi Group, and targets going forward will be based on this recalculated total.

Vancouver's Zero Emissions Building Plan and BC's Energy Step Code have jumpstarted a \$3.3 billion opportunity for local manufacturers, installers, and suppliers of green building materials.

2018-2019 SUCCESSES:

TRAINING TOMORROW'S WORKFORCE

Like the kids working on waste reduction (see the *Zero Waste* section), teaching the next generation the skills of tomorrow helps them hit the ground running today. The Vancouver Economic Commission (VEC) works with students at CityStudio, University of British Columbia, Simon Fraser University, Kwantlen Polytechnic University, and BC Institute of Technology (BCIT) to match business challenges to student projects. One great example is Portable Electric, a local business that makes clean, mobile power stations. They worked with BCIT business students to explore how to move the film industry from diesel-powered generators to electric generators. Meanwhile, BCIT engineering students will learn to convert a medium-duty diesel vehicle (donated by the City) into a zero-emission electric vehicle, using technology from local clean tech start-up Thomson Power.

KICKSTARTING GREAT GREEN IDEAS

Innovation in Vancouver is thriving, but even the best ideas need a leg up sometimes. That's where the Green and Digital Demonstration Program can help. Over the last five years, the GDDP has helped eight companies access City facilities and other assets to demonstrate their product or service, do final testing, and get closer to market, with another four expected to launch in 2019. A recent example is SmartShare Solutions, who gather and analyze parking data to help cities make smarter decisions around parking policies (and help drivers find parking faster). Through a test project on City streets, SmartShare's Internet of Things devices enabled the City to view live and historical data for passenger and commercial parking zones. Thanks to their participation in GDDP, the company has since been able to secure more investment and expand this homegrown idea further abroad.

Green buildings also mean jobs: these policies have the potential to create 925 well-paying, sustainable manufacturing jobs throughout B.C., and 770 ongoing installation jobs in Metro Vancouver.



A HUGE MARKET FOR GREEN BUILDINGS

\$350 billion: that's how big the global market for green building products will be by 2032, and Vancouver businesses are poised to be leaders. Green buildings aren't just good for the climate: they're good for the local economy too. VEC studied the opportunity last year. Their *Green Building Market Forecast (2019-2032)* shows how our local green buildings sector can be leaders in addressing the global climate emergency. Policies such as Vancouver's Zero Emissions Building Plan and BC's Energy Step Code have jumpstarted a \$3.3 billion opportunity for local manufacturers, installers, and suppliers of green building materials. Green buildings also mean jobs: these policies have the potential to create 925 well-paying, sustainable manufacturing jobs throughout B.C., and 770 ongoing installation jobs in Metro Vancouver. VEC is also excited about the potential investment these new building codes will attract, as companies from overseas see an opportunity to invest in Vancouver.

CHALLENGES

Local demand for green building materials creates the industry to support it! Five years ago, most Passive House components had to be shipped in from overseas. Now many super-efficient window and door products are made and available locally, cutting down on time and cost for builders. But BC still doesn't have enough local manufacturers of many other types of green building products. We need to attract global manufacturers to come here and supply our market. VEC is working to bring these companies here, where their know-how can mix with our ecosystem of researchers, innovators, builders and entrepreneurs. Challenges will include high land values and supporting enough talent to form a local workforce. In 2018 and 2019, VEC and the City conducted their *Industrial Insights* report and *Employment Lands and Economy Review* to better understand and tackle these challenges.



A GREEN LIGHT FOR INNOVATION

The Green and Digital Demonstration Program helps get homegrown clean tech ideas off the ground. Sometimes it works in reverse, and brings innovation here! Nano-Lit designs energy-efficient circadian rhythm lighting that makes indoor spaces more comfortable and productive. A British-Dutch company, they actually relocated their headquarters to Vancouver just to be part of the program and take advantage of all the doors it's opened.



10 LIGHTER FOOTPRINT

GOAL: ACHIEVE A ONE-PLANET ECOLOGICAL FOOTPRINT

TARGET:

- Reduce Vancouver's ecological footprint by 33% over 2006 levels.



**29,100 PEOPLE
EMPOWERED
TO TAKE ACTION
ON GREENEST CITY**

INDICATOR	BASELINE	2018	CHANGE
Total global hectares per capita	4.27 gha/person (2006)	3.40 (2015)	-20%
Number of people empowered* 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 empowered to take action (2011)	29,100 people empowered to take action	+28,500

* "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).

Did you know that in Vancouver, a fifth of our consumption-based carbon pollution comes from food? Shifting to a more plant-based diet and wasting less food can make a big difference in reducing your personal carbon footprint.

2018-2019 SUCCESSES:

ENABLING #WOMEN4CLIMATE

In 2019, Vancouver was the eighth city to launch C40's Women4Climate Mentorship Program, joining Paris, Mexico City, Tel Aviv, Montreal, London, Quito, and Auckland. Why women? Women make up over half the world's population, and although they are often disproportionately impacted by climate change, their voices are not always heard. Over 10 months, mentors are sharing their knowledge and experiences with 10 emerging women leaders committed to climate-focused projects. This first year of the program supports women working in the built environment, since buildings are the biggest contributor of carbon pollution in Vancouver, and are the focus of many City programs and policies.

THE FUTURE OF RECYCLING IS REPAIR

Of the ripped clothes and broken electronics we collected for recycling or disposal, how many could have had a second life with just a simple repair? We want to promote greater reuse, repair and sharing of products and materials. This will help change our throwaway culture. In early 2019, the City tested Repair Workshops in partnership with Repair Matters, Free Geek, Frameworq, and One Earth. At these workshops, people learned from skilled volunteers how to repair and mend their items. Someday, instead of dropping off your items at our events, you might be going home with them.

FUNDING COMMUNITY ACTION

Communities in Vancouver have mobilized in a big way around Greenest City goals! In 2018, the Greenest City Fund supported a number of worthy projects. Hives for Humanity's Beekeeping Mentorship Program developed 33 apiaries (places where beehives are kept), working with and training traditionally marginalized, hard-to-reach and at-risk individuals in the Downtown Eastside. Better Environmentally Sound Transportation (BEST) are creating an app to help people of different abilities (like pedestrians, runners, the elderly, wheelchair-able individuals, parents with strollers, etc.) find the best sidewalk and footpath routes for their needs. Stanley Park Ecology Society's Youth4Nature-StanleyPark program introduces inner-city youth to the wildlife and native vegetation on their doorstep. Participants remove invasive plants and "upcycle" them into natural netting and fencing to use in habitat restoration in the park. The program also builds connections with local First Nations communities.



SUKI HOEHN

CHALLENGES

Vancouver's impact is more than just the carbon pollution we put into the air ourselves, but also the pollution happening elsewhere from producing all the goods and services we consume. This past spring, Vancouver's Climate Emergency Response made cutting this "embodied" carbon a priority. Both the City's own practices and our community policies can help cut this. We've already begun using lower-carbon concrete and more recycled aggregate and asphalt in our construction projects: we talk about this in the *Green Operations* section. Lots of progressive policies in other areas will have an embodied carbon impact: things like reducing parking requirements in new buildings means smaller parkades, which means less concrete.

Another Climate Emergency focus is our food system. Our food makes up nearly half of our ecological footprint. Part of the solution will be reducing wasted food. There's lots of work to do, in partnership with local food businesses and food industry, to both avoid wasted food as its being shipped and stored, and to divert any surplus food to people. That being said, nearly 98% of the ecological footprint of food comes from the land and energy used for growing and producing it, particularly red meat and dairy products. A recent report by the EAT-Lancet Commission on Food, Planet, and Health calls for shifting to diets rich in plant-based foods and lower in animal-source foods. It's healthier for the planet, and for people, but influencing eating habits will be a big challenge.

More than 300 elementary school students in 13 Vancouver classrooms got hands-on experience growing and preparing their own local food, thanks to Growing Chefs! volunteers supported by a Greenest City Grant.

CITYSTUDIO: BRIGHT IDEAS FOR VANCOUVER

Now in its ninth year, CityStudio students haven't run out of great ideas for the Greenest City. UBC Land and Food Systems students looked at using visual reminders to "Put Waste In Its Place", proposing a reusable takeout-food container program with local businesses. SFU Computer Science students created

EcoSmart, a social carbon-calculating app for food to help drive low-carbon diets. And UBC Kinesiology students actually made a city-wide impact with Motivation for Movement, a study into what spurs young people to take up more active lifestyles. This project led to a City Council motion (that passed unanimously) to increase cycling education and safety training for youth in Vancouver schools.





WALKING THE TALK

GREEN OPERATIONS

TARGETS:

- 50% reduction in GHGs from City operations from 2007 levels
- 70% waste diversion in public-facing City facilities, and 90% waste diversion in all other City-owned facilities
- Reduce water use in City operations by 33% from 2006 levels

INDICATOR	BASELINE	2018	CHANGE
Total tonnes of CO ₂ e emissions from City operations	490,000 tCO ₂ e (2007)	220,000 tCO ₂ e	-56%
Total waste diversion rate in City facilities and operations	65% (2013) (public-facing facilities)	86%	+21%
	85% (2013) (other City-owned facilities)	90%	+5%
Total water use in City operations	2,600,000 m ³ (2006)	2,329,000 m ³	-10%*

* Without universal water metering of our civic facilities, metric tracking is a best estimate only, based on available data and extrapolation. Accuracy will increase through continued water meter installations at prioritized City buildings.

How can we do the work we do in a more sustainable way? We want to be a world leader in environmentally responsible city operations. Over the next few years, Green Operations will also focus on reducing waste, continuing to improve the collection of landfill gas, reducing the use of toxic materials, and lowering water consumption in City operations.

2018-2019 SUCCESSES:

A LOW-CARBON ROAD BENEATH YOUR FEET

The City upgrades about 1% of the city's water, sewer, and road infrastructure every year. That generates hundreds of thousands of tonnes of construction waste. Where does it go? Established in 1999, Kent Yard is a hub for recycling and repurposing the City's road and utility construction waste. Every year, we process and reuse up to 200,000 tonnes of concrete, asphalt, and excavated soil back into material for City crews to use. One product we've been producing is a warm asphalt using recycled content, soya wax, and an industrial wax made from recycling plastic bags. As well as reusing old asphalt in new asphalt production, this type of asphalt cuts down on fumes and embodied carbon (see the *Lighter Footprint* section): better for the paving crews, and the planet.

CITY TRUCKS GETTING EVEN CLEANER

The City fleet of medium and heavy duty trucks have historically run on biodiesel. They produce roughly half of the fleet's overall carbon pollution. We are replacing up to 44 of these with electric versions over the next few years, and are continuing to explore new makes and models. Meanwhile, in situations where we can't go electric, we look to innovative fuels with more renewable content. We're always looking for ways to cut carbon pollution from our fleet, so enter renewable diesel. It's refined differently than biodiesel and can completely replace it without any changes to the vehicles or the supporting infrastructure. As of May 2019, 65% of our biodiesel use will shift to renewable diesel made from organic waste. By the end of 2020, we're planning on 90%.

When the City deconstructed the former Roddan Lodge to make way for new homes for hundreds of people in the Downtown Eastside, 97% of the demolition waste was diverted from the landfill.



WHAT'S COOLER THAN BEING COOL?

Getting to zero carbon starts with wasting less energy. Fossil fuel gas boilers provided the heat for Kitsilano Community Centre for years. Meanwhile, the whole time the ice rink refrigeration system was pumping its waste heat out into the atmosphere. How about capturing that heat and reusing it? In fall 2018, the City finished installing a waste-heat recovery system and replaced the gas boilers with heat-recovery heat pumps. Now the ice rink heats the rest of the building, cutting overall building carbon pollution by 85%. Bonus feature: hot water for the Zamboni.

VPD ♥ ELECTRIC VEHICLES

In 2018, Vancouver Police Department expanded their existing fleet of electric cars and electric motorcycles by replacing 20 gas-powered sedans with Electric Ford Focuses outfitted with emergency equipment. To support these, the City installed 20 charging stations at VPD Headquarters, and these weren't just any stations. Smarter load management meant they required 65% less electrical capacity, meaning their footprint was the same as just seven conventional charging stations. Because it's easy now to just plug-in, walk away and have a fully charged car every morning, guess which squad cars are the number-one choice now for officers and staff?

Due to finish construction in summer 2020, Fire Hall 17 is still on track to being the first Passive House fire hall in North America. This all-electric building will have solar panels generating 85 kW of renewable energy. We also recycled over 90% of the old fire hall when we took it down.



A ROOFTOP OASIS (SOLAR PANELS INCLUDED)

Whether you're taking a break from your busy day, or looking for a place to connect with friends, Vancouver Public Library's new rooftop garden is a natural meeting place. The Phillips, Hager and North Garden, on level 9 of Main Branch downtown, is filled with drought-resistant, native plants and has fantastic views of the Vancouver skyline. 52 solar panels generate enough power for the lights on Level 9: about \$2,500 worth of electricity a year.

GET INVOLVED!

It is hard to believe we're officially in the final year of Greenest City 2020! It's been nearly a decade since we set our sights on becoming the greenest city in the world - and we've accomplished a lot.

Over this next year, we will be we'll be listening to you, answering your questions, and gathering your ideas to develop our next environmental plan beyond 2020. The Climate Emergency Response will come together with water security, zero waste, biodiversity, green infrastructure, and more as the foundation of the new plan.

A lot of the easy things have been done and we now have some big moves to make. We will have to be bold. We will continue to work towards an equitable and sustainable future, with residents, organizations, community groups, industry, businesses, and other governments. The world is at a turning point. It's never been more important for us to all work together.

STAY INFORMED!

The Greenest City is a busy one! Get all the info: from community events, to opportunities to volunteer or provide your ideas for City programs, or just news about the latest green project to land in your neighbourhood. Follow us on Instagram, Twitter, and Facebook, or go to vancouver.ca/greennews to stay up to date on all things Greenest City.

ACKNOWLEDGEMENTS

Thank you to staff and members of the community for your hard work and for allowing us to share the stories of your success.

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Hỏi chi tiết **Obtenga Información**

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