

Climate action: global and local impact

The United Nations considers climate change the defining issue of our time¹. Climate change impacts are being experienced around the world, but communities are grappling with these issues first hand with flooding, risk of wildfire, air quality issues, impacts to human health and many other impacts that strain municipal resources and services and reduce the liveability of communities. Solutions to the climate crisis require considerable collective action and must reflect the unique values and challenges of each community.

So far, human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels. Global warming is likely to reach 1.5°C around 2030 if it continues to increase at the current rate². Figure 1 below depicts the impacts that just 0.5°C of warming can make on a global scale, noting the magnitude of increased impacts with every 0.5°C increase in global warming³.

Warming from anthropogenic emissions since the pre-industrial period will result in impacts for centuries to come and will continue to cause further long-term changes in the climate system, such as sea level rise, with associated impacts⁴. Essentially, climate change impacts from greenhouse gas (GHG) emissions that were emitted in the past will continue to cause climate impacts into the future. This will require that society continues to adapt to these impacts already being experienced such as extreme weather and flooding. Furthermore, the more GHG emissions emitted, the greater the variations and magnitude of climate impacts communities will face in the future. The Intergovernmental Panel on Climate Change (IPCC) notes that adaptation initiatives that reduce the vulnerability of human and natural systems have many synergies with sustainable development such as ensuring food and water security, reducing disaster risks, improving health conditions, maintaining ecosystem services and reducing poverty and inequality⁵.

Acknowledging that the majority of the global GHG emissions are out of Port Moody's jurisdiction, local GHG emissions can exacerbate climate impacts further and should remain a priority for reduction. For example, local air pollution from combustion engine vehicles can result in smog that can have significant impact on human health and the natural environment locally, especially in periods of extreme heat that are expected to increase in length and temperature with climate change.

Figure 1: The Difference in Climate Impacts between 1.5°C and 2°C of Warming⁶

¹ <https://www.un.org/en/sections/issues-depth/climate-change/>

² IPCC special report on Global Warming of 1.5°C Summary for Policy Makers, 2019 : https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf

³ World Resources Institute, Differences between a 1.5°C and 2°C world: <https://www.wri.org/blog/2018/10/half-degree-and-world-apart-difference-climate-impacts-between-15-c-and-2-c-warming>

⁴ IPCC special report on Global Warming of 1.5°C Summary for Policy Makers, 2019 : https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf

⁵ Ibid.

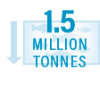
⁶ World Resources Institute, Differences between a 1.5°C and 2°C world: <https://www.wri.org/blog/2018/10/half-degree-and-world-apart-difference-climate-impacts-between-15-c-and-2-c-warming>



WORLD RESOURCES INSTITUTE

HALF A DEGREE OF WARMING MAKES A BIG DIFFERENCE:

EXPLAINING IPCC'S 1.5°C SPECIAL REPORT

	1.5°C	2°C	2°C IMPACTS
EXTREME HEAT Global population exposed to severe heat at least once every five years	 14%	 37%	2.6x WORSE
SEA-ICE-FREE ARCTIC Number of ice-free summers	AT LEAST 1 EVERY 100 YEARS	AT LEAST 1 EVERY 10 YEARS	10x WORSE
SEA LEVEL RISE Amount of sea level rise by 2100	 0.40 METERS	 0.46 METERS	.06M MORE
SPECIES LOSS: VERTEBRATES Vertebrates that lose at least half of their range	 4%	 8%	2x WORSE
SPECIES LOSS: PLANTS Plants that lose at least half of their range	 8%	 16%	2x WORSE
SPECIES LOSS: INSECTS Insects that lose at least half of their range	 6%	 18%	3x WORSE
ECOSYSTEMS Amount of Earth's land area where ecosystems will shift to a new biome	 7%	 13%	1.86x WORSE
PERMAFROST Amount of Arctic permafrost that will thaw	 4.8 MILLION KM ²	 6.6 MILLION KM ²	38% WORSE
CROP YIELDS Reduction in maize harvests in tropics	 3%	 7%	2.3x WORSE
CORAL REEFS Further decline in coral reefs	 70-90%	 99%	UP TO 29% WORSE
FISHERIES Decline in marine fisheries	 1.5 MILLION TONNES	 3 MILLION TONNES	2x WORSE

As noted, in addition to adapting to climate impacts already experienced and reducing future impacts by tackling deep GHG reductions, there are many co-benefits associated with climate action that relate to municipal priorities. The table below summarizes the focus areas of the Climate Action Plan and the associated co-benefits beyond climate action:

Climate Action Focus Area	Mitigation	Adaptation	Co-Benefits of Low Carbon Resilient Climate Action
Organization-wide	X	X	• Supports the local economy • job creation • Improves cost savings • Enhances local autonomy
Natural environment	X	X	• Improves biodiversity/habitat creation • Improves water retention/absorption • Improves air/water quality • Improves community liveability/vitality • Reduces burden on grey infrastructure • Captures pollutants • Increases carbon storage/sequestration • Reduces extreme temperatures
Emergency response and human health		X	• Improves community liveability/vitality • Reduces vulnerability to extreme temperatures and weather events • Improves equity/improvements for vulnerable populations • Improves human health and well being • Supports local food security initiatives • Reduces risks to property values
Infrastructure	X	X	• Reduces burden on water related infrastructure (e.g. drinking water supply, stormwater) • Reduces vulnerability to extreme temperatures and weather events • Optimizes energy use reduction • Improves cost savings
Land use and growth management	X	X	• Creates jobs • Reduces congestion • Improves community liveability/ vitality • Reduces burden on water related infrastructure (e.g. drinking water supply, stormwater) • Improves equity/improvements for vulnerable populations • Supports the local economy
Transportation and mobility	X	X	• Reduces congestion • Optimizes energy savings • Improves community liveability/ vitality • Improves human health and well being • Improves air quality
Waste reduction and management	X		• Optimizes resources • Reduces waste

			• Supports energy use reduction and clean energy transition • Improves air quality
Buildings	X	X	• Creates jobs • Supports the local economy • Supports energy use reduction and clean energy transition • Reduces extreme temperatures • Improves cost savings

Advancing Climate Action

There are several reasons to invest in and continue advancing climate action work such as:

- Many of the co-benefits associated with climate action are expressed as priorities in other city commitments such as:
 - Official Community Plan (e.g. community well-being)
 - Master Transportation Plan (e.g. reduced congestion)
 - Council Strategic Plan (e.g. job creation)
 - Parks and Recreation Master Plan (e.g. increased access to greenspace);
- Access to a broader pool of available funding and increased change of successful funding applications using a low carbon resilience framework;
- Alignment with other levels of government and worldwide initiatives, including being prepared for any new climate-related regulations/requirements imposed on municipalities in the future;
- Increased opportunities to collaborate with partners that may result in cost and risk sharing;
- Opportunities to embed and address equity considerations in municipal decision-making; and
- Avoiding future costs to adapt to climate change.

The state of Canada's aging infrastructure leaves all levels of government, especially municipalities, particularly vulnerable to the impacts of extreme weather and climate change events. Approximately 60% of Canada's core public infrastructure is owned and maintained by municipal governments and the increased risks of failure caused by climate change heightens the urgency for action⁷. If communities do not accelerate action on climate change, the Canadian Government estimates that the cost of managing climate impacts could rise from \$5 billion per year in 2020, to \$21 - \$43 billion per year by 2050. Increases in extreme weather events such as ice storms, windstorms, and flooding are anticipated to increase Port Moody's clean-up costs in future years.

A recent study estimates that every \$1 invested now will save \$3–\$5 in the future. Applying this ratio to the adaptation focused actions in the Phase One Climate Action Implementation Strategy for 2021 and 2022, this equates to spending approximately \$350,000 now as opposed to \$1,750,000 to adapt in the future. Research indicates that the benefits of investing in community adaptation and resilience outweigh the cost of such investments by a ratio of 6 to 1⁸. For example, wetlands that are maintained

⁷ Canadian Infrastructure Report Card, 2016

⁸ Martinez-Diaz, L., 2018, Investing in resilience today to prepare for tomorrow's climate change. Bulletin of the Atomic Scientists, 74:22, pp. 66-72

in their natural state can reduce flood damage costs to buildings by close to 40% under conditions of a severe rainfall event⁹.

In addition, continued investment in climate action may open up new opportunities for Port Moody to reduce costs and align with other levels of government. Aligning initiatives are noted below:

- Federal and provincial governments have prioritized green economic recovery post Covid-19, including anticipated funding for municipalities;
- In December 2020, the Government of Canada released a new strengthened climate plan [A Healthy Environment and a Healthy Economy](#)¹⁰, which is supported by an initial \$15 billion investment. The new federal climate plan also includes:
 - Strengthened national emission reduction targets of 30% by 2030;
 - 100% by 2050; and
 - Starting in 2023, the carbon tax will increase by \$15 a tonne each year for the next eight years, to a total of \$170 a tonne by 2030. The gradual hike in the federal carbon tax is an effort to wean consumers off fossil fuels in favour of cleaner energy sources.
- The Province has set a new interim emissions reduction target of 16% by 2025 which will provide a benchmark on the road to BC's legislated emission targets for 2030, 2040 and 2050.
- The Province has also committed to setting sectoral emission reduction targets before March 31, 2021 and will develop legislation to ensure BC reaches net-zero emissions by 2050.
- The Province also released an updated province-wide strategy to drive down GHG emissions while creating a stronger economy, [StrongerBC](#)¹¹ and the first annual progress report on the CleanBC Plan, [The Climate Change Accountability Report](#)¹².
- Metro Vancouver has released seven [discussion papers](#)¹³ as part of the development of Climate2050, the Regional climate action plan, and has also released a backgrounder for the development of a Clean Air Plan. Together, these plans will outline Metro Vancouver's role in achieving regional air quality and greenhouse gas targets over the next 10 years.
- In December 2020, UBCM released its [recommendations on how BC's local governments can move towards a low-carbon future](#)¹⁴. Developed by UBCM's Special Committee on Climate Action and approved by the UBCM Executive, the recommendations outline concrete actions that can be taken for buildings, transportation, solid waste, resilience, land use-planning, social mobilization and governance.

Building off of the co-benefits mentioned, climate action can also help to ensure that equity considerations are embedded in the City's climate action work by responding to the needs of the those most impacted by and vulnerable to climate change impacts.

⁹ Intact Centre on Climate Adaptation. (2017). When the Big Storms Hit: The Role of Wetlands to Limit Urban and Rural Flood Damage.

¹⁰ Environment and Climate Change Canada, A Healthy Environment and a Healthy Economy:

https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/climate-plan/healthy_environment_healthy_economy_plan.pdf

¹¹ StrongerBC: <https://strongerbc.gov.bc.ca/>

¹² BC Climate Change Accountability Report: https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/2020_climate_change_accountability_report.pdf

¹³ Metro Vancouver Climate2050 Discussion Papers: <http://www.metrovancouver.org/services/air-quality/climate-action/climate2050/regional-priorities/discussion-papers/Pages/default.aspx>

¹⁴ UBCM Special Committee on Climate Action Recommendations:

<https://www.ubcm.ca/assets/Resolutions~and~Policy/Policy/Environment/SCCA%20Recommendations%20Nov%202020%20FV.pdf>

Municipalities are responsible for ensuring that those who live, work, and play in their communities have access to the services that they need. In the face of climate change, municipalities need to ensure the continued delivery of high quality services, achieved through effective climate planning and action.

Although Port Moody's commitments to emissions reductions may appear small on a global scale, it is collective sustainable action on a global scale that will ensure success.