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Town of Sidney

COMMUNITY WILDFIRE RESILIENCY PLAN

Prepared by Diamond Head Consulting

Town of Sidney Community Wildfire Resiliency Plan

December 2024

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15 December 2024	15 December 2024
I certify that the work described herein fulfills the standards expected of a registrant of the Association of British Columbia Forest Professionals and that I did personally supervise the work.	I certify that I have reviewed this document, and while I did not personally supervise the work described, I have determined that this work has been completed to the standards expected of a registrant of the Association of British Columbia Forest Professionals.

Table of Contents

List of Figures

List of Tables

Acknowledgements

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Finally, we also thank the Community Resiliency Investment Program (CRI) and the Union of British Columbia Municipalities (UBCM), whose support was critical to the funding and completion of this project.

Frequently Used Acronyms

AOI	Area of Interest
BC	British Columbia
BCWS	British Columbia Wildfire Service
BP	Building Permit
CFFDRS	Canadian Forest Fire Danger Rating System
CFBPS	Canadian Fire Behavior Prediction System
CRI	Community Resiliency Investment
CWPP	Community Wildfire Protection Plan
CWRP	Community Wildfire Resiliency Plan
DAI	Development Approval Information
DP	Development Permit
DPA	Development Permit Area
EMBC	Emergency Management British Columbia
EMP	Emergency Management Plan
FCFS	FireSmart Community Funding and Supports
FRPA	Forest & Range Practices Act
GIS	Geographic Information Systems
HRVA	Hazard, Risk, and Vulnerability Analysis
SFD	Sidney Fire Department
LRMP	Land and Resource Management Plan
MOE	Ministry of Environment
MOF	Ministry of Forests
OCP	Official Community Plan
PSTA	Provincial Strategic Threat Assessment
CRD	Capital Regional District
SWPI	Strategic Wildfire Prevention Initiative
UBCM	Union of British Columbia Municipalities
WRR	Wildfire Risk Reduction
WUI	Wildland-Urban Interface
EMO	Sidney Fire Department
ToS	Town of Sidney

Executive Summary

The Town of Sidney has prepared this Community Wildfire Resiliency Plan for its public lands. This Plan examines wildfire risk in the wildland-urban interface (WUI) of the Town and makes recommendations to help build its community FireSmart program to improve its wildfire preparedness and resiliency.

In the WUI, wildfire consultants conducted assessments on public land, examining the characteristics of forest vegetation. These assessments and data from the Provincial Strategic Threat Analysis (PSTA) were used to map the wildfire risk in relation to known values throughout the WUI, such as the location of homes, critical infrastructure, and environmental values. The analysis shows that Sidney is exposed to moderate wildfire risk, despite being isolated from substantial contiguous areas of forest vegetation. Most of the wildfire hazard in Sidney is associated with the potential for ember transport from forests elsewhere; this risk is unlikely except during periods of extreme fire danger and high winds. Forests within the Town boundary are somewhat unlikely to support severe fire behavior under most weather conditions. Despite this, climate change is increasing the likelihood of favourable weather conditions for severe fire behavior.

Proactive measures can be taken to reduce wildfire risk through education to increase public awareness, improve FireSmart programming for residents and municipal operations, emergency planning and interagency cooperation, and monitoring of fuel hazards on public lands. Working with property owners to encourage FireSmart activities is a core recommendation of Sidney's CWRP. The CWRP also recommends acquiring a Structure Protection Unit in partnership with neighbouring fire departments to improve suppression capacity on the Saanich peninsula. Sidney has good working relationships and operational aid agreements with suppression partners; the Town's central location on the north peninsula makes the Community Safety Building a suitable location for rostering an SPU.

26 recommendations in the Action Plan are framed with suggested priorities and implementation timeframes. The Town should work to update this Plan every five years to account for changing conditions in its forests and to address new needs in the community. The Action Plan identifies the following 14 actions as high priorities for implementation during the first five-year planning cycle (Table 1).

Table 1. Actions assigned "high" priority for the first five-year CWRP planning cycle.

Action #	Description
1	Conduct a formal review of the CWRP contents every 5 years. Review the Action Plan every year. (p. 71)
2	Support a FireSmart and Wildfire Resiliency position within the Sidney Fire Department, or establish an agreement to share a position with a neighbouring municipality (p. 71)
3	Participate in regular meetings of a Regional Community FireSmart & Resiliency Committee (p.73)
4	Publish the CWRP and highlights on Sidney's website. (p. 76)
5	Expand access to FireSmart information and services (p. 76)
7	Expand participation in Saanich Peninsula Alert! (p. 78)
8	Continue programs that help residents eliminate green waste and yard debris (p. 82)
12	Provide FireSmart information (bulletins, brochures, web resources) with development application materials (p. 88)
13	Incorporate recognition of and addressing wildfire hazard into the Official Community Plan (p. 87)
17	Support Sidney Fire Department members with training on SPU equipment and utilization. (p. 94)
19	Establish a guide for emergency preparedness levels during wildfire season (p. 97)
20	Cooperate with response partners to acquire a SPU for the Saanich peninsula (p. 96)
21	Conduct FireSmart Assessments of existing critical infrastructure and community assets. (p. 97)
25	Work to implement FireSmart Assessment recommendations for critical infrastructure and community assets (p. 99)

Introduction

Overview

This Community Wildfire Resiliency Plan (CWRP) examines wildfire risk in the Town of Sidney and makes recommendations for managing that risk. Funding for this Plan was provided through the ***Community Resiliency Investment Program***, an initiative of the Province of BC.

To be resilient means one can recover from a challenging or life-changing event. Wildfire has the potential to impact Sidney, but the Town can prepare for this challenge. Emergency preparedness, wildfire response, vegetation management, community planning, and personal readiness are all important elements of building the Town's resiliency to wildfire. Resilience does not mean that wildfire will never occur in Sidney. It does, however, mean that Sidney has the tools, knowledge, and preparation to prevent wildfire where possible and respond effectively.

This CWRP assesses risk of Sidney's ***wildland-urban interface*** (WUI) on public land. The WUI is the area where natural vegetation and urban development meet. The WUI is where wildfire can travel from wildland vegetation into neighbourhoods and homes. It is where there is the highest concern for potential wildfire activity. Forestry professionals visited public lands in the Wildland-Urban Interface (WUI) to gather information for mapping wildfire risk. Although wildfire risk assessments were not conducted for private lands, the recommendations in this Community Wildfire Risk Plan (CWRP) are intended for both public and private lands and serve as a resource for all residents of Sidney.

Recommendations follow the seven disciplines of FireSmart, the national program for community wildfire preparedness. This Plan describes the wildfire risk in the community and identifies actions that Sidney can take to support wildfire preparedness and prevention.

The ***Community Resiliency Investment Program*** is a program funded by the government of British Columbia to reduce the risk of wildfires and mitigate their impacts on BC communities.

Wildland-urban interface **(WUI)** is the area where human development meets or is located within forest, and consequently, where development faces greater risk of wildfire.

How to use this Plan

The first three sections of this CWRP consider Sidney's context and present the findings of the wildfire risk assessment. The community's planning context and background for the creation of the CWRP is presented in *Relationship to Other Plans* (p.16). A description of the community, including more detail on how the WUI is defined as well as a brief discussion of socioeconomic and environmental features within the Plan area is contained in *Community Description* (p.20). The results of wildfire threat assessments and local wildfire risk mapping are presented in *Wildfire Risk Assessment* (p.44). This section also contains information on the historic fire regime and climate change factors that may influence wildfire risk in the future. The next section is an *Introduction to FireSmart* (p.66) which provides readers with the basics of FireSmart programming and concepts.

After the Introduction to FireSmart, seven sections identify community resources and needs in each of the seven FireSmart Disciplines:

- *Education* (p.73). Examines how Sidney can improve or enhance outreach with residents or neighbourhoods to increase awareness of wildfire risk and build support for wildfire management.
- *Legislation and Planning* (p.78). Discusses key laws and policies relevant to wildfire management, and how they could be modified or expanded to enhance wildfire prevention and preparedness.
- *Development Considerations* (p.84). Discusses now municipal bylaws play a crucial role in regulating land development. By influencing development patterns, they can help create FireSmart communities that are sustainable in the long term.
- *Interagency Cooperation* (p.88). Provides recommendations for continuing efforts to engage various stakeholders and partner institutions.
- *Cross-Training* (p.91) Presents opportunities and challenges in ensuring more wildfire training for relevant emergency response personnel and neighbourhood FireSmart representatives.
- *Emergency Planning* (p.94). Describes how emergency planning processes can effectively incorporate wildfire risk and enhance wildfire preparedness.
- *Vegetation Management* (p.98). Examines the costs and benefits of fuel management at the site, neighbourhood, and landscape scale to reduce wildfire risk. Opportunities for vegetation management in Sidney are identified, with some prioritized as higher importance.

The *Action Plan & Implementation* (p.102) outlines potential actions discussed in the preceding sections and prioritizes them for implementation. The Action Plan can stand alone with the Executive Summary as a guide to improving wildfire resiliency in Sidney. Complementing the Action Plan is the FireSmart Roadmap, a visual summary of the plan's key recommendations. A total of 26 recommendations are presented to strengthen the community's wildfire resilience and preparedness. These are organized and prioritized within the appropriate FireSmart disciplines.

Appendices (p.109) to the Plan provide additional details and definitions for the wildfire threat assessment and risk process as well as a glossary of terms.

Photo 1. Aerial view of the Town of Sidney.

Plan Goals

Wildfires pose a risk to homes and businesses in Sidney, despite the absence of major wildfires within the Town's boundaries in recent years. The forested landscape surrounding Sidney in neighboring areas could support large-scale wildfires. Under severe weather conditions, a wildfire might spread embers into the town, igniting fires within it. The goals of this CWRP are to respond to this reality and set an agenda that influences each following section of the Plan. They represent *what the Plan sets out to do*.

Table 2. Goals of the CWRP

Goals	
Public Health and Safety	Public safety is enhanced through all activities to prevent, prepare for, or respond to wildfires.
Protection of infrastructure	Community infrastructure is protected from wildfire, such that the risk of wildfire reducing the function or life of the community is reduced.
Interagency Co-operation and Policy	Wildfire management planning, preparedness, prevention, suppression, ecosystem rehabilitation, and education occur in cooperation with all relevant agencies and where appropriate with local partners like neighbouring municipalities, neighbouring fire departments, and First Nations.
Public Awareness, Education and Advocacy	Public understanding, support and awareness of wildfire risk management is increased through effective education, advocacy, and communication.
Sustainable Planning	Planning for urban growth and development considers wildfire risk and mitigation as best practices.
Environmental Protection and Enhancement	Ecosystems that support biodiversity and environmentally sensitive features are protected and enhanced by wildfire management activities.
Adaptive Management	The effectiveness of wildfire management initiatives is monitored and continuously improved by reviewing actions and decision-making processes.
Financial Responsibility	Wildfire resiliency initiatives are pursued within sustainable budgets and make the best use of available grants and other funds from higher governments.

Plan Objectives

The following objectives provide context on *how the Plan will achieve its goals*:

- Provide an updated understanding of wildfire risk within the WUI based on the provincial data available and site assessments.
- Identify any areas of relatively high risk where Sidney should prioritize action to reduce wildfire risk and/or protect homes and infrastructure.
- Examine opportunities to adjust Sidney bylaws, policies, or programs to support improved wildfire preparedness and prevention.
- Help build capacity in fire suppression and response by identifying ways this Plan can support the wildfire preparedness of Sidney Fire Department.
- Consider where partnerships with residents, communities, organizations, or other governments may be needed to improve wildfire preparedness and/or address wildfire hazards.

Plan Development Summary

This CWRP was funded by the 2023 Union of British Columbia Municipalities Community Resiliency Investment Program Grant. The CWRP program is the new generation of the province's local wildfire planning program, which was initiated in 2004 as the Strategic Wildfire Prevention Initiative. This is Sidney's first Community Wildfire Resiliency Plan. Sidney awarded a contract to develop the Plan to Diamond Head Consulting, Ltd. in Spring 2024. Field assessments took place in the summer of 2024. Planning was supported by a public engagement process, described in Appendix C. A draft Plan was submitted for review by Town staff in December 2024. The final draft of the Plan was submitted before Council in the spring of 2025.

Relationship to Other Plans

The Community Wildfire Resiliency Plan (CWRP) is a strategic document that informs the Town of Sidney priorities for emergency services, operations, and community planning. The Town's plans for government operations, emergency management and evacuation, corporate strategies, climate action, parks and urban forestry are all relevant to this Plan. The plans of the Province and neighbouring municipalities may also be of relevance to aspects of wildfire management in Sidney.

Linkages to Existing Community Wildfire Plans

The Town shares its land boundary with the District of North Saanich to the north, west and south. There are large natural forests that exist in this community. Outlying islands within the Capital Regional District's (CRD) Southern Gulf Islands Electoral Area and Gulf Islands National Park Reserve are also forested, though they are separated from the Town by 1.5 kilometres or more of open water. Several nearby communities have recently adopted wildfire plans. The Town's new CWRP will continue to support ongoing coordination between regional partners in emergency response.

Table 3. Linkages to existing community wildfire plans.

Plan	Description	Relationship to CWRP
Community Wildfire Resiliency Plan – Capital Regional District Southern Gulf Islands Electoral Area (2023)	This Community Wildfire Resilience Plan (CWRP) applies to the areas surrounding the Town of Sidney within the Capital Regional District (CRD). It adheres to current methods for assessing local wildfire risk and identifies the wildfire risk in the Southern Gulf Islands electoral area as moderate. The CWRP Action Plan includes thirty-three (33) recommendations aimed at enhancing community resilience to wildfire.	This document provides context to the wildfire risk in the unincorporated areas surrounding the Town. The plan includes several recommendations that support regional collaboration within the Capital Regional District on issues like firefighter training. The plan includes a recommendation to reduce or eliminate green waste tipping fees for FireSmart projects at the Hartland regional landfill, which serves Sidney.
Community Wildfire Protection Plan – District of North Saanich (2021)	This Community Wildfire Protection Plan (CWPP) applies to areas directly north, south, and west of the Town of Sidney. It adheres to current methods for assessing local wildfire risk and generally identifies the wildfire hazard in the District of North Saanich as low to moderate. The CWPP includes thirty-nine (39) recommendations aimed at enhancing community resilience to wildfires.	This document provides context on the wildfire behaviour potential and risk in the adjacent municipality to the south of the Town. Information on local suppression resources in the District is relevant to this CWRP. The plan includes several recommendations that support regional collaboration within the Capital Regional District.

Linkages to Other Plans

The Town of Sidney has adopted several plans that relate to wildfire preparedness and response.. Table 4 provides a summary of the documents reviewed and their relevance to this CWRP.

Table 4. Relationship of Community Wildfire Resiliency Plan to local government plans.

Plan	Description	Relationship to CWRP
Town of Sidney Official Community Plan, Bylaw No. 2240, 2022	This Plan is prepared by the Town of Sidney and develops a vision for land use within the community. Official Community Plans, under the Local Government Act, specify how land in a local government area is to be allocated based on land use. These documents can also set local government policy for a variety of social and economic issues. Bylaws adopted by the local government must be consistent with the adopted Official Community Plan.	The Plan addresses planning and land use in Sidney, containing policies regarding growth and development that influence wildfire risk. The Plan includes an objective (17.3.21) to improve fire risk awareness in the community by promoting FireSmart principles and practices. The OCP currently does not recognize wildfire as a potential hazard. The OCP does not contain Development Approval Information provisions or Development Permit Areas for hazardous conditions that would allow the Town to require wildfire mitigation measures as part of a new development permit.
Town of Sidney Zoning Bylaw No. 2275, 2024	This Bylaw regulates how land, buildings, and other structures may be used, acting as the Town's zoning and development servicing bylaw. It includes specific requirements that development must comply with.	This bylaw does not contain any specific guidelines or regulations related to wildfires. The CWRP can inform future updates to land use and development bylaws; see the Development Considerations section.
Town of Sidney Emergency Response and Recovery Plan (2023)	The Sidney Emergency Response and Recovery Plan guides emergency response, considers the organization and hierarchy within the Town during an emergency event. It supports training for those responsible for responding to an emergency, as well as the setup of the Emergency Operations Centre. This Plan includes individual contingency plans for possible emergencies.	The Emergency Response and Recovery Plan recognizes major urban fire as a hazard, but does not include wildfire. The CWRP can help update emergency planning, enabling the Town to make resource allocation and response decisions while incorporating prevention and preparedness strategies specifically for wildfires.
Town of Sidney Strategic Plan 2023-2026	The Town's Strategic Plan sets high-level priorities for the current Council term for implementing the vision established by the OCP. The Strategic Plan identifies six Focus Areas for Council's efforts: Good Governance and Community Engagement, Safety and Protection, Community Planning, Public Works, Infrastructure and Engineering, Parks, Recreation, Art and Culture, and Fiscal Accountability and Transparency	The CWRP reflects the core principles of local government established in the Strategic Plan. Wildfire resilience is linked to every focus area of the Strategic Plan, particularly in terms of safety, protection, and community planning.

Plan	Description	Relationship to CWRP
Town of Sidney Urban Forest Master Plan (2019)	This Plan provides a strategic plan to achieve tree management goals within the Town. A separate Tree Preservation Bylaw (No. 2274, 2024) has recently been developed to achieve these goals. The Tree Protection Bylaw requires a permit application for the removal of any tree with a diameter of >60cm and smaller trees of certain species or ownership.	This CWRP makes recommendations affecting vegetation management, including tree removal in Sidney. Tree removal of trees protected by Tree Preservation Bylaw for wildfire risk reduction purposes will require permits. A balanced approach is required to protect trees while reducing the wildfire risk. Urban forest management can also consider wildfire risk implications of species selection and planting site design.
Town of Sidney, Tree Preservation Bylaw No. 2138, 2017.	This bylaw regulates trees on public and private property, defining classes of protected tree which include native conifers of at least 1.2 m in height or 3 cm or more in diameter. A permit system is established for allowing the removal of protected trees.	The CWRP recommends reviewing the Tree Bylaw to facilitate the removal of fire hazards identified by a qualified professional.
Town of Sidney Climate Action Plan (2022)	This plan outlines potential climate-related risks to the Town. It highlights severe wildfire seasons as posing a moderate risk to the community. It highlights reduced air quality resulting from wildfires in nearby areas as one of those threats.	The CWRP will enhance wildfire resilience, improving public health and safety through better preparedness. This CWRP makes recommendations to identify "clean air refuges" for vulnerable populations during high-smoke periods.
Town of Sidney Community Risk Assessment (2022)	This risk assessment identifies key points of vulnerability that will likely suffer impacts of greater magnitude or severity from various hazards. While wildfire is not a direct hazard listed in this plan, it is identified as causing many indirect hazards, such as poor air quality, utility outages, and water contamination.	This CWRP makes recommendations to identify "clean air refuges" for vulnerable populations during high-smoke periods. Additionally, FireSmart recommendations for building materials and landscaping of critical infrastructure can help mitigate the likelihood of utility outages and water contamination.
Town of Sidney Business Continuity Plan (2019)	This plan addresses management and decision-making in the Town of Sidney when loss events interrupt access to critical resources, including elected and appointed officials, municipal staff, facilities, and information.	The CWRP makes recommendations improve emergency management functions. Recommendations related to the protection of critical infrastructure will help reduce the likelihood of facility loss.

In addition to the Town's plans and bylaws, land use plans of higher levels of government can apply to Sidney. The Vancouver Island Summary Land Use Plan (2000), established by order, guides forest practices in several "special management zones", none of which are located within Sidney. Besides provincial land use planning, orders and notices established through the *Land Act*, *Forest and Range Practices Act*, *Oil and Gas Activities Act*, *Environment and Land Use Act*, and *Wildlife Act* can also influence the priorities and recommendations of the CWRP due to constraints they may place on the crown land base.

The British Columbia Wildfire Service (BCWS) may also create landscape-level plans for fuel management in provincial landscape units as part of the provincial Wildfire Risk Reduction (WRR) program. These plans identify areas of high wildfire risk within an identified area and prioritize these areas for fuel management to reduce wildfire risk. BC Parks is currently working with the BCWS to undertake WRR fuel management projects in ŁÁU,WELṈEW̱/John Dean Provincial Park, located 2.5 km southwest of Sidney in the District of North Saanich.

Community Description

Area of Interest

The Area of Interest (AOI) defines the community boundaries for a Community Wildfire Resiliency Plan (CWRP). The AOI for this CWRP is the municipal boundaries of the Town of Sidney (Figure 1, below). Sidney is located on south Vancouver Island on the northeast side of the Saanich Peninsula. It is 505.2 hectares (5.05 km^2) in area. The eastern boundary of the Town follows the marine coastline. The rest of the town is surrounded by the District of North Saanich.

The town is an urban community with relatively little undeveloped land. The community is a destination for retirees as well as families. The median age of its population is 62. Land adjacent to Sidney's western boundary consists of rural and agricultural lands, as well as the Victoria International Airport. Most of the Town consists of a mix of single-family homes, condominiums, and various commercial businesses. To the west of Highway 17 and north of the airport there is mostly industrial development. There are no large forested natural areas in the Town, though there are isolated smaller forest patches are present in parks, riparian areas, rights-of-way, and on private property.

Figure 1. Area of interest for the Plan.

Wildland-Urban Interface

This CWRP focuses particularly on a zone called the wildland-urban interface (WUI). The WUI is the area where combustible forest fuels are found adjacent to homes, businesses, farm structures, or other buildings and infrastructure. The BC Wildfire Service defines the WUI as the area within one kilometre of a density of six buildings (or "structures") per square kilometre. It is the area where most buildings and people would be at risk if a wildfire were to occur. The entire municipal boundary of the Town is designated as being within the WUI by the province.

The land in the WUI is categorized into two types that influence wildfire preparedness and response. The first is called "interface" and refers to lands where the boundary between forests and the developed areas is distinct. This is often the case where natural forests have been completely cleared for development. The second type of WUI is called "intermix," which refers to landscapes where the boundary between forests and urbanized areas is indistinct. In these landscapes, homes and infrastructure are located at lower densities within the forest with no distinct boundary. This kind of development is common in rural areas where subdivision or farming has not resulted in land clearing.

The shape of the boundary between homes and forests influences how homes could ignite. Homes in the intermix are surrounded by forest vegetation and are at risk of ignition through direct contact with flame, radiant heat from nearby fire, and wind-borne embers or firebrands. Homes in the interface next to the forest boundary also face these three ignition sources, while homes toward the interior of a neighbourhood or subdivision remain at risk of wind-borne embers alighting on building surfaces or landscaping. In both cases, managing the landscape around buildings and using fire-resistant construction will help precent damage to property during a wildfire event. As many wildfires are caused by humans, managing the vegetation between urban areas and forests also helps to prevent urban fires from spreading into surrounding forests.

Sidney has small forested areas which are all categorized as "interface." However, there are large forests in neighboring regions that could support large-scale wildfires and spread embers into the community.

Community Information

Demographics and Housing

As Sidney's population increases, greater pressure will be placed on emergency services. The population of Sidney at the 2021 Census was 12,318[1]. The number of private dwellings was 6,321, with 5,981 of these reported as being regularly occupied. This indicates most homes (95%) are occupied full-time by permanent residents, slightly higher than the average (93%) within the Capital Regional District. The population of the Town increased by 5.5% from 2016 to 2021, a modest increase compared to the regional average of 8%.

The Town of Sidney completed a Housing Needs assessment in 2019. This report reviewed data from the 2016 census and other available market information to assess the suitability of the Town's housing stock to levels of demand for rentals and home ownership[2]. Sidney has one of the lowest vacancy rates in the CRD at 0.8%. This report also noted that Sidney has a limited supply of rental housing and affordable housing, particularly for seniors with limited incomes. The lack of affordable housing has made it increasingly difficult to attract and retain employees. It has also impacted the ability of local employers to recruit entry-level and skilled labour workers, such as nurses and staff for senior homes.

The way that Sidney grows and builds new housing should consider the risk of wildfires. Thoughtful planning of construction can enhance Sidney's wildfire resilience by replacing outdated buildings with those that meet FireSmart development practices.

Sidney's demographics reflect its identity as a close-knit community popular with retirees. The median age is 17 years older than the CRD average and 19 years older than the BC provincial average. Homeowners greatly outnumber other residents (forming 77% of the population). The average household income is $93,900, approximately 16% lower than the provincial average of $108,600, which could reflect the high proportion of retirees in the Town.

Demographics will influence risk and appropriate emergency planning and response. In Sidney, many households occupied by one or two people are likely older people aging in place. Older residents may need different support to connect with Town resources, implement FireSmart techniques for building and landscaping, or receive direction from emergency responders during a wildfire. Table 4 compares key demographic attributes of Sidney with the CRD and British Columbia.

[1] Statistics Canada. 2023. (table). *Census Profile*. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released November 15, 2023. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E (accessed September 11, 2024).

[2] Town of Sidney. 2019. Housing Needs Assessment.

Table 5. Community Information for Sidney.

Community Information	Sidney	Capital Regional District (CRD)	Province of British Columbia
Total Population	**12,318**	415,451	5,000,879
Land area (km^2)	**5.11**	2,338.22	920,686.00
Population density (persons/km^2)	**2,412.8**	177.1	5.4
Number of private dwellings	**6,321**	198,435	2,211,694
Number of dwellings occupied by usual residents	**5,981**	185,206	2,041,834
Average household income ($)	**$93,900**	$106,900	$108,600
Average household size (persons)	**2.0**	2.2	2.4
Households by tenure – owner	**4,595 (77%)**	116,530 (63%)	1,363,190 (60%)
Households by tenure – renter	**1,385 (23%)**	68,425 (37%)	669,450 (30%)
Prevalence of low-income, after-tax (LICO-AT) (%)	**8.1**	9.1	5.8
Labour force participation rate (%)	**46.9**	63.1	63.3
Unemployment rate (%)	**4.7**	6.8	8.4
Median age (years)	**62.0**	45.2	42.8
Data Sources:	*Statistics Canada. 2023. (table). Census Profile. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released November 15, 2023. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E (accessed September 11, 2024).*		

Fire and Emergency Response

Fire response is provided by the Sidney Fire Department. This composite Fire Department is comprised of 7 full-time and 30 volunteer firefighters. The defined service area for the department extends to the Town's boundary. The Department also responds outside of its service area when required, guided by mutual and automatic aid agreements with nearby fire departments. A single Automatic Aid agreement is in place with the North Saanich Fire Department and Central Saanich Fire Department. The agreement allows responders from any department to respond to an incident in a partner's service area. Sidney also maintains mutual aid agreements with these departments that guide the elective sharing of resources. The Victoria Airport Authority is included in the Town's mutual aid agreements although its response to incidents in Sidney is limited.

The BC Wildfire Service will not automatically respond to forest ignitions within a local department's service area, but may respond if assistance is requested. The likelihood of BCWS involvement with a fire inside Sidney is low given the absence of any significant contiguous forested areas or crown provincial land. Provincial resources can be deployed from the Coastal Fire Centre South Island Zone if request. They closest base is the Cobble Hill Fire Base, located approximately 30 km northwest of Sidney.

Sidney Fire Department operates from a single Fire Hall located in the Community Safety Building on Oakville Avenue, just off Highway 17. The Department's major equipment includes two fire engines, a 2010 Spartan and a 2016 Spartan, one 2016 Pierce tower truck, 2005 Pierce and Ford squad trucks, and four utility vehicles. The two fire engines have a water holding capacity of 750 and 1000 imperial gallons and can be used to support water relays in areas where no hydrant or other permanent water supply is available for fighting fires. This would be employed to fires outside of the town boundary since the entire town is serviced with active fire hydrants. The department keeps a schedule for the anticipated replacement of each vehicle and equipment combination, enabling multiyear planning for response capacity.

Sidney Fire Department trains all of its members to the National Fire Protection Association (NFPA) 1001 – Full-Service standard and First Responder Level 3. All members have received WSPP-WFF 1 training. Many department members have previously supported structural protection efforts with the BCWS during busy fire seasons or have experience as wildland firefighters.

The Sidney Fire Department and its aid partners currently do not have a Structure Protection Unit (SPU) which is a deployable sprinkler system for protecting interface buildings from ember ignition or radiant heat. Adding an SPU to the Town's roster is a priority for department leadership, considering that Sidney's Fire Hall is centrally located to help with interface fires in North Saanich.

Table 6. Major resources for fire response within Sidney.

Organization	Fire Response Resources
Sidney Fire Department	- 7 full-time and 25 volunteer firefighters trained to NFPA 1001 full-service standard. - All members with minimum WSPP-WFF-1 or equivalent wildland firefighting training; in-department trainers of wildland firefighting support regular member certification. - 2 engines, 1 tower truck, 2 squad trucks, and 4 utility vehicles - Automatic Aid agreements with the North Saanich Fire Department, Central Saanich Fire Department - Mutual Aid agreements with North Saanich, Central Saanich, and the Victoria Airport Authority.

Values at Risk

Human Life and Safety

The safety of human life is the highest priority when planning for wildfires. The Province uses the density of structures (buildings with civic addresses) as a proxy for population. Areas with an average density of more than six structures per square km and which are adjacent to forests are recognized as the Wildland Urban Interface. However, structure density is an imperfect proxy of population density in highly urban communities like Sidney. Apartment buildings, which may have one civic address and several unit numbers, count the same in this approach as single-family homes. In Sidney's case, structure density is highest in the north and south of town, away from the water and airport lands (Figure 2).

Although the density of development and structures varies, almost every structure in the community is within 1,000m of a forest patch and is therefore exposed to ember spotting potential. There are some small patches of forest within the Town's boundaries, including Brethour Park, Reay Creek Park, and Peter Grant Park. There are also some small patches of forest on either side of Highway 17 that are owned by the BC Transportation Financial Authority. These forests are the focus of the wildfire threat (behavior) assessment in this CWRP. Ember transport from forests further afield in North Saanich or the Gulf Islands is possible but would likely require extreme and unusual weather conditions including strong outflow winds during a period of sustained extreme fire danger.

Development conditions, structure density, and the location and condition of forest fuels affect all aspects of fire management response and can strongly influence fire behaviour. The connection between how communities are built and fire risk is discussed in greater detail in *Introduction to FireSmart* (p. 78) and *Development Considerations* (p. 84).

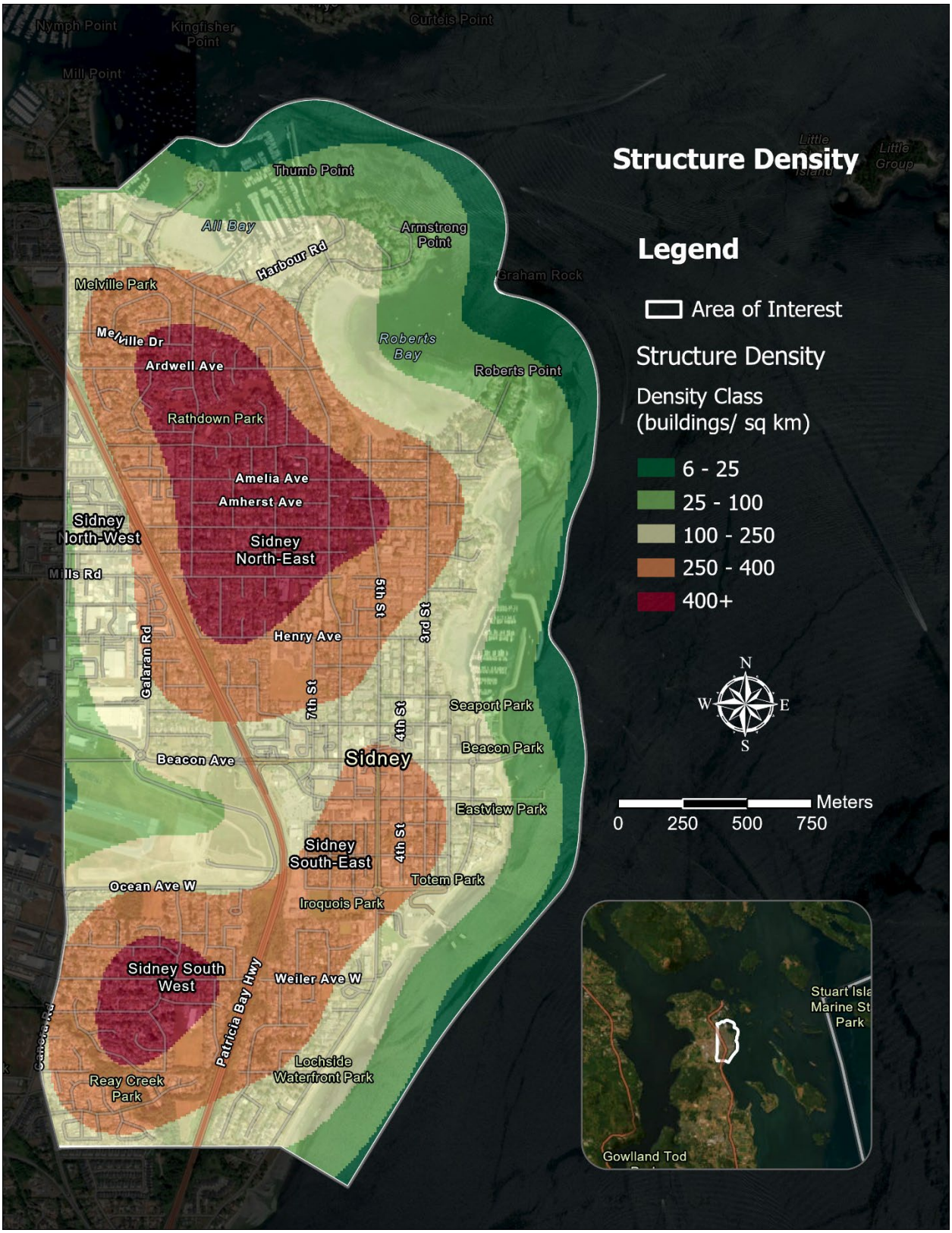


Figure 2. Structure density within the Area of Interest

Human Health

In addition to the direct risks to life and safety, large uncontrolled wildfires can cause other human health impacts over a wide area. Residents of Sidney are familiar with the negative impact of poor air quality from wildfire smoke, which has affected BC's South Coast during several recent fire seasons. Heavy smoke disproportionately affects vulnerable populations of the elderly, people with pre-existing medical conditions such as asthma, as well as people with low incomes[3]. Smoke can also worsen the outcome of respiratory diseases.

During a wildfire or smoke event, the immediate emergency often overshadows the long-term negative impacts on physical and mental health. Individuals who have been evacuated, lost their property, experienced injuries, or witnessed loved ones face health challenges may endure ongoing trauma. This trauma can disrupt their daily routines, making ordinary tasks and experiences increasingly difficult.[4]

In the community survey conducted to support this CWRP, several respondents reported having been directly impacted by at least one effect of wildfire, with smoke/poor air quality and mental anxiety being the most reported impacts. Most recently, the 2024 Old Man Lake wildfire in Sooke caused poor air quality throughout Greater Victoria.

[3] BC Centre for Disease Control. 2021 (October). "Wildfire Smoke" [webpage]. http://www.bccdc.ca/health-info/prevention-public-health/wildfire-smoke. Accessed October 21, 2021.

[4] Belleville, G., M.-C. Ouellet, & C.M. Morin. 2019. Post-traumatic stress among evacuees from the 2016 Fort McMurray Wildfires: Exploration of psychological and sleep symptoms three months after the evacuation. *International Journal of Environmental Research and Public Health. 2019*(16):1604 (14pp).

Photo 2. Smoke from the Old Man Lake wildfire affected Greater Victoria in 2024 (BC Wildfire Service).

Environment and Protected Areas

Prior to colonial settlement on the Saanich peninsula, there were periodic wildfires that affected the succession of the forests[5,6]. In the Salish Sea lowlands, Indigenous people have historically used fire to maintain desirable meadow forage and food plants like camas[7,8]. The forest legacy that evolved from this cultural stewardship was a mixed landscape with both closed coniferous forests and open woodlands dominated by Garry oak trees. Over the past century fire, the suppression of wildfires has allowed conifer trees to infill into many of these previously more open forests.

About 5% of Sidney's land base is comprised of municipal parks. The total area of parkland directly managed by the Town is 23 hectares. These parks are mostly occupied by open green spaces with several recreational walking and biking trails, picnic areas, and other facilities. There are no federal, provincial, or regional parks within the Town. Three municipal parks, Brethour Park, Reay Creek Park, and Peter Grant Park, contain forests. Reay Creek runs southeast to northwest through Reay Creek Park and Peter Grant Park and is the only substantial open watercourse in the Town. This creek supports important habitat and fish passage for coho salmon and cutthroat trout. Additionally, Reay Creek Park houses two pump stations, one along Summergate Boulevard and one along Frost Avenue.

These three municipal parks are the most heavily forested areas in the Town, and interface with many homes and infrastructure. A fire could ignite in these forests, threatening these adjacent structures. However, in the context of the surrounding landscape, these small, fragmented forests are a minor component of the overall wildfire threat in Sidney. Fire is at least as likely to spread *from* the Town into its parks due to improper use, motor or vehicle operation during dry periods, electrical faults, cooking or flue fires, arson, or other human causes.

A wildfire in any of these forested parks would impact the community, impacting recreation and requiring costly clean-up and restoration. Protecting these forested parks is an objective of the Town's Official Community Plan.

[5] Murphy, S. F., M. G. Pellatt, & K. E. Kohfeld. (2019). A 5,000-year fire history in the Strait of Georgia Lowlands, British Columbia, Canada. *Frontiers in Ecology and Evolution*. 10 April 2019.

[6] Lucas, J. D. & T. Lacourse. (2017). Holocene vegetation history and fire regimes of *Pseudotsuga menziesii* forests in the Gulf Islands National Park Reserve, southwestern British Columbia, Canada. *Quaternary Research, 79* (3)-366-376.

[7] Beckwith, B.R. (2004). The Queen Root of this Clime: Ethnoecological Investigations of Blue Camas (*Camassia quamash, C. leichtlinii*; Liliaceae) Landscapes on Southern Vancouver Island, British Columbia. PhD dissertation, University of Victoria.

[8] Turner, N. J., D. Duer, & D. Lepofsky. (2013). Plant management systems of British Columbia's First Peoples. *BC Studies*, no. 179 (Autumn 2013), 107-133

Photo 3. Reay Creek Park is a popular local destination for leisure activities. It protects important ecological habitat and is critical infrastructure for stormwater in the Town.

Wildlife, Species at Risk, and Protected Ecosystems

Wildfires can have severe impacts on sensitive wildlife, plants, and ecosystems. The BC Conservation Data Centre (CDC) records BC's most vulnerable vertebrate animals and vascular plants, each of which is assigned to a provincial red or blue list according to their provincial conservation status rank. Species or populations at high risk of extinction are placed on the red list and are candidates for formal endangered species status. Blue-listed species are considered vulnerable to human activity and natural events. Two occurrences of a red-listed species and one occurrence of a blue-listed ecological community have been identified within the town. Table 7 provides a summary of these species and communities. Figure 3 depicts publicly available locations of these species and ecological communities.

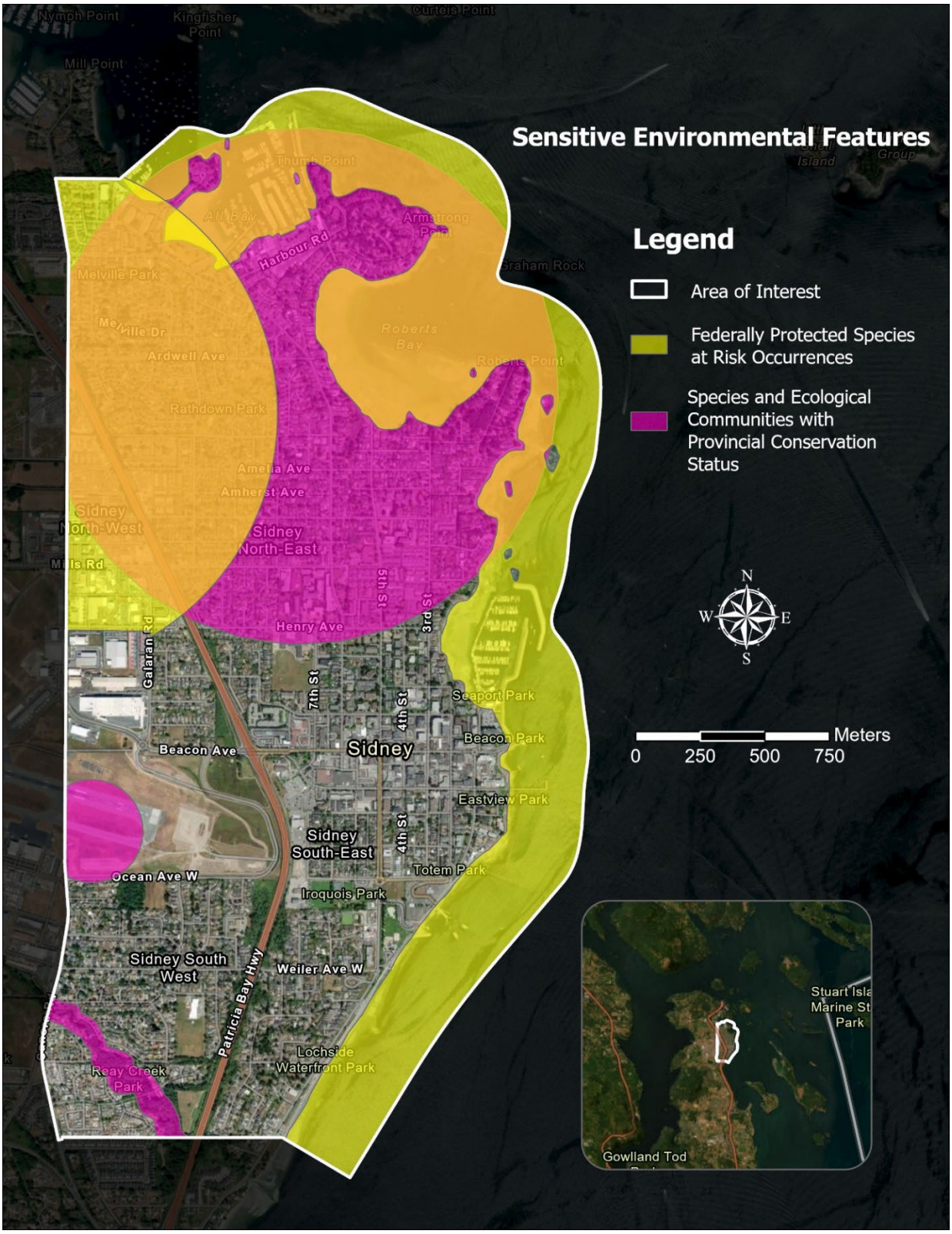


Figure 3. Protected areas and known locations of protected species or habitat within the AOI. Large circles indicate areas in which highly sensitive species have been identified.

Table 7. Species and ecological communities with designated provincial conservation status.

Name	Type	Conservation Status
Black cottonwood – red alder / salmonberry	Ecological Community	Blue
Vesper Sparrow, Affinis subspecies	Vertebrate Animal	Red
Tall woolly-heads	Vascular Plant	Red

In addition to provincial conservation status, two bird species (Table 8) with federal protections under Canada's *Species at Risk Act (SARA)* could potentially inhabit Sidney. Besides these documented species at risk, the natural forest within the Town parks and the intertidal foreshore provide suitable habitat for several other undocumented species at risk. In Sidney, nests of pileated woodpeckers, raptors, and other birds protected by the Migratory Birds Convention Act can be found.

Table 8. Critical habitat for species with federal protection found within Sidney[9].

Name	Type	Comments
Marbled Murrelet	Animal	Marine foreshore for foraging
Barn Owl	Animal	Nest in human made structures

[9] B.C. Conservation Data Centre: CDC iMap [web application]. 2023. Victoria, British Columbia, Canada. Available: http://maps.gov.bc.ca/ess/sv/cdc/ (Accessed Sept 13, 2024)

Photo 4. Foreshore areas are identified by Environment Canada as potential foraging habitat for the SARA-listed marbled murrelet.

Community Watersheds

Sidney receives its water via the CRD trunk distribution system from Sooke Lake. There are no community watersheds within the Town. The Sooke Lake Watershed is the primary source of the Town's water supply, with the Goldstream Watershed serving as a secondary supply. These watersheds are located within the Juan De Fuca electoral area of the Capital Regional District, over 20 kilometres away from Sidney. The CRD is responsible for managing these watersheds and ensuring its distribution system is regularly maintained.

Cultural and Archaeological Values

Sidney's landscape is rich with thousands of years of Indigenous history and culture. This long-standing relationship between Indigenous peoples and the land continues to this day. Sidney is located within the traditional territory of the W̱SÁNEĆ and other Coast Salish peoples. Indigenous peoples have inhabited this area since time immemorial.

The protection of cultural sites is supported by the Province through the *Heritage Conservation Act*. This *Act* allows the Archaeology Branch of the Ministry of Forests and Ministry of Lands, Waters, and Resource Stewardship to maintain a confidential spatial database of archaeological and historical sites related to Indigenous culture and history. A qualified archaeologist must be engaged in activities undertaken within 50 m of historical and/or archaeological sites in compliance with the *Act*. Traditional village sites are present in Sidney at Tsehum Harbour. W̱SÁNEĆ oral history states that Bazan Bay was a center for harvesting purple and green sea urchins, as well as a site for commerce and gathering trips to neighboring islands. The land where Sidney currently sits is known as SET,TINES.

Wildfires can lead to the loss of cultural values by damaging historic and archaeological sites. Although physical damage to these cultural sites due to wildfire management is unacceptable, practices such as fuel modification can help preserve cultural values by decreasing the risk of high-intensity and destructive wildfires. Wildfire management activities, such as cleaning up woody debris accumulations, can be planned to align with and enhance cultural values and practices when they incorporate First Nation knowledge, input, or direct participation.

Critical Hazards

During a wildfire, certain land uses or economic activities carry a higher risk to the community. This is often due to their association with flammable materials, high-temperature machinery, or chemicals that can be hazardous to human health if not handled properly. Despite these risks, these activities remain vital to the community's economic and social functions. There are no major industrial facilities in Sidney, though individual businesses in the industrial park include automotive and manufacturing facilities whose production methods involve hazardous materials, high heat and/or combustion. The most significant stores of hazardous materials are likely to be fuel located within commercial fuel stations, marinas, the industrial park, and municipal Public Works and Parks yard. The primary aviation fueling station for Victoria International Airport is located just west of the town boundary.

Most areas of the town depend on overhead distribution lines for electricity. Electrical lines located near forests can spark and ignite trees. To reduce this risk, BC Hydro has established limits of approach around its electrical infrastructure. Additionally, fires can start when power lines are damaged by trees falling during high wind events. Downed powerlines create hazards for the public and first responders. Tall equipment, like ladders or structural protection setups, can also be hazardous when used in the vicinity of overhead lines.

Other Resource Values

The Town of Sidney has a limited land base, with no regular natural resource industry. Traditional resource values include foreshore and ocean harvesting, and fishing and crabbing which are still practiced. The expected impact of wildfires on these resource activities is minimal.

Critical Infrastructure

Critical infrastructure includes the municipally owned structures and assets that support the health and safety of the community and facilitate governance. Critical infrastructure also includes public assets identified in a Hazard, Risk and Vulnerability Assessment undertaken by a local government. In developing the CWRP, the Town of Sidney identified a list of facilities that are considered critical infrastructure for its emergency planning. Additional sites and facilities have been considered based on field reviews conducted by the consulting team, along with input from Town staff.

Electrical Power

BC Hydro provides electrical power to Sidney through overhead transmission and distribution lines. The electrical distribution network relies largely on above-ground lines fastened to wood utility poles, except some blocks in the vicinity of Beacon Avenue, where lines have been moved underground. Wooden poles are vulnerable to fire, and in some locations, these lines are close to trees. Power lines are a source of ignition because branches and foliage that fall onto charged electrical lines can catch on fire.

Photo 5. Overhead distribution lines are used throughout Sidney to provide electricity.

Communications Infrastructure

Primary connections to telephone and internet service in most of Sidney are provided via the same overhead connections which are used for electrical power. Some residences may be served by satellite telecommunications providers.

Cellular phone services and text messaging are often the main forms of communication for residents. Cell service is provided by the major Canadian telecommunications companies to all parts of Sidney. There is a prominent telecommunications tower that sits immediately adjacent to the downtown core.

Radio communication is an important part of emergency response in Sidney. The Fire Hall incorporates a radio broadcast repeater for maintaining land-mobile communications between the Fire Department and crews responding to an emergency.

Community buildings and facilities

A small number of institutions and public buildings are crucial for maintaining the function of government and community services. Community buildings include the Town Hall, the Public Works compound on Ocean Avenue, the Fire Hall and Emergency Operations Centres, the Tulista Park Boat Launch, and water and sewerage infrastructure. Some facilities considered critical infrastructure by the Town are not owned by them. These include the BC Ambulance Service station, ICBC Driver Services, the Sidney and North Saanich RCMP building, and the Washington State Anacortes Ferry Terminal. Table 9 lists the facilities of critical importance to Sidney's emergency response capabilities.

Table 9. Critical infrastructure and buildings identified by Sidney's emergency program.

Facility or Building Name	Type	Address	Latitude	Longitude
Sidney/North Saanich RCMP	Federal Government Facility	9895 Fourth Street, Sidney, British Columbia, Canada, V8L 2Z5	48.6509809°N	123.3987077°W
ICBC Driver Services	Provincial Government Facility	9884 Third Street, Sidney, British Columbia, Canada, V8L 4R2	48.6509551°N	123.3982343°W
BC Ambulance	Provincial Government Facility	2245 Oakville Avenue, Sidney, British Columbia, Canada, V8L 1V6	48.6464138°N	123.4043971°W
Sidney Townhall	Municipal Government Facility	2440 Sidney Avenue, Sidney, British Columbia Canada, V8L 1Y7	48.6505665°N	123.3984146°W
Sidney Public Works	Municipal Government Facility	2285 Ocean Avenue, Sidney, British Columbia, Canada, V8L 5Z8	48.6440438°N	123.4044192°W
Sidney Parks Department	Municipal Government Facility	2285 Ocean Avenue, Sidney, British Columbia, Canada, V8L 5Z8	48.6436861°N	123.4047120°W
Sidney Fire Department	Municipal Government Facility	2245 Oakville Avenue, Sidney, British Columbia, Canada, V8L 1V6	48.6464073°N	123.4047077°W

Facility or Building Name	Type	Address	Latitude	Longitude
Tulista Park Boat Launch	Municipal Government Structure	Boat Launch Structure off of Eastern part of Tulista Park	48.6428482°N	123.3985143°W
Shoal Centre	Emergency Reception Centre	Suite 130 - 10030 Resthaven Drive, Sidney, British Columbia, Canada, V8L 3G4	48.6543444°N	123.4030777°W
Mary Winspear Centre	Emergency Reception Centre	2243 Beacon Avenue, Sidney, British Columbia, Canada, V8L 1W9	48.6483307°N	123.4054480°W
St. Elizabeth's Catholic Church	Emergency Reception Centre	10030 Third Street, Sidney, British Columbia, Canada, V8L 3S6	48.6544470°N	123.3982681°W
St. Andrew's Anglican Church	Emergency Reception Centre	9681 Fourth Street, Sidney, British Columbia, Canada, V8L 2Y8	48.6544470°N	123.3982681°W
The Church of Jesus Christ of Latter-Day Saints	Emergency Reception Centre	2210 Eastleigh Way, Sidney, British Columbia, Canada, V8L 1T1	48.6544470°N	123.3982681°W
Willingdon Water Pressure Release Valve Station	Pressure Release Valve Critical Infrastructure	9296 East Saanich Road, North Saanich, British Columbia, Canada, V8L 1H8	48.6345452°N	123.4210564°W
Mills Road Water Pressure Release Valve Station	Pressure Release Valve Critical Infrastructure	South West of the road intersection of Mills Road and McDonald Park Road	48.6551891°N	123.4171186°W
Frost Sewer Pump station	Pump station Critical Infrastructure	End of Frost Avenue, past address 2020.	48.6380862°N	123.4144344°W
Summergate Sewer Pump station	Pump station Critical Infrastructure	Summergate Boulevard, across the street from address 2099	48.6370756°N	123.4124928°W
Lochside Sewer Pump station	Pump station Critical Infrastructure	9344 Lochside Drive	48.6360848°N	123.4054135°W
Beacon Pier Sewer Pump station	Pump station Critical Infrastructure	On ramp of Beacon Pier, in front of 3573 (Satellite Fish Market)	48.6491975°N	123.3932751°W
Seaport Sewer Pump station	Pump station Critical Infrastructure	End of Seaport Road, in the Port of Sidney Parking Lot	48.6503650°N	123.3946733°W
Rothesay Sewer Pump station	Pump station Critical Infrastructure	End of Rothesay Avenue, in pathway between 2525 and 2519	48.6549485°N	123.3952825°W
Iroquois Sewer Pump station	Pump station Critical Infrastructure	Off to South East corner of Iroquis Park	48.6432309°N	123.4006830°W
Amelia Sewer Pump station	Pump station Critical Infrastructure	Between 2347 and 2363 Amelia Avenue, directly across from 2364.	48.6586199°N	123.4019632°W
Surfside Sewer Pump station	Pump station Critical Infrastructure	Public Beach Access at the end of Surfside Avenue, between address 10204 and 10215	48.6592862°N	123.3940109°W

Facility or Building Name	Type	Address	Latitude	Longitude
Ardwell Sewer Pump station	Pump station Critical Infrastructure	Resthaven at Ardwell Avenue, across from 10343 All Bay Road	48.6625484°N	123.4038926°W
Harbour Sewer Pump station	Pump station Critical Infrastructure	10425 Resthaven Drive (Resthaven Store)	48.6650414°N	123.4085392°W
All Bay Sewer Pump station	Pump station Critical Infrastructure	End of All Bay Road, Across from 10521 All Bay Road	48.6677080°N	123.3988752°W
Harbour Road Sewer Pump station	Pump station Critical Infrastructure	In the Middle of the Roundabout at 2328 Harbour Road (The Latch)	48.6679855°N	123.4029834°W
Parkland Sewer Pump station	Pump station Critical Infrastructure	Location North-West beyond Town boundary	48.6704714°N	123.4187967°W
McDonald Park Sewer Pump station	Pump station Critical Infrastructure	10622 McDonald Park Road	48.6462197°N	123.4067984°W
Oakville Storm Pump station	Pump station Critical Infrastructure	2304 Oakville Avenue, Sidney, British Columbia, Canada, V8L 1V5	48.6469676°N	123.4040053°W
Anacortes Ferry Terminal	Washington State Government Facility	2499 Ocean Avenue, Sidney, British Columbia, Canada, V8L 1T3	48.6440895°N	123.3976192°W

Photo 6. Sidney's Community Safety Building, home of the Sidney Fire Department and BC Ambulance Station.

Figure 4. The location of facilities that are considered critical infrastructure.

Water Supply & Waste Treatment

The residents, businesses, and institutions in Sidney rely on the Capital Regional District (CRD) to provide a reliable supply of clean drinking water. The water is mainly sourced from the Sooke Lake Reservoir, with the nearby Goldstream water supply serving as a backup. From the Sooke Lake Reservoir, the water is directed to the Goldstream Water Treatment Plant where it is treated. All CRD water facilities have backup power sources in case of outages. After treatment, the water is sent to the McTavish Reservoir through a high-pressure pipe. Water is distributed to the residents of Sidney from stations in North Saanich on Mills Road and Willingdon Road through a series of pump stations located throughout the area.

Wildfires can affect water quality and quantity. Fires tend to increase surface runoff by removing insulating, absorbent organic matter at the soil surface and increasing the so-called "splash impact" of raindrops on newly exposed mineral soils[10]. This impacts the rate of groundwater recharge, as well as affecting surface water sources with sedimentation and excess mineral nutrients downslope of burned areas.[11]. There have been cases where debris flows that have damaged homes and infrastructure were attributed to wildfires that had damaged in the integrity of topsoils[12]. The temperature and duration of heat in the soil can also impact the rate of groundwater recharge. At low to moderate temperatures, fire can create a water-repellent layer in the subsoil that restricts infiltration, while at higher temperatures, this layer may form but then be weakened or removed[13,14].

Fires can pose a threat to critical service infrastructure such as pumphouses and booster stations. These facilities play a vital role in firefighting by maintaining water pressure for municipal hydrants and supplying water to residents. In Sidney, only the Frost Sewer Pump Station, Summergate Sewer Pump Station, and Willingdon Water Pressure Release Valve Station (located in North Saanich) are situated in or near forested areas.

[10] Paige, G., & Zygmunt, J. (2013). The Science Behind Wildfire Effects on Water Quality, Erosion. *Living with Wildfire in Wyoming*. (p. 31-34). University of Wyoming: Laramie, WY.
[11] Emelko, M., & Sham, C. (2014). Wildfire Impacts on Water Supplies and Potential for Mitigation: Workshop Report. (p. 36). Waterloo, ON: Canadian Water Network and Water Research Foundation.
[12] Jordan, P., K. Turner, D. Nicol, & D. Boyer. (2006). Developing a risk analysis procedure for post-wildfire mass movement and flooding in British Columbia. *1st Specialty Conference on Disaster Mitigation, 23-26 May 2006, Calgary, AB, DM-013* (pp. 1-10). Montreal, QC: Canadian Society for Civil Engineering.
[13] Robichaud, P. R., J.W. Wagenbrenner, F.B. Pierson, K.E. Spaeth, L.E. Ashmun, & C.A. Moffet. (2016). Infiltration and interrill erosion rates after a wildfire in western Montana, USA. *Catena* 142 (2016) 77-88.
[14] Wieting, C., B.A. Ebel, & K. Singha. (2017). Quantifying the effects of wildfire on changes in soil properties by surface burning of soils from the Boulder Creek Critical Zone Observatory. *Journal of Hydrology: Regional Studies*. *13* (2017) 43-57.

Photo 7. Typical sewer pump station condition and context in Sidney.

The Capital Regional District (CRD) transports all sewage from Sidney to the Saanich Peninsula Wastewater Treatment Plant through regional trunk mains. The main regional trunk that connects Sidney with the treatment plant runs along Lochside Drive, and the major pump station is located on Fifth Avenue near Tulista Park. The CRD pump station has a fixed power generator, and the Town stations are designed to receive mobile generators when needed. The Public Works department has four mobile generator sets, which are tested monthly.

Wildfire Risk Assessment

Understanding wildfire risk is crucial for building community resiliency. This ensures investments in risk reduction are effective, sensible, and balanced with community values and interests.

In this Plan, the terms ***wildfire threat*** and ***wildfire risk*** are used to describe Sidney's vulnerability to wildfire. Wildfire threat refers to the potential fire behaviour in an area and reflects factors like fuel characteristics, distribution, slope and weather conditions. Wildfire threat has no relationship to how close a forest is to populated areas or other values. Wildfire risk reflects both the fire behaviour potential along with potential impacts that fire would have on adjacent values.

Wildfire threat ranks the potential fire behavior based on fuel conditions, weather conditions, slope, aspect, and other biophysical factors.

Wildfire risk measures the likelihood of a wildfire occurring, its potential behavior, and the impacts it may cause.

Wildfire Environment

This section describes the factors contributing to the wildfire threat in Sidney. These include topography, natural fuels (ie trees, vegetation, woody debris), and weather.

Topography

Topography influences wildfire behaviour in several ways. Wildfire spreads faster in an uphill direction. Hot air from a fire rises, preheating the forests above it and drying fuels ahead of the fire's arrival. On steep slopes, flames extend and direct heat uphill accelerating combustion. For these reasons, areas with steep slopes have a higher wildfire threat.

Aspect plays a significant role in wildfire behavior. In the northern hemisphere, south-facing slopes receive more direct solar radiation, which leads to higher temperatures, lower relative humidity, and drier fuels. These conditions result in more volatile wildfire behavior.

Sidney's terrain is relatively flat. There are a few small slopes located at Reay Creek and along the foreshore. While the small size of these slopes makes them unlikely to have a major impact on wildfire spread, they can make it harder to access and respond to wildfires.

Fuels (vegetation)

Forest fuels consist of dead and living vegetation and organic materials on the forest floor. Fuel conditions depend on tree species composition, the amount of dead vegetation, and the density and type of understory plants. Coniferous trees are typically more flammable compared to deciduous trees due to their relatively low moisture content and flammable resins. Some plants produce volatile chemicals that readily burn, such as oils produced by scotch broom or gorse. Grasses burn quickly due to their large relative surface area to volume in ratio. Grasses when left unmanaged often dieback during dry seasons in a process called curing. Deciduous broadleaf trees and shrubs are more resistant to ignition due to their higher moisture content.

Forest fuels are categorized into four vertical layers. The first layer is ground fuel, which consists of the organic matter found in the topsoil. The second layer is surface fuels, which include dead branches, leaf litter, and low-growing plants located on or just above the ground surface. The third layer, known as ladder fuels, comprises large shrubs, low branches, and small trees that bridge the gap between surface fuels and the main forest canopy. Finally, crown fuels are the foliage, branches, and other vegetation found within the main forest canopy. The combination of characteristics from each of these fuel layers influences how wildfire will behave.

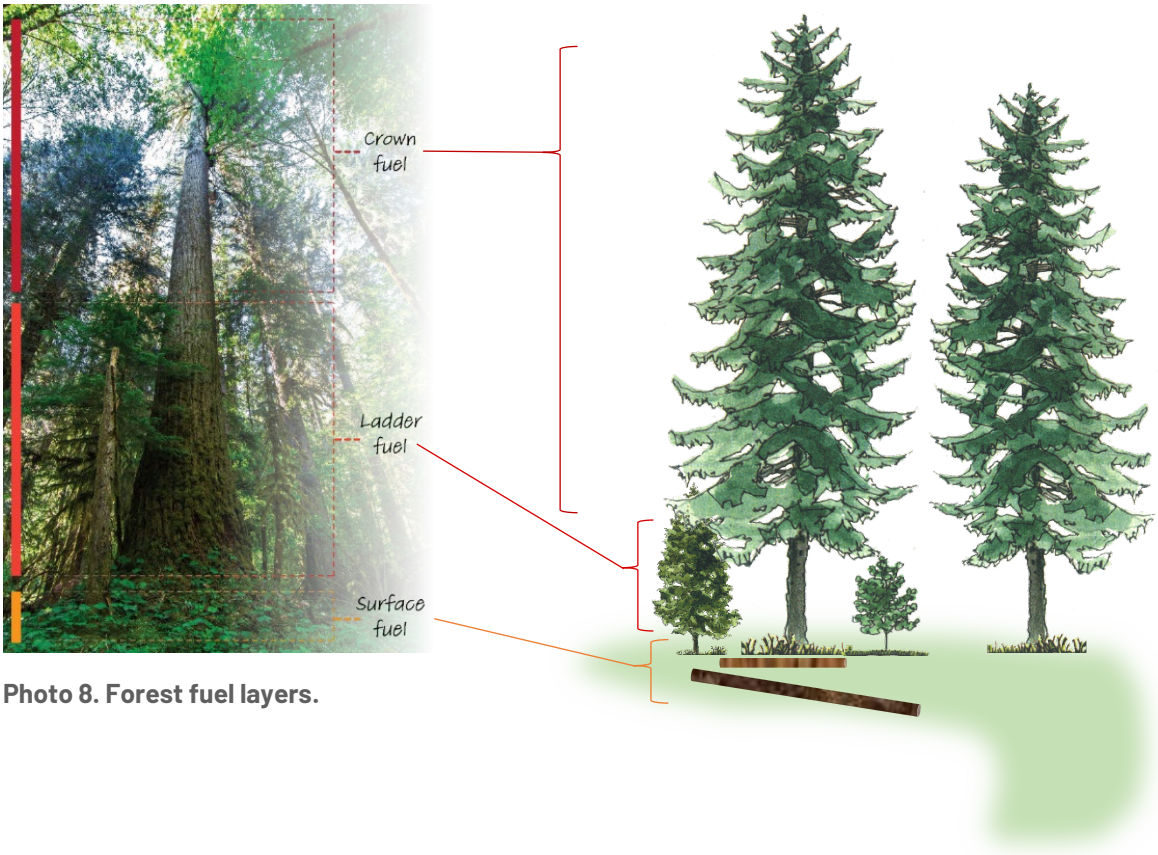


Photo 8. Forest fuel layers.

The suppression response varies with the intensity of a wildfire. For example, BC Wildfire Service ground crews will not be dispatched in front of a fire burning with an intensity of more than 2,000 kilowatts per metre (kw/m). This is a measure of energy being put out by the head of an advancing fire. In forests, fires with high intensities can climb into tree crowns via ladder fuels. When conditions are volatile, ignition in the tree canopy can lead to an active crown fire, where the fire spreads both on the ground and through the crown of the trees simultaneously. These fires can devastate entire forests, consuming everything from the soil to the tops of the trees. They send embers far ahead on the wind, igniting new fires. Due to their intensity, these fires are too dangerous for ground crews to combat directly.

Crown fire is a type of wildfire that affects the fuels in the tree canopy. It can be classified as "active" where the fire spreads through the tree crowns or "passive" where the intensity of the surface fire is sufficient to ignite single trees or small clusters of trees.

Photo 9. Example of an active crown fire (boreal forest, Kenai Peninsula).

Crown fires become more likely where fuels have low ***vertical*** and ***horizontal separation***. Some combinations of species, sites, and climates naturally produce ecosystems that have less separation between the ground fuels and the main tree canopies.

Vertical* and *horizontal separation refers to fuel distribution and is used to help classify forests into standardized fuel types.

In Canada, a standardized system of assigning real forests to 16 simplified fuel types is used to help model wildfire threat and risk. These fuel types are used by the Canadian Fire Behavior Prediction System. While the fuel types were originally developed with the wider Canadian context in mind, practices in British Columbia, along with applied research from the Canadian Forest Service and BC Wildfire Service, have led to the establishment of several standard rules for classifying forest fuel types.

In Sidney, most forests are best classified as the M-1/2 fuel type. This represents a mature forest with a mix of both coniferous and deciduous species. These forests contain more than 25 percent deciduous tree species, which are less flammable. As a result, M-1/2 forests are typically rated to have a lower wildfire threat. While M-1/2 forests are unlikely to support a continuous crown fire, a surface fire in these stands poses a risk of igniting nearby homes and combustible fuels.

A small patch of forest classified as C-5 fuel type was identified in Sidney, just south of the airport. In Coastal BC, mature coniferous forests are typically represented by the C-5 fuel type. These forests consist of mature even aged conifer trees which have high vertical separation between the surface and the main tree canopy. A high-intensity surface fire is required in these forests to initiate an active crown fire. These forests are typically rated as having a low to moderate wildfire threat. Crown fires can occur in these types of forests, but they require a significant amount of energy to initiate and extreme fire weather conditions.

The most common fuel type found in Sidney in this area is O-1a/b (grasses and herbaceous vegetation). Fire behaviour in grass fuel types O-1a/b can be highly variable depending on season and the presence or absence of irrigation. Most of the O-1a/b fuels in Sidney are lawns, community green spaces or sports fields, and the Victoria Airport grounds. All of these areas pose a low wildfire threat. Although unmaintained grasses can support flashy fire behavior when dry, these areas are maintained and generally represent a highly modified fuel environment.

Non-fuel areas are also found in Sidney and represent places where paving and hard surfaces occupy most of the ground, like in industrial and commercial areas. Table 10 provides a summary of fuel types by total area.

Table 10. Summary of fuel types within Sidney.

Fuel Type Name	Area (ha)	General description	Generalized fire behaviour potential
C-5	<1 ha	Mature, low to moderate density stands of native conifers, generally over 40 years in age and over 15m in height. This fuel type represents a single stand in Brethour Park.	Low to moderate
M-1/2	6.0	Mixed wood stands have between 25 and 75% coniferous and deciduous composition. This fuel type represents stands within Reay Creek and Peter Grant Parks.	Low to moderate
N	87.3	Non-fuel areas – pavement, rock, extensive sand.	Negligible
O-1a/b	413.5	Grass fuel types. also used to represent agricultural fields and lawns. This fuel type is used to represent suburban areas with extensive landscaping.	Low
W	211.6	Bodies of water, including freshwater and the ocean.	None

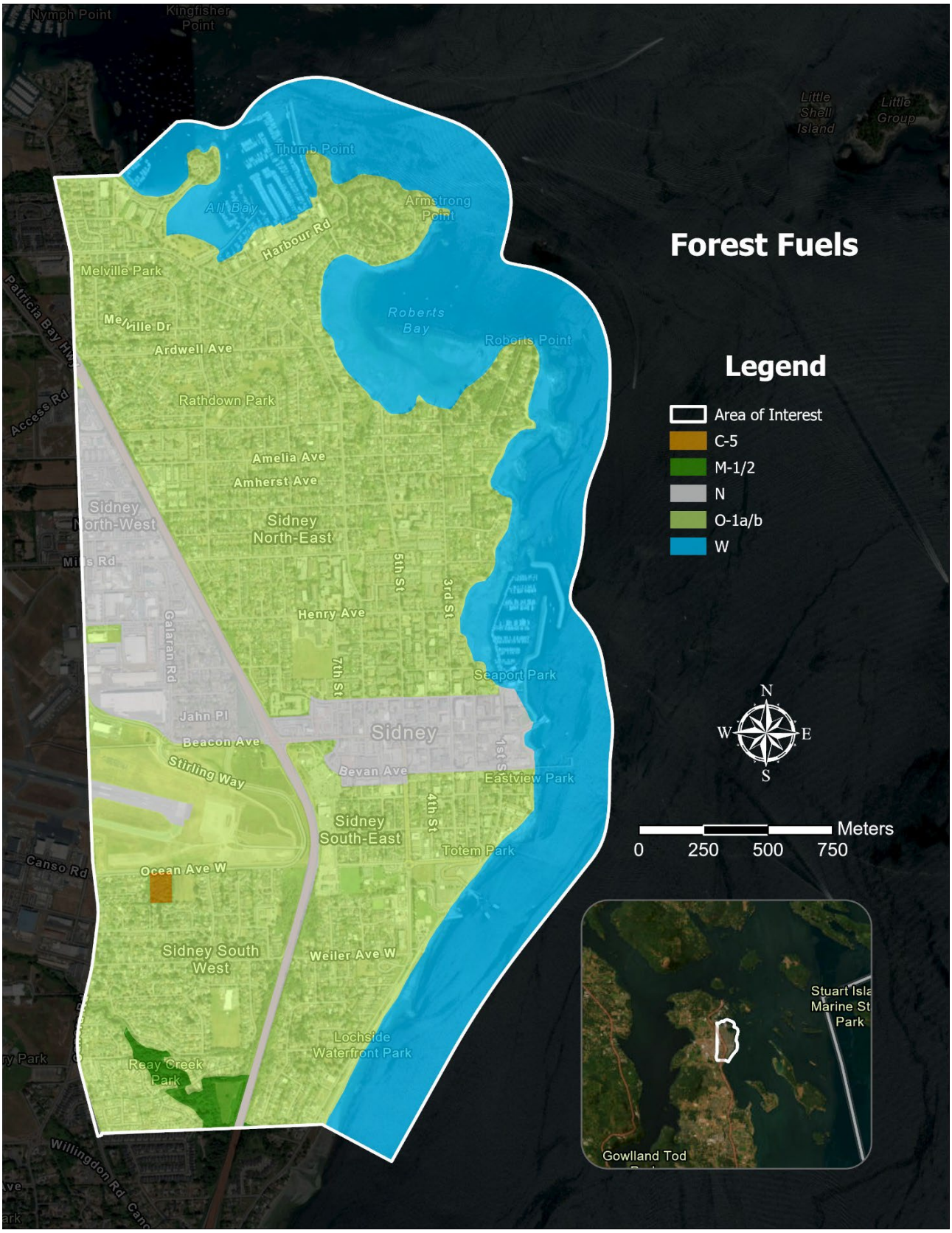


Figure 5. Fuel types in Sidney.

Weather

Weather in Sidney is strongly moderated by the Pacific Ocean. Sea breezes cool the air during the summer and increase local humidity. Average daily highs for Sidney have ranged between 6°C (December) and 22°C (August). Most precipitation arrives in fall, winter, and spring, with sharply reduced precipitation in July and August. Snow is rare and may fall only one or two times per year. Due to subdued elevation and mild climate, forest ecosystems in interface areas do not receive water from snowmelt during the fire season. Annual temperature ranges and precipitation are summarized in Figure 6.

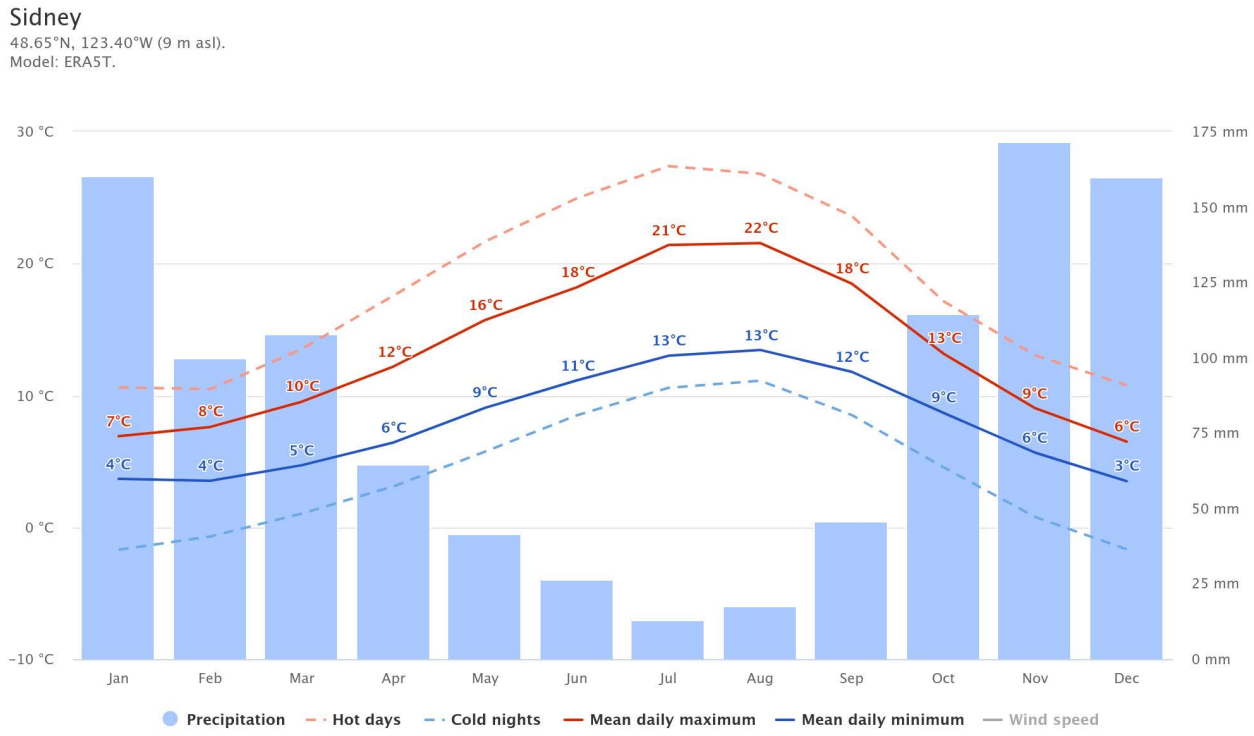


Figure 6. 30-year modelled climate averages for Sidney (Meteoblue).

Winter experiences the highest winds since the North Pacific storm track sends high winds and moisture to this area. These are usually experienced as westerlies owing to Sidney's low-lying position between major waterbodies.

While fire risk is very low during the wet winter months. Wind events during this time do cause an increase in surface fuel loading by causing small branches and needles to fall to the forest floor. These fine fuels then dry out to become ground fuel for the next fire season.

Winds are usually subdued in the summer months, and follow east and southeasterly onshore patterns, bringing moist maritime air inland. This area experiences high air pressure and generally stable skies through the summer months. The peak fire season is characterized by clear weather and high temperatures. These are experienced when high pressures over the BC interior forces warm, dry air down to the coast. These events lower the relative humidity, raise temperatures, and

increase the potential for fire ignitions. Sidney's seaside location somewhat buffers extreme temperatures during regional heat waves.

During severe fire seasons, outflow weather patterns can also bring smoke to the area from wildfires burning in other areas of the Pacific Northwest. Further south in Washington and Oregon, strong east-to-west summer airflows have been linked historically to catastrophic fire seasons with hundreds of thousands of hectares burned[15]. Figure 7 and Figure 8 provide graphical representations of historically modelled winds and windspeeds in Sidney, based on data collected from Victoria International Airport.

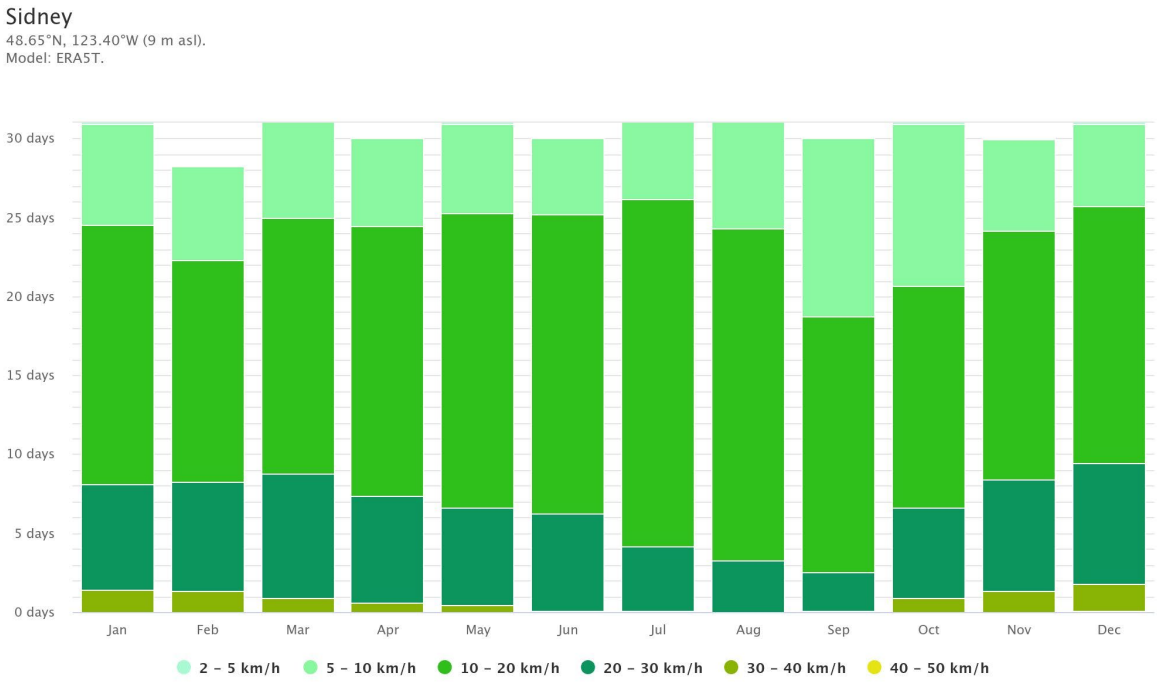


Figure 7. Windspeeds by month experienced for Sidney(Meteoblue).

[15] Abatzoglou, J.T., D.E. Rupp, L.W. O'Neill, & M. Sadegh. (2021). Compound extremes drive the western Oregon wildfires of September 2020. *Geophysical Research Letters 48*(8):

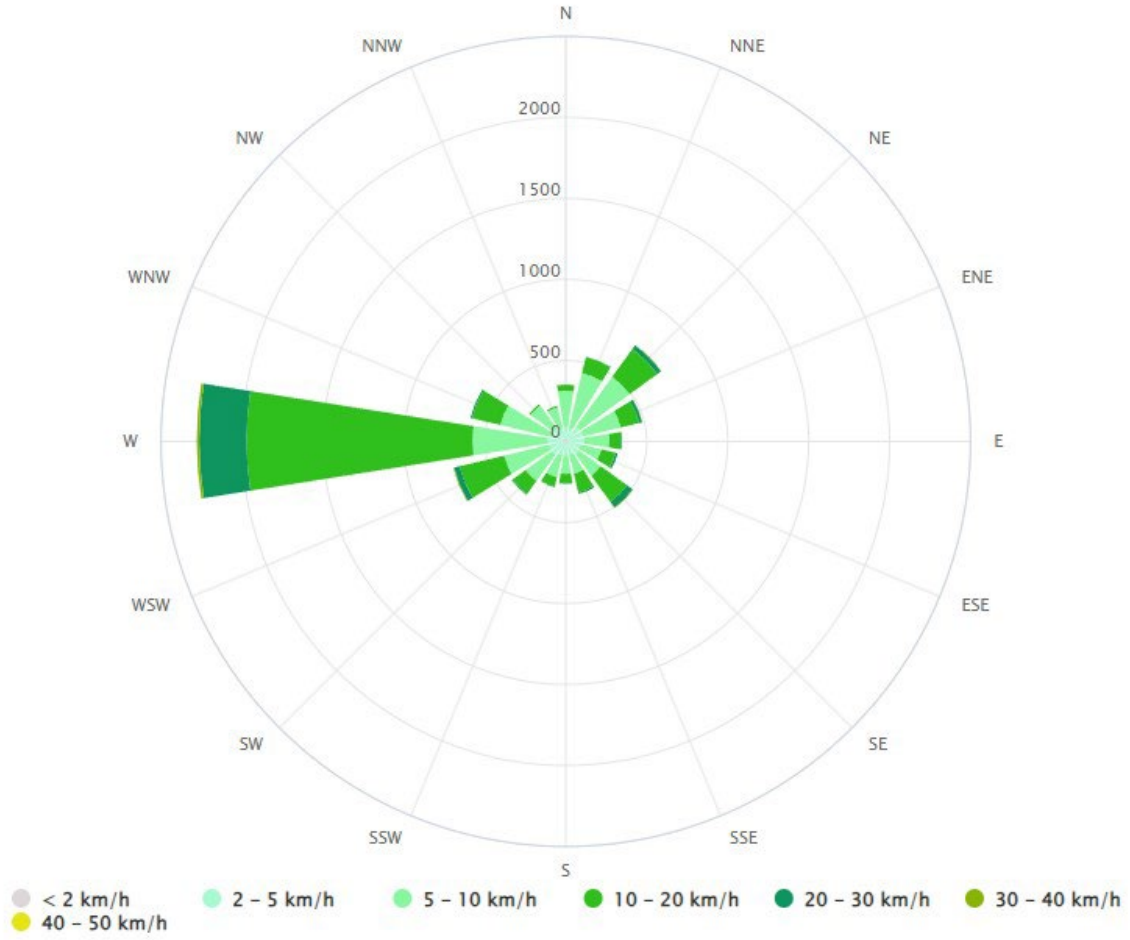


Figure 8. Wind rose diagram for Sidney(Meteoblue). The diagram shows cumulative hours (the wind rose radius) at an average windspeed from each cardinal direction during the average year (1990-2020).

Fire Weather Rating

The Canadian Forest Fire Danger Rating System (CFFDRS) is a comprehensive, scientific system used in Canada to evaluate and communicate wildfire danger. The BC Wildfire Service monitors weather throughout the Province. Fire weather is an essential component in most fire prediction models and is used to help determine a community's landscape-level wildfire threat. In Canada, temperature, relative humidity, wind, and 24-hour precipitation are tracked daily and recombined to calculate several index components of fire weather. While these variables are tracked throughout the year, during most of the rainy season, weather measurements fail to meet thresholds for the publication of calculated fire weather indices.

The Canadian Forest Fire Danger Rating System carries rules about when in the year fire weather ratings need to be updated daily so the public and emergency responders can plan activities to mitigate fire risk. This is an estimate of the fire season, which is the period in the year during which wildfire activity is reasonably foreseeable. Historically, the wildfire season starts on May 1 and lasts

until September 30. However, in some years, the fire season has lengthened due to climate change.

Table 11 shows the average weather characteristics during the fire season for the nearest Environment Canada weather station, located at Victoria Airport. This data includes measurements taken from 1993 through 2023, which represents the extent of historical data available. The statistics indicate that the fire season weather is characterized by an extended period of hot, dry conditions.

Table 11. Average weather (1993-2023)

	Weather Attribute	Apr	May	Jun	Jul	Aug	Sep	Oct
1993-2022	Maximum Daily High (°C)	25.5	29.0	38.0	35.5	34.0	30.0	24.0
	Daily Average High (°C)	13.2	16.9	19.7	22.6	22.6	19.4	13.9
	Monthly Average Rainfall (mm)	50.7	37.9	29.1	16.1	21.8	45.1	106.0

Climate Change and Wildfire Behavior

Climate change is altering temperature and precipitation patterns, which is increasing wildfire risk. In 2022, the Town of Sidney updated its Climate Action Plan. The Plan reflects several climate risks for Sidney, including increasing temperatures, change in precipitation patterns with drier summers, and sea level rise. By 2050, the Town can expect to see four times as many days with temperatures above 25°C. Annual rainfall is expected to increase slightly but with a major decrease in summer precipitation. The frequency of extreme events, such as the record-breaking June 2021 heatwave, or heavy rainfalls and storms that can contribute to fuel loading in forested areas, is expected to increase[16].

Predictions of warmer, drier summers will cause longer and more volatile wildfire seasons. Patterns observed in other parts of BC and North America suggest that hotter, drier conditions are likely to result in an overall increase in wildfire frequency[17,18]. Warmer temperatures in spring and fall will extend the duration of the fire season, extending periods of high wildfire risk[19].

Climate change will also affect the characteristics of forests. It can influence the outbreaks of insects and tree diseases[20]. More frequent or prolonged droughts reduce tree health and vigour,

[16] Town of Sidney. (2022). Climate Action Plan.

[17]Kirchmeier-Young, M.C., N.P. Gillett, F.W. Zwiers, A.J. Cannon, & F. Anslow. (2019). Attribution of the influence of human-induced climate change on an extreme fire season. *Earth's Future, 7*: 2-10.
[18] Taylor, S., Régnière, J., St-Amant, R., Spears, J., & Thandi, G. (2010). High resolution simulations of fire weather indices and wildfire risk in British Columbia with climate scenarios. Victoria: Canadian Forest Service.
[19] Abatzoglou, J., & Williams, A. (2016). Impact of anthropogenic climate change on wildfire across western US forests. *Proc Natl Acad Sci USA* 113(42):11770–11775.

[20] Woods, A. J., Heppner, D., Kope, H. H., Burleigh, J., & Maclauchlan, L. (2010). Forest health and climate change: A British Columbia perspective. *The Forestry Chronicle, 86*(4), 412-422.

increasing their susceptibility to pathogens and pests[21]. Declining forest health increases tree mortality and increases forest fuel loads. Forest health-damaging agents can be biotic, like mountain pine beetle, or abiotic, like an unusual windstorms or frost. In Sidney, the widespread decline of western red cedar and grand fir has been observed due to increased drought stress. In some forests, this will caused increased fuel loads, particularly the fine fuel load consisting of small branches and fallen leaves, which contributes to higher surface fire intensity. Additionally, longer growing seasons due to climate change may enhance fuel production by facilitating more photosynthesis.

Despite uncertainties about the pace of climate change, BC's fire season has become longer and hotter over the past decade. It is reasonable to anticipate that climate change will result in an increase in wildfire frequency and intensity within Sidney and the surrounding area.

Fire History

Climate and Ecosystems

Sidney's climate is characterized by cool, wet winters and warm summers with long dry periods. The ***Biogeoclimatic Ecosystem Classification (BEC)*** system is used in British Columbia to describe ecosystems by vegetation, soil, and climate. The entire Province is divided into regional or landscape-scale classifications which each present a dominant vegetation community as the result of interactions between soils, climate, and ecology.

> ***Biogeoclimatic ecosystem classification (BEC)*** is the province-wide system used to classify climate, physical geography, and plant communities.
>
> ***Fire regime*** is the pattern of returning fire in a landscape. It is dependent on climate, ecological, and anthropological factors.

Sidney is in the Coastal Douglas-fir (CDF) BEC zone. The CDF BEC zone occurs close to the coastline of eastern Vancouver Island and is the driest, mildest area of British Columbia's temperate coastal rainforest. The CDF is characterized by warm, dry summers with an extended fire season. This zone covers the entirety of the AOI. Table 12 summarizes climate averages for the CDF BEC subzone.

Table 12. Climate data for weather stations in the CDFmm zones.

Biogeoclimatic Zone	Avg. Annual Precipitation (mm)	Avg. Summer Precipitation (mm)	Avg. Annual Temperature (°C)	Summer Heat to Moisture Index*
CDF	1038	198	9.8	89

* Summer heat to moisture index is the mean warmest month temperature divided by the mean summer precipitation, multiplied by one thousand.

The CDF BEC zone occurs in low-elevation areas of southeast Vancouver Island and the Gulf Islands. It experiences less annual and summer precipitation than the rest of Vancouver Island as it is within the rain shadow of the Vancouver Island mountains. Aridity during the early fire season in this zone is increased by a lack of supplementary water from snowmelt. These relatively dry conditions result in extensive forests dominated by Douglas-fir (*Pseudotsuga menziesii*) with mixed componments of grand fir (*Abies grandis*) and western red cedar (*Thuja plicata*). Deciduous forest

[21] Sturrock, R., Frankel, S., Brown, A., Hennon, P., Kliejunas, J., Lewis, K., Woods, A. (2011). Climate change and forest diseases. *Plant Pathology, 60*(1), 133-149.

patches generally consist of red alder (*Alnus rubra*), black cottonwood (*Populus balsamifera* var. *trichocarpa*) and bigleaf maple (*Acer macrophyllum*). Garry oak (*Quercus garryana*) and Arbutus (*Arbutus menziesii*) are found growing in open woodland settings and along the coast. Natural Garry oak forests are associated with at-risk plant communities. These forests support some of the highest densities of species that are at risk.

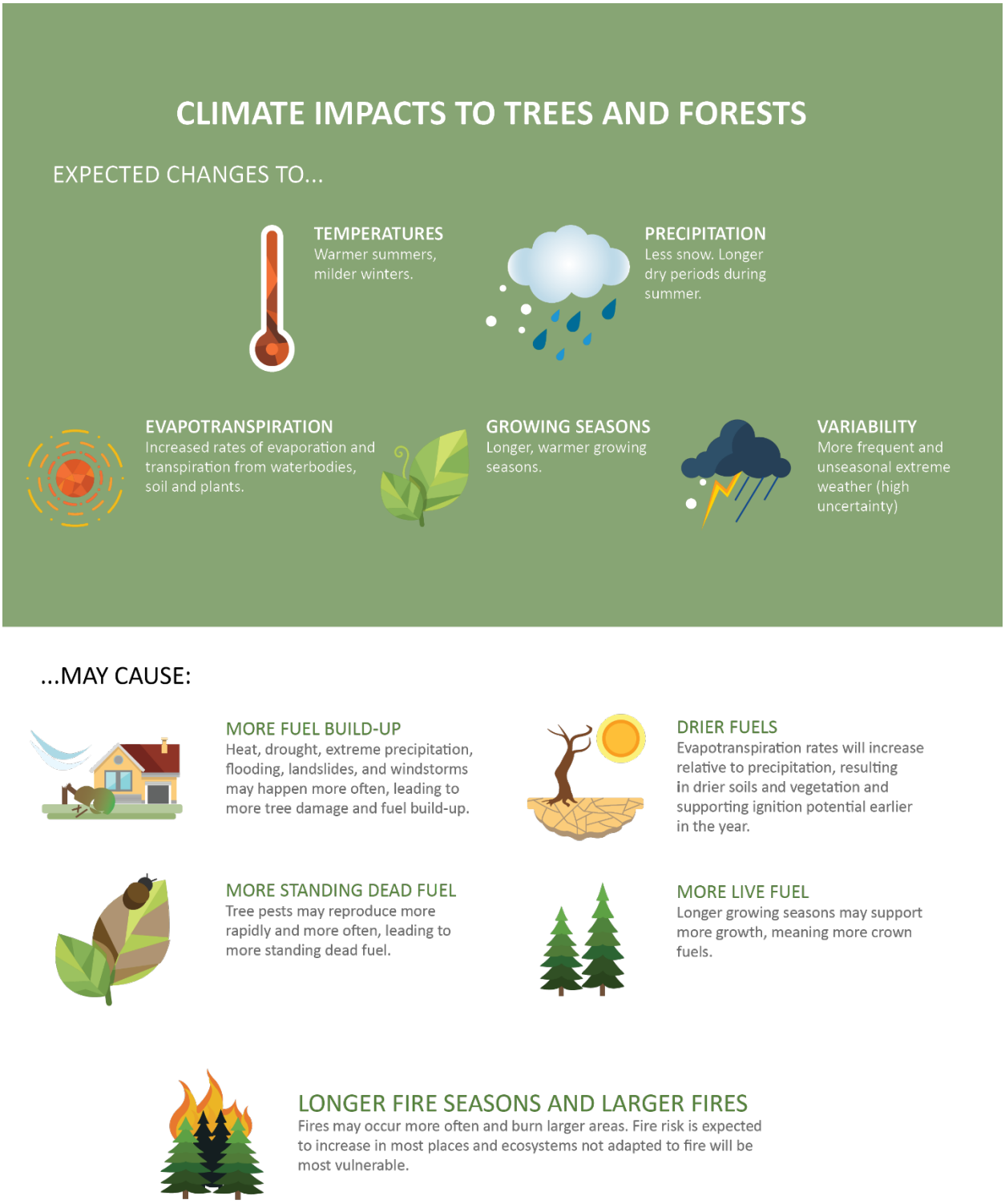


Figure 9. Potential impacts of climate change on wildfire behaviour.

Disturbance Regime

All ecosystems are affected by occasional disturbances of varying size, severity, and frequency. Common disturbances include wildfire, windthrow, ice and freeze damage, water, landslides, insect and disease outbreaks, as well as human-caused events such as logging. Historically, disturbances were seen as harmful to forests and their ability to provide timber. However, today, foresters and ecologists understand that periodic disturbances play a vital role in maintaining healthy and diverse forests and ecosystems.

All BEC subzones have been separated into Natural Disturbance Types (NDT) according to the Forest Practices Code Biodiversity Guidebook. These Natural Disturbance Types are classified into five categories based on the size and frequency of natural disturbances that occur in those ecosystems:

- NDT 1 Ecosystems with rare stand-initiating events
- NDT 2 Ecosystems with infrequent stand-initiating events
- NDT 3 Ecosystems with frequent stand-initiating events
- NDT 4 Ecosystems with frequent stand-maintaining fires
- NDT 5 Alpine Tundra and Sub-alpine Parkland ecosystems

The CDF zone is classified as NDT 2 – ecosystems with infrequent stand-initiating events. This indicates that, prior to human settlement, most new forests in the area would have grown after moderate to high-intensity fires. "Stand-initiating" refers to the process of destruction that clears the existing forest, creating space and resources for a new forest to develop. Species such as Douglas-fir and shore pine are relatively intolerant to shade, meaning they cannot thrive under the shade of other trees. Therefore, the CDF landscape requires periodic stand-initiating fires to reset ecosystems and allow new trees to flourish.

Pre-colonization ***fire return intervals*** in coastal Douglas-fir forests are estimated to be 200 years by the Biodiversity Guidebook. Fires would have been of moderate size (20 to 1000 ha) with unburned areas resulting from local geography and chance. Forests would have taken the appearance of a mosaic of even-aged stands with scattered veteran, fire-scarred trees[22]. Site-specific studies have shown through charcoal analysis that the fire interval was more frequent than 200 years in some coastal Douglas-fir forests[23, 24].

Fire return interval is the time between fires in a defined area, typically measured at the landscape scale.

[22] Province of British Columbia. (1995). Biodiversity Guidebook. *Forest Practices Code of British Columbia*, p. 22.
[23] Murphy, S.F., M.G. Pellatt, & K.E. Kohfeld. (2019). A 5,000-year fire history in the Strait of Georgia lowlands, British Columbia, Canada. *Frontiers in Ecology and Evolution 7*(90).
[24] Lucas, J.D. & T. Lacourse. (2013). Holocene vegetation history and fire regimes of *Pseudotsuga menziesii* forests in the Gulf Islands National Park Reserve, southwestern British Columbia, Canada. *Quaternary Research 79*(2013): 366-376.

Cultural influences on the fire return interval

Ecologists believe the forest characteristics of Douglas-fir forests and other mixed tree species evolved under the influence of Indigenous cultural practices. The influence of Indigenous land management is evident in charcoal and pollen records from the CDF zone, which shows low severity fires which caused meadows to persist despite a cooling climate more favourable to closed-canopy forest[25]. These cultural burns were small fires set in the spring and fall to reduce the build-up of debris in forests and enhance valuable food crops and game forage, among other purposes. Indigenous burning was seen as threatening by settlers, despite settlers using fire to clear land for farming. Fire on the landscape was restricted by the colonial government's Bush Fire Act of 1874. The 20th century was dominated by a suppression-first regime that focused on eliminating fire from the landscape. The effectiveness of this approach is now being questioned as British Columbia's worst fire seasons have accumulated in recent decades.

Photo 10. Many western redcedar have been killed by drought stress on the Saanich peninsula in recent years.

[25] Brown, K.J., N.J.R. Hebda, G. Shoups, N. Conder, K.A.P. Smith, J.A. Trofymow. (2019). Long-term climate, vegetation and fire regime change in a managed municipal water supply area, British Columbia, Canada. *The Holocene 29*(():1411-1424.

Recorded fires in the AOI

On the coast, recent large fires have been caused by human activities. Forest stands in many areas of coastal British Columbia originated after several hot, dry years between the 1880s and 1920s, during which there were many sources of ignition from land clearing, lumbering, railways, camping, and mining activities[26].

The BC Wildfire Service provides information on historic fires throughout British Columbia. Since 1950, there have been no recorded wildfires in Sidney. However, 28 fires have been documented within 5 kilometers of the Town's boundary. These fires occurred in the neighboring municipality of North Saanich, with five recorded within the boundary of Victoria Airport.

Only one of the registered "starts" in the data occurred since 2000, in 2012 within John Dean Provincial Park burning approximately 0.1 ha. While this fire has a suspected origin of "person," an identified origin was not determined, indicating that the BCWS was unable to determine a specific cause. However, given the infrequent occurrence of lightning around the Town of Sidney, it is likely that most fire starts are human-caused.

Provincial Strategic Threat Analysis

The Provincial Strategic Threat Analysis (PSTA) is a wildfire threat mapping exercise conducted at a provincial scale. It is intended to be used as a starting point for assessments of local wildfire risk, which can then be refined and focused through a Community Wildfire Resiliency Plan. The PSTA includes several spatial layers, including wildfire threat and fuel typing.

This Community Wildfire Resiliency Plan updates the components of the Provincial Strategic Threat Analysis by integrating local weather and making field corrections to fuel typing for public land in the Area of Interest. Wildfire threat, which represents the potential wildfire behaviour in an area of vegetation, is a key component for determining local wildfire risk as it identifies areas where wildfire suppression may be challenging.

The PTSA includes information and maps that describe fuel types, historical fire density, the potential for embers to land (spotting impact), head fire intensity, and a final calculated wildfire threat score. Scores are then used to assign locations within the Province into one of ten Fire Threat Classes. Threat Class 7 is a threshold used to describe where the most volatile wildfire behaviour is expected. Areas of the Province that fall into these higher classes are most in need of wildfire planning and mitigation. Areas rated as Class 7 or higher are where fire intensity, frequency and spotting can potentially cause catastrophic losses in any given wildfire season wherever ratings overlap with values at risk. Class 6 areas are also considered prone to dangerous crown fires at lower frequencies.

Within Sidney, approximately 61% of the land base is on private land and has not been rated. An additional 211 ha is water with no wildfire threat. The public land base is less than 3% of the AOI. All of the public land has a low to moderate PSTA Threat Rating. This indicates that most of the public land base in Sidney can be expected to support wildfire during typical fire season weather,

[26]Parminter, J.V. (1978). An Historical Review of Forest Fire Management in British Columbia. [Thesis]. Vancouver: University of British Columbia.

although, it is unlikely to support high-intensity wildfires. The area of highest threat is the airport grounds, Brethour Park, directly south of the airport, and Reay Creek and Peter Grant Park at the southern extent of the Town boundary. Most of the remaining public land base is unforested, consisting of maintained lawns and public green spaces, and is identified as posing generally low threat of wildfire behavior.

Table 13. PSTA Wildfire Threat Ratings with explanation in Sidney

PSTA Threat Rating (class)	Area (ha)*	% of AOI	Description of Fire Behaviour Potential
Extreme (9-10)	0	0%	Crown fire can be anticipated under regular fire season weather conditions. Rapid rates of spread, high intensities, and fuels in most strata consumed.
High (7-8)	0	0%	Vigorous fire with crown fire likely under elevated temperatures and wind during fire season. High rates of spread, high intensities, and some crown fuels consumed.
Moderate (4-6)	11.0	2%	Vigorous surface fire and crown fire are possible under the windiest and driest wildfire season weather conditions. Moderate rates of spread and intensities, crown fuel consumption is possible although running crown fire is unlikely.
Low (1-3)	3.5	<1%	Surface fire during typical fire season weather conditions. With low rates of spread and intensity, crown fuel consumption is unlikely.
No Data (Private Land)	362.2	61%	No data
Water	212.8	36%	Wildfire not possible

*Minor differences in area totals between PSTA data and other tables result from different data resolutions.

Figure 10. PSTA Wildfire Threat Ratings in Sidney

Local Wildfire Risk Assessment

Ground field checks of PSTA data were completed in February of 2024. The determination of Local Wildfire Risk follows the 2022 CWRP guide which uses fuel type information, weather, topography, and a proximity analysis based on the known location of homes and critical infrastructure in the WUI. Field visits confirm both fuel type and PSTA wildfire threat. If fuel types and/or wildfire threat are inaccurate, they must be corrected in the Provincial dataset. Corrections to fuel types were made in the vicinity of Victoria International Airport and Brethour Park; however, no changes to the PSTA wildfire threat were necessary. See Appendix B: Local Wildfire Threat and Risk Process for information on the fuel type changes that support this assessment.

Site visits are focused on parcels owned, leased, or otherwise maintained by the Town of Sidney within the WUI. In addition to verifying wildfire threat and fuel data, sites are also assessed for their potential for vegetation management to reduce wildfire risk. In large assessment areas, only the public land with the highest potential wildfire threat and risk is assessed. However, given the relatively small size of the AOI, all public land inside the AOI was visited.

The local wildfire risk assessment combines the updated wildfire threat assessment with the values at risk within the community. A series of buffers are created around values at distances of 0-100m, 100-500m, 500-2,000m, and >2,000m. These buffers are then intersected with the wildfire threat assessment to calculate wildfire risk. This risk assessment represents the level of threat posed by wildfire in forests to values identified by the CWRP. The results of this analysis are provided in Table 14. Appendix B provides a detailed summary of the technical process for determining this local wildfire risk score.

Table 14. Summary of wildfire risk classes.

Wildfire Risk	Description	Typical factors
Extreme	Areas of high or extreme wildfire threat close to values	• Dense conifer fuels (C2, C3) or slash (logging or windthrown debris) • Upwind of community • Steep slopes • Within 100m of values
High	Areas of high to extreme wildfire threat somewhat near values	• Conifer fuels, sometimes dense, slash (logging or windthrown debris) • Typically upwind of community • Varying slopes • 0-500m from values
Moderate	Area of moderate to extreme wildfire threat somewhat separated from values	• Grass, mixed trees, or even aged mature conifer fuels • Upwind or perpendicular to wind • Flat to moderate slopes • 100-500m from values
Low	Areas of low to moderate wildfire threat separated from values	• Mixed or deciduous fuels • Downwind from community • Flat slopes

Wildfire Risk	Description	Typical factors
		• >500m from values
No Data (Private Land)	Not assessed	• Not assessed
Water or non-fuel	Water or non-combustible surfaces (pavement)	• Not capable of supporting wildfire

The factors driving wildfire risk vary, which can result in unexpected findings. For example, forests with extreme wildfire threat can have only a moderate wildfire risk when widely separated from the nearest values. **The risk depends on values being in proximity to forests capable of sustaining wildfire behaviour.** Table 15 summarizes the wildfire risk within Sidney, while Figure 11 illustrates the wildfire risk results.

Table 15. Summary of wildfire risk from the local threat assessment.

Wildfire Risk	Area (ha)	% of land area
Extreme	0	0
High	0	0
Moderate	82.5	12%
Low	0	0
No Data (Private Land)	425.3	59%
Islands (No PSTA)	1.2	<1%
Water	210.4	29%

Figure 11. Wildfire threat and risk resulting from the local risk assessment.

Local Wildfire Risk Summary

The overall wildfire risk in Sidney is considered moderate. Moderate risk indicates that wildfires pose a genuine threat to the community during fire season. However, the most severe fire, or active crown fire, is unlikely. While much of the community is characterized by urban development, localized communities surrounding parks and green spaces are characterized by interface conditions where homes abut forests with a moderate wildfire risk rating. These communities in Sidney are in areas where wildfires of low to moderate intensity could realistically be ignited during a typical fire season. During a wildfire in neighbouring areas, ember spotting is likely to be the most important potential ignition pathway within Sidney.

Moderate risk areas are associated with forests dominated by deciduous tree species or mixed with more than 25% coniferous tree species. Fires in these areas are more likely to remain as surface fires that allow direct suppression.

While areas associated with moderate wildfire risk can support fire during a typical fire season, they are less likely to support high-intensity fires. These forests require extreme fire weather conditions before they can be expected to support active crown fires. Climate change may increase the likelihood of volatile fire behaviour in these areas by raising fire weather indices above historic averages and increasing fuel loading, but these effects are long-acting.

Community Risk Assessment

Local governments in British Columbia undertake Community Risk Assessments as part of their efforts to develop an Emergency Management Plan. This process results in a report that rates different kinds of disasters and emergencies by their likelihood and consequence and deals with concepts similar to wildfire threat (the potential for a disaster to occur) and wildfire risk (the consequences of that potential disaster).

The Town of Sidney prepared a Community Risk Assessment in partnership with Smart Risk Control Inc. in 2022. The accompanying report found that there are no forest areas in Sidney that could be classified as wildland-urban interface fire risks. However, the neighbouring communities of North Saanich and Central Saanich are subject to fires, which may potentially impact Sidney. Impacts are more likely to include reliance on Sidney Fire Department for response aid, smoke impacts, and disruption to local businesses.

Introduction to FireSmart

FireSmart is a nationwide program for wildfire preparedness and prevention. Each Province has established a committee to prepare FireSmart guidance for landowners, residents, developers, local government, and emergency responders to help them understand wildfire risk and preparedness concerns, and to support the implementation of actions that manage wildfire risk. FireSmart is a system of knowledge that is used throughout Canada's wildland-urban interface (WUI). Training is available for individuals to become ambassadors for wildfire preparedness in their communities.

FireSmart is a lens through which communities can increase resilience to wildfire. Wildfire resilience is often described as being FireSmart, where our communities, homes, and ways of living acknowledge and co-exist with the risk of wildfire. This requires the actions of various levels of government, large landowners, homeowners, and the public. The strategies in this Community Wildfire Resiliency Plan (CWRP) are focused on local government, including the direct actions Sidney can take to reduce wildfire risk, and the ways Sidney can support other Stakeholders in building resilience to wildfire.

FireSmart is organized into seven "disciplines" or topic areas which address different aspects of wildfire preparedness:

- Education (p.73)
- Legislation and Planning (p.78)
- Development Considerations (p.84)
- Interagency Cooperation (p.88)
- Cross-Training (p.91)
- Emergency Planning (p.94)
- Vegetation Management (p.98)

The following seven major sections of the Community Wildfire Resiliency Plan (CWRP) discuss each of these disciplines in turn and consider recommendations the Town may pursue to improve wildfire preparedness. See the Action Plan (p.102) for a summary of recommendations and suggested priorities. The FireSmart Roadmap complements the Action Plan as a visual summary of key recommendations and priorities.

The CWRP uses FireSmart terminology to discuss risks and recommendations in the community. For those unfamiliar with FireSmart, this section provides an overview of FireSmart concepts and ideas. These concepts are referenced frequently throughout the following sections and FireSmart programming in general. Additional information on the FireSmart program and concepts can be found at firesmartbc.ca.

FireSmart – Key Concepts

FireSmart programming and materials make recommendations for building and vegetation based on wildfire science. The focus of this program is on homes, but recommendations are generally applicable to any building in the wildland-urban interface (WUI). During a wildfire, homes are ignited by:

- Sparks or embers landing and accumulating on vulnerable surfaces such as roofs, verandas, eaves, and openings. Embers can also land on or in nearby flammable materials such as bushes, trees or woodpiles causing a fire close to a structure.
- Extreme radiant heat from flames up to 30 m away from a structure that melts or ignites siding or breaks windows.
- Direct flame from nearby forest vegetation.

Figure 12. Pathways to home ignition in the WUI.

FireSmart assessments divide the area around a home into three "zones", which radiate out from the structure and reflect the different ignition pathways.

The **Immediate Zone** is the area immediately adjacent to a home, building, or infrastructure, out to 1.5 m. Eliminating combustible landscaping is a priority in this zone because flammable materials in this zone are what allow direct flame transfer from vegetation or other fuels to the building or structure.

The **Intermediate Zone** is the area within 1.5 and 10 m of the home or building. In this area life and property are at higher risk from radiant heat. It has been shown through analysis of recent large-scale wildfires that the most important factors in protecting structures are the exterior construction materials and immediate landscaping next to homes[27]. FireSmart guidance emphasizes the use of non-combustible or fire-resistant building materials for decks and outbuildings along with landscaping plans that reduce the potential for direct exposure of the home to radiant heat or flame in this area. Cleaning up debris, garbage, or storage from around the home is also of primary importance in this area.

The **Extended Zone** includes the area from 10 m to 30 m from a structure. Wildfires in forests within this zone can subject a building to radiant heat and may produce an ember shower onto the building. Forest fuel hazards can be managed in this area to prevent a crown fire from establishing and reduce the intensity of radiant heat and ember production. Treatments may include removal of ground fuel, thinning of trees, and lift pruning of retained trees.

The fire resistance of homes in the interface can be improved by achieving FireSmart standards for building materials, ignition sources and combustible fuels within each of these zones. If a wildfire does threaten the area, suppression capability is improved with good access to the interface area, defensible spaces around values, and a good water supply.

[27] Westhaver, A. 2017. Why some homes survived: Learning from the Fort McMurray wildland/urban interface fire disaster. *Institute for Catastrophic Loss Reduction* (ICLR) research paper series – number 56. (March 2017).

Figure 13. The FireSmart zone system.

Key Aspects of FireSmart for Local Government

The involvement of local governments is critical to building wildfire resiliency. The Province supports local governments in preparing CWRPs and conducting FireSmart initiatives via the Community Resiliency Investment (CRI) Program. The Community Resiliency Investment Program is administered by the Union of British Columbia Municipalities (UBCM). This UBCM Program allows local governments to access additional funding for wildfire risk management. Actions eligible for funding are aligned with the seven disciplines of FireSmart, with additional support funding for administering and facilitating these actions via CWRPs, staff positions, and committees.

UBCM Program requirements change each year. The Union of British Columbia Municipalities' website has requirements and funding guidelines for the current year and recent past program years.

The 2024 CRI Program intake includes two streams for accessing grant funding for wildfire risk management. An application-based funding stream is available for lower-risk communities such as Sidney. Applicant communities are required to:

1. Have a current CWRP that is acceptable to the BCWS Wildfire Prevention Officer. The CWRP lays the groundwork for wildfire resilience in the form of recommendations and an action plan for implementation.
2. Participate in a Community FireSmart and Resiliency Committee. This Committee provides a forum for regional collaboration and strategic planning, including implementing recommendations from the CWRP. The Town of Sidney participates in a regional Committee.
3. Retain a FireSmart position. The FireSmart position can be adapted to the community's circumstances but should generally incorporate roles described for FireSmart programming by FireSmart BC. The position can be shared between Sidney and other municipalities.

These three initiatives are critical for maintaining CRI program eligibility and as the strategic basis for Sidney's programming in each of the seven FireSmart disciplines. Establishing and maintaining these pillars of community programs not only facilitates the implementation of actions that build wildfire resilience but also streamlines accessing funds to support those initiatives.

Updating the CWRP

Five years is recommended as the time between Plan updates to adequately adapt to changes in community size and shape and fuel conditions in the wildland-urban interface. Monitoring implementation is an important part of accountability for the Town's FireSmart program. Review of the Action Plan of this document should occur each year to reassess priorities and consider successes and challenges with previous programming.

Establish a FireSmart and Wildfire Resiliency Role

Navigating all the aspects of FireSmart planning and implementation can be challenging for local governments and private landowners. Local governments cannot often implement the FireSmart programming in addition to existing departmental responsibilities. A FireSmart and Wildfire Resiliency position is a dedicated position that is responsible for the facilitation of FireSmart

activities within the community. This position would act as a key liaison between community members and FireSmart guidance, helping interpret and contextualize FireSmart practices. In addition, a FireSmart and Wildfire Resiliency position can manage wildfire risk reduction projects led by local governments, such as vegetation management. This can include applying for grant funding, hiring contractors, liaising with the local community, and managing these projects.

It is recommended that Sidney establish a FireSmart and Wildfire Resiliency position to advance the Town's FireSmart program. Given the small size of the town and the lack of major fuel management opportunities, it is recommended that this position be part-time or shared in collaboration with neighboring Fire Departments. The CRI funding program provides funding for such a position for 2 years, as well as initiatives that this position may deliver. Possible responsibilities for a FireSmart and Wildfire Resiliency position are identified in Table 16. Many of these initiatives are described in detail in subsequent sections of this CWRP.

Table 16. Roles of the FireSmart and Wildfire Resiliency Position

Activity	Role of the FireSmart and Wildfire Resiliency Position
Build community wildfire resilience	• Lead and monitor the implementation of recommendations from this CWRP. • Ensure CWRP is kept up to date. • Ensure the FireSmart and Wildfire Resiliency position is funded and maintained. • Participate in a Regional Community FireSmart and Resiliency Committee. • Report to the Fire Chief on program implementation, progress, and community feedback regarding FireSmart. • Prepare grant applications.

Education	• Create passive opportunities for FireSmart education.
	• Act as liaison to residents for distributing FireSmart materials and providing guidance.
	• Host FireSmart events and workshops.
	• Encourage and support Neighbourhood FireSmart Recognition
	• With homeowners' consent:
	  ○ Conduct Home Ignition Zone Assessments for residential properties or homes.
	  ○ Support rebate applications for FireSmart management.

Community Planning	• Conduct FireSmart assessments for Sidney facilities and coordinate retrofits. • Guide to building policy updates to incorporate FireSmart principles. • Explore opportunities to aid residents in disposing of green waste from FireSmart activities on private land, via neighbourhood cleanup days or chipping programs in consideration of potential grant opportunities.
Development considerations	• Liaise with developers and homeowners to provide FireSmart recommendations during development. • Support planners in reviewing development applications.
Interagency co-operation	• Act as a point of contact for neighbouring municipalities, the Provincial government, emergency responders, and the BCWS.
Training and Cross-Training	• Obtain specialized wildfire and FireSmart training. • Deliver training programs to Sidney staff.
Emergency planning	• Provide comments on wildfire issues during emergency plan and response preparation. • Coordinate tabletop wildfire scenario exercises. • Conduct community information sessions about emergency preparedness during a wildfire.

Participate in a Regional Community FireSmart and Resiliency Committee

A Regional Community FireSmart and Resiliency Committee (CFRC) brings together emergency planners, first responders, community representatives and the Town to plan and implement FireSmart initiatives in areas of identified need. FireSmart BC proposes that these CFRCs represent a missing link for fire preparedness in British Columbia between emergency planners, fire suppression staff, and the communities they serve. The CRI program has made funding available for this initiative through its FireSmart Community Funding and Supports stream.

The proposed tasks of a Regional CFRC include:

- Adopt Terms of Reference for the committee.
- Summarize regional wildfire resilience activities with the provincial government, First Nations, other local governments, and participating stakeholders.
- Provide a review of the organizing local government's CRI funding applications.
- Suggest initiatives for inclusion in the funding applications.
- Coordinate Community FireSmart Days and advocate for FireSmart planning in priority communities.
- Research alternate funding sources for priority projects not supported by CRI.
- Advocate for FireSmart and proposed activities among members' communities and organizations.
- Provide feedback on the implementation of FireSmart initiatives in the spirit of continued learning.
- Represent the interests of a diverse community in advancing FireSmart locally.
- Liaise with the BC FireSmart Committee to provide learning and feedback on program design and availability.

Sidney participates in a regional CFRC. The Town must participate in a CFRC or create its own to maintain eligibility for CRI funding.

Education

Education is a critical discipline under the FireSmart program. It focuses on enhancing awareness of wildfire risks and prevention measures. This awareness encourages individuals to take action on their private properties while also building public support for government-led initiatives. An education component is currently mandatory for applications to Community Resiliency Investment Program grants for wildfire preparedness.

Recommendations attached to the Education discipline are meant to promote a sense of understanding, empowerment, and eventually shared responsibility. The goal of initiatives in this discipline is to develop citizens, emergency responders, and government officials who can explain and act on wildfire risks in their communities. Because most of the land base in Sidney is privately owned, education is also the primary tool available to the Town for influencing wildfire risk.

Factors for Success

Vision of a FireSmart community

Public engagement can be a challenging aspect of community wildfire planning. To be effective, the Sidney Fire Department should reframe wildfire management as a collective undertaking within the community. Sidney should present a vision of a future FireSmart community. Public messaging and materials should emphasize that building a FireSmart community takes time and that any action to reduce fire hazards can have impact. At the same time, FireSmart education in Sidney should help residents understand the meaning of wildfire hazards identified by this Plan and counteract perceptions of extreme risk.

Audience for communications

A second factor in the effectiveness of education initiatives is the appropriate targeting of different audiences. Appropriate audiences for communications development can consider:

- **Age and household size.** Sidney remains a place to raise a family while also being an attractive place for older retirees. Both young families and older people may face cost pressures that keep them from engaging in emergency preparedness or FireSmart initiatives. Ensuring that different groups are informed about wildfire risk is important to building resilience. Some members of these households may have difficulty with the manual labour involved in creating a FireSmart property. Others may not have the time to participate in community activities. Finding ways to reach people where they are is an important consideration in recognizing diversity and building resilience.

- **Sidney staff and Council.** Municipal government works to provide services for residents. Promoting FireSmart awareness among staff and elected representatives is an important part of improving policy and achieving broad support for initiatives of the Sidney Fire Department. Sidney Fire Department can lead internal training and information sharing to ensure core personnel are familiar with the FireSmart program and principles.

- **Other jurisdictions and agencies.** There may be value in continuing to liaise with other actors in the community to develop a shared understanding of wildfire threat and FireSmart. Key organizations to communicate with include the Ministry of Transportation, Victoria International Airport, BC Hydro, and Sidney's emergency reception centre partners.

Information placement

The distribution of informational materials is critical for effective education. Both the timing and location of information provided to the public can influence the size of the audience for outreach and the imprint of the information presented. The timing of active outreach should respond to the cycle of the year in Sidney. In-person contacts and community events should be timed to correspond and respect the calendar of festivals, school, and summer holidays that make the community unique. Education can also be undertaken through passive outreach, through initiatives such as updating Sidney Fire Department or Town of Sidney webpages and informational signage in key parks.

It is expected that resources will be presented in digital and physical formats on request, so resources of both types should be considered. FireSmart information could be placed in areas that are already being managed and maintained by Sidney to increase the familiarity of residents with the Town's FireSmart program. This includes physical locations like entries to Peter Grant Park, Brethour Park, and community facilities. Digital information should be posted on the Sidney Fire Department's website and social media channels. To increase the reach of emergency information during a wildfire, Sidney can continue to use its Emergency Notification List, Saanich Peninsula Alert.

Strategic communications

Successful public engagement requires the planning and documentation of a Communications Strategy for each FireSmart initiative. A strategy may be one or more documents comprising the plan to engage with specific populations or groups. The strategy can be available to the public or intended for internal use only. The purpose of such a strategy is to identify key messages for increasing public awareness of wildfire and FireSmart initiatives. Planning should be used to focus and correctly scope all Sidney communications related to wildfire, including printed and digital media as well as materials for in-person or online events.

Table 17. Potential key messages for a wildfire communications strategy

Potential Key Messages for Public Communications
• While the forests in the Town of Sidney are not expected to be impacted by large-scale interface fires, the forests in neighboring areas may be affected. Sidney could be exposed to indirect risks associated with wildfires in these neighbouring communities. • The best way for Sidney's residents to reduce their risk from wildfires is to follow FireSmart building and landscaping recommendations for their properties. In particular, the construction of roofs and surface decks is crucial for preventing fires that may start from ember showers. Additionally, converting landscaping within 10 meters of the home to fire-resistant species will help prevent embers from igniting fires adjacent to the house. • Predicted and observed climate changes in the region are consistent with conditions that could allow for more aggressive wildfire behaviour. • Private landholders have a large role to play in protecting life and property by adopting FireSmart practices for building and landscape maintenance, and by having a household or business emergency plan. • Sidney can help reduce wildfire risk by monitoring its parkland for fuel and ignition hazards and supporting FireSmart community programming.

Initiatives to Consider

Publish the CWRP and highlights alongside FireSmart materials

In developing initiatives within the education discipline, Sidney should leverage its existing resources and programs to spread messaging about the FireSmart program and preparedness.

Digital resources may be preferred and seen by more people. At a minimum, the CWRP should be made public on the Town of Sidney website, or available for download at a page featuring the Town's FireSmart Roadmap. Physical copies of the CWRP may be required as some people prefer to review physical documents. Sidney should consider printing the plans on request for people with low digital literacy or other accessibility limitations. A printed reference copy should be made available at the Town Hall and/or Community Safety Building.

Expanding access to FireSmart information and services

The ability to conduct FireSmart home assessments is limited by staff capacity and community awareness and interest. Engagement with between the Fire Department and residents will likely be required to encourage uptake of FireSmart home assessments. Many residents may prefer to review FireSmart information without committing to a home assessment. Seasonal events focused on FireSmart education, sharing materials and resources, and providing question and answer opportunities with residents who want to know more about how to FireSmart their property are likely to satisfy the community's demands while helping reduce wildfire risk.

Hosting a community wildfire preparedness or clean-up day

Some initiatives that promote practical demonstrations of FireSmart are also eligible for provincial funding. Sidney Fire Department can promote wildfire awareness while achieving FireSmart benefits simultaneously by organizing a community clean up or "Wildfire Community Preparedness Day" event. These are public events where members of the public are invited to come and conduct light work around a community park or facility while receiving information about FireSmart. Activities can include removing debris from the vicinity of buildings or pathways, pruning

vegetation, removing invasive species, and raking leaves or needles. The events can include an educational component, such as a presentation about FireSmart landscaping.

Suitable locations for these events depend on community interest and fuel hazard concerns. Because clean-up days are focused primarily on education and demonstration of FireSmart principles in a small area, they do not follow the stricter guidance for locating areas for larger landscape fuel management. High-use areas are often ideal locations because they allow for passive outreach. Suitable areas in Sidney include Reay Creek and Peter Grant Park. The Town may also wish to collaborate with the owners of designated emergency reception centres, which are often private churches or other community facilities, to see if they have interest in hosting a clean up event. Hosting an outreach event at an emergency reception center provides an opportunity to inform the public about Sidney's emergency management program and planning.

Identifying potential neighbourhoods for FireSmart planning

This plan does not reveal major differences in the risk profile throughout Sidney. Most Sidney residents are surrounded by an urban environment and not exposed to forests. However, some neighbourhoods are exposed to forests with at least a low threat of wildfire. Neighbourhoods that may make suitable sub-areas for focusing FireSmart outreach are listed in Table 18 (below).

Table 18. Priority sub-areas for FireSmart planning and neighbourhood initiatives.

Area Name	Wildfire Risk Rating	Area Description	Recommended FireSmart Activities
Reay Creek and Peter Grant Interface	M	Interface area of urban properties in the southern portion of the Town of Sidney. This area comprises the homes to the west of Highway 17 and along Brookwood Drive, Trailcreek Drive, and Westbrook Drive. Access to this area is good, with most properties having at least two points of access. Approx. 65 properties, of which most directly interface the moderate-risk forest of Reay Creek and Peter Grant Park.	These areas are one of only two interfaces within the Town boundary between homes and forest areas. Sidney Fire Department could aim to improve landscaping or building materials in these areas through targeted outreach, potentially organized around a Community Clean Up event within the adjacent public parklands.
Brethour Park Interface	M	Interface area of high-density urban properties in the southwest portion of the Town of Sidney. This area comprises the homes along Ocean Ave W, Winmeadow Pl, Waxwing Pl, and Redwing Pl. Access to this area is good. Approx. 12 properties directly interface Brethour Park.	This area is one of only two interfaces within the Town boundary between homes and forest areas. Sidney Fire Department could aim to improve landscaping or building materials in this area through targeted outreach, potentially organized around a Community Clean Up event within the adjacent public parklands.

Expanding participation in the Emergency Notification program

During a wildfire emergency, Sidney has several means to publish an evacuation alert or order. The most direct of these is the free, sign-up-based multi-platform Saanich Peninsula Alert system reserved for imminent and urgent notifications based on subscriber-supplied locations. Because Saanich Peninsula Alert is an opt-in service, advertising by Sidney can improve participation. Placing invitations to join the emergency notification list should be part of any prevention and preparedness communications between Sidney and the public. For more information on how to register for the emergency notification list, visit https://www.sidney.ca/services/emergency-services/emergency-planning/saanich-peninsula-alert/

Photo 11. Sidney Fire Department hosted an information pop-up to support development of the plan.

Legislation and Planning

This discipline considers the bylaws, regulations, and policies or acts of higher levels of government that create the legal environment around wildfire risk. Idea development in this section aims to address how the Town of Sidney conducts its own business, including management of parks, waste, and infrastructure, to mitigate wildfire risk. In this section of the Plan, higher-level acts and policies providing important scope to Sidney's authority and ability to regulate are discussed, as are regulatory tools at the municipality's disposal.

Federal Acts and the Community Wildfire Resiliency Plan

The Government of Canada makes laws concerning matters of national interest. Natural resources, land management, and emergency response are generally under provincial authority, which means relatively few federal acts and policies are directly relevant to the recommendations of this Community Wildfire Resiliency Plan (CWRP). The Government of Canada is not a significant landowner within Sidney and there is no federally owned forest land within Sidney.

The Federal legislation with the greatest implications on wildfire management are the acts that protect animals, plants, and ecosystems, including the *Fisheries Act, Migratory Birds Convention Act* and *Species at Risk Act*. These acts confer protection by prohibiting damage and assessing penalties. Activities which remove vegetation, such as fuel management, may trigger reviews under an Act if a protected species or habitat is compromised. Any fuel management must consider whether federally protected species or habitats will be impacted and how these impacts can be avoided. These Acts also affect how local governments apply bylaws and Development Permit requirements.

Provincial Acts and the Community Wildfire Resiliency Plan

The Province of British Columbia has core authority over lands, natural resources, and municipalities, making it the source of local government jurisdiction and a primary influence on forest and land management, including wildfire. Provincial legislation that affects the other FireSmart disciplines includes the *Building Act* and *Building Code*, *Emergency and Disaster Management Act*, *Environmental Management Act*, *Forest and Range Practices Act, Local Government Act, BC Fire Code* and *Wildfire Act*. Regulations under each of these enactments, such as the Open Burning Smoke Control Regulation, provide legal guidance and objectives for aspects of community development, land management, wildfire prevention, and emergency response.

Sidney's Role

Sidney is a small municipality with a modest rate of growth. Its capacity and role in improving landscape-level wildfire risk are limited. The Town can exercise its jurisdiction over land use and development, firefighting services, local parks, and waste services to reduce wildfire risk. Town bylaws impact the feasibility of FireSmart construction and landscaping design, as well as vegetation management for fire prevention. Two bylaws directly influence feasibility of vegetation management on public and private property: the Sidney Fire Department Service Level Establishment and Fire Regulation Bylaw No. 2087 and the Tree Preservation Bylaw No. 2138. Other bylaws indirectly influencing structure and neighbourhood vulnerability are discussed in Development Considerations, p. 84.

Sidney Fire Department Service Level Establishment and Fire Regulation Bylaw No. 2087

Bylaw No. 2087 sets standards for the operation of the Sidney Fire Department. It also includes a general prohibition on burning within the Town. This prohibition applies to residential, construction site, demolition site, and land-clearing waste, as well as beach fires. Bylaw No. 2087 therefore prohibits using burning as a means of debris disposal from fuel reduction or other FireSmart management activities on private property, except with the special permission of the Fire Department. Although a prohibition on burning does not reflect the historic ecological importance of fire to landscapes on the Saanich peninsula, within the Town's urban context it is an appropriate protection against ignition risk. Bylaw No. 2087 does not preclude the use of prescribed fire for cultural or ecological restoration purposes, so long as these uses receive the approval of the Fire Chief or Fire Prevention Officer. The CWRP does not recommend any changes to this Bylaw currently.

Tree Preservation Bylaw No. 2138

Sidney's Tree Preservation Bylaw regulates the removal and pruning of trees in the Town on private and public property and therefore is an influence on the ability of homeowners to alter their landscaping to align with FireSmart principles. FireSmart landscaping principles aim to reduce the risk of structure ignition by removing fuel hazards from the Immediate Zone (0-1.5 m) around homes and isolating fuel hazards in the Intermediate Zone (1.5-10 m from homes). In these areas, potentially hazardous vegetation is frequently seen, including cedar and yew hedging or ornamental conifer trees. Native conifer species are protected at small sizes of 1.2m or more in height (Douglas-fir, grand fir, and western redcedar) or 3 cm or more in diameter (seaside juniper, shore pine, and western yew). The Tree Preservation Bylaw specifies conditions under which a tree permit for removal or pruning can be issued (11.12). These conditions do not include the modification of vegetation to address an identified fire hazard. The CWRP recommends considering review of the Tree Preservation Bylaw to facilitate the removal of identified fire hazards from the Immediate Zone on private property and facilitate vegetation management within the Intermediate Zone.

Factors for Success

Ensuring public support and social equity

Changes in law or policy result from multiple sources including changes in public expectations over how the community should govern itself. Ideally, new bylaws or public policies will have widespread public support so that policy changes reflect community values. Therefore, public education around wildfire risk and the benefits of FireSmart often precedes initiatives in other disciplines.

Recognizing Sidney's jurisdiction and capacity

An important factor in the success of these initiatives is understanding Sidney's ability to implement it. Policy changes that fall within the Town's authority include revising policies for community planning and development review, managing the use of municipally owned parkland, and enhancing the capacity for bylaw or policy enforcement.

Considering the need to enforce new bylaws or policies

The ability to enforce a policy or bylaw is a major aspect of its effectiveness. New bylaws or policies can also result in a rise in the number of nuisance calls which lack merit and drain the resources of local government. Policies that require additional investments in training or equipment to allow enforcement should be carefully considered to ensure they fit within the community's vision, goals, and resources.

Initiatives to Consider

Conduct a review of the CWRP every 5 years. Review the Action Plan every year.

Sidney can ensure it remains eligible for the CRI program by adopting a regular review and update process for this CWRP. Conditions in the forest, community, and climate all change and may reduce the reliability of this document over time. Regular cyclical assessments of wildfire risk in the community should be an essential part of community resiliency in the interface. A more frequent review of the Action Plan is intended to keep the CWRP top of mind for the Town's emergency personnel and can help monitor progress toward the community's resiliency goals. Also, recognizing which actions have been deferred and which have been advanced can help pinpoint how the CWRP can be adjusted at its next update to better reflect community needs.

Regularly assess wildfire hazard on Sidney-owned properties

Sidney can adopt internal policies to ensure adequate service levels for wildfire hazard assessment in parks, municipal property, and facilities. The assessment tools for vacant land and facilities vary. For forested land and parks, the appropriate assessment tool is the most recent provincial standards for Wildfire Threat Assessment. These assessments constitute the practice of professional forestry and should be completed by a registered forest professional with the appropriate expertise. For facilities and infrastructure, the appropriate standard is the FireSmart Critical Infrastructure Assessment, which provides a hazard score to reflect the vulnerability (risk) of the capital asset in the context of the surrounding fuel environment (within 100 m). Critical infrastructure and permanent structures in forested parks should receive this assessment.

An appropriate level of service for Wildfire Threat Assessment in natural areas and FireSmart Critical Infrastructure Assessment is once every five years, aligned with the recommended schedule to update this CWRP. New assessments exceeding this schedule are advisable if significant changes in forest health or the environment have adversely affected the forest fuel components of wildfire threat.

Conducting formal assessments is distinct from ordinary monitoring by Town staff of parks and facilities for potential fuel hazards. Staff should be given training to identify potential hazards which can then be removed or fully assessed using FireSmart methodologies for critical infrastructure or cultural sites and green spaces. Acute fuel hazards sometimes found in local parks include accumulations of dry, dead foliage and fine branches, combustible materials in garbage or refuse, fuel spills, green waste, and concentrations of recently dead or dying trees. Snags (large, dead trees with significant decay cavities), downed logs, and large branches on the ground (> 7 cm diameter) are generally not acute fuel hazards in Sidney under typical fire season weather conditions, except when they are unusually concentrated.

Land acquisition by the Town of Sidney is infrequent but as part of acquiring new property the Town should consider whether the property in question contains fuel hazards that should be mitigated. It is often desirable to have fuel hazards addressed as a condition of the property transfer, especially when the property is being acquired as a park dedication or other condition of development.

Develop a FireSmart building policy that incorporates FireSmart design principles into Town-led construction projects.

Sidney should continue to incorporate FireSmart principles into Town projects. Completed facilities are opportunities to educate members of the public about FireSmart building and landscaping materials and techniques. FireSmart design principles are sometimes seen as in conflict with any wood construction, which is a popular building material in BC. FireSmart design focuses on reducing the use of small-diameter exposed wood on the exterior of buildings, such as shakes, shingles, and facing boards. Large-diameter wood elements such as heavy timbers or modern innovations like glued laminated timber (glulam) can be used in some cases. The Community Safety Building is an example of FireSmart construction and landscaping that incorporates appropriate use of exterior wood for critical infrastructure buildings.

Continue programs to help residents eliminate green waste and yard debris

Frequently residents see a barrier to FireSmart in the difficulty and expense of removing yard debris (fuel) from their properties. The Town of Sidney currently offers curbside green waste pick-up twice per month for up to three rigid garbage cans or compostable yard waste bags of 80 L or 20 kg each. This is an excellent initiative on the part of the Town and should be continued. Other communities like Metchosin and Qualicum Beach have found success by organizing community chipping days, providing access to free green waste disposal at a central location. To address the needs of residents who miss scheduled dates, the Town could try working with the CRD to investigate the potential to reduce tipping fees for green waste or other home fuel hazards at the regional Hartland Landfill. Establishing discounted or eliminated tipping fees for green waste at the regional landfill is a recommendation in the CRD's CWRPs for its electoral areas.

Consider reviewing the Tree Preservation Bylaw No. 2138 to facilitate modification of identified fire hazards

The Tree Preservation Bylaw plays an important role in maintaining environmental quality in Sidney and the health of the urban forest, which produces a variety of benefits for Sidney residents including shade and cooling, stormwater attenuation, beauty, and habitat for local wildlife. Tree protection is an important policy priority that should be maintained in the context of moderate and dispersed risk described by this CWRP. Most of the wildfire risk in Sidney is associated with potential ember spotting during periods of extreme fire danger. Homeowners concerned with this risk should be enabled to remove identified fuel hazards from within the Immediate Zone (0-1.5 m) on their properties. Removing potentially hazardous fuels, including coniferous hedging, from the Immediate Zone around homes can be a highly effective barrier to structure ignition where homes do not otherwise face appreciable hazards from radiant heat.

To enable tree cutting where it is required to reduce wildfire risk, section 11.12 of the Tree Preservation Bylaw could be amended to permit the removal of a protected tree when it creates a fuel hazard in the Immediate and Intermediate Zones. Large-diameter trees, especially the native conifers Douglas-fir, grand fir, and western redcedar, are highly valuable features of the Town's urban forest that often pose less ignition risk than hedging or small, dense vegetation close to the ground and growing near building walls or even underneath eaves. Given their lower risk and high value, bylaw updates should continue to discourage removal of mature trees from the Intermediate Zone. Finally, tree replacement guidance provided by the Town should reflect FireSmart landscaping guidelines by discouraging the installation of hazardous vegetation (such as yew and cedar hedging) in the Immediate Zone.

Development Considerations

Bylaws that affect land use, subdivision, and construction can have large impacts on the future fire safety of communities. In recent decades, attention has been placed on the design of development, buildings, and landscaping as they influence the risk of wildfire in the wildland-urban interface (WUI). The National Fire Protection Association (NFPA), a US-based international organization, has developed codes and standards for the recommended design of subdivisions and buildings in the WUI, including NFPA 1141 and NFPA 1144. NFPA 1141 addresses the design of subdivisions and fire protection infrastructure at the neighbourhood scale, while NFPA 1144 considers the appropriate materials and requirements for building and landscaping on individual properties. These standards are updated periodically and reissued in new editions. Several municipalities in British Columbia have used these standards to help bring FireSmart into planning review and enforce compliance. The Province may develop regulations within the BC Building Code that address wildfire hazards in the WUI in the future. In Sidney's highly urban context, development standards for the wildland-urban interface are likely inappropriately restrictive. However, working with the Town's bylaws affecting development can present opportunities to avoid hazard creation and reduce hazard exposure.

Development Bylaws

Official Community Plan (OCP) Bylaw No. 2240

The Town of Sidney coordinates the preparation of the Official Community Plan (OCP) and reviews applications for land use and development in the community. The Town does not currently identify wildfire as a natural hazard in its OCP, although there is support for protecting development from natural hazards and general emergency preparedness. Recognizing wildfire as a natural hazard in the OCP enhances the importance of the issue and may allow the Town to request specific design standards for construction and landscaping. The OCP also contains development permit areas where additional guidelines apply to redevelopment and construction. These include Environmentally Sensitive Areas where natural features are conserved and restored, as well as Form and Character DPAs that set desired outcomes for development appearance, function, and environmental quality in the public and private realm. There are opportunities through development guidelines to reduce the creation of potential fuel hazards near homes and buildings, such as by specifying where coniferous vegetation is appropriate to include in Landscape Plans.

Zoning Bylaw No. 2275

Zoning provisions determine allowable land uses and buildable space on each parcel in Sidney. These can influence the fire resilience of communities by setting rules for how development on each lot relates to the street and neighbouring parcels. For example, buildings often require minimum setbacks from property lines that differ by zone. Each zone's setback requirements can affect the distance between buildings and nearby forest vegetation. These provisions are of less influence on wildfire risk in Sidney than other jurisdictions with larger areas of direct interface.

The current Zoning Bylaw provides guidance on landscaping in Section 6, which deals with the standards for landscape design. Provisions in this section describe the requirements for screening between uses and on-site requirements to provide suitable planting space for large canopy trees in the Neighbourhood Residential and Multi-Unit Residential Zones. The design of landscape

screens can reduce wildfire risk by discouraging the planting of conifer trees or common hedging species like cedar and yew. The Zoning Bylaw does not prescribe which species are suitable for hedging but could be amended to discourage the use of common coniferous hedging species, which pose a pathway for ignition to homes, especially when located within a few metres of structures.

Subdivision and Development Bylaw No. 1390, 1997

Subdivision regulations are used to affect the number, size, and shape of parcels in new development as well as control the standard for community services like fire hydrants. Sidney's built-out urban environment reduces the significance of subdivision controls, as no likely subdivision site is located adjacent to contiguous forest vegetation. However, standards in the Subdivision and Development Bylaw 1390, 1997 ensure Sidney's neighbourhoods are adequately supplied with suppression infrastructure like fire hydrants and adequate water flow and are relevant for review by Fire Department staff from time to time to ensure fire flows will be adequate.

Photo 12. Aerial view of subdivisions in Resthaven.

Development Information, Development Permits, and the Official Community Plan

Development Approval Information

The BC Building Code sets the minimum acceptable standards for structures. However, the Code does not contain guidance specific to the development of homes and buildings in the WUI. For this reason, the *Local Government Act* provides that special areas can be designated where additional regulations on development apply. There are two mechanisms available to local governments under these powers. The first is "Development Approval Information" (S. 484-487), which allows local governments to delineate areas where applicants for rezoning, development permits (including subdivision), and temporary use permits may be required to provide supplementary information. This can include wildfire hazard information, such as a wildfire hazard assessment of the subject property. This is one way for local governments to collect information about wildfire hazards on private land which is not available in this CWRP.

In a Development Approval Information area, Sidney can request additional information related to any policy within the Official Community Plan (OCP) or any adopted bylaw. This information can be extremely valuable for land use and emergency services planning. The Town may need to amend its Official Community Plan to acknowledge wildfire as a natural hazard to request information if a Development Approval Information area is established.

Development Permit Areas (DPAs)

The second mechanism available to local governments allows local government to designate DPAs within the OCP or zoning bylaw (S. 488-491). Because DPAs are used to enforce special standards on design and construction, including Building Permit applications, the purposes of the DPA must be justified. Many local governments in British Columbia have used these provisions to establish "Wildfire Hazard" DPAs which rely on the accepted purpose of protecting development from hazardous conditions" stated in the *Act*. Since DPA provisions apply to building permit applications, they can lead to the gradual transitioning of existing communities toward FireSmart building practices. There are no high-risk interface forests within Sidney that would justify the development of a "Wildfire Hazard" DP area. Instead building construction and landscaping practices should be encouraged through public outreach and education and supportive policy amendments recommended by the CWRP.

Initiatives to Consider

Amend the Official Community Plan to recognize wildfire hazard

Currently, Sidney's OCP does not recognize wildfire as a potential hazard. The Community Risk Assessment prepared in 2022 acknowledged that wildfire hazard is present in Sidney, mainly associated with ember transport risks from forests located outside the Town's boundary. This CWRP finds that moderate wildfire risk is typical of public lands within the Town boundary. This moderate risk is dispersed and reflects ember transport as the primary hazard associated with wildfire in the Town boundary. Amending the OCP to recognize wildfire as a distinct natural hazard could support future initiatives by the Town and raise awareness during public engagement.

Provide FireSmart information as standard issue within all development permit and building permit application packages.

Sidney can ensure homeowners in the interface have the information they need to develop a fire-resilient design for their properties. The permit application process is the primary means for Sidney to disseminate FireSmart information and occurs at a significant time in the design process. To maximize the effect of this information Sidney could prepare a handout explaining the WUI and the importance of considering fire risk, with links to this report, the FireSmart homeowner's guide, and the contact information for the Sidney Fire Department or a future Local FireSmart Representative. Sidney Fire Department should work with the Town's planning staff to provide all materials needed for this initiative and could also provide basic internal training to planners and front-counter staff to promote FireSmart as an "all department" initiative.

Consider incorporating FireSmart landscaping requirements in development guidelines or the Zoning Bylaw.

Sidney's development permit area guidelines could be changed to promote FireSmart landscaping requirements, particularly within the Immediate and Intermediate Zones. This approach could increase fire resistance but only within DP areas. Ensuring wider adoption of FireSmart landscaping would require amendments to the Zoning Bylaw, where guidance on landscaping is currently limited. Amendments to introduce more specific landscaping requirements in the Zoning Bylaw would apply to all properties, but enforcement would likely only occur through the development/building permit process. The standards could be as simple as discouraging new conifer trees or cedar and yew hedging and encouraging alternatives from FireSmart BC's list of suitable plants. The purpose of incorporating landscaping requirements in the Zoning Bylaw would be to reduce the likelihood of fire transfer between homes during a structural fire event and would reduce the risk of yard ignition from ember spotting during a major wildfire.

Interagency Cooperation

Several agencies and authorities play roles in wildfire prevention and response in Sidney and work to protect the community from catastrophic loss. It takes the collaborative efforts of multiple stakeholders working together to achieve a fire-resilient community. Relationships between Sidney Fire Department and the neighbouring fire departments in North Saanich and Central Saanich are well established through frequent cooperation on event response under aid agreements. Collaborating more closely on training and prevention activities will benefit all peninsula communities.

In addition to the Sidney Fire Department, representatives of the BC Wildfire Service, First Nations, the Town of Sidney parks and other departments, BC Hydro, and nearby local governments contribute to shaping a FireSmart community.

Factors for Success

Identifying Actors and Roles

Emergency response responsibilities are divided in British Columbia. The following agencies and groups have important roles in preparing and responding to wildfire in Sidney:

- **Sidney Fire Department** – Contributes to emergency and evacuation planning and suppresses fire within service area boundaries and neighbouring communities under aid agreements.
- **Town of Sidney** -- Declares local states of emergency. Manages local parks. Regulates development and exercises municipal powers related to land use and vegetation.
- **North Saanich and Central Saanich Fire Departments** – Have automatic and mutual aid agreements with Sidney Fire Department to assist each other during incidents.
- **First Nations** – Sidney is within the traditional territory of the W̱SÁNEĆ peoples. First Nations can advise emergency responders on social, economic, and cultural values threatened by fire prevention or suppression activities. Vegetation management for wildfire risk can overlap with cultural landscape restoration, such as through prescribed fire.
- **Capital Regional District** – The Regional District coordinates key services like sewer for Sidney residents and operates the Hartland landfill.
- **Emergency Management BC** – Supports local government response before, during, and after a wildfire.
- **BC Wildfire Service** – Before a wildfire, BCWS supports wildfire risk reduction through projects on provincial crown land and joint training and collaborates with local fire departments and local governments on FireSmart projects. During a wildfire, BCWS supports suppression response inside fire service area boundaries when called on. BCWS acts as primary fire suppression response outside of local fire department service areas.
- **Ministry of Forests** – Provides review and issues tenures to fuel management projects located on crown land.
- **Ministry of Transportation and Infrastructure** – Maintains provincial highways.
- **Victoria International Airport** – Responds to fires associated with the airport operations.

Initiatives to Consider

Continuing to participate in a Community Wildfire Resiliency Committee

Sidney's participation in the regional Community FireSmart and Resiliency Committee is an important component of maintaining eligibility for the Community Resiliency Investment program. FireSmart BC proposes that these committees represent a missing link for fire preparedness in British Columbia between emergency planners and fire suppression staff and the communities they serve. The Community Resiliency Investment (CRI) program has made funding available for participation in these Committees through its FireSmart Community Funding and Supports (FCFS) stream**.**

Participating in such a committee is a required pre-condition of CRI FCFS applications.

From time to time, Sidney Fire Department should review guidance for organizing a CFRC and ensure the Wildfire Resiliency Committee's mandate covers the following suggested functions:

- Review and/or create CRI funding applications.
- Suggest initiatives for inclusion in the funding applications.
- Provide monitoring of CWRP implementation.
- Support Community FireSmart Days and advocate for FireSmart planning in priority neighbourhoods.
- Research alternate funding sources for priority projects not supported by CRI.
- Advocate for FireSmart and proposed activities among Committee members' communities and organizations.
- Advocate and educate within the community at large, leading FireSmart communications on behalf of multiple partners.
- Liaise with the BC FireSmart Committee to provide learning and feedback on program design and availability.

Additional guidance and suggested roles for a CFRC can be found on the FireSmart BC website.

Provide cultural sensitivity training to better partner with Indigenous communities

Ensuring that all communities receive an equitable standard of service and care during a wildfire is an important public duty. As a discipline involving land management, wildfire prevention can affect Indigenous cultural values. Sidney contains several known sites of archaeological or cultural value. Ensuring emergency responders are trained to provide culturally sensitive assistance to Indigenous residents during a wildfire and to have positive, proactive relationships with representatives of Indigenous nations is an important aspect of reconciliation.

CRI supports providing cultural safety and humility training to emergency management personnel involved in both wildfire prevention and suppression. Sidney should seek to ensure emergency responders have this cultural training.

Coordinate a tabletop scenario exercise with suppression partners

Sidney Fire Department can facilitate joint training exercises with the fire departments of North Saanich and Central Saanich, representatives of the BCWS, and other emergency personnel. This exercise would gather participants and present a wildfire scenario, which then allows all participants to confirm their roles and follow through a chain of action during the hypothetical wildfire event. The scenario should include details about the wildfire's location, time, and context. Such an exercise can also be a time to discuss seasonal wildfire readiness with partners.

FireSmart Training and Cross-Training

FireSmart Training and Cross-Training are intended to develop the level of ability and knowledge of emergency managers and first responders so that all actors understand each other's roles in wildfire management. Cross-training means bringing the knowledge of one role together with the knowledge of another and is a major component of facilitating FireSmart programming and interagency cooperation. While the Community Resiliency Investment (CRI) program recognizes the value of a range of training for emergency responders, it focuses its investment on a set of selected courses focused on fire suppression training and FireSmart implementation.

Factors for Success

Identify Needs

Sidney has an excellent base of knowledge and training in wildfire preparedness and response. The Sidney Fire Department has a robust training program to meet provincial requirements for registered departments and encourages members to develop knowledge of interface fire suppression and management by supporting members to access additional certifications. Members of the department have a variety of experiences working with or for the BC Wildfire Service and some have served as contract structural protection crews on interface wildfires elsewhere in the province. Maintaining this training and experience-building program can help secure resilience in Sidney. An area of growth for Sidney Fire Department is securing training for additional members on structural protection equipment to support the acquisition of a structural protection unit which could be deployed in Sidney or – more likely – neighbouring North or Central Saanich under aid agreements during an interface wildfire. Members of the Department expressed interest in acquiring this training during preparation of the CWRP.

Identify Funding Eligibility

Local fire departments can refer to this document and the annual updated CRI program information to understand which courses or opportunities are covered by grant funding. Currently, direct funding opportunities for training within the CRI program are limited to certain courses and professional roles for enrolment. For example, only volunteers with Fire Departments registered with the Office of the Fire Commissioner can access the suite of courses related to fire suppression. The following courses can be funded from the CRI program for members of the Sidney Fire Department:

- **SPP-WFF1 Wildland Firefighter Level 1** – This course, designed by the Office of the Fire Commissioner, provides training to structural firefighters in the specifics of wildland firefighting and enables structural firefighters to participate in the province's Structural Protection Program, or field deployments during the fire season. This course replaces S-100 and S-185 for structural firefighters participating in wildland deployments with the BC Wildfire Service.
- **S-100 Basic Fire Suppression and Safety** – This course, designed by the BC Wildfire Service, is the minimum basic standard for any person to participate as a wildland firefighter in British Columbia.
- **S-185 Fire Entrapment Avoidance and Safety** – This course, designed by the BC Wildfire Service, provides basic knowledge of entrapment avoidance and survival techniques during a wildfire.
- **S-231 Engine Boss** – This course, designed by the BC Wildfire Service, trains firefighters with wildland experience to lead an engine and crew during an interface event and allows contract firefighters to act in higher capacities while on deployment.
- **ICS 100 Incident Command System Level 100** – This course, offered by the Justice Institute, introduces the Canadian Incident Command System to emergency management staff and local first responders. This training is only available to members of volunteer fire departments and certain emergency management personnel.
- **WSPP-115** – This course provides training for structure protection unit crews working with the BC Wildfire Service on deployment.
- **Task force leader (structure protection only)** – this course supports personnel on deployment with BCWS to monitor and assess specialty resources that can be brought together to accomplish a suppression task.
- **Structure Protection Group Supervisor (structure protection only)** – this course supports personnel on deployment with BCWS to implement their assigned portion of the Incident Action Plan and be responsible for all operations conducted within the division/group.

Although it cannot currently be funded through CRI, ICS 200 Incident Command System Level 200 provides valuable training in event response for Emergency Operations Centre staff:

- **ICS 200 Incident Command System Level 200** – This course, offered by the Justice Institute, provides the framework for managing small to moderate-sized incidents using the standardized Incident Command System. ICS 100 is a prerequisite for this course. Consideration should be made for all EOC staff to receive this training.

Initiatives to Consider

Support members of the Sidney Fire Department and the Town's emergency response to access additional training on a continuing basis

As recruitment occurs, ensure all members receive basic wildland fire suppression training (SPP-WFF1 or equivalent) and support members to access additional training for structure protection deployments as interest arises. This would ensure all members have the same knowledge of wildland suppression and enable all members to participate in structural protection deployments with the BC Wildfire Service if desired. Engine Boss training supports higher roles for contract members in the province's Structural Protection Program, valuable interface firefighting experience that can be brought back to Sidney.

While ICS 100 certification is standard for SFD and Town emergency staff, staff responsible for the Emergency Operations Centre may benefit from receiving higher levels of ICS training. Although it is not currently funded by CRI, consider supporting staff involved in EOC management to achieve ICS 200 certification.

Provide training to the Sidney Fire Department on SPU equipment and utilization.

The CWRP recommends Sidney and other peninsula fire departments cooperate on acquiring an SPU (see Interagency Cooperation, p. 95), which could be stationed at the Community Safety Building to provide efficient service throughout the northern Saanich peninsula. To support acquisition, the Town should ensure Fire Department members are trained on the equipment within an SPU and how to utilize it properly. The proper training equips firefighters with the skills to assess risks, deploy defensive tactics, and implement proactive measures to reduce damage to homes and critical infrastructure during a wildland-urban interface fire. Additionally, trained teams can work more cohesively with other firefighting units, improving coordination and resource allocation during emergencies. Investing in this training ultimately enhances the regional capacity on the Saanich peninsula to safeguard communities from wildfire impacts.

Emergency Planning

This FireSmart discipline addresses Sidney's preparedness and examines connections between the Community Wildfire Resiliency Plan (CWRP) and the Town's emergency planning mandate under the *Emergency and Disaster Management Act*. The primary purpose of this section is to consider how the threat of wildfire can be incorporated into emergency planning conducted by the Town and appropriate levels of readiness during the fire season.

Sidney prepares an emergency plan; declares states of local emergency; issues evacuation alerts, orders and rescinds; and coordinates an Emergency Operations Centre during periods of need. Sidney has a robust set of existing emergency plans for specific hazards, including earthquake, tsunami, structure collapse, hazardous materials, and major urban fires. These documents are subsidiary to the Town's Emergency Response and Recovery Plan (2023), which documents the authorities, principles for response, and procedures for Emergency Operations Centre activation used in Sidney during major emergencies. The document also outlines principles for organizing community recovery (humanitarian aid) in Sidney, which will be the responsibility of the EOC.

The ERRP does not contain a hazard plan specific to wildland urban interface fire. Sidney Fire Department can consider guidance from the CWRP when next updating its emergency plans to reflect the presence of dispersed moderate risk of wildfire in the community. A specific hazard plan for non-structure fire would complement the planning done by the Town to prepare for a variety of other events.

Factors for Success

Wildfire Preparedness Condition Level

Adopting a guide to emergency preparedness levels about wildfire danger can help prioritize limited departmental resources during fire season (Table 19). This guide will associate Sidney's staffing and activities with the levels of fire danger, with more action to prepare for wildfire being appropriate whenever fire danger rises above low. Fire danger is monitored daily during the fire season by the Sidney Fire Department and can be viewed publicly on the website of the BC Wildfire Service. Sidney can work towards implementing levels of service for wildfire preparedness based on the example below, adapted from the BC Wildfire Service's guidance.

Table 19. Guide to Wildfire Response Condition Level.

Preparedness Level/ Fire Danger Rating	Possible Action Guidelines
I Low	• No special precautions.
II Moderate	• Staff monitor the fire danger rating weekly.
III High	• Staff monitor fire danger rating daily. • Weekly review of weather forecasts to determine smoke weather potential. • Publish the fire danger rating on the Town's website and publicize it on social media.
IV Extreme	• Weekly communications with EOC staff over internal preparedness; review EOC activation plans. • Promote wildfire awareness and reporting mechanisms on social media channels. • Publish the fire danger rating on the Town's website and publicize it on social media.
V Ongoing fire(s)	• Mobilize wildfire incident command team • Mobilize EOC if evacuation is needed, or if fire requires additional support from Emergency Management BC. • Issue Evacuation Alerts and Orders based on fire behaviour prediction as appropriate in consultation with BC Wildfire Service and publicize with a media release, Sidney website, social media, and Saanich Peninsula Alert. • Assist evacuated residents with support access and emergency lodging. • Consider closing natural areas to avoid new ignition risk. • Daily communications with BC Wildfire Service and response partners. • Daily public updates via social media.

Initiatives to Consider

Cooperate with response partners to acquire a Structure Protection Unit (SPU) for the Saanich peninsula

Sidney can apply for funding to assess, inventory, and purchase structure protection equipment for wildfire response under the CRI program. Structure protection units (SPU) are equipment trailers containing pumps, hoses, sprinklers and water delivery attachments that can be used to set up block protection for many properties. Type 2 SPU have equipment sufficient to protect approximately 35 structures and are one of the few equipment purchases that can be currently supported through the CRI program. Departments can apply for a set amount of money under each CRI application to assess, inventory, and purchase structure protection equipment from an approved list designed to phase the cost of acquisition.

The Saanich peninsula fire departments currently lack a SPU. Acquiring a SPU would enhance the department's ability to safeguard homes and critical infrastructure in the event of a catastrophic fire. Such a unit could be stationed at the Community Safety Building and provide service to Sidney, North Saanich, and Central Saanich.

Conduct FireSmart assessments for critical infrastructure and community assets

Sidney can complete FireSmart Home Ignition Zone or Critical Infrastructure assessments as appropriate for publicly owned buildings or critical infrastructure. This is supported by the Community Resiliency Investment program to allow local governments to develop a FireSmart program for their capital asset and emergency infrastructure portfolio. Assessments can also be undertaken for designated critical infrastructure that is not owned by the Town under the community asset category. With assessments in place, Sidney could apply for implementation funding to complete re-landscaping or even exterior renovations of its facilities and infrastructure.

Recently constructed publicly owned facilities in Sidney, such as the Community Safety Building, employ FireSmart building methods and techniques. However, many community assets designated as critical infrastructure, generally potential evacuation centres identified by the Town's emergency plans, are older buildings owned by others and are not fully consistent with FireSmart building or landscaping principles. The Town may benefit from supporting renovations at community assets to bring FireSmart principles into effect; however, publicly owned critical infrastructure should be the first priority for assessment. No critical infrastructure or community assets identified by the CWRP are adjacent to continuous forests characterized by high or extreme risk.

Establish a guide for Wildfire Emergency preparedness levels during wildfire season

Sidney can help allocate the limited resources of the Emergency Program during fire season by developing and following a guide to Wildfire Response Condition Levels (Table 19), tied to fire danger reporting updated daily by the province. The table presented previously in this section can be used as a sample of the content and actions to be considered by the Sidney Fire Department in defining its level of service for different fire danger ratings. Actions should be refined in consultation with emergency response partners.

Identify "Clean Air Refuges" for use by vulnerable populations during periods of heavy smoke

While the focus of the CWRP is on preparing for a wildfire within or near the municipal boundaries, wildfire smoke impacts can range far and wide and have impacted the community during past fire seasons. Sidney could consider identifying local facilities like community buildings or commercial partners with suitable HVAC systems where residents can access filtered air during high smoke periods. This initiative could learn from the Town's experience of the June 2021 heatwave, following which the Heat Response Plan was developed. The Heat Response Plan identifies potential cooling centres for public drop-in, including the Mary Winspear Centre, Charlie White Theatre, and Shoal Centre. Provisions in the Heat Response Plan also identify the need to arrange transport for vulnerable individuals to cooling centres. A similar approach could be taken to identify clean air refuges. The steps of identifying community partners for such a program and alerting them to expected smoke conditions could be incorporated into the wildfire emergency preparedness condition guide, along with guidelines for monitoring expected smoke weather.

Conduct pre-incident planning as part of the Fire Department's wildfire preparedness

The pre-incident plan is a body of knowledge for wildfire response prepared by emergency responders led by Sidney Fire Department. All partners in fire suppression and emergency response should know where key fire suppression resources are in the community, including water

sources and resources, vehicles, future structure protection equipment, and stores of hand equipment. The following issues should be addressed by a pre-incident plan:

Command
- First responder
- Incident command and delegation
- Management constraints
- Area closure procedures
- Interagency agreements

Logistics
- Alert/Order publication and notification
- Location of utilities and de-energization
- Communications protocols
- Roads, trails, and access
- Emergency Operation Centre location

Operations
- Air and water access
- Control line locations
- Natural barriers
- Safety zone options
- Staging area locations
- GPS locations for key points

Planning
- Topographic maps
- Vegetation and fuel maps
- Community base map
- Hazardous values
- Archaeological/cultural values
- Protected or rare environmental features
- Land ownership
- Access control

Preparing a pre-incident plan is an opportunity to simulate a wildfire response effort. Developing the plan can be part of joint training exercises coordinated between Sidney, BC Wildfire Service, the CRD, and adjacent local fire departments.

Update the Town's Emergency Response and Recovery Plan to include a hazard plan for fire, major non-structure.

The CWRP recommends developing a hazard plan within Sidney's Emergency Response and Recovery Plan (2023) to address major non-structure fires. This plan should follow the format of Sidney's existing hazard plans and reflect the procedures in use for EOC activation and community recovery detailed by the ERRP. The development of a hazard specific plan acknowledges that Sidney, while buffered from significant areas of forest, is characterized by a generally moderate risk of wildfire primarily driven by ember spotting. A hazard specific plan can address the sequence of actions and responsibilities for fire in vegetation; it is expected that this can be closely modelled on the existing hazard plan for Fire, Major Urban, though should comment on the deployment of potential structure protection equipment proposed for acquisition by the CWRP. Additional regulations for the new *Emergency and Disaster Management Act* are anticipated in early 2025 which may be relevant to this update.

Vegetation Management

In the context of wildfire, manipulating the fuel environment can be an appropriate and effective way to reduce the threat or risk of wildfire. Vegetation management achieves this, from the small-scale of FireSmart on an individual property to the large-scale of fuel management on the forest land base. In Sidney, there are no opportunities for large-scale fuel management given the limited area of forests and urban character of the town. However, smaller scale projects to reduce accumulations of surface fine fuels and ladder fuels can be appropriate.

This discipline addresses opportunities to mitigate wildfire risk by altering both natural forest vegetation and the cultivated landscaping around the homes and critical infrastructure. Considerations for this section are divided into two categories corresponding to the common forms of implementation: FireSmart landscaping focused closely on homes and infrastructure, and broader fuel management in forest areas. This division reflects the difference in goals and methods between the two scales. As of 2024, CRI now supports funding for FireSmart treatments of culturally significant sites such as identified First Nations sites and community green spaces, which can include municipal parks, linear corridors, and other natural lands not otherwise suited for the development of landscape-scale fuel management.

Managing Vegetation through FireSmart

FireSmart vegetation management is intended to reduce the risk of ignition to a specific building or piece of infrastructure when threatened by fire. Accordingly, FireSmart vegetation management focuses heavily on achieving guidelines in the Immediate Zone (0-1.5m), the Intermediate Zone (1.5-10 m), and the Extended Zone (10-30 m) around a home or piece of infrastructure. Vegetation management for FireSmart is often guided by an assessment report prepared by a Local FireSmart Representative or Wildfire Mitigation Specialist, though some homeowners may wish to undertake FireSmart treatments on their own. The expertise of a Registered Professional Forester is recommended for projects where management includes areas of native forest vegetation, such as in municipal parks and green spaces.

Supports are available through the Community Resiliency Investment (CRI) program for FireSmart activities on private land in residential areas, for publicly owned critical infrastructure, for "community assets" that are designated as critical infrastructure for wildfire response, culturally significant sites, and community green spaces. On private residential land, only planning and assessment program costs are fully covered by the CRI program, although rebate programs for up to 50% of the cost of FireSmart activities administered by a local government can be funded and supports covering the full cost of labour to implement FireSmart Assessment recommendations are available for homes and properties owned by seniors, elders, people with limited mobility, and vulnerable populations. Local FireSmart Representatives can help homeowners understand which actions may be "quick starts" to improve resiliency, and which are appropriate to save until money and/ or time are available.

A FireSmart Assessment and Implementation Program for Sidney's Critical Infrastructure and Community Assets

Local governments can apply for funding to implement the recommendations from a FireSmart assessment for designated critical infrastructure up to a maximum of $58,000 per eligible

structure (as of the 2025 program intake). This is available only for critical structures and community assets having a completed FireSmart assessment scorecard at the time of application. Reassessment with the appropriate scorecard following the mitigation works is also a covered cost for publicly owned critical infrastructure. Implementing FireSmart management recommendations requires Sidney to complete FireSmart hazard assessments for critical infrastructure and community assets prior to applying for implementation supports. Sidney should consider the need to reassess all sites on a regular schedule, given that building and landscaping affecting the hazard assessment score change over time. An appropriate cycle for conducting FireSmart hazard assessments of all current critical infrastructure and community assets is the recommended cycle for updating this Community Wildfire Resiliency Plan: at least once every five years.

Monitor fuel hazards and conduct FireSmart vegetation management in forests on Town-owned property

The Town of Sidney has approximately 23 hectares of municipal-owned parkland, consisting of a variety of open green spaces, native forest cover, and recreational facilities. The largest areas of forest cover within Sidney are located within Peter Grant Park, Reay Creek Park, and Brethour Park. These parks are bound on all sides by private property and are high-use recreation areas, each with its own network of trails. Reay Creek, a spawning creek for coho salmon (*Oncorhynchus kisutch*) and coastal cutthroat trout (*Oncorhynchus clarkii clarkii*)[28], meanders through the centre of both Reay Creek Park and Peter Grant Park and provides sensitive riparian habitat for a variety of plant and bird species. Brethour Park, located directly south of the Victoria Airport, contains a small area of second-growth Douglas-fir forest. Trees in this park have been repeatedly topped to provide clearance for planes landing and taking off from the adjacent Victoria International Airport.

The forests in Reay Creek Park, Peter Grant Park and Brethour Park all pose a moderate wildfire risk. These forests are not expected to support fast-spreading, high-intensity wildfires. However, surface fires in these forests are possible under normal fire weather conditions. Given the small size of the parks, riparian value, and low connectivity with regional forests, large scale fuel management is generally inappropriate. Conducting small-scale FireSmart vegetation management to remove debris, limb trees to increase the separation between surface and ladder fuels, and removing small trees and invasive species is expected to be of sufficient intensity for managing fire risk associated with fuels in these parks. In small, highly modified natural areas, controlling ignition risk and ensuring good access for suppression are often more important objectives than reducing potential fire severity.

The Town should collaborate with the Sidney Fire Department to monitor fuel conditions in their major forested parks annually. During the five years or more the CWRP is expected to be in place, the condition of forests on Town-owned property could change, becoming more significant fuel management concerns. Semi-annual FireSmart clean-up of surface fuel in high-priority portions of the forested parklands, e.g., within 10 m of surrounding private property, could be supported through the CRI's funding for FireSmart management of green spaces. Furthermore, implementing semi-annual trailside cleanup, e.g. within 10-30 m of trails, can help mitigate ignition risk in these

[28] https://walksinyourbackyard.com/2018/11/21/reay-creek-park/

high-use areas. Field review of Reay Creek Park, Peter Grant Park, and Brethour Park in 2024 did not reveal unusually high fuel loading; however, surface fuel conditions can change rapidly and should be part of monitoring for maintenance of park lands and other Town-owned properties.

Photo 13. This debris pile within Peter Grant Park is potentially suitable for dispersion or off-site disposal to reduce fuel hazards.

Fuel Management for Forest Landscapes

Fuel management for forest landscapes strategically altering the characteristics of a forest to transition it towards lower wildfire threat, thereby reducing the general risk to the community. This facilitates easier wildfire response, and a reduction in the resources required by response agencies to action a wildfire. Sometimes, fuel management is used to produce future fire suppression opportunities such as anchor points or safety zones, locations to initiate defensive back-burns or improved access to remote areas of a community. Directions for how much vegetation to remove and retain, as well as how to protect other values in the forest landscape, are contained in a fuel management prescription prepared by a Registered Professional Forester and reviewed by the BC Wildfire Service. The intent of fuel management is generally to support healthy forest development while reducing wildfire risk to identified values such as critical infrastructure or homes.

Fuel management is completed through three phases:

1. Identify areas for fuel treatment within a Community Wildfire Resiliency Plan (CWRP) or other high-level strategic plan.
2. Develop a detailed Fuel Management Prescription which identifies objectives and strategies to reduce wildfire risk.
3. Operational implementation of the Fuel Management Prescription.

This CWRP does not identify any areas within the Town of Sidney suitable for large-scale fuel management. The reasons for this are the absence of large contiguous forest areas on public property in the Town and relatively low wildfire threat (fuel component).

Fuel management is recommended by the District of North Saanich CWRP (2021) in several nearby forested areas, including in Horth Hill Regional Park and ŁÁU,WELṈEW̱/John Dean Provincial Park. Sidney Fire Department can liaise with the District of North Saanich Fire Department to understand the progress on implementation of these fuel management areas which may indirectly benefit the Town.

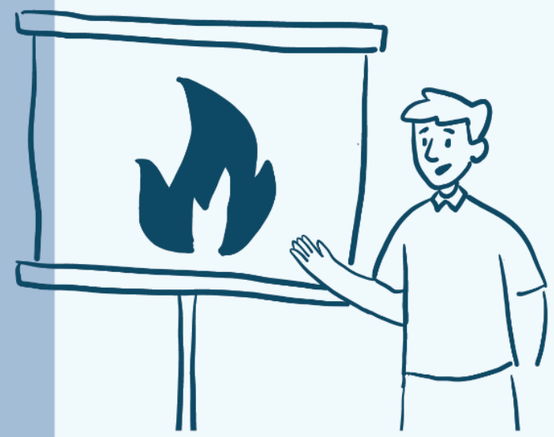
SIDNEY'S FIRESMART ROADMAP

These high priority actions will help build a resilient community. See the CWRP Action Plan for more details.

01 ENGAGEMENT PHASE

Building awareness. Focus on building an understanding of the risk of wildfire and the benefits of developing and growing a local FireSmart program.

- Publish the CWRP and highlights on Sidney's website.
- Expand access to FireSmart information and services.
- Expand participation in Saanich Peninsula Alert!



02 INITIATIVE PHASE

Taking actions and implementing local FireSmart activities. The focus is on building capacity both in people and your community to withstand wildfire events.

- Develop programs that help residents eliminate green waste and yard debris.
- Conduct FireSmart assessments of existing critical infrastructure and community assets.
- Support Sidney Fire Department members with training on SPU equipment and utilization.

03 INTEGRATION PHASE

Long-term and permanent changes to support community wildfire resiliency. The focus is on development considerations and collaboration with partners.

- Cooperate with response partners to acquire a Structure Protection Unit (SPU) for the Saanich peninsula.
- Work to implement FireSmart Assessment recommendations for critical infrastructure and community assets.

04 EXPANSION PHASE

FireSmart activities within the eligible WUI. The focus is on broader community planning.

- Incorporate recognition of and addressing wildfire hazard into the Official Community Plan.
- Provide FireSmart information with development application materials.
- Establish a guide for emergency preparedness levels during wildfire season.

Action Plan & Implementation

Successful implementation of the Community Wildfire Resiliency Plan (CWRP) requires a strategy for implementation, tracking mechanisms for success, and a schedule for revisiting issues left unresolved. The Action Plan follows the SMART criteria for outlining potential initiatives:

- **Specific**: target exactly what is to be achieved
- **Measurable**: quantify or suggest an indicator of progress
- **Assignable** – specify who will be responsible for implementation
- **Realistic**: state what results can reasonably be achieved
- **Time Bound**: state expected time for completion. Note that some recommendations must be implemented annually or biannually. For example, an annual social media campaign to raise awareness.

Plan monitoring and updates

While priorities and timelines are suggested below, Sidney may, with feedback from the community, decide some initiatives are of greater importance than others. The risk environment will continue to change beyond the completion of the Plan and require adjusting expectations and resource allocation for building wildfire resiliency programming. This is a natural part of the implementation process of any plan. For these reasons, the CWRP and this Action Plan should be revisited from time to time to ensure they are meeting the needs of the community. A formal review after five years is recommended, with at least annual reviews of the Action Plan.

Tracking and Reporting

There are funding sources available to help implement many of these recommendations, subject to a competitive application program open to all local governments. UBCM manages the Community Resilience Investment (CRI) Program which offers up to 100% funding for a range of wildfire mitigation initiatives. Many of the recommendations made in this report are eligible for CRI funding. Estimated costs for implementing these recommendations are in addition to existing operating budgets.

The Action Plan can be recreated and modified to add columns for noting whether items are in progress or have been completed, as well as capture specific measurable outcomes that can help justify the Region's wildfire resiliency initiative.

Following the Action Plan, Table 21 provides a sample tracking and reporting tool.

Table 20. Action Plan.

Recommendation/Action	Lead(s)	Priority	Cost (Est.)	Resources Required	Metric for Success	Notes
Renewing the Plan and Building Resiliency						
Objective: View the Community Wildfire Resiliency Plan as a Living Document and incorporate wildfire resiliency into strategic decisions						
1. Conduct a formal review of the CWRP contents every 5 years. Review the Action Plan every year. (p. 70)	Sidney Fire Department	High	$32,000 per update	Continuing program capacity for wildfire preparedness within the Sidney Fire Department	Maintain annual tracking and monitoring information on initiatives in the Action Plan	CRI funding eligible (CWRP updates). **Having an acceptable CWRP or CWPP is a funding requirement.**
2. Support a FireSmart and Wildfire Resiliency position within the Sidney Fire Department, or establish an agreement to share a position with a neighbouring municipality (p. 70)	Sidney Fire Department	High	Salary up to 1 FTE	Capacity for cyclical grant application to maintain position and activities; pay sufficient for employee retention	Maintain FireSmart and Wildfire Resiliency position within the Department each year	CRI funding eligible. **Having a FireSmart role in the community is a funding requirement.**
3. Participate in regular meetings of a Regional Community FireSmart & Resiliency Committee (p.72)	Sidney Fire Department	High	Up to $2,200 per meeting	Executive capacity and ability to coordinate within Sidney Fire Department	Review the mandate of the existing Wildfire Resiliency Committee and ensure suggested CFRC activities are reflected.	CRI funding eligible. **Active participation in a CFRC is a funding requirement.**
Education						
Objective: Promote FireSmart as a strategy for wildfire preparedness and continue Sidney Fire Department's high level of engagement with the community						
4. Publish the CWRP and highlights on Sidney's website. (p. 75)	Sidney Fire Department	High	Staff time	Admin time within Sidney Fire Department	Successful publication within one year after receipt	
5. Expand access to FireSmart information and services (p. 75)	Sidney Fire Department	High	FS Coordinator salary is fundable to a predetermined maximum	Support an FS Coordinator position with Sidney Fire Department.	Offer an annual opportunity for residents to have their property assessed	CRI funding eligible. **A FireSmart Position in the community is a funding requirement.**
6. Host a Community Clean Up Day as a demonstration of FireSmart principles. (p. 75)	Sidney Fire Department	Medium	$5,000	Coordination with local park volunteers/District operations crew	Number of participants Weight of vegetation/debris removed. Reduce surface fuel loading near homes.	CRI funding eligible

Recommendation/Action	Lead(s)	Priority	Cost (Est.)	Resources Required	Metric for Success	Notes
7. Expand participation in Saanich Peninsula Alert! (p. 77)	Sidney Fire Department	High	Staff time	Fire Department staff and support from Manager of Communications Outreach with local organizations Community advertising	Registrations as a percent of the population.	
Legislation and Planning						
Objective: Ensure Sidney's by-laws and policies support wildfire resiliency						
8. Continue programs that help residents eliminate green waste and yard debris (p. 81)	Sidney Fire Department/ Operations	High	Costs to be reviewed	Coordination between departments Baseline studies Operational capacity and training	Green waste by weight associated with a completed FireSmart assessment. Fees deferred.	CRI funding eligible
9. Create a FireSmart building policy to incorporate FireSmart design principles in Sidney facilities. (p. 82)	Corporate Administration/ Planning/ Operations	Medium	Staff time	Coordination between departments	New capital projects reflect recognition of FireSmart building design and principles.	Review and revision may be CRI funding eligible depending on scope.
10. Regularly assess wildfire hazard on Town-owned properties (p. 81)	Sidney Fire Department/ FireSmart Coordinator	Medium	Staff time	Qualified individual or contractor	Level of service for wildfire hazard assessment of parklands established in new Parks and Trails Strategy	CRI-funding eligible.
11. Consider amendments to the Tree Preservation Bylaw No. 2138 to facilitate modification of identified fire hazards (p. 82)	Corporate Administration/ Planning/ Parks	Medium	Staff time	Coordination between departments Council engagement	Tree permit data reflects when a hedge or tree was removed due to fuel hazard.	CRI-funding eligible.
Development Considerations						
Objective: Consider FireSmart design principles in planning and development bylaws.						
12. Provide FireSmart information (bulletins, brochures, web resources) with development application materials (p. 87)	Planning/ Sidney Fire Department	High	Staff time	Coordination between departments	FireSmart information is provided with all development permit application templates.	CRI funding eligible, to a pre-determined maximum; web resources free
13. Incorporate recognition of and addressing wildfire hazard into the Official Community Plan (p. 86)	Planning	High	Staff time		Acknowledgement of wildfire hazard and resiliency issues in new corporate documents	

Recommendation/Action	Lead(s)	Priority	Cost (Est.)	Resources Required	Metric for Success	Notes
14. Consider incorporating FireSmart landscaping requirements in development guidelines or the Zoning Bylaw (p. 87)	Planning	Medium	Staff time	Capacity in the planning department	Establish FireSmart principles in landscaping throughout the Town of Sidney.	CRI funding is eligible, subject to scope limitations.
Interagency Cooperation						
Objective: Ensuring wildfire response is effective						
15. Continue cultural aiming for emergency staff to support awareness and positive partnerships with Indigenous people and communities (p. 90)	Sidney Fire Department	Medium	Staff time & facilitation fee		1 on-duty or on-call EOC staffer with cultural sensitivity training at all times during an emergency	CRI funding eligible
16. Coordinate a tabletop scenario exercise with suppression partners (p. 90)	Sidney Fire Department	Medium	Staff time	Participation from neighbouring departments and agencies.	Complete 1 tabletop exercise per year in advance of fire season.	CRI funding eligible
Cross Training						
Objective: Ensuring emergency responders have a variety of training and experience						
17. Support Sidney Fire Department members with training on SPU equipment and utilization. (p. 93)	Sidney Fire Department	High	Staff time (training)		>50% of members have SPU training	CRI funding is eligible.
18. Support firefighters to access additional training on future CRI funding applications. (p. 93)	Sidney Fire Department	Medium	Incidental	Identify training needs for recruits, transfers	Full participation in training by members who want it	CRI funding eligible
Emergency Planning						
Objective: Enhance emergency response capacity						
19. Establish a guide for emergency preparedness levels during wildfire season (p. 96)	Sidney Fire Department	High	Staff time		Adopt as policy a Guide to Wildfire Preparedness Condition Levels	See Emergency Planning, p. 96
20. Cooperate with response partners to acquire a SPU for the Saanich peninsula (p. 95)	Sidney Fire Department	High	Up to $45,000 per year on equipment, phased acquisition	Ensure adequate training and arrangements have been made with neighbouring departments to house and deploy equipment.	Acquire an SPU Type 2 trailer	CRI funding eligible, phased multi-year acquisition

Recommendation/Action	Lead(s)	Priority	Cost (Est.)	Resources Required	Metric for Success	Notes
21. Conduct FireSmart Assessments of existing critical infrastructure and community assets. (p. 96)	Sidney Fire Department	High	$25,000-$30,000	Coordination between departments	Completed FireSmart Assessment Score Cards for all Sidney-owned critical infrastructure.	CRI funding eligible.
22. Update the Town's Emergency Response and Recovery Plan to include a hazard plan for fire, major non-structure (p. 97)	Sidney Fire Department	Medium	Staff time	Updates will be informed by regulations expected later this year under the new *Emergency and Disaster Management Act*	As per requirements in forthcoming provincial regulations	
23. Identify "Clean Air Refuges" for use by the public during smoke events (p. 96)	Operations/ Sidney Fire Department	Low	Staff time	Partnership with community businesses and facilities. Identification of suitable buildings.	Identify locations that the public can visit for clean air during periods of heavy smoke	Budget Dependent
24. Conduct pre-incident planning as part of preparedness (p. 96)	Sidney Fire Department/ Sidney Fire Department	Medium	Staff time	May be achieved through updates to Town's Emergency Plan	Conduct a pre-incident plan.	
Vegetation Management						
Objective: Modify fuel environments to reduce risk around infrastructure and communities						
25. Work to implement FireSmart Assessment recommendations for critical infrastructure and community assets (p. 98)	Sidney Fire Department/ Operations	High	TBD based on assessment outcomes.	Administrative capacity	Completed FireSmart activities and updated scorecards	CRI funding eligible, when initial FireSmart assessment has been completed.
26. Monitor fuel hazards and conduct FireSmart vegetation management in forests on Town-owned property (p. 99)	Sidney Fire Department	Medium	Up to $27,000	Coordination capacity between SFD	Host semi-annual FireSmart clean-ups in high-priority areas	CRI funding eligible, with a fuel management checklist

Table 21. Sample tracking and reporting tool.

Recommendation/Action	Lead	Date Completed	Cost	Successes, challenges, and lessons learned	Follow up – provide description
Action	Who leads this implementation?	When was the implementation completed? Or is this an annual project?	What was the cost? Include labour hours here	Was the metric for success achieved? If not, why? Was the metric unrealistic? What unexpected challenges were encountered?	How does implementation or failure to implement impact other actions? Did implementation of this action lead to new required actions?

Appendices

Appendix A: Glossary of Terms

Term	Definition
Area of Interest (AOI)	The geographic study area for a Community Wildfire Protection Plan, within which the extent of the boundaries of the WUI are determined.
Community Wildfire Resiliency Plan	A Plan adopted by a local government or First Nation to identify wildfire threat and risk throughout the study area, examine policy and planning responses, and assess emergency response capacity while providing action item recommendations for building community resilience. The Plan is supported by the Province through the Community Resiliency Investment Program.
Critical Infrastructure	Assets, structures, or features that underpin the health and safety of the community and allow governance to take place
Crown fuels	Forest fuels occurring above the level of the ground, on tree stems or in tree canopies, including live and dead branches attached to trees, bark, and foliage.
Fire Return Interval	The time between fires in a defined area, typically measured at the landscape scale.
FireSmart	A term that describes living with the risk of wildfire while reducing the adverse effects of wildfire. Also refers to a program of disciplines for mitigating the risks of wildfire
Fuels	Those elements of a forest that can burn, including organic material on the forest floor; logs; dead branches and needles; shrubs and herbs; and the bark, wood, and foliage of live trees.
Fuel management	Coordinated action to reduce wildfire risk by modifying the structure and density of forest fuels.
Fuel management prescription	A document that identifies fuel management strategies to reduce wildfire risk in a defined area, while also ensuring other values are protected.
Fuel treatment	The implementation of a fuel management prescription, which may involve the physical modification of fuels by heavy machinery or ground workers.
Interface	A pattern of urban development where contiguous development directly abuts native vegetation.
Intermix	A pattern of urban development where buildings are closely placed within and among trees.

Landscape Unit Plan	A plan prepared by the Province that provides objectives for resource management within a defined area, including policies related to forest biodiversity and wildlife habitat.
Official Community Plan	A local government plan for an electoral area or municipality, mandated by provincial legislation, which shows how land use will be planned and how the local government will meet other provincial policy objectives. Official Community Plans may also include additional policies based on local needs and interests.
Suppression	Actions taken in response to fire to control the spread of the fire or to reduce it in area or severity.
Surface fuels	Forest fuels found on top of the organic layer of the soil and below the crowns of trees, typically including understory vegetation, dead branches, needles, and logs.
Wildfire	A form of natural landscape disturbance involving the combustion of vegetation.
Wildfire risk	The probability of a wildfire occurring, combined with the consequences or impacts it would cause.
Wildfire season	The period of the year during which wildfires generally take place due to weather and fuel conditions. In BC, this is typically April – September.
Wildfire threat	A classification of potential fire behaviour based on fuel conditions, weather conditions, slope, aspect, and other biophysical factors.
Wildland-Urban Interface (WUI)	The geographic area where homes and buildings meet continuous areas of natural vegetation.

Appendix B: Local Wildfire Threat and Risk Process

This section provides a summary of the local wildfire threat and risk assessment, including field-reviewed fuel characteristics, local fire spread patterns, topographical considerations, and proximity of fuel to the community. This appendix describes the methodology used to determine wildfire risk. The findings of this analysis have been integrated into the main body of the report in the Wildfire Risk Assessment section.

The local Wildfire Risk Assessment process involves:

1. Verification of local fuel types to develop a fuel type map
2. Assessment of fire spread patterns
3. Consideration of topography
4. Stratification of the WUI based on relative wildfire threat
5. Classification of wildfire risk areas

Fuel Type Attribute Assessment

Fuel typing falls into sixteen national benchmark fuel types that are used by the Canadian Fire Behaviour Prediction System[29]. This system divides fuels into five major groups and 16 more specific fuel types. These groups are used to describe fuels according to stand structure, species composition, surface and ladder fuels, and the organic (duff) layer. The current Canadian Forest Fire Behavior Prediction (FBP) System does not include coastal forests in their fuel type descriptions[30], therefore the fuel type that most closely represents forest stand structure was identified.

Different fuel types are associated with different levels of wildfire threat (wildfire behaviour potential). Therefore, accurate fuel typing is a critical input to wildfire behaviour and threat assessment mapping. Conifer fuel types typically have the highest wildfire behaviour potential and are the most likely to support continuous crown fire and spotting potential. Different conifer fuel types have different crown fire and spot fire potential.

[29] Natural Resources Canada. (April 2021) FBP Fuel Type Descriptions. https://cwfis.cfs.nrcan.gc.ca/background/fueltypes/

[30] Perrakis, Daniel D.B., Eade, George. (2018). British Columbia Wildfire Fuel Typing and Fuel Type Layer Description. Victoria, B.C. Canadian Forest Service, Pacific Forestry Centre.

C-5 - Conifer Fuel Types

There are 7 possible conifer-dominated fuel types (Figure 14), only 5 of which are typically encountered in British Columbia. Only C-5 is commonly found on public land in the AOI. Although both C-3 and C-5 can be used to characterize second-growth conifer stands in BC, C-3 includes a higher-density stand with lower crown heights, while C-5 is lower in density and has higher crown heights.

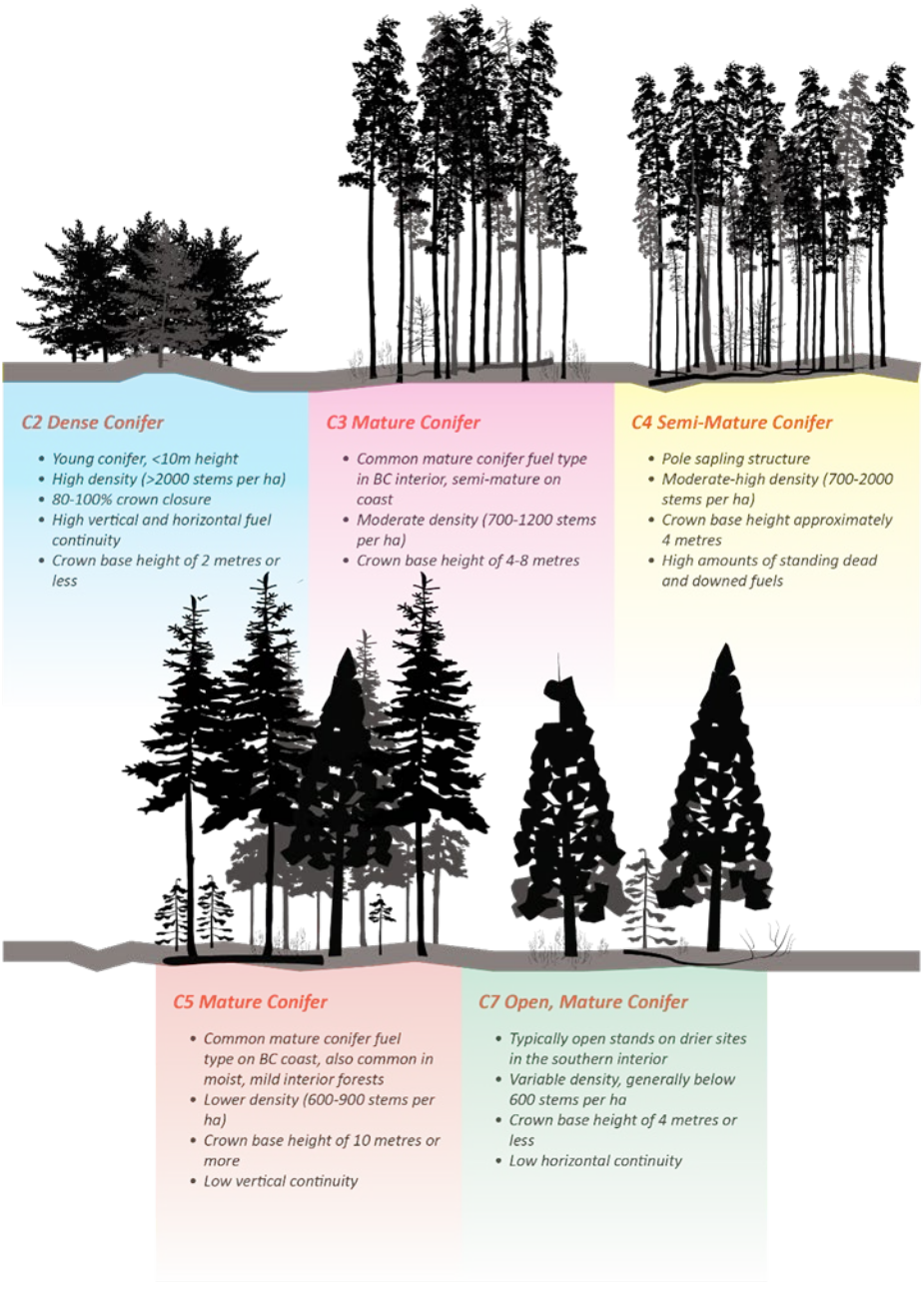


Figure 14. Characteristics of the five common conifer fuel types. C-5 is prevalent within the AOI.

Photo 14. Example of a stand classified as C-5 fuel type. (John Dean Provincial Park)

Fuel type M-1/2 – Mixed stands

This fuel type is found throughout the study area, often around riparian areas. They are characterized by stands comprised of a mix of coniferous and deciduous species. The conifer component in these stands is mostly a mix of Douglas-fir, western red cedar, and western hemlock. The deciduous component varies and includes bigleaf maple and red alder. Fire behaviour potential in these stands increases with and is highly dependent on, the number of coniferous trees present.

Photo 15. Example of a stand classified as M-2 fuel type. (Reay Creek Park)

Fuel type D-1/2 - Deciduous

This fuel type consists of stands that are generally moderately stocked and dominated by deciduous trees. Within the AOI, there is little area classified as this fuel type. These stands occur primarily in areas that have historically been disturbed. They can include a small amount of conifer trees, usually in patches or as single trees. Dead and down round wood fuels are a minor component of this fuel complex. During the summer months, the principal fire-carrying surface fuel consists chiefly of deciduous leaf litter and cured herbaceous material. Areas dominated by shrubs are also included in this type. These are dense plant communities with few trees and a variety of shrub species. These deciduous stands and shrub communities will all have a relatively low fire behaviour potential.

Photo 16. Example of a stand classified as D-1/2 fuel type. [Not in Sidney.]

Fuel type 01 a/b– Grass

This fuel type consists of grass cover with minimal tree cover. This fuel type is applied to unmaintained, native grasses, rather than large, maintained lawns or irrigated crops which are much less flammable. Grass fuels are dominated by fine fuels and are very responsive to moisture inputs or deficits. As such, wildfire behaviour varies widely based on recent weather conditions. Under dry and windy conditions, grass fuels can support extreme rates of spread and fire intensity. However, small amounts of moisture can drastically limit wildfire spread or behaviour. Therefore, the wildfire behaviour potential in these areas is dependent on the degree of curing, which is typically quite high during the wildfire season. O-1a/b is used to represent much of Sidney's residential area by the Provincial Strategy Threat Analysis.

Photo 17. 01 a/b are used by the PSTA to represent many residential areas in Sidney

Fuel types were provided in the Provincial Strategic Threat Analysis (PSTA) dataset. The PSTA fuels layer is conducted at a landscape level and typically appears coarse when viewed at a small scale. The PSTA fuels data is derived from existing provincial data and algorithmic interpretation of orthophotos. When examined at a local scale for a CWPP, errors are evident. These are often due to recent disturbances, such as logging or land clearing for development. Another source of error is very fine differences in fuel types that are difficult to capture in a large-scale analysis, such as selection cut harvesting, or tree mortality from disturbance.

An updated fuel types layer is required to provide an accurate fire behaviour and wildfire threat map. The following process was used to update the fuel type layer:

1. DHC reviewed the fuel type layer with the latest ortho imagery. Identified obvious errors at this scale. This included areas identified as forest but have recently been cleared.

2. Areas were identified for ground truthing. This focuses on areas adjacent values and communities as priorities.

3. Fieldwork was conducted to ground-truth the fuel layers. Polygons adjacent to values were visited by a professional forester acting within their scope of practice and the accuracy of the fuel layer was confirmed.

4. Proposed fuel type changes were submitted to the BCWS via the listed contact for fuel type updates, BCWSPrevention@gov.bc.ca

Two fuel type changes have been proposed for this project. The Victoria Airport lands, which extend into Sidney, are a large, maintained grass area. The PSTA fuel type for these lands is C-5; consultants proposed modifying the fuel type to O-1a/b. Brethour Park, immediately south of the airport lands, contains an area slightly less than 1-ha of contiguous conifer forest – a mix of mature Douglas-fir and grand fir. This area was typed as O-1a/b, as part of the general suburban area of Sidney. This fuel type polygon was cut to represent the forest stand within Brethour Park as C-5.

Fire Spread Patterns

Initial Spread Index (ISI) is a rating of the expected rate of spread of a fire. ISI is derived by combining wind speed with the Fine Fuel Moisture Index (FFMC), which measures the moisture content of the most easily ignited fuels. High winds, FFMC, and ISI will result in an increased rate of spread and wildfire intensity and are therefore reviewed together. Data for FFMC and ISI is recorded at local BCWS weather stations. In addition, local weather stations record wind speed and direction. This data is then assessed under typical wildfire conditions to determine rates of spread potential, potential wildfire intensity, and spread direction.

Topography

Steep slopes significantly increase wildfire spread through increasing radiant and convective heat. Aspect on steep slopes will also affect wildfire spread, as south-facing slopes will be much warmer and drier than other aspects. Areas with steep, vegetated slopes below them are at higher risk than flat areas with similar fuel loading.

Table 22 Slope percentage and fire behaviour implications.

Slope Percent Class	Fire Behaviour Implications
<20%	Very little flame and fuel interaction caused by slope, normal rate of spread.
21-30%	Flame tilt begins to preheat fuel, increasing rate of spread.
31-45%	Flame tilt preheats fuel and begins to bathe flames into fuel, high rate of spread.
46-60%	Flame tilt preheats fuel and bathes flames into fuel, very high rate of spread.
>60%	Flame tilt preheats fuel and bathes flames into fuel well upslope, extreme rate of spread.

Table 23 Slope position of value and fire behaviour implications.

Slope Position of Value	Fire Behaviour Implications
Bottom of Slope/ Valley Bottom	Impacted by normal rates of spread.
Mid Slope - Bench	Impacted by increased rates of spread. Position on a bench may reduce the preheating near the value. (Value is offset from the slope).
Mid slope – continuous	Impacted by fast rates of spread. No break in terrain features affected by preheating and flames bathing into the fuel ahead of the fire.
Upper 1/3 of slope	Impacted by extreme rates of spread. At risk of large continuous fire run, preheating and flames bathing into the fuel.

Local Wildfire Threat Classification

Integrating fuels, fire spread patterns, and topography provides an assessment of local wildfire threat or the wildfire behaviour potential under severe wildfire conditions. Severe wildfire conditions are defined as the 90th percentile weather conditions over the last 10 years. These are the times when wildfire is most likely, and suppression conditions are most challenging. This analysis highlights the locations most likely to support high or extreme wildfire behaviour that may be beyond the suppression capability of BCWS or local fire departments.

Proximity of Fuel to the Community

Fuel closest to the community usually represents the highest hazard. To capture the importance of fuel proximity, the wildland-urban interface (WUI) is weighted more heavily from the value or structure outwards. Fuels adjacent to the values and/or structures at risk receive the highest rating followed by progressively lower ratings moving out.

The local wildfire threat assessment process subdivides the WUI into 3 areas (Table 24):

1. Areas within 100 m of the WUI (WUI 100)
2. Areas from 101 to 500 m from the WUI (the WUI 500)
3. Areas 501 to 2000 m from the WUI (the WUI 2000).

Table 24 Proximity to the Interface.

Proximity to the Interface	Descriptor*	Explanation
WUI 100	(0-100 m)	This Zone is always located adjacent to the value at risk. Treatment would modify the wildfire behaviour near or adjacent to the value. Treatment effectiveness would be increased when the value is FireSmart.
WUI 500	(101-500m)	Treatment would affect wildfire behaviour approaching a value, as well as the wildfire's ability to impact the value with short- to medium-range spotting; should also provide suppression opportunities near a value.
WUI 2000	(501-2000 m)	Treatment would be effective in limiting long-range spotting but short-range spotting may fall short of the value and cause a new ignition that could affect a value.
	>2 000 m	This should form part of a landscape assessment and is generally not part of the zoning process. Treatment is relatively ineffective for threat mitigation to a value unless used to form a part of a larger fuel break / treatment.

* Distances are based on spotting distances of high and moderate fuel type spotting potential and threshold to break crown fire potential (100m). These distances can be varied with appropriate rationale, to address areas with low or extreme fuel hazards.

WUI threat classes of High or Extreme are depicted in Figure 11. These are identified through a combination of both wildfire behaviour and proximity to communities or values. High WUI Threat Class areas are those with High or Extreme wildfire behaviour and are within 500 m of a value or community. Extreme WUI Threat Class areas are those with High or Extreme wildfire behaviour and are directly adjacent to a value or community.

Local Wildfire Risk Classification

Wildfire risk at a local level is determined by combining fuel, fire spread patterns, and topography with proximity zones. This estimates the likelihood of extreme wildfire occurring near communities. The BCWS has provided a systematic process to model wildfire risk in a community which involves using weighted averages to provide a numerical wildfire risk score (Figure 15). This score is then ranked as Low, Moderate, High, and Extreme, which is then mapped for easy visual reference. Areas of high and extreme risk are typically directly adjacent to communities, and downwind of dense conifer forests. The areas of highest risk are prioritized for field assessment to ground truth and determine management options.

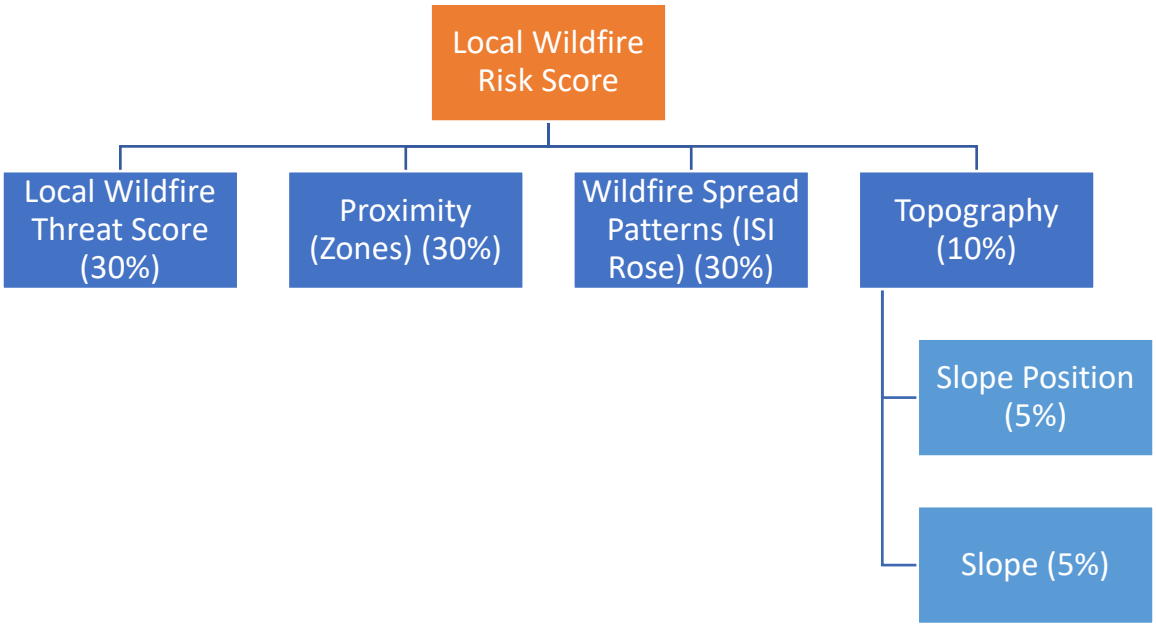


Figure 15. Weighted averages are used to determine wildfire risk.

Appendix C: Engagement

A key component of building community resilience to wildfire is establishing effective relationships within the community. This includes internal Sidney staff in other departments, external stakeholders, other governments and First Nations governments, and the general public.

Stakeholders

Stakeholders included local municipal governments, local fire departments, utilities, Mosaic Forest Management, neighbourhood/community associations and Council committees. The goals of this engagement process were to inform and consult with these stakeholders about the TOS's development of a CWRP, gather information regarding wildfire and its impacts, and understand ongoing wildfire resilience initiatives. Stakeholders were informed of the TOS's intentions for this plan in January via information-sharing letters sent by email where available or contacted by phone where no email was known. The consultants presented to three Council committees (Heritage Forest Committee, Parks and Recreation Committee, and Environment and Sustainability Committee) and received an in-person tour of the Heritage Forest from committee members and the head of the Brown Property Preservation Society.

Local First Nations

The Town of Sidney acknowledges and honours the importance of listening, understanding, and engaging meaningfully and intentionally with local First Nations. The Town is committed to building strong relationships with the local Nations and is committed to ensuring this work is a priority and approached in a good way. While there is much work to do, and will be an ongoing evolving process, Sidney is going to start by understanding the priorities of all local First Nations on a one-on-one basis. This approach to building relationships with local First Nations will be applied to all Town projects and initiatives with the commitment of being accountable partners, and strong allies to the Indigenous community.

Town of Sidney residents

The CWRP development process invited the general public to participate via:

- In-person community information session (presentation by consultants and question and answer) in October 2024
- In-person information pop-up on Beacon Avenue in downtown Sidney in October 2024.
- A community survey (online and paper copies available) receiving responses between September and November 2024.

10 people completed the survey (all online). Approximately 60 people in total attended the two in-person engagements.

Appendix D: CRI Mandatory Maps

Town of Sidney CWRP
Map 1: Area of Interest

Values At Risk (All)

- Emergency Reception Centre
- Federal Government Facility
- Municipal Government Facility
- Municipal Government Structure
- Provincial Government Facility
- Water Infrastructure
- Washington State Government Facility

- Area of Interest
- Threat Plot
- TFLs
- Proposed Fuel Treatment
- Previous Completed Treatments
- Fire Protection Area
- Woodlots & Community Forests
- Species and Ecological Communities with Provincial Conservation Status
- Critical Habitat for Federally Listed Species

Land Ownership

- Crown
- International Government
- Municipal
- Private

0 100 200 300 400 Meters

CRI #: LGPS-10071
Town of Sidney
Feb 19, 2025

DIAMOND HEAD
3551 Commercial Street
Vancouver, BC 604.733.4886

Town of Sidney CWRP
Map 2: Local Fire Risk

Area of Interest

CWRP WUI Eligible Buffer 1km

Wildfire Risk Weighting

MODERATE

PRIVATE LAND

ISLANDS NO PSTA

WATER

Wildfire Risk	AREAHA
MODERATE	82.5
PRIVATE LAND	425.7
iSLANDS NO PSTA	1.2
WATER	210.6
GRAND TOTAL	720.0

0 100 200 300 400 Meters

CRI #: LGPS-10071
Town of Sidney

Feb 19, 2025

DIAMOND HEAD
3551 Commercial Street
Vancouver, BC 604.733.4886

Town of Sidney CWRP
Map 3: Proposed Fuel Treatment Units

- Area of Interest
- Proposed Treatment Units
- Previous Completed Treatments
- TFLs
- Woodlots & Community Forests
- Threat Plot

Land Ownership

- Crown
- Municipal
- International Government
- Private

ProposedTreatments	AREAHA
N/A	0

0 100 200 300 400 Meters

CRI #: LGPS-10071
Town of Sidney

Feb 19, 2025

DIAMOND HEAD
3551 Commercial Street
Vancouver, BC 604.733.4886