Draft Climate Plan:
100% Renewable and Resilient Saanich

September 2019

Territory Acknowledgement

The District of Saanich is within Coast and Straits Salish territory, the territories of the Lekwungen peoples known today as Songhees and Esquimalt Nations and the W̱SÁNEĆ peoples known today as W̱JOŁEŁP (Tsartlip), BOḴEĆEN (Pauquachin), STÁUTW̱ (Tsawout), W̱SIḴEM (Tseycum) and MÁLEXEŁ (Malahat) Nations. The First Peoples have been here since time immemorial and their history in this area is long and rich.

The District of Saanich is proud that our name is derived from the W̱SÁNEĆ peoples. Saanich Council is committed to taking a leadership role in the process of healing wounds of the past and becoming a more just, fair and caring society.

The District of Saanich recognizes the Lekwungen and W̱SÁNEĆ Peoples as the traditional custodians of the land in which our municipality is located. As we build formal government-to-government relationships with neighbouring First Nations governments, including the Songhees, Esquimalt, Tseycum, Tsartlip, Tsawout, Pauquachin, and Malahat First Nations, the District will look for opportunities to collaborate on actions and issues of mutual interest, including actions related to climate change. The District respectfully acknowledges the First Nations' long history of land stewardship and knowledge of the land and will look for opportunities to learn from and collaborate with First Nations to help us improve our community's resilience to a changing climate.

Climate Plan at a Glance

The District of Saanich is taking action to protect our community, improve our quality of life, and reduce local and global risks associated with a changing climate.

The Vision for the Saanich Climate Plan is that by 2050, Saanich is a resilient, thriving community powered by renewable energy, where climate action has improved the quality of life for all people in Saanich.

The Plan addresses both mitigation (reducing our greenhouse gas emissions) and adaptation (preparing for a changing climate) in the District's operations and the wider Saanich community. The Plan outlines strategies and actions to help Saanich achieve the following goals:

- **reduce community greenhouse gas (GHG) emissions by 50%** of 2007 levels by 2030,
- **achieve net-zero GHG** emissions by 2050,
- become a **100% renewable community** by 2050, and
- **prepare for a changing climate**.

The District's corporate targets (from local government operations) are designed to lead by example by reaching community targets early. This means we will:

- reduce GHG emissions from municipal operations by 50% by 2025, and
- achieve net-zero GHG emissions from municipal operations by 2040.

Renewable = *energy derived from natural processes (e.g. sunlight and wind) that are replenished at a faster rate than they are consumed.*

Resilient = *capacity to withstand and/or recover from hazards, risks and challenges associated with a changing climate.*

In order to achieve our climate goals, we will need to make changes in how we get around (mobility), our buildings and infrastructure, how we manage our ecosystems, how we produce and consume food and materials, and our approaches to community well-being. Table 1 outlines what a resilient and renewable Saanich looks like in these focus areas by 2050 or before, as well as the District's commitment to leading by example.

Climate Plan at a Glance

Table 1: What does a renewable and resilient Saanich look like?

Focus Areas	Reducing GHG Emissions	Enhancing Resilience
Sustainable Mobility	• 50% of trips are taken by public transit, walking, cycling, or other active transportation • 90% of personal vehicles, 50% of commercial vehicles, and 100% of public transit vehicles are electrified • 100% of the remaining vehicle fuel is biofuel	• Transportation infrastructure is designed or retrofitted for changing climate conditions and enables low carbon transportation in a changing climate as well as access during emergency events.
Built Environment	• 100% Net-Zero New Construction by 2032 • 80% of existing buildings have improved envelopes (insulation, windows, and draftproofing) • 75% of existing buildings are equipped with efficient renewable energy heating and hot water systems (e.g. heat pumps) • 100% of oil heating systems are replaced by heat pumps • Any natural gas used is from renewable sources	• Buildings, energy systems, roadways, water based utilities, and other infrastructure are designed or retrofitted for changing climate conditions • The built environment (e.g. buildings and landscape designs) supports and enables natural processes that increase resilience, such as rain infiltration and species migration • Land use and development patterns minimize exposure and contribution to long-term hazards such as sea level rise and changing precipitation and temperature patterns.
Ecosystems	• The absorption of carbon from the atmosphere by trees, plants, and ecosystems in Saanich is measured and increased.	• Ecosystems have the space needed to thrive and adapt, with protected natural areas and well-connected habitat corridors • Natural areas are carefully monitored and managed to support ecosystem health and biodiversity • Ecosystem services are quantified, valued and accounted for in Saanich's asset management approach

Climate Plan at a Glance

Table 1: What does a renewable and resilient Saanich look like?

Focus Areas	Reducing GHG Emissions	Enhancing Resilience

Food and Materials	• 100% of compostable organic waste is diverted from the landfill (only non-recyclable materials and non-compostable organics are sent to the landfill)
	• Local agricultural industry in Saanich reduces operating and embodied GHG emissions and increases carbon sequestration
	• A 100% reduction of GHG emissions from industrial processes and products is achieved in Saanich, which can include:
	  ◦ Businesses in Saanich reduce the greenhouse gas emissions of their operations, products, and services and transition to 100% renewable energy
	  ◦ Residents practice “lighter living” including consuming fewer goods, and those goods having lower embodied carbon/other GHG emissions.
		• The District protects and retains agricultural land.
		• Local farmers have the resources and capacity to adapt their production practices to a changing climate
		• The health of the food and agricultural sector is strengthened, with a greater proportion of food grown and consumed locally

Climate Plan at a Glance

Table 1: What does a renewable and resilient Saanich look like?

Focus Areas	Reducing GHG Emissions	Enhancing Resilience
Community Well-being	• Climate action benefits people in Saanich, helping them to save money, feel more prepared, connected to the natural environment, and living healthier lifestyles	• Health outcomes and routine emergency service levels are maintained through proactive planning and responding to a changing climate • Health and emergency services are tailored to serve all, especially vulnerable populations, and reduce inequities in health outcomes • Residents are informed and active participants in preparing themselves, their homes, their neighbourhoods and their local ecosystems for a changing climate • Businesses of all sizes are equipped with the knowledge and skills necessary to identify business risks and mitigate the impact of a changing climate on their operations and services. • People in Saanich have access to affordable, nutritious food; warm homes in the winter and cool homes in the summer; and affordable energy. • Social infrastructure – people and public spaces – are designed to promote community well-being and build resilience at the neighbourhood scale.
Leading by Example in District Operations	• 100% of Saanich fleet vehicles use renewable energy • 100% of Saanich facilities are powered by renewable energy • 100% of Saanich staff commute with active or renewable energy	• Resilience is a guiding principle for decision-making, such as capital investments, policy and operational practices • Corporate facilities and infrastructure are upgraded to maintain routine service levels in light of climate change

Climate Plan at a Glance

The outcomes described in Table 1 above would result in a 50% reduction in Saanich community GHG emissions by 2030 and a 91% reduction in emissions by 2050 (shown in Figure 1 below). New technologies and approaches will be required to achieve net-zero and beyond.

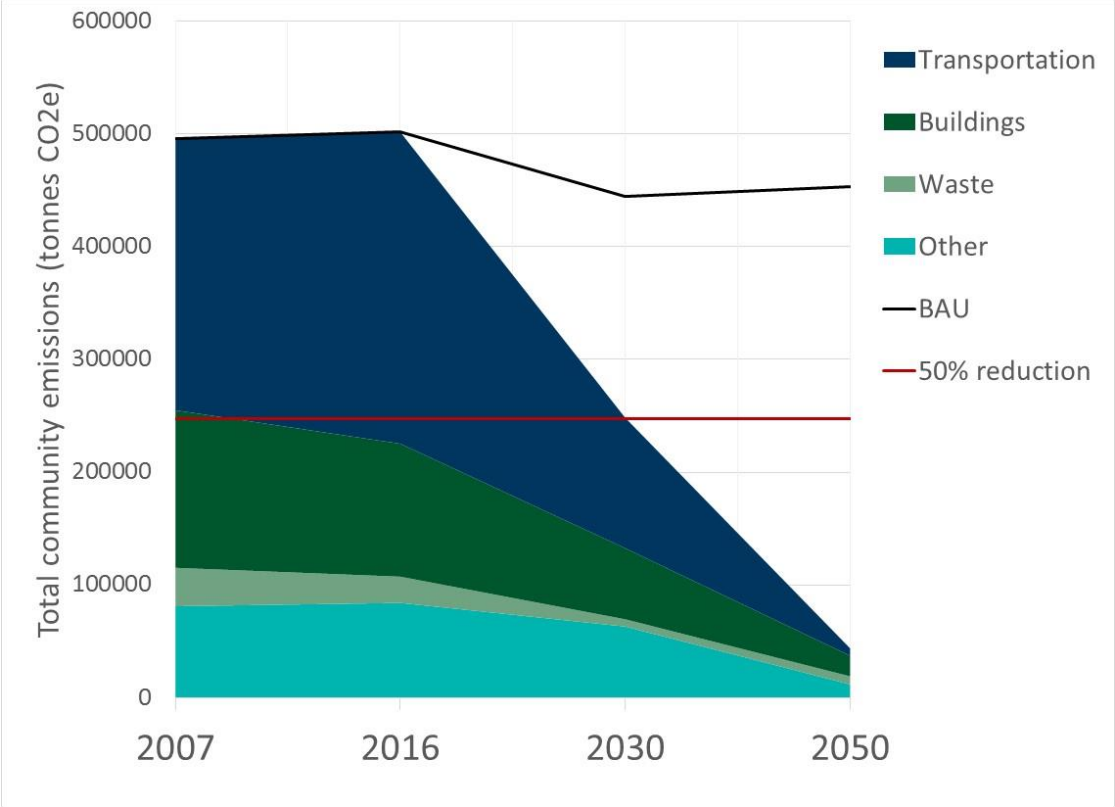


Figure 1: Modelled pathway for GHG emission reductions in Saanich

Municipal actions are necessary, but insufficient on their own to meet these targets. The strategies and actions in this Plan are intended for the District of Saanich to pursue in areas where the District has either control or influence to assist with achieving the pathway shown in Figure 1. Achieving our climate goals requires action from everybody, including residents, businesses, community organizations, institutions, neighbouring local governments, and senior levels of government.

Climate Plan at a Glance

How we will get there

The plan outlines key strategies and actions for becoming a Renewable and Resilient community, including strategies for sustainable mobility, built environment, ecosystems, food and materials, community well-being, and public-sector leadership.

Sector	Strategies
Sustainable Mobility	1. Invest in active transportation 2. Prioritize transit-supportive policies and practices 3. Accelerate electric and renewable mobility
Built Environment	4. Require efficient, net-zero carbon new construction 5. Accelerate efficiency and renewable energy upgrades in existing buildings 6. Increase energy resilience and renewable energy supply 7. Transition towards a climate-ready building stock 8. Increase the resilience of Saanich's infrastructure and assets 9. Prepare for long-term sea level rise
Ecosystems	10. Enable natural systems to thrive and adapt 11. Protect and manage natural assets as critical infrastructure
Food and Materials	12. Reduce the climate impact of food production and consumption 13. Move towards "lighter living" in Saanich 14. Improve the resiliency and self-sufficiency of the local food system
Community Well-being	15. Ensure emergency and community health services keep pace with climate change 16. Empower Saanich residents and businesses to take climate action
Leading by Example	C1. Integrate climate action into Saanich processes and decision-making C2. Transition to a renewable energy fleet and sustainable commuting C3. Showcase renewable, efficient municipal buildings C4. Reduce waste and GHG emissions from goods and services

Climate Plan at a Glance

Climate Emergency Response

The highest priority actions that can be quickly accelerated in the Plan include:

- **Accelerate personal transportation electrification** by developing an electric vehicle strategy for Saanich.
- **Convert all oil heating systems to renewable heating systems** by 2030 or sooner
- **Enhance support for efficiency and renewable energy upgrades in existing buildings** to enable 40% of homes and businesses to switch to efficient and renewable energy systems by 2030.
- **Double the rate of planting trees to enhance urban forest** for increased carbon sequestration and other ecosystem services.
- **Catalyze community actions** through developing a supportive network and resources to make and sustain personal efforts

How we will measure our progress

Transparency and accountability will be key to the success of the plan, and the Climate Plan includes a monitoring and evaluation strategy which includes:

- **Clear implementation:** Ensuring actions are clear, prioritized, time-bound and assigned to lead departments, as outlined in the Action and Implementation section.
- **Report card:** Publishing an annual "report card" evaluating progress on actions, including new initiatives that respond to changing conditions (technology, opportunities, funding, science, etc.)
- **Indicators for Resilience:** Developing and reporting on resilience metrics and indicators.
- **GHG Inventory:** Publishing updates to community GHG inventory at least every 5 years.
- **Accountability groups:** Implementing both an internal (local government) and a community accountability group to advise and collaborate on corporate and community climate action implementation.

Benefits of Climate Action

Taking action on climate change brings many community benefits. When we reduce the energy we need to power our homes and businesses, we see lower energy bills and more comfortable homes and offices. When we invest in renewable energy and efficiency, we see new 'green' jobs and improved self-sufficiency. When we make smart decisions about urban development and transportation, we have shorter commutes between the places we live, work and play, and less air pollution. When we invest in active transportation, we see improved health and wellness amongst our residents and visitors. And when we prepare for a changing climate, we see less damage to our infrastructure and fewer disruptions in services. Investing in mitigation and adaptation early is typically much less expensive than recovery and rebuilding, with a high rate of return on investments[1].

[1] Adapt Now: A Global Call for Leadership on Climate Resilience. Global Commission on Adaption. https://cdn.gca.org/assets/2019-09/GlobalCommission_Report_FINAL.pdf. Accessed 20 Sept 2019.

Climate Plan at a Glance

Climate change affects everyone, and therefore climate action must work for everyone. Saanich's climate action work will continue to ensure that community benefits associated with climate action are shared equitably across the community, as we move toward a renewable and resilient future.

Financial Implications

Reducing our community's greenhouse gas emissions by 50% by 2030 and reaching net-zero emissions by 2050 will require significant changes in our community. These changes will have financial implications. For many changes, long-term cost savings may exceed upfront costs, resulting in a net financial benefit over time. An example is the switch to electric vehicles. Other changes may involve a net financial cost over time, but result in other, non-financial benefits. This Plan contains 16 community strategies and 4 corporate strategies involving more than 150 actions. District staff will develop a financial strategy for implementation of the Climate Plan.

Climate Plan – Table of Contents

Contents

Territory Acknowledgement ..... *i*

Climate Plan at a Glance ..... *i*

How we will get there ..... **v**

Climate Emergency Response ..... **vi**

How we will measure our progress ..... **vi**

Benefits of Climate Action ..... **vi**

Toward a Renewable and Resilient Saanich *1*

Our Climate is Changing **1**

Our Community is Calling for Action **1**

We Have a Plan Towards A Renewable and Resilient Future **2**

We must do it together **4**

Vision and Guiding Principles *5*

How the plan was developed *6*

Climate change risks in Saanich *8*

How will climate change affect us? **8**

Risks to Our Community **9**

Current GHG emissions in Saanich *12*

Where do greenhouse gas emissions come from in our community? **12**

Modelled pathway for GHG emission reductions *16*

How we will reduce emissions **17**

Climate Plan Strategies *19*

Sustainable Mobility *20*

Where we are today **20**

Where we need to go **21**

What We Heard from the Community **23**

District of Saanich's Role **23**

How we're going to get there **24**

Built Environment *26*

Where we are today **26**

Climate Plan – Table of Contents

Where we need to go 28
What we heard from the community 31
District of Saanich's Role 31
How we're going to get there 32
Ecosystems *34*
Where we are today 34
Where we need to go 35
What we heard from the community 37
District of Saanich's Role 37
How we're going to get there 38
Food and Materials *39*
Where we are today 39
What we heard from the community 41
District of Saanich's Role 42
Where we need to go 43
How we're going to get there 45
Community Well-being *46*
Where we are today 46
What we heard from the community 46
Where we need to go 46
District of Saanich's Role 49
How we're going to get there 50
Leading by Example *51*
Where we are today 51
Where we need to go 52
What we heard from the community 53
How we're going to get there 53
Action and Implementation Plan *55*
Monitoring and Evaluation *73*
Glossary *74*
Acronyms *76*

Climate Plan – Table of Contents

Tables

Table 1: What does a renewable and resilient Saanich look like? i
Table 2: Control and Influence 4
Table 3: Risk ranking of climate change impacts 10
Table 4: Sustainable Mobility – Modelled emissions reductions for 2030 22
Table 5: Sustainable Mobility – Modelled emissions reductions for 2050 22
Table 6: Built Environment – Modelled emissions reductions for 2030 28
Table 7: Built Environment – Modelled emissions reductions for 2050 29
Table 8: Risks to Saanich's infrastructure from climate change 30
Table 9: Risks to Saanich's ecosystems from climate change 36
Table 10: Food and Materials – Modelled emissions reductions for 2030 43
Table 11: Food and Materials – Modelled emissions reductions for 2050 43

Figures

Figure 1: Modelled pathway for GHG emission reductions in Saanich iv
Figure 2: World of Change: Global Temperatures. earthobservatory.nasa.gov 1
Figure 3: Selected climate projections for the capital region 8
Figure 4: Saanich community GHG emissions inventories 13
Figure 5: Modelled pathway for GHG emission reductions in Saanich 16
Figure 6: Summary of emission reductions needed to meet Saanich's climate goals 17
Figure 7: Current Renewable & Non-Renewable Energy Mix in Saanich Community 18
Figure 8: Transportation emissions in Saanich Territorial GHG inventory, 2017 20
Figure 9: GHG emissions per trip for different modes of transportation 21
Figure 10: Pathway to GHG Targets 23
Figure 11: Building-related emissions in Saanich Territorial GHG inventory, 2017 26
Figure 12: Building-related emissions in Saanich Consumption Based GHG emissions, 2015 27
Figure 13: GHG emissions associated with different kinds of home heating systems. 27
Figure 14: Pathway to Targets 28
Figure 15: Land Use Changes in Saanich 1986-2011 34
Figure 16: Saanich Territorial GHG Emissions Inventory, 2017 39
Figure 17: Saanich Consumption Based GHG Emissions Inventory, 2015 39
Figure 18: GHG emissions from different food types in Saanich 40
Figure 19: GHG emissions from consumables and waste in Saanich 41
Figure 20: Pathway to Targets 43
Figure 21: GHG emissions impacts of different foods 44
Figure 22: GHG emissions from Saanich municipal operations, 2007-2018 51

Toward a Renewable and Resilient Saanich

Our Climate is Changing

Globally, our climate is warming. Changes of this magnitude are now disrupting global air and water circulation systems such as currents and jet streams. This leads to a much wider variation in temperature extremes and weather patterns year to year.

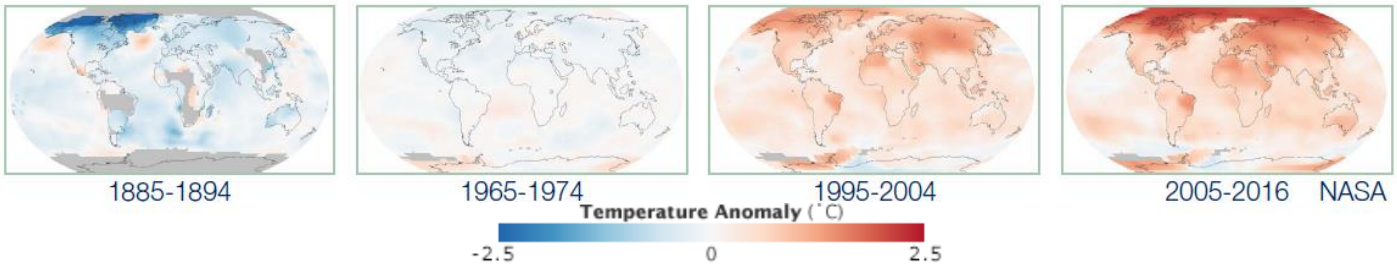


Figure 2: World of Change: Global Temperatures. earthobservatory.nasa.gov

Globally, risks to health, livelihoods, food security, water supply, human security, and economic growth, among others, are projected to increase as temperatures rise. To avoid risks associated with an ever-warming world, 195 nations adopted the Paris Agreement, a global commitment to climate action that includes efforts to limit global temperature rise to 1.5°C.

To achieve this goal, global net carbon emissions will need to decline by 45% by 2030 (from 2010 levels), reaching net-zero around 2050 and net negative after that. [2]

Less than 11 years are left for the world to fundamentally change its current trajectory of greenhouse gas emissions.

Our Community is Calling for Action

People in Saanich are concerned about climate change and are looking for effective and concrete action to reduce our greenhouse gas emissions and improve our community's resilience in a changing climate.

In recognition of the seriousness of climate change, in March 2019 Saanich Council joined with the Capital Regional District and other municipalities in our region in declaring a Climate Emergency. As a first step in responding to the Climate Emergency, in August 2019 Saanich Council approved ambitious new targets for reducing Saanich's community greenhouse gas emissions: by 50% by 2030 compared to 2007 levels and net-zero emissions by 2050. These targets reflect the Intergovernmental Panel on Climate Change's recommendations on the scale of emission reduction needed to avoid catastrophic climate change.

[2] As specified by the Intergovernmental Panel on Climate Change (IPCC) in a special report released in October 2018.

We Have a Plan Towards A Renewable and Resilient Future

Together with communities around the world, the District of Saanich is taking action to protect our community, improve our quality of life, and reduce risks associated with a changing climate.

The Saanich Climate Plan addresses both mitigation (reducing our greenhouse gas emissions) and adaptation (preparing for a changing climate) in the District's operations and the wider Saanich community. The Plan outlines strategies and actions to help Saanich achieve the following goals:

- **reduce community greenhouse gas (GHG) emissions by 50%** of 2007 levels by 2030,
- **achieve net-zero GHG** emissions by 2050,
- become a **100% renewable community** by 2050, and
- **prepare for a changing climate**.

More specifically, the plan is designed to meet three overarching objectives:

Reduce Emissions:

Saanich has committed to reduce our community's greenhouse gas emissions from our 2007 baseline by 50% by 2030 and 100% by 2050. This plan includes strategies and actions that will achieve our 2030 target and get us 91% of the way to our 2050 target. The remaining 9% will come from emerging new technologies and approaches for emission reduction as well as carbon sequestration in Saanich's greenspace.

Transition to 100% Renewable Energy:

Renewable, low-carbon energy solutions are market-ready. Transitioning to renewable energy can help us protect our natural environment, improve local air quality and community health, save money, and support a diverse economy and clean energy jobs.

Grow Community Resilience:

Some changes to our climate are already locked in, and will have impacts on our community. The Plan will build our community's resilience to the challenges posed by climate change. This includes sea level rise, increasing temperatures, changes in rainfall patterns, increased storm intensity, and the ensuing impacts on our health, infrastructure, economy, and local ecosystems.

The highest priority actions identified in the Plan include:

- **Accelerate personal transportation electrification** by developing an electric vehicle strategy for Saanich;
- **Convert all oil heating systems to renewable heating systems** by 2030 or sooner;
- **Enhance support for efficiency and renewable energy upgrades in existing buildings** to enable 40% of homes and businesses to switch to efficient and renewable energy systems by 2030;
- **Double the rate of planting trees to enhance urban forest** for increased carbon sequestration and other ecosystem services; and
- **Catalyze community actions** through developing a supportive network and resources to make and sustain personal efforts.

We're building on over a decade of climate achievement

We have a history of taking climate change seriously, including joining the Federation of Canadian Municipalities 20 Club in 1998, establishing the first Carbon Fund of its kind in Canada in 2007, and publishing our first Climate Action plan in 2010.

Altogether, 83% of the actions in the 2010 Action and 2011 Adaptation Plans have been completed and/or are in progress, including:

Sustainable Mobility

- 9 Electric vehicles in Saanich fleet – including an electric Zamboni!
- 32.9 kms of new sidewalks
- 34.7 kms of new bike infrastructure since 2011
- 120 new bus shelters since 2010
- 12 new public electric vehicle charging stations
- Promoted provincial and federal ZEV and electric charging rebates.

Built Environment

- Reduced GHG emissions from Saanich facilities by 16%
- Over 4000 Saanich homes in the past 10 years have accessed rebates for home energy saving and renewable energy upgrades
- Saanich adopted the BC Energy Step Code, requiring progressively higher energy performance in new construction
- Efficient Street lights: Upgrading lights in Saanich resulted in a 51% reduction in overall electricity use, an annual savings of $214,000
- Saanich reduced GHG emissions from our facilities by 15% from 2007 – 2018
- Maintained the urban containment boundary
- Allowing tall mass timber buildings for carbon sequestering building materials

Ecosystems

- Baseline tree canopy cover inventory established
- Education and programming supporting residents in maintaining habitat-rich landscaping and removing invasive species on their properties
- Pulling Together Volunteer Program

Food and Materials

- Maintained the urban containment boundary, supported the agricultural land reserve, and implemented the Saanich Agriculture and Food Security Plan actions to protect farmland.
- Greener Garbage program diverts approximately 3,650 tonnes of organics from the landfill every year, creating Grade A compost, a portion of which is used to nourish soil in Saanich.
- Partnered with local farmers, researchers, and other stakeholders such as the BC Agriculture and Food Climate Action Initiative on agricultural mitigation (reduction or sequestration) and adaptation projects.
- Included packaging take-back and recycling measures in Saanich procurement

- Saanich recreation facilities and public events provide recycling containers to divert recyclables from landfill

Community Well-Being

- Improved public information during extreme events
- Delivered public education sessions for emergency preparedness to 1100 grade 4 students for the past 12 years.

We must do it together

Reducing our greenhouse gas emissions and increasing our resilience to a changing climate will require key changes in our transportation system, our buildings, our land base, how we produce and consume food and materials, and how we prepare for and take care of each other during severe weather events.

This plan contains strategies and actions for the District of Saanich to pursue in areas where the District has either control or influence, as described in Table 2.

Table 2: Control and Influence

Control	**Direct** – e.g. leading by example through our municipal infrastructure and operations such as how we heat our buildings or our fleet vehicle choices.
	Indirect – e.g. through land use and transportation planning and policy.
Influence	**Direct** – e.g. policies, programs, incentives, and partnerships with stakeholders and other levels of government.
	Indirect – e.g. through advocacy, information sharing, and municipal education programs.

Municipal actions are necessary, but insufficient on their own to meet the climate challenge. To achieve our climate goals requires action from everybody, including residents, businesses, community organizations, institutions, neighbouring local governments, and senior levels of government. The plan outlines the roles of the District of Saanich and other entities in each focus area.

Vision and Guiding Principles

The Vision for the plan is that by 2050, Saanich is a resilient, thriving community powered by renewable energy, where climate action improves the quality of life for all people in Saanich and reduces the impacts of climate change within and beyond our boundaries.

The Plan is structured around eight Guiding Principles:

- **Be bold:** Be bold, lead by example.
- **Be evidence-based:** Use available science and policy research to make proactive and informed decisions about effective actions while being adaptable and responsive to future developments. In the absence of best science, the precautionary principle will guide decision-making.
- **Share the benefits**: Ensure benefits and burdens of climate action are shared equitably.
- **Improve well-being:** Design climate actions to achieve multiple benefits, including improved resident health, emergency preparedness, and economic and employment opportunities.
- **Be collaborative:** Engage, collaborate, and partner within departments in the District of Saanich and with residents, businesses, institutions, and senior levels of government, as it will take coordinated action at all levels to meet our climate targets.
- **Prioritize efficiency:** Always consider reduced consumption (energy and materials) first, followed by shifting to renewable, low-carbon energy sources and materials.
- **Value nature:** Recognize natural areas and greenspaces as assets that improve the region's resilience to climate change.
- **Work towards reconciliation:** Support Saanich's work towards reconciliation with local First Nation Governments through collaborating on climate action.
- **Act Globally**: Consider global impacts when making decisions to ensure our actions are beneficial outside our boundaries.
- **Consider future generations:** include quality of life considerations for future generations.

How the plan was developed

This draft plan was developed beginning with targets and terms of reference approved by Saanich Council in late 2017. Draft Plan development included

- extensive engagement and input from Saanich staff, the public, and stakeholders,
- risk and vulnerability assessments based on local climate projections,
- modelling of strategies to reduce Saanich's GHG emissions,
- lessons taken from nearly a decade of climate action in Saanich, and
- "best and next" practices from around the world.

Potential actions were identified throughout the process, and then evaluated and prioritized according to the following criteria:

- GHG emission reduction potential (mitigation) or risk priority score (adaptation)
- Benefits and tradeoffs (e.g. health, economic development, etc.)
- Public acceptability (based on engagement feedback)
- Timeliness (including funding availability, partnership opportunities, or urgency/window of opportunity)

An implementation plan, including targets, timelines, and lead departments, will be developed to accompany the final Climate Plan, along with a financial strategy. An equity lens will be developed to ensure that the benefits and burdens of climate action are shared equitably.

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

Public Engagement Approach and Results

Saanich residents and organizations were significantly involved in the development on the Climate Plan in many ways. **Over 4000 people** in phases 1 and 2 participated in public engagement through surveys, open houses, workshops, community and stakeholder events, and a year-long sustainability project. This draft plan is presented as part of the third and final phase of public engagement.

Throughout engagement activities, community members clearly expressed their belief that there is an urgent need for climate action, and their support for the proposed actions in this draft plan.

95% of survey respondents reported that they were taking either a little or many steps to reduce their own GHG emissions.

For detailed results, please see the Phase 1 and Phase 2 Climate Plan Engagement Reports available at www.saanich.ca/climateplan.

One Planet Saanich: Reducing our community's eco-footprint

Throughout the development of the Saanich Climate Plan, the District of Saanich and 12 local organizations participated in the One Planet Saanich initiative, part of an international One Planet Cities Project.

One Planet Living is the vision of a world in which people enjoy happy, healthy lives within their fair share of the earth's resources, leaving space for wildlife and wilderness.

The One Planet Living framework was used to inform actions in the Climate Plan. It will be used in plan implementation to maximize benefits and prevent negative impacts on, for example, equity, our ecosystems, and our health and well-being.

The One Planet Cities project is funded by the KR Foundation and co-ordinated by Bioregional, a non-profit organisation that champions a better, more sustainable way to live. To learn more, visit www.oneplanet.com.

Climate change risks in Saanich

How will climate change affect us?

Globally, our climate is warming and changes of this magnitude are now disrupting global air and water circulation systems such as currents and jet streams. This leads to a much wider variation in temperature extremes and weather patterns year to year.

Locally, temperatures are also warming and are projected to increase by 3°C by the 2050s. As a comparison, globally, today's temperatures are only 4-7°C warmer than average temperatures during the ice ages. But the rates of warming over the coming century are predicted to be 20 times faster. As our local climate warms, we will face hotter and drier summers, increased numbers and intensity of winter storms and sea level rise; Figure 3 shows selected climate projections for the capital region. For further details and additional climate projections see Capital Regional District, 2017, "Climate Projections for the Capital Region", available at www.crd.bc.ca/data.

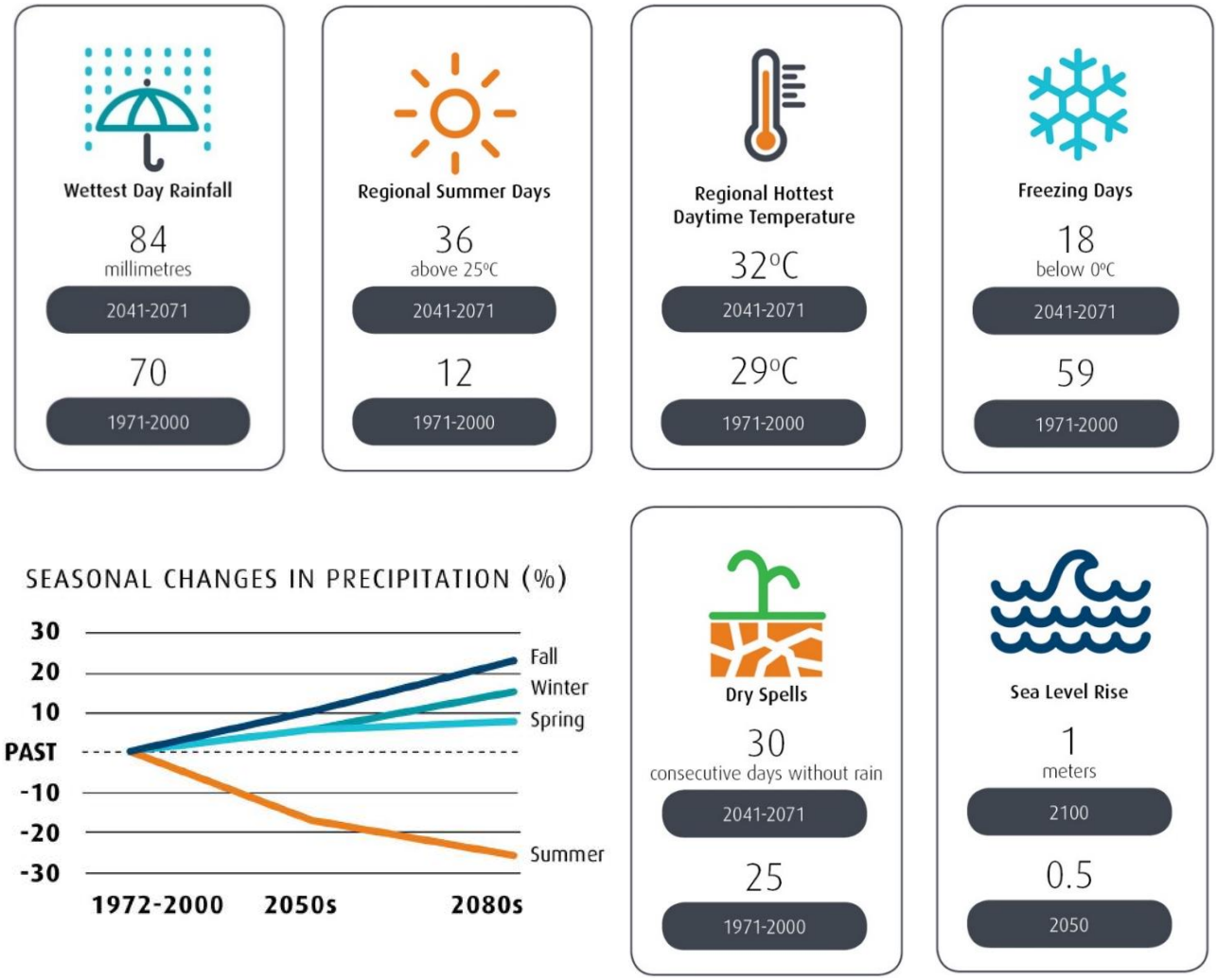


Figure 3: Selected climate projections for the capital region

What causes climate change?

Between the sun's energy and the earth's atmosphere, our planet naturally maintains the 'greenhouse' that supports life. Burning fossil fuels such as gasoline, diesel, heating oil and natural gas produces carbon dioxide (CO2). Increasing C02, along with other greenhouse gases (GHGs) such as methane from landfills and other sources, traps more of the sun's energy and causes an overall warming of the planet. This increase in GHGs from human activity has resulted in an increase in global mean temperature by about 0.8 degrees Celsius since the end of the 19th Century. At least another 2 degrees of warming is expected by the end of this century, unless we act now. Two or three degrees may not sound like much, but scientists warn that this could result in serious and perhaps catastrophic impacts, the beginnings of which we may be seeing in increased storm intensity, forest fire frequency, droughts, melting glaciers, and other changes.

Risks to Our Community

To better understand how climate change may affect our community, we undertook a risk assessment process with staff and stakeholders to:

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

A summary of the risk assessment process and outcomes can be found at www.Saanich.ca/climateplan.

The results of the assessment process are summarized in Table 3.

No impacts were considered to be "very high" or "extreme" in terms of risk. This is due to the resources, systems and capacities we already have in place to deal with community challenges, as well as our enviable location in a mild climate with abundant and well-managed natural resources such as water.

Most of the "high" and "medium-high" risks are related to ecosystem impacts, which have a high certainty of occurring and significant consequences in terms of the implications and permanence of the changes. Impacts on lifestyle from increased temperatures and extreme weather and on health from poor air quality events were also considered to be "medium-high" risks. These have not historically been experienced locally and so we need to develop the capacities to respond to these events.

A number of impacts related to ecosystems, health and safety, infrastructure, and agriculture and land use were ranked as "medium" risk, including inundation and damage to coastal infrastructure from sea level rise, and impacts to agriculture that will make it challenging to maintain food production and quality.

Impacts considered “low” risks are related to infrastructure and health and safety. (Note that low risk does not mean *no* risk and may require resources to keep the risk low.

Climate risk assessments are an iterative process that must be repeated regularly as we monitor changes in our adaptive capacity and improve our understanding of climate risks over time.

Our understanding of risk will change as climate science evolves and new impacts or risks come to light. Additionally, our risk assessment process focused on risks from changing climate conditions within our region. Risks from changing climate conditions elsewhere, including displacement of people and decreases in food production in other parts of the world, will require further consideration.

Not everyone will be affected in the same way by climate change, and therefore our resilience planning needs to pay attention to those who are more vulnerable. An equity lens will be developed and applied to resilience planning.

Top Community Vulnerabilities

- Loss of biodiversity and ecosystem stress
- Health impacts from severe heat and wildfire smoke
- Inundation of buildings and infrastructure from sea level rise
- Compromised food production
- Wildland-urban interface fire risk

Table 3: Risk ranking of climate change impacts

Risk Ranking	Theme	Summary of Impacts
High Risk	• Ecosystems • Health and Safety	• Loss of biodiversity (e.g. native species); increased invasive species; ecological regime shifts; coastal squeeze; degraded water quality; compromised ecosystem services; increased tree mortality • Extreme heat and poor air quality; lifestyle impacts
Medium Risk	• Ecosystems • Health and Safety • Agriculture • Infrastructure	• Pests and diseases; erosion, sedimentation and contamination • Wildland-urban interface fire risk • Compromised food production and quality; pests and diseases; reduction in viable land for food production • Coastal inundation and damage to infrastructure; disruption and delay in transportation network
Low Risk	• Health and Safety • Infrastructure	• Vector borne diseases; displacement, evacuation or injury from extreme events • Heat-related infrastructure failure

Progress on adaptation actions

Progress on adaptation is difficult to measure. The District of Saanich has not yet defined metrics with which to characterise and track “resilience”, and we are measuring against a moving target as our understanding of current and potential future climate change impacts evolves. However, our understanding of climate risks and our capacities to act have advanced since the 2011 Climate Change Adaptation Plan was adopted. For example:

- climate science, including regional climate change projections, has become increasingly detailed and sophisticated, with new tools available to explore and embed these projections in planning and policy work;
- direction from higher levels of government has begun to shape local government policy, such as BC’s Flood Hazard Land Use Management Guidelines, which directs municipalities to plan for 1m of sea level rise by 2100;
- new and unexpected impacts have emerged such as wildfire-related smoke events, which was not identified in the 2011 Adaptation Plan and has implications for community health and safety

These advances, combined with the many adaptation actions that have been initiated or completed to date, have been instrumental in building adaptive capacity in the Saanich community, and represent a strong foundation to support our future of climate resilience.

Current GHG emissions in Saanich

Where do greenhouse gas emissions come from in our community?

We measure our climate impact by calculating the greenhouse gases (GHG) we emit as a community. We are now reporting with both territorial and consumption-based inventories.

Territorial GHG Emissions Inventory: Our territorial inventory includes greenhouse gasses produced within our municipality. It follows the Global Protocol for Community-Scale Greenhouse Gas Emissions Inventories accounting and reporting standard for cities, specifically the Basic+ scope. It includes stationary energy (such as from buildings); transportation; waste; industrial processes and product use (IPPU); and agriculture, forestry, and other land use (AFOLU).

The majority of our territorial GHG emissions are from use of fossil fuels for transportation (e.g. gasoline, diesel), followed by fossil fuel use in buildings (e.g. oil, natural gas), and lastly methane from waste (methane is another GHG, that is 12 times more potent than CO2).

Consumption Based GHG Emissions Inventory (CBEI): Emissions from food and goods produced outside of Saanich are not counted in our Territorial Inventory. The CBEI measures the GHG emissions from all of the goods and services that the Saanich community consumes, regardless of where those goods and services are produced around the world. Our community emissions are considerably higher when we use this type of inventory.

The Territorial and Consumption Based Emissions Inventories are summarized in Figure 4 on the next page.

Fossil fuels used for transportation and buildings are the top two sources of GHGs in our community in a Consumption Inventory, as with the Territorial Inventory. The biggest difference between our Territorial and Consumption-Based Emissions Inventories is the much higher share of emissions from food and waste in the latter.

While the Climate Plan's new targets apply to territorial emissions, the plan will also address our Consumption Based emissions. The full reports for these community GHG inventories can be found at www.saanich.ca/climateplan.

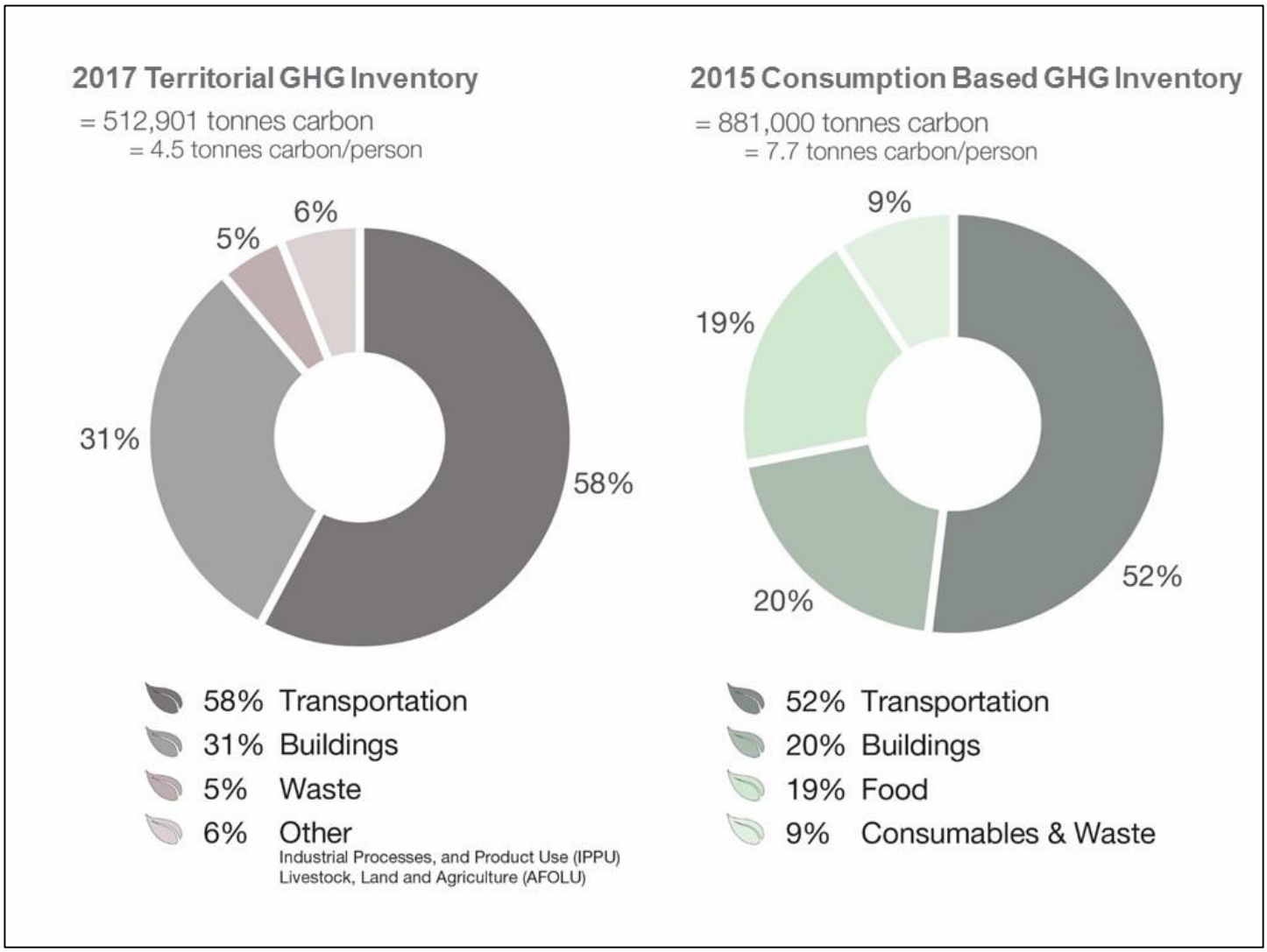


Figure 4: Saanich community GHG emissions inventories

Our community GHG emissions have gone up since 2007

Despite Saanich's climate leadership for the past decade, our community emissions have risen, overall and per resident, from our 2007 baseline.

Why have our emissions gone up from 2007?

- Transportation emissions have increased significantly between 2007 and 2016 contributing the most to the overall increase in emissions in Saanich. This may be due to increases in vehicle size and non-renewable fuel use. However, there has recently been a considerable increase in active transportation. This, alongside improved vehicle emissions standards, likely contributed to the first decrease in transportation emissions since 2007, which occurred in 2017. Current and reliable transportation data remains a constraint when calculating our GHG emissions and the District of Saanich continues to work with the Province and ICBC on this issue.
- Building emissions decreased until 2016, due to Provincial Building Code energy efficiency standards and home energy retrofit rebates; however, emissions rose from 2016 to 2017. This was partially due to a much colder winter in 2017, and also a notable increase in the last two years in buildings switching from renewable electricity to fossil fuel natural gas for heating, and new development.
- Waste emissions have decreased since 2007 with the introduction of the Greener Garbage Program.
- Population growth on its own is not a good explanation for growth in emissions, since our growth as a community was modest, and per person emissions also grew.

In order to reach our new climate targets, we will need to take more ambitious actions. The good news is that these actions will also make Saanich an even better place to live, work and play.

How is this draft Climate Plan different than the 2010 Climate Plan?
Responding effectively to the urgent challenge of climate change won't be easy. However, we are well positioned for this big challenge, and since 2010 we have many new strengths to build on, including:

- more market ready technology (more electric cars are on the street, e-bikes are growing in popularity, many local businesses are making a living installing renewable energy heating systems and on-site solar energy, and more);
- strong support for effective climate action from people, organizations, and leaders in Saanich, and our region;
- plentiful renewable energy; and
- climate action is embedded in our Official Community Plan, which guides growth and change in Saanich, and climate mitigation and adaptation actions are integrated throughout Saanich's operations, including our emergency programming, infrastructure, facilities, fleet, finance, and parks and recreation;

- renewed commitments and supporting actions from senior levels of government and other institutions (e.g. BC Transit committing to 100% electric busses, Province's Clean BC Plan and BC Energy Step Code, federal Pan Canadian Framework on Climate Change, including a retrofit code);
- increasing climate action funding for local governments available from senior levels of government;
- a greater understanding of the effectiveness of incentives and education programs, the barriers faced by people in Saanich, and the scope and scale of programs needed to reach these targets;
- a renewed commitment to advocate for effective regulatory action from senior levels of government in areas outside of municipal jurisdiction (e.g. building code); andstronger accountability measures, including annual reporting on plan implementation.

Modelled pathway for GHG emission reductions

A municipal energy and GHG modeling tool was used to understand and evaluate the types and magnitude of changes in our community that would be required to meet our GHG emission reduction targets. The model shows that reaching our targets will require multiple strategies and transformative change, primarily in transportation and buildings (see Figure 5).

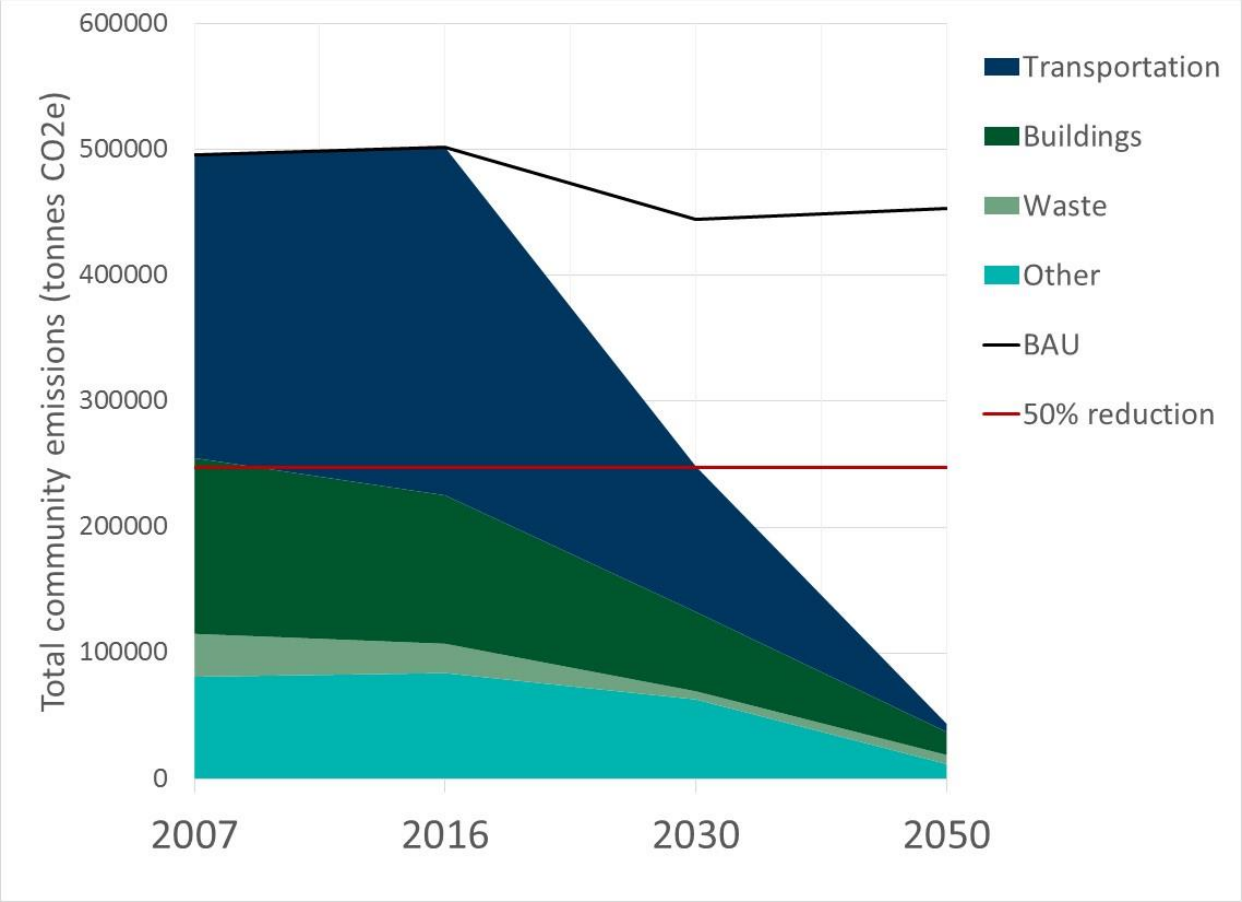


Figure 5: Modelled pathway for GHG emission reductions in Saanich

Figure 6 outlines the modelled GHG emission reductions that will need to be achieved in each focus area in order to reach our targets. In Figure 6, BAU stands for business as usual, or the savings that will be achieved through existing commitments or assumed technological advances.[3] The TBD line

[3] The Saanich Business as Usual scenario was developed using the Climate Action Navigator (CAN) tool, and includes assumptions about future land use patterns and population changes; improvements in building and vehicle energy efficiency standards that have already been enacted, such as the Government of Canada's Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations 2016-2025; renewable energy availability; and other considerations. The BAU model shows current regulations, policies and programs at all levels of government are making an impact on GHG emissions, with a reduction of approximately 9% from 2007 levels by 2050

represents the actions and strategies that will need to be developed in addition to those in this Plan in order to achieve our goal of net-zero emissions by 2050.

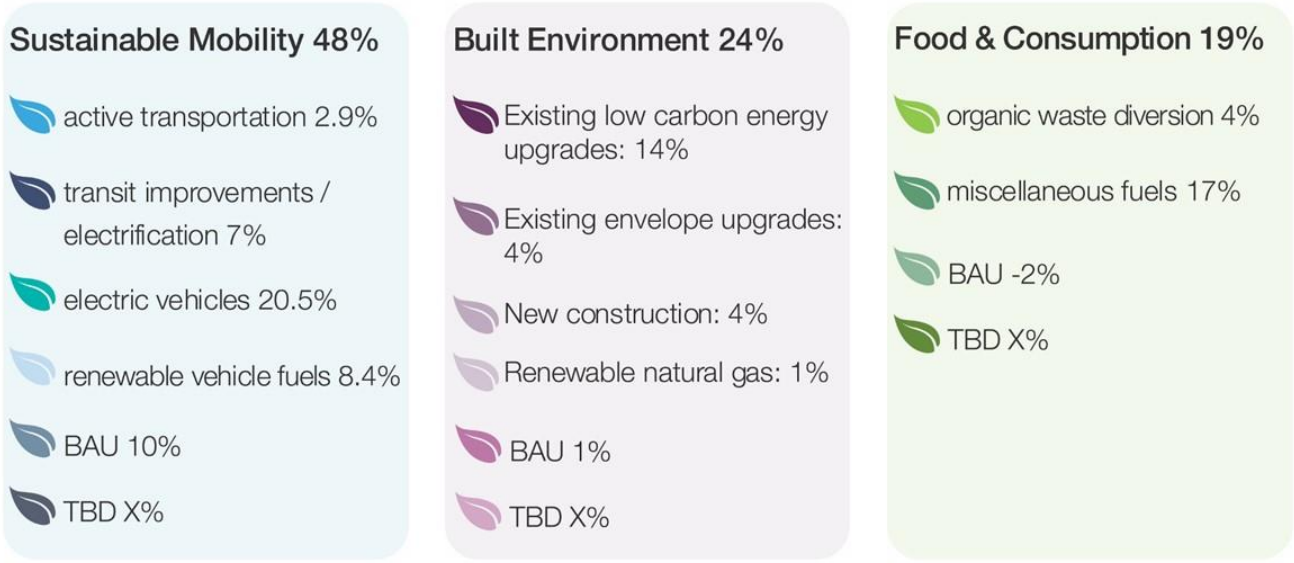


Figure 6: Summary of emission reductions needed to meet Saanich's climate goals

Building on this model, the draft Plan identifies strategies within the District of Saanich's control and influence that will help achieve changes, and the Plan also notes where aligned action by individuals, organizations, businesses, and other levels of government are required.

How we will reduce emissions

Energy Conservation

Energy conservation is key to meeting Saanich's emission reduction targets. There are several strategies for reducing energy use including active transportation (e.g. traveling by foot, bike or transit), improving building envelopes (e.g., increasing insulation in walls and roofs, improving windows, draft-proofing), planting trees strategically for cooling and windbreaks, using more energy efficient equipment, and changing behaviours to avoid waste

Transitioning to Renewable Energy

To meet our emission reduction targets, Saanich will also need to transition from fossil fuels to 100% renewable energy by 2050. Fortunately, renewable, low-carbon energy solutions are market-ready, and transitioning provides us with opportunities to save money, create a diverse economy and clean energy jobs, improve local air quality, and protect our natural environment.

In 2016, 40% of Saanich's energy use came from renewable energy, primarily in the form of electricity from BC Hydro (see Figure 7). Electricity purchased from BC Hydro is currently 98% renewable.

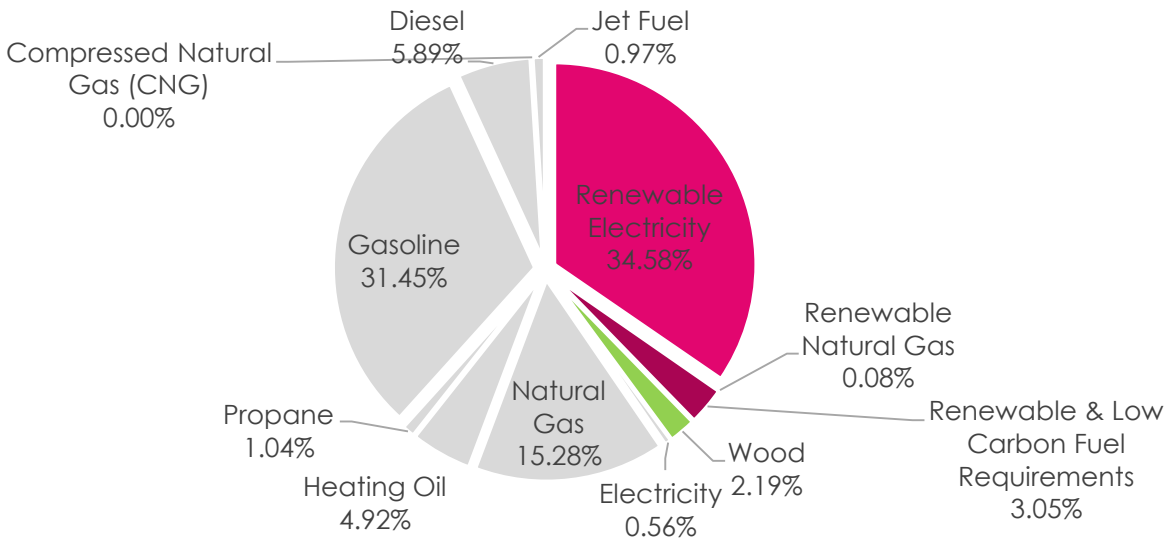


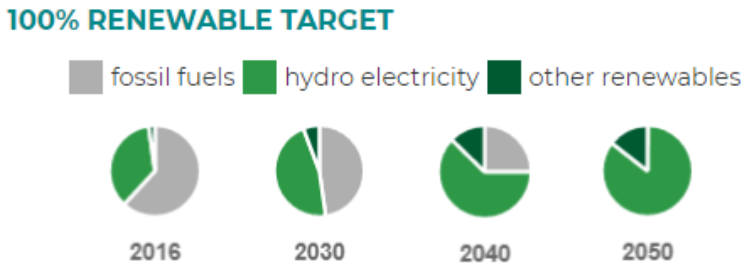
Figure 7: Current Renewable & Non-Renewable Energy Mix in Saanich Community

The main source of BC Hydro's electricity is from hydroelectric generation, which harnesses the power of moving or falling water to produce energy. BC Hydro's electricity mix also includes other renewable sources, including solar from net metering customers. This means that Saanich residents who use electricity for all of their home's energy needs, including space and water heating, are already living in a 98% renewable home. (The non-renewable portion of electricity from BC Hydro usually results from the use of thermal generation plants. The BC Clean Energy Act requires that electricity in BC be at least 93% from clean or renewable resources.) Homeowners using electricity can also reduce their GHG emissions further through efficiency improvements. BC Hydro is planning to ensure that the supply for electricity is in place to meet future demand for electric vehicles, and there is a growing number of people in Saanich who are contributing solar energy to the BC Hydro grid through the net metering program.

Instead of purchasing conventional natural gas, FortisBC customers can choose, at a premium price, to purchase Renewable Natural Gas (RNG), which is produced from decomposing organic waste from landfills, agricultural waste and wastewater from treatment facilities. Their homes would not necessarily directly receive RNG, but they would be supporting the supply of RNG to the FortisBC grid. There are currently limited supplies of RNG available.

Other renewable energy options include solar photovoltaic, wind energy, wave power, tidal power, biomass energy, and solar thermal. Regardless of the renewable energy option used, other environmental considerations, such as impacts to ecosystems, also need to be factored into decision-making.

Saanich has a target of 100% renewable energy use by 2050
The majority of Saanich's renewable energy in 2050 will come comes from renewable electricity. The remainder of energy required will come from other sources of renewable energy, such as Renewable Natural Gas from FortisBC, solar energy, and biomass.



Did you know?
Use of solar technologies in Saanich have steadily increased to over 100 buildings now collecting either solar thermal or solar photovoltaic energy. Saanich is ideally suited for solar energy generation, with more sunlight hours per year than, for example, Germany, a world leader in solar.

Carbon Sequestration

Carbon sequestration is the process of removing carbon from the atmosphere. It can happen through natural (e.g. trees) or technological (e.g. capturing and storing gasses from a smokestack) processes. The Saanich Climate Plan aims to enhance natural processes (such as increasing tree coverage) in order improve our Saanich's long-term carbon sequestration. The science behind carbon sequestration, especially as it relates to natural processes, is still developing. Since it takes time for plants to grow and soil to build, these approaches will require a long time horizon to reach their potential, and an urgent focus on reducing emissions will remain a paramount strategy.

Offsets

A path to carbon neutrality can include offsets. Offsets involve measuring GHG emissions in our community, and paying an offset company to implement carbon-reducing projects that would not otherwise be funded. This plan does not include the purchase of offsets as a strategy. Offsets would come with significant cost, and as they would be generated outside of Saanich's municipal boundary, they would have limited direct benefits to local residents, businesses or the local environment.

Climate Plan Strategies

The following sections lay out strategies to reduce energy consumption and GHG emissions, transition to renewable energy, and prepare Saanich for climate impacts. The strategies and actions are organized into six sectors:

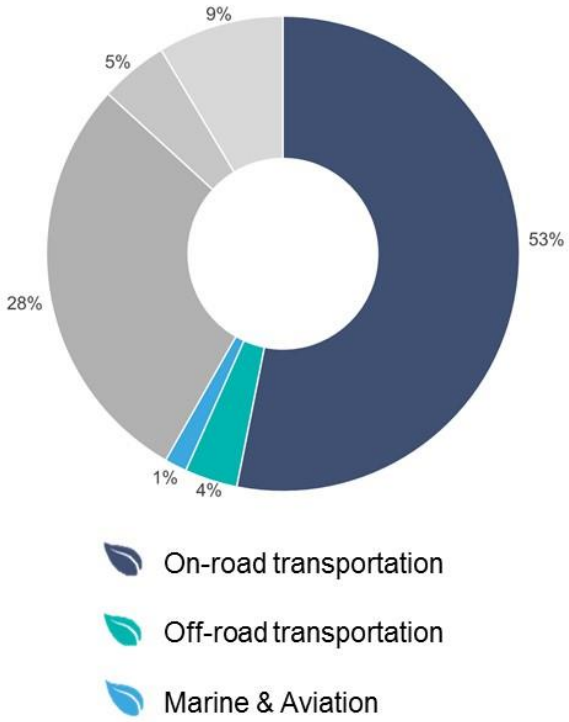
- Sustainable Mobility
- Built Environment
- Ecosystems
- Food and Materials
- Community well-being
- Leading by Example

Sustainable Mobility

Where we are today

Transportation is the largest source of greenhouse gas (GHG) emissions in Saanich, responsible for more than half of our total GHG emissions (both by territorial and consumption-based measurements).

Where our transportation emissions come from



On-road transportation is the largest source of GHG emissions in our region, accounting for 53% of territorial emissions in 2017. Personal vehicle travel is the biggest source of emissions, followed by commercial. Other kinds of transportation, including off-road (e.g. machinery used in agriculture, construction sites, etc.), marine and aviation, accounted for about 5% of Territorial emissions in 2017 (see Figure 8).

In our mixed rural and urban community, most of our travel is still via single occupant vehicle, and most of those vehicles are using fossil fuels. However, approximately 25% of trips in Saanich are already by active transportation, including 10% of people taking transit, 8% walking and 5% cycling.

Did you know? The number of people cycling in Saanich has nearly doubled since 2007.

Figure 8: Transportation emissions in Saanich Territorial GHG inventory, 2017

Where we need to go

Reducing Emissions

On-road transportation accounts for more than half of Saanich's GHG emissions, so any significant reduction in our community's emissions must include reducing emissions from vehicles, by reducing the number of trips taken by vehicles and by switching from fossil fuels to renewable sources of energy to power vehicles.

Walking, cycling, wheeling, and other human-powered forms of transportation have no GHG emissions (except for the GHG emissions associated with constructing, maintaining and disposing of the bike, skateboard, etc.) and they also support health, safety, equity, community building, and local businesses.

Public transit moves more people using less space and resources than if everyone uses their own car, making transit essential for moving people efficiently in urban areas. This means that even for buses that are fueled by diesel or gasoline, the fuel (and GHGs) per person for a trip by bus is less than for the same trip by single-occupant vehicle. The case for public transit is even stronger when the buses are powered by BC Hydro electricity, which is 98% carbon-free. BC Transit has a target of a fully electric fleet by 2040, and plans to start purchasing only electric heavy duty buses starting in 2023.

Did you know? Over 500 Saanich residents own electric vehicles.

If people need to travel by personal vehicle, the GHG emissions are much lower when those vehicles are electric. Investing in electric vehicles can also improve air quality and reduce noise pollution in the community. Electric vehicle (EV) ownership is growing substantially in our community. Some heavy duty vehicles and equipment do not have battery electric options today, so other renewable fuels and/or technological advances are required in order to reach our targets. Figure 9 shows the GHG emissions per trip for different modes of transportation.

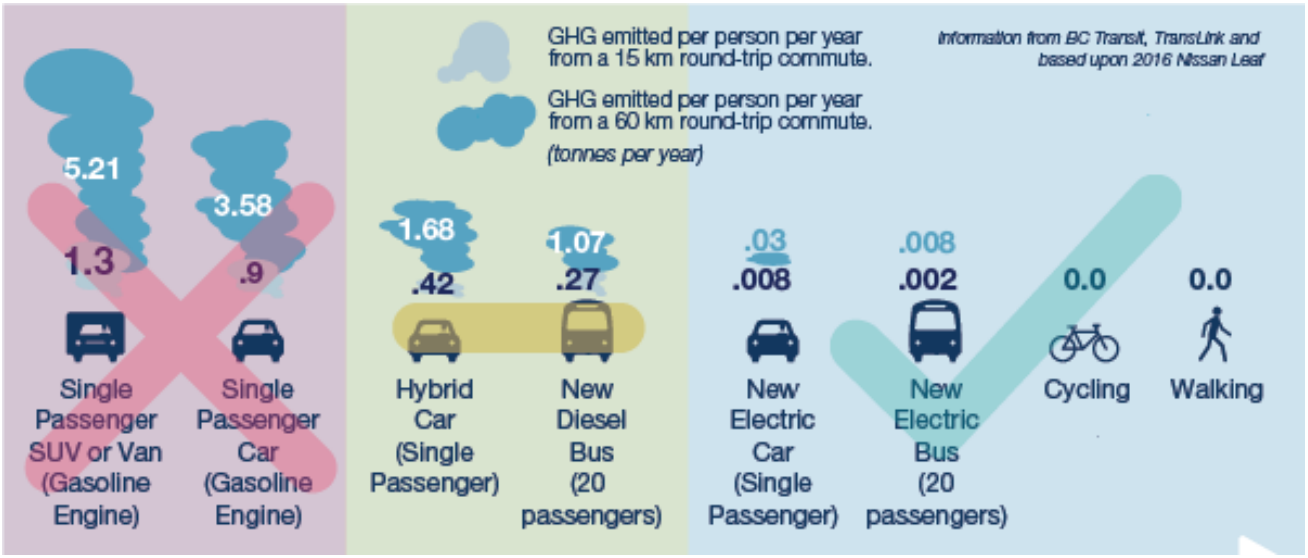


Figure 9: GHG emissions per trip for different modes of transportation

The targets for Sustainable Mobility for 2030 and 2050 and associated modelled GHG emissions are shown in the Tables 4 and 5 below. Figure 10 shows the modelled pathway of GHG emissions between 2007 and 2050 if the targets in Tables 4 and 5 (and the rest of this Plan) are achieved.

Table 4: Sustainable Mobility – Modelled emissions reductions for 2030

Targets	Tonnes C02e	Reduction from 2007
13% Pedestrian mode share 8.5% Cycling mode share	6,373	1.3%
13% Public transit mode share	18,800	3.8%
36% Personal vehicles electrified 100% Public transit electrified	52,087	10.5%
10% of remaining fuel is biofuel (in addition to existing federal standards)	10,941	2.2%
Savings from policies already in place (Business as Usual savings)	36,566	7.4%

Table 5: Sustainable Mobility – Modelled emissions reductions for 2050

Targets	Tonnes C02e	Reduction from 2007
17% Pedestrian mode share 13% Cycling mode share	14,409	2.9%
20% Public transit mode share	34,469	7.0%
90% Personal vehicles electrified 100% Public transit electrified 50% Commercial vehicles electrified	101,961	20.6%
100% of remaining fuel is biofuel	33,882	6.8%
Savings from policies already in place (Business as Usual savings)	49,538	9.9%
Additional strategies required	TBD	TBD

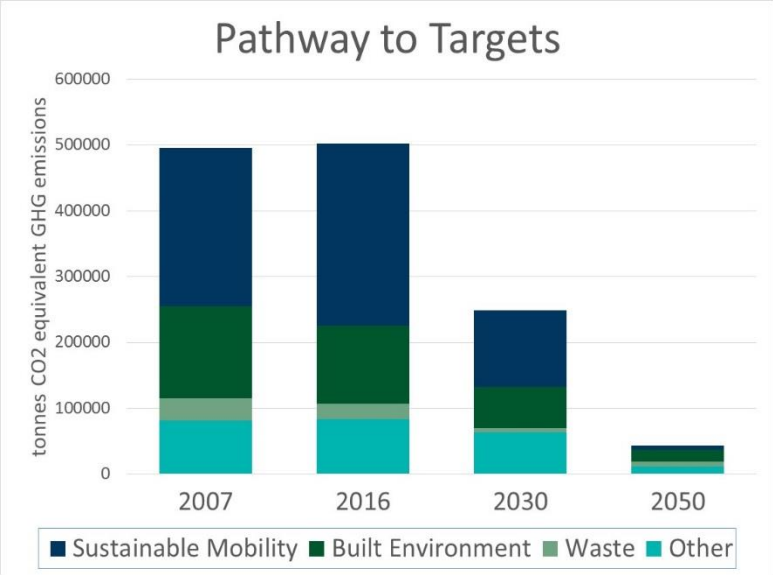


Figure 10: Pathway to GHG Targets

Improving Resilience

Resilience Goal: *Transportation infrastructure is designed or retrofitted for changing climate conditions and enables low carbon transportation in a changing climate as well as access during emergency events.*

The risks from climate change for our transportation system are primarily related to disruptions in our transportation network during severe weather and sea level rise. (Risk is the likelihood of the impact occurring multiplied by the severity of the impact). In addition, active transportation choices may be compromised by weather events such as heat, wind, heavy rainfall and poor air quality, affecting health and making our mitigation goals more difficult to achieve.

What We Heard from the Community

The following key sustainable mobility themes were identified through public engagement:

- Increase density to support easy access to services (e.g. groceries) in neighbourhoods and reduce reliance on car travel
- More frequent, convenient bus service on electric busses
- Help with upfront costs of electric vehicles, and easy access to charging
- Safe, attractive, and accessible walking and cycling routes

District of Saanich's Role

The District's role in sustainable mobility includes:

- Designing, building, and maintaining public streets, signals, sidewalks, bike lanes, and public spaces.
- Using land use and urban design policies and guidelines to influence new development

- Regulating road use on streets in our jurisdiction, such as speed limits, parking fees, etc.
- Delivering climate mitigation and adaptation education and incentive programs

We will need to work with others to succeed, including:

- BC Transit and the Victoria Transit Commission, who set routes, service levels, fares and local taxes for transit purposes.
- CRD and neighbouring municipalities on regional transportation planning and the Regional Growth Strategy
- Province of BC, responsible for highways, vehicle emissions regulations, the Motor Vehicle Act, and more.
- People and businesses in Saanich, responsible for their own transportation choices.

How we're going to get there

The strategies outlined below articulate the District's approach to meeting the targets and goals related to Sustainable Mobility. Strategies include investing in active transportation, prioritizing transit-supportive policies and practices, and accelerating the transition to vehicles powered by electricity and renewable fuels. For detailed actions and timelines, please see the Action and Implementation section of this Plan.

Strategy 1: Invest in active transportation

The District of Saanich will build on its existing investments in active transportation through:

- accelerating implementation of the Active Transportation Plan;
- expanding the Active & Safe Routes to School program;
- exploring opportunities to expand bike parking and creating a promotion and incentive program for e-bikes;
- encouraging and supporting car, bike and other mobility-sharing services; and
- advocating for changes to Provincial legislation to lower default speed limits on residential streets to improve safety for active transportation.

Strategy 2: Prioritize transit-supportive policies and practices

The District will support public transit through advocating for transit service improvements and fleet electrification, creating bus lanes and other measures to reduce bus travel times, encouraging transit-oriented development, and managing off-street and on-street parking to better align with mode share targets.

Strategy 3: Accelerate electric and renewable mobility

The District will create a community-wide EV Strategy and pursue several actions to support widespread adoption of electric vehicles in Saanich, including;

- increasing the number of residential charging stations though requirements for new developments, incentives and supports for existing buildings, and advocating for Right-to-Charge legislation.
- doubling the number of public charging stations and exploring ways to optimize use of municipally-owned public charging stations;

- working with businesses and other organizations to identify opportunities to reduce GHG emissions in fleets;
- working with car-sharing and other shared mobility service providers to increase access to EVs and charging infrastructure; and
- exploring non-financial incentives for personal EVs, such as priority parking.

Built Environment

Where we are today

Where our building emissions come from

On average, 330 new buildings are constructed in Saanich each year. Buildings constructed today, and many older buildings that are already in the community, will still exist and contribute to our community wide GHG emissions in 2050.

Buildings are the second largest source of GHGs in our community. The energy used to heat, power, and cool buildings in Saanich makes up 28% of our overall territorial GHG emissions, and 20% of our consumption based emissions. Significant actions to reduce GHGs from buildings will therefore be vital to become a 100% Renewable Energy community and reach our net-zero emission reduction targets by 2050. Improving the performance of our buildings also brings opportunities to save costs, improve indoor health and comfort and make our buildings sites of renewable energy production.

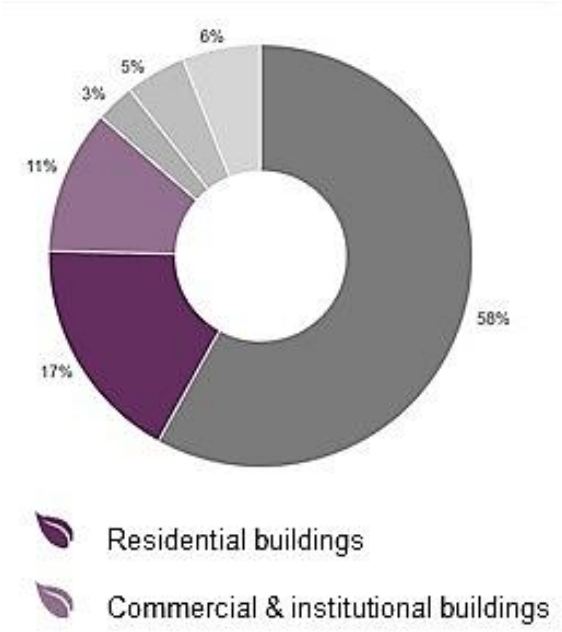


Figure 11: Building-related emissions in Saanich Territorial GHG inventory, 2017

In 2017, 17% of our territorial GHG emissions came from residential buildings with another 11% of our territorial emissions from commercial and institutional buildings and facilities (see Figure 11).

In Saanich's consumption-based GHG emissions inventory, building emissions can be further broken down into two sources (Figure 12):

1. The majority of building GHG emissions (62%) result from operational energy, which is the energy used to heat, cool, and power buildings. The key to reducing operational emissions is to build or renovate buildings to high energy performance standards.
2. A smaller percentage (38%) results from embodied energy, which is the energy used for extraction of raw materials, manufacturing and transportation of the end product. The key to reducing embodied emissions is to select low carbon and durable materials, and to design and build buildings to last in a changing climate.

Since BC Hydro electricity is mainly sourced from hydro power (currently 98% renewable), many homes and buildings in Saanich are already powered by renewable energy. Homes that are heated using oil or natural gas, and have not been upgraded for energy efficiency, may be emitting more GHGs than a typical car every year. The most effective way to reduce greenhouse gas emissions in buildings is to reduce energy use where possible and use renewable, low-carbon energy. Improving the performance of our buildings also brings opportunities to save costs, improve indoor health and

comfort and make our buildings sites of renewable energy production. Figure 13 shows the GHG emissions associated with different kinds of home heating systems.

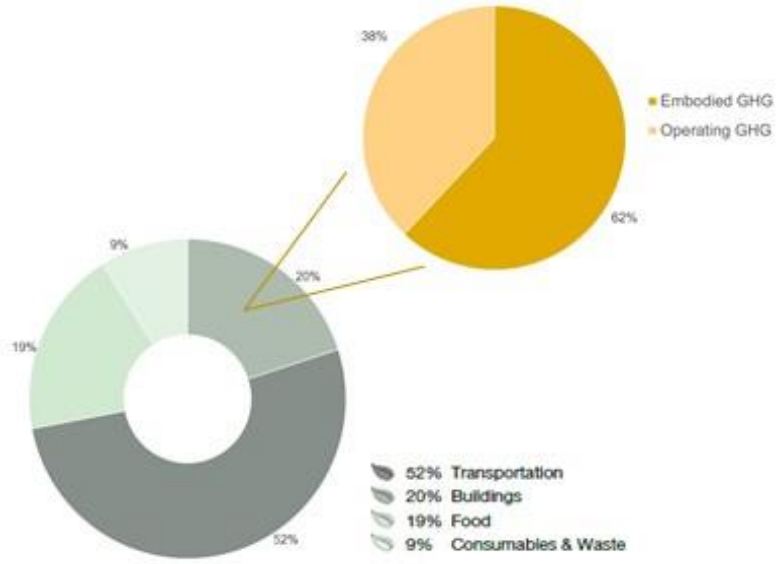


Figure 12: Building-related emissions in Saanich Consumption Based GHG emissions, 2015

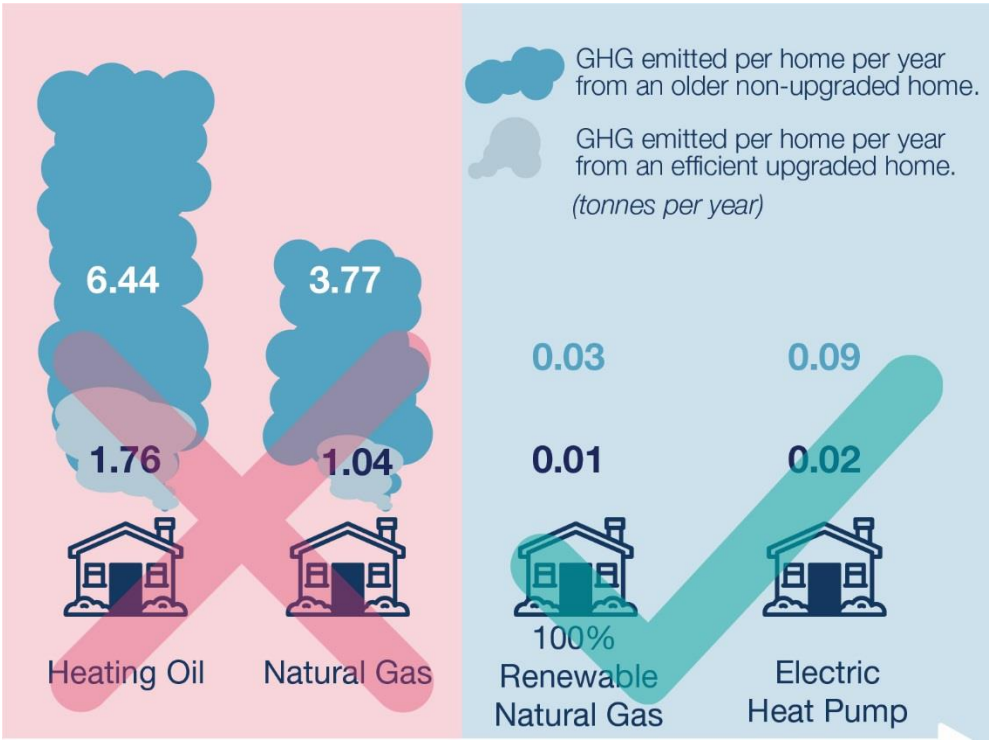


Figure 13: GHG emissions associated with different kinds of home heating systems.

Where we need to go

Reducing Emissions

In order to become a 100% Renewable Community and reduce our emissions to net-zero by 2050, all buildings in Saanich will need to be highly energy efficient, powered by renewable energy, designed for the conditions they will experience, and built using sustainable and low carbon materials.

70% of the residential buildings that will be in operation in 2050 are already constructed today, meaning retrofits are essential to achieving our climate goals.

Improving the energy performance of our buildings brings opportunities to save costs, improve indoor health and comfort and make our buildings sites of renewable energy production.

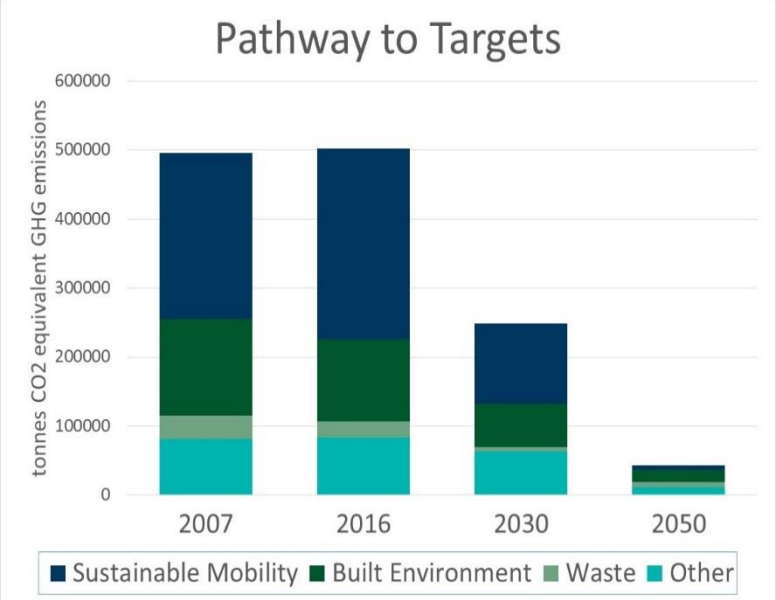


Figure 14: Pathway to Targets

The targets for the Built Environment for 2030 and 2050 and associated modelled GHG emissions are shown in Tables 6 and 7 below. Figure 14 shows the modelled pathway of GHG emissions between 2007 and 2050 if the targets in Tables 6 and 7 (and the rest of this Plan) are achieved.

Table 6: Built Environment – Modelled emissions reductions for 2030

Targets	Tonnes C02e	Reduction from 2007
Step Code Implemented in 2020	2,158	0.4%
100% existing oil heating systems replaced by heat pumps 40% building envelopes upgraded 40% heating and hot water systems replaced by low carbon sources	56,134	11.4%
Renewable Natural Gas (RNG) replaces fossil fuel natural gas (assumes 90,000GJ/year RNG)	4,528	0.9%
Savings from policies already in place (Business as Usual savings)	13,833	2.8%

Table 7: Built Environment – Modelled emissions reductions for 2050

Targets	Tonnes C02e	Reduction from 2007
Net-Zero New Construction by 2032	19,502	3.9%
100% of Existing Oil Heat is Replaced by heatpumps 80% of Building Envelopes Upgraded 75% of Heating/Hotwater Systems Replaced by Low Carbon Sources	90,490	18.3%
Renewable Natural Gas replaces fossil fuel Gas (Assumes 128,000GJ/year RNG)	6,444	1.3%
Savings from policies already in place (Business as Usual savings)	4,954	1.0%
Additional strategies required	TBD	TBD

Improving Resilience

Resilience Goals:

- *Buildings, energy systems, roadways, water based utilities, and other infrastructure are designed or retrofitted for changing climate conditions*
- *The built environment (e.g. buildings and landscape designs) supports and enables natural processes that increase resilience, such as rain infiltration and species migration*
- *Land use and development patterns minimize exposure and contribution to long-term hazards such as sea level rise and changing precipitation and temperature patterns.*

Ensuring our built environment is resilient to more severe weather patterns and changing climate conditions is critical, especially since so many aspects of our infrastructure, such as buildings, pipes and roads should last for decades. Our homes and buildings need to be prepared for more heat waves, poor air quality events, and heavy storms and rainfall, as does our drainage infrastructure. Meanwhile, sea level rise poses a threat to our coastal areas, and requires that we plan ahead to ensure we retain these valuable amenities for generations to come. Risks to Saanich's infrastructure identified through the risk assessment process are listed in Table 8.

Table 8: Risks to Saanich's infrastructure from climate change

Medium risks:	• Increased extreme weather events (heat waves, air quality advisories, heavy rainfall, storms) affecting active transportation. • Sea level rise and storm surges causing flooding and damage to coastal infrastructure (e.g., drainage, transportation, buildings). • Increased extreme weather events causing disruption and delays in transportation network (e.g. storms, smoke, heavy rainfall delaying flights, ferries, etc.). • Increased extreme weather events causing impacts to natural ecosystems and biodiversity, compromising capacity of green infrastructure and associated ecosystem services.
Medium-low risks:	• More frequent and intense rainfall events causing increased stormwater inflow and infiltration into the sewer system, sewage backups and overflow at pump stations. • More frequent and intense rainfall events causing increased overland flooding. • Warmer summer temperatures and more intense heat waves causing buildings to overheat and/or increasing demand for air conditioning. • Increased wind and storm events causing more power outages and disruption to critical infrastructure (e.g. telecommunications systems).
Low risks:	• Drier summers increasing risk of wildfire to buildings and infrastructure. • Hotter, drier summers causing water demand to exceed supply due to increased residential and agricultural consumption. • Increased wind and storm events causing damage to buildings.
Very low risks:	• Hotter summer temperatures causing strain on infrastructure (e.g. road buckling, steel expansion, power lines, lift stations). • Hotter summer temperatures decreasing efficiency of transmission systems, leading to electricity disruptions.

What we heard from the community

Throughout engagement on the Climate Plan, we heard strong support from the community on several key issues related to the built environment, including:

- Support for solar energy, methane capture from waste, and other local renewable energy production, but concerns about air quality impacts of wood burning.
- Interest in green roofs, rainwater harvesting, carbon sequestration from trees and greenspaces, and other green assets.
- Affordability of new homes as well as upfront costs of renovations are an important consideration.

Did you know?

- Among those planning home renovations, 84% of survey respondents were likely or very likely considering energy efficiency or climate adaptation as part of their upgrades.
- Among survey respondents who use fossil fuels at home, 50% were very likely or somewhat likely to switch to renewable energy in the next 5 years, especially if there were help with upfront costs (incentives or financing).

District of Saanich's Role

The District's role in the built environment includes:

- Designing, building, and maintaining municipal buildings, roads, storm and sanitary sewer and waterworks projects
- Regulating land use and development through zoning, neighborhood planning, permits, policies, and bylaws.
- Delivering climate mitigation and adaptation education and incentive programs

We will need to work with others to succeed, including:

- The provincial and federal governments on building code updates, including efficiency standards, mechanical systems/fuel types, and climate resilience related to building code requirements
- Utilities and senior levels of government on incentive programs
- The provincial government which regulates provincial policies and infrastructure including highways, sea level rise planning parameters for local governments, and much more
- Capital Regional District and neighbouring municipalities on public capacity building, education and community programming
- Industry stakeholders, including developers, architects and designers, construction and retrofit trades, and real estate agents, who are responsible for implementing and communicating about energy and climate performance of buildings.
- People in Saanich, who make decisions about building purchases, renovations, and operations.

How we're going to get there

The strategies and actions outlined below articulate the District's approach to meeting the targets and goals related to the built environment. Strategies include requirements for energy-efficient and low-carbon new buildings and measures to accelerate upgrades to existing buildings to reduce their energy use and GHG emissions, actions to improve the supply of renewable energy, and actions to improve the climate resilience of buildings and infrastructure in Saanich and prepare for sea level rise.

Strategy 4: Require efficient, net-zero carbon new construction

While the BC Building Code regulates most aspects of new construction in BC, the District of Saanich has the ability to influence how buildings are designed and constructed through:

- setting requirements for achieving higher steps of the BC Energy Step Code,
- using rezoning policy to create incentives for low-carbon and zero-carbon buildings (and ensuring existing bylaws don't create barriers to these kinds of buildings),
- supporting training programs so that workers in Saanich have the skills needed to design and construct high-performance buildings,
- requiring that owners of large new buildings monitor and report on the energy use and GHG emissions in their buildings, and
- supporting the development of tools to measure and report on the carbon embedded in building materials.

Strategy 5: Accelerate efficiency and renewable energy upgrades in existing buildings

To meet Saanich's targets for GHG emissions and renewable energy use, it will be necessary to upgrade almost every existing building in Saanich. This will include improving building envelopes to ensure that buildings are well-insulated, have high performance windows, doors, and air sealing, and replacing space and water heating systems with high-efficiency, renewable energy systems such as heat pumps. The District of Saanich will explore and pursue opportunities to foster these upgrades through financial incentives and other supports and, as appropriate, creating requirements for energy and GHG improvements or advocating that the provincial or federal governments create these requirements.

Strategy 6: Increase energy resilience and renewable energy supply

The District will foster and support the supply of renewable energy, including Renewable Natural Gas, solar, wind, and biogas. This will not only help reduce GHG emissions but, to the extent that the renewable energy supply is decentralized, will also increase energy self-sufficiency and reduce vulnerability to system blackouts.

Strategy 7: Transition towards a climate-ready building stock

A climate-ready building stock is one that is resilient to a changing climate. Strategies to increase resilience in buildings include:

- using future projected climate data in addition to historical climate data in design
- reducing the energy and water used in the building,
- managing and reducing stormwater runoff from the building and its site,

- reducing the contribution of the building and its site to urban heat island effects through green roofs and trees and shrubs,
- supporting building professionals in the emerging practice of considering future climate conditions in all new construction,
- advocating that the Provincial and Federal governments incorporate adaptation (e.g. higher cooling demand, air filtration, wind loads, etc.) into the next building code update.
- using passive (e.g., shading) and mechanical measures (e.g., heat pumps, ventilation) to maintain indoor temperatures and air quality during severe heat and/or poor air quality events, and
- ensuring the building is designed or retrofitted to withstand severe storm and flooding events.

The District will pursue opportunities to promote and support these practices and advocate that the Province incorporate climate change adaptation into the BC Building Code.

Strategy 8: Increase the resilience of Saanich's infrastructure and assets

The District of Saanich will increase the resilience of Saanich's assets and infrastructure through:

- developing a corporate asset management system that supports consideration of climate change in the design, renewal, maintenance and replacement of municipal assets;
- accelerating the completion of a District stormwater master plan that integrates climate projections and leverages natural assets; and
- accelerating the review and updating of engineering design specifications and other infrastructure guidance documents as necessary to account for future climate projections.

Strategy 9: Prepare for long-term sea level rise

The District of Saanich has almost 30 km of coastline and, with anticipated sea level rise of 0.5m by 2050 and 1m by 2100,[4] preparing for sea level rise is critical. As a necessary first step, the District in collaboration with the CRD and municipalities in the region, will complete detailed sea level rise and tsunami mapping. This will inform updates to land use and development bylaws to ensure that risks from sea level rise are minimized. The District will also develop a Coastal Adaptation Strategy and create resources and materials for residents, businesses and developers to increase their knowledge and capacity to adapt to sea level rise.

[4] BC's Flood Hazard Area Land Use Management Guidelines

Ecosystems

Where we are today

Saanich's ecosystems include shoreline, numerous freshwater lakes, streams, and creeks, abundant natural vegetation, and varied wildlife. The District manages 171 parks (ranging from neighbourhood parks to multi-sport athletic parks to natural areas and open spaces) covering more than 825 hectares with more than 100 kilometres of trails. The park system is biologically diverse offering residents a spectrum of active living experiences and opportunities to connect with nature. More than half of the system is comprised of natural areas protecting local ecosystems. Signature parks known throughout the region and beyond include: Mount Douglas, Mount Tolmie, Gorge, Cuthbert Holmes, Cedar Hill and Prospect Lake.

Our ecosystems and natural areas can be both sinks and sources of greenhouse gas emissions. Emissions estimates for land use carbon emissions and sequestration have a high degree of uncertainty today. Our Territorial GHG inventory shows that greenspaces in Saanich are sequestering less in 2017 than in 2007 due to changes in land use (e.g. conversion from crop or grass land to buildings and roads.) Figure 15 shows the changes in percentage of Saanich's land area consisting of high density impervious surface and high density tree cover, respectively, from 1986 to 2011.

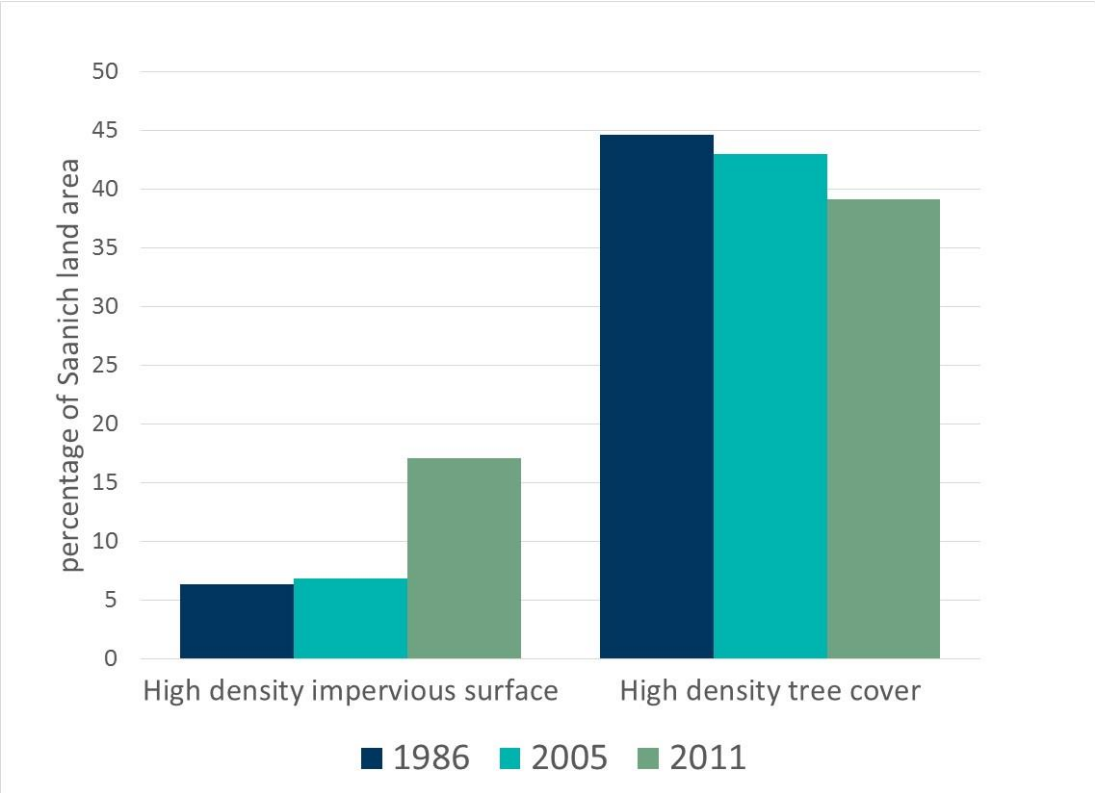


Figure 15: Land Use Changes in Saanich 1986-2011

Where we need to go

Capturing Carbon

Healthy ecosystems in Saanich can play a small but essential role in achieving net-zero GHG emissions by 2050. Planting trees and expanding greenspace will increase carbon sequestration, reducing Saanich's GHG emissions and also helping to increase the resilience of our community and ecosystems.

While protection and enhancement of greenspaces in Saanich will play a role in reaching net-zero emissions in our community, we must focus on reduction of fossil fuel use as a main strategy.

Improving Resilience

Resilience Goals

- *Ecosystems have the space needed to thrive and adapt, with protected natural areas and well-connected habitat corridors*
- *Natural areas are carefully monitored and managed to support ecosystem health and biodiversity*
- *Ecosystem services are quantified, valued and accounted for in Saanich's asset management approach*

Drought-stressed cedar tree (Saanich)

Saanich's natural areas and biodiversity are at high risk due to climate change. Many species and ecosystems are already showing strains. Increasing average temperatures, hotter and drier summers, heat island effect due to increased urbanization, coastal "squeeze" due to sea level rise, and more precipitation from fall through spring will cause a range of impacts such as increased opportunities for invasive species, pests and diseases, compromised water quality and availability, and reduced viability of some native species. Climate risks for ecosystems are higher than many other risk areas because there is no "technological fix", and impacts are assessed to be "very likely" and "potentially irreversible." Table 9 lists risks to Saanich's ecosystems from climate change.

Solutions that improve the resilience of ecosystems include expanding natural areas, connecting protected areas with natural corridors, considering future climate suitability of different species, and adapting our management techniques. These can have rich co-benefits for the community as a whole, such as increased recreational opportunities, physical and mental health benefits, social benefits, and improved air quality.

Healthy natural systems also have the potential to support our adaptation and resilience efforts by delivering critical services such as stormwater management, erosion control, carbon sequestration and cooling. By viewing ecosystem services as part of our critical infrastructure and integrating it within our asset management approach, we can support the adaptation of our natural areas, while improving our own ability to respond to severe weather and other changes.

Assisted migration
As the climate changes, species that were well-suited to conditions in a particular region may not adapt quickly enough to survive. Assisted migration is human intervention to speed the distribution of organisms—from seeds to animals—in to locations deemed more suitable. It involves potential benefits and risks.

Table 9: Risks to Saanich's ecosystems from climate change

High risks:	• Increased average temperatures and drier summers causing native species to be stressed, affecting biodiversity and creating new opportunities for invasive species. • Increased average temperatures causing swift ecological regime shifts • Rising sea levels causing habitats to shift landward with risk of loss due to coastal squeeze, increased wave action, erosion, soil salinization and other stressors.
Medium-high risks:	• Increased average temperatures and drier summers reducing groundwater recharge and affecting water quality. • More frequent and intense heat waves causing warmer temperatures in streams, decreasing water quality and impacting fisheries. • Drier summers turning wetlands into drier ecosystems (i.e. swamp to seasonal wetland). • More frequent and intense rainfall events causing saturated soils, with impacts on natural bio filtering and storage capacity (including water quality and flooding risks). • Increased drought causing increased tree mortality rate and change in urban forest composition.
Medium risks:	• Increased average temperatures increasing pests and diseases, resulting in a loss of species. • More frequent and intense rainfall events causing streams to be inundated, increasing erosion, sediment loads, and contaminants in watercourses due to volume of stormwater runoff. • Increased wind and storm events causing more deadwood for fire threat, and less biomass to reduce wind impacts.
Medium-low risks:	• Drier summers impacting access to water by wildlife, affecting reproduction rates and biodiversity.

Garry Oak Ecosystems in a Changing Climate

Saanich is located entirely within the Coastal Douglas-fir (CDF) biogeoclimatic zone which is the smallest zone, encompassing only 0.3% of British Columbia. It is also the least protected (6%) and located mainly (80%) on private land. As a result, all 36 ecological communities are ranked globally and provincially as critically imperiled, and 218 species of wildlife and plants are at risk in the CDF. Garry Oak ecosystems are home to a high percentage of the rare species found in the CDF zone.

The CDF zone, and Garry Oak ecosystems in particular, are the highest conservation priority in BC in regard to climate change. Historically, Garry Oak ecosystems occurred inland and northward of their current range. The Garry Oak ecosystems are currently at the northern limit of their range and are considered valuable to protect as the range of species move northward. Acquiring drier areas of forest for the ecosystems anticipated expansion may be an effective strategy.

What we heard from the community

Key ecosystem themes in public engagement:

- Protecting our local species and ecosystems is one of the primary reasons people care about climate action.
- People value trees, greenspaces, and natural areas for many reasons, including the climate services they provide (shade, carbon sequestration, permeable surfaces, etc.)
- Over 30% of survey respondents say they have already seen stress on plants or wild animals in their neighbourhoods that may be caused by a changing climate, including native tree species, fish, birds, insects, and amphibians.

District of Saanich's Role

The District's role in ecosystems is:

- Managing natural areas on public land
- Growing the parks and trails system to include links and connections between greenspaces
- Restoring natural areas in Saanich parks in partnership with the community
- Managing invasive species
- Educating residents on Saanich's native species and ecosystems (e.g. Naturescaping, Park Ambassador program)
- Managing natural assets that provide municipal services (e.g. stormwater, erosion prevention)
- Maintaining the Urban Containment Boundary to protect natural spaces and habitats
- Using the Tree Protection Bylaw to regulate the removal of trees on private and public property
- Protecting native ecosystems as part of the development process

We will need to work with others to succeed, including:

- Federal and provincial governments, who research and regulate species at risk, wildlife, pollution abatement, spill response, pesticide use, water, fisheries, and others.
- Other parks and wildlife agencies, including CRD Regional Parks, BC Parks (10 Mile Point Ecological Reserve), and Canadian Wildlife Service (Victoria Harbour Migratory Bird Sanctuary)
- CRD's Regional Invasive Species Program and the Capital Region Invasive Species Partnership – Intergovernmental Working Group (CRISP-IWG)
- Community stakeholders, including stewardship groups, residents groups, individuals and the development industry
- People who make choices about ecosystem management on private and institutional lands in Saanich

How we're going to get there

The strategies outlined below articulate the District's approach to ensuring ecosystems in Saanich are able to adapt and thrive in a changing climate and to protect and manage natural assets as critical infrastructure.

Strategy 10: Enable natural systems to thrive and adapt

The District of Saanich will increase the ability of natural systems to adapt and thrive in a changing climate by:

- expanding, connecting and restoring natural areas;
- planting 10,000 new trees by 2025 to enhance the urban forest;
- developing a Biodiversity Conservation Strategy;
- reviewing and revising the Urban Forest Strategy including and updated canopy cover mapping and inventory;
- building residents' Natural Intelligence by fostering learning, living and loving nature through education and engagement opportunities;
- establishing baseline conditions and improving how we monitor natural areas over time;
- developing tools to foster the protection of natural areas on private lands;
- working with nurseries and others to prevent the use of invasive species;
- increasing public understanding of climate-related risks to native species and strategies to support their adaptation
- creating wetlands to introduce surface water into natural areas and manage stormwater as a resource;
- encourage the growth and expansion of Garry Oak and associated ecosystems; and
- working with schools to foster environmental and stewardship education and encourage school naturalization projects.

Strategy 11: Protect and manage natural assets as critical infrastructure

The District of Saanich will ensure that our valuable natural assets will be protected and well-managed by understanding the value of the services provided by these assets and including them in

the District's asset management and services planning. The District will also develop a land acquisition and protection strategy for natural assets.

Food and Materials

Where we are today

Our food and materials choices have environmental impacts. In our **Territorial GHG Inventory** (emissions generated from within our boundaries**)** (Figure 16), our agricultural industry is both a source and sink of greenhouse gasses, and methane from organic matter (e.g. food waste) sent to landfill represents 5% of our community emissions. Manufacturing and industrial processes do not play a large role in our community, as we are mainly a service-based and consuming economy.

Using a **Consumption-based GHG Inventory** (Figure 17), the food and materials we buy and throw away, whether they are produced locally or anywhere else in the world, represent 19% and 9% of our community emissions, respectively - the largest emissions categories after transportation and buildings.

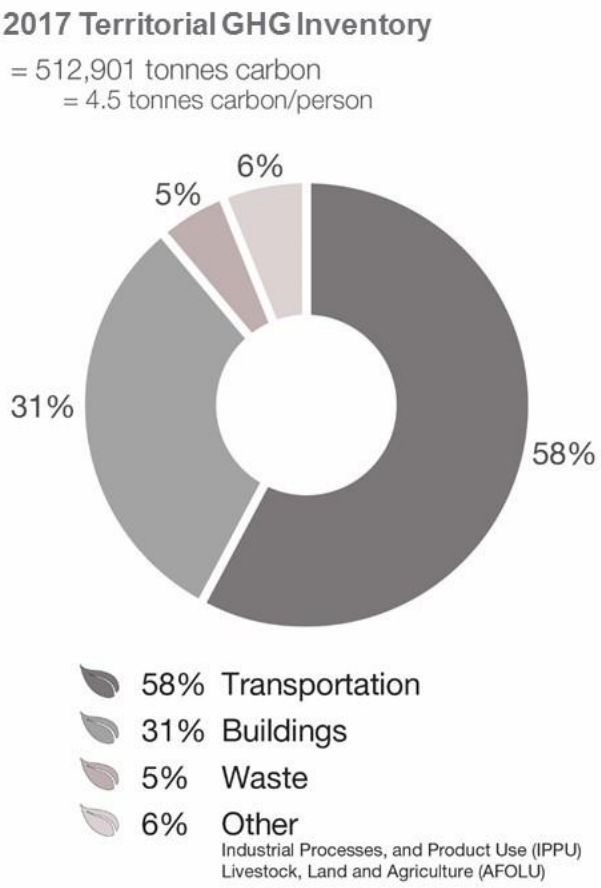


Figure 16: Saanich Territorial GHG Emissions Inventory, 2017

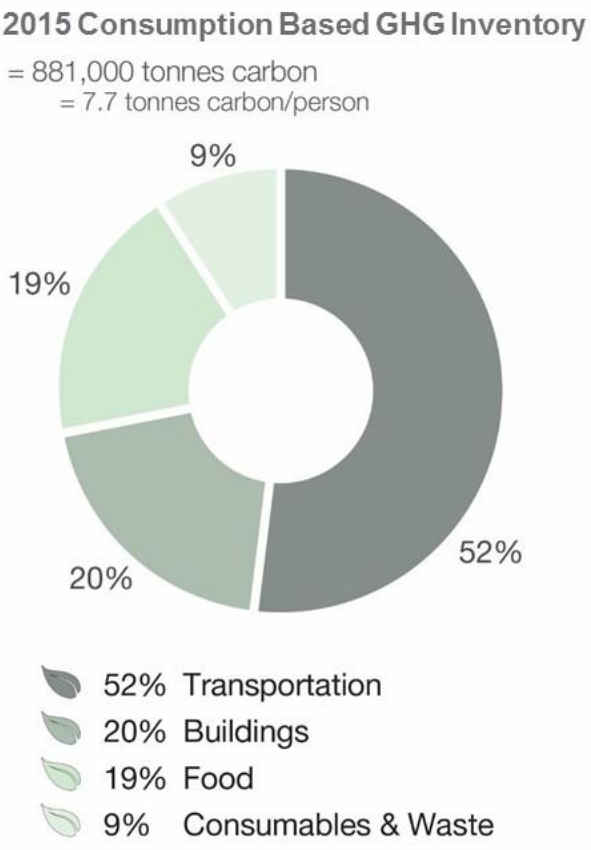


Figure 17: Saanich Consumption Based GHG Emissions Inventory, 2015

GHG emissions are generated in every step of the food system, including:

- Production
  - Land use change for crop and pasture land (e.g. deforestation, soil management)
  - Energy used in farm vehicles and buildings (e.g. greenhouses)
  - Production and use of fertilizers, pesticides, and other inputs
  - Animals (methane from manure and from enteric fermentation from cows and other ruminants)
- Food processing and refrigeration
- Transportation
- Home and restaurant cooking
- Waste

Did you know? On average 390 kg of food per year are wasted per Canadian each year. That represents $30 billion dollars wasted and 21 million tonnes of GHG emissions every year from food waste in Canada. Reducing food waste will reduce our community emissions and save money for people in Saanich.

Only a small proportion of the climate impact of food is associated with transportation, or food miles, whereas 98% of the emissions are associated with the amount of land and energy used in growing the food.

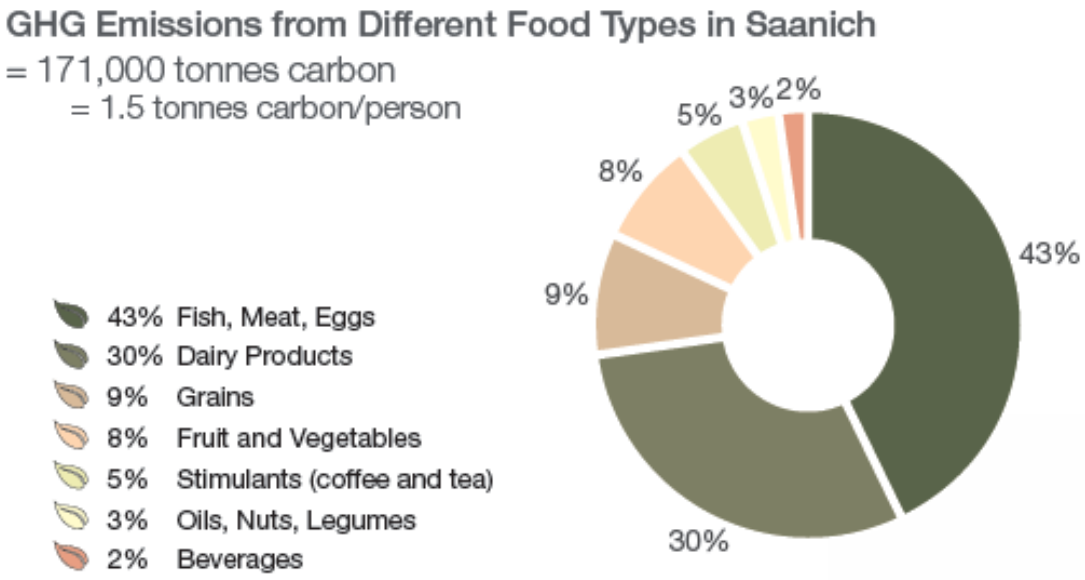


Figure 18: GHG emissions from different food types in Saanich

As shown in Figure 18, nearly three quarters of the food emissions in our community are a result of animal proteins, particularly red meat and dairy products.

In a Consumption-Based emissions approach, most of the climate impacts from food and materials are “upstream” rather than “downstream.” In other words, most of the climate impact happens as the product is produced, rather than how it is disposed of.

As shown in Figure 19, our biggest Consumption-based GHG emissions from consumables comes from textiles, followed by plastics and paper.

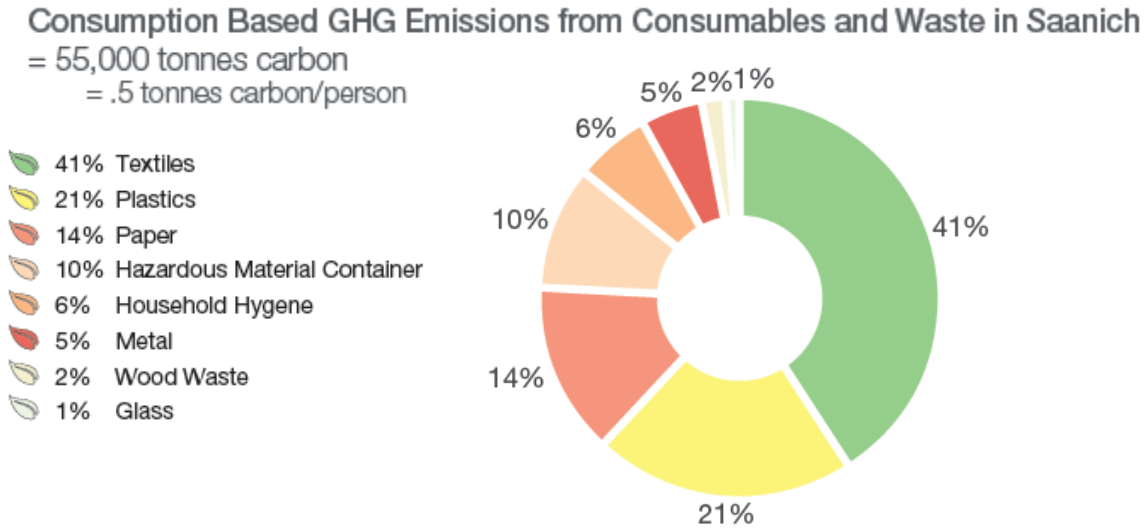


Figure 19: GHG emissions from consumables and waste in Saanich

What we heard from the community

Key food themes in public engagement:

- The climate impact of personal food choices was very or somewhat important to 73% of survey respondents;
- Strong support for local food production, including by local farmers, community gardens, and home gardening; and
- Among younger respondents, significant support for a plant-based diet.

Key consumption themes in public engagement:

- Ban plastic bags, and work to reduce waste from packaging and non-recyclable products at the source (producers, retailers);
- More convenient and close access to grocery stores to facilitate buying smaller quantities more frequently to avoid food spoilage (and to help with active transportation);
- More choice in food portion sizes and packages, especially for smaller households; and
- Make it easier to recycle more items at home and on the go.

District of Saanich's Role

The District's role in food and materials includes:

- Regulating land use regarding local agriculture, processing and distribution facilities
- Purchasing products for municipal operations
- Serving food in municipal facilities
- Collecting garbage and organics (kitchen scraps and yard waste)
- Educating people in Saanich about recycling, composting, and waste reduction
- Encouraging pollinator corridors, organic farming, and opportunities for farm businesses
- Promoting and permitting community gardens

We will need to work with others to succeed, including:

- Capital Regional District and Recycle BC who administer the blue box recycling program
- Capital Regional District on Hartland landfill management
- Provincial and federal governments on regulating packaging, products, and recycling (e.g. extended producer stewardship)
- Local farmers on agriculture issues in Saanich
- Food providers (e.g. grocery stores, restaurants) on food choices provided to consumers
- People in Saanich who make their own food and consumption choices

Food and Climate

There are many aspects to food and climate mitigation and adaptation, as outlined in the table below.

Mitigation by Local Farmers: Reduce GHG emissions by, for example: • improving efficiency and fuel switching in farm equipment and greenhouses, • updating livestock choices and management, and • using soil management techniques to increase carbon sequestration.	**Mitigation by people and organizations in Saanich:** Reduce GHG emissions by, for example: • reducing food waste, and • choosing/selling lower carbon foods.
Adaptation by Local Farmers: Adapt to changing conditions by, for example: • experimenting with new crops, • updating water management, and • increasing food production to increase local food availability and security. .	**Adaptation for people and organizations in Saanich:** Adapt to changing conditions by, for example: • supporting more local food production by local farmers, and • growing food in your neighbourhood.

Where we need to go

Reducing Emissions

From a **Territorial emissions** point of view, we need to reduce emissions from food and materials, which includes diverting all feasible organic matter from the landfill, and reducing emissions from "other" GHG sources including:

- Air travel
- Ferry travel
- Refrigerants, Aerosols, and Foams
- Lawnmowers, BBQs, leafblowers, and other equipment
- Emissions from livestock, fertilizer, decomposition, etc.

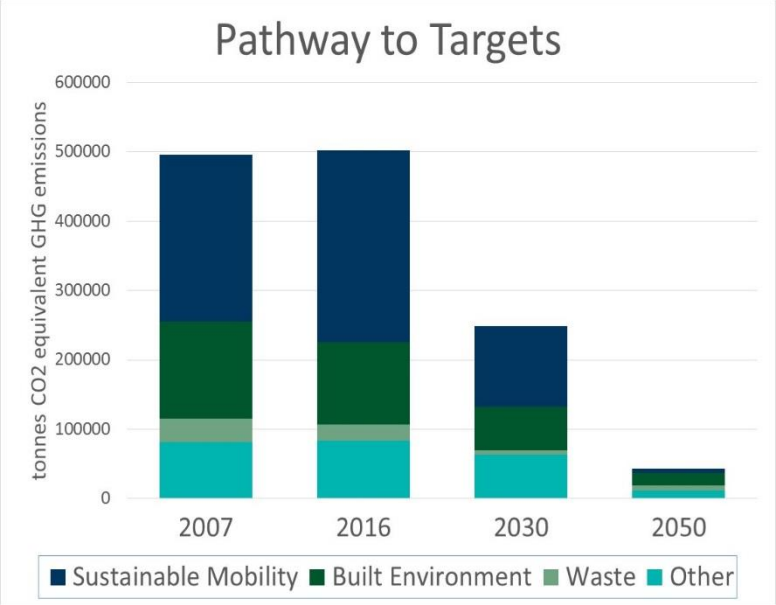


Figure 20: Pathway to Targets

The targets for Food and Materials for 2030 and 2050 and associated modelled GHG emissions are shown in Tables 10 and 11 below. Figure 20 shows the modelled pathway of GHG emissions between 2007 and 2050 if the targets in Tables 9 and 10 (and the rest of this Plan) are achieved.

Table 10: Food and Materials – Modelled emissions reductions for 2030

Targets	Tonnes C02e	Reduction from 2007
100% Diversion of Compostable Organic Waste / Paper (this equates to 88% reduction in organic matter primarily due to non-recyclable wood waste)	19,308	3.9%
Assume 33% Reduction from Other GHG Sources	25,766	5.2%
Savings from policies already in place (Business as Usual savings)	584	0.1%

Table 11: Food and Materials – Modelled emissions reductions for 2050

Targets	Tonnes C02e	Reduction from 2007
100% Diversion of Compostable Organic Waste / Paper (this equates to 88% reduction in organic matter primarily due to non-recyclable wood waste)	21,372	4.3%
Assume 100% Reduction from Other GHG Sources	86,580	17.5%
Savings from policies already in place (Business as Usual savings)	9,908	-2.4%
Additional strategies required	?	?

From a **consumption-based emissions** point of view, we can make different food choices to reduce our GHG emissions, and reduce consumption and climate impacts of our consumption choices. Figure 21 shows the GHG emissions associated with different foods.

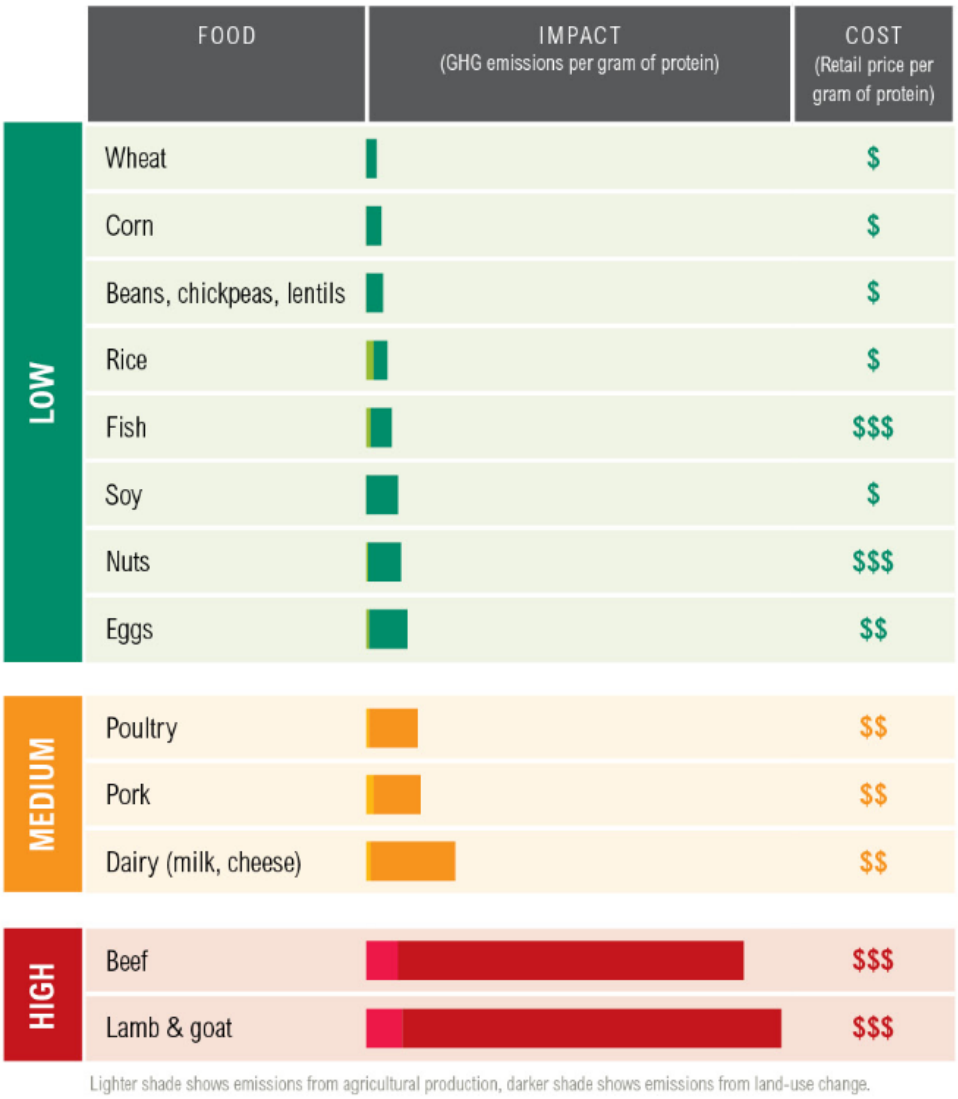


Figure 21: GHG emissions impacts of different foods

Improving Resilience

Goals:

- *The District protects and retains agricultural land.*
- *Local farmers have the resources and capacity to adapt their production practices to a changing climate*
- *The health of the food and agricultural sector is strengthened, with a greater proportion of food grown and consumed locally*

As the climate changes, food production and affordability may be affected globally, bringing new challenges and opportunities for local farmers. Focusing on increasing local climate-adapted food production and access for residents will all contribute to a more resilient community.

How we're going to get there

The actions and strategies outlined below articulate the District's approach to meeting the targets and goals related to food and materials. Strategies include actions to reduce the climate impact of food production and consumption and to support a transition to "lighter living".

Strategy 12: Reduce climate impact of food production and consumption

The District will help reduce the climate impact of food produced and consumed in Saanich by accelerating action on the Agriculture and Food Security Plan, and encouraging Saanich residents and organizations to choose low-carbon food options, use renewable energy for cooking, and reduce food waste.

Strategy 13: Move towards "lighter living" in Saanich

The District will help reduce consumption and waste in Saanich through:

- creating a Zero Waste Strategy,
- advocating for expanded producer responsibility to reduce un-recyclable waste production,
- working with the CRD to enhance enforcement of the recyclable materials ban,
- working with businesses and other governments on "circular economy" initiatives, and
- motivating Saanich residents to reduce their consumption and choose low-carbon options through use of educational tools like the Saanich Carbon Calculator and by supporting "lighter living" initiatives like tool libraries and repair cafes.

Strategy 14: Improve the resilience and self-sufficiency of the local food system

The resilience and self-sufficiency of our local food system will be important to our community's ability to cope with the impacts of climate change both within and outside of Saanich. The District will help improve the resilience and self-sufficiency of our local food system by supporting the creation of an Agricultural Adaptation Strategy for Vancouver Island, accelerating the implementation of the Saanich Agriculture and Food Security Plan, increasing the capacity for local food production, encouraging the Province and CRD to tie water licenses and subsidies to water-wise agricultural practices, and encouraging the Province to monitor food prices and consider strategies to keep healthy local food affordable.

Community Well-being

Where we are today

This section covers the human aspect of climate change action in Saanich, in both emergency and non-emergency situations. Saanich has over a decade of climate adaptation experience, including incorporating climate adaptation considerations into infrastructure planning and emergency response.

The early impacts of climate change are beginning to show in our local ecosystems, which affects our human well-being in many ways, including our feeling of connection to nature, grief for what may be lost, and apprehension for the future. More vulnerable members of our community have already needed to modify their daily routines due to poor air quality from wildfires or overheating in their buildings during hot summers. Adoption of clean energy technology has momentum, but access may not be equitable across incomes and other factors in our community. Developing specific measures and monitoring community well-being as it relates to climate change and climate action will be an important part of the Climate Plan implementation.

What we heard from the community

Key themes about community well-being in public engagement

- Health and well-being (e.g., cleaner air, access to nature, healthy local food, more walking and cycling, friendly neighbourhoods) were the most important co-benefits of climate action to survey respondents
- Many share a deep concern about inaction on climate change, and a desire to move together as a community in urgent effective action.
- Affordability is a concern in our region, and there is a desire that the burdens and benefits of climate change and climate action will be shared equitably (e.g. support for improved public transit as well as electric cars)
- 46% of survey respondents say they know their neighbours and are comfortable asking them for help.
- 42% of survey respondents say they have an emergency kit that includes three days' worth of food and water

Where we need to go

Resilience Goals:

- *Health outcomes and routine emergency service levels are maintained through proactive planning and responding to a changing climate*
- *Health and emergency services are tailored to serve all, especially vulnerable populations, and reduce inequities in health outcomes*
- *Residents are informed and active participants in preparing themselves, their homes, their neighbourhoods and their local ecosystems for a changing climate*
- *Businesses of all sizes are equipped with the knowledge and skills necessary to identify business risks and mitigate the impact of a changing climate on their operations and services.*

- *People in Saanich have access to affordable, nutritious food; warm homes in the winter and cool homes in the summer; and affordable energy.*
- *Social infrastructure – people and public spaces – are designed to promote community well-being and build resilience at the neighbourhood scale.*

Climate change has the potential to negatively impact the well-being of our community, with more severe weather such as high temperatures, poor air quality, and major storms exacerbating or causing health issues, damaging property, testing the limits of our emergency response capacity, and damaging public amenities such as beaches. Vulnerable populations such as low-income households, individuals with pre-existing health conditions, or those with mobility challenges will be disproportionately impacted. This plan focuses on impacts caused by climate change that are experienced within our municipality (e.g. changing temperature and precipitation) and not on impacts of climate change globally that may affect us locally.

By taking proactive action and empowering people and organizations to be involved in the solutions, prepare themselves and their neighbourhoods, and work collaboratively towards a shared vision of the future, we can not only "weather" the changes ahead, but foster a more inclusive, connected and engaged community. We also have a unique opportunity to stimulate economic development and increase employment opportunities in the green economy. If done right, climate action represents an opportunity to actually improve the health and well-being of our community with vibrant and complete neighbourhoods, options for active transportation, improved access to nature, a green local economy, and an engaged population that is prepared to work together.

Risks to health and safety in Saanich from climate change

Medium-high risks:

- Hotter, drier summers and increased wildfires causing poor air quality and impacting health (e.g. asthma-related illnesses from smoke or humidity).
- Increased average temperatures and extreme weather, impacting lifestyle.

Medium risks:

- Increased average temperatures and drier summers increasing wildland-urban interface fires in Saanich.

Medium-low risks:

- More frequent and intense heat waves increasing health issues, particularly for vulnerable populations.
- More frequent and intense heat waves and less summer rainfall leading to reduced water quality and potential water shortages.
- Extreme heat events negatively affecting health and productivity of outdoor workers.

Low risks:

- Increased average temperatures and more frequent and intense rainfall events increasing vector borne diseases, impacting population health.
- More frequent and intense heat waves limiting access to outdoor amenities and recreation and reducing physical activity (e.g. cancelled outdoor programs; water quality advisories in lakes).
- More extreme weather events and reduced air quality in summer months impacting tourism.
- Sea level rise and storm surges leading to temporary or permanent displacement, impacting mental health.
- More extreme weather events increasing demand for emergency responders and additional resources within and outside of Saanich (e.g. assisting other jurisdictions).
- Increased wind and storm events increasing the potential for personal injury.
- Increased wind and storm events increasing the frequency and duration of power outages, and the demand on emergency response.
- Increased risk of multiple extreme weather events, with increased health risks and strain on emergency capacity (e.g. wildfires followed by flood).
- Increased extreme weather events causing temporary displacement or evacuations, with particular impacts for vulnerable populations.

Very low risks:

- More frequent and intense rainfall events causing health and safety risks from increased flooding.
- Extreme weather events leading to disruptions in supply chain and local food shortages.

District of Saanich's Role

The District's role in community well-being relating to climate mitigation and adaptation includes:

- Supporting public safety and local emergency response, including through operating Saanich Fire, Saanich Police, Saanich Public Works, Saanich Engineering, and the Saanich Emergency Program.
- Supporting social well-being through local government housing, food security, employment, parks and recreation, arts and culture, heritage, equity, and similar initiatives.

We will need to work with others to succeed, including:

- Emergency response:
    - Environment and Climate Change Canada, which issues alerts for severe weather events
    - Provincial government, which administers Emergency Management BC and BC Centre for Disease Control (BCCDC helps monitor the effects of smoke and severe heat on public health)
    - Island Health, responsible for responding to health-related emergencies such as severe weather or pandemics.
    - Individuals, households, businesses, community groups, and non-profit organizations, responsible for their own emergency preparedness planning.
- Well-being related to climate mitigation and adaptation:
    - Federal government, responsible for setting national climate targets, motivating action via broad policies (e.g., Pan-Canadian Framework on Clean Growth and Climate Change), determining thresholds for air quality, environmental assessment of projects, and much more.
    - Provincial government, responsible for policies relating to health care, climate risk assessment and management, GHG reductions, housing, transportation, agriculture, and protecting the public from climate related hazards (e.g. Seal Level Rise guidance for municipalities and Flood Hazard Land Use Management Guidelines) as well as the BC Building Code.
    - Island Health, responsible for health care delivery including monitoring data on population health related to climate change and for helping to create a healthy built environment.
    - Capital Regional District, which manages drinking water supply, sewage treatment, provides rental housing, parks and trails, support for arts and culture, regional planning, and other community well-being programs.
    - Individuals, households, businesses, community, and non-profit organizations, responsible for a myriad of health, culture, clean energy training and employment opportunities, and other well-being initiatives related to climate mitigation and adaptation.

How we're going to get there

The actions and strategies outlined below articulate the District's approach to ensuring community well-being in a changing climate. They include actions to ensure emergency and community health services continue to be effective in a changing climate, and empower Saanich residents and businesses to take climate action.

Strategy 15: Ensure emergency and community health services keep pace with climate change

The District will ensure that we are able to provide emergency and health services in a changing climate by taking action to improve Saanich's resilience to severe heat and poor air quality events, minimizing wildfire risk, ensuring severe weather protocols for vulnerable populations are sufficient for newly emerging and more severe weather events, and working with Island Health and others to minimize impacts from vector-borne diseases.

Strategy 16: Empower Saanich residents and businesses to take climate action

The District will empower Saanich residents and businesses to take action through climate mitigation and adaption training and engagement; public art to awaken, inspire, and remind people of the climate risks and opportunities for climate action in our community; partnering with and supporting neighbouring First Nations on climate initiatives; bulk purchases to provide at-cost products and services to reduce energy use and GHG emissions and/or increase resilience; a grants program for community projects that build resilience; a Sustainable Saanich Scholars program; and developing and applying an equity tool to evaluate climate initiatives.

Leading by Example

Where we are today

GHG emissions

The District of Saanich has reduced greenhouse gas emissions from our municipal operations by 13% compared to 2007 levels through improving the energy efficiency of our buildings, street lights, and fleets; switching to electric light duty vehicles in our fleet; switching to renewable energy for space and water heating; and other actions.

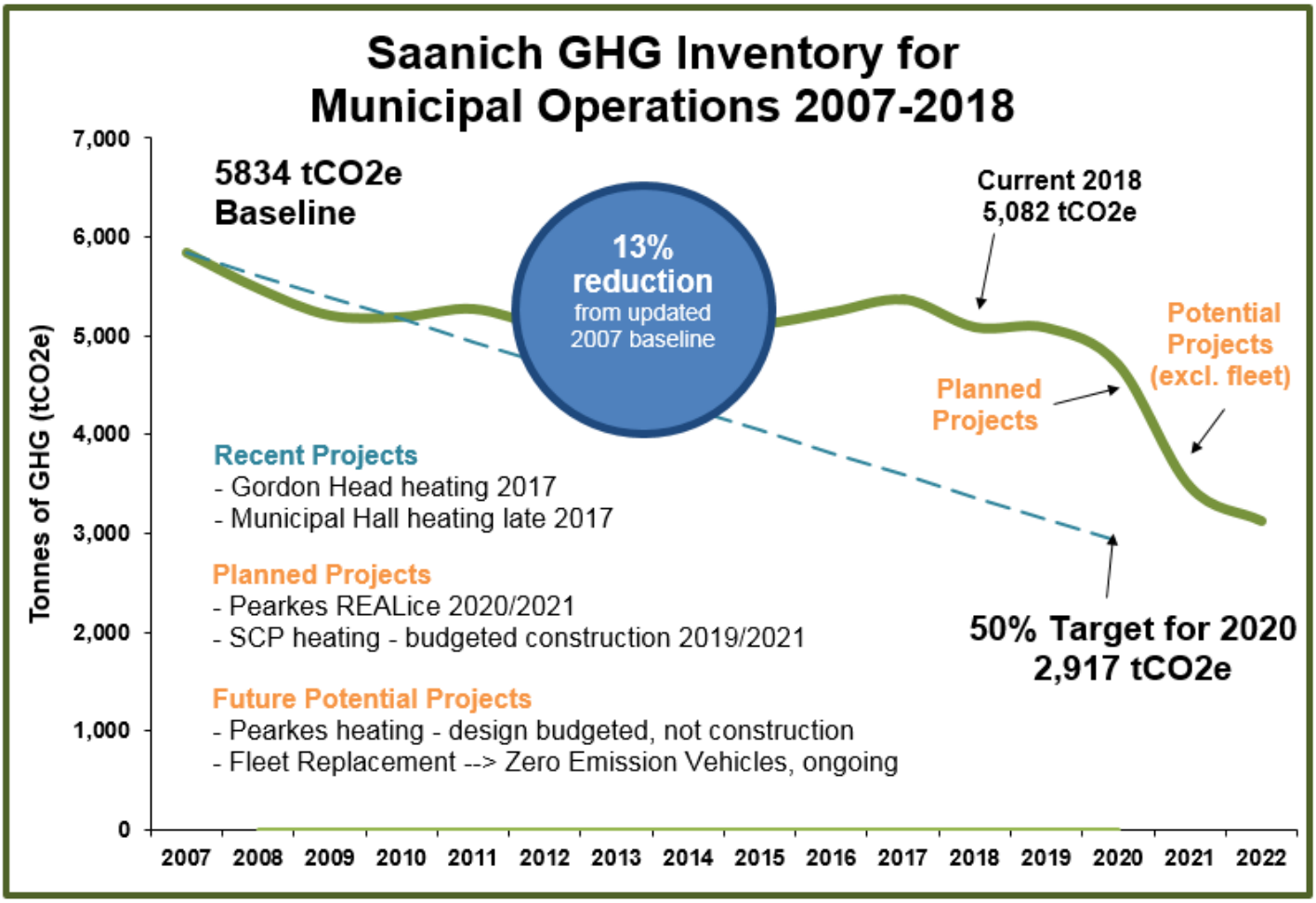


Figure 22: GHG emissions from Saanich municipal operations, 2007-2018

Where we need to go

Reducing Emissions

GHG emissions from the District's municipal operations are almost equally divided between buildings and fleet, so efforts to reduce the District's own GHG emissions must focus on both of these areas.

The 2010 Climate Action Plan included a target of reducing the GHG emissions from the District's operations (the District's corporate emissions) by 50% by 2020, compared to 2007 levels.

Major progress towards meeting this target was made by replacing gasoline light duty fleet vehicles with electric vehicles, establishment of a pool fleet, and early facility upgrades between 2010 and 2013. However, the introduction in 2014 of the new Greener Garbage program led to an increase in fleet vehicle fuel use (although providing benefits to the community through waste diversion) and ageing facility infrastructure and recent colder winters have resulted in a gradual increase in natural gas use despite a continued reduction in electricity use through efficiency improvements. As shown in Figure 22, emissions are currently 13% below 2007 levels.

The 2020 target could potentially be met through the purchase of Renewable Natural Gas (RNG) from Fortis in place of conventional natural gas used in District facilities. The main advantage of utilizing RNG is that no infrastructure upgrades are required. However, the incremental cost of RNG means purchasing it would be a considerable annual expense for the District until conventional natural gas consumption can be significantly reduced. These funds could instead be spent on investing in permanent emission reduction measures in the District's buildings and fleet.

Planned projects are anticipated to reduce the District's corporate emissions by 38% of 2007 levels by 2022. The remaining 12% reduction in emissions needed to meet the 50% reduction target can be achieved through additional emission reduction projects and purchasing RNG for the remaining natural gas use in facilities that have undergone major energy conservation upgrades.

In light of these considerations, this Climate Plan sets new targets for reducing the GHG emissions from the District's municipal operations:

- Reduce emissions to 50% of 2007 levels by 2025; and
- Achieve net-zero emissions by 2040.

These targets are set for five and ten years earlier, respectively, than the same targets for the Saanich community as a whole, providing an opportunity for the District to demonstrate that these targets are achievable, help build market capacity for low carbon buildings and vehicles, and showcase particular strategies for emission reduction in District buildings and fleets.

Improving Resilience

Goals:

- Resilience is a guiding principle for decision-making, including for capital investments, policy and operational practices
- Corporate facilities and infrastructure are upgraded to maintain routine service levels in light of climate change

As discussed in preceding sections of this plan, the District of Saanich has a core role in supporting community adaptation in a changing climate, through actions such as:

- Supporting resilient and renewable energy supply;
- Supporting and promoting practices to ensure Saanich's buildings are climate-ready, such as managing stormwater runoff and reducing urban heat island effects;
- Increasing the resilience of infrastructure in Saanich;
- Working with the Capital Regional District to develop sea level rise mapping, and, through updates to land use development and building bylaws, helping reduce the impacts from projected sea level rise;
- Developing a Coastal Adaptation Strategy and helping residents and business increase their knowledge and capacity to adapt to sea level rise;
- Increasing the ability of Saanich's natural systems to adapt and thrive in a changing climate and protecting and managing Saanich's natural assets as critical infrastructure;
- Improving the resilience and self-sufficiency of the local food system;
- Improving Saanich's resilience to severe heat and poor air quality events, minimizing wildfire risk, ensuring severe weather protocols for vulnerable populations are sufficient for newly emerging and more severe weather events, and working with Island Health and others to minimize impacts from vector-borne diseases; and
- Using a variety of approaches such as training and education, bulk purchases, and community grants to empower Saanich residents and businesses take climate action.

The District also has an important part to play in helping the community to cope with severe events. For instance, Saanich recreation centres can be upgraded to improve cooling capacity during heat waves and air filtration in wildfire smoke events. The District must ensure that its facilities are climate-ready and that it can deliver important services during severe weather events such as heat waves, severe storms, and poor air quality events due to forest fires. As discussed below under Corporate Strategy 1, the District will use several strategies to ensure that climate change is integrated into District decision-making.

What we heard from the community

Key themes about Leadership by Example in public engagement:

- Free parking for Saanich employees is not aligned with climate action targets
- Focus on actions that directly reduce fossil fuel use
- Consider divesting from fossil fuels
- Incentives for sustainable choices should be available to everyone, not only Saanich staff
- Support for working remotely to reduce need for commuting

How we're going to get there

Through the actions and strategies outlined below, the District will lead the way on climate action by reducing the District's own corporate GHG emissions and improving the climate change resilience of its assets and operations. This includes incorporating climate action into processes and decision-making, transitioning to a corporate vehicle fleet powered by renewable energy, supporting sustainable commuting by District employees, showcasing energy efficient municipal buildings that

are powered by renewable energy, and reducing waste and the GHG emissions associated with the goods and services the District purchases.

Corporate Strategy 1: Integrate climate action into Saanich processes and decision-making

A critical and necessary step for effective climate action is to integrate it into Saanich processes and decision-making. To do this, the District will create a climate leadership group, staff training program, and financial strategy to support implementation of this plan. The District will also develop complementary tools and strategies including a climate lens tool to evaluate the greenhouse gas and resilience implications of decisions, and a climate risk register and monitoring platform. The District will also ensure that climate action is embedded into strategic planning, policies, and regulations, and continue to support a culture of sustainability within the organization.

Corporate Strategy 2: Transition to a renewable fleet and sustainable commuting

The District will transition to a renewable fleet of municipal vehicles through continued purchase of electric light-duty vehicles, creating a pool of e-bikes, and providing funding for pilots of renewable-fueled medium- and heavy-duty vehicles. The District will also support sustainable commuting by District staff through promoting the use of transit, providing loans for employee e-bike purchases, improving bike parking at municipal facilities (including charging opportunities for e-bikes and scooters), and providing opportunities for staff to work remotely when deemed compatible with service delivery.

Corporate Strategy 3: Showcase renewable, efficient municipal buildings

The District will demonstrate the transition to renewable, efficient buildings in Saanich by using only renewable, low-carbon energy for space and water heating at Municipal Hall and Saanich recreation facilities by 2021. The District will use municipal facilities to showcase renewable energy and energy efficiency systems and pilot low-carbon materials in new construction.

Corporate Strategy 4: Reduce waste and GHG emissions from goods and services

The District will reduce waste and the GHG emissions impact of the goods and services used in District operations, including food, by incorporating consideration of GHG emissions into purchasing decisions and developing and implementing corporate waste reduction initiatives.

Action and Implementation Plan

This section includes community actions, corporate actions, and implementation and monitoring actions.

Timeline for beginning the actions are as follows:

- Short: 1-3 years
- Medium: 3-5 years
- Long: 5-10 years

District staff will develop a financial strategy for implementation of the Climate Plan.

Strategy #	Action #	Description of Action	Mitigation	Adaptation	Lead Department	Timeline
Community Actions						
Strategy 1: Invest in active transportation						
1	1	Accelerate the implementation of the Active Transportation Plan by increasing funding to the Transportation Division to build more sidewalks and bike lanes, improve intersection safety for vulnerable users, and upgrade transit routes and stops.	x		Engineering	Short
1	2	Expand the Ready, Step, Roll: Active School Travel Planning program to offer walking and cycling skills workshops for interested children and caregivers.	x		Engineering	Medium
1	3	Explore ways to improve bike parking at existing industrial, commercial and multi-unit residential buildings for tenants and visitors.	x		Engineering	Medium
1	4	In partnership with the CRD and the Province, develop and implement a promotion and incentive program for electric bicycles for Saanich residents.	x		Planning	Medium
1	5	Support introduction or expansion of bike shares and other shared mobility services in Saanich	x		Engineering	Medium
1	6	Support changes to Provincial legislation to lower default speed limits on residential streets.	x		Engineering	Medium

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
Strategy 2: Prioritize transit-supportive policies and practices						
2	1	Request Victoria Regional Transit Commission and BC Transit to accelerate service level improvement, expand the student pass program at a reduced price in collaboration with schools and/or school boards, and develop a universal pass program for major employers.	x		Saanich	Short
2	2	Decrease public transit's travel time by creating dedicated bus lanes and queue jump lanes, and by reducing or eliminating signal wait times.	x		Engineering	Short
2	3	Develop policies and mechanisms, including in Local Area Plans, to support increased residential density along public transit routes.	x		Planning	Short
2	4	Advocate for increased provincial and local funding needed to expand and improve public transit service levels to meet our public transit mode share targets.	x		Saanich	Short
2	5	Work with Victoria Regional Transit Commission and the Province towards reduced or free fares for riders on public transit.	x		Saanich	Short
2	6	Update off-street parking requirements to reduce parking spaces in areas well serviced by transit or within walking distance to a centre or village while maintaining or improving accessibility for those with mobility challenges.	x		Planning	Long
2	7	Encourage the introduction of one-way car sharing services (e.g. Car2Go and Evo) and support car shares (one-way and two-way) in Saanich e.g. through providing dedicated on-street parking.	x		Engineering	Long
2	8	Develop enabling policies and dedicated resources for on-street and off-street parking management and enforcement, including time limits, pay parking, ticketing, and towing.	x		Building, Bylaw, Licensing and Legal	Long
2	9	Advocate that the Province regulates ride hailing services with the goal to minimize GHG emissions and avoiding decreased transit ridership.	x		Planning	Short
2	10	Work with BC Transit to update the BC Transit Future implementation plans to incorporate latest best practices and new technology needs.	x		Engineering	Medium

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
2	11	Maintain the Urban Containment Boundary as per council policy	x	x	Saanich	Short
Strategy 3: Accelerate electric and renewable mobility						
3	1	Work with BC Transit, School Districts, businesses, neighbouring jurisdictions, and other organizations in Saanich to identify opportunities to reduce emissions from fleets (e.g. electrification, transitioning to renewable, low-carbon fuels, and right-sizing fleets).	x		Planning	Medium
3	2	Work with shared mobility service providers (e.g. car, bike, or scooter share companies) to facilitate access to electric charging.	x		Engineering	Medium
3	3	Create a community-wide Electric Vehicle Strategy	x		Planning	Short
3	3a)	Require all new development have EV-ready infrastructure.	x		Planning	Short
3	3b)	Provide incentives and support for installing EV charging infrastructure in existing multi-family buildings (strata buildings and rental buildings).	x		Planning	Medium
3	3c)	At least double the number of public charging stations in Saanich by 2025, including doubling municipal-owned charging stations from 12 to 24. .	x		Planning	Short
3	4	Explore non-financial opportunities to incentivize uptake of EVs, such as priority parking areas or other benefits	x		Building, Bylaw, Licensing and Legal (BBLL)	Medium
3	5	Advocate that the Province adopt “Right to Charge” legislation that supports condo- and apartment-dwellers’ access to charging at home.	x		Planning	Short
3	6	Review management options for municipally-owned public EV chargers such as time limits and fees to ensure optimal use of chargers.	x		BBLL	Medium
Strategy 4: Require efficient, net-zero carbon new construction						
4	1	Accelerate highly efficient, net-zero GHG emissions new building construction by:	x		BBLL	Short
4	1a)	Establish timelines for achieving the higher steps of the BC Energy Step Code by 2025 or sooner, with relaxations for net-zero GHG emission building performance.	x		BBLL	Short

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
4	1b)	Develop regulatory tools or incentive programs to achieve net-zero-GHG new construction (i.e. electric water and heating systems with on-site renewable energy systems) and/or meet higher BC Energy Step Code levels.	x		Planning	Medium
4	1c)	Initiate or participate in a project that helps understand training needs and opportunities, and support skills development for high performance buildings and renewable energy technologies.	x	x	BBLL	Short
4	1d)	Support the development of tools and strategies to track and report on embodied energy and emissions in new construction projects.	x		Planning	Long
4	1e)	Advocate to Province to incorporate GHG performance metrics (e.g. GHG intensity) and/or add a low carbon path in the BC Energy Step Code.	x		Planning	Short
4	2	Remove municipal barriers to high performance buildings, including a review of the Saanich bylaws (e.g. to ensure heat pump installations are not discouraged by noise and setback requirements).	x	x	Planning	Short
4	3	Introduce mandatory energy benchmarking for new Part 3 buildings (i.e. registration of new buildings on ENERGY STAR® Portfolio Manager) as part of higher steps of the BC Step Code requirement.	x		Planning	Medium
Strategy 5: Accelerate efficiency and renewable energy upgrades in existing buildings						
5	1	Achieve improved energy efficiency and lower GHG emissions in existing Saanich buildings by:	x		Planning	Short
5	1a)	Working with property owners, management companies and building industry to capture opportunities and address barriers to renewable energy retrofits.	x		Planning	Short
5	1b)	Exploring options for energy requirements (e.g. EnerGuide home evaluation, air sealing, attic insulation) for major renovations over certain cost thresholds.	x		Planning	Short

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
5	1c)	Exploring and implementing effective tools (e.g. property tax freezes) to encourage commercial and multi-unit residential buildings undertake significant efficiency or renewable energy upgrades.	x		Planning	Short
5	1d)	Introduce voluntary energy benchmarking for existing buildings.	x		Planning	Long
5	2	Ensure all replacement space and water heating systems are renewable energy systems (i.e. heat pumps, or other efficient renewable energy systems as they become available) by:	x	x	Planning	Short
5	2a)	Phasing out oil heating by 2030 through the creation of a new bylaw with Provincial assent.	x		Planning	Short
5	2b)	Providing simplified processes to access incentives, innovative financing (prioritized for lower income households), and targeted home and commercial building communications campaigns for buildings upgrading from fossil fuels (i.e. oil, propane, natural gas) to electric heat pumps.	x	x	Planning	Short
5	2c)	Working with the Province to explore regulatory power to require low-carbon space and water heating systems	x		Planning	Short
5	2d)	Working with the Province to develop mechanisms that prevent fuel switching from low carbon to high carbon energy sources in our community	x		Planning	Short
5	3	Work with provincial and federal governments to develop a retrofit code that enables local governments to set requirements based on greenhouse gas intensity.	x		Planning	Short
5	4	Advocate for government and utility rebate programs to be consistent, long-term, effective, and tied to carbon reduction requirements.	x		Planning	Short
5	5	Work with industry, including the Home Performance Stakeholder Council and other partners, to understand training needs and opportunities, and ways we can support skills development.	x		Planning	Short

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
5	6	Advocate that the Province adopt mandatory energy and greenhouse gas labelling at time of sale/lease, and work with local governments and the Province to support public disclosure mechanisms for home energy labelling.	x		Planning	Long
5	7	Encourage the province to adopt mandatory energy and greenhouse gas benchmarking and recommissioning for existing part 3 buildings.	x		Planning	Long
5	8	Advocate that the Province make legislative amendments to better support the use of local area services to finance retrofits on private property.	x		Planning	Short
Strategy 6: Increase energy resilience and renewable energy supply						
6	1	Support the development of local Renewable Natural Gas (RNG) production such as an RNG facility at Hartland landfill to utilize landfill gas or other opportunities as they arise.	x		Engineering	Short
6	2	Support the Province and utilities to produce sufficient renewable energy in order to meet demand.	x		Planning	Short
6	3	Develop a guide to explore renewable energy production potential in Saanich and support residents, individually or collectively, to use renewable energy supply and storage to improve self-sufficiency and emergency preparedness.	x	x	Planning	Long
6	4	Work with the Province and Utilities to encourage or incentivize on-site or local renewable energy generation (e.g. biogas, solar, and wind).	x		Planning	Long
Strategy 7: Transition towards a climate-ready building stock						
7	1	Develop a "programmed roof policy" for buildings over a certain size and/or certain geographical areas to encourage roof space being used for community benefits such as green roofs to improve stormwater runoff, building energy performance, habitat opportunities and urban cooling outcomes; solar energy generation; or other uses such as community gardens, recreation space, etc.	x	x	Planning	Short
7	2	Identify and implement strategies to further preserve and enhance permeability and stormwater management through development, for example by:		x	Planning	Short

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
7	2a)	Adopting a minimum permeable surface requirement in the zoning bylaw.		x	Planning	Short
7	2b)	Reviewing permeability definitions, and ensuring hardscape permeable pavers are achieving their intent.		x	Planning	Short
7	2c)	Encouraging the implementation of rain gardens/bioswales on private lands.		x	Planning	Short
7	3	Advocate that the Province incorporate adaptation (e.g. higher cooling demand, air filtration, wind loads, etc.) into the next building code update.		x	Planning	Short
7	4	Encourage building design or retrofit measures to reduce impact from heat waves and poor air quality events through passive and active design strategies (e.g. shading device, vegetation screen, heat pump/air conditioner with filters).	x	x	Planning	Medium
7	5	Reduce potable water demand by:		x	Planning	Long
7	5a)	Providing resources to encourage the implementation of engineered greywater recovery systems in new development, and investigate incentives for institutions and commercial buildings over a certain size.		x	Planning	Long
7	5b)	Requiring rainwater collection systems (e.g. rainbarrels or cisterns) be installed in ground oriented new development.		x	Planning	Long
7	6	Work with partners to support training programs for industry on building practices that improve climate resilience (e.g. high quality heat pump installations, passive design techniques, incorporating climate projections into design, etc.).		x	Planning	Medium
Strategy 8: Increase the resilience of Saanich's infrastructure and assets						
8	1	Develop and implement a corporate asset management system that supports climate change considerations in the design, renewal, maintenance and replacement of municipal assets. Such a system will:		x	Engineering	Short
8	1a)	Undertake condition and capacity assessments of existing infrastructure (e.g. bridges, pump stations, culverts, retaining walls, etc.), to understand performance under future climate conditions and plan accordingly.		x	Engineering	Short

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
8	1b)	Phase the integration of natural assets into the asset management system, to account for the value and services provided by natural systems.		x	Engineering	Short
8	1c)	Determine data gaps and narrow them by increasing monitoring and data collection accordingly (e.g. flow monitoring, CCTV through pipes, general surveying, etc.).		x	Engineering	Short
8	2	Accelerate the completion of a stormwater master plan that integrates climate projections and leverages natural assets. The stormwater master plan and resulting efforts will:		x	Engineering	Medium
8	2a)	Assess Saanich's stormwater management assets and management needs		x	Engineering	Short
8	2b)	Undertake current and projected inland flood risk assessment and mapping to inform updated flood hazard development permit area.		x	Engineering	Short
8	2c)	Guide on-site stormwater management practices on private lands, including by exploring a drainage utility and rate structure that incentivizes stormwater management and green infrastructure on private property.		x	Engineering	Long
8	3	Accelerate efforts to review and update engineering design specifications and other infrastructure guidance documents as necessary, to account for future climate projections and ensure application to both private and public investments.		x	Engineering	Short
8	4	Conduct flood hazard planning in consideration of creeks/rivers and sea level rise.		x	Engineering	Short
Strategy 9: Prepare for long-term sea level rise						
9	1	Complete detailed sea level rise mapping to inform updates to land use and development policies and bylaws. .		x	Planning	Short
9	2	Initiate the development of a Coastal Adaptation Strategy which explores longer term options and the preferred direction for adapting public infrastructure, protecting public amenities and beaches, supporting sensitive coastal ecosystems, and regulating land uses in response to ongoing		x	Planning	Medium

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
		and/or severe sea level rise along specific coastal extents.				
9	3	Increase sea level rise knowledge and capacity through the development and delivery of resources and materials for residents, businesses and developers, including through incentives and public education strategies for the use of Green Shore (naturalized) approaches to protect the shoreline from erosion and sea level rise.		x	Planning	Short
Strategy 10: Enable natural systems to thrive and adapt						
10	1	Expand, connect and restore natural areas in Saanich through a variety of strategies that ensures their permanent protection and management to maximize ecosystem services and resilience, biodiversity, and carbon sequestration potential.		x	Parks and Recreation	Short
10	2	Develop and implement a Biodiversity Conservation Strategy to support the health and resilience of ecosystems and species on public and private lands, working collaboratively with community groups, residents, all levels of government and other stakeholders. In relation to adaptation, the Biodiversity Strategy will provide direction and strategies to increase resilience and reduce impacts		x	Planning	Short
10	3	Establish baseline conditions and improve monitoring of species and ecosystem health over time.		x	Planning	Short
10	4	Develop new approaches including incentives, regulatory tools and metrics to maintain and restore natural areas on private land.		x	Planning	Short
10	5	Articulate principles and approaches for assisted migration to support species whose dispersion rates are unable to keep pace with climate change		x	Planning	Medium
10	6	Increase and diversify public engagement techniques to deepen public understanding of climate-related risks to native species, and strategies to support their adaptation.		x	Parks and Recreation	Short

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
10	7	Grow the urban forest in Saanich by planting 10,000 new trees of diverse species by 2025 and strengthening protections for existing trees on private and public lands, while supporting management through a comprehensive tree inventory and asset management program.		x	Parks and Recreation	Short
10	8	Work with nurseries and waste management to prevent the planting and spread of invasive plants.		x	Planning	Short
10	9	Partner with school districts to support environmental and stewardship education, and encourage naturalization projects on school grounds.		x	Parks and Recreation	Short
10	10	Increase stewardship tools for private land owners to adapt and mitigate climate change through expanding on existing programs such as Naturescaping, recommended plant lists, and invasive species management.		x	Planning	
10	11	Reviewing and revising the Urban Forest Strategy including updated canopy cover measurement. .	x	x	Parks and Recreation	Short
10	12	Building residents' Natural Intelligence by fostering learning, living and loving nature through education and engagement opportunities;		x	Parks and Recreation	
Strategy 11: Protect and manage natural assets as critical infrastructure						
11	1	Determine the value of natural assets to District services (e.g. stormwater management, pollination services, clean air, infrastructure cooling) and include them in asset management and services planning.		x	Engineering	Short
11	2	Develop a land acquisition and protection strategy to support delivery of key goals and services required for mitigation and adaptation (e.g. sequestration, drainage, flooding, or biodiversity).		x	Engineering	Short

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
Strategy 12: Reduce climate impact of food production and consumption						
12	1	Reduce carbon emissions from local food production by accelerating action on the Agriculture and Food Security Plan, particularly Objective 4D (Encourage the Implementation of Climate Change Adaptation and Mitigation Measures for the Local Food System).	x	x	Planning	Short
12	2	Encourage people in Saanich to choose low carbon foods and reduce food waste through such means as promoting the “Love Food, Hate Waste” campaign and the Saanich Carbon Calculator.	x	x	Planning	Medium
12	3	Encourage food service establishments in Saanich to reduce food waste, offer low-carbon/plant-based food options, and use renewable energy cooking methods.	x		Planning	Medium
Strategy 13: Move towards "lighter living" in Saanich						
13	1	Develop and implement a Zero Waste Strategy that aligns with the CRD Solid Waste Management plan and will, among other things,	x		Engineering	Medium
13	1a)	Eliminate single use plastics.	x		BBLL	Short
13	1b)	Require a zero waste strategy be submitted as part of the permitting process for large public events.	x		Parks and Recreation	Long
13	2	Advocate that the Province expand extended producer responsibility programs to reduce un-recyclable waste production.	x		Engineering	Long
13	3	Work with the CRD to enhance monitoring and enforcement of the recyclable materials ban for residents and businesses, and work with stakeholders to improve compliance.	x		Engineering	Long
13	4	Work with local businesses and other levels of governments on circular economy initiatives that recover and regenerate products and materials at the end of their useful lives.	x		Planning	Medium
13	5	Mobilize Saanich residents and businesses towards “lighter living” (reducing, repairing, etc.) using education such as the Saanich Carbon Calculator and supporting lighter living initiatives	x		Planning	Medium

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
		such as tool libraries, repair cafes, and second-hand initiatives .				
Strategy 14: Improve the resilience and self-sufficiency of the local food system						
14	1	Support the development and implementation of an Agricultural Adaptation Strategy for Vancouver Island (being led by the BC Agriculture and Food Climate Action Initiative) to help local farmers and other stakeholders anticipate, plan for and increase resilience to climate change in our local food system.		x	Planning	Short
14	2	Accelerate the implementation of the Saanich Agriculture and Food Security Plan to improve food security, self-sufficiency and support the local food industry.	x	x	Planning	Medium
14	3	Increase capacity for local food production through community gardens and apiaries, edible landscaping (e.g. fruit trees, edible plants), food forests and/or farms in parks and public lands, and facilitate access to training and workshops through recreation centres and community partners.	x	x	Parks and Recreation	Medium
14	4	Encourage the Province and the CRD to tie water licenses and subsidies to water-wise agricultural practices (e.g. use of drip irrigation, on-site reservoirs, etc.).		x	Planning	Long
Strategy 15: Ensure emergency and community health services keep pace with climate change						
15	1	Improve Saanich's resilience to severe heat and poor air quality events by:		x	Planning	Short
15	1a)	Retrofitting municipal facilities to provide cooling and clean air filtration.		x	Engineering	Medium
15	1b)	Undertaking heat mapping in urban areas to inform policy and operational priorities for urban forest, landscaping, cooling amenities (e.g. drinking fountains), building materials and/or building features (e.g. green walls) with particular attention to improving equitable health outcomes.		x	Planning	Medium

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
15	1c)	Working with the Province and Island Health to ensure coordinated response protocols during these events.		x	Fire	Medium
15	2	Minimize wildfire risk in Saanich by:		x	Fire	Medium
15	2a)	Updating the Wildfire Protection Plan every 10 years or as warranted by significant changes to drought conditions or ecosystem profiles, and updating the Interface Fire Hazard Development Permit area as needed.		x	Fire	Medium
15	2b)	Developing Saanich-specific wildfire prevention materials that seek to balance environmental protection with FireSmart principles, such as focusing on building materials and preferred tree species (e.g. deciduous).		x	Fire	Medium
15	3	Work with the Health Authority and other levels of government to minimize impacts from vector-borne diseases through prevention (e.g. habitat modification to reduce mosquito and tick breeding), public education, and early detection, warning and response systems.		x	Fire	Long
15	4	Review severe weather protocols for vulnerable populations every 5 years and ensure they are sufficient for newly emerging and more severe weather events.		x	Fire	Long
15	5	Encourage service providers (e.g. long-term care facilities) to facilitate the provision of cooling and air filtration in buildings in the event of severe heat and poor air quality events.		x	Planning	Long
Strategy 16: Empower Saanich residents and businesses to take climate action						
16	1	Mobilize an engaged, informed and active community to transition to net-zero GHG emissions and prepare themselves, their homes, their neighbourhoods and their local ecosystems for a changing climate by developing and implementing integrated mitigation and adaptation communications, education, training and engagement programs. This could include the following components:		x	Planning	Medium

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
16	1a)	A marketing campaign that highlights the urgency of climate action, showcases examples of local residents and businesses taking meaningful action, and integrates messaging into existing public education and programs (e.g. Saanich Emergency Program).	x	x	Planning	Short
16	1b)	Access to programming and workshops for residents and businesses on a range of renewable and resilience-related topics, such as home retrofits, gardening, waterwise landscaping, on-site stormwater management, flood mitigation, emergency preparedness, etc.		x	Planning	Short
16	1c)	A tangible and hands-on neighbourhood-level program that encourages and supports neighbours in learning about and taking action on climate change together, including through the development of neighbourhood energy and resilience inventories and plans.	x	x	Planning	Short
16	1d)	A Community Climate Collaborative of local residents, businesses and organizations to advise, monitor progress and be ambassadors and partners for community climate action.	x	x	Planning	Short
16	1e)	A website with mitigation and adaptation information and action resources.	x	x	Planning	Short
16	1f)	Host an annual climate fair where progress and success are celebrated, key lessons are shared, cross-pollination of ideas are encouraged, and the citizen led networks are strengthened.	x	x	Planning	Short
16	2	Work with the arts community to install public art pieces that awaken, inspire, and remind people of the climate risks and opportunities for climate action in our community.	x	x	Planning	Long
16	3	Explore the development of a bulk-purchase program to provide at-cost equipment and technologies that reduce energy costs and/or improve resilience (e.g. heat pumps, rain barrels, solar kits, emergency kits, etc.)		x	Planning	Medium
16	4	Develop a community grants program for neighbours to work together and implement projects that build community resiliency.		x	Planning	Long

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
16	5	Develop a Sustainable Saanich Scholars program with post-secondary institutions.	x	x	Planning	Long
16	6	Develop and apply an equity tool for evaluating the impacts of climate initiatives, and ensure that equity is part of their design.	x	x	Planning	Short
16	7	Seek opportunities to partner with or otherwise support neighbouring First Nation Governments' climate initiatives and priorities.	x	x	Planning	Short

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
Corporate Actions						
Corporate Strategy 1: Integrate climate action into Saanich processes and decision-making						
C1	1	Make implementation a priority through the creation of:	x	x	Saanich	Long
C1	1a)	A cross-departmental climate leadership group to oversee implementation and monitoring of the plan.	x	x	Planning	Short
C1	1b)	A training and capacity building program for staff.	x	x	Planning	Medium
C1	1c)	A climate action financial strategy to ensure long term resources for the plan's actions.	x	x	Finance	Short
C1	2	Establish a New Climate Action Reserve Fund in 2020	x	x	Finance & Planning	Short
C1	3	Develop and implement a climate lens tool to evaluate the greenhouse gas and resilience implications of capital investment, policy, and operational decisions (e.g. incorporate a carbon pricing of $150 per tonne in business case analysis of corporate capital projects, and a climate alignment scorecard for development projects).	x	x	Planning	Short

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
C1	4	Develop a risk register and monitoring platform that integrates climate risks and actions to support shared accountability and a mechanism to track risks and actions over time.		x	Planning	Short
C1	5	Ensure the Saanich Economic Development Strategy sections in the upcoming Strategic Plan includes climate action employment and training opportunities such as attracting clean tech, growing employment in energy retrofits and renewable energy upgrades, circular economy, and other opportunities.	x	x	Saanich	Medium
C1	6	Continue to embed climate change into Saanich strategic, policy, and regulatory documents and update them as new science and policy direction becomes available, including the financial plan, the strategic plan, and the Official Community Plan.	x	x	Saanich	Medium
C1	6	Continue to support a culture of sustainability by integrating climate and sustainability policy and processes within the organization, showcasing and celebrating successes, and supporting innovation.	x	x	Saanich	Medium
Corporate Strategy 2: Transition to a renewable energy fleet and sustainable commuting						
C2	1	Transform Saanich's corporate fleet to 100% low carbon renewable energy by:	x		Engineering	Medium
C2	1a)	Continuing to replace light duty internal combustion fleet vehicles with electric vehicles.	x		Engineering	Short
C2	1b)	Implementing a pooled e-bike program within the Saanich fleet, including Bike Safety Skills training.	x		Planning	Medium
C2	1c)	Increasing funding and staff resources to support pilot projects for low carbon renewable energy for our medium and heavy-duty fleet such as garbage trucks and fire engines.	x		Engineering	Medium
C2	2	Achieve 100% sustainable commuting by Saanich staff (including renewable or zero-emission vehicles, public, and active transportation) through a "Climate Friendly Commuter Program" that will, among other measures:	x		Planning	Medium
C2	2a)	Promote public transit use to Saanich staff for commuting and appropriate work trips.	x		Planning	Medium

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
C2	2b)	Implement an employee loan program for personal e-bike purchases to be repaid on employee pay cheques (the employee would also pay the interest).	x		Planning	Medium
C2	2c)	Improve bike parking at all Saanich facilities to meet or exceed current bylaw requirements for new construction. Prioritize removing car parking for bike parking, rather than removing greenspace. Add charging opportunities for e-bikes and e-scooters.	x		Engineering	Medium
C2	2d)	Consider expanding work from home/remote work access policies and practices.	x		Corporate Services	Long
Corporate Strategy 3: Showcase renewable, efficient municipal buildings						
C3	1	Purchase or use only renewable, low-carbon energy (including electricity from BC Hydro, renewable natural gas from FortisBC, solar thermal, solar photovoltaic, and biomass sources) for space and water heating at Saanich Municipal Hall and all Saanich recreation centres by 2021.	x		Engineering	Short
C3	2	Showcase renewable energy and energy efficiency systems to the public.	x		Engineering	Short
C3	3	Pilot low embodied carbon materials in new construction.	x		Engineering	Short
Corporate Strategy 4: Reduce waste and GHG emissions from goods and services						
C4	1	Review and update Saanich Sustainable Procurement Guidelines with consideration of GHG emissions impact from purchasing decisions.	x		Planning	Long
C4	2	Develop and implement a corporate Zero Waste Strategy including paper reduction, waste diversion, and water bottle refilling stations at Saanich facilities and public events.	x		Planning	Long
C4	3	Model a low carbon diet through corporate catering	x		Planning	Short

Strategy	Action	Action	Mitigation	Adaptation	Lead Department	Timeline
Implementation Actions						
Implementation Strategy 1: Measure and report on progress						
I1	1	Publish an annual “report card” on progress on actions, and include updated actions in response to changing conditions and progress towards targets.	x	x	Planning	Short
I1	2	Develop and report on resilience metrics and indicators.		x	Planning	Short
I1	3	Update the Climate Risk Assessment in response to changing conditions.		x	Planning	Long
I1	4	Publish updates of the community GHG inventory at least every 5 years.	x		Planning	Medium
I1	5	Update the Saanich Climate Plan by 2030	x	x	Planning	Long

Monitoring and Evaluation

This Plan outlines 16 community-focused strategies and 4 corporate strategies to help Saanich:

- Reduce community GHGs by 50% of 2007 levels by 2030 and to net-zero by 2050,
- Become a 100% renewable community by 2050, and
- Be prepared for a changing climate.

The District will monitor and evaluate the effectiveness of the Plan by:

- Ensuring actions are clear, prioritized, time-bound and assigned to lead departments, as outlined in the Action and Implementation section of this Plan;
- Forming an internal cross-departmental climate leadership group to oversee implementation and monitoring of the Plan;
- Publishing an annual "report card" on progress on actions;
- Publishing updates to community GHG inventory at least every 5 years; and
- Convening a "Community Climate Collaborative" composed of local residents, businesses, and organizations.

The Implementation Plan lays out 159 different actions to achieve these strategies, showing the priority and timeline for each action as well as the District of Saanich department responsible to lead the action.

Following adoption of the Plan, the District will establish an internal cross-departmental climate leadership group to oversee implementation and monitoring of the Plan. This group will develop and lead a monitoring and evaluation program to help ensure that the strategies and actions in the Plan are implemented and achieve the intended results. A first step in this process will be to develop targets and indicators to measure progress and determine how the required information will be collected.

The monitoring and evaluation program will serve two important purposes. First, it will help keep track of where the community is with respect to its emission reduction, resilience and renewable energy goals. Second, it will help keep track of which actions have been implemented, which need adjustment in light of changes in science or other factors, and which still require implementation.

The District will publish an annual report card to report on progress in achieving the Climate Plan's goals, and will update our community GHG emission inventory at least once every five years.

The District will establish a new Community Climate Collaborative with members representing residents, businesses and organizations in Saanich who are champions for climate action. Their role will be to advise and monitor progress on Saanich's Climate Plan and to be ambassadors and partners for community climate action.

Glossary

Adaptation	Actions taken to help our community cope with or adjust to a changing climate. Contrasted with mitigation.
Assisted migration	Human intervention to assist in the movement of organisms in response to climate change to locations deemed more suitable.
BC Energy Step Code	The BC Energy Step Code is an optional compliance path in the BC Building Code that local governments may use, if they wish, to incentivize or require a level of energy efficiency in new construction that goes above and beyond the requirements of the BC Building Code. Builders may voluntarily use the BC Energy Step Code as a new compliance path for meeting the energy-efficiency requirements of the BC Building Code. See https://energystepcode.ca/
Biofuel	A fuel (solid, liquid, or gas) that derives from renewable biological sources that can be replenished readily, unlike fossil fuels, which are replenished on a much longer timescale. Biofuels can include biodiesel, syngas, wood, and bio-ethanol, among others.
Carbon dioxide equivalent	A unit that allows different greenhouse gases which have different global warming potentials over a set amount of time to be compared against each other.
Carbon sequestration	Natural or technological processes that provide longer-term storage of carbon dioxide from the atmosphere.
Circular Economy	Minimizing waste and using waste as a resource, in contrast to a linear economy of production to use to disposal.
Climate change	In the context of this report, climate change refers to how burning fossil fuels and emitting other greenhouse gasses, including methane and refrigerants, traps increasing amounts of the sun's energy in our atmosphere, causing potentially serious and catastrophic changes in Earth's climate.
Climate projections	Anticipated changes in temperature, precipitation, extreme weather events, etc. based on climate models.

Consumption based emissions inventory	A tally of the greenhouse gas emissions resulting from production and consumption of goods and services within a region, regardless of where those goods and services are produced.
Embodied emissions	The greenhouse gas emissions produced in creating and delivering a particular material (e.g., consumable good or infrastructure), including the energy used for extraction of raw materials, manufacturing and transportation of the end product.
Fossil fuel	Fuels such as coal, gasoline, natural gas, oil, diesel, etc. that are sourced from organic materials formed over a long geological time period.
Greenhouse gas	A gas that contributes to climate change by trapping heat in the Earth's atmosphere, including carbon dioxide, methane, nitrous oxide, and fluorinated gases.
Mitigation	Actions taken to reduce climate change, primarily by reducing greenhouse gas emissions. Contrasted with adaptation.
Net-zero Carbon	For the purposes of this report, net-zero carbon for our community means territorial (GPC Basic +) greenhouse gas emissions minus carbon sequestration in our community equals zero on an annual basis.
Net-zero Energy	In the context of a building, it is a building that produces as much energy as it consumes on an annual basis.
Renewable energy	Renewable energy is energy derived from natural processes (e.g. sunlight and wind) that are replenished at a faster rate than they are consumed.
Resilience	Capacity to withstand and/or recover from hazards, risks and challenges associated with a changing climate.
Retrofit	To improve an existing building's energy performance, including mechanical systems such as space and water heating systems, and building envelope, including insulation, windows and doors, and air sealing.
Solar photovoltaic system	Panels that convert the sun's energy into electricity.
Solar thermal system	A system that harvests the sun's heat, usually for domestic water heating.

Territorial emissions inventory	A tally of the greenhouse gas emissions in a specific geographical region. In Saanich's case, we use the GPC Basic+ methodology.
Zero Emission Vehicle	A vehicle that produces no tailpipe exhaust, such as a battery electric vehicle.

Acronyms

BAU	Business as usual
CBEI	Consumption Based Emissions Inventory
CO2e	Carbon dioxide equivalent
GHG	Greenhouse gas
GPC	Global Protocol for Community-Scale Greenhouse Gas Emission Inventories
ICE	Internal Combustion Engine (e.g. gas car)
ZEV	Zero Emission Vehicle