



# CLIMATE EMERGENCY ANNUAL REPORT

2021 INDICATOR AND  
FINANCIAL DASHBOARD



CITY OF  
VANCOUVER

Vancouver  
Plan



CLIMATE  
EMERGENCY

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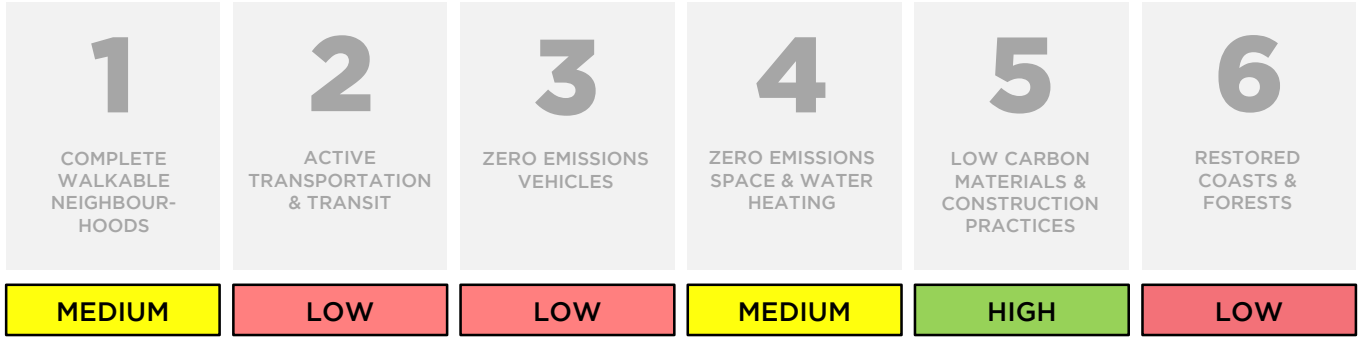
## ***Abbreviations***

BM	Big Move
CEAP	Climate Emergency Action Plan
ENG	Engineering Services
FRS	Finance, Risk and Supply Chain Management
HR	Human Resources
PDS	Planning, Urban Design and Sustainability
REFM	Real Estate and Facilities Management

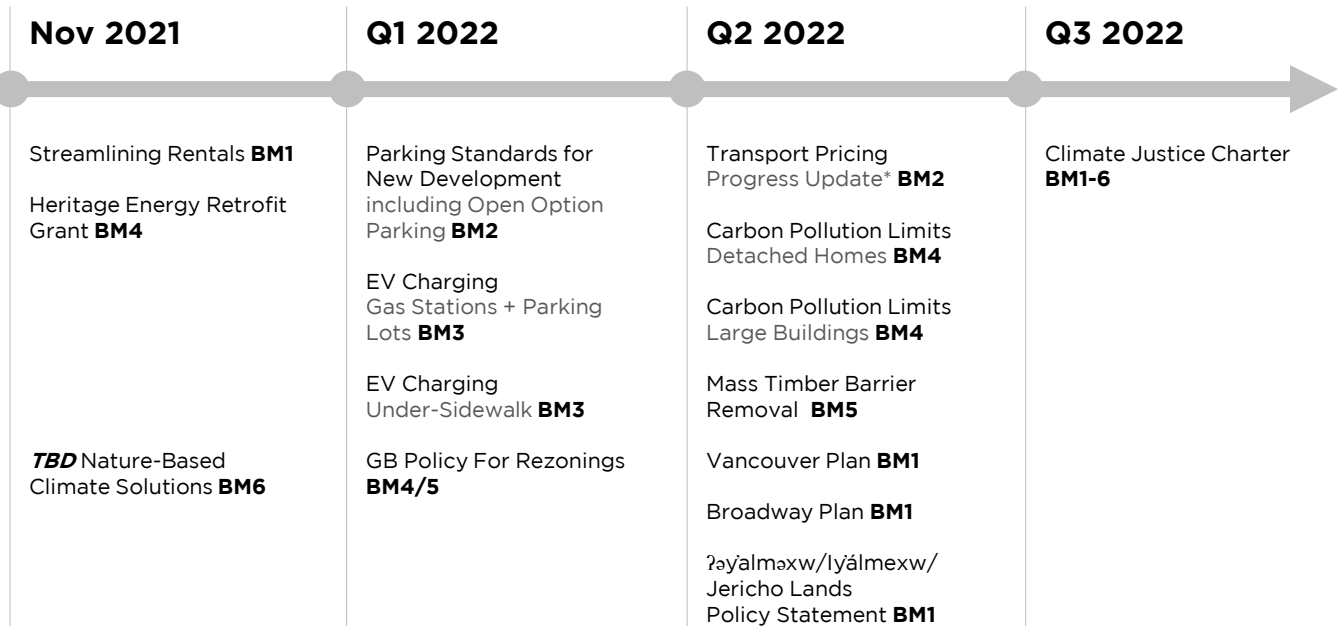
# CURRENT LIKELIHOOD OF MEETING TARGETS

City staff have assessed the current likelihood of meeting each of the Big Move targets and assigned a rating of high, medium, and low. The ratings are based on pressures such as policy decisions that have been made by the City of Vancouver and other levels of government; the degree of controversy anticipated for future policy decisions; funding availability; and staff resources. Council decisions related to Climate Emergency actions in 2021/2022 will influence these ratings (see below).

More information can be found under each Big Move section.



## UPCOMING COUNCIL DECISIONS 2021-2022



\* For information only; no Council decision needed

# HEADLINE INDICATORS

Headline indicators summarize the high-level impacts of the outcomes and actions within each Big Move on overall community-level carbon pollution and green jobs growth.

Headline		Baseline		Current			Target		Notes
Carbon pollution* (community, total)	tCO <sub>2</sub> e	2,859,119	2007	<b>2,432,775</b>	<b>-15%</b>	<b>2020</b>	-50%	2030	Overall carbon pollution dropped significantly in 2020. A sudden dip in transportation-related emissions occurred due to decreased resident activity during the COVID-19 pandemic.
Carbon pollution* (community, transportation)	tCO <sub>2</sub> e	1,032,809	2007	<b>899,783</b>	<b>-13%</b>	<b>2020</b>	-50%	2030	
Carbon pollution* (community, buildings)	tCO <sub>2</sub> e	1,609,874	2007	<b>1,442,783</b>	<b>-10%</b>	<b>2020</b>	-50%	2030	
Embodied carbon in new construction (community)	embodied tCO <sub>2</sub> e	TBD	2017	<b>TBD</b>			-40%	2030	Staff are exploring data collection methods to enable measurement.
Growth rate of green jobs (vs. growth rate of all jobs)	jobs	TBD		<b>TBD</b>			TBD increase	TBD	Staff are working on determining appropriate survey instrument and frequency to collect this data.

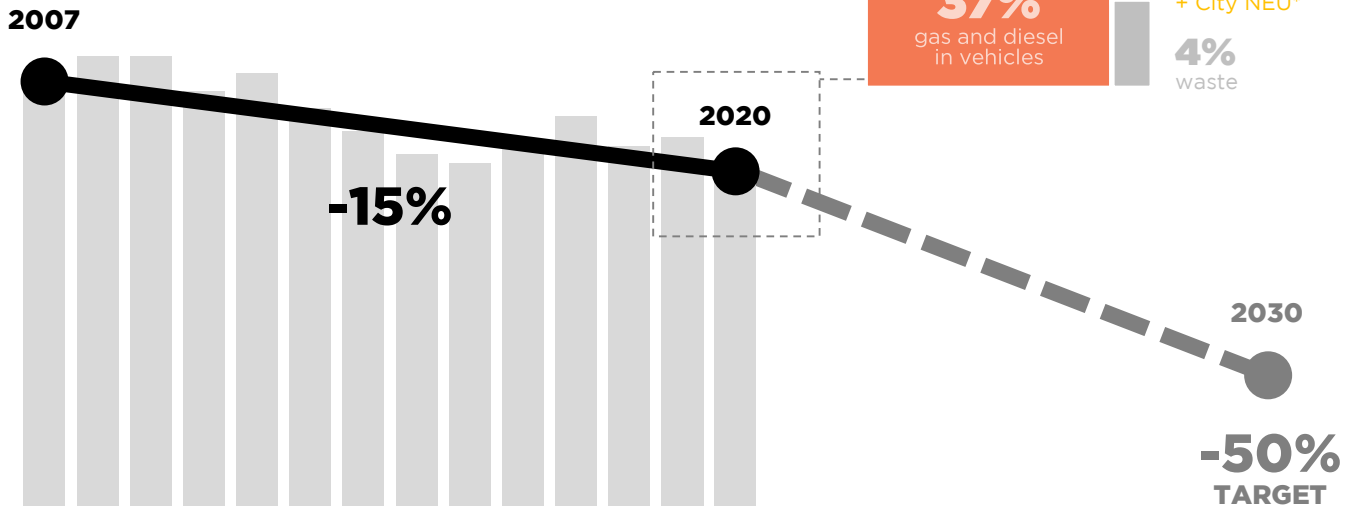
\* Carbon pollution figures reported under the Greenest City Action Plan were compiled to an older, then-relevant standard (the ICLEI Emissions Analysis Protocol). Going forward, CEAP reporting will use the Global Protocol for Cities (GPC) Basic protocol, comprising Scope 1 and 2 "Stationary", Scope 1 "Transportation", and Scope 3 "Waste" greenhouse gas emissions. This new protocol does not omit any data from the previous standard. All annual totals going back to our 2007 baseline year have been revised.

Community-wide carbon pollution decrease (15%) is more than the declines achieved in transportation (13%) and buildings (10%) because the community-wide number also includes the carbon pollution from waste disposal and treatment, which dropped by 58% between 2007 and 2020.

## Vancouver's Carbon Pollution in 2020

The decrease in transportation emissions due to COVID-19 contributed significantly to overall carbon pollution reductions in 2020. Meanwhile, winter heating demand continues to cause year-over-year fluctuations in building emissions. These sensitivities will diminish over the long term as the community transitions to zero emission buildings/vehicles and active modes of transport.

Due to rounding, numbers presented may not add up to exactly 100%



\* The Southeast False Creek Neighbourhood Energy Utility (NEU)

# EXPENDITURES, SAVINGS, AND REVENUE

## Climate Emergency Action Plan-related capital projects, 2021

Year-to-date (YTD) spend/committed, \$M, current as at October 14, 2021

Expenditures, \$M	Projected, 2021	Actual, YTD 2021	% Actual YTD vs Projected, 2021	Projected, 5yr cumulative	Actual, 5yr cumulative	% Actual YTD vs Projected, 5yr cumulative
BM1 Complete Walkable Communities	-	-	-	70.0	-	0%
BM2 Active Transportation + Transit	38.25	18.04	47%	288.40	18.04	6%
BM3 Zero Emission Vehicles	1.30	0.89	69%	77.90	0.89	1%
BM4 Zero Emission Space + Water Heating	18.50	14.83	80%	56.60	14.83	26%
BM5 Low Carbon Construction Materials	-	-	-	3.20	-	0%
BM6 Carbon Sequestration	-	-	-	0.35	-	0%
Finance, Equity, Indicators	-	-	-	70.0	-	0%
<b>TOTAL</b>	<b>\$58.05</b>	<b>\$33.77</b>	<b>58%</b>	<b>\$496.45</b>	<b>\$33.77</b>	<b>7%</b>

Savings and Revenue, \$M*	Actual**, YTD 2021	Projected, 5yr cumulative	Actual**, 5yr cumulative	% Actual YTD** vs Projected, 5yr cumulative
Cost Savings	10.00	25.00 - 50.00	10.00	20-40%
Grants	4.33	25.00	4.33	17%
New Revenue	-	45.00 - 50.00	-	0%
<b>TOTAL</b>	<b>\$14.33</b>	<b>\$95.00 - 125.00</b>	<b>\$14.33</b>	<b>11-15%</b>

\* Not shown is a \$95-125M gap that will need to be addressed through the 2023-2026 City capital planning process. Staff also continue to explore ways to close the gap in Climate Emergency funding, through cost savings\*; senior government and external-partner funding opportunities; and potential new City revenue sources. Depending on the outcomes of this work, this financial framework may be revised in 2022-2023.

\*\* Figures in italics are estimated rather than actual, e.g., cost-savings figures are based on conservative estimates of business-as-usual service-delivery levels.

# BIG MOVE 1 Complete, Walkable Communities

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

## Outcomes

Indicator	Baseline	Current	Target	Notes
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Indicator(s) to be determined as part of Vancouver Plan

## Actions

Action
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1.01 Reduce Reliance On Motor Vehicles in the Broadway Plan and Other Planning Areas

1.02 Consider New Actions Through Vancouver Plan To Support Walkable, Complete Communities

## Milestones

Current likelihood of meeting targets

MEDIUM

As part of Vancouver Plan, the City is exploring updated policies and land use options that consider how we can provide more opportunities for more people to live within walking distance of their daily needs. Decisions to add new housing can be challenging, so it is uncertain if Vancouver Plan will deliver on the scale of change needed to get on track for our Big Move 1 target.

Action	Milestone	Due Date	Responsible	Progress
1.01	Action We will bring forward recommendations to advance walkable, complete communities with the Vancouver Plan.	2022 -	PDS	Underway
1.02	Action We will identify near-term actions to support existing neighbourhood retail/commercial amenities (including corner stores) in response to recent Council direction and as part of the Employment Lands and Economy Review.	2020 Q4	PDS	Complete
	Action We will incorporate a target in plans for areas close to rapid transit stations for at least 80% of trips to be made on foot, bike or transit by 2030.	2021 -	PDS	Underway
	Action We will implement the new Secured Rental Policy to provide opportunities for secured rental housing in proximity to school, parks and shops.	2021 Q4	PDS	Underway
	Action We will update Home-Based Business regulations to provide additional flexibility for residents to work from home and for new services/amenities to be provided in residential areas.	2022 Q3	PDS	Underway
all	Equity We will prioritize equity concerns within Vancouver Plan working groups, and via a dedicated working group focussed on Vancouver Plan policies. More details will be shared with Council as part of the Vancouver Plan.	- -	PDS	Complete

# BIG MOVE 2 Active Transportation and Transit

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

## Outcomes

Indicator		Baseline		Current		Target		Notes
Sustainable mode share*	trips	48%	2017	<b>44%</b>	<b>2020</b>	67%	2030	2020 results were abnormally impacted by the sudden decline of resident trips across all modes due to the COVID-19 pandemic.
AAA bikeways**	km	82	2017	<b>97</b>	<b>2020</b>	TBD increase	TBD	
Bus-lane network	bus-lane kilometre-hours***	394	2019	<b>503</b>	<b>2020</b>	TBD increase	TBD	
Resident registered vehicles	vehicles	311,739	2016	<b>330,497</b>	<b>2020</b>	TBD decrease	TBD	
Vehicle kilometres travelled (VKT)	km/resident	5,950	2007	<b>3,600</b>	<b>2020</b>	TBD decrease	TBD	

Additional indicator(s) to be determined on approval of policies and programs.

\* Vancouver-resident trips made by walking, cycling, or transit

\*\* Total includes some greenway segments with cycling infrastructure that substantially meets the city's All Ages and Abilities (AAA) guidelines

\*\*\* A kilometre-hour measures the spatial length of the bus-lane network, as well as overall hours of operation.

## Actions

Action	Not Approved
2.01 Implement Transport Pricing in the Metro Core	
2.02 Expand And Improve Our Walking/Rolling, Biking Network	
2.03 Improve Bus Speed And Reliability	
2.04 Encourage More Walking, Biking And Transit Use	
2.05 Promote Remote and Flexible Work Options	
2.06 Eliminate Minimums and Introduce Maximums for Parking in New Developments	
2.07 Implement Residential Parking Permits City-Wide	Not Approved

# BIG MOVE 2 Active Transportation and Transit

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

## Milestones

Current likelihood of meeting targets

LOW

Our work to support active transportation and transit needs to scale up considerably to meet our 2030 target. That scaling-up will require an increase in investment. The decision to not implement the Climate Emergency Parking Program means we have a significant gap in the overall CEAP financial framework. That gap is particularly important for Big Move 2 because the actions are largely reliant on City investment.

Action	Milestone	Due Date	Responsible	Progress	
2.01	Action	We will launch the “explore” phase of a feasibility study for Transport Pricing to determine the interests and concerns of stakeholders, analyze baseline conditions, develop an evaluation framework and scenario building blocks (technologies, pricing structures, regulatory review).	2022 Q2	ENG	Underway
	Equity	We will complete analysis to identify existing inequities in Vancouver’s transportation system; this will inform future phases of the Transport Pricing strategy.	2022 Q2	ENG	Underway
	Action	We will identify the required technology and system architecture, and will have developed a financial plan that identifies upfront investment needs, operating and maintenance, and revenue flows.	2024 Q2	ENG	Not Started
	Equity	We will include in the preferred pricing strategy potential affordability and fairness mitigation options embedded into the pricing structure to ensure a more equitable transportation system for all.	2024 Q2	ENG	Not Started
	Action	Council to decide on an approved preferred pricing strategy, to move forward into implementation.	2024 Q4	ENG	Not Started
	Action	Subject to Council approval, we will implement a transport pricing system in the city centre.	2026 Q1	ENG	Not Started
2.02	Action	We will work with Vancouver Bike Share to add e-bikes to Vancouver’s public bike share system to reduce cycling barriers to people of different ages, genders, and physical abilities.	2021 -	ENG	Underway
	Equity	We will further expand Mobi’s successful equity program, offering \$20 (or free) annual memberships, in-person sign ups and training and cash payment options through a network of community partners.	2022 -	ENG	Underway
	Equity	We will further develop equity analysis (e.g., mapping) to inform the 5-year Cycling Network Plan, to ensure underserved areas are considered.	2022 -	ENG	Underway
	Equity	We will further develop equity analysis (e.g., mapping) to inform the Walking Plan, to ensure underserved areas are considered.	2022 -	ENG	Underway
	Action	We will update the 5-year Cycling Network Plan.	2022 -	ENG	Underway
	Action	We will develop a 5-year Walking Priority Map.	2022 -	ENG	Underway
2.03	Action	We will develop the Transit Priority Implementation Plan to guide bus speed and reliability improvements.	2021 -	ENG	Underway
	Action	We will have implemented transit priority measures on five key corridors across the city, materially improving the bus speed and reliability for those routes.	2025 -	ENG	Underway
	Equity	We will further develop equity analysis (e.g., mapping) to inform bus transit route prioritization, selection and improvements, underserved areas are considered.	2025 -	ENG	Underway
2.04	Equity	The TDM Action Plan will embed a commitment and strategy to advancing equity by ensuring that the needs of disproportionately impacted communities are actively planned for. Regular data collection and engagement with disproportionately impacted communities will help to ensure that programs and initiatives are designed to best meet their needs.	2021 -	ENG	Complete
	Action	We will develop campaigns, resources, and guidance that promote active and sustainable transportation options, services, and programs for the public and for employers.	2021 -	ENG	Underway
	Action	We will work with the Vancouver School Board and independent/private schools to improve active travel infrastructure around schools. This includes consultation with 4-6 schools per year to understand the school’s active travel challenges and develop customized action plans. Typical upgrades include marked crosswalks, flashing beacons, sidewalk, bulges, speed humps and parking/traffic signage changes.	2022 -	ENG	Underway



# BIG MOVE 2 Active Transportation and Transit

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

## Milestones

Action	Milestone	Due Date	Responsible	Progress
2.05	Action We will create a Remote and Flexible Work Toolkit and promote it to employers.	2020 Q4	ENG	Complete
	Action We will provide additional resources, guidance and incentives to help employers shift and sustain employees to more frequent remote or flexible working, where possible.	2021 -	ENG	Underway
	Action We will work with VFRS and Local 18 to design a sustainable commuting trial based on the Fire Fighter 24 Hour Shift Schedule (COVID-19 response) and bring forward recommendations to Council.	2022 Q1	PDS	Underway
2.06	Action We will seek Council approval to change the Parking By-Law to eliminate parking minimums in new developments (except where there are accessibility needs), and expand TDM requirements.	2022 Q2	ENG	Underway
	Equity We will do analysis to help us understand equity concerns related to parking maximums, in order to ensure they do not inequitably burden residents. Changes to the Parking By-Law will take accessibility into account for those living with disabilities or mobility issues.	2022 -	ENG	Underway
	Action We will seek Council approval to change the Parking By-Law to include parking maximums in new developments.	2022 Q2	ENG	Underway
2.07	Action We will bring forward the first stage of establishing residential permit parking in all Vancouver neighbourhoods across Vancouver and all relevant by-law changes to Council. This system will be integrated with a carbon pollution surcharge.	2021 Q4	ENG	Not Approved
	Equity The initial implementation of city-wide parking permits in 2021 will focus on low-cost parking permits. If future iterations of the program (mid-2020s) incorporate more market-based systems, we will consider potential discounts for disproportionately impacted communities.	TBD	ENG	Not Approved

# BIG MOVE 3 Zero Emission Vehicles

By 2030, 50% of the kilometres driven on Vancouver's roads will be by zero emission vehicles.

## Outcomes

Indicator		Baseline		Current		Target		Notes
Vehicle-kilometres travelled (VKT) by ZEVs (vs. total VKT)	km	TBD		TBD		50%	2030	Dependent on data sources becoming available in future (e.g., vehicle odometer readings, improved survey instruments, etc.)
Registered ZEVs (vs. all resident registered vehicles)	vehicles	0.3%	2016	2.0%	2020	TBD increase	2030	

Additional indicator(s) to be determined on approval of policies and programs.

## Actions

Action	Not Approved
3.01 Implement a Carbon Pollution Surcharge on Residential Parking Permits City-wide	Not Approved
3.02 Expand The Public Charging Network	
3.03 Increase EV Charging Infrastructure on Private Property	
3.04 Support Charging Infrastructure For Passenger Fleets	

## Milestones

Current likelihood of meeting targets

LOW

While the early uptake of electric vehicles in Vancouver is encouraging, that transition needs to accelerate significantly to meet our 2030 target. The carbon pollution surcharge in the Climate Emergency Parking Program was designed to accelerate the uptake of EVs, and the decision to not implement the Parking Program means that we won't have access to that tool. We also have a gap in the CEAP financial framework, which will make it difficult to provide the range of public charging options needed to support residents and businesses that don't have reliable access to home or workplace charging.

Action	Milestone	Due Date	Responsible	Progress
3.01	Action We will bring forward the first stage of establishing carbon pollution surcharges in conjunction with the city-wide residential parking permit system. All relevant by-law changes will be made at this time.	2021 Q4	ENG	Not Approved
3.02	Equity We will identify key disproportionately impacted communities and begin engagement on an equity strategy for EV charging infrastructure.	2021 Q1	PDS	Not Started
	Action We will complete Phase 1 of the City's DC fast-charging network for EVs.	2021 Q1	PDS	Underway
	Action We will provide a mechanism for the public to safely use Level 1 extension cords crossing sidewalks for EV charging.	2021 Q2	PDS	Underway
	Equity We will develop site design guidance to ensure that new EV charging stations will better accommodate persons living with disabilities or mobility issues.	2021 Q3	PDS	Not Started
	Action We will design and initiate light-pole charging and near-home off-street charging pilot projects, including a data collection plan.	2021 Q3	PDS	Underway
	Equity We will determine and assess the intersecting priorities of retrofits on private property, public charging, and/or other charging locations (as suggested by disproportionately impacted communities). This will inform our equity strategy and guide implementation.	2021 Q4	PDS	Not Started
	Action We will install 35 additional public Level 2 charging stations at public-facing, City-owned amenities, as set out in the 2016 EV Ecosystem Strategy.	2021 Q4	PDS	Underway

# BIG MOVE 3 Zero Emission Vehicles

By 2030, 50% of the kilometres driven on Vancouver's roads will be by zero emission vehicles.

## Milestones

Action	Milestone	Due Date	Responsible	Progress
3.02	Action We will complete film industry power kiosk Phase 1 and Phase 2 pilot projects.	2021 -	PDS	Underway
	Action We will develop a Neighbourhood Charging Strategy that provides charging in areas where residents do not have access to off-street home charging and create a more equitable distribution of charging opportunities.	2022 -	PDS	Not Started
	Action We will install 10 additional stations in Phase 2 of the City's DC Fast Charging network.	2023 -	PDS	Not Started
	Action We will develop a power supply and implementation plan for film, food trucks, and special events.	TBD -	PDS	Underway
3.03	Action We will develop new construction standards and a compliance mechanism for new non-residential buildings.	2021 Q2	PDS	Complete
	Equity The new construction standards and compliance mechanism for non-residential buildings will ensure EV charging is accessible to those who currently have no access to EV charging.	2021 Q3	PDS	Underway
	Action We will bring new construction standards for all forms of non-residential buildings to Council for approval.	2021 Q3	PDS	Complete
	Action We will do analysis and consult with interested stakeholders about business license fees that encourage the installation of EV charging.	2021 Q4	PDS	Underway
	Action We will update our Transportation Demand Management Policy with respect to car-sharing in new buildings to require that all such vehicles be zero emissions, and that requirements include electric vehicle charging infrastructure as applicable.	2022 -	PDS	Complete
	Equity We will identify key barriers to retrofitting lower- and middle-income resident homes to support EV charging, with a focus on reducing barriers in rental buildings and older buildings.	2022 -	PDS	Not Started
	Action We will develop a long-term EV charging retrofit strategy for residential buildings.	2022 -	PDS	Not Started
	Action We will implement a program to drive retrofits for EV charging in multi-unit rental buildings.	Ongoing	PDS	Underway
	Equity Adjustments that encourage EV charging at gas stations and parking lots will not create an unreasonable financial burden. We will assess how additional charging at those locations can fill gaps in the existing public charging network.	2022 Q4	PDS	Underway
	Action We will bring recommendations to Council on how to adjust our business license fees to encourage EV charging at parking lots and gas stations.	2022 Q2	PDS	Not Started
	Action We will update the definitions for gas stations in the Zoning and Development By-Law and the Licensing By-Law to ensure that EV charging infrastructure is allowed.	TBD -	PDS	Not Started
	3.04	Action We will complete an action plan, in consultation with the industry, that will deliver better public charging infrastructure access for passenger fleet drivers.	2021 Q1	PDS
Equity We will engage with drivers in ride-hailing and taxi fleets to identify barriers to home charging, as well as EV uptake more generally.		2021 Q2	PDS	Underway
Equity We will have provided home charging retrofits for up to 50 ride-hailing or taxi drivers, depending on demand.		2021 Q4	PDS	Not Started
Action We will complete the Charging Ahead with Modo pilot project.		2021 Q4	PDS	Underway
Equity We will develop a rate structure and access plan for ride-hailing drivers using City-owned public charging.		2021 -	PDS	Not Started
Action We will develop a detailed action plan [that includes engagement and design of home retrofit programs, rates and access options at City-operated public charging stations, and pilots for DCFC and Level 2 charging options for one-way car-sharing].		2021 -	PDS	Not Started
Action We will provide funding for 375 ride-hailing or taxi drivers to add a Level 2 charging station to their home parking stall using revenue from Low-Carbon Fuel Standard credit sales.		2025 -	PDS	Not Started

# BIG MOVE 4 Zero Emission Space and Hot Water Heating

By 2030, the carbon pollution from buildings will be cut in half from 2007 levels.

## Outcomes

Indicator		Baseline		Current			Target		Notes
Carbon pollution (community, buildings)*	tCO <sub>2</sub> e	1,609,874	2007	1,442,783	-10%	2020	-50%	2030	Winter heating demand causes emissions to fluctuate. This sensitivity will diminish over the long term with the transition to zero emission buildings.
Carbon pollution intensity of new buildings	kgCO <sub>2</sub> e/m <sup>2</sup>	20.7	2007	3.9	--	2022	0	2030	Based on requirements on new building permit applications starting January 1, 2022
Renewable energy generation at City NEU*	GJ	56%	2018	--	48%	2020	100%**	2030	Renewable energy system (sewage heat recovery) offline with ongoing repairs until mid-2020
Renewable energy consumed in community-wide buildings	GJ	36%	2007	--	39%***	2020	TBD	2030	

Additional indicator(s) to be determined on approval of policies and programs.

\* The Southeast False Creek Neighbourhood Energy Utility (NEU)

\*\* To be confirmed in 2023

\*\*\* Does not include renewable natural gas due to lack of available data

## Actions

Action
4.01 Set Carbon Pollution Limits and Streamlined Regulations
4.02 Support Early Owner Action
4.03 Build Industry Capacity
4.04 Facilitate Access to Renewable Energy

# BIG MOVE 4 Zero Emission Space and Hot Water Heating

By 2030, the carbon pollution from buildings will be cut in half from 2007 levels.

## Milestones

Current likelihood of meeting targets

MEDIUM

Establishing requirements to reduce carbon pollution from existing detached homes and large commercial buildings is core to the success of Big Move 4. It will be challenging to implement these requirements in a way that is consistent with our 2030 target because the barriers to switching to zero emissions space and water heating (e.g., heat pumps) can be significant for building owners. A successful regulatory approach will need to understand and respond to these barriers.

Action	Milestone	Due Date	Responsible	Progress
4.01	Action	We will report to Council on progress made to streamline heat-pump permit requirements for existing detached homes.	2021 - PDS	Underway
	Action	We will recommend to Council an update to the Green Building Policy for Rezoning with zero emissions requirements for heating and hot water systems for newly rezoned buildings, effective 2022.	2021 - PDS	Underway
	Action	We will research, consult on and recommend to Council 2025 and 2030 carbon limits, emission reporting requirements, and compliance mechanisms for existing large commercial buildings and remove unrelated existing building energy upgrade requirements in the Building By-Law.	2022 - PDS	Underway
	Action	We will report to Council on progress made to streamline heat-pump permit requirements for existing large commercial/multifamily buildings.	2022 Q1 PDS	Underway
	Equity	We will set carbon pollution limits for low-rise residential homes on an absolute basis (tonnes CO2/year), which will require more upgrades for larger homes, and will be easier to meet for smaller homes. We will explore and create a deferral option for low-income homeowners. Rental, non-market housing and small commercial will not be subject to carbon pollution limits.	2022 - PDS	Underway
	Equity	We will translate communication materials and resources on carbon pollution limits and timelines, the permit process for heat pumps, and available programs into languages commonly spoken in Vancouver, and work with community groups, consultants and industry associations to ensure effective channels are utilized for reaching a diversity of residents and building owners.	2022 - PDS	Underway
	Action	We will implement the Building By-Law changes approved by Council in 2020, setting zero emissions requirements for all new low-rise residential buildings, effective January 2022.	2022 - PDS	Underway
	Action	We will research, consult, and develop recommendations for low-cost, easy-to-implement prescriptive gas conserving measures for market rental apartment buildings.	2022 - PDS	Not Started
	Action	We will research, consult on and recommend to Council 2025 and 2030 carbon limits, emission reporting requirements, and compliance mechanisms for existing detached homes and remove unrelated existing building energy upgrade requirements in the Building By-Law.	2022 - PDS	Underway
	Action	We will require energy benchmarking (i.e., reporting of annual energy use and carbon pollution) for large commercial and multi-family buildings.	2023 - PDS	Underway
	Action	We will research, conduct stakeholder engagement and develop recommendations for prescriptive requirements and timing for targeted heating and amenity equipment for commercial buildings and condominiums (e.g., decorative gas fireplaces, packaged rooftop units, make-up-air units, swimming pools, etc.).	2023 - PDS	Underway
	Action	We will develop and launch a Virtual EnerGuide Rating System, and research, consult and make recommendation to begin requiring home-rating validation for high-emitting homes, effective 2023.	2024 - PDS	Underway
	Action	We will research, consult on and recommend to Council carbon limits or prescriptive requirements and compliance mechanisms for existing multi-unit residential building and remove unrelated existing building energy upgrade requirements in the Building By-Law.	2024 - PDS	Underway
	4.02	Action	We will begin to develop a retrofit finance collaborative and roadmap with governments, utilities, building owners, NGOs and financiers, to establish a shared understanding of specific market needs and proven tools, and undertake coordinated action to develop financing tools for building retrofits.	2021 - PDS
Action		We will develop and launch tools to support energy retrofits of heritage buildings, in collaboration with industry, community and/or government partners.	2021 - PDS	Underway
Equity		We will launch the Market Rental Retrofit PLUS program, in collaboration with LandlordBC and the provincial government.	2021 - PDS	Underway
Equity		We will launch the Zero Emission Non-Market Retrofit Support Program, in collaboration with BC Non-Profit Housing Association, BC Housing and the provincial government.	2022 - PDS	Underway
Action		We will develop and launch tools to support energy retrofits of detached homes, in collaboration with industry, community and/or government partners.	2022 - PDS	Underway
Equity		We will continue City support for demonstration projects focused on non-market housing through the Deep Retrofit Pilot – Non-Market Housing Deep Emission Reduction pilot project (FortisBC, BC Housing, BCNPHA, Pendrellis Society).	2023 - PDS	Underway
Equity		We will continue City support for demonstration projects focused on non-market housing through the Reframed Initiative – Zero Carbon, Resilience Retrofits for Non-Market Housing (Pembina, BC Housing, BCNPHA, FCM, NRCan).	2024 - PDS	Complete

# BIG MOVE 4 Zero Emission Space and Hot Water Heating

By 2030, the carbon pollution from buildings will be cut in half from 2007 levels.

## Milestones

Action	Milestone	Due Date	Responsible	Progress
4.03	Action We will develop a Building Electrification Road Map and launch a Building Electrification Coalition to monitor and coordinate collaborative action, in collaboration with government, utility, NGO and industry partners.	2021 -	PDS	Complete
	Action We will establish the LC3 Low Carbon Innovation Centre (core function), in collaboration with Metro Vancouver and the Federation of Canadian Municipalities, to facilitate industry best-practice sharing, case study compilation, fostering a community of practice, and project/product tours.	2021 -	PDS	Underway
	Equity We will identify effective channels and methods for engaging smaller, minority-owned renovators and skilled trades involved in home and building retrofits, in collaboration with industry associations.	2021 -	PDS	Not Started
	Equity We will identify appropriate communication channels and disseminate information in multiple languages on City requirements, industry training opportunities and resources to a diversity of tradespeople and general labourers that do existing building contract work in Vancouver.	2022 -	PDS	Not Started
	Equity We will subsidize the training of trades accreditation for small contractors and offer incentives for qualified trades for heat pump retrofits. This will include exploring ways to target training support for groups who are currently underrepresented in the trades (e.g., women and people living with disabilities or mobility issues).	2023 -	PDS	Not Started
	Action We will develop targeted messaging for the HVAC industry to provide lead time for technical training and build a community of advocates, in collaboration with local trades associations and institutions.	2023 -	PDS	Underway
	Action We will co-develop with industry the training requirements for City heat pump permits for detached homes and ground-oriented residential dwellings, subsidize the training of trades accreditation and offer incentives for qualified trades for heat pump retrofits.	2023 -	PDS	Not Started
4.04	Equity We will collect data to understand our current and projected future customer demographic in order to identify marginalized or low-income customer groups.	2021 -	ENG	Underway
	Action We will complete a market sounding for renewable energy supply.	2021 -	ENG	Complete
	Action We will complete a feasibility study, and engage with relevant stakeholder groups.	2022 -	ENG	Not Started
	Equity We will apply an equity lens to the strategy for transitioning the NEU to 100% renewable energy.	2023 -	ENG	Not Started
	Action We will recommend to Council a roadmap for transitioning the NEU to 100% low carbon, subject to evaluation and competitiveness with other low-carbon energy options for buildings.	2023 -	ENG	Underway
	Action We will complete the grid infrastructure study to identify barriers and bottlenecks to electrification, in partnership with BC Hydro.	2021 -	PDS	Underway
	Equity We will work with the provincial government and BC Hydro to ensure that low-income households receive enhanced incentives for electric space heating and hot water equipment and explore rate subsidies.	2023 -	PDS	Not Started
	Action We will reduce barriers to electric service upgrades, establish rates structures, and develop equipment incentives that encourage the adoption of electric heat pumps and other building electrification measures, in collaboration with BC Hydro and the provincial government.	2023 -	PDS	Underway
	Action We will work with FortisBC to facilitate the use of renewable natural gas as a compliance option the meet the City's carbon pollution limits, and to identify other actions to help FortisBC exceed their 15% renewable gas target for 2030.	2023 -	PDS	Underway
	Action We will support large-scale renewable energy in existing private district energy systems through various means, including policy and tax measures, BCUC interventions, carbon trading, and advocacy.	TBD -	PDS	Underway

# BIG MOVE 5 Low-Carbon Construction Materials

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

## Outcomes

Indicator		Baseline		Current	Target		Notes
Embodied carbon in new construction (community)	embodied tCO <sub>2</sub> e	TBD	2017	TBD	-40%	2030	Staff are exploring data collection methods to enable measurement.

Additional indicator(s) to be determined on approval of policies and programs.

## Actions

Action
5.01 Set Embodied Carbon Pollution Limits for New Buildings
5.02 Make It Easier And Less Expensive To Use Lower Carbon Materials In New Buildings
5.03 Support The People Using Low Carbon Materials In New Buildings
5.04 Low Carbon Planning and Strategies

## Milestones

Current likelihood of meeting targets

HIGH

Establishing embodied carbon reduction requirements for new buildings is core to the success of Big Move 5. While there are some technical challenges to creating fair and consistent requirements in this new field, there are many low- or no-cost options available today to reduce embodied carbon, and industry is quickly gaining familiarity with those options. Some actions scheduled for 2021 have slipped to early 2022, but we are on track to achieve our 2030 target.

Action	Milestone	Due Date	Responsible	Progress
5.01	Action We will establish standardized 2018 baselines to measure reductions for developments in the city.	2021	PDS	Underway
	Action We will make recommendations to Council to update the Green Building Policy for Rezonings to establish one of the first limits on embodied carbon globally.	2021	PDS	Underway
	Equity The plan will include sustainable, equitable, and healthy sourcing; policy updates will explore inclusion of options that encourage best practices in sourcing building materials and products.	2021	PDS	Underway
	Action We will explore quick wins and first steps in code (in the VBBL), such as low-carbon material requirements for concrete and insulation, and targets for certain building types (e.g., large detached homes).	2023	PDS	Not Started
	Action We will make recommendations to update the embodied carbon requirements in the rezoning policy to increase in stringency (and again in 2030).	2025	PDS	Not Started
	Action We will adopt the targets and other requirements from the 2021 rezoning policy, and possibly those from incentive programs for small residential buildings ("Part 9"), into the code.	2025/26	PDS	Not Started
5.02	Action We will develop incentives for 1-3 story residential that achieve deep embodied carbon reductions.	2021	PDS	Underway
	Action We will develop ways to allow more uses for mass timber within the Building By-Law.	2022	PDS	Underway
	Equity We will have consulted on and identified ways to meaningfully direct benefits from the incentive-based actions toward disproportionately impacted communities and ways to tailor the actions to support rental or non-profit housing projects.	2022	PDS	Underway

# BIG MOVE 5 Low-Carbon Construction Materials

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

## Milestones

Action	Milestone	Due Date	Responsible	Progress	
5.03	Action	We will facilitate the creation of an online tool that quickly shows the relative impacts of big design decisions on embodied carbon, to greatly advance understanding of what factors matter most, similar to the Pathfinder tool the City and BC Housing supported to help users understand the BC Energy Step Code.	2021	PDS	Complete
	Action	We will coordinate, support, and share knowledge with external organizations/other governments.	2022	PDS	Underway
	Action	We will advocate for regional and provincial embodied carbon frameworks that other local governments in B.C. could adopt, such as an embodied emissions step code, low-carbon material requirements, or regional embodied carbon policy.	2022	PDS	Underway
	Action	We will support the creation of databases, tools, practice guides, training, and knowledge-sharing networks.	2022	PDS	Not Started
	Equity	We will work with local capacity-building organizations that deliver education and raise awareness on embodied carbon to study the diversity and inclusion in the embodied carbon community, and take actions and provide funding that reflect the lessons learned from this study.	2022	PDS	Not Started
5.04	Action	We will coordinate our actions on embodied carbon with other key strategies, policies, and plans at the City, such as the Vancouver Plan, Zero Waste, Green Economy, and others.	2023	PDS	Underway



# BIG MOVE 6 Carbon Sequestration

By 2021, develop “negative emission” targets that can be achieved by restoring forest and coastal ecosystems.

## Outcomes

Indicator		Baseline		Current		Target		Notes
Tree canopy cover* (vs. total Vancouver land area)	ha	23%	2018	<b>23%</b>	<b>2018</b>	30%	2030	2,645ha of tree cover across the city's total area of 11,500ha

Additional indicator(s) to be determined on approval of policies and programs.

\* Measurement every 5 years using LIDAR and i-Tree methods, per Urban Forest Strategy

## Actions

Action
6.01 Develop a Natural Carbon Sequestration Program

## Milestones

Current likelihood of meeting targets

LOW

Formalizing a target for Big Move 6 has been more challenging than anticipated, for two primary reasons. First, there is not a clearly established role for local governments in advancing nature-based climate solutions and negative emissions, and part of our work is helping to define that role. Second, the objective of preserving trees can conflict with the objective of adding more housing, which is central to our Big Move 1 work. We are trying to resolve that conflict before bringing a target and action plan to Council.

Action	Milestone	Due Date	Responsible	Progress
6.01	Action We will report to Council with a carbon capture target and an update on the research into existing sequestration projects, financial and regulatory options, potential sequestration project partners, and potential pilot projects.	2021 Q4	PDS	Delayed
	Action Funding for pilot projects will be included in the capital plan.	2022 -	PDS	Underway
	Equity The roadmap for Big Move 6 will focus on equitable outcomes. For example, we can explore opportunities where tree planting or forest and coastal restoration could have the greatest benefit for communities most impacted by urban heat islands and/or environmental degradation. This roadmap will be informed by data collection and analysis, and engagement with the Climate and Equity Working Group.	2022 -	PDS	Underway

# FINANCIAL FRAMEWORK, EQUITY AND INDICATORS

## Actions

Action
F.01 Investigate Eco-Charges
G.01 Work with Local First Nations
G.02 Develop a Climate Justice Charter
G.03 Engage Impacted People
G.04 Include Greater Focus on Equity in Current Sustainability Programs
G.05 Report on CEAP Indicators Framework and Improve Data

## Milestones

**Current likelihood of meeting targets**

LOW

There is a significant gap in the CEAP financial framework, due in part to the decision to not implement the Climate Emergency Parking Program. There is currently no replacement revenue source identified. Staff continue to explore ways to close that gap. Work is progressing well with the Climate and Equity Working Group to carefully scope the Climate Justice Charter. We are on track to bring that to Council in Q3 2022.

Action	Milestone	Due Date	Responsible	Progress
F.01	Action	2021 -	PDS	Underway
	Equity	2021 Q3	PDS	Underway
	Equity	2021 -	PDS	Underway
G.01	Action	2021 Q4	PDS	Underway
G.02	Action	2022 Q1	PDS	Underway
G.03	Action	2021 Q1	PDS	Underway
G.04	Action	2021 -	PDS	Underway
G.05	Action	Ongoing	PDS	Underway

# GREEN OPERATIONS PLAN Zero Carbon

Green Operations indicators for Zero Waste, Healthy Ecosystems, and Staff Leadership reported bi-annually.

## Outcomes

Indicator		Baseline		Current			Target		Notes
Carbon pollution* (corporate, total)	tCO <sub>2</sub> e	495,000	2008	225,000	-55%	2020	-60%	2030	
Sustainable mode share (City staff commute)**	trips	TBD		no data available			67%	2030	Tracking will resume following the pandemic, as commuting habits and expectations were significantly disrupted in 2020/2021.
Vehicle kilometres travelled (VKT) by zero emission City fleet vehicles	km	--		--	3%***	2020	50%	2030	We expect this number to change as we return to normal operations following the COVID-19 pandemic.
Carbon pollution* (corporate, buildings)	tCO <sub>2</sub> e	27,000	2008	20,500	-24%	2020	-50%	2030	
Embodied carbon in new construction (City buildings)	embodied tCO <sub>2</sub> e	TBD		TBD			-50%	2030	5 projects underway, targeting 40% reduction. We plan to increase target to 50% by 2030.

\* Emissions from stationary energy use (City buildings, the Southeast False Creek Neighbourhood Energy Utility, the City's asphalt plant at Kent Yard), fleet activity, and Vancouver Landfill operations, per Vancouver's corporate inventory compiled annually using the Global Protocol for Cities.

\*\* City staff commuting trips by walking, cycling, transit, or telecommuting

\*\*\* Estimate only; may change as we continue to refine mileage-tracking methods

## Actions/Milestones

Action/Milestone			Due Date	Responsible	Progress
1-1	Priority	Establish a carbon-reduction accounting and reporting framework (at the program/project level where possible) that gives transparency to cost, contributions to carbon goals, responsibilities, etc.	2021	PDS	Underway
1-2	Priority	Update the Sustainable Commuting Program to accelerate long-term shifts towards staff commuting by walking, cycling, or transit. Establish and implement a best practice standard for end-of-trip facilities. Target 50% by 2025	2025	HR, REFM, PDS	Underway
1-3	Priority	All non-emergency light-duty passenger vehicle purchases to be electric, and electric or low-carbon options considered for all other fleet and equipment purchases. [FUNDING-DEPENDENT]	Ongoing	ENG	Underway
1-4	Priority	All new heating and hot water systems in city-owned facilities to be zero emissions, and all capital replacement and maintenance systems to be zero emissions where feasible, with appropriate staff training provided	Ongoing	REFM	Underway
1-5	Priority	Develop a refrigerant management plan for transitioning to low global warming potential refrigerants used in city owned buildings, and monitor and manage leakage of refrigerants.	2021	REFM	Underway
1-6	Priority	Assess and minimize operational and embodied emissions for construction of all new civic buildings and facilities, noting that new buildings are already being built to zero operational emissions. Beginning immediately at 40%; working towards 50% by 2030.	2030	REFM, PDS	Underway
1-7	Priority	Revise the corporate work from home policy to support the continuation of remote work, including the tracking and communications of carbon reductions. Based on learnings/appetite to do so from COVID experience.	2021	HR, REFM, PDS	Underway
1-8	Priority	25% of all corporate spend on products and materials to be low or no carbon.	2025	FRS	Underway
1-9	Leadership	Transition all small landscaping equipment to zero emission equivalents.	2023	Parks Board	Not Started
1-10	Leadership	Develop and implement low carbon catering guidelines for City-hosted meetings and events that accommodate culturally appropriate requirements/foods.	2022	PDS	Not Started
1-11	Leadership	Include all material Scope 3 emission sources in corporate inventory reporting. Set targets for reductions from 2025-2030.	2023	PDS	Underway
1-12	Leadership	Replace city-wide streetlights with LEDs, as per the Outdoor Lighting Strategy.	2025	ENG	Underway
1-13	Leadership	Explore embodied carbon emission reductions to infrastructure projects.	Ongoing	ENG	Underway
1-14	Leadership	Apply annual increases to the internal corporate carbon price to inform organization-wide policy, business, and operational decisions.	Ongoing	PDS	Underway
1-15	Leadership	Continue to invest in MFA BC fossil fuel-free screened funds and identify further opportunities for divestment from fossil fuels, reporting regularly on progress.	Ongoing	FRS	Underway
1-16	Leadership	Integrate a climate risk assessment into Engineering's Project Management Framework.	2021	PDS, ENG	Not Started

For the full list of Green Operations Plan actions and indicators, see <https://vancouver.ca/files/cov/12-09-2020-green-operations.pdf>