DRAFT

District of Saanich Community Climate Hazard and Resilience Assessment

Prepared by Sustainability Division, District of Saanich

14 April, 2026

Contents

Territorial acknowledgement

The District of Saanich operates within the territories of the lək̓ʷəŋən peoples represented by the Songhees and xʷsepsəm/Kosapsum (Esquimalt Nation) and the W̱SÁNEĆ peoples represented by the, W̱JOŁEŁP (Tsartlip), BOḴEĆEN (Pauquachin), SȾÁUTW̱ (Tsawout), W̱SIḴEM (Tseycum) and MÁLEXEŁ (Malahat) Nation. The District acknowledges that the lək̓ʷəŋən and W̱SÁNEĆ peoples have stewarded this land since time immemorial and that their historical relationships with the land and water continue to this day.

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Public and Local Organizations

- Over 1,200 members of the public representing community groups, stakeholders, businesses, senior's homes, and interested households and individuals.
- Four Saanich Advisory and Technical Committees
- Community Social Planning Council and members of 10+ community organizations serving equity-deserving populations who provided input (Victoria Native Friendship Centre, Silver Threads Service, UVic Community Engagement Learning Program, UVic Community Cabbage (free groceries and meals), Albina Supportive Housing, Gordon Head Teen Centre, 1 Up Single Parent Resource Centre, Intercultural Association, Greater Victoria Rent Bank, Diverse Abilities Programs Inc.)

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- Staff from multiple Departments and Divisions including Saanich Emergency Program, Fire Department, Parks, Sustainability, Asset Management, Risk Management, Indigenous Relations, Public Works, Community Services, and Stormwater.

1.0 Introduction

Our climate is changing due to the continued release of greenhouse gas (GHG) emissions, mainly from the combustion of fossil fuels. Reducing GHG emissions is key to addressing climate change and is addressed in the Saanich Climate Plan. While the District is working to reduce our GHG emissions and transition to 100% renewable energy, we are already experiencing climate changes, and these will continue to increase in frequency and severity over time. This Community Climate Hazard and Resilience Assessment identifies climate hazards, impacts, and potential resilience actions for our community, and will be used to inform the development of the Climate Plan Update for 2026. It was developed concurrently with and informed by a Climate Risk Assessment for Saanich municipal assets. This community-wide assessment along with the risk assessment for municipally owned assets work together to address the objectives listed in section 1.3 of this report.

In comparison to the Saanich 2019 Climate Risk Assessment, this Assessment includes:

- updated climate projections and information from recent climate hazard events;
- an analysis of current community strengths (adaptive capacity);
- considerations for disproportionately impacted groups in our community; and
- potential resilience actions to consider for inclusion in the Climate Plan Update.

1.1 Indigenous Relations

Section 35 of the Constitution Act, 1982 recognizes and affirms existing Aboriginal rights and confirms Aboriginal peoples of Canada include First Nations, Inuit and Métis peoples. Indigenous peoples have stewarded these lands since time immemorial. The Royal Commission on Aboriginal People (1996) identifies that many Indigenous people have called for a revitalization of traditional values and practices and their reintegration into institutions of government, based on respect for the land and the need for responsible action. They express that humans were equal to the earth and played a role that would benefit their surroundings. “Man was not to dominate the environment and attempt to control it at his will, but cherish it and respect it for the gifts it had to contribute”.

The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (2022) acknowledges colonialism as a driver of climate change. Climate change is one manifestation of historic and ongoing settler colonialism activities that are cumulatively impacting Indigenous Peoples and their abilities to exercise their rights on their territories. The IPCC and Canada’s Climate Science 2050 report specifically recognize the importance of Indigenous Peoples’ involvement in climate research and action. Indigenous Peoples have a deep connection to the land, water, and ecosystems that are central to their cultures, languages, and livelihoods. The Royal Commission describes Indigenous knowledge as “oral culture in the form of stories and myths, coded and organized by knowledge systems for interpreting information and guiding action...a dual purpose to manage lands and resources and to affirm and reinforce one’s relationship to the earth and its inhabitants.”

Indigenous knowledge is critical for navigating and adapting to climate change. In BC, First Nations have been leaders in climate action through ecosystem monitoring projects, developing renewable energy projects, whole-community building electrification projects, and supporting ecosystem health and biodiversity, among many other initiatives.

The District has reached out to local First Nations and their representative organizations to invite input into the development of this assessment and the Climate Plan Update. The District looks forward to continuing to build our relationships with local First Nations to ensure Indigenous values and priorities are reflected in the district's climate priorities and actions.

1.2 Engagement

Over 1,200 people were engaged through various methods in Phase 1 Engagement for the Climate Plan Update which informed development of this report, including Climate Adaptation Workshops, presentations, Open Houses, a survey, pop-up booths, and more. In addition to public engagement in Phase 1, several key stakeholders were engaged including subject matter experts, community organizations, other governments and health institutions, educational institutions, economic development agencies and businesses, food and agricultural groups, transportation groups, environmental groups, the Saanich Accessibility, Diversity, Equity and Inclusion Advisory Committee and the Saanich Sustainability and Climate Action Advisory Committee. The Community Social Planning Council (CSPC) was contracted to lead engagement with select community groups who are disproportionately impacted by climate change. Over 120 community members involved in over 10 groups serving equity-deserving populations were involved in the CSPC engagement. Engagement conducted for other recent relevant projects was also reviewed, such as the City of Victoria's recent Adaptation Engagement and UVic and CRD research on extreme heat lived experience. To learn more about the engagement process please refer to the Saanich Climate Plan Update Phase 1 Engagement Report.

This draft assessment will be available for public information as part of Phase 2 Engagement for the Saanich Climate Plan Update.

1.3 Objectives

This community-wide assessment along with the PIEVC protocol Climate Risk Assessment for municipally-owned assets work together to inform adaptation and resilience actions to address the following objectives, which are based on the Province of BC's Framework for Climate Risk Assessment (2019):

- Protect people's lives;
- Protect people from morbidity, injury, disease, hospitalization, or psychological impacts;
- Protect essential infrastructure and service delivery;
- Protect biodiversity and ecosystem services;
- Protect social cohesion (including reducing disproportionality of climate impacts);
- Protect economic activity and livelihoods;
- Protect cultural resources (Indigenous and non-Indigenous); and
- Direct adaptation funding effectively and efficiently, with consideration to appropriate timelines for actions.

2.0 Methodology

2.1 Methodology Overview

As noted in the introduction, as a follow up to the 2019 Saanich Climate Risk Assessment which used the ICLEI Building Adaptive and Resilient Communities (BARC) method, the District conducted two complementary processes, one for municipally-owned assets and one for the community as a whole. Together, the two processes form an overall climate risk assessment. These combined assessments will be used to inform the actions in the Climate Plan Update, expected to be completed in 2026.

Municipal Asset Assessment: The Climate Risk Assessment of Corporate Assets was conducted using the Public Infrastructure Engineering Vulnerability Committee (PIEVC) Protocol and involved extensive input from staff throughout the organization. This report, when completed, will be available on the Saanich website.

Community-Wide Assessment: The format for this community-wide climate hazard and resilience assessment follows the District of Saanich's Hazard, Risk and Vulnerability Assessment (HRVA). It is also informed by a review of several risk assessment and climate risk assessment standards. These included the ISO Standards for Climate Adaptation for Local Governments (ISO 14092:2020), the District's Enterprise Risk Management framework, the 2019 Preliminary Strategic Climate Risk Assessment for B.C., and the B.C. Disaster and Climate Risk and Resilience Assessment (DCRRA). It was also informed by information available about the upcoming Emergency Disaster Management Act (EDMA) requirements for local governments (see feature box below).

EDMA – Emergency Disaster Management Act

Under the B.C. Emergency and Disaster Management Act (EDMA) and forthcoming regulations, local authorities will be required to:

1. Conduct risk assessments to identify hazards, including those based on future climate projections

2. Prepare emergency preparedness plans based on risk assessment findings

3. Develop business continuity plans

The EDMA builds upon existing emergency management practices (e.g., Hazard Risk Vulnerability Assessments), adding new considerations such as studies, surveys,

Indigenous and local knowledge, climate change considerations, and consultation results with relevant local authorities and First Nations. Special consideration must also be given to individuals experiencing intersectional disadvantage and vulnerable individuals,

animals, places, or things. […]

Regulations and guidance are currently in development to help support local authorities

to adapt and implement these changes to their existing practices.

(From: Climate Action Best Practices Guidebook for B.C. Local Governments and Modern Treaty Nations, August 2025).

As shown in Figure 1, this assessment explores what climate hazards may impact our community, how climate hazards are projected to change over time, how they impact what we value, what our current strengths are, and what potential actions we can take to improve our resilience.

Figure 1: Community Climate Hazard and Resilience Assessment Steps

This assessment covers the whole community of Saanich, with the inclusion of some out-of-boundary considerations such as our drinking water supply, local supply chains, and wildfires outside of Saanich impacting our local air quality.

2.2 Climate Hazards and Projected Changes

This assessment considers climate hazards and how they change in intensity and frequency over three timelines: the present, the medium term (2050s) and the longer term (2080s).[1] These timelines follow the projections for temperature and precipitation in the 2024 CRD Climate Projections for the Capital Region report and other projections as noted in each hazard section, using a high GHG emissions scenario.

> *"It can be useful to remember that planning for a high emissions scenario can help ensure that adaptation measures are resilient for a longer period of time if, in fact, a lower emissions scenario were to play out" (Climate Projections for the Capital Region 2024).*

This assessment explores the following five climate hazards, along with examples of similar events that have occurred in the past:

- Extreme Heat
- Extreme Rain
- Poor Air Quality (Wildfire Smoke and Heat)
- Drought
- Wildfire

[1] More specifically, the "2050s" time period in this report refers to the time period of 2041-2070 and the "2080s" time period refers to the time period of 2071-2100.

This list represents select climate-change related hazards that are currently impacting or may in the future impact our community, with the exclusion of sea level rise which is being addressed through separate planning processes. As more information becomes available about other climate hazards, they can be incorporated into future assessments.

The 2024 Climate Projections for the Capital Region report provided the projections for temperature and precipitation for this assessment. Poor air quality, drought, and wildfire are driven, at least in part, by changes in temperature and precipitation. These hazards are the same as those used in the Climate Risk Assessment of Corporate Assets except for sea level rise and snow. [2]

Preparing for Sea Level Rise

The Capital Region Coastal Flood Inundation Mapping Project provides a comprehensive picture of coastal flooding due to rising sea levels and tsunamis. Based on this work, the District is engaging in a series of Coastal Flood Adaptation planning processes, starting with the Gorge Coastal Flood Adaptation Strategy, a collaborative project with the City of Victoria, the Township of Esquimalt and the Town of View Royal, with support from the Capital Regional District. Plans for coastal flood adaptation will then be developed for Cordova Bay and Cadboro Bay.

2.3 Community Assets and Values

Modelled after the Provincial DCRRA, this assessment considers how climate hazards impact our community's assets and what we value, including:

- Natural Environment
- Indigenous Rights and Values
- Buildings and Infrastructure
- Society and Culture
- Health and Wellbeing
- Jobs and Economy
- Government services (including health care and emergency response)

These categories are not discrete. For example, the health of the natural environment impacts human health, the built environment, and the economy.

2.4 Community Strengths

Also called adaptive capacity or resilience, this assessment considers our community's current ability to prepare for, withstand, and recover from adverse climate impacts, and our potential to benefit from any opportunities brought by a changing climate. These strengths are not exhaustive and are derived from public and stakeholder engagement findings and relevant reports and resources from multiple sources. In the future these sections can be expanded to better understand more diverse community strengths.

[2] The climate projections we have available to us have a limited ability to simulate the unique meteorological conditions that lead to the rare, but sometimes heavy, snowfalls in southwest BC. Since the change in frequency of winter storms resulting in heavy snowfall is largely unknown, it was excluded from the community-wide assessment to focus on the more understood and certain climate hazards that are projected to impact our community. Snow was included in the PIEVC assessment due to the major role the local government plays in snow removal.

Community climate resilience can be defined in many ways. The following six characteristics in a study from the Red Cross (2012) are often cited globally as attributes of community resilience.

A safe and resilient community:

- **Is knowledgeable and healthy.** It has the ability to assess, manage and monitor its risks. It can learn new skills and build on past experiences
- **Is organised.** It has the capacity to identify problems, establish priorities and act.
- **Is connected.** It has relationships with external actors who provide a wider supportive environment, and supply goods and services when needed.
- **Has infrastructure and services.** It has strong housing, transport, power, water and sanitation systems. It has the ability to maintain, repair and renovate them.
- **Has economic opportunities.** It has a diverse range of employment opportunities, income and financial services. It is flexible, resourceful and has the capacity to accept uncertainty and respond (proactively) to change.
- **Can manage its natural assets.** It recognises their value and has the ability to protect, enhance and maintain them.

2.5 Vulnerabilities

While all people in Saanich will be impacted by climate change, our experiences will be different depending on several factors. This assessment considers those who may be disproportionately impacted by climate change based on geographical vulnerabilities (where in the community we happen to be) and our diverse socioeconomic statuses that affect how exposed we are to a hazard, our health, and our challenges in taking protective measures. Informed by the groups considered in the BC DCRRA, and then customized to Saanich, consideration is given to the following groups (in no particular order):

- Certain types of workers such as outdoor workers (including farmers), workers in hot indoor environments, emergency responders, and other at-risk workers and industries,
- People with a disability and/or pre-existing or chronic health conditions (physical or mental),
- Seniors,
- Parents and guardians of young children and/or people who are pregnant,
- Children and youth,
- Low-income households,
- At risk building types and tenure/ownership type,
- Isolated individuals,
- Indigenous people,
- Racial minorities,
- 2SLGBTQIA+ people,
- Unhoused people,
- Newcomers and visitors, and
- Non-English-speaking people.

Some Saanich residents may fit into many of the above categories and face intersectional barriers to climate adaptation. Information about vulnerabilities in our community is derived from public and stakeholder engagement, including the equity-deserving engagement activities

conducted by the Community Social Planning Council for this assessment, along with relevant reports and resources from multiple sources as outlined in the reference section.

> "Climate equity is the goal of recognizing and addressing the unequal burdens made worse by climate change, while ensuring that all people share the benefits of climate action efforts. Achieving climate equity means that all people in our region have access to a safe, healthy, and fair environment" Climate Projections for the Capital Region, 2024.

2.6 Impacts

Climate impacts described in this assessment are derived from many sources, such as public and stakeholder engagement (including with disproportionately impacted groups), similar scenarios experienced in Saanich or in similar communities, best available information from relevant sources, and subject matter expertise. Following the BC DCRRA model, impacts are described qualitatively.

2.7 Resilience Actions

The qualitative impact descriptions were used alongside data analysis and engagement to identify potential community resilience actions for inclusion in the updated Climate Plan.

While resilience actions are grouped by climate hazard, many climate adaptation actions can be designed to improve our resilience to multiple climate hazards at once, while also adding co-benefits for health or our economy.

For example, adding trees and raingardens along roadways addresses these climate hazards and provides these co-benefits:

- Extreme heat: adding trees reduces urban heat island effect through shading and evaporative cooling, protecting health and reducing the wear and tear of heat on asphalt.
- Extreme rain: trees and raingardens slow the entry of rain into the piped stormwater system and our natural waterways, reducing erosion and helping protect stream biodiversity.
- Drought: raingardens along roadsides add permeability to an otherwise impermeable area and allow for more groundwater recharge,[3] which can help with reducing drought conditions for soil moisture and stream health (since streams are mostly fed by groundwater in the summer when rain is infrequent).
- Other co-benefits: Adding trees and shrubs in raingardens contributes to biodiversity, improves mental health of nearby residents, and increases property values. When combined with a community planting event and information boards it also increases community connectedness and environmental awareness.

2.8 Limitations

The assessment is limited due to several factors, including:

[3] Alejandro Dussaillant-Jones, C. W. (2005). Infiltration of stormwater in bioretention cells: Numerical model and field experiment. Ingeniería hidráulica en México. Retrieved from https://www.researchgate.net/publication/286794504_Infiltration_of_stormwater_in_bioretention_cells_Numerical_model_and_field_experiment

- Lack of extensive involvement of local First Nations rights holders and Indigenous Knowledge keepers about their perspectives and priorities. Work is underway to engage with local First Nations and Indigenous organizations.
- Lack of risk statements and risk scoring. Risks are defined as the likelihood multiplied by the consequence score for specific climate change hazard scenarios. These scores were not provided in the Saanich Emergency Program HRVA or in the BC DCRRA either, so it is the current standard approach. This work may be expanded in future assessments as more Saanich specific data and scoring criteria becomes available.

> "In 2019's Preliminary Strategic Climate Risk Assessment for British Columbia, the risks from 15 climate-related hazards were evaluated. Wildfires, drought and water scarcity, and extreme heat were rated as high risk, whereas riverine floods and coastal storm surges (one component of coastal floods) were scored as medium. Since that assessment, catastrophic flooding in November 2021 caused significant damage to southern B.C. This became the costliest disaster in the province's history." (BC DCRRA, 2025.)

- Complexity of scoring cumulative and/or compounding effects from climate change and/or other hazards such as earthquakes, pandemics, or widespread disinformation. For the purposes of this assessment, hazards are explored separately, and it is assumed that actions taken to improve our resilience will assist with our overall resilience to compounding effects of climate change.
- Lack of clarity about how climate change impacts in other parts of the world will impact our community, such as through global food price increases or supply chain issues, which is not fully addressed in this assessment. Saanich is in a very enviable position compared to other places in the world in terms of how climate change will impact us, thanks to our relatively mild climate and high human social development index lifestyles.

Future assessments may be able to improve on these limitations. It is recommended that updated community climate hazard, risk, vulnerability, and resilience assessments be conducted on a regular basis, as more information becomes available, and as our community's context changes.

> "Climate change is not a linear process, and risks will evolve and change over time. Risk assessments provide a snapshot of these risks at a specific time. In order to be meaningful in the long term, risk assessments need to be repeated following a regular review and update process." (Canadian Council of Ministers of the Environment Good Practices in Climate Change Risk Assessment: A Summary, 2021)

3.0 Hazards

This section explores five key climate hazards as they are projected to change over time, how they may impact our community, and what potential actions we can take to improve our resilience.

3.1 Extreme Heat

This section includes the following as it relates to extreme heat:

- Hazard description and projected changes
- Example events
- Community Strengths
- Impacts
- Vulnerabilities
- Potential Actions

3.1.1 Hazard Description and Projected Changes

Extreme heat occurs when higher temperatures than seasonally usual are experienced in the day or night and may last for a varying number of days. Daytime and nighttime high temperatures as well as consecutive hotter days and nights are projected to be intensified by climate change. Extreme heat can exacerbate local air pollution, which is covered in the Poor Air Quality hazard below.

The BC Heat Alert Response System (HARS) identifies two levels of heat events: Heat Warnings and Extreme Heat Emergencies.

For our region,

- A Heat Warning is issued when two or more consecutive days of daytime maximum temperatures are expected to reach 29C or warmer and nighttime maximum temperatures are expected to fall to 16C or warmer.
- An Extreme Heat Emergency is declared when Heat Warning criteria are met, and the forecast indicates that daily highs will substantively increase day over day for three or more consecutive days.

Hot Days

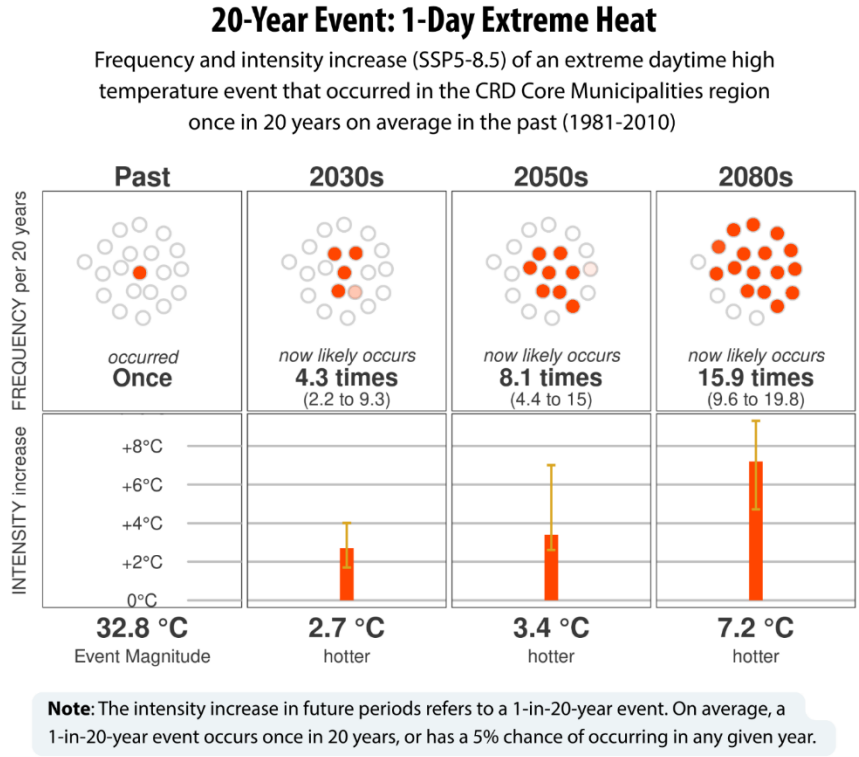
In the 1980s to 2010s, a daily maximum temperature of 32.8°C or higher occurred once every 20 years or so in the core/peninsula of the capital region.[4] As shown in Figure 2, extreme daytime high temperatures are projected to become more intense and more frequent across the CRD's core/peninsula area between now and the 2080s.

Warm Nights

Nights over 16°C in the core/peninsula are projected to increase from 11 per year in the observed past to 42 per year in the 2050s up to 64 per year in the 2080s.

[4] CRD, Climate Projections Report for the Capital Region, 2024

Figure 2: 1 in 20 Year Daytime High Frequency and Intensity Changes over Time (Pacific Climate Impacts Consortium, 2024)



Multi Day Hot Weather

Many different definitions of heat waves exist. In the CRD Climate Projections Report (2024), heat waves are defined as having summer days of at least 28°C and temperate nights of at least 13°C. In addition, a heat wave must last at least 2 full days and have day and night temperatures exceeding their 95th percentile values in the recent past. This definition is not quite the same as the BC HARS heat warning threshold but is quite close.

In the past, there was usually one heat wave per year, lasting up to 3 days and having a peak daily temperature of around 30°C. By 2050, up to 3 heat waves are projected per year, and 5 per year by the 2080s. Heatwaves are projected to increase in length (approaching 9 consecutive days or more by the 2080s) with warmer days and nights.

Cooling Needs

There will be an increase in the number of days where space cooling is needed to maintain comfortable indoor conditions during warmer months. Cooling Degree Days (CDDs) are a way to measure this need, defined as the cumulative difference of the daily average temperature above 18ºC. For our region (in the CRD Core/Peninsula), CDDs are expected to increase by 40% the 2050s and by 64% in the 2080s.

3.1.2 Example events

- **BC June 2021 Heat dome event** resulted in the death of nearly 600 British Columbians including 18 South Island residents[5] along with stress on the healthcare system and massive ecosystem impacts (including 43 heat-related hospitalizations in the South Island). It contributed to the subsequent fire that devastated the Village of Lytton and Lytton First Nation.
- **BC July 2015 Heatwave** resulted in over 200 wildfires around the province, evacuation orders for dozens of homes, and blanketed Metro Vancouver in smoke for nearly a week.

3.1.3 Community Strengths

Saanich has many strengths to build on for improving our resilience to extreme heat, and we benefit compared to other places from a relatively moderate temperature year-round in the present.

Following experience and recommendations coming out of the 2021 heat dome, our community is beginning to adapt to hotter temperatures and wildfire smoke events, with actions taken by multiple levels of government and institutions as well as organizations, neighbourhoods, communities, individuals and households. These include:

New government information and services

- A new BC Heat Alert and Response System was created to guide extreme heat response.
- Enhanced information and guidance for residents on extreme heat precautions including:
  - Prepared BC: Household Preparedness Guide
  - Prepared BC: Neighbourhood Preparedness Guide
  - Pet Emergency Plan
  - Heat Safety | Island Health
  - Extreme heat health check tool (National Collaborating Centre for Environmental Health)
  - Heat-check-in-support-framework (Vancouver Coastal Health Authority)
  - Low-Cost Solutions for Renters: Guide for Preparing-for-Extreme-Heat-Events
- Analysis and recommendations from the 2021 heat dome, including the BC Coroner's Report.
- CRD Emergency Dashboard (new as of 2025) including the Capital Region Extreme Heat Information Portal and Regional Heat Map

Access to naturally cooler spaces

- Saanich manages over 170 parks that cover 8.2 km^2 (820 hectares). This represents 8% of the total area of Saanich. Other parks in Saanich are managed by other entities as well. In addition, we have 32 public beach accesses along our ocean shores and four at Prospect Lake. Beach access when used for swimming can help people stay cool[6].
- Saanich's tree canopy cover was estimated at 43% in 2019.

[5] Summer heat dome resulted in 18 Greater Victoria deaths: BC Coroners Service | Victoria News

[6] People may also overheat if they are spending time at the beach without swimming or staying in the shade.

- In 2024, Saanich adopted the Biodiversity Conservation Strategy and the Urban Forest Strategy including targets for increased tree cover and proximity to trees for all lots within the Urban Containment Boundary.
- The updated Urban Forest Strategy addressed equity by incorporating a tree equity score and targets.
- Many of Saanich's parks have accessible parking stalls, picnic tables, paths, and washrooms. A mat at Cadboro Gyro Park makes beach and water more accessible for people using mobility aids. Work is underway to improve physical accessibility amenities and information about them, including current projects at Gorge Waterway and Craigflower-Kosapsum Parks.

Access to active and passive cooling in buildings

- Many public spaces with air conditioning are available during heat events, including some libraries and Saanich's recreation facilities which are promoted for cooling purposes to the public during their operating hours (Saanich Commonwealth Place, G. R. Pearkes, Cedar Hill, and Gordon Head Rec Centres all have at least some public or paid entry areas that have air conditioning).
- Saanich recreation centres all have accessibility information posted on the Saanich website. Staff in Parks, Recreation and Community Services have received intensive training supporting working with children with disabilities.
- The BC Building Code introduced a maximum design temperature limit for a single living space in each dwelling unit to minimize the risk to health and safety from overheating. These new Building Code 2024 requirements apply to projects for which a building permit is applied for on or after March 8, 2024. These changes apply to new dwelling units in all large (Part 3) and smaller (Part 9) residential occupancies.
- Many households are retrofitting their homes with heat pumps or portable air conditioners. Rebate programs are on offer, including for low-income households, renters, and multi-unit building residents. In BC, heat pump sales have begun outpacing fossil fuel heating system sales. Over 1,600 heat pumps were installed through fuel switching rebate programs in Saanich between 2017-2023. In a 2023 BC CDC survey[7], 51% of Island Health respondents said they had access to either a heat pump or air conditioning at home.
- BC Transit busses are air conditioned, providing mobile access to cooling.
- Those who live in single family homes and/or in multi-unit buildings with parkades can access relatively cooler spaces on lower building floors.

3.1.4 Impacts

Natural Environment	The natural environment is severely impacted by extreme heat. As one example, it's estimated that over a billion seashore animals may have died along BC's shores due to heat in the 2021 BC heat dome. Some animals and plant species cannot survive an extreme heat event or may be harmed by extreme heat along with cumulative impacts from other climate changes such as drought or non-climate related stressors such as habitat fragmentation. For example, harmful

[7] BC Centre for Disease Control. (2023). BC SPEAK Survey Round 3 Results. Retrieved from https://public.tableau.com/app/profile/bccdc/viz/BCSPEAKSurveyResultsRound3/BCSPEAKResults

	algae blooms in freshwater and saltwater may occur more often in hot temperatures.
Indigenous Rights and Values	Extreme heat can have a disproportionate impact on Indigenous people, including harm to natural areas and species that are of cultural and food security importance (e.g. red tides can impact shellfish harvesting[8]), facing discrimination when seeking cooling in public areas or health care, and having additional health burdens[9] [10]compared to the general population in BC.
Built environment	Heat can increase wear and tear on mechanical systems in buildings, vehicles, equipment, and other infrastructure (such as causing concrete to expand and crack and asphalt to warp and erode). IT equipment can shut down to avoid overheating. Energy demands for cooling increase.
Society and Culture	Some outdoor recreational activities may be cancelled such as sports events. Kids summer programs may be cancelled. People may choose to cool off in Saanich parks, splash parks, and water bodies or in shared indoor cooled spaces, while harmful algae blooms in water bodies may prevent swimming. Hot and dry weather results in fire bans, which impacts people's social and cultural activities related to fire, such as cooking with fire when camping.
Health and Wellbeing	Extreme heat can have serious impacts on human health such as heat stroke and exacerbating existing health conditions (i.e. cardiovascular, respiratory and kidney conditions). In the 2021 heat dome, 24 people died from the heat in Greater Victoria and many more people accessed the health care system including 911 calls and ambulance trips due to heat[11]. Extreme heat also contributes to worsened air quality, which also impacts human health. Similarly, drinking water quality may be negatively affected, and swimming in natural water bodies may be harmful due to increased incidences of harmful algae blooms.
Jobs and Economy	To comply with WorkSafe BC working in heat regulations, workers will need breaks and access to water, reducing time available for work, impacting productivity and costs. If summer kids' camps are cancelled due to heat, workers with young children will need to take time off, or camps are moved indoors and displace other (paid) programming, with potential negative health, culture, and economic implications The agricultural sector may suffer crop losses. Businesses offering hot weather-related products and services such as cool indoor spaces, cold beverages, fans, air conditioners, heat pumps, solar panels, and other such products may see increases in sales.

[8] See for example Canadian Climate Institute Community is the solution - Canadian Climate Institute 2023.
[9] See for example, First Nations Health Authority Update on health indicators of First Nations Peoples in BC, 2024.
[10] See for example, Health Inequities: A Crisis Within a Country of Health - WSÁNEĆ Leadership Council, 2026.
[11] BC Coroners Service. (2022). Extreme Heat and Human Mortality: A Review of Heat Related Deaths in B.C. in Summer 2021. Retrieved from https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/death-review-panel/extreme_heat_death_review_panel_report.pdf

Government Systems and Services	Multiple levels of governments and the health sector will use their resources to mobilize the BC Heat Alert and Response System (BC HARS) and associated actions. This may take resources away from other work for a temporary period. The health care system will experience an increase in people requiring assistance for heat related reasons. Municipal infrastructure costs will increase. For example, asphalt and pavement are susceptible to increased wear and tear due to high temperatures.[12]

3.1.5 Vulnerabilities

Heat impacts different parts of our community in different ways. With support from leading experts and stakeholders, Health Canada has developed guidance for communities seeking to safeguard communities for extreme heat events to understand the various vulnerabilities to heat residents face based on individual and community factors. These factors are summarized in Figure 3 from Health Canada's Adapting to Extreme Heat Events: Guidelines for Assessing Health Vulnerability report 2011.

Figure 3: Factors that influence individual and community-level sustainability to extreme heat events

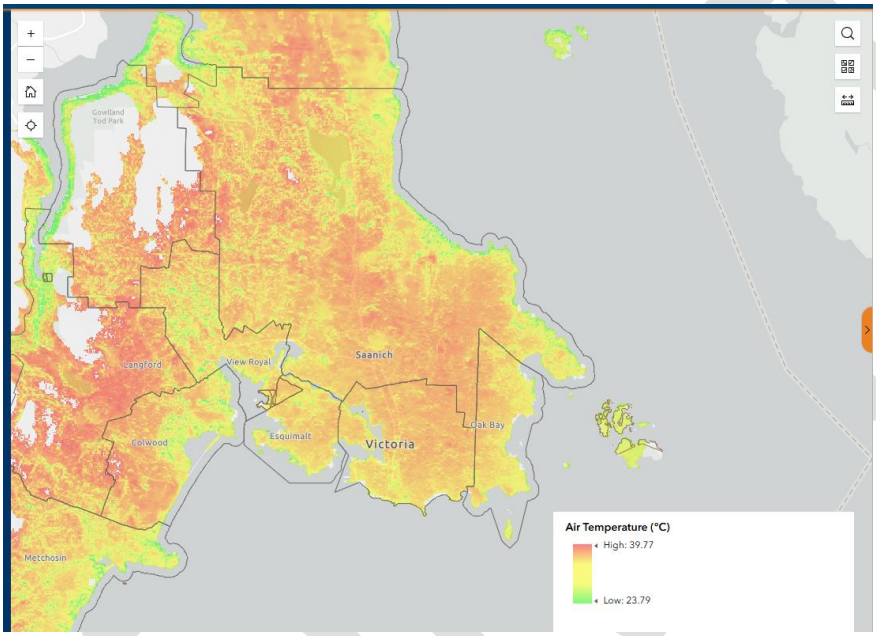
Figure 1: Factors that influence individual and community-level susceptibility to extreme heat events (Health Canada 2011)

[12] Hamilton, C. o. (2022). How Much is Climate Change Costing Canadian Communities? ICLEI Canada. Retrieved from https://icleicanada.org/wp-content/uploads/2022/11/CODN-Case-Study-Hamilton.pdf

Geographical Vulnerabilities

Some geographical areas of Saanich will experience hotter temperatures than others. Geographical factors influencing temperature include urban heat islands (high concentrations of people, roads and buildings make an area hotter). Relative protection from heat can come from canopy cover (more trees will help keep an area cool), elevation, and proximity to ocean breezes. Air temperature from the peak of the 2021 heat dome is shown spatially in Figure 4, a screenshot from the CRD Heat Vulnerability Map.[13]

Figure 4: CRD Regional Heat Map Heat Exposure - Air temperature



Social Vulnerabilities

Uncharacteristically hot weather can cause illness and death for humans along with pets, livestock, crops, wildlife, and marine and terrestrial plant species. As observed in the 2021 BC Heat Dome, some people are more vulnerable than others to extreme heat, including those:

- with specific chronic diseases (schizophrenia, substance use disorder, epilepsy, chronic obstructive pulmonary disease, depression, asthma, mood and anxiety disorders, and diabetes);
- who lived alone; and
- who lived in socially or materially deprived neighbourhoods.[14]

Results from research with local at-risk groups[15] found that some barriers to climate adaptation to heat included:

- Not knowing where to find timely information about heat events,

[13] The CRD Heat Vulnerability Map does not use the same methodologies as the 2024 CRD Climate Projections report.

[14] BC Coroners Service. (2022). Extreme Heat and Human Mortality: A Review of Heat Related Deaths in B.C. in Summer 2021. Retrieved from https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/death-review-panel/extreme_heat_death_review_panel_report.pdf

[15] A Hot Topic Final Report Dr. Sarah Weibe and Kirsten Mah. 2023.

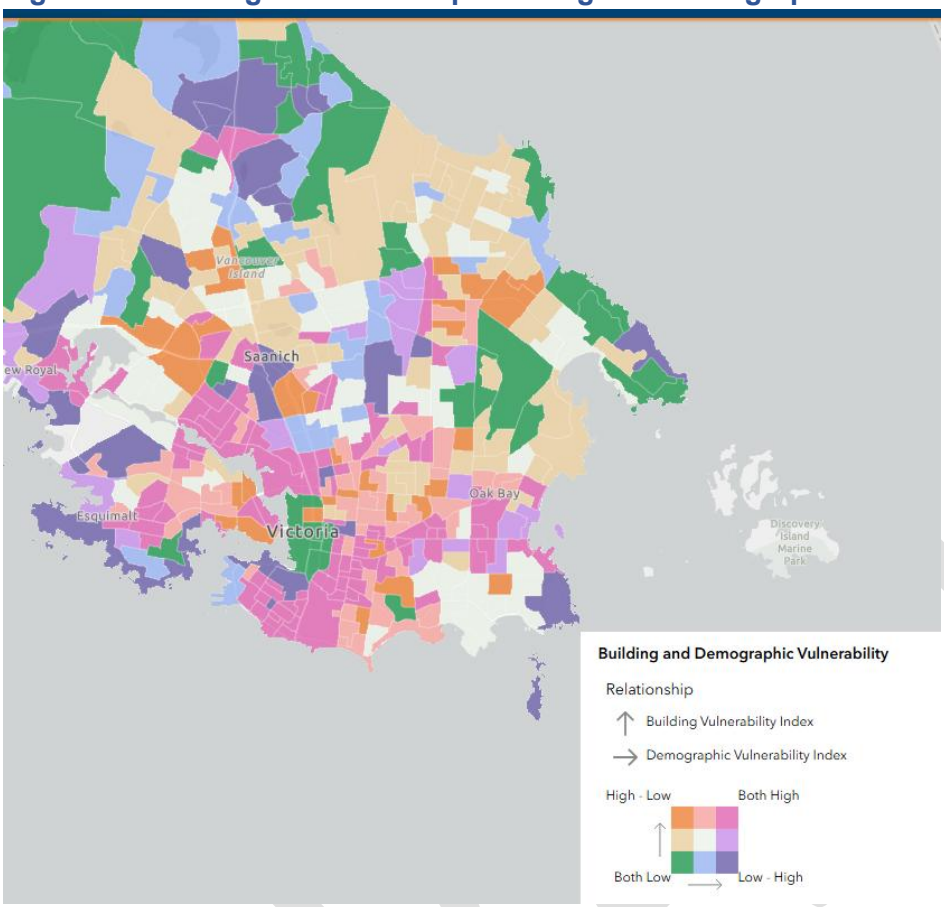
- Stratas and rental dwellings not having access to cooling and facing barriers to installing heat pumps and portable air conditioners (e.g. landlords can refuse the BC Hydro free AC program),
- Not knowing how to care for pets during a heat event/not being able to bring them to cooling centres,
- Not having cooling centres at night, and
- Not having a list of vulnerable people (especially isolated people) and existing mutual aid networks to check in on them.

Additionally, the public engagement process noted that young people, older adults, people who are unhoused, people using public transit and active transportation, people who can't afford cooling equipment for their homes, and those with jobs that expose them to additional heat, such as kitchen workers and outdoor workers (e.g. farmers, public works and parks, landscaping, construction, etc.), are also more vulnerable than others.

Buildings in Saanich were built for the climate of the past rather than the climate of the present or the future. Unlike in other parts of Canada, it is not currently standard for buildings to include active or mechanical cooling such as heat pumps or portable air conditioners (AC), nor is it common to include passive design measures that promote cooling. Indoor air temperatures can become higher than outdoor temperature due to heat exposure on roofs, walls, and windows, as well as use of heat producing indoor appliances and lighting. In addition, indoor temperatures can often take longer to cool down at night compared to outdoor temperatures. Some buildings are more prone to overheating than others based on several factors such as age, glazing type and size, etc. The CRD Regional Heat Map includes a Building Vulnerability Index showing the locations of buildings modelled as more vulnerable to overheating. The 2021 heat dome showed that building type impacted people's health. 98% of deaths occurred indoors and most people who died were in homes without adequate cooling systems such as air conditioners or fans.

Combined building and demographic vulnerability indices for our region are shown in Figure 5.

Figure 5: CRD Regional Heat Map Building and Demographic Vulnerability



3.1.5 Resilience Actions

Various actions can be taken to address the impacts to the community from extreme heat that are noted above. Tables 1 and 2 below outline resilience actions related to extreme heat. Table 1 shows actions the District can undertake, in addition to existing actions in the Saanich Official Community Plan, Urban Forest Strategy, Biodiversity Conservation Strategy, Emergency Program services, and other relevant commitments. These will primarily be located in the Community Wellbeing & Resilient Infrastructure Focus Area of the 2026 Climate Plan. Table 2 shows actions other organizations can consider implementing.

Table 1 Heat Resilience Actions for the District of Saanich

#	Action	PIEVC Action	Lead/Support
CH1	Provide top up incentives for cooling equipment programs and passive cooling measures especially for those most in need.		Sustainability
CH2	In parks, add seating under shade trees and explore options for increasing shade, drinking water fountains, and misting station access.	H.12, H.18	Parks

CH3	Explore additional options for addressing urban heat island effect including in priority areas identified by the CRD Heat Vulnerability Map and along active transportation corridors.	H.3, H.4, H.13, H.14	Sustainability
CH4	Enhance and scale up neighbourhood level programs (e.g., Neighbour to Neighbour Resilience Initiative) that promote and support volunteer programs to increase community connectedness and preparedness (e.g. by encouraging and supporting neighbours to check in on each other during heat events.)		Sustainability/ Emergency Program
CH5	Partner with research organizations to measure actual indoor and outdoor temperatures in residents' homes and effectiveness of interventions.		Sustainability
CH6	Work with BC Transit to ensure and communicate accessibility of air-conditioned busses during heat events.		Sustainability/ Emergency Program, Communications
CH7	Explore ways to support community-based organizations' heat responses for their members.		Sustainability, Emergency Program
CH8	Share heat preparedness information through Saanich's community services channels and networks		Community Services/ Sustainability

Table 2 Potential Heat Resilience Actions for Other Organizations

Action Owner	Action Description
Capital Regional District (CRD)	• Work with local businesses and organizations to develop their own climate adaptation plans using CRD Climate Projections Data and other relevant data. • Work with local First Nations to develop co-managed approaches to emergency management.
Household, neighbourhood, and local businesses and organizations	• Develop a heat plan for workplace, household, pets, neighbourhood, etc. • Install heat pumps and/or portable air conditioners at home/building (homeowners, landlords, stratas, housing providers). • Install passive cooling design measures such as exterior shading, new glazing, cool roofs, etc. • For large building operators open to the public (such as malls) consider adding extra seating and allowing people to spend time in their buildings for the purpose of cooling during heat events.

Provincial and Federal governments	• Provide long-term, well-funded, consistent and easily accessible retrofit programs with cooling equipment for low-income households. • Remove barriers for renters and strata residents to install cooling equipment. • Update the BC Residential Tenancy Act to require landlords to provide safe maximum temperatures for renters. • Fund local emergency services to run cooling centres including retrofit costs and staffing costs.
Critical infrastructure and service providers	• Conduct and update climate risk assessments, implement actions, monitor results, and report publicly on progress.

3.2 Extreme Rain

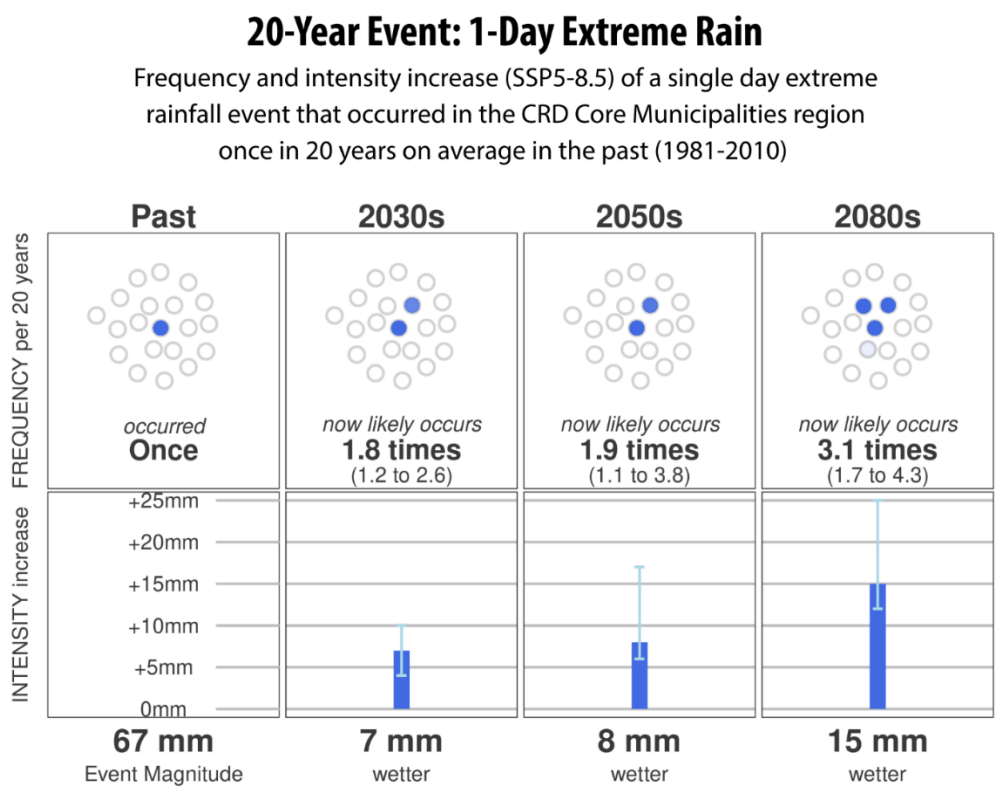
This section includes the following as it relates to extreme rain:

- Hazard description and projected changes
- Example events
- Community Strengths
- Impacts
- Vulnerabilities
- Potential Actions

3.2.1 Hazard Description and Projected Changes

Saanich is no stranger to rainfall, especially in the winter. However, we are now seeing more extreme and damaging rainfall events than in the recent past. This trend is projected to continue over time. The median projected 1-in-20 year, single-day rainfall amount in the core/peninsula area increases from 67mm in the recent past to around 75mm by the 2050s and to about 82mm by the 2080s. The frequency of the current 1 day extreme rain amount increases by 1.9 time by the 2050s and 3.1 times by the 2080s (see Figure 6). Additionally, by the 2050s, due to warmer temperatures, total snowfall is projected to drop by nearly 60%, while total rainfall in the winter is projected to increase by 25%. The changes in extreme rainfall days are projected to be larger than changes in monthly or yearly rainfall averages.

Figure 6: 1 in 20-Year Rainfall 5 Day Event Projections (Pacific Climate Impacts Consortium, 2024)



Note: The intensity increase in future periods refers to a 1-in-20-year event. On average, a 1-in-20-year event occurs once in 20 years, or has a 5% chance of occurring in any given year.

3.2.2 Example events

- Southern Vancouver Island December 2025 – the second large rain day event (57.4mm on December 16th at the University of Victoria) in a week caused high levels of water in local creeks, discharge of sewage into waterways (elsewhere in the CRD outside of Saanich), flooding of buildings, causing landslips on the regional trails and in parks, and pooling of water on roads, causing road closures throughout Saanich and over 81 calls to Saanich Public Works between 7pm and midnight for help with addressing overland flooding, clearing blocked drains, and placing sandbags in affected areas. In the Lower Mainland at this time, parts of Abbotsford were under evacuation orders, and multiple highways were damaged.

- Saanich October 2021 atmospheric river resulted in supply chain issues due to a washout of a section of the Malahat (Highway 1) t and some standing water on roads in Saanich, and much larger damage elsewhere in the province including loss of livestock. Across southern B.C., losses were estimated at between $9 billion and $14 billion, with over $5 billion of that being uninsured losses. Public expenditures related to flooding and landslides were estimated at $7 billion (BC DCRRA).

3.2.3 Community Strengths

Ecosystems

- Saanich Parks and waterbodies serve as "sponges" to absorb rainfall, especially those in low lying areas such as Rithet's Bog.
- 84% of Saanich's surface is pervious (a surface that allows water to enter the ground), according to the Saanich State of Biodiversity Report (2023).
- The Biodiversity Conservation Strategy and the Urban Forest Strategy address reducing the impacts of extreme rain in many ways, including increasing tree canopy cover, minimizing impermeable surfaces, and identifying opportunities to daylight and restore natural stream reaches that are culverted.
- Saanich has signed on to the Bowker Creek initiative to restore and improve the watershed.

Stormwater management

- Saanich is actively managing stormwater, including with grey and green infrastructure (pipes and natural areas) and regular maintenance of catch basins and culverts.
- Saanich is updating our stormwater infrastructure based on projected future climate rather than the climate of the past. Learn more about Integrated Stormwater Management Planning (ISMP).
- Saanich requires new developments have no net impact on our stormwater system after construction: Engineering Specifications – District of Saanich | District of Saanich.
- Information is available for residents about managing stormwater, including:
    - Flood Information for Homeowners | District of Saanich
    - Stormwater Management | District of Saanich

Land Use Planning

- Saanich land use regulation protects buildings from extreme rain and related flooding, including through the Development Permit Area (DPA) Guidelines (which will be updated based on the Integrated Stormwater Management process):
    - Schedule 1: Floodplain Development Permit Area
    - Schedule 2: Streamside Development Permit Area

Drinking water quality

- The CRD manages for drinking water quality in the drinking water supply area including for climate-driven rain events. It also runs the Cross-Connection Control service for backflow prevention for any actual or potential connection between a drinking water system and any source of contaminated water (e.g. garden hose connections, swimming pools, irrigation systems, dishwashers, etc.)

Emergency Services

- The Saanich Emergency Program provides reception centres for displaced residents and emergency preparedness information.
- Flood damage from rain events in Saanich generally does not result in widespread displacements that require the Saanich Emergency Program to provide services, but they are available if needed.
- The BC Emergency Support Service programs are available to eligible residents.
- Provincial Disaster Financial Assistance is available to support rebuilding for eligible people who are uninsured or without enough insurance coverage.
- The Province provides guidance on safety considerations when remediating flooded drywall with regards to asbestos. Drywall Collection and Disposal Policy Guidance for Local Governments.

Electricity

- 99% of the power outages in Saanich (from downed trees due to flooding and other causes) over the past decade are less than a day in length.

3.2.4 Impacts

Natural Environment	Extreme rain can cause damage to the natural environment, including erosion along slopes and potential for trees to fall. It causes greater than usual soil erosion and contaminants being driven from land into waterways with resulting harm to stream and ocean species. Wastewater is often discharged into waterways and the ocean. The volume and speed of water itself can harm riparian areas and species. Building heating oil tanks might spill, contaminating soil and water.
Indigenous Rights and Values	Extreme rain may cause damage to local First Nations buildings and culturally important sites, and accessing government supports for displacement or rebuilding may be challenging if programs are not informed by cultural safety training and aligned with DRIPA. While there are many causes of shellfish harvesting closures, extreme rain events can contribute

	to issues affecting safety for shellfish harvesting (e.g. by causing septic systems to malfunction and contaminate waterbodies).
Built environment	Extreme rain can overwhelm the stormwater system and cause flooding of the built environment, including of roads and buildings, and potential washouts of infrastructure such as bridges, as well as releases of sewage from the wastewater system or sceptic systems. Downed trees can impact power lines and cause power outages, block transportation routes, or damage buildings or vehicles. Flooding is the most common and costly natural hazard in Canada in terms of property damage.[16]
Society and Culture	Extreme rain may interrupt usual social/cultural activities due to difficulties travelling or closure of parks and multi-use trails due to trail washouts or while skate park bowls need pumping out. For those who may be displaced, the interruption to normal activities such as school, faith gatherings, sports, music performances, hobbies, etc. may be much longer.
Health and Wellbeing	Extreme rain may temporarily make it difficult for people to access health care. Power outages may harm the health of those who require electricity for medical devices. Falling trees, being pulled into a rushing flooding river, landslides, etc. may harm people. Some people may be displaced from their homes. Water damage in buildings has the potential to cause ongoing health issues if not properly remediated (e.g., from mold) and may cause secondary issues with exposure to asbestos or other harmful substances. Drinking water may have increased turbidity. Mental health burdens can arise from being displaced or dealing with water damage to home and belongings.
Jobs and Economy	Supply chain issues might result from damage to the transportation system, temporarily preventing delivery of food and fuel and other necessities and negatively impacting other economic activities. Power outages impact the economy in multiple ways. Repairing damage to buildings and infrastructure can be costly, time consuming, and labour-intensive. Repair may or may not be fully covered by insurance or government assistance and can cause

[16] IntactCentre_Municipal-Flood-Risk-CheckUp_report_2024.pdf

	insurance premiums to increase. Over the past decade and a half, flooding has been the costliest extreme weather disaster affecting Canadians.[17]
Government Systems and Services	Government staff might be redirected from regular responsibilities to emergency response and flood cleanup efforts. Municipal infrastructure costs will increase, For example, erosion from precipitation can increase repair costs for roads and bridges.

3.2.5 Vulnerabilities

Geographical vulnerabilities

Heavy rainfall events can lead to localized flooding impact in the areas identified as floodplains as well as along creeks including Colquitz, Bowker, Swan, Tod Creek, and other water courses. Roads in low lying areas may be closed due to high water levels. In December 2025, road closures were in effect at Bowker Creek at Haultain, Blenkinsop at Big Barn Creek, Roy Road at Elizabeth Street, and Brookleigh Road at Charleton Road. Public engagement also noted issues with flooding in the Shelbourne Valley.

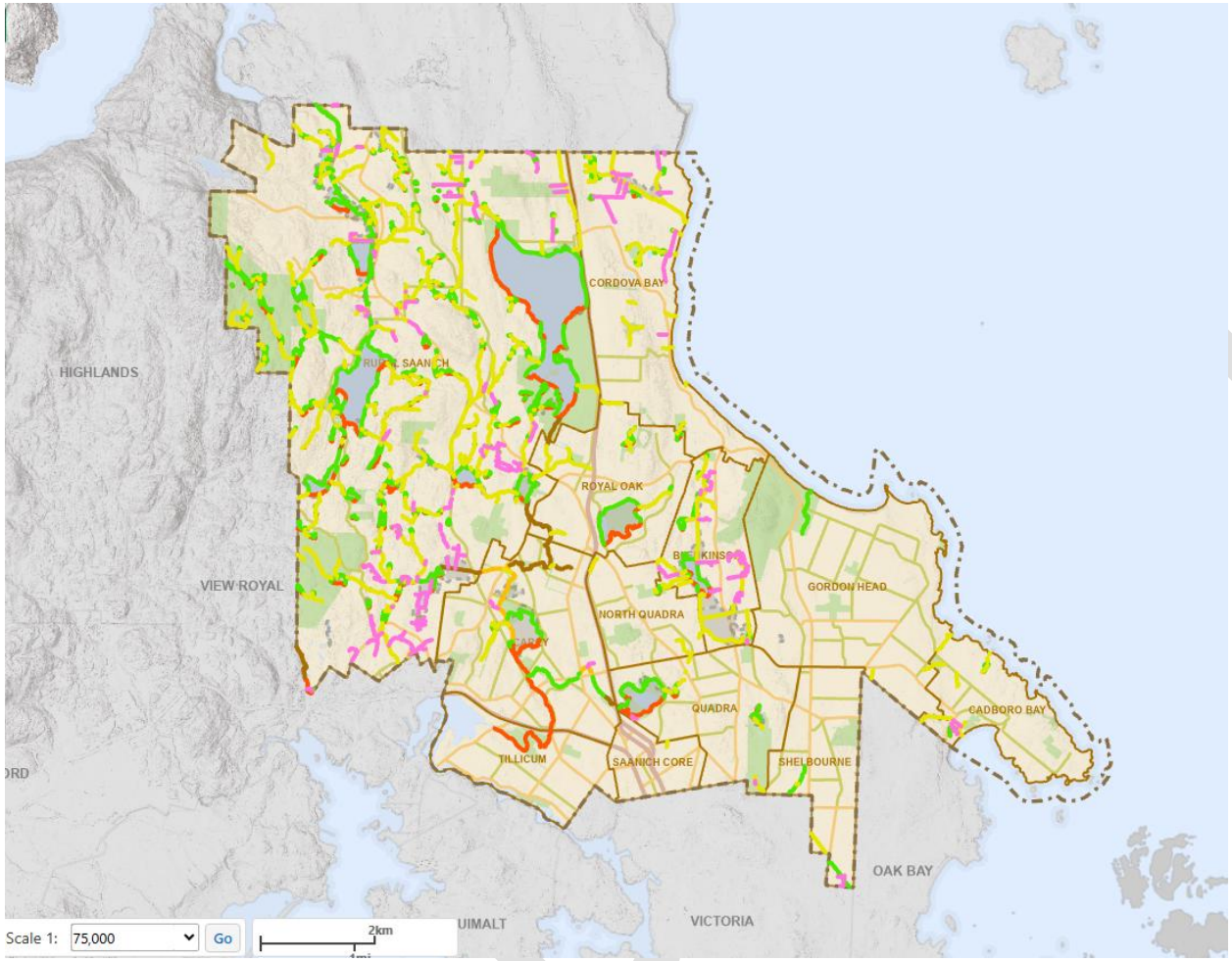
Slopes may be subject to failure due to saturation combined with cumulative impacts to soils and vegetation due to other climate hazards, potentially impacting roads, buildings, and other infrastructure.

Power outages may be more likely in areas with higher tree cover and aboveground power lines, and rural Saanich may experience longer wait times for power outage repairs than urban Saanich.

The District of Saanich's GIS map (Figure 7) shows the designated flood plain areas in solid grey and the Streamside Development Permit Areas in yellow, pink, and red lines. These Ares reflet past conditions rather than affected areas with climate projections.

[17] Moudrak, N. a. (2020). Under One Umbrella: Practical Approaches for Reducing Flood Risks in Canada. University of Waterloo," Intact Centre on Climate Adaptation. Retrieved from https://www.intactcentreclimateadaptation.ca/wp-content/uploads/2020/11/Under-One-Umbrella-1.pdf

Figure 7: Saanich GIS Map with Flood Plain and Streamside Development Permit Area Layers



Social vulnerabilities

Social vulnerabilities to extreme rain can be experienced in many different ways, including:

- People without homes are likely at greater risk of acute health impacts due to their direct exposure to extreme rain then housed people. Housed people may be at risk of displacement or exposure to hazards such as asbestos during home remediation.
- People without overland water insurance may be more vulnerable if they incur costs related to displacement and/or repairs from extreme rain damaging their homes.
- People living in basement suites (usually renters) may face greater impacts from extreme rain than those living aboveground in terms of displacement and loss/damage of property.
- Those who face systemic discrimination may face more barriers than others in accessing help such as temporary accommodations.
- Power outages may affect people with disabilities and medical conditions in many different ways e.g. People who require electricity to power medical devices are more vulnerable to power outages sometimes associated with extreme rain, as are those who rely on online/digital services for daily needs.
- People with mobility issues may face greater barriers to transportation than others during extreme rain/flooding events.
- Should people need to evacuate, some will have easier access to help from friends and family and/or have more insurance coverage than others. There are many systemic barriers faced by some residents when accessing emergency supports, including those who are lower income, isolated seniors, disabled people, Indigenous people, people facing language barriers, and others who face systemic discrimination.

3.2.6 Resilience Actions

Various actions can be taken to address the impacts noted above to the community from extreme rain. Tables 3 and 4 below outline resilience actions related to extreme heat. Table 3 shows actions the District can undertake, in addition to existing actions in the Saanich Official Community Plan, Integrated Stormwater Management Planning process, Urban Forest Strategy, Biodiversity Conservation Strategy, and existing Emergency Program and other relevant commitments. These will primarily be located in the Community Wellbeing & Resilient Infrastructure Focus Area of the 2026 Climate Plan. Table 4 shows actions other organizations can consider implementing.

Table 3 Rain Resilience Actions for the District of Saanich

#	Action	PIEVC Action	Lead/Support
CR1	Complete update to floodplain mapping.	P.8	Water Resources

CR2	Update Development Permit Areas and Flood Construction Levels for changing flooding risks (streamside, floodplain, and storm surge/sea level rise).	P.4	Water Resources
CR3	Provide lot by lot information about flood risk to the public		Water Resources & Sustainability
CR4	Assess landslide risk with consideration given to the impact of climate change projections and incorporate recommendations into future infrastructure, land use planning, and public information.	P.3	Sustainability
CR5	Work with community members on improving climate resilience, (e.g. education about insurance needs and/or working on emergency renewable energy access for people with disabilities and/or who require electricity to run medical devices, access online services, etc.)		Sustainability and Emergency Program
CR6	Evaluate performance of engineered stormwater solutions in new development and consider mechanisms to ensure ongoing maintenance.	P.16	Parks, Water Resources, Sustainability
CR7	Work with Island Health to understand the potential impact of climate change on private septic systems in Saanich and mitigation measures.		Sustainability
CD5	Explore options to make raingardens along streets or other measures to absorb pollutants before they get into waterways standard.	P.16	Parks, Water Resources

Table 4 Rain Resilience Actions for Other Organizations

Capital Regional District (CRD)	• Work with member municipalities and Island Health to map climate risks for septic systems in the region. • Work with local First Nations to develop co-managed approaches to emergency management.
Household, neighbourhood, and local businesses and organizations	• Obtain insurance (renter, homeowner, business) that addresses changing climate hazards. • Complete relevant maintenance including clearing debris from storm drains and maintaining gutters (see Flood Information for Homeowners | District of Saanich) and/or use the Home Flood Protection Checkup from the University of Waterloo. • Create an Emergency Plan and Kit that covers issues relating to extreme rain.
Provincial and Federal governments	• Appropriately fund disaster recovery. • Implement the recommendations in the BC Ombudsperson Fairness in a Changing Climate report on how government disaster supports can be improved for those facing intersectional barriers[18]. • Prioritize climate readiness when upgrading/designing infrastructure such as highways. • Support local governments' land use planning to be responsive to changing risks from precipitation due to climate change. • Support individual groundwater well users to prepare for droughts.
Critical infrastructure and service providers	• Conduct and update climate risk assessments, implement actions, monitor results, and publicly report on progress.

3.3 Poor Air Quality (Wildfire Smoke and Heat)

This section includes the following as it relates to poor air quality:

[18] BC Ombudsperson Office. (2023). Fairness in a Changing Climate. Retrieved from https://bcombudsperson.ca/fairness-changing-climate/

- Hazard description and projected changes
- Example events
- Community Strengths
- Impacts
- Vulnerabilities
- Potential Actions

3.3.1 Hazard Description and Projected Changes

Wildfires have been increasing in frequency and extent in North America in recent years, causing worsened air quality for Saanich residents. Air quality is impacted by several factors, including particulate matter released when forests burn and ground level ozone which is contributed to by hot weather.

In the absence of, or in combination with wildfire smoke events, higher temperatures can worsen air quality, as it can increase ground level ozone levels and cause air to stagnate.

The Air Quality Health Index (AQHI) provides an hourly rating of air quality on a 10-point scale based on three pollutants:

- Particulate matter (PM2.5)
- Ground-level ozone (O3)
- Nitrogen dioxide (NO2)

In BC, the AQHI-Plus adjustment is used to avoid underreporting of the health risks of wildfire smoke.

Air quality warnings are issued when pollutant concentrations approach or exceed predetermined limits, or when degraded air quality episodes are expected to continue or worsen.

Air quality warnings are issued to:

- Inform the public about degraded air quality.
- Help people make informed choices about reducing their exposure to elevated concentrations of air pollutants.
- Provide vulnerable individuals and the general public with health advice developed by BC health agencies.

While many distinct factors influence wildfires, conditions supporting wildfires (heat and drought) are becoming more common due to climate change. As described above, extreme heat is becoming more intense and frequent due to climate change. While we do not have projections about the likelihood of extreme heat and wildfire smoke events occurring together, it is prudent to consider how to prepare for these events which are each more likely to occur in summer and shoulder seasons in the future.

3.3.2 Example events

Wildfire smoke-driven air quality warnings have become more common, including:

- September 2025 – BC except Vancouver Island and Haida Gwaii was placed under an Environment Canada Special Air Quality Statement.
- August 2025 – an inland Vancouver Island air quality warning was issued because of a fire near Port Alberni (Historical warnings – Air quality warnings).

3.3.3 Community Strengths

- Proximity to the ocean also keep our temperatures more moderate than other places in BC, helping to reduce ground level ozone production in smog conditions.
- We have access to Air Quality Health Index (AQHI) data online: Victoria - Air Quality Health Index - Province of British Columbia.
- Many people in our community can purchase cooling and air filtration systems for their homes, and programs are currently available to help low-income households with accessing cooling devices.
- Access to large buildings with modern HVAC systems is available to Saanich residents.
- We have two hospitals near/inside Saanich, unlike more rural communities that must travel farther for health care if needed.
- The BC CDC has up to date guidelines for responding to wildfire smoke events: BC Health Wildfire Smoke Response Coordination Guideline.pdf.
- Island Health has information and resources: Wildfires | Island Health
- New technical guidelines for wildfire smoke risk mitigation in buildings from ASHRAE (and summary companion guide):

3.3.4 Impacts

Natural Environment	**Wildfire Smoke:** Wildfire smoke negatively impacts photosynthesis and harms the health of wild animals. It also impacts nutrient cycling and can concentrate in lakes, with as yet not well understood consequences. **Ground Level Ozone:** can negatively impact vegetation including crop productivity and health of forests.
Indigenous Rights and Values	Poor air quality can have a disproportionate impact on Indigenous people, including facing discrimination when seeking cooling in public areas or health care, and having additional health burdens compared to the general population in BC.
Built environment	**Wildfire smoke:** decreases solar panel electricity production in the moment and may leave trace metals and polycyclic aromatic compounds (PAH) that may require decontamination if deposited in higher quantities. **Ozone**: Ozone can damage synthetic materials; cause cracks in rubber; accelerate fading of dyes; speed deterioration of some paints and coatings; and damage cotton, acetate, nylon, polyester, and other textiles.
Society and Culture	Poor air quality impacts participation in outdoor activities, especially among more vulnerable community members. This may impact summer cultural activities such as outdoor sporting events or music and cultural festivals.
Health and Wellbeing	**Wildfire smoke:** Wildfire smoke contains a mix of gases, particles, and water vapours. Small particles measured as PM 2.5 are the main human health risk from wildfire smoke. There is no known safe level of exposure for some of these pollutants. Wildfire smoke exposure can cause both short- and long-term health issues. During heavy smoke events, emergency room visits for asthma increase, as do the chance of heart attacks and stroke. Cognitive function problems increase after smoke exposure which can then result in other injuries such as when people are driving or using heavy machinery. Indoor air quality can be impacted by wildfire smoke. Mental health is also impacted by heat and wildfire

	smoke (Wildfire smoke and your health - Canada.ca).It also impacts road safety by reducing visibility. **Ozone:** ground level ozone can cause coughing, irritation, discomfort, shortness of breath, and decreased lung function.
Jobs and Economy	Poor air quality can cause reduction in productivity by workers due to need for extra breaks and/or sick time. It can reduce participation in outdoor activities and may also drive an increase in indoor activities such as shopping or movie watching from those seeking large indoor cleaner air shelters.
Government Systems and Services	Poor air quality can put a strain on the health care system, and redirect staff such as recreation centre staff helping with clean air shelters.

3.3.5 Vulnerabilities

Geographical Vulnerabilities

Insufficient information is available about geographical influences of wildfire smoke on air quality at this scale. The risk of smoke exposure is higher the closer the community is to the fire, but that even distant large fires can result in significant amounts of smoke reaching. Indoor air quality can be worsened along with outdoor air quality – it depends on the efficacy of the ventilation system at filtering pollutants from the air.

Social Vulnerabilities

Those who are exposed more frequently to elevated levels of wildfire smoke (e.g., through work such as firefighting, or outdoor active work in general) are more at risk. Additionally, children, the elderly, and those with health conditions such as Chronic Obstructive Pulmonary Disease (COPD) and asthma are more immediately vulnerable to acute health impacts from wildfire smoke at any level[19]. See Table 5 below for guidance on how to respond to air quality scores for general and higher risk populations.

Table 5: Smoke-optimized Air Quality Health Index (AQHI-Plus) Categories and Health Messages used for wildfire smoke communications in BC

[19] Government of Canada, Wildfire smoke and your health - Canada.ca 2024.

1-HOUR $PM_{2.5}$ ($\mu g/m^3$)	PROVINCIAL AQHI	AQHI RISK CATEGORY	HEALTH MESSAGE FOR PEOPLE AT HIGHER RISK	HEALTH MESSAGE FOR GENERAL POPULATION	ACTIONS TO REDUCE WILDFIRE SMOKE EXPOSURE
0 – 10	1	LOW	**Enjoy** your usual outdoor activities.	**Ideal air quality** for outdoor activities.	**Normal air quality** in British Columbia
11 – 20	2				
21 – 30	3				
31 – 40	4	MODERATE	**Consider reducing** or rescheduling strenuous activities outdoors if you experience symptoms.	**No need to modify** your usual outdoor activities unless you experience symptoms.	• Use a portable air cleaner to reduce smoke in your home • Stay inside with doors and windows closed, but keep cool – being too hot is more risky than breathing smoke for most people • Visit places with cleaner and cooler air, such as libraries, community centres, and shopping malls • If you cannot access cleaner air, consider using a well-fitted N95 respirator or relocating to an area with less smoke
41 – 50	5				
51 – 60	6				
61 – 70	7	HIGH	**Reduce or reschedule** strenuous activity outdoors.	**Consider reducing** or rescheduling strenuous activities outdoors if you experience symptoms.	
71 – 80	8				
81 – 90	9				
91 – 100	10				
101+	10+	VERY HIGH	**Avoid** strenuous activity outdoors.	**Reduce or reschedule** strenuous activity outdoors, especially if you experience symptoms.	

Source: BC CDC BC Health Wildfire Smoke Response Coordination Guideline.pdf

Guidance from Island Health Chief Medical Officer for 2023 Wildfire Smoke and Extreme Heat Event

"Overheating is generally a bigger risk to health than smoke inhalation. Many people are at risk of potential severe injury and death if they overheat, while a much smaller proportion are at risk of severe acute respiratory or cardiovascular attack. Many individuals most at risk from smoke are also at risk from heat. Therefore, most people should prioritize staying as cool as possible in very hot weather.

Both heat and smoke are important environmental exposures, and their risks may be compounding when they co-occur. Seek cooler, cleaner indoor air – at home if possible, and elsewhere if not, such as in a shopping mall or community cooling/clean air centre."

3.3.6 Resilience Actions

Various actions can be taken to address the impacts noted above to the community from poor air quality related to climate change. Tables 6 and 7 below outline resilience actions related to poor air quality. Table 6 shows actions the District can undertake, in addition to existing actions in the Saanich Official Community Plan, Saanich Climate Plan, Active Transportation Plan, Urban Forest Strategy, Biodiversity Conservation Strategy, Emergency Program services, and other relevant commitments. Table 7 shows actions other organizations can consider implementing.

Table 6 Air Quality Resilience Actions for the District of Saanich

#	Action	Climate Plan Focus Area	PIEVC Action	Lead/Support
CA1	Consider providing low to no cost air filters, workshops, and information to at risk people in the community. Explore how	Community Wellbeing &		Sustainability

	to make this initiative accessible to people with various disabilities.	Resilient Infrastructure		
CA2	Monitor indoor air quality and temperature, and make air filtration improvements to municipally owned buildings that can serve as cool clean air spaces for the public during extreme heat and poor air quality events.	Leadership in District Operations	W.5	Facility Operations, Sustainability, Occupational Safety and Health
CA3	Work with local large building owners to share best practices about protecting indoor air quality during wildfire events (e.g. through District 2030, Rental Apartment Retrofit Assistance Program, Strata Energy Advisor Program, etc.)	Buildings		Sustainability
CA4	Continue to support transition from internal combustion engine vehicles to electric vehicles and active transportation to reduce ground level ozone levels and other air pollution.	Transportation and Land Use		Sustainability, Transportation & Development, Planning

Table 7 Air Quality Resilience Actions for Other Organizations

Capital Regional District (CRD)	• Work with local First Nations to develop co-managed approaches to emergency management.
Household, neighbourhood, and local businesses and organizations	• Learn about the risks of wildfire smoke and ground level ozone and ways you can inform yourself about day-to-day risks and protect yourself, household, or staff and clients. • Consider purchasing an air filter that works against PM2.5 for your home or business (low cost DIY air filter instructions are available from the BC Lung Foundation). • Create an Emergency Plan and Kit that covers issues relating to heat and smoke events.
Provincial and Federal governments	• Clarify standards for indoor air quality and consider updates to the Building Code, Residential Tenancy Act, and WorkSafe BC guidance.
Critical infrastructure and service providers	• Conduct and update climate risk assessments, implement actions, monitor results, and report publicly on progress.

3.4 Drought

This section includes the following as it relates to drought:

- Hazard description and projected changes
- Example events
- Community Strengths
- Impacts
- Vulnerabilities
- Potential Actions

3.4.1 Hazard Description and Projected Changes

Drought results from a combination of factors that result in less water than usual in the system, resulting from changes in precipitation and/or temperature. While the annual average amount of precipitation is projected to increase overall from 2101mm to 2325mm by the 2080s (see Table 3 in the CRD Climate Projections Report), we are also projected to have an increase in consecutive dry days (an 8% increase in the 2050s and 21% by the 2080s), less rain in the summer (Core/Peninsula region, a decrease in precipitation by 13% by 2050s and by 17% by the 2080s), along with generally hotter temperatures throughout the year. Hotter temperatures result in greater evaporation of water in waterbodies and soil[20].

Longer dry spells and hotter weather make soil less absorptive or even hydrophobic, causing water to flow over the land surface into nearby waterbodies more than usual, resulting in lower soil moisture and groundwater recharge than in non-drought years.

Drought conditions are described in several ways depending on what is being measured, such as precipitation; streamflow and lake levels; or impact on agriculture, socio-economic conditions, and/or ecology. More information is available in the British Columbia Drought and Water Scarcity Response Plan.

3.4.2 Example events

- **Nov 2025** – Agriculture Canada reported that the Lower Mainland, South Coast, and Vancouver Island received less than 60% of normal precipitation, with 84% of Canada as a whole classified as Abnormally Dry (DO) or in Moderate (D1) to Exceptional Drought (D4) including 80% of the country's agricultural landscape.
- **August 2023** – the BC DCRRA states that 75 percent of B.C.'s watersheds were in drought level 4 or 5 (out of five on the BC Drought Scale). This year also corresponded with exceptionally large wildfires throughout the Province.

3.4.3 Community Strengths

Drinking Water Supply

- Saanich residents on the CRD system currently have a high-quality water supply. The CRD Water Supply service provides bulk water to the District of Saanich, which then distributes drinking water to residents.
    - The CRD Drinking Water Supply area does not rely very heavily on snowpack storage, so will not face additional challenges from reduced snowpack compared to other locations in BC.
    - While water conservation bylaws are typically enacted each summer (due to our dry summers and increase in water usage during the summer), the fall and winter rains routinely replenish the Sooke Lake reservoir for the following year.
    - The CRD is expanding the drinking water collection area to serve a growing population in a changing climate. The CRD is planning for future water filtration needs to maintain water quality as risks of algal blooms and fires in the Drinking Water Supply Area increase due to climate change. See the Regional Water Supply Master Plan | Capital Regional District for more information. A climate change

[20] And reduced snowpack levels, which is less of an issue in Saanich, but is elsewhere in B.C.

adaptation strategy for the CRD Water Supply Area is in development and should be ready in 2026.

- Rural Saanich Groundwater
    - Rural Saanich residents use well water or surface water for domestic and agricultural purposes. The Province regulates the use of groundwater through the Water Sustainability Act and also provides Best Practices for Groundwater Wells Going Dry and Drought Preparation for residents.

Water Conservation and Rainwater Harvesting

- We have a Saanich culture that is supportive of unwatered "golden" lawns in the summer.
- Low-flow fixtures (e.g., faucet aerators and efficient toilets) are standard.
- Local farmers are trialing dry farming and other water conservation techniques.
- Provincial regulations allow for the use of composting toilets and reclaimed (used) non-potable water in toilets and urinals in order to conserve potable water.
- Rainwater harvesting by property owners is encouraged, and an unknown number of residents and businesses in Saanich are already doing so, including some larger properties such as Uptown.
- The CRD provides helpful information on rainwater harvesting: Managing Your Rainwater | Capital Regional District.
- Saanich Parks is implementing many water conservation measures.

BC Drought Information Portal and Response Plan

- The British Columbia Drought and Water Scarcity Response Plan (2025) outlines drought management responsibilities, monitoring systems, and response actions, including many available resources such as drought relevant programs for agriculture.
- The BC Drought Information Portal provides in-depth information about drought conditions across the Province.

Natural Assets[21]

- There are several aquifers which lie beneath the District including the Wark-Colquitz, Karmutsen, Cordova Bay and the North Central Saanich Aquifer.
- Saanich has daylighted streams and functional wetlands (e.g., Rithet's bog) with some streams with active salmon restoration projects along them. The majority (63.2%) of wetlands, lakes and hydroriparian streams in Saanich are protected.
- In the summer months, streams can be fed mainly by groundwater rather than precipitation. Groundwater is recharged through precipitation into groundwater recharge areas and gradually travels to waterways over time. Recharge areas must be permeable. Currently, impervious surfaces cover only 29.5% of the land within the Urban Containment Boundary (UCB) and only 4.8% outside of the UCB.

Land Use

- The Biodiversity Conservation Strategy, the Urban Forest Strategy, and the Small-Scale Multi-Unit Housing zoning bylaw amendments contain measures to protect impermeable surfaces, which can help with groundwater recharge.

[21] Information in this section is from the Saanich State of Biodiversity Report, 2023.

Local Agricultural Innovation

- Local farmers are adapting to the changing climate in many ways, including adopting dry farming practices.

3.4.4 Impacts

Natural Environment	Dry spells and drought conditions can cause significant harm or kill local species, to such an extent that species become extirpated (disappear from a region) over time, permanently changing ecological communities into novel ecosystems. Topography, vegetation cover, soil properties, proximity to urban spaces or water bodies all will affect how local ecosystems are impacted by drought. For instance, newer street trees surrounded by asphalt and concrete will potentially be more stressed in drought conditions than a valley bottom established tree near a stream, depending on their specific species' tolerance to different conditions. Many cedar trees in Saanich are already showing drought damage through browning boughs. Fish such as salmon and other aquatic and wetland dependent species may die due to low water levels. Invasive species and pests may have an easier time establishing and spreading. Drought can also increase the likelihood and intensity of wildfire and flooding. Dry vegetation is more effective fuel for wildfires, and loss of their root systems reduces soil water retention, increasing overland flow and soil erosion. Algal blooms in natural water bodies may also be worsened or made more frequent due to drought and other causes.
Indigenous Rights and Values	Drought's impact on local ecosystems and culturally important species such as salmon and cedar make it more difficult for Indigenous people to exercise their rights and culture, with negative economic, cultural, and physical and mental health consequences. All First Nations on the territories where the District of Saanich operates use CRD Drinking Water Supply except Malahat Nation, which operates their own drinking water and wastewater systems.
Built environment	Lack of normal precipitation does not usually have a significant impact on buildings locally. Drought causes an increase of buildup of contaminants on roads that are then released in higher quantities into streams when it does rain. It also prompts a need for increased dust suppression during construction activities. Sufficient water for fire suppression is required to protect the built environment during drought conditions.
Society and Culture	Depending on the level of water restrictions required in response to the drought conditions, some cultural activities such as, swimming in natural bodies of water, etc. may be impacted. More severe droughts may cause conflicts on how to balance different water needs between sectors and/or conflicts between those following and not following water restrictions or those digging deeper wells to use limited common groundwater supply.
Health and Wellbeing	Dry spells and drought conditions can cause mental health issues through concern for the impact on the natural environment. Water quality may be diminished, warmer/shallower bodies of water may breed more mosquitoes which can be disease vectors. Food prices may increase, resulting in nutrition challenges for those unable to afford the price increase. Increased dust and wildfire smoke may also cause some lung irritation.

Jobs and Economy	The agriculture sector will be negatively impacted by dry spells and drought, facing increased pests, and requiring more water and irrigation infrastructure, driving up costs for local food and increasing pressure on shallow wells and small water bodies. In some areas of the Province, drought conditions have resulted in orders for farmers and industrial users to cease using water, causing crop losses, or selling livestock or culls, and increasing water use restrictions, impacting many different users. Hydroelectric dams may be less productive, causing BC Hydro to purchase electricity from outside of the Province, potentially increasing costs. Water-intensive industries such as data centres are not located in Saanich, but Saanich residents and businesses use their services and may be impacted.
Government Systems and Services	Provincial, federal, local, and First Nations governments are all involved in drought responses, including monitoring, communicating, and setting voluntary or mandatory restrictions on water use.

3.4.5 Vulnerabilities

Geographical Vulnerabilities

Rural Saanich residents who are on well water rather than CRD water may experience specific challenges with drought in terms of drinking water and water for irrigation for gardens and agriculture.

Food Security and Climate Change

Drought and other climate hazards will impact food production across the globe. Climate change impacts are already stressing agriculture, forestry, fisheries and aquaculture, increasingly hindering efforts to meet human needs[22][23] [24].

Every component of the food system, including production, processing, distribution, preparation, and consumption—is sensitive to disruption and challenges due to climate change[25].

Canada's food system is less vulnerable than many other countries to climate change, except for Canada's northern and remote rural areas[26]. However, those who are already food insecure are more vulnerable to the impacts of climate change on our food system – both

[22] Bezner Kerr, R. T.-S.-C. (2022). Food, Fibre, and Other Ecosystem Products. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. IPCC. Cambridge University Press. Retrieved from https://www.ipcc.ch/report/ar6/wg2/chapter/chapter-5/

[23] Mbow, C. C.-F. (2019). Food Security In: Climate Change and Land: an IPCC special report on climate. Retrieved from https://www.ipcc.ch/site/assets/uploads/2019/11/08_Chapter-5.pdf

[24] John R. Porter, L. X. (2014). *Food Security and Food Production Systems.* Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, IPCC. Retrieved from https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap7_FINAL.pdf

[25] Rebekka Schnitter, P. B. (2019). The Climate Change, Food Security and Human. International Journal of Environmental Research and Public Health. Retrieved from https://pmc.ncbi.nlm.nih.gov/articles/PMC6678521/pdf/ijerph-16-02531.pdf

[26] Ibid

discrete events and longer trends. Food insecurity is highly correlated with poverty. Statistics Canada shows a growing trend of food insecure households across Canada (increasing over 5% between 2018 and 2022), with approximately 17% of Canadians being food insecure in 2022, with higher percentages among racialized and Indigenous groups as well as in lone parent families[27].

Social Vulnerabilities

Local farmers, people employed in ecological restoration, and otherwise working in fields tied to the natural environment will be disproportionately impacted by a drought. Drought can also have an impact on people's mental health, especially among those who are closely attuned to the effects of drought on the natural world. Those with health conditions that are sensitive to air quality issues may also be impacted by the increase in dust in the air due to drought.

3.4.6 Resilience Actions

Various actions can be taken to address the impacts noted above to the community from drought. The two tables below outline resilience actions related to drought. Table 8 shows actions the District can undertake, in addition to existing actions in the Saanich Official Community Plan, Integrated Stormwater Management Plans, Urban Forest Strategy, Biodiversity Conservation Strategy, Agriculture and Food Security Strategy, and other relevant commitments. Table 9 shows actions other organizations can consider implementing.

Table 8 Drought Resilience Actions for the District of Saanich

#	Action	Climate Plan Focus Area	PIEVC Action	Lead/Support
CD1	Encourage more rainwater harvesting on buildings for acceptable uses such as garden watering.	Buildings and Infrastructure		Sustainability
CD2	Encourage more use of greywater for toilets in buildings.	Buildings and Infrastructure		Sustainability
CD3	Pilot water conservation measures such as use of greywater in Saanich owned buildings.	Leadership in District Operations	D.2	Facility Operations, Recreation, Parks
CD4	Work with the Province to ensure BC agricultural programs for water conservation are accessible to Saanich farmers, many of whom are renters.	Food and Materials		Sustainability

[27] StatsCan Plus. (2024). Canadians are facing higher levels of food insecurity. Retrieved from https://www.statcan.gc.ca/o1/en/plus/6257-canadians-are-facing-higher-levels-food-insecurity

CD5	Ensure new developments' impact on water demand, including for fire suppression, take a cumulative impact approach.	Buildings and Infrastructure	W.9	Water Resources
CD6	Work with the Province to understand the potential impact of climate change on water supply and quality for Saanich residents and businesses who are not on CRD water (i.e. Rural Saanich, including tenant farmers). Develop and implement priority mitigation actions.	Food and Materials	D.3	Sustainability, Planning, Parks

Table 9 Drought Resilience Actions for Other Organizations

Regional District Potential Actions	• Continue to develop, implement, and asses plans and strategies related to drinking water supply and climate change. • Continue to provide high quality information for residents on water conservation.
Household, Neighbourhood, and Local business/organization Potential Actions	• Take steps to use less water at home and in your business with helpful guidance from the CRD, including access to grants for businesses.
Provincial and Federal Potential Actions	• Support a diversity of renewable electricity generation options through incentive programs.
Critical Infrastructure and Service Providers Potential Actions	• Conduct and update climate risk assessments, implement actions, monitor results, and report publicly on progress.

3.5 Wildfire

This section includes the following as it relates to wildfire:

- Hazard description and projected changes
- Example events
- Community Strengths
- Impacts
- Vulnerabilities
- Potential Actions

3.5.1 Hazard Description and Projected Changes

Wildfires in natural areas from human and natural causes (i.e., lightning) occur in Saanich from time to time, but large wildfires are rare. Before colonization, Indigenous cultural burning practices played a key role in maintaining Garry Oak/camas garden ecosystems in Saanich and avoiding large buildup of fuels.

Hot, dry, and windy weather conditions are conducive to starting and spreading fires. Ignition can be human-caused or from lightning strikes (with lightning strikes being uncommon on southern Vancouver Island). Dry soils and vegetation due to a longer-term drought also contribute to larger wildfires. Climate projections are not yet available for wind and lightning strikes, but hotter temperatures and drier summers are projected, making wildfire conditions more likely in the future. BC uses a Fire Weather Index (FWI) system to describe the relative potential for wildland fires. The FWI does not include predictions for ignition from humans or lightning. One BC-wide study cited in the BC DCRRA suggests that the number of extremely high Fire Weather Index (FWI) days will increase from 11 days to 27 days between the recent past and the 2080s. Because there are so many factors influencing wildfires, more work is required to understand how much more likely wildfires are to start, and how much more

extensive their area may be in the future in Saanich as climate and ecosystems change over time. This assessment is assuming that a wildfire in Saanich does not spread into the Urban Containment Boundary or spread to many homes and buildings within Rural Saanich.

Wildfire and CRD Drinking Water Supply

Saanich residents in the Urban Containment Boundary rely on drinking water from the Greater Victoria Drinking Water Supply Area operated by the CRD. A large wildfire in the drinking water supply area would cause long term water quality issues. The CRD is preparing for these growing risks due to climate change through fire monitoring, forest management, and preparing to build a filtration system.

From the CRD Regional Water Supply - 2022 Master Plan:

"The current practice of advanced disinfection using Ultraviolet light, chlorine, and ammonia provides an acceptable level of protection for RWS water customers. However, the disinfection systems can become compromised if turbidity, colour, and organic levels increase due to wildfires in the watershed or other environmental factors including climate change."

[…]

"Filtration will also be required once Leech River water [an expansion to our current system] is brought online. A recommendation of this 2022 Master Plan is to plan for construction of filtration by the year 2037."

3.5.2 Example events

- Saanich 1930s to 1950s: wildfires covering an average of 700 hectares (approximately 7% of Saanich's size) occurred during these times when many industrial activities occurred, and modern firefighting was not available. Since then, wildfire incidents in Saanich have been rare, small, well controlled, and have not significantly impacted buildings or infrastructure[28].
- Sooke 2024 Old Man Lake wildfire: 228.6 hectares were burned over three months between and July and October, but no critical infrastructure was impacted. Recreational and cultural activities such as children's summer day camps, camping and hiking were impacted, along with air quality.

3.5.3 Community Strengths

Saanich currently has a very low risk for wildfires relative to other places in BC. Saanich has the best Fire Underwriters Survey insurance rating on the Island and one of the best ratings in the province.

Saanich Fire Department

- Saanich's rural areas are serviced by a combination of fire hydrants and water tank trucks with very quick Fire Department response times to any incidents. Our status as an accredited Superior Tanker Shuttle Service ensures water availability even in remote areas like Prospect Lake and Hartland Road.

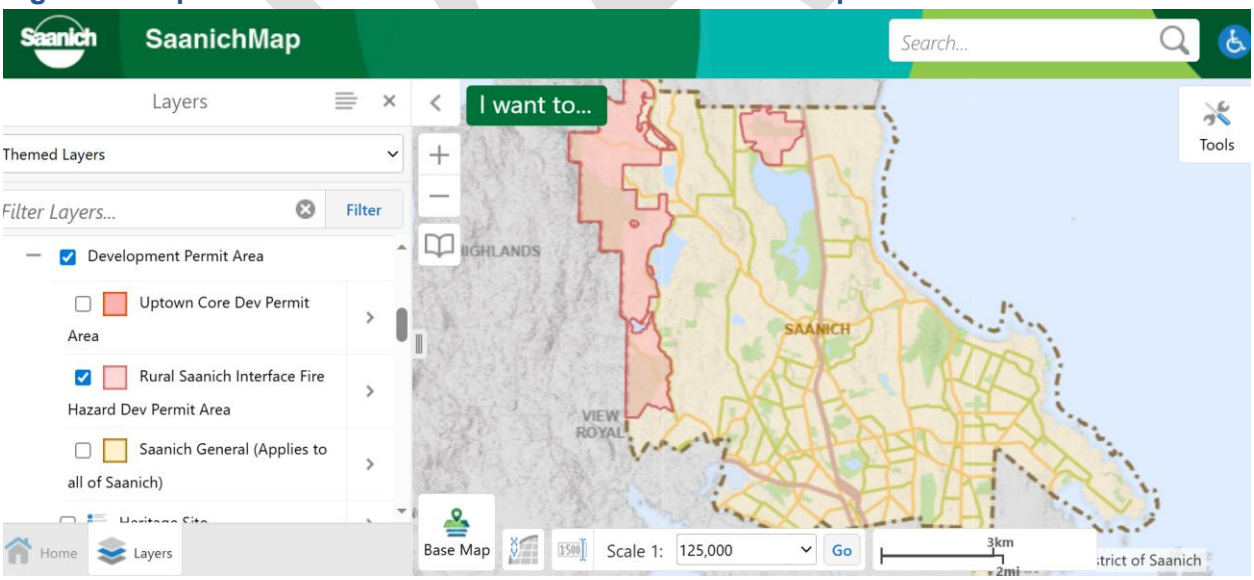
[28] B.A. Blackwell & Associates Ltd. Saanich Community Wildfire Protection Plan, 2020

- Saanich's Fire Department is well-prepared with firefighters trained in wildland fire response. Frequent firefighting drills are conducted, including in PKOLS (Mt. Douglas Park) and Mt. Tolmie.
- The District's Community Wildfire Protection[29] Plan is being implemented, including upcoming FireSmart education programs for residents.
- The Saanich Fire Department coordinates fire response with other Fire Departments in the region. The Fire Department maintains automatic and mutual aid agreements with neighbouring fire departments for wildfire response, including all Fire Departments in areas with wildfire risk.
- The Saanich Fire Department conducts FireSmart risk assessments for rural properties at the request of residents.
- The Saanich Emergency Program provides emergency preparedness training to residents and has volunteers ready to support people displaced by wildfires.
- The Saanich Emergency Program delivers Emergency Support Services on behalf of the Province.

Saanich Planning

- The Rural Saanich Interface Fire Hazard Development Permit Area (shown in Figure 8 below) requires developments in areas at higher risk for urban wildland interface fires to adopt higher fire resistance standards, including roofing and insulation materials, screening of attic vents and eaves, and landscape design for reducing fire risks.

Figure 8: Map of Rural Saanich Interface Fire Hazard Development Permit Area



[29] B.A. Blackwell & Associates Ltd. (2021). Community Wildfire Protection Plan (CWPP).

Saanich Parks

- Saanich's Parks Division operates using Best Management Practices to minimize the risk of wildfires in Saanich's parks.
- The Pulling Together volunteer program removes invasive species in parks and conducts restoration activities, which can help reduce fire risks in Parks.

Capital Regional District

- The CRD is preparing for growing risks to our drinking water supply due to climate change through fire monitoring, forest management, and preparing to build a filtration system.
- The CRD is coordinating the Braided Wildfire Knowledge Mobilization project to increase wildfire risk management coordination between governing bodies including First Nations and combine Indigenous and Western wildfire landscape management approaches.

Provincial Services

- The BC Wildfire Service coordinates thousands of firefighters and incident management teams, hundreds of aircraft and heavy machinery vehicles, and in busy seasons can call in support from other agencies such as out of province firefighters and military resources.
- The BC Disaster Financial Assistance program is available to eligible residents.

3.5.4 Impacts

Natural Environment	In other parts of BC, natural areas evolved with fire as a regular and necessary process. This is not the case in Saanich, where large wildfires are not particularly common, although they do occur from time to time. Wildfires in Saanich can damage or kill plant species in the affected area along with affected animals. Impacts downslope and downstream occur as well, contributing to increased flood and landslide risks after a fire, since vegetation is no longer stabilizing slopes or absorbing and slowing rainfall. If enough existing vegetation is burned, it may open the area to invasive species to grow. If the wildfire spreads to buildings, toxic materials may be released to the environment.
Indigenous Rights and Values	Suppression of traditional Indigenous burning practices allows fire fuel to build up and is contrary to the exercise of Indigenous rights and cultural practices. First Nations accessing emergency services or health care support when impacted by a wildfire may be harmed by a lack of cultural safety training by those providing services.
Built environment	Electricity and natural gas transmission and distribution may be proactively shut down in the event of a wildfire. Should a fire spread from natural areas to urban areas, it can cause costly damage or destroy buildings and infrastructure. A wildfire might cause trees to fall on local or major roads, damage or destroy wooden bridges, electrical substations, and transmission lines, or cause combustion of hazardous materials at the landfill or water quality issues in the drinking water supply area.
Society and Culture	Fire bans to prevent wildfires may impact cultural activities such as having fires when camping or cooking outdoors with wood. Wildfires may impact daily life and activities for Saanich residents should they occur within or near

	our community, such as preventing hiking and other nature-oriented activities.
Health and Wellbeing	Wildfires can be dangerous to human health and safety, including for firefighters, people directly impacted, and those farther away affected by wildfire smoke. There can be physical injuries as well as mental health trauma, especially for those who are displaced and whose homes are damaged by fire.
Jobs and Economy	The disruptiveness of a wildfire depends on how large it is and what it impacts. It could temporarily overwhelm cellular services, impact air travel, road travel, electricity and gas transmission, communications equipment, and/or water quality, all of which impact commercial activities. Tourism may be affected in the longer term. Agriculture may be impacted from short- and longer-term impacts of fire. Those in affected areas may need to access supports from their insurance or disaster assistance from the Province and take months or longer to remediate or rebuild. Cleanup and rebuilding can be costly and insurance coverage may not be adequate to rebuild to higher fire resistance standards.
Government Systems and Services	BC Wildfire Service will coordinate response, and Saanich and neighbouring local government resources such as firefighting and emergency program staff and volunteers will be deployed. Police may be involved if evacuations are required. The health care system may receive an influx of patients due to smoke inhalation. Saanich Public Works staff will be deployed to assess and repair damage to municipal infrastructure. The BC DCRRA states annual provincial costs for firefighting have varied from a low of $129 million to a high of over $1 billion over the past 10 years.

3.5.5 Vulnerabilities

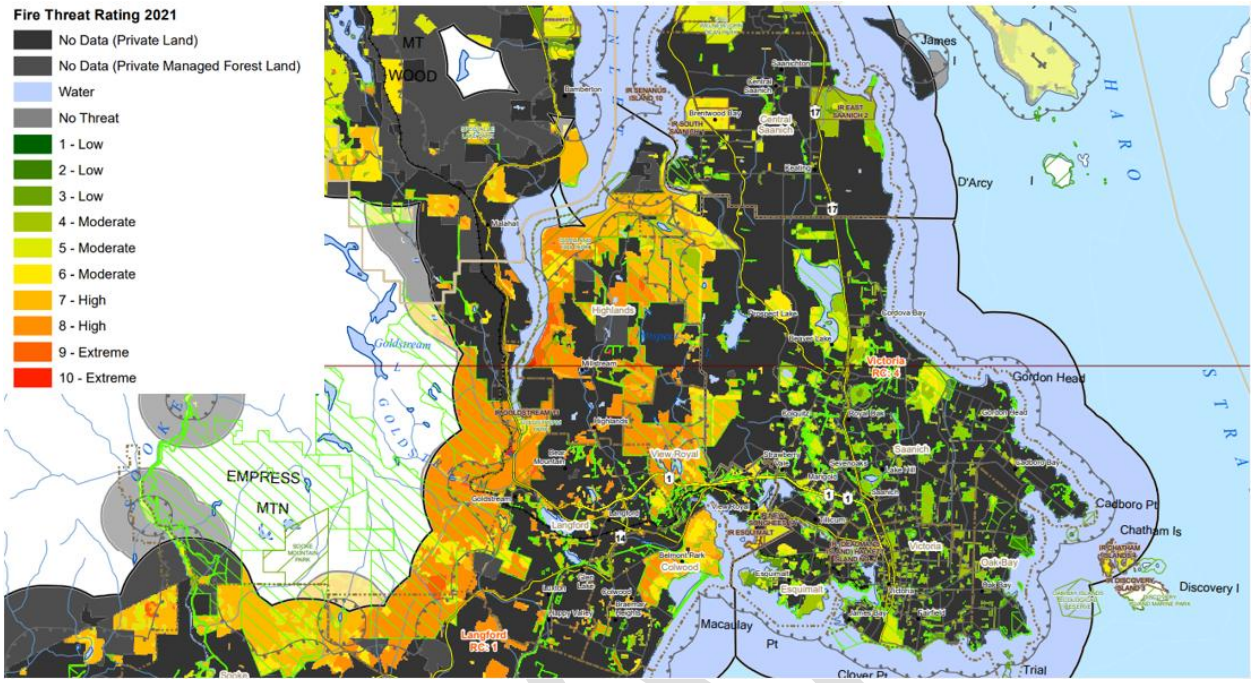
Geographical Vulnerabilities

Saanich is located within the Coastal Douglas Fir (CDF) biogeoclimatic zone, which is a moist maritime subzone.

Wildfire risk is relatively low in Saanich's public forested areas compared to other locations in the CRD and the Province. The map below (Figure 9) from the Wildland urban interface risk class maps - Province of British Columbia (2021) shows current fire risks on public land. Private land fire risks can be determined by a site-level assessment such as FireSmart. People with properties located in higher risk areas with few egress roads would be more impacted than other residents in the event of a wildfire in Saanich.

Healthy intact old growth forests in our region are naturally fire resistant (e.g., moist green diverse understory vegetation and fire-resistant bark of mature Douglas Firs). Fire in mature old growth areas and/or open Garry oak meadows are not at great risk of spreading to buildings and infrastructure. Dense monoculture second and third growth forests are far more prone to damaging fires, and some introduced species such as broom are very flammable.

Figure 9: Fire Risk on Public Land in Saanich and surrounding areas - Provincial Wildland Urban Interface Maps



Social Vulnerabilities

Should people need to evacuate, some will have easier access to help from friends and family and/or have more insurance coverage than others due to disparities in financial status and/or community connectedness. There are many systemic barriers faced by some residents when accessing emergency supports, including those who are lower income, isolated seniors, disabled people, Indigenous people, and others who face systemic discrimination. The BC Ombudsperson Fairness in a Changing Climate report outlines how government disaster supports can be improved for those facing intersectional barriers.

3.5.6 Resilience Actions

Various actions can be taken to address the impacts noted above to the community from wildfire. The two tables below outline resilience actions related to wildfire. Table 9 shows actions the District can undertake, in addition to existing actions in the Saanich Official Community Plan, Saanich Fire Department services, the Saanich Community Wildfire Protection Plan[30], Urban Forest Strategy, Biodiversity Conservation Strategy, Emergency Program services, and other relevant commitments. Table 10 shows actions other organizations can consider implementing.

Various actions can be taken to address the impacts noted above to the community from drought. The two tables below outline resilience actions related to drought. Table X shows actions the District can undertake, in addition to existing actions in the Saanich Official Community Plan, Integrated Stormwater Management Plans, Urban Forest Strategy,

[30] B.A. Blackwell & Associates Ltd. (2021). Community Wildfire Protection Plan (CWPP).

Biodiversity Conservation Strategy, Agriculture and Food Security Strategy, and other relevant commitments. Table X shows actions other organizations can consider implementing.

Table 10 Wildfire Resilience Actions for the District of Saanich

#	Action	Climate Plan Focus Area	PIEVC Action	Lead/Support
CW1	Explore options for collaborating with local First Nations on beneficial management practices for natural areas.	Ecosystems	W.12	Parks, Fire
CW2	Explore the need for updates to the Rural Saanich Interface Fire Hazard Development Permit Area based on projected changes in wildfire risk due to climate change	Buildings		Fire, Sustainability, Planning
CW3	Develop and implement an integrated and harmonized FireSmart and Naturescaping program and associated resources to apply to District and private properties.	Community Well-being & Resilient Infrastructure	W.11	Fire, Parks, Sustainability

Table 11 Wildfire Resilience Actions for Other Organizations

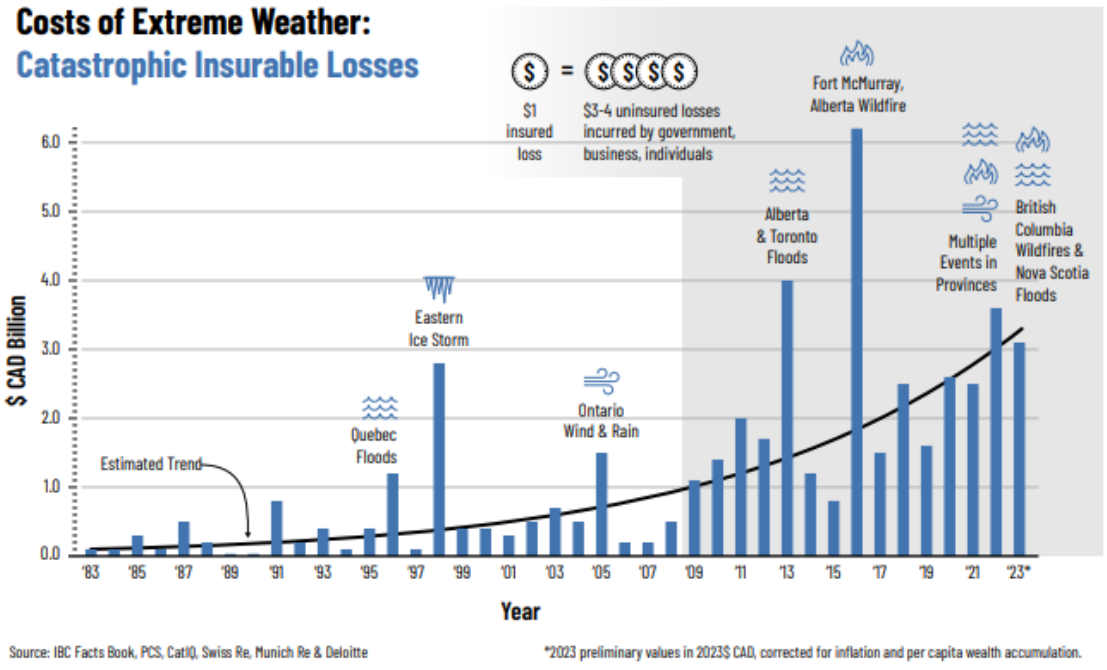
Capital Regional District (CRD)	• Continue to implement actions to protect our drinking water quality from forest fires in the Drinking Water Supply Area, including building a water filtration plant.
Household, neighbourhood, and local businesses and organizations	• Review your home or business risk based on proximity to natural areas with higher fire risks (see maps above). • For those in higher fire risk areas, review FireSmart educational materials and consider implementing relevant actions. • Contact the Fire Prevention Division to discuss a FireSmart assessment. • Consider volunteering with the Pulling Together program to conduct ecological restoration in Saanich parks.
Provincial and Federal governments	• Work with Private and crown land forestry companies to reduce wildfire risks through forestry practices. • Appropriately fund and resource firefighting in BC. • Update Wildland Urban Interface Fire Risk Maps on a regular basis and include climate projections. • Work with municipalities on wildfire risk reduction plans and actions. • Address gaps in private insurance and government disaster relief related to wildfires and strengthen community rebuilding capacity.
Critical infrastructure and service providers	• Conduct and update climate risk assessments, implement actions, monitor results, and report publicly on progress.

4.0 Cumulative and Compounding Effects

While the hazards above are explored separately, projected climate change hazards along with other conditions influence and can amplify each other within our complex and interrelated ecological, social, and economic systems. For example:

- Increased temperatures can harm or kill plant life, making more fuel for wildfires to spread.
- Drought changes soil conditions, making it less absorptive to rainfall, meaning a rainfall after drought may exacerbate local flooding.
- Wildfires exacerbate flooding and erosion by killing plants that retain soil structure on slopes and near waterways.
- Multiple extreme weather events in short succession can stress emergency responders' capacity and resources and delay rebuilding efforts (see Figure 10 below from the IntactCentre Municipal Flood Risk Check Up report showing the increasing trend of losses related to extreme weather in Canada).
- Global trends such as increased insurance costs, decreased agricultural production, and supply chain interruptions due to issues elsewhere can impact Saanich even if we are not experiencing an extreme weather event locally.
- Housing and affordability crises and other challenges in our community make taking climate action more difficult for residents, businesses, and governments.

Figure 10 Catastrophic insured losses, Canada 1983 - 2023



Future assessments may be able to further explore the impacts of cumulative and compounding effects and options to address them.

Global Trends Influence Saanich

According to the Intergovernmental Panel on Climate Change (IPCC) 6th Synthesis report:

"Every region in the world is projected to face further increases in climate hazards, increasing multiple risks to ecosystems and humans.

Hazards and risks include an increase in heat-related human mortality and morbidity, food-borne, water-borne, and vector-borne diseases, mental health challenges, flooding in coastal and other low-lying cities and regions, biodiversity loss, a decrease in food production, floods, landslides, and water availability have the potential to lead to severe consequences for people, infrastructure and the economy in some regions, and increased rain-generated local flooding. Due to unavoidable sea level rise, risks for coastal ecosystems, people and infrastructure will continue to increase beyond 2100.

Climate change risks will become increasingly complex and more difficult to manage. Multiple climatic and non-climatic risk drivers will interact, resulting in compounding overall risk and risks cascading across sectors and regions. Climate-driven food insecurity and supply instability, for example, are projected to increase with increasing global warming, interacting with non-climatic risk drivers such as competition for land between urban expansion and food production, pandemics, and conflict.

The likelihood and impacts of abrupt and/or irreversible changes in the climate system, including changes triggered when tipping points are reached, increase with further global warming. With additional global warming, limits to adaptation along with losses and damages, strongly concentrated among vulnerable populations, will become increasingly difficult to avoid."

5.0 Overall Community Resilience

In addition to the resilience actions explored for each climate hazard, enhancing our overall community resilience can help us withstand many different challenges including those brought by climate change. Table 12 outlines current Saanich initiatives that help support our overall resilience. These will be located in the Community Wellbeing & Resilient Infrastructure Focus Area of the 2026 Climate Plan. Table 13 outlines additional overall resilience actions for the District.

Table 12 Current overall resilience initiatives

Overarching Resilience Strategy	Current Saanich Initiatives
Support healthy local ecosystems and biodiversity	• Saanich Biodiversity Conservation Strategy and Urban Forest Strategy • Saanich Natural Assets Inventory (completed 2024) and upcoming Natural Assets Management Plan • Saanich Official Community Plan
Improve affordability, sustainable economic development, quality jobs, and food security	• Saanich Economic Development Strategy and Initiatives • Saanich Housing Strategy • Saanich Agriculture & Food Security Strategy and Initiatives
Enhance community connectedness and belonging	• Saanich Parks programs and volunteer opportunities • Saanich Recreation and Community Services programs and volunteer opportunities • Saanich Emergency Program neighbourhood and volunteer programs • Saanich Community Associations and Groups • Saanich Community Grants • Block Watch • Saanich Official Community Plan
Continue to build relationships with local First Nations and Indigenous organizations; learn from and support their climate adaptation priorities	• New Saanich Indigenous Relations and Reconciliation staff position created and initiatives undertaken • Council to Council meetings between Saanich Council and local First Nations and Indigenous organizations. • Many relevant actions included in recent District Plans (see feature box below),
Enhance community climate adaptation knowledge	• Saanich Emergency Program education and resources • Saanich Climate Plan communications and programs
Reduce inequality and barriers to climate resilience (e.g. improve the overall accessibility of Saanich infrastructure, facilities, and services for people with a disability, address discrimination when	• Saanich Accessibility, Diversity, Equity and Inclusion Strategy • Saanich Accessibility Plan and Accessibility Technical Advisory Committee • Equity considerations in the Saanich Biodiversity Conservation Strategy and Urban Forest Strategy, Saanich Active Transportation Plan, Road Safety Plan, Saanich Official Community Plan, and others.

accessing District services, etc.)	• Saanich Emergency Program is actively working to enhance the accessibility of public education offerings including expanding virtual options, exploring additional language supports, and leveraging PreparedBC's multilingual resources. Regional emergency managers have recently completed training with CanAssist, an accessibility and inclusion organization.

Spotlight on Reconciliation Activities

The first District Reconciliation Initiatives Report received by Council in March 2026 outlined many actions in District Plans that can support reconciliation between the District and local First Nations through climate adaptation, including:

- *Following the completion of the Resilient Saanich process and the Biodiversity Conservation Strategy, update strategic policy documents to reflect their outcomes. This may include: Partnering with Indigenous communities and incorporating Indigenous perspectives on land use and management.*
- *Support Saanich's work towards reconciliation with local First Nations through collaboration on climate action.*
- *Work with senior levels of government, First Nations, neighbouring municipalities, and stakeholders to protect and enhance marine, intertidal, backshore, wetland & riparian habitats.*
- *Continue to work with partners, agencies, organizations, First Nations, the public, and private property owners to protect the environmental integrity and ecological function of beach environments.*
- *Consider future sea level rise and climate change to minimize associated impacts, such as flooding and erosion, on marine ecosystems, areas of significance for First Nations, and beaches and beach amenities.*
- *Support efforts to restore Indigenous plants and food sources, improve access to cultural foodlands, and increase public awareness of local Indigenous food systems.*

Table 13 Overall Resilience Actions for the District of Saanich

#	Action	PIEVC Action	Lead/Support
CR1	Improve community climate adaptation knowledge (e.g. through social media, updated Residents Climate Action Guidebook, targeted outreach and education programs, etc.) Specifically explore options for reaching equity deserving groups including people with disabilities.		Sustainability
CR2	Explore opportunities to support economic development, job creation, and job training related to climate adaptation, including for those facing barriers.		Sustainability
CR3	Explore options for collaborative projects with local First Nations that support multiple climate resilience and reconciliation goals (e.g. sea garden restoration to support cultural, food security, restoration, and sea level rise goals).	D.10	Sustainability

6.0 Conclusion and Next Steps

Climate hazards are having short- and long-term impacts on our community and are likely to become more frequent and intense over time. Our community has many strengths to draw from when facing these hazards and there are many actions we can take to improve our resilience further.

The Climate Risk Assessment of Corporate Assets outlines 87 actions the municipality can take to improve the climate resilience of municipally owned assets and municipal services. This community assessment outlines 40 actions (including 13 that are cross referenced with the Corporate Asset actions) the District can take to improve community resilience, along with additional actions we can support that are undertaken by others.

This draft report will be available for information as part of public engagement for Phase 2 of the Saanich Climate Plan Update engagement in early 2026. The assessment will be used to inform actions in the Saanich Climate Plan Update and updates to this assessment should be conducted on a regular basis (approximately every five years) as new information emerges and contexts change.