CLIMATE ACTION PLAN

A path towards a carbon neutral, resilient Port Moody

July 2020

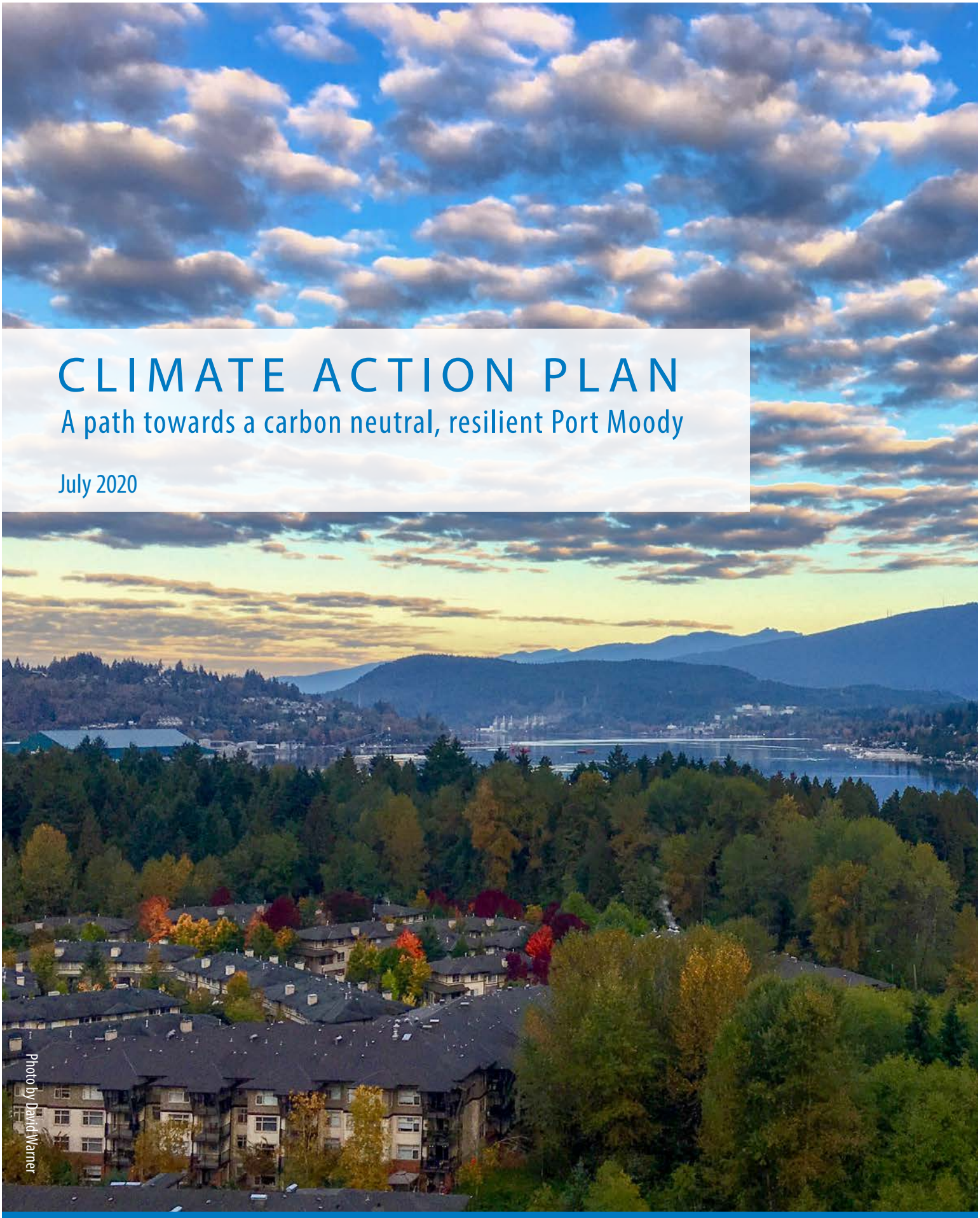

Photo by David Warner

portmoody.ca/climateaction

PORT MOODY
CITY OF THE ARTS

ACKNOWLEDGMENTS

We would like to acknowledge the many individuals and organizations who participated in the development of this Plan. We truly appreciate your time and commitment. Your contributions added tremendous value and helped to shape and improve the final Climate Action Plan. Thank you.

1.1 First Nations Territory Acknowledgement

The City of Port Moody acknowledges the traditional, ancestral, and unceded territories of the Kwikwetlem (Coquitlam), qiqéyt (Qayqayt), xʷməθkʷəy̓əm (Musqueam), sḵwx̱wú7mesh (Squamish), sel̓íl̓witulh (Tsleil Waututh), and Coast Salish peoples.

1.2 Mayor and City Council

- Mayor Rob Vagramov
- Councillor Diana Dilworth
- Councillor Meghan Lahti
- Councillor Amy Lubik
- Councillor Hunter Madsen
- Councillor Steve Milani
- Councillor Zoë Royer

1.3 Expert Advisory Groups

Climate Action Committee

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- Maya Chorobik
- Samantha Deane
- Mary De Paoli (Staff Liaison)
- Elaine Golds
- Helen Howes
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- Laura Sampliner (Staff Liaison)
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- Derek Wilson

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- Councillor Meghan Lahti
- Councillor Amy Lubik

Consulting Expertise

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ACT (Adaptation to Climate Change Team), Simon Fraser University

- Alison Shaw
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Metro Vancouver Regional Engineers Advisory Committee – Climate Protection Subcommittee

Fraser Health Authority

Pacific Climate Impacts Consortium

Staff Climate Action Working Group - Divisions

- Building Bylaws & Licensing
- Communications and Engagement
- Development Planning
- Policy Planning
- Engineering and Operations
- Financial Planning and Reporting
- Fire Rescue
- Environment and Parks
- Facilities
- Economic Development
- Solid Waste, Fleet & Shared Services

1.4 Plan Contact

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Updated September 10, 2020. See erratum on page 63.

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1 PORT MOODY TODAY

The City of Port Moody is a diverse and dynamic community located at the end of the Burrard Inlet in the Lower Mainland of British Columbia, typically known for its warm summers and mild winters.

Historically, Port Moody was an industrial centre due to its prime tidewater and rail access. While heavy industry remains an important part of the Port Moody fabric today, the community has grown into a modern urban city of 34,000 residents with vibrant neighbourhood centres and SkyTrain connection. As the region continues to grow, the city will continue to see increasing demand as a place to live, work, visit and play, and accordingly must adjust to meet this demand while minimizing its impact on the environment and considering future climate.

This Climate Action Plan is a comprehensive and strategic approach to reducing our greenhouse gas (GHG) emissions, preparing for the impacts of climate change and supporting the long-term livability and prosperity of Port Moody.

GHG – certain gases (both natural and human-made) in the atmosphere (e.g. water vapor, carbon dioxide, nitrous oxide, and methane) that trap energy from the sun. The trapped energy causes the Earth's temperature to rise – this is called the greenhouse effect. Without greenhouse gases, heat would escape back into space and Earth's average temperature would be -18°C. Human activities over the last 150 years, however, have led to an increase in greenhouse gas emissions, a rise in global temperatures (global warming), and climate change.

climate change – when there is a long-term shift in average climate patterns over time.

1.1 Climate Action Committee Vision

Port Moody's Climate Action Committee is a civic committee composed of members of Council, the community, and members of other civic committees with a diverse set of skills and a common interest in taking action on climate change in our community. The Committee was formed in 2017, focusing on assisting in the creation and execution of initiatives that reduce greenhouse gas emissions and increase resilience to climate change in Port Moody. The Climate Action Plan is a community plan that was initiated by the Climate Action Committee, and has seen active participation by the Committee throughout its development.

The Climate Action Committee's vision provides a guiding framework for becoming a resilient and low carbon community by 2050, through carrying out actions identified in this plan and future actions to come.

"Port Moody is a resilient community that honours climate justice, leading the urgent response to climate change through collective action."

– Climate Action Committee, 2019

Notable committee contributions include:

- assisting with developing and carrying out a Climate Action Plan public engagement strategy;
- undertaking a climate risk and vulnerability assessment;
- developing, refining, and ranking climate actions to be included in the Plan; and
- crafting a vision for a resilient, low carbon Port Moody.

Figure 1:
Climate Action Committee Members 2020

Pictured left to right: Derek Wilson, Mike Kasuya, Rebecca Lyon, Councillor Amy Lubik (Vice Chair), Councillor Meghan Lahti (Chair), Elaine Golds, Duncan Smith, Shelley Moore, Helen Howes, Laura Sampliner (staff liaison). Not photographed: Bryn Sadownik

low carbon resilience (LCR) – an approach to municipal planning, decision-making and implementation that supports communities in advancing towards a resilient future by breaking down the silos between adaptation, mitigation, and other municipal priorities.

mitigation – efforts to reduce or prevent emission of greenhouse gases. This may include new technologies and renewable energies, or energy efficient equipment. It may also encompass attempts to remove greenhouse gases from the atmosphere.

adaptation – refers to the actions taken to manage the unavoidable impacts of climate change. Adapting successfully leads to improved resilience.

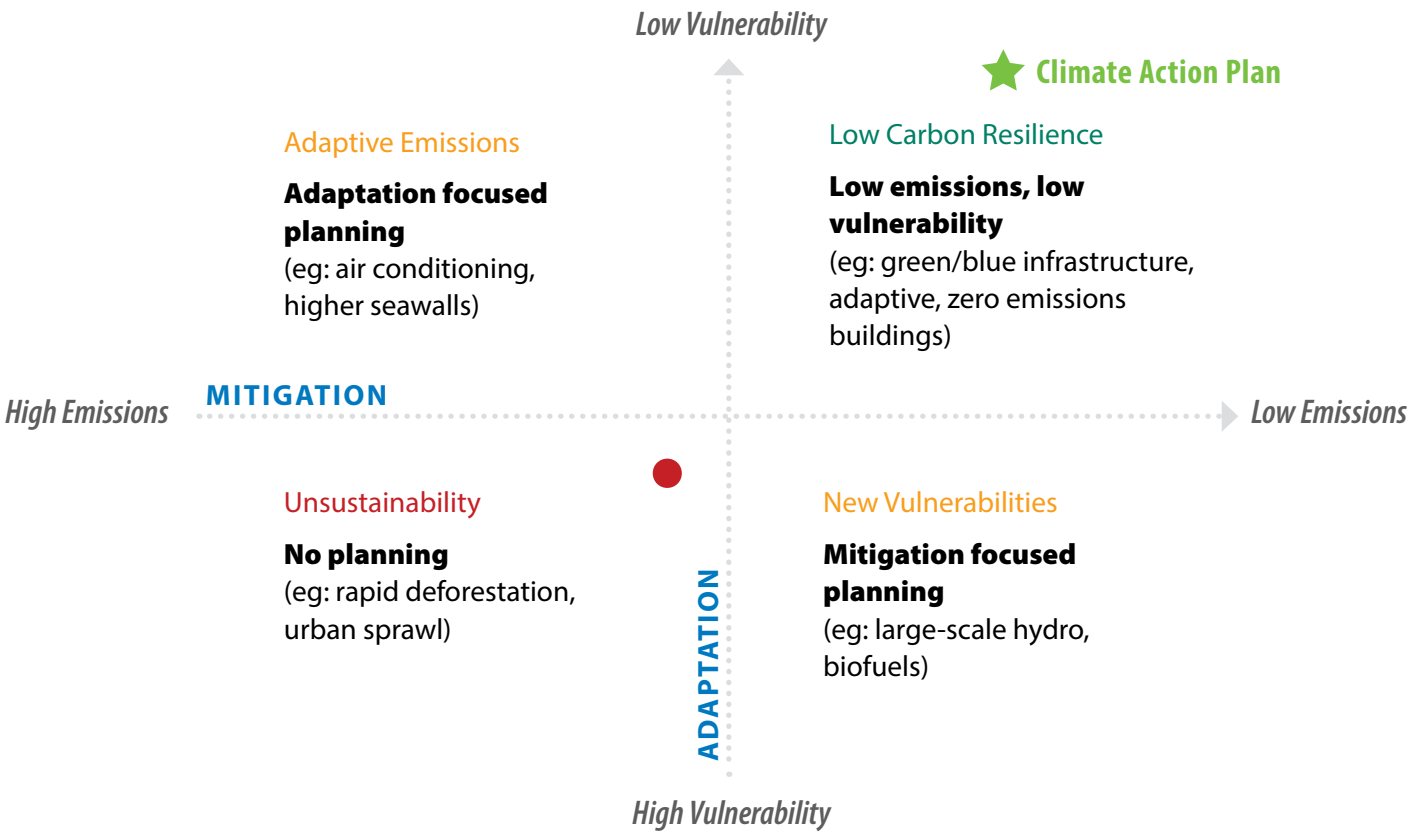
1.2 Achieving Low Carbon Resilience

Port Moody's Climate Action Plan follows an integrated climate action framework that considers both aspects of climate change planning: climate mitigation and adaptation. This is called low carbon resilience. Integrating the two at all levels of policy, planning and practice will align climate action goals and advance the transition toward a more energy efficient, resilient, and sustainable future. Doing so at the community level has the potential to streamline resources and capacity, mainstream climate action in a way that prevents contradictions, and identify strategic co-benefits for health, infrastructure, equity and other community priorities.

Undertaking mitigation and adaptation planning in separate approaches can sometimes lead to contradictory results that are maladaptive (lower right quadrant) or emissions intense (upper left quadrant). Prior to this Plan, Port Moody fell in the unsustainable quadrant (lower left) close to the middle of the graph (●), taking some action in both mitigation and adaptation, however, this Plan outlines actions that will move the dial into the low carbon resilience realm (★ upper right quadrant).

maladaptation – not providing adequate or appropriate adjustment to the environment or situation.

Figure 2: Low Carbon Resilience Framework*



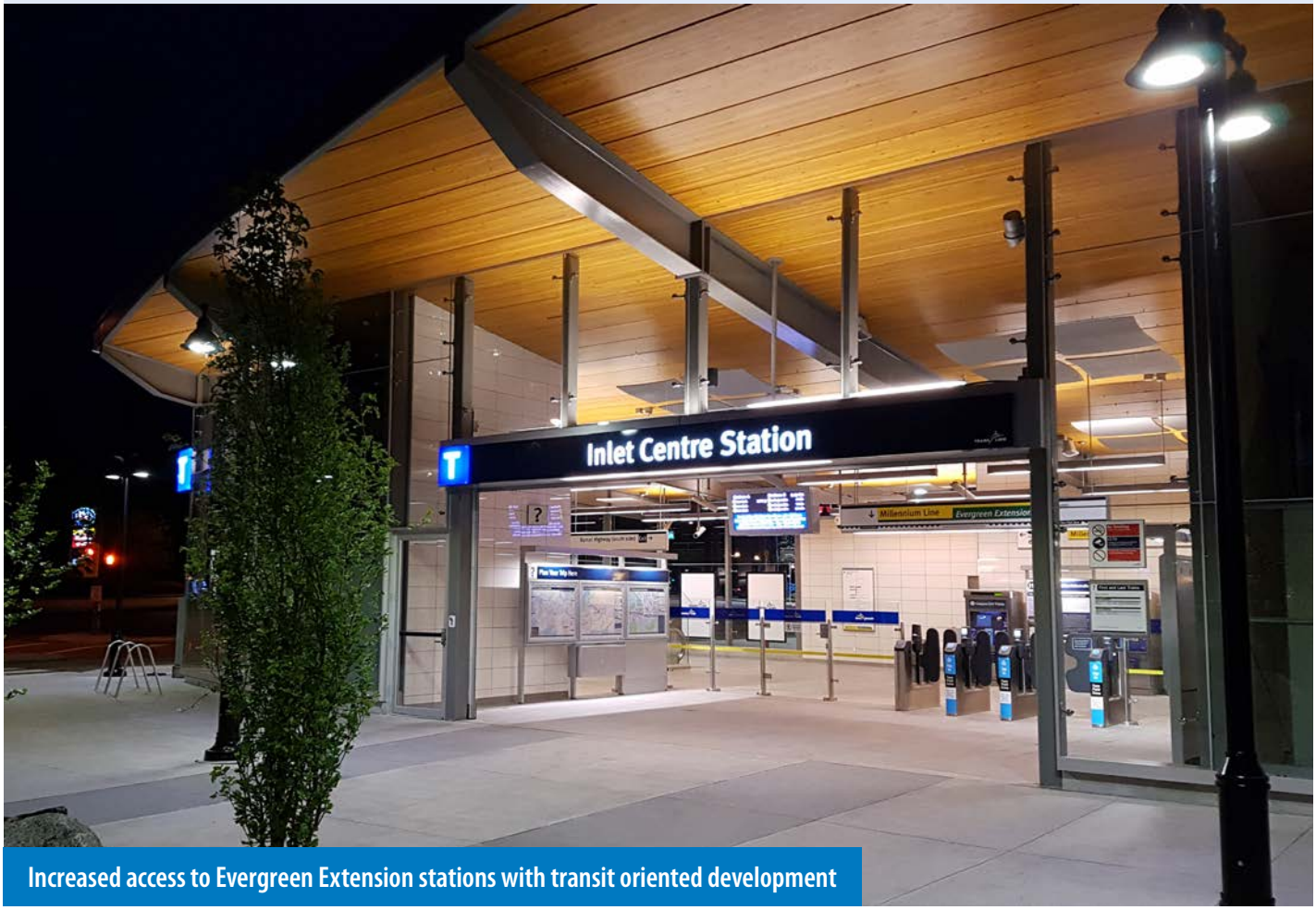
*(ICABCCI, 2020; adapted from Cohen & Waddell, 2009).

Port Moody's CAP has embedded an LCR approach in action development, and will continue to apply an LCR lens throughout the implementation process, as well as in the monitoring and evaluation stages. For example, while developing the list of actions, the staff climate action working group and the Climate Action Committee considered the impact of adaptation actions on GHG emissions, and similarly, considered how to incorporate climate resilience into actions that focus on reducing emissions. Certain actions will be more mitigation or adaptation focused, however, using an LCR approach ensures that the actions in this plan have been applied synergistically.

LCR lens – by applying an LCR lens to planning, processes and decision-making, local governments can streamline investments, maximize outcomes, and achieve additional co-benefits, or 'win-wins'.

There are many examples of low carbon resilient actions already underway in many communities including Port Moody, such as:

- Transit oriented development that decreases tailpipe emissions and increases residents' resilience through enhanced mobility and improved air quality;
- Green roofs that reduce emissions as well as reduce urban heat and increase absorption of stormwater; and
- Low-emissions microgrids that enhance resilience through decreased reliance on centralized power sources.



Increased access to Evergreen Extension stations with transit oriented development

1.3 Port Moody Climate Action Goals

The following table summarizes the goals of this Plan for each of the focus areas.

Focus Area	Goals
Organization-wide	• Embed an LCR climate lens into City processes.
Natural environment	• Restore/strengthen our natural environment so that ecosystems and species are more likely to adapt to the effects of a warming climate and help buffer the impacts. • Restore/strengthen our urban forests, which provide benefits such as: reducing emissions by storing carbon; providing shade, moderating air temperature, deflecting strong winds; and improving air quality.
Buildings	• Design/construct/renovate buildings that: - Are durable and more likely to withstand or recover quickly from the anticipated effects of climate change; - Use relatively little energy to operate; and - Provide a healthy indoor environment with good air quality. • Design/construct/renovate buildings with: - Materials that are associated with low levels of embodied carbon; and - Materials that store carbon. • Use sources of energy that produce lower amounts of greenhouse gas emissions and energy systems that are more likely to withstand or recover quickly from disruptive events.
Emergency response and human health	• Ensure all members of the community have equal access to information, support, and resources related to preparing for climate change impacts. • Ensure the City is ready to respond to climate-related hazards, such as flooding, wildfires, and extreme heat.
Infrastructure	• Reduce water consumption. • Minimize urban flooding due to heavy rainfall. • Ensure civic infrastructure and natural assets are well-maintained and improved/restored/replaced when necessary so they are more resilient to the anticipated effects of climate change.
Land use and growth management	• Incorporate climate change risks and vulnerability assessments into land use planning and development. • Develop a complete, connected, and compact community to minimize transportation and buildings emissions. • Manage shoreline erosion from sea level rise and coastal flooding.
Transportation and mobility	• Reduce greenhouse gas emissions from the City's fleet of vehicles. • Support the use of alternative and zero-emission transportation options. • Encourage residents to use clean vehicles that emit low or zero levels of greenhouse gases.
Waste reduction and management	• Minimize waste going to landfill and achieve zero emissions from waste before 2050.

2 GLOBAL CLIMATE CHANGE

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 of 2018, the Intergovernmental Panel on Climate Change (IPCC)[1] released a report making a case to strive for 1.5°C. Every degree of warming beyond this threshold is expected to lead to increased risks of extreme weather, more wildfires and floods, and increases in sea level rise. If we fail to limit these impacts, climate change will continue to be an increasing threat to global stability.

The impacts of climate change do not plateau at 2°C, meaning that any warming beyond 2°C would mean even more severe impacts in the future. For context, even if the commitments made by Paris-signatory countries to date were being met, the world would be on track for more than 3°C of warming by the end of this century. This degree of warming would cause a worldwide economic, environmental and social catastrophe.

Without strong action to reduce greenhouse gas (GHG) emissions , both locally and globally, it will become increasingly difficult and expensive to maintain the high quality of life experienced in Port Moody. At the same time, there is a need to ensure local ecosystems, infrastructure, and neighbourhoods are resilient to the impacts of climate change already occurring due to past and continued GHG emissions, particularly if current choices and levels of consumption continue.

Across BC and around the world, municipalities are taking a lead role to reduce the impacts of climate change in their communities through energy management, GHG reduction targets, and bold climate action.

In June of 2019, the City of Port Moody joined many other local governments in declaring a climate emergency, bringing to light the need to take accelerated action on climate change. The resolution called for the City to ramp up its climate actions in line with efforts to limit global warming to 1.5°C.

Climate change mitigation refers to efforts to reduce or prevent the emission of GHGs. This is an important part of responding to climate change. However, even if GHG emissions were significantly reduced overnight, the effects of climate change would continue to be felt for generations given the emissions already 'locked' in the atmosphere. Climate change adaptation actions reduce the negative impacts of climate change while taking advantage of potential new opportunities. Adapting successfully leads to improved resilience.

Did you know?

Even half a degree of warming is significant. The IPCC compared the impacts from climate change with 2°C of warming as opposed to 1.5°C and found the following on a global scale:

- as many as 457 million more people exposed to climate risks and related poverty;
- twice as many people will suffer from water scarcity;
- twice as many plants and three times as many insects will lose their habitat;
- a nearly ice-free Arctic Ocean in September before 2050;
- exposure of 2.6 times as many people to extreme heat at least every five years; and
- double the decline in global fisheries.

resilience – the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kind of chronic stresses and acute shocks they experience.

1 Intergovernmental Panel on Climate Change Special Report: ipcc.ch/sr15

3 CLIMATE CHANGE IN PORT MOODY

Did you know?

Weather and climate are two different things. Weather is what we experience in the moment; climate describes the broader trends that make certain weather experiences more or less likely.

Scientists have warned that we have just over a decade for the world to fundamentally change its current trajectory of GHG emissions in order to prevent global instability. We are responding to this warning by ensuring that the bulk of actions outlined in this Plan focus on the next decade. This also ensures that we are making use of the most recent and effective technology and policies until a critical point where we must reassess and identify new actions that will allow us to achieve the goals in this Plan.

Current climate projections show that as the climate changes, Port Moody can expect hotter, drier summers; warmer winters with more rain from fall to spring; an increase in frequency and intensity of precipitation; and sea level rise. Climate scientists use averages of global climate models downscaled to local areas to generate climate projections for future time periods such as the 2050s and 2080s. The Pacific Climate Impacts Consortium at the University of Victoria developed climate projections for the Eagle Ridge Hospital site in Port Moody, and these are shown in the Figure 3 below and presented in detail in Appendix A. All variables are presented as changes from the baseline period (1971-2000) and they are all averaged over a 30-year period (2050s are 2041-2070 and 2080s are 2071-2100). Climate change projections were based on Representative Concentration Pathway (RCP) 8.5. This is the scenario published by the IPCC that is recommended for, and commonly used in, climate adaptation planning (see Appendix B for more details). These changes can impact our community in many ways, some of which are captured in Figure 4.

IPCC – Intergovernmental Panel on Climate Change (IPCC), the United Nations body for assessing the science related to climate change.

Figure 3: Local Climate Projections

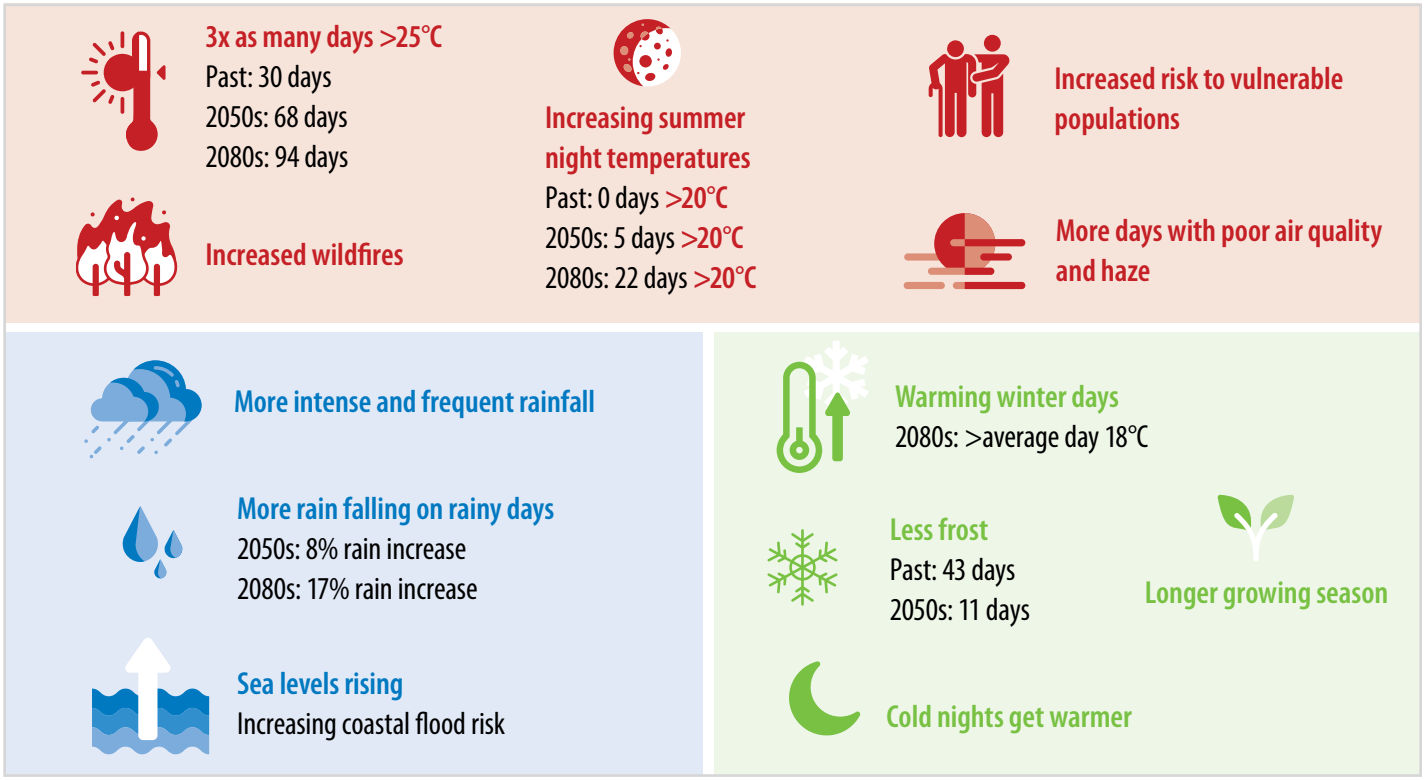
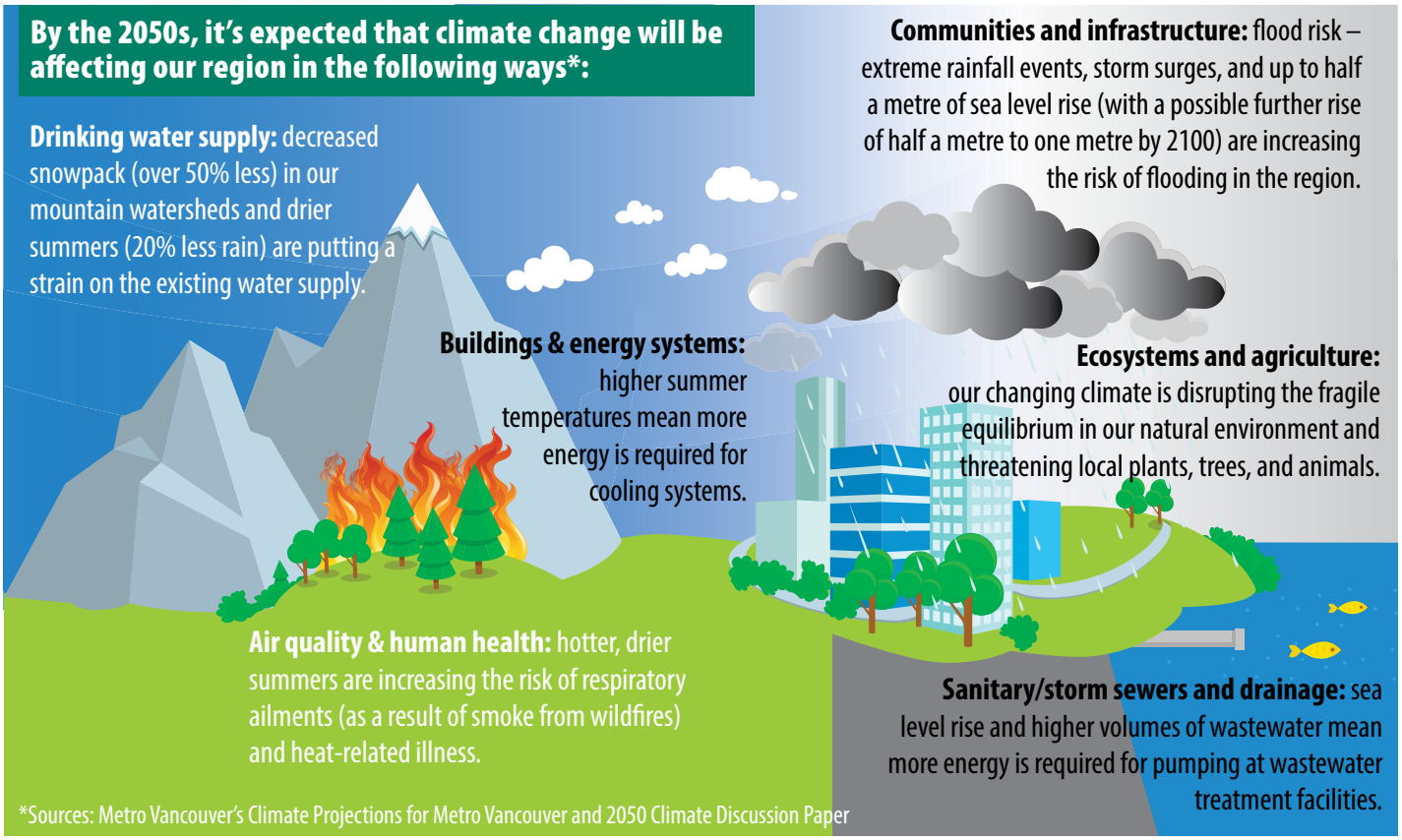


Figure 4: Future Climate Impacts



4 PORT MOODY CONTEXT

GDP – gross domestic product is the total value of goods produced and services provided in a country during one year.

Generally, GHG emissions have been closely tied to population growth – that is, as the population grows, so do emissions. Over the last decade, we are beginning to see a decoupling of this relationship. In BC, while population and gross domestic product (GDP) have increased, GHG emissions decreased relative to both population and GDP in the same time frame[2], demonstrating that it is possible to keep economic growth stable while decreasing the level of environmental impact.

Port Moody's population has more than doubled over the past three decades, with an average annual increase of 4.1%, making it one of the fastest growing municipalities in Metro Vancouver in percentage terms over the period[3]. However, population growth has not been evenly distributed over time with the majority of growth occurring between 1991 and 2011, coincident with a period of rapid housing development in a few neighbourhoods. Since this time the city's population growth has slowed considerably[4].

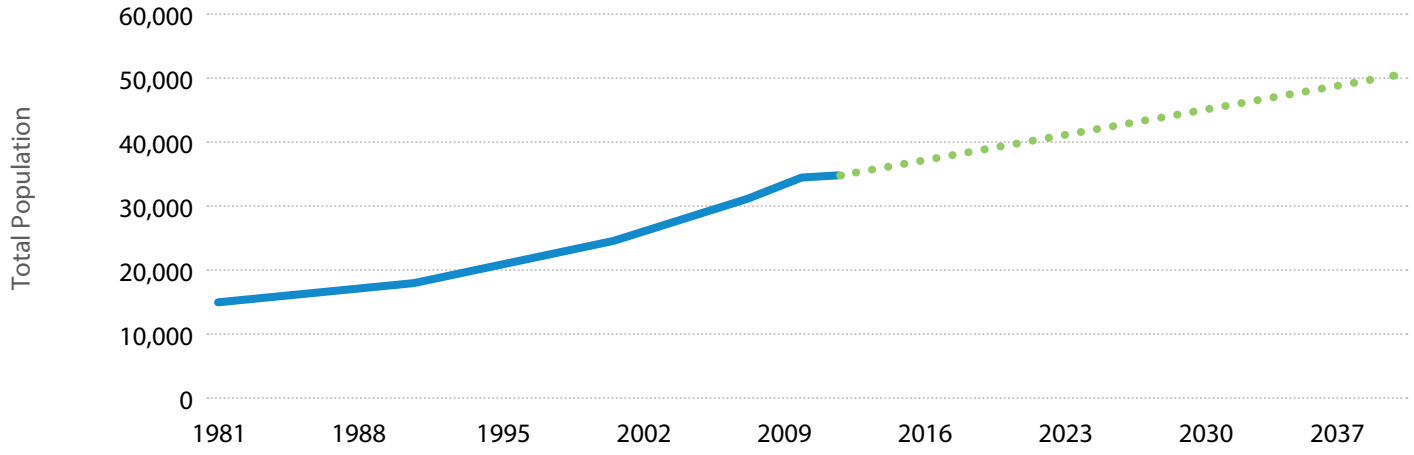
Metro Vancouver's Regional Growth Strategy includes a population projection of 50,000 for Port Moody by 2041. Based on this projection, the City's Official Community Plan has anticipated population to be close to 40,000 people by 2021 and 45,000 people by 2031 and 50,000 by 2041. This Plan identifies how the City will accommodate growth in a manner that supports the community's vision and priorities, while minimizing GHG emissions and increasing resilience.

2 BC Trends in Greenhouse Gas Emissions: env.gov.bc.ca/soe/indicators/sustainability/ghg-emissions.html

3 Port Moody Economic Profile: portmoody.ca/en/business-and-development/resources/Documents/2016-Port-Moody-Economic-Profile.pdf

4 It is important to note that the Census population numbers include a slight adjustment upwards by Statistics Canada from the actual Census results obtained in order to account for people who did not take part in the Census. However, the upward adjustment is only made to the total population figures, not to any other Census data. As a result, the 2011 population total for Port Moody is shown as 32,975, not 34,141.

Figure 5: Population Estimates; BC Stats & City of Port Moody



	1981	1986	1991	1996	2001	2006	2011	2013	2021	2031	2041
Actual	14,917	15,754	17,708	20,847	23,816	28,743	34,141	34,479			
Projected									39,660	44,820	50,000

Source: Ibid

5 PORT MOODY CLIMATE ACTION

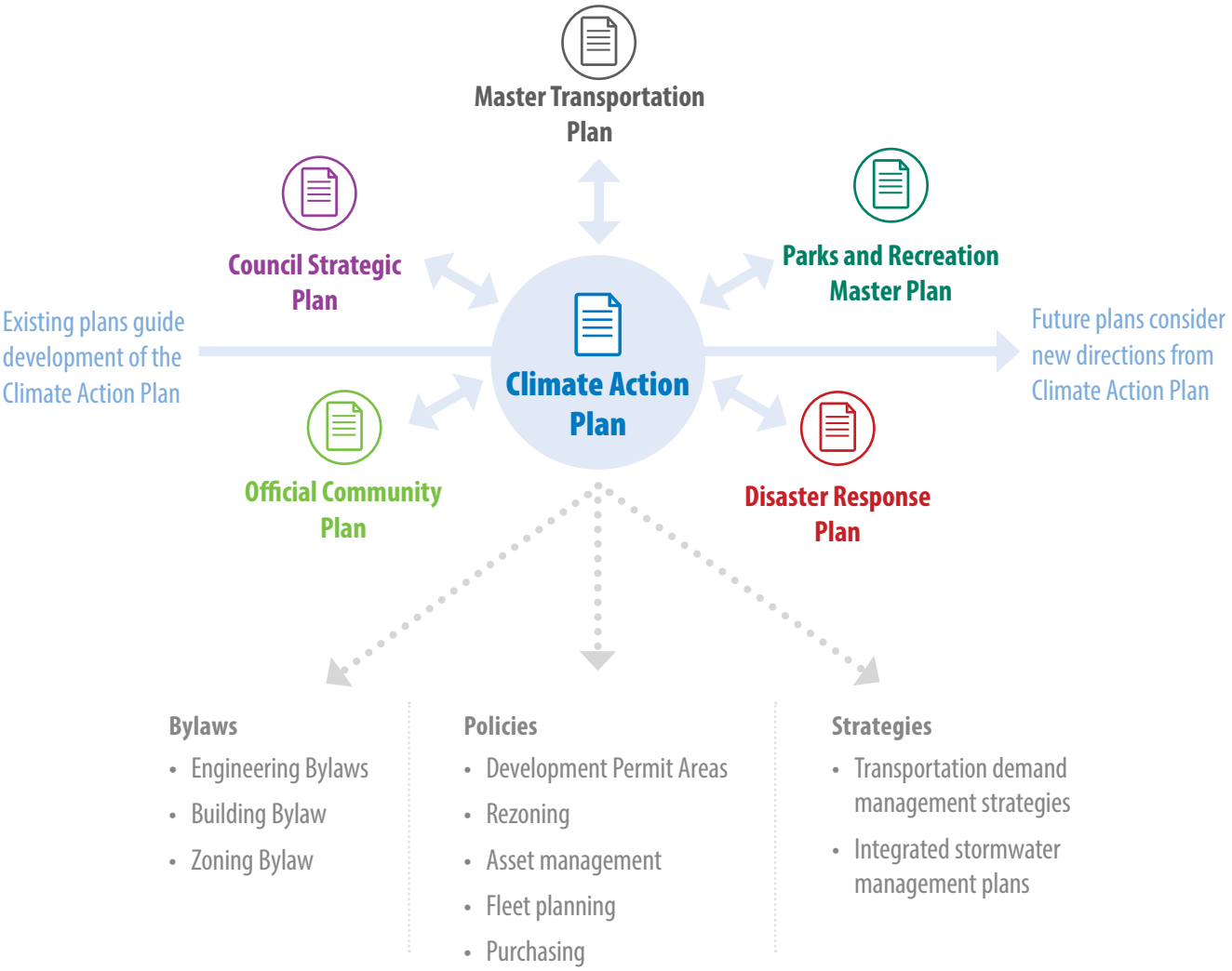
Port Moody has been proactive for over a decade by taking on a number of initiatives to reduce our GHG emissions and improve the community's resilience to a changing climate, summarized in the following figure.

This Climate Action Plan represents the next level of commitment to respond to climate change in Port Moody. The City's 2014 Official Community Plan (OCP) sets the context for addressing climate mitigation and adaptation by identifying key directions to guide action. Numerous other plans, policies, bylaws and strategies in the City are also integral to the Climate Action Plan. These plans influenced the development of the Climate Action Plan, and similarly, the Climate Action Plan will influence these and other plans in how they carry out their goals going forward.

Did you know?

In 1996, Port Moody joined the Federation of Canadian Municipalities' Partners for Climate Protection (PCP) Program which supports municipalities in their efforts to develop energy and emissions inventories and plans to increase energy efficiency and reduce greenhouse gas emissions. In 2007, Port Moody became a signatory to the B.C. Climate Action Charter thereby committing to a voluntary goal of becoming carbon neutral in its corporate operations.

Figure 6: Climate Action Plan Influence*

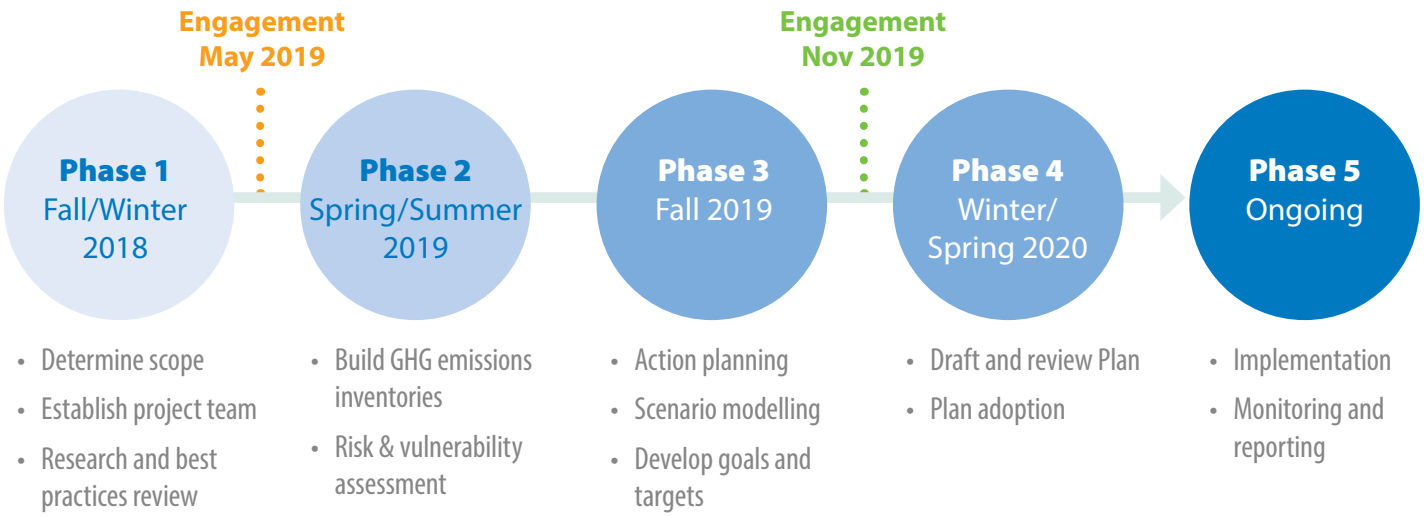


*This graphic does not provide a comprehensive list of plans, bylaws, policies, and strategies.

6 CLIMATE ACTION PLAN DEVELOPMENT PROCESS

Between 2018 and 2020, the City undertook a process to develop Port Moody's first Climate Action Plan. This plan incorporates the ideas, views, and support from the community and was developed by an experienced project team collaboratively working together to achieve our community's collective goals. The project team is comprised of the groups and roles, described in Appendix C. From late 2018 to early 2020, the following process took place to develop the Climate Action Plan. A detailed breakdown of Plan development can be found in Appendix F, and the Public Engagement Summary can be read in its entirety in Appendix G.

Figure 7: Climate Action Plan Development Process



Higher Levels of Government Support

Federal Government

Canada signed the *United Nations Convention on Climate Change Paris Agreement*, aiming to keep global temperature rise below 2°C and ideally to 1.5°C. In response, Canada developed the *Pan-Canadian Framework on Clean Growth and Climate Change* in 2016, committing Canada to reducing GHG emissions by 30% by 2030, from 2005 levels and highlights actions to reduce emissions in seven areas[5]. The Framework also addresses climate change adaptation by helping Canadians understand the impact of climate change on quality of life and helping them to adapt effectively.

Province of British Columbia

In BC, the *BC Climate Change Accountability Act* sets the GHG emission reduction targets for the province: -40% by 2030, -60% by 2040 and -80% by 2050, from 2007[6] levels . To support these targets, the Province developed the *CleanBC Plan*[7] in 2018, which includes numerous actions that will help reduce emissions from activities across the province.

In July 2019, the Province published a *Preliminary Strategic Climate Risk Assessment* to identify top climate-related risks for the province[8]. The greatest risks identified are severe wildfire seasons, seasonal water shortages, heat waves, ocean acidification, glacier loss and long-term water shortage. The Province is currently developing a climate preparedness strategy, scheduled for release in 2020.

5 Pan-Canadian Framework on Clean Growth and Climate Change: canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework

6 Climate Change Accountability Act: bclaws.ca/civix/document/id/complete/statreg/07042_01

7 CleanBC Plan: blog.gov.bc.ca/app/uploads/sites/436/2019/02/CleanBC_Full_Report_Updated_Mar2019.pdf

8 Preliminary Strategic Climate Risk Assessment: gov.bc.ca/gov/content/environment/climate-change/adaptation/risk-assessment

7 COMMUNITY ENERGY AND EMISSIONS

Our individual and collective daily activities result in releasing GHG emissions that contribute to climate change, including: transporting people and goods, heating and cooling buildings, heating hot water, and materials we choose to buy and throw away that end up in the landfill. In British Columbia, our electricity source is primarily hydroelectric, and therefore has a very low carbon footprint. Most of the remaining energy comes from fossil fuel sources that release large amounts of GHG emissions. In addition to energy use, any organic-based waste (such as paper, wood, textiles, food, etc.) that goes to the landfill breaks down slowly over time and releases methane gas, another potent GHG that is 25 times more powerful than carbon dioxide at trapping heat in the atmosphere[9].

In 2016, these activities resulted in 103,000 tonnes of CO_2e emissions. The following figures show the type of energy used in Port Moody for these activities, and the resulting GHG emissions. Most community emissions are a result of vehicles (53%) and heating and cooling buildings (46%).

9 2016 B.C. Best Practices Methodology for Quantifying Greenhouse Gas Emissions: gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2016-17-pso-methodology.pdf

CO_2e – carbon dioxide equivalent or CO_2e means the number of metric tonnes of CO_2 emissions with the same global warming potential as one metric tonne of another greenhouse gas.

Figure 8: 2016 Community Energy Consumption

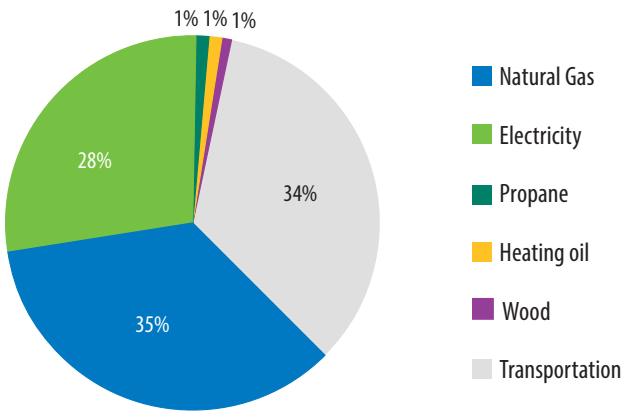
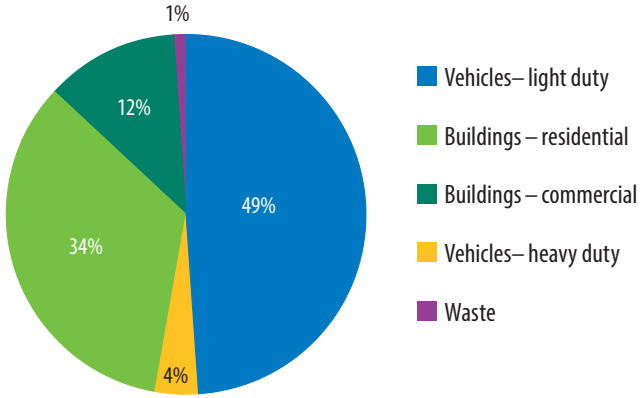


Figure 9: 2016 Community GHG Emissions



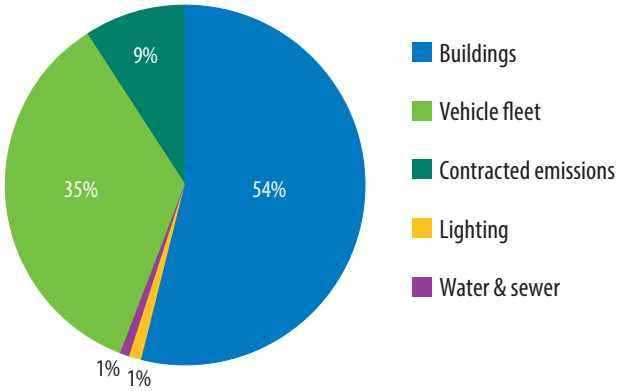
Source: Figure 8 & 9: Provincial Community Energy and Emissions Inventory (CEEI) - gov.bc.ca/gov/content/environment/climate-change/data/ceei
Supplemented by Metro Vancouver 2015 Lower Fraser Valley Air Emissions Inventory and Forecast: metrovancouver.org/services/air-quality/AirQualityPublications/2015LowerFraserValleyAirEmissionsInventory.pdf

As our community grows, these GHG emissions will continue to grow as well, unless we make substantial changes to how much energy we use, where we get our energy from, and how much waste we throw away. These changes are essential to achieving our climate goals.

7.1 Emissions from City Operations

The City is directly responsible for between 1-2% of community emissions. These emissions are the result of delivering City services to residents, including emergency services (fire, police, emergency preparedness), waste management (garbage, recycling, green waste), recreation, parks and trails management, maintenance of roads and sidewalks, and many more. In 2016, City operations used 62,600 gigajoules of energy that resulted in 1,830 tonnes CO_2e, with over half from operating buildings, and 35% from fleet operations (see figure 10).

Figure 10: 2016 City Operations GHG Emissions



Source: City of Port Moody Corporate energy and GHG emissions inventory, 2016

8 A PATH FORWARD

Meeting the challenges presented by climate change in our region is reliant on action to be taken at all levels of government, as well as by industry, businesses, non-profit and community organizations, and citizens. This Climate Action Plan presents a path for the community of Port Moody to both reduce its contributions to climate change, and to prepare for the changes to our climate that have already begun.

8.1 Succeeding in GHG Emission Reductions

Acknowledging the dire need to cut global GHG emissions in half over the next decade in order to maintain global temperature increase to 1.5°C this century, this Plan outlines a scenario for Port Moody to achieve more than 40% reduction in emissions from 2007 levels by 2030 (and over 50% reduction from current emission levels). This scenario shows one path that could be followed to become a carbon neutral community, based on what we know today. Although we have seen significant technological advances in many areas, we don't know in all sectors which technologies will be the most economic, equitable, and enable mass transition to carbon neutral resilience. As a result, this scenario is likely to evolve and adapt as technology, policy and market economics change over the next five to ten years. Based on the suite of climate actions included in this Plan, two scenarios are modelled:

1. Business as usual: This model is represented by the red solid line in Figure 11 and includes effects on GHG emissions from population and job growth, anticipated changes in Port Moody's building stock, and established provincial/federal climate and energy policies. This model assumes that Port Moody takes no additional action to reduce its carbon footprint. Even with actions underway and completed to date, Port Moody would not meet the targets in this Plan.

2. Carbon neutrality: The carbon neutral scenario requires that the federal and provincial governments follow through on key actions identified in the *Pan-Canadian Framework* and the *CleanBC Plan*. It also requires that BC continue to move toward zero carbon electricity[10].

Achieving carbon neutrality also requires that the City, all businesses, organizations and community members in Port Moody make choices and investments that shift us away from our dependence on fossil fuels and substantially reduce our emissions, including:

> Residents walk, cycle or take transit for 40% of trips by 2030 (up from 17% in 2017)

> 40% of passenger vehicles, and 25% of commercial vehicles are electric by 2030

- In 2017, there were 110 electric and 390 hybrid vehicles registered in Port Moody (out of 18,500 passenger and 2,500 commercial)[11]
- In 2030, this would mean over 9,200 passenger vehicles and over 700 commercial vehicles are electric

> All new heating and hot water systems generate zero emissions starting in 2025

> New buildings are net-zero energy ready (Step Code 5) by 2030 (using 80% less energy)

> 20% of existing heating and hot water systems are replaced with zero emission systems by 2030

- In 2017, there were 7,200 residential and 370 commercial natural gas accounts with FortisBC[12]
- In 2030, this would mean almost 1,500 residential and about 75 commercial buildings would have replaced their systems

> 100% of oil and propane heating is replaced by zero emission systems by 2030

- In 2017, there were an estimated 700 homes using heating oil or propane in Port Moody[13]

> Minimize waste going to landfill and achieve zero emissions from waste before 2050

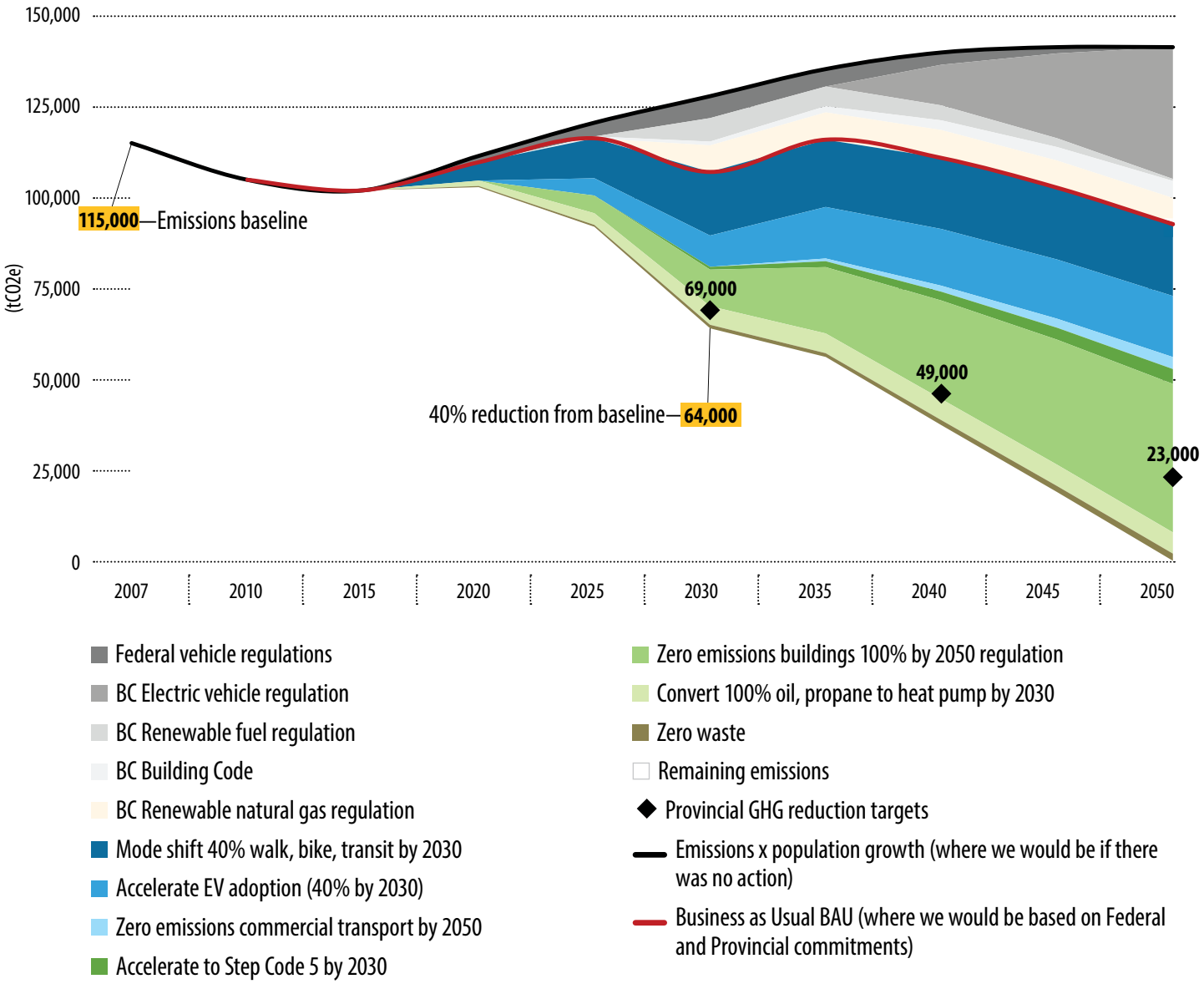
10 BC Hydro reports that electricity is 98% from clean sources as of 2016: bchydro.com/news/conservation/2016/climate-action-plan-clean-power.html

11 ICBC, Quick Statistics 2018

12 Province of BC, B.C. utilities energy data at the community level 2017

13 Ibid. Provincial data provides total energy consumed by homes using oil and propane. Estimated number of homes using the average energy consumed per residential natural gas account (81 GJ/year).

Figure 11: Port Moody Greenhouse Gas Emissions Forecast (annual tonnes CO_2e)



Source: Information used to create the GHG emissions forecast come from ICBC registration data, Census population and dwelling data, Provincial Community Energy and Emissions Inventory, and 2015 Lower Fraser Valley Air Emissions Inventory and Forecast.

The carbon neutral scenario shows that there is a lot of work to do in the next decade, and that continued efforts will be needed over the following 20 years to become carbon neutral by 2050. Municipal actions are necessary, but insufficient on their own to meet the climate challenge. To achieve our climate goals requires action from everybody, including residents, businesses, community organizations, institutions, neighbouring local governments, and senior levels of government. This Plan *requires* collective action to be successful.

8.2 Risks and Vulnerabilities

The Climate Action Committee along with Fraser Health Authority and the staff climate action working group undertook a climate change risk and vulnerability assessment in two separate workshops. The purpose of the vulnerability and risk assessment is to focus action development to where it is most needed; where the vulnerability to impacts is relatively high and the risk is high. Figure 12 below summarizes the impacts that were rated to have the highest risk to the community. Impacts rated as having low vulnerability were removed prior to the risk assessment.

The methodology used to complete the assessments borrowed from several existing, well-used adaptation planning processes including ICLEI's (Local Governments for Sustainability) 5-milestone process. It also mirrors the International Standards Organization (ISO) risk management standard and the recently released Provincial framework for climate risk assessment.

Methods included presenting local climate projections and risk scenarios, identifying possible impacts to the community from these climate related shocks and stresses, rating the community's vulnerability to these impacts and then assessing risk. Vulnerability is a function of exposure to a climate-related shock or stress, how sensitive the system is to shock or stress and how adaptable it is (its adaptive capacity). A system, asset or group is considered vulnerable if it is exposed to shock or stress (e.g. on the shoreline), is highly sensitive, and has a low capacity to adapt. Risk is a function of the likelihood of a shock or stress occurring and the severity of the associated consequences. An impact is high risk if it has a high likelihood of occurring and has major to catastrophic consequences.

Moderate to high vulnerability impacts were moved forward to the risk assessment. Actions to prepare for or reduce the risk of the impact were focused first on high-risk areas and then to medium and lower risk areas.

Figure 12: Risk and Vulnerability High Risks

ID	Impact Statement	Likelihood	Consequence	Risk Total
1	Increased interface fire risk: could damage infrastructure, disrupt service, displace people	5.5	4	22
2	Insurance challenges due to prolonged recovery	5	4	20
3	Shoreline habitat squeezed out by rising waters and hardened shorelines	5.5	3.5	19.25
4	Increase in shoreline erosion negatively impacts both the aquatic environment and shoreline public amenities	5.5	3.5	19.25
5	Increased strain on emergency services	6	3	18
6	Increased demand on resources during times of response/recovery from events	6	3	18
7	Increase in impacts to urban trees and green space resulting in increased resource needs and decreased public amenity	6	3	17.5
8	Increased landslide risk due to changing rainfall patterns: could damage infrastructure, disrupt service, displace people	5	3.5	17.5
9	Increasing health impacts and shelter needs for the homeless population during long stretches of inclement weather	5.5	3	16.5
10	Sanitary pump station function impacted due to rising water levels, site flooding and saltwater intrusion	5.5	3	16.5
11	Flooding in low lying areas could displace people and disrupt service	5	3	15
12	Decreased durability of infrastructure will shorten lifespans and require increased maintenance	5	3	15
13	Increased stress on native species resulting in shifting species ranges and potential loss of biodiversity	5	3	15
14	Overwhelmed drainage infrastructure due to heavy rainfall increases urban flood risk	5	3	15
15	Gradual inundation of low lying land along the coast over time due to sea level rise	5	2	10

The impacts from climate change that were identified as being of greatest risk to Port Moody due to contextual vulnerability and severity of potential consequences highlight the following areas of concern.

- Increased stress on native species leading to decreased biodiversity and shifting species ranges. Shoreline habitat squeeze and erosion. Impacts to urban forests, green spaces and shoreline public amenities resulting in increased maintenance. Impacts to local ecosystems and the ecosystem services they provide;
- Increased challenges and demands on City resources due to more frequent emergencies, the potential for prolonged recovery, and increasing maintenance and replacement of infrastructure;
- Increased risk of interface wildfires from hotter drier summers and increased risk of landslides and urban flooding from overwhelmed stormwater infrastructure due to more intense precipitation. Increased risk of extreme events such as wildfires, landslides and urban flooding; and
- Increasing health impacts (physical and mental) and shelter or relocation needs for those most vulnerable to these impacts during inclement weather, including summer heatwaves. Impacts to the health (mental and physical) of those most vulnerable to inclement weather.

Many other more specific impacts were rated as low to medium risk and were included in action planning.

8.3 Focus Areas

This Plan is focused on eight key areas spanning both mitigation and adaptation. These focus areas are intended to provide logical groupings of climate goals, strategies, and actions and are consistent with climate strategies in other communities, the region, and provincially. The focus areas reflect Port Moody's jurisdiction, role and the range of climate related challenges and initiatives affecting the community.

Figure 13: Summary of Focus Areas

Figure 14 below references the goals in each focus area and whether the emphasis of the actions addresses the objective of mitigation, adaptation or both (AKA low carbon resilience). Some goal areas are heavily weighted to one side of the climate action dichotomy. Regardless, actions were developed as much as possible with a low carbon resilience lens to ensure they take advantage of synergies between mitigation and adaptation and reduce conflicts.

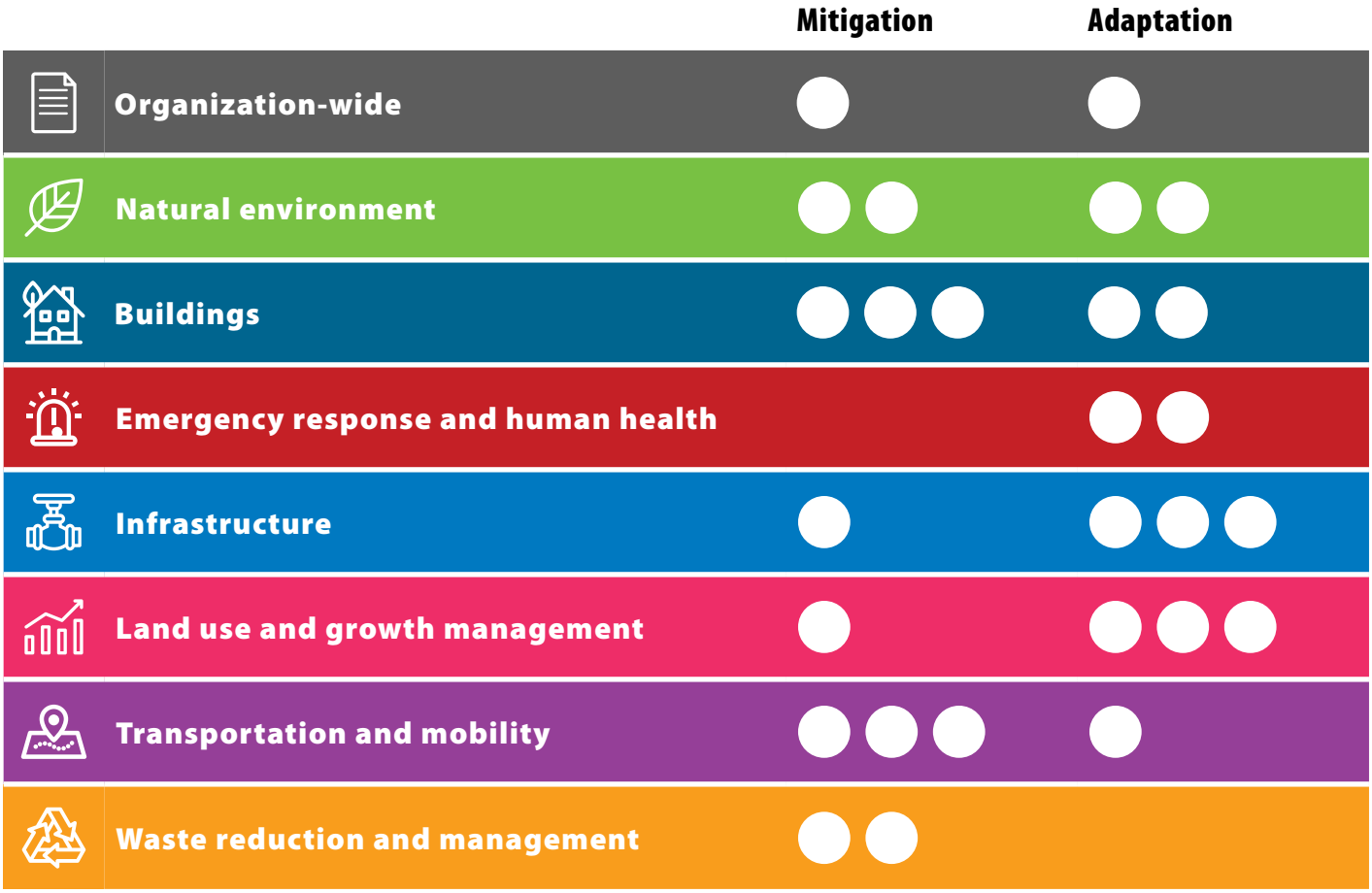
Indicators

Indicators, also referred to as key performance indicators, are measurements used to indicate progress and levels of success for implementing actions. The City is committed to tangible results of meaningful climate action and has identified draft indicators for each focus area.

The City will monitor progress towards its climate change goals by reporting annually on the implementation status of actions along with these key indicators. These indicators are aligned with each of the focus area goals and actions and will measure effective implementation over time.

Indicators are expected to change as new sources of data are found, new technologies emerge, and implementation details are better understood. Therefore, a list of draft indicators is included in Appendix E of this Plan as a starting place for monitoring and reporting.

Figure 14: Focus Area Goals Achieving Low Carbon Resilience



8.4 Action Characterization

Actions under each focus area are categorized based on the following action types:

City operations: develop and implement new ways of doing business or adapt existing practices and procedures to enhance low carbon resilience in the way the City operates.

Policy and programs: establish or update rules and regulations to provide direction for projects, initiatives, or programs to advance climate action, with proof-of-concept pilot projects as needed.

Advocacy: advocate on behalf of the City to other levels of government to advance and support local and regional climate action.

Partnerships and engagement: collaborate with stakeholders (both internal and external) to advance climate action for the City and in the community.

Education: provide clear and useful information and opportunities to enable collective climate action.

8.5 Action Details

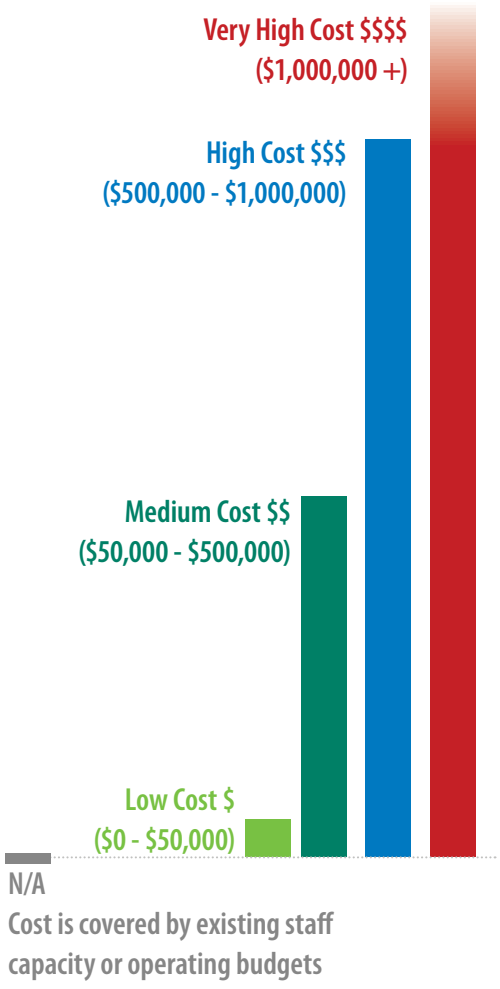
The status of each action is indicated and will continue to be updated as the Climate Action Plan is implemented as follows:

- ***> Planned***
- ***> Underway***
- ***> Complete***

In the focus area sections below, the time frame of actions to be completed is identified as short, medium, or long term as follows:

See Appendix D for more information on action details.

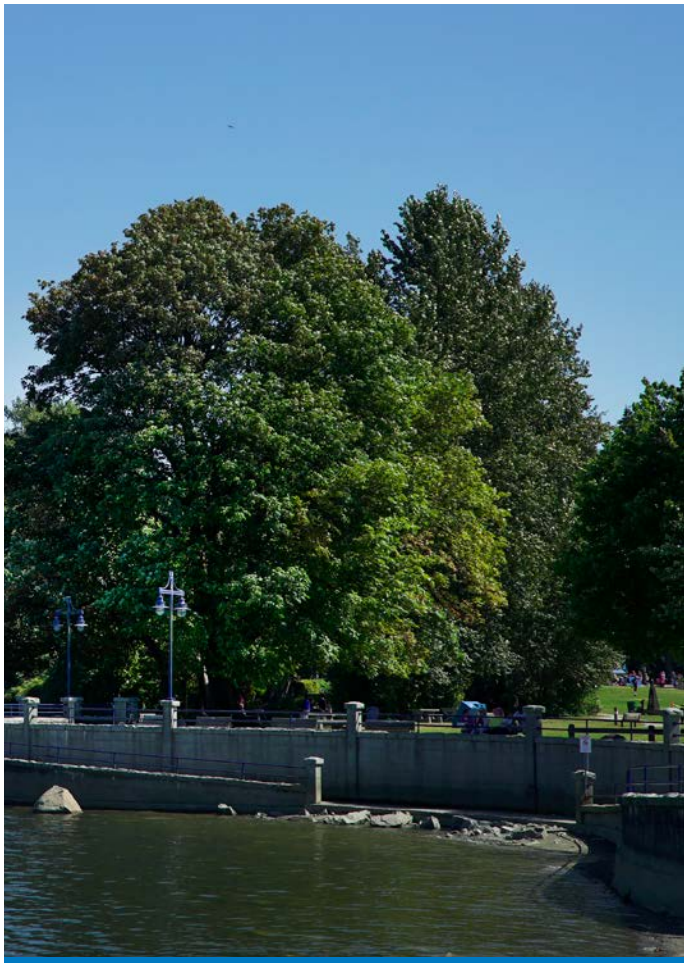
The estimated cost of implementing each action has been characterized based on a relative scale as follows:



8.6 Co-benefits

Low carbon resilience can result in key opportunities that provide benefits in areas other than the main intent of the action. These are called co-benefits and can range from the creation of green jobs and increased property values to cost savings. For example, incentivizing green roofs to combat future projections of heat addresses numerous other priorities such as absorption of increases in rainfall, improved air quality, and increased urban biodiversity.

The legend below showcases key opportunities where climate actions contribute to integrated and consistent benefits in multiple areas. The co-benefits legend is specifically formulated for Port Moody and highlighted for each focus area, providing an opportunity to communicate the various benefits of taking an integrated climate action approach, directly responding to calls for climate emergency planning and recognizing the crossover of climate policy and action with positive local change.



Greenspaces such as Rocky Point Park create habitat, add community wellbeing and liveability, and reduce vulnerability to heat

Figure 15: Co-benefits Legend

- Reduces congestion, improves air quality
- Supports the local economy and job creation
- Improves health, wellbeing and community liveability
- Improves biodiversity, habitat creation, creates greenspace
- Reduces burden on water related infrastructure (e.g. drinking water supply, stormwater)
- Waste reduction/optimizes resources
- Reduces vulnerability to extreme temperatures and weather events
- Supports energy use reduction and clean energy transition
- Improves cost savings

9 ORGANIZATION-WIDE

9.1 Overview

Building a climate resilient and carbon neutral community requires unified actions that span all City processes. Climate change planning will not be successful if done in isolation, and therefore, requires embedded principles in all departments, projects, initiatives, plans, and policies. While developing this Plan, the City recognized that there were several actions that were similar under each focus area. For example, putting a low carbon resilience lens on all new plans and policies was identified as an action under each focus area. Given the level of influence these City-wide actions have on embedding climate action into daily processes, tasks, and budgeting, a new "focus area" emerged to highlight these actions and streamline resources and processes to implement these actions.

9.2 Goal

- Embed an LCR climate lens into City processes.

9.3 Existing Initiatives

Green Fleet Policy

Since 2012 the City has been adhering to the Green Fleet Policy as commitment to environmental sustainability in its corporate operations. The purpose of this policy is to provide guidance to City staff on purchasing and managing the City's fleet in order to minimize greenhouse gas emissions and other detrimental environmental impacts.

Sustainable Events Policy

In 2018, the City adopted the Sustainable Events Policy. The City of Port Moody takes pride in being a leader in environment and sustainability. While special events and festivals are a key aspect of a healthy and vibrant community, taking a sustainable approach to the organization of these activities helps reduce the negative impacts on our environment and our community. This policy is written such that it provides requirements for event organizers to follow, as well as additional sustainable practices that organizers are encouraged to incorporate into their event planning.

9.4 Actions

Action	Lead Department	Time Frame	Anticipated Budget	Status
1. Develop policy and procedures to embed climate mitigation and adaptation considerations throughout day-to-day City business.	Planning and Development	Short	$	Planned
2. Review existing City regulations and initiatives with a climate lens	Planning and Development	Short	$	Planned
3. Integrate climate budgets in the municipal budget process.	Finance and Technology	Short	N/A	Planned

9.5 Co-benefits

10 NATURAL ENVIRONMENT

10.1 Overview

Species and ecosystems are both impacted by climate change and can provide a buffer against certain impacts. Impacts include changes to species ranges, loss of appropriate habitat due to temperature and precipitation pattern changes and direct impacts from drought and storms. The natural environment can also help reduce the severity of impacts on our communities by providing services such as shade during hot summers, infiltration of rainfall and protection against erosion. A multitude of co-benefits are provided by the natural environment ranging from physical and mental health benefits, to cleaner air and the sequestration of carbon.

Degradation of ecosystems and loss of biodiversity can have cascading impacts on natural and human systems, many of which are not well understood. While species and systems have internal processes of adaptation, we can support or amplify the normal capacity of these systems to adapt by restoring and strengthening the health of our ecosystems.

> **carbon sequestration –** a natural or artificial process by which carbon dioxide is removed from the atmosphere and stored.

10.2 Goals

- Restore/strengthen our natural environment so that ecosystems and species are more likely to adapt to the effects of a warming climate and help buffer the impacts.
- Restore/strengthen our urban forests, which provide benefits such as: reducing emissions by storing carbon; providing shade, moderating the air temperature, deflecting strong winds; and improving air quality.

10.3 Existing Initiatives

The City is not starting from scratch in building the climate resilience of natural and green assets. The City of Port Moody has strong environmental policies and regulations that are implemented and enforced daily including:

- updated streamside setbacks in the Zoning Bylaw to incorporate Riparian Protection and Enhancement Areas; and
- management policies and development guidelines for Environmentally Sensitive Areas (ESAs), including riparian areas, the Tree Protection Bylaw, Pesticide Use Control Bylaw and the Stream and Drainage System Protection Bylaw.

This policy and regulatory context provides a strong base from which to continue enhancing resilience to climate change.

Actions underway include:

- implementation of green infrastructure projects;
- stream daylighting projects to restore at-risk instream and riparian habitat;
- drought-tolerant landscaping; and
- targeted tree planting to improve habitat and increase the urban forest canopy cover.

Partnerships with local and regional organizations and public engagement actions to enhance stewardship of natural areas and assets continue to grow.

Our Zoning Bylaw includes improved streamside setback requirements. This is the area between an existing or proposed development and the top of the bank of the nearest stream or wetland. Development is not permitted in this area. Wider setbacks help us protect fish habitat, improve water quality, prevent erosion and bank instability, and manage flooding.

We work continuously to remove invasive plants, which grow quickly, reproduce rapidly, and disrupt ecosystems by out-competing native vegetation. Saltmeadow Cordgrass, for example, wipes out shoreline habitat for many species and increases the risk of flooding by weakening soil stability and altering wind and water flow.

10.4 Actions

Action	Lead Department	Time Frame	Anticipated Budget	Status
City Operations				
1. Develop climate resilient landscaping strategies for public lands	Environment and Parks	Short	$	Planned
2. Develop a green infrastructure policy and program	Engineering and Operations	Medium	$	Planned
Policy				
3. Implement strategies to protect, restore, and connect ESAs city-wide.	Environment and Parks	Short	$	Underway
4. Develop and regularly update the invasive species management program	Environment and Parks	Medium	$	Planned
5. Develop an urban forest management strategy	Environment and Parks	Short	N/A	Underway
Education				
6. Continue to increase public awareness and engagement with environmental programs	Environment and Parks	Short	$	Planned
Partnerships				
7. Continue to partner with local stewardship groups	Environment and Parks	Short	$	Planned
8. Develop and implement a natural assets management plan with consideration of a carbon budget.	Finance and Technology	Medium	$	Planned

10.5 Co-benefits

11 INFRASTRUCTURE

11.1 Overview

The current practice is to design infrastructure based on historical climate patterns that have no bearing on future patterns. A sewer pipe or culvert may be right sized for historical rainfall patterns that fall nowhere near the intensity or frequency of rainfall anticipated in the decades to come. More frequent extreme events will also require a rethink of maintenance schedules and asset management in general, as durability will be challenged. Managing both traditional and natural assets with a climate lens will ensure that investments will be functional throughout their lifespans.

Climate change may also require variations to infrastructure investment to deal with specific impacts. The BC Climate Risk Assessment identified drinking water shortages as a top risk as summer drought becomes the norm. Water conservation and finding ways to reuse and recycle water will spur innovation. Coastal flood risk will also present a novel challenge and require innovative responses. Combining green infrastructure or natural asset based solutions, such as infiltration of rainfall, with more traditional infrastructure can increase Port Moody's resilience to these risks posed by a changing climate, reduce the burden on existing infrastructure, and can lead to efficiencies that reduce greenhouse gas emissions.

11.2 Goals

- Reduce water consumption.
- Minimize urban flooding due to heavy rainfall.
- Ensure civic infrastructure and natural assets are well-maintained and improved/restored/replaced when necessary so they are more resilient to the anticipated effects of climate change.

11.3 Existing Initiatives

Integrated Stormwater Management Planning on watersheds throughout the community has been underway for years. The City recognizes the need to integrate future rainfall patterns into stormwater planning and have initiated a new drainage plan for 2050 that incorporates rainfall projections. The Moody Centre Stormwater Management Servicing Plan, recently completed, is innovative including future rainfall, on-site stormwater management guidelines and green infrastructure guidelines for rainfall infiltration.

The City continues to harvest non-potable water (e.g. rainwater, groundwater) for City irrigation purposes and provides timely upgrades to the water distribution system. As water levels rise with sea level rise, the City is monitoring the low-lying sanitary sewer pump stations.

We're identifying rainfall projections for 2050 and 2100, using the Metro Vancouver Climate Adaptation Models. Staff use updated rainfall projections to help design infrastructure such as sewers and bridges. Understanding future weather patterns allows us to make sure that both new and updated infrastructure will serve us well into the future.

Storm sewers and open channels such as ditches and natural creeks carry rain, hail, or snow away from developed lands. We work to reduce the chance of sewers and channels becoming overwhelmed by implementing strategies to capture stormwater and redirect it (e.g. choosing landscaping over pavement allows water to be absorbed into the ground).

11.4 Actions

Action	Lead Department	Time Frame	Anticipated Budget	Status
City Operations				
1. Incorporate climate change considerations into the City's water distribution and wastewater collections systems	Engineering and Operations	Long	$$	Planned
2. Incorporate climate change considerations into integrated stormwater management process and planning.	Engineering and Operations	Short	N/A	Underway
3. Implement effective utility management principles for the management of the water distribution and wastewater systems (e.g. municipal metering of sanitary, effective utility management principles.	Engineering and Operations	Long	$$	Planned
4. Incorporate climate risks into asset management planning.	Engineering and Operations	Long	$$	Planned
Regulation				
5. Work toward water usage metering on all properties through a phased program.	Engineering and Operations	Medium	$	Planned
Incentives / Education				
6. Enhance public engagement and education on water conservation and flood preparedness	Planning and Development	Short	$$	Planned

11.5 Co-benefits

12 EMERGENCY RESPONSE AND HUMAN HEALTH

12.1 Overview

The BC Climate Risk Assessment puts human health impacts from heat in the top five risks to the province. Some members of our community are more vulnerable to extreme heat such as seniors living alone, children, pregnant women and those with pre-existing medical conditions. Buildings on the west coast do not tend to be designed with air conditioning or high levels of air filtration, making indoor temperatures high and posing concerns for indoor air quality.

There were 22 days of air quality advisories in the Lower Mainland in 2018, the most on record. Research by the BC Centre for Disease Control found that visits to the doctor with asthma or respiratory complaints spiked during the poor air quality days in the Lower Mainland. Repeated extreme events puts pressure on our medical systems, and the mental health of both those impacted and those responding.

Often community members are not all impacted to the same extent by climate change. Marginalized groups may be disproportionately impacted by climate change and have lower resources to support preparedness and adapting. Support and intervention should be focused first on those most vulnerable to climate change impacts.

In addition to health impacts, climate change is likely to take a toll on municipal resources to respond to and recover from extreme events. Many of the themes discussed in the plan focus on trying to minimize the consequences of climate-related events through longer-term preparedness. A complementary effort is to be resourced and skilled in both responding and recovering quickly to events.

12.2 Goals

- Ensure all members of the community have equal access to information, support, and resources related to preparing for climate change impacts.
- Ensure the City is ready to respond to climate-related hazards, such as flooding, wildfires, and extreme heat.

12.3 Existing Initiatives

Our Disaster Response Plan ensures a coordinated response in the event of an earthquake, fire, explosion, or other emergency. It is consistent with the British Columbia Emergency Response Management System, a four-phase system that focuses on prevention (or adaptation, in the context of climate change), preparedness, response, and recovery.

Thanks to a provincial grant, the City is purchasing Group Lodging supplies for up to 100 people. A Group Lodging facility, designated by the local Emergency Support Services team, provides basic accommodation for people displaced from their homes due to an emergency or disaster.

12.4 Actions

Action	Lead Department	Time Frame	Anticipated Budget	Status
City Operations				
1. Ensure City departments are adequately staffed and equipped to respond to extreme weather events.	Fire Rescue	Short	$	Planned
2. Access grants to support emergency preparedness and ensure City financial reserves are consistently available in the case of extreme events.	Finance and Technology	Medium	N/A	Planned
3. Identify and prepare public properties to act as emergency support centres as needed.	Community Services, Environment and Parks	Short	$$	Planned
Policy				
4. Develop an extreme weather response plan with a focus on supporting the most vulnerable populations.	Fire Rescue	Medium	$	Planned
Education and Partnerships				
5. Continue to inform and facilitate community education about preparedness across hazards, and build stronger connections with community associations and businesses with the aim of improved preparedness for extreme weather events.	Planning and Development	Short	$	Underway
6. Build partnerships and collaborate on connecting those most vulnerable to the impacts of climate change to available services (e.g. access to inclement weather shelters).	Fire Rescue	Medium	$	Planned

12.5 Co-benefits

13 LAND USE AND GROWTH MANAGEMENT

13.1 Overview

Land use decisions made by local governments profoundly influence the environmental, social and economic health of communities. Density levels and land use mixes will determine travel distances between the places where residents live, work and play. The economic vibrancy of any given neighbourhood and the potential for district energy also hinge on the mix and density of land uses found there. Street design, combined with investments in transit and cycling infrastructure, greatly influence residents' transportation choices and the resulting greenhouse gas (GHG) emissions.

The City of Port Moody conducts land use planning and growth management in order to implement the Official Community Plan (OCP), the plan that provides a longer-term vision for the community. Port Moody is projected to grow to a population of 50,000 before 2050 and the OCP provides a vision of the form and location of housing to support this population growth, as well as the shape of the community with respect to many other factors, including economic development, parks and recreation, arts and culture and more.

Housing in Port Moody is shifting toward more multi-family and high-rise style of development due to a dwindling supply of land suited for single-family homes; the promotion of compact growth patterns that support transit and preserve green space; and a desire to maintain housing affordability. This form of development is also central to reducing transportation emissions through modal shift away from single-occupancy vehicles to alternatives such as walking, cycling and transit. The recent completion of the Evergreen SkyTrain Extension has provided the City with a major opportunity to support a shift in modal split. More compact forms of housing need to be accompanied with planning for a complete community, where residents can live, work, play and shop, which has also shown to reduce per capita greenhouse gas emissions from buildings and transportation.

Further to planning for complete communities, land use and growth management will increasingly need to consider the implications of sea level rise – a novel challenge for coastal BC communities. Currently, coastal flooding is only a risk when a perfect storm of elements takes place with the highest high tides of the year coinciding with a storm surge, waves and onshore wind. With rising sea levels, there will be increased flood risk in low lying areas. The Province published a coastal flood hazard guideline in 2011 directing municipalities to use 0.5m of sea level rise for mid-term planning to 2050 and 1m of sea level rise for planning to 2100.

storm surge – a rising of the sea as a result of atmospheric pressure changes and wind associated with a storm.

13.2 Goals

- Incorporate climate change risks and vulnerability assessments into land use planning and development.
- Develop a complete, connected, and compact community to minimize transportation and housing emissions.
- Manage shoreline erosion from sea level rise and coastal flooding.

13.3 Existing Initiatives

As part of the evaluation process for development proposals, we use a tool called the Sustainability Report Card to encourage innovative thinking in design for a more sustainable community. This tool includes performance measures in four categories: cultural, economic, environmental, and social sustainability.

Our Zoning Bylaw includes new requirements for landscaping on any part of a lot not used for building, parking, loading, or driveways to increase the amount of surfaces that absorb water in an effort to increase on-site drainage capacity and reduce stormwater run-off.

13.4 Actions

Action	Lead Department	Time Frame	Anticipated Budget	Status
Policy				
1. Encourage density and mixed-use neighborhoods around transportation hubs through the Official Community Plan and development applications.	Planning and Development	Short	N/A	Underway
2. Create and implement a policy to encourage development of complete, compact communities that enable the residents' easy access to daily needs.	Planning and Development	Medium	$$	Planned
3. Require developers to include comprehensive transportation demand management (TDM) strategies in proposals for new large development projects.	Planning and Development	Short	$	Planned
4. Apply a climate risk lens to a review of existing hazard mapping and associated Development Permit Areas.	Planning and Development	Medium	$$	Underway
5. Target park acquisition on an ongoing basis to support the Parks and Recreation Master Plan recommendations by adding a climate lens.	Environment and Parks	Long	TBD	Planned
6. Improve standards for erosion and sediment control for new developments and City projects.	Environment and Parks	Short	$	Planned
7. Develop a sea level rise strategy to assess and respond to coastal flooding, coastal squeeze, shoreline erosion and inundation.	Planning and Development	Long	$$	Planned
Education and Partnerships				
8. Continue to work with the Fraser Basin Council on the Lower Mainland Flood Management Strategy and public education on flood risk.	Planning and Development	Medium	$	Underway

13.5 Co-benefits

14 BUILDINGS

14.1 Overview

Community: Buildings are a vital part of our community, providing shelter, employment, recreation opportunities, services, shopping and more. Residents and people working in and visiting Port Moody spend a lot of time in buildings, which need to be heated, cooled and powered to serve all occupant needs. In BC, our electricity produces very low GHG emissions, however, most buildings have heating and hot water systems that run on fossil fuels (primarily natural gas, but also some propane and heating oil), and as a result, buildings are the source of almost half of the GHG emissions in Port Moody, and 97% of these emissions are from fossil fuels[14].

We spend so much time in our buildings, they play an essential role in how prepared we are for our changing climate. As days and nights get warmer, precipitation events get heavier, wind storms get stronger, buildings need to be adapted to be ready for these changes.

Meeting future population growth in Port Moody will mean building new residential buildings (mostly apartments), as well as providing services to accommodate daily needs. With this growth comes the opportunity to build very efficient, low carbon and resilient new structures. The current BC Building Code, which provides the minimum standard for new buildings, is more energy efficient than previous versions, and by adopting the BC Energy Step Code, Port Moody will see much more efficient new buildings. Although builders may opt to install low carbon energy system, there are currently no requirements to do so, and most buildings built now are still using fossil fuels (though the technology exists).

Although the city is expected to see new growth, the majority of existing buildings will still be here in 2050. Retrofitting all of these buildings is also an essential part of reducing our emissions and preparing for a changing climate.

14 Province of BC, B.C. utilities energy data at the community level 2017

City Operations: In the provision of its services, the City of Port Moody also owns and operates many buildings. The energy used at these civic facilities result in 54% of the City's corporate GHG emissions. Most of this energy use is attributed to a few buildings: the Recreation Complex (42%), Westhill Centre Pool (12%), Rocky Point Park Pool (9%) and the Civic Centre (9%) and results from using natural gas for heating and hot water[15].

15 City of Port Moody Corporate energy and GHG emissions inventory, 2016

Figure 16: GHG Emissions from buildings by fuel type, 2016

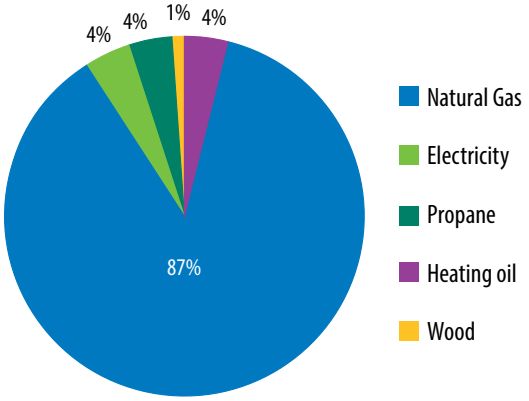
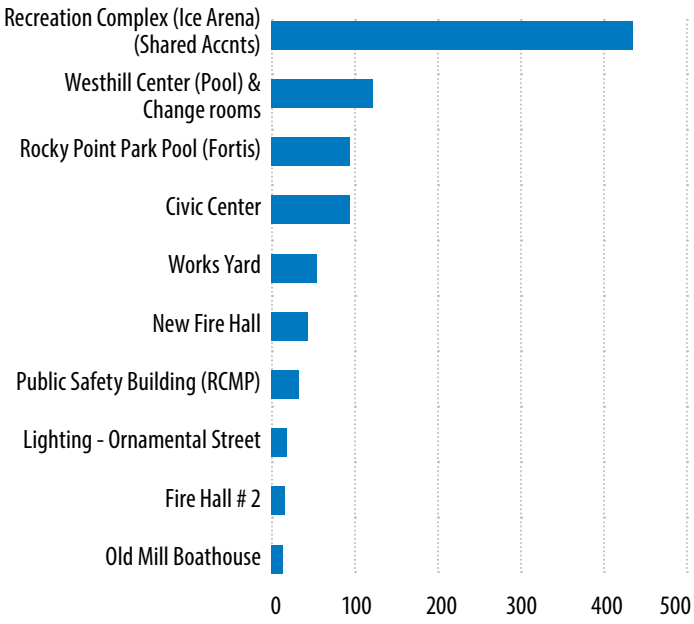


Figure 17: Ten facilities with highest GHG emissions, 2016 (tCO_2e)



14.2 Goals

- Design/construct/renovate buildings that:
  - Are durable and more likely to withstand or recover quickly from the anticipated effects of climate change;
  - Use relatively little energy to operate; and
  - Provide a healthy indoor environment with good air quality.
- Design/construct/renovate buildings with:
  - Materials that are associated with low levels of embodied carbon; and
  - Materials that store carbon.
- Use sources of energy that produce lower amounts of greenhouse gas emissions and energy systems that are more likely to withstand or recover quickly from disruptive events.

14.3 Targets

- By 2030, all new and replacement heating and hot water systems are zero emissions
- By 2030, all oil and propane heating and hot water systems are replaced with zero emission systems
- By 2050, all buildings have replaced heating and hot water with zero emission systems

14.4 Existing Initiatives

We are improving the energy efficiency of the Civic Centre, Recreation Complex, and Arts Centre by making significant repairs to the building envelopes. Higher-performing building envelopes (with improvements to insulation, windows, and doors) prevent heated or cooled air from leaking out – this reduces the amount of energy needed to make indoor spaces comfortable.

New exemptions are included in the Zoning Bylaw to encourage green building features. Floor area exemptions support passive design (e.g. thicker walls, improved insulation, and natural ventilation). Height, siting, and floor area exemptions support sustainable energy systems that provide higher building energy performance.

14.5 Actions

Action	Lead Department	Time Frame	Anticipated Budget	Status
Civic Facilities				
1. Perform comprehensive climate audits on all civic facilities and prioritize upgrades where feasible and highest risk.	Community Services	Medium	$$	Planned
2. Develop and implement a green buildings policy for the construction and renovation of City-owned facilities.	Planning and Development	Short	$	Planned
Regulation				
3. Develop a strategy and adopt the BC Energy Step Code in advance of the provincial timeline.	Planning and Development	Short	N/A	Completed
Policy				
4. Revise the City's Sustainability Report Card to include performance measures to reduce operational and embodied GHG emissions and climate risks.	Planning and Development	Short	$	Underway
5. Develop and implement a green buildings rezoning policy for development applications.	Planning and Development	Short	$	Planned
6. Develop a resilient, zero-emissions plan for all existing buildings that includes addressing indoor air quality, and climate risks where possible.	Planning and Development	Medium	$$	Planned
7. Develop a resilient, zero-emissions plan for all new buildings that includes addressing indoor air quality and climate risks where possible.	Planning and Development	Medium	$$	Planned
Advocacy				
8. Initiate/continue discussions with federal and provincial governments to advocate for authority, financing tools, benchmarking, and other policies essential for achieving zero emissions buildings.	Planning and Development	Short	N/A	Underway
Financial Support				
9. Explore opportunities for partnerships and financing strategies to support residents and business owners to address climate action for buildings.	Planning and Development	Long	$	Planned
10. Explore the feasibility of creating a renewable energy hub where the City could generate or partner with organizations to produce renewable energy, and use this energy to power buildings and equipment.	Planning and Development	Medium	$	Planned

14.6 Co-benefits

15 TRANSPORTATION AND MOBILITY

15.1 Overview

Community: Transportation is a dominant source of energy use and GHG emissions in Port Moody. Based on the most recent transportation survey data, almost 83% of trips in Port Moody are done by vehicle and three-quarters of these are single-occupancy trips. Of the remaining trips, half are by transit, half are by walking and a negligible number are by bicycle. There has been a shift toward more sustainable forms of transportation since the previous survey in 2011, where walking trips increased from 6% to 8% of trips and single-occupancy vehicle trips decreased from approximately 70% of trips to 65% (see Figure 18). Of passenger vehicles registered in Port Moody in 2017, less than 1% were electric and just over 2% were hybrid electric vehicles.

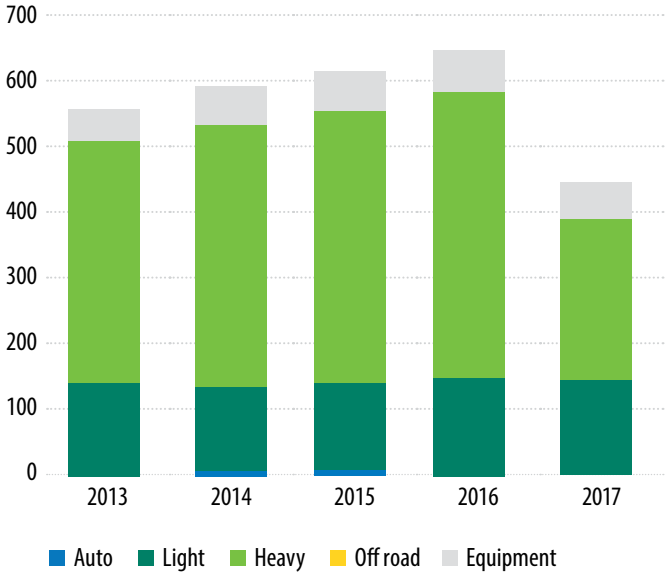
As discussed in the land use focus area, how we plan and build our community has a big impact on our transportation choices. Focusing growth in areas where residents can easily access work, play and shopping opportunities will be important to reduce our reliance on vehicles and our GHG emissions from transportation. This focused growth, together with careful transportation planning that makes it safe and enjoyable to walk, cycle and take transit are key ingredients to supporting more substantial shifts in how people get around. For those trips that still use vehicles (both personal and business trips), rapidly increasing the number of electric vehicles on the road will be crucial to meeting global emission reduction goals.

City Operations: The City operates a fleet of vehicles in order to conduct City business and provide the community with many services. The majority of emissions (over 65%) come from the heavy-duty fleet. Over a period of five years, emissions from fleet have continued to increase as the population has grown and more City services are needed. Like other businesses and organizations, the City will need to explore options for reducing these emissions while continuing to meet the demands of a growing city. Right-sizing and trip planning will continue to be important strategies for continually increasing the fleet's efficiency. Numerous light duty electric vehicles are now commercially available, while heavy-duty trucks and off-road equipment are anticipated to have commercially viable models in increasing numbers over the next few years.

15.2 Goals

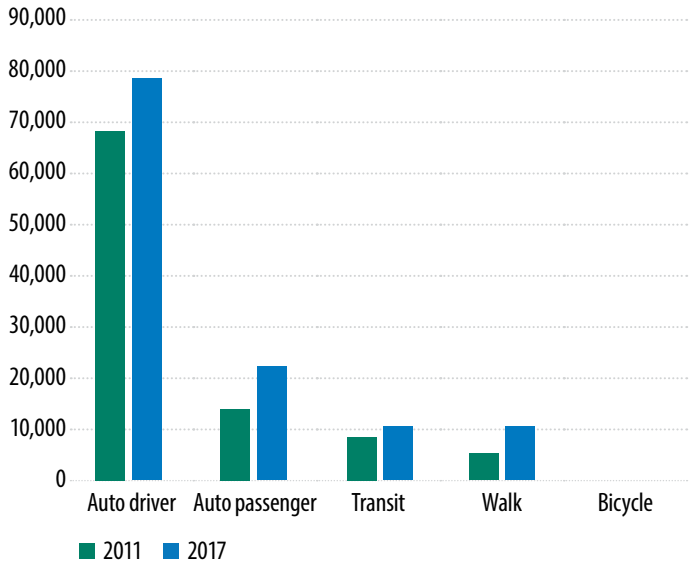
- Reduce greenhouse gas emissions from the City's fleet of vehicles.
- Support the use of alternative and zero-emission transportation options.
- Encourage residents to use clean vehicles that emit low to zero levels of greenhouse gases.

Figure 18: City operations fleet emissions by vehicle type



Source: City of Port Moody Corporate energy and GHG emissions inventory, 2016

Figure 19: Total trips by mode in Port Moody, 2011 and 2017



Source: TransLink 2017 Trip Diary survey data – public.tableau.com/profile/translink#!/vizhome/Trip_Diary_2017/TripDiary2017

15.3 Targets

- Residents walk, cycle or take transit for 40% of trips by 2030 (up from 17% in 2017)
- 40% of passenger vehicles, and 25% of commercial vehicles are electric by 2030

15.4 Existing Initiatives

We require electric vehicle charging infrastructure in all new residential and commercial developments. All parking spaces for new dwelling units, all accessible parking spaces, and 20% of commercial parking spaces must include an energized outlet capable of providing Level 2 charging for electric vehicles.

We have installed electric vehicle charging stations for public use at seven locations that can accommodate a total of 13 vehicles. There are six Level 2 charging stations and one DC Fast Charging station.

Ride-hailing services and autonomous vehicles – can they help reduce emissions?

Ride-hailing and autonomous vehicles (possibly in combination) have potential to reduce car ownership and overall vehicle kilometres travelled, increase uptake of low or zero-emission vehicles, support enhanced transit and other efficient modes of transportation, and optimize the use of public space – if they are implemented in a way that supports these outcomes. A toolkit released for local governments outlines how cities can put in place policies to achieve these desired outcomes, including:

- Requirements for vehicle purchase and use;
- Elimination of minimum parking requirements for new development;
- Intelligent pricing of curb space;
- Collection & sharing of transportation data;
- Pricing mechanisms, such as congestion pricing and distance fees;
- Integrated planning & payment across modes;
- Traffic signal priority for transit vehicles; and
- On-demand flexible transit route service.

These align with many of the policies identified in this plan to achieve the goals and targets for transportation.

15.5 Actions

Action	Lead Department	Time Frame	Anticipated Budget	Status
City Operations				
1. Conduct a utilization assessment of the City's fleet and identify opportunities to increase efficiency and reduce GHG emissions.	Engineering and Operations	Short	$	Underway
Policy				
2. Accelerate and fund implementation of the Master Transportation Plan projects to reduce GHG emissions by 2030, including accelerating alternative transportation goals, and initiatives focused on transit, transit-oriented development, and paths and trails.	Engineering and Operations	Short Medium Long	$$$$	Underway
3. Develop a community zero-emissions mobility strategy.	Planning and Development	Short	$	Planned
4. Identify and implement policies to support the highest and best use of City-owned parking and curb space.	Engineering and Operations	Short	TBD	Planned
5. Develop business license requirements and regulations through street and traffic bylaws that support low-emission ride-hailing services and autonomous vehicles.	Planning and Development	Short	$	Planned
6. Consider creating pedestrian priority zones in key areas.	Engineering and Operations	Medium	$	Planned
Partnerships				
7. Work with Port Moody schools to engage in School Travel Planning.	Planning and Development	Medium	$	Planned
Advocacy				
8. Advocate for significant policy changes that reduce emissions including the Province (Right-to-Charge legislation), Metro Vancouver (tolls, congestion charging, TDM), TransLink (zero emission fleet), ICBC (alternative insurance), car-sharing services and the Port of Vancouver.	Engineering and Operations	Short	N/A	Planned
Education				
9. Create public education campaigns to increase awareness of zero-emission transportation, including active options and zero-emission vehicle options.	Engineering and Operations	Short	$	Planned

15.6 Co-benefits

16 WASTE REDUCTION AND MANAGEMENT

16.1 Overview

Community: When organic waste is put into the landfill, it decomposes and produces methane, a powerful greenhouse gas that has 25 times more warming power than carbon dioxide. As a result, garbage sent to landfill in Port Moody currently leads to 1,400 tonnes CO_2 equivalent emissions annually (just over 1% of all community emissions). By diverting organic waste from the landfill, including composting our kitchen scraps and yard trimmings, recycling construction material and recycling paper products, we can reduce these emissions and generate other useful resources at the same time. Port Moody has very high rates of waste diversion relative to other municipalities in Canada, but there is still more to do to eliminate these emissions completely.

City operations: The City can enhance and continue to provide appropriate receptacles and education at all City facilities and events to continue achieving greater waste diversion rates.

16.2 Goals

- Divert more organic waste and recyclable materials from the landfill.
- Work towards zero waste in Port Moody.

16.3 Targets

- Minimize waste going to landfill and achieve zero emissions from waste before 2050

16.4 Existing Initiatives

Since 2004, we have collected 32,000 tonnes of recyclables through our curbside waste collection service. In 2010, the City expanded its green waste collection program, previously limited to yard trimmings, to include food scraps and other kitchen waste. Since then, 26,725 tonnes of green waste have been collected and diverted from the landfill.

Dog waste that ends up in the landfill breaks down and produces methane, a powerful greenhouse gas. Dog waste is better dealt with at a waste water treatment plant. We've implemented a collection program that has diverted 28 tonnes of dog waste from the landfill since 2016. Find red bins for dog waste in various locations throughout the city.

16.5 Actions

Action	Lead Department	Time Frame	Anticipated Budget	Status
City Operations				
1. Develop a zero-waste strategy for City facilities and City events.	Community Services	Short	$	Planned
Policy				
2. Develop a community and commercial focused zero waste strategy.	Planning and Development	Long	$	Planned
Advocacy				
3. Initiate/continue discussions with Metro Vancouver to advocate for initiatives and policies to reduce waste, increase capture of methane at landfills, and increase reporting and awareness on waste generation.	Engineering and Operations	Short	$	Underway
4. Work with partner organizations on public education campaigns to increase awareness of waste reduction tools, programs and information.	Engineering and Operations	Short	$	Planned

16.6 Co-benefits

17 IMPLEMENTATION

17.1 Governance

Governance determines who has power, who makes decisions, how other players make their voice heard and how accountability is rendered. The City of Port Moody has several ways in which it can influence behaviour and effect change. Some facets are largely within the City's control, such as infrastructure and community planning, while other aspects rely on the advancement of science and technology, other levels of government regulation, and other partners.

The City's Policy Planning Division will lead implementation of this Plan, in collaboration with the staff climate action working group. This group will continue to meet monthly and will guide implementation of the Plan as well as developing an equity framework, embedding a climate lens into all decision making, annual reports on progress, and other tasks that arise as necessary. Each action has been assigned to lead and supporting departments, who will be responsible for reporting on the status of the action to the Policy Planning Division and following through on implementation. The Policy Planning Division will continue to work with the Climate Action Committee on a monthly basis to ensure that the Plan's vision is being achieved and to inform aspects of the Plan's implementation. The Climate Action Plan is a living document that will continue to be informed by, and in turn inform community and City policies and priorities.

Port Moody City Council has consistently been committed to making progress on climate action, integrating climate change and environmental considerations into City processes and the community where possible.

The City's role in climate action includes the following high-level actions that closely relate to how this Plan has been organized:

Development
Development of policy, programs, initiatives etc. in Port Moody that the City has direct influence and control over.

Implementation
Implementing policies, programs, initiatives etc. in Port Moody as well as regulations and initiatives that are developed by other levels of government and external agencies.

Advocating and partnering with external agencies
Advocate for further climate action and regulation with external agencies and higher levels of government. Collaborate and leverage existing resources by partnering with organizations to achieve collective goals.

Educating
Empowering residents to make climate conscious choices by providing transparent information and decision opportunities.

17.2 Priority Actions

An implementation document, including indicators, time frame, lead departments, staff resources needed, and financial obligations required will be developed. An equity lens will be created to ensure that the benefits and burdens of climate action are shared as equitably as possible.

For each of the seven focus areas, actions offer specific statements about what the City will do related to climate change action. Priority Actions are those which will be identified with a near term implementation timeline. Actions will be prioritized based on the following criteria. These criteria may change over time and may include:

- Level of potential impact on reducing GHGs and building climate resilience;
- Access to resources and funding;
- Resulting co-benefit impact; and
- Integration with existing departmental work plans and priorities.

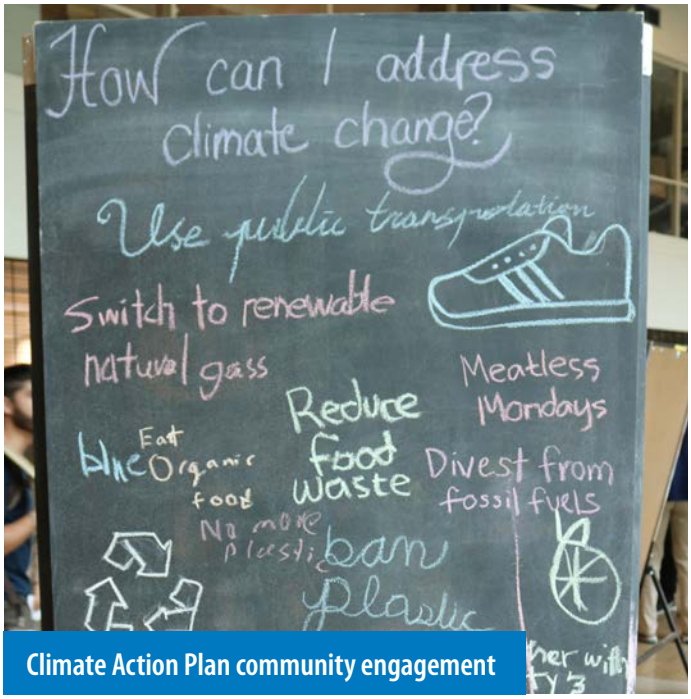
It is also important to consider that climate change will not affect everyone in the community to the same degree. Lower income, socially marginalized populations and those with existing health conditions may be disproportionately impacted by climate change. Those with less financial resources may have fewer options to protect themselves when major weather events occur, and may have more difficulty recovering from impacts. Policies and programs to reduce greenhouse gas emissions and adapt to the changing climate must not exacerbate existing economic, social, or geographic disparities. The implementation of policies and programs will consider how solutions can be accessible to all Port Moody residents. Fairness, equity, and affordability will be central considerations in the implementation of the Climate Action Plan.

17.3 Ongoing Monitoring And Reporting

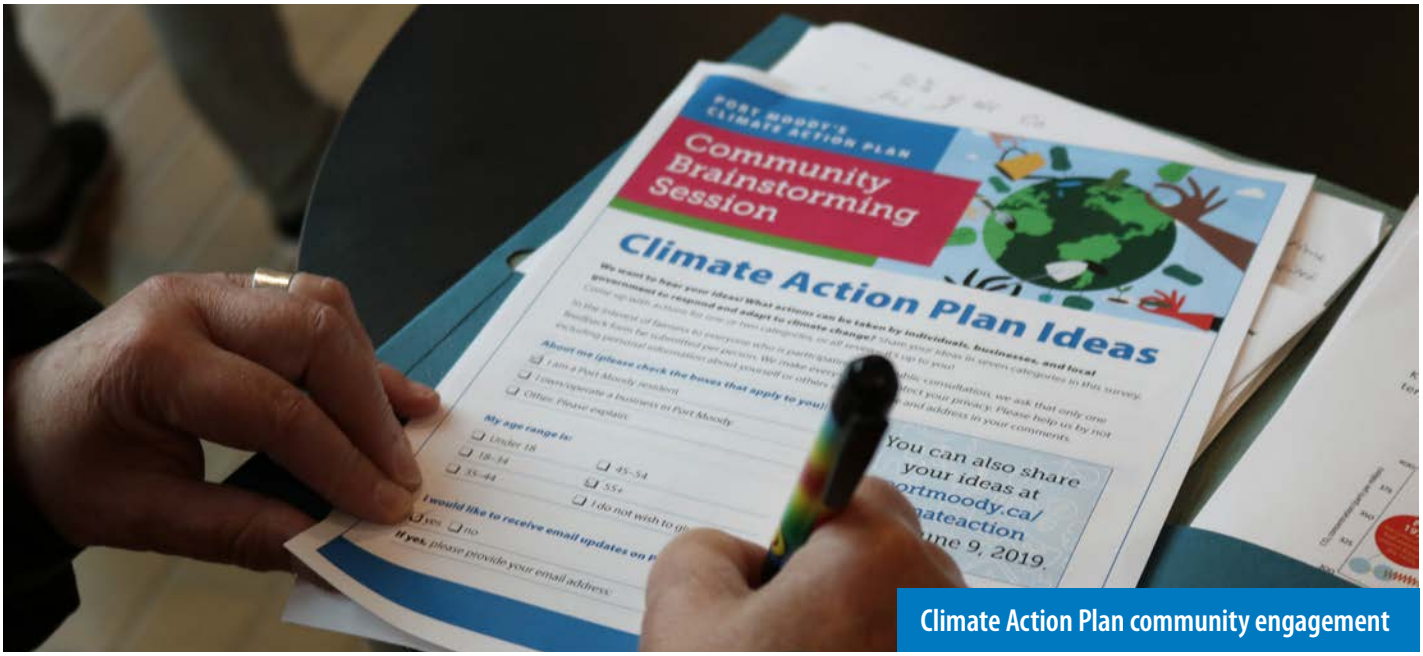
The Climate Change Action Plan includes a series of practical and foundational actions that outline one path to a resilient, carbon neutral community. The City of Port Moody is committed to achieving its vision of a low carbon and resilient community through sustained implementation of these actions. Ongoing monitoring and evaluation will serve two important purposes. First, it will help keep track of where the community is with respect to its emission reduction and resilience goals. Second, it will help track implementation progress and flag when actions may be redundant or require slight changes.

Implementation of the Climate Action Plan will be iterative and continuously reviewed. The City will review the status of the Plan's implementation and present updates annually. The annual update will be a concise summary that will:

- Provide a snapshot of progress on the goals of the Climate Action Plan, with direct reference to the indicators mentioned in this section,
- Share success stories during implementation,
- Identify areas for improvement or future work/study,
- Renew and revise financial needs as required, and
- Demonstrate overall progress on the implementation plan.



Climate Action Plan community engagement



Climate Action Plan community engagement

Port Moody is committed to a plan renewal initiated in the fifth year of implementation. Since our actions focus on the next decade and society is rapidly shifting to enable swift action, it is important to review the Plan at the critical five-year junction when the majority of actions are reaching maturity. In this update the City will:

- Demonstrate achievement/progress towards the goals;
- Incorporate any new climate science and projections available;
- Re-assess risks and vulnerabilities;
- Update financial considerations for actions identified;
- Valuate greenhouse gas reductions;
- Align with other important policy and guidance documents at the City; and
- Encompass ideas and work from partners and the community.

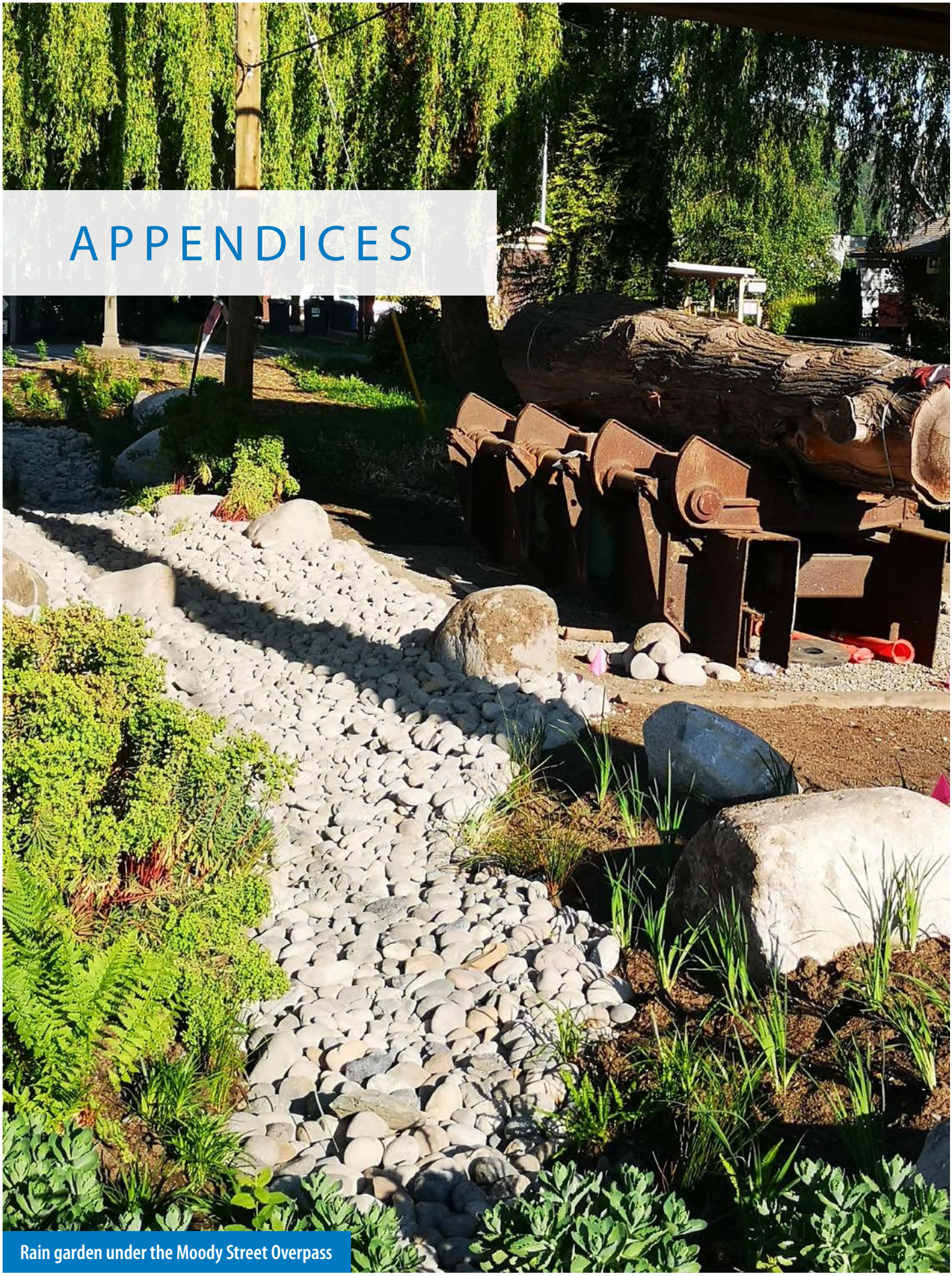
Monitoring of implementation will be carried out largely by the staff climate action working group. This group will develop and lead monitoring and evaluation programs to help ensure that the goals and actions in the Plan are implemented and are achieving results as intended. A first step in this process will be to develop targets and indicators to measure progress and determine how the required information will be collected. A draft list of indicators can be found in Appendix E.

17.4 Continuing Community Engagement

The impacts of climate change are evident across many aspects of society, including where people live, work and play. In order to prepare for the complex issue of climate change it is important to take action with a 'whole of society' approach that focuses on a collective response to climate change.

For the Climate Change Action Plan to be successful, the City of Port Moody will need to garner extensive community support by engaging and empowering all residents, businesses and stakeholders. To facilitate the participation of a range of groups, it will be important to provide transparent and relevant information. This includes information about climate change and its potential effects on Port Moody, how the City is making decisions at critical times, and reporting out on progress of the Climate Action Plan implementation. In order to be successful, collaboration must happen internally within organizations and communities, but also across sectors, breaking down barriers to information sharing and making it easier for partners from across the community to leverage one another's successes and build momentum. The focus for continued climate action engagement is to increase general awareness of climate change across Port Moody; and provide opportunities for meaningful engagement that result in meaningful and collective behavioural change.

APPENDICES



Rain garden under the Moody Street Overpass

APPENDIX A: CLIMATE PROJECTIONS FOR PORT MOODY

1.1 Context

Metro Vancouver released a Climate Projections Report for the region in 2016 to illustrate how climate is expected to change between now and the 2050s. This climate projections overview for Port Moody Climate Action Plan is a sister document to the Metro Vancouver Climate Projections Report, offering detailed projections specific to the City of Port Moody to support local adaptation planning activities. Guidance on model selection and data interpretation can be found in the Metro Vancouver Climate Projection Report. Throughout the document, weather refers to localized, short-term changes in the atmosphere, describing the outdoor conditions of a specific place at a specific point in time. Climate refers to weather in a place averaged over a period of time, often 30 years. Climate is the long-term trend, while weather is the day-to-day variation.

1.2 Indicator Derivation

The historical baseline period used for all indicators in the report is 1971–2000. Values are averaged over this 30-year period to smooth out annual variability. Climate projections for the 2020s (average of 2010-2040) are offered to represent current climate conditions and are useful as they more accurately depict the current state of climate than historical observed baseline data. The future projections are for the 2050s (2041-2070) and 2080s (2071-2100). Projections for the 2050s illustrate the trajectory of change regardless of global emissions reductions and projections for the 2080s illustrate our likely "business as usual" future climate scenario by late century.

The three RCP scenarios have somewhat similar greenhouse gas concentrations in the 2050s, but diverge considerably by the 2080s. Indicators of climate change take a similar divergent pattern by the 2080s.

1.3 Port Moody Indicators

The following table shows data for selected indicators for the Eagle Ridge Hospital site in Port Moody, developed by Pacific Climate Impacts Consortium using the same approach as the Metro Vancouver projections outlined above. The columns on the right show the past (1971-2000) related to the climate variable and then change from the baseline period to 2020, 2050 and 2080.

Indicators are based on the Eagle Ridge Hospital site projections except for air quality alerts (Metro Vancouver) and sea level rise (BC Ministry of Environment).

Climate Indicator	Plain Language Description	Past	2020	2050	2080
Warmer summers with hotter days, more heat waves, longer dry spells and air quality impacts from wildfires					
Days Above 25°C	Days above 25°C measures how many days reach temperatures over 25°C in any one year. This measure indicates how often we can expect "summer weather" to occur in the future.	30 days	47 days	68 days	94 days
Days Above 30°C	Days above 30°C indicates how many days reach temperatures over 30°C in any one year. This indicator is important to public health and facilities as mortality rates jump when temperatures are at or near 30°C, and facilities experience a surge in patient visits due to heat stress. This indicator is also useful to understand how plants may experience physiological stress at temperatures above 30°C.	5 days	11 days	22 days	40 days
Hottest Day	Hottest day is the annual hottest day of the year and warms by similar amounts as Hot Design Temperature (BCBC 97.5).	31.6°C	33.5°C	35.5°C	38.0°C
Cooling Degree Days (DD)	Cooling degree days refers to the number of degrees that a day's average temperature is above 18°C. To determine the number of cooling degree days in a month, the number of degrees that the daily temperature is over 18°C for each day would be added to give a total value. This measure is used to estimate the use of air conditioning to cool buildings.	95 DD	187 DD	346 DD	591 DD
Tropical Nights	Tropical nights refers to the number of days in a year when the nighttime low temperature is greater than 20°C. This indicator is important, as a series of hot nights reduces the ability of buildings to cool passively at night, increasing cooling load and energy use during warm spells. Tropical Nights can also reduce the ability of patients to heal, and can cause heat stress.	0.1 day	0.5 day	5 days	22 days
Dry Spells	Dry spells is a measure of the number of consecutive days where daily precipitation is less than 1 mm, denoting the longest stretch of dry days in a year, typically in summer. This number does not indicate extreme droughts, as it is averaged over the 30-year period.	24 days	25 days	26 days	29 days
Air Quality Alerts	Metro Vancouver releases air quality bulletins to let the public know when air quality may degrade in localized areas within the communities identified in each bulletin. Air quality bulletins are issued during the cooler times of year (fall or winter) when weather conditions are preventing dispersion of air pollutants.	22 days[1]	Increasing	Increasing	Increasing

1 Based on 2018 Metro Vancouver air quality data

Climate Indicator	Plain Language Description	Past	2020	2050	2080
Longer growing season					
Growing Season Length	Growing season length is an annual indicator that counts the number of days between the first span of at least six days with a daily average temperature greater than 5°C and the first span after July 1 of six days with temperature less than 5°C. It measures the length of the growing season for native crops, and points to a warmer baseline where new illnesses are able to thrive.	297 days	322 days	343 days	356 days
Frost Days	Frost days is an annual count of days when the daily minimum temperature is less than 0°C, which may result in frost on the ground, and is helpful when predicting how pests and invasive species may thrive over time.	43 days	21 days	11 days	4 days
Ice Days	Ice days is an annual count of days when the daily maximum temperature is less than 0°C, and is used to estimate snow formation and retention.	4 days	2 days	1 day	0.3 day

Climate Indicator	Plain Language Description	Past	2020	2050	2080
Warmer winter highs and lows with a longer frost free period					
Warmest Winter Day	Warmest winter day is the highest temperature during the winter months, in an average year. When considered in combination with the coldest night, this indicator describes the "new normal" for winter temperatures.	13.1°C	14.2°C	15.7°C	18.3°C
Coldest Winter Night	Coldest winter night refers to the lowest nighttime winter temperature, in an average year. When considered along with the warmest winter day, this indicator describes the "new normal" for winter temperatures.	-8.9°C	-5.9°C	-3.9°C	-0.5°C
Heating Degree Days (DD)	Heating degree days is a derived variable that can be useful for indicating energy demand (i.e., the need to heat homes, etc.). It is calculated by multiplying the number of days that the average daily temperature is below 18°C by the number of degrees below that threshold. For example, if a given day saw an average temperature of 14°C (4°C below the 18°C threshold), that day contributed 4 heating degree days to the total. If a month had 15 such days, and the rest of the days had average temperatures above the 18°C threshold, that month would result in 60 heating degree days.	2935 DD	-15%	-28%	-43%
1-in-20 Coldest Night	1-in-20 coldest night refers to a nighttime low temperature so cold that it has only a one-in-twenty chance of occurring in a given year. That is, there is a 5% chance in any year that a minimum temperature of this value will occur. This indicator is a marker of extreme winter cold temperatures.	-15.8°C	-13.7°C	-10.6°C	-7.2°C

Climate Indicator	Plain Language Description	Past	2020	2050	2080
Increase in frequency and intensity of precipitation					
Wettest day of the year	Wettest day of the year is the largest amount of rain that falls on any single day in the year, on average.	73 mm	4%	8%	17%
Wettest 5-day Period of the Year	Wettest 5-day period of the year precipitation describes the largest amount of rain that falls over a period of 5 consecutive days in the year. This offers insight into storm intensity, and will be important for stormwater management at facilities.	170 mm	2%	6%	17%
95th Percentile Wettest Days	The 95th percentile wettest days precipitation indicator is the total amount of rain that falls on the wettest days of the year, specifically on days when precipitation exceeds a threshold set by the annual 95th percentile during the baseline period (1971–2000). This indicator measures total annual precipitation during heavy events, which is a combination of both how often these events occur (frequency) and the size of these events (magnitude).	402 mm	11%	23%	47%
99th Percentile Wettest Days	The 99th percentile wettest days is the total amount of rain that falls on the wettest days of the year, specifically when precipitation exceeds a threshold set by the annual 99th percentile of wet days during the baseline period. This indicator measures total annual precipitation during heavy events, which is a combination of both how often these events occur (frequency) and the size of these events (magnitude).	121 mm	14%	39%	81%
1-in-20 wettest day	The 1-in-20 wettest day is the day so wet that it has only a 1-in-20 chance of occurring in any given year. That is, there is a 5% chance in any year that a 1-day rainfall event of this magnitude will occur. This indicator is useful when planning for future building and stormwater infrastructure, and also important to emergency managers.	109 mm	11%	13%	24%
Sea Level Rise[2]				0.5m	1m by 2100

2 Sea level rise projections from B.C. Ministry of Environment 2011 Flood Hazard Guidelines.

1.4 Seasonal Precipitation

Seasonal Precipitation is all precipitation summed over a season including rain and snow. This is a high-level indicator of how precipitation patterns can expect to change.

				2050s Percent Change (%)		2080s Percent Change (%)	
	Past (mm)	2050s (mm)	2080s (mm)	Average	(Range) [3]	Average	(Range)
Fall	599	654	699	9	(-1.9 to 23)	17	(7.8 to 34.9)
Winter	686	686	757	3	(-3.6 to 10.7)	11	(0 to 23.4)
Spring	425	447	462	5	(-3.6 to 11.9)	9	(1.2 to 18.1)
Summer	202	169	155	-16	(-35 to 2.5)	-23	(-50.9 to -2.7)

1.5 Seasonal Snowpack Depth (Watershed Average)

Snowpack refers to the depth of snow on the ground, either daily depths averaged over a season, or in the case of the April 1 and May 1 snowpack, the snow depth on that specific date. This indicator is measured within the boundaries of the three watersheds that supply the majority of Metro Vancouver's drinking water. In this context, the snowpack indicator provides a measure to assist in determining how much snowmelt will be available in the watersheds to flow into our region's reservoirs.

				2050s Percent Change (%)		2080s Percent Change (%)	
	Past (cm)	2050s (cm)	2080s (cm)	Average	(Range)	Average	(Range)
Winter	208	93	49	-56	(-63 to -45)	-77	(-86 to -59)
Spring	266	102	43	-62	(-72 to -51)	-84	(-94 to -67)
Summer	73	11	3	-86	(-94 to -80)	-97	(-99 to -92)
Fall	37	10	5	-75	(-82 to -65)	-87	(-94 to -77)

3 (Range) refers to the highest and lowest values given by the 12 climate models.

1.6 Climate Projections for Port Moody*

Summer: warm days are projected to increase threefold from approximately 30 days over 25°C in the past to 68 days by the 2050s and 94 days by the 2080s. Very hot days, those that threaten the health of those most vulnerable to heat, are set to increase as well. Nights with temperatures above 20°C, that make it difficult to cool buildings and homes down, will increase from zero days in the past to 5 days by the 2050s and 22 days by the 2080s. Summer rainfall is the only annual rainfall projected to decrease with the length of consecutive dry days increasing. Summertime projections bring good weather for tourism but these may be threatened by increasing hazy, poor air quality days as wildfires burn outside the region. Water restrictions may become the norm, buildings may require more active cooling and heat and smoke related illness is projected to increase. The province-wide risk assessment identified water shortages, wildfires and heat-related illness among the top risks for the province due to climate change.

Rainfall: As the atmosphere warms, it will carry more precipitation meaning more rainfall annually on average. Rainfall patterns will change with an increase in intensity and frequency of precipitation meaning when it rains, it pours and this happens more often. The wettest days of the year will have 8% more rain than in the past (73mm) by the 2050s and 17% more by the 2080s. The wettest 5-day consecutive period of rain will also have more volume of rain. The annual volume of rain falling during the 99th percentile of the wettest days of the year will increase 23% by the 2050s and 47% by the 2080s. This intensity of rainfall has ramifications for slope stability, erosion of watercourses and stormwater management. Water damage has surpassed all other sources of insured losses in Canada over the last decade.[4]

Warming Winters: The warmest day in the winter by the 2080s is projected to be over 18°C with winter nights also warming. Frosty days decrease from 43 days in the past to only 11 days by the 2050s and the growing season will increase in length by 50 days by the 2050s. New agriculture and food growing opportunities may arise accompanied by an increased concern for pests, diseases and invasive species. Different species of trees and vegetation may become best suited to new growing conditions. Home heating bills are expected to decrease.

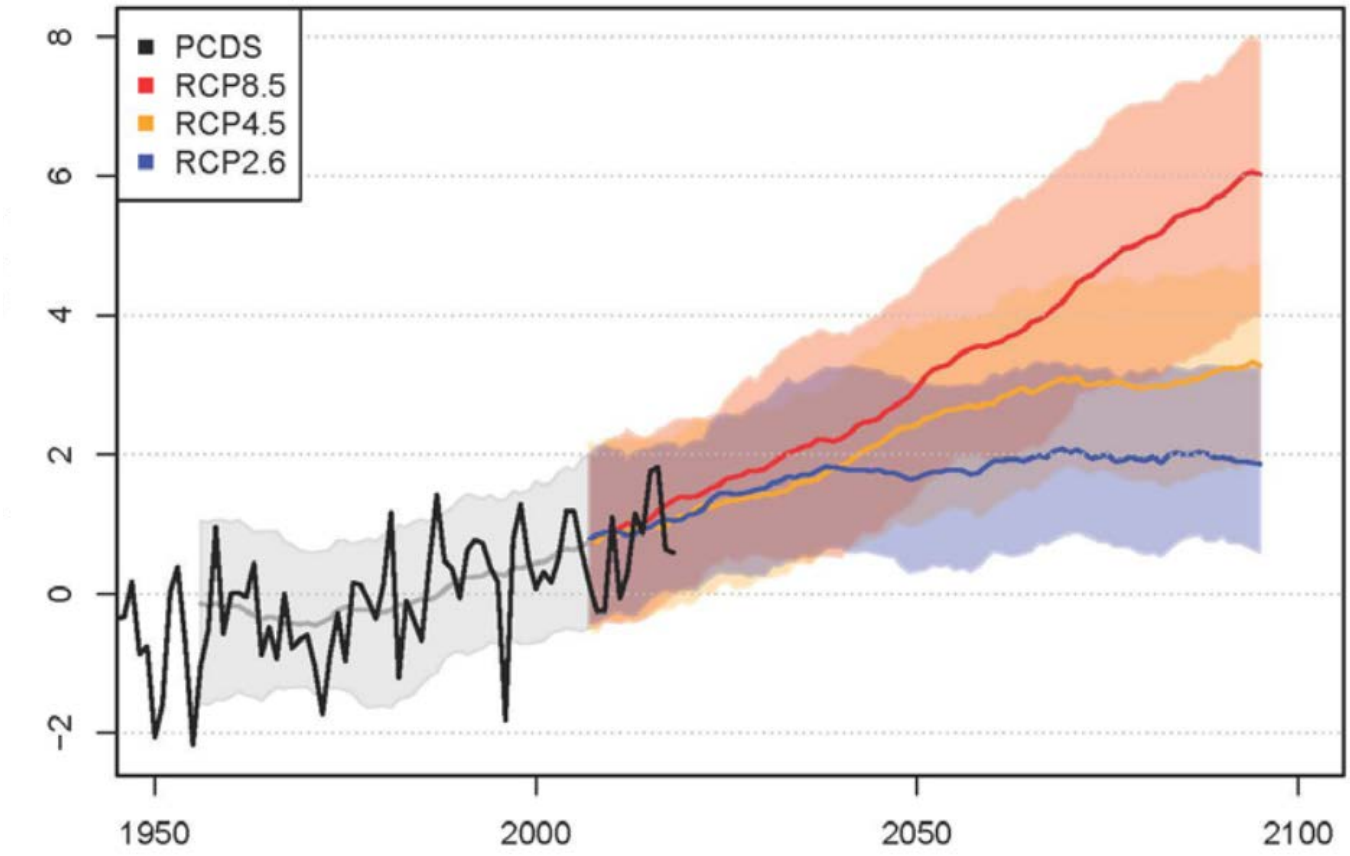
Sea Level Rise: The main contributors to rising ocean levels include melting water that has been locked up on land as glaciers and ice sheets and the physical expansion of ocean water as it gets warmer. In 2011 the Province published a guidance document for coastal flooding that recommended taking the following numbers into account for sea level rise: 0.18m to 2018, 0.5m for 2050 and 1m for 2100. Given recent findings such as the Greenland and Antarctic ice sheets melting at a greater speed than previously thought, these estimations of sea level rise planning may be conservative. There are many factors that contribute to the projected coastline water levels in a location like Port Moody over time. Beyond sea level rise projections and land subsidence or rebound, overall water levels are also comprised of: tides (gravity driven and not a climate-related phenomenon); storm surge which is a local rising of the ocean resulting from atmospheric pressure changes and wind associated with a storm; the height of waves which is affected by wind force and direction; and other factors. As sea level rise adds to the water level at high tide during storms, coastal flood risk increases. In the long term, inundation of low-lying areas will be a concern.

* Climate projections were prepared for the Eagle Ridge Hospital site by the Pacific Climate Impacts Consortium (PCIC) and are considered applicable community-wide.

4 ibc.ca/on/disaster/water

APPENDIX B: FUTURE BC CLIMATE PROJECTIONS

Average Temperature Anomalies in British Columbia (temperature change in °C)



The graph above has been adapted from the Intergovernmental Panel on Climate Change's Climate Change 2014: Synthesis Report. It shows global average surface temperature change relative to 1986-2005.

In the graph above, coloured lines are average temperature projections under three scenarios: RCP8.5 (red); RCP4.5 (yellow); and RCP2.6 (blue). Shading around each scenario indicates uncertainty in the projections. Red represents a projected future with continued high GHG emissions (as a result of a business-as-usual approach with no significant action on climate change), yellow represents a projected future with moderate GHG emissions reductions (as a result of significant and immediate climate action), and blue represents a projected future with low GHG emissions (as a result of drastic and immediate action, including negative emissions on climate change). To keep global warming below 2°C, as shown in the blue line on the graph, humankind will need to achieve substantial and sustained reductions in GHG emissions.

negative emissions – in order to limit global warming to 1.5°C, it is necessary to remove and permanently store CO_2 from the atmosphere. This is called Carbon Dioxide Removal (CDR). As it is the opposite of emissions, these practices or technologies are often described as achieving "negative emissions" or "sinks".

Using RCP8.5, a high estimate of future growth in greenhouse gas concentrations, helps to identify and plan for significant risks. This scenario would result in the greatest temperature change by 2100 of the four scenarios used in the IPCC's 5th Assessment Report. The RCP8.5 scenario describes a global future by 2100 that assumes high population growth (12 billion), low economic growth and development (global GDP 250 trillion US2005$ in 2100), high energy demand (nearly 3-fold increase), largely met by fossil fuels (including a nearly 10-fold increase in coal use), and modest improvements in energy intensity (0.5% per year over the course of the century). The increase in concentrations of greenhouse gases in the atmosphere are projected to be greatest in the latter half of the 21st century. Atmospheric concentrations of greenhouse gases as measured in 2018 are consistent with projected levels for RCP8.5.

Assuming a high greenhouse gas concentration scenario helps to account for uncertainties as it encompasses greenhouse concentrations of the other RCPs. All RCPs are based on assumptions that include near-term trends and long-term projections of multiple socio-economic variables. Assumptions about individual variables, and their interaction within each of the RCPs, are subject to uncertainty. The scientific community refines the emissions scenarios as new information becomes available and updated scenarios are used in climate modelling research to inform future climate impact projections. Projected temperature changes for BC are similar for each RCP by the 2050s. At 2050, the difference between the trend lines for RCP2.6 and RCP8.5 is less than the range of natural variability observed in historical annual temperatures. Assuming the future climate will have a similar range of natural variability in average temperature, there will be marginal difference in climate impacts in 2050 between the RCPs. As a result, using a different RCP is unlikely to affect the key risk assessment findings. Recent regional climate impact studies, risk assessments, and adaptation plans conducted by provincial and regional governments and public sector organizations in BC use RCP8.5.

The table in Appendix A presents data for selected climate variables representing future climate projections for the RCP 8.5 scenario

APPENDIX C: CLIMATE ACTION PLAN DEVELOPMENT PROJECT TEAM

Groups	Description	Role
Staff Climate Action Working Group	Representative experts from each City department who meet monthly.	Play a key role in advancing specific elements such as action planning, identifying climate risks and vulnerabilities, and putting a low carbon resilience framework into practice.
Climate Action Committee	Representatives from Council, other Civic committees, and the community who meet monthly.	Play a key role in advancing specific elements such as action planning, identifying climate risks and vulnerabilities, and putting a low carbon resilience framework into practice.
Pinna Sustainability	Vancouver-based strategic consultancy helping clients embed sustainability values into practice.	Provides expertise, guidance and carries out core processes of the Climate Action Plan development.
Simon Fraser University (SFU) ACT (the Adaptation to Climate Change Team)	Integrated research team exploring a low carbon resilience framework for BC communities (ICABCCI).	Provides guidance, research, and best practices regarding a low carbon resilience framework and additional capacity for facilitation of workshops. Involved in all stages of development.
Technical Advisory Groups	Experts in respective fields including Metro Vancouver, Pacific Climate Impacts Consortium, Fraser Health and others.	Expert groups providing technical information, assistance and recommendations throughout the development of the Climate Action Plan as needed.

APPENDIX D: ACTION DETAILS

Time is of the essence with the latest science indicating that the next decade is crucial for limiting climate harms. There are already initiatives underway that pre-date the plan, given that GHG reduction has been a policy goal in recent years already.

The actions outlined in this Plan will require significant staff time and financial means to implement over the next decade and leading up until 2050. This time could be spent implementing the action, overseeing its implementation by a third party, or working in partnership with other organizations to complete the action. Each action has been assigned to a City Division that will be responsible for its implementation and reporting its status annually. Actions will be integrated into the annual work plans of City staff and incorporated into municipal budgeting.

Some actions are ready to implement, and some actions are to "explore" or "consider" approaches to best achieve an outcome. These "explore" type actions require further work such as partnerships with other organizations, research and more information, or in-depth engagement processes in order to succeed. This work will form part of the Climate Action Plan implementation.

APPENDIX E: DRAFT CLIMATE ACTION PLAN INDICATORS LIST

Organization-wide	• Number of new city policies, bylaws, plans, strategies etc. implemented that include climate risks, vulnerabilities and the impacts on GHG emissions. • Number of city policies, bylaws, plans, strategies etc. updated to include climate risks, vulnerabilities and the impacts on GHG emissions. • Number of climate action initiatives integrated into the annual budgeting process.
Natural environment	• Area (m^2 or ha) of ESA City-wide and proportion (%) of ESA City-wide with long-term protection (i.e. covenant, dedication, park zone etc). • Area of ESA restored or enhanced (m^2 or ha). • Number of green infrastructure installations on public and private lands. • Percent of riparian cover (natural, unbuilt, and with no permanent structures). • Number of environment-related volunteer events organized by the City. • Number of people reached through campaigns/events.
Buildings	• Number of energy audit recommendations implemented within City budgets. • Total annual GHG emissions reductions from City facilities (tCO_2e). • Percentage of building permit and development permit applications that are Energy Step Code compliant. • Percentage of new buildings exceeding minimum energy and carbon performance requirements in the Building Bylaw. • Percentage of new buildings modelled using future climate data for the region. • Average per resident tonnes of personal building GHGs (tonnes/person). • Number of oil and/or propane heating systems in use. • Number of potential partnership organizations contacted and explored.
Emergency response and human health	• Number of departments and staff trained in emergency response functions (ICS, EOC, ESS). • Maintain a fund in the financial reserve with an appropriate balance to support extreme weather events. • Number of improvements to indoor and outdoor public spaces to provide cooling during high heat. • Air temperature in community gathering locations or area of shade provided in same locations. • Number of public drinking water fountains and water parks/features. • Number of staff schedule adjustments due to extreme weather. • Number of people engaged by preparedness outreach. • Number of organizations and businesses partnering on preparedness education and messaging. • Social connectedness as measured through local plans and partner organizations such as Fraser Health My Health My Community survey. • Number of community partnership opportunities. • Percent of residents that can easily walk (400m) or bike (within 800m) to meet all basic daily non-work needs and have safe pedestrian or bicycle access to transit.

Infrastructure	• Greenhouse gas emissions from energy consumed by utility infrastructure (tCO_2e). • Number of watershed stormwater management strategies completed. • Percent of pervious groundcover on public property. • Percent of stormwater infrastructure upgrades sized appropriately for future rainfall. • Percentage of residential and ICI properties with water meters installed. • Number of people reached through campaigns/events.
Land use and growth management	• Percent of population living within 400m of a frequent transit route, or 800m of a transit station. • Percent of population within 400m distance of a greenspace (e.g. park, trail, landscaped common amenity space). • Amount of new neighbourhood-commercial, and small-scale retail floor space approved. • The total number and percent of new developments with TDM strategies in place. • Percentage of mapped hazard areas and hazard related development permit areas reviewed with a climate lens. • Hectares of parkland acquired annually. • Number of sediment and erosion control plans reviewed annually. • Number of residents engaged in sea level rise strategy development. • Percentage of coastline assessed for sea level rise Impacts. • Guidelines developed for areas at coastal risk.
Transportation and mobility	• GHG emissions from City fleet. • Percent of new multi-family units approved within 400m of a frequent transit route or within an 800m distance to transit stations. • Sidewalk Network (km); Bicycle Network (km); Transit Network (# bus stops with benches and/or shelters). • New developments with unbundled parking (%). • Community transportation related greenhouse gas emissions (tCO_2e). • Percent of personal vehicles that are electric; percent hybrid. • Residences and commercial operations with EV Charging Stations. • Parking meter data parking occupancy rate (average). • Greenhouse gas emissions from ride-hailing trips (tCO_2e). • Number of schools that have completed School Travel Planning. • Number of people reached through campaigns/events.
Waste reduction and management	• Municipal Solid Waste diversion rate (%). • Total GHG emissions from waste (annual). • Total tonnes of waste per stream (annual). • Drop-off facility waste diversion rate (%). • Landfilled waste from demolition, land clearing and construction companies (%).

APPENDIX F: CLIMATE ACTION PLANNING PROCESS

1.1 Emissions Inventories

The City of Port Moody maintains two inventories of greenhouse gas emissions; one for the community and one for City operations. It is important to track inventories to be able to assess progress toward greenhouse gas reduction actions and targets. The inventories collect greenhouse gas emissions information from transportation, solid waste, and buildings within Port Moody from various sources including utilities, Metro Vancouver, and the Province's community emissions inventory. As more data becomes available, these inventories will be adjusted, and results may change as further analysis and verification are performed.

1.2 Risk and Vulnerability Assessment

To better understand how climate change may affect our community, we undertook two climate change risk and vulnerability assessments. These assessments were conducted with the staff climate action working group and the Climate Action Committee attended by Fraser Health Authority. The goals of the workshops were to:

- Examine projected climate changes for our community;
- Explore how these projected climate changes could impact our community;
- Assess our vulnerability to these impacts; and
- Evaluate the risks to our community by rating the likelihood and consequences of the impacts.

1.3 Action Planning

During the first round of community engagement in May of 2019, interested community members were asked to brainstorm and submit ideas for actions that the City and community could take to address climate change. This list of actions was used by the staff working group as a starting action list. The staff working group participated in two action brainstorming sessions focused on mitigation and adaptation, followed by approximately five months of iterative action revision and consolidation between the staff working group and the Climate Action Committee. Actions were added, consolidated, refined and evaluated against pre-established criteria to select the most appropriate ones for our local context and priorities. A draft list of actions was presented to the community as a part of the second round of engagement in November of 2019. Interested community members were asked to prioritize the draft actions in the Plan, and identify barriers associated with implementing the actions, and put forward any actions that they thought were missing from the proposed list.

1.4 Goals

In order to achieve carbon neutrality by 2050 and ensure we are best prepared for future climate changes and impacts, goals were established to guide delivery on achieving the Plan's vision. These goals were developed based on the scope of actions, focus area level of impact on greenhouse gas emissions and climate vulnerability, and the guiding vision of the Plan. There are several goals for each focus area in the Plan that encompass the intentions of the actions. The goals were developed using a bottom up approach, meaning that the actions were identified first and the goals were sculpted to mirror the broader intent of the actions in each focus area. This approach ensures that the actions identified remain a priority to make our Plan actionable and not solely aspirational.

Public Engagement Summary

Port Moody Climate Action Plan

Lead Division: Planning | **May – November 2020** | **portmoody.ca/climateaction**

Public engagement methodology

Community Brainstorming Session

- **Date:** May 25
- **Venue:** Civic Centre Galleria
- **# of attendees:** approx **200**
- **Sticky wall:** **238** actions written on index cards

Idea form

- 55 online
- 12 paper
- **Response period:** May 13 – Jun 9
- **# of surveys completed:** **67**

Climate Action Plan Open House

- **Date:** Nov 14
- **Venue:** Civic Centre Galleria
- **# of attendees:** approx **55**
- **Dot-voting:** **1,061** dot stickers placed by attendees

Feedback form

- 36 online
- 6 paper
- **Response period:** Nov 4 – Dec 1
- **# of surveys completed:** **42**

Scope of the Engagement:

On January 22, 2019, Council endorsed a public engagement plan that focused on the following objectives:

1. educate the public and assist them in understanding why Port Moody needs a Climate Action Plan (CAP), and what roles the municipality and the public can play in helping to achieve the goals that will be set out in the CAP;
2. gather suggestions from the public for actions that can be taken (by the City and the public) to help the community adapt to climate change and mitigate its effects;
3. obtain feedback from the public on a list of proposed actions to be included in the City's CAP (after submitted suggestions have been evaluated and prioritized by the Climate Action Committee); and
4. identify potential challenges related to the proposed actions and any barriers to participation.

Survey respondents (idea form and feedback form combined)

Connection to the consultation:
(Note: respondents could select more than one category.)

- **69** are Port Moody residents
- **3** are Port Moody business owner/operators
- **8** are "other"
- **33** did not answer

Respondents by age:

under 18	**3**
18 – 34	**18**
35 – 44	**11**
45 – 54	**8**
55+	**32**
"I do not wish to give my age"	**2**
did not answer	**35**

Additional consultation notes

While public consultation and survey results provide the City with valuable information, please note the views expressed do not necessarily reflect the views of all Port Moody residents.

Community Brainstorming Session – Key Findings

Community members suggested 547 actions, in seven categories, via a "sticky wall" at the session (attendees wrote their ideas on index cards and then displayed them for others to see), an idea form (online and paper), and Instagram. All actions, sorted by category, are presented verbatim in a separate document.

Number of actions suggested in each category:

Transportation and mobility	109
Waste reduction and management	105
Natural environment	97
Buildings	74
Infrastructure	58
Land use and growth management	56
Emergency response and human health	48
Total	**547**

For each category, we sorted the actions by theme.

The three strongest themes overall were:

1. **stronger regulations**
2. **increase use of public transportation**
3. **increase active transportation**

The three strongest themes in each category were:

Transportation and mobility

1. increase use of public transportation **2. increase active transportation*** **3. increase zero emissions vehicles**

*(active transportation is human-powered travel such as walking, cycling, rollerblading, and kayaking)

Samples of submitted actions:

1. "Transportation must be transit focused. More cars, even EVs won't make for resilient communities. Designing infrastructure to connect people to places via transit is imperative. Technology utilization for more user pay activities will help get people out of cars."
2. "Each new road built should have a greenway nearby with walking and bike path."
3. "In 2050 we should all be using electric vehicles or bikes and no gas powered vehicles."

Waste reduction and management

1. stronger regulations **2. education** **3. expand materials collection**

Samples of submitted actions:

1. "Businesses should have to provide proof of recycling and organics collection as part of business license renewals."
2. "Work with SD43, nearby municipalities, TransLink and private businesses to make the material list consistent. People want to do the right thing, but the current system is too confusing. Better promote that BC Recycling Hotline (604)RECYCLE."
3. "Have more public sorting bins (compost, recycling, garbage, metal)."

Natural environment

1. conservation and restoration **2. stronger regulations** **3. education**

Samples of submitted actions:

1. "Replace plain grass areas/urban wastelands with native species that promote pollination. Constant monitoring of invasive species in trails/forest walks, city should have volunteer activity of removing invasive species on a regular basis."
2. "Mandate more green be used when establishing new residential and commercial areas, we need more shade!"
3. "Communication campaign on water conservation and reduction especially in the warm summer months and when we are receiving less snowmelt."

Buildings

1. increase use of renewable energy **2. incentives for builders/developers/homeowners** **3. stronger regulations**

Samples of submitted actions:

1. "New construction should have solar panels, ability to collect rain water for use in toilet systems and watering plants."
2. "Incentives to consider green measures in renovations, particularly for embodied energy in materials e.g. choice of flooring etc."
3. "Make LEED certification building standards a requisite for new development or incentivize LEED certification."

Infrastructure

1. climate resilient infrastructure **2. stronger regulations** **3. increase green infrastructure**

Samples of submitted actions:

1. "…Allow for the disconnection of the rainwater leader and treatment through a raingarden. Look for opportunities to treat rain at a community level in street level using rain gardens (similar to that at College Park way and Cecile Drive, or at Rockypoint Park, parking lot…"
2. "Mandate that new developments have a certain percentage of space which can absorb stormwater; add taxes to properties without an adequate stormwater management system to pay for city stormwater drains so that the burden doesn't fall on everyone."
3. "Decrease the use of concrete and asphalt pavement, and increase permeable ground covers."

Land use and growth management

1. planning for complete, compact communities **2. preserve green space** **3. smart growth planning**

Samples of submitted actions:

1. "Walkable, mixed use, compact close to transit. Make it easy and enjoyable to walk and bike."
2. "Lots of green parks in walking distance."
3. "Land use planning that focuses on Smart Growth principles."

Emergency response and human health

1. extreme heat preparedness **2. emergency preparedness planning** **3. education**

Samples of submitted actions:

1. "More trees planted in paved areas to shield people and cars from extreme heat and more green roofs on flat surfaces. Especially reduce our carbon footprint by reducing traffic, tax industrial wastes sent air-born, and have control burning to reduce forest fires."
2. "Develop emergency plan for each PoMo area i.e. mountain meadows school as site for emergency shelter with resources for food/water in place."
3. "Offer public courses to prepare for emergencies."

Climate Action Plan Open House – Key Findings

The 547 actions suggested by the community were combined with actions proposed by City staff. After duplicates and any actions considered to be outside the scope of the Climate Action Plan were removed, the Climate Action Committee evaluated and prioritized the proposed actions.

We went back to the community with 79 proposed actions. For each action, we asked participants to select "yes," "maybe," or "no" in response to the question "Do you think this action should be a priority in Port Moody's Climate Action Plan?"

Responses were gathered via dot-voting at the open house (attendees used coloured dot stickers to indicate "yes," "maybe," and "no") and a feedback form (online and paper). Results for each of the 79 actions are presented in a separate document.

Actions in the Transportation and Mobility, Buildings, and Land Use and Growth Management categories received the most "yes" votes.

Category	Yes	Maybe	No
Transportation and mobility	435	111	63
Buildings	403	125	55
Land use and growth management	401	97	39
Natural environment	334	79	36
Infrastructure	264	69	30
Waste reduction and management	240	38	11
Emergency response and human health	238	111	62

Top three actions that received the most "yes" votes overall:

1. **Develop landscaping strategies for public lands in Port Moody's neighbourhoods that prioritize:**
   - the consideration of climate change risks in the design of parks and sidewalk/boulevard landscaping;
   - planting of native species that are resistant to drought/heat/wind/flooding; and
   - planting of native species and plants that create pollinator habitat in local parks.

2. **Encourage or require developers to include comprehensive transportation demand management (TDM) strategies in proposals for new development projects.** (TDM is the application of strategies and policies to reduce travel by automobile and/or shift travel away from peak hours or the busiest routes – examples include pay parking, mobility pricing, road usage charges, subsidized transit passes, construction of bike lanes and multi-use paths, and installation of bike racks at key locations.)

3. **Initiate/continue discussions with Metro Vancouver to advocate for:**
   - a circular economy within the region (a circular economy is an economic system aimed at eliminating waste, reducing pollution and greenhouse gas emissions, and continually using and reusing resources through sharing, repairing, refurbishing, recycling, and remanufacturing);
   - increased methane capture at regional landfills (methane is a powerful greenhouse gas that traps energy from the sun and contributes to climate change – but when captured it can be an important fuel source, one that produces fewer greenhouse gases when burned than coal or oil);
   - a regional approach to the elimination of single-items such as beverage cups, straws, utensils, and food containers; and
   - regional requirements for commercial businesses to report on waste generation and how much is diverted from the landfill.

Top three actions that received the most "yes" votes in each category:

Transportation and mobility

1. **Consider creating zero-emission zones** (i.e. no cars allowed, only pedestrians, bicycles, public transit, etc.) **in key areas** (e.g. Brewers Row, Rocky Point Park, Clarke Street, Queens Street Plaza).

2. **Encourage investment in infrastructure and amenities** (e.g. bicycle parking, electric vehicle parking, electric bicycle charging stations) **that would make it easier for people to choose zero-emission transportation options.**

   Tied with:

   Assess the City's fleet to improve our understanding of how vehicles are used, and explore ways to increase the efficiency of the fleet such as:

   - adjust routes to reduce number of trips/distance travelled;
   - select the right size vehicle for the job;
   - switch to zero-emission fuel sources and consider investing in on-site, zero-emission refueling infrastructure;
   - prioritize the purchase of zero-emission vehicles when replacements are needed;
   - encourage City staff to use electric bikes and zero-emission vehicles instead of combustion engine fleet vehicles when possible; and
   - create a small motor pool of zero-emission vehicles to be used by City staff performing administrative duties or as loaners when fleet vehicles are out of service for repair.

3. **Prioritize Master Transportation Plan projects that reduce greenhouse gas emissions:**
   - develop an active transportation strategy that focuses on annual investment in the design and construction of new walking and cycling infrastructure, and develop accompanying policies or procedures to prioritize active transportation infrastructure over single-occupant vehicle infrastructure (active transportation is human-powered travel such as walking, cycling, rollerblading, and kayaking);
   - work with TransLink to improve transit network efficiency, level of service, and accessibility;
   - reduce requirements for off-street parking in new developments located in transit-oriented development areas, and require developers to contribute to zero-emission car-share programs; and
   - develop a trail strategy to improve Port Moody's off-road trail network.

Buildings

1. **Adopt the BC Energy Step Code in advance of the provincial timeline.** What is the BC Energy Step Code? The provincial government has set a goal to make buildings net-zero-energy ready by 2032. The Step Code has been introduced to help British Columbia achieve this goal by increasing energy-efficiency requirements in the BC Building Code. The Step Code sets performance targets for new construction and groups them into steps that apply across various building types and regions of the province.

2. **Develop and implement a green buildings rezoning policy that would encourage developers to:**
   - propose buildings that produce low emissions and meet high standards for energy efficiency (e.g. buildings that make use of passive design, a method of design/construction where a comfortable interior environment is achieved using very little energy for heating, cooling, ventilation, and lighting);
   - determine the feasibility of creating district energy systems (which use a central energy plant to provide efficient heating, cooling, and hot water to a group of buildings or an entire neighbourhood) for large sites;
   - address risks associated with climate change (e.g. severe storms, sea level rise, flooding, wildfires); and
   - propose innovative solutions for energy and water conservation, as well as storm water and solid waste management.

3. **Develop a zero-emissions plan for all new buildings (to be phased-in by building type) that includes encouraging energy efficiency and addresses indoor air quality and risks associated with climate change (e.g. severe storms, sea level rise, flooding, wildfires).**

Land use and growth management

1. **Encourage or require developers to include comprehensive transportation demand management strategies in proposals for new development projects.**

2. **Encourage density and mixed-use neighborhoods around transportation hubs (e.g. SkyTrain stations and frequent-service transit routes).**

3. **Assess changes in shoreline erosion, and develop a shoreline protection strategy that focuses on the use of green infrastructure (i.e. water management systems and technologies – such as rain gardens, bioswales, green walls/roofs, and porous pavement – that mimic natural processes to absorb and filter storm water at its source) solutions instead of traditional ones such as dikes and other hard infrastructure.**

Natural environment

1. **Develop landscaping strategies for public lands in Port Moody's neighbourhoods that prioritize:**
   - the consideration of climate change risks in the design of parks and sidewalk/boulevard landscaping;
   - planting of native species that are resistant to drought/heat/wind/flooding; and
   - planting of native species and plants that create pollinator habitat in local parks.

2. **Develop and implement an urban forest management strategy.**

3. **Update strategies for Environmentally Sensitive Areas and parkland acquisition to incorporate:**
   - ways to reduce the impact of climate change risks;
   - area-specific guidelines for the acquisition of sensitive areas;
   - guidelines for habitat restoration; and
   - strategies to restore/strengthen connections between areas with high levels of species diversity (connections promote even greater diversity, which reduces vulnerability to climate change risks).

Infrastructure

1. **Design and implement a program to ensure that all new and existing buildings are metered for water usage.**

2. **Increase public awareness of the need to:**
   - reduce our water consumption;
   - reduce our water footprint (i.e. the amount of water used to produce goods and services – cars, smart phones, leather shoes, meat, milk, coffee, wheat, and cotton products like jeans and bed sheets are all examples of products that are made using large amounts of water);
   - collect storm water; and
   - prepare for a flood.

3. **Encourage property owners to collect storm water runoff on their property** (e.g. rain or melting snow that falls on a roof, deck/patio, driveway, etc.) **and re-use it** (e.g. to water plants/lawns, clean decks/patios, wash vehicles) **or allow it to soak into soil** (i.e. infiltration) **– this helps to conserve water and reduce the load on our storm sewer system.**

Waste reduction and management

1. **Initiate/continue discussions with Metro Vancouver to advocate for:**
   - a circular economy within the region (a circular economy is an economic system aimed at eliminating waste, reducing pollution and greenhouse gas emissions, and continually using and reusing resources through sharing, repairing, refurbishing, recycling, and remanufacturing);
   - increased methane capture at regional landfills (methane is a powerful greenhouse gas that traps energy from the sun and contributes to climate change. But when captured it can be an important fuel source, one that produces fewer greenhouse gases when burned than coal or oil);
   - a regional approach to the elimination of single-items such as beverage cups, straws, utensils, and food containers; and
   - regional requirements for commercial businesses to report on waste generation and how much is diverted from the landfill.

2. **Develop a strategy to ensure organic waste produced at City events is diverted from the landfill.**

3. **Work with partner organizations on public education campaigns to increase awareness of:**
   - where waste and recyclables end up;
   - Metro Vancouver's "Love Food Hate Waste" campaign aimed at reducing food waste in the region;
   - Metro Vancouver's Zero Waste Challenge, which asks people to reduce waste at home and at work, reuse/recycle/compost as much as possible, and start a Zero Waste Community Challenge; and
   - life-cycle assessment tools that can help consumers determine the environmental impact of specific products/services.

Emergency response and human health

1. **Increase public awareness of:**
   - what individuals, families, and neighbours can do to prepare for emergencies;
   - how to prepare for, and stay safe during, periods of extreme heat and poor air quality; and
   - how to keep homes/buildings cool during periods of extreme heat (e.g. install solar shade screens, add house plants, improve window insulation).

2. **Ensure neighbourhoods have emergency preparedness/management plans and programs in place:**
   - develop neighborhood-level emergency preparedness and management plans;
   - develop programs and events that create a sense of community and connection in neighborhoods;
   - establish an emergency preparedness and management volunteer program so that volunteers can train to assist with disaster relief;
   - identify and map emergency escape routes for neighborhoods, encourage and support local/regional organizations to establish inclement weather shelters for people in need and develop maps showing the locations of shelters;
   - partner with local/regional organizations to identify populations that are particularly vulnerable to the impacts of climate change, and help them prepare for emergencies; and
   - review and update the City's Disaster Response Plan to incorporate climate change risks and ensure the needs of people of all ages and abilities are considered.

3. **Review and update the City's Disaster Response Plan to incorporate climate change risks and ensure the needs of people of all ages and abilities are considered.**

We also asked participants to share their thoughts on any barriers or obstacles that may prevent the City or the community from taking any of the proposed actions, and any important actions they felt were missing from our list. Respondents also had the opportunity to provide general comments. All comments and suggestions are presented verbatim in a separate document.

ERRATUM

Figure 8: 2016 Community Energy Consumption calculation of transportation related energy consumption was corrected on September 10, 2020.