

Community Climate Action Plan

Updated May 2025



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Acknowledgements

Sḵw̓x̓ wú7mesh Aysáych (Squamish Territory)

The District of Squamish lies upon the unceded Territory of Sḵw̓x̓wú7mesh Úxwumixw (Squamish Nation), where people have lived on and stewarded these lands and waters since time immemorial. We have endeavoured to create a Plan that represents a concerted attempt to address the climate emergency and to live respectfully and sustainably within their Territory. We will actively work toward reconciliation while implementing this Plan and will also seek out all collaboration opportunities through this work and the broader Protocol Agreement (see page 17). Thank you to Julia Stafford, Renata Roveló, Ianna Lewis and Paul Wick from Squamish Nation for their feedback.

The Community Climate Action Plan (CCAP) was developed by the District of Squamish in collaboration with the Community Energy Association (CEA), with additional funding from the Federation of Canadian Municipality (FCM) Net-Zero Ready plan funding stream. We would like to acknowledge the many individuals and organizations who participated in the development of this Plan. One notable group is the Youth Climate Corps of British Columbia (YCCBC) Squamish team, who provided support in the engagement associated with the Plan. Juan Luis Espinosa, our UBC Sustainability Scholar, performed exceptional work related to embodied carbon. We would also like to thank Squamish Mayor and Council, and all the residents of Squamish who providing their feedback and support.

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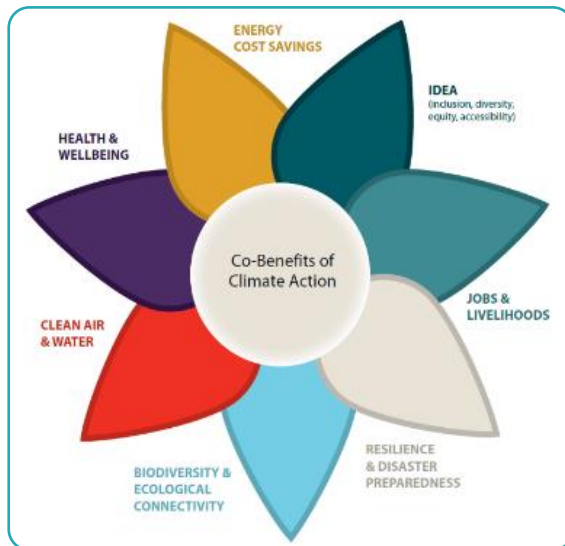
Executive Summary

The District of Squamish Community Climate Action Plan (CCAP) carves a path towards a low carbon future, where Squamish residents and businesses ambitiously mitigate our greenhouse gas (GHG) emissions whilst experiencing the benefits of a connected, healthy, resilient and economically prosperous community.

Since adopting the original CCAP in 2020, Squamish has made progress on 78% of the Plan's 122 Actions. These successes provide a firm foundation toward a low carbon community. This 2025 CCAP Update builds on the District's existing climate action leadership, leverages its strengths, examines its challenges, and proposes innovative initiatives. Specifically, the CCAP Update contains the following improvements:

- Embodied carbon (i.e., emissions produced while creating products or materials such as food and concrete) and local renewable energy are explicitly included.
- Inclusion, diversity, equity and accessibility (IDEA) considerations are fully integrated.
- The Plan is more streamlined and strategic, referencing other existing plans and strategies (such as the Zero Waste Action Plan, Transportation Master Plan and Official Community Plan).

Another feature of the CCAP Update is a greater focus on the co-benefits of climate action. These are stressed



throughout the Plan and include increasing resilience to climate impacts, improving resident health and wellbeing, enhancing ecological connectivity, creating local jobs, and building a more inclusive and accessible community.

Extensive community engagement has shaped the content of the CCAP Update. Public feedback through a survey, youth sessions, an open house and other events indicated that initiatives related to transit, waste reduction, circular economy and active transportation are top community priorities. Ongoing outreach efforts are important to support community action. There is also an opportunity to collaborate more closely on synergies between the CCAP Update and the Skwxwú7mesh Úxwumixw (Squamish Nation) Climate Legacy Strategy to support reaching mutual targets of net zero by 2050.

**District of Squamish
Community Greenhouse
Gas Reduction Target:**

**45% reduction
from 2010 levels
by 2030 and net
zero by 2050**



An updated community energy and emissions inventory was developed for 2022 (the most recent year with complete data). Community GHG emissions were 131,000 tonnes of carbon dioxide equivalent (tCO₂e) and over \$98 million was spent on energy. Squamish's emissions come primarily from transportation fuels (63%), followed by energy use in buildings (26%) and decomposition of organic waste in the landfill (11%). Embodied, or consumption-based, GHG emissions are estimated to add a further 110,400 tCO₂e, factoring in the energy use and emissions related to food, buildings, consumables and others. Consumption-based emissions are not modelled in the scenarios but are included for reference and educational purposes.

The business as usual (BAU) scenario assumes that Squamish takes no further action on climate change beyond what it has already completed. This scenario shows that initiatives underway in Squamish (e.g., landfill gas capture and adoption of the Zero Carbon Step Code) – as well as policies and actions from other levels of government - would lead to an increase in emissions of 12% above the 2010 baseline by 2030, with potential to reduce emissions by 39% by 2050. Population growth is a major factor leading to increases in net GHG emissions despite reduced per capita emissions.

The CCAP Update includes 22 Strategies and 66 Actions, outlined within 6 Big Moves to guide the District toward meeting its GHG reduction targets of 45% by 2030 and net zero by 2050. Highlights from the Big Moves are as follows:

Big Move	2050 Vision	Examples of Key Strategies		Emissions Reduction
 #1: Close the loop on waste	Our community diverts all organics and recovers value from waste.	1.1: Capture and utilize landfill gas	1.4 Create a circular economy in Squamish	10,600 tCO ₂ e/yr by 2050
 #2: Shift Beyond the Car	Active transportation and transit are preferred modes of travel to and within Squamish.	2.1: Enable complete and compact community growth	2.2 Improve active transportation and micromobility	2,700 tCO ₂ e/yr by 2050
 #3: Decarbonize Transportation	Electric (or low-carbon) cars, buses, fleets and larger vehicles are the preferred option.	3.1 Support use of passenger EVs	3.2 Support the decarbonisation of fleet and larger vehicles	2,000 tCO ₂ e/yr by 2050
 #4: Decarbonize Existing Buildings	Energy retrofits occur in all types of buildings in Squamish.	4.1: Enable and incentivize energy efficiency retrofits and heat pumps for homes	4.3 Enable and incentivize renewable energy generation in homes and businesses	4,900 tCO ₂ e/yr by 2050
 #5: Construct better buildings	New buildings are efficient, use low-carbon energy sources and have lower embodied emissions.	5.2: Enable and incentivize renewable energy generation in new buildings	5.3: Reduce embodied emissions of new buildings	NA (Included in BAU)
 #6: Organizational Leadership	Squamish continues to learn, improve and prepare for a low-carbon future.	6.1: Build internal systems to support climate action	6.3: Align business development activities to support climate actions	NA (supports other Big Moves)

Modelling the implementation of all CCAP Update Actions shows that Squamish’s overall community emissions could be reduced by 7% by 2030 and 69% by 2050 (See figure A). Rapid projected population growth of 2.9% per year is a large factor influencing the ability to meet the community’s GHG reduction targets. Although total community reductions do not hit the 2030 target of 45%, per capita community emissions are projected to decline by 47% by 2030 and 90% by 2050 to 0.6 tCO₂e/year, which puts Squamish on a trajectory towards meeting net zero goal by 2050. As we get closer to 2050 technological advances and mechanisms will likely be available to reduce emissions in the most difficult to decarbonize sectors (e.g., commercial vehicles), and there may be an ability to offset residual emissions (e.g., through conservation carbon offsets or air capture technologies). Offsets are not currently factored into the modelling.

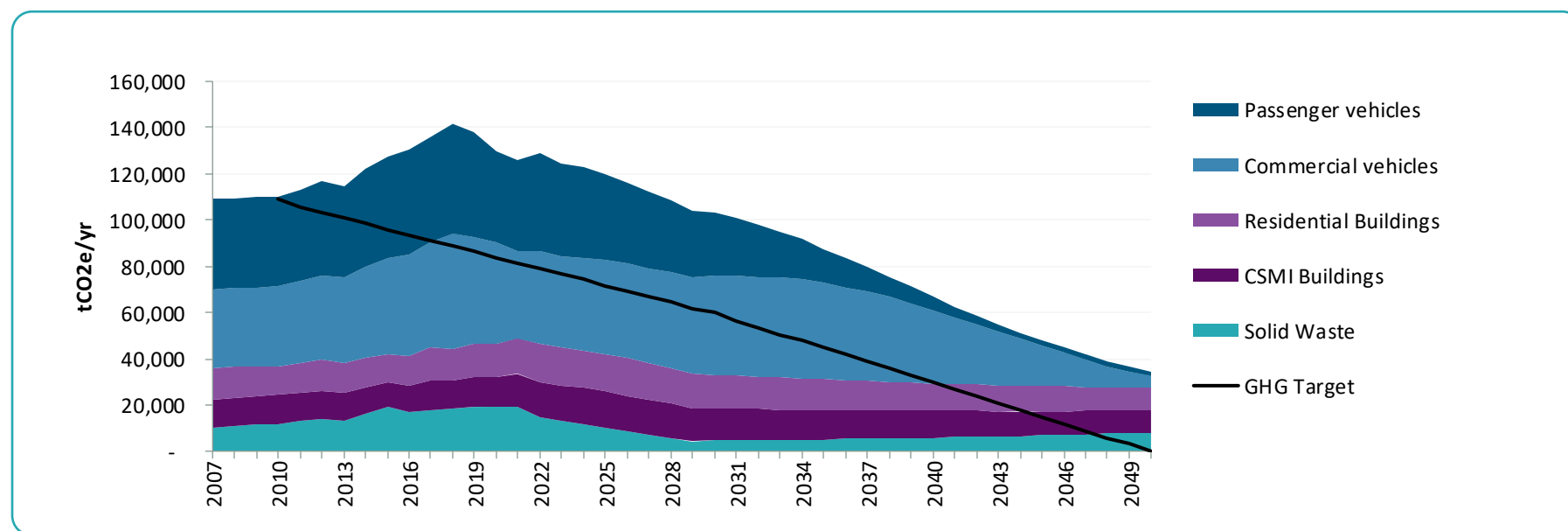


Figure A: Modelled Emissions Reductions from CCAP Update implementation, by Sector

Successful implementation of the CCAP Update will require leadership from the District and participation from residents, institutions, community groups and businesses. Leadership and support from other levels of government is also critical. Advocacy and collaboration are required to influence emissions outside the direct control of local government. These include topics related to wood waste, regional transit, commercial EV charging, embodied carbon and major industrial projects.

Implementing the CCAP Update will require ongoing resources and commitment. Working together, Squamish can reduce its community (and embodied) emissions, while enjoying increased equity, resilience, cost savings, and many other positive co-benefits of climate action.

Introduction

The climate is changing in British Columbia (BC) and globally. The average global temperature has already increased by 1 degree Celsius (°C) above pre-industrial levels. The United Nations Intergovernmental Panel on Climate Change (IPCC) is urging a limit of 1.5°C warming to avoid significant further warming and the most catastrophic impacts of climate change. This requires a 45% reduction in global emissions by 2030 and net zero emissions by 2050.

Squamish is already experiencing the impacts of climate change locally, including increased frequency and intensity of heat waves, extreme precipitation events and more intense forest fire seasons.

In 2019 District of Squamish Mayor and Council declared a Climate Emergency and committed to creating a Plan to align Squamish's community Greenhouse Gas (GHG) reductions with guidelines for limiting global warming to 1.5°C. In 2020, the District adopted the Community Climate Action Plan (CCAP) to guide Squamish towards a low carbon future, while at the same time supporting actions that will increase liveability, resilience and prosperity.



Heeding the urgency of taking action, the District has been working diligently since the adoption of the CCAP. Highlights of progress to date include:

We have made progress on 78% of the Actions in the 2020 CCAP

This means that we have completed or at least initiated 95 of the 122 Actions.

We have secured over \$2 million in funding to support climate action

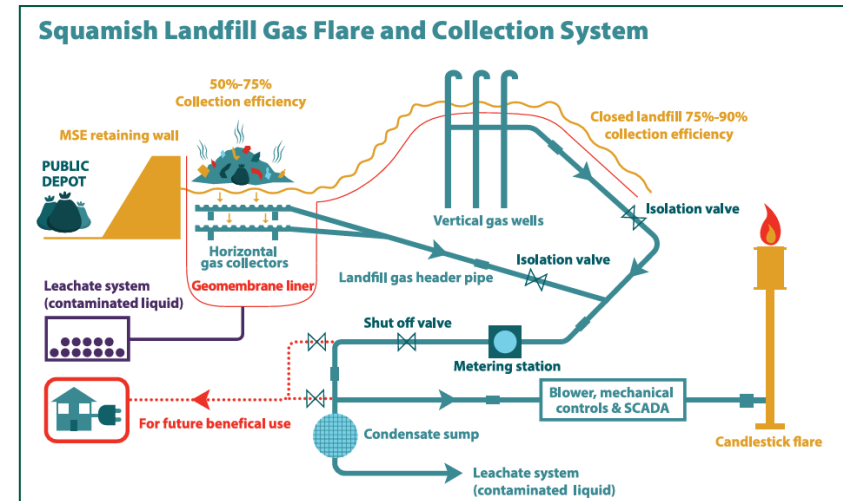
Including funding for EV chargers, staff positions, building studies, embodied carbon guides and Youth Climate Corps. Additional funding has been secured for Municipal Building retrofits.

We have been recognized as a leader in many categories

Including circularity, waste management and low carbon buildings. In 2022 Squamish had the fastest-growing rate of EV ownership in Canada!

Looking at specific Actions, here are some highlights of progress that Squamish has achieved since 2020:

- ✓ Installing a **landfill gas capture system**
- ✓ Implementing a **deconstruction bylaw** to reduce and divert demolition waste
- ✓ Expanding the **transit network**
- ✓ Constructing **active transportation infrastructure**, making it easier to walk, cycle and roll in the community
- ✓ Requiring new buildings to be ready for **Electric Vehicle charging**
- ✓ Supporting **home retrofits** (including heat pumps) through the Retrofit Assist program
- ✓ Constructing **low carbon and efficient new municipal buildings** (e.g., the firehalls) and **retrofitting existing buildings** (e.g., Brennan Park)
- ✓ Adopting a **low carbon zoning incentive** and now the top step of the **Zero Carbon Step Code** for new buildings
- ✓ Creating a **website** to share information and progress on climate action



Building upon the successes and lessons learned, in early 2025 the CCAP Update was adopted with the following objectives:

- Develop new and innovative actions focussed on embodied carbon and local renewable energy
- Increase inclusion, diversity, equity, accessibility considerations throughout the Plan
- Build capacity within the District and community to implement actions
- Enhance collaboration, engagement and advocacy on actions beyond the District's direct jurisdiction, particularly with Squamish Nation
- Improve ways to implement and measure the outcomes of the Plan's actions (i.e., Key Performance Indicators that can be tracked and/or an annual community GHG inventory)
- Create a more concise and strategic document (including a greater focus on Strategies rather than Actions)
- More clearly reflect a local government's role in climate action

The priorities, policies and actions of other levels of government can and will change. Although these affect Squamish, it is important that we continue to focus on local action to meet our community's targets. We will do this while fostering collaboration, support, leadership and partnerships from individuals, organizations, other communities and other levels of government.

In the subsequent sections of the Introduction, the following is outlined: our Community's vision, how the CCAP fits with other Plans, and an overview of co-benefits. Then the Plan provides a summary of Squamish's emissions inventory and then transitions to the Big Moves, Strategies and Actions that must be taken to meet our GHG reduction targets.

An overview of the CCAP Update process can be found in Appendix A, and engagement highlights in Appendix B.



Our Community's Low Carbon Vision

During the CCAP Update process, community members were invited to imagine what a greener, low carbon future for the District of Squamish could look like. The following vision has been developed collating residents' individual visions that were collected during the engagement process:

Squamish is a connected and inclusive community where affordable, energy-efficient housing options are available to all. Renewable energy powers homes, businesses, and transportation, reducing emissions and fostering local energy independence. Compact, vibrant neighborhoods prioritize community hubs and walking, biking, and public transit are the preferred ways to get around. Waste is reduced, and a circular economy keeps resources within our community. Squamish leads as a model for environmental stewardship, economic balance, and resilience where sustainability and equity go hand in hand.



Scope of the Community Climate Action Plan

The Goal of the Community Climate Action Plan (CCAP) is to guide Squamish toward a 45% reduction in greenhouse gas (GHG) emissions by 2030, and toward net-zero community-wide emissions by 2040. We will achieve this while also benefitting human and ecosystem health, enhancing resilience, providing economic opportunities, increasing equity and strengthening our community.

The CCAP update goal dovetails with the Squamish2040 OCP goals of being a Resilient, Healthy, Connected, Liveable and Engaged community. Below are three important statements that explain the Scope of the CCAP Update:

1. The CCAP Update is a climate mitigation strategy

Climate action consists of both reducing emissions, or *mitigation*, and preparing for (or responding to) the impacts of a changing climate, or *adaptation*. The CCAP Update focuses on mitigation or reducing GHG emissions. While some mitigation actions also help to increase community resilience to climate impacts, adaptation planning is done separately. Resilience is a key co-benefit highlighted in this Plan.

2. The CCAP Update is a plan to reduce community emissions.

These include primarily scope 1 and scope 2 emissions: Scope 1 emissions are direct emissions from sources within the municipal boundary from residents, businesses and the District. Scope 2 emissions are indirect emissions from the generation of purchased energy (electricity only) consumed within the municipal boundary. Embodied, or scope 3, emissions are considered throughout the Plan, including a separate high-level consumption-based emissions estimate. 'Scope 3' emissions occur outside of Squamish as a result of activities taking place within the District. These are generally associated with consumption of products produced outside the Municipal boundary. Examples include emissions from the production and transportation of products like meat, household items or toys that are created elsewhere and transported to Squamish, and emissions associated with upstream energy production.

Out of scope emissions include:

- Large industry – currently there are no 'large industrial' sources of emissions; however, Woodfibre LNG is a potential significant source of industrial emissions in Squamish. Woodfibre's anticipated annual operational emissions have been estimated to be 129,000 tCO₂e/yr (2015 estimate) and 83,000 tCO₂e/yr (2023 estimate). see Figure 14 for more information.
- Land use, land use change, forestry and agriculture
- Marine transportation

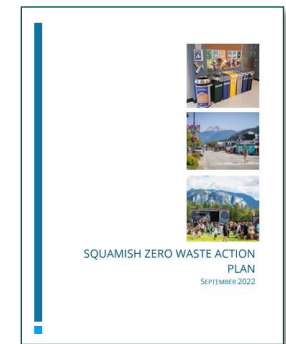
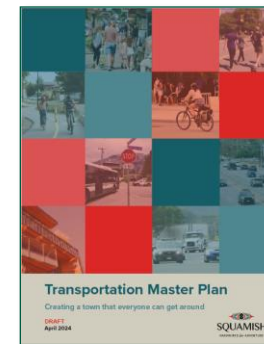
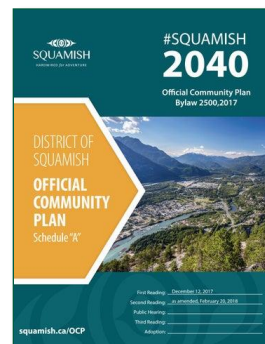
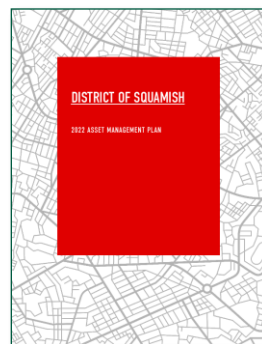
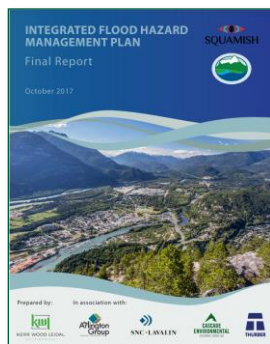
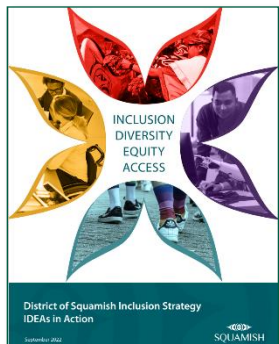
➤ Air travel

All of these emissions are important; however, they are outside the scope of the CCAP Update so they are not included in detail. Some of these actions may reside in other District Plans, some of them may be under the jurisdiction of another level of government, and/or some may be addressed at a political or advocacy level (See Table 8).

3. The CCAP Update overlaps with and is supported by other District policies and plans

The Plan lays out actions across 6 Big Moves. Specifically, there are Strategies and Actions related to waste (Big Move 1), transportation (Big Moves 2 and 3), Buildings (Big Move 4) and organizational actions (Big Move 6). It relies on existing Plans for many related Actions:

- For Big Move 1 the Zero Waste Action Plan and the Circular Economy strategy are key complementary plans.
- For Big Move 2, the Official Community Plan and zoning strategies are fundamental guides to land use planning. The Transit Future Action Plan and the Transportation Master Plan are key to guiding mode share and the future of Squamish's transportation network.
- The CCAP is the primary document addressing electric vehicles (Big Move 3).
- The CCAP is a primary guide to existing buildings (Big Move 4). Many measures related to building construction (Big Move 5), but relies on the OCP, the Building Bylaw, and many existing Plans and Policies.
- The Municipal Energy and Emissions Plan (MEEP) focuses on municipal (aka corporate) emissions. There is significant overlap with Big Moves 3,4,5 and the MEPP.



The figure below relates many of the key Plans and Strategies that fulfill the CCAP objectives, and also complementary Plans and Strategies that support and interrelate with the CCAP, and climate action and equity generally.

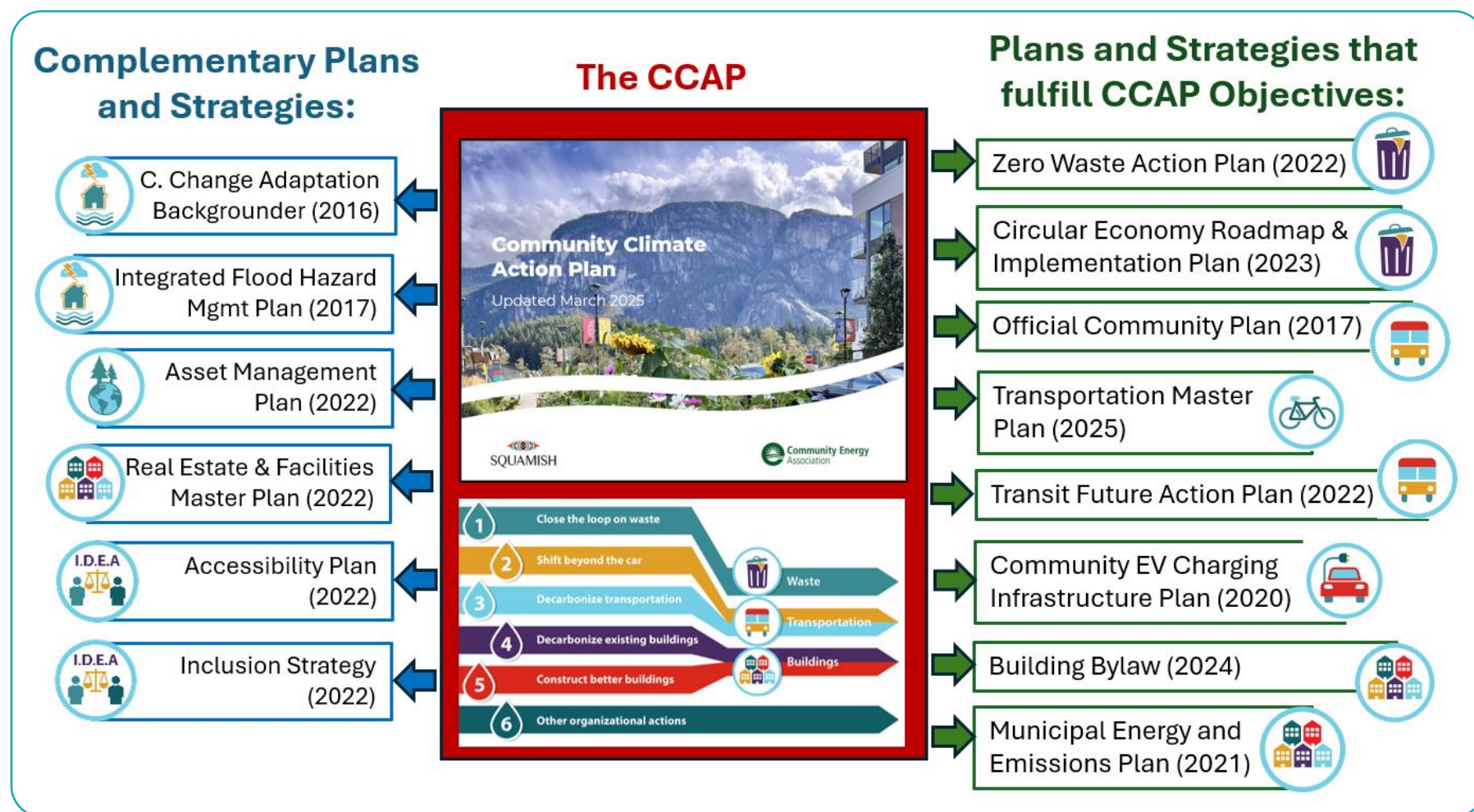


Figure 1: Key Plans and Strategies that interrelate with the CCAP

What's new in the CCAP Update?

The 2025 CCAP Update aims to create a bold and innovative blueprint to guide the community toward deeper emissions reductions. The scope of the Plan has been expanded to consider:

A. Local Renewable Energy

Squamish has the potential to be a leader in encouraging local renewable energy. The District will consider actions that will make it easy and cost-effective to add solar panels, potentially paired with batteries for energy storage in the event of power outages or power shortages. Renewable energy options on new and existing buildings are explored, as well as how Squamish residents, businesses and institutions could benefit from recently introduced grants and incentives.

B. Embodied Carbon

Embodied Carbon refers to the carbon emissions that are produced while creating a material or product (e.g., manufacturing and transporting concrete or steel for building construction). Using low carbon materials, like eco-friendly building products, can reduce GHG emissions. The Plan considers the impacts of embodied emissions, particularly in areas that a local government has influence over, such as waste diversion and offering guidance on building and construction materials. This work was supported by a Sustainability Scholar from the University of British Columbia whose research and analysis identified best practices to guide how Squamish can be a leader in this exciting field.

C. IDEA (inclusion, diversity, equity, accessibility)

The CCAP Update integrates IDEA (inclusion, diversity, equity, accessibility) as well as truth and reconciliation and cultural safety. Equity-deserving groups and individuals were consulted to make sure that the Plan reflects the values and needs of all Squamish residents.



Why is IDEA important to consider in a Community Climate Action Plan?

Those who contribute the least to climate change often end up bearing the brunt of its impacts. For example, people living on a fixed income may not be able to afford air conditioning, leaving them vulnerable to extreme heat.

Climate action can improve the daily life of equity-deserving citizens through job creation, more affordable and accessible transportation options, and safe and affordable housing.

What role does the District of Squamish play?

The District of Squamish, like most communities across British Columbia, is responding to climate change. The District of Squamish signed on to the BC Climate Action Charter, committing to create complete, compact, and more energy-efficient communities, under this voluntary agreement between the Province of British Columbia, the Union of BC Municipalities, and individual local government signatories. Provincial legislation – the Local Government (Green Communities) Statutes Amendment Act (Bill 27, 2008) – also requires that each local government establish targets, plans, and strategies to do their part to mitigate climate change.

Local governments have varying degrees of influence over different sources of emissions within their boundaries (see Figure 2 below). In Canada, local and regional governments directly and indirectly influence approximately 60% of the nation’s overall energy use and 50% of its GHG emissions. For more information on the Global to local context, see Appendix C. Although a local government can enable and assist emissions reductions, a significant portion of local climate action must ultimately be undertaken by a community’s residents and businesses.

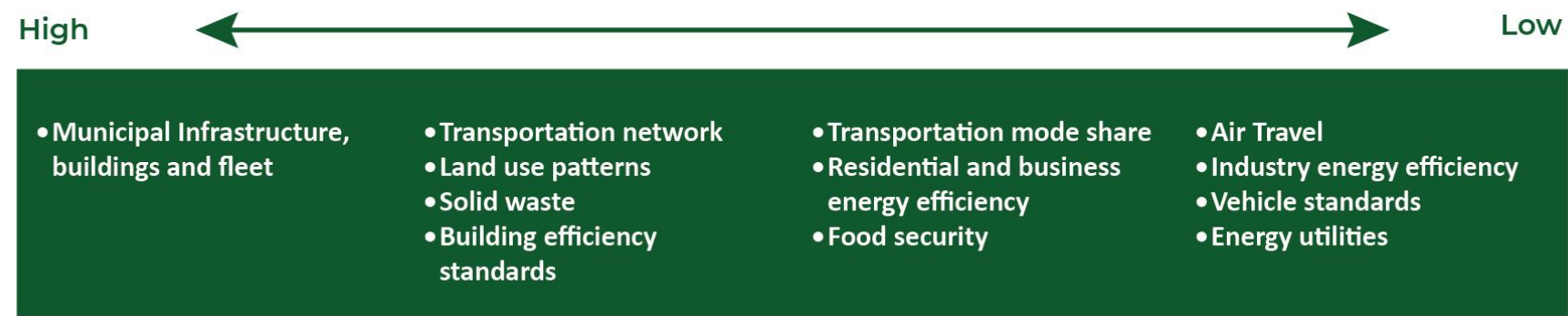


Figure 2: Local Government Relative Influence over GHG Emissions

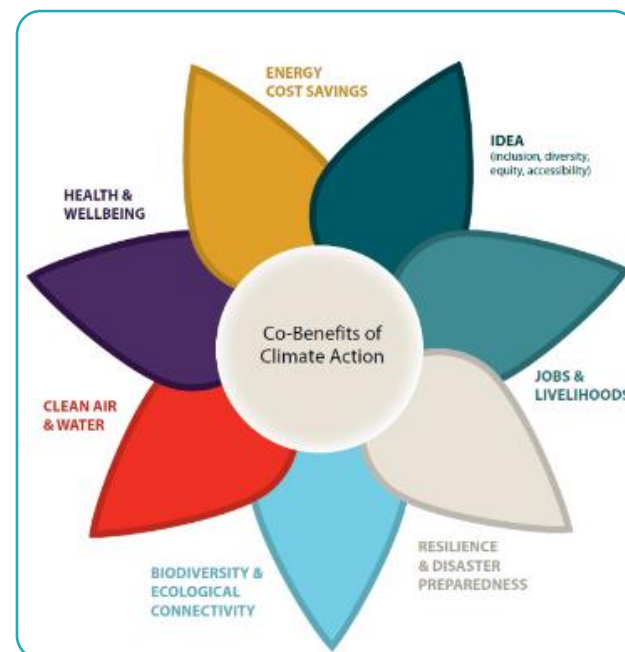
Local governments can utilize various tools to influence the choices of residents and businesses related to land use, transportation, buildings, and solid waste. Below are examples of municipal levers that the District of Squamish can utilize to facilitate implementation of climate action strategies. In areas where the District has less jurisdiction, they can still play a role in influencing and collaborating with other entities (see Advocacy and Collaboration section).

Infrastructure	Policy, Regulation & Incentives	Engagement, Outreach & Programs
Investments into the District of Squamish owned infrastructure that enable residents to make lower-emissions choices, such as active transportation networks and public charging stations.	Changes to District of Squamish policy and regulation that lead to energy and emission reductions in the community, such as requirements and incentives for enhanced energy efficiency in new buildings.	Outreach, education and programs that inspire residents and businesses to make choices to reduce energy and emissions and prepare for a low carbon future, for example the Retrofit Assist program.

Co-benefits of climate action

Climate action is not just about reducing emissions, it is about creating healthier, happier and more prosperous communities. Thankfully, most actions that mitigate climate change have one or more significant co-benefits. Co-benefits (and trade-offs) are important to consider and can become particularly important if other levels of government may be less supportive of climate action. Below is a representation of different co-benefits of climate action. These were a major focus in the engagement efforts related to the CCAP Update and have been considered extensively while determining which Strategies and Actions Squamish should embark on.

Each of the co-benefits can directly improve the lives of Squamish residents. Additionally, the co-benefits have positive impacts on the District of Squamish as a municipality, leading to better services and lower taxes. An explanation of how each co-benefit helps the District is included on the next page *in italics*.



How Can Climate Action Improve Quality of Life in Squamish?

Co-benefits are additional positive impacts related to or resulting from policies or solutions focused on climate mitigation or adaptation. The top 3 co-benefits are identified for each Big Move using the icons shown below.



Jobs & Livelihoods: climate action supports local economic development and sustainability jobs (e.g. in green building, energy retrofits, renewable energy, transit and e-mobility).
Good jobs directly support the District by creating business and residential tax revenue.



Clean Air & Water: we can improve air and water quality through reducing combustion of diesel, gasoline, and natural gas in the community, as well as continuing to reduce methane leakage at the landfill. Green infrastructure and trees help absorb and filter rainfall run-off into waterways.
These natural assets provide the District with important services.



Energy Cost Savings: residents can save money by reducing costs of transportation and home energy, and by accessing incentives and rebates for environmentally friendly options like solar panels.
The District can save money by making its buildings and operations more efficient and by generating its own energy.



Health & Wellbeing: we can improve public health with a more walkable community, accessible transportation options, protecting and adding greenspace, and making homes more comfortable.
These actions can lower infrastructure construction and maintenance costs for the District.



Resilience and Disaster Preparedness: we can be better prepared for extreme weather by improving building envelopes, using heat pumps, adding renewable energy and storage systems, and planting shade trees to reduce the urban heat island effect.
Actions can save the District time and money spent responding to problems and emergencies.



Biodiversity and Ecological Connectivity: protecting natural areas and using of green infrastructure will benefit plant and animal habitats and biodiversity. Land use that concentrates housing and urban development in core areas reduce pressure on land and ecosystems.
Natural assets provide vital services for the District.

Climate Action and Local Economic Development

Climate action presents significant opportunities for economic development and local jobs. These range from the construction of sustainable transportation infrastructure, undertaking the energy efficiency retrofits of homes and businesses, and creating a circular economy. These measures can also result in cost savings and/or avoid more significant investments that would be incurred if these actions were not implemented. Throughout the Plan, cost savings for residents and equitable employment opportunities have also been included in the IDEA Considerations for each Big Move.

Table 1: Economic Development Opportunities and Savings Related to each Big Move

Big Move	Economic Development Opportunities	Savings and Avoided Costs
#1: Close the loop on waste	- Circular economy initiatives e.g., reuse, repair, upcycling - Beneficial use of organic waste e.g., selling compost - Local food systems - Forestry waste management	- District: Waste reduction and diversion measures free up landfill space - Developers: reuse of construction waste may lower materials costs - Residents: costs savings from reuse/repared items, reducing food wasteⁱ and food recovery programs
#2: Shift Beyond the Car	- Design and construction of bike lanes, sidewalks, multi-use pathwaysⁱⁱ - Planning and operation of local and regional transit - Walkable core centres and separated bike lanes may benefit local businessesⁱⁱⁱ	- Residents: lower transportation costs due to less reliance on personal vehicles - Residents: healthcare cost savings due to physical activity from increased use of active transportation - District: avoid costly road building or widening projects^{iv}
#3: Decarbonize Transportation	- EV and EV charger sales - EV maintenance - Green hydrogen production and sales	- Residents, Businesses, District: lower lifecycle costs of vehicles, cheaper fuel (electricity) and decreased maintenance costs - Residents: healthcare savings from improved air quality
#4: Decarbonize Existing Buildings / #5: Construct better buildings	- Sales and installation of: energy efficiency products (e.g., insulation, windows and doors); low carbon heating and cooling systems; renewable energy systems; low carbon buildings materials¹	- Residents: lower energy bills - District, Realtors: retrofits increase home values and municipal tax revenue
#6: Organizational Leadership and Other	- Civic facilities upgrades: suppliers and installers of energy efficient technologies and the construction industry - Green infrastructure design, construction and maintenance	- District: lower energy and fuel costs, lower risk exposure to future costs - Residents, Businesses, District: natural climate solutions that enhance resilience can reduce costs related to dealing with severe weather events - District, Developers: green infrastructure-based storm water management systems reduce capital costs and enhance property values^v

¹ Some low carbon building materials, e.g. wood, may be able to be sourced locally, or from Skwxwú7mesh Úxwumixw (Squamish Nation) businesses.

Sḵw̓xwú7mesh Úxwumixw (Squamish Nation) Climate Collaboration Opportunities

The District of Squamish and Sḵw̓xwú7mesh Úxwumixw have been working concurrently on climate action planning initiatives. Sḵw̓xwú7mesh Úxwumixw Climate Legacy Strategy was launched in September 2024, with a request for Governments, industries, and institutions to use it to guide their relationship with the Sḵw̓xwú7mesh Úxwumixw to advance climate action. The Nation's Climate Legacy Strategy was developed through extensive community engagement, and the Four Pillars (areas of focus) reflect community priorities: Low Carbon Infrastructure; Land & Water; Green Economy; People & Community. The Climate Legacy Strategy sets a target of net-zero carbon emissions by 2050, with two overarching objectives:

- 1) Our Jurisdiction: Mitigating greenhouse gas emissions and promoting resilience within the Nation's administrative boundaries.
- 2) Our Co-Jurisdictional Influence: Using and extending our influence beyond the Nation's jurisdiction to foster a broader impact.

Co-Jurisdictional Influence includes opportunities for collaboration between Sḵw̓xwú7mesh Úxwumixw and the District of Squamish to advance climate action goals. District of Squamish staff regularly engage with Sḵw̓xwú7mesh Úxwumixw on local government plans and initiatives, including climate action. Climate staff from both entities met twice in October 2024, to discuss synergies and opportunities in the context of both climate action planning processes, which are summarized in Table 2. A key outcome of the meeting was the establishment of quarterly climate action meetings to continue sharing information, identifying joint initiatives and exploring other opportunities.

The two governments have collaborated on several initiatives, including long term waste planning, and the creation of an Embodied Carbon guide. Another major opportunity for continued collaboration is in transportation planning, guided by the District of Squamish Transportation Master Plan and the Sḵw̓xwú7mesh Úxwumixw Low Carbon Transportation Plan. Key topics include: active and safe transportation connections for Sḵw̓xwú7mesh communities, local transit improvements and connections, car sharing, e-bikes, and EV charging infrastructure. In addition, opportunities exist for joint food systems work to fulfil community needs and goals to increase local food assets, infrastructure and services, in support of food sovereignty (see Climate Legacy Strategy Goal 9; Squamish Valley Agriculture Plan).



Table 2: Alignments and Opportunities between the DoS CCAP and the Skwxwú7mesh Úxwumixw Climate Legacy Strategy

Topic	Areas of Alignment and Difference	Specific Opportunities (examples)
Waste	Circular economy is a shared priority. Waste from both communities is sent to the same landfill.	- Zero Waste operations policy sharing - Circular economy funding applications - Wood waste
Transportation	50% mode share targets in both climate plans. Improving regional transit is a common concern. EV charging infrastructure more established in DoS.	- Regional transit - Connectivity of active transportation infrastructure - Future funding/grants for EV charging infrastructure
Buildings	Both communities have ambitious targets for retrofits, and standards for new buildings.	- Residential air sealing initiatives - Sharing buildings policies
Renewable energy	Renewable energy actions are included in the CCAP Update. Skwxwú7mesh Úxwumixw Strategy has a goal related to pursuing energy sovereignty by 2050.	- Sharing information on grants and incentives
Economic development	Both communities recognize the opportunities to increase local green jobs through climate action initiatives.	- Renewable energy, retrofits, circular economy and wood waste
Resilience	DoS CCAP Update is primarily focussed on mitigation with some overlap with adaptation/resilience; whereas resilience is integrated into the Skwxwú7mesh Úxwumixw Strategy.	- Initiatives related to flood prevention and mitigation - Climate Risk and Vulnerability Assessments - Land stewardship, protection and restoration opportunities for resilience and carbon sequestration

Community GHG Emissions Inventory, Modelling and Targets

Inventories: What is measured in this plan?

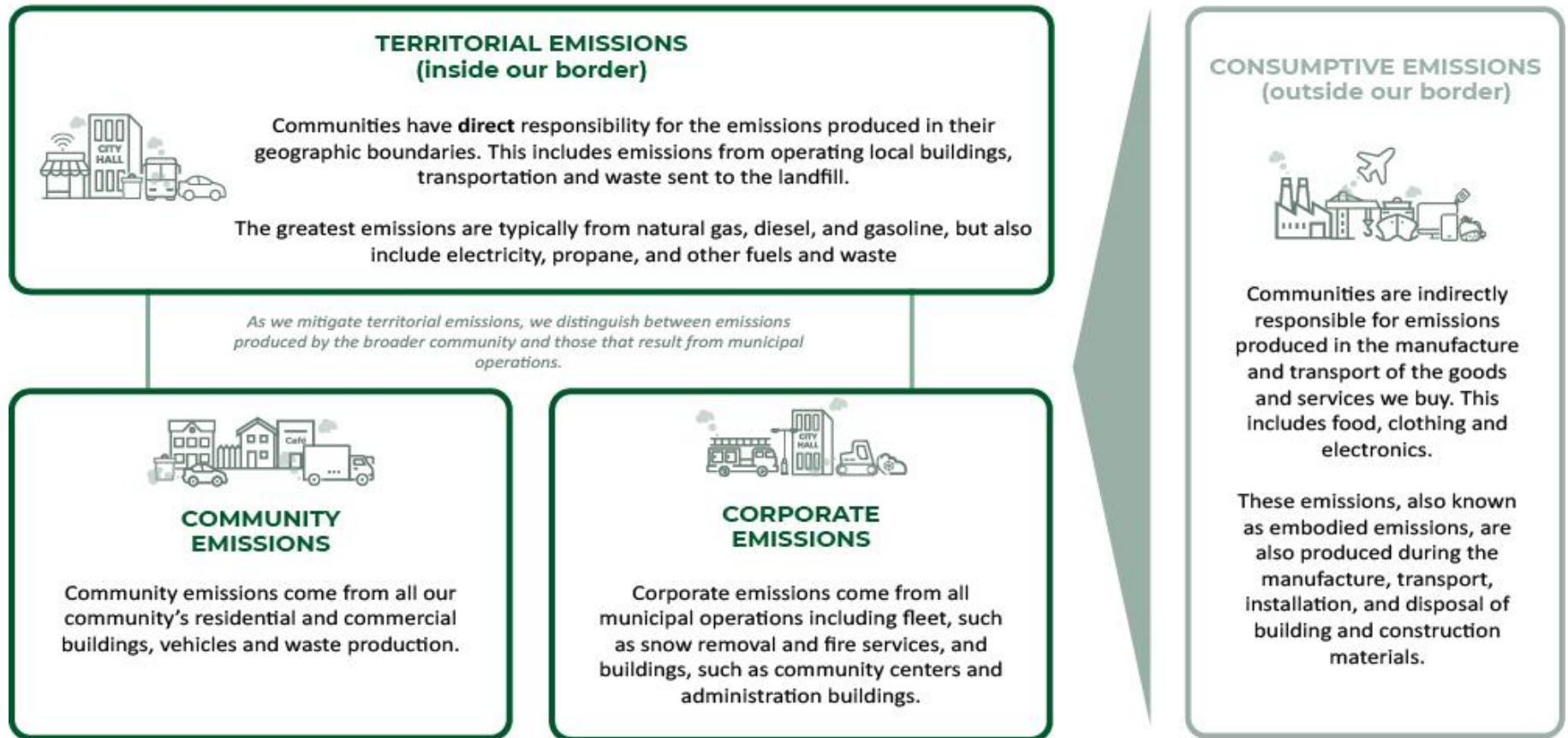
Local governments have varying degrees of influence over different sources of emissions within their boundaries. Our emissions come from both 'local' sources (emissions that are created here) and 'global' sources from local consumption (emissions that include everything from the extraction of raw materials through to transport, as well as emissions that may be counted elsewhere but are still ultimately our emissions).

Squamish's GHG reduction target references only local (territorial) emissions. These emissions are measured in the Energy and Emissions Inventory using the BC Methodological Guidance for Quantifying GHG Emissions. The major categories of emissions included in this inventory are: buildings (residential and commercial), transportation (passenger and commercial) and waste.

This Plan includes a high-level analysis of embodied carbon, or consumptive emissions (how many GHGs are emitted over the lifetime of an energy source or object). While municipalities may have limited jurisdiction over most of these emissions, some actions have been identified to influence and engage residents and businesses on this topic.

As discussed above in the Scope section (p. 13), there are other sources of emissions within the District of Squamish (e.g., potential large industrial projects such as Woodfibre LNG and land use change) and other emissions that Squamish residents are responsible for (e.g., agriculture and air travel). Although these are not included in the inventory, they are still important and need to be considered. To avoid the significant negative impacts of climate change globally and in Squamish, all GHG emissions need to be reduced. The Advocacy section (p. 71) discusses some of these in more detail.

Sources of Emissions



Current Energy, Emissions and Costs by Sector and Fuel Type

This community-level inventory encompasses GHG emissions from transportation, buildings and waste within the District’s boundaries (i.e. excluding consumptive emissions, which are in the following section). The emissions inventory will be presented through the sectors and subsectors described in Table 3.

Table 3: Community Inventory Sectors and Subsectors

Sector	Subsector	Description of sources of energy use and emissions
Transportation	Passenger vehicles Commercial vehicles	Diesel, gasoline, and compressed natural gas consumed for on-road mobility purposes. Off-road vehicles and farm equipment are not included.
Buildings	Residential buildings Commercial and small-medium industrial buildings (CSMI) (including business and local government)	Natural gas and electricity consumed within buildings and infrastructure.
Waste	Landfill Waste	Methane emitted from the breakdown of organic matter in landfill.

Buildings and vehicles use various fuel sources such as electricity, natural gas, gasoline, and diesel. These each contain a certain amount of energy, which is standardized into gigajoules to be able to compare relative energy use. For the purposes of this inventory, waste has no energy consumption or expenditure associated with it, and the transportation of waste is accounted for under the vehicle sector. However, once in a landfill, the anaerobic decomposition of waste produces methane, a potent GHG.

Table 4 provides a snapshot of the total energy consumption, GHG emissions, and energy expenditures in 2022.

Table 4: Total Community Energy Consumption, GHG Emissions and Energy Expenditures in 2022

Total energy consumption	2,651,400 GJ
Total GHG emissions	131,000 tonnes (t) of CO ₂ e
Total energy expenditures	\$98,038,900

This section shows energy consumption, GHG emissions and energy expenditure by sector and by fuel source, in 2022.

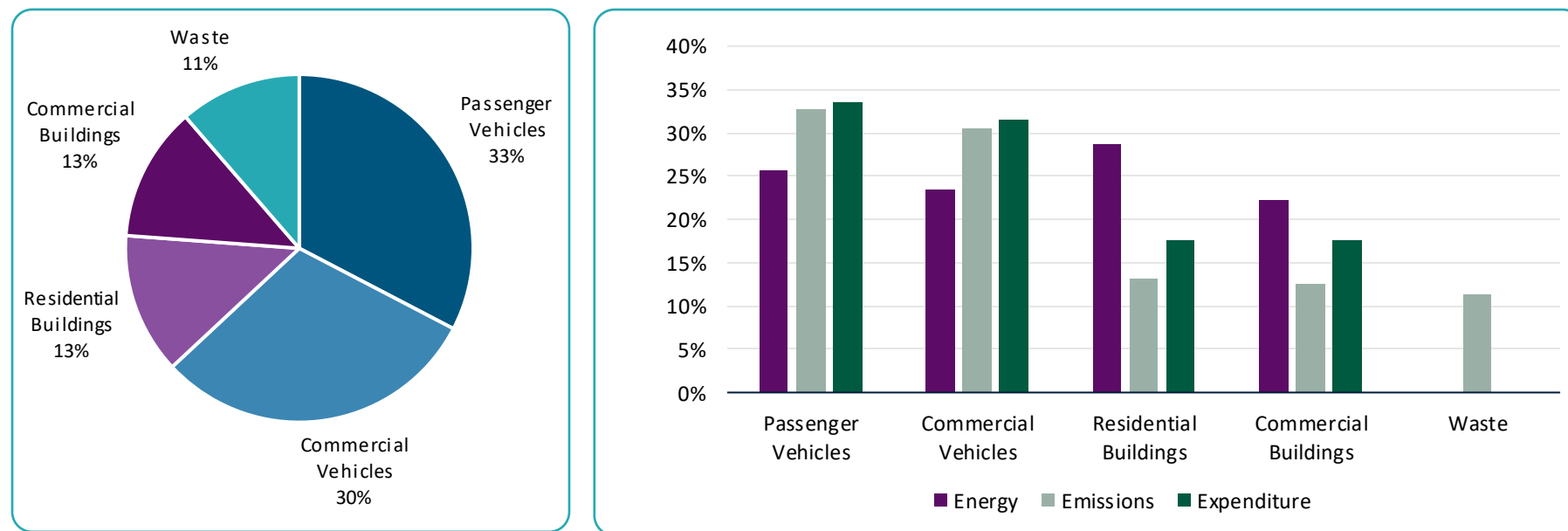


Figure 3: Percentage of Community Energy, Emissions and Expenditures by Sector, 2022

Figure 3 shows that vehicle use accounts for nearly two thirds of community GHG emissions, broken down by passenger vehicles (33%), closely followed by commercial vehicles (30%). Energy use in buildings is responsible for one quarter of emissions - residential buildings (13%) and commercial buildings (13%). The decomposition of waste in our landfill accounts for 11% of Squamish's emissions.

In 2022, Squamish residents spent nearly \$33 million at the gas station to fuel their personal vehicles and another \$17.2 million on home energy. Energy and fuel expenditures can comprise a large portion of the household budget. Squamish businesses also had significant fuel costs, spending \$48 million on mobility fuels and building energy. While some local people are employed in fuel and energy sales, most of this money spent by residents and businesses leaves the community, with profit accruing to national and global energy and fuel companies.

Figure 4 shows Squamish's energy expenditures and emissions in 2022 in terms of fuel source rather than sector. Looking at emissions and expenditures in this way can reveal some interesting trends.

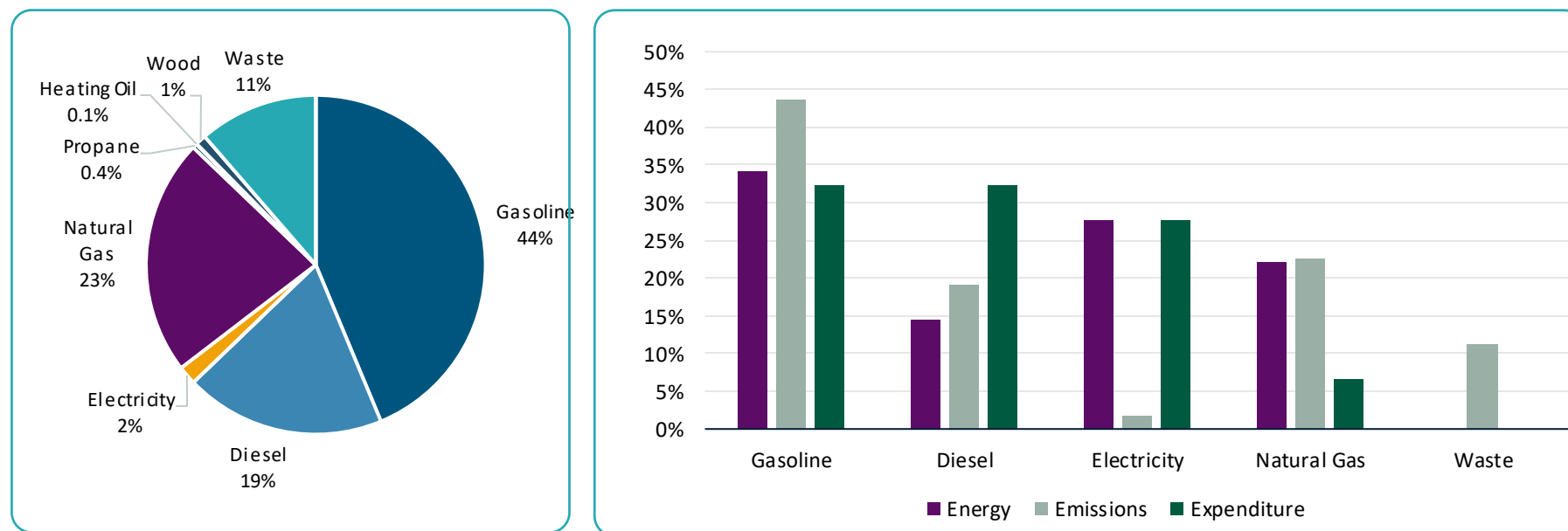


Figure 4: Percentage of Community Energy, Emissions and Expenditures by Fuel Source, 2022

While a small amount of electricity is used for electric vehicles, the transportation sector mainly uses gasoline and diesel as mobility fuels. These fuels account for 65% of energy expenditures and contribute 63% of total community emissions.

Electricity and natural gas are predominately used to power and heat Squamish's residential and commercial/small-medium industrial (CSMI) buildings. Electricity is responsible for approximately 28% of expenditures (\$27 million), but only 2% of emissions (2,300 tCO₂e), due to it being a low carbon source of energy. Meanwhile, 23% of community emissions come from natural gas, a fossil fuel and relatively cheap energy source, accounting for 7% of community energy costs. Heating oil, propane, and wood account for approximately 1% of emissions and expenditures combined because they are not the main source of energy used in most buildings.

The decomposition of waste in landfill contributes 11% of total emissions in Squamish.

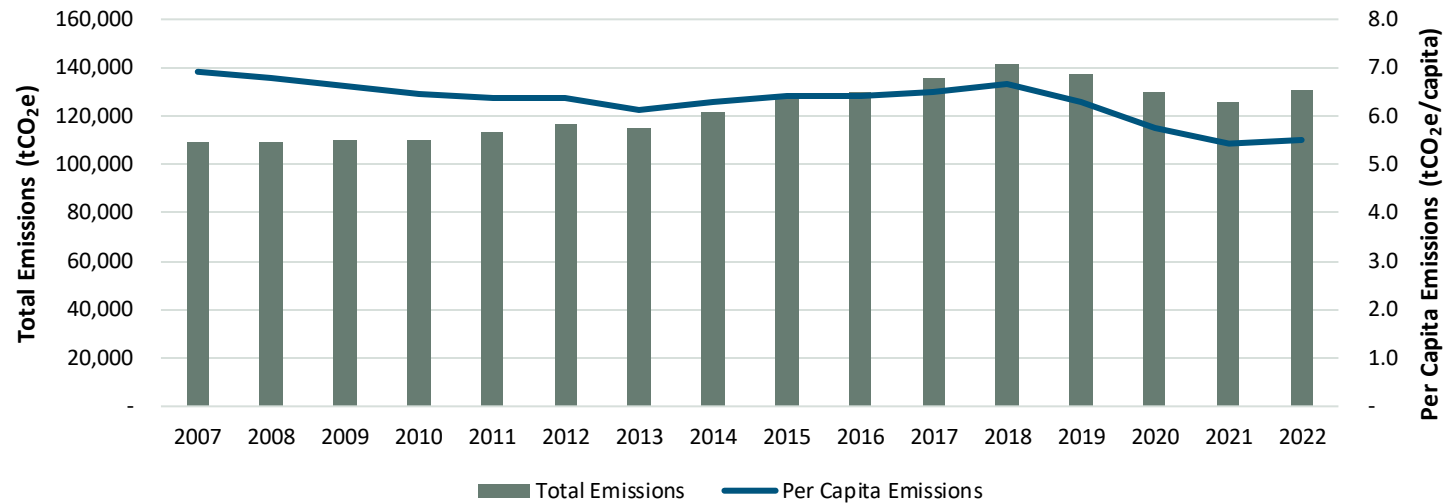


Figure 5: Total Community Emissions and Emissions per Capita, 2007-2022

Figure 5 above shows how total community emissions (grey bars) have trended upwards, largely due to population growth. Community GHG emissions increased 19% from 110,100 tCO₂e in 2010 to 131,000 tCO₂e in 2022. Meanwhile, per capita emissions (blue line) have declined by 15%, from 6.5 tCO₂e in 2010 to 5.5 tCO₂e in 2022.

Embodied (Consumptive) Emissions

Following the recommendation of the UBC Sustainability Scholar report on embodied emissions, a high-level consumption-based emissions inventory (CBEI) has been developed. This provides a starting point for tracking and reporting on the impact of scope 3 actions and strategies. The methodology utilizes Metro Vancouver's per capita emissions by category and applies these values to the District Municipality's population (see Appendix D for more detail). The scope includes:

- **Food**: Embodied energy and emissions associated with food production and transportation
- **Buildings**: Embodied energy and emissions associated with residential, commercial, and institutional buildings
- **Consumables**: Embodied energy and emissions of disposed and recycled materials
- **Transportation**: Embodied energy and emissions associated with private and commercial vehicles, fuels and roads
- **Water**: Embodied energy and emissions associated with water infrastructure

The full methodology of Metro Vancouver's CBEI is available [here](#). The Community Energy Association (CEA) adjusted Metro Vancouver's inventory by removing the operating energy and emissions from buildings and transportation and removing the emissions from waste decomposing in landfills. (These adjustments were completed to remove emissions already accounted for within the territorial inventory.)

Figure 6 shows the breakdown of consumption-based emissions by category for 2022. Food is responsible for the largest portion of embodied emissions (38,600 tCO₂e, 37%), followed by transportation (33,900 tCO₂e, 33%), consumables (16,400 tCO₂e, 16%) and buildings (14,100 tCO₂e, 14%).

Comparison with Community Inventory

The estimated consumption-based emissions are 110,400 tCO₂e, equivalent to 84% of the territorial (i.e. community and corporate) emissions. If territorial and consumption-based emissions are combined, consumption emissions equal 46% of the total emissions in 2022 (Figure 7).

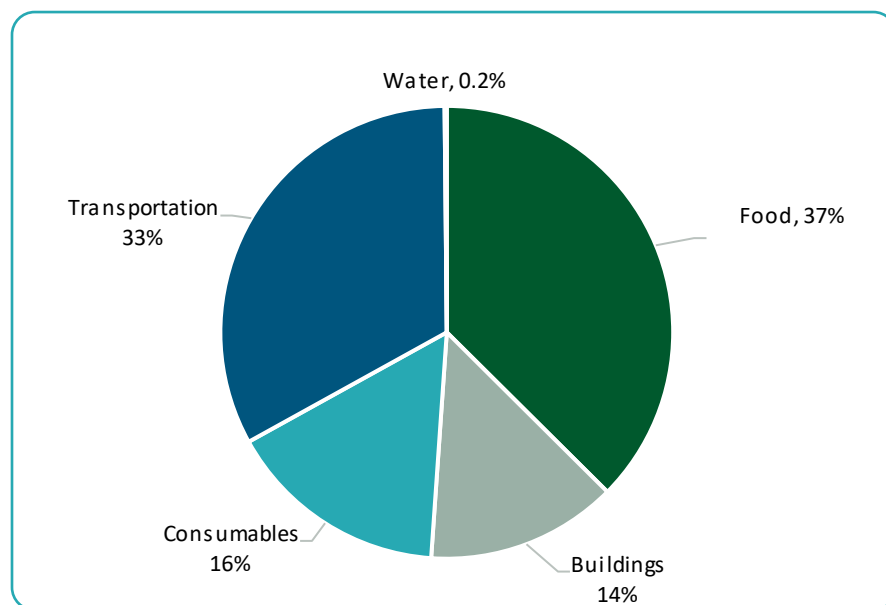


Figure 6: 2022 consumption-based emissions, by category

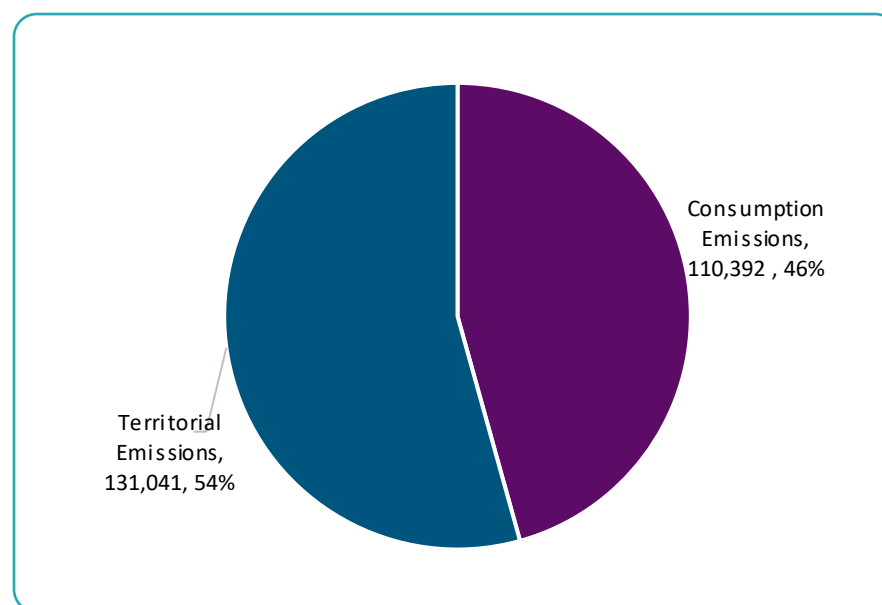


Figure 7: Consumption vs Community Emissions (tCO₂e), 2022

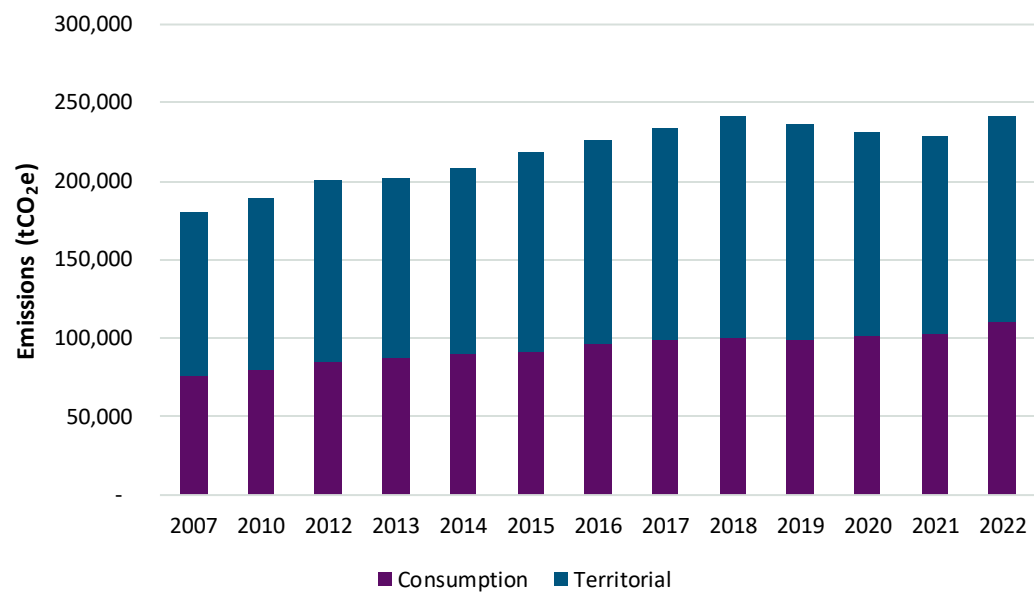


Figure 8: Total GHG emissions, Consumption and Community Emissions, 2007-2022

Figure 8 compares the consumption-based and territorial emissions from 2007-2022. Consumption-based emissions have grown by 45% since 2007, while total emissions have increased by 34%.

Forecasting Approach: Inventory and Modelling

What does ‘Business As Usual’ mean?

Business As Usual, or BAU, is a way of describing what is estimated to happen to Squamish’ emissions if the District takes no further action to decrease emissions beyond what it is already doing. A number of factors are taken into account to develop a BAU emissions scenario, population growth being one of the most important considerations. As the number of people increase in a community, more buildings are needed and typically more vehicles are driven on roads. The BAU is based on the territorial emissions and does not include embodied (consumption-based) emissions (see previous Section).

Other considerations that were taken into account to develop Squamish’ BAU emissions scenario for this report include the following:

- Changing climate patterns— as warmer winters and hotter summers occur, they are and will continue to change the way that energy is consumed in buildings. For example heating costs will decrease and cooling costs will increase.
- The likely future impacts of policies already adopted by other orders of government: these will continue regardless of what the District does. Notable policies include:
 - Renewable and low carbon fuel standards (Federal)
 - Vehicle tailpipe emissions standards (Federal and Provincial)
 - Zero-Emission Vehicle (ZEV) mandate as part of the CleanBC Plan, requiring 26% of new light-duty vehicle purchases by 2026 as ZEVs, 90% by 2030, and 100% by 2035 (Provincial)
 - Measures affecting Medium and Heavy Duty Vehicles: MHDZEV Mandates (Federal, Provincial forthcoming), ZEV bus mandate to reflect commitments by Translink and BC Transit
 - The greening of the BC Building Code. Net zero ready buildings by 2032 (progressive steps towards net zero energy) (Provincial)
- The impact of Municipal Actions Squamish has taken since the adoption of the 2020 CCAP, including:
 - The LFG capture and flaring system
 - The adoption of Energy and Zero Carbon step codes
 - Home retrofits through the Retrofit Assist program
 - Substantial EV adoption

Figure 9 shows Squamish’s GHG emissions inventory from 2007-2022 (shaded) and its BAU forecast from 2023-2050, by fuels and waste. Figure 10 shows the transportation, buildings and waste data split by sector. Gasoline and diesel use are expected to decline more rapidly in passenger vehicles, as the Provincial EV sales mandate targets 100% of new light-duty vehicles to be electric by 2035, with vehicle turnover rates of 10 years. ZEV sales mandates for the medium and heavy duty (commercial) vehicle sector will have a longer lag time to take effect, with 100% of new sales as ZEVs

projected to be reached by 2040, and vehicle turnover rates of 15 years. Squamish has already adopted the Zero Carbon Step Code for new buildings, which would account for 2,141 tCO₂e annual savings by 2030.

Overall, GHG emissions are projected to decrease by 39% (42,985 tCO₂e) by 2050, compared to 2010 levels. The impact of population growth (2.9% per year)² has a significant impact on the BAU. Under the BAU scenario, per capita emissions would decrease from 6.5 tCO₂e/capita in 2010 to 4.1 tCO₂e/capita in 2030 (36% per capita reduction) and 1.3 tCO₂e/capita in 2050 (81% per capita reduction).

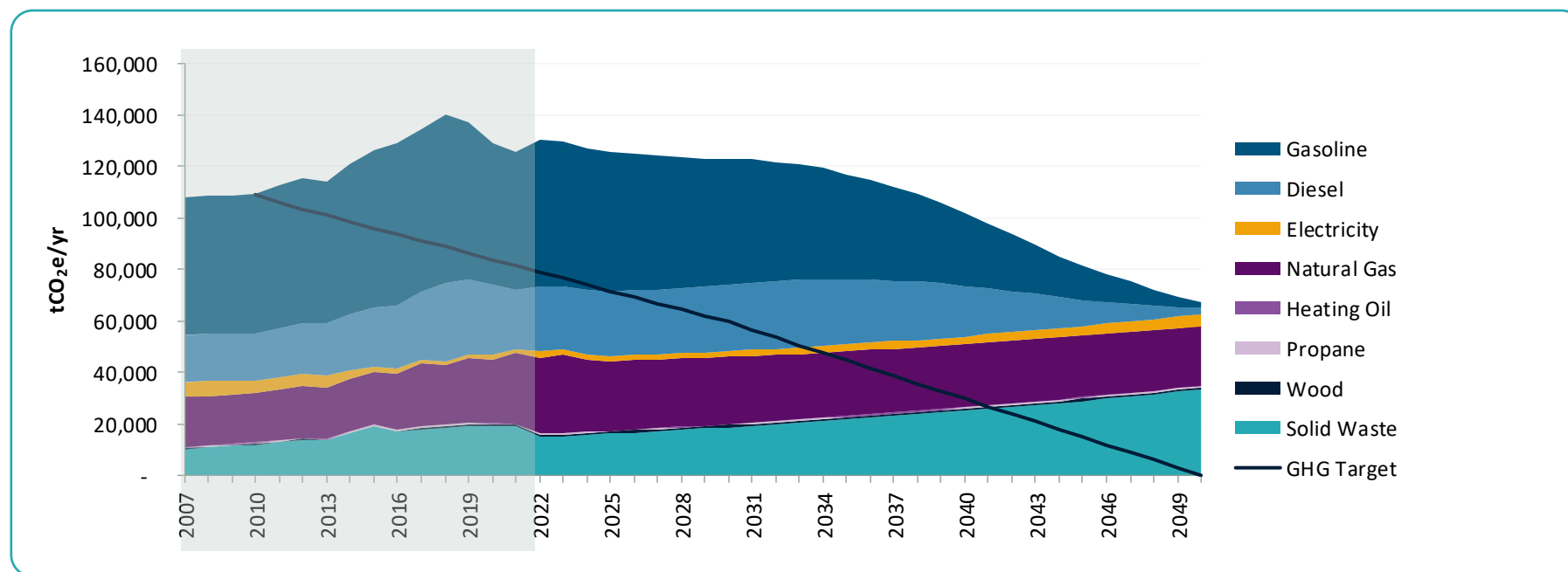


Figure 9: Business As Usual GHG Emissions scenario by Fuel Type

² Based on average population growth over the previous 5 years and closely aligning with the District's growth projection (medium scenario) of 2.8% growth per year to 2036.

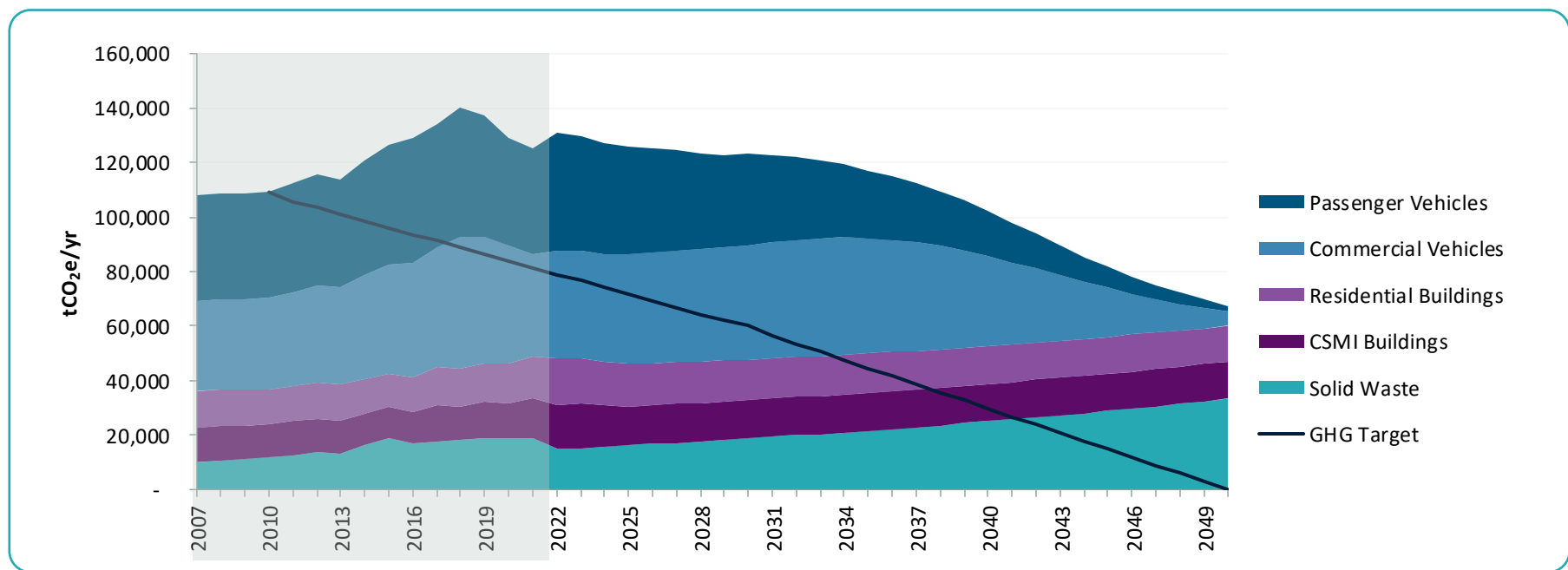


Figure 10: Business As Usual GHG Emissions by Sector

Targets for Reducing Our Emissions

Community targets show the urgency of the challenge we are facing and the call to action to reduce our GHG emissions. Squamish's 2030 and 2050 community target is aligned with the Provincial government target.

To meet our 2030 target, Squamish needs to produce at least 50,100 fewer tonnes of GHGs (tCO₂e) per year as compared to 2010. In the business as usual scenario, Squamish will produce 13,500 more tonnes of greenhouse gases annually by 2030, relative to 2010. The following section outlines ambitious, yet achievable, strategies and actions to enable the emissions reductions necessary to move towards meeting our targets.

Our community targets are:

- **45% reduction in GHG emissions below 2010 levels by 2030**
- **Net zero GHG emissions by 2050**

The Big Moves: Strategies and Actions

Guide to the Big Moves

Table 5: Key to symbols used in the Big Moves

Description	Example Symbol
The top three co-benefits for each Big Move.	
At the Strategy level, estimated GHG reductions have been ranked as Medium, High, Very High, or Supporting (minimal or not modelled).	GHG impact: Very High
Specific actions have been labelled with trail marker symbols to reflect the anticipated level of difficulty to implement. <i>(There are some double black diamonds!)</i>	EASY MODERATE DIFFICULT   
New strategies and actions are denoted with an asterisk. Several of these integrate embodied emissions, renewable energy and/or IDEA.	
Equity-enhanced actions are identified with an IDEA icon.	

The 2025 update of the CCAP includes:

- More succinct sections for each Big Move, with a fewer number of more strategic and less prescriptive actions that can evolve to follow best practices and future technologies. (Our intention is to report on progress at the Strategy level rather than the Action level going forward.)
- For each Big Move, contextual information is provided.
- Following the Strategies and Actions, key education and engagement priorities are listed for each Big Move.
- Inclusion, diversity, equity and accessibility (IDEA) considerations are provided in a table that shows both opportunities and challenges.
- For actions that the District of Squamish has limited jurisdiction over, a new section on Advocacy & Collaboration has been developed after the Big Moves sections.
- Recommended Key Performance Indicators are in Appendix E.

Big Move #1: Close the Loop on Waste



2050 Vision: Our community diverts all organics and recovers value from waste.

Overview

Emissions from waste occur primarily when organic material decomposes in the landfill (an anaerobic environment) to produce methane. Methane is a very potent greenhouse gas that is 26 times as powerful as carbon dioxide over a 100-year period. Organic waste makes up a substantial proportion of landfill waste, and includes food waste from homes and businesses, yard and garden waste, wood waste, textiles and paper that cannot be recycled. Diverting organic material from the landfill is key to reducing waste emissions, as is capturing the methane that is being produced on an ongoing basis at the landfill. Industrial wood waste, or leftover woody byproducts from the forestry industry, is a significant source of waste in our region and is a priority for collaboration and advocacy (see table 5). Firesmaring activities (an adaptation action) can also produce significant amounts of wood waste.

In addition to organic materials creating methane, the process of collecting and disposing of all garbage and recycling produces GHGs and has other negative effects on the environment. There is also a substantial embodied carbon footprint in most materials related to creating and transporting them. Reducing waste and creating a more circular economy where materials are reused and repurposed locally is key to reducing emissions and has a plethora of co-benefits.

Co-Benefits:

Health & Wellbeing



Jobs & Livelihoods



Clean Air & Water



2030 Goal:

Decrease landfill gas emissions by 90%

Current State:



Emissions profile:

- The decomposition of organic waste in our landfill accounts for 11% of community GHG emissions
- Organic waste represents 34.2% of overall landfill waste (from construction and demolition, ICI, residential, multi-family homes and streetscape)

Highlights of progress to date (end of 2024):

- ✓ Installed a landfill gas capture and flare system
- ✓ Implemented a deconstruction bylaw to reduce and divert demolition waste
- ✓ Joined ‘Circular Cities’ initiative and ran Circular Economy Trailblazer program

Supporting District of Squamish policies/ plans:

- Circular Economy Roadmap
- Zero Waste Action Plan

Provincial Action	Federal Action
The Province of British Columbia is targeting that, by 2030, 95% of organic waste will be diverted from landfills, and 75% of landfill gas will be captured.	Through the Investing in Canada Infrastructure Program (ICIP) the Government of Canada provides funding for infrastructure that enables resource recovery, such as generating fuel from waste.

Big Move #1 Strategies

STRATEGY 1.1: Capture and utilize landfill gas

Optimize landfill gas capture and convert it for beneficial uses

**GHG impact:
Very High**

	Key Actions
■	1.1.1 Continue to construct and improve landfill gas (LFG) collection system. Add horizontal collection pipes as landfill fills up and incorporate LFG into any expansions.
◆◆	1.1.2 Continue to evaluate utilization of landfill gas and implement beneficial use. Explore partnership opportunities.

STRATEGY 1.2: Divert waste from the landfill

Reduce materials (particularly organics) entering the landfill

**GHG impact:
Very High**

	Key Actions
■	1.2.1 Implement the Zero Waste Action Plan with a focus on diverting organic materials, building materials and recyclables. Work toward enforcing ban of all organic waste from the landfill, as well as source separation requirements.
■	1.2.2 Increase diversion options within the District, with more materials accepted (e.g., textiles), better signage and more accessible site design. 
◆	1.2.3 Create and implement a multi-year plan for increasing diversion in multi-unit residential buildings.
◆	1.2.4 Create and implement a multi-year plan for increasing diversion in commercial buildings.
◆◆	1.2.5 Conduct feasibility assessment regarding local organics processing. Support an organics processing facility locally if feasible.

STRATEGY 1.3: Reduce Waste

Minimize waste production to save energy and reduce embodied carbon

GHG impact:
High

	Key Actions
■	1.3.1 Implement the Zero Waste Action Plan, with a focus on actions that reduce food, packaging, textile, building material and durable goods waste.
◆	1.3.2 Review the Demolition Waste Diversion Bylaw and associated policies. Expand to include recycling targets as part of the construction and renovation projects.



STRATEGY 1.4: Create a circular economy in Squamish

Reduce embodied emissions and waste

GHG impact:
Medium

	Key Actions
◆	1.4.1 Implement the Circular Economy Roadmap and Implementation Plan, with a focus on building materials (e.g., wood), textiles and food.
■	1.4.2 Create a Squamish circular economy network. Develop or support online platforms, educational materials, asset maps and circularity scores that highlight community leaders.

Total annual GHG emissions reductions for Big Move #1 in 2030: 10,600 tCO₂e

Education and Engagement Priorities

- Educate the public on organics collection, and source separation requirements of the Solid Waste Utility Bylaw.
- Promote participation in waste reduction campaigns, including those focused on food waste.
- Promote local food to reduce embodied emissions associated with the transportation of food and support local food-based economies.
- Partner with the Province, Squamish Nation, industry and others to explore strategies to better manage forestry waste in Squamish.
- Support circular economy campaigns and develop a resident circular economy guide that helps community members and businesses to participate in circularity.
- Increase industry awareness and education regarding the Demolition Waste Diversion Bylaw.



IDEA Considerations

Opportunities	Challenges
▪ Support the food recovery network within the community and region. ▪ Social enterprise development and skills training in the reuse, repair economy (e.g., bike repair and resale, value-added food products from food recovery). ▪ Provision of lower cost goods and materials obtained from resource recovery processes.	▪ Accessibility of waste diversion facilities. ▪ Funding for resource recovery operations, to provide low barrier job opportunities.

Big Move #2: Shift Beyond the Car



2050 Vision: Active transportation and transit are preferred modes of travel to and within Squamish.

Overview

Walking and cycling are not just weekend recreational activities – they are viable, economical, healthy and environmentally-friendly modes of transportation. The District of Squamish is working toward creating a well-connected, accessible and safe active transportation network with sidewalks, bike lanes, and trails. These will make active transportation a preferred mode of travel and can also afford access for those who use mobility aids, such as scooters and wheelchairs. Mode shift is necessary to meet climate targets, and also for Squamish to accommodate growth without overwhelming the road network and incurring huge infrastructure and maintenance costs in the future.

Transit is another very important form of transportation that is sustainable and broadly accessible. Squamish must continue to make improvements related to on time performance, frequency and bus stop amenities.

For both transit and active transportation Squamish needs complete compact communities. Squamish must manage growth carefully and focus density and development along our transit networks and near our amenities.

Co-Benefits:

Health & Wellbeing



Energy Cost Savings



Biodiversity and Ecological Connectivity



2041 Goal:

50% of the mode share will be from active transportation, transit and micromobility

Current State:



Emissions profile:

- Transportation accounts for 63% of community GHG emissions
- Most recent Mode share values (2021) indicate that 85.1% of trips made by vehicle, 1.9% by transit, 5.5% by foot and 4.4% by bicycle

Highlights of progress to date (by end of 2024):

- Significant investments in active transportation network (approximately \$1.1M per year)
- Transit network expansions
- Maintenance of growth management boundary, focusing growth in Squamish’s central regions

Supporting District of Squamish policies/plans:

- Transportation Master Plan
- Official Community Plan
- Transit Future Action Plan

Provincial Action	Federal Action
Move Commute Connect – B.C.’s Active Transportation Strategy established a new target for active and assisted transportation: By 2030, double the percentage of trips taken with active transportation. The 2024 BC NDP and BC Green Party agreement includes a commitment to implement frequent, reliable, affordable regional transit on key interregional routes, including a focus on Sea to Sky corridor transit in 2025.	The Government of Canada’s Pan Canadian Framework on Clean Growth and Climate Change commits to supporting a shift from higher- to lower-emitting modes of transportation as well as investing in infrastructure.

Big Move #2 Strategies

STRATEGY 2.1: Enable complete and compact community growth

Reduce the need for driving by making services and amenities more accessible

GHG impact:
High

Key Actions

■	2.1.1 In future OCP updates, maintain a focus on retaining the urban growth boundary and strengthening complete, walkable neighbourhoods.	
■	2.1.2 Support expanded access to neighbourhood commercial zonings in residential neighbourhoods to improve walkable/rideable access to day to day needs.	
◆	2.1.3 Support and incentivise high density infill development along the frequent transit network, in neighbourhood nodes and in mixed use areas through additional housing forms, density bonuses, and reductions in parking requirements. Prioritize affordable housing on key transit routes and in walkable neighbourhoods.	
◆	2.1.4 Develop a scoring system to evaluate rezoning applications. The system will be based on 'walkability' to key daily aspects of community life such as transit, employment, neighbourhood commercial and greenspace.	
■	2.1.5 Increase employment density in central areas and align zoning with the projected demand of businesses and the workforce, while aligning district business development activities to create high-value employment opportunities in Squamish.	



STRATEGY 2.2: Improve active transportation and micromobility

Enhancing connectivity, safety, and convenience

GHG impact:
High



	Key Actions	
◆	2.2.1 Strategically implement the Transportation Master Plan with a focus on prioritizing active transportation and promoting mode shift. Prioritize infrastructure that meets All Ages and Abilities (AAA) standards.	
■	2.2.2 Apply trip-end facility requirements (e.g., showers, more racks, secure bike parking etc.) to a broader range of commercial and industrial buildings.	
■	2.2.3 Facilitate the uptake of e-bikes, for example through supporting an e-bike sharing program, and incentives/rebates to reduce the upfront costs. Explore other micromobility programs.	

STRATEGY 2.3: Improve public transit within Squamish

Improve frequency, reliability, routing, infrastructure and communications

GHG impact:
High

	Key Actions	
◆	2.3.1 Implement the Transit Future Action Plan to support transit mode shift goals. Continue to work toward increasing frequency on the frequent transit network.	
■	2.3.2 Increase the accessibility and convenience of transit (e.g. through provision of shelters [with space for mobility devices], benches, lighting and sidewalk connections), as directed in Transportation Master Plan and Accessibility Plan.	
■	2.3.3 Improve multi-modal connectivity (e.g. bike racks/lockers at transit hubs and park and rides).	

STRATEGY 2.4: Improve regional transportation

Develop affordable and reliable transit

GHG impact:
High

	Key Actions
■	2.4.1 Establish additional designated carpooling meet-up locations (Park and Rides) through use of municipal land if available, or by working with landowners/businesses.
◆	2.4.2 Collaborate with neighboring communities (Pemberton, Whistler, Vancouver) on safe and convenient inter-community transit (e.g., buses, shuttle services, ferries and/or rail) that are responsive to the needs of the communities and connect to local transit.



STRATEGY 2.5: Transportation Demand Management (TDM)

Influence behaviour to encourage sustainable transportation options

GHG impact:
Supporting

	Key Actions
■	2.5.1 Work with local employers to encourage workplace TDM measures (e.g. provision of showers, carpooling, car sharing, employee transit passes, etc.). 
■	2.5.2 Continue to promote car free day events and temporary pedestrianized areas to create more attractive, vibrant and safe public spaces. Evaluate sites for seasonal or longer term pedestrian zones. Ensure that accessibility is maintained.
◆	2.5.3 Continue to evaluate parking pricing options to reduce the demand for parking. Ensure that accessibility is maintained.

Total annual GHG emissions reductions for Big Move #2 in 2030: **2,700 tCO₂e**

Education and Engagement Priorities

- Increase community engagement in active transportation and transit (via website, social media, cycling maps, go by bike week etc.).
- Engage the public regarding the importance of and benefits associated with transit (e.g., equity and youth mobility).
- Undertake targeted engagement with residents and businesses located in proximity to new active transportation infrastructure, to demonstrate its benefits and how to use it (e.g., signals or road markings for cyclists).
- Increase awareness for e-mobility beyond cars (e.g., bikes and scooters) through events, demos and resources.
- Educate community on benefits of densification.



IDEA Considerations

Opportunities	Challenges
▪ Reducing household transportation costs. ▪ Increasing access to employment, education and other amenities for those who do not own a vehicle. ▪ Transit has important equity benefits and is a top priority for Squamish's youth. ▪ Opportunity to address equity and collaborate with Squamish Nation through improving transit. ▪ All Ages and Abilities (AAA) standard bike lanes.	▪ Accessibility of active transportation options. ▪ Potential reduced accessible parking options with reduced parking.

Big Move #3: Decarbonize Transportation



2050 Vision: Electric (or low-carbon) cars, buses, fleets and larger vehicles are the preferred option in Squamish.

Overview

Zero-emission vehicles (ZEVs) are clean, efficient, and are becoming cost-effective. In BC, where approximately 98% of electricity generated by BC Hydro is from renewable sources, electric vehicles (EVs) are already a viable near zero-emission option from an operational perspective. From a lifecycle perspective, EVs have more embodied emissions than a gas car but break even after approximately 25,000km of driving in BC and have less than a third as many GHG emissions after 150,000km of driving.³ Local governments can make zero-emission vehicles an easier choice for residents and businesses by investing in infrastructure, creating supportive policies, and by delivering community outreach and education on zero-emission transportation choices. Squamish has limited influence over emissions from medium and heavy-duty (MHD) commercial vehicles; however, Squamish can show leadership by transforming its own fleet and engaging with fleet operators and businesses. There is potential for other technologies to significantly reduce emissions in MHD vehicles, including hydrogen technologies (where there is significant leadership in expertise within Squamish).

This Big Move is a complement and not an alternative to Big Move 2. EV use is not an option for many residents of Squamish due to cost, and there are many negative impacts of private vehicles (such as cost, connectivity and congestion). Active transportation and transit are the preferred future transportation modes. *Electrified transit is a major win-win solution!*

Co-Benefits:

Health & Wellbeing



Energy Cost Savings



Clean Air & Water



2030 Goal:

50% of kilometres driven are by ZEVs

³ [Environmental-Life-Cycle-Assessment-of-Electric-Vehicles-in-Canada.pdf](#)

Current State:

Emissions profile:

- Transportation 63% of community emissions
 - 33% from passenger vehicles
 - EV's were 6% of passenger vehicles in 2023
 - 30% from commercial vehicles

Progress to date (by end of 2024):

- Over 10% of District fleet now electric
- Squamish recognized for the fastest-growing rate of EV ownership in Canada in 2022
- Requirement for new buildings to be ready for EV charging

Supporting District of Squamish policies/ plans:

- Municipal Energy & Emissions Plan
- Community EV Charging Infrastructure Plan



Provincial Action	Federal Action
In May 2019, the Province enacted the Zero Emissions Vehicle Act. The legislation requires manufacturers to ensure that a steadily increasing proportion of all new light-duty cars and trucks sold or leased in British Columbia will be zero-emission vehicles, to 100% by 2035. The Province established its Go Electric Program to support the transition to EVs. The program provides incentives to reduce the price of new zero-emissions vehicles and charging stations, and works to raise awareness of the benefits of such vehicles. The Province has set targets for 10% of heavy-duty vehicles and 94% of buses to be electric, and 16% of heavy-duty vehicles to run on LNG by 2030.	The Federal Government has set a target of a 40% reduction in tailpipe emission intensity by 2025 from 2015 levels. The Government of Canada currently provides up to \$5,000 as a point-of-sale incentive for the purchase or lease of new light duty zero-emission vehicles and offers tax deductions for businesses. Canada’s Electric Vehicle Availability Standard has nationally legislated ZEV sales targets, for each year from 20% in 2026 to 100% by 2035.

Big Move #3 Strategies

STRATEGY 3.1: Support the use of passenger EVs

Squamish is a place where EV use is fully supported

GHG impact:
High

	Key Actions	
■	3.1.1 Develop, support and enable community EV charging infrastructure. Prioritize enabling access to charging infrastructure to residents without access to home charging. Include accessible options.	
■	3.1.2 Develop requirements for commercial charging infrastructure on off-street parking. Develop a Commercial EV Ready Bylaw.	
■	3.1.3 Review Zoning Bylaw and update residential EV readiness requirements to ensure that current municipal off-street charging requirements are sufficient and appropriate.	
◆	3.1.4 Explore authority of local government to require EV charger readiness (electrified, dedicated outlet) as part of the future Province of BC Retrofit Step Code.	



STRATEGY 3.2: Support the decarbonisation of fleet and larger vehicles

GHG impact:
High

Buses and trucks switch to electric, renewable fuels or green hydrogen



	Key Actions
■	3.2.1 Incent and support institutional and commercial fleets to switch to EVs, or other low carbon technologies (e.g., school district, transit, car sharing, ride hailing and taxis).
◆	3.2.2 Lead in electrifying (or implementing other low carbon technologies, such as hydrogen) municipal Medium-Duty and Heavy-Duty fleet vehicles. Utilize incentives and programs to pilot vehicles.
■	3.2.3 Implement the Municipal Energy and Emissions Plan with a focus on decarbonizing Squamish's fleet.

Total annual GHG emissions reductions for Big Move #3 in 2030: **2,000 tCO₂e**

Education and Engagement Priorities

- Continue to engage the public on EVs. Provide easily accessible information that dispels common misconceptions (e.g., actual emissions reductions and battery life) and enable learning exchanges to happen between citizens.
- Develop EV communications specific to builders/ developers, electrical trades, local businesses, and the general public.
- Provide education specific to Medium-Duty and Heavy-Duty fleet operators. Report on and share results of all municipal pilot projects and lessons.
- Promote cheaper overnight charging with BC Hydro's time-of-day pricing (discounted rate for electricity use between 11 pm and 7 am).
- Prioritize outreach, information and incentives to MURBs.



IDEA Considerations

Opportunities	Challenges
▪ Installing EV chargers in new buildings avoids expensive retrofits for future occupants. ▪ Operational cost savings of EVs can make them a more affordable long-term option, with overnight charging pricing offering further savings. ▪ Rebates can reduce the upfront costs of EVs. ▪ The market for used EVs is expanding, increasing access to lower cost EV options. ▪ Electric car sharing initiatives can enable EV use without ownership.	▪ Upfront costs of new EVs, even with available rebates. ▪ Challenges for residents who live in a multi-unit dwelling and/or don't have a dedicated parking space or garage for access to EV charging.

Big Move #4: Decarbonize Existing Buildings



2050 Vision: Energy retrofits occur in all types of buildings in Squamish.

Overview

In 2030, most of the buildings in the District of Squamish will be ones that are already standing today. Many buildings use more energy than is necessary and most currently rely on natural gas for space and water heating and cooking. Homeowners can pursue various degrees of building energy retrofits—from replacing individual pieces of equipment to comprehensive overhauls of the whole building, known as deep energy retrofits. Deep energy retrofits involve changes to the entire building, including insulation, windows and doors, as well as ventilation and space and water heating equipment. Most residents will only perform one deep retrofit on their home so it is important to make as many improvements as possible.

To maximize emissions reductions as well as energy reductions, many retrofits should include fuel switching to a heat pump (which enhances resiliency by providing air conditioning). On-site renewable energy generation is a newer and exciting opportunity for residents and businesses. The District of Squamish has limited jurisdiction over requirements for most existing building retrofits but has an opportunity to influence and enable building owners to make investments in the energy efficiency of their buildings.

Co-Benefits:

Energy Cost Savings



Jobs & Livelihoods



Resilience and Disaster Preparedness



2030 Goal:

3% of homes retrofitted per year, with an average 33% GHG reduction; 2% of homes switch to heat pumps per year.

Current State:



- Emissions profile:
- Energy use in buildings accounts for 26% of community emissions
- Progress to date (by end of 2024):
- Supporting home retrofits (including heat pumps) through the Retrofit Assist program
 - Retrofits in progress at Brennan Park Recreation Centre and Adventure Centre
- Supporting District of Squamish policies/plans:
- Municipal Energy & Emissions Plan

Provincial Action	Federal Action
CleanBC Better Homes links homeowners and renovators to rebates and resources, and CleanBC Better Buildings provides funding and capital incentives to encourage energy efficient renovation in larger buildings. The Province’s forthcoming Existing Buildings Renewal Strategy will enable increased energy efficiency retrofits. CleanBC’s Roadmap to 2030 includes a target stating that after 2030, all new space and water heating equipment sold and installed in B.C. will be at least 100% efficient.	The Canada Greener Homes Loan provides up to \$40,000 in interest-free loans for homeowners to make energy efficient upgrades.

Big Move #4 Strategies

STRATEGY 4.1: Enable and incentivize energy efficiency retrofits and heat pumps for homes

GHG impact:
High

Help people to retrofit their condos, townhouses and single family homes



	Key Actions	
■	4.1.1 Support the Retrofit Assist program to offer residents support for energy efficiency retrofits and heat pumps in Squamish. Provide financing support and increase the number of participants and the number of home types offered (beyond single family).	
◆	4.1.2 Grow the Retrofit Assist program to support more actions. Areas of expansion include resilience and renewable energy generation. Increase awareness and consideration of embodied emissions in retrofits.	
◆	4.1.3 Require minimum energy performance standards for part 9 (simple) buildings aligning with the Province's forthcoming retrofit code.	

STRATEGY 4.2: Enable and incentivize energy efficiency and low carbon heating retrofits for commercial buildings

GHG impact:
High

Help make commercial buildings efficient and low carbon



	Key Actions	
■	4.2.1 Create a bylaw that requires all part 3 (larger and more complex) buildings to report energy consumption. Use information for benchmarking and to support capacity building for commercial building owners and users.	
■	4.2.2 Support energy assessments, pilot projects and financing opportunities to facilitate energy efficiency retrofit project development and implementation activities in commercial buildings. Include renewable energy generation.	
◆	4.2.3 Require minimum energy performance standards for part 3 buildings aligning with the Province's forthcoming retrofit code.	



STRATEGY 4.3: Enable and incentivize renewable energy generation in homes and businesses

GHG impact:
Supporting

Generate renewable energy locally to reduce demand on the grid

	Key Actions	
	4.3.1 Create a renewable energy generation strategy that includes a focus on existing homes and businesses, and particular attention to social housing and below-market rental housing. Include best practices, incentives, and outreach and engagement.	
	4.3.2 Implement Squamish's renewable energy generation strategy.	
	4.3.3 Support the integration of battery storage systems to increase resilience to power outages.	

STRATEGY 4.4: Improve municipal buildings

GHG impact:
Supporting

Reduce energy use and emissions in Squamish's municipal facilities

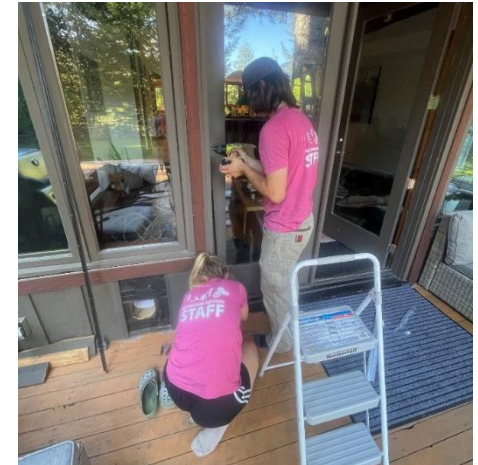


	Key Actions	
	4.4.1 Implement the Municipal Energy and Emissions Plan with a focus on retrofitting existing buildings. Support and enable retrofits through modelling and securing funding.	
	4.4.2 Establish energy benchmarking procedures for all municipal facilities. Join the Building Benchmarking BC initiative to understand, evaluate and communicate energy performance in Squamish's buildings.	
	4.4.3 Support renewable energy generation opportunities in District Buildings.	

Total GHG emissions reductions for Big Move #4 in 2030: 4,900 tCO₂e

Education and Engagement Priorities

-
- Provide easily accessible information to people to help inform purchases and retrofits that includes the business case and features local case studies. Focus on benefits related to comfort and air quality.
- Provide more contractor capacity building opportunities, particularly related to renewable energy generation. Offer professional development credits and other incentives to attend.
- Educate realtors on energy efficiency and low carbon choices for space and water heating.
- Ensure all capacity building actions around retrofits include embodied carbon considerations.
- Provide public information about municipal improvements and retrofits, such as a display at Brennan Park.
- Promote funding and rebate programs, including funding available for social housing projects (e.g. CleanBC Social Housing Retrofit Support Program and Social Housing Incentives Program).



IDEA Considerations

Opportunities	Challenges
▪ Homes with heat pumps can provide cooling in heat waves. ▪ Decreased home energy costs, due to efficient heating and cooling systems, and/or e panels. ▪ Availability of income-qualifying rebate programs for residents and specific funding for social housing projects. ▪ Employment and capacity building opportunities. ▪ Opportunity to increase accessibility in homes during retrofits.	▪ Upfront costs of retrofitting homes. ▪ Renters may find it difficult to advocate for energy efficiency upgrades. ▪ Equity deserving groups may face linguistic or other barriers in accessing information on the programs available.

Big Move #5: Construct better buildings



2050 Vision: New buildings in Squamish are efficient, use low-carbon energy sources and have lower embodied emissions.

Overview

While existing buildings generate the majority of building-related greenhouse gas emissions, local governments have significant authority to influence new construction. The District of Squamish' population is growing at a rate of 2.9%. Every new building built to minimum code standards is a lost opportunity for improved energy efficiency and reduced carbon emissions, and is one more building that will have to be retrofitted in the future. Squamish has already implemented the Energy Step Code, and the Zero Carbon step code to improve building energy performance and reduce emissions. There are further opportunities with incentives, penalties and policies. Additionally, the embodied carbon associated with a new building is significant, and reducing these emissions is an important priority. Heat pumps also can provide an important resilience function by offering cooling.

Co-Benefits:

Energy Cost Savings



Jobs & Livelihoods



Resilience and Disaster Preparedness



2030 Goal:

100% of new buildings are efficient, low carbon and have reduced embodied emissions

Current State:



Emissions profile:

- Energy use in buildings is 26% of community emissions

Progress to date (by end of 2024):

- Adopted top level of the Zero Carbon Step Code (2024)
- New District constructions have been efficient and low carbon – including fire halls
- Leadership in embodied carbon and co-creation of an Embodied Carbon Guide

Supporting District of Squamish policies/plans:

- Official Community Plan
- Municipal Energy & Emissions Plan
- Building Bylaw and Zoning Bylaw

Provincial Action	Federal Action
The BC Building Code adopts progressive BC Energy Step Code performance targets so that by 2032 all new buildings will be “net zero energy ready”. The Code also includes Zero Carbon Step Code targets. CleanBC Better Homes links homeowners and residential builders to rebates and resources, and CleanBC Better Buildings provides funding and capital incentives to encourage energy efficiency in larger buildings.	In 2022, the Standard on Embodied Carbon in Construction took effect, requiring the disclosure of and 10% reduction in the embodied carbon footprint of structural materials, starting with ready-mix concrete, used in major government projects. It applies to projects valued at \$10 million or more and expected to use more than 100 m³ of concrete.

Big Move #5 Strategies

STRATEGY 5.1: Enable and incentivize new buildings that are efficient and use low-carbon energy sources

All new buildings are high energy performance

GHG impact:
Very high

Key Actions

◆	5.1.1 Develop roadmap for transition to the highest Energy Step Code Step applicable for all buildings. Initiate more rapid adoption of Step Code for larger homes.
■	5.1.2 Spatially track EnerGuide assessment results for all buildings. Work with Province to make information publicly accessible.
◆	5.1.3 Utilize a density bonus system to incentivize net zero, higher step code, or more efficient construction in exchange for additional residential density or reduced parking standards.
■	5.1.4 Implement the Municipal Energy and Emissions Plan with a focus on new building construction.
◆	5.1.5 Require energy ratings for all new and existing homes. Provide education to realtors.



STRATEGY 5.2: Enable and incentivize renewable energy generation in new buildings

GHG impact:
Supporting

Encourage homes to generate and possibly store electricity

	Key Actions
	5.2.1 Create a renewable energy generation strategy that includes a focus on new buildings in Squamish. Pay particular attention to social housing providers and below-market rental housing. Include multiple forms of renewable energy generation (e.g., solar, wind, biomass), incentives, and outreach and engagement. 
	5.2.2 Implement the renewable energy generation strategy and incentivize low carbon energy sources for new buildings. Possible mechanisms include density bonus structures, parking standards or Energy Step Code considerations. Move from incentives to requirements.
	5.2.3 Explore a 'resilient roofs' initiative that requires larger new buildings to have a combination of green roof, blue roof and/or solar PV for at least 50% of roof space.

STRATEGY 5.3: Reduce embodied emissions of new buildings

GHG impact:
Medium

Promote use of low embodied carbon materials and encourage reuse

	Key Actions
	5.3.1 Support and encourage the use of building materials that have less embodied emissions and/or store carbon through allowing additional development density, parking variances or other incentives.
	5.3.2 Encourage adaptive reuse and repurposing of existing buildings rather than demolition and allow for the relocation of buildings.

GHG emissions reductions are either supporting or included in the BAU where implementation of actions has already begun.

Education and Engagement Priorities

- Offer and promote training and education programs to build industry capacity regarding efficiency and low carbon space heating (and cooling), water heating and appliances.
- Promote/provide education for realtors on systems and selling high performance buildings.
- Create communications on renewable energy systems, including promoting rebates or incentives available to residents and the commercial sector.
- Engage with the construction sector regarding embodied carbon. Areas of focus include wood construction, lower carbon cement options, insulation, and methods to quantify embodied emissions.
- Explore, support and perform outreach related to modular or prefabricated buildings.



IDEA Considerations

Opportunities	Challenges
▪ Employment opportunities in zero carbon, low embodied emissions building design, supplies and construction. ▪ Healthier and more resilient homes due to better materials, efficiency, and heat pumps that provide cooling. ▪ Decreased home energy costs, due to efficient heating and cooling systems, airtight envelopes, and/or solar panels. ▪ Specific funding available for social housing projects.	▪ Affordable housing – potentially higher costs of building to higher levels of Energy Step Code and Zero Carbon Step Code.

Big Move #6: Other organizational actions



2050 Vision: Squamish continues to learn, improve and prepare for a low-carbon future.

Overview

Beyond Actions in the first five Big Moves, many other factors are important for the successful implementation of emission reduction plans. These include establishing broad support for implementation, building staff capacity for implementation, and institutionalizing climate action. Other opportunities include building collaborative partnerships that help all parties reduce emissions.

Carbon offsets are an opportunity with many co-benefits that will become more important as Squamish strives to be net carbon neutral. Exploring natural climate solutions, such as restoration initiatives and the use of green infrastructure techniques, are necessary in the path towards net zero emissions. These measures will also help conserve biodiversity as well as increase resilience to climate change impacts, for example through retaining rainwater to prevent flooding or the use of urban trees to reduce the urban heat island effect.

Co-Benefits:

Resilience and Disaster Preparedness



Jobs & Livelihoods



Biodiversity and Ecological Connectivity



2030 Goal:

DoS leads by example on climate action

Current State:



Emissions profile:

- The strategies in this Big Move play a supporting role to ensuring organizational and governance measures are favourable for the implementation of climate action
- Carbon sequestration measures are important in providing offsets for residual emissions that remain as Squamish gets closer to net-zero emissions

Progress to date (by end of 2024):

- Created a budget tool to evaluate if projects are in line with GHG reduction targets (2022)
- Joined the Low Carbon Registry program to track GHG reduction projects
- Initiated urban tree canopy study in 2024 to guide future urban forest management strategy

Supporting District of Squamish policies/ plans:

- Official Community Plan
- Municipal Energy & Emissions Plan
- Emerging Sector Action Plan

Big Move #6 Strategies

STRATEGY 6.1: Build internal systems to support climate action

GHG impact:
Supporting



	Key Actions
●	6.1.1 Continue to improve the incorporation of greenhouse gas emissions and sustainability considerations into purchasing policies through updates to the Social Procurement Policy.
●	6.1.2 Update the Municipal Energy and Emissions Plan at least every 5 years.
◆	6.1.3 Integrate climate action into financial planning and budget processes by including GHG reduction potential into decision-making framework for capital projects and strategic plans. e.g. through internal carbon pricing, creating a climate considerations section of all Council reports.
■	6.1.4 Foster a staff culture committed to climate action by integrating climate action into job descriptions, hiring processes and District communications. Embed ongoing climate action into other planning documents, bylaws and policies, and departmental/master plans.

STRATEGY 6.2: Measure and report on progress

Commit to continual improvement and accountability for implementation

GHG impact:
Supporting

	Key Actions
●	6.2.1 Maintain and update the Community Climate Action Plan every 3-5 years.
■	6.2.2 Track and report progress on Plan implementation, including annual updates on actions taken and progress towards meeting targets, including quantifiable metrics where possible. Enable and support annual community GHG reporting.

STRATEGY 6.3: Align business development activities to support climate actions

Encourage local green jobs

GHG impact:
Supporting

	Key Actions
■	6.3.1 Support growth of local business, home-based workforce development and local startups with incubation, acceleration programming and shared resources.
■	6.3.2 Continue to support community mobilization on climate action through identifying key sector opportunities (e.g., prefabricated buildings, clean technology, circularity), workforce training, supporting community organizations and fostering cross-sectoral initiatives.



STRATEGY 6.4: Support Natural Climate Solutions and Carbon Sequestration

Explore nature-based and technological mechanisms to move toward net zero emissions

GHG impact:
Supporting

	Key Actions
◆	6.4.1 Explore the integration of Green Infrastructure into District infrastructure and development projects (i.e., bioswales, green roofs, blue roofs, street trees) and by developers (i.e., requiring bioswales and/or street trees adjacent to new developments).
■	6.4.2 Undertake land use mapping to evaluate carbon sequestration potential of land use types with the District, and monitor land use change. Support land use practices that enhance carbon sequestration (e.g., community forest projects and regenerative agricultural practices).
◆◆	6.4.3 Encourage carbon capture and sequestration in local industry: support local industrial emitters of CO ₂ to capture and store CO ₂ , and encourage the development of infrastructure to transport CO ₂ from emitter site to sequestration site.

GHG emissions reductions for Big Move #6 are not modelled, but support implementation

Education and Engagement Priorities

- Continued engagement with the community members, including events specifically oriented to youth, older residents, commuters and other members of the community.
- Tailored outreach on climate action opportunities for equity deserving groups who may not otherwise come across this information.
- Engage with youth and schools to help younger citizens increase understanding, become more municipally engaged, and participate in climate action.
- Update the District Climate Action website to reflect the CCAP Updates and report on progress.
- Specific training, education and updates for District staff.
- Investigate/Collaborate on carbon dioxide removal.



IDEA Considerations

Opportunities	Challenges
▪ District Communications targeted to equity-deserving groups increase the likelihood of these residents benefitting from climate action programs. ▪ Local organizations may be able to receive offset credits to support conservation, restoration or other initiatives that store carbon.	▪ Limited ability for District to support/enhance activities related to business or economic development.

Modelled Emissions Reductions of Actions

The Strategies and Actions in the preceding sections represent a highly ambitious climate action plan. Many of the Strategies and Actions in the CCAP Update (e.g., renewable energy generation, deconstruction and mode share) are bold, and will require significant leadership and resources to implement.

Forecasted Emissions Reductions

Figure 11 shows the modelled emissions reductions that can be achieved by implementing the Plan's actions. If all Big Moves are successfully implemented in Squamish to the extent outlined in this Plan, **GHG emissions in 2030 could be reduced by 7,187 tCO₂e or 7% below 2010 levels. In 2050, emissions could be reduced by 75,772 tCO₂e, or 69% below 2010 levels.** Population growth and the lag time for ZEV mandates to take effect have a significant impact on the ability to meet the community's targets of 45% reduction by 2030 compared to 2010 baseline, and net zero emissions by 2050, yet substantial emissions reductions can be achieved.

If the Plan's Big Moves are implemented, per capita emissions would decrease from 6.5 tCO₂e/capita in 2010 to 3.4 tCO₂e/capita in 2030 (47% reduction) and 0.6 tCO₂e/capita in 2050 (90% reduction).

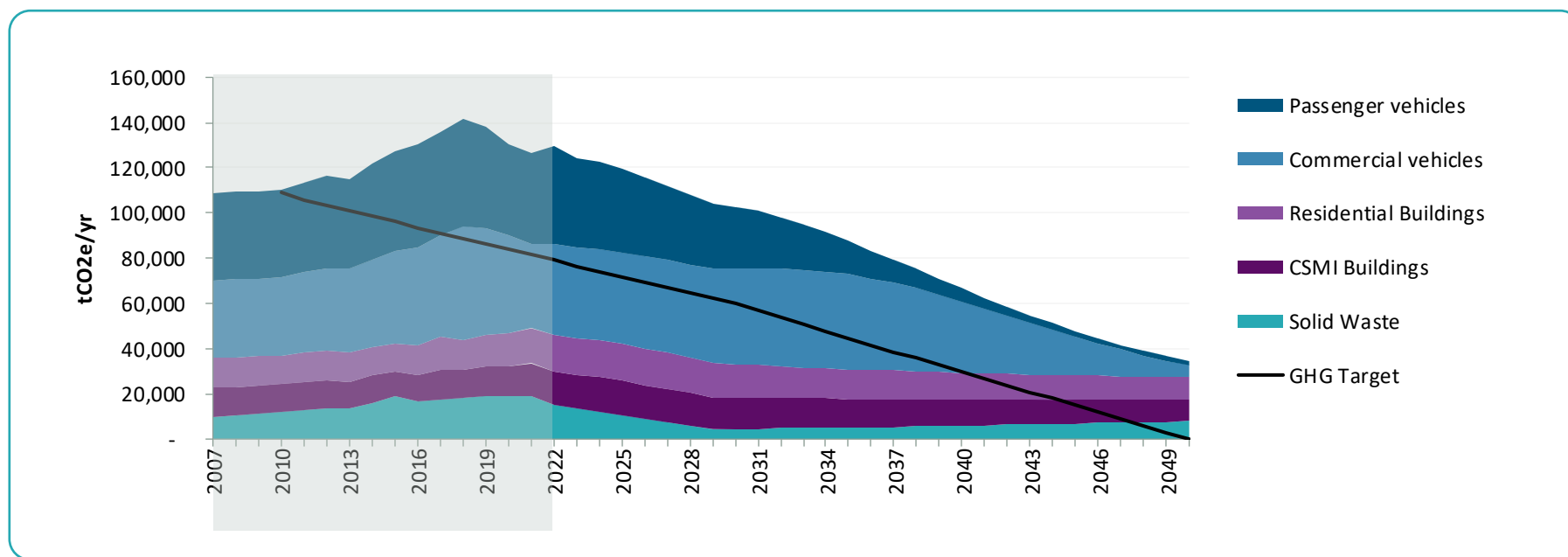


Figure 11: Modelled GHG Emissions Reductions from Plan Implementation, by Sector

While current modelling estimates that Squamish will fall short of the target, it is anticipated that new technologies and supplies of renewable fuels will become more widely available, and policies such as the Province's proposed Highest Efficiency Equipment Standards for Space and Water Heating would further reduce natural gas use in buildings on a faster timeline than outlined in the plan. While the focus of the CCAP is on mitigating emissions, closer to 2050, natural climate solutions and carbon sequestration may become more important for offsetting remaining emissions and hard to decarbonize sectors, in order to reach the net zero target.

Figure 12 shows the emissions reduction by Big Move in 2030 relative to the BAU.⁴ The largest opportunity for GHG reduction is from diverting organic waste from landfill and improving the landfill gas capture and flare system, which could reduce 10,600 tCO₂e annually. Retrofitting the existing building stock for both fuel switching (e.g., electric heat pumps) and improved energy efficiency present reductions of 4,900 tCO₂e per year. Strategies to increase the use of active transportation, micro-mobility and transit collectively reduce emissions by 2,500 tCO₂e/yr. While the BAU scenario assumes a

⁴ Note, for Big Move 5 (New Buildings) the impact of the Zero Carbon Step Code is included in the inventory and BAU scenario, having the most substantial GHG emissions reduction from that Big Move (2,100 tCO₂e/yr). Big Move 6 strategies are categorized as Supporting and therefore are not modelled.

certain level of vehicle decarbonization attributed to policies from other levels of government, actions undertaken by the District within this Big Move present an opportunity for further emission reductions of 2,300 tCO₂e annually.⁵

The modelling methodology is described in detail in Appendix D.

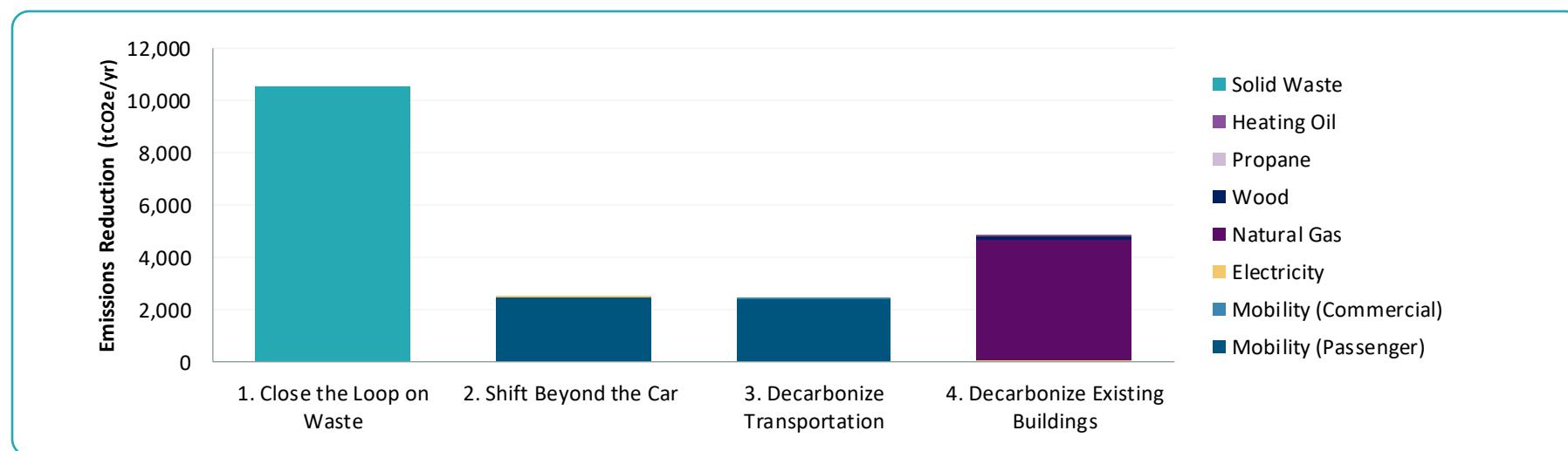


Figure 12: Emissions Reduction by Big Move in 2030, Relative to BAU

Summary and next steps:

As previously noted, Squamish’s current stated goal is to reduce GHG emissions by 45% in 2030, compared to 2010 levels. This means that, to achieve the target, Squamish would have to emit at least 50,058 fewer tCO₂e in 2030 than it did in 2010. The BAU scenario indicates the Squamish would produce 13,493 more tCO₂e, which represents a 12% increase, and the CCAP scenario (where all Strategies and Actions are implemented) indicates that Squamish is projected to achieve emissions reductions of 7,178 tonnes CO₂e (or 7%) by 2030, compared to 2010 levels.

Under the current scenario and modelling assumptions, Squamish will not hit its absolute targets, largely due to population growth. However, per capita emissions could decrease by 47% by 2030 and 90% by 2050, compared to 2010, with a 0.6 tCO₂e per capita emissions level achieved by 2050.

⁵ Switching to EVs results in 2,374 tCO₂e reduction from mobility fuels and 27 tCO₂e increase in mobility electricity, with a net reduction of 2,347 tCO₂e.

There is projected to be a more rapid emissions drop between 2040 and 2050 for medium and heavy-duty vehicles, when ZEV sales mandates have been established for longer, resulting in most gas and diesel-powered vehicles being phased out. By 2040 there will likely be many new technologies and practices that will enable further emissions reductions. The Table below provides a summary of the outputs.

Table 6: Overview of emissions reductions scenarios.

		2010 (Baseline)	2022	2030	2040	2050
BAU Scenario	Community GHG Emissions (tCO₂e)	110,079	131,041	123,572	102,381	67,094
	% change from 2010	n/a	+19%	+12%	-4%	-39%
	Per capita emissions (tCO₂e)	6.5	5.5	4.1	2.6	1.3
	% change from 2010	n/a	-15%	-36%	-60%	-81%
CCAP Scenario	Community GHG Emissions	110,079	131,041	102,892	66,677	34,307
	% change from 2010	n/a	19%	-7%	-39%	-69%
	Per capita emissions (tCO₂e)	6.5	5.5	3.4	1.7	0.6
	% change from 2010	n/a	-15%	-47%	-74%	-90%
Population assumptions	Estimated population (based on 2.9% per year growth)	17,047	23,824	30,006	40,034	53,414

It is believed that net carbon neutrality can be achieved with a 0.6 tCO₂e per capita emissions level with the adoption of policies and practices that support natural climate solutions and/or with other carbon sequestration measures (some of which are outlined in Big Move 6, such as carbon capture in Action 6.4.3). These Actions are not currently modelled but represent significant opportunities for net emissions reductions. These reductions align with Squamish's commitment to reduce GHG emissions as per Objective 19.3a. of the Official Community Plan, which states *"Reduce GHG emissions in alignment with the latest values set by the Intergovernmental Panel on Climate Change to limit warming to 1.5°C, or other more stringent science-based metrics."*

Advocacy and Collaboration

Different levels of Government can influence GHG emissions and have specific roles, outlined below:

Levels of Government	Jurisdiction Related to Climate Action/Energy	Examples of Areas of Influence
Federal 	Federal environmental policies and programs, national standards, national greenhouse gas (GHG) emissions targets, and funding.	- Budget - Policy and law
Provincial 	Provinces and Territories have constitutional jurisdiction over energy production. Most have GHG emissions targets, and support Local Governments to help them achieve these.	- Highways - Schools - Hospitals - Social Services - Education - Health Care - Industry
Indigenous	Indigenous governance structures vary from treaty to non-treaty, traditional leadership to elected councils and as such they may enact varying degrees of authority and influence over key emissions sectors. Indigenous knowledges and practices are often at the forefront of climate action initiatives, such as promoting energy sovereignty and environmental stewardship.	Self-governing; administration of their people, land, resource and related program and policies. Some communities have greater influence other additional sectors, such as: - Residential housing - Businesses and industry, including fishing, forestry, mining and renewable energy - Indigenous protected and conserved areas (IPCAs)
Local 	Local Governments have influence over ~50% of GHG emissions in Canada, and therefore play a key role in climate change mitigation and adaptation, making their communities healthier, resilient, more liveable and connected.	- Zoning & Land Use - Transit - Active Transportation - Parks & Recreation - Water/Wastewater - Garbage, Recycling & Compost - Infrastructure Roads & Parking

Figure 13: Influence and Jurisdiction over Climate Action by Levels of Government and Indigenous Communities

Furthermore, individual and collective action by residents and businesses reduces local GHG emissions and enhances resilience to climate impacts. Individual choices can include: where you live, work and play; energy use for heating and cooling; transportation choice; landscaping selections and outdoor water management; waste reduction; and disaster preparedness. Businesses can also play a role in facilitating community climate action through the products and services that they provide, and support offered to employees (e.g., promoting carpooling or active transportation to work, and having work from home options).

In order to succeed, the District of Squamish will need leadership and/or support from other orders of government, collaboration with Skwxwú7mesh Úxwumixw (Squamish Nation) as well as commitments from residents and businesses. Therefore, advocacy and collaboration will also be necessary to achieve more significant GHG emissions reductions. Table 8 shows areas that were identified as being important topics that are outside the direct jurisdiction of the District of Squamish.⁶ Afterward, Figure 14 shows different sources of emissions for reference.

Table 8: Advocacy opportunities for climate actions that District of Squamish has limited jurisdiction over (with significant emissions reductions moves **bolded)**

Big Move	Climate actions - limited District of Squamish jurisdiction	Advocacy or Collaboration partners
#1: Close the loop on waste	Explore strategies to manage current forestry wood waste in Squamish (e.g. from log sorts, mills).	Province of BC, forest industry
	Assess existing buried wood waste and determine options for resource recovery.	Province of BC
	Support community groups to develop infrastructure that would foster local, circular food systems, such as food production and processing, markets, shared commercial kitchen space, food recovery, distribution centre/warehouse, cold storage facility.	Community groups, external funders, businesses
	Support community groups or social enterprises to establish textiles sharing, repair and upcycling initiatives.	Community groups, external funders, businesses
	Explore and evaluate long term waste-to-energy projects (either in Squamish or with Squamish waste being shipped to another facility).	Province of BC, businesses

⁶ Several of these are actions that were included within the Big Moves in the original 2020 CCAP, but were identified as low level of influence.

Big Move	Climate actions - limited District of Squamish jurisdiction	Advocacy or Collaboration partners
#2: Shift Beyond the Car	Continue to collaborate with neighbouring communities on safe and convenient inter-community transit that is responsive to the needs of the communities. Work with BC Transit to establish an optimal frequency on the frequent transit network during peak times. Advance interim regional transit approach. Encourage local businesses to be more bike-friendly for employees and clients, e.g. provision of bike racks.	Pemberton, Whistler, Vancouver, Squamish Nation, BC Transit Province of BC Local businesses
#3: Decarbonize Transportation	Implement a non-municipal commercial/institutional EV charging network, with emphasis on hub-style charging to leverage fleet needs and electrification of delivery bays. Identify early adoption opportunities of low-carbon bus and transit options (recognizing 100% electric transit target for BC Transit, and available school bus funding for School Districts). Complete a needs assessment for community wide fleet charging/fuelling requirements, that identifies heavy duty charging/fuelling hubs. Plan to optimize opportunities for marine transport (e.g., passenger ferries), or other forms of lower carbon transportation for shipping. Explore opportunities for rail transportation Support local businesses in pilot projects, funding applications and outreach, including projects related to green hydrogen in the region.	Province of BC BC Transit and School District Commercial fleet operators, shipping companies, businesses BC Ferries, shipping companies BC Rail Local businesses

Big Move	Climate actions - limited District of Squamish jurisdiction	Advocacy or Collaboration partners
#4: Decarbonize Existing Buildings	Encourage owners of large commercial or institutional buildings to participate in benchmarking programs (e.g. Building Benchmarking BC). Encourage realtors to promote energy efficient features of homes and their co-benefits, as well as the added value of renewable energy generation. Work with the Province to develop energy benchmarking and disclosure enabling legislation as well as a common provincial program, which would allow the District to require the disclosure of building energy use information in the community. Support the public disclosure of this information for retrofit economy development purposes Collaborate with others to provide extensive training and development for heat pump system designers and installers.	Large building and/or business owners Realtors Province of BC Heat pump manufacturers and suppliers
#5: Construct better buildings	Advocate for regulations or incentives that reduce embodied carbon in buildings, ranging from standards for insulation materials, to building-wide embodied carbon reduction targets. Encourage developers and realtors to promote energy efficient features and EV charging provisions of new homes and their co-benefits, as well as the added value of renewable energy generation.	Provincial and Federal governments Realtors, developers
#6: Organizational Leadership and Other	Advocate for major low-carbon energy or industrial projects to move forward, and/or for high-carbon energy or industrial projects to not move forward. Collaborate with Regional District, the Ministry of Agriculture and others to explore opportunities to increase our knowledge of agriculture-related and land use emissions, and to lower emissions. Collaborate with other local governments in the region on regional climate action planning or governance initiatives (e.g. sharing policy templates and best practices).	Provincial and Federal governments Regional District, the Ministry of Agriculture Pemberton, Whistler, Vancouver, Squamish Nation

Advocacy and collaboration actions will influence the reduction of the three major sources of emissions in the District Squamish. These are represented in Figure 14: community emissions that are in scope of the CCAP inventory, consumption-based emissions, and industrial emissions⁷ that are out of scope of the CCAP and regulated by the Province, yet contribute significantly to GHG emissions.

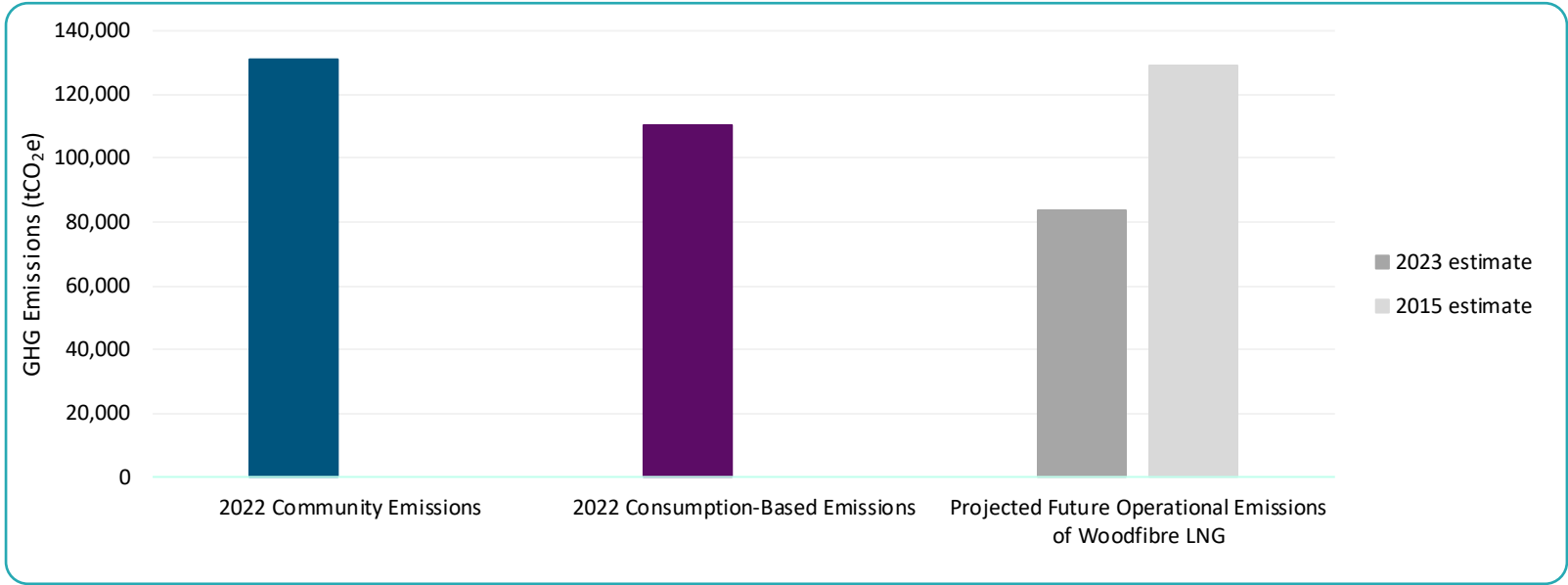


Figure 14: Sources of GHG emissions (tCO₂e) in Squamish: 2022 Community and Consumption-Based Emissions vs Future Industrial Emissions

⁷ Note that two emission estimation calculations for Woodfibre LNG are shown: the 2015 estimate is from a study conducted by Golder Associates as part of Woodfibre’s environmental impact statement (see: <https://woodfibrelng.ca/wp-content/uploads/2020/05/Mantle-Briefing-Note-May-2020.pdf>), while the 2023 estimate comes from an analysis conducted by Brightspot that used updated information considering emission reduction strategies developed after the release of the Golder study (see: https://woodfibrelng.ca/wp-content/uploads/2024/04/WLNG-Net-Zero-Strategy-April-25-2023_.pdf).

Implementation for Success

Several key factors are important for the successful implementation of community energy and emission reduction plans based on research conducted by CEA, QUEST, and Smart Prosperity.⁸ Among others, they include establishing broad support for implementation, building staff and financial capacity for implementation, and institutionalizing the plan in order to withstand political and staff turnover. On a global scale, the costs needed to make deep emissions cuts are far less than dealing with the impacts of uncontrolled climate change. Therefore, investments today avoid far greater future costs related to resilience and adaptation measures and are crucial for intergenerational equity.

With regards to institutionalization, ideas on how this can be done are shown in the table below.

Incorporate	Embed climate action into other planning documents such as the OCP, bylaws and policies, and departmental/master plans. Climate action should also be incorporated into District staff job descriptions. Some communities report on climate action or sustainability implications in reports to Council.
Budget	Embed climate action into the budgeting and procurement processes.
Monitor	Monitor indicators as outlined in the Monitoring and Evaluation section.
Convene	Host regular meetings to discuss implementation with internal and/or external stakeholders.
Report	Report regularly to Council on progress and accomplishments. Annual reporting is recommended. It can be integrated with LGCAP reporting.
Renew	Prepare for plan renewal approximately every five years.

⁸ Community Energy Implementation Framework, <https://questcanada.org/getting-to-implementation-in-canada/>

Monitoring and Evaluation

Monitoring and evaluating the implementation of the Climate Action Plan is critical for its success. Key Performance Indicators (KPIs) enable communities to measure the outcomes of a plan’s implementation. When KPIs are monitored regularly, communities can determine how to best allocate resources to support implementation, and what success different actions are having. See Appendix E for Sample Key Performance Indicators.

Funding

Funding sources that communities typically use for climate action are shown in the table below.

Internal Funding Sources	External Funding Sources
- Local Government Climate Action Program funding - Allocation from operating budget - Climate Action Levy (Reserve Fund): taxation revenue put aside to ensure greater ability to invest in more significant projects and provide match funding for grants - Revolving fund: energy savings from municipal projects are reinvested in future projects - Forgone revenue - General revenue (e.g., property taxes) - Recycling and solid waste user fees - Building permit fees and other service fees charged by Development Services - Water user fees	- UBCM Gas Tax Agreement Funds - FCM’s Green Municipal Fund supports plans, studies, capital projects and pilot projects for environmental initiatives in a number of focus areas - Federal government programs such as the Low Carbon Economy Challenge and Clean Energy Innovation Program - Provincial government programs such as the Go Electric Fleets Program, BikeBC Program, and CleanBC Communities Fund - Emotive grants for EV educational events to foster greater EV adoption - CleanBC energy efficiency incentives for new home construction and for increasing energy efficiency in existing buildings - BC Housing for education or demonstration projects to encourage the building industry to construct low energy and GHG emission homes

A Climate Action Levy dedicates a percentage of taxation revenue annually for climate action initiatives (often held in a Reserve Fund). Examples include:

- North Cowichan, BC: 0.5%/yr
- Kamloops, BC: 0.35%/yr gradually increasing to 3.5%/yr over ten years
- Peterborough, ON: 0.25%/yr
- Halifax, NS: 3%/yr

Conclusion

The District of Squamish has made significant progress on implementing the Actions outlined in the original 2020 CCAP, with community per capita emissions declining by 15% from 2010-2022. The CCAP Update builds upon this strong foundation and integrates substantial feedback from community engagements to provide a pathway toward deeper emissions reductions. While retaining the 6 Big Moves of the original plan, the CCAP provides more streamlined Strategies with less prescriptive Actions to allow for flexibility and locally relevant solutions in a time of rapid technological and policy change. Acknowledging the enhanced understanding of the role of embodied emissions and the increasing relevance of local renewable energy in the BC context since 2020 are two new topics that have been integrated into the plan. Additionally, greater IDEA considerations highlight opportunities and challenges for equitable climate action.



Going forward, the District has a clear path to reduce emissions within their direct control, while using policy, incentives and the provision of public infrastructure to enable community-wide participation. The District can lead on many of the Actions within the plan; however, the education and engagement priorities highlight the importance of community members, local businesses and interest groups in advancing climate action. Through advocacy and collaboration, the District can also strive to influence sectors beyond its jurisdiction, enabling further benefits to the community. Sk̓wxwú7mesh Úxwumixw (Squamish Nation) will continue to be a key partner for information sharing and identifying joint projects of interest to meet mutual climate action goals.

If implemented, the Strategies and Actions in the CCAP Update will not meet the absolute GHG reduction target of 45% by 2030, but they are projected to result in a per capita decrease in carbon emissions of 47% by 2030 and 90% by 2050, with 0.6 tCO₂e/capita/year in 2050.

Working together, the District, community partners, residents and businesses all have a role to play in advancing climate action and in turn, realizing co-benefits for the community. From stimulating local economic development, to preserving local ecosystems that enhance resilience to extreme weather impacts, to making our homes more comfortable with lower energy costs, the CCAP Update shows a path forward to a positive, low carbon, more equitable and more prosperous future.

Glossary

AAA	All Ages and Abilities
BAU	Business as Usual
CEEI	Community Energy and Emissions Inventory
CCAP	Community Climate Action Plan
CSMI	Commercial and Small Medium Industrial
ESC	Energy Step Code
EV	Electric Vehicle
GHG	Greenhouse Gas
GJ	Giga Joule
IDEA	Inclusion, Diversity, Equity and Accessibility
IPCC	Intergovernmental Panel on Climate Change
kWh	Kilowatt hour
MURB	Multi Unit Residential Building MURB
OCP	Official Community Plan
Part 3 Buildings	Larger more complex buildings over 600 square metres and typically over three stories in height
Part 9 Buildings	Smaller building intended for residential, commercial or low-hazard industrial activities
tCO₂e	Tonnes of carbon dioxide equivalent
VKT	Vehicle Kilometres Travelled
ZEV	Zero Emissions Vehicle
ZCSC	Zero Carbon Step Code

Appendix A: Plan Update Process

The development of the District of Squamish CCAP Update followed this process:



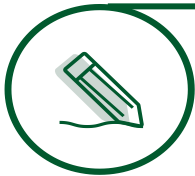
Modelling & Analysis

- UBC Sustainability Scholar compiled research and recommendations on embodied emissions
- Review and analysis of community energy use and emissions data, as well as consumption-based inventories
- Modelling “business as usual” projections, incorporating actions underway from the 2020 CCAP



Engagement

- Staff Working Group and Climate Leadership Team (CLT) workshops to review existing and potential future actions
- Public outreach including an Open House, survey, events and youth engagement



Recommend Actions and Draft Plan

- Updating actions based on engagement, modelling and analysis
- Modelling the possible impact of new proposed actions and targets on energy use and emissions
- Creating an implementation strategy



Deliver Final Plan

- Refining the draft plan following feedback from staff and the CLT
- Presenting the final draft plan to Council

Appendix B: Engagement Highlights

See squamish.ca/climate-action for the full Engagement Summary report and survey results.

Overview of activities

➤ Reestablishment of Climate Leadership Team (CLT)

- The CLT was created to guide the initial CCAP, and was reestablished for the CCAP Update. The group consists of six community members who are subject matter experts and local champions for climate action. The group came together in an initial meeting, performed reviews of the original CCAP, participated in a workshop with the SWG to refine the Plan, and met to review the full draft CCAP Update. They provided valuable insights drawing from their roles in different organizations, knowledge of emerging technologies and practices, and understanding of the current political landscape in BC, Canada and beyond. Key feedback included cautions about Actions that could cause political backlash, highlighting co-benefits as primary rationale for many Actions, and opportunities for key sectors of the community such as residents of MURBs and commuters.

➤ Establishment of a Staff Working Group (SWG)

- The SWG consisted of 14 municipal staff that represent a range of departments including: economic development, planning, engineering, public works, building and public safety. The group came together in an initial meeting, performed reviews of CCAP Actions, participated in a workshop along with the CLT to refine the Plan, and met to review the full draft CCAP Update. The CLT provided expert knowledge related to their departments, and were able to identify supporting (and sometimes conflicting) policies and plans so that redundancies could be minimize. The group also were able to identify some Actions that are no longer relevant or are untenable

➤ Public Open House

- A public open house was held at the library on October 9, 2024 to give an opportunity for all community members to provide input on the overall priorities, Big Moves and Action in the CCAP. Approximately 45 members of the public attended the event and provided feedback on specific Big Moves, on co-benefits and engagement opportunities. Transit was a major priority identified, and community members expressed considerable enthusiasm regarding Circular Economy initiatives. There was support for renewable energy; however, most community members acknowledged that they were unlikely to pursue renewable energy generation in their homes in the near future for a number of reasons. There was a strong appetite for more engagement and more community events.

➤ IDEA and Accessibility meetings

- Staff met with the District IDEA committee and the Accessibility steering committee to better understand how the CCAP Update can reflect the needs of all residents. Transit was identified as a key Action that addresses GHG emissions and all of the IDEA principles.

People stressed that accessible parking should not decrease even if overall parking does. There are opportunities to enhance accessibility during home retrofits. Members also identified opportunities to engage with diverse communities within Squamish.

➤ **Meetings with Squamish Nation**

- Two meetings with Squamish Nation were held to discuss opportunities for collaboration, and Squamish Nations new 'Climate Legacy Strategy'. Active Transportation and transit were identified as top priorities if both communities are to achieve their 50% mode shift targets. The District may be able to assist Squamish Nations EV efforts, and Squamish Nation could potentially join the Retro fit Assist program. Regular meetings were proposed to share ideas, best practices and progress.

➤ **Youth Outreach**

- Specific outreach to youth was held via school presentations, a presentation and discussion with the Squamish Youth Council and an Event at the Foundry. During these events transit was repeatedly stressed as a priority (especially regional transit),

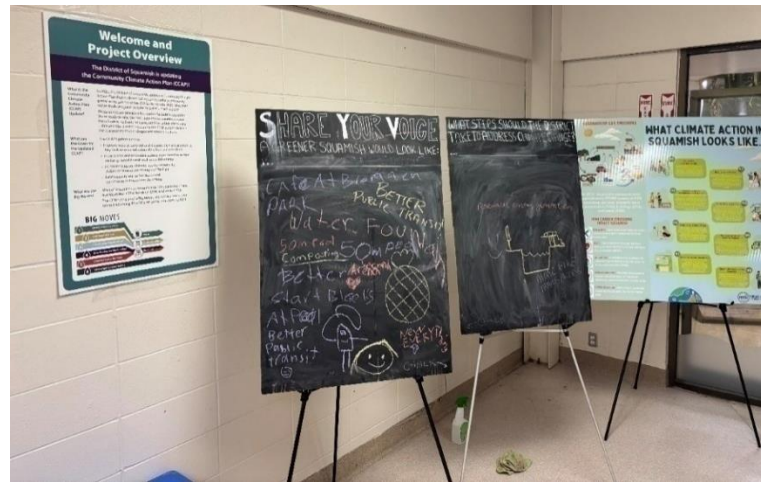
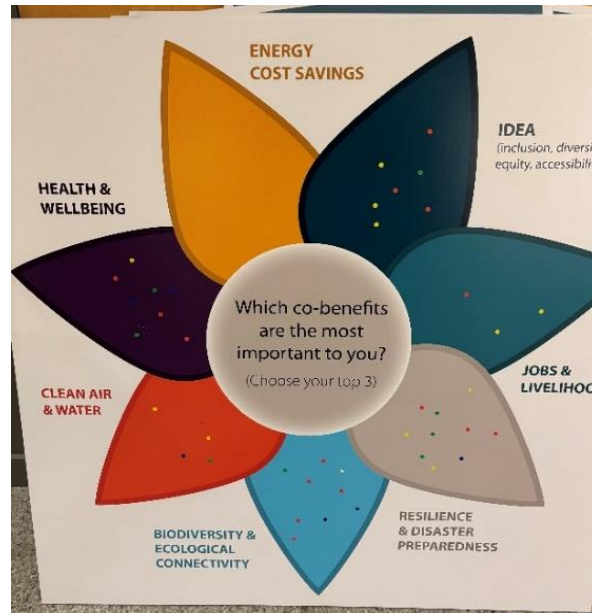
➤ **Additional in-person events**

- Additional outreach events occurred at the farmers market, Open Street Day, Zero Waste events, Intergenerational Conversation events, a mayor's drop in and an interactive Display at Brennan Park and Mayor's drop in. Transit was repeatedly identified as a top priority for action. Many residents expressed significant concerns about the Woodfibre LNG project and the associated emissions. Several residents expressed pride at local progress and emphasized a desire to hear more about Squamish's successes on the website and through other forums.

➤ **Online survey**

- See next section

Figure 15 Images from engagement events



Survey Highlights

There were 236 respondents (196 online, and 40 paper copies)

87% of respondents somewhat to very concerned about local climate change impacts.

Highest priority actions:

- Promoting waste reduction and circular economy
- Improving transit
- Expanding active transportation infrastructure

Top-ranked actions to enhance inclusive and equitable climate action outcomes:

- Offering more affordable, accessible transportation options
- Promoting and enabling energy upgrades and heat pumps
- Building a more compact community, with safer routes to walk, cycle and roll for all ages and abilities.

Top 3 ranked co-benefits:

- Biodiversity and ecological connectivity
- Resilience and disaster preparedness
- Jobs and Livelihoods

Reconciliation: 85 respondents provided feedback on how to advance reconciliation through climate action priorities.

Key themes were: collaboration and co-leadership; honoring Indigenous knowledge and land stewardship; improving relationships and trust; and, supporting Indigenous-Led projects and priorities

Other key themes in comments or open-ended questions included: environmental protection and conservation; affordable, energy efficient and accessible housing; community connection and engagement; food security and local food systems.

Likelihood of installing solar:

38% of respondents were somewhat or very likely to install solar on their home and/or business in the next 5 years; 41% were not likely to; 5% already have solar.

Appendix C: Climate Action Context: from Global to Local Levels

Global Action

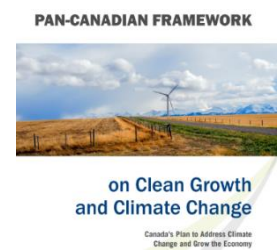
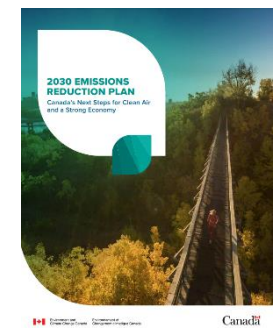
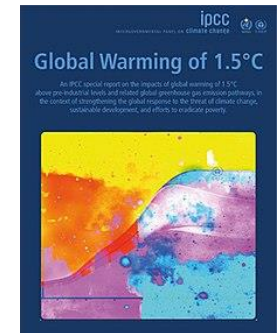
When Canada signed the Paris Agreement in 2015, we joined a global commitment to keep global warming below 2°C, and as close to 1.5°C as possible. In October 2018, the United Nations Intergovernmental Panel on Climate Change (IPCC) released a major report that emphasized the dramatic difference in consequences between a 1.5°C and 2°C world. Every degree of warming beyond this threshold will lead to increased impacts of extreme weather, more wildfires and floods, increases in sea-level rise, and severe threats to human health and well-being.

The key finding of the IPCC report is that limiting warming to 1.5°C is possible, but requires deep emissions reductions across all areas of society – reducing global emissions by 45% from 2010 levels by 2030 and reaching net zero emissions by 2050.

Federal Action

In 2016, the Government of Canada released its Pan-Canadian Framework on Clean Growth and Climate Change. The framework sets out the federal government's strategy to meet its commitment under the Paris Agreement to reduce national greenhouse gas (GHG) emissions 30% below 2005 levels by the year 2030. In 2019, Canada's emissions were 738 megatonnes of CO₂ equivalent (Mt CO₂e), which is a 0.4% decrease from 2005 levels. More recently, the Government of Canada created the 2030 Emissions Reduction Plan: Clean Air, Strong Economy to achieve 40-45% emissions reductions below 2005 levels by 2030 and has established a target of net-zero emissions by 2050.

Actions available to the federal government include vehicle fuel-efficiency standards, model national building codes, energy ratings, and carbon pricing. The partners for Climate Protection (PCP) program is a national network of over 400 municipalities with the shared goal of taking action against climate change and reducing local greenhouse gas emissions. PCP is managed and delivered by FCM and ICLEI—Local Governments for Sustainability Canada (ICLEI Canada) and receives financial support from the Government of Canada and ICLEI Canada.



Provincial Action

In December 2018, the Province of British Columbia released its CleanBC climate plan. The plan reaffirmed the province's previous target to reduce emissions 80 per cent below 2007 levels by the year 2050 and established a new interim target to reduce emissions 40 per cent by 2030. In 2019, BC's provincial emissions were 3.8% above 2007 levels, which means that in order for BC to meet its emissions reduction target, we need a decrease of 43.8% from 2007 levels in just seven years.



CleanBC outlines a path to meeting the 2030 targets, outlining a range of actions to meet 75% of the target. These actions include sourcing clean and renewable electricity, incremental increases in building-energy performance in the BC Building Code, tailpipe emissions standards, and measures to reduce emissions from industry. The Province is currently identifying the actions to achieve the remaining 25% of emissions reductions.

CleanBC builds on a history of provincial climate action: The provincial government has enacted laws and regulations to reduce emissions and transition to a low-carbon economy. These include the Climate Change Accountability Act, Carbon Tax Act, Greenhouse Gas Industrial Reporting and Control Act, and Clean Energy Act.

Local Action

More than 120 British Columbia local governments have to date enacted community climate action plans or Community Climate Action Plans (CCAPs), which outline actions they can take, or are taking, to reduce greenhouse gas emissions. Communities and regional districts play an important role in climate change mitigation and adaptation. Almost every British Columbia local government has committed to some degree of action under the B.C. Climate Action Charter. Across Canada, local and regional governments directly and indirectly influence approximately 60 per cent of the nation's overall energy use and 50 per cent of its GHG emissions.

Residents and Businesses

Residents and businesses also have an important role in climate action, such as individual choices on where to live, how to heat or cool, how to travel, how to handle household waste, preparing for extreme events such as extreme heat, making landscaping choices that affect the urban tree canopy and are wildfire smart, and being careful with water use. Meanwhile, businesses' decisions regarding their current operations and future plans as well as factors such as leadership and innovation also impact community-based emissions and affect a community's resilience to a changing climate. Residential and business decisions are shaped by other levels of government, including local government, creating an opportunity for governments to influence those choices in a way that addresses environmental issues and climate action.

Appendix D: Inventory and Modelling Methodology

This appendix contains details on the community energy & emissions inventory and projections for District of Squamish.

Inventory

Squamish' inventories were created using data for buildings, transportation and waste obtained from the Province of BC.⁹

Emissions factors for inventory years are shown in the following table, and are sourced from the Province of BC.

Table 9: Emissions factors used for inventory years

tCO ₂ e/GJ, by Year	2007	2010	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Gasoline	0.068	0.067	0.066	0.065	0.065	0.065	0.065	0.065	0.065	0.063	0.063	0.063	0.063
Diesel	0.069	0.069	0.068	0.067	0.067	0.067	0.067	0.067	0.067	0.065	0.065	0.065	0.065
Electricity	0.010	0.010	0.011	0.011	0.010	0.010	0.009	0.009	0.007	0.008	0.002	0.003	0.003
Natural Gas	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Wood	0.019	0.019	0.021	0.021	0.020	0.019	0.019	0.019	0.019	0.019	0.024	0.024	0.024
Heating oil	0.089	0.086	0.075	0.068	0.074	0.081	0.083	0.081	0.079	0.077	0.075	0.073	0.073
Propane	0.061	0.061	0.068	0.066	0.065	0.061	0.061	0.061	0.061	0.061	0.077	0.075	0.073

As can be seen, some of the emission factors have changed over time. The emission factors for gasoline have decreased as a result of the Renewable and Low Carbon Fuel Requirements Regulation. The emissions factor for electricity has decreased as a result of ongoing efforts to decarbonise the electricity grid. Approximately 98% of the electricity generated from BC Hydro is from renewable sources.

⁹ <https://www2.gov.bc.ca/gov/content/environment/climate-change/data/provincial-inventory>

Assumptions made with respect to the inventories are as follows:

- The Province of BC made a series of standard assumptions in the creation of the CEEI data, which are outlined on the CEEI web page: <https://www2.gov.bc.ca/gov/content/environment/climate-change/data/ceei>. The CEEI inventory years in the preceding charts are 2007, 2010, and 2012.
- The Province of BC made assumptions for buildings and landfill waste emissions information, which are outlined in the community level spreadsheets on the Provincial Inventory webpage: <https://www2.gov.bc.ca/gov/content/environment/climate-change/data/provincial-inventory>
- In creating the inventories, CEA made other assumptions in addition to these:
 - Transportation emissions were adjusted to align with the Insurance Corporation of British Columbia (ICBC) registration values, assuming the policy years earned accounted for 90% of registrations annually.
 - Waste emissions were adjusted to align with the tonnage of waste tracked by the District.

To create the consumption-based emissions inventory, CEA adjusted Metro Vancouver's consumption-based emissions inventory by removing the operating energy and emissions from buildings and transportation and removing the emissions from waste decomposing in landfills; these adjustments were completed to remove emissions already accounted for within the territorial inventory. The full methodology of Metro Vancouver's CBEI is available [here](#).

The following are not included in the inventory:

- Emissions from Agriculture, Forestry and Other Land Use (AFOLU)
- Emissions from large industry

Business As Usual Projection

CEA's model was used both to calculate the BAU trajectory, and to estimate the potential GHG reductions that could be achieved. Developed in 2010 and used by approximately 65 communities to date, the model builds on information including population and community energy and emissions inventory data.

The model uses formulas both to calculate the BAU trajectory, and to estimate the impacts of implementing each Big Move.

The BAU trajectory was calculated by using available inventory data, and then projecting forwards using a population forecast provided based on census data.

There are full or partial inventory years that describe the community's emissions profile from 2007-2022. From 2023 onwards, all of the data is an estimate as a BAU projection.

For the BAU projection modelling, the assumption is that energy consumption and emissions will increase proportionally with increases to population, although the impact of policies from higher levels of government are also incorporated, and other assumptions. Only policies that have already been adopted* and that will have quantifiable impacts are incorporated. Assumptions are:

- The Province's incremental steps to net zero energy ready buildings by 2032.
- Tailpipe emissions standards.
- Renewable & low carbon transportation fuel standards.
- BC Zero-Emissions Vehicle Act and new Federal mandate, requiring every new LDV sold in B.C. to be a zero-emission vehicle by 2035 (with a ramp up in advance of that date).
- How the impacts of a changing climate will affect building energy consumption (RCP 4.5).
- Measures affecting Medium and Heavy Duty Vehicles: MHDZEV Mandates (Federal, Provincial forthcoming), ZEV bus mandate to reflect commitments by Translink and BC Transit. *NOTE: this is an optimistic scenario that does include some measures that are currently under development e.g. the Province of BC's planned MHDZEV Mandate.

Although CEA's model assumes that projections will be linear, there will be annual variability due to factors such as economic conditions (on mobility fuels and building energy consumption) and climatic variations (particularly on building energy consumption). These variations mean that it may often be necessary to collect several years of data before one can see the success or lack of it in implementation of an action, in the primary indicators.

Modelling the Big Moves

The model estimates the impacts of the Big Moves compared to the BAU trajectory. The impacts of the Big Moves can vary greatly between communities, and depend on the assumptions made. The assumptions made for each Big Move are based on research that CEA has conducted and can be tailored for individual communities.

The model allows Big Move implementation at five levels; 0%, 25%, 50%, 75% and 100%. This allows for varying levels of ambition within each Big Move. The model also requires an implementation start year.

The model makes the following assumptions based on full implementation (100% ambition level).

Big Move	Modelling Assumptions	
Decarbonize Existing Buildings	3%	Homes retrofit per year
	33%	Energy reduction per retrofit
	2%	Homes replacing fossil fuel heating with heat pumps
Shift Beyond the Car	1 year	Lag time from implementation for initial impact
	16 years	Full implementation takes 16 years
	34%	Attribution of emissions reduction to Active Transportation
	17%	Attribution of VKT reduction to Transit
Electrify Passenger Vehicles	15%	2022 % of vehicle sales as EV
	15%	Compound Annual Growth Rate of new car purchases as EV in year 1
	15%	Compound Annual Growth Rate of new car purchases as EV in year 5
Decarbonize Commercial Transportation	1%	Percentage GHG reduction per year
	10%	Maximum GHG reduction after 10 years
	5 years	Lag time from implementation for initial impact
Waste	75%	Percentage GHG reduction from organics diversion
	5	Full implementation of organics diversion takes 5 years.
	60%	Percentage landfill gas capture by 2030

If a lower level of ambition is selected, then that would be applied in the model. For example, if a community selects a 50% ambition level for Waste, then the GHG reduction would be 50% of 75% (or 37.5%) but would still take 5 years to ramp up to that diversion level.

Appendix E: Sample Key Performance Indicators

Two types of indicators are recommended. Primary indicators measure community energy consumption and GHG emissions, while secondary indicators can quantify the indirect success of various actions. The following table provides a description of these indicators, the measures of success, data sources for each indicator, and frequency of reporting. Annual progress reporting should be planned by the District of Squamish.

	Indicators	Measures of Success	Data Sources
All sectors	1. Community GHG emissions	45% reduction in emissions from 2010 levels by 2030 Net zero emissions by 2050 More ambitious per capita emissions reductions, to account for the growing population	Provincial energy & emissions data at the community level ¹⁰
Buildings and Transportation	2. Energy and fuel usage	Average household and commercial energy use declines over time to 2050 Annual fuel sales (gas & diesel) decrease over time to 2050	Provincial energy & emissions data at the community level, community-wide utility consumption data Kalibrate fuel sales data for area gas stations. VKT data, if available
Municipal (Corporate)	3. Municipal GHG emissions and energy consumption	Reducing municipal GHG emissions and energy consumption in line with (or beyond) community reduction goals	Billing data collected from Finance Dept, converted to emissions using Province of BC methodology. CARIP and LGCAP data.
Governance	4. Integration with other plans / policies / bylaws	Number of plans / policies / bylaws with climate action considerations embedded	District staff

¹⁰ <https://www2.gov.bc.ca/gov/content/environment/climate-change/data/ceei>

	Indicators	Measures of Success	Data Sources
Funding	5. External grants, incentives, rebates, in kind support or other funding received for climate action	Dollars contribution received, or in-kind	District staff
Transportation	6. VKT replacement with transit, active transportation, and e-mobility	Increase in the number of trips completed and/or vehicle trips replaced with: - e-scooters/e-bikes (i.e. through a micro e-mobility sharing program) - transit - active transportation	District staff can request ride data from micro e-mobility sharing program (e.g. Lime, Bird, Roll, etc.) BC Transit ridership data, and Census data Go By Bike BC logged rides
	7. Infrastructure to promote active transportation	Progress towards outcomes of the following plans: • Transportation Master Plan • Official Community Plan Metres of sidewalks, multi-use pathways, and dedicated bike lanes constructed.	District staff
	8. New homes constructed to EV-ready	Number of new homes constructed to EV-ready standards	Permit applications
	9. EVs in the community	Increase in number of EV registrations per year and overall EVs per capita	Insurance Corporation of British Columbia (ICBC) data
	10. Municipal fleet	Increase in number and percentage of EVs in the municipal fleet. Measure of tCO ₂ e avoided Use of other low carbon fuels e.g. renewable diesel and associated GHG savings	District staff Average annual fuel use of previous ICE vehicle that EVs have replaced Quantity of renewable fuels purchased

	Indicators	Measures of Success	Data Sources
Existing buildings	11. Number of energy efficiency incentives distributed for building efficiency upgrades	Increase in incentive use	Summary data from funders Retrofit Assist program data tracking and reporting
New buildings	12. Number of buildings at each level of the BC Energy Step Code and Zero Carbon Step Code	Increase in number or percentage of new buildings constructed to various levels of the Energy Step Code and Zero Carbon Step Code (ZCSC) over time	Permit applications
New building	13. Number of new homes built to emit less than 500 kgCO ₂ e annually (ZCSC level 4)	Increase in number or percentage of new homes built to emit less than 500 kgCO ₂ e annually	As-built EnerGuide assessments for new homes, ZCSC compliance reporting
Renewable Energy	14. Number of renewable energy buildings installations	Increase in percentage of buildings adding solar and other renewable energy sources	BC Hydro self-generation program applications, and rebates <i>(Note: this only covers renewable energy systems that generate electricity. Others will not be possible to track.)</i>

Waste	15. Tonnes of organics diverted from landfill	Increase in organics at composting facility	District of Squamish
	16. Recycling rates	Increase in recycling rates	District of Squamish
	17. Tonnes of waste per capita to landfill	Decrease in waste per capita sent to landfill	District of Squamish
Other	18. Urban tree canopy cover	Increase in canopy	Development applications Public Works tree planting data
	19. Per capita water consumption	Decline in water use	Usage data on water utility bills / metering system
	20. Number of participants at building community & citizen educational events / workshops	High participation levels at events	Registration/Attendee lists for events
	21. Land use change within Squamish's municipal boundary	Retention and growth of forested areas, urban vegetation and other carbon sinks	Municipal land use and zoning mapping Satellite data

References

- ⁱ Edible food waste is estimated to cost the average Canadian household \$1,300 per year. “Food Waste in the Home,” Love Food Hate Waste Canada, accessed March 18, 2025, <https://lovefoodhatewaste.ca/about/food-waste/>
- ⁱⁱ Pedestrian and cycling infrastructure projects create more jobs per dollar spent than road-only projects. Peltier, Heidi. (2011). Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts.
- ⁱⁱⁱ James Dunne, “Love them or hate them, research offers financial case for big city bike lanes,” CBC News, June 8, 2019, <https://www.cbc.ca/news/business/biking-lanes-business-health-1.5165954>
- ^{iv} Other jurisdictions have had returns on investment of up to \$9 per every dollar invested in TDM measures. “Transportation Cost Savings Calculator,” Mobility Lab, accessed March 18, 2025, <https://mobilitylab.org/calculators/>
- ^v “Financial Benefits of Green Infrastructure,” Canadian Nursery Landscape Association, accessed March 18, 2025, <https://cnla.ca/learn/financial-benefits-of-green-infrastructure>