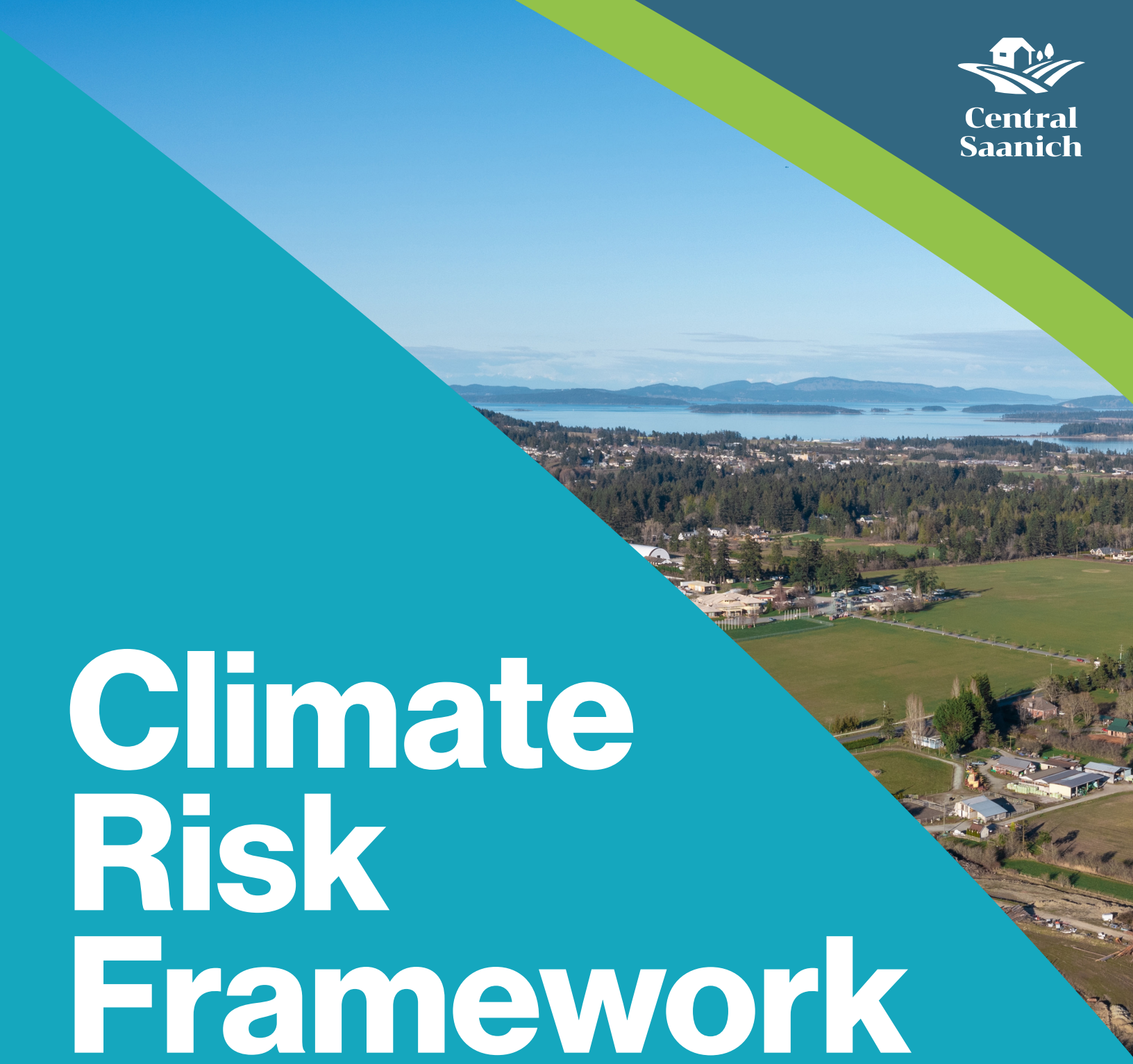
Central Saanich



Climate Risk Framework

To Inform Climate Change Adaptation, Mitigation, Preparedness, Response, and Recovery

2026

Integrated Planning & Reporting

Acknowledgement

The District of Central Saanich is located within the traditional territory of the W̱SÁNEĆ peoples, represented today by W̱JOŁEŁP (Tsartlip), S̱TÁUTW̱ (Tsawout), W̱SIḴEM (Tseycum), BOḰEĆEN (Pauquachin), and MÁLEXEŁ (Malahat) First Nations. The W̱SÁNEĆ People have been here since time immemorial, and this is their home.

We extend our deep appreciation to all of Central Saanich's community members who shared their experiences and insights to inform the District's climate risk and adaptation planning process, including residents, S̱TÁUTW̱ and W̱JOŁEŁP First Nations staff and community members, and representatives from local businesses and community organizations.

The District of Central Saanich also gratefully acknowledges Pinna Sustainability for their professional support and contributions to this project.

Contents

Glossary

Adaptation: In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities[1].

Climate-Related Hazard: The potential occurrence of a physical event, trend, or impact influenced by climate variability or climate change that may cause harm to people, infrastructure, ecosystems, or the economy[2].

Consequence: The severity of impacts across multiple dimensions, including human health and safety, psychosocial impacts, displacement, damage to property and infrastructure, environmental harm, and economic disruption.

Disaster Risk Reduction: The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events[3].

Impact: The effect of climate change on human and natural systems. Impacts generally refer to effects on lives, livelihoods, health and well-being, ecosystems and species, economic, social and cultural assets, services (including ecosystem services), and infrastructure[4].

Likelihood: How often a hazard of a specific magnitude is expected to occur, informed by historical experience and future climate projections.

Mitigation: In disaster risk reduction contexts, mitigation refers to actions that lessen or minimize the adverse impacts of a hazardous event[5].

Note that the term "climate mitigation" often refers to reducing greenhouse gas emissions; however, in this document, "mitigation" is used exclusively in the disaster-risk-reduction sense defined above.

Resilience: The ability of a system and its components to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner [6].

Risk: The potential for adverse consequences where something of value is at stake and where the occurrence and degree of an outcome is uncertain[7]. Climate risk refers to the adverse consequences of a climate-related hazard – a natural hazard, such as flooding, that is influenced by climate change. Risk results from the interaction of the vulnerability of the affected system, its exposure to hazard(s) over time, and the likelihood of the hazard. For practical decision-making, the District applies a widely accepted formula:

Risk = Likelihood × Consequence

Vulnerability: The propensity or predisposition of a person, animal, place or thing to be adversely affected by impacts of a hazard[8]. Vulnerable people, animals, places or things are particularly susceptible, due to physical or geographic location or environmental factors, or other similar factors, to the adverse effects of an emergency, and have prescribed characteristics[9].

1 Intergovernmental Panel on Climate Change. 2022. **AR6 Report**.
2 Adapted from Intergovernmental Panel on Climate Change. 2022. **AR6 Report**.
3 UNISDR. 2009. **2009 UNISDR Terminology on Disaster Risk Reduction**.
4 Intergovernmental Panel on Climate Change. 2022. **AR6 Report**.
5 United Nations Office for Disaster Risk Reduction (UNDRR). 2017. **The Sendai Framework Terminology on Disaster Risk Reduction**.
6 Intergovernmental Panel on Climate Change. 2022. **AR6 Report**.
7 Government of BC. 2025. **BC Disaster and Climate Risk and Resilience Assessment**.
8 Intergovernmental Panel on Climate Change. 2022. **AR6 Report**.
9 Government of BC. 2026. **Emergency and Disaster Management Act**.

Purpose and Scope

The Climate Risk Framework (Framework) is a guiding document within the District of Central Saanich's Integrated Planning and Reporting Framework (see Figure 1). Its purpose is to ensure that climate-related risk reduction and adaptation considerations are integrated directly into strategic decisions, budgeting, service planning, asset management, and day-to-day governance across all departments. Rather than functioning as a stand-alone action plan, the Framework provides a shared foundation to strengthen decisions and support long-term resilience.

The purpose of the Framework is to ensure that climate-related risk reduction and adaptation considerations are integrated directly into strategic decisions, budgeting, service planning, asset management, and day-to-day governance across all departments.

This Framework establishes common terminology and core concepts so staff and Council can work from a unified understanding of climate and disaster risk. It summarizes how major climate-related hazards are changing, highlights known vulnerabilities, and provides an initial indication of how risks may evolve as climate change progresses.

The Framework also outlines the method and processes used to assess climate-related hazards and supports the District in continuing to build its understanding of how climate change influences community and corporate risk profiles over time.

The Framework identifies a set of guiding principles to help the District integrate climate-related risk reduction and adaptation into governance, planning, and service delivery. It also affirms the District's commitment to collaboration with Tsartlip and Tsawout First Nations, recognizing the value of shared knowledge, place-based expertise, and coordinated action in understanding and reducing climate-related risks.

At this stage, the Framework is focused on District operations and services. Building community-wide resilience will involve collaboration with First Nations, regional partners, community organizations, businesses, and residents over time.

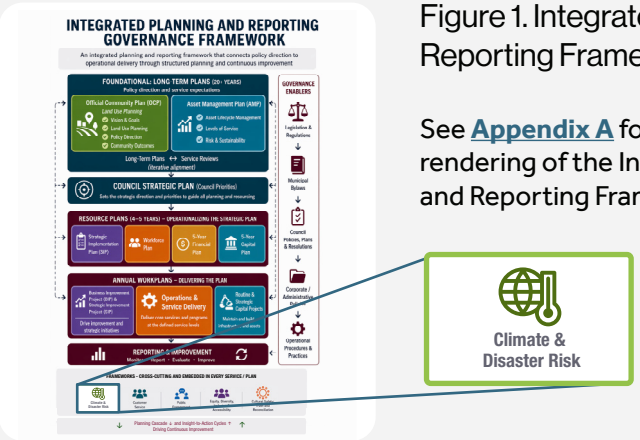


Figure 1. Integrated Planning and Reporting Framework

See Appendix A for a full size rendering of the Integrated Planning and Reporting Framework diagram.

Evolving our Approach:
Climate-Informed Hazard and Risk Management

The District of Central Saanich has an established history of assessing all hazards and managing emergencies, including undertaking Hazard, Risk, and Vulnerability Assessments (HRVAs) and advancing risk-reduction efforts across departments. This Framework builds on that foundation by identifying how to integrate the influence of climate change on climate-related hazards, risks, and vulnerabilities into this process.

Sendai Framework for DRR Principles

Priority 1: Understanding disaster risk

Priority 2: Strengthening disaster risk governance to manage disaster risk

Priority 3: Investing in disaster risk reduction for resilience

Priority 4: Enhancing disaster preparedness for effective response, and to «Build Back Better» in recovery, rehabilitation and reconstruction

Climate science shows that significant climate impacts are already occurring, and that many will continue to intensify for a long time due to past and ongoing global emissions—even if emissions were sharply reduced today. As a result, the likelihood of several hazards are shifting. The District is therefore incorporating climate projections and scenarios into risk assessment and governance so decisions remain evidence-informed and forward-looking.

This approach is driven by alignment with the Sendai Framework for Disaster Risk Reduction, which emphasizes understanding risk, strengthening governance, investing in resilience, and enhancing preparedness and recovery ("build back better.")[10] The Framework operationalizes these priorities in relation to climate change through a repeatable climate risk assessment methodology and by embedding climate risk considerations into planning and decision-making.

It also reflects and supports readiness under B.C.'s Emergency and Disaster Management Act (EDMA), which is shifting local practice[11] toward:

- Risk-based emergency management, including risk assessments that incorporate consideration of vulnerability and intersectional disadvantage
- Emergency management plans aligned with identified risks
- Business continuity planning for essential services
- Incorporating Indigenous knowledge and local knowledge where available[12]
- Training, readiness, and coordination across departments and partners
- Continuous improvement and accountability

This Framework provides the governance foundation to meet these expectations in a coordinated and defensible way. The grant funding received by the District to support this work is specifically intended to strengthen readiness for these EDMA requirements.

10 United Nations Office for Disaster Risk Reduction (UNDRR). 2017. **Sendai Framework for Disaster Risk Reduction 2015-2030**.

11 While EDMA is in force, new local authority regulations are forthcoming, with provincial direction indicating regulations are anticipated in Spring 2026 and key requirements expected to come into effect in January 2027; **https://www2.gov.bc.ca/gov/content/safety/emergency-management/emergency-management/legislation-and-regulations**

12 These are the expected obligations for local governments based on provincial guidance to date; **https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/legislation/fs-indigenous_knowledge-edma.pdf**

Guiding Principles

The District applies the following guiding principles to ensure climate-related risk reduction and adaptation are integrated into governance and decision-making, consistent with the expectations of B.C.'s Emergency and Disaster Management Act and aligned with the Sendai Framework for Disaster Risk Reduction.

Informed Decision-Making

Climate risk decisions will be informed by climate science, technical analysis, and diverse forms of knowledge, including information shared by First Nations, local expertise, and lived experience. This ensures mitigation, adaptation, and response actions are grounded in the best available information and reflect local realities.

Corporate Integration and Shared Accountability

Climate risk mitigation, adaptation, preparedness, response, and recovery are shared responsibilities across the organization. To support this, climate risk considerations will be integrated into departmental service planning, asset management, capital planning, emergency management, and corporate reporting.

Equity-Centred Outcomes

The District recognizes that climate-related hazards are not experienced equally. Planning and response will account for social vulnerability and differential impacts, ensuring that mitigation, adaptation and recovery efforts reduce disproportionate harm and support inclusive outcomes.

Financial Sustainability

Climate risk management will be integrated into financial planning and asset management to support fiscally responsible decisions. Investments in climate adaptation and resilience will be guided by evidence to reduce long-term risk, protect service continuity, and avoid future costs associated with damage and disruption.

Collaboration and Shared Stewardship

Effective climate risk management requires collaboration across jurisdictions and sectors. The District will continue to work with First Nations, regional partners, community organizations, and residents to advance mitigation efforts, strengthen adaptive capacity, and support coordinated emergency response and recovery.

Continuous Improvement and Adaptive Management

Climate risks and conditions evolve over time. The District will apply a continuous improvement approach by monitoring outcomes, updating risk information, and refining mitigation, adaptation, and response measures through IP&R reporting and review cycles.

Climate Risk Assessment Methodology

The District applies a structured, best-practice approach to assessing climate-related hazards, exposure, vulnerability, and risk, in alignment with the Emergency and Disaster Management Act and the Sendai Framework. This methodology provides a repeatable process that will be refined and updated as new climate information, local knowledge, departmental data, and provincial guidance become available. The District has completed an initial application of this approach to identify priority climate-related hazards, including qualitative inputs to score select hazard scenarios. The District will continue to deepen its understanding of risk over time through regular planning and reporting cycles.

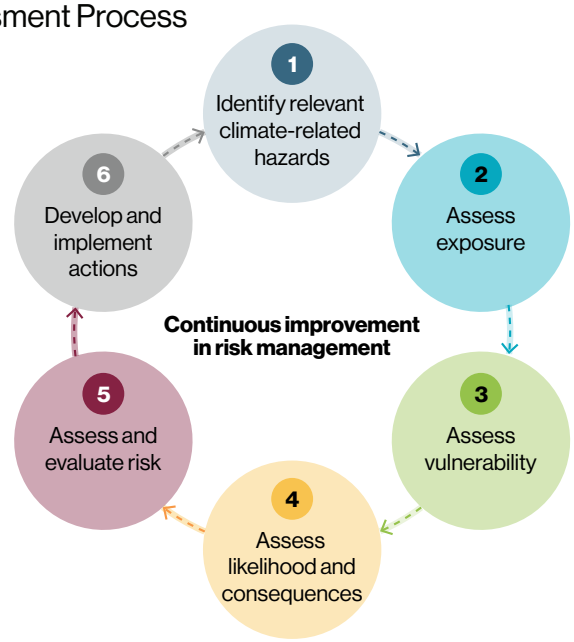
Figure 2 outlines the key steps in the District's climate-informed risk assessment process. The District assesses climate-related risk using the commonly accepted relationship between likelihood, consequence, and vulnerability:

- **Likelihood** reflects how often an event of a given magnitude is expected to occur
- **Consequence** reflects the severity of impacts across people,infrastructure, the environment, and the economy
- **Vulnerability** amplifies the severity of consequences experienced by different populations, systems, and places

After risks are assessed, the District identifies actions to address priority risks. As part of continuous improvement, the process loops back to Step 1 so that assessments and responses can be updated as new information emerges.

There are multiple sources of information that can inform each step, such as climate projections, local experience, lessons learned from past hazard events, technical analysis, information shared by First Nations, and research and literature. See Appendix B for a description of key steps and information sources that inform the District's risk assessment process.

Figure 2. Risk Assessment Process



Social Vulnerability and Equity

Climate-related risks are not experienced equally. Vulnerability reflects the social, economic, physical, and systemic factors that influence how strongly different people, services, and places are affected by a hazard and how well they can cope or recover. In applying climate risk information to planning, service delivery, emergency management, and recovery, the Framework requires departments to consider who is most affected, not only which assets are at risk. Analysis identified several populations with heightened vulnerability to climate-related hazards (see **Appendix C**), including:

- older adults
- people with disabilities or mobility challenges
- people living alone
- unhoused individuals
- agricultural operators and workers
- Indigenous Peoples

This lens ensures that risk-reduction actions support equitable outcomes and reflect the needs and strengths of those most affected.


CENTRAL SAANICH
FIRE DEPARTMENT
STATION NO. 1
CENTRAL SAANICH
FIRE DEPARTMENT
Non-Emergency: 250-544-4238
District of Central Saanich
FOREST FIRE DANGER
LOW
MODERATE
HIGH
EXTREME
CARBON MONOXIDE
THE SILENT KILLER!
CARBON MONOXIDE
BE ALARMED!
DO YOU HAVE
A DETECTOR?

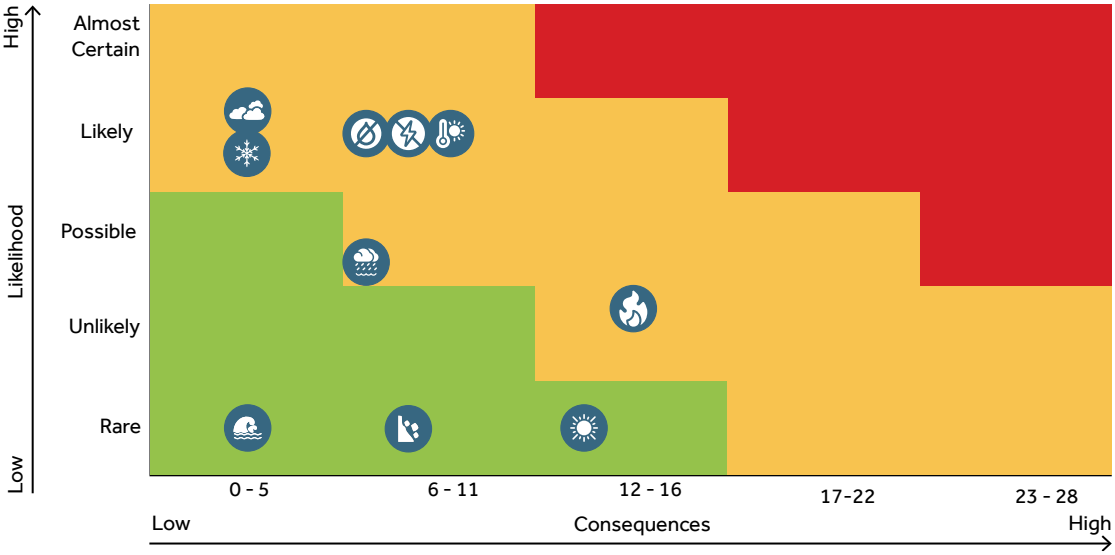
District of Central Saanich Highest Priority Hazards

The District has completed an initial application of this climate-informed risk assessment process to identify which climate-related hazards present the greatest overall risk to the municipal operations and community now and in future climate scenarios. Using a standardized likelihood-and-consequence risk assessment approach described in the methodology section (see **Appendix B**), the District considered a range of acute and slow-onset climate-related hazards relevant to Central Saanich. The initial assessment is informed primarily by engagement with District staff, supplemented by insights gathered from service providers, First Nations representatives, interest holders, and community members. Information gathered from engagement sessions included identifying vulnerabilities to climate-related hazards, exploring the types of impacts being experienced, understanding the strengths and adaptation efforts underway, and uncovering opportunities to enhance resilience[13].

Based on the initial assessment, several hazards emerged as moderate to high risk in the future (once climate change projections are considered). These moderate to high risk hazards show increasing likelihood of occurring in the future and are the initial focus for the District's Integrated Planning and Reporting framework. Lower-ranked hazards are not benign and should be monitored and updated regularly. The following risk matrices show the current and future risk levels for each hazard, based on the District's initial analysis.

13 Pinna Sustainability. 2025. What We Heard: Disaster Risk Reduction and Climate Adaptation in Central Saanich.

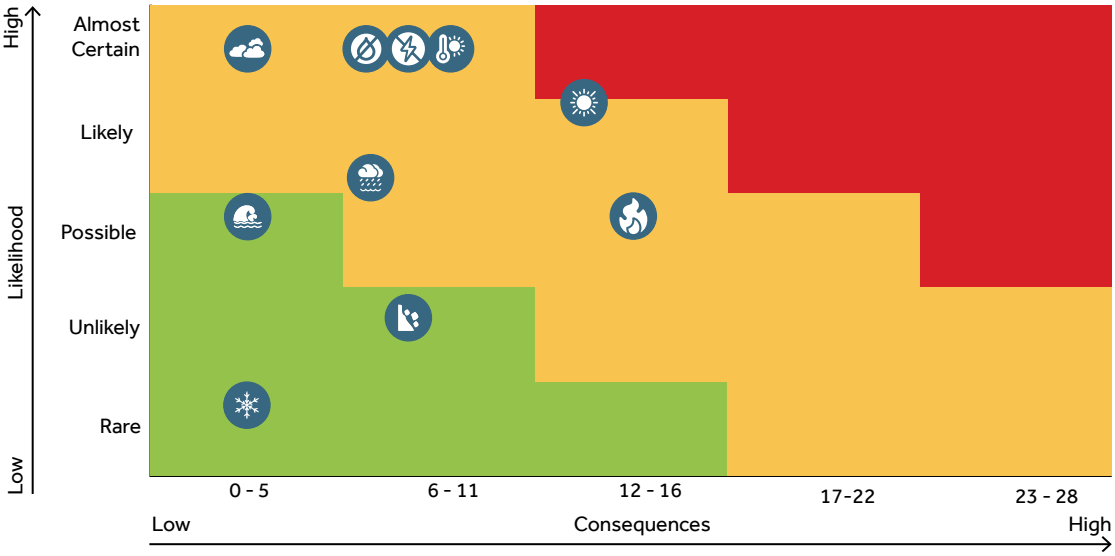
Figure 3. Risk Matrix for Current Risk in Central Saanich



Legend

- Extreme Heat Emergency
- Heat Dome
- Wildfire
- Wildfire Smoke
- Drought
- Storms and Power Outage
- Rainwater Flooding
- Coastal Flooding
- Landslide
- Extreme Cold

Figure 4. Risk Matrix for Future Risk at GWL 3°C in Central Saanich

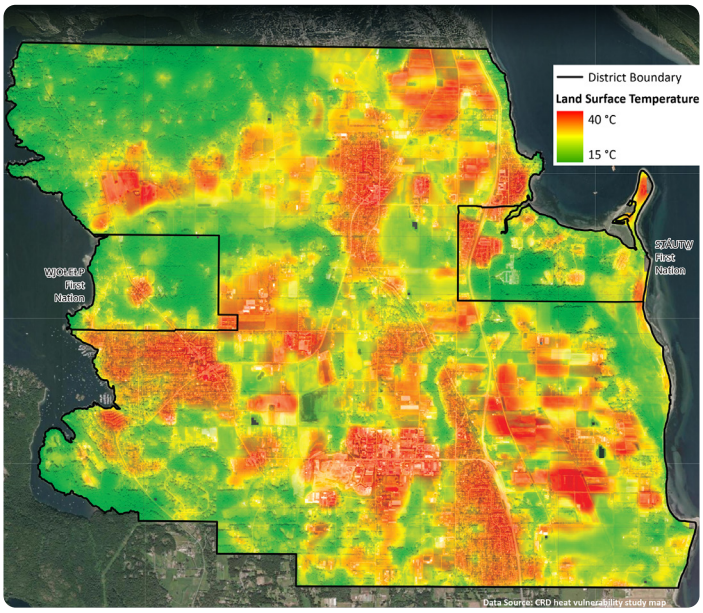


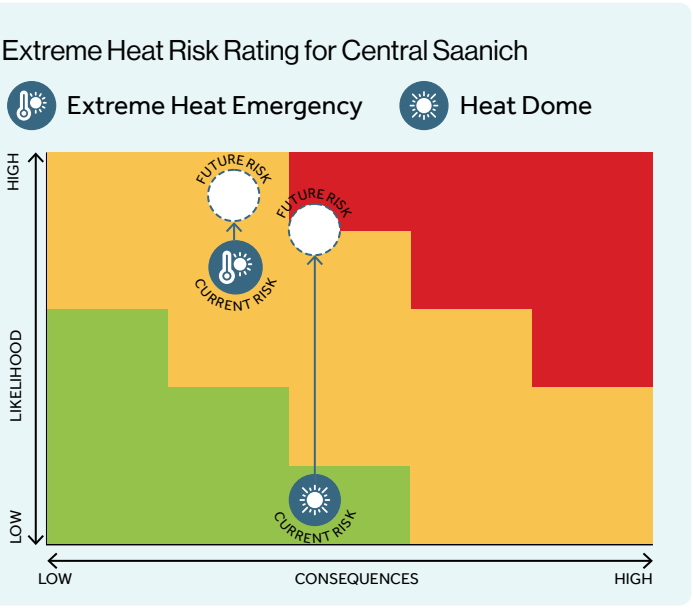
The following pages provide a concise, two-page summary for each of the priority hazards with:

- A brief description of the hazard
- Key climate projections that show how the hazard is expected to change
- Examples of anticipated impacts
- A short list of vulnerabilities and exposure considerations relevant for District planning

This prioritization is a starting point and will be refined over time as part of our commitment to continuous improvement through regular IP&R and emergency management cycles.

Extreme Heat





Above: Land Surface Temperature Heat Exposure Map. District of Central Saanich. Adapted from the **CRD Extreme Heat Information Portal Regional Heat Map**

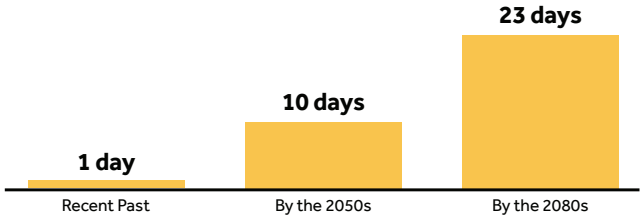
What is Extreme Heat

Environment Canada issues a heat warning when daytime temperatures are expected to reach 29°C or higher for two days in a row, and nighttime temperatures stay at 16°C or warmer. An extreme heat emergency is declared when these conditions are met and the forecast shows that daily high temperatures will rise significantly for at least three more consecutive days.[14] A heat dome is a rare, but particularly dangerous extreme heat event that occurs when a strong high-pressure system sits over an area for days, trapping hot air and causing prolonged, life-threatening heat.

Extreme Heat Events are Increasing

As the climate warms, extreme heat events that were once rare in Central Saanich are becoming more common and more intense, which is increasing the risks associated with this hazard. Average summer daytime temperatures will continue increasing, with the hottest summer day typically reaching 35°C by the 2080s. Severe heat waves will happen more often as shown in the graph. See **Appendix D** for more climate projections and **Appendix E** for a larger map of how heat exposure varies across the community.

Indicator: Heat Wave Days



Temperatures can vary significantly across the community, causing some people and places to be more exposed to higher temperatures (**see Appendix E**).

14 **BC Provincial Heat Alert and Response System (BC HARS): 2025**.

How Extreme Heat Can Affect Us

Extreme heat increases the risk of heat-related illness, worsens mental and physical stress, and creates safety risks for people who work or spend time in hot or poorly ventilated environments

Homes, workplaces, and public spaces can overheat, increasing demand for cooling and community amenities, while placing additional strain on energy systems and local services

Hot, dry conditions can reduce crop yields, stress livestock, lower productivity for workers, and lead to business disruptions during very hot periods

Rising temperatures increase wildfire risk, warm streams, harm heat-sensitive species, and make parks and natural areas harder and more costly to maintain

Effects of heat are amplified when it occurs at the same time as other hazards like wildfire smoke or drought

Vulnerabilities: Who, What, and Where can be More Affected

Populations

- Older adults (65+) and young children
- People with pre-existing physical and mental health conditions
- People living alone
- People with disabilities or mobility challenges who may face barriers to access cool spaces
- People with lower incomes if cooling is unaffordable
- Agricultural producers
- Outdoor workers
- Underhoused populations

Buildings and Places

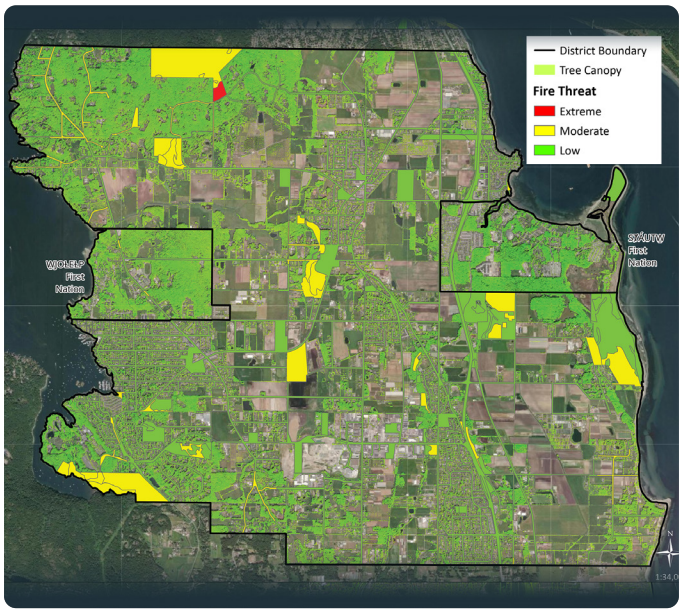
- Homes and work places without cooling; strata and rental homes may face additional barriers to adding cooling
- Public facilities without adequate cooling
- Urban areas with less shaded areas and green spaces

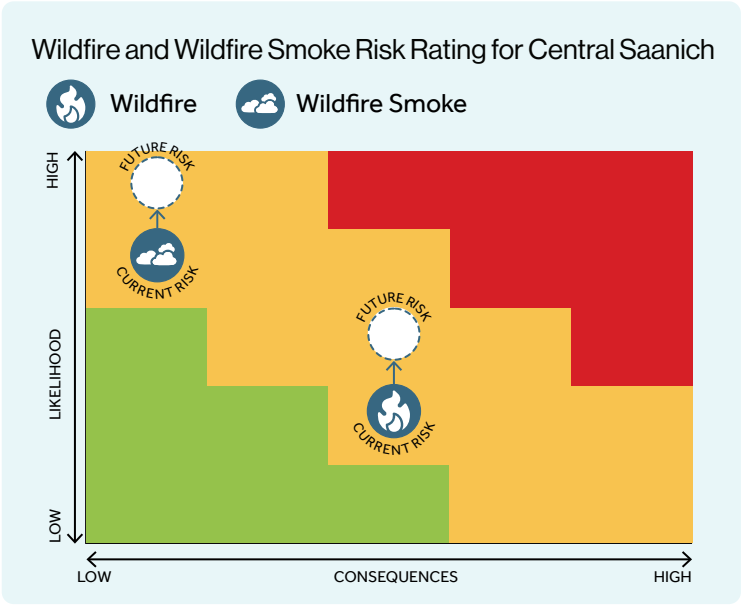
Systems and Environments

- Agricultural land
- Forested and wildland-urban interface areas
- Natural areas and ecosystems sensitive to heat

See Appendix C for more information about populations at risk

Wildfire and Wildfire Smoke





Above: Wildfire Threat Risk Map. District of Central Saanich. 2024. **Community Wildfire Resiliency Plan**.

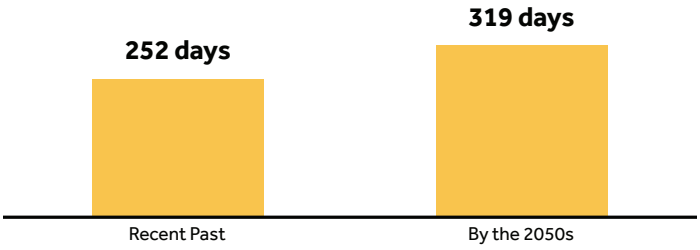
What is Wildfire and Wildfire Smoke

A wildfire in B.C. is an unattended or uncontrolled open fire burning forest land, grass land or within 1 km of forest land or grass land[15]. Wildfire smoke contains gases and fine particulate matter (PM2.5) that can travel long distances and degrade air quality well beyond the fire region. The Air Quality Health Index (AQHI) communicates the current level of air pollution-related health risk to help people make informed decisions to protect their health, especially during poor air quality events such as wildfire smoke events.

Risks of Wildfire and Associated Smoke are Increasing

Although wildfires have occurred infrequently on Southeast Vancouver Island, climate change is intensifying wildfire activity by driving longer periods of drought, altering precipitation patterns, and drying vegetation, which elevate fire behaviour, severity, and risks in the wildland-urban interface[16]. Select areas in Central Saanich pose a higher threat for wildfire (see **Appendix F**). As wildfire risk is increasing in most areas across the province, so is the risk of exposure to wildfire smoke. See **Appendix D** for more climate projections.

Indicator: Fire Season Length[17]



15 BC Wildfire Act. Current to March 3, 2026.

16 **https://natural-resources.canada.ca/forest-forestry/wildland-fires/climate-change-wildland-fire** and District of Central Saanich, "Central Saanich Community Wildfire Resilience Plan" 2024

17 **Climatedata.ca** "Fire Weather Projections" for Vancouver Island Inland (North Cowichan/Duncan) as the Saanich Peninsula is not represented on the available data currently.

How Wildfires and Wildfire Smoke Can Affect Us

Wildfire smoke can harm physical and mental health due to poor air quality, reduced outdoor activity, loss of access to recreational areas, and stress or trauma associated with evacuation, displacement, or wildfire threat

Wildfires can damage private properties, public buildings, and critical infrastructure, while smoke can deteriorate indoor air quality when filtration systems cannot keep it out

Wildfires can damage crops, livestock and equipment, reduce plantable land, and raise insurance cost, while smoke can reduce outdoor worker productivity and disrupt tourism

Wildfires can damage ecosystems, contaminate the environment from burned materials, and increase human–wildlife conflict

Impacts increase when heat and smoke events occur at the same time, and the frequency of this combination is increasing

Vulnerabilities: Who, What, and Where can be More Affected

Populations

- Older adults (65+) and young children
- People with pre-existing health/respiratory conditions
- People with pre-existing mental health conditions
- Pregnant individuals
- People with disabilities or mobility challenges who may face barriers to access clean air spaces
- Outdoor workers
- Agricultural producers

Buildings and Places

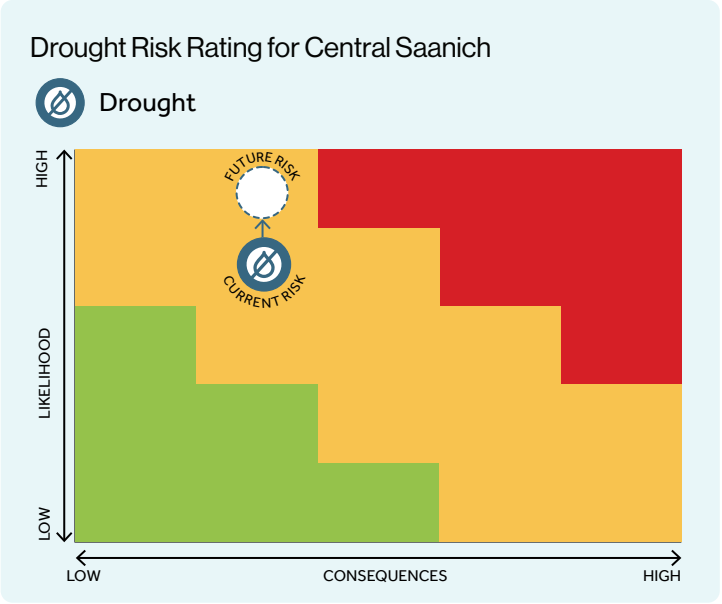
- Homes, rental units and workplaces without adequate air filtration systems
- Public facilities without adequate air filtration systems
- Properties/buildings located near forested and wildland-urban interface areas

Systems and Environments

- Agricultural land
- Tourism businesses
- Forested and wildland-urban interface areas
- Natural ecosystems

See **Appendix C** for more information about populations at risk

Drought and Water Shortage



Above: Oak Haven Park during dry season

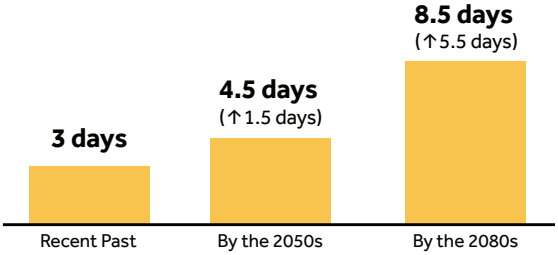
What is Drought and Water Shortage

Drought is a prolonged period with below-normal precipitation; water shortage occurs when available, usable water cannot meet needs for people, ecosystems, and uses like agriculture. The BC government uses a six-level scale to rate the severity of drought conditions[18].

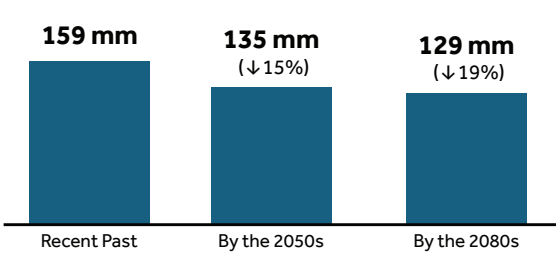
Increasing Drought and Water Availability Risk

Hotter, drier summers are increasing seasonal water stress in Central Saanich. As an agricultural community, lower summer rainfall and higher evapotranspiration are expected to raise irrigation and other water demands. Central Saanich relies on the CRD's Sooke Lake Reservoir and groundwater. Although groundwater levels on the Saanich Peninsula have remained generally stable over the past two decades, they are sensitive to shifts in precipitation, recharge rates, and human withdrawals[19], and Vancouver Island has recorded a prolonged Level 4-5 drought in recent seasons[20]. See Appendix D for more climate projections.

Indicator 1: Heatwave Maximum Length



Indicator 2: Average Summer Rain



18 British Columbia Drought and Water Scarcity Response Plan

19 Long-term Trends in Groundwater Levels in B.C. State of the Environment Indicators. https://www.env.gov.bc.ca/soe/indicators/water/groundwater-levels.html

20 BC's Provincial Drought Information Portal "Historic Drought Levels" shows drought conditions. Level 4, in red, denotes that adverse impacts to socio-economic or ecosystem values are likely to occur.

How Drought and Water Shortage Can Affect Us

Reduced water for gardens can affect home food production and food security, and dry conditions increase dust that can worsen respiratory conditions

Limited water supply can hinder fire protection in areas without hydrants when reservoirs, ponds, or creeks are low

Dry conditions can reduce soil health and limit irrigation, increasing crop-loss risk for agricultural producers affecting local food production and garden-based tourism. Approximately 60% of the District's land base is Agricultural Land Reserve (ALR).

Reduced streamflow during drought increases wetland loss and harms fish and other aquatic species

Effects of drought can lead to increased wildfire risk as grass, trees, and other vegetation become dry and fuel for fire

Vulnerabilities: Who, What, and Where can be More Affected

Populations

- Agricultural producers
- People reliant on homegrown food production
- People with pre-existing respiratory conditions (due to dust)
- People experiencing stress or anxiety related to prolonged drought conditions

Buildings and Places

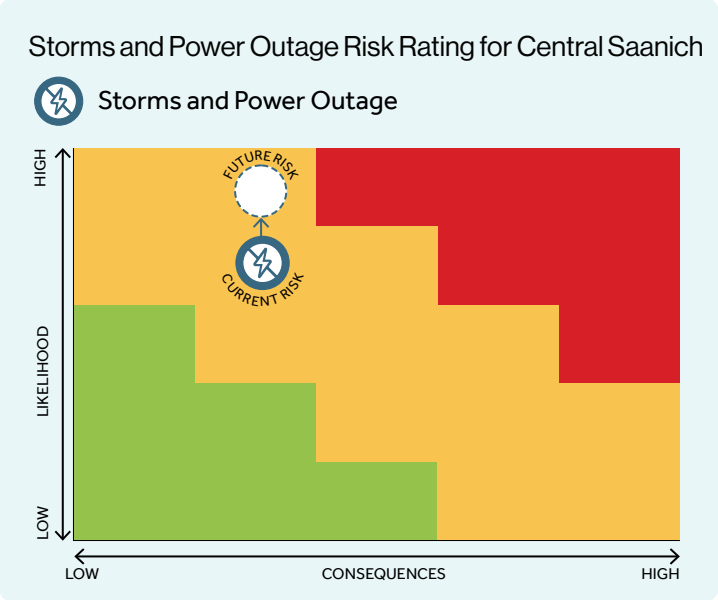
- Areas without access to fire hydrants

Systems and Environments

- Agricultural land
- Garden-based tourism
- Wetlands
- Fish and aquatic ecosystems
- Plants/trees requiring consistent water (e.g., Western redcedars)

See **Appendix C** for more information about populations at risk

Storms and Power Outage



Above: Storm damage. Credit: BC Hydro.

What are Severe Storms

Environment and Climate Change Canada now uses colour-coded weather alerts to communicate storm severity forecasts, which may activate local EOC protocols. Severe storms may cause power outage and flooding when accompanied by heavy rainfall (see next section for details about heavy rainfall related flooding).

Intensity of Storms

Climate change is increasing the frequency and intensity of heavy precipitation events. Climate change projections for wind are limited because wind patterns are localized and hard to predict with confidence through global climate models. In the long-term as temperatures below zero become rare, Central Saanich is expected to experience fewer snow and ice storms and fewer extreme cold events.

How Severe Storms Can Affect Us

Severe storms may cause power outages that pose health and safety risks, particularly for people who rely on powered medical devices

Severe storms can disrupt critical infrastructure - such as sewage treatment facilities, lift stations, pump stations, and communication networks - particularly where backup power is limited; fallen trees may block roads and cut power, and intense or prolonged rain can overwhelm drainage systems and damage property

Increased power outages can challenge business operations

Increased runoff from urban areas during storms and increased sedimentation can affect aquatic species; tree breakage and loss can reduce the urban and natural forest canopy, stress remaining trees, and add downed material that increases wildfire fuel

Vulnerabilities: Who, What, and Where can be More Affected

Populations

- People that rely on electric medical or mobility devices
- Underhoused populations

Buildings and Places

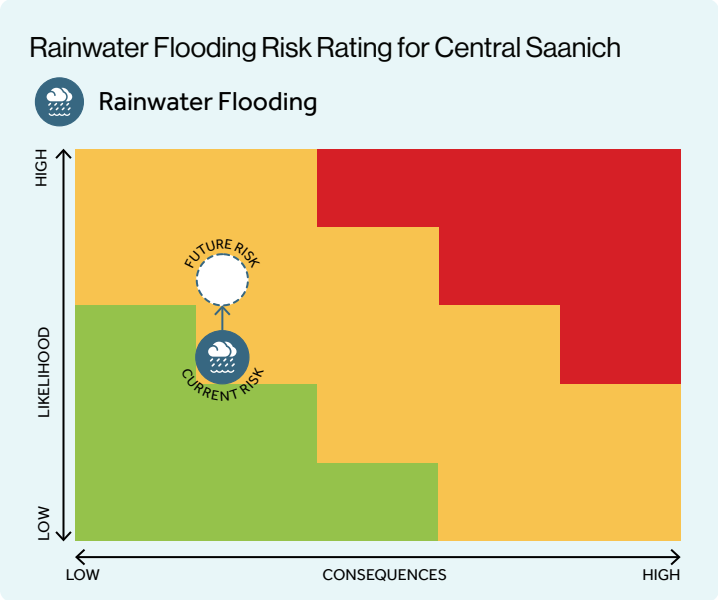
- Infrastructure and facilities without adequate back-up power systems

Systems and Environments

- Businesses reliant on power to operate

See **Appendix C** for more information about populations at risk

Rainwater Flooding



Above: Flooding in Maber Flats/T̓IKEL

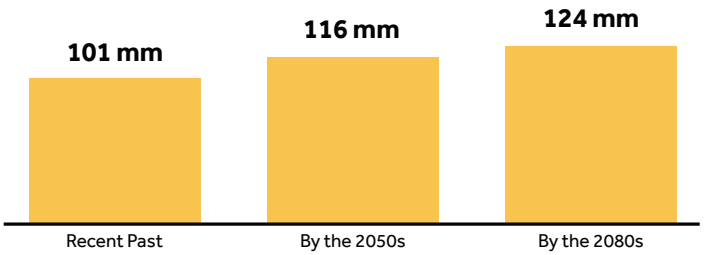
What is Rainwater Flooding

Rainwater flooding, also commonly referred to as stormwater flooding, occurs in localized areas when rainfall exceeds the capacity of natural or built drainage systems. Contributing factors include rain intensity, soil saturation, blocked drains, high tides limiting outflow, and aging or undersized infrastructure. Two subcatchments in Central Saanich more prone to localized, often seasonal rainwater flooding include the Maber Flats/T̓IKEL area and Martindale Valley.

Climate-Driven Pressures on Central Saanich's Drainage Systems

As temperatures warm, Central Saanich will experience more overall rainfall in every season except summer, with more frequent intense rainstorms. See **Appendix D** for more climate projections.

Indicator: 1-in-20-Year Wettest Day*



*mm of rainfall

How Rainwater Flooding Can Affect Us

Rainwater flooding can lead to mould in homes, contaminate wells, damage septic fields, and back up sewer systems into properties

Rainwater flooding can disrupt transportation routes within the District and broader supply chain routes in the region

Rainwater flooding can inundate crops and disrupt agricultural operations, reducing production (especially during shoulder seasons). Flooding can degrade water quality and aquatic ecosystems, through creek sedimentation, habitat damage, and other ecological changes that harm fish and wildlife.

Rainwater flooding can degrade water quality and aquatic ecosystems, through creek sedimentation, habitat damage, and other ecological changes that harm fish and wildlife

Vulnerabilities: Who, What, and Where can be More Affected

Populations

- Agricultural producers
- People with mental health conditions (e.g., increased anxiety around flooding)
- Underhoused populations

Buildings and Places

- Properties without effective drainage
- Highways
- Health, social service, and community facilities located in flood-prone areas

Systems and Environments

- Agricultural land
- Fish habitats and aquatic ecosystems

See **Appendix C** for more information about populations at risk

Other Hazards

In addition to the priority hazards, the District assessed several other climate-related hazards that remain important but ranked lower in preliminary analysis. These hazards, including coastal flooding, coastal encroachment due to sea level rise, landslides and extreme cold, are addressed through existing policy, land use planning, engineering standards, and regional initiatives. Although they currently have a lower overall risk rating from a District perspective, they may have significant consequences in specific locations or under certain conditions and will continue to be monitored and updated through future climate-risk and HRVA cycles. In addition to acute hazards, gradual onset risks resulting from climate change were also reviewed, including but not limited to, increasing invasive species, altering ecosystems and biodiversity decline, and changing species ranges. The District continues to work on programs and projects to address these ongoing effects of climate change.

Interrelated and Cascading Risk

While hazards are assessed individually for purposes of identifying priority risks, climate-related events often interact. Back-to-back or concurrent hazards, such as heat and wildfire smoke, storms on saturated ground, or drought followed by extreme heat, can result in consequences that are greater than any single event alone. These combined events can further strain services and prolong recovery. Considering these interactions helps the District anticipate where coordinated readiness, shared information, and cross-departmental planning are needed.

First Nations and Shared Stewardship

Building Relationships

Central Saanich is located within the traditional territories of the W̱SÁNEĆ peoples, including SȾÁUTW̱ and W̱JOŁEŁP First Nations. The District's approach to climate and disaster risk reduction is relationship-centred: we aim to understand risk together, strengthen coordination, and act in ways that reflect local realities and knowledge systems. This aligns with the Emergency and Disaster Management Act (EDMA), which emphasizes strong coordination with Indigenous governing bodies and incorporation of Indigenous Knowledge in risk assessments and plans. It also aligns with the Sendai Framework's all-of-society approach to disaster risk reduction.

The District is continuing to build working relationships around risk reduction and emergency management with the SȾÁUTW̱ and W̱JOŁEŁP First Nations. Recent collaboration has included information sharing (for example, sharing hazard and risk profiles to better understand one another's challenges and opportunities) and coordination on select initiatives, such as the reflective addressing and address-profile update submitted to GEOBC and EComm to support emergency response and preparedness. The District intends to continue strengthening relationships, expanding information exchange, and coordinating preparedness and risk-reduction efforts over time.

Pictured above:
District and SȾÁUTW First Nation collaboration on address sign program

Pictured on the right:
District and W̱JOŁEŁP First Nation collaboration on address sign program

Acknowledging Different Ways of Understanding Risk

While this Framework is grounded in the District's emergency management and climate risk assessment responsibilities, the District recognizes that the SȾÁUTW̱ and W̱JOŁEŁP First Nations approach risk and resilience through worldviews and knowledge systems that can differ from Western risk-assessment approaches. Acknowledging different ways of knowing is important to support discussions about where climate risks identified by the District may be aligned with, differ from, or be informed by Nation-specific approaches to risk and related concepts. As the District continues to build relationships with the SȾÁUTW̱ and W̱JOŁEŁP First Nations, this understanding will continue to develop and evolve.

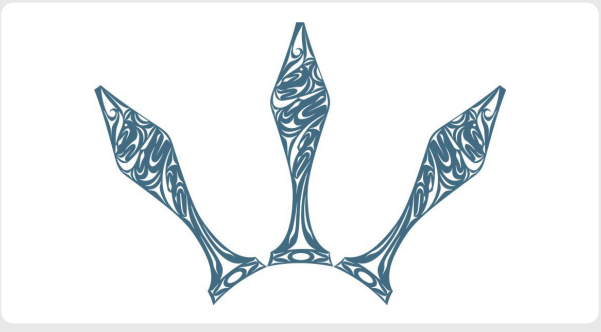
Shared Hazards, Unique Risk Profiles

Across the Saanich Peninsula, we face many similar climate-related hazards, including extreme heat, wildfire and wildfire smoke, severe storms and power outages, and flooding. However, exposure, strengths and vulnerabilities, consequences, and therefore priority risks can differ from place to place and across cultures. Differences in shoreline exposure, topography, infrastructure and building conditions, and different cultural understandings of Land, Water and Air can contribute to unique risk profiles across communities. Recognizing and understanding the unique risk profiles of adjacent communities can help build resilience across jurisdictional boundaries.

Working Together

In the context of risk assessment, emergency management, and recovery planning, the District aims to continue working with both the SȾÁUTW̱ and W̱JOŁEŁP First Nations to:

- **Build and maintain strong relationships** through regular meetings and forums such as the Emergency Preparedness Committee
- **Enhance clarity and community inclusion** by working together to clarify roles and approval processes, and by supporting information-sharing with community members
- **Advance shared learning and readiness** through joint training opportunities, ongoing collaborative fire assessments, and other learning opportunities for community members
- **Formalize information-sharing practices** in a way that upholds SȾÁUTW̱ and W̱JOŁEŁP data sovereignty and respects each Nation's Knowledge Systems
- **Embed continuous improvement** by regularly reviewing, adapting, and refining shared processes



The paddle upright is raised as a sign of peaceful intention to signify peaceful arrival at other nations shores. The designs inside the paddle of water, orca, wolf, raven and tree, represent community, working together and balance.

Paddles artwork by:
Chazz "Temoseng" Elliott
(local W̱SÁNEĆ artist)

Applying the Climate Risk Framework in Central Saanich

The Framework guides how the District integrates climate-related risk reduction and adaptation into its governance, planning, and reporting systems. The Framework is applied through the District's Integrated Planning and Reporting (IP&R) processes, ensuring that climate-informed decisions are embedded in departmental service plans, asset management, capital planning, emergency management, and business continuity. The Framework supports ongoing consultation and cooperation with the SȾÁUTW_ and W_JOŁEŁP First Nations, consistent with EDMA, and strengthens alignment with regional initiatives led by the CRD and other partners.

Applying the Framework in each department involves:

Understanding Disaster Risk (Sendai) / Risk Assessment (EDMA)

- Using climate-informed hazard, exposure, and vulnerability information to support legislated risk assessments when planning services, projects, and programs
- Identifying how climate-related hazards may affect people, critical infrastructure, service delivery, and operations

Strengthening Disaster Risk Governance

- Embedding climate-risk considerations into departmental service plans, Council reports, asset management, capital planning, procurement, and emergency management plans
- Coordinating across departments to address shared risks, interdependencies, and statutory responsibilities

Investing in Disaster Risk Reduction for Resilience

- Considering climate risk and vulnerability when evaluating capital investments, maintenance, and lifecycle decisions in alignment with mitigation requirements
- Prioritizing investments that reduce long-term risk, protect essential services, and support equitable and sustainable outcomes

Enhancing Preparedness for Response and Building Back Better (Sendai) / Preparedness, Response and Recovery (EDMA)

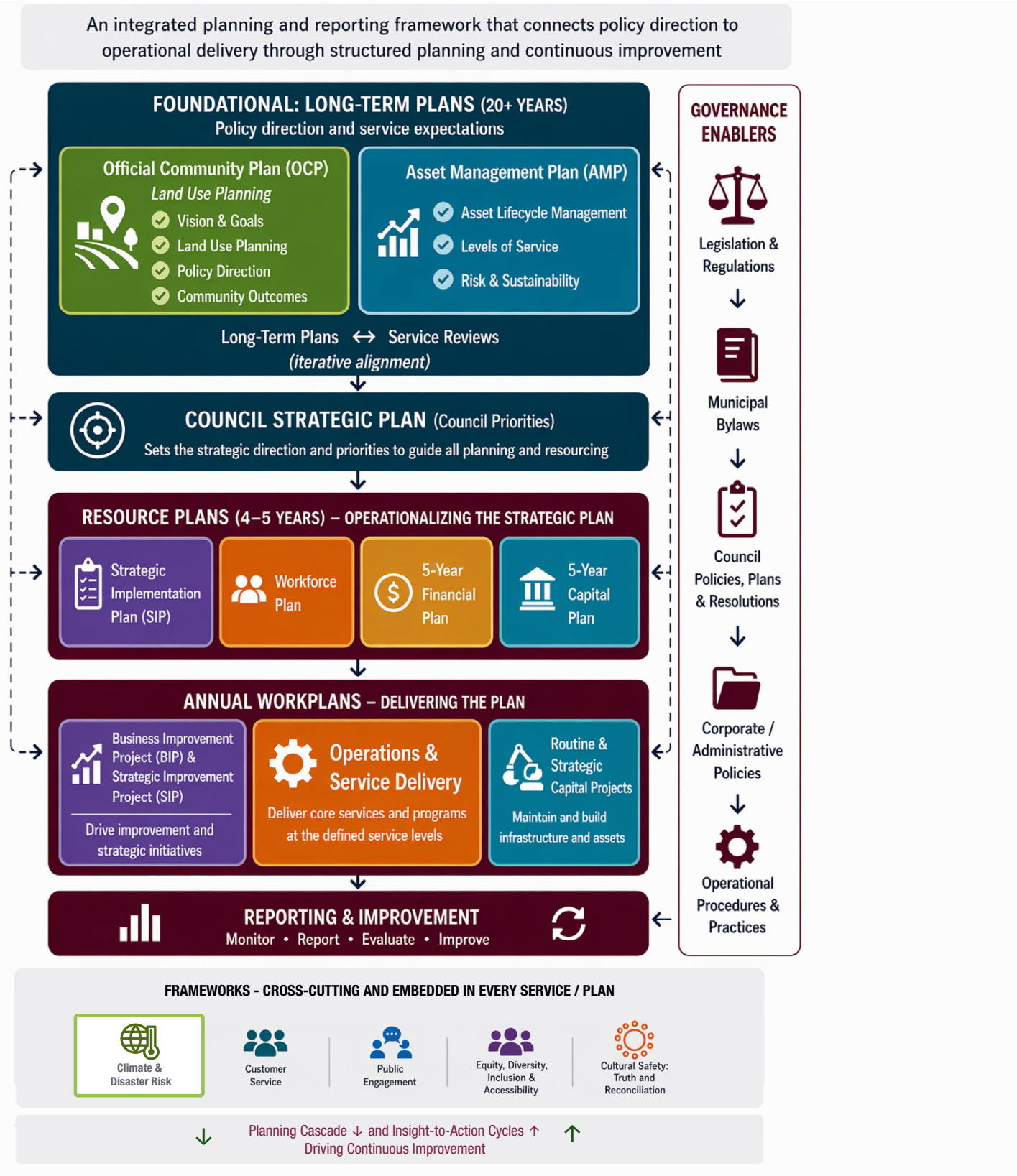
- Aligning emergency preparedness, response, and recovery activities with the District's climate-risk profile and legislated emergency management requirements
- Ensuring readiness, continuity of operations, and recovery approaches that reflect EDMA's emphasis on sustained preparedness and resilient recovery

Continuous Improvement and Adaptive Management (Sendai & EDMA)

- Reviewing and updating departmental actions as new climate data, risk information, operational experience, or Indigenous or local knowledge emerges
- Integrating lessons learned from events, exercises, and evaluations into future planning and IP&R cycles

The initial application of the Framework focuses on District operations and services, while recognizing that broader community-wide resilience will develop over time through coordination with First Nations, regional partners, community organizations, businesses, and residents. As new information emerges, the District will refine its understanding of risk through regular IP&R and emergency management cycles. This continuous improvement approach ensures that climate risk information remains current and that actions and investments evolve alongside changing conditions.

Appendix A:
Integrated Planning and Reporting Governance Framework



Appendix B:
Climate Risk Assessment Information Sources

The following table outlines the Climate Risk Assessment Methods, coupled with key information sources to include at each step. Sources can be updated and expanded as new information becomes available. Some groups are more likely to experience significant mental health impacts from a changing climate, due to greater exposure, existing vulnerabilities, or compounding stressors.[21]

Key Steps	Information Sources
Step 1: Identify relevant climate-related hazards	
• Use latest regional climate projections • Capture past and recent events • Note assumptions and uncertainties throughout process	• Climate projections for the Capital Regional District (2024 version summarized in Appendix D) • District of Central Saanich Hazard, Risk and Vulnerability Assessment (HRVA) • District staff observations • climatedata.ca • Pacific Climate Impacts Consortium Tools • News sources about events
Step 2: Assess exposure	
• Identify hazard-prone areas (i.e. wildfire urban interface, floodplain) • Note who/what is physically located in those places (people, services, assets, natural areas) • Consider timing and seasonality	• District operational knowledge (e.g., drainage, fire access, parks, utilities) • District staff, community, First Nations observations • Higher level plans such as the Integrated Stormwater Management Plan and Community Wildfire Resilience Plan • Exposure mapping, where available (e.g., CRD Extreme Heat Information Portal) • B.C. Hazard Insights Tool
Step 3: Assess vulnerability	
• Asset condition assessment • Consider where services and systems are at/over capacity • Explore past impacts and the contributing factors	• Cross-department District staff insights • Engagement with residents, the Health Authority, Community Service Organizations and other partners • Asset management systems • Community and First Nation lived experience input • Provincial guidance on disproportionate impacts and other literature

21 District of Central Saanich. 2026. Climate Change and Mental Health Risk and Resilience

Key Steps	Information Sources
Step 4: Assess likelihood and consequences	
• Identify potential impacts to value areas (i.e. health and safety, service level, environment) • Estimate the likelihood of climate-related hazard events occurring today and in the future with climate change • Evaluate the severity of consequences across value areas of each climate-related hazard event • Consider compounding events and interdependencies	• Consequence and likelihood scoring rubrics (i.e. BC HRVA Companion Guide) • Engagement with residents, the Health Authority, Community Service Organizations and other partners • Past and recent hazard occurrences (e.g., B.C. Drought Information Portal) • Cross-department District staff and service provider experience and insights • Community and First Nation lived experience input
Step 5: Assess and evaluate risk	
• Assess risk as a function of consequence and likelihood • Review impacts to identify which value areas are most impacted and in what way • Evaluate risks and identify which require near-term attention and which can be monitored over time	• Outputs from engagement in Steps 1-4 • Corporate strategic priorities, departmental mandates • Asset management systems, criticality
Step 6: Develop and implement actions	
• Identify where more action can be taken to reduce risk and build resilience • Integrate priority items into the District's Integrated Planning and Reporting process, including informing asset management, planning, and budgeting cycles	• Cross-department District staff insights • Engagement with residents, the Health Authority, Community Service Organizations and other partners • Discussions to identify First Nation collaboration opportunities

Appendix C:
Overview of Key Populations at Risk

Based on literature, local data, and input, the following populations may face disproportionate impacts to climate-related hazards; Central Saanich-specific statistics and context are noted for each group.

Population Group	Why at Risk	Central Saanich Context
Older adults (65+)	More susceptible to extreme heat, poor air quality, and isolation due to chronic conditions, reduced mobility, and social disconnection.	27.5% of residents are over 65, and this is expected to increase. Isolated seniors not engaged in programs are particularly vulnerable.
People with disabilities or mobility challenges	Barriers accessing information, cooling or clean air spaces and transportation. Dependence on powered medical devices.	44% of residents disagree sidewalks are well-maintained (compared to 29% province-wide); 29% report poor accessibility in their neighbourhood for using mobility aids, higher than the B.C. average (26%).
People living alone	Higher risk during extreme heat and emergencies due to lack of informal support and social networks.	While 50% of residents report a strong sense of belonging (higher than the B.C. average), 14% of residents report always feeling lonely.
Unhoused people[22]	Higher exposure to extreme weather, poor air quality, and other climate-related hazards due to lack of safe shelter, fewer options to seek safe indoor spaces, and reduced access to services and notifications during emergencies.	Homelessness in Greater Victoria is predominantly local, long-term, and increasingly unsheltered, with growing invisibility in surrounding municipalities (i.e., outside core municipalities). See technical appendix page 38 for Central Saanich statistics.

22 https://www.crd.ca/news/2025-greater-victoria-point-time-count-results-announced

Population Group	Why at Risk	Central Saanich Context
Agriculture community	Hotter, drier summers raise irrigation demands, while shifting rainfall patterns bring intense storms that flood fields, damage crops, and complicate drainage, placing strain on both small and large-scale producers. In addition, changing soil characteristics induce erosion (loss) and decreased soil health for planting. An increase in pests/invasive species also creates challenges. Livelihoods and well-being are tied to the health of the land. Extreme weather (drought, heat, extreme rain) causes stress, economic strain, and uncertainty. Crop suitability is shifting, prompting farmers to rethink what they grow and how they plan.	Farming is a key local sector. Tenant farmers may lack resources to implement adaptation measures. Mental health concerns from continued uncertainty due to water availability were raised. With 17% of agricultural land on Vancouver Island leased, long-term adaptation is especially complex. Resilience now depends on smart planning, crop selection, and applying affordable technologies.
Indigenous Peoples	Systemic inequities and colonial legacies increase vulnerability. Deep cultural and spiritual ties to Land are also at risk. Additionally, climate change and land-use patterns impact First Nations' inherent rights, including their ability to steward and maintain relationships to the Land, Water and Air, to access food systems, and to practice Ceremonies and governance.	11% of the population identifies as Indigenous. Housing conditions and access to services were identified as key concerns.

Appendix D:
Climate Change Projections

The local projections presented in this document are based on the **2024 Climate Projections for the Capital Regional District**[23] developed by the Pacific Climate Impacts Consortium (PCIC). These projections show what future climate conditions could look like in our region, using a range of scientific models and scenarios. To explore possible futures, climate scientists use different pathways called Shared Socioeconomic Pathways (SSPs), which reflect how greenhouse gas emissions might change over time depending on global choices around energy use, development, and climate policy.

Figure 5. Understanding Future Climate Scenarios

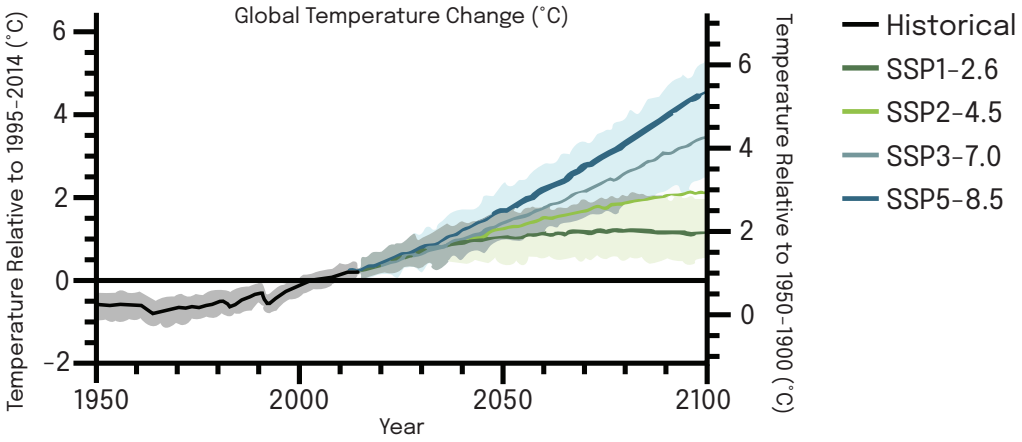


Figure 5 shows historical (as a black line) and projected global mean temperature changes (colored lines) simulated by CMIP6 GCMs (models). These projections are based on four SSP future scenarios, which range from strong emission reductions (green) to continued high fossil fuel use (blue) [24].

The SSPs begin to diverge significantly near 2050s because each scenario represents a different combination of greenhouse gas emissions, socioeconomic development pathways, technological change, land-use decisions and global policy. Low-emissions pathways (SSP1-2.6) assume that rapid decarbonization, sustainable development, and coordinated climate policy limit future warming. In contrast, high-emissions pathways (SSP3-7.0 or SSP5-8.5) assume continued or expanded fossil fuel use, slower technological transitions, and limited global cooperation, resulting in substantially higher emissions and accelerated warming. This divergence defines the range of future climate the District of Central Saanich must plan for.

The projections presented in Table 1 show the high greenhouse gas scenario, known as the SSP5-8.5. It represents a future where emissions are still driven by fossil fuel use worldwide. Using this scenario helps the District test its plans against a more challenging climate future and understand the upper range of potential changes in temperature, precipitation, and extreme events if global mitigation efforts are limited. Planning against this higher-risk scenario supports resilient infrastructure, emergency management, land use decisions, and community services even under more severe climate conditions.

23 Pacific Climate Impacts Consortium. **Updated April 2024. Climate Projections for the Capital Region**.
24 Pacific Climate Impacts Consortium. **Primer: Understanding Future Climate Scenarios**.

Table 1 shows how Central Saanich's climate is projected to change over time. A past temperature average is compared to two future time period projected averages as follows:

- Period 1 (1981-2010) "Recent Past"
- Period 2 (2041-2070) "By 2050s"
- Period 3 (2071-2100) "By 2080s"

Table 1 presents climate projections for the region[25], showing how conditions are expected to become warmer, drier, wetter, and more extreme over time. The table includes both recent past observations and future projections by 2050s and by 2080s. Each row lists a specific climate indicator and how much it is expected to increase or decrease. The indicators are organized into trends of warmer and drier, wetter, and more extreme.

Table 1. Climate Projections: Warmer, Wetter, and More Extreme Trends

Trend	Climate Variable	Period 1 (1981–2010) Recent Past	Period 2 (2041–2070) By 2050s	Period 3 (2071–2100) By 2080s
Warmer and Drier	Warm Summer Days: (days) over 25°C	12	40 (+28)	62 (+50)
	Hottest Day of the Year (°C)	29	32 (+3)	35 (+6)
	Coldest Winter Night (°C)	-8	-4.5 (+3.5)	-1.3 (+6.7)
	Average Nighttime Low (°C)	1	2 (+1)	3.6 (+2.6)
	Temperate Nights (days): over 16°C	0	15 (+15)	52 (+52)
	Growing Season Length (days)	270	318 (+47)	339 (+68)
	Average Total Summer Rain (mm)	159	135 (-15%)	129 (-19%)
	Average Annual Snow (mm)	274	109 (-60%)	40 (-85%)
	Average Winter Snow (mm)	197	83 (-58%)	36 (-82%)
	Average Spring Snow (mm)	37	10 (-73%)	2 (-95%)
	Annual Frost Days (days): when the daily minimum temperature is less than 0°C	60	27 (-33)	12 (-48)
	Annual Ice Days (days): when daytime temperatures do not go above 0°C	6	2 (-4)	0 (-6)
	Median Dry Spell Length (days)	24	26 (+8%)	29 (+21%)
	Fire Weather Severity (FWI): uses the Buildup Index of the Canadian Forest Fire Weather Index[26]	90	135	N/A
	Cooling Degree Days (degree days): indicates cooling load in buildings	17	119 (+102)	240 (+223)

25 Pacific Climate Impacts Consortium. **Updated April 2024. Climate Projections for the Capital Region**.

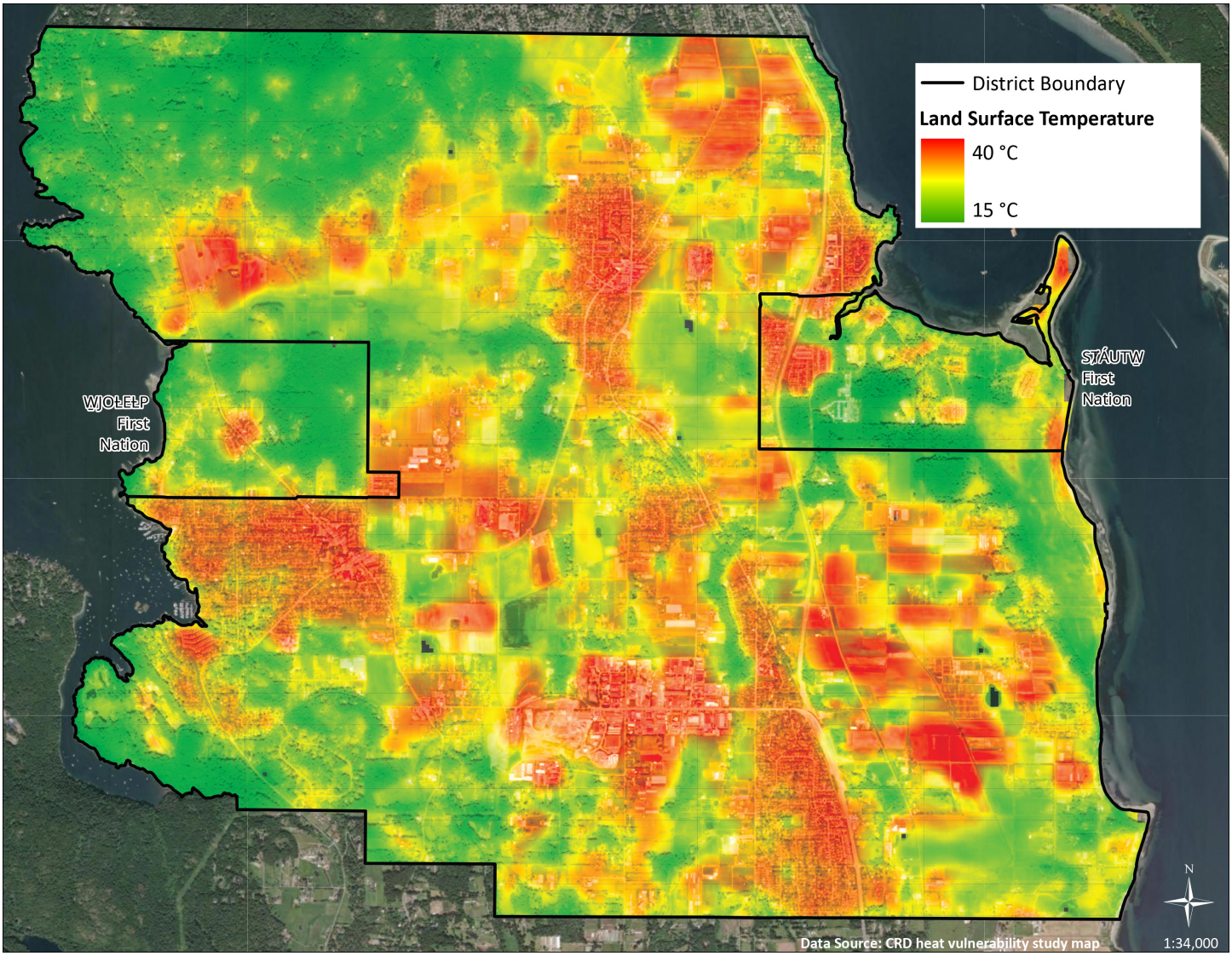
26 **Climatedata.ca** was used for the following Fire Weather Projections - Fire Weather Severity: represents the forest floor drought conditions that determine fuel availability for wildfire; and Fire Season Length: period during the year when the weather is warm enough to result in potential wildfire danger. These indicators are for Vancouver Island Inland (North Cowichan/Duncan) as the Saanich Peninsula is not represented on the available data at this time.

Trend	Climate Variable	Period 1 (1981–2010) Recent Past	Period 2 (2041–2070) By 2050s	Period 3 (2071–2100) By 2080s
Wetter	Average Annual Rain (mm)	1,827	2,102 (+15%)	2,279 (+25%)
	One-Day Maximum Precipitation (mm)	63	72 (+14%)	77 (+22%)
	Five-Day Maximum Precipitation (mm)	163	179 (+10%)	187 (+15%)
More Extreme	Heatwave[27] Days (days): annually classified as "heat wave"	1	10 (+9)	23 (+22)
	Heatwave maximum length (days)	3	4.5	8.5
	Average Temperature in Most Extreme Annual Heatwave (°C)	30	31	32
	Average Nighttime Temperature in Most Extreme Annual Heatwave (°C)	15	17	19
	Wettest Days – 95th Percentile (mm)	402	527 (+31%)	590 (+47%)
	1-in-20 Year Wettest Day (mm)	101	116 (+15%)	124 (+24%)
	Fire Season Length (days)	252	319	N/A

27 See the report, **BC Provincial Heat Alert and Response System** (BC HARS): 2023, May 2023. The lower threshold temperatures used in the Heatwave definition, which is intended for use throughout BC are TX = 28°C and TN = 13°C. In addition, a Heatwave must 1) last at least 2 full days; and 2) have TX and TN exceeding their 95th percentile values in the past.

Appendix E:
Land Surface Temperature Heat Exposure Map

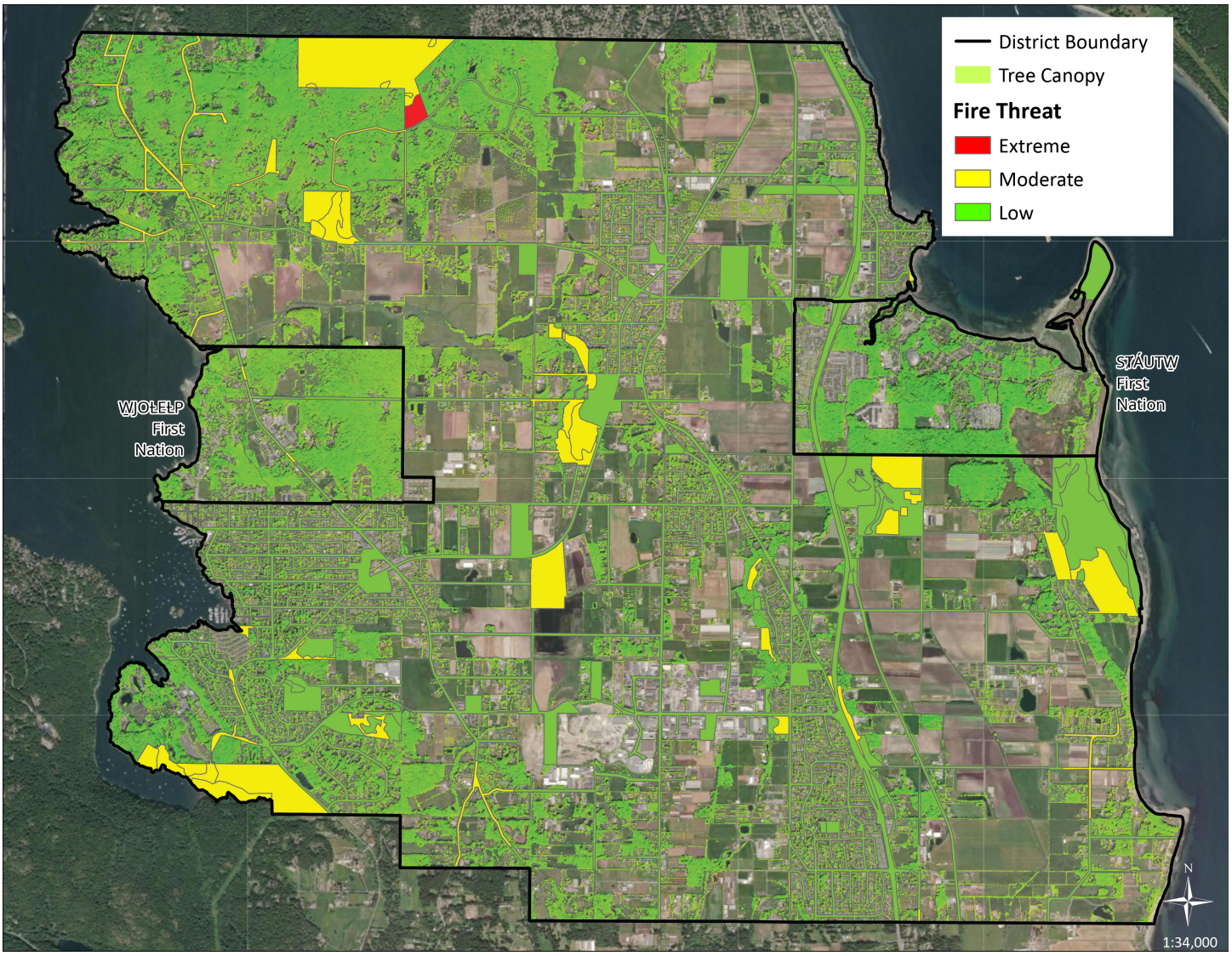
Land Surface Temperature maps show how much heat is given off by the ground and built surfaces. More developed urban areas, where buildings, roads, and paved surfaces are concentrated, can be significantly warmer than surrounding natural or agricultural areas, especially during hot weather.



Adapted from the **CRD Extreme Heat Information Portal Regional Heat Map**.

Appendix F:
Wildfire Threat Risk Map

Wildfire threat mapping shows where wildfire behaviour and impacts are more likely based on factors such as vegetation, terrain, and access. Areas with more forest fuels, limited access, and proximity to development tend to face higher wildfire risk than more open or managed landscapes.



Data source: District of Central Saanich. 2024. **Community Wildfire Resiliency Plan**.

Photo, right:
2023 Alec Road wildfire exercise

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sellstrom
SEA HAWK

Central Saanich

Climate Risk Framework

To Inform Climate Change Adaptation, Mitigation, Preparedness, Response, and Recovery

April 2026

centralsaanich.ca