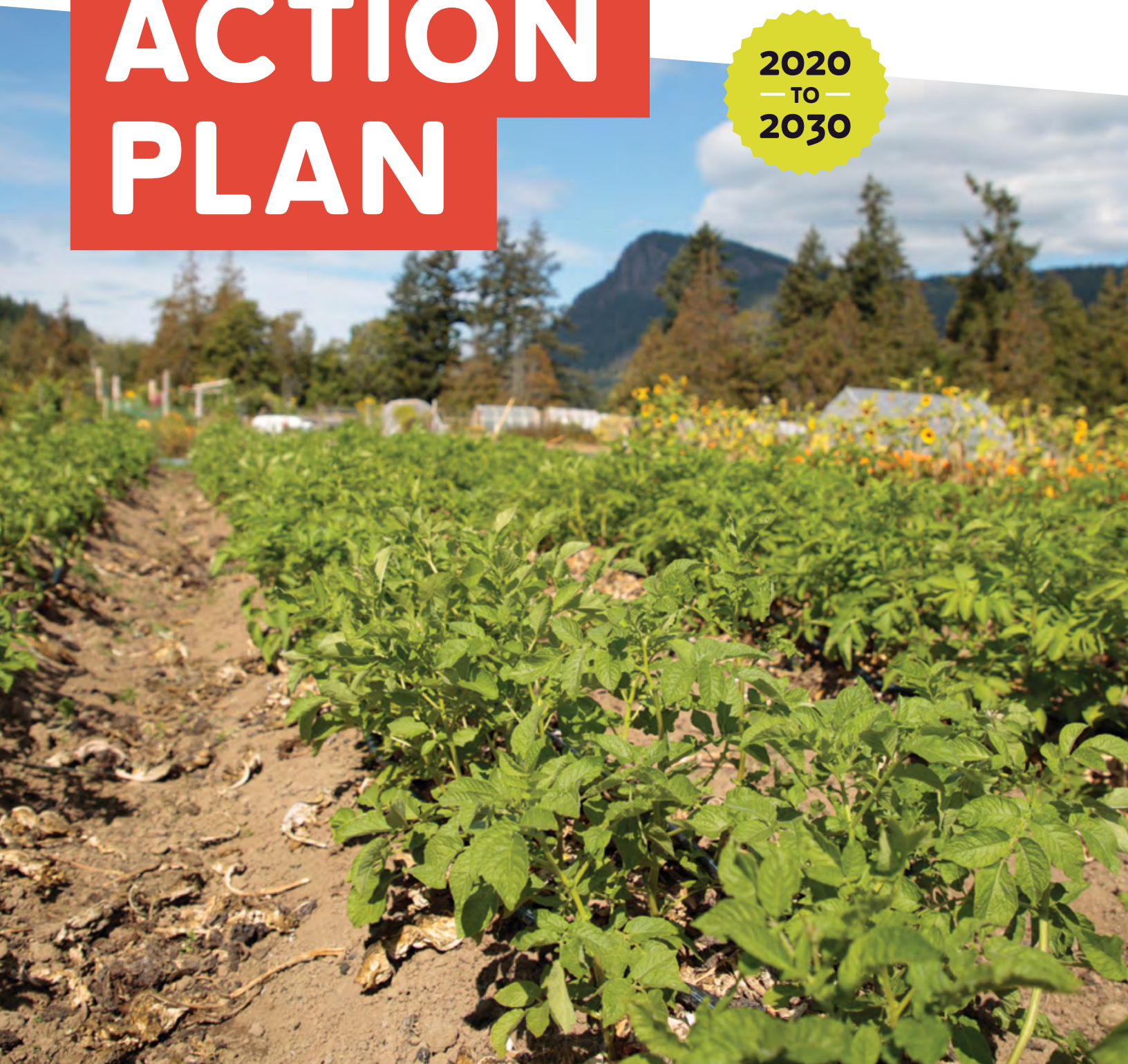
Transition Salt Spring

SALT SPRING ISLAND

CLIMATE ACTION PLAN

2020 TO 2030



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The Xwaaqw'um Snuhwulh (canoe) was launched on September 2018 by the Stqeeye' Learning Society.
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AN ACKNOWLEDGEMENT TO OUR READERS ABOUT THIS LAND

We acknowledge that the land on which we are situated is within the traditional and unceded territory of the Cowichan, BOḰEĆEN, Halalt, MÁLEXEŁ, Penelakut, STÁUTW̱, Stz'uminus, W̱JOŁEŁP, and W̱SIḴEM peoples. We acknowledge and respect the living historical relationship of Indigenous First Peoples to the land, culture, and spirit of this place that continues to this day.

We are committed to establishing and maintaining mutually respectful relationships between Indigenous and settler peoples. We commit to a process of reconciliation with the understanding that this commitment is a long-term relationship-building and healing process. We commit to this process in the context of the pain that settler leaders and communities have caused the original peoples of this land in the occupation of their territories and the acts of systematic cultural destruction perpetrated by settler leaders and communities.

We will strive to earnestly open spaces for knowledge-sharing and understanding as people come together, starting with this action plan, to prepare this land and our communities for the accelerating challenges of climate change.

In deep gratitude,

Hay ch q'u
(Thank you)


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***Important Note:** All appendices are published separately from CAP 2.0. To access the appendices, go to transitionsaltspring.com/responding-to-climate-change

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Island Pathways

Salt Spring Island Transportation Commission

Salt Spring Water Preservation Society

Salt Spring Community Energy Society

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Salt Spring Seed Sanctuary

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Transition Salt Spring

And to you...

To the over 2,000 Salt Spring residents who responded to the online public engagement with their ideas and commitment to be a part of the solution.

...thank you!

A LETTER TO OUR FRIENDS AND NEIGHBOURS...

Together, we have spent thousands of volunteer hours since spring 2019 to bring you this plan. We have met with and heard from several hundred people who reviewed the first draft and then received comments from another couple thousand residents through our public engagement process. Their wisdom and concern (and, for some, panic) gave us impetus to complete this plan. And yet, it is not enough.

While we were preparing to release this Plan, COVID-19 broke over us all like a rogue wave. Unprecedented collaboration internationally, nationally, and sub-nationally has been the norm, while the degree of social consensus about the need for social distancing has been high for the most part. This emergency has shown us that institutions, governments, businesses, and the public can turn on a dime to address a common threat when they believe that they need to.

When we talk of the demands of the climate emergency, we no longer have to hearken back to the Second World War for an example of when we retooled industrial production, remade our supply chains, and expedited government action. Because of COVID-19, we are living this example now, and it is but a dress rehearsal for the collaboration and coordination of resources that will be required to maintain societal continuity and ecosystem integrity as climate change accelerates.

While COVID-19 has led to economic difficulties unseen in most people's lifetimes, climate change is the starkest and most globally threatening emergency we have ever faced. The sheer scale and urgency of the climate emergency is overwhelming and requires much more than all of us have ever had to do collectively. This crisis demands that we pull together – and do it now.

After a year of immersing ourselves in climate science and technical detail, we can tell you unequivocally that the writing is on the wall – the warnings are in our soils, forests, skies, and the waters all around us. It is clear that we must throw everything we have at this emergency to ensure future generations have a chance at life on a Salt Spring Island with healthy forests and wildlife, abundant water, fertile farmland, and clean air.

We give you more than 250 recommendations to consider and act upon. Some are actions we can each take in our own lives, but the lion's share requires collective action and political will.

> There is a path we can all take if we act decisively, now

We need skilled policy makers, community conveners, scientists, and leaders to flesh out what we recommend here. We need every level of government to commit funds toward reducing our greenhouse gas emissions and adapting Salt Spring to drying soils, rising waters, and increasing risk of forest fires. But most urgently, we need a strong consensus among our island citizens that protecting our island demands and deserves a tremendous amount of effort and resources.

If you take just one message from this climate action plan, we hope it is this: there is a path we can all take if we act decisively, now. And on that path, pulling together to address the climate crisis, we can build a stronger, healthier, and more inclusive community supported by a strong economy with high quality green jobs and a healthier ecosystem.

We have the ability, initiative, and willingness to proactively prepare for times of profound change and to build a consensus around the kind of world we really want. We know that it is more important to leave a legacy than to leave an impact. In this age of climate change and natural limits to our ecological footprints, we welcome the opportunity to learn to tread lightly for the sake of our children, all living beings, and the Earth.

Let's keep our eyes on the prize – a bright future for this emerald island set in a sapphire sea.





CAP Steering Committtee

SALT SPRING ISLAND, 2030

In times of crisis it is important to have a shared story to guide us to a better, safer place. The following story imagines Salt Spring in 2030 and draws inspiration from the Plan that follows.

Visitors and residents alike ride the new all-electric passenger-only ferries to Salt Spring that were added to the existing hybrid fleet in the late 2020s. On Vancouver Island, the ferries link seamlessly with the new fully electrified rail line that goes from Esquimalt to Nanaimo on the old track bed, with plans to stretch to Campbell River.

The no-longer-needed gas station in what was once called Gasoline Alley was converted to a 10-bay fast charging station and café serving all locally produced foods. Many take advantage of the electrified Salt Spring Transit buses to take them to the expanded Salt Spring market, which now occupies satellite locations at different days of the week at Fulford Hall, Portlock Park, and at the former Slegg's Lumber – now a building supply reuse centre.

A system of bike and pedestrian pathways has been completed alongside all major routes – including the Fulford-Ganges Bikeway – making Salt Spring a nationally recognized cycling community. Roads are quieter with over 80% of Salt Spring's vehicles now electric.

A new elevated causeway at the head of Fulford Harbour – built to prepare for rising oceans and storm surge – sees scores of pedestrians and cyclists stop to enjoy its overlook onto the tidal flats of the restored Fulford Creek estuary and the neighbouring clam gardens, managed by island groups and local First Nations.

> "Salt Springers have pulled together to build a caring community of collective abundance

All organics including septic, food, wood, and agricultural waste are now processed at the expanded Burgoyne chipping and composting facility. The loamy dividends are popular with island growers, who no longer need imported compost. The last truckload of septic waste was shipped off-island in 2027, accompanied by a whimsical parade and tea party to celebrate the milestone.

Food cultivation has increased sharply, enhancing food security, and providing an important revenue stream for the many young farming families who have moved to Salt Spring. The 2029 soil survey showed a 30% average increase in fertility due to

extra local nutrients. The increase was also helped by the regenerative agricultural practices taught by the six-person team at the Root – a food processing and storage facility for island growers that opened its doors during the first wave of the pandemic in 2020 to help enhance local food security.

The Root's workshops and training have helped insulate island growers from increasingly unreliable rains and harsh summer heat, including the drought in 2026 which saw 18 days over 30°C and three months without rain.

For the first time in years, the island's schools are seeing increased enrollment as families find more affordable living options. Two housing co-ops in the upper reaches of Ganges Village started construction in 2028, with half the funding coming from a series of community bonds offering Salt Spring investors opportunities to invest locally. The combined 36 units, plus 15 tiny homes for shorter term needs, now house people who once commuted from off-island or lived in unreliable short-term rentals. The developments use greywater recycled from the Ganges Treatment Plant, rainwater harvesting and composting toilets – riding a wave of conversions by residents all over the island thanks to robust CRD incentives, taking pressure off freshwater sources while benefitting local service providers.

A climate crisis council, set up jointly by the CRD and the Islands Trust in 2021, oversees forest and freshwater ecosystem restoration projects. It includes local First Nations, local non-profits, business groups, and government and agency representatives. Its 2030 report documents a 60% decrease in deer, and a 37% decrease in rabbits and a resulting significant increase in the abundance of crucial forest floor plants like ferns and salal. This has led to improved soil moisture, improved tree health, and a resultant 30% drop in the island's overall fire risk according to the Fire District.

The Forest Preservation Incentive has been popular with Salt Spring property owners, reversing deforestation for the first time in settler history, saving taxpayers well over $1.8 million dollars in its first four years, and resulting in high-quality green jobs in the field of ecosystem restoration services. Revenue to pay for the tax comes exclusively from sales of emissions credits into the Western Climate Initiative's carbon market.

In 2028, all First Nations' management plans for their lands and marine resources were adopted and are guiding Islands Trust policy on forest and marine stewardship. There is a Guardian Watchmen program that monitors the health of our land and sea, and a significant amount of collaboration with groups on Salt Spring.

Overall, Salt Springers achieved their emissions targets and have undertaken the work necessary to protect their transportation, infrastructure, agricultural capacity, and ecosystems to better withstand the climate shocks that have become the norm.

In a time of significant stresses on government budgets and global supply chains, with associated unrest and shortages, Salt Springers have pulled together to build a caring community of collective abundance.

EXECUTIVE SUMMARY

The Salt Spring Climate Action Plan 2.0 (CAP 2.0) outlines 250 recommended actions to address the climate change crisis on our island home. Taking these actions will:

- reduce emissions of greenhouse gasses 50% by 2030
- help adapt our island community and its ecosystems to the changes already underway.

The results:

- meaningful livelihoods and enterprises for islanders working to implement new climate smart infrastructure and initiatives
- increased availability of local food choices, adding to the island's economic vitality and resilience
- fewer hits to the island's economy due to damage to homes, buildings and infrastructure and loss of life from fires, flooding, and other climate change impacts
- preservation of the island's tourism values and natural amenities due to avoided environmental degradation

This Plan is intended for implementation by the entire community, including residents, landowners, non-government organizations, businesses, along with the three levels of government and related agencies that serve islanders.

This Plan was a community-led effort led by twenty-three Salt Spring volunteers, with the input of dozens of experts and input from more than two thousand islanders over more than a year, and builds upon CAP 1.0, which was published in 2011.

The climate crisis here on Salt Spring

No region of our planet is escaping human-induced climate change. The changes are already happening, and will accelerate in the years to come. Forest fires, like those in the western US and Canada, and increasingly damaging storms, like the one we experienced in 2018, are examples of the changes now underway. On Salt Spring, we will continue to see increases in the number and severity of:

- droughts leading to greater forest fire risk and water shortages
- intense windstorms causing costly road closures, power failures, and damage to homes and buildings
- health threats including cross-boundary forest fire smoke, novel insect infestations, and diseases
- sea level rise and intense winter storms inundating low-lying areas including Ganges
- migration pressure from regions harder hit by climate change-related disruptions like food supply collapse and political disruption

Like every community around the globe, Salt Spring has an obligation to do its fair share on climate action. Our average per capita income and emissions are much higher than most regions on the planet. This means a greater responsibility to take bold climate action now.

We enjoy relatively abundant clean hydro-electricity and a mild climate, putting our region in a better position than most to more easily transition to a zero-carbon, lower impact economy. By taking local action now, we help ensure that we can continue to enjoy access to a healthy natural environment that islanders and visitors alike treasure.

Our community can significantly reduce the risk of catastrophic loss by preparing now for the unavoidable impacts of climate change. In acting now, we can lower the costs of climate change by investing in the hard infrastructure, ecological restoration, and regulatory changes we need to avoid much more costly and chaotic outcomes.

Risks to our community

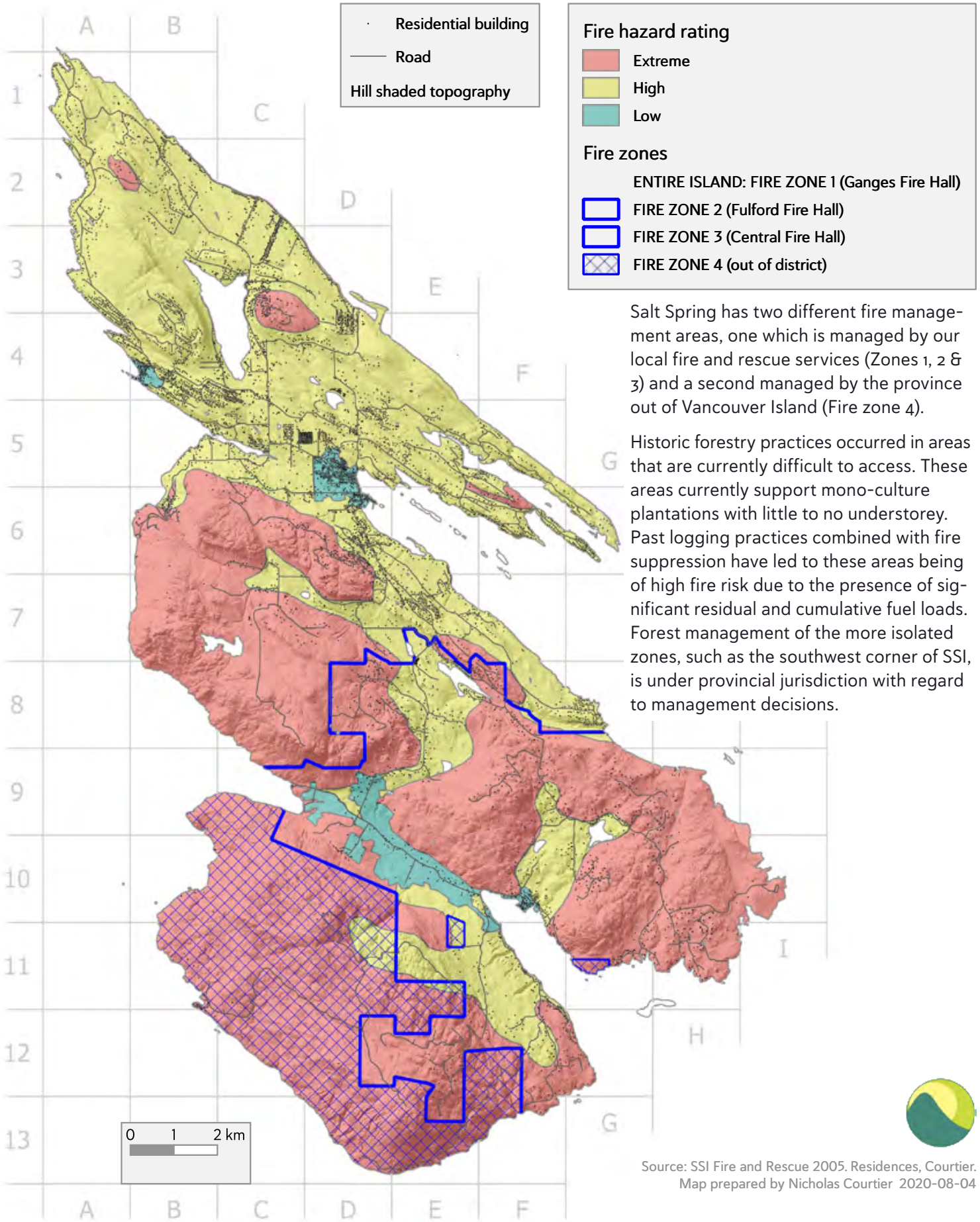
The greatest immediate risks to our community is from extreme weather events (Appendix 2). In particular, changing storm intensities and the changes in seasonal weather patterns, most notably less rainfall in the summer and heavier rainfall in the winter months. By far the biggest climate risk faced by Salt Spring is the increasing risk of forest and brush fires, with implications for human health and water quality. Usually human-caused, these events place lives at risk, but also put significant strain on emergency services and water resources, with attendant risks to our power supplies, transportation routes, and the economic stability of our community.

As part of CAP 2.0, a team conducted a risk assessment to look at changes in extreme weather to better understand how they impact our homes families, and livelihood as well as the natural environment of our island:

- the speed of onset of the different climate stressors differs, making some actions more urgent than others,
- fire and drought are both the most urgent and high impact aspects of climate change for our community,
- local forests store extraordinary amount of carbon and can reduce fire, washouts and associated risks to surface water flows and groundwater levels;
- land management choices significantly affect local risk and greenhouse gas emissions.

Each chapter of this Plan outlines the priority actions to reduce areas of high vulnerability. Each chapter also identifies those groups who are positioned to lead or contribute to these actions.

Fire



Salt Spring has two different fire management areas, one which is managed by our local fire and rescue services (Zones 1, 2 & 3) and a second managed by the province out of Vancouver Island (Fire zone 4).

Historic forestry practices occurred in areas that are currently difficult to access. These areas currently support mono-culture plantations with little to no understorey. Past logging practices combined with fire suppression have led to these areas being of high fire risk due to the presence of significant residual and cumulative fuel loads. Forest management of the more isolated zones, such as the southwest corner of SSI, is under provincial jurisdiction with regard to management decisions.

Source: SSI Fire and Rescue 2005. Residences, Courtier.
Map prepared by Nicholas Courtier 2020-08-04

Recommendations

This Plan recommends that we accelerate efforts to meet or exceed GHG emissions targets set in CAP 2.0, and increase our resilience to help us survive and thrive in the challenging decades to come.

This will require significant investments, resulting in changes to systems, regulations, and processes that will impact residents, businesses, the CRD, the Islands Trust, and other organizations, including our water agencies and emergency services providers.

Following are a few critical prerequisites that will set us up for success. With these changes, the conditions for success will be present.

1. Foster systemic change: We need to bring together organizations and government to plan across silos and jurisdictions to deal with the climate crisis and implement ecosystem level planning. Agencies as varied as Salt Spring Fire Rescue, the water districts and authorities, and local non-profit organizations can accomplish much working across disciplines and jurisdictions to accomplish the climate action we need to meet CAP 2.0's, and indeed, the CRD's 50% emissions reduction target by 2030. To get there organizations like the CRD and the Islands Trust will need to adjust everything from their organizational structures to their compensation and performance systems in order to reflect the gravity of this emergency. Institutional inertia is simply not an option in an emergency.
2. Enable collaborative projects: Salt Spring has unique governance, necessitating intra-agency collaboration, together with joint government, agency, and non-governmental leadership. Collaboration on a large-scale can be accomplished through task forces that serve as vehicles for climate action. The Islands Trust housing working group is an example of the type of multilateral vehicle necessary to tackle challenging issues. Transition Salt Spring, with sufficient financial and community support, is committed to playing a role as keeper of the Plan and as community convenor to facilitate collaboration leading to project development.
3. Build better policy frameworks: While concrete action in how we move around, build, eat, and play is critical, changing the legal frameworks that govern many of these activities is critical to enabling climate action. First, the Islands Trust needs to undertake a review of the Salt Spring Island Official Community Plan (OCP). How we build and where we build will become increasingly important as sea levels rise, forest fire risks increase, and in-migration continues. The OCP must be amended to keep our communities safe and to preserve and protect increasingly stressed ecosystems, and the Land Use Bylaw amended accordingly.

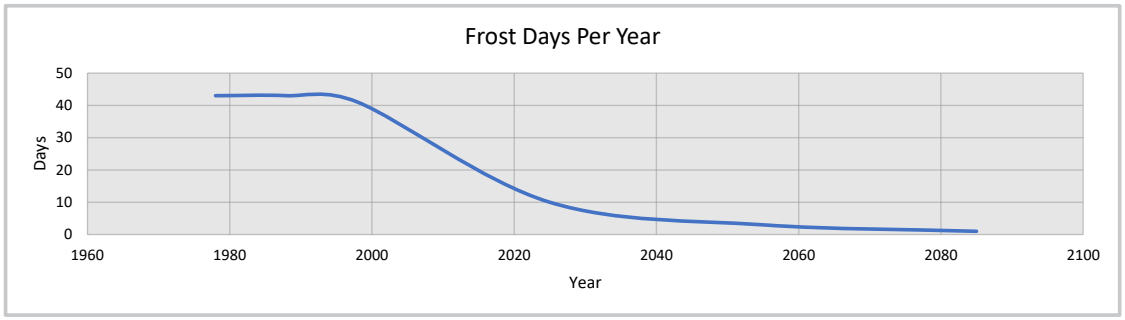
   Second, the provincial price on carbon needs to reflect the actual costs and risks to our environment and to our economies. Raising the current price to $200/tonne could provide the funding we need for innovative climate adaptation projects like large-scale forest-based carbon sequestration that provide high quality jobs.

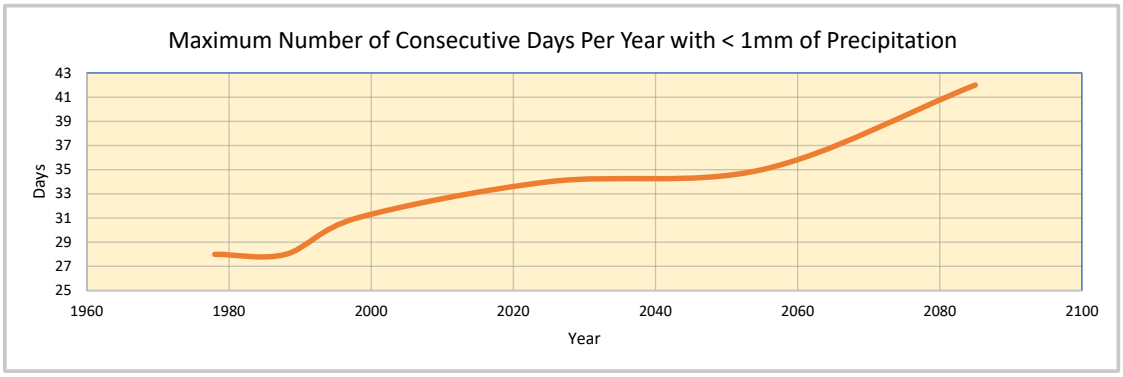
> "We need to bring together organizations and government to plan across silos and jurisdictions to deal with the climate crisis and implement ecosystem level planning

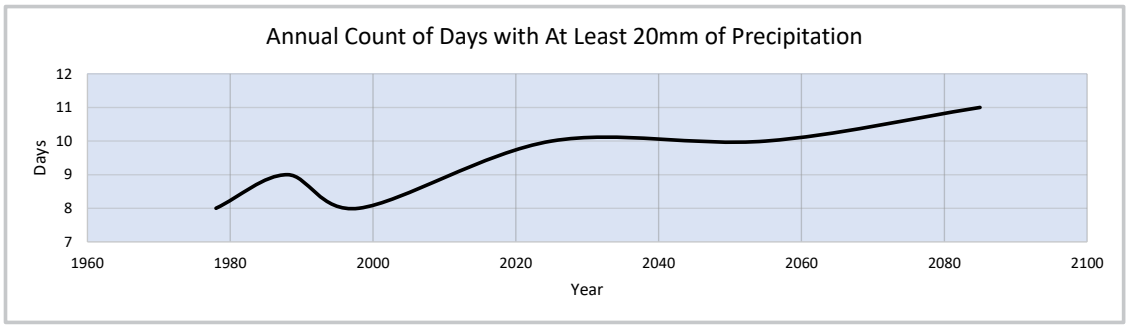
While some climate action can be undertaken now, much of the work outlined in CAP 2.0 will require implementation of these three steps – which will demand much of our governments, agencies, businesses, and non-governmental organizations.

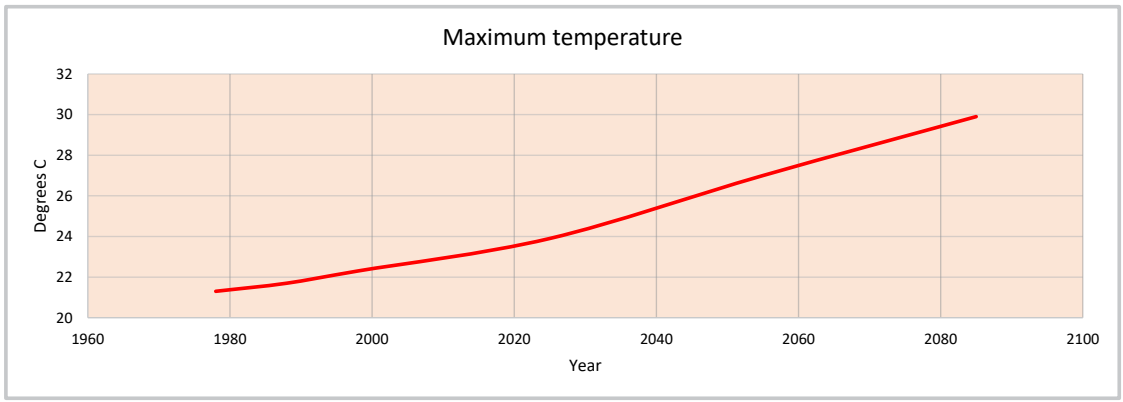
Work will also be needed to develop the policies, incentives, regulations, programs, projects, and built infrastructure to keep our island safe in the decades to come. The following is a summary of the key sector-specific priorities outlined in CAP 2.0.

Salt Spring Island Climate Change Projections









Source: PCIC Climate Explorer, CanESM2, rcp8.5, Salt Spring Island polygon.

The four graphs show how our weather cycles are expected to change over the next 80 years. From top to bottom: winter frost periods will be dramatically reduced, with implications for overwintering pests and extended growing season for some food crops. Although the same annual precipitation is expected, on average, there will be less rain in the summer and droughts will become longer and more severe. However, more rain will come as heavy downpours in the winter months. Most warming will be realized through the winter months as the lack of low temperatures. This is reflected in the final graph, showing the average annual maximum temperature increasing.

Transportation

Two key focuses for transportation are to reduce emissions by close to 40 thousand tonnes or 68% by 2030 and to develop mobility alternatives that promote healthy living and increase accessibility.

- Electrify cars, trucks, public transportation, and ferries, and install sufficient commercial charging
- Build trail infrastructure to make it easier and safer to get around on foot, by bicycle, and by mobility devices
- Expand public transit service and build ridership
- Implement programs to facilitate vehicle-sharing, fuel efficient driving, and trip planning to increase the efficient use of fossil-fueled vehicles

Electric car. © BERNADETTE AND PETER MCALLISTER

Food and Agriculture

Two key focuses for food and agriculture are to reduce food-related emissions by over 32 thousand tonnes or 48% by 2030, and to build local food security and climate change resilience by supporting sustainable local food production.

- Promote climate-friendly food choices, with a focus on locally grown food and regional food systems
- Reduce food waste by developing an on-island composting facility, and distribute the proceeds to island growers
- Increase food production, while increasing the sector's climate change resilience by building grower knowledge about regenerative agriculture to increase soil carbon and enhance crop yields organically

Forest Ecosystems

Climate risk mapping conducted as a part of this project revealed how important the restoration of our forest ecosystems is to our island's climate change resilience. The following priorities for forest ecosystems will help keep our community safe from forest fires and protect our limited fresh water supplies. In turn, we can increase biodiversity and reduce our emissions by 8,000 tonnes or 50% by 2030 by sequestering carbon in trees and soil through reduced clear-cut logging.

- Gain regulatory authority and introduce new tools for the Islands Trust to limit traditional clear-cut logging and properly incentivize landowner participation
- Implement a forest mapping, monitoring, and research program to inform public policy and landowner practices
- Actively manage and restore healthy forests to better protect our communities
- Rebuild forest understoreys by controlling deer and rabbit populations to preserve soil moisture, add fertility, and improve the climate change resilience of trees

Freshwater Ecosystems

The future viability and safety of our island's potable water supply will be under increasing threat if we do not act now to protect it in the face of increasing drought, higher temperatures, and more damaging storms. Forests and freshwater ecosystems are two key interlocking pieces that can help build community resilience in the face of multiple climate change related threats.

- Implement watershed level ecosystem-based planning to protect water supplies and wildlife, prevent flooding, augment low water levels, improve aquifer recharge rates, and boost water quality
- Promote widespread rainwater harvesting, water conservation, and better management practices to maintain water levels, reduce sedimentation, and decrease the number of bacterial or algal incidents
- Reduce forest fire risks to protect water quality and water levels

Built Infrastructure

We need to change how we build, where we build, and how we manage our island's buildings and infrastructure to both lower our emissions and improve our climate change resilience in the challenging decades ahead. Buildings and community infrastructure sited in locations facing very high fire risks or sea level inundation risks lower our resilience in the face of climate change.

- Reduce emissions from the construction and operation of new and existing buildings by encouraging the integration of low-carbon materials and systems
- Reduce water consumption through rainwater storage and greywater reuse, supported with public engagement, incentives, and streamlined regulations
- Phase out open burning to reduce emissions and reduce fire risk, converting the resulting woody debris into biochar or wood chips to provide valuable soil amendments
- Build climate change resilience by requiring continuity plans to account for climate risks, building electrical systems redundancy and self-generation, and enhancing island-wide radio and emergency preparedness networks

Save the Salish Sea event in Ganges. © GARY MCNUTT

Land Use and Settlement Patterns

Land use regulations are key to guiding development away from climate related risks like sea level rise and high forest fire risk. They can also lead to lower emissions by specifying or incentivizing certain building practices or by siting built infrastructure efficiently to decrease transportation-related emissions.

- Review Salt Spring Official Community Plan to address climate risk and align land use bylaws with it to reduce emissions, and integrate ecosystem-based planning
- Revise and simplify all land-use processes and procedures, especially as they relate to permitting, in order to encourage and facilitate climate-smart development, including clustered housing and more affordable housing options
- Implement plans, policies, and procedures to ensure our community is prepared for projected climate risks like sea level rise

Individuals and Families

A great number of climate actions can be implemented by all of us on Salt Spring. These changes reduce emissions and help adapt our homes and properties to the changes already underway. These changes can also improve our health and well-being while building our local economy. Transition Salt Spring will engage Salt Spring Islanders to help them take part in implementing climate action.

- Invest in upgrades to homes to reduce emissions and build resilience in the face of fire, storm, and water-related risks
- Ensure the next vehicle is a new or used electric car or bike
- Ask experts like those at the Salt Spring Island Conservancy how to minimize tree removal, better retain water, and build soil
- Advocate for climate action at all levels of government and help support some of the many groups on Salt Spring dedicated to climate action
- Make more climate-friendly and local food choices, and, if possible, grow a garden

Next Steps to Implement this Plan

Achieving the necessary changes to keep us safe in the years ahead will take significant effort and will involve everyone. Transition Salt Spring (TSS) is preparing to do its part by convening island groups and government to collaboratively develop climate action projects and set us on the road to meeting the targets outlined in this Plan.

In the first six months following publication:

- TSS convenes potential climate action partners to discuss collaborative frameworks for climate action
- TSS develops a detailed business plan
- CRD and the Islands Trust provide official response to CAP 2.0
- CRD and the Islands Trust commit funds for selected projects and commit to participation in a collaborative framework to implement climate action
- TSS collaborates with climate action partners to develop a climate action community engagement process for residents

Six months or more following publication:

- TSS and its climate action partners have secured funding to roll out climate action engagement programming for residents
- A collaborative framework for climate action on Salt Spring is operational and developing project plans for funding and implementation

The Plan we present here is a blueprint for climate action on Salt Spring across many key sectors. It envisions us working together to ensure a positive, vibrant, inclusive and diverse community set on an island with healthy forests, waters, and wildlife for future generations.

Aftermath of December 2018 windstorm.
© THE GULF ISLANDS DRIFTWOOD

1. INTRODUCTION

"I want you to panic… I want you to act as if the house was on fire, because it is." – Greta Thunberg, World Economic Forum at Davos, January 24, 2019.

Salt Spring's first Climate Action Plan (CAP 1.0) was released in April 2011 and began with these words:

The Salt Spring Island Climate Action Plan is a call to action. The context for action is a planet already affected by a rapidly expanding human population, depletion of natural resources, and ecosystem disruption. Climate change underscores the fact that infinite growth is not possible on a finite planet.

Those words were written almost a decade ago. Since that time, under the Paris Agreement in 2015, Canada committed to reducing its GHG emissions by 30% by 2030. The Government of Canada's 2019 projections put us at an emissions cut of 8% (worst case scenario) and 19% (best case scenario) by 2030 (Environment and Climate Change Canada, 2020). That's far worse than what we have committed to do.

In 2018, the "IPCC Special Report on Global Warming of 1.5°C" was formally approved by the world's governments (IPCC, 2018). The report contends that in order to limit overshoot of 1.5°C, emissions must now decline by approximately 45% by 2030 (40-60% interquartile range) and reach net zero around 2050.

Many people think that another average increase of a degree or two won't make much of a difference to life on earth. But at 1.5°C scientists project we'll see some of the climate impacts we already see today begin to go from bad to alarming. It's at that point where we'll see many natural systems begin to cross dangerous points of no return, triggering lasting changes and transforming life as we know it. At an average 1.5°C, increases will be highest at the poles (where all that ice is) and least close to the equator, with Salt Spring somewhere in between.

On Salt Spring, as in other places across the planet we will see from this global rise in temperature a loss of freshwater availability, wilder storms and fires, sea level rise, floods, droughts, a likely total loss of coral reefs, acidification diminishing clam and mussel populations, impacted fish stock and loss of biodiversity.

Salt Spring specifically needs to consider risks such as:

- Increased storm surges especially at king tides
- Dried out forests increasingly vulnerable to fire
- Sea level rise and salt-water inundation affecting our fresh water, roads and villages
- Homes, buildings and infrastructure such as transmission lines face extremely high forest fire risks in many areas
- Worsened conditions for growing and even importing food

In light of the IPCC report cited above, over 1700 jurisdictions in 31 countries – including the Capital Regional District (CRD) and Islands Trust – declared climate emergencies and committed to reducing their emissions between 37% and 60% by 2030 (Climate Emergency Declaration Coalition, 2020).

In this Climate Action Plan, what we call CAP 2.0, we have modeled a goal for Salt Spring of 50% emissions reduction. This goal is slightly higher than the IPCC minimum because Salt Spring's emissions are easier to reduce given our relatively easy access to low emissions hydro-electricity, our mild climate and our relative affluence.

Many of the climate threats that people have been talking about for the past 30 years can be minimized if we act now, and some could be avoided altogether. That's the good news. The bad news is that at this point some changes are locked in and we are going to have to prepare our ecosystems, economies, infrastructure, and communities for these changes.

The fact is, the world has waited too long to act. That is why this plan is not only about mitigation (decreasing our greenhouse gas emissions) but also about adaptation. Mitigation and adaptation are actually two sides of the same coin. If we delay mitigation any further, we will never be able to adapt sufficiently to keep humanity safe. And if we delay adaptation any further, we will pay such a high price that we will likely find that the necessary adaptations will be beyond our means.

The inclusion of a significant number of recommendations related to adaptation mark the key difference between CAP 1.0 and CAP 2.0. This Plan includes an assessment of the climate risks we now face, along with maps collated with publicly available data to detail these specific risks which are not abstract possibilities, but patterns that are already clear in the data. A key point to remember is that Salt Spring's highest climate risk is forest fire, and that key to helping prevent these fires is to protect and improve forests as outlined in this Plan.

How the Plan was built

CAP 2.0 was developed by a large team of volunteer experts in an effort to help transition Salt Spring to a resilient, carbon-neutral economy. Sector-specific working groups representing Transportation, Food and Agriculture, Forests, Freshwater, Built Infrastructure, and Land Use collaborated to prepare the Plan that follows.

Like CAP 1.0, CAP 2.0 is intended as a living document – updated regularly to reflect changing conditions, guide public mobilization, and promote decisive action by our governments.

This Plan identifies many actions and strategies that will only work if implemented by both residents and organizations. Many island stakeholders were asked for input and feedback. Most, but not all, have indicated they are already actively engaged in climate mitigation and adaptation actions. They told us they are willing to collaborate or are considering the implementation of some of the recommendations in this Plan. In order to reach as many residents, government bodies and organizations as possible, the CAP 2.0 steering committee:

- Collaborated closely with Salt Spring Island Agricultural Alliance volunteers to ensure that food and agriculture recommendations

were consistent with the 2020 Area Farm Plan update.

- Worked with the Ecological Research Network, ForestWatch, and volunteer GIS experts to develop a series of maps and data around forest health and carbon sequestration.
- Consulted with close to 50 island stakeholders (non-profits, governmental, businesses and professional organizations); receiving input and feedback throughout the process and on the draft Plan.
- Invited First Nations to participate in development of the Plan's recommendations.
- Received over 5000 ideas and comments from more than 2000 island residents who participated in the online consultation and engagement process.
- Met with and shared the draft plan with the Islands Trust, the Islands Trust Conservancy, CRD staff, and selected CRD commissions, incorporating much of the feedback provided.
- Local elected officials were included as ex officio members of our Steering Committee, and meetings were open to staff from both organizations.[1]

The Plan

The Plan includes 22 goals, 60 strategies, and more than 250 actions. Implementing those actions will require the involvement of close to 50 organizations. It is a long list which reflects the diversity of residents and their circumstances, and the fact that our economy is based almost entirely on fossil fuels. Getting off it is no easy task. This Plan is not meant to be prescriptive for individuals. We have a goal but it is up to Islanders how we get there. It is up to all of us, as individuals and as a community alongside local, provincial and federal governments to determine how we are going to implement this Plan. Not everyone will be able to do everything. But reaching a 50% reduction goal by 2030 means that we will all need to do everything that we can through as many means as possible.

Whatever we do must work with the free, prior and informed consent of First Nations and other local communities that might not normally have a place at the table, and the benefits must flow to all communities. No project should be pursued that undermines First Nations land rights or any community's economic security and well-being. On the contrary, all projects should seek to strengthen and include them.

Making the Plan fair

The plan was created with the conviction the climate actions we take together must be fair, and based on the differing circumstances we each face.

Many people on Salt Spring struggle to find housing and reliable transportation. Achieving the goal of reducing emissions while also meeting the needs of all of our residents requires zoning, roads, trails and building design to be integrated. And that means thinking outside the box. We can't make climate smart building code changes if they are just going to drive up the cost of housing, for example. We need to remember that we may be in different ships but we are all in the same storm.

Many comments and ideas that were highlighted in the community engagement addressed questions about how someone without means could participate, or how food or job security might be

1 In no way should the participation of local elected officials, staff, or agents from the Islands Trust or the Capital Regional District be construed as an indication that any content of this Plan constitutes the position of these organizations on the climate crisis or on any recommendation described in this Plan. While some funding has been provided by both the Islands Trust or the Capital Region District, this Plan was developed by community members alone and has not been endorsed or adopted by either of our local government organizations.

impacted, or how important affordable housing and the issues around water and safety intersect with this plan. Implementation plans like CAP 2.0 should always keep in mind and look for ways to ensure that its impacts improve social equity, not erode it. Here is a summary of some of the key themes around social equity that came from Salt Spring residents:

- Ensure accessible, sustainable, affordable, and safe housing
- Support inexpensive, reliable and sustainable transit as well as proposals to further EV expansion (cars, trucks and bicycles) – make low carbon mobility available to all
- Expand electric vehicle incentives to include used EVs and hybrids
- Modify vehicle scrapping programs to ensure the owners of the oldest and/or most polluting vehicles can replace them with used, but better, vehicles
- Use available local government revenue while also, requesting additional funding from other levels of government to strengthen local democracy, energy policy and public services
- Actively support the expansion of good, low carbon jobs and public services to build a more sustainable local economy and replace more carbon intensive enterprises
- Respect Indigenous rights and treaties
- Support sustainable agriculture and low carbon, local food accessible to all
- Ensure social justice, equity, and human rights are a key part of climate action
- Ensure that implementation plans are grounded in science as well as social science

This Climate Action Plan touches us all

Implementation of the Plan must involve the active participation of local agencies and their elected representatives, including the CRD, Islands Trust and its respective commissions, committees, and departments, the Fire Protection District, Water Districts, or other community water systems, the School District, health authorities and citizen groups such as the Plan's implementation sponsor, Transition Salt Spring.

Governments, corporations and citizens are capable of doing most anything if they are motivated, understand the consequences and are given the mandate. Having held a public engagement that invited all Salt Springers to participate, we feel confident that acting on climate has been mandated by the citizens of Salt Spring.

> "We need to remember that we may be in different ships but we are all in the same storm

© RON WATTS PHOTO

We wanted to make sure we reached as many Salt Spring residents and organizations as we could. Here is what we did to prepare this Plan:

- Held a public meeting attended by just over 200 islanders (pre-COVID)
- Had representatives of the CAP 2.0 team speak at many events

- Postered throughout the island and distributed flyers at every major event for 6 months
- Created an engagement website used by thousands of islanders
- Had three news and op-ed pieces published locally, and advertised in both local media
- Delivered a CAP engagement postcard to every home and business on the island by mail
- Sent out 1,400 emails
- Advertised on Facebook and Instagram for over a month
- Engaged with over 2000 citizens through survey questions and carbon budgeting questions
- Received over 5000 public comments

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Moving forward together

There are positive signs that the shift toward greater climate action is finally beginning to take place, and this trend has become particularly visible during the COVID-19 pandemic. Governments have pivoted overnight on policies that many have advocated for over decades. Businesses and organizations have lowered emissions by implementing telework. Travel, both for work and pleasure, has been curtailed. More local food is being both grown and consumed.

Similarly, the climate crisis is an opportunity for all levels of government to introduce scores of incentives, policies, laws, fees and regulations to enable the rapid emissions reductions and adaptation measures we need to survive and thrive while benefiting our economies.

Both CRD and the Islands Trust have declared climate emergencies. And yet our community as a whole is not behaving as though we are in an emergency. A new kind of economic recovery from the pandemic is needed; one that can accelerate climate action on Salt Spring as well as create economic activity. This is a once-in-a-lifetime opportunity to turn things around.

This Plan is a first step towards a new future for Salt Spring Island. It is a part of a process that can help us develop a more cohesive, more economically diverse and inclusive community. Along the way we can help island businesses, organizations, the CRD, and the Islands Trust work together to foster climate change resilient ecosystems and healthy communities on a prosperous island home.

Walker's Hook Road reconstruction.
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2. ADAPTING SALT SPRING TO A RAPIDLY CHANGING CLIMATE

Globally, climate action plans now include two components: mitigation (reducing emissions), and adaptation (preparing for the climatic shifts underway). CAP 1.0 addressed mitigation actions exclusively. Since then, however, emissions reductions have not been significant enough to avoid many climatic changes that are now unstoppable. This is why CAP 2.0 has goals, strategies, and actions that address both components. Emissions reduction is in many ways an accounting exercise supported by courageous policy-making, while the development of adaptation strategies requires much more.

To protect Salt Spring Island's shorelines, forests, infrastructure, and the community they serve, we need to understand how our island home will be affected in the years to come. How high will storms surge in 2050, and where? Which forests are most vulnerable to desiccation and to fire? Finally, what can we do about these changes to best protect and enhance our island's precious ecosystems while ensuring the safety and viability of our communities?

Given that the best available data is pointing to increased climate risks globally, our climate risks working group wanted to know in more specific terms how climate change is likely to affect our island. To do this, they developed a series of maps especially for CAP 2.0, using BC climate data from the Pacific Climate Impacts Consortium and other sources. These maps are being presented to the public for the first time and are included in the appendices. Special thanks to Nicholas Courtier and Catherine Griffiths for generating these maps, and to the Islands Trust and a private donor for financially supporting this critical work.

Central guiding principles arising from the risk analysis are reflected in the goals, strategies and actions in the following chapters: protect what we have; coordinate land use zoning and management activities (build resilience/ reduce risk); and collaborate (identify and respond together).

In CAP 2.0, there is an overall emphasis on enhancing forest and freshwater health and biodiversity to reduce or mitigate various climate risks including fire, drought, and decline in water quality. Essentially, if we preserve, protect, and enhance ecosystem function, we lower risks to buildings, infrastructure, and human lives. Key climate-related changes expected for Salt Spring and other Salish Sea islands include:

- Generally increased temperatures in all seasons. Winters will have the greatest warming, particularly at elevation, with a near-absence of frost days during most winters. Springs will have less dramatic warming, and 50% fewer days with frost will amplify overall heat. All of these changes have direct implications for island water.
- More severe weather in the form of heavy rainfall, extreme temperatures, windstorms, and hail. Heavy rainfall will account for most of the rain through the autumn and winter months. Extreme weather events will be both more intense and more frequent.[2]
- Hot summer days will become more numerous and extreme. There will be warmer days with average summer highs of 30°C, leading to increased water temperatures, evaporation, and drought. This in turn will compromise soil health, water availability, ecosystem health, and diversity, decreasing the ecosystem's ability to recover from shocks.
- Rain-free days will increase by 50%. Low water levels going into autumn can combine with decreased winter rainfall to lead to spring drought and poor growth in wild and cultivated areas.[3]
- Multi-year drought will be more common, exacerbating impacts from storms and extreme weather. Soils will become drier, making water less available for agriculture and trees unless we build water recharge and storage capacity in aquifers and wetlands.
- Less predictable seasonal weather will include the timing and amount of rain, and increased temperature variability. Changing rainfall patterns are expected to differ between north-south and west-east parts of the island. These changes will have significant impacts on ecosystems, agriculture, food production, infrastructure, our economy, and daily life.
- Sea level rise through storm surge, inundation, and salt-water intrusion is projected to increase by 0.5 metres by 2050 and one metre by 2100. Impacts will be most severe in the areas of higher population density, such as Ganges and Fulford.[4]

The conclusions derived from these maps have informed the goals, strategies, and actions laid out in the Plan.

Cusheon Lake. © PIERRE MINEAU

2 Effects will be great for transportation, infrastructure, agriculture and natural systems.

3 The combination of heat and longer periods without rain will exacerbate the severity of droughts, evaporative loss, and increase the heat loads on island (fresh water and marine).

4 See the Climate Action Plan 2.0 section on Land Use for an in-depth discussion of sea level rise impacts and solutions.

3. SALT SPRING'S GHG EMISSIONS AND TARGETS

Virtually everything we do or purchase has associated with it a GHG emissions cost. If we are to understand the climate impact of our purchases and lifestyle choices, and if local government is to make informed planning and purchasing decisions, the total associated GHG emissions impacts should be known. This information is essential for the science-based decision-making needed in the evolving climate emergency. The COVID-19 pandemic provides a good example of the importance of applying science-based decision-making early in an emergency situation.

The volunteers working on this report have been challenged by a general lack of data and by anomalies in available data from provincial government agencies. A continuous-improvement approach to inventories and climate action planning by all levels of government would be very helpful. Salt Spring Island groups have been collecting data since 2004, but there has been no community emissions reporting by the provincial government since 2010. Measuring progress in achieving targets is important, and performance indicators may often be needed in the absence of hard data. The rough figures provided below are intended to convey the relative magnitude of GHG emissions by sector.

Table 1 summarizes our current understanding of Salt Spring's GHG emissions. 'Total' GHG emissions are the total of the elements included. The actual total number will be much greater. With the caveat that all estimates, especially those for food, are uncertain, the largest source of Salt Spring's GHG emissions in 2018 was related to our food. On-island transportation, logging and land-clearing, and BC Ferries, in descending order, were the next largest sources of emissions, followed by commercial freight anchorages. Emissions from building energy use – including electricity, propane, heating oil, and firewood – and organic waste were the least of all the included sources. Food and Transportation remain by far the largest sources of Salt Spring's emissions.

The first section of Table 1, 'Direct (on-island) sources of emissions' includes categories generally included in community inventories. The second section, 'other sources of emissions,' is also relevant to Salt Spring. The 2030 targets column indicates where savings can be made to meet the objective of GHG emissions reductions of 50% and net-zero GHG emissions by 2030. These targets are challenging. We will not meet these targets without significant support from all levels of government and participation by Salt Spring residents.

Population growth adds to the emissions reduction challenge – Salt Spring's population increased by 11% between 2007 and 2018. Just to keep total community GHG emissions stable over that period, per capita emissions needed to decline by 11%.

More information on the Salt Spring Island GHG emissions inventory as it relates to direct and indirect emissions is provided in the appendices.

Table 1. SSI Community GHG emissions estimates

Not included in the table below are GHG emissions from construction, non-food purchased goods, refrigerant gasses from cars and appliances, off-island travel, including flights and cruises, off-island emissions from video streaming, etc.

	2007	2018	2030‡	2030 targets
1. Population, rounded up to nearest 100 (CRD & Statscan data)	10,000	11,100	12,000	**12,000**
Direct (on-island) sources of emissions	**Emissions, tonnes CO_2e***			
2. On-island transportation (2007 & 2018 CRD data)	32,400	31,700	30,900	**16,000**
3. Buildings (2007 & 2018 CRD data)	4,600	4,500	5,000	**3,200**
4. Land-clearing, logging	16,000	16,000	16,000	**8,000**
5. Solid waste (2007 & 2018 CRD data)	3,100	1,700	800	**400**
Subtotal direct emissions	56,100	53,900	52,700	**27,600**
Other sources of emissions	**Emissions, tonnes CO_2e**			
6. BC Ferries	22,500	17,400	15,600	**3,000**
7. Food, based on 80% of 7t CO_2e per capita	56,000	62,200	67,200	**30,000**
8. Commercial freighter anchorages	-	10,000	10,000	**0**
Total emissions including ferries, food, and freighters	**134,600**	**143,500**	**145,500**	**60,600**

‡ Business as usual projections.

* CO_2e (carbon dioxide equivalents) is a measure used to compare the Global Warming Potential, GWP, of different greenhouse gasses, GHG, over a period of time, usually 100 years. CO_2 has a GWP of 1. Nitrous oxide (N_2O) has a GWP of 298. Some refrigerant gasses have extraordinarily high GWPs. For example hydrofluorocarbon-23 has a GWP of 14,800.

Notes to Table 1

1. Population estimates from CRD and StatsCan. Population grew 11% between 2007 and 2018.
2. On-island transportation covers all vehicles registered on Salt Spring including large commercial vehicles, buses, motorhomes, motorcycles and mopeds, vans, pickup trucks and SUVs, large and small cars, and off-road vehicles such as excavators, tractors, ATVs and boats. The target is equivalent to a 34% annual increase in replacement of gas-fuelled vehicles with electric vehicles (compared to 58.5% actual annual increase from 2011-2019).

3. Buildings include operational energy use: electricity, oil, propane, and firewood. GHG emissions appear to be relatively constant, but need substantiation. BAU projection to 2030 assumes 10% growth from 2018. Target assumes 30% reduction in emissions over 2018, to be achieved through fuel switching and energy efficiency and conservation measures.

4. Land-clearing, logging: comparing forest cover from satellite imaging between 2009 and 2017, 34.5 hectares of forest loss from clearing was measured (areas less than 750 square metres were not included) which averaged out to the clearing of 11 ha/yr. Salt Spring's forests typically store 250-325 tonnes of carbon / hectare, equivalent to 900-1,200 tonnes of CO_2/ha. Two-thirds of these emissions will be released upon clearcutting and associated slash-burning/decomposition, even factoring in storage in long-lasting wood products. The rest will be released from the soil over the next 17 years. The 2030 target assumes around a 50% reduction in clear-cutting.

5. Solid waste emissions estimates include methane generation from organics. Of 3,800 tonnes of waste shipped to Hartland landfill from Salt Spring in 2018, about 950 tonnes was estimated to be organic waste that will generate methane, CH_4, as it decomposes. Hartland landfill now recovers some of that methane, which accounts for the drop in emissions between 2007 and 2018. The twelve-year GWP of methane is much higher (83) than its 100 year GWP (25). The CO_2e figures provided therefore understate the short-term impact of organic waste. The target assumes a 50% reduction in CH_4 generation due to diversion of SSI organic waste to local composting and other uses.

6. BC Ferries data for routes serving Salt Spring were provided by BC Ferries. Our projection for 2030 is based on emissions decrease of 1.05% per year. The target assumes electric ferries on Fulford and Vesuvius routes.

7. Food estimated at 80% of the US figure of 7 tonnes CO2e per person per year. This is considerably higher than previous estimates. See Appendix 4 for details. Target is aggressive and assumes most islanders adopt a largely vegetarian diet sourced from our region.

8. Commercial freighters data were provided by C. Rohner. These data are not generally included in community GHG inventories because the emissions from international marine traffic are not assigned to individual countries. However, when freighters are parked in our local waters, polluting our airshed and waters, they become a local problem. BAU projection assumes commercial freighter anchorages unchanged. Target assumes no freighter anchorages.

View along the southern shores of Fulford Harbour in land known by the SȾÁUTW̱ First Nation as W̱ENÁ,NEĆ, which in the SENĆOŦEN language means "facing Saanich." © BRYAN YOUNG

Sources of GHG emissions

Direct Community GHG emissions are those released on SSI or in the immediate environs. They include CRD estimates of tailpipe emissions from our vehicles, wherever we may be driving them, based on assumptions of average Vehicle Kilometres Travelled (VKT) per year, and emissions factors which vary based on the type of vehicle. Direct emissions attributed to our community also include GHG emissions related to on-island electricity use, even though those emissions occur at distant generating stations. Since 2004, when SSI undertook its first GHG emissions inventory, SSI has included emissions from BC Ferries attributable to Salt Spring routes. Salt Spring has also included indirect GHG emissions estimates for the food we eat.

In 2020, SSI added estimated annual GHG emissions from the freighters now anchored in our waters. Also included are estimated annual GHG impacts of land clearing and logging, and estimates of the CO_2 removed from the atmosphere each year by our forests. (See footnote 8 on page 64.) These estimates were generated by teams of volunteers researching, mapping and, in the case of the land clearing figures, ground truthing the numbers. Separate summary reports and maps are available.

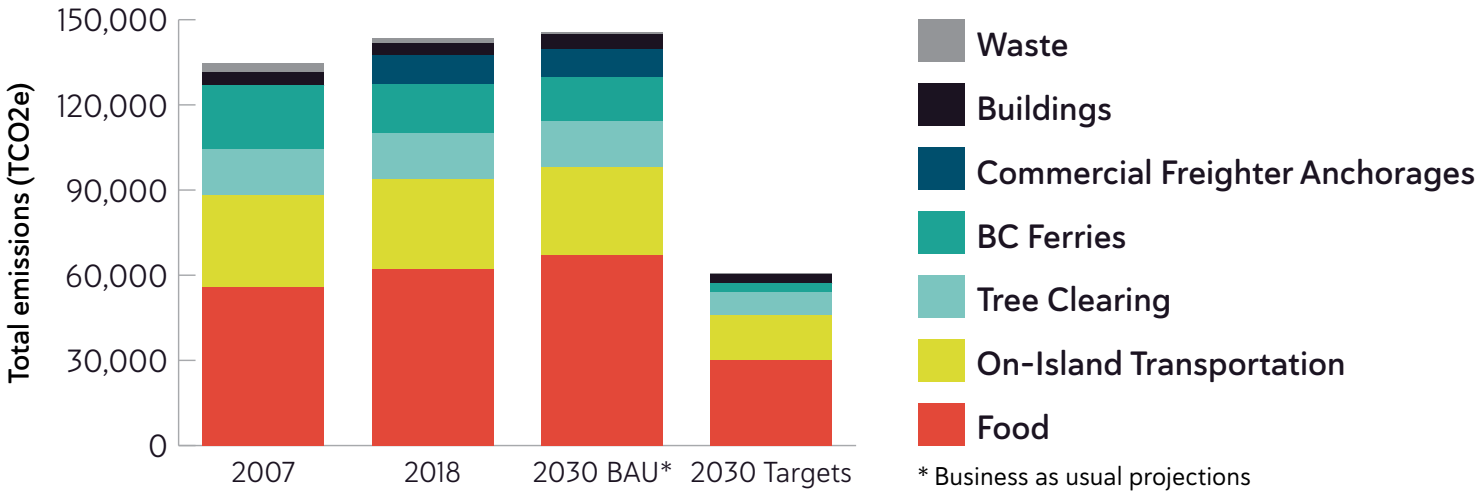
What the numbers indicate

With the caveat that all estimates are uncertain, the largest source of Salt Spring's GHG emissions in 2018 was related to our food. On-island transportation, BC Ferries, and logging and land clearing, in descending order, were the next largest sources of emissions, with commercial freight anchorages close behind. Emissions from building energy use – including electricity, propane, heating oil and firewood – and organic waste were the least of all the included sources.

The 2030 targets column in Table 1 indicate where savings can be made to meet the objectives of GHG emissions reductions of 50% by 2030. The assumptions for the reductions are provided in the notes to Tables 1 and 2. They show it is possible to meet the targets, but it will be challenging.

> The largest source of Salt Spring's GHG emissions in 2018 was related to our food

SSI Community GHG emissions estimates



* Business as usual projections

Vehicles in ferry lineup.
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4. CLIMATE ACTION PLAN FOR TRANSPORTATION

Transportation emissions are a major contributor to the global climate crisis. For Salt Spring Island, transportation is the biggest source of direct emissions (food is the highest source of indirect emissions). Local transportation includes private automobiles, commercial vehicles and buses, floatplanes, BC ferries, and other marine vessels. When these sources are added to the emissions associated with the transport of imported goods, visitors, and off-island travel by islanders – including long-distance flights and cruises – transportation likely represents our biggest direct opportunity for emissions reductions.

To meet our GHG reduction targets, islanders must radically reduce our reliance on fossil fuel-powered transportation and increase our use of zero-emission vehicles, cycling, and walking. Reducing emissions from our existing fossil-fuel vehicles is also needed. While our transit system is seeing less use during the COVID-19 crisis, tales abound of neighbours collaborating to shop for one another, or combining trips to reduce risks. These lessons, along with the curtailment in travel generally, and the collapse in air travel emissions, demonstrate that big changes are possible. They also represent the kinds of planned and deliberate climate actions we need now, implemented through an orderly transition to avoid the kinds of significant loss of livelihoods and chaos we are seeing in several sectors during the COVID-19 pandemic.

Achievements

The Salt Spring community is highly dependent on private vehicles to get around. There are almost as many vehicles registered here as islanders – over 10,000 registered vehicles in 2018 (ICBC, 2020) and 11,300 people – not including the vehicles brought by thousands of visitors in summer months. Since 2011, a number of steps have been taken to reduce transportation GHG emissions on Salt Spring. Examples include:

- More routes and service on the Salt Spring Island Transit System, with over 117,000 riders in 2019
- More bicycle use (including electric bikes), more bike racks, and 10 public e-bike charging outlets (Pathways, 2020)
- More pedestrian pathways built or planned – about five kilometres exist today (Pathways, 2020)
- $apid growth of electric vehicles (EVs) from 4 in 2011 to more than 270 in 2020, and 11 free public EV charging stations installed with 17 charging wands, reducing GHG emissions by about 600 tonnes/year (TSS(EV), 2020)
- BC Ferries replaced the Queen of Nanaimo with the more fuel-efficient Salish class vessels, and a new series of hybrid electric ferries is coming into service (BC Ferries, 2020)
- Land use planning policies that have concentrated more new development and community buildings in existing centres and near transit routes
- Harbour Air's seaplane electrification program (Harbour Air)

These achievements are important and lay the groundwork for future change.

Priorities

The priorities for the next ten years are to:

- Electrify the majority of vehicle types
- Reduce emissions from the remaining fossil-fuel vehicles
- Expand public transit service
- Make it easier to get around the island on foot, by bicycle, and by mobility scooter

The benefits of electrification and active transportation go well beyond reducing transportation GHG emissions: increased exercise from cycling and walking improves mental and physical health and reduces health care costs, whereas exposure to vehicle exhaust is implicated in a number of medical conditions. More public transit improves quality of life and reduces the need for owning a vehicle and the associated costs. Implementing these recommendations expands potential business opportunities and job creation for new and existing businesses. Transportation is closely linked to land use planning, especially in a comprehensive village planning program. Related recommendations are in the Climate Action Plan for Built Infrastructure and for Land Use sections.

Goal 1: Electrify transportation

The rapid transition to zero-emissions transportation, primarily through adoption of EVs, is one of the most effective actions we can take to reduce GHG emissions. Monitoring progress is relatively easy, and the resulting benefits are simple to calculate. Continued Federal and Provincial incentives will be important.

Strategy 1: Electrify personal and commercial vehicles

Salt Spring Island already has more electric vehicles (EVs) per capita than any other community on Vancouver Island (VicEVA, 2020). But more effort is needed to rapidly change out old gas-guzzlers and demonstrate the many advantages of an EV-oriented community. The transition to EVs is becoming a viable and increasingly affordable option, particularly considering the availability of lower-cost used electric vehicles now available, and the significant savings on fuel and servicing.

Transportation Goal 1, Strategy 1 Actions	Leading organizations		
	CRD	TSS	SSFD
1. Set EV targets, track number of EVs, and regularly report progress. Promote benefits of personal and commercial electric vehicles, including fleets, taxis, emergency vehicles, delivery vans, trucks, motor cycles/scooters and rentals; provide information on models, charging options, grants, and financing.	■	■	■
2. Recognize and support efforts by the CRD to reduce vehicle emissions through use of electric vehicles in their fleets	■		

Strategy 2: Electrify buses

Salt Spring Island has five transit buses, eight school buses and several shuttle buses serving seniors' facilities and various businesses. Cities like Vancouver are switching to electric transit. It's time for Salt Spring Island to do the same by 2030.

Transportation Goal 1, Strategy 2 Actions	Leading organizations						
	BC	BCT	CRD	SSITC	SD64	SSCE	TSS
1. Replace all existing SSI Transit buses with electric buses (BC Transit)	■	■	■	■		■	
2. Replace all existing SD64 buses with electric buses	■				■	■	
3. Advocate for and promote support for bus electrification			■	■		■	■
4. Promote benefits of replacing existing shuttle buses (e.g., Country Grocer, Greenwoods) with electric buses						■	■

Strategy 3: Electrify bicycles

Electric bicycles make easy work of Salt Spring's hills. E-bikes make cycling on Salt Spring more accessible, and it's a healthier and less expensive way of getting around than driving a car. Island Pathways and Transition Salt Spring can play a role in realizing this objective with active support from the CRD. Low-cost loans, available from TSSEC, plus BC rebates lower initial purchase costs.

Transportation Goal 1, Strategy 3 Actions	Leading organizations				
	CRD	IP	BC	TSSEC	TSS
1. Promote information about and advantages of e-bikes for personal use and deliveries, including charging options and available grants	■	■	■	■	■
2. Develop partnerships between non-profits and private enterprise to promote e-bike rentals and purchase subject to limitations under the Local Government Act	■				■

Strategy 4: Electrify BC Ferries and seaplanes

BC Ferries plans to operate some of its new ships entirely on electricity in five years (BC Ferries, 2020), but Washington State is moving even more rapidly to convert its fleet (Washington State, USA). Meanwhile, Harbour Air is the first air carrier in the world to test a fully electric seaplane. The Salt Spring Ferry Advisory Committee and Transition Salt Spring can play key advocacy roles with BC Ferries and BC Hydro for charging infrastructure.

Transportation Goal 1, Strategy 4 Actions	Leading organizations				
	BCF	FAC	BCH	SSCE	TSS
1. Advocate for and support accelerated transition of ferries to all-electric operation for shorter routes and building of required charging infrastructure	■	■	■	■	■
2. Advocate for and support electrification of seaplane service to and from SSI					■

Strategy 5: Reduce barriers to electrifying transportation

Barriers include higher capital costs, lack of charging infrastructure, and lack of businesses providing on-island rental and repair services.

Transportation Goal 1, Strategy 5 Actions	Leading organizations						
	CRD	BCH	IT	BUSINESS	TSS	TSSEC	SSITC
1. Conduct public survey to identify community interest in and barriers to increased electric vehicle use					■		
2. Expand public EV charging capacity including Level 2 chargers, DC fast chargers, commercial vehicle and bus chargers, and bike and scooter chargers	■	■		■	■		■
3. Expand existing local servicing and repair capacity for chargers and EVs				■			
4. Provide low-interest loans and/or top-up rebates for EVs and chargers	■					■	
5. Create a bylaw or Development Permit Area that requires installation of on-site EV charging stations in new commercial, institutional, and multi-family buildings (may require Local Government Act amendments)			■				

Goal 2: Expand the use of public transit

Expanded bus service with reliable connections to ferries will reduce private vehicle trips, parking congestion, and emissions; it will increase active transportation opportunities and improve mobility equity. Communities well served by transit have many advantages. Increased funding for the Salt Spring transit system is essential in achieving these objectives. Intermodal transportation regionally, though outside of Salt Spring, could do a great deal to help Islanders move to less GHG intensive forms of transportation.

Electric school bus. © RON WATTS PHOTO

Strategy 1: Increase the number of scheduled bus runs and routes to increase ridership

Reliability and frequency of service, along with marketing, are key to increasing ridership.

Transportation Goal 2, Strategy 1 Actions	Leading organizations				
	BC	BCT	SSITC	CRD	TSS
1. Increase frequency of service on existing routes to meet all BC Ferries, and to better serve other routes with high population densities		■	■	■	
2. Expand routes to service more areas, including popular destinations such as parks and beaches, based on demand surveys		■	■	■	
3. Promote Salt Spring Transit and the people who operate it, and provide information about routes and schedules to a wide audience, including tourists		■	■	■	
4. Advocate for and support the protection of the E&N rail system corridor or electric bus fleet from Victoria to Nanaimo that, with regular electric bus connections between Crofton and Duncan, would promote low-carbon travel for Salt Spring Islanders to Vancouver Island locations	■	■	■	■	■

Strategy 2: Improve the user experience to increase ridership

Piloting different fare strategies is an important step. Some cities now provide free transit because this reduces car dependency. Bus shelters, bicycle carriers, and safe pullouts, along with easy-to-access information make transit more attractive to more people. Promoting inter-modal connections will encourage low-carbon off-island travel.

Transportation Goal 2, Strategy 2 Actions	Leading organizations					
	BCT	SSITC	IT	BC	CRD	SD64
1. Increase funding for public transit	■	■			■	
2. Set significantly increased ridership targets, increase ridership data collection, and publicly report ridership statistics on a regular basis	■	■			■	
3. Pilot a range of fare incentives including free ridership, track results, and implement measures that best support increased ridership	■	■			■	
4. Increase number of bus shelters and/or seats at bus stops, provide schedule information at all stops, and increase the number of bicycles each bus can carry	■	■			■	
5. Make consultation with BC Transit mandatory when road works are planned in order to fully integrate transit access (i.e., the number and safety of pullouts, turn-around improvements, and ferry access points expansions)	■	■		■	■	
6. Remove barriers to use of SD64 school buses, shuttles, and Handy Dart services to expand transit service, especially at peak times	■	■			■	■
7. Land-use planning policies should encourage increasing densification in locations within walking distance of transit routes and build transit-supportive principles into subdivision regulations.	■	■			■	

Goal 3: Reduce the GHG impact of fossil-fueled vehicles

It will take more than a decade to replace the over 10,000 fossil-fueled vehicles registered on-island with EVs. (ICBC, 2020) In the meantime, lowering speed limits will improve public safety, and reducing the number of fossil-fuel vehicles on the road through their more efficient use will substantially reduce GHGs. Efficiency of use can be achieved through trip planning, carpooling, ride-sharing, vehicle-sharing, and providing shuttle services for events. Basic vehicle maintenance along with good driving habits can reduce fuel consumption by up to 25%. (Natural Resources Canada)

Strategy 1: Expand car- and truck- sharing, carpooling, and ride-sharing

The easiest ways to reduce the GHG impact of a vehicle is to reduce its use through carpooling and ride-sharing. Rental, car-share and truck-share options are alternatives to vehicle ownership and reduce emissions.

Transportation Goal 3, Strategy 1 Actions	Leading organizations		
	CRD	TSS	BUSINESS
1. Promote carpooling, safe and legal hitchhiking, the Salt Spring Car Stop initiative, shuttles, and ride-sharing to event organizers, clubs, neighbourhood PODs, and other groups		■	
2. Introduce and promote neighbourhood app-based online ride-sharing or EV ride-hailing programs		■	■
3. Develop car- and truck-share options such as Modo to provide occasional access to electric vehicles with gas-tax funding.	■	■	■

Strategy 2: Improve vehicle efficiency

Enforcement of no-idling rules, promotion of sensible driving habits and tire pressure maintenance, along with programs such as AirCare, have been common practice across Canada until recently.

These measures, together with lowering speed limits, trip planning, and the use of commercial fleet apps to increase road safety and fuel efficiency, are still very much needed. They decrease GHG emissions, reduce fuel costs, and improve local air quality.

Transportation Goal 3, Strategy 2 Actions	Leading organizations						
	TSS	SSITC	CRD	MOTI	CEDCC	COC	BUSINESS
1. Promote increased efficiency of fossil fuel vehicles (e.g., tire pressure maintenance, engine and exhaust system tune-ups) and fuel-saving practices (i.e., avoiding idling and speeding, encouraging accelerating and braking smoothly) in partnership with service stations and auto shops	■	■	■				■
2. Advocate for lower speed limits in order to improve fuel efficiency and public safety, and to facilitate cycling and walking. Promote an island-wide limit of 50 km/h except 30 km/h in Ganges and Fulford Harbour villages and 60 km/h on Fulford-Ganges Rd and Long Harbour Road. Promote heavy vehicle emissions testing, and include emissions standards in road-worthiness certification	■	■	■	■			
3. Recognize and support efforts by commercial fleet owners (e.g., delivery vans, taxis) to reduce vehicle emissions through use of electric vehicles	■				■	■	■
4. Promote better coordination of off-island shipments with return trips of imported goods					■	■	■

Strategy 3: Reduce emissions from freighter anchorages in Gulf Islands

Freighters anchored in our waters emit many tonnes of GHG emissions daily in addition to damaging the marine environment and creating noise and light pollution. Solutions are urgently needed (Christoff Rohner, 2020).

Transportation Goal 3, Strategy 3 Actions	Leading organizations				
	TSS	CRD	IT	BC	FED
1. Support the South Islands Ship Watch Alliance and other groups to demand from the Federal Government an immediate moratorium on freighter anchorage sites in the Southern Gulf Islands, better synchronizing of ship arrivals and grain exports to reduce need for idling ships, and upgrading of terminal infrastructure to accommodate efficient loading and reduction of emissions	■	■	■	■	■

Goal 4: Expand opportunities for active transportation

Active transportation includes walking and cycling. A full network of safe bike lanes and off-road paths is the foundation for increased bicycle use. Pedestrians require safe pathways in the villages and along main routes. The GHG benefits of reduced fossil-fuel vehicle trips are immediate, with health and economic benefits for those who choose to walk and cycle. Comprehensive village plans should incorporate these initiatives.

Strategy 1: Construct island-appropriate bike lanes on all main routes

Salt Spring is included in the CRD Gulf Islands Regional Trails Plan. The completion of this multi-use trail would provide safe access for cyclists and pedestrians along busy roads, linking Fulford, Ganges, and Vesuvius ferry terminals.

Transportation Goal 4, Strategy 1 Actions	Leading organizations					
	IP	CRD	IT	SSITC	MOTI	FED
1. Advocate for and accelerate completion of the Salt Spring section of the CRD Gulf Islands Regional Trail with federal and provincial funding through CRD	■	■		■		■
2. Construct bike lanes when maintenance work on main roads is undertaken	■	■			■	
3. Renegotiate the MoTI/Trust Council Letter of Agreement to include robust active transportation policies			■	■	■	

Strategy 2: Expand off-road pathways

Walkable communities have good sidewalks and off-road pathways suitable for all ages and abilities for biking, walking, and mobility scooters.

Transportation Goal 4, Strategy 2 Actions	Leading organizations					
	IP	IT	CRD	PARC	COC	MOTI
1. Expand the Ganges Village Pathway Network and provide off-road paths beside all main routes on SSI for pedestrians and mobility scooters, with federal and provincial funding through CRD	■	■	■	■	■	
2. Encourage all participants to collaborate in the planning and maintenance of off-road pathways	■	■	■	■		■
3. Ensure that Development Permits for major new construction within Ganges optimize contributions to the Ganges Village Pathway Network		■				
4. Identify and address barriers for pedestrians and mobility scooters within island villages, including the need for more crosswalks at key locations	■		■		■	

Strategy 3: Remove funding and regulatory barriers and promote active transportation

Barriers are primarily related to funding and regulations. Strong advocacy for changes to provincial policies and regulations is needed as a first step in a long process to build the necessary infrastructure. The BC COVID-19 response includes rapidly accelerating active transportation plans to promote outdoor exercise.

Transportation Goal 4, Strategy 3 Actions	Leading organizations							
	IP	TSS	CRD	SSITC	MOTI	BCF	FAC	SD64
1. Secure long-term funding to support financially sustainable active transportation infrastructure and transit such as a BC Ferries surcharge for non-resident vehicles	■	■	■	■	■	■	■	
2. Align main road speed limits with other Gulf Islands and small communities to improve safety for cyclists and pedestrians; reduce speed limits in villages and residential neighbourhoods to increase safety and to allow for pedestrians, users of mobility scooters, and cyclists. (Note new Traffic Calming Group in SSITC)	■	■	■	■	■			
3. Expand the reduced speed limit zone around schools and install traffic calming features; provide multi-use paths and dedicated bike lanes; initiate walking or cycling "school buses" to encourage young children to walk or cycle to school and a "Drive-to-5" program to encourage drivers to walk part-way to destinations	■	■			■			■
4. Promote road-sharing, road safety, and bicycle maintenance	■	■			■			■
5. Require the local highway contractor to undertake regular clearing of road shoulders and bike lanes to maintain safe use					■			

Goal 5: Reduce the impacts of long distance travel

One long-distance trip by plane or cruise ship can create up to one tonne or more of CO_2e per person (The Guardian, 2019) and (Griffith U., 2017) Reducing discretionary travel, choosing less carbon-intensive travel modes, substituting online conferencing for off-island meetings, and providing voluntary carbon-offset donations to a Salt Spring fund for local climate action will significantly reduce the GHG impacts of off-island travel. The COVID-19 crisis increased our capacity to experience productive meetings and other activities through teleconferencing, and it is likely that long-lasting cultural change has already occurred in this area.

Strategy 1: Provide information on impacts of and alternatives to long-distance travel

This strategy focuses on building awareness of the problem and the solutions, and creating a local voluntary carbon-offset program with funds raised used to support CAP projects such as protecting forested land and building active transportation.

Transportation Goal 5, Strategy 1 Actions	Leading organizations						
	TSS	IT	CRD	COC	CEDC	TSSEC	I-SEA
1. Provide information on impacts of long-distance travel, encourage less travel, promote offsetting actions, and track and reward commitments through CAP engagement	■		■				
2. Promote the use of online meetings and online learning to agencies, businesses, and individuals as substitutes for on- and off-island travel	■	■	■	■	■		
3. Create a local carbon-offset program, earmarking funds raised for local climate action projects	■		■			■	■

Summary

Salt Spring Island is well positioned to become a leader as an all-electric, transit-oriented, active-transportation community with all the attendant health, safety, and economic benefits and opportunities.

Achieving the five transportation goals described above requires that each of the leading organizations is adequately resourced to undertake the necessary work, including: research, setting targets, tracking progress, providing marketing and education, policy advocacy related to regulatory and funding barriers, and boots-on-the-ground projects. Individuals may be willing to embrace these goals, but progress will be insufficient, particularly in the face of inevitable population growth, without strong supports from government at all levels.

St. Mary lake water treatment plant.
© THE GULF ISLANDS DRIFTWOOD

5. CLIMATE ACTION PLAN FOR BUILT INFRASTRUCTURE

Built infrastructure – everything from homes and roads to waste management facilities and sewage treatment plants – makes life possible for human communities on Salt Spring. Buildings and infrastructure are a significant source of greenhouse gas emissions (GHGs), responsible for over 12% of the island's direct emissions.

These building blocks of community face increased risks in the coming decades from climate-change related extreme weather and sea level rise. We need to plan now to protect existing and future assets in the context of a rapidly changing climate and increase the resilience and self-reliance of our community.

An additional consideration is the lack of sufficient housing for the Salt Spring work-force. Aside from indicating a lack of equitable housing access on Salt Spring, the housing crisis also results in travel related emissions from people commuting from off-island to on-island employment.

Achievements

Since the 2011 CAP 1.0 report was released, there has been some progress towards creating climate change-resilient high-performance built infrastructure, which has lowered emissions and reduced climate risks, including:

- Location of the library in the downtown core rather than on donated land farther away and building it to the Leadership in Energy and Environmental Design (LEED) green building certification standard
- Installation of emergency power capacity for NSSWD's new water treatment plant on St. Mary Lake
- Installation of a 21-kilowatt solar photovoltaic array on the Gulf Islands Secondary School roof, the largest of its kind in BC at the time of commissioning
- Establishment of a community committee to coordinate key agencies including emergency responders, water utilities, and others in response to the December 2018 windstorm
- Implementation of an online Salt Spring Island Sustainability Checklist and other guides produced by CRD and Islands Trust for new construction and renovations
- Roll-out of a yard waste collection pilot – a part of the Agricultural Alliance central composting initiative in partnership with CRD PARC
- Mounting of a biennial Transition Salt Spring Salt Spring Eco Living and Home Tour to highlight ways islanders are reducing their carbon footprints at home
- Increased uptake of heat pumps and domestic net metered solar photovoltaic installations as a result of Salt Spring Community Energy education and conferences
- Revitalization of the CRD Salt Spring Island "POD" neighbourhood emergency preparedness network

Priorities

Much needs to be done to both decrease emissions associated with built infrastructure and prepare for climate changes already underway. Key priorities in this plan are to:

- Implement better uses for wood waste, making it possible for islanders to end open burning, with the best option likely an integrated chipping and composting facility for wood waste, vegetation debris, and other organics
- Help individuals and organizations capitalize on applicable incentive programs and subsidies for climate-related projects
- Implement wide-scale rainwater harvesting, greywater reuse, and composting toilets through policy change, regulatory reform, incentives, and education
- Improve the efficiency of buildings and building operations by incentivizing, facilitating, and regulating the use of more efficient woodstoves, heating systems, construction materials, and construction techniques
- Expand renewable energy installations to increase local energy security
- Enhance community resilience to climate change by developing climate change resilience plans

Goal 1: Manage wood and vegetation debris without open burning

Open burning of woody waste is a climate issue because it releases significant quantities of CO_2, other GHGs, particulates and toxic chemicals, and is a serious ignition source for forest or brush fires. The resulting fires emit large quantities of GHGs while threatening damage to island homes and infrastructure. Emissions are currently unmeasured but large – in 2019 the Salt Spring Island Fire Protection District issued approximately 2,000 open burning permits, along with several for major burns of logging waste, windfall, and building demolition. Roughly half of the remainder were for backyard burning, while the other half were for campfires. An unknown amount of additional burning is done without a permit.

In areas where there have been significant wind-falls or clear-cut logging, open burning results in diminished air quality and health impacts on local residents. Apart from these issues, the open burning of wood and other vegetation constitutes the waste of a valuable local resource, which could be trans-formed into a soil amendment called biochar, or into compost in a local facility, or simply distributed as wood chips for soil enrichment or pathway mulch. Expanding these and other constructive uses will allow islanders to cease open burning.

Strategy 1: Remove barriers and promote open burning alternatives

Making it easy for growers, residents, and service providers to avoid burning makes better local use of a valuable on-island resource and supports the operation of a new chipping and composting facility.

Built Infrastructure, Goal 1, Strategy 1 Actions	Leading organizations		
	CRD	IT	BC
1. Expand and publicize alternatives to open burning of windfall timber and wood wastes including lumber; publicize negative effects of open burning	■	■	■
2. Support alternative methods of disposal of wood waste and vegetation such as chipping, biochar, and Hügelkultur (a mounding technique of woody debris and dead plant material, often done following land contours, to facilitate decomposition, water retention, fertility, and fire resistance)	■	■	■
3. Develop a large-scale wood chipping facility co-located with a composting facility. (See also Food & Agriculture)	■		■
4. Provide equipment via tool rental or “lending library” and public listing of skilled operators			
5. Update local regulations to allow use of windfall timber and recycled wood in both new and renovated construction as is permitted in the Regional District of Nanaimo; build local capacity to grade this resource for use in construction	■		■

Strategy 2: Implement an open burning ban to reduce forest fire risk, particulates, and GHGs

Once alternative use and disposal methods are in place, phasing out open burning can be introduced. This will align Salt Spring with the majority of progressive communities that prioritize public health, climate action, and better utilization of waste streams over expediency.

Built Infrastructure, Goal 1, Strategy 2 Actions	Leading organizations	
	SSFD	BC
1. Introduce a new regulation to phase out open burning on residential and commercial properties except for permitted campfires or regulated burning of forest debris in high-risk zones where chipping is not feasible		

Goal 2: Build a climate change-resilient community water supply

Adequate water is essential for a potable supply, firefighting, food production, irrigation, and fire prevention during drought. The water sources on Salt Spring Island are lakes, streams, springs, and groundwater wells. During the last few years increasing drought and winter storms have stressed these resources, as have depletion due to human demand, nutrient contamination (which can lead to toxic algal blooms and bacterial outbreaks), and removal of the protective vegetation around bodies of water. Accelerated climate change will increase these stresses significantly. Building resilience and redundancy (through back-up systems) into our potable water systems is crucial for ecosystems, wildlife, and our community. See also the Action Plan for Freshwater Ecosystems.

Cusheon Lake. © PIERRE MINEAU

Strategy 1: Remove barriers to rainwater harvesting and require it for all buildings

Inconsistent, contradictory, or absent permitting and code requirements for rainwater harvesting for potable use means a high degree of inspector-by-inspector interpretation. This is a significant impediment to adopting an approach that is the gold standard in leading water-constrained areas. It's time for governments in BC to develop a much-needed set of consistent guidelines for rainwater harvesting for potable uses based on federal standards.[5]

Built Infrastructure, Goal 2, Strategy 1 Actions	Leading orgs	
	CRD	BC
1. Develop consistent guidelines for rainwater harvesting, provide training to inspectors, and promote to islanders	■	■
2. Incentivize rainwater harvesting for existing homes and buildings	■	
3. Streamline approvals and reduce overly onerous requirements for rainwater harvesting	■	■

Strategy 2: Remove barriers to widespread comprehensive water conservation

Water conservation, greywater recycling, and composting toilets go hand-in-hand in water-constrained regions, but face attitudinal and regulatory barriers that need to be overcome before this under-utilized resource can be tapped.

Built Infrastructure, Goal 2, Strategy 2 Actions	Leading organizations				
	CRD	IT	WD	TSS	BC
1. Increase promotion of water conservation information	■		■		
2. Remove regulatory impediments to greywater reuse and composting toilets; develop strategies for their use, especially in water-constrained areas like Ganges	■		■	■	■
3. Create a new Development Permit Area to require water conservation measures in new development		■			

5 The Canadian standard for potable rainwater harvesting systems (CSA B805-18) was released in 2018 – it applies to design, materials, installation and operation of rainwater harvesting systems for potable and non-potable applications.

Strategy 3: Develop a water supply resilience strategy for emergencies and constrained supply

Knowing where available supplies of water are in emergencies, and ensuring our existing potable water supplies are developed and maintained helps communities become resilient in the face of increasingly extreme conditions. This includes identifying and protecting key areas of groundwater recharge and the forests and wetlands that maintain our local hydrology.

Built Infrastructure, Goal 2, Strategy 3 Actions	Leading orgs	
	SSFD	WID
1. Inventory and monitor key water sources for spatial and volumetric data and ownership (potable and emergency response) and ensure adequate protections are in place for strategic emergency resources and for ensuring their sustainable use		
2. Mandate and implement back-up power units for all treatment and community water supply units		

Goal 3: Reduce GHG emissions from homes and buildings

In BC, because the main source of our electricity is derived from hydroelectric generating facilities, electrically heated homes have far lower GHG emissions than homes heated by oil, propane, or even locally grown wood. There is still much that can be done to reduce climate impacts related to homes and buildings through lifestyle changes, appliance replacement, and energy retrofits.

There are two key objectives for this goal. First, we need to retrofit existing homes to decrease their emissions. Second, we need to reduce the net carbon footprint of the construction process for new construction and substantial renovations. For example, the production of concrete generates much carbon dioxide, while the use of timbers made from island windfall locks away carbon for the life of the building. At the same time, the changes we make to how we retrofit or build need to ensure that housing affordability is addressed. Modern building codes result in lower operating costs per square foot, but they are far more expensive to build. It's for that reason that this Plan also sets out goals for permitting small homes, attached units, or suites (See Land Use & Settlement section).

Strategy 1: Accelerate replacement of combustion-based heating

Despite readily available hydroelectric power, many residents on Salt Spring rely on wood-stove heating, oil, or propane. These emit large quantities of carbon dioxide. The goal is to reduce these emissions dramatically by replacing them with electric heat pumps or baseboard heating.

Wood stoves have been shown to contribute up to 27% of fine particulate emissions in BC (Government of British Columbia). In addition, they are responsible for putting other carcinogenic and health-compromising gases into the local atmosphere. Modern EPA or CSA certified stoves burn less fuel for the same heat output and produce less smoke and harmful

gases than older stoves. In some parts of BC, including the Regional District of Nanaimo, a rebate program is in place to assist with the cost of replacing older wood-burning stoves, and it is recommended that the program be extended to include Salt Spring.

One easy step to reducing wood-stove emissions is to ensure that the wood you are burning is as dry as possible.[6]

Built Infrastructure, Goal 3, Strategy 1 Actions	Leading organizations				
	CRD	BC	BCH	SSFD	TSS
1. Accelerate phase-out of all fossil fuel heating systems and replace with heat pumps or other renewably fueled systems through code change		■			
2. Provide incentives for conversions over and above those currently available	■		■		
3. Promote replacement of inefficient wood stoves/heating systems with high-efficiency models, and use of only very dry firewood				■	
4. Track emissions from wood heating and provide community resources on cleaner-burning heating solutions					■
5. Apply to expand the Province of BC's wood stove incentive program to include Salt Spring Island	■				

Strategy 2: Promote resilience and energy efficiency in built infrastructure

Making our buildings more resilient and efficient is an easy fix through additional retrofit and new construction incentives, energy efficiency-supportive permitting policies, and better waste management practices and infrastructure.

Under the Province's CleanBC Better Homes program, incentives for home energy audits and installation of heat pumps and insulation are available.

Built Infrastructure, Goal 3, Strategy 2 Actions	Leading organizations						
	CRD	BC	IT	POD	CS	WMS	TSS
1. Promote existing EnerGuide home energy audits and upgrades with additional incentives	■			■			
2. Incentivize and require full life-cycle analysis and embodied energy analysis in new construction design, including for mechanical and heating systems	■	■					
3. Reduce transportation and other emissions from waste disposal through improvements to on-island infrastructure such as sludge dewatering, lumber waste chipping, and construction waste reduction strategies, and by providing zoned land for appropriately sized recycling operations for additional materials such as metal, wood, and chipping/composting	■				■	■	
4. Create a new Development Permit Area to require energy conservation and GHG emission reduction features in new development			■				
5. Loan smart-phone-compatible thermal cameras along with easy-to-follow community training to teach homeowners where thermal efficiency could be improved	■						
6. Gather and publicize data on emissions from construction, direct and indirect							■

6 This link leads to a short EPA video on testing for moisture in firewood: https://www.youtube.com/watch?v=jM2WGgRcnmo.

Goal 4: Build Salt Spring's emergency response capacity

As climate risks increase, Salt Spring Island's emergency and essential service providers must prepare resilience plans to ensure continuity. Essential services include the hospital, pharmacies, water suppliers, grocery stores, transportation businesses, fuel retailers, utilities, radio and communications providers, local government, neighbourhood 'PODs' – Salt Spring Island's neighbourhood-based emergency preparedness network – and all emergency service providers. Ganges Village requires its own strategy due to the number of services provided within the area and its vulnerability to climate-related risks such as undermining of soil stability and foundations from increasing storm surges and heavy rain run-off.

Strategy 1: Require climate resilience plans for essential service providers

Emergency preparedness is one thing, but long-term plans that include climate risks will be essential for our island's critical services. Organizations will require encouragement and support.

Built Infrastructure, Goal 4, Strategy 1 Actions	Leading organizations			
	CRD	SSES	SSFD	COC
1. Inventory all essential service providers and contacts on Salt Spring				
2. Develop guidelines for asset management and disaster recovery plans to include climate resilience				
3. Provide assistance to emergency service providers and non-financial guidance to businesses for the development or appropriate revision of resilience plans				
4. Promote implementation of resilience plans through recognition and/or certification or licensing requirements				

View along the southern shores of Fulford Harbour in land known by the SṮÁUTW̱ First Nation as W̱ENÁ,NEĆ, which in the SENĆOŦEN language means "facing Saanich." © BRYAN YOUNG

Strategy 2: Increase resident capacity to respond to emergencies

There is currently an application before the CRTC to reactivate the radio station on Salt Spring Island. Not only would this be a great piece of community infrastructure, it would also be indispensable for getting out information in emergencies, especially when combined with strengthened volunteer-supported ham and GMRS radio networks and neighbourhood-based emergency preparedness groups known as 'PODs' across the island. PODs are mapped across the whole island, but there are differences in POD capacity. Some neighbourhoods have not self-organized, while others are models. Additional funding is critical to ensure that Salt Spring residents have more capacity to care for one another in the kinds of emergencies that will occur as fires and storms increase, thereby taking critical pressure off first responders in times of high demand.

Built Infrastructure, Goal 4, Strategy 2 Actions	Leading organizations				
	CRD	BC	SSES	RESIDENTS	CRTC
1. Support the development of a local radio station capability for Salt Spring and the Southern Gulf Islands. This will assist in maintaining community communications and resilience during emergencies.	■	■		■	■
2. Provide adequate support to enhance the existing volunteer-run ham and GMRS radio infrastructure with all-island coverage and emergency email capacity	■		■	■	
3. Strengthen POD capacity island-wide with promotion, workshops, and additional funding for island-wide POD coordination and develop PODs in areas not currently served	■		■		
4. Encourage residents, businesses and institutions to prepare for increased forest fire smoke by installing indoor air cleaners and keeping HEPA filter masks on hand			■		

Strategy 3: Addressing inundation risks for built infrastructure in Ganges

Ganges in particular faces several climate risks related to freshwater and saltwater inundation. Cross-agency, government, and business collaboration is required to make the right choices to make our village centre resilient. See also the Land Use section for related actions.

Built Infrastructure, Goal 4, Strategy 3 Actions	Leading organizations			
	CRD	BC	IT	COC
1. Drawing from CRD's new sea level rise maps and other resources, assess flooding, inundation, and subsidence risks for specific buildings and infrastructure in high risk areas. Prioritize evaluation of fill stability supporting lower Ganges built infrastructure	■	■	■	■
2. Assess mitigation and adaptation options and develop plans for upgrades or relocation based on prioritized need	■	■	■	■

Goal 5: Increase energy security and build infrastructure resilience

A major forest fire would cause severe damage to homes, buildings, and other infrastructure, while emitting huge amounts of carbon dioxide. See the Forests and the Freshwater Ecosystems sections for additional goals and strategies for fire prevention.

Strategy 1: Remove barriers to and develop distributed renewable energy generation

Encouraging on-island renewable generation with battery back-up increases power supply resilience during outages, which are likely to increase due to more frequent severe weather events, as we have seen in recent years. It also keeps more money in our local economy by lowering energy costs for islanders, and employing on-island service providers. Local renewable generation cuts GHG emissions from fossil-fuel driven generators, off-island thermal generation facilities owned by BC Hydro, or power imported during peak periods from coal-fired power plants.

Built Infrastructure, Goal 5, Strategy 1 Actions	Leading organizations			
	BC	BCH	SSCE	OWNERS
1. Review current BC Hydro grid resilience and propose improvements		■	■	
2. Work with BCUC to direct BC Hydro to permit virtual net metering	■	■	■	
3. Examine the feasibility of renewable energy-based mini-grids and vehicle-to-grid technologies		■	■	
4. Increase support for on-island energy generation from solar and wind			■	
5. Promote benefits of renewable installations to homes and businesses			■	■

Strategy 2: Reduce risk to the transportation network from forest fire

This strategy is an example of how climate action needs a coordinated response. These actions require coordination across multiple organizations, and as such also appear in the Transportation section.

Built Infrastructure, Goal 5, Strategy 2 Actions	Leading organizations						
	MOTI	CRD	SAR	SSFD	BCAS	IP	CG
1. Map and assess vulnerable areas for access and escape routes; upgrade or construct access/egress roads and trails	■	■	■	■	■		
2. Create or identify and formalize emergency landing pads and sites for access by air and water (e.g., Ruckle Park)	■	■	■				■
3. Widen roads and create side paths for bike and pedestrian use in emergency	■					■	
4. Manage vegetation on road rights-of-way to reduce risk through mowing and planting; use native fire-resistant species	■						

Strategy 3: Develop SSI-adapted FireSmart for residential and commercial use

For similar strategies and actions, see also the Transportation chapter.

Built Infrastructure, Goal 5, Strategy 3 Actions	Leading organizations		
	SSFD	IT	CRD
1. Develop SSI FireSmart practices relevant to the island's ecological context, needs, and constraints to include healthy forests and tree cover, and also to include Indigenous forest management practices	■	■	■
2. Promote and incentivize SSI FireSmart practices for property owners, ideally through neighbourhood-based groups such as PODs. Seek assistance from insurance industry representatives.	■	■	■

Goal 6: Develop a more integrated waste management system

Dealing with waste produced on-island is a challenge. From septage to food waste, most is still trucked off-island and dumped in landfills. The by-products of waste are potentially useful, and we need to find alternative ways of managing the issue. For wood and construction waste, see Goal 1.

Strategy 1: Manage organic wastes as a valuable island resource

Fertile soil and compost are scarce resources on this island. Food, agricultural waste, and composted septage can be much better exploited and become a bigger part of an increasing supply. Septage is currently trucked off-island to a facility in Langford, increasing emissions, displacing vehicular traffic on the ferries, and needlessly adding to costs for residents and taxpayers.

Built Infrastructure, Goal 6, Strategy 1 Actions	Leading organizations			
	CRD	FLT	CS	NSSW
1. Establish on-island composting facilities for waste woody debris, agricultural and food waste	■	■	■	
2. Dewater collected septage from potable water treatment plants	■			■
3. Research alternative uses for residue from water treatment plants				■
4. Dewater septage from septic tank pump-outs and sewage plants	■			
5. Prepare policy alternatives for on-island use of septage residues	■			
6. Change CRD regulations to permit land-based application of treated sewage	■			

Strategy 2: Put woody waste to use for chips or as a composted soil amendment

Residents, MoTI, BC Hydro, and Shaw generate significant volumes of branches and fallen trees on private properties and rights-of-way. Some debris is not suitable for firewood and so is burned in open fires, emitting carbon dioxide and pollutants, or chipped and dumped in landfill. This material has potential to be used by growers or residents as mulch or for pathways, or can be composted centrally to become a fertile soil amendment. See also Goal 1, Strategy 1 above.

Built Infrastructure, Goal 6, Strategy 2 Actions	Leading orgs	
	CRD	TSS
1. Build sufficient wood chipping capacity and promote to residents	■	■
2. Recycle construction and demolition waste	■	
3. Research and promote alternatives to burn-piles		■

Strategy 3: Recycling

The recent Climate Action Plan public engagement survey yielded several significant proposed actions from islanders. Among the suggestions were several regarding recycling and waste handling which are included below.

Built Infrastructure, Goal 6, Strategy 3 Actions	Leading organizations		
	CRD	CS	TSS
1. Expand recycling facilities to include commercial waste	■	■	
2. Establish metal and wood recycling centres	■	■	■
3. Verify and audit recycling processes, particularly for plastics, and inform the public of results	■		■

By meeting the above goals we can lower emissions from our buildings and infrastructure, ensure more resilient water and power supplies, reduce energy bills, and provide greater capacity for the recycling and treatment of waste. At the same time, the building and modification of low-emissions climate-adaptive built infrastructure will continue to be a major source of employment and allow us to increase on-island skills and capacity to deal with the challenges ahead.

Burgoyne Harvest Farm.
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6. CLIMATE ACTION PLAN FOR FOOD & AGRICULTURE[7]

We eat every day. Food is a necessity of life and directly connects humanity with the biosphere. Food choices made collectively and individually have a large impact on the environment and on climate change. How we grow, process, and distribute food has significant social justice implications globally and locally, with respect to farm workers' rights and people's access to healthy food.

The latest IPCC report estimates that 21-37% of total global GHG emissions come from the food system (Mbow, 2019). This includes emissions of all GHGs from land-clearing and agriculture production, as well as the storage, transport, processing, retail, and consumption of food. The context for these massive and arguably unnecessary emissions is a global industrial food system that has little motivation to make environmental improvements. There is much evidence to show that improved food and agriculture systems can reduce global GHG emissions and remove CO_2 from the atmosphere. Systemic change in the global food system – equivalent to the shift from fossil fuels to renewable energy – may be needed to achieve significant GHG reductions and large-scale carbon drawdown.

> Regenerative Agriculture is a system of farming principles and practices that increases biodiversity, enriches soils, improves watersheds, and stores carbon in soil and in plants. At the same time, it offers the potential for increased yields, resilience to climate instability, and higher health and vitality for farming and ranching communities.
>
> – Adapted from regenerativeagriculturedefinition.com

Local and regional food systems have advantages over the global industrial model for food security and climate change mitigation and adaptation. Regional food systems are supported by current BC Ministry of Agriculture

7 This section was drafted in collaboration with the SSI Agricultural Alliance and aligns with the goals identified in the 2020 update of the Salt Spring Area Farm Plan (Upland Agricultural Consulting, 2020).

policies and programs aimed at establishing a more resilient BC food system (BC Agriculture, 2020). A recent example is the $1M investment in a 'food hub' facility in Esquimalt (BC Social Development and Poverty Reduction, 2020). Salt Spring Island's food and agriculture sector is well-recognized and could become an important hub in a regional food system.

Agricultural GHG emissions from the global industrial food system, including Canada, differ from other sectors in that direct emissions from fossil fuel combustion comprise a relatively small proportion of these emissions. Larger sources of agricultural GHG emissions include methane from livestock and manure (~35%), nitrous oxide from microbial transformations of nitrogen in soils fertilized with soluble nitrogen fertilizers or manures (~35%), methane and other GHG emissions from manure storage and composting (8%), and CO_2 from biomass burning and other sources (12%) (Smith, 2007). The Canadian National Farmers Union recommends that efforts to reduce GHGs in agriculture should focus on three sources that account for 70% of total Canadian agricultural emissions: livestock production (30%), agricultural soils (29%), and fossil fuel use (11%) (Qualman, 2019).

Crop and livestock production systems can also draw CO_2 out of the atmosphere, storing it permanently in the soil. This positive aspect of food production has been lost under the global industrial model, which depletes soil carbon year after year. Efforts to reverse this trend using methods such as no-till systems (reliant on herbicide use) only store carbon for the short term. Alternatively, there are many examples of organic and regenerative agricultural practices that do result in carbon drawdown and stable long-term soil carbon storage. These practices include permaculture methods, use of rotational and 'bunched' grazing and permanent pasture, and small-scale intensive management systems that do not fit the global industrial model. Estimates of climate mitigation through regenerative farming vary, but it may be capable of cutting agricultural emissions in half (Schonbeck, Jenkins, & Snyder, 2018). Such practices are also adaptive, making agriculture more resilient to climate change by improving soil health and water catchment, increasing biodiversity on farms, and protecting associated ecosystems.

The type of small- and medium-scale agriculture practiced in our region and on Salt Spring in particular fits the regenerative model and presents many opportunities to grow the local and regional food system while reducing our carbon footprint from food.

Approximately one third to one half of food-related global GHG emissions come from the agricultural production stage. In the post-production stage, a large proportion of emissions come from fossil fuels for transport and from refrigerant gases to keep food cool or frozen (FarmFolk CityFolk Society, 2019). Food loss and waste are also significant, estimated globally to contribute 8-10% of post-production GHG emissions (Mbow, 2019).

A shift to a more local and regional food system, supported by consumers choosing to purchase products produced closer to home, would help to reduce these emissions. Elimination of local food waste through diversion and composting is very feasible for a small rural community like Salt Spring.

Home gardens, community gardens, and wild food harvesting should be an integral part of a

future low-carbon local food system. Pollution and industrial overharvesting have destroyed the former bounty of the marine environment that local First Nations stewarded and relied on for millennia. Meanwhile, lack of harvesting of the native deer population has resulted in damage to forest ecosystems and hinders ecosystem restoration.

Climate change poses risks to the security of global and local food systems and to the economic viability of agriculture through increased crop losses. Such risks are already apparent and include unpredictable and more variable weather, more extreme periods of heat and cold, drought and high rainfall events, and stress on water supplies. The measures proposed here are intended to reduce these risks, reduce GHG emissions related to our food, increase local food security, and provide other economic and social benefits.

Achievements

Salt Spring Island was one of the first communities in Canada to include GHG emissions from the food sector in its energy and emissions reduction plans (Earth Festival Society, 2005). In 2011 over 90% of the food consumed by islanders was grown elsewhere, and CAP 1.0 focused on the promotion of consumer choices – eating less processed food, more organic and vegetarian food, and more local and regional food. Many proposed actions required a significant expansion of local food production capacity, building on the 2008 Salt Spring Island Area Farm Plan, which also focused on expanding local food production. There have since been several important achievements that support climate action. These include:

- Opening of the Salt Spring Abattoir in 2012 (Salt Spring Abattoir, 2020)
- Construction of The Root local food storage and processing facility which has good potential for the delivery of services outlined in this plan (Salt Spring Island Farmland Trust, 2020)
- Establishment of a community-based farmland trust that has increased the amount of farmland in food production and long-term tenure for new entrant farmers (Salt Spring Island Farmland Trust, 2020)
- Expansion of weekly farmers' markets
- Establishment of two allotment gardens for home gardeners, a Community Services garden, and food gardens at all local schools

Salt Spring's local food and agriculture sector is in some respects a regional leader. CAP 2.0 aims to build on these achievements to lower our island's GHG emissions and increase resilience to climate change.

Priorities

The overall focus is to support a shift away from reliance on the global industrial food system responsible for the majority of food-related GHG emissions and to instead support the development of Salt Spring's food and agricultural sector as an important hub in a regionally-based low-carbon food system. A robust local food system that is part of a regional food system increases local food security, reduces GHG emissions, and may provide a number of other environmental and social benefits. Agricultural infrastructure and economic viability for local farmers are prerequisites. The priorities described below are intended to support this shift.

- Build support for a local and regional low-carbon food system
- Increase local food production and resilience to climate change
- Build knowledge about home gardening, regenerative agricultural practices, and sustainable wild harvesting

Goal 1: Build support for a low-carbon local and regional food system

A low-carbon food system, by definition, uses less fossil fuel and releases less methane and nitrous oxide than the current global food system. A low-carbon food system also removes CO_2 from the atmosphere and stores it in the soil. The barriers preventing the global food system from becoming low-carbon are structural, and they are large.

In practical terms, a low-carbon food system for Salt Spring includes more production of and reliance on local and regional food; the adoption of energy-efficient and electric equipment for food preparation, processing, cooking, food delivery, and farm operations (as it becomes available); support for farmers using regenerative farming practices; and an expansion of home and allotment gardens and wild harvesting. This type of food system is likely to be less subject to supply disruptions and more resilient to climate change than the current global model. It also has benefits for the local economy, for human and ecosystem health, for animal welfare, and for social justice.

> “Local and regional food purchased in season is the best climate choice, and it also tastes better

Strategy 1: Build knowledge and support for dietary choices that lower GHG emissions

On Salt Spring the estimated indirect GHG emissions from food are larger than the direct GHG emissions from transportation (Appendix 4, Table 1). We have a huge opportunity to support the environment and our health through our daily food choices. To make appropriate food choices, it is necessary to understand in broad terms the sources of GHG emissions in the food system and on the grocery store shelves, as outlined in Appendix 5. The importance of food choices in reducing emissions is also recognized in the Planetary Health Diet, which advocates for a fundamental shift to healthy diets within planetary boundaries (EAT, 2019).

Our region has growing conditions suitable for many different crops in addition to what is commonly grown and raised here, including staples such as grains, potatoes, and pulses, as well as nuts, tree fruit, and meat and dairy (BC Agriculture & Food Climate Action Initiative, 2013). Food produced and processed locally and regionally will generally have fewer associated GHG emissions than food grown and processed in distant locations, but there are exceptions. For example, BC tomatoes produced out of season in greenhouses heated with fossil fuels will have a higher carbon footprint than tomatoes produced further south without supplementary heat. Imported bananas and citrus fruit have very low carbon footprints and are also good choices (See Appendix 5, Figure 3). Local and regional food purchased in season is the best climate choice, and it also tastes better.

It is not necessary to completely eliminate animal protein from the diet to reduce GHG emissions from food. While beef and dairy products from large industrial operations have a much higher GHG impact than vegetable protein and should be avoided, this is not so true of local and regional meat and dairy produced on farms using regenerative practices. Animal protein from wild fish has a carbon footprint per kilogram less than half that of

palm oil, a major ingredient of processed food from the global food system. Highly processed and frozen food from the global food system should be avoided where possible to reduce post-production GHG emissions. Also to be avoided are any foods shipped by air which is far more carbon intensive than buying local food in season.

To gain wide support, a local and regional food system must be affordable and widely available. The BC Ministry of Agriculture's 'Grow BC', 'Feed BC', and 'Buy BC' programs aim to increase provincial food system resilience. For example, 'Feed BC' replaces standard hospital food with regionally grown and locally prepared ingredients (BC Agriculture, 2019). This program, funded jointly with the Ministry of Health, is also expected to improve the hospital experience and health outcomes for patients.

As farms gear up to produce more food for institutional buyers and food distributors adapt, retail availability should also increase. On Salt Spring, Community Services Society (CSS) administers the farmers' market coupon program for lower income families (Salt Spring Island Community Services, 2020). CSS also has a large plot at the Burgoyne Valley Community Farm which grew 40,000 kilograms of fresh produce on a quarter acre in 2019. This food was distributed through CSS's many programs to vulnerable people in our community (Salt Spring Island Community Services, 2020).

Food & Agriculture Goal 1, Strategy 1 Actions	Leading organizations						
	SD 64	AGALL	CS	BC	CRD	BUSINESS	TSS
1. Implement informal food labelling in local grocery stores for place of origin and production method		■				■	■
2. Provide information about the carbon footprints of different foods		■					■
3. Promote the 100-mile diet, the zero mile diet, eating in season, and environmental certifications		■					■
4. Promote and support initiatives to provide more access to local food for lower-income groups			■	■	■	■	■
5. Encourage local institutions and restaurants to purchase more local and regional food for their meal programs		■		■			■
6. Work to develop a school meal program in School District #64 that uses primarily local food	■	■		■			■
7. Encourage food distributors to carry local and regional food		■		■		■	■
8. Support and participate in provincial and regional initiatives to strengthen regional food systems including CRFAIR and food system initiatives in Cowichan and the Outer Gulf Islands		■	■	■			■
9. Support Grow BC, Feed BC, Buy BC, and other provincial initiatives that assist regional food systems	■	■	■	■	■	■	■
10. Support and learn from La Via Campesina and other international organizations developing socially just and low-carbon food systems (Campesina, 2020)		■					■

Strategy 2: Support and expand existing local food infrastructure

Salt Spring's existing local food infrastructure includes 'soft' infrastructure such as the many farm and garden organizations and their programs and events, Community Services Society food programs and the farmers' market coupon program, the School District's Culinary Arts program at GISS, and online and other direct marketing initiatives such as Community Supported Agriculture box programs. 'Hard' infrastructure includes privately-owned

food processing and agricultural infrastructure and community facilities such as the Farmers' Institute, the Salt Spring Abattoir, the Burgoyne Valley Community Farm, The Root, the Tuesday and Saturday markets, allotment gardens, and the school gardens (every school on Salt Spring has an instructional food garden).

Existing infrastructure is the foundation for an expanded local and regional food system and should not be taken for granted. Community-owned facilities and programs are largely reliant on volunteers, grants, and donations. Farming is not an attractive economic proposition given the cost of land. Fresh and processed local food must compete with low-priced items shipped here from around the world. Community goodwill, and in some cases physical and financial support, is critical to maintaining and expanding local food and farming infrastructure to support future growth. Actions below relating to agricultural infrastructure reflect the AFP (Area Farm Plan) recommendations and are repeated here for emphasis (Upland Agricultural Consulting, 2020).

Food & Agriculture Goal 1, Strategy 2 Actions	Leading organizations					
	FLT	AGALL	TSS	BC	CRD	IT
1. Support the SSI Agricultural Alliance in implementing the 2020 Area Farm Plan	■		■	■		
2. Recognize through allocation of resources and funding the importance of a local and regional food supply	■	■	■	■		
3. Support the SSI Farmland Trust in completing and operating The Root facility, the SS Abattoir Society in the continuing operation of the Community Abattoir, and the SSI Farmers' Institute in the maintenance of their facilities for agricultural purposes	■	■	■	■		
4. Support the continuation and expansion of Community Services Society and School District 64 food and garden programs			■	■		
5. Greatly increase the number and location of allotment gardens to make garden plots available in local neighbourhoods for all residents who wish to grow food	■	■	■		■	
6. Support the expansion of farmers' markets, food retail outlets specializing in local food, local food delivery services, and online local food sales		■	■	■	■	
7. Support farmers to increase low-carbon production by providing more access to low-interest community financing and by reducing barriers to farmworker housing and composting		■		■	■	■
8. Expand land-matching programs to provide new farmers with access to land through secure long-term leases	■					
9. Develop supply systems to facilitate more retail, commercial, and institutional use of local food	■	■				
10. Encourage residents to volunteer with farm and garden organizations, contributing experience, skills, and labour as needed	■	■	■			

Strategy 3: Reduce food waste and increase on-island nutrient recycling

Food loss and waste contribute 8-10% of post-production global GHG emissions (Mbow, 2019). The Food and Agriculture Organization of the United Nations (FAO) reports that all lost and wasted food around the world is estimated to be as high as one-third of all available food – approximately 1.3 billion tonnes – annually (Food and Agriculture Organization of the United Nations, 2019). Wasted food represents GHG emissions invested in food production, transport, waste transport, and decomposition. Wasted food also represents loss of energy and nutrients that could have fed humans, livestock, and crops. Food that is still safe to eat but

not considered marketable by retailers can be used for soups, juices, and cooked meals. On Salt Spring, Second Harvest makes such uses of non-marketable food (Salt Spring Island Community Services, 2020). Some produce unfit for human consumption is diverted to local farms and fed to livestock. Some restaurant waste is composted by farmers. Many home gardeners compost their kitchen scraps. But much food waste is shipped off-island because there is no organized system for composting food waste on Salt Spring.

Closing the nutrient cycle and increasing soil fertility and soil carbon storage entail the composting of human waste. Composting toilets are permitted under provincial and regional regulations. Human urine contains the major macro and micro plant nutrients. A family produces in one year the equivalent of a bag of GHG intensive commercial NPK fertilizer. On Salt Spring, biosolids from the sewage treatment plants and septic system waste are shipped off-island. Other communities of similar size in BC, including the resort community of Sun Peaks, successfully compost their biosolids and create Class A compost (Environment Canada, 2013).

A community composting facility to process food and food processing waste and wood chips is an immediate and high priority objective. A longer-term objective is to compost biosolids from the CRD Burgoyne Bay facility.

Food & Agriculture Goal 1, Strategy 3 Actions	Leading organizations				
	FLT	TSS	AGALL	IT	CRD
1. Address barriers that have stalled the proposed central composting facility at Burgoyne Valley Community Farm.	■		■	■	■
2. Plan for and fund food waste reduction initiatives including on-island composting					■
3. Plan for and fund on-island composting of biosolids and address CRD barriers that restrict the use of Class A compost from biosolids					■
4. Reinstate compost education programs, demonstrations, and incentives	■	■	■		■
5. Provide information about composting toilets and safe home use of urine and composted human waste		■			

Strategy 4: Reduce fossil fuel use and increase energy-efficiency in the food system

Fossil fuels are used to produce synthetic fertilizers, manufacture and operate farm machinery, transport farm inputs and outputs, dry grain crops, and heat greenhouses. In the post-production stage, a large proportion of emissions come from fossil fuels for transport and from refrigerant gases to keep food cool or frozen (FarmFolk CityFolk Society, 2019).

Many Salt Spring growers follow organic practices and do not use synthetic fertilizers. Salt Spring farms are not highly mechanized and rely significantly on manual labour. Natural gas is not available.

Salt Spring is a leader in electric vehicle use. Capitalizing on these advantages includes shifting to electric pickup trucks, delivery vans, and farm machinery as they become available, encouraging the use of organic regenerative growing practices and on-island nutrient recycling, switching from propane to induction cooking in commercial and home kitchens, and using renewable energy and heat pump technology to supply hot water, power, and cooling where applicable.

Food & Agriculture Goal 1, Strategy 4 Actions	Leading organizations			
	TSS	TSSEC	AGALL	CRD
1. Support the use of electric pickup trucks, delivery vehicles, and farm equipment by providing information and access to low-interest community financing and leasing options	■	■		
2. Support a switch from gas cooking appliances to induction cookers for food processors, commercial kitchens and institutions, and home kitchens	■		■	
3. Support advanced refrigeration techniques including use of refrigerants with reduced Global Warming Potential and enhanced maintenance protocols	■			■
4. Inform farmers and food processors of heat recovery systems, heat pump technology, and renewable energy options including solar hot water for processing and seasonal heat storage, and solar electric systems for net metering and remote applications	■			

Goal 2: Increase food production and resilience to climate change

Modelling, some of which is included in this Plan, suggests that on Salt Spring Island climate change will bring about an increase in temperature and in Growing Degree Days (GDDs), a decrease in summer rains that will be somewhat offset by an increase in winter rains (due to more frequent extreme storms), and a decrease in the days with frost (FarmFolk CityFolk Society, 2019). Potential impacts to agriculture on Salt Spring from these changing conditions include (Upland Agricultural Consulting, 2020):

- Decreased productivity and quality of crops and livestock under water stress during summer
- Interruptions to planting schedules, increases in nutrient and input leaching
- Increases in excessive moisture and site-specific flood risks in the winter
- Increases in winter survival rates of pests

A resilient agricultural system is one that is able to handle the increased climate volatility and the expected disruptions without losing the ability to produce food. Practices within a resilient system may include planting more diverse crops, integrating livestock and crop production, shifting to varieties that tolerate variable weather, and installing back-up water and power supply systems. A recently published report from the BC Agriculture & Food Climate Action Initiative outlines impacts and adaptation strategies for Vancouver Island and the Gulf Islands (BC Agriculture & Food Climate Action Initiative, 2020).

Increasing food production on Salt Spring is a challenging proposition for many reasons including land access, housing for farmers and workers, lack of supportive infrastructure, and economic viability. These are discussed in the 2020 Salt Spring Island Area Farm Plan and are not repeated here. The strategies outlined below specifically relate to adapting production methods to the changing climate and reducing GHG emissions.

Strategy 1: Improve water management for farms and gardens

Protect the supply of groundwater and surface water, improve irrigation efficiency, manage run-off and flood risk, and increase on-farm water storage to sustain crops and livestock in drought conditions.

Food & Agriculture Goal 2, Strategy 1 Actions	Leading organizations				
	AGALL	FLT	CRD	IT	WPA
1. Increase water supply through practices that slow, sink, and store water on the land	■	■			
2. Remove barriers to the use of greywater	■	■	■		■
3. Promote drip rather than overhead irrigation	■	■			■
4. Increase water retention in aquifers by enhancing protection of riparian zones and wetlands	■			■	■
5. Support producers with information and incentives about best practices and new technologies for water management	■				■

Strategy 2: Build farming system resilience

Increase resilience through crop and seed selection; through increased ecosystem, crop, and economic diversity; by improving soil health; by increasing processing and storage capacity; and by installing back-up power and, where feasible, distributed renewable energy supply.

Food & Agriculture Goal 2, Strategy 2 Actions	Leading organizations				
	AGALL	FLT	TSS	BC	CRD
1. Inform growers of the most productive crops and varieties adapted to increasingly variable climate conditions	■			■	
2. Promote and encourage on-farm research for new crop production opportunities made possible by a changing climate	■	■		■	
3. Promote the expansion of the supply of locally adapted seed	■	■	■		
4. Promote diversity of crops, livestock, and farm ecosystems to increase resilience and diversify farm income	■	■			
5. Promote installation of back-up systems for power and water to reduce risks from extreme weather	■		■		■
6. Provide incentives for conversion to distributed renewable energy sources (solar, wind, hydro, methane)	■		■		■

Strategy 3: Restore ecosystems and increase plant diversity in and around cultivated areas

Healthy, diverse ecosystems on and around agricultural lands provide many climate adaptation benefits and essential ecosystem services such as water retention, pollination, and soil protection. Ecosystem services improve farm resilience and increase crop productivity. Climate adaptation benefits of ecosystem restoration are described in more detail in other chapters of this Plan.

Research and experience with integrated approaches demonstrate how regenerative agricultural practices and biological conservation are mutually supportive (Banks, 2004).

Food & Agriculture Goal 2, Strategy 3 Actions	Leading organizations					
	FLT	SSIC	AGALL	BC	CRD	IT
1. Promote plantings of native trees and shrubs in agricultural lands	■	■	■	■	■	■
2. Promote restoration and expansion of areas for pollinator forage and wildlife habitat	■	■	■	■	■	■
3. Provide incentives to maintain mature stands of trees in the ALR as an alternative to clear-cutting for agricultural production			■	■		■
4. Establish financial support for farmers for actions to support ecosystem services for climate change mitigation and adaptation			■	■		

Goal 3: Build knowledge of gardening, regenerative agriculture, and sustainable wild harvesting

Strategy 1: Increase knowledge of regenerative agriculture practices

Regenerative organic agriculture practices can help mitigate climate change by building soil carbon and reducing GHG emissions through soil, pasture, and land management. Project Drawdown ranks Conservation Agriculture and Managed Grazing as numbers 16 and 19 respectively in the top 80 solutions to reverse global warming (Hawken, 2017). These practices are also adaptive, because they make agriculture more resilient to climate change by improving soil health and increasing moisture and nutrient retention capacity. Support for regenerative agriculture practices requires local research, development, demonstration, and adoption of sustainable soil-building practices.

Local training, demonstration, and communication services to growers will support adoption of regenerative agriculture practices and improve resilience to climate change. Extension services are typically offered to growers through post-secondary institutions to help build agricultural capacity in a region.

Food & Agriculture Goal 3, Strategy 1 Actions	Leading organizations		
	AGALL	BC	FLT
1. Discuss development of extension services with potential local delivery partners	■	■	■
2. Seek funding for an agricultural extension coordinator to implement training, research, and communication	■		■
3. Advocate for subsidized extension services for growers	■		■
4. Provide learning opportunities for growers of all scales	■	■	■

Strategy 2: Promote methods to hold and increase carbon in the soil

Promote to farmers and gardeners through extension services, demonstrations, webinars, workshops, and other means, ways to manage crops and livestock to enhance sequestration of carbon and reduce negative environmental impacts of agricultural activities.

Food & Agriculture Goal 3, Strategy 2 Actions	Leading organizations		
	AGALL	TSS	FLT
1. Promote adoption of farming methods that build soil carbon, including: cover cropping and mulching, planting deep-rooted and perennial crops, organic reduced till and no-till methods, pasture management systems such as rotational grazing and deep-rooted forage crops, food forests, permaculture techniques	■		■
2. Promote organic gardening methods that improve soil health to existing and new gardeners	■	■	■

Strategy 3: Support low-carbon food education for all ages

Food education in a climate crisis includes providing information about the carbon footprint of different foods to encourage climate friendly choices. See Goal 1, Strategy 1.

School gardens and gardening have been shown to have many benefits, including food education. They improve mental, physical, and emotional health, improve focus, patience, and teamwork, and also encourage students to make healthier food choices. We are fortunate that Salt Spring schools have gardens supported by passionate teachers and parent volunteers and that there are opportunities for increasing linkages with the school curriculum. Farm-to-school programs include activities that relate to food procurement for school meal programs and increase student knowledge about food. The BC farm-to-school movement helps increase food sovereignty, thereby strengthening local food production systems, and improving food access. On Salt Spring, the Farmland Trust is planning a food literacy program at The Root.

Food & Agriculture Goal 3, Strategy 3 Actions	Leading organizations				
	FLT	AGALL	SD 64	BC	CRD
1. Support and enhance existing school gardens by providing grants, mentors, and other resources to teachers and parent volunteers		■	■	■	■
2. Develop a school meal program on SSI integrated with school gardens and food literacy	■		■	■	■
3. Provide financial support for a food literacy program at The Root	■			■	■

Strategy 4: Promote understanding of the role of wild harvesting in a local food system and the need for habitat protection

A robust local food system includes both wild and agriculturally produced food. Seafood is part of our diet, but until the COVID pandemic 87% of the fish and seafood harvested in BC waters was exported. Human activity has resulted in the overharvesting of many species (e.g., salmon, herring), negative fish farming impacts, the destruction of mushroom and native plant habitat, as well as an over-abundance

of deer which have destroyed much of our forest understorey.

The reduced availability of wild food is compounded by changes in climate which alter the range of wild species. We need to look for opportunities to learn about wild food and the importance of habitat protection and restoration. Wild foods can provide an increasing percentage of our local food supply if some of the former abundance of terrestrial and marine ecosystems is restored.

Food & Agriculture Goal 3, Strategy 4 Actions	Leading organizations		
	AGALL	FLT	CS
1. Consult with local groups working with Indigenous experts in the region to learn about traditional wild foods		■	
2. Connect with wild harvesters on Salt Spring and in the Cowichan Valley to learn about wild plants and their propagation, and integrate these techniques into regenerative agriculture practices	■	■	
3. Develop a food security plan that updates the 2006 SSI Food Security Plan, incorporates wild foods, and outlines a strategy for wild food supplies for the SSI community		■	■
4. Consult with the T. Buck Suzuki Environmental Foundation, especially its Pollution Prevention Program and the Thriving Coastal Communities Initiative (Bennett, 2019) to support regeneration of wild seafood		■	

Summary

Salt Spring Island is well positioned to become an important hub in a low-carbon regional food system with the attendant health, food security, social justice, and economic benefits and opportunities. No other sector has a larger GHG footprint, and no other sector provides individuals with daily opportunities to make a difference through their purchases.

Achieving the three food and agriculture goals described above requires that each of the involved agencies and organizations is adequately resourced to undertake the necessary work, including research, setting targets and tracking progress, providing information and education, advocating around policies and regulatory and funding barriers, marketing, and field projects. Individual growers may be willing to embrace these goals, and consumers may be willing to adapt their buying habits, but unless strong supports are in place, change is likely to be slow.

> “Salt Spring Island is well positioned to become an important hub in a low-carbon regional food system

ERIC WARD VIA UNSPLASH

7. CLIMATE ACTION PLAN FOR FORESTS

Salt Spring's forests are our greatest natural asset for the purposes of climate change mitigation and adaptation. They remove CO_2 from the air, store carbon, and play a vital role in the water cycle. The older the forest, the greater the storage. Even Salt Spring's second-growth forests sequester three to five times more carbon than new forests each year. Forest ecologists found that it took over 250 years for a new forest to capture the same amount of carbon that was lost when the original old-growth forest was logged (Harmon ME, 1990) (Turner DP, 2015).

Salt Spring has very few old-growth trees left, and the protection of our second- and third-growth forests is key to meeting Salt Spring's climate action objectives. These mature forest systems are also critical to our local water systems, and are central to the uptake and storage of water in our soils, aquifers, streams, and lakes. Mature trees also reduce fire risk, and are actively retained in plantations for the benefits they bring (Hessburg, 2016).

About 75% – 14,000 hectares – of our island is forested, and an average hectare may contain as much as 400 tonnes of carbon (Trofymow & MacKinnon, 1998).[8] Our forests, therefore, store around 5.6 million tonnes of carbon. Provided there is no net loss of forest or forest health, this storage increases every year as the trees grow. An average hectare of Salt Spring's second-growth forests can increase storage by as much as 4 tonnes of carbon per year, sequestering about 56,000 tonnes of carbon a year in total, equivalent to over 200,000 tonnes of CO_2 each year. Put another way, our forests offset about 16 tonnes of CO_2 per islander each year.

8 Forest carbon emissions were calculated using the provincial Vegetation Resources Inventory (VRI) and the eastern Vancouver Island chronosequence data (Blackwell and Trofymow, 1998) with ground truthing of three second growth forest plots with five forest carbon pools, which were then averaged. This provides the figure for an average hectare of Salt Spring second growth forest storing around 400 tonnes of carbon (around 1,500 tonnes of CO2e) in stems, bark, foliage, branches and soil/root/detrital carbon pools, while annually pulling around 4 tonnes of carbon per hectare (15 tonnes of CO2e) out of the atmosphere. Work was done by Briony Penn with input from Jim Pojar.

Preventing Emissions from Clearcutting Now

In 2019 a ten-hectare mature (90-year-old) Douglas-fir and western red cedar forest was clear cut on Salt Spring Island, resulting in the immediate release of 322 tonnes of carbon emissions/hectare through cutting, slash burning, decomposition, and processing. But that is not the full extent of the impacts from this small clear cut; for the next 13-17 years, rather than continuing to store carbon at a rate of 4 tonnes per hectare, each hectare will now emit from its decomposing below ground carbon pools. The total emissions from this clear cut will at the end of 15 years be around 4,000 tonnes of carbon or 15,000 tonnes CO2e (GHGs).

Meanwhile, islanders have started the work of restoring Douglas-fir and western red cedar forests and wetlands on Salt Spring at Xwaaqw'um (Burgoyne Bay). This site is comparable in soil and forest area to the 10-ha area that was cut. The restoration project requires about $15/square metre, even with volunteer labour. It will also be 15 years before any net carbon is sequestered, and another 60 years until the new forest is storing carbon at the rate of the mature forest that was cut in 2019. This equates to a restoration project costing $1.5 million dollars with a time lag of 105 years before these renewed forests can even make up for the loss of the 4,000 tonnes of carbon (15,000 CO2e) from 2019. Replanting will not solve the problem of reducing emissions and the loss of sinks in the short term–regulating clear-cut logging will.

Conversely, the destruction by fire or clear-cutting of just 10% of our forests would release about 2 million tonnes of CO_2e into the atmosphere. This represents the annual per capita emissions of close to 60,000 Canadians.[9] Our forests face four main threats:

- Climate change, causing increased summer droughts, heavier storm events, higher velocity winds, and increased insect predation and disease
- Clear-cut logging and land clearing for commercial and domestic purposes, which exacerbate the triggers listed above, including slash which creates significant fire risk. Areas of high fire risk are well known and documented in the fire risk zones on island (see fire risk map, Appendix 2).
- Fire risk during increasingly hot dry summers and an accumulation of slash and debris from poorly tended forests with deer-damaged understoreys and desiccated soils
- Compromised watersheds (reduced surface flow and storage) with reduced water table height, reduced water quality, and lower water availability for canopy and understorey vegetation as a result of reduced moisture during the summer and surface water runoff losses during heavy rainfall events in the autumn and winter.

Maintaining a healthy forest decreases our community's costs (e.g., destroyed built infrastructure, increased budgets for emergency services) associated with climate change while helping our endangered Coastal Douglas-fir (CDF) ecosystem to withstand the hotter summers and more severe weather events to come. Forest canopies and understorey vegetation provide shading that reduce the ground temperature and help preserve precious moisture in our soils. Many of our local species are fire resistant, protecting us from the spread of fire. Retaining and expanding healthy forest cover reduces its susceptibility to fire, wind, drought, flooding, and landslides. Healthy forests also have greater species diversity.

9 Between 1990 and 2018, the amount of GHGs emitted per person decreased 10% from 21.8 to 19.7 tonnes of carbon dioxide equivalent (CO2e) per person (Environment and Climate Change Canada, 2020).

Achievements

While much privately-owned forest is unprotected from clear-cut logging, Salt Spring has protected almost a third (3,950 hectares) of its forested land.

- Of 3,426 ha of protected areas on Salt Spring, 2,856 hectares, 20% of the total forested land on Salt Spring, is protected for conservation through public or private ownership (e.g., parks, nature reserves)[10]
- A further 343 hectares of privately-held forest is protected by private covenants
- 547 of the 737 hectares of forested Crown Land on Salt Spring are protected through provincial policy
- The Islands Trust Conservancy's Natural Area Protection Tax Exemption Program (NAPTEP) provides property tax exemptions to landowners who place protective covenants on title; twenty-five NAPTEP covenants protect over 330 ha on Salt Spring under this program; five property owners have placed covenants on property since 2011[11]
- Islanders have been passionate about protecting our forests, donating time and money to conservation organizations to successfully save forests now in public hands
- The successful example of ecological timber harvesting as an alternative to clearcutting at Seven Raven Farms
- Cultural and educational action and program activities led through the Xwaaq'um Project

These achievements, often hard-won, demonstrate that success is possible, but much more needs to be done to maintain and enhance our island forests.

Priorities

We can reduce forest fire risk, improve groundwater recharge, reduce cutting, and rehabilitate forested lands through increased land protection, better land-use planning, managing deer populations, replanting of windthrow stands (areas where trees have been blown down), reducing forest fragmentation, increasing biodiversity, extending and creating new protective buffers, and conserving farmland with marginal agricultural value to retain or re-establish forest cover.

The synergistic relationships between these actions are strong and demonstrate a key point in CAP 2.0: protecting our environment means increasing our resilience. For example, if we protect watersheds and enhance forest health, we enhance stream flows and groundwater recharge, leading to reduced fire risks. If we manage deer and the understorey returns, we get more nutrients and moisture for trees, leading to reduced vulnerability to fire and windfall. If we reduce deer, we also reduce the tick population, leading to reduced risks of Lyme and other tick-borne diseases.

10 From CAP 2.0 mapping project, includes land held by conservation organizations.

11 Islands Trust Conservancy, 2020. Full listing of protected places: http://www.islandstrustconservancy.ca/protected-places/places-protected-in-the-islands/full-list/#ss. Note: with updates prepared by Nicholas Courtier and Catherine Griffiths, based on recent data.

Key priorities for protecting and rebuilding our forests are:

- Ensuring that the Islands Trust and CRD are granted greater regulatory and enforcement powers over clear-cutting and tree-clearing on private land. This would mean amending the Islands Trust Act to include fundamental municipal powers[12]
- Addressing information gaps to understand how forests and watersheds are affected by changing weather and weather extremes
- Mapping, monitoring, and research to guide new and improved policies, programs, and practices aimed at understanding climate change impacts, protecting and rebuilding healthy forests to protect our communities,
- Enhancing our forests through the development and improvement of property tax (i.e., implementing a mainstream version of the Islands Trust Conservancy's Natural Area Protection Tax Exemption Program with reduced legal and administrative burdens), and other fiscal tools, and a strong Coastal Douglas-fir Development Permit Area (DPA) along with other DPAs
- Improving and enforcing regulations for tree-cutting/clear-cutting under existing or new DPAs (steep slopes, water protection, riparian areas, etc.) in non-compliance areas
- Protecting forest and ecosystems as habitat for wildlife, particularly noting the complex requirements of anadromous fish (i.e., salmonids)
- Implementing extensive forest area and forest buffer management, including ecosystem restoration and plantings, alongside training and information programs, decreased browsing by deer and rabbits through hunting, and removal of inappropriate or invasive species

Goal 1: Decrease forest loss

The first step to increasing carbon sequestration through forest growth is to decrease forest loss due to drought, fire, erosion, wind, insect predation, disease, and human removal. Healthy forests are key to helping the island community mitigate climate risks and protect the local economy. Forests circulate water through the air, soils, and groundwater aquifers and help protect against heat and drought conditions by shading streams and lakes.

Strategy 1: Protect existing forests and watersheds

The keys to protecting Island forests are:

- Ensuring that the Islands Trust and CRD have authority and capacity to regulate tree-cutting on private land
- Establishing capacity and resources in the SSI Conservancy to work with the Islands Trust and other organizations to develop island-wide strategy
- Rewarding landowners for protecting forest lands such as through payments with revenue derived from provincial carbon tax or easy-to-register-for tax incentives
- Promoting sustainable forestry practices and tree-thinning through incentives or other program initiatives
- Aggressively expanding forest protection through purchase and/or conservation covenants with a focus on watersheds

12 Amendment to Section 29 to include fundamental municipal powers as per Part 2 of the Community Charter, Division 1, S. 8(3)(c).

- Implementing an extensive education and outreach program to show landowners and their contractors how to manage forests in the context of climate change
- Encouraging islanders to switch to sustainable forms of space heating to take pressure off tree harvesting

The NAPTEP is a great start, but has high barriers to entry with only five new participants since 2011[13]. A cursory jurisdictional scan shows that other jurisdictions have much simpler processes that don't require covenants and high legal and other costs. We need a mass-market approach to forest protection that has an overwhelmingly strong value proposition for landowners to do the right thing.

Protection needs to prioritize retention of carbon sequestration areas such as unfragmented stands of trees, "mother trees," snags, large woody debris, nurse logs, ponds, wetlands, streams, seeps, fruit- and nut-bearing plants, and flowering plants for pollinators.

Forests, Goal 1, Strategy 1 Actions	Leading organizations							
	ITC	SSIC	TSS	BC	CRD	IT	FED	TSSEC
1. Convene an interdisciplinary team to develop incentive-focused policy options that could be used to encourage the preservation and restoration of forests on private and public lands (e.g., tax plan, conservation financing tools)	■	■	■		■	■		
2. Set an aggressive target to bring Salt Spring forests under full protection by 2030	■	■		■	■	■		
3. Lobby to strengthen existing tax incentives (Ecological Gifts Program and NAPTEP); develop a new property tax incentive or other programs that do not have high barriers to entry and are not administratively burdensome yet provide long-term protection of forested areas; promote these to landowners	■	■	■	■	■	■	■	■
4. Include carbon sequestration values in all incentive programs for forest landholders	■	■	■		■	■	■	
5. Establish CDF and other Development Permit Areas (DPAs) for ecological services and climate risks, including carbon sequestration and storage, and strengthen existing DPA criteria							■	
6. Monitor and enforce DPAs, bylaws, and other protection mechanisms, and implement the necessary changes to provincial legislation to do so	■			■		■		
7. Increase funding available to purchase, covenant, monitor, and manage land for ecosystem health, including carbon sequestration	■	■		■	■			
8. Establish and promote a voluntary carbon offset fund to protect local forests through land purchase and covenants	■	■	■		■			■
9. Provide funding to expand capacity within partner organizations	■			■	■	■	■	■
10. Discourage low-density subdivisions in forested areas by requiring clustered development				■		■		
11. Invest in new strategies to protect areas (e.g., land swaps, land purchases)		■		■		■		
12. Protect forest through compensation of property owners who would forego related tree-cutting revenues		■						

13 See https://novascotia.ca/nse/protectedareas/cpte.asp

Strategy 2: Increase knowledge of the forest base

We need to better understand the state of our forests as our world changes, and identify ways to increase their resilience to weather extremes. Mapping and other research strategies will help delineate risk patterns and predict where climate change will have impacts that we need to act upon. These resources will help guide our decisions around settlement patterns and policy when it comes to protecting ecosystems and communities from climate change impacts.

Forests, Goal 1, Strategy 2 Actions	Leading organizations							
	ITC	SSIC	TSS	BC	CRD	IT	SSFD	OWNER
1. Continue to research and map island ecosystems and ecosystem change (support work of existing researchers and agencies to cover entire island)	■	■	■					■
2. Map temperature, soil moisture, drought, precipitation, insect, and disease patterns using GIS	■		■	■	■	■		
3. Map old-growth trees and species corridors	■	■	■	■	■	■		
4. Monitor insect predation and disease	■	■	■	■	■	■		
5. Monitor soil moisture in drought-susceptible terrain	■	■	■	■	■	■		
6. Monitor and measure carbon sequestration and storage in various Salt Spring forest types							■	

JESSE DODDS VIA UNSPLASH

Strategy 3: Decrease forest loss due to fire, drought, wind, and torrential rain

Forest and brush fires must be prevented from turning into large-scale fires, because they quickly release decades of sequestered carbon into the atmosphere. Fire is also the single biggest climate risk Salt Springers face to their homes, infrastructure, and lives, not to mention the island economy.

Areas of high fire risk on Salt Spring are the result of historic logging practices and resulting accumulated slash and debris. Flammable invasives are quick to spread in cleared areas, creating conditions for fire spread. Native forests often fail to regenerate following forest clearing, and are replaced in drier areas by highly flammable invasive plants like broom and gorse. This is evident in cut areas beneath hydro lines on Salt Spring.

Forests, Goal 1, Strategy 3 Actions	Leading organizations										
	ITC	SSFD	TSS	SSIC	MOTI	CRD	IT	SSFD	BCH	OWNER	POD
1. Develop, fund, and implement a comprehensive, island-wide strategy for forest management to reduce forest fire risk	■				■	■		■		■	
2. Increase ground cover with drought-resistant native plants to retain moisture		■				■				■	
3. Protect areas of contiguous forest (with aim to reduce area of exposed edge)	■		■	■	■		■			■	
4. Plant or require planting of ecologically appropriate fire- and drought-resistant species to increase resilience around inhabited areas			■		■	■	■			■	
5. Identify appropriate plants below hydro lines and develop/resource a volunteer program to modify and maintain corridors as fire breaks		■	■		■	■		■			■
6. Replant or require replanting of wind-damaged areas to reduce fragmentation and vulnerability						■	■			■	
7. Decrease forest fragmentation and wind corridors through appropriate tree planting in high-risk areas						■				■	
8. Reduce erosion by replanting or requiring replanting of trees in exposed areas to retain soil; strengthen and enforce steep slope DPAs and other regulations to limit tree cutting on steep slopes					■	■	■				
9. Adapt and implement SSI FireSmart practices including the development of drought and fuel load measurement tools; incorporate increased fire risk into forest management plans or Development Permit Areas		■		■		■	■				
10. Regulate slash, leaf, refuse, and garden burning and replace with chipping and various composting alternatives (e.g., Hügelkultur beds, biochar, berms)		■				■				■	
11. Reduce fuel load in forests through selective thinning and pruning, facilitating natural decomposition (dead wet logs don't burn), controlled burns, and chipping where appropriate.		■	■			■				■	■
12. Develop fire risk maps and fire break corridors using roads and mandated private property	■	■	■			■	■			■	
13. Enhance forest biodiversity through ecosystems restoration, selection, and planting to increase fire resistance				■	■	■	■			■	
14. Increase water availability by building or requiring the building of ponds and water tank storage		■	■	■	■	■	■			■	
15. Remove invasive species, especially those with high flammability, in conjunction with replanting efforts				■	■	■				■	

Goal 2: Increase forest growth and resilience

With climate change comes a warmer, less predictable climate with more intense weather events. A healthy forest is cooler and moister, with extensive and complex root systems, and species communities that sequester carbon, release nutrients and oxygen, and hold water. Wetlands are key to water recharge for our groundwater systems, lakes, and streams, and contribute to carbon sequestration.

Strategy 1: Increase biodiversity

A biodiverse forest is more resilient to drought, insects, diseases, and fire, reducing impacts on water and water availability.

Forests, Goal 2, Strategy 1 Actions	Leading organizations					
	ITC	BC	CRD	IT	SSIC	OWNER
1. Develop biodiversity plans with landowners through an expanded and funded SSIC and partners program, with property tax incentives			■	■	■	■
2. Develop educational materials on land management (e.g., biodiversity plans, recommended adaptive plantings, land management, and planting techniques)	■		■	■	■	
3. In planting strategies anticipate northern migration of southern species due to climate change	■		■	■	■	■
4. Request that the Province limit deer and rabbit browsing through hunting, with local groups and organizations encouraging First Nations involvement, and discouraging feeding of deer	■	■	■		■	■
5. Protect and expand wetlands	■		■	■	■	■
6. Increase natural habitats and wildlife corridors through covenants, nature reserves, and parkland acquisition (may require inventory review)	■	■	■	■	■	■
7. Increase forest and woody buffer areas within and outside existing parks, reserves and covenant areas.	■	■	■	■	■	■
8. Control insect predation and invasive plant species through monitoring and spot control		■	■			
9. Remove diseased or dead trees only if they present a hazard to people, property, or the ecosystem	■		■			■

Strategy 2: Increase forest and woody buffer areas

Increased forest and woody buffer areas can be achieved through ecosystem restoration, planting trees on private land, and covenants and purchases by the CRD, Islands Trust Conservancy, and the Salt Spring Island Conservancy.[14]

Forests, Goal 2, Strategy 2 Actions	Leading organizations						
	ITC	BC	CRD	IT	SSIC	OWNER	GROWER
1. Significantly increase targets for purchases of significant forest and freshwater bearing parcels	■	■	■		■		
2. DPA for protection from forest fire hazards (LGA S.488(1)(b))	■	■	■	■	■		■
3. Identify and replant key areas to reduce fragmentation and increase connectedness of forest landscapes	■	■	■		■	■	
4. Develop island-wide tree and shrub planting program			■		■	■	
5. Plant unused agricultural and borderlands with shrubs, ground cover, and suitable tree species						■	■
6. Encourage appropriate tree planting on residential lots			■	■		■	
7. Increase soil moisture through ground cover, swales, ponds, and wetlands to promote tree growth	■		■		■	■	

14 ITC establishes targets through its Regional Conservation Plan, and has identified SSI as a priority island for outreach focus regarding priority lands identified through their RCP.

Summary

Salt Spring's forests are the single biggest tool we have to help our ecosystem and our community adapt to a changing climate, and to help lessen the impacts climate change through reduced cutting, and increased forest carbon sequestration. In the past, forests have been taken for granted and used as an apparently limitless resource – "a tree is an unemployed log" goes the adage. If our forest management is done poorly, we become California with its now near annual catastrophic fires. If it is done correctly, we can chart a new course that other jurisdictions can follow.

We don't need to have a zero-sum game here on Salt Spring with respect to our forests. With the right tools we can balance private property entitlements with the requirements to lower emissions and adapt to a hotter, drier, and more dangerous future. In order to get there, landowners need to be properly rewarded for enhancing forest ecosystems rather than cutting them down. Ensuring that the economic value of trees as providers of ecological services is adequately recognized sends price signals that landowners will likely respond favourably to.

In parallel, educating islanders' views about the value of our forests will be crucial, as will the hard but rewarding work of restoring fragmented forest ecosystems, from the understorey on up.

Regulatory change, additional incentives, and easy-to-use programs will be equally essential to protect our forests and prepare for an increasingly volatile climate. Rapid and coordinated action by governments at all levels, supported by Salt Spring residents, landowners, and NGOs including the Salt Spring Island Conservancy and Island Forest Watch, is needed to protect our ecosystems and our community.

> "We can increase biodiversity and reduce our emissions by 8,000 tonnes or 50% by 2030 by sequestering carbon in trees and soil through reduced clear-cut logging

JUMPSTORY

St. Mary Lake. © ERIKA RATHJE

8. CLIMATE ACTION PLAN FOR FRESHWATER ECOSYSTEMS

Salt Spring already has freshwater challenges that impact potable water supplies, farms and gardens, and water-sensitive ecosystems. In spring 2020, the island was under conservation drought measures, and burning had been banned. Warmer and drier summers, and more intense winter precipitation, will exacerbate the situation in the coming decades.

Lakes and streams supply over half the drinking water on Salt Spring Island, while groundwater and rainwater storage provide the remainder (Gorski & Sacre, 2019). Annual water recharge comes entirely from rain, most of which falls from November to April (Capital Regional District, 2017). Decreased rainfall, higher temperatures, forest fires, and increased run-off during torrential rains will increase water demand and decrease supply. Increased turbidity from increased storm activity and forest fires interferes with water disinfection and treatment, while excess nutrients can cause algal blooms, leading to taste and odour issues and potential risks to human health.

These increased stresses on freshwater supplies make the need for water conservation more urgent than ever. Salt Spring Islanders must get better at capturing and storing winter rainfall, while improving the efficiency of summer outdoor water use. This will be especially important in coastal areas supplied by wells because overdrawing groundwater can lead to saltwater intrusion.

Many creeks and wetlands play a role in storm-water management. During extreme weather events or peak run-off, creeks can flood and soils become saturated, increasing run-off and flooding low-lying areas. The combination of increased run-off and rainfall can increase erosion, leading to slope instability and water body overflow. Clearing of trees and other vegetation around water bodies can result in landslides and erosion, which, in turn, add excess nutrients to water, leading to unhealthy bacterial or sometimes toxic algal growth. Clearing trees more generally reduces water infiltration into soils and aquifers, allowing more water run-off to the sea.

At estuaries, extreme precipitation events combined with sea level rise during periods of high tides can lead to a back-up of flows and flooding of low-lying areas.

Extreme summer water shortages affect drinking water quality, ecosystem health, the quality and costs of community water supply, and water-dependent industries such as tourism and food processing. Human health can be impacted by a rise in water-borne and vector-borne diseases. In addition, people with natural-resource-based livelihoods can face unemployment and lost businesses, resulting in economic and psychological distress. Recovery from such extreme seasonal water shortages can take months and cost the economy and government millions of dollars (Climate Action Secretariat, 2019)

Achievements

Freshwater issues are widely recognized on Salt Spring, and a number of measures have been taken to research, educate, inform, and act. The following is a brief sample:

- Salt Spring Islands Watershed Protection Alliance (SSIWPA) coordinates rainwater harvesting education and interagency collaboration for cooperative management of water resources
- The Official Community Plan identifies drinking water watersheds, well capture zones, and high erosion areas; its policies and regulations restrict development in these areas
- Salt Spring Island Local Trust Committee up-zones (such as allowing higher density in an application) conditional on rainwater catchment and storage in some areas
- North Salt Spring Water District (NSSWD) completed a new water treatment plant (St. Mary DAF plant) in 2019 and plans a new treatment plant for Maxwell Lake
- NSSWD placed a moratorium on new water connections in 2014 and has conservation regulations in place

Priorities

- Practice ecosystem-based planning done on a watershed level to addressing climate change risks to our water, our forests, and our community
- Better protect lakes, ponds, wetlands, watercourses, and aquifers to ensure that our ecosystems have sufficient moisture to lower fire and storm risks. This will help ensure that our community has adequate supplies of potable water, and remains safe from fire .
- Implement widescale rainwater harvesting, enhanced water conservation, and climate change risk management practices. Together with forest retention, this will help maintain water levels during our increasingly hot and dry summer months, reduce sedimentation, and decrease the number and severity of bacterial or algal incidents.
- Prevent forest fires to protect water quantity and quality. Fires require significant water to extinguish, and result in degradations in water quality due to damage to the ecosystem's abilities to filter and regulate flow. See the Forestry, Built Infrastructure, and the Agriculture and Food sections for related measures.

Goal 1: Protect freshwater quality and quantity

This goal focuses on natural areas protection. Some strategies and actions align with or are supported by similar or related measures for forests, agriculture, and land use.

Strategy 1: Increase and enhance forests and wetlands

Protection and enhancement of Salt Spring's forests and wetlands is critical for freshwater protection.

Freshwater Ecosystems, Goal 1, Strategy 1 Actions	Leading organizations						
	ITC	BC	CRD	IT	SSIC	OWNER	OTHER
1. Protect, increase, and enhance forested areas (see Forest section for details)	■	■	■	■	■	■	■
2. Protect, increase, and enhance wetlands, especially 'benches' or ridges at higher elevations	■			■	■	■	■
3. Restore forests and increase natural cover on slopes for water retention	■		■		■	■	■
4. Update existing erosion mapping and amend Development Permit Areas to identify high-risk erosion zones				■			
5. Work with province to reinstate Wetland Water Conservation License (conservation licenses for wetlands and ponds on provincial water courses)	■	■		■	■		
6. Create a Development Permit Area for Coastal Douglas-fir ecosystem protection			■	■			

Strategy 2: Reduce nutrient loads, contamination, and heat loads

This strategy leads to the enhancement of water quality, leading to better potable water and higher habitat value for aquatic species.

Freshwater Ecosystems, Goal 1, Strategy 2 Actions	Leading organizations							
	MOTI	CRD	IT	AGALL	SSIC	WPA	WPS	GROWER
1. Adopt a policy for erosion protection due to increased flooding and rainfall intensity in rights-of-way, culverts, and ditches	■	■	■					
2. Increase watershed protection from 1.5% to 3.0% of total land area			■			■		
3. Create a water quality monitoring program to test for nutrients and contaminants in areas of concern; provide information to reduce problems		■				■	■	
4. Provide information and enforce and broaden riparian regulations	■		■				■	
5. Promote mature tree cover over streams, ponds, and lake margins			■		■			
6. Promote reductions in soil loss through regenerative agricultural practices				■				■
7. Monitor saline intrusion along coastal zones	■					■		

Goal 2: Improve summer freshwater availability

Summer water shortages are already a fact of life on Salt Spring; unless measures are taken to address the situation, climate change, together with population growth, will increase water shortages in the future.

Strategy 1: Reduce groundwater and surface water depletion

Freshwater Ecosystems, Goal 2, Strategy 1 Actions	Leading organizations							
	BC	CRD	IT	IH	AGALL	WPA	TSS	OWNER
1. Monitor withdrawals from wells and promote water conservation, especially in areas along the coast at high risk of salinization	■	■	■					
2. Create a Groundwater Recharge Development Permit Area within the proposed CDF Ecosystem Protection DPA			■					
3. Develop forest DPA zones to protect water sources from clear-cut logging		■	■					
4. Develop water and watershed protection strategy for the whole island		■	■					
5. Promote metering and data-sharing by lake licensees and private well owners	■	■	■			■		■
6. Research safe water yields from lakes under projected climate change scenarios	■	■	■			■		
7. Harmonize local and provincial guidelines, policies, and regulations for proof of sufficient water	■	■	■	■		■		
8. Provide information about water-conserving farm and garden practices					■	■	■	

Strategy 2: Increase rainwater harvesting and storage

Freshwater Ecosystems, Goal 2, Strategy 2 Actions	Leading organizations			
	CRD	IT	AGALL	WPA
1. Promote the benefits of alternative irrigation water use such as rainwater, greywater, or reclaimed water	■	■	■	■
2. Develop and implement a multiyear incentive or rebate program in supply-stressed areas for rainwater harvest systems	■			■
3. Mandate and incentivize rainwater storage for all new buildings	■	■		
4. Adopt local regulations for rainwater storage for outdoor use for all new buildings (modeled after Nanaimo)	■	■		
5. Promote swales, rain gardens, and use of rainwater for irrigation	■	■		■
6. Develop and implement an island-wide water management strategy, including greywater diversion	■	■		

Strategy 3: Increase water conservation and reuse

Freshwater Ecosystems, Goal 2, Strategy 3 Actions	Leading organizations				
	BC	CRD	IT	WPA	SD64
1. Promote water conservation, water recycling, greywater reuse, and composting toilets	■	■	■	■	■
2. Enable suited-to-purpose water use: treated for potable uses, untreated for non-potable uses, and greywater recycling/reuse where appropriate	■	■	■		
3. Adopt local regulations to require water recycling and dual plumbing for all new construction		■	■		

Goal 3: Reduce fire risk

Forest fire presents a risk to virtually everything in our community – forests, freshwater, wildlife, infrastructure, our homes, and even our lives. It is included in this section but applies to all sectors.

Strategy 1: Increase forest health to build fire resistance

A healthy forest will better resist fire. See Forest section for additional actions.

Freshwater Ecosystems, Goal 3, Strategy 1 Actions	Leading organizations					
	CRD	IT	ITC	SSFD	NSSWD	NGO
1. Develop an integrated water, fire, ecosystem, and land-use framework and governance system to enhance water availability	■	■	■			
2. Increase ecosystem restoration, planting, and retention of native plants and wetlands to establish a fire-resistant native understorey	■	■				■
3. Enhance the forest management plan for Maxwell Lake watershed, including removal of excess woody debris				■	■	

Strategy 2: Promote and employ best practices to reduce fire risk

Preventative measures can be effective at reducing fire risk. See Built Infrastructure for additional actions.

Freshwater Ecosystems, Goal 3, Strategy 2 Actions	Leading organizations						
	CRD	IT	SSFD	SSES	TSS	SSIC	WPA
1. Develop and deliver locally adapted SSI FireSmart training which incorporates forest restoration as a means of protecting property and freshwater quality	■	■	■	■			
2. Legislate SSI FireSmart buffers in a new Development Permit Area that is defined for SSI (with fire ecologist and local knowledge)		■	■			■	
3. Encourage and promote rainwater harvesting and require rainwater collection and storage for new construction	■	■			■		■
4. Require access to water for firefighting for all new construction	■	■					
5. Install distributed reservoir storage per SSI fire map unit to meet needs during drought	■		■				

Strategy 3: Reduce fire hazards

See Built Infrastructure and Forests for additional related actions.

Freshwater Ecosystems, Goal 3, Strategy 3 Actions	Leading organizations						
	CRD	IT	SSFD	IH	NGO	BUSINESS	BCH
1. Update Community Forest Fire Protection Plan	■	■	■				■
2. Map flammable invasive species (broom and gorse) and fuel and debris fields on public and private lands	■	■	■		■	■	■
3. Remove and compost flammable invasives including broom and gorse along hydro corridors, fields, and roadways	■				■	■	■
4. Provide a fuel and debris collection and chipping program	■		■		■	■	
5. Enforce debris clean-up following land clearing	■						
6. Identify and maintain key logging roads for firefighting access and include in CDF Ecosystem Protection DPA	■	■	■				
7. Use controlled burns to reduce loads on dry south aspect slopes with high fire risk	■		■				■
8. Monitor particulates locally and develop airshed warning system for local and distant fires	■		■	■			

Salt Spring Commons is an affordable housing project that opened in 2021. © SSI COMMUNITY SERVICES SOCIETY/ MOBIUS ARCHITECTURE

9. CLIMATE ACTION PLAN FOR LAND USE & SETTLEMENT PATTERNS

Land use and accompanying settlement patterns play a key role in Salt Spring's long-term ability to lower emissions and adapt to the dramatic changes being brought about by the climate crisis. Scattered settlements in forested areas are more difficult and expensive to protect from forest fire, while roads that serve scattered development are costly and GHG-intensive to build and maintain.

This pattern of development also contributes to a degradation of the 'ecological services' provided by healthy ecosystems, such as fire resistance and temperature moderation, and to a cascade of other negative impacts including unnecessary forest loss, compromised water quality, and diminished wildlife. Furthermore, external economic pressures contribute to concerns about affordable housing, which is needed to foster community diversity, social equity, resilience, and self-sufficiency.

Local sea levels are forecast to rise relative to those in the year 2000, with changes accelerating this century. While the degree of rise is uncertain, the most recent study suggests planning for a relative sea level rise (RSLR) of 0.5 metre by 2055, one metre by 2115 and 2 metres by 2225 (Associated Engineering, 2020). Shoreline roads, buildings, and infrastructure on Salt Spring Island will see an increase in the frequency and magnitude of seawater inundation events, saltwater intrusion into potable water supplies, and permanent inundation (AECOM, 2015).

Along with losses to coastal ecosystems, sea level rise will result in significant physical and economic damage and disruption for Salt Spring Island if adequate adaptation action is not taken. Washouts of major roads such as Fulford-Ganges at Isabella Point Road are highly likely within the next 50 years as a result of sea level rise and storm surge. If not proactively addressed, this type of damage to critical infrastructure will affect emergency services access, interrupt the movement of people and goods, impede tourism, and negatively impact the local economy. A CRD study highlights potential impacts to scores of buildings and pieces of infrastructure, including ferry terminals and water- or wastewater-related infrastructure (AECOM, 2015).

In July 2020, the CRD published a series of reports, maps, and recommendations in its Capital Region Coastal Flood Inundation Mapping Project. The project provides comprehensive information about the expected risks of rising sea levels and tsunamis throughout the Capital Region, including Salt Spring Island (CRD, 2020). It makes detailed recommendations about the implications for future development, including revised flood construction levels (FCL) for new buildings and infrastructure. The reality of the climate risks needs to be taken into account today in everything from our Official Community Plan to development decisions by government and individuals. Decisions need to be made now about the location and specifications of infrastructure that will be able to withstand the changes that are underway.

While settlement pattern policies in the current OCP (SSILTC, 2008) focus on the protection of specific areas and the reduction of future sprawl and greenhouse gas emissions, the following also require consideration in the next OCP update:

- Enhanced efforts to address gaps in the affordable housing spectrum, to foster a diverse, equitable, and self-sufficient community, with a reduced need for a workforce that commutes from other communities (Gauthier, 2015)
- Increasing pressures to accommodate climate refugees, who may increasingly wish to relocate from regions with more significant climate change impacts (Becklumb, 2013)
- Reconsidering future development in areas at risk due to documented and forecast sea level rise. This includes parts of Ganges and Fulford villages, currently identified in the Salt Spring OCP as preferred locations for new higher-density development (SSILTC, 2008).
- Considering diminishing water supplies and the availability of alternatives such as rainwater harvesting and greywater recycling, and how these will influence policies and practices governing how and where we build
- Considering higher housing densities closer to services to support clustered and affordable housing that encourages self-reliance and active transportation and reduces the need for people to commute from off-island locations to work
- Carefully considering development in areas at high risk of forest fire, wind, high temperatures due to solar gain, or storm water run-off
- Protecting additional groundwater recharge areas, beyond those that are currently protected
- Identifying incentives to encourage property owners to lower emissions associated with building materials or operations, or to incorporate features that decrease both environmental impacts and climate risks
- Ensuring planning for emergency services takes sufficient account of climate risk, such as rebuilding the Fire Hall away from a future inundation area that may be prone to subsidence

Achievements

- Salt Spring's land use policies, described in the OCP, support a shift in the traditional low-density settlement patterns to reduce GHGs and servicing costs.
- Specific goals and policies regarding Climate Change and Energy Efficiency were included in the OCP in 2010 to provide a lens in local land use decisions (SSILTC, 2008).
- While legacy zoning on Salt Spring will allow a few more large lot subdivisions (especially south of the Fulford Valley), OCP policies adopted in 1998 have prohibited the spread of such zoning for over two decades. Instead, the OCP directs most new residential density increases (primarily approved to facilitate development of affordable and special-needs housing) and key community destinations (such as the library, swimming pool, and large commercial land

uses) to existing service areas (e.g., villages) or within walking distance of a transit route, and provides for the voluntary transfer of densities into these areas (SSILTC, 2008).

- Since 1998, OCP policies have restricted upzoning of vacant land parcels close to village services to projects for affordable and special-needs housing, rather than market-level multi-unit development. This has given Salt Spring a distinct advantage over many similar communities in the potential to build affordable housing in appropriate areas (SSILTC, 2008).
- Due to the efforts of Salt Spring non-profit organizations, the number of social housing units per capita on Salt Spring in 2015 was only slightly lower than in the rest of the Capital Regional District (Gauthier, 2015) and was much higher than levels in many similar BC communities. Over 100 additional social housing units were close to or under construction in mid-2020.
- The SSI's Local Trust Committee changed land use regulations recently to permit secondary suites and secondary cottages in climate-smart areas (those not prone to undue climate risks) that support public transit development.
- The CRD produced regional maps that illustrate anticipated sea level rise in select locations and provided details about potential risks and adaptation tools (AECOM, 2015). It recently completed a significant new project about coastal flooding risks and recommended a Flood Construction Level (FCL) in July 2020 (CRD, 2020).

CHRIS BARBALIS VIA UNSPLASH

Priorities

Review of the OCP and all associated land-use processes and procedures needs to be made a priority in light of the climate risks faced by our community. The priorities for this section are:

- Review the OCP and all policies to address climate risk, reduce emissions, address affordable housing, and integrate ecosystem-based planning
- Revise all land-use processes and procedures, especially as they relate to permitting, to encourage and facilitate climate-smart development
- Implement plans, policies, and procedures to ensure that our local governments and other agencies prepare Salt Spring for projected risks due to sea level rise (CRD, 2020)

Goal 1: Update settlement pattern objectives to reduce risk and emissions

Clustered settlement, including residential development, services, and most employment types, has many advantages from climate action and community economic perspectives (e.g., reduced infrastructure costs; reduced risks and costs from forest fire, flooding, and storm damage; reduced automobile reliance), provided that the right parameters are applied.

Strategy 1: Review, update, and consolidate settlement pattern information and policies

These actions are critical to helping levels of government assess climate risks and guide climate-smart development, including considerations for transit and active transportation.

Land Use Goal 1, Strategy 1 Actions	Leading organizations					
	BC	CRD	IT	ID	BCT	TSS
1. Develop detailed mapping of climate change risks that should be considered for settlement pattern policy revisions (some preliminary work is presented in CAP 2.0)	■	■	■	■		■
2. Undertake transit-supportive land-use planning with BC Transit to optimize the relationship between future development and transit routes			■		■	
3. Identify modified areas suitable for future densification that would avoid areas subject to greatest risk due to climate change			■			
4. Update the 2007 report, The GHG implications of different settlement patterns on Saltspring Island [sic], with the additional consideration of freshwater availability and climate change risks. (Sustainability Solutions Group and Holland Barrs Group, 2007)			■			
5. Undertake a joint land-use planning and lifecycle infrastructure costing program with service providers to show the lifecycle infrastructure costs of various settlement patterns (BC MMAH, n.d.)		■	■	■		

Strategy 2: Communicate climate risks associated with settlement patterns

We all need to know the risks associated with existing settlement patterns. But we also need to know the benefits of climate-smart settlement patterns which reduce risk and GHG intensity in the building and maintenance of built infrastructure. Common knowledge builds consensus for bold action to protect our communities and enables property owners to take appropriate actions.

Land Use Goal 1, Strategy 2 Actions	Leading orgs	
	CRD	IT
1. Develop and distribute public information about climate change risks and GHG reduction strategies that should be considered in policies about settlement patterns	■	■
2. Host public meetings to review, discuss, and amend proposed settlement pattern policies		■

Strategy 3: Update Salt Spring's Official Community Plan

Salt Spring needs an OCP update that guides changes to relevant bylaws to reflect revised settlement pattern goals that reduce GHG intensity and climate risks.

Land Use Goal 1, Strategy 3 Actions	Leading orgs
	IT
1. Include maps of climate change risk areas in OCP	■
2. Update OCP policies to direct new development away from future climate change risk areas and towards clustered areas with fewer future risks. Undertake comprehensive planning for villages to address climate change risks and GHG emissions	■
3. Update OCP policies to reduce GHG emissions associated with new development and to support expanded transit	■
4. Update related bylaws to reflect OCP changes, including transit-supportive regulations	■

Goal 2: Reduce barriers to climate-adaptive and lower-emissions settlement patterns

Lack of data and information, a multiplicity of regulations from all levels of government, infrastructure issues, and time-consuming development approval processes tend to make clustered development in villages less attractive to developers than low-density rural development. Public information and supporting policies, plans, and incentives are needed to facilitate climate-sensitive settlement patterns which reduce exposure to climate risks such as forest fire, storm-water run-off, and sea level rise.

Strategy 1: Simplify climate-smart land use and development policies and approval processes

Make it simple and it's easier to get on board. The Trust and CRD, with assistance from the province, need to simplify density transfers, remove barriers to climate-smart settlement pattern policy, and incentivize development with higher sustainability performance.

Land Use Goal 2, Strategy 1 Actions	Leading organizations		
	BC	CRD	IT
1. Simplify and better incentivize density transfer provisions (e.g., avoid the need for rezoning by creating an amenity bylaw that automatically conveys a bonus density when the amenity is provided)	■		■
2. Review and update the land-use bylaw for barriers and inconsistencies affecting climate-adaptive development			■
3. Review and amend the building bylaw for barriers and inconsistencies affecting climate-adaptive development		■	
4. Fast-track approvals and reduce fees for development applications that meet or exceed a higher performance threshold in a strengthened and mandatory Sustainability Checklist	■	■	■
5. Simplify approvals for secondary suites and cottages in areas permitted by zoning, through a review and amendment of regulations, procedures, and fees		■	■
6. Review and amend provincial government laws, policies and practices that act as disincentives to rental of affordable housing or development of owned affordable housing	■	■	

Strategy 2: Incentivize increased densities and more affordable housing

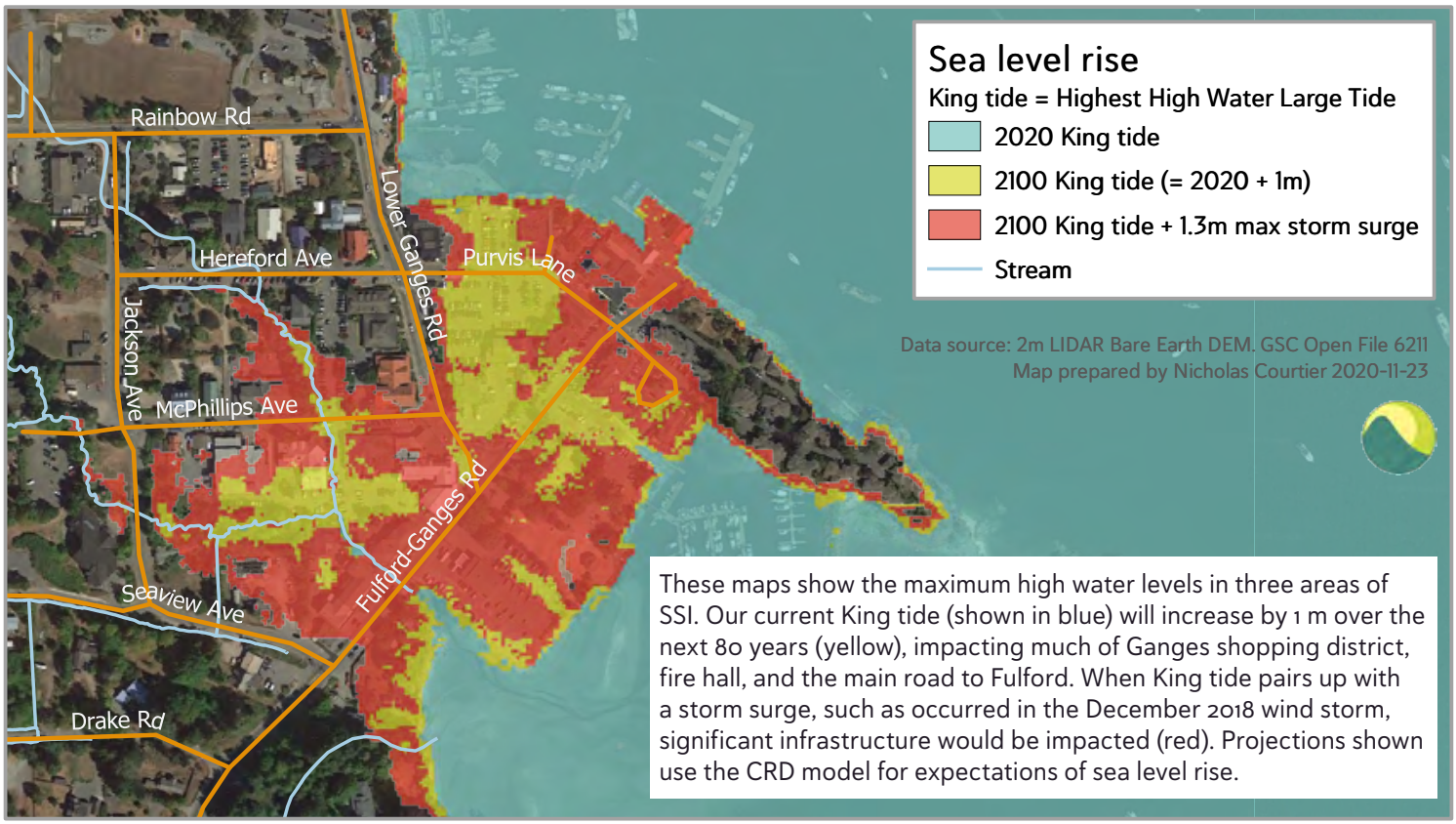
A key objective here is discouraging and disincentivizing development that has higher GHG intensity or increased climate risk. In some cases, the Province needs to amend its legislation to facilitate this type of change at our local level.

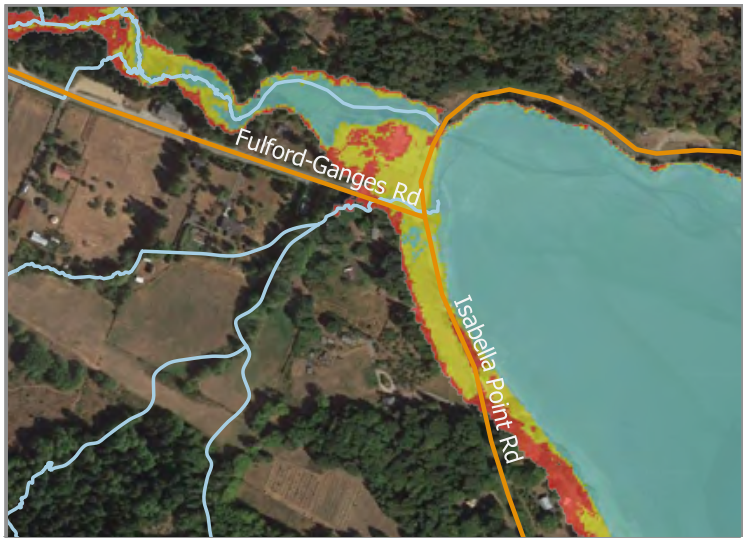
Land Use Goal 2, Strategy 2 Actions	Leading organizations				
	BC	CRD	IT	ID	OWNER*
1. Undertake a cost-benefit study to identify potential incentives that could be integrated into Transfer of Development Potential policies and adopt identified incentives (and amend provincial legislation, where required)	■		■		
2. Investigate incentives and remove barriers to encourage diverse forms of affordable housing such as multi-unit projects, secondary suites, and cottages in areas where they are already allowed; do this for innovative forms such as eco-villages in climate-smart areas	■	■	■		
3. Increase/decrease permitting costs for developments based on environmental performance such as embodied energy of building materials and estimated modeled performance		■	■		
4. Adopt policies and plans to minimize the construction of key community assets in future climate change risk areas	■	■	■	■	■
5. Increase permitting costs for residences over a certain size and implement a tax on vacant homes over a certain size, with the proceeds used to fund affordable housing and climate action projects	■	■	■		

* Owners include SD64 and Island Health

Goal 3: Maximize community resilience to predicted sea level rise

With a one-metre sea level rise (SLR) forecast for 2100, now is the time to figure out what to do with downtown Ganges and Fulford Harbour, to name two areas of the island. This will protect the future of those community assets that are critical to our everyday life and economic health. The following maps are also available in the Appendices, and were created using publicly available data and the methodology employed by the CRD in its recent sea level rise study (CRD, 2020).





Strategy 1: Implement a SLR research strategy to inform local government actions

Without a plan, we have no destination. If we don't plan for sea level rise, the only known destination is saltwater inundation.

Land Use Goal 3, Strategy 1 Actions	Leading organizations				
	BC	CRD	IT	ID	OWNER*
1. Develop a public information campaign about inundation risks, based on the most recent science-based mapping (Associated Engineering, 2020)	■	■	■		
2. Revise building regulations based on new recommendations for Flood Construction Level (FCL) (CRD, 2020) [15]		■	■		
3. Develop an SLR adaptation strategy including protection, mitigation, and relocation strategies to protect or move existing development and key community assets from future inundation areas	■	■	■	■	■

*Owners include SD64, Island Health

15 A FCL establishes the minimum elevation for habitable buildings in relation to anticipated flood levels and may be established by the SSILTC as per s.910 of the Local Government Act.

Strategy 2: Change policies and practices to prepare for risk of sea level rise

Land Use Goal 3, Strategy 2 Actions	Leading organizations				
	BC	CRD	IT	ID	OWNER*
1. Upload flooding mitigation, management, and coordination from local governments back to the Province (Hunter, 2020)	■				
2. Include inundation maps in the SSI OCP to communicate risks to property owners and managers			■		
3. Amend OCP policies to direct new development and densification away from future inundation areas			■		
4. Adopt a Building Permit Inundation Policy to require flood-proofing, restrictive covenants, and indemnification agreements when building permits are issued in future inundation areas		■			
5. Require that potential impacts and adaptation measures related to SLR be reviewed for new development applications; require restrictive covenants and indemnification agreements when allowing greater development in inundation zones			■		
6. Identify and accommodate any feasible new structures and non-structural strategies (e.g., shoreline parkland acquisition) necessary to protect existing development from the impacts of future SLR			■		
7. Identify areas where existing development cannot be feasibly protected from the impacts of future SLR; identify areas where it could be moved			■		
8. Minimize the construction of key community assets in future inundation areas through land-use and zoning changes and through decisions of public agencies	■	■	■	■	■
9. Require that new land parcels (created through subdivision) have suitable building areas outside of inundation areas; require shoreline easements to buffer new development from SLR impacts	■		■		
10. Create a SLR Development Permit Area to protect new development from hazards related to inundation			■		
11. Create an SLR Adaptation Fund Reserve for land purchases and other capital-intensive long-term planning steps necessary to protect existing development from the impacts of SLR or to move existing development and community assets	■	■		■	■
12. Support adaptive land uses (parks, green space, temporary land uses) in future inundation areas, and integrate mitigation plans into strategic, capital, and service plans for these land uses	■	■	■	■	■
13. Integrate flood-proofing best practices and requirements into new construction in future inundation areas		■		■	■

*Owners include SD64, Island Health and other asset managers

Development Permit Areas

This plan contains recommendations that the Salt Spring Island Local Trust Committee (SSILTC) create or amend Development Permit Areas (DPAs) with various objectives, in addition to the seven DPAs already in our OCP. DPAs can be created with several integrated objectives, where appropriate. While they do not change the use or density of use permitted on a property by the Land Use Bylaw*, DPAs can be used to guide the way that new construction, subdivision, and land alteration (including tree-cutting) take place, to support specific community objectives.

The BC Local Government Act permits local governments to use DPAs for the objectives listed below (BC, 2015). The table shows the types of objectives our existing DPAs are working towards, and some recommended additions and changes:

Objective	Existing SSI DPA Numbers (SSILTC, 2008)	Additional or amended DPA recommended
Protect the natural environment, its ecosystems and biological diversity	3, 4, 5, 6, 7	Protection of Coastal Douglas-fir ecosystem, groundwater recharge areas, stream uplands, and wildlife diversity and corridors
Protect development from hazardous conditions (e.g., flooding, erosion, land slip, forest fire)	1, 3, 6	Protection of development from sea level rise flooding, hazards of tree-cutting on steep slopes, and fire hazards
Protection of farming	1, 2	
Revitalization of an area in which a commercial use is permitted	n/a	
Form and character of intensive residential development	n/a	
Form and character of commercial, industrial, or multi-family residential development	1, 2, 3	
Promote energy conservation	n/a	Energy-efficient building construction
Promote water conservation	n/a	
Promote the reduction of greenhouse gas emissions	n/a	Carbon sequestration by trees

* Provincial legislation prohibits this, unless an extreme natural hazard exists that cannot be mitigated

Local Trust Committee public meeting.
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10. LAYING A STRONG FOUNDATION FOR CLIMATE ACTION ON SALT SPRING

Some of the actions outlined in CAP 2.0 can be done now. Many, however, will require extensive collaboration before they can be enacted. We have noted over 50 agencies, government institutions, organizations, and other entities that will need to play roles in implementing the Plan. This is why we are highlighting some overarching changes that need to take place if the climate action we need to address this crisis is to happen.

While some challenges may be unique to Salt Spring, we share most of these collaborative implementation challenges with most jurisdictions around the world. Emergencies require changes to the way we do things almost overnight. Think COVID, think World War II. This section lays out some of the challenges which must be tackled while we work collaboratively to implement aggressive climate action on Salt Spring.

While they have significant resources, governments and large organizations are often not well-suited for responding to emergencies. Like most large organizations, they are generally about continuity not crisis management and require significant change to pivot to an emergency service delivery model. Salt Spring Island's governance shows similar understandable attributes, but with some additional factors unique to our region (Salt Spring Community Alliance Governance Working Group, 2018). Salt Spring is an unincorporated area with just over 11,000 inhabitants and two village centres, served by two regional government bodies with some local political representation. This unique model creates both challenges and advantages when maneuvering through an emergency.
A compensating factor is the unusually large proportion of citizens willing and able to provide services, as evidenced by the many active societies and groups on Salt Spring.

Most services provided on Salt Spring are delivered through a diverse set of small and large entities, some of which are managed from Victoria, and some of which are managed on Salt Spring. Some examples (with their bases listed) are:

- Land use planning and regulation: Islands Trust (Salt Spring Island)
- Water supply: NSSWD and several smaller water districts administered by CRD or by small communities (SSI, Victoria)
- Sewage treatment, parks, conservation, bus service, emergency response: CRD, Islands Trust Conservancy and commissions (Victoria, SSI)
- Roads: Ministry of Transportation and Infrastructure and private contractor Emcon (Victoria, SSI)
- Fire-fighting and prevention: Salt Spring Fire District (SSI)
- Forestry: Largely unregulated, except for a few areas regulated by the Province

All of these agencies are independent of one another, but some have lines of accountability to a higher authority. Cooperation and coordination are largely voluntary, dependent on the willingness and interest of the agencies' leadership, or its legal scope. As in other forms of local government, coordination of services depends on good internal and external relationships and cooperation. While Salt Spring is facing strong challenges protecting its endangered Coastal Douglas-fir like many communities across BC, there are many positive examples of this cooperation, providing the community with models and services not often found in communities of similar size. Examples are many and include a high level of land protection, exemplary transportation facilities (public transit, EV charging stations), a high ratio of social housing, recreation, arts and recycling facilities.

Forest conservation, fire prevention, and water supply, like all natural systems, are intertwined. Climate action will be best accomplished with CRD, Islands Trust, and Water and Fire districts working in concert. Reducing emissions from transportation, heating, and construction, while providing more equitable access to housing, transportation, and other services, cannot be accomplished by any one organization, no matter where it is located or what its size. While there may be unique challenges for Salt Spring, there are also unique opportunities for collaboration across traditional silos or jurisdictions.

CAP 2.0 will only succeed through collaboration across organizational boundaries. Implementing highly interdependent actions of the scale and scope now needed (such as between complex ecosystems and human-built infrastructure) is daunting and complex. No single entity can hold all this complexity on its own, and significant change requires significant buy-in from all organizations.

This crisis calls for a new, truly integrated way of doing things that has an exciting flip side: projects which generate societal co-benefits, many of which are discussed elsewhere in the Co-benefits section.

Transition Salt Spring (TSS) has recently completed an organizational renewal to prepare to take a lead role in CAP 2.0 implementation, contingent on funding and buy-in from local government and organizational stakeholders. Its role would be to serve as steward of the Plan: working with multiple agencies, organizations, and the community to build a consensus for the actions laid out in this Plan.

To make this pivot, TSS will be developing, within 6 months of publication of CAP 2.0, a business plan that outlines responsibilities, timelines, budgets, and sources of funds to enable coordinated implementation.

With the foundational prerequisite actions in place, local government can involve local community organizations, including TSS, in the implementation of climate action that will help Salt Spring reduce emissions and build resilience in the face of accelerating climate change.

Local government solutions for climate action

Implementing many of the specific recommendations in this Plan will depend on joint leadership by both CRD and Islands Trust. The CAP 2.0 Steering Committee received a significant amount of input from both the public and stakeholders on how to best implement CAP 2.0. The following recommendations which apply primarily to the CRD and Islands Trust are the result:

1. Organize local government to assume an emergency footing on climate action

- Review operating processes to become more nimble and better matched to the urgency of the climate change threat
- Reinforce and enhance the requirement to consider climate change impacts in significant decisions, including capital expenditures, and in employee performance plans
- Expand the network of engaged stakeholders to help accelerate climate action and buy-in (e.g., First Nations, marine and health sectors, business sector, volunteer experts)
- Create a CRD Local Climate Action Service, as many regional incorporated municipalities have done, achieved by referendum
- Update the SSI Official Community Plan to ensure that it matches current goals for emissions reduction, climate adaptation, and ecosystem management
- Significantly expand and update Land Use Bylaws needed to implement the climate goals of an updated OCP

2. Empower local groups to step up on climate action

- Ramp up partnerships with local organizations to reflect our island's unique governance structure; there are many successful local examples of these partnerships, like Island Pathways and the CRD on trails, and TSS and the Islands Trust on forest stewardship
- Establish Focused Task Forces including island-based groups and experts to implement specific goals, and delegate funds and responsibilities to them to assist the Islands Trust and CRD to fulfill their mandates
- Build out Salt Spring Island's local emergency neighbourhood response system (the POD system), by providing more resources for its coordination and for programs to help build neighbourhood capacity; doing so would result in interconnected neighbours who rely less on expensive emergency services and can be stewards in implementing many of the adaptation actions outlined in this Plan
- Support the role of citizen-scientist led research networks, like the Ecology Research Network, which employ scientific analysis to local problems in a cost-effective way
- Provide additional support to the Salt Spring Conservancy and Islands Trust Conservancy in recognition of their crucial roles in carbon stewardship and ecosystem conservation – the key to our community's safety from fire and drought.
- Support existing efforts to increase public knowledge of relevant topics including ecology and conservation at home (TSS has applied for funding to develop such an initiatives).
- Establish a service to help all island agencies and individuals take advantage of existing incentives (e.g., EV and heat pumps) and new ones as they are announced
- Support a localized effort to report on climate action tracking and progress reporting

Areas where local government and Provincial collaboration crucial

1. Expand local government's decision-making authority

- The Islands Trust needs to use its existing authority, or if that is insufficient, needs new authority through amendments to existing legislation, to regulate clear-cut logging and land-clearing, and to enforce the required regulations, all while working with these important economic sectors and the community to honour livelihoods and change the way forestry is done
- Salt Spring Fire District or CRD needs to use its existing authority, or if that is insufficient, needs enhanced authority, in order to regulate slash burning and to direct landowners towards viable on-island alternatives

2. Build intra-governmental linkages

- Meet in 2021 to create a CRD/Islands Trust agreement to collaborate on climate action leadership
- Engage the other agencies (e.g., NSSWD, Fire District, Harbour Authority) to form an Integrated Solutions Board that meets regularly to set priorities and make decisions to carry out relevant aspects of CAP 2.0
- The scope of this coordinating body could include issues which are beyond the scope of any one agency. Examples include workforce development, affordable housing, and water supply
- Develop an agreement with TSS to assist the Integrated Solutions Board in its work
- Establish regular coordinating contact with senior levels of government including CRD Victoria, Islands Trust Victoria, provincial, and federal
- Establish regular contact with other Gulf Islands and other communities with similar issues in a body similar to the Howe Sound Forum

3. Make the carbon tax reflect actual costs

- Advocate for a significantly higher price for carbon (as high as $200/tonne) to reflect the cost to humanity and our ecosystems of our emissions
- Direct the proceeds of this tax toward projects that further lower emissions or that help BC adapt to a more dangerous and volatile future. Currently, the tax goes to general revenue and in some cases undoes the work that a carbon tax is intended to achieve.
- Carbon tax revenue can be used to fund local initiatives such as forest sequestration incentives to discourage clear-cutting on Salt Spring Island and to identify alternatives. Most respected economists recommend carbon pricing as the best way to encourage climate action, as it harnesses the power of the market, sending clear price signals that trigger clean energy and other climate-positive investments.

4. Collect and provide better public data to support local and provincial climate action

- A serious impediment in producing CAP 2.0 was the difficulty in accessing data. Centrally available, publicly accessible, well-maintained, and consistently presented data are required to support a multi-lateral effort to address the climate emergency.
- Data need to be made available at a level fine enough to support local efforts. Data at fine resolutions are useful for GIS-related work as they pertain to various ecosystem risks such as fire.

The evolution of the Plan

The climate system is highly complex, as are the institutions, organizations, governments, and individuals that are affected by and must respond to climate change. As such, there are many areas of this discussion where we have either just barely scratched the surface or which we have entirely omitted. The following issues warrant further work in our community to help Salt Spring address climate change:

- **Climate change impacts on human health:** Many national and international studies have been done on how climate impacts health. A local study is being compiled as this Plan is going to press, and the results will be widely shared.
- **Marine vessel impacts:** From small crafts to freighters, ocean-going vessels have a large footprint, causing emissions, damage to our eelgrass beds, and injury to local and transient whale populations. Acidification of our oceans, as well as declining shellfish, fish, and coral, need to be addressed. Present opportunities for large-scale 'blue carbon farming' of shellfish and algae, which store carbon back in the sea and provide habitat for sea life, need to be explored and developed.
- **Consumer goods and freight impacts:** Completely absent from CAP 2.0 is consideration of the planetary impact of and CO_2 emissions of all of the consumer goods we buy, from clothing to electronics.
- **Climate refugee impacts:** It could be argued that COVID would not have happened without climate change, and COVID has this year triggered a real estate rush on Salt Spring. The impacts of people moving to our island to escape the impacts of climate change and related economic, social, and political turmoil could have a profound impact on the character of our island and on the health of its ecosystems.

Moving forward together

The fact that there is a legend to explain the organizations involved in the Climate Action Plan tells you something important about how we will make all this happen. In a word: together. In fact, there are close to fifty organizations and entities mentioned in relation to the more than 250 actions outlined in this Plan.

While preparing this Plan, we started seeing community groups asking important questions about how we can all pivot to the highly collaborative stance necessary to quickly ramp up to address the climate crisis. Apart, we end up competing for limited resources. Together, our combined efforts are far greater than individual actions, making a powerful alignment and synergy possible.

> Complexity, while challenging and overwhelming, has its exciting flip side: beneficial synergies

The green shoots of collaboration between CAP 2.0's Steering Committee, Transition Salt Spring and community groups like the Agricultural Alliance, and our local conservancies give reason for hope. That we had local elected officials on our steering committee, and their organizations provide some financial input to this volunteer-driven project is also a positive sign. These collaborations need to multiply quickly and gather momentum to fully include our local governments, other island organizations, and Salt Spring residents. We haven't much time.

Complexity, while challenging and overwhelming, has its exciting flip side: beneficial synergies. Improve farmland management, and you improve freshwater quality, the health of soils, and drought resilience. Limit deer and rabbits, and the forest floor recovers, leading to increased soil moisture and decreased fire risk. Let this be a comfort to those who cringe at the work that lies before us. Once we hit our stride, momentum takes over, and synergies beget further positive outcomes.

Implementing this Plan will mean learning to share and collaborate as ecosystems do – and this will lead to increasing complexity and diversity: ecologically, socially, demographically, and economically. Complex and diverse ecosystems are healthy and resilient – and these, in turn, support healthy, vibrant, and resilient communities.

We acknowledge that this Plan is not comprehensive. However, the scope of the actions outlined in this Plan will need significant buy in, and as we work together on that, this Plan will evolve. These are crucial steps as we prepare for wide-scale climate action implementation. We have worked so hard on our public engagement because we believe in the need to develop a grand consensus on climate action. This is not about 537 or 653, Far North or Deep South, YESS or Positively No. This is about the future of this island and its human and non-human inhabitants. These earlier divisions no longer matter, because they can't.

As we collectively embark on implementation of CAP 2.0, here are some important next steps we need to take together starting in 2021 with the release of this Plan.

Time-frame	Organization	Item	Outcome
0-6 months	TSS	Convene key potential non-governmental delivery agents for significant elements of this plan	Sufficient agreement in principle on climate action collaboration to begin pursuing fundraising from islanders, foundations, and others
	TSS	Develop a detailed 1-year business plan	Compelling package to funders, with TSS positioned as convener and activator in collaboration with island partner organizations
	CRD + IT	Funding commitments from the CRD and Islands Trust	Kick-start funding for the initiation of select projects and the necessary infrastructure to begin implementation, collaboration, coordination, and public advocacy
	CRD + IT	Official response to Transition Salt Spring on CAP 2.0	Detailed work plans, timelines, and budgets from each level of government, demonstrating sufficient commitment to act on the climate crisis each has already declared
	TSS Many groups and individuals	Ongoing engagement strategy for Salt Spring residents is implemented	Salt Spring Island residents, businesses, and organzations begin to implement their own climate action plans, and become engaged with TSS and its island partners to support climate action and its advocacy
7-12 months	TSS and partners	Sufficient funding in place to support one year of climate action	Certainty for TSS and its partners to enable hiring and commitments to develop CAP 2.0 projects

It is with a great sense of accomplishment that the CAP 2.0 Steering Committee hands over the Plan to TSS to work with others to implement. We invite you to join TSS and your community in being a part of this project.

On behalf of the Steering Committee and everyone at Transition Salt Spring, we look forward to your participation in this journey. Together we can be a model to other communities of the kind of collaboration needed to tackle the climate crisis, and make our community and our ecosystems even better in the process. Please join us.

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ABBREVIATION LEGEND

The following are acronyms and abbreviations commonly used in this plan.

AgAll	SSI Agricultural Alliance
BC	BC Government
BCAS	BC Ambulance Services
BCF	BC Ferries
BCH	BC Hydro
BCT	BC Transit
BCUC	BC Utilities Commission
Business	Private business owner(s)
CAP 1.0	SSI Climate Action Plan 2011
CAP 2.0	SSI Climate Action Plan 2020
CDF	Coastal Douglas-fir
CEDC	SSI Community Economic Development Commission
CEEI	BC Community Energy and Emissions Inventory
CG	Coast Guard (Ganges)
CoC	SS Chamber of Commerce
COVID-19	The disease caused by the coronavirus
CRD	Capital Regional District
CRTC	Canadian Radio-television and Telecommunications Commission
CS	SSI Community Services
DPA	Development Permit Area
E-Bike	Electric motor-assisted electric bicycle
EV	Electric vehicle
FAC	SSI Ferry Advisory Committee
Fed	Canadian Government
FLT	SSI Farmland Trust
GHG	Greenhouse gas
GIS	Geographic information system
GMRS	General mobile radio service
Grower	Island farmer or grower of agricultural products
ID	All Improvement Districts
IH	Island Health (formerly known as the Vancouver Island Health Authority)
IP	Island Pathways
I-SEA	SS Institute for Sustainability, Education and Action

IT	Islands Trust, and SSI Local Trust Committee
ITC	Islands Trust Conservancy
LEED	Leadership in Energy and Environmental Design green building certification standard
LTC	Salt Spring Island's Islands Trust Local Trust Committee
MoTI	BC Ministry of Transportation & Infrastructure (incl. SSI contractor)
NAPTEP	Natural Area Protection Tax Exemption Program (ITC)
NGO	Non-government organisation
NSSWD	North Salt Spring Waterworks District
OCP	SSI Official Community Plan
Owner	Land/property owner(s)
PARC	SSI Parks and Recreation Commission (CRD)
POD	SS Emergency Services POD program (neighbourhood based emergency groups)
SD 64	Gulf Islands School District #64
SEED	SS Seed Sanctuary
SAR	SS Search and Rescue
SLR	Sea Level Rise
SSCE	SS Community Energy
SSES	SS Emergency Services
SSFD	SS Fire District
SSGC	Salt Spring Garden Club
SSIC	Salt Spring Island Conservancy
SSITC	SS Transportation Commission (CRD)
TSS	Transition Salt Spring
TSSEC	Transition SS Enterprise Cooperative
WID	Water Improvement Districts
WMS	Waste Management Services
WPS	SSI Water Preservation Society
WPA	SSI Watershed Protection Alliance

APPENDICES

All maps and data for this section are published separately and are available online at transitionsaltspring.com/responding-to-climate-change

Quw'utsun Master Carver Harold Joe Sr. led local Quw'utsun youth through the design and carvings of the welcome poles found at the Xwaaqw'um estuary and raised in August 2016.