VILLAGE OF PEMBERTON
-REGULAR COUNCIL MEETING AGENDA -

Agenda for the **Regular Meeting** of Council of the Village of Pemberton to be held Tuesday, October 3, 2017, at 5:30 p.m. at the **Council Chambers, 7400 Prospect Street.** This is Meeting No. 1457.

"*This meeting is being recorded on audio tape for minute-taking purposes as authorized by the Village of Pemberton Audio recording of Meetings Policy dated September 14, 2010.*"

Recommendation One: THAT Council provide support for a funding application to the Strategic Wildfire Prevention Initiative's Fuel Management Prescription Program in the amount of $17,670.00.

Recommendation Two: THAT Council allocate $5,900.00 from the 2018 budget to cover the Village's required contribution towards the development of a fuel management prescription for PEMB-4 priority treatment area.

ii. **Communications Policy – Update**   **133**

Recommendations: THAT the 2008 Communications Policy be rescinded.

AND THAT the updated Communications Policy be adopted as presented.

b) **Finance and Administration Department**

i. **Councillor Equipment Purchase Policy - Amendment Recommendations:**   **151**
THAT the Councillor Computer Purchase Policy, approved June 2, 2009, and amended January 19, 2016, be repealed.
AND THAT the Councillor Equipment Purchase Policy be adopted as presented.

c) **Operations and Development Services**

i. **Tiyata Development Street Name Request**   **157**
Recommendation: THAT the following street names be approved for the Tiyata Development:
    Road A: Tiyata Boulevard
    Road B: Phare Crescent

d) **Mayor's Report**

e) **Councillor Reports**

10. BYLAWS

There are no Bylaws for consideration.

11. CORRESPONDENCE

a) **For Action**

i. **Brad Scott, BC District Manager, Greyhound Canada, dated September 13, 2017, providing Public Notice of an application to the B.C. Passenger Transportation Board to eliminate the Vancouver – Pemberton / Mt. Currie bus route.**   **161**
Recommendation: THAT the Village provide a response to the B.C. Passenger Transportation Board regarding the application for elimination of the Vancouver - Pemberton / Mt. Currie bus route.

ii. **Richard Walton, Mayor, District of North Vancouver, and Chair of BCMCLC, dated September 6, 2017, inviting Mayor and Council to attend the BC Municipal Climate Leadership Institute leadership event November 1-3, 2017.**

164

Recommendation: **THAT** Council provide direction.

iii. **Fran Cuthbert, Village of Pemberton resident, dated September 19, 2017, expressing concerns about the hours of events taking place at the Community Barn and related noise disturbance to nearby residences.**

165

Recommendation: **THAT** Council provide direction.

b) **For Information**

i. **Leo Facio, Mayor, Harrison Hot Springs, dated September 19, 2017, endorsing City of Abbotsford's resolutions to UBCM on the issues of the Opioid Crisis in the Province of British Columbia.**

167

Recommendation: **THAT** the above correspondence be received for information.

ii. **Linda Lupini, Executive Vice President, Provincial Health Services Authority and BC Emergency Health Services, dated September 21, 2017, advising that Pemberton has been selected for the Community Paramedicine Initiative and a Community Paramedic has been hired.**

168

Recommendation: **THAT** the above correspondence be received for information.

12. DECISION ON LATE BUSINESS

13. LATE BUSINESS

14. NOTICE OF MOTION

15. QUESTION PERIOD

170

16. ADJOURNMENT

VILLAGE OF PEMBERTON
-REGULAR COUNCIL MEETING MINUTES-

Minutes of the Regular Meeting of Council of the Village of Pemberton held on Tuesday, September 12, 2017 at 5:30 p.m. in Council Chambers, 7400 Prospect Street. This is Meeting No. 1456.

IN ATTENDANCE:	Mayor Mike Richman
	Councillor Ted Craddock
	Councillor Jennie Helmer
	Councillor James Linklater
	Councillor Karen Ross
STAFF IN ATTENDANCE:	Nikki Gilmore, Chief Administrative Officer
	Sheena Fraser, Manager of Corporate & Legislative Services
	Tim Harris, Manager of Operations & Development Services
	Elysia Harvey, Legislative Assistant
Public:	**2**

1. CALL TO ORDER

At 5:34 p.m. Mayor Richman called the meeting to order.

In honour of the Lil'wat7ul, the Village of Pemberton acknowledges that we are meeting within the unceded territory of the Lil'wat Nation.

2. APPROVAL OF AGENDA

Moved/Seconded
THAT the agenda be approved as presented
    CARRIED

3. RISE WITH REPORT FROM IN CAMERA (CLOSED)

a) Friendship Trail Bridge Project

Council Rose with Report from the In Camera meeting held earlier today that Staff has been directed to re-issue a Request for Proposal for the construction of the Friendship Trail Bridge.

4. ADOPTION OF MINUTES

a) Regular Council Meeting No. 1455 – Tuesday, July 25, 2017

Moved/Seconded
THAT the minutes of Regular Council Meeting No. 1455, held Tuesday, July 25, 2017, be adopted as circulated.
 CARRIED

5. BUSINESS ARISING FROM THE PREVIOUS REGULAR COUNCIL MEETING

There was no business arising from the previous regular council meeting

6. BUSINESS ARISING FROM THE COMMITTEE OF THE WHOLE MEETING

Recommendations from the Committee of the Whole:

a) Affordable Housing Plan Review

Recommendation One:

Moved/Seconded
THAT staff be directed to review and update the 2009 Affordable Housing Strategy Background Report with current information regarding community housing need, supply and demand.
 CARRIED

Recommendation Two:

Moved/Seconded
THAT Council supports the development of an Affordable Housing Action Plan, which would include clear targets and tools to facilitate a range of affordable housing for employees, seniors, people in high need and include hospice opportunities as amended at the Council meeting.
 CARRIED

b) SHORT-TERM VACATION RENTALS – MANAGEMENT OPTIONS

Moved/Seconded
THAT staff be directed to create a definition of short-term vacation rental in the draft new Zoning Bylaw and permit their use under the following conditions:

- Only in those zones that currently permit a bed and breakfast (as defined by Zoning Bylaw No. 466, 2001);
- Only permitted within the principal dwelling, unless the property owner receives a Temporary Use Permit (TUP) for their property to allow this use in a secondary suite (a TUP would allow the use on a temporary basis for up to

a maximum of three (3) years, with the ability to renew once for a maximum of three (3) more years, and would require an application fee, notification as per the *Local Government Act*, and the opportunity to include other specific conditions as needed), thus keeping a majority of secondary suites in the long term rental pool;

- Up to a maximum of two (2) guests per bedroom, to a total household maximum of eight (8) guests with one (1) off-street parking space provided per bedroom used for short term vacation rental;
- Operators of short term vacation rentals will be required to apply for a business licence, which entails zoning, building and fire safety inspections;
- The total number of business licences issued for short term vacation rental properties would be limited to a certain number for the community as a whole with appropriate caps per neighbourhood and per street at a number to be determined, and applications would be accepted on an annual first come first served basis;
- Operators of short term vacation rentals would be required to maintain a $2,500 infraction deposit with the Village of Pemberton, which would be drawn upon in the case of complaints warranting staff time;
- Operators of short term vacation rentals would be required to enter into a 'Good Neighbour Agreement', details of which to be developed;
- Operators of short term vacation rentals will be subject to the same utility rates as bed and breakfast operators;
- Breakfast would not have to be included.

CARRIED   **OPPOSED: COUNCILLOR CRADDOCK**

Moved/Seconded
THAT upon adoption of the Zoning Bylaw, staff be directed to amend the Business Licence Bylaw to include a definition of short term vacation rentals (in alignment with the Zoning Bylaw definition), establish a separate Business Licence fee, and require proof of insurance for short term vacation rental business licences;

AND THAT and the Municipal Ticketing Information Utilization Bylaw be amended to support the regulation of this new type of home-based commercial business.

CARRIED   **OPPOSED: COUNCILLOR CRADDOCK**

7. COMMITTEE MINUTES – FOR INFORMATION

There were no minutes to be received.

8. DELEGATIONS

a) Corporal Mike Hamilton, RCMP Sea to Sky Regional Detachment – Update

Corporal Hamilton introduced himself to Council and provided an overview of the activities of the RCMP that included a comparison of the 2015-2016 crime

statistics, within the Village of Pemberton a review of the Annual Performance Planning, and identified local RCMP's top priorities road safety, distracted driving, producing good-quality investigations, and being pro-active within the community.

Corporal Hamilton sought feedback from Council on ideas for improved community policing and outreach.

b) Dr. Judith Fothergill, Sea to Sky Community Hospice Capital Campaign Update

Dr. Fothergill presented information respecting the need for hospice beds in the Sea to Sky Corridor and presented the concept plans for a new facility, the budget and commitments received as well as the fundraising efforts that have been undertaken to date.

Dr. Fothergill assured Council that Pemberton and Lil'wat residents will have equal access to the hospice beds based on medical need, and requested that the Village keep the hospice project in mind when funding opportunities present themselves.

9. REPORTS

a) Office of the CAO

i. Chief Administrative Officer – Verbal Update

- **Soccer Field Request For Expression of Interest – Update**

  Chief Administrative Officer Nikki Gilmore provided an update on the work that has been taking place to develop a Request For Expression of Interest (RFEOI), and Request For Proposal (RFP) for the development of soccer fields at the Recreation Site.

  Moved/Seconded
  THAT the Chief Administrative Officer send email correspondence to members of the Pemberton Valley Utilities and Services Committee providing an update on the status of the soccer field development;

  AND THAT Chief Administrative Officer send email correspondence to the Squamish-Lillooet Regional District Area C Director and CAO regarding cost sharing with the Village of Pemberton the expenses associated with obtaining the Request For Expression of Interest and the Request for Proposal.
  CARRIED

Moved/Seconded

THAT the Village of Pemberton proceed with Request For Expression of Interest for both grass and turf field options once confirmation has been received from the SLRD on funding.

CARRIED

ii. **Annual Operating Agreement between Village of Pemberton and BC Transit – Authorization to Execute the Amending Agreement**

Moved/Seconded

THAT the Mayor and Chief Administrative Officer be authorized to execute the amendment of the Annual Operating Agreement between the Village of Pemberton and BC Transit effective April 1, 2017.

CARRIED

iii. **Healthy Community Partners Agreement – Village of Pemberton and Vancouver Coastal Health**

Moved/Seconded

THAT Council endorses the Healthy Communities Partnership Agreement between the Village of Pemberton and Vancouver Coastal Health.

AND THAT the Mayor and Chief Administrative Officer be authorized to execute the Agreement.

CARRIED

b) **Corporate and Legislative Services Department**

At 7:00pm Councillor Linklater declared a conflict pursuant to Section 100(2)(b) of the Community Charter, and left the meeting.

i. **Community Enhancement Fund – Rotary/Lion's Barn Dance Sponsorship Request**

Moved/Seconded

THAT a contribution, in the amount of $1,500, from the Community Enhancement Fund in the form of a Platinum Sponsorship for the Pemberton Barn Dance be approved.

CARRIED

At 7:02pm Councillor Linklater rejoined the meeting.

ii. **Street Naming Listing**

Moved/Seconded

THAT the Street Name Listing, dated August, 2017, be approved as presented.

CARRIED

iii.   Bylaw Enforcement Policy – Amendment

Moved/Seconded
THAT the Bylaw Enforcement Policy be amended as presented.
CARRIED

c) Operations and Development Services Department

i. 2016 Annual Drinking Water System Report

Moved/Seconded
THAT the 2016 Drinking Water System Annual Report be received for information.
CARRIED

d) Mayor's Report

Mayor Richman provided comment on the Wildfire season, noting that local governments need to continue to advocate for emergency planning and funding coordination, and noted that as a community we need to continue to be prepared in the event of emergencies such as seen this summer. Mayor Richman commended and acknowledged the Village of Pemberton Firefighters who supported the firefighting effort.

Mayor Richman also welcomed two new staff members, Elysia Harvey, Legislative Assistant, and Barb Ruzicka, Senior Accountant.

Mayor Richman reminded those in attendance of the following upcoming events:

- September 13th – an Area C OCP Amendment, Zoning Bylaw and Regional Growth Strategy Amendments public hearing.
- September 17th – Terry Fox Run
- September 19th – Pemberton Recreation Lands Ribbon Cutting. This event is to acknowledge the generous donation of recreation lands to the Village of Pemberton from the Den Duyf Family.
- September 23rd – Rotary Lions Club Barn Dance
- September 25th – Mayors Caucus at Union of British Columbia Municipalities Conference
- September 26th-29th – Union of British Columbia Municipalities Conference

e) Councillors' Reports

i. Councillor Ted Craddock

Councillor Craddock reported on the following:

- Voiced appreciation of the paving progress in town
- Expressed concern regarding the large numbers of visitors to Joffre Lakes (2,000+/day) during the summer months is posing increased safety concerns along the roadway, as well as negative environmental impacts
- Provided comment regarding trail maintenance along the Arn Canal
- Noted that internet connection challenges continue as there is limited accessibility to new service connections for new residents.

ii. Councillor Karen Ross

Councillor Ross reported on the following:

- Attended Economic Development Task Force meeting
- Attended the SLRD Board Meeting

iii. Councillor James Linklater

Councillor Linklater did not report.

iv. Councillor Jennie Helmer

Councillor Helmer did not report.

11. BYLAWS

a) Bylaws for Adoption

i. Street Naming and Civic Addressing Bylaw No. 819, 2017

Moved/Seconded
THAT Street Naming and Civic Addressing Bylaw No. 819, 2017 receive Fourth and Final Readings.
CARRIED

ii. Sewer Rates Amendment Bylaw No. 820, 2017

Moved/Seconded
THAT Sewer Rates Amendment Bylaw No. 820, 2017 receive Fourth and Final Readings.
CARRIED

12. CORRESPONDENCE

a) For Action

i. **Patricia Heintzman, Mayor, District of Squamish, dated July 19, 2017, requesting support for resolutions submitted for consideration at the Union of British Columbia Conference in September.**

Moved/Seconded
THAT correspondence from Patricia Heintzman, Mayor, District of Squamish, be received for information.
CARRIED

ii. **Ryan Wainwright, Emergency Program Manager, Squamish-Lillooet Regional District (SLRD), dated August 14, 2017, request for Letter of Support for the SLRD application to Emergency Management BC.**

Moved/Seconded
THAT the Village provide a Letter of Support for the SLRD application to Emergency Management BC to receive National Disaster Mitigation Program Funding for a flood and geo-hazard risk review within the SLRD.
CARRIED

iii. **Liz Scroggins, Project Coordinator/Community Liaison, Innergex, dated September 7, 2017, requesting a Letter of Endorsement from the Village of Pemberton.**

Moved/Seconded
THAT the Village provide a Letter of Endorsement to Innergex.
CARRIED

iv. **Henry Braun, Mayor, City of Abbotsford, dated September 5, 2017, seeing support for a resolution submitted for consideration at the Union of British Columbia Conference in September.**

THAT correspondence from Henry Braun, City of Abbotsford, be received for information.
CARRIED

a) **For Information**

i. **R. Dix, Executive Correspondence Officer, Prime Minister's Office, acknowledgement respecting the Village's support for the Government of Canada's actions to reinstate the Salmon Enhancement Program.**

ii. **Chris Plagnol, Corporate Officer, Metro Vancouver, dated July 27, 2017, regarding UBCM Resolutions on Electric Vehicle Charging in Stratified Multi-Unit Residential Buildings.**

iii. **Copy of correspondence sent by the Squamish-Lillooet Regional District to Jesse Morwood, Area Manager, Ministry of Transportation and**

Infrastructure, dated August 4, 2017, regarding IRONMAN CANADA (Whistler) Routing.

iv. **Laurie Gourlay, Interim Director, Salish Sea Trust, dated August 8, 2017, press release "Anointed by The Salish Sea".**

v. **Carol Todd, Amanda Todd Legacy Society, dated August 15, 2017, regarding World Mental Health Day.**

vi. **Brooke Browning, Municipal Clerk, dated August 22, 2017, acknowledgement of Village of Pemberton IRONMAN Canada – Notice of Non-Support from the Village of Pemberton.**

vii. **Tara Faganello, ADM, Local Government Division, Ministry of Municipal Affairs and Housing and Gary McIsaac, Executive Director, UBCM, dated September 3, 2017, extending congratulations for achieving the Village's goal of corporate carbon neutrality for 2016.**

Moved/Seconded
THAT the above correspondence items i., ii., iii., iv., vi., & vii. be received for information.

AND THAT a proclamation of support be issued by the Village of Pemberton in support of correspondence item v. regarding World Mental Health Day.
CARRIED

World Mental Health Day Proclamation

"World Mental Health Day"
October 10, 2017

Moved/Seconded
WHEREAS, over 450 million individuals around the world are living with mental illness that could benefit from early diagnosis and appropriate and adequate treatment and support; and

WHEREAS, fewer than one-half of those who could benefit from early diagnosis and treatment for mental illness receive any treatment or care at all; and

WHEREAS, mental illness such as anxiety disorders, major depressive disorder, bipolar disorder, and schizophrenia are leading causes of poor work performance, family disruptions, and even suicide, and contribute greatly to the global burden of disease; and

WHEREAS, these startling health statistics and the human toll they represent are often given little attention or concern by the general public, the general

healthcare system, and elected and appointed public policy makers, resulting in inadequate priority being given those disorders; and

WHEREAS, the World Federation for Mental Health has designated October 10, 2017 for World Mental Health Day and urges increased effort and action intended to improve mental health services and ready access to services by those experiencing serious mental health problems and disorders;

NOW THEREFORE, I, Mike Richman, Mayor of the Village of Pemberton, do hereby proclaim October 10, 2017 "World Mental Health Day" in the Village of Pemberton.

CARRIED

14. DECISION ON LATE BUSINESS

There was no late business for consideration.

15. LATE BUSINESS

16. NOTICE OF MOTION

There was no Notice of Motion presented for consideration.

17. QUESTION PERIOD

No questions were presented.

20. AJOURNMENT

At 7:48 p.m. the Regular Council Meeting was adjourned.

_____   _____
Mike Richman   Sheena Fraser
Mayor   Corporate Officer

Pemberton Valley Transit System

The Annual Performance Summary (APS) is a key component of the Annual Partnership Communications Calendar. It provides a snapshot of transit investment and performance within your community as compared to previous years, to budget, to system level performance targets and to peer communities.[*] This information is intended to support local decisions on service priorities and potential investments into service and capital initiatives. Upon alignment of future initiatives through the Transit Improvement Program, this information is used to update your three-year budget forecasts and inform BC Transit's Service and Capital Plan.

2016/17 BC Transit Initiatives

BC Transit's shared services model continues to achieve transit system costs across British Columbia well below those of industry averages including lower costs per hour and per passenger.

In 2016/2017, BC Transit continued to focus its efforts on enhancing the efficiency and effectiveness of service. Among those efforts was the emphasis on optimizing the use of existing service hours and improving the return on investment for our stakeholders. The Custom Registration Program was expanded further across the province with the aim of facilitating more effective and appropriate use of specialized handyDART resources while supporting the future sustainability of the overall transit program. Most recently, BC Transit refocused five staff members solely on driving operational and customer service excellence in their respective regions. These Regional Transit Managers of Operations will monitor key performance indicators in their region. This includes the use of tools, such as secret riders and to place increased emphasis on effective and efficient service delivery while streamlining operational processes with service providers.

Several other initiatives are underway to mitigate the increasing cost of transit service provision. The Compressed Natural Gas (CNG) program has successfully proved the reliability of, and investment in, the technology. Both the Kamloops and Nanaimo fleets converted to 100% CNG vehicles resulting in significant improvements in fuel efficiency, lower costs, and the reduction of harmful emissions. The program will help pave the way for further deployments and savings to other local government partners across the province. Our contracting strategy continues to effectively contain lifts associated to the provision of service while ensuring operational sustainability. Shortened amortization periods of vehicles and the pooling of lease fees by vehicle type and year, are managing the volatility of maintenance costs while increasing the overall service reliability of the provincial fleet. Combined with on-going savings on fuel, these initiatives have again positively contributed to performance indicators related to operating costs.

[*] The Pemberton Valley APS report provides performance information for the conventional service business unit (748).

2016/17 Pemberton Valley Initiatives and Highlights

In 2016/2017, BC Transit focused effort on continued improvement to service delivery, and a strategy for long term sustainability of the local Pemberton Valley Transit System.

In addition to local priorities, there were also projects identified for the region including a comprehensive study of the Sea to Sky Corridor to explore opportunities for improved regional and interregional service. Two phases of engagement provided date for the Engagement Report finalized May 2017. The full Corridor Study Report for proposed service will be made available Summer 2017.

Conventional Service (Business Unit 748)

Local Investment Measures	2016/17 Actual	2015/16 Actual	YoY Var	2016/17 AOA Budget	AOA Budget Var	TFP Target	TFP Target Var	2016/17 Tier Average*	Tier Average Var
Revenue service hours (000)	4	2	129%	2	130%	N/A	N/A	5	-5%
Total cost ($000)	$533	$550	-3%	$571	-7%	N/A	N/A	$426	25%
Service hours per capita	1.00	0.45	124%	0.44	130%	N/A	N/A	0.36	176%
Fleet size	2	2	0%	2	0%	N/A	N/A	3	-35%
Return on Investment	2016/17 Actual	2015/16 Actual	YoY Var	2016/17 AOA Budget	AOA Budget Var	TFP Target	TFP Target Var	2016/17 Tier Average	Tier Average Var
Passenger trips (000)	76	69	10%	64	19%	N/A	N/A	34	125%
Total revenue ($000)	$216	$197	9%	$182	18%	N/A	N/A	$57	280%
Passenger trips per capita	17.0	15.8	7%	14.3	19%	N/A	N/A	2.6	551%
Revenue per trip	$3.70	$2.84	30%	$2.85	30%	N/A	N/A	$1.71	116%
Performance	2016/17 Actual	2015/16 Actual	YoY Var	2016/17 AOA Budget	AOA Budget Var	TFP Target	TFP Target Var	2016/17 Tier Average	Tier Average Var
Operating cost per service hour	$74.34	$178.84	-58%	$190.90	-61%	N/A	N/A	$74.93	-1%
Operating cost per passenger trip	$6.56	$7.44	-12%	$8.40	-22%	N/A	N/A	$10.66	-38%
Passenger trips per service hour	8.5	17.6	-52%	16.0	-47%	N/A	N/A	6.8	24%
Operating cost recovery	43.2%	38.2%	13%	33.9%	27%	N/A	N/A	15.7%	175%

Key Conventional Outcomes

The Pemberton Valley Transit System increased ridership year over year resulting to an increase in cost recovery. It should be noted this is the first year reporting has included both the Pemberton Commuter service and the Pemberton Valley local transit service, therefore any comparable to previous years are difficult. This does however improve reporting in the longer term as all costs and ridership are properly captured to aid in decision making going forward.

*"Tier Average" is the average of 30 Tier 3 paratransit systems.
*Note: taxi service hours are now being recorded in 2016/17

Future Priorities

BC Transit is working in collaboration with the Village of Pemberton to find a medium and long term solution for sustainable local service given the retirement of the operating company.   Transit Improvement Expansion has been deferred and will be re visited in 2018/2019.

Key Performance Indicator (KPI) Glossary

Key Performance Indicator	Definition
Fleet size	The total number of transit vehicles providing a given type of service for the year.
Operating cost per passenger trip	Total cost for the year less the local contribution to lease fees (debt service) per total passenger trips for the year.
Operating cost per service hour	Total cost for the year, not including taxi, less the local contribution to lease fees (debt service) per total revenue service hours delivered for the year.
Operating cost recovery	Total revenue for a system for the year divided by total cost for the year less the local contribution to lease fees (debt service).
Passenger trips	Total passenger trips for the year. An estimated measure of system ridership.
Passenger trips per capita	Total passenger trips for the year per the defined population of the area being served by the type of service. For Conventional systems this is the population that falls within 400m of the fixed route conventional service by linework. For Custom and Paratransit systems this is the population within the defined limits of service. In systems that do not have defined limits of service this is the population that falls within the boundaries of the system as described in Schedule A of the Annual Operating Agreement (AOA).
Passenger trips per service hour	Total passenger trips for the year, not including taxi, per total revenue service hours delivered for the year.
Revenue per trip	Total revenue, less advertising revenue, for a system for the year per non-Taxi Saver trips for the year.
Revenue service hours	Total revenue service hours delivered for the year. (Does not include Taxi)
Service hours per capita	Total revenue service hours vehicles were on the road (excluding deadhead) for the year per the defined population of the area being served by the type of service. For Conventional systems this is the population that falls within 400m of the fixed route conventional service by linework. For Custom and Paratransit systems this is the population within the defined limits of service. In systems that do not have defined limits of service this is the population that falls within the boundaries of the system as described in Schedule A of the AOA.
Total cost	Total AOA cost, which includes the local contribution to lease fees (debt service) but not the provincial contribution.
Total revenue	Total revenue for a system for the year, which include fares (cash, ticket, passes but not including Taxi Saver recoveries) and advertising revenue.

Village of PEMBERTON

Date: **Tuesday, October 3, 2017**

To: **Nikki Gilmore, Chief Administrative Officer**

From: **Jill Brooksbank, Sr. Communications Coordinator**

Subject: **Fuel Management Prescription Program**

PURPOSE

The purpose of this report is to seek Council support to apply for funding from the Strategic Wildfire Prevention Initiative's Fuel Management Prescription Program.

BACKGROUND

The Strategic Wildfire Prevention Initiative (SWPI) is a suite of funding programs that supports communities to mitigate risk from wildfire in the Wildland Urban Interface (WUI). The SWPI Fuel Management Prescription program assists local governments to develop prescriptions for areas in the WUI that are at risk from wildfires and which are identified as priorities in the CWPP. Funding is provided by the Province of BC and is administered by UBCM.

In 2016, the Village received funding from the SWPI for an update of the Village's Community Wildfire Protection Plan, which was completed in March 2017.

At the Committee of the Whole No. 159, held March 21, 2017, Bruce Blackwell of BA Blackwell and Associates, presented the draft updated Community Wildfire Protection Plan (CWPP) for consideration and the Committee passed the following resolutions:

> *Moved / Seconded*
> **THAT** *the Committee of the Whole supports the Community Wildfire Protection Plan as presented.*
> **CARRIED**

> *Moved / Seconded*
> **THAT** *the draft Community Wildfire Protection Plan be referred to Staff to put forward at the Regular Council Meeting scheduled for April 11, 2017 along with an accompanying report identifying priorities and options for potential grant applications.*
> **CARRIED**

At Council Meeting No.1147 held on April 11, 2016, Council passed the following resolution with respect to the CWPP:

> *Moved/Seconded*
> **THAT** *the Community Wildfire Protection Plan be adopted as presented.*
> **CARRIED**

The CWPP, attached as Appendix A),outlines a number of recommendations related to wildfire mitigation. High priorities included detailed assessment, prescription development and treatment of hazardous fuel units, see page 69 of Appendix A, also known as fuel treatment and/or management.

A fuel management prescription is a document that identifies the objectives and strategies to lower the wildfire hazard in an identified area. Prescriptions ensure that proposed treatments include clearly defined objectives for fuel management that will result in a measurable reduction in the wildfire risk to a value while meeting all legislated and non-statutory requirements.

DISCUSSION & COMMENTS

In the 2016 CWPP document, seven (7) priority treatment areas were identified. Some treatment areas are outside of the Village boundary (but within the Wildland Urban Interface) and will require an intergovernmental approach and other treatment areas have been slated for potential development, rendering it ineligible for funding. As such, Staff are recommending to seek funding for the prescription development of area "Pemb-4" (see Appendix A, page 65), as it is within the Village boundary and is identified as a high priority for treatment.

Expenditures related to the development of the Fuel Management Prescription include consultant costs (a Registered Professional Forester), staff time, community engagement, data collection, and prescription development, totaling $23,560.00. The program will contribute a maximum of 75% of the cost of eligible activities and the remainder (25%) is required to be funded through community contributions. The Village's share for this project would be $5,890.00.

COMMUNICATIONS

Should this funding application be successful, staff will develop a Communications Plan, in collaboration with the consultant. Recommended outreach includes a public meeting, print advertising, the developing and presentation of posters and presentation materials. Staff time, advertising and collateral are all eligible expenses that can be claimed within the grant.

LEGAL CONSIDERATIONS

There are no legal considerations at this time.

IMPACT ON BUDGET & STAFFING

Project oversight, coordination and communications will be implemented into the workplan of related staff members. As per the funding requirements, the Village is required to contribute 25% of the overall project expenditures. Please see below budget:

Fuel Prescription Development Costs	$23,410.00
SWPI Fuel Management Program (75%)	$17,670.00
Village of Pemberton Contribution (25%)	**$5,890.00**

INTERDEPARTMENTAL IMPACT & APPROVAL

The funding application, staff time and resources related to the fuel management prescription development will be incorporated into the daily routine of relevant staff and can be accommodated.

Interdepartmental Approval by:	Robert Grossman, Fire Chief

IMPACT ON THE REGION OR NEIGHBOURING JURISDICTIONS

Consultation with the Squamish-Lillooet Regional District was initiated during the completion of the funding application. The Ministry of Forests, Lands and Natural Resources (FLNRO) Land & Resource Specialist was consulted and has provided review/recommendations and support for this funding application. Consultation with the Fuel Management Specialist, FLNRO, BC Rail and other identified stakeholders (e.g. tenure holders/applicants, etc.) will be completed during the project and will include sharing of information packages/notification of prescription.

ALTERNATIVE OPTIONS

There are no alternative options for consideration.

POTENTIAL GOVERNANCE CONSIDERATIONS

The application to the SWPI program and development of fuel management prescriptions is aligned with the Village's Strategic Priority of Good Governance whereby the Village is committed to citizen engagement, being an open and accountable government and to fiscal responsibility; Excellence in Service whereby the Village is committed to delivering the highest quality level municipal services within the scope of our resources and; Social Responsibility whereby the Village strives to create a strong and vibrant community, recognizing the importance and benefits
of healthy, engaged citizens as well as an accessible and well managed natural environment.

Further, this initiative is a high priority recommendation of the 2016 Community Wildfire Protection Plan, adopted by Council at Meeting No. 1147 on April 11, 2016.

RECOMMENDATIONS

Recommendation One:

THAT Council provide support for a funding application to the Strategic Wildfire Prevention Initiative's Fuel Management Prescription Program in the amount of $17,670.00.

Recommendation Two:

AND THAT Council allocate $5,900.00 from the 2018 budget to cover the Village's required contribution towards the development of a fuel management prescription for PEMB-4 priority treatment area.

ATTACHMENTS:

Appendix A: Community Wildfire Protection Plan – 2016 Update

Submitted by:	Jill Brooksbank, Sr. Communications & Grant Coordinator
CAO Approval by:	Nikki Gilmore, Chief Administrative Officer

Village of Pemberton
Community Wildfire Protection Plan
2016 Update

Submitted By:
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Submitted To:
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Pemberton Fire Rescue
Pemberton, BC

March 2017

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& Associates Ltd.

ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

The Community Wildfire Protection Plan (CWPP) process was created in British Columbia (BC) as a response to the devastating 2003 wildfire in Kelowna. As an integral part of the Strategic Wildfire Prevention Initiative (SWPI), managed and funded through the Union of British Columbia Municipalities (UBCM), CWPPs aim to develop strategic recommendations to assist in improving safety and to reduce the risk of damage to property from wildfires. In 2005, a CWPP for the Village of Pemberton (Village) was completed to help guide the Village in wildfire risk reduction and mitigation activities.

This document intends to update the 2005 CWPP and assess the threat of wildfire within and around the municipality. This update examines the effectiveness of completed work, identifies opportunities for improvement within existing programs, and describes future initiatives.

Since the development of the last CWPP in 2005, the Village has made progress at implementing recommendations from the CWPP and embarking on additional mitigative measures not outlined in the 2005 CWPP. The most notable actions include implementation of the following[1]:

- Fuel treatment on approximately nine hectares (ha) of land along the CN Rail line and Pemberton Creek (called the Fuels Management Pilot Project) (Recommendation #1);
- Review and update of their Official Community Plan to include specific measures regarding wildfire and to reduce the risk profile of the community (Recommendation #2);
- Review and amendment of Village bylaws to increase FireSmart compliance and reduce the risk of wildfire ignitions (Recommendation #4);
- Update of the website to include wildfire specific links, including to the BC Wildfire Service (BCWS) and FireSmart information;
- FireSmart initiatives such as distributing FireSmart information at public events and throughout prioritized neighbourhoods (Recommendation #5); and,
- Wildfire-specific training for Pemberton Fire Rescue (Recommendation #7).

Wildfire management requires a multi-faceted approach for greatest efficacy and risk reduction. A total of 37 strategic recommendations in five different categories are outlined for the Village of Pemberton, as part of this CWPP update. Because the study area extends outside the Village boundary and therefore outside Village jurisdiction, the Village's may be limited to the role of an 'influencer', while other recommendations can be directly implemented through Fire Rescue, Planning, or other departments. The recommendations are displayed in totality in Table 1.

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[1] A full enumeration of recommendations and implementation status from the 2005 CWPP can be found in APPENDIX A: STATUS OF 2005 CWPP RECOMMENDATIONS

Table 1. Wildfire mitigation recommendations for the Village of Pemberton.[2,3]

Item	Priority	Recommendation	Estimated Cost ($ or person hours/ yr)
Communication and Education (Section 7.1)			
Objective: To improve public understanding of fire risk and personal responsibility by increasing resident awareness of the wildfire threat in their community and to establish a sense of homeowner responsibility.			
1	High	• This report and associated maps to be made publicly available through webpage, social media, and public FireSmart meetings.	1 – 6 hours, depending on method of distribution
2	High	• Regular updates of the CWPP to gauge progress and update the threat assessment for changes in fuels, forest health, land planning, stand structure or changes to infrastructure in the interface. Updates should be completed every 5 - 7 years.	UBCM/ SWPI funding/ Municipal funding (SWPI funds up to 75% of update cost)
3	Moderate	• Review current social media effectiveness and create a social media strategy to ensure that the full power of social media is leveraged to communicate fire bans, high fire danger days, wildfire prevention initiatives and programs, easily implementable FireSmart activities, and updates on current fires and associated air quality, road closures, and other real time information.	~$2,000 - $4,000
4	Moderate	• Establish a school education program to engage youth in wildfire management. Consult Association of BC Forest Professionals (ABCFP) and British Columbia Wildfire Service (BCWS) (Pemberton Zone), as well as local fire officials and First Nations representatives, to facilitate and recruit volunteer teachers and experts to help with curriculum development and to be delivered in elementary and/or secondary schools. Educational programming can be done in conjunction with programs on fire extinguisher training and should include Pemberton Fire Rescue in curriculum development and presentation. Costs to be shared regionally (Squamish-Lillooet Regional District (SLRD), Village, and First Nations). Research funding opportunities related to wildfire and education.	~$2,000
5	Low	• The Village of Pemberton should continue to install fire danger rating signs in strategic locations across the study area. Recreation sites and high-use recreational areas which are not already signed should be targeted first, such as the main parking lot at the base of the Mackenzie Basin Forest Service Road (FSR) and One Mile Lake Park.	~$1,500 / sign

[2] All activities potentially eligible for UBCM/ SWPI FireSmart funding have been identified in the table, as such. The FireSmart grant of $10,000 is currently offered annually. Activities will need to be further prioritized by the Village; it is recognized that the current UBCM/SWPI funding available will not be sufficient to complete more than one FireSmart activity per funding cycle.

[3] Application and administration of UBCM SWPI and FESBC projects will take additional Village staff time and resources; the amount is dependent upon the role that the Village has within the project, the complexity and size (ha) of project.

Item	Priority	Recommendation	Estimated Cost ($ or person hours/ yr)
Objective: To enhance the awareness of elected officials and stakeholders regarding the resources required to mitigate fire risk.			
6	High	• Work with adjacent jurisdictions, governments, stakeholders, and provincial agencies to establish a Wildfire Suppression Group (SLRD, Ministry of Forests, Lands and Natural Resource Operations (MFLNRO), BCWS, Lil'wat Nation, N'Quatqua First Nation, and forest licensees) to identify wildfire related issues in the area, resource deficiencies, and to allow for a coordinated and cost-sharing approach to wildfire mitigation. This group could work at implementing strategic recommendations from this document that impact all parties.	40 hours, based on monthly 1 hour meetings, preparation and action
7	Moderate	• Create and maintain a spatial database that includes CWPP spatial data for all CWPPs that have been developed on, or include threat assessments and recommendations over, land within the Pemberton Valley. This includes amalgamating spatial data from SWPI/UBCM, Lil'wat Nation, N'Quatqua First Nation, and SLRD. This database can be used in the regional wildfire mitigation planning for the Wildfire Suppression Group. Cost can be shared among members of the Wildfire Suppression Group.	$1,500 + maintenance costs (annual or biennial updates)
Objective: To reduce the risk of ignition from industrial sources.			
8	High	• Work with industrial operators to ensure that right-of-ways do not contain fine fuel accumulations (easily cured) prior to the fire season and further are maintained in a low hazard state. Work with industrial operators to ensure that high risk activities, such as right of way mowing, do not occur during high or extreme fire danger times to reduce chance of ignitions. Industrial operators include CN Rail, BC Hydro, licensees, and independent power producers.	2 - 4 hours
9	Moderate	• Work with BC Hydro to ensure that hazard trees along distribution lines are assessed regularly. Work with BC Hydro to ensure that transmission line right-of-ways are maintained in a moderate hazard state and dead, fine fuel accumulations do not occur. Generally, ensure the transmission right-of-ways are in moderate or low hazard state and serve as fuelbreaks.	2 - 4 hours
Structure Protection and Planning (Section 7.2)			
Objective: Improve the FireSmart conditions of the Village by encouraging home and property owners to voluntarily increase FireSmart compliance and improve suppression abilities for interface areas.			
10	High	• Facilitate different neighbourhoods within the study area to become recognized as FireSmart communities. Recruit champions within each community to implement local projects. Champions should be trained in FireSmart, have educational materials available to them, and be supported by the Village and Fire Rescue to complete fire hazard mitigation projects.	$2,500 / neighbourhood UBCM/SWPI FireSmart grant eligible

Item	Priority	Recommendation	Estimated Cost ($ or person hours/ yr)
11	Moderate	• Encourage the SLRD to identify and map available water sources (to have adequate supply for suppression purposes during the fire season, as well as be accessible for suppression crews) and identify areas of poor water availability. A geospatial database with water availability and accessibility as attributes would aid in suppression in areas currently within the Fire Service Area. Access and water use agreements may be appropriate in locations on private land or to access water licenses. Water source mapping provided by the SLRD can be integrated into the IamResponding[4] application, already in use by Pemberton Fire Rescue.	2 – 4 hours

Objective: Improve the FireSmart conditions of the Village by increasing FireSmart compliance for Village-owned assets and critical infrastructure.

Item	Priority	Recommendation	Estimated Cost
12	High	• Complete FireSmart assessments for critical infrastructure and Village owned assets and prioritize FireSmart projects by efficacy at reducing fire hazard, cost efficiency, and visibility to the public. Implement projects according to priority to increase FireSmart compliance. FireSmart projects on Village-owned structures can be used as public-education/ demonstration projects to display the practices and principles of FireSmart and the Village's commitment to wildfire threat reduction.	Dependent upon FireSmart project undertaken UBCM/SWPI FireSmart grant eligible activity

Emergency Response and Preparedness (Section 7.3)

Objective: Encourage private homeowners to voluntarily adopt FireSmart principles on their properties.

Item	Priority	Recommendation	Estimated Cost
13	High	• Remove barriers to action for landowners by providing methods for them to cheaply and easily dispose of the wood and green waste removed from their property. Programs may include scheduled community chipping opportunities, free green/ wood waste drop-off, or scheduled burning weekends. Information on how to obtain burning permits could be made available.	Cost dependent upon program Some may be UBCM/SWPI FireSmart grant eligible activities
14	Moderate	• Complete wildland urban interface (WUI) Site and Structure Hazard Assessments for interface homes, make hazard mapping for assessed homes publicly available, and provide informational material to homeowners on specific steps that they can take to reduce fire hazard on their property.	$10 -$12/ home UBCM/SWPI FireSmart grant eligible

Objective: To improve structural and wildfire equipment and training available to Pemberton Fire Rescue.

Item	Priority	Recommendation	Estimated Cost
15	High	• Pemberton Fire Rescue to organize and facilitate annual cross training opportunities with BCWS. Interface training could include completion of a mock wildfire simulation in coordination with BCWS, instruction on early detection and reporting of wildfires. Training could be coordinated with other fire departments in the area (Birken Volunteer Fire Department, Resort Municipality of Whistler (RMOW), Mount Currie, and N'Quatqua) to enhance the firefighting capabilities in the region. It is recognized that BCWS crew resources are limited and their availability and is highly dependent upon the current fire season and other BCWS priorities.	$2,000 (annually)

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[4] Iamresponding.com

Item	Priority	Recommendation	Estimated Cost ($ or person hours/ yr)
16	High	• Pemberton Fire Rescue to continue focus on member training. Recommended target of 100% of members with Structure Protection Program – Wildland Firefighter Level 1 (SPP-WFF 1) certification. SPP-WFF 1 training is 6 hours (3 – 2 hour units) with practical use of fire department equipment.	~$60 - $80/ member
17	High	• The Village to obtain hard-suction hose to provide the ability to draft from natural water sources.	$400 - $800
18	High	• Encourage the SLRD to procure a water tender for suppression in those areas with limited water availability and a long distance from hydrants (SLRD jurisdiction currently covered by the Pemberton Fire Rescue through a Fire Service Agreement).	2 – 4 hours
19	Moderate	• Coordinate with SLRD Electoral Area C to provide reflective house numbers and instructions about how and where best to affix them to facilitate emergency response (SLRD jurisdiction currently covered by the Pemberton Fire Rescue through a Fire Service Agreement).	2 – 4 hours
20	Moderate	• The Village of Pemberton to outfit the existing Haz-Mat trailer with an SPU with coverage for 20 – 30 homes. The trailer can be used for structure protection and demonstration of the ease and utility of exterior sprinklers for their homes.	Protection for 4 houses can be purchased in sets for ~$3,000 or units can be created from parts for considerably less; assembling a kit can be more time expensive
21	Low	• Review UBCM-owned sprinkler protection unit (SPU) request procedure.	1 – 2 hours
Emergency Response and Preparedness (Evacuation and Access) (Section 0)			
Objective: To improve access and egress and enhance emergency preparedness and study area-specific evacuation plans.			
22	High	• The Village of Pemberton to continue working with Sea to Sky partners on a Pemberton Valley/ Sea to Sky Corridor evacuation plan, to be completed in 2017. Communication plans may require alternative strategies for areas with limited or unavailable cellular service. Evacuation plans should be reviewed, amended, and updated regularly.	Within current operating budget

Item	Priority	Recommendation	Estimated Cost ($ or person hours/ yr)
Emergency Response and Preparedness (Trail Management and Access) (Section 7.3.1.1)			
Objective: To include wildfire hazard and mitigation into future trail planning and strategy, improve access to interface natural areas, and reduce chance of ignition and potential fire behaviour along high-use recreational trails.			
23	Moderate	• Consider wildfire management, specifically trails as access points for suppression and surface fuelbreaks in future trail development, strategy, and management. Consider recognizing wildfire hazard and the potential mitigating factors of trail networks into the *Pemberton and Area C Service Area Trails Master Plan*.	TBD
24	Moderate	• Prioritize trails to act as surface fuel breaks and provide access for suppression crews; establish trail standards for those trails to meet objectives. To act as a surface fire fuelbreak, provide access for equipment and crews, and serve as a control line, trails should be 1 m wide, pruned to a minimum of 2 m in height (slope dependent), and thinned within a minimum of 5 m of trail center. Trails can be prioritized for their potential as fuelbreaks, depending on location and current state (width, adjacent fuels, and accessibility).	10 - 12 hours to write the standard; 10 hours to prioritize trails. ~$2,000 - $3,000 if outsourced.
25	Moderate	• Develop standards for the abatement of residual activity fuels associated with trail building and trail maintenance. Ensure trail crews are aware of mitigation of fuels accumulations that may result from regular maintenance activity. Standards should include fuel disposal or mitigation methods (scattering, chipping, burning, or removal, dependent upon location, amount of material, and access). Fuels from trail maintenance and trail building should not be allowed to accumulate trailside.	10 - 12 hours, or $1,000 - $2,000 if outsourced. Additional hours and cost minimal, if implementing in conjunction with recommendation # 24
26	Low	• Develop a Total Access Plan to map and inventory trail and road network for suppression planning, identification of areas with insufficient access and to aid in strategic planning. The plan should be updated every five years, or more regularly, as needed to incorporate additions or changes. Leverage, or build on, the currently existing database.	$5,000 - $10,000
Planning and Development (Section 7.3.1.1)			
Objective: To reduce wildfire hazard on private land, increase number of homes in FireSmart compliance, and decrease risk of human-caused ignitions.			
27	High	• Review the Official Community Plan (OCP), in particular Development Permit (DP) Area No. 2 – Land Constraints and update, if necessary, to reflect the changes in Provincial legislation. In the Wildland Fire Interface Hazards portion, remove reference to the Building Bylaw and develop building, landscaping, setback, and defensible space standards for development within the DP Area No. 2. It is highly recommended that the Village obtain legal confirmation on the OCP and Building Bylaw wording prior to adopting any bylaw amendments.	TBD

Item	Priority	Recommendation	Estimated Cost ($ or person hours/ yr)
28	High	• Develop a new schedule to the OCP to inform applicants and staff regarding the Wildland Interface Hazard DP process. Detail expectations, responsibilities, and consequences. Review other jurisdictions terms of reference as models. Recommended components include: the fire risk assessment, fuels management strategy and Qualified Professional (QP) credentials. Bonds should not be released until post-development inspection occurs and documentation that all mitigating recommendations have been completed, as per the required fire risk assessment and/ or fuels management strategy.	TBD
29	High	• Require a coordinating professional, to be hired at the expense of the developer, for all DP applications that fall into overlapping DP areas.	TBD
30	High	• Review and expand the Wildland Interface Hazard DP area. Include all areas within 200 m of lands with high and extreme Wildfire Behaviour Class ratings.	TBD
31	High	• Update the Village of Pemberton Landscape Plant List (2011) with flammability of each species and recommended planting distance from structure. Provide this list or a wildfire DP area-specific list to all Wildland Fire Interface Hazard DP applicants.	4 hours for initial list update; 1 hour annually to refresh ~$400 - $1,000 to outsource
Objective: To incorporate wildfire hazard reduction considerations in subdivision design.			
32	High	• New subdivisions should be developed with access points that are suitable for evacuation and the movement of emergency response equipment. The number of access points and their capacity should be determined during subdivision design and be based on threshold densities of houses and vehicles within the subdivision.	Within current operating budget
33	Moderate	• Where new subdivisions border forested lands, consideration should be given to requiring roadways to be placed adjacent to those lands. If forested lands surround the subdivision, ring roads should be part of the subdivision design. These roads both improve access to the interface for emergency vehicles and provide a fuel break between the wildland and the subdivision.	Within current operating budget
34	Low	• Consider establishing or enhancing existing water bodies that could serve as emergency water sources in areas of new development.	TBD
Fuel Management (Section 7.5)			
Objective: Reduce wildfire threat on private and public lands through fuel management.			
35	High	• Proceed with detailed assessment, prescription development and treatment of hazardous fuel units identified and prioritized in this CWPP. Collaboration with BCTS, woodlot owners, and other licensees may facilitate larger projects.	UBCM SWPI Funding / Municipal Funding (UBCM funds up to 75% of prescription development cost)

Item	Priority	Recommendation	Estimated Cost ($ or person hours/ yr)
Objective: Maintain previously treated areas under an acceptable level of wildfire fire threat (moderate).			
36	Moderate	• Complete monitoring and maintenance every 5 – 7 years on previously treated areas. Treated areas should be assessed by a Registered Professional Forester, specific to actions required in order to maintain treated areas in a moderate or lower hazard.	UBCM SWPI Funding/ Municipal Funding
Objective: Reduce the wildfire threat to the Pemberton Valley with a cooperative regional approach.			
37	High	• Work cooperatively with MFLNRO and neighbouring local and First Nations governments to submit phase 1 application for Forest Enhancement Society of BC (FESBC) funding for the recommended landscape level fuelbreaks.	FESBC funding; person hours is dependent upon Village role within the project

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INTRODUCTION

The Community Wildfire Protection Plan (CWPP) process, as part of the Strategic Wildfire Prevention Initiative (SWPI) was created in British Columbia (BC) to help communities develop plans to improve safety and reduce the risk of damage to property. The initiative was developed in response to recommendations from the "*Firestorm 2003 Provincial Review*".[5]

The 2003, 2004, 2009, 2010, and 2015 BC wildfire seasons resulted in significant economic, social and environmental losses. Devastating wildfires south of the border in the 2014 and 2015 wildfire seasons (Pateros and Wenatchee, WA) served additional notice of the risk to and vulnerabilities of Canadian communities in the wildland urban interface (WUI). Recent tragedies, like those experienced in Slave Lake and Fort McMurray, Alberta, are further evidence of the potential toll of wildfires on the community and economy of entire municipalities. These losses emphasized the need for greater consideration and due diligence with respect to fire risk in the WUI.

The 2015 wildfire season highlighted the impacts of wildfire on the Village of Pemberton: the Boulder Creek Fire burned over 6,500 ha of forested lands and resulted in evacuation orders, and the Elaho fire burned 67 km west of Pemberton and consumed over 12,500 ha.[6] The Pemberton Valley was blanketed by smoke for several weeks from nearby fires. The smoke hindered aerial suppression efforts and air quality advisories were issued across the region; residents were advised to refrain from outdoor activity.[7]

In considering the wildfire risk in the WUI, it is important to understand the unique risk profile of a given community. While there are common themes that contribute to the risk profile of communities across BC, each community has unique aspects that require consideration during the CWPP process. Understanding these factors is important in developing a comprehensive plan to identify and reduce wildfire risk for that area. The consequences of a WUI fire can be very significant and proper consideration and pre-planning is vital to reducing the impacts of wildfire.

In 2016, B.A. Blackwell and Associates Ltd. were retained by the Village of Pemberton (hereinafter referred to as VoP, the Village, or Pemberton) to complete an update of the CWPP, completed by Diamondhead Consulting Ltd, Valhalla Consulting Ltd, and Geographica Group in 2005 (hereinafter referred to as the '2005 CWPP'). A complete enumeration of the recommendations from the 2005 CWPP and status of implementation is found in APPENDIX A: STATUS OF 2005 CWPP RECOMMENDATIONS.

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[5] http://bcwildfire.ca/History/ReportsandReviews/2003/FirestormReport.pdf

[6] http://www2.gov.bc.ca/gov/content/safety/wildfire-status/wildfire-statistics/wildfire-season-summary

[7] Sieniuc, K. "Whistler, B.C. issues air-quality warning due to wildfire smoke." *The Globe and Mail*. July 7, 2015. Web http://www.theglobeandmail.com/news/national/whistler-bc-issues-air-quality-warning-due-to-wildfire-smoke/article25348519/.

Methods for assessing wildfire threat have been enhanced since 2005; this update will make use of the methodology and baseline data that is the current provincially accepted standard for hazard and threat analysis. This CWPP update provides a reassessment of the level of risk with respect to changes in the area that have occurred since 2005 and gives the Village a current and accurate understanding of the threats faced by their community.

Specifically, the objectives of this update are to:

- Provide the Village with an updated threat assessment taking into account new development, changes in forest health and fuels, and mitigative actions taken by the Village and various actors within the study area; and
- Prioritize mitigative action recommendations to address communication and education, structure protection, emergency response, planning and development, and fuel management.

1.0   COMMUNITY WILDFIRE PROTECTION PLANNING PROCESS

This CWPP document will review the background information related to the study area which envelopes the Village boundary and a two kilometer spotting buffer. The CWPP update consists of six general phases:

1. **Background research** - general community characteristics, such as demographic and economic profiles, critical infrastructure, environmental and cultural values, fire weather, fire history, relevant legislation and land jurisdiction.

2. **Field work** - site visits to the area to allow for 1) meetings with Village staff; 2) fuel type verification; 3) completing WUI hazard assessment forms, and 4) identification of site specific issues.

3. **Consultation** – meetings and consultation with the Village of Pemberton staff, Sea to Sky Natural Resource District staff (land manager) and Fire Zone representatives to assist with defining the objectives for wildfire protection, and to develop the mitigation strategy alternatives that would best meet Pemberton's needs.

4. **GIS analyses** – initial threat analysis with final fuel type updating and threat rating refinement based upon field ground-truthing and results of hazard assessment forms.

5. **Report and map development** - identification of challenges and successes, identification of measures to mitigate risks, and recommendations for action (the Action Plan).

6. **Report review** - by Village staff and representatives from the land manager at the Sea to Sky Natural Resource District, BCWS, and the Lil'wat Nation / Mount Currie Band.

Reducing the level of wildfire risk to the Village is the main focus of the CWPP. The Action Plan (Section 7.0) specifically addresses the five elements of a CWPP that contribute to risk reduction. The five elements are: 1) communication and education; 2) structure protection and planning; 3) emergency response and preparedness; 4) planning and development; and 5) fuel management. This document makes specific recommendations (planning tools) on how risk can be reduced by implementing recommendations in these five elements.

To assess the threat of wildfire, the 2015 Provincial Strategic Threat Analysis (PSTA) was used in addition to completion of WUI Wildfire Threat Assessment Worksheets (as required by the UBCM).

2.0   COMMUNITY PROFILE

Pemberton is a vibrant village in the heart of the Pemberton Valley. The most overwhelming natural characteristic is the majestic Mount Currie, which rises steeply from the valley bottom directly south of the Village. The Village's population is approximately 2,370 residents, housed in 795 private dwellings (2011 Census). There has been sustained growth in the community since 1997; the population has more than doubled in the last 20 years. Pemberton is a young place; the median age of the population is just under 35 years of age and more than 20% of the population is under the age of 15.

The local economy is supported largely by agriculture, forestry, and more recently has diversified with the addition of tourism, recreation, and services as major economic drivers.[8] The Pemberton Music Festival, an annual four-day event, draws an estimated 45,000 people to the Pemberton Valley and provides a significant, albeit short-term boost to the economy and employment for valley residents.

Figure 1. Pemberton Music Festival brings 45,000 music fans to the Pemberton Valley during the fire season. Photo: Jorge Alvarez for the Pemberton Music Festival.[9]

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[8] *www.pemberton.ca*

[9] Atkinson, C. "Pemberton Music Festival donates $100,000 to groups". The Pique. January 14, 2016. *http://www.piquenewsmagazine.com/whistler/pemberton-music-festival-donates-100000-to-groups/Content?oid=2745818*. Accessed October 2016.

Pemberton is located 33 km north of the Resort Municipality of Whistler along the only access route, Hwy 99. Hwy 99 continues through Pemberton in a generally northwards direction towards Lillooet.

An overview of the study area is illustrated below in Figure 2. The study area includes the municipal boundary and a 2 km buffer. The municipal boundary includes a large, undeveloped and forested area, which is a designated community watershed. The area within the municipal boundary is Village jurisdiction, whereas the 2 km buffer is under the jurisdiction of the Squamish-Lillooet Regional District (SLRD) Electoral Area C.
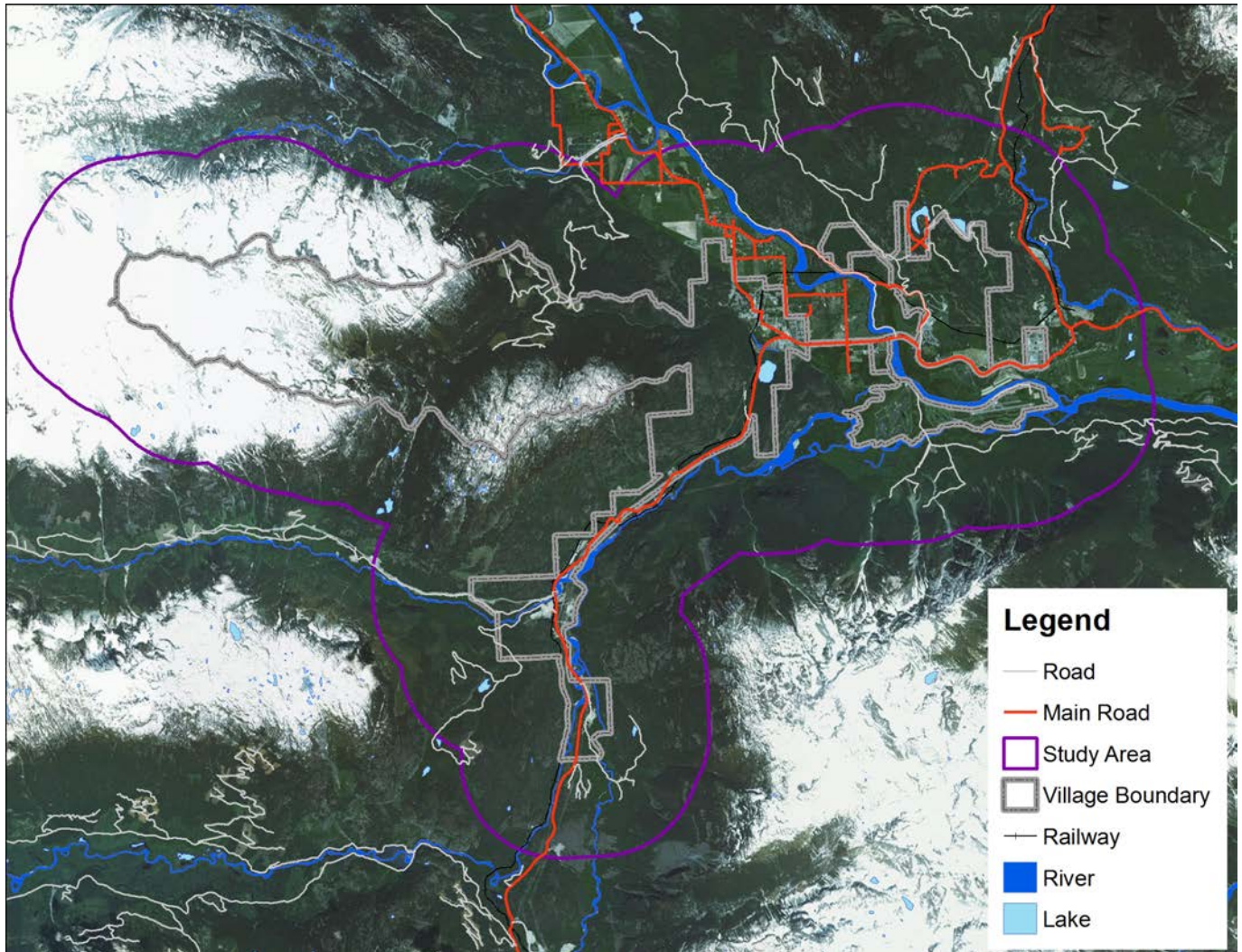
Figure 2. Overview of the Community Wildfire Protection Plan Update study area.

2.1   CRITICAL INFRASTRUCTURE

Protection of infrastructure during a wildfire event is important to ensure that emergency response is as effective as possible, to ensure that coordinated evacuation can occur if necessary, and essential services in the study area can be maintained and/or restored quickly. Critical infrastructure includes emergency and medical services, electrical service, transportation, water, and communications infrastructure. Critical infrastructure locations are illustrated below (Figure 3).

Much of the critical infrastructure in the study area is depended upon by the population from the surrounding communities within the SLRD. This includes the Pemberton Fire Rescue fire hall, Public Works buildings, water system and associated infrastructure, as well as the Royal Canadian Mounted Police (RCMP) detachment, BC Ambulance, and the Pemberton Health Clinic. BC Hydro substations and independent power projects (IPPs) have also been identified. BC Hydro transmission line, the railway, s, and Highway 99 are regionally and provincially integral energy and transportation routes. The Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO) BC Wildfire Service (BCWS) Pemberton Zone Fire Base is within the study area, as is the Pemberton Regional Airport and heliport.

Electrical service for most of the study area population is received through a network of wood pole distribution lines, which are vulnerable to fire and could disrupt services to dependent communities in the event of a fire.
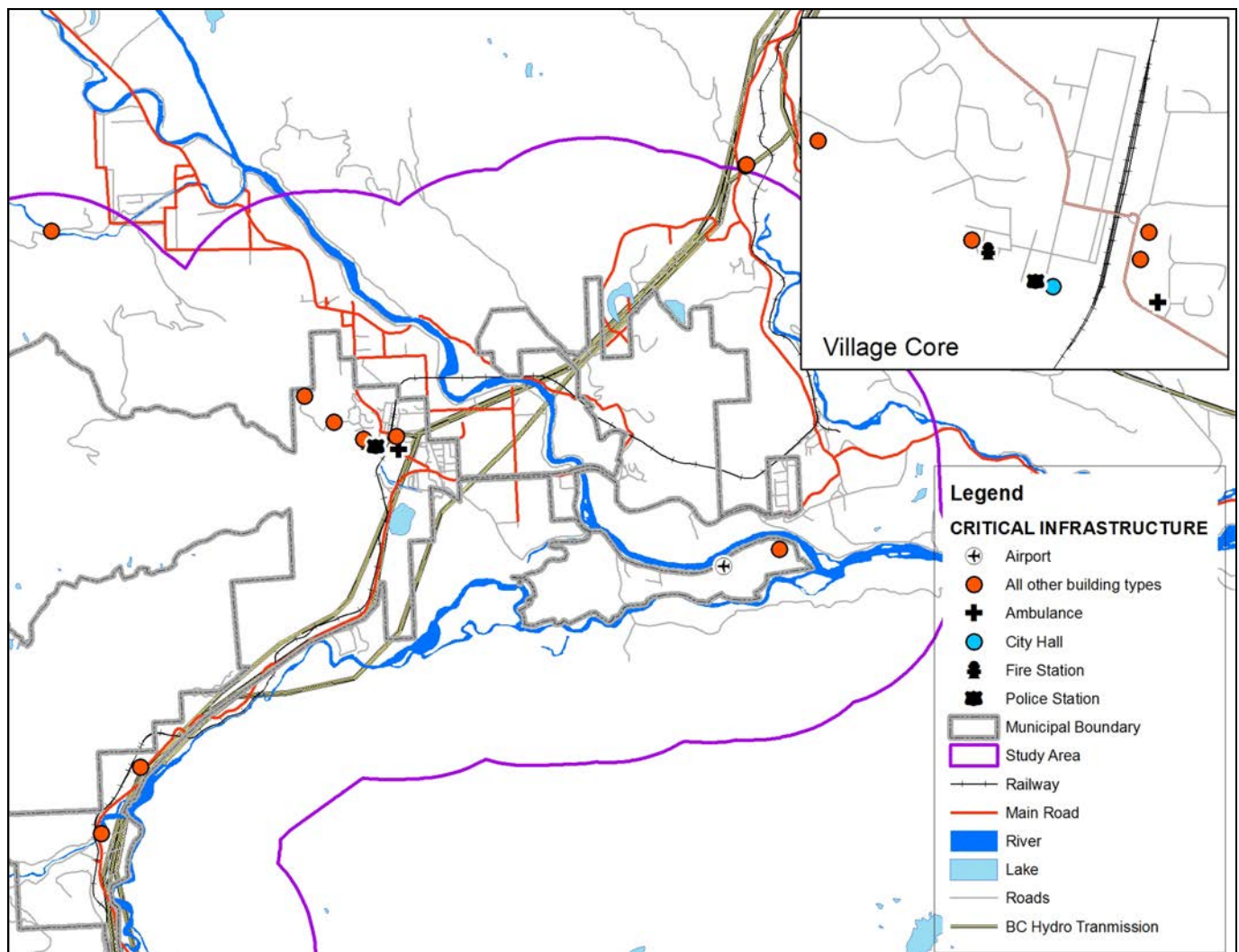
Figure 3. Critical infrastructure within the study area. Inset map displays the Village of Pemberton core in more detail.

2.1.1 WATER SUPPLY

Pemberton and the southern portion of Pemberton Meadows (referred to as the Pemberton North Water District) are supplied with water through a Village owned, operated and maintained system. Water is pumped to the tower and gravity fed to residents. The water system does not currently have a back-up power system. In the event of power loss, there would be approximately 48 hours of available domestic water use, depending on usage levels. If the water supply was used for suppression activities in addition to domestic use, it would likely last 24 hours, or less.

Some residents within the study area rely upon wells or surface water diversions. Residents outside the study area, but within the Pemberton Fire Rescue Fire Protection Area, are largely dependent upon wells for domestic water. Neighbourhoods outside the village boundary, as well as the properties along the Highway 99 corridor between the Village core and the Plateau Neighbourhood on Pemberton Farm Road East, have limited hydrant availability which creates suppression challenges for Pemberton Fire Rescue. Water for suppression would require drawing from a natural water source or from shuttled water (portable tanks, water tenders, etc.).

The major natural water bodies in the area are rivers: the Green River, Lillooet River, Birkenhead River, and Pemberton Creek all flow through the study area. One Mile Lake, Ivey Lake, and Mosquito Lake are all small fresh-water lakes.

In many areas, fire suppression efficacy would be greatly improved by the ability to draw from available natural water sources. Alternative water sources for suppression activities, such as pump sites to refill portable bladders, fire truck reservoirs, or water tankers, particularly in rural settings or where hydrant coverage is limited is of utmost importance. In areas without hydrants, shuttled water is currently used in suppression efforts, although many values at risk are too far from hydrants or standpipes to rely upon shuttled water as the only water source. The most vulnerable areas (greatest distance to hydrants) are outside the Village boundary, and therefore within the SLRD's jurisdiction. The Village should encourage and work with the SLRD to improve access to a variety of water sources (natural, hydrant, shuttled) in order to provide Fire Services in these areas. Further information regarding these recommendations is found in the Action Plan, Section 7.2.

2.2 ENVIRONMENTAL AND CULTURAL VALUES

Environmental, cultural and recreational values are high throughout the study area. The area offers a range of outdoor activities for both tourists and residents, including motorized and non-motorized front and backcountry recreational pursuits. The Village is surrounded by a vast network of trails, mostly for non-motorized use, such as mountain biking and hiking.

First nations cultural values within or overlapping the study area include Lil'wat Nation / Mount Currie Band traditional lands which comprise fish bearing habitat, hunting grounds, archaeological sites, and sites of cultural significance.

The Pemberton Community Watershed encompasses the western portion of the study area. The watershed provided drinking water for the community until 1993 when a subsurface water supply was developed by the

Village. The watershed remains within the Village boundary and Pemberton Creek is considered a back-up water source for the Village.[10]

Other values within the study area include Crown and private forest lands, and land that is administered by the Provincial Agricultural Land Commission (ALC) and therefore part of the Agricultural Land Reserve (ALR). The ALR lands, which include farmed, forested, or vacant lands, are extremely valuable to the community and the Province.

2.2.1   ENVIRONMENTAL VALUES

Spatially explicit ministerial orders regarding the establishment and management of Old-Growth Management Areas (OGMAs) are based upon Landscape Unit within the Sea to Sky Resource District (see section 4.2.1 for more information). There are legally established wildlife reserve areas, such as designated Wildlife Habitat Areas (WHAs) within which special management practices may be specified. Where proposed fuel treatment areas overlap these legally protected wildlife or old-growth areas, inquiries can be made to the Sea to Sky Natural Resource District.

The Conservation Data Centre (CDC), which is part of the Environmental Stewardship Division of the Ministry of Environment, is the repository for information related to plants, animals and ecosystems at risk in BC. To identify species and ecosystems at risk within the study area, the CDC database was referenced. Two classes of data are kept by the CDC: non-sensitive occurrences for which all information is available (species or ecosystems at risk and location); and masked, or sensitive, occurrences where only generalized location information is available.

There are two occurrences of Red-listed species and two occurrences of Blue-listed species within the study area (Table 2). The study area overlaps with one masked, or secured, occurrence, which will not be discussed further in this document. Through consultation with the CDC and a biologist or qualified professional, site level operational plans must determine if these occurrences (masked or publicly available) will be impacted by fuel management or other wildfire mitigation activities. All future fuel treatment activities or those associated with recommendations made in this plan should consider the presence of, and impact upon, potentially affected species. Additionally, all site level operational plans should consult the most recent data available to ensure that any new occurrences or relevant masked occurrences are known and considered in the operational plan to mitigate any potential impacts on species at risk.

Table 2. Publicly available occurrences of Red and Blue-listed species recorded within the study area. Data current as of date accessed: September 2, 2016.

Species	Scientific Name	Category	BC List
sharp-tailed snake	*Contia tenuis*	Reptile	Red
dun skipper	*Euphyes vestris*	Insect	Red
Geyer's onion	*Allium geyeri* var. *tenerum*	Vascular Plant	Blue

[10] Summit Power Management. 2007. Pemberton Creek IPP Feasibility Review.

Species	Scientific Name	Category	BC List
least moonwort	*Botrychium simplex* var. *compositum*	Vascular Plant	Blue

2.2.2 ARCHAEOLOGICAL VALUES

Archaeological sites in the Province of British Columbia are protected by the *Heritage Conservation Act* (HCA), which applies on both private and public lands. Archaeological remains in BC are protected from disturbance, intentional and inadvertent, by the HCA. Archaeological sites that pre-date 1846 are automatically protected under the HCA whether on public or private land. Sites that are of an unknown age that have a likelihood of dating prior to 1846 (e.g. lithic scatters) as well as Aboriginal pictographs, petroglyphs, and burial sites (which are likely not as old but are still considered to have historical or archaeological value) are also automatically protected. Under the HCA, protected sites may not be damaged, altered, or moved in any way without a permit. It is a Best Practice that cultural heritage resources such as Culturally Modified Tree (CMT) sites be inventoried and considered in both operational and strategic planning.

There are over 20 identified archaeological sites within the study area. Additionally, there are sites of spiritual or cultural significance within the First Nations traditional territory. Due to site sensitivity, the locations of archaeological sites may not be made publicly available. The Village of Pemberton should apply for direct access to Remote Access to Archaeological Data (RAAD), which will allow the Village to look up or track any archeological sites in the area.[11]

A number of defined cultural areas have been legally established through negotiated land use planning agreements and are protected through ministerial order.[12] These areas have varying levels of legal protection measures which impact potential land and resource use. Fuel treatments may be acceptable in these areas, although prescribing foresters must be aware of their existence, as well as the importance of First Nations consultation prior to any activity.

Prior to stand modification for fire hazard reduction, and depending on treatment location, preliminary reconnaissance surveys should be undertaken to ensure that cultural heritage features are not inadvertently damaged or destroyed. Pile burning and the use of machinery have the potential to damage artifacts that may be buried in the upper soil horizons. Above ground archeological resources may include features such as CMTs, which could be damaged or accidentally harvested during fire hazard reduction activities. Fuel treatment activities should include consultation with the Lil'wat Nation / Mount Currie Band, and as directed by the Sea to Sky Natural Resource District.

This plan was shared with five First Nations groups with interest and rights which overlap, in part or entirely, the study area. After consultation with the Lil'wat Nation, the following input was provided which should be duly noted:

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[11] https://www.for.gov.bc.ca/archaeology/accessing_archaeological_data/obtaining_access.htm

[12] https://www.for.gov.bc.ca/tasb/slrp/pdf/lrmp/199237-MO-signed.pdf and
https://www.for.gov.bc.ca/tasb/slrp/pdf/lrmp/175990%20S2S%20LRMP-Schedule%201.pdf.

- There is high potential that those areas identified as potential treatment areas in this strategy (see Section 7.5) were utilized by Lil'wat ancestors.
- All fuel management prescription and operational projects should include consultation at an early stage and in a proactive manner to allow for informed decision-making and opportunity for meaningful and thorough review and input. Referrals of specific geographic areas at the site-level prescription development phase will also allow for First Nations to determine if archaeological work is required.
- Prescriptions and operational fuel treatments should manage for, and mitigate impacts to, First Nations interests (cultural, heritage, economic, and environmental).

2.3 COMMUNITY SUPPORT

Community awareness of wildfire risk and support for vegetation management is generally high within the Village. The BCWS has completed fuel treatment projects within the study area successfully; there was no known opposition to the projects.

The Village is supportive of fuel treatments and is looking for opportunities to partner with neighbouring jurisdictions and governments to implement projects and gain access to a variety of funding opportunities. Furthermore, the Village is investigating a potential partnership with Lil'wat Forestry Ventures to enter into a Community Forest Agreement (CFA). A CFA would allow for the Village to establish forest stewardship over the lands surrounding the Village and to manage the forests for a variety of values, including mitigating wildfire risk to the community.

2.4 KEY CONTACT, PARTNERSHIP AND FUNDING OPPORTUNITIES

A list is provided below to guide future activities regarding fire and fuels management. This should not be considered an exhaustive list, and investigations should be made at the time of project development to confirm contacts and programs.

- **Provincial Government**

  o Union of BC Municipalities (UBCM) – funding opportunities through the SWPI program. These funding opportunities are limited to areas within 2 km of communities meeting the threshold density.

  o Forest Enhancement Society of BC (FESBC) – funding opportunities for wildfire risk reduction and FireSmart activities that are not eligible under the UBCM funding structure may be available through the Forest Enhancement Program.

  o Sea to Sky Natural Resource District – Ministry of Forests, Lands, and Natural Resource Operations

    ▪ BC Wildfire Service (BCWS) – support is already established with the zone. This relationship will be integral for any prescribed burning and fuel management activities. Additionally, the BCWS is an excellent resource for FireSmart education and cross training opportunities, as their time allows. Pemberton Fire Rescue and the BCWS Pemberton Zone have solidified a strong partnership through a regular cadence of communication.

- Landscape level fire management planning at the District level (the Sea to Sky Fire Management Plan) has the potential to impact activities undertaken by the Village, adjacent jurisdictions, and present new funding opportunities, particularly for landscape level fuelbreaks which would benefit the region.

  o BC Parks – Nairn Falls Provincial Park is within the study area. There is also a negligible overlap with Garibaldi Provincial Park.

- **BC Hydro** – right of way clearing and fuel hazard should be discussed with BC Hydro. BC Hydro should be encouraged to maintain its rights of way in a low hazard state (frequent brushing, with brushed material removed prior to curing). When maintained in a low hazard state, the right of ways can act as a fuel break. There are multiple transmission right of ways crossing the study area which serve as fuelbreaks, if maintained as such.

- **Licensees** – There are multiple woodlots which overlap with the study area. Woodlots are managed by Gilham Poling Ltd.; Lorry Talbot; Lil'wat Forestry Ventures; and Lil'wat Capital Assets Limited Partnership. The entire study area is within British Columbia Timber Sales (BCTS) Chinook Timber Sales Business Area 2. There may exist an opportunity for partnerships in commercial harvest of hazardous areas that may not qualify under the SWPI program (i.e., too far from infrastructure, but which may still pose a spotting risk to the community or could be leveraged into a landscape level fuel break) or a cooperative effort for areas which may require merchantable volume to be removed to meet wildfire hazard objectives. Additionally, the Village can work with all licensees to ensure that operations within or near to study area are complying with fire hazard abatement and assessment requirements.

- **Adjacent municipalities and governments** – SLRD Electoral Area C, Lil'wat Nation, Resort Municipality of Whistler, N'Quatqua Band, In-SHUCK-ch First Nation – a regional approach to wildfire management has been successful in other areas. There may be an opportunity to create a regional steering committee to help guide and implement strategic wildfire initiatives.

- **Industrial Operators** – CN Rail and independent power producers (along with the aforementioned BC Hydro and licensees) may have infrastructure and right of ways which should be maintained in a low hazard state (free of cured fine-fuel accumulations). Communication with industrial operators may help to maintain right-of-ways and other infrastructure in a low hazard state, as well as minimizing potential ignitions.

2.5 FOREST FUEL AND PAST WILDFIRE INFORMATION

The 2005 CWPP detailed Pemberton Valley's BEC zones, natural disturbance types, fire regimes, and condition classes. This information is still applicable today and provides a thorough description of the area's ecosystems, historic fire frequencies, and departures from historically natural conditions. The information provided in this section is meant to add to, not replace, the section entitled 'The Fire Environment' in the 2005 CWPP.

2.5.1 BIOGEOCLIMATIC UNITS

The Biogeoclimatic Ecosystem Classification (BEC) system describes zones by vegetation, soils, and climate. Regional subzones are derived from relative precipitation and temperature. The following section is synthesized from information found on MFLRNO's Research Branch BECWeb.[13]

The study area is in the Coast/Interior transitional area, located on the leeward side of the Coast Mountains. This is demonstrated by the majority of the areas being either within the Coastal Western Hemlock Dry Submaritime Zone (CWHds1), Coastal Western Hemlock Moist Submaritime Zone (CWHms1), or the Interior Douglas Fir Wet Warm Zone (IDFww) (Figure 4). Higher elevations of the study area are within the Mountain Hemlock Moist Maritime Zone (MHmm2) or the Coastal Mountain-heather Alpine Undifferentiated Parkland Zone (CMAunp).

The IDFww is distributed in low elevation drainages in the easternmost portions of the Vancouver Forest Region and covers the eastern-most portion of the study area along the north side of the Lillooet River to Pemberton Portage Road. The climate in this zone is continental that is transitional to maritime due to the proximity to the Pacific Ocean. It is common to have pronounced growing season water deficits.[14]

The CWHds1 covers the main developed portion of the study area and occurs from the valley bottom to an approximate elevation of 650 m. Similarly, this zone is transitional from between coastal and interior climates, and also has significant growing season water deficits.[15]

The CWHms1 occurs at elevations above the CWHds in an elevation band of 600 to 1,200 m. This zone has a climate transitional between the Coast and Interior and has cool and dry summers. [16] This subzone occurs in a band between the CWHms1 and the MHmm2.[17]

The MHmm2 occurs above the CWHms1 at elevations between 900 and 1,400m. It is characterized by short, cool, and moist summers. Substantial snowpack can persist into July, but low snowpack or early snowmelt can lead to drier fuels at lower elevations during the fire season.[18]

The CMAunp is the alpine environment at the highest elevations of the study area (generally above 1,600 m). This BEC zone has a very harsh climatic environment; temperatures are cold for most of the year, including cool

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[13] https://www.for.gov.bc.ca/HRE/becweb/resources/classificationreports/subzones/index.html

[14] *https://www.for.gov.bc.ca/HRE/becweb/Downloads/Downloads_SubzoneReports/IDFww.pdf*

[15] *https://www.for.gov.bc.ca/HRE/becweb/Downloads/Downloads_SubzoneReports/CWHds1.pdf*

[16] Green, R. N. & Klinka, K., 1994. *A Field Guide to Site Identification and Interpretation for the Vancouver Forest Region*, Victoria: Province of British Columbia - Research Branch.

[17] *https://www.for.gov.bc.ca/HRE/becweb/Downloads/Downloads_SubzoneReports/CWHms1.pdf*

[18] *https://www.for.gov.bc.ca/HRE/becweb/Downloads/Downloads_SubzoneReports/MHmm2.pdf*

temperatures through the fire season. Most of the area is occupied by exposed rock and limited vegetation.[19] This zone is not considered a fire hazard.

Within the study area, the occurrence of the MHmm2 and CMAunp zones are mostly limited to the community watershed and surrounding area in the western-most portion of the study area.

It should be noted that there are new terrestrial ecosystem mapping (TEM)-based BEC available for the study area which may have relevance for the site-level planning and in support of more detailed field work completed at the fuel management prescription development phase. This data can be sourced from the Sea to Sky Natural Resource District.

Table 3. Biogeoclimatic Ecosystem Classification (BEC) zones of the study area of the Village of Pemberton.

BEC Zones	Area (rounded to ha)	% of Study area[20]
CWHds1	7,625	38%
CWHms1	4,282	21%
CMAunp	3,973	20%
IDFww	2,111	11%
MHmm2	2,033	10%

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[19] *https://www.for.gov.bc.ca/rco/research/eco/bec_web/docs/CMAunp.htm*

[20] Includes terrestrial portion of study area only.
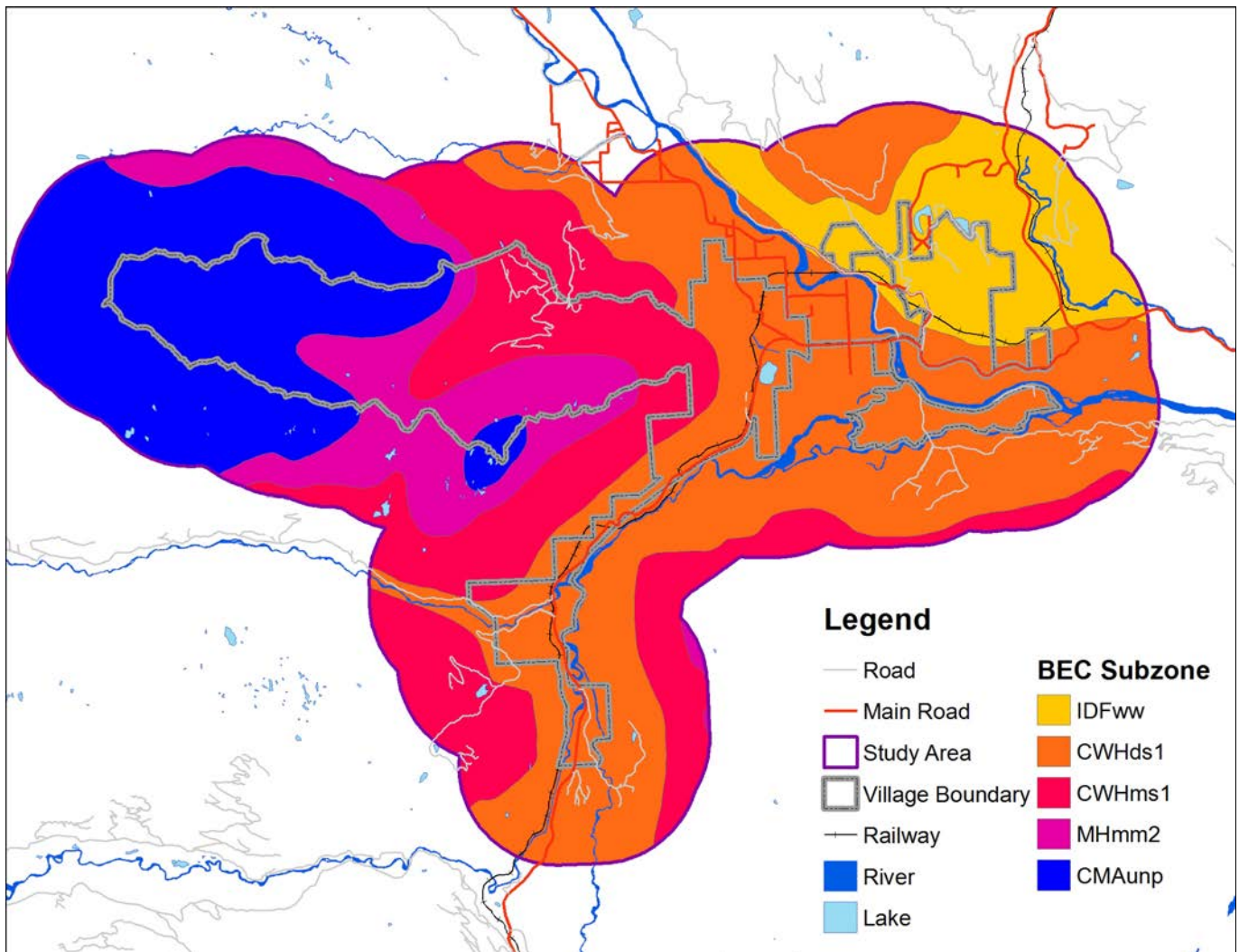
Figure 4. Biogeoclimatic Ecosystem Classification (BEC) subzones found within the study area.

2.5.2   NATURAL DISTURBANCE TYPES

Biogeoclimatic subzones are categorized into natural disturbance types (NDTs) based on the size and frequency of natural disturbances (largely fire) that historically occur within the subzone. BEC zones have been used to classify the Province into five NDTs. NDTs have influenced the vegetation dynamics and ecological functions and pathways that determine many of the characteristics of our natural systems. The physical and temporal patterns, structural complexity, vegetation communities, and other resultant attributes should be used to help design fuel treatments, and where possible, to help ensure that treatments are ecologically and socially acceptable (Province of British Columbia, 1995).[21]

The IDFww is categorized as NDT4 – ecosystems with frequent stand-maintaining fires. The forested portions of these ecosystems would normally experience frequent, low-intensity fires that remove understory vegetation and

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[21] Province of British Columbia, 1995. Biodiversity Guidebook, s.l.: s.n.

maintain larger, fire resistant trees. Variable intensity and frequency of these types of fires across the landscape create mosaics of uneven-aged forests and grassy or shrubby openings.[22]

Exclusion of fire combined with other variables, such as forest health factors and logging, has altered the fuel composition and ecosystems in this NDT within the study area. Forests within this natural disturbance type have generally become denser and more uniform with a greater abundance of younger trees in the understory and a build-up of ladder and surface fuels. These changes to the forest structure have increased the probability of large, high intensity fires (Arno 1988, Weatherspoon and Skinner 1996).

The CWHds1 and CWHms1 are categorized as NDT2 – ecosystems with infrequent stand-initiating events. Major stand initiating events are rare, resulting in large tracts of old seral stage forests with complex stand structures. The mean disturbance return interval for these ecosystems is approximately 200 years. Although the fire frequency is not high and fires are not large, pre-planning and preparation are essential to reduce the negative impacts of a wildfire.[23]

The MHmm2 and the CMAunp are categorized as NDT1 and NDT5, respectively. NDT 1 includes ecosystems with rare stand-initiating events with a mean disturbance return interval of 350 years in the MH BEC zone. NDT5 is alpine tundra and subalpine parkland. Fire is rare, but can have a dramatic effect on vegetation due to the harsh climate and short growing season, limiting productivity and regeneration following a disturbance.[24]

2.5.3   TIMBER HARVESTING LANDBASE

The study area is within the Soo Timber Supply Area (TSA) which covers approximately 900,000 hectares of the region. Approximately 28% of the TSA is considered productive forest land managed by the Crown (administered by the Sea to Sky Natural Resource District) and 11% of the TSA, or 98,000 hectares, is within the current timber harvesting land base. This equates to 61% of the productive forested area not available for timber harvesting.[25] The major commercial tree species are Douglas-fir (*Pseudotsuga menziesii*), amabilis fir (*Abies amabilis*), western hemlock (*Tsuga heterophylla*), western redcedar (*Thuja plicata*), and Englemann spruce (*Picea engelmanii*). The most recent data package compiling information on forest resources inventory was completed in 2011.[26] The allowable annual cut (AAC) has been increased twice and reduced four times since 1980. The current AAC is 480,000 m^3 which will remain in effect until a new AAC determination which will occur on or before 2021.[25][27]

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[22] Ibid.

[23] Ibid.

[24] Ibid.

[25] Ministry of Forests, Lands, and Natural Resource Operations Forest Analysis and Inventory Branch. 2010. *Soo TSA Timber Supply Analysis Public Discussion Paper*.

[26] Soo Timber Supply Area Rationale for Allowable Annual Cut (AAC) Determination. 2011.

[27] Ibid.

2.6   FOREST HEALTH

Currently, there are no major forest health issues within the Sea to Sky Natural Resource District; pest damage has generally been at endemic levels.[28] In the recent past, a major forest health factor for the study area has been the mountain pine beetle. The beetle was first recorded in the area on mostly white pine in the 1940's, continuing into the 1970's. In the mid-1980's the pine beetle population surged, with general increases until the population peaked in 2007, when a yearly total of nearly 17,000 ha were infested (Zeglen & Heppner, 2015). The pine beetle epidemic has resulted in the accumulation of dangerous forest fuels in the TSA, most notably from Whistler north to D'Arcy, in the form of dead and down pine trees (crown and surface fuels). Additionally, dead fuels will also contribute to higher levels of spotting.

Another leading forest health agent is Western Spruce Budworm, an insect that defoliates Douglas-fir, particularly understory regeneration. It has been recorded in the Soo TSA since the 1940's, with five major outbreaks. A peak in defoliation occurred in 1992, when almost 21,000 ha of forest were defoliated, after which the population collapsed (Zeglen & Heppner, 2015). This type of infestation results in dead or suppressed understory trees, resulting in increased ladder fuels. Dead needles are a short-term fine surface fuel.

Other forest health agents in the study area are western balsam bark beetle, spruce beetle, root diseases, Douglas-fir beetle and balsam woolly adelgid. Root rots are usually limited to single tree or small patch distribution.

All forest health outbreaks should be noted, and the CWPP may need updating to reflect changed fuel types if outbreaks are extensive.

3.0   WILDFIRE BEHAVIOUR AND WUI THREAT ASSESSMENT

3.1   FUEL TYPE SUMMARY

The Canadian Forest Fire Behaviour Prediction (FBP) System outlines five major fuel groups and sixteen fuel types based on characteristic fire behaviour under defined conditions.[29]

The initial starting point for study area fuel typing is the *2015 Provincial Strategic Threat Analysis* (PSTA), which is based on the FBP fuel typing system. PSTA data is limited by the accuracy and availability of information within the Vegetation Resource Inventory (VRI) provincial data; confidence in provincial fuel type data is low on private land. For these reasons, fuel types from the PSTA data have been updated using imagery of the study area with fuel type calls based upon field fuel type verification.

It should be noted that fuel typing is intended to represent a fire behaviour pattern; a locally observed fuel type may have no exact analog within the FBP system. The FBP system was almost entirely developed for boreal and

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[28] Sea to Sky Natural Resource District/ Pemberton Zone Fire Management Plan. 2016

[29] Forestry Canada Fire Danger Group. 1992. Development and Structure of the Canadian Forest Fire Behavior Prediction System: Information Report ST-X-3.

sub-boreal forest types which do not occur within the study area. Furthermore, fuel types depend heavily on Vegetation Resource Inventory (VRI) data, which is gathered and maintained in order to inform timber management objectives, not fire behaviour prediction. These shortcomings of the fuel typing system have resulted in fuel typing being recognized as a blend of art and science. Although a subjective process, the most appropriate fuel type was assigned based on research, experience, and practical knowledge; this system has been successfully used within BC, with continual improvement and refinement, for 20 years.[30]

In addition, fuel type polygons may not adequately describe the variation in the fuels present within a given polygon due to errors within the PSTA and VRI data, necessitating adjustments required to the PSTA data. In some areas, aerial imagery is of low spatial resolution, making fuel type assessment difficult. Where fuel types could not be updated from imagery with a high level of confidence, the original PSTA fuel type call was retained. It is believed that this practice results in a slight overestimation of C-5 fuel types, and a slight underestimation of C-3 fuel types within the study area.

Table 4 summarizes the fuel types by general fire behaviour and total area for the study area. In general, the fuel types considered hazardous in terms of dangerous fire behaviour and spotting potential are C-2, C-3, and C-4. C-3 is the most common hazardous fuel in the study area. C-5 and C-7 can sometimes represent hazardous fuels, particularly if there are large amounts of woody fuel accumulations or denser understory ingrowth, respectively. C-5 fuel types have a moderate potential for active crown fire when wind-driven. Under drought conditions, a C-5 fire intensity can be higher than expected due to commonly occurring dead and downed woody fuel accumulations.[30] An M-2 fuel type can sometimes be considered hazardous, depending on the proportion of conifers within the forest stand. An O-1b fuel type often can support a rapidly spreading grass or surface fire capable of damage or destruction of property, and jeopardizing human life. These fuel types were used to guide the threat assessment.

Forested ecosystems are dynamic and change over time: fuels accumulate, stands fill in with regeneration, and forest health outbreaks occur. It is recommended that periodic updating of fuel types and threat assessments occur every 5 – 10 years.

Table 4. A summary of fuel types, associated hazard and areas within the study area.

Fuel Type	Description	Wildfire Behaviour Under High Wildfire Danger Level	Area (ha)	Percent (%)
C-2	As identified by PSTA data	Almost always crown fire, high to very high fire intensity and rate of spread	105	1%
C-3	Fully stocked, late young forest, crowns separated from the ground	Surface and crown fire, low to very high fire intensity and rate of spread	1,113	6%
C-4	Dense pole-sapling forest and young plantations, heavy standing dead and down, dead woody fuel accumulations, continuous vertical crown fuel continuity	Almost always crown fire, high to very high fire intensity and rate of spread	29	0%

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[30] Perrakis, D. and G. Eade. 2015. BC Wildfire Service. Ministry of Forests, Lands, and Natural Resource Operations. *British Columbia Wildfire Fuel Typing and Fuel Type Layer Description* 2015 Version.

Fuel Type	Description	Wildfire Behaviour Under High Wildfire Danger Level	Area (ha)	Percent (%)
C-5	Well-stocked mature forest, crowns separated from ground. Moderate understory herbs and shrubs. Often accompanied by dead woody fuel accumulations.	Moderate potential for active crown fire in wind-driven conditions. Under drought conditions, fuel consumption and fire intensity can be higher due to dead woody fuels	6,023	30%
C-7	Open, uneven-aged forest, crowns separated from the ground except in conifer thickets, understorey of discontinuous grasses, herbs	Surface fire spread, torching of individual trees, rarely crowning (usually limited to slopes > 30%), moderate to high intensity and rate of spread	1,110	6%
O-1a/b	Matted and standing grass communities. Continuous standing grass with sparse or scattered shrubs and down woody debris. Vegetated, non-treed areas dominated by shrubs or herbs in dry ecosystems. Areas of very scattered trees.	Rapidly spreading, high- intensity surface fire when cured	863	4%
M-1/2	Moderately well-stocked mixed stand of conifers and deciduous species, low to moderate dead, down woody fuels.	Surface fire spread, torching of individual trees and intermittent crowning, (depending on slope and percent conifer)	2,347	12%
D-1/2	Deciduous stands	Always a surface fire, low to moderate rate of spread and fire intensity	2,954	15%
S-1	Jack or lodgepole pine slash	Moderate to high rate of spread and high to very high intensity surface fire	9	0%
S-2	White spruce/ balsam slash	Moderate to high rate of spread and high to very high intensity surface fire	5	0%
S-3	Coastal cedar/hemlock/Douglas-fir slash	Moderate to high rate of spread and high to very high intensity surface fire	64	0%
W	Water	N/A	374	2%
NF	Non-fuel: irrigated agricultural fields, golf courses, urban or developed areas void or nearly void of forested vegetation.	N/A	4,808	24%
Total:			20,023	100%

3.2 THE WILDLAND URBAN INTERFACE

The WUI is generally defined as the place where the forest meets the community. There are different WUI conditions, which are variations on 'perimeter interface' and 'intermix'. A perimeter interface condition is generally where there is a clean transition from urban development to forest lands. Smaller, more isolated developments that are embedded within the forest are referred to as intermixed areas. An example of interface and intermixed areas is illustrated in Figure 5 .

Figure 5. Illustration of intermix and interface areas.
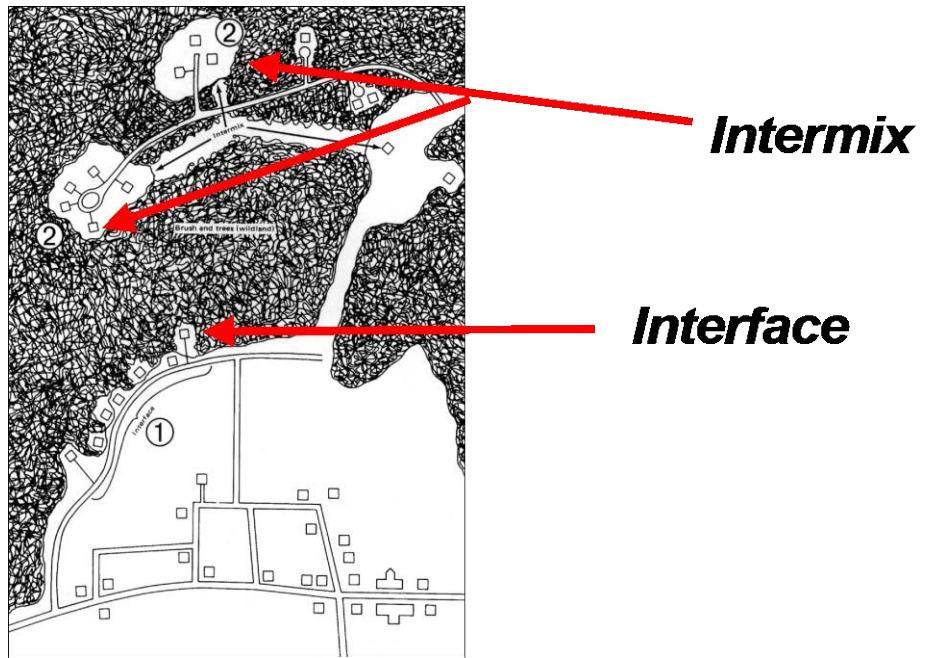
In interface and intermixed communities, fire has the ability to spread from the forest into the community or from the community out into the forest. Although these two scenarios are quite different, they are of equal importance when considering interface fire risk. Regardless of which scenario occurs, there will be consequences for the community and this will have an impact on the way in which the community plans and prepares itself for interface fires.

3.2.1 VULNERABILITY OF THE WILDLAND URBAN INTERFACE TO FIRE

Fires spreading into the WUI from the forest can impact homes in two distinct ways:

1. From sparks or burning embers carried by the wind, or convection that starts new fires beyond the zone of direct ignition (main advancing fire front), that alight on vulnerable construction materials or adjacent flammable landscaping (roofing, siding, decks, cedar hedges, bark mulch, etc.) (Figure 6).

2. From direct flame contact, convective heating, conductive heating or radiant heating along the edge of a burning fire front (burning forest), or through structure-to-structure contact. Fire can ignite a vulnerable structure when the structure is in close proximity (within 10 meters of the flame) to either the forest edge or a burning house (Figure 7).

Figure 6. Firebrand caused ignitions: burning embers are carried ahead of the fire front and alight on vulnerable building surfaces.
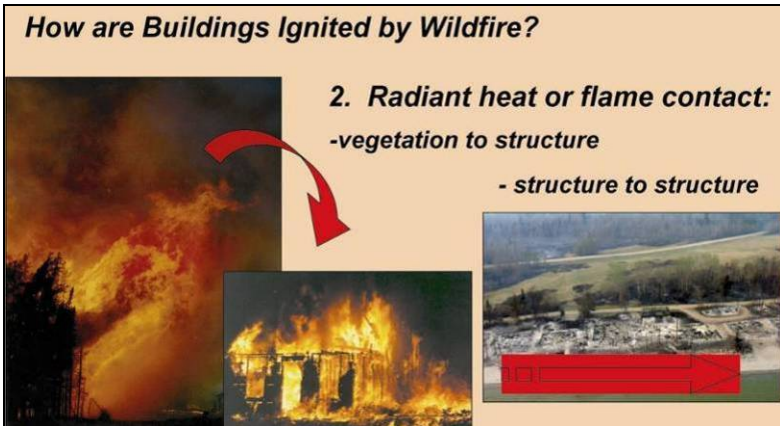
Figure 7. Radiant heat and flame contact allows fire to spread from vegetation to structure or from structure to structure.

3.2.2 WILAND URBAN INTERFACE THREAT ASSESSMENTS

WUI Threat assessments were completed over a period of four days in September of 2016, in conjunction with verification of fuel types. WUI Threat Assessments were completed in the interface areas of the study area, in order to support development of priority treatment areas, and in order to confidently ascribe threat to polygons which may not have been visited or plotted, but which have similar fuel, topographic, and proximity to structure characteristics to those that were.

A total of 23 WUI threat plots were completed and more than 200 other field stops (qualitative notes, fuel type classifications and/or photograph documentation) were made across the study area. The data collected and field observations recorded from the plots and field stops inform much of this document. A table detailing WUI plot locations and threat ratings by worksheet component can be found in APPENDIX B: WUI THREAT PLOT DETAILS.
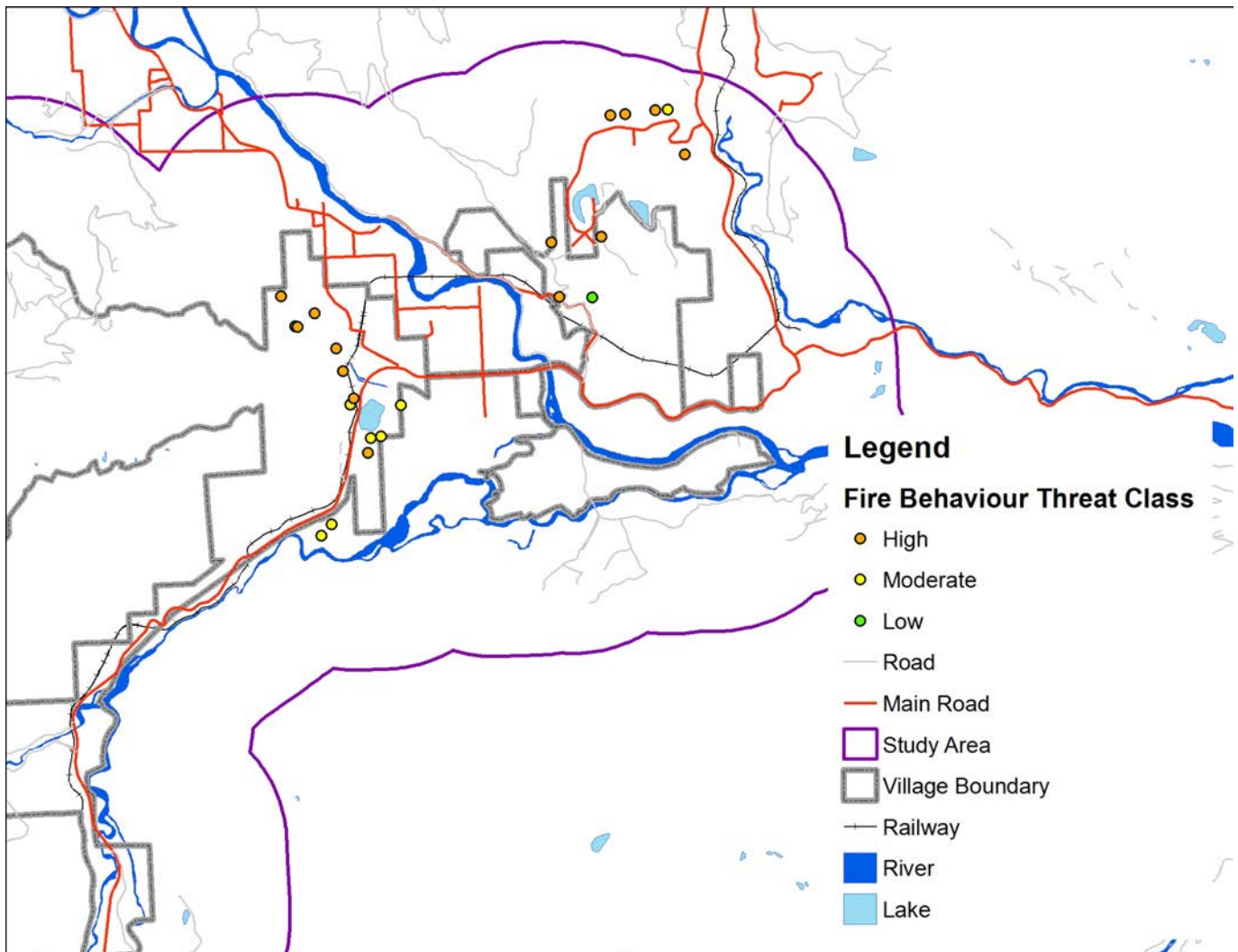
Figure 8. WUI threat plot locations by Fire Behaviour Threat Class.

3.2.2.1 STUDY AREA THREAT RATING

There are two main components of the threat rating system: the wildfire behaviour threat class (fuels, weather and topography sub-components) and the WUI threat class (structural sub-component). Figure 9 and Figure 10 display the fire behaviour threat ratings and WUI threat class ratings within the study area.

The majority of the study area is best classified as a moderate wildfire behaviour threat class. The valley bottom is largely agricultural fields and deciduous trees and therefore is best classified as a low wildfire threat class. The areas within the study area that represent the highest wildfire behaviour threat to the Village are directly west and upslope from the Village, to the south of the study area along the slopes of the Sea to Sky Highway, and the slopes to the northeast of the study area on what is known as the Plateau and future Hillside Area.

The majority of the hazardous areas mentioned above are on Crown land, although some portions are on private land, and are therefore ineligible for UBCM/SWPI funding for treatment. There is a large area of hazardous fuels within the woodlot in the Hillside Area. This underscores the need for collaborative efforts between multiple

provincial agencies, landowners, and licensees, as well the importance of reducing wildfire threat on private land in order to reduce the overall risk profile of the Village.

Beyond the study area in all directions there are continuous forested areas outside the scope of this threat assessment. Although these areas were not part of the threat assessment, field observations and orthophotos show that they are similar fuel types to those with moderate and higher fire behaviour threat ratings within the study area, and thus likely would exhibit similar fire behaviour threat. Much of these areas have been threat or risk assessed in other publicly available CWPP documents.[31] The newly established Forest Enhancement Society fund may present funding opportunities for areas previously ineligible for funding due to their location outside the 2 km WUI area, their land jurisdiction, or for larger and more complex projects. See section 7.5.3 for more details.
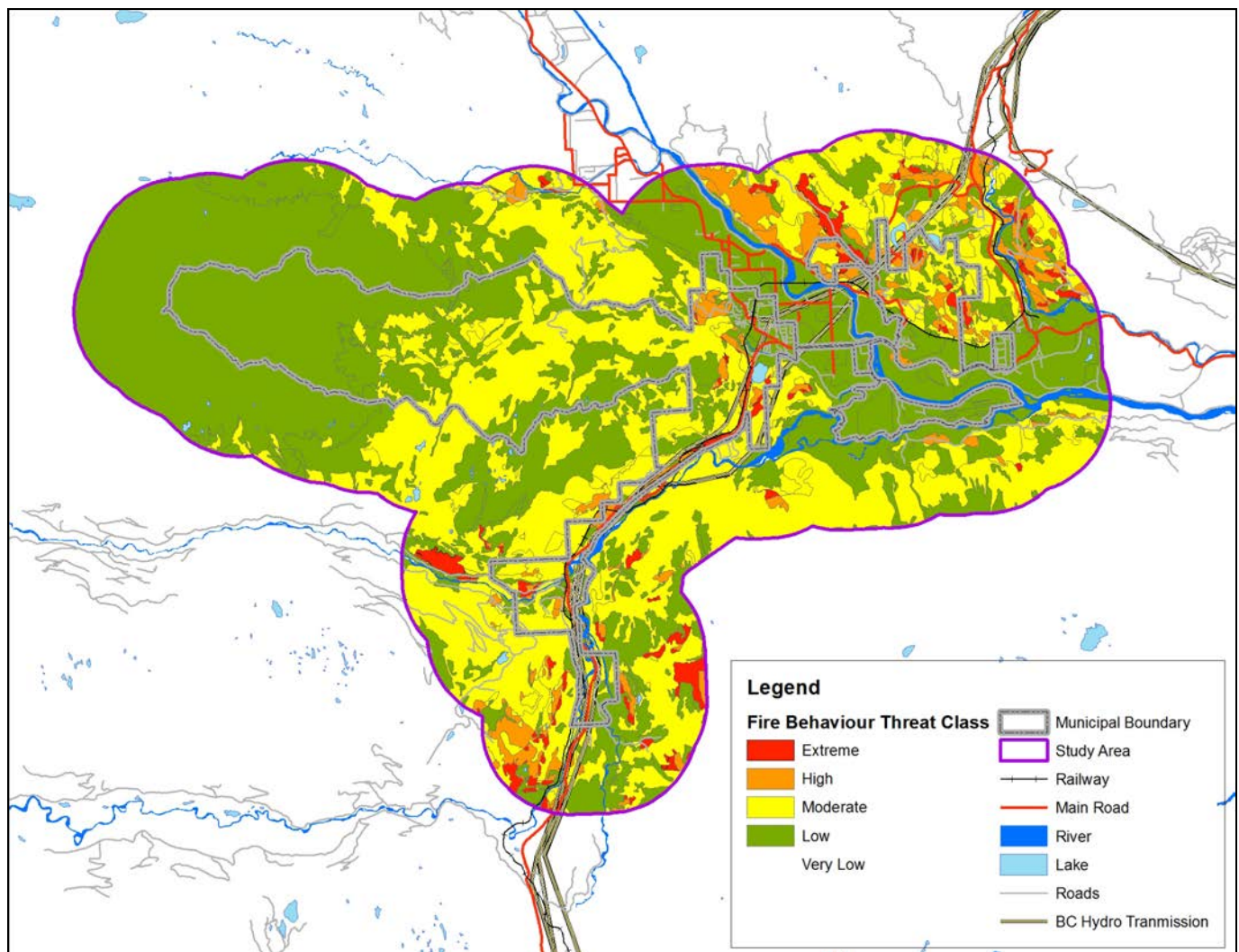
Figure 9. Wildfire Behaviour Threat Class and WUI Threat Class ratings for the study area.

[31] Lil'wat Nation Mount Currie Indian Band Community Wildfire Protection Plan (2010), Squamish-Lillooet Regional District Electoral Area C Community Wildfire Protection Plan Update (2016 – currently in draft status).
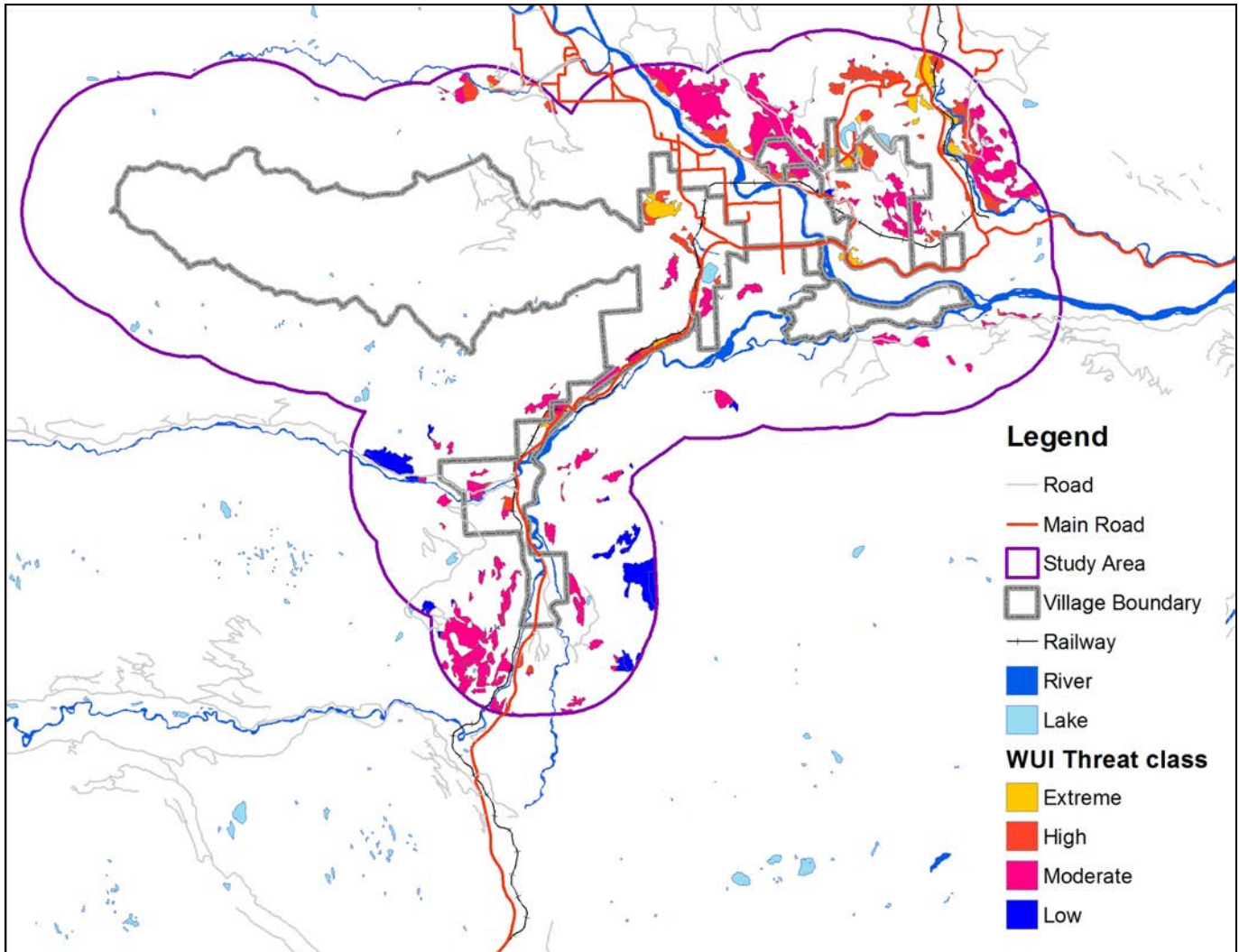
Figure 10. WUI Threat Class ratings within the study area. WUI Threat Class is only applicable to those polygons that rank high or extreme in Wildfire Behaviour Threat Class, as per the WUI threat assessment form methodology.

3.2.2.2 WUI THREAT ASSESSMENT METHODOLOGY

Threat assessment for the study area was completed using the WUI threat plots and methodology outlined in the Wildland Urban Interface Wildfire Threat Assessments in BC handbook.[32] Detailed methodology can be found in APPENDIX C: WUI THREAT ASSESSMENT METHODOLOGY.

Limitations

The threat class ratings are based initially upon (geographic information systems) GIS analysis that best represents the WUI wildfire threat assessment worksheet and are updated with ground-truthing WUI threat plots. WUI threat plots were completed in a variety of fuel types, slopes, and aspects in order to be able to confidently refine

[32] Morrow, B., K. Johnston, and J. Davies. 2013. Wildland Urban Interface Wildfire Threat Assessments in BC.

the GIS analysis. It should be noted that there are subcomponents in the worksheet which are not able to be analyzed using spatial analysis; these are factors that do not exist in the GIS environment.

The threat assessment is based largely on fuel typing, therefore the limitations with fuel typing accuracy (as detailed in Section 3.1) impacts the threat assessment, as well.

Additionally, the WUI threat plot methodology uses fire zone as a representation of fire weather. The study area is within the Pemberton Fire Zone and therefore receives the lowest number of points for fire weather, based upon the assumption that the fire weather is closer to Coastal climatic conditions. In reality, the study area is in the transitional zone between Coastal and Interior ecosystems; this may result in an underestimation of the Wildfire Behaviour Threat. The PSTA data shows the majority of the slopes within the study area as high threat; provincial threat data uses different inputs to classify threat. The Village of Pemberton's threat class rating should be viewed keeping all the above-mentioned limitations in mind.

3.3   LOCAL WILDFIRE HISTORY

The MFLNRO fire reporting system was used to compile a database of fires that occurred within the study area. This database provides an indication of fire history for the area, but should not be considered comprehensive.

Within the study area, most of the historical ignition points are attributed to human causes (80%); approximately 20% of the ignitions were attributed to lightning. Approximately one-third (32%) of total human caused ignitions can be attributed to what could be best described as "the general public"; causes include campfire use, juvenile fire setter, and smoker. The remaining human-caused ignitions are from industrial activities (equipment use, fire use, railroads) or are uncategorized (miscellaneous). Considering the high number of human ignitions compared to lightning caused ignitions, the importance of fire education and regulation must be emphasized. The railroads must be recognized as a significant ignition risk: approximately 7% of the fires within in the study area have been from railroad use, although it should be noted that railroad ignitions have declined significantly in the last three decades. There have only been two ignitions attributed to the railroads within the study area since 1980. In the 2015 fire season, there were four fires: one from lightning, two from fire use, and one from an abandoned campfire. Two additional calls were not notable and are not considered fires: one nuisance and one "smoke-chase" (a report of smoke or fire which is inaccurate: the fire does not exist).

Fire perimeters were also compiled for the study area for the years 1919 - 2015. There have been a number of significant fires within the study area, the distribution and frequency of which demonstrates the natural role of wildfire in the ecosystem. The largest fire on record was human-caused; it occurred in 1926 and burned over 4,000 ha between Whistler and Pemberton. There have been four fires in the study area within the last thirty years over 8 ha in size. In 2014, there was a 94 ha fire in the study area attributed to equipment use. In 2015, a significant, lightning-caused wildfire occurred outside the study area (in the wildland up Pemberton Meadows Road: The Boulder Creek Fire).
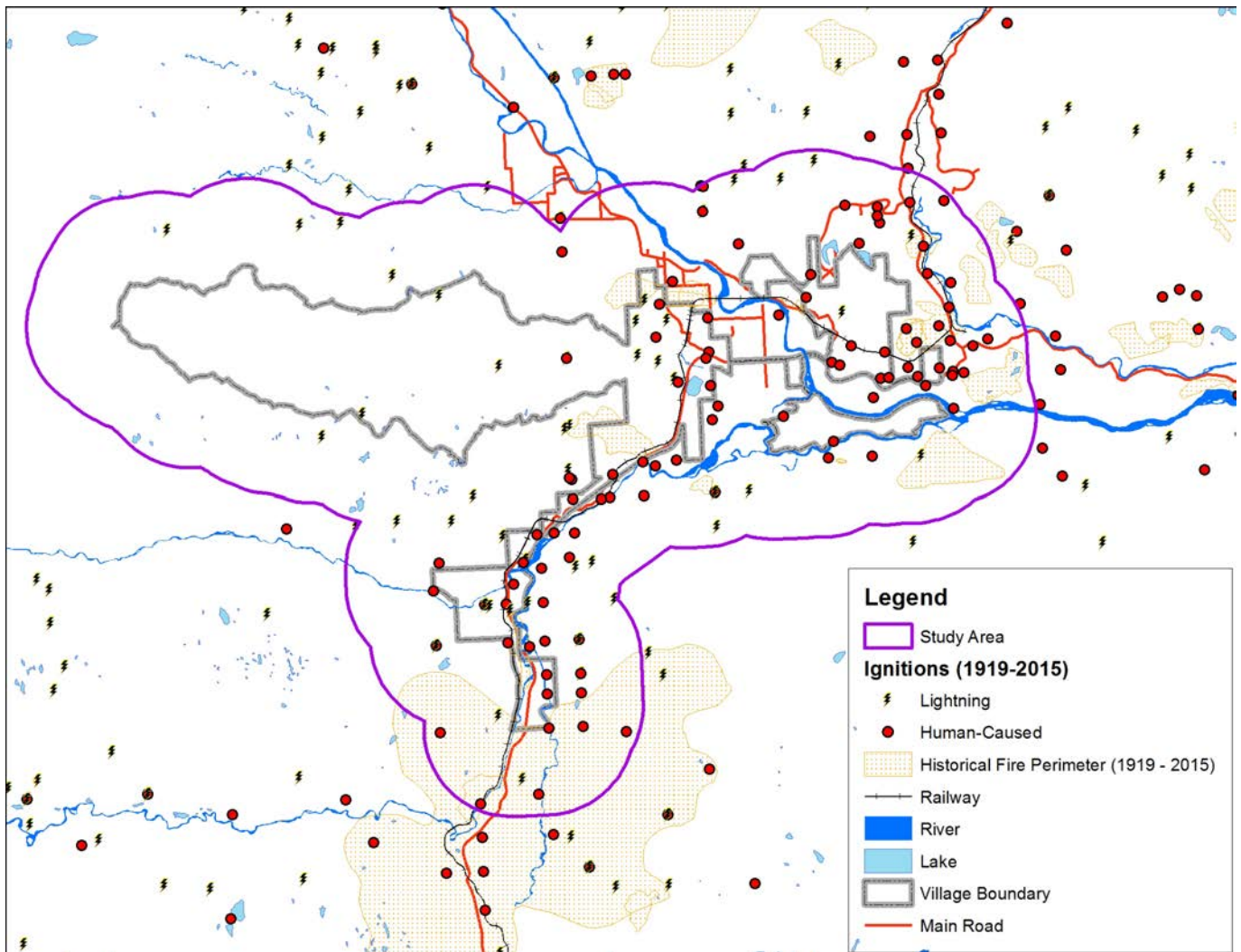
Figure 11. A display of how fire has helped to shape the landscape in the study area. The map shows all BCWS-data for ignitions and fire perimeters from 1919 - 2015.

3.3.1 FIRE WEATHER DATA

The Canadian Forestry Service developed the Canadian Forest Fire Danger Rating System (CFFDRS) to assess fire danger and potential fire behaviour. A network of fire weather stations is maintained during the fire season by MFLNRO and the recorded data are used to determine fire danger, represented by Fire Danger Classes, on forestlands within a community. The information can be obtained from the BCWS and is most commonly utilized by municipalities and regional districts to monitor fire weather, and to determine hazard ratings associated with bans and closures.

Fire Danger Classes provide a relative index of how easy it is to ignite a fire and how difficult control is likely to be. The BC *Wildfire Act* [BC 2004] and *Wildfire Regulation* [BC Reg. 38/2005], which specify responsibilities and obligations with respect to fire use, prevention, control and rehabilitation, uses Danger Classes to restrict high risk activities based on these classes. Fire Danger Classes are defined as follows:

- **Class 1 (Very Low)**: Fires are likely to be self-extinguishing and new ignitions are unlikely. Any existing fires are limited to smoldering in deep, drier layers.

- **Class 2 (Low)**: Creeping or gentle surface fires. Fires are easily contained by ground crews with pumps and hand tools.

- **Class 3 (Moderate)**: Moderate to vigorous surface fires with intermittent crown involvement. They are challenging for ground crews to handle; heavy equipment (bulldozers, tanker trucks, and aircraft) are often required to contain these fires.

- **Class 4 (High)**: High-intensity fires with partial to full crown involvement. Head fire conditions are beyond the ability of ground crews; air attack with retardant is required to effectively attack the fire's head.

- **Class 5 (Extreme)**: Fires with fast-spreading, high-intensity crown fire. These fires are very difficult to control. Suppression actions are limited to flanks, with only indirect actions possible against the fire's head.

The period of high fire danger (when danger class is 4 or 5) varies from year to year. It is important for the development of appropriate prevention programs that the average yearly period of high fire danger is calculated. Danger class days are summarized below to provide an indication of the fire weather in the study area, and are presented in Figure 12 and Figure 14.

Data was provided from the BCWS and comes from the two weather stations closest to, and most representative of the weather conditions of, the study area: D'Arcy and Pemberton weather stations. Pemberton weather station data is collected at a weather station along the Lillooet River and at the base of Mount Currie; this data should be viewed as representative of the study area with caution. After consultation with the BCWS provincial weather analyst, it was determined that the Pemberton weather station is located in a moister microclimate than the surrounding area and therefore underestimates the fire danger of the study area. It is likely that the D'Arcy station or a mixture of D'Arcy and Pemberton station weather data is more representative of conditions of the study area. It is for this reason that fire weather information for both weather stations is included.

3.3.1.1 D'ARCY WEATHER DATA

On average, more than half of May days are very low or low fire danger class. In June, fire danger classes are moderate or higher approximately half of the time. On average, the greatest numbers of high and extreme danger class (DC IV and V) days occurs during July and August. Although in September the probability of high or extreme ratings declines, there are still more than four days, on average, which are high or extreme fire danger class rating. For about four months of the year in the summer, there is a high risk of a significant wildfire event (June, July, August, September), with the risk peaking in August.
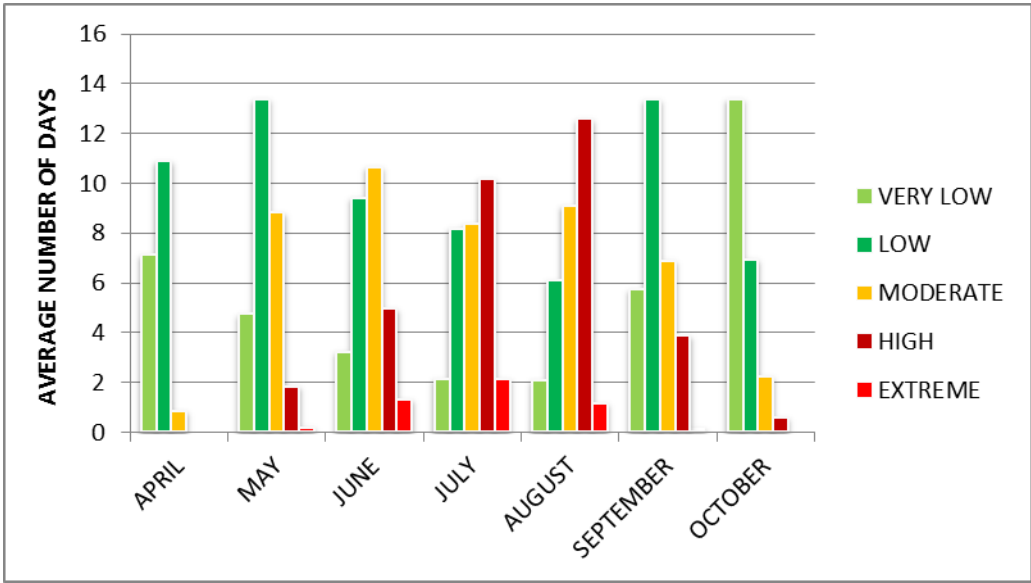
Figure 12. Probability of Fire Danger Class ratings averaged by month over a 38-year period (1978 – 2015) from the D'Arcy weather station.

The predominant fire season wind direction in D'Arcy and surrounding areas is from the south (Figure 13), with gusts up to 18 kilometers per hour.
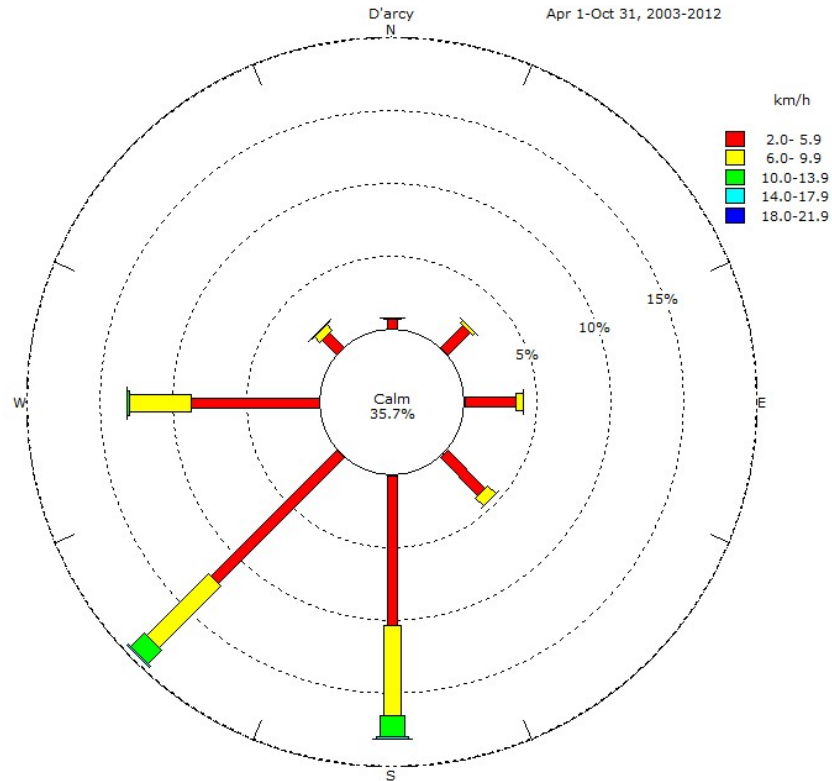
Figure 13. Windrose showing average hourly wind readings during the fire seasons (2003 – 2012) for the D'Arcy weather station.

3.3.1.2 PEMBERTON WEATHER DATA

Only in the months of July and August is the fire danger class moderate or higher for more than half of the time. There have been only two days of extreme fire danger class at the Pemberton weather station during the 15 years of data collection. As noted above, the D'arcy station or an average of the two weather stations is likely more representative of the valley fire weather than using the Pemberton station data alone.
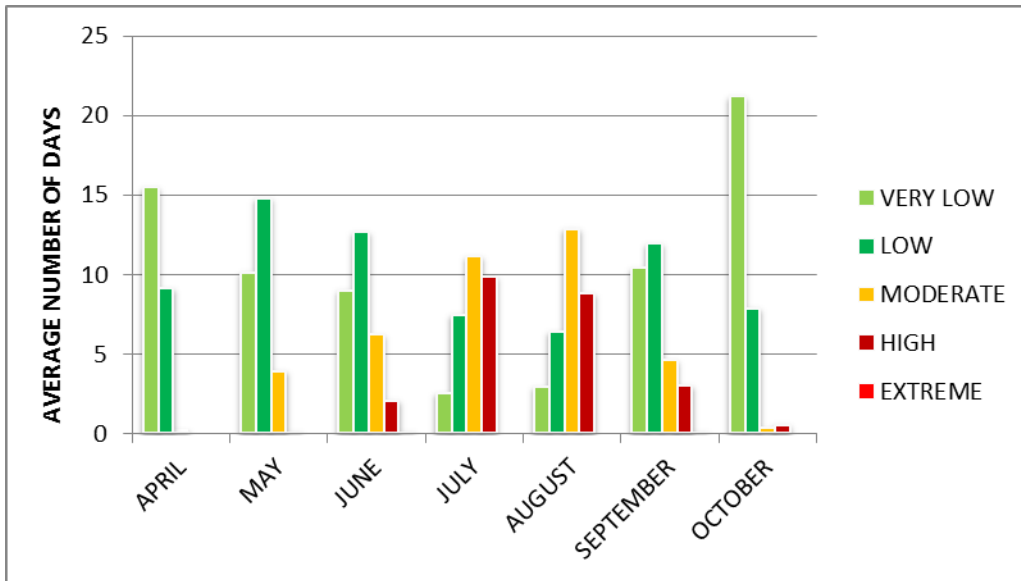
Figure 14. Probability of Fire Danger Class ratings averaged by month over a 15-year period (2001 - 2015) from the Pemberton weather station.

Winds in the Pemberton Valley are varied in their direction, though it is uncommon during the fire season to have a northerly wind. The predominant wind directions are from the east and south. The winds in the area are highly terrain driven; winds are funneled up through the Harrison Valley, as well as up through the Sea to Sky corridor.
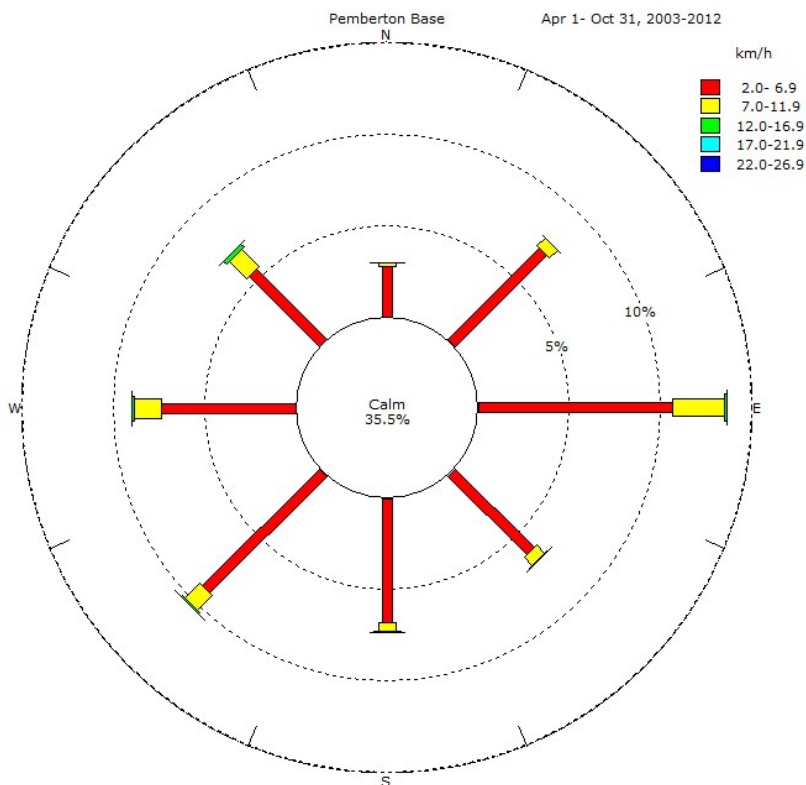
Figure 15. Windrose showing average hourly wind readings during the fire seasons (2003 – 2012) for the Pemberton weather station.

4.0 EXISTING POLICIES AND GUIDELINES

Following, is a summary of municipal and provincial policies and guidelines that relate to strategic wildfire management, wildfire threat reduction, and operational fuel treatments.

4.1 VILLAGE OF PEMBERTON

The following municipal bylaws are relevant to wildfire planning in the Village of Pemberton.

Bylaw No. 744, 2013: Fire Prevention Bylaw and Bylaw No. 799, 2016: Fire Prevention Amendment Bylaw

The Fire Protection Bylaw and its amendment set forth burning restrictions for open air fires; an Open Air Fire Permit issued by the Fire Chief is required for all open air fires (fires for yard waste, hazard abatement, agricultural purposes, or other). Residential properties can receive an annual permit for recreational (camp) fires of a limited size (0.5 m x 0.5 m) and details requirements regarding ignition, allowable fuels, supervision, and extinguishment of the campfire. Furthermore, the bylaw allows the Fire Chief to refuse to issue, or cancel any fire permits if burning is determined to be hazardous to personal safety, jeopardizes values at risk, or creates a nuisance.

The bylaw also specifically prohibits owners and occupiers from allowing accumulation of combustible materials on their land, such that it is liable to catch fire or increase the wildfire hazard of the property. Section 6.26 allows grants the Fire Chief the authority to reduce hazardous accumulations on private property at the expense of the landowner or to issue an order to reduce fuels accumulations.

The bylaw requires permits for discharge of fireworks, as does Bylaw 534 Firecracker and Fireworks Regulation Bylaw.

Bylaw 794, 2015: Fire Prevention (Construction Bans) Amendment Bylaw

This amendment of Bylaw 744 prohibits construction activities, determined to be a "High Risk Activity", as defined by the Wildfire Act and Wildfire Regulations, when the Fire Danger Rating is high or extreme, unless under strict accordance with the Fire Rescue Service Regulations (Schedule A). Schedule A outlines limits on specific activities and timing of activities and outlines necessary firefighting equipment and water availability.

Bylaw 725, 2013: Development Procedures Bylaw

This bylaw regulates the development permit application procedure, sets application costs and bond requirements, and gives the Village the authority to recover processing costs if it is determined that costs to the Village are in excess of the minimum non-refundable application fee.

Bylaw 694, 2012: Building Bylaw

Pemberton's Building Bylaw sets forth building requirements, some of which are to decrease the wildfire threat to residential units and the community at large. The bylaw requires all roofing to be Class A and prohibits use of wood as a roofing material. It also requires a 10 m defensible zone to be constructed and maintained around all residential buildings adjacent to forested land and subject to the threat of wildfire. Furthermore, Schedule C outlines what actions are required within the defensible zone. These actions include: maintaining annual grasses at 10 cm or less, annually removing ground litter and downed trees, pruning all retained trees to a height of 2.5 m, and restricting tree cover to low flammability deciduous species.

Bylaw 797, 2016: A Bylaw to Regulate and Govern the Use of Parks and Public Spaces

This bylaw prohibits open fires in parks and public spaces without a permit issued by the Fire Chief. It also prohibits leaving a campfire unattended and throwing out or disposing of a lit cigarette or any other burning item.

Official Community Plan (OCP)

The OCP provides guidance for land use and development within the Village of Pemberton. Section 5.2.2.1 and 7.0 set Development Permit (DP) Guidelines and the development permit application process, which includes guidelines for Natural Hazards, specifically wildfire. Wildfire is recognized as a natural hazard within the Village and to that end, the Village provides recommendations on land use planning and development in order to protect life and property and ensure appropriate emergency response. The OCP, including amending Bylaws 679, 2011 and 789, 2015, designates a Wildland Fire Interface Hazard area on which the development permit process applies (Figure 16). More details regarding the Wildfire DP Area can be found in Section 7.3.1.1 of the Action Plan.
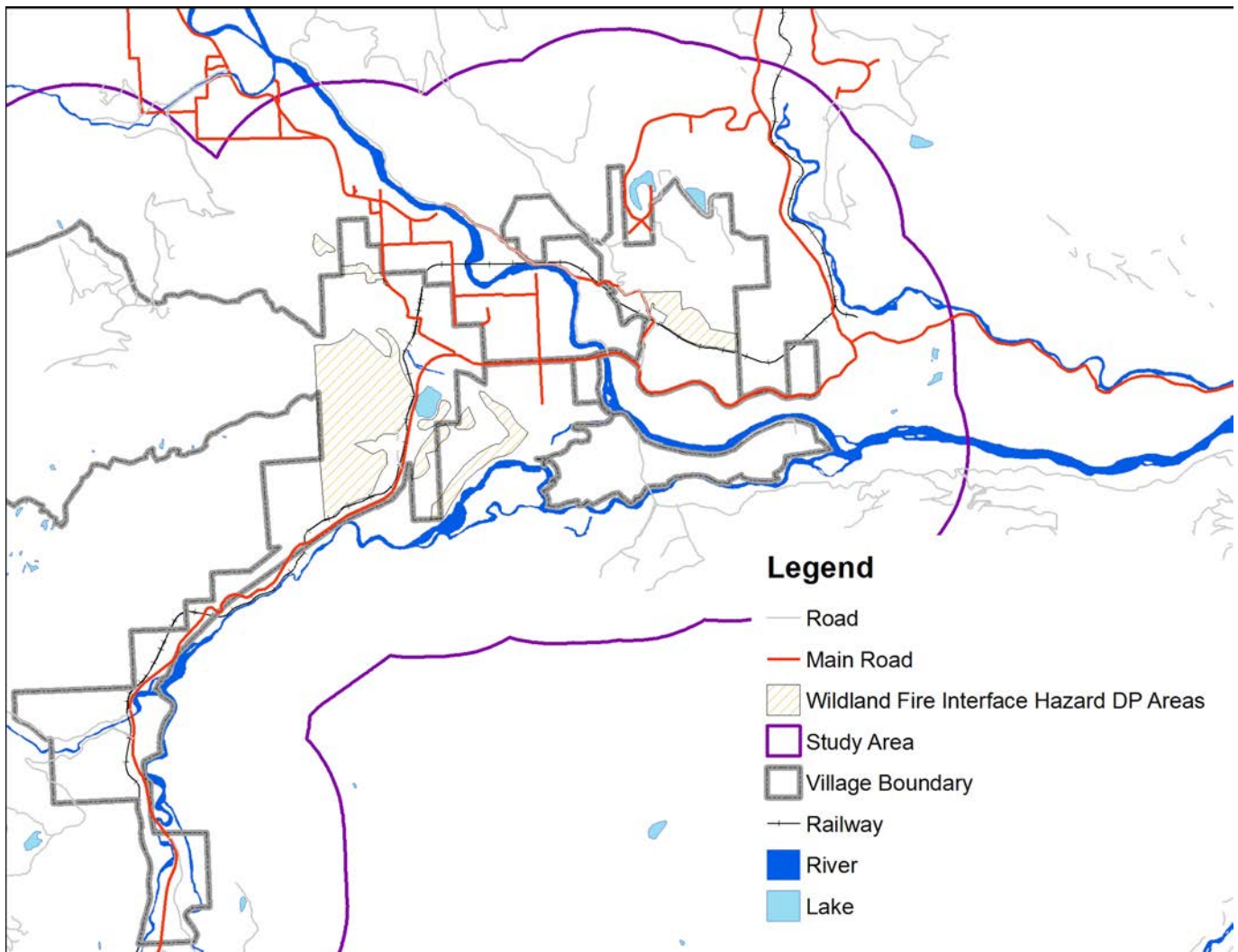
Figure 16. The existing Wildland Fire Interface Hazard Development Permit Areas. Polygons are approximate.

Other sections within the OCP which are relevant to wildfire threat reduction include:

- 5.4.2.1 Parks and Open Space Master Plan: this plan does not specifically mention wildfire as a natural hazard or recognize the potential liability to the Village, should a municipal park accumulate fuels and create a fire hazard.

- 5.4.2.2 Pemberton and Area C Trails Master Plan: the trail master plan states that during consultation the risk of fire from trail users was a concern for some stakeholders, although no specific action plan to reduce the risk of wildfire or fire ignitions is included.

- 5.5.1 Infrastructure Policies: this section sets forth general policies, two of which are applicable. 1) Reduce the area's risk of wildland fires and 2) Protect emergency firefighting services.

- 5.5.2.3 Village's Fire Protection Strategy: this section outlines the overall wildfire threat reduction strategy and programs and includes recommendations from the 2005 CWPP regarding "fuel hazard abatement

techniques, policy changes for the OCP, public education, Fire Department training, and Fuel Management Pilot Programs". Additionally, this section recognizes the importance of adopting FireSmart guidelines for future developments and outlines the Wildland Fire Hazard areas (development permit areas). Infrastructure actions for the Village relevant to this document are to:

- Develop a Fire Protection Strategy related to sprinklering and wildland fire interface initiatives;

- Work with the Regional District to locate a waste disposal depot closer to downtown and existing neighbourhoods; and,

- Continually monitor the requirements of emergency service agencies, to ensure that they have the appropriate resources.

- Section 5.11 recognizes the importance of decision-making that is engaging and participatory. To that end, local decision-making includes communication and collaboration with the SLRD, Lil'wat Nation, Resort Municipality of Whistler (RMOW), and other provincial, federal, and Crown corporations.

4.2   PROVINCIAL

4.2.1   SEA TO SKY LAND AND RESOURCE MANAGEMENT PLAN (S2S LRMP)

The S2S LRMP has two levels of management direction for the region. These are 'General Management Direction' which applies to a range of land and resource values, and 'Land Use Zones' which are area specific directions for particular values. There are 16 values identified under the General Management Direction including: access, cultural heritage values, forest health, recreation, riparian and aquatic habitats, water, wildfire management, wildlife and biodiversity, bald eagle, deer, moose, mountain goat, grizzly bear, marbled murrelet, spotted owl, and visual quality. Within the LRMP, there are several specific management zones for wildlife and biodiversity including legal old growth management areas (OGMAs), and spatially explicit ministerial orders pertaining to ungulate winter range (UWR), visual quality objectives (VQO), and wildlife habitat areas (WHA). The majority of the study area is designated as 'Front Country Area', under the Land Use Zoning. The study area overlaps with five Landscape Units (LUs): Soo, Birkenhead, Billygoat, Railroad, and Ryan. LUs are designated with the primary purpose of facilitating old growth forest planning.

The Lil'wat Nation and the Province signed a land use planning Agreement in 2008. The entirety of the study area is within Lil'wat Traditional Territory. The Agreement identifies Spirited Ground, areas of high cultural or spiritual significance. The Lil'wat also has developed their Lil'wat Land Use Plan, which identifies Nt'akmen Areas (areas which are "important natural or cultural areas that enable the Lil'wat people to participate in traditional activities and express their connection to the land"). These, and other spatially explicit areas designated within the LRMP, are designed to protect cultural and spiritual high-value areas, and in which there may be potential impacts on land use and forest practices.

Within the General Management Direction for Wildfire Management, the S2S LRMP acknowledges that wildfires pose a risk to public safety, resource values and infrastructure, and that historic practices of fire suppression are contributing to increased risk (Ministry of Agriculture and Lands, 2008). The stated goals of the S2S LRMP in this

regard are to 1) enhance the ability to manage or suppress wildfire, and 2) maintain and/or restore ecosystem health through reintroduction of health-sustaining disturbance processes. The development of a Fire Management Plan is a key measure for obtaining these objectives.

These plans and spatially explicit ministerial orders must be reviewed, considered, and addressed during the site-level planning phase. Fuel management within these areas should aim to enhance these values, whenever possible and the land manager must be consulted regarding any overlapping values at risk, spatially explicit ministerial orders, or other notable values on the land base, during prescription development.

4.2.2   SEA TO SKY/ PEMBERTON ZONE FIRE MANAGEMENT PLAN

The Sea to Sky Fire Management Plan (FMP) is in the development phase, and currently only Part 1 is available for public review. Tactical planning is currently under development and will be publicly available later in 2016. The current plan identifies values at risk and prioritizes broad categories of values as 'themes' for categorizing response through the Resource Strategic Wildfire Allocation Protocol (RSWAP). The themes are categorized by priority:

1. Human Life and Safety;
2. Property and Critical Infrastructure;
3. High Environmental and Cultural Values; and
4. Resource Values.

Part 1 of the Plan also identifies those areas where natural or managed wildfires are permitted. These areas are where fires serve an ecological benefit, such as NDT4 and portions of NDT3 ecosystems, where the type and intensity of fire is determined as ecologically beneficial, identified values are not at risk, and the area is amenable to suppression efforts if required. The Wildland Urban Interface does not meet these criteria, and these areas are identified as full suppression zones.

The areas within the study area that fall within the IDFww BEC zone are considered a high frequency, low severity fire regime (NDT4) and have a high potential for ecosystem restoration to ameliorate high fuel loads due to forest in-growth and fire suppression.

The FMP recognizes the importance of CWPPs and fuel management recommendations within communities which can augment other treatments on a landscape scale. The strategic direction presented in the FMP must be considered for future fuel treatments, as these plans are developed and made publicly available and through consultations with the resource district.

A tactical planning section (Part 2) is targeted for finalization in 2017. Although not yet released to the public, drafts of Part 2 of the FMP recommend landscape level fuelbreaks across the region, many of which are partially within the study area and/or would provide significant wildfire hazard reduction to the Pemberton area.

Combinations of funding from various programs and coordination with a variety of agencies and governments may allow for larger-scale projects to be completed. FESBC funding was secured by the Sea to Sky Natural Resource District; the funding is to complete fuel treatment prescriptions along access corridors (Forest Service Roads), areas identified in the draft tactical planning section of the FMP. The District intends to follow with

operational treatments, pending further funding. More details regarding landscape level fuelbreaks can be found in Section 7.5.3.

4.3   ADJACENT JURISDICTIONS/ GOVERNMENTS

CWPPs have been developed for much of the adjacent areas to the study area defined for this document. The SLRD Electoral Area C is in the process of updating their CWPP (2016). The Lil'wat Nation / Mount Currie Indian Band completed a CWPP for IR #6 and #10 in 2010 and the Resort Municipality of Whistler last updated their CWPP in 2012. All four documents have been reviewed for synergistic project opportunities, as well as to confirm that there are no conflicting recommendations. The Village may wish to initiate or cooperate on projects recommended within other CWPPs: projects which would benefit the Village or the region as a whole. Should this be the case, the appropriate CWPP and government should be consulted for implementation recommendations and funding opportunities.

4.4   OTHER

British Columbia Timber Sales (BCTS) operates over most of the study area. In addition, licensees within the study area have Forest Stewardship Plans (FSP) that apply to the study area. Within these FSPs, there are identified results and strategies for values identified under the Forest and Range Practices Act (FRPA), which have specific directives under the Forest Planning and Practices Regulation (FPPR). These values typically have results and strategies identified by Forest Development Unit (FDU). These results and strategies are legally binding to those licensees to which the FSP applies. Fuel management activities must follow applicable legislation and any requirements of specific licences for forestry activities on Crown land, but not necessarily these specific FSP documents. That being said, direct consultation with the holders of these FSPs will ensure that on the landscape level (for the applicable Landscape Unit), the FRPA values are being addressed through sound forest management. Some examples of objectives are old growth management areas (legal and non-legal) and ungulate winter ranges. Other factors that will need consideration during prescription development include, but are not limited to, grizzly bear connectivity corridors for threatened populations, community watersheds, visual quality objectives, archaeological sites, wildlife habitat areas, and species at risk.

Forest licensees operating in the WUI have a responsibility to achieve appropriate fire management stocking standards to achieve stocking and wildfire management objectives.[33] Furthermore, forest professionals are expected to sign-off on a post-harvest commitment to appropriately abate any hazard created as result of harvesting or land clearing (plans may include pile burning or mulching wood waste).

5.0   PAST WILDFIRE RELATED PROJECTS

The Village has been working continuously to improve their community wildfire planning. Many of the recommendations from the 2005 CWPP have been implemented. The Village has incorporated recommendations into their OCP by recognizing wildfire as a natural hazard to the community and by improving and strengthening their Wildfire Hazard Development Permit Area and development permit process.

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[33] https://www.for.gov.bc.ca/hfp/silviculture/stocking_stds.htm

Pemberton Fire Rescue has undertaken FireSmart initiatives to increase public education and awareness of the practices and principles of FireSmart. The Village has provided FireSmart handouts to prioritized neighbourhoods, starting with the Kia Ora Trailer Park. Two members of Fire Rescue attended a FireSmart training program in Airdrie, Alberta; the intent is to initiate regular FireSmart seminars for community members. Fire Rescue provides FireSmart materials and information at public events.

Pemberton Fire Rescue includes regular wildfire-specific training for their members, including certification of members through the Structure Protection Program – Wildland Firefighter Level 1 (SPP-WFF 1). This program was developed to replace the S-100 Basic Fire Suppression and Safety and S-185 Fire Entrapment Avoidance courses for structural firefighters.

Campfire ban signs and Fire Danger Rating signage has been erected at the Fire Hall and Tourist Information Centre. Danger ratings are updated cooperatively by either the Pemberton Fire Zone or by Pemberton Fire Rescue.

Operational fuel treatment project was implemented on approximately 9 ha of land. This was a cooperative project between the Village of Pemberton and the BCWS and was based upon recommendations from the 2005 CWPP and the Village of Pemberton Fuel Management Pilot Project Proposal.[34]

Future successes in wildfire threat reduction activities will benefit from intra-department communication and cooperation to move them forward (Fire Rescue, Development Services, Parks and Trails, and Public Works).

6.0 FIRESMART

One of the most important areas with respect to forest fire ignition and the damages associated with a wildfire is the zone adjacent to buildings and homes. *FireSmart, Protecting Your Community from Wildfire*[35] is a guide developed by Partners in Protection that provides practical tools and information on how to reduce the risk of loss from interface fires. The FireSmart website can be visited at: www.firesmartcanada.ca.

We often consider wildfire an external threat to our residences; however, in many cases fire can originate as a house fire and spread into the interface. Regardless of the origin of the fire, home owners and businesses can take steps to reduce the probability of this occurring. There are two main avenues to FireSmart a home: 1) change the vegetation type, density, and setback from the building (fuel treatments and landscaping) and 2) change the structure to reduce vulnerability to fire and the potential for fire to spread to or from a building.[35]

FireSmart is a program that helps homeowners and the community prepare for the threat of wildfire in the WUI and aims to decrease the probability of ignition of a home (increase ignition resistance) by direct flame contact, embers igniting a structure, or by spot-ignited surface fires. It is based on creating defensible space around homes and structures, which can reduce the structures' or properties' fire hazard and allow for more effective and safer suppression efforts. The Wildfire Hazard Assessment System is based on two components:

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[34] Davies, J. and J. Malysh. 2007. Village of Pemberton Fuel Treatment Pilot Project.

[35] For further information regarding the FireSmart program see www.pep.bc.ca/hazard_preparedness/FireSmart-BC4.pdf

1. The Structure and Site Hazard Assessment Form, which evaluates building and adjacent site (yard) hazard; and,
2. The Area Hazard Assessment, which assesses the hazard of the site greater than 30 m from the home.

Though completing both assessments gives a more complete understanding of the interface fire hazard of a property, it is noted that in many developed areas in the interface, the areas more than 30 m from the home are often not in the control of the homeowner. Therefore, the overall fire hazard of each home and structure is, in part, dependent upon the FireSmart conditions of adjacent properties and property owners' ability and motivation to complete hazard reduction activities. This is the basis of the FireSmart Canada Community Recognition Program, a Program geared to motivate entire neighbourhoods or communities to cooperatively undertake fire hazard reduction activities and to recognize these efforts.

In more rural interface and intermix areas, homeowners often have ownership or control over larger areas of land. Although this provides the homeowner with opportunity to mitigate their risk with less dependence on their neighbor, it represents a much larger amount of work and cost for a single family or individual.

During extreme wildfire events, most home destruction was a result of low-intensity flame exposures. For example, during the 2010 Fourmile Canyon fire outside Boulder, Colorado, 17% of the 162 homes destroyed were attributed to crown fire.[36, 37] Instead of high intensity flames, the majority of homes ignited as a result of firebrands (or embers), which ignited lower-intensity surface fires adjacent to structures or the home directly.[36] The likelihood of home ignition is mostly determined by the area within 30 m of the structure: the building materials, design, landscaping, and maintenance (accumulation or presence of flammable debris on or near the structure). Additionally, areas of denser suburban development have additional risk associated with direct house to house transmission, overwhelming the firefighting capacity available. More than one structural fire at the same time would likely overwhelm their efforts. Effective fire protection depends on ignition resistant homes and properties during extreme wildfire events.[36]

Incorporating FireSmart at the neighbourhood level is a process dependent upon incremental build-out: one structure or property at a time. The success of a FireSmart program therefore rests upon the commitment of communities, elected officials, policies and bylaws over long time scales.

6.1 FIRESMART STRUCTURE PROTECTION

An important consideration in protecting the WUI zone from fire is ensuring that homes can withstand an interface fire event. Structure protection is focused on ensuring that building materials and construction standards are appropriate to protect individual homes from interface fire. Materials and construction standards used in roofing, exterior siding, window and door glazing, eaves, vents, openings, balconies, decks, and porches

[36] Calkin, D., J. Cohen, M. Finney, M. Thompson. 2014. Proc Natl Acad Sci U.S.A. Jan 14; 111(2): 746-751. Accessed online 1 June, 2016 at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3896199/.

[37] Graham, Russell; Finney, Mark; McHugh, Chuck; Cohen, Jack; Calkin, Dave; Stratton, Rick; Bradshaw, Larry; Ned Nikolov. 2012. Fourmile Canyon Fire Findings. Gen. Tech. Rep. RMRS-GTR-289. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 110 p.

are primary considerations in developing FireSmart neighbourhoods. Housing built using appropriate construction techniques and materials are less likely to be impacted by interface fires.[35] The Village of Pemberton has taken an important initial step in FireSmart compliance by prohibiting unrated roofing materials for new builds. More details regarding Village Bylaws and FireSmart compliance can be found in Section 7.3.1.1.

While many BC communities established to date were built without significant consideration with regard to interface fire, there are still ways to reduce home vulnerability. Changes to roofing materials, siding, and decking can be achieved over the long-term through voluntary upgrades, as well as changes in bylaws and building codes. The FireSmart approach has been adopted by a wide range of governments and is a recognized process for reducing and managing fire risk in the wildland urban interface. The most important components of the FireSmart approach are the adoption of the hazard assessment systems for wildfire, site and structure hazard assessment, and the proposed solutions outlined for fuel management, structure protection, and infrastructure. More details on FireSmart construction can be found in APPENDIX D: FIRESMART CONSTRUCTION AND LANDSCAPING.

The following link accesses an excellent four-minute video demonstrating the importance of FireSmart building practices during a simulated ember shower: http://www.youtube.com/watch?v=_Vh4cQdH26g.

6.1.1   FIRESMART COMPLIANCE WITHIN THE STUDY AREA

Individual interface homes in the study area are in various states of FireSmart conditions. The majority of homes have rated roofing. Cladding (siding), soffits, and eaves throughout the study area are constructed of a range of materials, from unrated vinyl and wood siding to non-combustible or fire resistant materials, such as hardi-board, heavy timber and stone. Decking in the study area is largely not FireSmart compliant: wood and open (underside joists are exposed).

Figure 17. Property and homes are in a range of FireSmart compliance. Left: typical house in more rural parts of the study area. Right: typical house within the Village boundary and more developed portions of the study area. Note the metal roof, which is FireSmart compliant, but there is not sufficient defensible space.

Figure 18. Typical home in the Benchlands. Roofing is FireSmart compliant, though open decks provide locations for embers to get trapped and ignite the home.

Landscaping in the study area is generally not FireSmart compliant. Cedar is the most common hedging material and many homes do not maintain 10 m defensible space. Accumulations of conifer foliage in roof corners and gutters are not uncommon. Firewood stacked adjacent to or directly under structures increases the hazard of some homes within the study area. On the other hand, many residences are surrounded by lawn, agricultural fields, 10 m defensible space, and/or hardscaping (rocks), all of which are FireSmart compliant.

The Village currently provides a list of approved landscaping species.[38] It is recommended that this plant list be updated to provide homeowners additional information regarding the flammability of each species, as well as a recommended planting distance from structure.

It is recommended that a multi-prong plan be put in place to increase FireSmart compliance on private land. This plan should incorporate public awareness around hazard on their property and within their neighbourhood, recruitment of communities into the FireSmart Canada Community Recognition Program, and providing support and resources to help them to overcome small hurdles which may be hindering action in their community.

6.2 FIRESMART FUEL TREATMENTS

FireSmart fuel treatments are an effective method of reducing the ease with which fire can move to and from a home. Treatments are completed by altering the vegetation around the home; the type of alteration required is determined by the distance from the home, or value at risk (Figure 28). The principles and practices of FireSmart fuel treatments are discussed in depth in APPENDIX E: FIRESMART FUEL TREATMENTS.

Disposal of woody material is a challenge for many landowners. This often results in piled accumulations on the property. These piles can cure (dry out) during the fire season and increase the fire hazard to the property.

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[38] The Village of Pemberton Landscape Plant List, 2011.

Another common result is dumping of yard waste onto Crown land. This was observed in the study area; large piles of cured wood waste were found along forest service roads, increasing fire hazard to the community (Figure 19).

Figure 19. Yard and wood-waste dumped and left to cure along the roadside increases the fire threat of the community.

7.0 ACTION PLAN

The following material consists of the key elements of the CWPP and provides recommendations to address each element. The elements discussed in this section include: Communication and Education; Structure Protection; Emergency Preparedness; Planning and Development; and Vegetation/Fuel Management.

7.1 COMMUNICATION AND EDUCATION

The establishment of tools to reduce fire risk is one of the keystones to building a FireSmart community. Without the support of the community, the efforts of public officials, fire departments, and others to reduce wildfire will be hindered. In many communities, there is a general lack of understanding about interface fire and the simple steps that can be taken to minimize risk. Additionally, public perception of fire is often underdeveloped due to public confidence and reliance on local and provincial fire rescue services. In communities where the dangers of wildfire are well understood, there is increased support and interest in reducing fire risk and tools to reduce fire risk are more likely to be adopted.

Based on the consultation completed during development of this Plan, it is evident that community members, the Village of Pemberton, and Pemberton Fire Rescue generally have a good level of awareness of fire risk in the interface; however, field observations highlighted the need to further educate the community on what private land owners can do to build a FireSmart community. Often times, the risk of wildfire is at the forefront of public awareness during or after major wildfire events, either close to home, such as the Boulder Creek Fire, or further

afield, such as what occurred in Fort McMurray in the spring of 2016. The challenge is to retain this level of awareness outside these times. The Communication and Education objectives for the study area are:

- To improve public understanding of fire risk and personal responsibility by increasing resident awareness of the wildfire threat in their community and to establish a sense of homeowner responsibility;

- To enhance the awareness of elected officials and stakeholders regarding the resources required to mitigate fire risk; and,

- To inform private landowners of programs, initiatives, and opportunities available to them to aid in wildfire risk and fuels reduction on their properties.

The two principal goals for the Village of Pemberton to enhance wildfire related Communication and Education should be to:

- Reduce human-caused fire ignitions; and

- Reduce fire risk on private property.

Communicating effectively is the key aspect of education. Communication materials must be audience specific, and delivered in a format and through a medium that will reach the target audience. Audiences should include home and landowners and occupiers, school students, local businesses, Village council and staff, local utility providers, and forest tenure holders. Education and communication messages should be simple yet comprehensive. A basic level of background information is required to enable a solid understanding of fire risk issues and the level of complexity and detail of the message should be specific to the target audience.

The Village should consider implementing a multi-media education program that maximizes education efforts during the wildfire season. The website has a wildfire prevention page that displays wildfire prevention information prominently and has links to current fire danger and fire/burning bans when they are in effect. Links to any existing or planned wildfire or FireSmart programming (Fire Prevention Week, FireSmart seminars, etc.) should be included. Websites and social media are some of the most cost-effective methods of communication available. The Pemberton Firefighters Association, the Village of Pemberton, and BCWS Facebook pages are effective means of disseminating important information and updates to a large audience quickly and in real-time. These Facebook pages are maintained regularly and provide interesting and useful information to their audience. Pew Research Center recently found that approximately 60% of Americans get their news from social media; 44% get their news from Facebook.[39] Twitter, LinkedIn, and Instagram are other social media platforms which can be used to provide real-time information to a large audience and are used, albeit to a lesser extent, by users as their primary news source.[40]

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[39] Pew Research Center Journalism and Media. Social media news use: Facebook leads the pack. May 25, 2016. Accessed November 17, 2016 from http://www.journalism.org/2016/05/26/news-use-across-social-media-platforms-2016/pj_2016-05-26_social-media-and-news_0-03/.

[40] Although the research cited in this document is of American social media users, it can be cautiously assumed that, while data and numbers are not likely exact to the Canadian demographic, similar trends in Canada likely occur.

The challenge of all social media is to ensure that your message reaches the intended audience, accomplished by having users 'like' the page, engage with the posts, or re-tweet the information to an even larger audience. There are communication experts who specialize in social media who can evaluate an organization's goals and offer tips to increase engagement. Likewise, it is important to be aware of the demographic of the community; a younger, more digitally connected community is more likely to use social media to get updates on 'newsworthy items'.[41] Pemberton may find that social media is very effective at reaching a large percentage of their population, as the average age of residents is quite young.

The Village has been proactive at distributing FireSmart information at community public events; this can be expanded upon and/or adapted to further enhance wildfire preparedness and education. The Village should consider developing complementary elementary school program, which could include both fire and safety program and also include wildfire preparedness. Programming could include volunteer/advocacy work from professional foresters, wildland firefighters, Pemberton Fire Rescue, Lil'wat Nation Land and Resource Department staff, and Village staff. Costs for program development and resourcing required for administration and implementation could be shared by multiple jurisdictions/ governments, if program was taught across the region.

Provincial funding for fuel management is only provided for public lands. It is important for homeowners to understand what they can do to reduce the risk of wildfire damage to their property or adjacent residences. In particular, WUI property owners need to be made aware of their responsibility to implement FireSmart mitigation measures on their properties and residences and also understand how their contributions benefit community wildfire safety. FireSmart information material is readily available and simple for municipalities to disseminate. It provides concise and easy-to-use guidance that allows homeowners to evaluate their homes and take measures to reduce fire risk. However, the information needs to be supported by locally relevant information that illustrates the vulnerability of individual houses to wildfire. Pictures of FireSmart in action can be an effective tool for educating the public (Figure 20).

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[41] The Pew Research Center finds that 69% of Facebook users are 49 and younger. Only 8% of Facebook users are older than 65.

Figure 20. Both photos are from the Beaver Creek Fire in Colorado. Photo credits: Wardner's Type III Incident Management Team. Left: the success was attributed to the combination of efforts of the homeowner with construction and mitigation work and the firefighters with water tanks, pumps, hose, and sprinklers. Right: exterior sprinklers on a home raise the relative humidity around the structure.

Bringing organizations together to address wildfire issues that overlap physical, jurisdictional or organizational boundaries is a good way to help develop interagency structures and mechanisms to reduce wildfire risk. Engagement of various stakeholders can help with identifying valuable information about the landscape and also help provide unique and local solutions to reducing wildfire risk. The Village should consider leading the establishment of a regional interface committee to coordinate wildfire risk reduction efforts and aim to integrate forest licensees that are operating within the TSA. Coordination of fuel management activities with forest licensees could significantly aid in the establishment of large, landscape-level fuelbreaks or compliment current or proposed fuel treatment areas.

Table 5. Summary of Communication and Education recommendations.

Communication and Education			
Item	**Priority**	**Recommendation**	**Estimated Cost ($ or person hours/ year)**
Objective: To improve public understanding of fire risk and personal responsibility by increasing resident awareness of the wildfire threat in their community and to establish a sense of homeowner responsibility.			
1	High	• This report and associated maps to be made publicly available through webpage, social media, and public FireSmart meetings.	1 – 6 hours, depending on method of distribution
2	High	• Regular updates of the CWPP to gauge progress and update the threat assessment for changes in fuels, forest health, land planning, stand structure or changes to infrastructure in the interface. Updates should be completed every 5 - 7 years.	UBCM/ SWPI funding/ Municipal funding (SWPI funds up to 75% of update cost)

Communication and Education			
Item	Priority	Recommendation	Estimated Cost ($ or person hours/ year)
3	Moderate	• Review current social media effectiveness and create a social media strategy to ensure that the full power of social media is leveraged to communicate fire bans, high fire danger days, wildfire prevention initiatives and programs, easily implementable FireSmart activities, and updates on current fires and associated air quality, road closures, and other real time information.	~$2,000 - $4,000
4	Moderate	• Establish a school education program to engage youth in wildfire management. Consult Association of BC Forest Professionals (ABCFP) and British Columbia Wildfire Service (BCWS) (Pemberton Zone), as well as local fire officials and First Nations representatives, to facilitate and recruit volunteer teachers and experts to help with curriculum development and to be delivered in elementary and/or secondary schools. Educational programming can be done in conjunction with programs on fire extinguisher training and should include Pemberton Fire Rescue in curriculum development and presentation. Costs to be shared regionally (Squamish-Lillooet Regional District (SLRD), Village, and First Nations). Research funding opportunities related to wildfire and education.	~$2,000
5	Low	• The Village of Pemberton should continue to install fire danger rating signs in strategic locations across the study area. Recreation sites and high-use recreational areas which are not already signed should be targeted first, such as the main parking lot at the base of the Mackenzie Basin Forest Service Road (FSR) and One Mile Lake Park.	~$1,500 / sign
Objective: To enhance the awareness of elected officials and stakeholders regarding the resources required to mitigate fire risk.			
6	High	• Work with adjacent jurisdictions, governments, stakeholders, and provincial agencies to establish a Wildfire Suppression Group (SLRD, Ministry of Forests, Lands and Natural Resource Operations (MFLNRO), BCWS, Lil'wat Nation, N'Quatqua First Nation, and forest licensees) to identify wildfire related issues in the area, resource deficiencies, and to allow for a coordinated and cost-sharing approach to wildfire mitigation. This group could work at implementing strategic recommendations from this document that impact all parties.	40 hours +, based on monthly 1 hour meetings, preparation and action
7	Moderate	• Create and maintain a spatial database that includes CWPP spatial data for all CWPPs that have been developed on, or include threat assessments and recommendations over, land within the Pemberton Valley. This includes amalgamating spatial data from SWPI/UBCM, Lil'wat Nation, N'Quatqua First Nation, and SLRD. This database can be used in the regional wildfire mitigation planning for the Wildfire Suppression Group. Cost can be shared among members of the Wildfire Suppression Group.	$1,500 + maintenance costs (annual or biennial updates)

7.1.1 COMMUNICATION WITH INDUSTRY

Risk of human-caused ignition within the study area is not limited to private property owners and individual residents. Railways, power lines, and industry activity all pose a risk of ignition, particularly in areas where cured fuels or fuel accumulations exist. Train cars can cause sparks that can ignite cured fuels along the railway tracks

and tree failures adjacent to power lines (transmission and distribution) are common occurrences and represent significant risks to ignition within the study area.

Table 6. Summary of recommendations regarding communication with industry.

Item	Priority	Recommendation	Estimated Cost ($ or person hours/ year)
Objective: To reduce the risk of ignition from industrial sources and to encourage industrial operators to maintain their right-of-ways and other infrastructure in low hazard state.			
8	High	• Work with industrial operators to ensure that right-of-ways do not contain fine fuel accumulations (easily cured) prior to the fire season and further are maintained in a low hazard state. Work with industrial operators to ensure that high risk activities, such as right of way mowing, do not occur during high or extreme fire danger times to reduce chance of ignitions. Industrial operators include CN Rail, BC Hydro, licensees, and independent power producers.	2 - 4 hours
9	Moderate	• Work with BC Hydro to ensure that hazard trees along distribution lines are assessed regularly. Work with BC Hydro to ensure that transmission line right-of-ways are maintained in a moderate hazard state and dead, fine fuel accumulations do not occur. Generally, ensure the transmission right-of-ways are maintained in moderate or low hazard state and serve as fuelbreaks.	2 - 4 hours

7.2 STRUCTURE PROTECTION AND PLANNING

Establishing a FireSmart community will reduce losses and impacts related to wildfire. Two classes of structures were considered for this Plan: critical infrastructure and residential or commercial infrastructure. Critical infrastructure is distinct as it provides important services that may be required during a wildfire event or may require additional considerations or protection. As outlined above, FireSmart principles are important when reducing wildfire risk to both classes of structure and are reflected in the outlined recommendations. The structure protection objectives for the Village are to:

- Enhance protection of critical infrastructure from wildfire; and

- Encourage private homeowners to voluntarily adopt FireSmart principles on their properties.

The two main avenues for implementing FireSmart include:

- Change the vegetation type, density and setback from the structure; and

- Change the structure (where feasible) to reduce vulnerability to fire and reduce the potential for fire to spread to or from a structure.

Critical infrastructure is important to consider when planning for a wildfire event. The use of construction materials, building design and landscaping must be considered for all structures when completing upgrades or establishing new infrastructure. Additionally, vegetation setbacks around critical infrastructure should be compliant with FireSmart recommendations.

Detailed FireSmart assessments were not completed for critical infrastructure, but general observations were made. In general, infrastructure was in a range of FireSmart compliance. Flammable coniferous tree branches often hung over roofs and underneath eaves. Small actions, such as regularly cleaning roofs and gutters to avoid combustible material accumulations, pruning conifer trees to maintain a defensible space and reduce fuel continuity, and sheathing in open decks to reduce locations where embers can be trapped igniting the building, can improve the FireSmart compliance of Village-owned infrastructure.

Figure 21. Village Fire Rescue (left) and Village Hall (right). FireSmart assessments of Village critical infrastructure is recommended to increase compliance and reduce overall threat to structures.
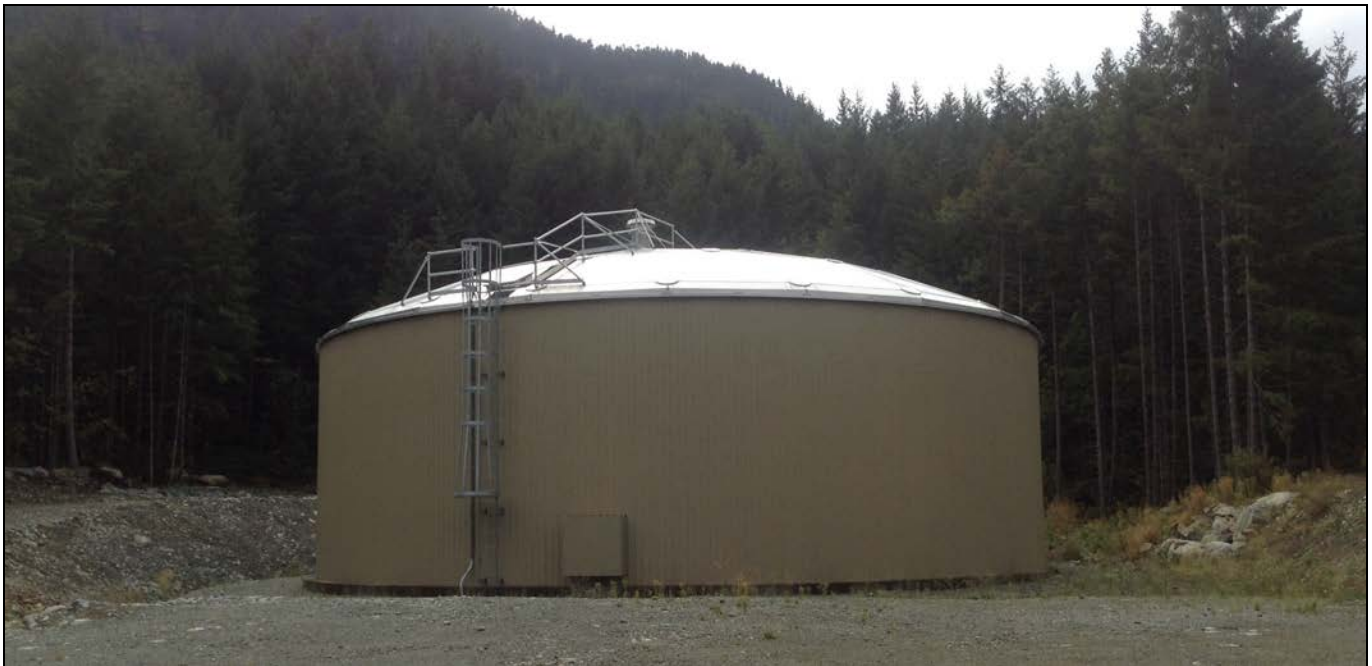
Figure 22. The Village of Pemberton water tower is FireSmart compliant; vegetation within 30 m should continue to be cut and removed on an annual basis.

Water is the single most important suppression resource. For suppression, Pemberton Fire Rescue depends on stand pipes/ hydrants within the Village boundary and hydrants, shuttled water and natural water sources within the outer extents of the Fire Service Area. Currently, Pemberton Fire Rescue provides services to many outlying areas in the Pemberton Valley. These areas, while under the jurisdiction of the SLRD, have the potential to impact the Village's wildfire threat, as well as Fire Rescue operations. The Pemberton Meadows area has been identified as a challenge to Pemberton Fire Rescue, as fire trucks must return to Village hydrants to refill. Portable tanks, use of natural water sources, and water tenders may be required for suppression in these areas. For this reason, it is recommended that the Village works with the SLRD to encourage the identification and mapping of all available water sources, particularly focusing on those areas of poor water availability and a considerable distance to hydrants. More details can be found in Section 7.3.

Table 7. Summary of Structure Protection and Planning recommendations.[42]

Structure Protection and Planning			
Item	Priority	Recommendation	Estimated Cost ($ or person hours/ year)
Objective: Improve the FireSmart conditions of the Village by improving suppression abilities for interface areas and encouraging home and property owners to voluntarily increase FireSmart compliance.			
10	High	• Facilitate different neighbourhoods within the study area to become recognized as FireSmart communities. Recruit champions within each community to implement local projects. Champions should be trained in FireSmart, have educational materials available to them, and be supported by the Village and Fire Rescue to complete fire hazard mitigation projects.	$2,500 per neighbourhood UBCM/SWPI FireSmart grant eligible
11	Moderate	• Encourage the SLRD to identify and map available water sources (to have adequate supply for suppression purposes during the fire season, as well as be accessible for suppression crews) and identify areas of poor water availability. A geospatial database with water availability and accessibility as attributes would aid in suppression in areas currently within the Fire Service Area. Access and water use agreements may be appropriate in locations on private land or to access water licenses. Water source mapping provided by the SLRD can be integrated into the IamResponding[43] application, already in use by Pemberton Fire Rescue.	4 - 8 hours

[42] All activities potentially eligible for UBCM/ SWPI FireSmart funding have been identified in the table, as such. The FireSmart grant of $10,000 is currently offered annually. Activities will need to be further prioritized by the Village; it is recognized that the current UBCM/SWPI funding available will not be sufficient to complete more than one FireSmart activity per funding cycle and that additional person hours may be required by Village staff to apply for funding, as well as during implementation.

[43] Iamresponding.com

Structure Protection and Planning			
Item	Priority	Recommendation	Estimated Cost ($ or person hours/ year)
Objective: Improve the FireSmart conditions of the Village by increasing FireSmart compliance for Village-owned assets and critical infrastructure.			
12	High	• Complete FireSmart assessments for critical infrastructure and Village owned assets and prioritize FireSmart projects by efficacy at reducing fire hazard, cost efficiency, and visibility to the public. Implement projects according to priority to increase FireSmart compliance. FireSmart projects on Village-owned structures can be used as public-education/ demonstration projects to display the practices and principles of FireSmart and the Village's commitment to wildfire threat reduction.	~16 hours to complete assessments. Project cost dependent upon FireSmart project undertaken. UBCM/SWPI FireSmart grant eligible

7.2.1   WUI SITE AND STRUCTURE ASSESSMENTS

There are a number of mechanisms that can be employed to motivate homeowners to reduce the threat to their home, and in turn, to the neighborhood/community. One mechanism is to instigate change through bylaws or covenants. Another way to motivate change is through education and increased awareness of fire hazard on private property. The reduction of wildfire hazards on private lands generally depends on the homeowner. This includes choices in exterior building materials, setbacks from forest edges, and landscaping. In other jurisdictions (notably Colorado Springs, CO and Whistler, BC), programs to increase awareness of fire hazard and spur homeowner action have been implemented successfully. In these jurisdictions, fire hazard assessments were completed for homes in the Wildland Urban Interface. The results of the assessments were shared with the homeowner/ property owner at the time of assessment. The assessors also were able to use this opportunity to provide advice on easily actionable items which could decrease the fire hazard to the property. The results of the hazard assessments were compiled into a geo-spatial database and made available to the public. Each home and property owner could look up to see the hazard of their property, as well as their neighbours' and how both may contribute to, or lessen, the overall fire hazard and risk of their neighborhood (Figure 23). This database may be useful for the Pemberton Fire Rescue as triage assessments and to aid in suppression planning.
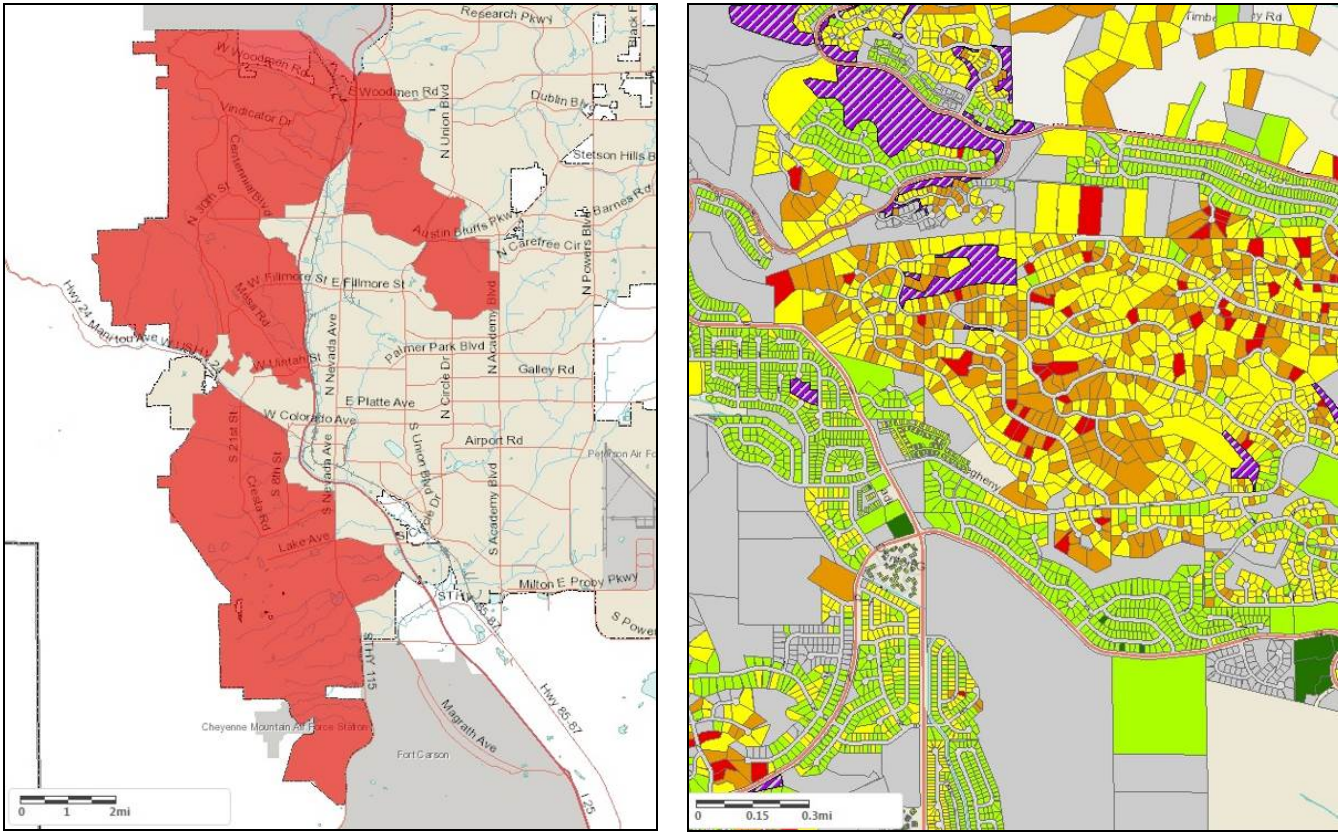
Figure 23. Screen captures of Colorado Springs, Colorado public internet mapping service. The left figure displays the WUI area in red in which fire hazard assessments were completed. The right figure displays a neighbourhood within the WUI area and the fire hazard for each individual property (red is extreme, orange is very high, yellow is high, bright green is moderate and dark green is low).[44]

It is recommended that the Village develop a similar fire hazard assessment program. Individual properties in the interface and intermix should be assessed using a FireSmart site and structure assessment form and to provide the results and opportunities for hazard mitigation to the property owner/ resident. Results could be hosted on the Village's website on the map page as a digital and interactive map. Property owners could request a re-assessment upon completion of various mitigative actions and updates posted periodically on the mapping site.

This program could be combined with other initiatives, such as a chipping program, free yard waste drop-off, a scheduled garden debris burning weekend, or include distribution of additional FireSmart educational materials. The program will be most effective if it evaluates hazard, as well as provides property owners the information they need to effectively reduce the hazard and methods to dispose of materials removed.

It is recognized that this program could come at considerable cost to the Village. Opportunities for savings may include options such as utilizing a student or work experience program participant to complete the assessments, having FireSmart-trained community members or Fire Rescue members complete the assessments, or targeting

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[44] http://gis.coloradosprings.gov/Html5Viewer/?viewer=wildfiremitigation. Colorado Springs, CO.

the program to the highest priority (highest threat) areas, and then expanding the program in phases, as resources allow. Training one or more community members to complete the assessments would have the bonus of capacity building and increasing local knowledge of wildfire risk and mitigative options. The program could be reduced in scope and completed without the spatial data component at considerably less cost, although this would likely reduce effectiveness, as well as the ability to track program results overt time: results which could aid in increasing effectiveness of future management decision-making.

The recently launched SWPI FireSmart Grant Program provides funding of up to $10,000 to undertake FireSmart planning activities for private lands. Both recommendations in Table 8 may be considered eligible activities for UBCM/SWPI FireSmart grant.

Table 8. Summary of Structure Protection and Planning: WUI Site and Structure Assessments recommendations.[45]

Emergency Response			
Item	Priority	Recommendation	Estimated Cost ($)
Objective: Encourage private homeowners to voluntarily adopt FireSmart principles on their properties.			
13	High	• Remove barriers to action for landowners by providing methods for them to cheaply and easily dispose of the wood and green waste removed from their property. Programs may include scheduled community chipping opportunities, free green/ wood waste drop-off, or scheduled burning weekends. Information on how to obtain burning permits could be made available.	Cost dependent upon program UBCM/SWPI FireSmart grant eligible
14	Moderate	• Complete wildland urban interface (WUI) Site and Structure Hazard Assessments for interface homes, make hazard mapping for assessed homes publicly available, and provide informational material to homeowners on specific steps that they can take to reduce fire hazard on their property.	$10 -$12/ home UBCM/SWPI FireSmart grant eligible

7.3   EMERGENCY RESPONSE AND PREPAREDNESS

Fire protection within the study area and rural areas outside of, and adjacent to the study area, comes from Pemberton Fire Rescue. Pemberton Fire Rescue (or Fire Rescue) is made up of 21 members: one full-time Fire Chief and 20 paid-on-call members. The Fire Protection Area of Pemberton Fire Rescue is geographically large, extending well outside the study area up Pemberton Meadows Road and past Mount Currie to the east (Figure 24). Pemberton Fire Rescue has a formal agreement with the SLRD to provide fire protection to areas adjacent to the Village on land within SLRD jurisdiction. The Fire Protection Area is under review and will be finalized in early 2017. For the portion of the Fire Service Area under SLRD jurisdiction, the role of the Village is limited to one of influence to encourage action which will aid in Fire Rescue operations and mitigate wildfire hazard for the valley.

[45] All activities potentially eligible for UBCM/ SWPI FireSmart funding have been identified in the table, as such. The FireSmart grant of $10,000 is currently offered annually. Activities will need to be further prioritized by the Village; it is recognized that the current UBCM/SWPI funding available will not be sufficient to complete more than one FireSmart activity per funding cycle.

Pemberton Fire Rescue has a mutual aid agreement with the Resort Municipality of Whistler and is currently working on a mutual aid agreement with Mount Currie. Although there is no official mutual aid in place, Mount Currie and Pemberton Fire Rescue have been operating as such, both responding when resources allow (sufficient firefighting personnel available). There is a small gap (~800 m) in the Fire Protection Area up Pemberton Meadows Road. It can be assumed that Pemberton Fire Rescue would respond to calls in this area, should one occur.

Fire Rescue has a working relationship with the BCWS Pemberton Zone; there is regular communication between the base and the fire hall and each agency is aware of the others capabilities and resources. Cross training between the agencies has been difficult, mostly due to timing and limited resources.

Pemberton Fire Rescue responds to an average of 200 calls per year, 5% of which are wildland fire calls (an average of 10 per fire season).[46] Pemberton Fire Rescue works closely with the BCWS: as first responders, they assess the incident and call BCWS when applicable. Some fires remain multi-agency fires (approximately 4 per fire season), while others are handed over to BCWS crews, depending on fire location, structural involvement, and other variables.

Pemberton Fire Rescue and its members utilize the IamResponding application. The application is a valuable member, training, equipment, and scheduling tracking and organizational technology. It allows for live mapping of all responding members, dispatches messages to direct to mobile devices, tracks training attendance and certification expiration, apparatus status, hydrant and water source mapping, and allows for web-based scheduling. Primarily, the application reduces response time and allows for emergency response resource management.

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[46] Data provided by Pemberton Fire Rescue.
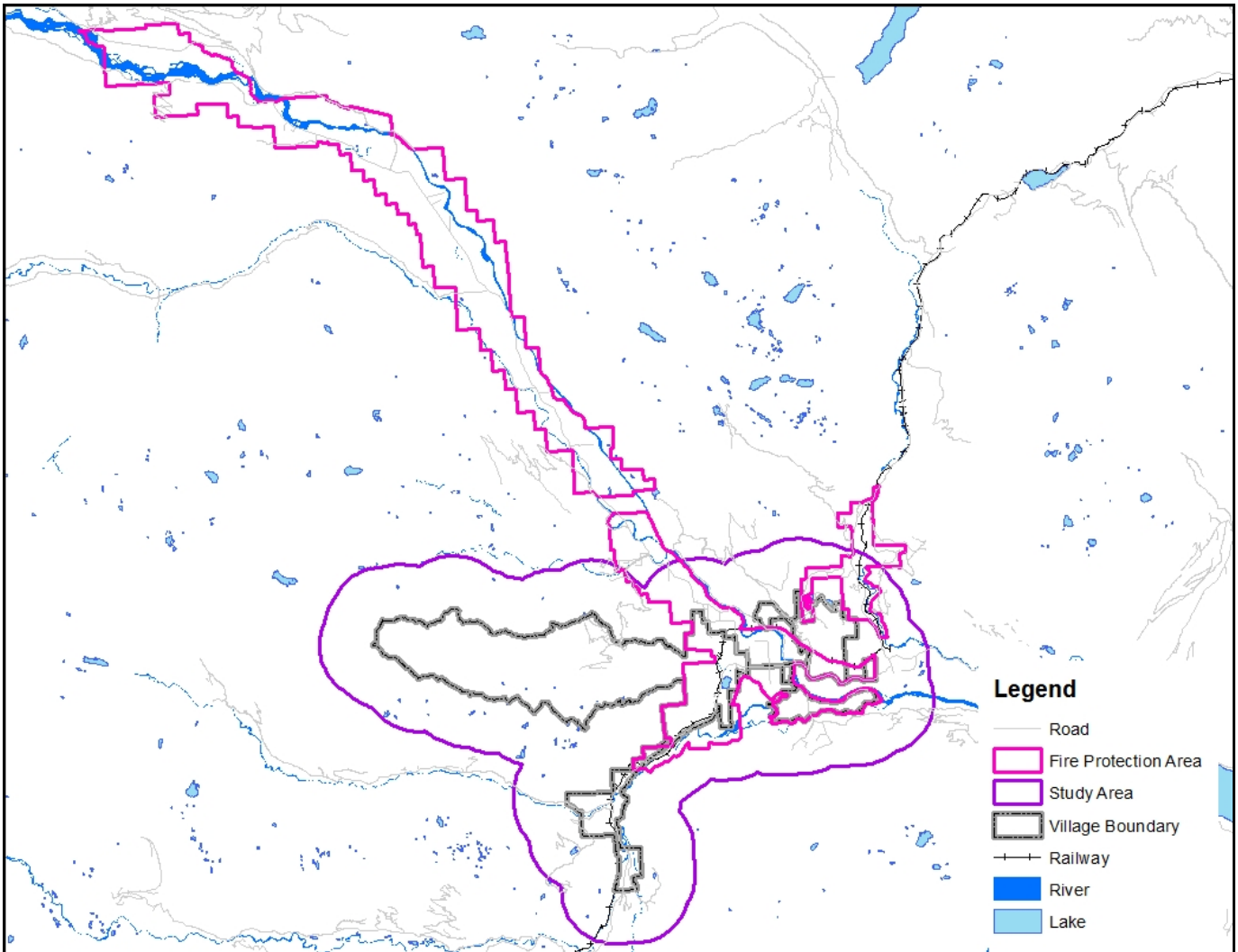
Figure 24. The Pemberton Fire Rescue Fire Protection Area extends well past the study area boundary approximately 35 km up Pemberton Meadows Road to the north and past Mount Currie up Pemberton Portage Road.

Fire Rescue members undergo significant training, including weekly training throughout the year, and 4 wildland fire training sessions per year. The Fire Chief has OFC SPP-WFF 1, wildland fire protection training for structural firefighters and is considered a qualified in-house fire service instructor (train the trainer certification). Of the 21 members, 80% have some wildfire training (S100 or SPP-WWF 1). Member recruitment is always a challenge for the Chief, which is a common issue in rural fire departments. Ensuring members have sufficient training is also a challenge. Time is the biggest limiting factor; members usually have full-time employment elsewhere.

Water supply within the Village boundary is sufficient; hydrants are flow-tested and serviced regularly. In general, the Village has good hydrant coverage, with one notable exception on Highway 99 between the Village Core and Pemberton Farm Road East. Outside the Village boundary, hydrants are more limited. Pemberton Meadows Road does not have hydrants and travel time back to hydrants to refill trucks is significant. Use of natural water sources and portable tanks are necessary for efficient suppression.

Fire Rescue has the following equipment available for wildland (and structural) fire response:

- 2017 Pumper Truck

- 1996 Engine with an 800 gallon tank and 1,050 gpm pump

- 2006 Ford F550 4 X 4 CAFS (compressed air foam) mini pumper

- Portable water tanks, portable pumps, forestry hose, and associated jewelry

Fire Rescue does not have the ability to effectively access and use natural water sources for suppression. It is recommended that the Village discuss procurement of a water tender with the SLRD and purchase the equipment to draft and refill the tender and fire trucks from water sources, rather than returning to a hydrant. It is also recommended that the Village encourage the SLRD to map available water sources and investigate agreements to access water sources on private land, with a focus on those areas without available hydrant (areas outside the Village boundary).

Pemberton Fire Rescue has a Hazardous Materials (Haz-Mat) trailer that could be outfitted as a wildfire trailer with a sprinkler protection unit (SPU). It is recommended the Village outfit the trailer with a sprinkler protection unit sufficient to protect 20 – 30 homes. The SPU could also be used as a training trailer to demonstrate to the public the value of external sprinklers for home protection. Garibaldi Volunteer Fire Department in Black Tusk Village has a self-assembled SPU with capacity for 20 – 30 homes; consultation with the Fire Chief may result in valuable insight on how to assemble a unit most cost-effectively.

The UBCM owns four complete SPUs, each equipped to protect 30 – 35 structures. The kits are deployed by the MFLNRO/BCWS incident command structure and are placed strategically across the province during the fire season based on fire weather conditions and fire potential. When the kits are not in use, they may be utilized by fire departments for training exercises. SPUs can be useful tools in the protection of rural/ interface homes in the event of a wildfire. It is recommended that Pemberton Fire Rescue stays up to date on the location of, and request process for, a UBCM-owned SPU in the event of a wildfire where SPUs would be an effective structural protection tool.

The Fire Chief noted that house numbers are not always available or visible, which has in some cases slowed emergency response times. It is recommended that the Village work with SLRD to create a program which provides reflective house numbers to community members and instructions on how and where best to affix or display them to best facilitate emergency response.

Table 9. Summary of Emergency Response recommendations.

Emergency Response			
Item	Priority	Recommendation	Estimated Cost ($ or person hours / yr)
Objective: To improve structural and wildfire equipment and training available to Pemberton Fire Rescue.			
15	High	• Pemberton Fire Rescue to organize and facilitate annual cross training opportunities with BCWS. Interface training could include completion of a mock wildfire simulation in coordination with BCWS, instruction on early detection and reporting of wildfires. Training could be coordinated with other fire departments in the area (Birken Volunteer Fire Department, Resort Municipality of Whistler (RMOW), Mount Currie, and N'Quatqua) to enhance the firefighting capabilities in the region. It is recognized that BCWS crew resources are limited and their availability and is highly dependent upon the current fire season and other BCWS priorities.	$2,000 (annually)
16	High	• Pemberton Fire Rescue to continue focus on member training. Recommended target of 100% of members with Structure Protection Program – Wildland Firefighter Level 1 (SPP-WFF 1) certification. SPP-WFF 1 training is 6 hours (3 – 2 hour units) with practical use of fire department equipment.	~$60 - $80/ member
17	High	• The Village to obtain hard-suction hose to provide the ability to draft from natural water sources.	$400 - $800
18	High	• Encourage the SLRD to procure a water tender for suppression in those areas with limited water availability and a long distance from hydrants (SLRD jurisdiction currently covered by the Pemberton Fire Rescue through a Fire Service Agreement).	4 – 6 hours
19	Moderate	• Coordinate with SLRD Electoral Area C to provide reflective house numbers and instructions about how and where best to affix them to facilitate emergency response. Research possible funding opportunities to offset costs.	2 -4 hours
20	Moderate	• The Village of Pemberton to outfit the existing Haz-Mat trailer with an SPU with coverage for 20 – 30 homes. The trailer can be used for structure protection and demonstration of the ease and utility of exterior sprinklers for their homes.	Protection for 4 houses can be purchased in sets for ~$3,000 or units can be created from parts for considerably less
21	Low	• Review UBCM-owned sprinkler protection unit (SPU) request procedure.	1 – 2 hours

7.3.1 EVACUATION AND ACCESS

Evacuation and access is a limitation in the study area and within the greater Fire Protection Area. Access to Pemberton is from Highway 99 south to Vancouver or north to Lillooet. In both directions, the highway is narrow and winding.

Road networks in a community serve several purposes including providing access for emergency vehicles, providing escape/evacuation routes for residents, and creating fuelbreaks. Access and evacuation during a wildfire emergency often must happen simultaneously and road networks should have the capacity to handle both. If wildfire were to block Highway 99 in either direction, evacuation of several communities would be severely limited. Smoke and poor visibility can further complicate evacuations and hinder safe passage.

Evacuation planning for the valley increases in complexity during the Pemberton Music Festival, when the population of the valley increases ten-fold. To that end, the SLRD and Village developed an evacuation plan specific to the Pemberton Music Festival.

The Village is currently working with its Sea to Sky partners to create an evacuation plan for the entire Sea to Sky Corridor. The intent is to start development of the plan in 2017; upon completion, the Village intends to add relevant information as an appendix to this document.

Emergency access and evacuation planning is of particular importance in the event of a wildfire event. An evacuation plan could:

- Map and identify safe zones, marshalling points and aerial evacuation locations;

- Plan traffic control and accident management;

- Identify volunteers that can assist during and/or after evacuation;

- Create an education/communication strategy to deliver emergency evacuation procedures to residents.

In addition to the safe evacuation of residents, safety of firefighting personnel is a major consideration. Under extreme fire conditions, it may be difficult for Fire Departments or BCWS to access areas due to potential for resources to be isolated or cut off. Examples would be Pemberton Meadows Road and other rural areas with one way in and out, such as Owl Ridge and other neighbourhoods past Mount Currie. Defense of structures is secondary to safety of life.

The Village has an Emergency Response and Recovery Plan which is responsible for the direction and control of coordinated response to and recovery from major emergencies and natural disasters, while maintaining continuity of government. This plan is reviewed and updated on an annual basis.

Table 10. Summary of Evacuation and Access recommendations.

Emergency Response (Evacuation and Access)			
Item	Priority	Recommendation	Estimated Cost ($)
Objective: To improve access and egress and enhance emergency preparedness and study area-specific evacuation plans.			
22	High	• The Village to continue working with Sea to Sky partners on a Pemberton Valley/ Sea to Sky Corridor evacuation plan, to be completed in 2017. Communication plans may require alternative strategies for areas with limited or unavailable cellular service. Evacuation plans should be reviewed, amended, and updated regularly.	Within current operating budget

7.3.1.1 TRAILS MANAGEMENT

The 2005 CWPP references trail management and the potential for trails to serve as fuelbreaks. This section is meant to clarify and expand upon the guidance provided in that document.

The Direction for Pemberton Valley trail management is provided in the *Pemberton and Area C Service Area Trails Master Plan* (Master Plan). It is recognized that trails, including the extensive Pemberton Valley network, provide many important benefits, including but not limited to: healthier communities, economic benefits, safe transportation alternatives, and community values, such as increase in property values.[47] It should also be recognized that trails can act as effective fuelbreaks for surface fires and, depending on width, clearance, and surfacing, can provide access for equipment and control lines for suppression efforts.[48] These additional benefits should be factored into future trail planning, development, and maintenance in the area; for that reason, it is recommended that the additional benefits of surface fuelbreaks and access into natural areas for suppression purposes are formalized by identifying them within the Master Plan.

The Master Plan was developed with significant stakeholder engagement. There are complexities with private land, land use, and a full array of stakeholder concerns, values, and potential conflicts regarding the Valley's trail network and its use. Changes to the area's trail development, planning, and maintenance are not recommended without continued stakeholder engagement and consultation.

It is important that trail building and maintenance does not result in residual fuels which increase the fire hazard, especially in very high-use areas where ignition potential is higher. Minor work (pruning or individual tree falling) can usually be mitigated by scattering fuels in a discontinuous manner at a distance more than 5 m from the trail. Larger volumes of biomass resulting from larger thinning, pruning, or trail building operations should be burned, chipped and spread, or removed off-site. Fuels, if left to accumulate from trail work, can significantly increase the chance of ignition and increase the potential fire behaviour should an ignition occur, such as from an errant

[47] Squamish-Lillooet Regional District. 2010. *Pemberton and Area C Service Area Trails Master Plan*. Prepared by Catalyst Community and Resort Planning and Senga Landscape Architecture Inc.

[48] Davies, J. and M. Coulthard. 2006. Squamish-Lillooet Regional District Community Wildfire Protection Plan.

cigarette butt or other human-caused ignition. It was noted in field work that the trails in the Pemberton Valley are generally maintained free of fuels accumulations.

In order to reduce the chance of fire spread upon ignition and to act as a fuelbreak for surface fires, trail side conifers should be pruned to a minimum of 2 m in height and higher on slopes. Thinning activities (removal of flammable understorey and intermediate conifer ladder fuels) should be undertaken on 5 m of either side of the trail centreline. Trails used for ATV access should be a minimum width of 1 m; a trail 4.5 m wide can be used for pick-up truck access. Use by motorized vehicles may be limited to emergency access only; it is not recommended to convert non-motorized recreational trails to motorized trails. Furthermore, it is neither feasible, nor desirable, to convert all trails in the Valley into surface fuelbreaks and/ or accessible by ATVs or other motorized equipment. Trails should be reviewed and prioritized based on their location, use, and current accessibility for their suitability to act as surface fuelbreaks and points of access.

Mapping or spatial data of the trail network can be used by Pemberton Fire Rescue and the BCWS to aid in suppression efforts of interface natural areas. The Pemberton Valley trails network is already mapped; spatial data attributes such as trail width, access type (foot, ATV, pick-up, etc.), and potential barriers to access (such as gates) can be added to the database with relatively little effort. This database can be the basis of an access plan. The plan could also identify those natural areas where access is insufficient and may prioritize areas of trail building to improve access. Access assessment should consider land ownership, proximity of values at risk, wildfire threat, opportunities for use as fuel break/ control lines, and opportunities to use trails for future fuel treatment activities (operational access for fuel treatments and other hazard reduction activities).

Table 11. Summary of trails management and access recommendations.

Emergency Response (Trail Management and Access)			
Item	**Priority**	**Recommendation**	**Estimated Cost ($)**
Objective: To include wildfire hazard and mitigation into future trail planning and strategy, improve access to interface natural areas, and reduce chance of ignition and potential fire behaviour along high-use recreational trails.			
23	Moderate	• Consider wildfire management, specifically trails as access points for suppression and surface fuelbreaks in future trail development, strategy, and management. Consider recognizing wildfire hazard and the potential mitigating factors of trail networks into the *Pemberton and Area C Service Area Trails Master Plan*.	TBD
24	Moderate	• Prioritize trails to act as surface fuel breaks and provide access for suppression crews; establish trail standards for those trails to meet objectives. Trails can be prioritized for their potential as fuelbreaks, depending on location and current state (width, adjacent fuels, and accessibility).	10 - 12 hours to write the standard; 10 hours to prioritize trails. ~$2,000 - $3,000 if outsourced.

Emergency Response (Trail Management and Access)			
Item	Priority	Recommendation	Estimated Cost ($)
25	Moderate	• Develop standards for the abatement of residual activity fuels associated with trail building and trail maintenance. Ensure trail crews are aware of mitigation of fuels accumulations that may result from regular maintenance activity. Standards should include fuel disposal or mitigation methods (scattering, chipping, burning, or removal, dependent upon location, amount of material, and access). Fuels from trail maintenance and trail building should not be allowed to accumulate trailside.	10 - 12 hours, or $1,000 - $2,000 if outsourced. Additional hours and cost would be less, if implementing in conjunction with recommendation # 24
26	Low	• Develop an access plan to map and inventory trail and road network for suppression planning, identification of areas with insufficient access and to aid in strategic planning. The plan should be updated every five years, or more regularly, as needed to incorporate additions or changes. Leverage, or build on, the currently existing database.	$5,000 - $10,000

7.4   PLANNING AND DEVELOPMENT

Municipal policies and bylaws are tools available to mitigate wildfire risk to a community. It is recognized that, in order to be successful, all levels of government (municipal, provincial, and federal) and individual landowners need to work together to successfully reduce their risk. To that end, local government can use a range of policy tools to help the community to incrementally increase FireSmart compliance over the mid-term (5 – 20 years) and therefore reduce the chance of structure loss from wildfire. Wildfire hazard development permit areas, minimum setbacks, and fire vulnerability standards for roofing materials are examples of existing Village of Pemberton tools which have put in place to achieve the objective of becoming a FireSmart community. Subdivision design standards are an example of a tool available for approval by the Village to ensure that new builds are adopting FireSmart principles.

The Village of Pemberton has an established Wildland Fire Interface Hazard within which the DP process applies. Any development on land within the DP area requires the following components as part of the DP process and prior to receiving a building permit (BP):

• Submission of a pre-development fire risk assessment and fuels management strategy by a wildfire management specialist that considers FireSmart recommendations and OCP directives;

• Request permission from adjacent landowners, if applicable, to extend the Wildland Fire Interface Hazard 50 m beyond the boundary of the proposed phase of development under construction. Completion of fuel management strategy recommendations on the entire area, with permission from adjacent landowners (if applicable);

- Building and structures must follow prescribed fire resistant design as defined in the Building Code[49] and Building Bylaw[50].

The British Columbia Building Code does not have any wildfire-specific fire resistant design components.

The Village Building Bylaw applies to all development within the Village boundary and contains the following wildfire specific requirements:

- roofing to be Class A rated (use of wood roofing materials is prohibited);

- soffits to be aluminum or ¾" thick wood and soffit and gable vents to be metallic with 3 mm or smaller openings;

- 10 m defensible zone to be constructed and maintained around all residential buildings adjacent to forested land and subject to the threat of wildfire (as per Schedule C).

In 2015, the province passed the *Building Act* as the new legislation to guide building and construction in the province (Spring 2015). This Act establishes the province as the sole authority to set building requirements and limits local government authority to set building requirements in their bylaws. There is a two-year transition period, which will end December 15, 2017. At that time, local government building requirements are not enforceable. Legal review and confirmation of the legality and enforceability of the Building Bylaw should be a priority for the Village.

Section 5 of the *Building Act* provides an exception to the above limitation to local governments by giving them the authority to set local building bylaws for unrestricted and temporarily unrestricted matters, such as exterior design and finish of buildings in relation to wildfire hazard and within a development permit area. Until revisions of the Building Code to include requirements specific to prevention of wildfire spread are completed, local governments have the ability to set exterior requirements within the development permit area.[51]

Due to the change in provincial legislation, it is recommended that the Village strengthen their existing Wildland Interface Hazard Area DP Policy in the following ways:

- Develop building requirements specific to wildfire development permit areas;

- Develop setback and defensible space requirements specific to development permit areas based upon FireSmart guidelines;

- Develop landscaping standards for residential homes based on FireSmart recommendations; and,

- Remove reference to the Building Bylaw.

[49] BC Building Code governs new construction, building alterations, repairs, and demolitions within the province. A Ministerial order adopting the code was signed in 2012.

[50] Village of Pemberton Building Bylaw No. 694, 2012.

[51] Building and Safety Standards Branch. 2016. Bulletin No. BA 16-01 Building Act Information Bulletin: Update for Local Governments.

During review of the Village's Wildland Fire Interface Hazard Area for which DPs are required, it was identified that the area is very limited and does not accurately represent all the areas of the community which are at significant risk to wildfire. Expansion of the DP area is recommended in order to include all area which is within 200 m of a of high and extreme Wildfire Behaviour Threat Class rating areas (Figure 25). This would expand the area on which building, landscaping, and set back requirements can be enforced.
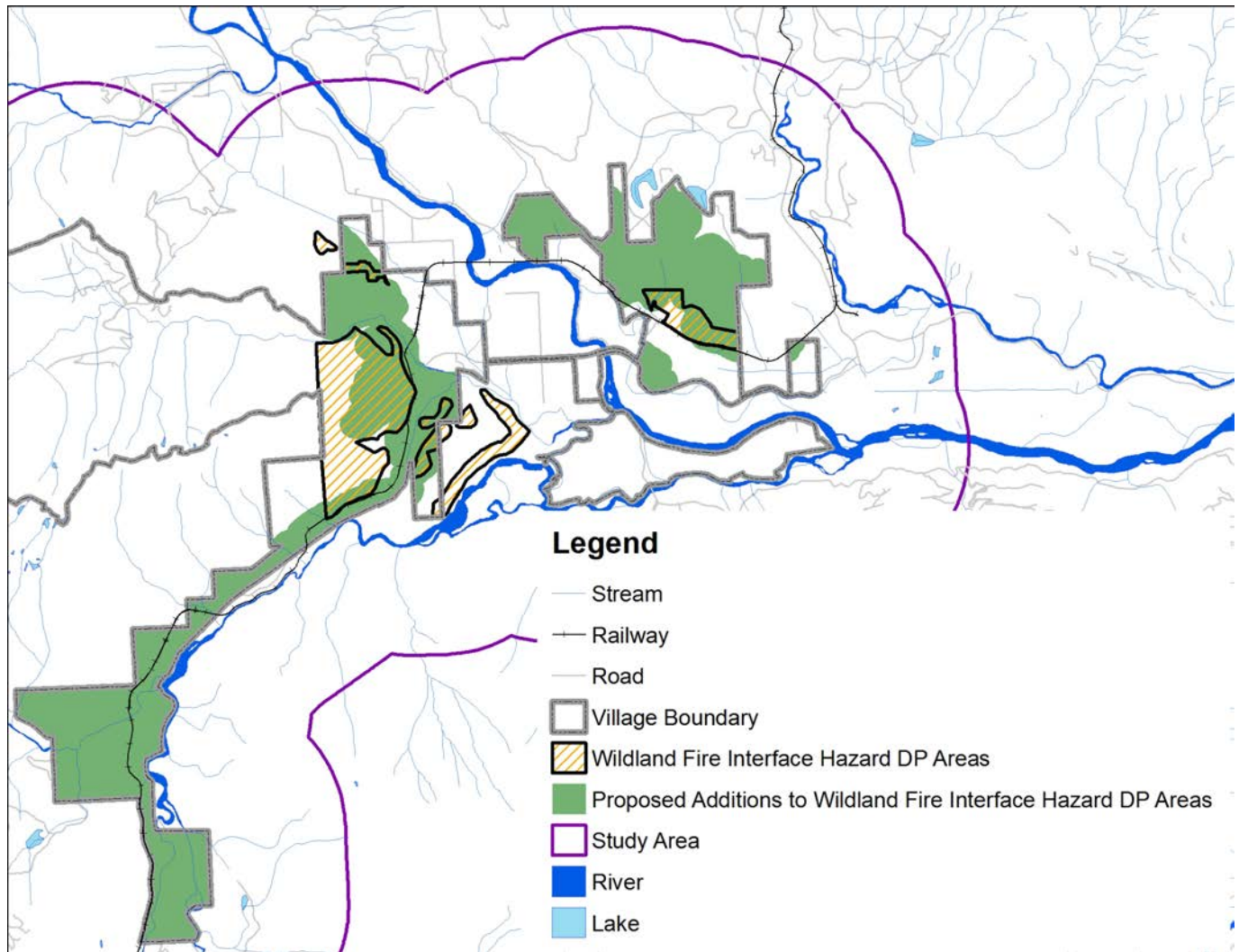
Figure 25. Existing and proposed Wildland Fire Interface Hazard Areas for the Village of Pemberton.

The Village currently retains a bond as part of the DP process, to ensure that actions are completed to the satisfaction of the Village. It is recommended that this practice continue, and that bond amounts are reviewed to ensure that they are sufficient to cover any costs which may be incurred by the Village, should the Village be forced to complete some or all of the required mitigative actions.

Currently, there are no terms of reference to inform applicants and staff of the detailed requirements of development within the Wildland Fire Interface Hazard DP area. It is recommended that a terms of reference be drafted and attached to the OCP as a Schedule. Recommended elements include:

- Specific exterior building material requirements (roofing, cladding, soffits, vents, decking, spark arrestors, windows, and doors);

- Components expected in the pre-development fire risk assessment and fuels management strategy;

- Landscaping and maintenance requirements;

- Setback and defensible space requirements;

- Review process for submitted fire risk assessment and fuels management strategy (Fire Rescue, Parks, Consulting Forester, etc.);

- Minimum requirements for Qualified Professionals (QP) completing fire risk assessment and fuels management strategy (QPs should be Registered Professional Foresters (RPF) in good standing with the ABCFP and have a strong understanding in fire behaviour, a minimum of two years' experience in fire management and hazard mitigation (fuel management prescription development, Community Wildfire Protection Planning, etc.) in BC); [52]

- Post-development inspection and sign-off requirements;

- Outline of responsibilities for staff and applicants; and,

- Enforcement and regulation (consequences of non-compliance).

It is recognized that overlapping, and possibly conflicting, DPs may apply in certain areas. To effectively manage for multiple values, it is recommended that the Village include a requirement that in situations where this occurs, the developer is responsible for hiring a supervising or coordinating professional. The coordinating professional would be responsible for working with developers, the Village, and other professionals within their respective specializations to best manage for multiple, overlapping values and avoid conflicting recommendations (e.g. wildfire, slope hazard, and environmentally sensitive areas).

A review of other jurisdictions successfully implemented DP processes suggests that DPs can be used effectively to gradually phase in FireSmart practices on private land, both in the subdivision and individual lot re-development phase. The District of North Vancouver has a robust and well-documented Wildfire Hazard Development Permit process, which could serve as a model for the Village from which aspects or components can be adapted. Wildfire hazard assessments include review and approval of building materials, building design, setbacks, and landscaping (natural and planted). Bonds collected by the District are not returned to the homeowner or developer until a Qualified Professional has provided a post-development inspection sign off and photographs to ensure that recommendations regarding landscaping, setbacks, and exterior building materials were met. Through this process, the new lots and existing housing stock within the District of North Vancouver is rapidly converting to meeting FireSmart standards in both building materials and landscaping.

Fire protection or services bylaws are another tool available to the Village to compel homeowners to mitigate the fire risk on their property, as well as reduce the risk of human-caused ignitions. To that end, the Village's Bylaws

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[52] The following document can be helpful for foresters (RPFs) and the Village, alike: Association of British Columbia Forest Professionals. 2013. *Interim Guidelines – Fire and Fuel Management*.

744 and 799 provide sufficient authority to the Village to compel homeowners to action. Bylaw 794 sufficiently regulates construction activities during the fire season to reduce the risk of ignition from high risk construction activities.

Table 12. Summary of recommendations for municipal policy and planning.

Municipal Policy			
Item	Priority	Recommendation	Estimated Cost ($)
Objective: To reduce wildfire hazard on private land, increase number of homes in FireSmart compliance, and decrease risk of human-caused ignitions.			
27	High	• Review the Official Community Plan (OCP), in particular Development Permit (DP) Area No. 2 – Land Constraints and update, if necessary, to reflect the changes in Provincial legislation. In the Wildland Fire Interface Hazards portion, remove reference to the Building Bylaw and develop building, landscaping, setback, and defensible space standards for development within the DP Area No. 2. It is highly recommended that the Village obtain legal confirmation on the OCP and Building Bylaw wording prior to adopting any bylaw amendments.	TBD
28	High	• Develop a new schedule to the OCP to inform applicants and staff regarding the Wildland Interface Hazard DP process. Detail expectations, responsibilities, and consequences. Review other jurisdictions terms of reference as models. Recommended components include: the fire risk assessment, fuels management strategy and Qualified Professional (QP) credentials. Bonds should not be released until post-development inspection occurs and documentation that all mitigating recommendations have been completed, as per the required fire risk assessment and/ or fuels management strategy.	TBD
29	High	• Require a coordinating professional, to be hired at the expense of the developer, for all DP applications that fall into overlapping DP areas.	TBD
30	High	• Review and expand the Wildland Interface Hazard DP area. Include all areas within 200 m of lands with high and extreme Wildfire Behaviour Class ratings.	TBD
31	High	• Update the Village of Pemberton Landscape Plant List (2011) with flammability of each species and recommended planting distance from structure. Provide this list or a wildfire DP area-specific list to all applicants.	4 hours for initial list update; 1 hour annually to refresh ~$500 - $1,000 to outsource

7.4.1.1 SUBDIVISION DESIGN

Subdivision design should include consideration to decrease the overall threat of wildfire. The major aspects of subdivision design that influence wildfire risk are access, water pressure and hydrant locations. The number of access points and the width of streets and cul-de-sacs determine the safety and efficiency of evacuation and emergency response. Changing access in existing subdivisions is also costly if the road is not being built for other purposes. However, in terms of life safety during evacuation, the costs of road building are likely to be justified where access is particularly bad. In interface communities, roads are often narrow and densely vegetated in order to protect the privacy of homes and the character of the neighbourhood. On-street parking can also contribute to

the hazard on these roads, which are already unlikely to have a high capacity under heavy smoke conditions (Cova 2005). When the time for evacuation is limited, poor access has contributed to deaths associated with entrapments and vehicle collisions during wildfires (DeRonde, 2002). Methodologies for access design at the subdivision level can provide tools that help manage the volume of cars that need to egress an area within a given period of time (Cova 2005). New subdivisions should be developed with access points that are not suitable for evacuation and movement of emergency response equipment.

Where new subdivisions border forested lands, consideration should be given to requiring roadways to be placed adjacent to the forested lands (ring roads). Ring roads improve access to the interface for emergency vehicles and provide a fuel break between the forested wildland and the subdivision. Ring roads are generally not desirable for developers, as they increase road and infrastructure costs. Additionally, the market price for houses directly adjacent to forested land, as opposed to those on ring roads, is generally higher. The higher costs of subdivision design which incorporate wildfire hazard reduction considerations should be weighed against the cost of subdivision replacement, in the case of a devastating wildfire, as well as potentially lower insurance premiums.

The width of water mains can impact the water pressure available to fire fighters. The spacing of fire hydrants influences how effectively fire fighters can protect structures. Water mains and hydrant spacing can be improved in new subdivisions with a marginal increase in cost. However, the cost of changing these factors in existing subdivisions is extremely high and is not generally practical. Current practice by the Village is that subdivision hydrant spacing and access is reviewed by the Fire Chief prior to approval. This practice should continue.

Table 13. Summary of recommendations for subdivision design.

Municipal Policy (Subdivision design)			
Item	**Priority**	**Recommendation**	**Estimated Cost ($)**
Objective: To incorporate wildfire hazard reduction considerations in subdivision design.			
32	High	• New subdivisions should be developed with access points that are suitable for evacuation and the movement of emergency response equipment. The number of access points and their capacity should be determined during subdivision design and be based on threshold densities of houses and vehicles within the subdivision.	Within current operating budget
33	Moderate	• Where new subdivisions border forested lands, consideration should be given to requiring roadways to be placed adjacent to those lands. If forested lands surround the subdivision, ring roads should be part of the subdivision design. These roads both improve access to the interface for emergency vehicles and provide a fuel break between the wildland and the subdivision.	Within current operating budget
34	Low	• Consider establishing or enhancing existing water bodies that could serve as emergency water sources in areas of new development.	TBD

7.5   FUEL MANAGEMENT

Fuel management (also referred to as vegetation management or fuel treatment) is generally considered a key element of a FireSmart approach. The principles of fuel management are outlined in detail in APPENDIX F:

PRINCIPLES OF FUEL MANAGEMENT. The 2005 CWPP outlines methods for achieving fuel management objectives in the 'Fuel Treatment Options' section (pages 18 – 26).

There has been one major fuel treatment project of approximately nine ha completed within the study area since the development of the 2005 CWPP. To complement the work completed to-date and to further reduce the wildfire risk in the study area, the objectives for fuel management are to:

- Reduce wildfire threat on private and public lands near to values at risk through shovel-ready fuel management projects;

- Reduce fire hazard, improve access/ egress, and mitigate the impact of wildfires within access corridors within and around the study area; and,

- Establish landscape-level fuelbreaks to enhance community protection.

These objectives will enhance protection to homes and critical infrastructure by proactively reducing fire behaviour.

As discussed above, fuel treatments are designed to reduce the possibility of uncontrollable crown fire through the reduction of surface fuels, ladder fuels and crown fuels. This threshold of reduction varies by ecosystem type, current fuel type, fire weather, slope and other variables. Additionally, fuel management can be an effective method of reducing fire behaviour; however, it is important to note that it does not stop wildfire. The purpose of altering vegetation for fire protection must be evaluated against the other key CWPP elements to determine its necessity.

Fuel management can be undertaken with minimal negative or even positive impact on the aesthetic or ecological quality of the surrounding forest and does not necessarily mean removing most or all of the trees. The focus for fuel management in the interface is not necessarily to stop fire but to ensure that fire intensity is low enough that fire damage is limited. For example, treating around a home may prevent structure ignition due to direct flame contact; at that point, the ability of the home to survive the fire would come down to whether construction materials can withstand or survive an ember shower.

One of the constraints with fuel management is private land: funds from public sources, such as UBCM, are only eligible to be used on Crown lands and cannot be used to treat private land or Provincial Parks. The best approach to mitigate fuels on private lands is to increase FireSmart compliance (as described in previous sections). A FireSmart approach to fuel management within 100 m of structures is considered beneficial in order to improve defensible space around structures and to reduce the likelihood that a house fire could spread to adjacent forests. In general, when considering fuel management to reduce fire risk, the following steps should be followed:

- A qualified professional forester must develop the prescriptions;

- Public consultation should be conducted during the process to ensure community support;

- Treatment implementation must weigh the most financially and ecologically beneficial methods of fulfilling the prescriptions goals;

- Pre- and post-treatment plots should be established to monitor treatment effectiveness; and

- A long-term maintenance program should be in place or developed to ensure that the fuel treatment is maintained in a functional state.

Recommended potential treatment areas are enumerated in Table 14 and displayed in Figure 26.

7.5.1   LIST OF PRIORITY TREATMENT AREAS

As noted above, funding opportunities are currently limited to Crown Provincial, Regional District, or Municipal land. As such, priority treatment areas were, likewise, limited to land which is eligible for current funding opportunities (Crown land).

The following table summarizes the proposed treatment areas. Prioritized treatment areas can be separated into three categories:

- New treatment areas requiring a detailed assessment and prescription development prior to implementation;

- Maintenance of previously treated areas; and,

- Landscape level fuelbreaks, requiring cooperation between other governments/ jurisdictions, agencies, and other stakeholders (licensees, BC Hydro, etc.).

The new treatment areas represent high or extreme fire hazard areas which are close to values at risk and on Crown land, or land otherwise identified as eligible for UBCM/SWPI funding. These treatment areas have been prioritized based on the fire hazard, operational feasibility, estimated project cost and expected efficacy of treatment.

There are woodlots within the study area, so there is the potential to prioritize commercial harvesting for fuels management.

7.5.1.1   RECOMMENDED TREATMENTS

As a general rule, prescriptions should target crown closure of 40% or less, remove all coniferous regeneration ladder fuels with the exception of isolated patches, reduce surface fuel loading and continuity, and work to achieve natural variation in density and crown openings across the treatment area, as opposed to a uniform implementation. Grass surface fuels should target 40 – 60% cover. Fine (<7 cm diameter) and coarse (>7 cm diameter) woody surface fuels should be scattered: less than 0.5 kg/m^2 and <10% cover, respectively. Larger diameter logs should be favoured for coarse woody fuel retention in order to meet biodiversity objectives (wildlife habitat) and function as coarse woody debris (CWD). It should be noted that prescription details and post-treatment stand targets are highly variable and dependent upon the ecosystem, objectives, and management for other values.

Site-specific operational challenges exist in almost all treatment areas. Steep ground, limited access or access through private land, and terrain stability issues are among the constraints which must be further investigated during the detailed assessment and prior to prescription development and implementation. Many polygons are located on steep slopes, which may not be accessible by machinery and limit operations to manual labour. Housing developments or other structures often surround treatment areas, or are adjacent on one or more sides,

which can further limit debris removal. Additionally, proximity to structures will impact the possibility of pile burning as a method of debris disposal; pile burning must comply with the Open Burning Smoke Control Regulations which outlines minimum distances from institutions and residences. Oftentimes, the most cost effective debris disposal method is pile burning of woody waste materials.

In the future, maintenance burns using prescribed broadcast burning or maintenance thinning are recommended every five to fifteen years, depending on polygon ecosystem and productivity. Maintenance needs should be determined by a professional forester. Walk-throughs to schedule maintenance should occur every 5 – 7 years.
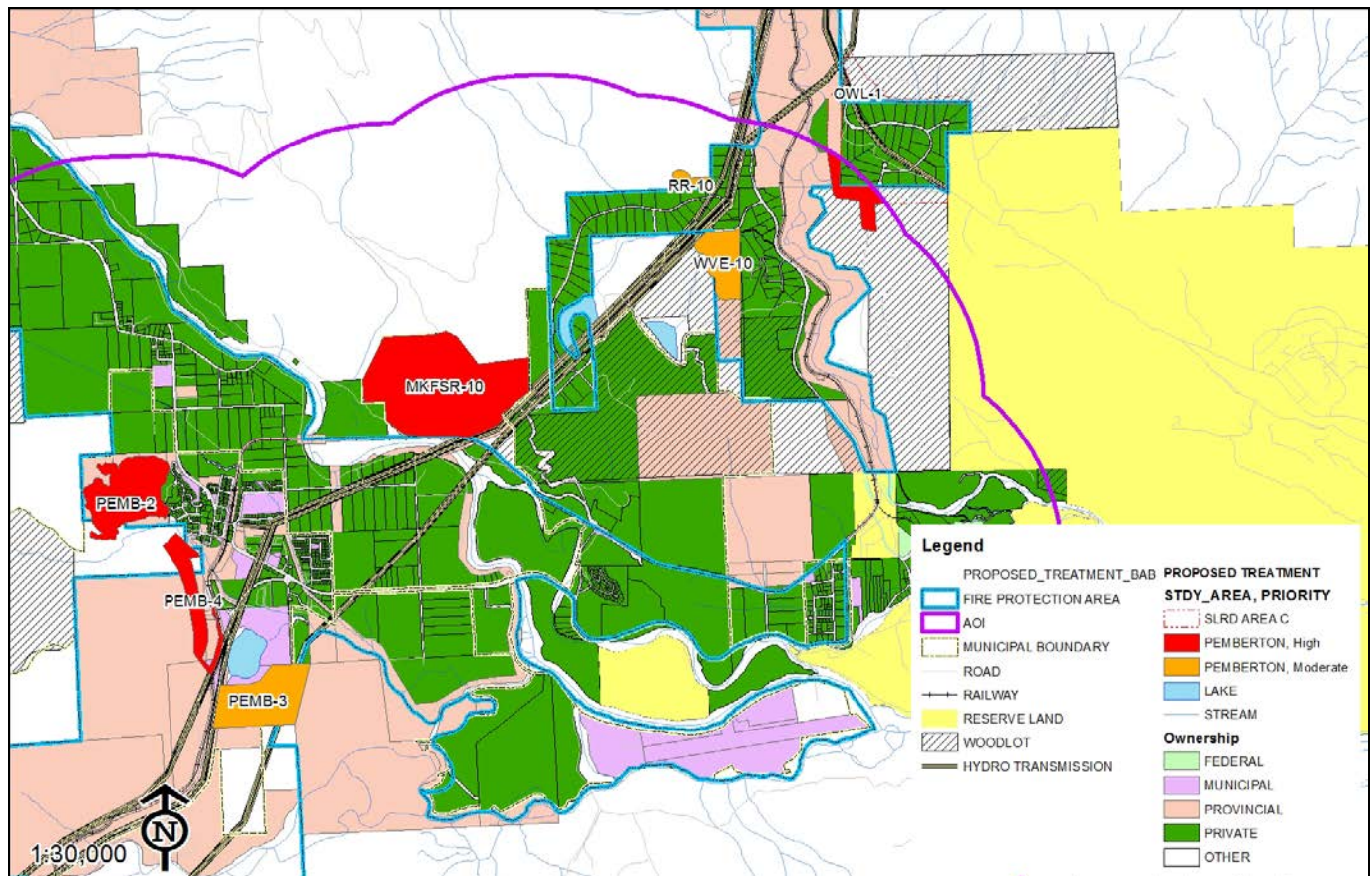
Figure 26. Proposed treatment polygons in the Village of Pemberton study area.

Table 14. Proposed fuel treatment projects for the Village of Pemberton.

Treatment Polygon	WUI Threat Plot No./ Fire Behaviour Score	Priority	Approximate Area (ha)	Comments/ Rationale
RR-10	RR-1 / 113 RR-2 / 92	High	4.2	Hazardous fuels adjacent to private land and residences. Windthrow along edge of previous logging is significant and should be salvaged or otherwise managed. Accessibility will determine feasibility of project.
PEMB-2	WT-1 / 107 WT-2 / 107 WT-3 / 109 PEM-1 / 119	High	42.5	Hazardous fuels adjacent to Village water infrastructure and future development.
PEMB-3	OM-4 / 79 OM-9 / 108	High	38.4	Polygon would reduce hazard on Village-owned land and in high-use recreational area. Polygons were identified as potential locations for treatment in the 2005 CWPP. Would provide community protection from fire approaching from south. NB: high archaeological potential and sites may exist; PFR or HFR would be required as part of the detailed site assessment.
PEMB-4	OM-5 / 105 OM-2 / 103	High	20.1	Polygon would increase protection provided by previous fuel treatment on slope above Village core to recommended fuel break width of 200 – 300 m. Reduction of hazardous fuels along railway, a potential ignition location.
MKFSR-10	IL-1 / 103	High	101	Hazardous fuel types on south and west aspect slopes in high-use recreational area. Treatment would reduce spotting potential into Village core.

Treatment Polygon	WUI Threat Plot No./ Fire Behaviour Score	Priority	Approximate Area (ha)	Comments/ Rationale
WVE-10	WVE-1 / 98	Moderate	19.7	On woodlot W0015. Cooperation with woodlot owner/ manager may allow for treatment. Polygon would reduce hazardous fuels and provide protection for residences in Walkerville Estates.
OWL-1	OC-1 / 109 OC-2 / 102 (Plots submitted with SLRD Area C CWPP 2016)	Moderate	44.6 (31.9 within SLRD Electoral Area C CWPP 2016 update area; 12.7 within Pemberton CWPP study area)	Polygon partially within the study area; shared with the SLRD Electoral Area C CWPP study area. Would provide significant hazard reduction to the Owl Ridge development. Treatment should be completed cooperatively with the SLRD. Treatment of this unit independently of the portion within the SLRD CWPP will not provide effective fire hazard reduction. FESBC funding for a landscape level fuelbreak prescription for this area has been approved.

7.5.2 MAINTENANCE OF PREVIOUS FUEL TREATMENTS

Fuel treatments have been implemented on approximately 9.2 ha of land on the slope above the Village core by BCWS crews. This area was identified in the 2005 CWPP; a detailed assessment and prescription were developed by the same professional. Two WUI threat plots were completed in the treated polygon; one rated moderate and the other high for Wildfire Behaviour Threat Class. The polygon was thinned from below by hand and debris was pile burned according to the Village of Pemberton Fuel Management Pilot Project Proposal.[53] The area completed did not correspond exactly with the map plans; the actual treatment was wider (extended further upslope) and did not extend as far north as the document directed. The treatment generally looked to achieve the objective to reduce the interface fuel hazard in the area. Recommended treatment polygon PEMB-4 would extend this fuel treatment to the north to encompass the area not completed, but identified in the Pilot Project Proposal, as well as extend down to include hazardous fuels along the railway and upslope to create the recommended minimum width for fuelbreaks.

Maintenance of this polygon is not required at this time, but additional thinning may be recommended by the prescribing forester of PEMB-4. Maintenance treatments to ensure that the polygon remains in moderate or lower hazard may be required in the future. It is recommended to have a forester monitor the area once every five to seven years to assess for fuels accumulations and regeneration which would increase the fire hazard.

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[53] Davies, J. and J. Malysh. 2007. Village of Pemberton Fuel Treatment Pilot Project.

7.5.3 LANDSCAPE LEVEL FUELBREAKS

Fuelbreaks can be defined as strategically placed strips of low volume fuel where firefighters can make a stand against fire and provide safe access for fire crews in the vicinity of wildfires, commonly for the purpose of lighting backfires. Fuelbreaks act as staging areas where fire suppression crews can anchor their fire suppression efforts; hence increasing the likelihood that fire can be stopped or fire behaviour minimized so the potential for a fire to move easily through the interface into a developed area are substantially reduced. The principles of fuelbreak design are described in detail in APPENDIX G: LANDSCAPE LEVEL FUELBREAK MANAGEMENT.

Landscape level fuelbreak locations for the Pemberton Valley and Sea to Sky Corridor have been identified within the Sea to Sky Fire Management Plan (S2S FMP) which currently remains in draft state. The plan focuses on leveraging and enhancing existing fuelbreaks, such as roads and transmission lines. Those fuelbreaks which would provide some protection or measure of benefit for the Village are displayed in Figure 27.

Existing physical features and land ownership must be considered and further explored in establishing fuelbreak positions. These areas should be further examined for the opportunity for a landscape level fuel break in cooperation with the RMOW, SLRD, Lil'wat Nation, Ministry of Transportation and Infrastructure (MOTI), BCWS, and MFLNRO. It is recommended that fuelbreaks work towards managing for, or enhancing, multiple values, such as safe evacuation routes, wildlife habitat or ecosystem restoration, recreation, and fire risk reduction, as applicable for the specific polygon and the overlapping values within.

Landscape level fuelbreaks and other fire hazard reduction activities on Crown land would likely be most successful and supported when planned for areas that can be dovetailed geographically with other landscape level fuel management opportunities, such as ones funded through the SWPI program or as part of a commercial licensee harvest.

Landscape level fuelbreaks do not qualify for UBCM funding under the current program. It should be noted that the Province has announced the new Forest Enhancement Program administered by the FESBC, which aims, in part, to undertake wildfire risk reduction and fuel management operations opportunities which exist outside the current UBCM/SWPI funding structure.[54] The program will concentrate activities on the following:

- Wildfire risk reduction activities, such as thinning, pruning, and surface fuel reduction to reduce wildfire risk in key areas;

- Forest rehabilitation, such as clearing and/or reforesting areas impacted by wildfire;

- Wildlife habitat restoration and ensuring that fuel management and rehabilitation activities also promote desired wildlife habitat characteristics, such as enhancing mule deer winter range; and,

- FireSmart program and raising awareness among both local governments and rural property owners regarding steps they can take to protect homes and property from wildfire.[55]

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[54] Specific details regarding the FESBC can be found at http://fesbc.ca/

[55] BC Government News. https://news.gov.bc.ca/releases/2016FLNR0018-000284. Accessed 30 May, 2016.

FESBC funding for fuel treatment prescription development has been approved for a portion of PSLANDSCAPE-1 around Owl Ridge. It is recommended that the Land Manager/ Sea to Sky Natural Resource District be consulted prior to additional applications for FESBC funding to ensure that there are no redundancies and to confirm support for projects.

Table 15. Landscape level fuelbreak locations for the Pemberton Valley, as identified in the S2S FMP draft.

Polygon Name	Likely Partners	Approximate Area (ha)
PSLANDSCAPE-1	SLRD, Lil'wat Nation, BC Hydro, MFLNRO, BCWS	453
PSLANDSCAPE-2	SLRD, MFLNRO, BCWS	307
WHISTLERLANDSCAPE-1	RMOW, Whistler Community Forest, MOTI, MFLNRO, BCWS, SLRD	2,858
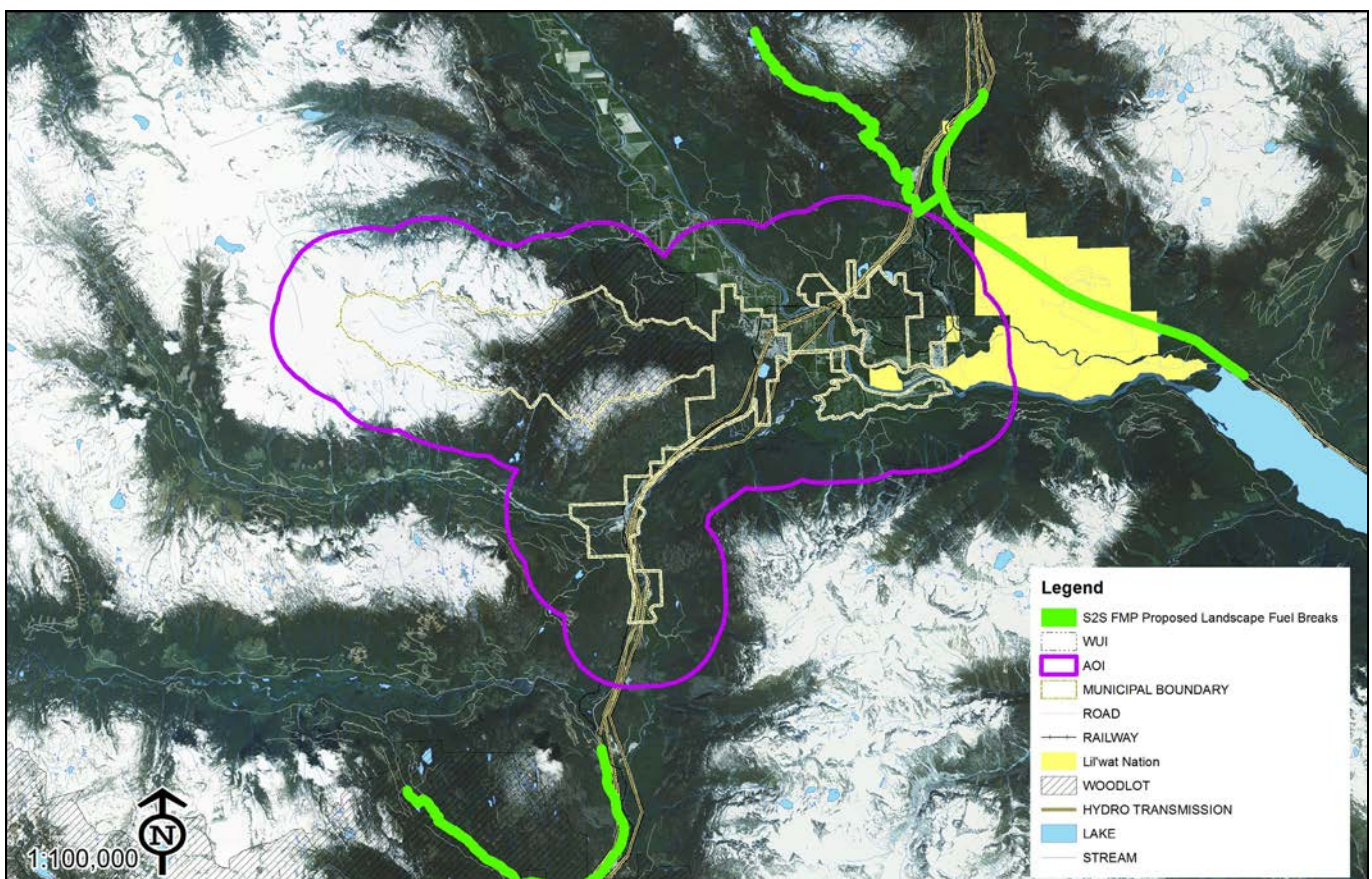
Figure 27. Landscape level fuelbreaks for the Sea to Sky Corridor and Pemberton Valley; these polygons would serve to protect the Village of Pemberton and surrounding communities. Polygons as recommended by the Sea to Sky Fire Management Plan draft.

7.5.4 FUEL TREATMENT RECOMMENDATIONS

Table 16. Summary of Fuel Management recommendations.[56]

Fuel Management			
Item	Priority	Recommendation	Estimated Cost ($)
Objective: Reduce wildfire threat on private and public lands through fuel management.			
35	High	• Proceed with detailed assessment, prescription development and treatment of hazardous fuel units identified and prioritized in this CWPP. Collaboration with BCTS, woodlot owners, and other licensees may facilitate larger projects.	UBCM SWPI Funding / Municipal Funding (UBCM funds up to 75% of prescription development cost)
Objective: Maintain previously treated areas under an acceptable level of wildfire fire threat (moderate).			
36	Moderate	• Complete monitoring and maintenance every 5 – 7 years on previously treated areas. Treated areas should be assessed by a Registered Professional Forester, specific to actions required in order to maintain treated areas in a moderate or lower hazard.	UBCM SWPI Funding/ Municipal Funding
Objective: Reduce the wildfire threat to the Pemberton Valley with a cooperative regional approach.			
37	High	• Work cooperatively with MFLNRO and neighbouring local and First Nations governments to submit phase 1 application for FESBC funding for the recommended landscape level fuelbreaks.	FESBC funding; person hours is dependent upon Village role within the project

8.0 CONCLUSION

The Village of Pemberton is situated in a fire-prone area; there have been significant wildfires in the past in the region and undoubtedly there will be more in the future. The risk of interface fires is expected to increase as development within the interface continues and fuels accumulate causing increase in hazardous fuel types. The wildfire risk to the Village can be mitigated through the implementation of the recommendations in this document. The success of the plan, and reduction in wildfire threat to the study area, will require significant commitment and resources, as well as cooperation among agencies and neighbouring jurisdictions. The Village has, to date, shown commitment to reducing the community's threat profile; implementation of this plan is the next step towards protecting the long-term health and safety of the Village's citizens, structures, and infrastructure, as well as the many other ecological, archaeological, and social values at risk.

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[56] Application and administration of FESBC and UBCM SWPI funded projects will take additional Village staff time and resources; the amount is dependent upon the role the Village plays within the project (FESBC funding) and the amount of area and complexity of area (UBCM SWPI).

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APPENDIX A: STATUS OF 2005 CWPP RECOMMENDATIONS

Table 17. Status of 2005 CWPP recommendations. Please note: recommendations are quoted from the 2005 CWPP; some agency names may have been updated since the authoring of this document (*e.g.* MoFR is now MFLNRO, Protection Branch is now BCWS, etc.).

#	Action Item	Status
Rec # 1	Fuels hazard abatement should occur immediately in those interface polygons of the VoP with 'Extreme' ratings.	Ongoing; UBCM/SWPI requirements have changed making implementation of this recommendation unfeasible without further assessment
Rec # 2	The OCP should be updated to reflect the potential wildfire hazard and consideration given to those recommendations contained in the report	Complete
Rec # 3	A Pre-Development Fire Risk Assessment and Fuels Management Strategy should occur for all future developments in the Pemberton Valley	Needs attention
Rec # 4	All recommended bylaws should be brought before council for their input	Many aspects of recommendations were adopted
Rec # 5	Public education in the areas of Wildfire Awareness should be undertaken through the distribution of printed materials and through public presentation	Ongoing
Rec # 6	Local schools should be approached to develop contests for promoting Wildfire Awareness in the Pemberton Valley	Needs attention
Rec # 7	Annual training of the Pemberton Fire Department (PFD) should include S100: Basic Fire Suppression as well as Interface Suppression Training	Ongoing
Rec # 8	The PFD should perform an equipment analysis and be provided a budget for any equipment that would improve their efficacy at suppressing interface fires	Ongoing
Rec # 9	In addition to the current Fuels Management Pilot Project, the VoP should embark on an aggressive program to secure additional funding, or in-kind contributions, to continue with interface fuels hazard abatement work.	Ongoing

APPENDIX B: WUI THREAT PLOT DETAILS

Table 18 displays a summary of all WUI threat plots completed during CWPP field work. The original WUI threat plot forms have been submitted as a separate document. The following ratings are applied to applicable point ranges:

- Wildfire Behaviour Threat Score – Low (0-40); Moderate (41 – 95); High (96 – 149); Extreme (>149); and,

- WUI Threat Score – Low (0 – 13); Moderate (14 – 26); High (27 – 39); Extreme (>39).

Table 18. Summary of WUI Threat Assessment Worksheets.

WUI Plot #	Geographic Location	WUI Threat Worksheet Components				Wildfire Behaviour Threat Score	WUI Threat Score (/55)
		Fuel	Weather	Topography	Structural	(/240)	
IL-1	Ivey Lake	58	11	34	28	103	28
MKFSR-1	McKenzie	29	11	40	20	29	20
MKFSR-3	McKenzie	48	11	42	11	101	11
NFP-1	Nairn Falls Provincial Park	52	11	17	38	80	38
NFP-2	Nairn Falls Provincial Park	57	11	17	25	85	25
OM-1	One Mile - North	47	11	34	18	92	18
OM-2	One Mile - North	58	11	34	28	103	28
OM-3	One Mile - North	53	11	34	28	98	28
OM-4	One Mile Lake	48	11	20	9	79	9
OM-5	One Mile - North	62	6	37	28	105	28
OM-6	One Mile Lake	52	11	20	9	83	9
OM-7	One Mile Lake	63	6	22	18	91	18
OM-9	One Mile Lake	58	11	39	9	108	9
PEM-1	Water Tower	76	11	32	42	119	42

WUI Plot #	Geographic Location	WUI Threat Worksheet Components				Wildfire Behaviour Threat Score (/240)	WUI Threat Score (/55)
		Fuel	Weather	Topography	Structural		
RR-1	Reid Road	55	16	42	38	113	38
RR-2	Reid Road	63	11	30	38	104	38
RR-3	Reid Road	53	11	44	38	108	38
RR-4	Reid Road	47	11	34	40	92	40
RR-5	Reid Road	62	11	24	43	97	43
WT-1	Water Tower	64	11	32	42	107	42
WT-2	Water Tower	64	11	32	55	107	55
WT-3	Water Tower	66	11	32	52	109	52
WVE-1	Walkerville Estates	61	11	26	50	98	50

APPENDIX C: WUI THREAT ASSESSMENT METHODOLOGY

As part of the CWPP process, spatial data submissions are required to meet the defined standards in the Program and Application Guide. As part of the program, proponents completing a CWPP or CWPP update are provided with the Provincial Strategic Threat Analysis (PSTA) dataset. This dataset includes:

- Current Fire Points
- Current Fire Polygons
- Fuel Type
- Historical Fire Points
- Historical Fire Polygons
- Mountain pine beetle polygons
- PSTA Head Fire Intensity
- PSTA Historical Fire Density
- PSTA Spotting Impact
- PSTA Threat Rating
- Structure Density
- Structures (sometimes not included)
- Wildland Urban Interface Buffer Area

The required components for the spatial data submission are detailed in the Program and Application Guide Spatial Appendix – these include:

- AOI
- Fire Threat
- Fuel Type
- Photo Location
- Proposed Treatment
- Structures
- Threat Plot
- Wildland Urban Interface

The provided PSTA data does not necessarily transfer directly into the geodatabase for submission, and several PSTA feature classes require extensive updating or correction. In addition, the Fire Threat determined in the PSTA is fundamentally different than the Fire Threat feature class that must be submitted in the spatial data package. The Fire Threat in the PSTA is based on provincial scale inputs - fire density; spotting impact; and head fire intensity, while the spatial submission Fire Threat is based on the components of the Wildland Urban Interface Threat Assessment Worksheet. For the scope of this project, completion of WUI Threat Assessment plots on the entire AOI is not possible, and therefore an analytical model has been built to assume Fire Threat based on spatially explicit variables that correspond to the WUI Threat Assessment worksheet.

FIELD DATA COLLECTION

The primary goals of field data collection are to confirm or correct the provincial fuel type, complete WUI Threat Assessment Plots, and assess other features of interest to the development of the CWPP. This is accomplished by traversing as much of the study area as possible (within time, budget and access constraints). Threat Assessment plots are completed on the latest version (2013) form, and as per the Wildland Urban Interface Threat Assessment Guide.

For clarity, the final threat ratings for the study area were determined through the completion of the following methodological steps:

1. Update fuel-typing using orthophotography provided by the client and field verification.
2. Update structural data using critical infrastructure information provided by the client, field visits to confirm structure additions or deletions, and orthophotography
3. Complete field work to ground-truth fuel typing and threat ratings (completed 33 WUI threat plots on a variety of fuel types, aspects, and slopes and an additional 120 field stops with qualitative notes, fuel type verification, and/or photographs)
4. Threat assessment analysis using field data collected and rating results of WUI threat plots – see next section.

SPATIAL ANALYSIS

Not all attributes on the WUI Threat Assessment form can be determined using a GIS analysis on a landscape/polygon level. To emulate as closely as possible the threat categorization that would be determined using the Threat Assessment form, the variables in Table 7 were used as the basis for building the analytical model. The features chosen are those that are spatially explicit, available from existing and reliable spatial data or field data, and able to be confidently extrapolated to large polygons.

WUI Threat Sheet Attribute	Used in Analysis?	Comment
FUEL SUBCOMPONENT		
Duff depth and Moisture Regime	No	Many of these attributes assumed by using 'fuel type' as a component of the Fire Threat analysis. Most of these components are not easily extrapolated to a landscape or polygon scale, or the data available to estimate over large areas (VRI) is unreliable.
Surface Fuel continuity	No	
Vegetation Fuel Composition	No	
Fine Woody Debris Continuity	No	
Large Woody Debris Continuity	No	
Live and Dead Coniferous Crown Closure	No	
Live and Dead Conifer Crown Base height	No	
Live and Dead suppressed and Understory Conifers	No	
Forest health	No	
Continuous forest/slash cover within 2 km	No	

WEATHER SUBCOMPONENT		
BEC zone	Yes	
Historical weather fire occurrence	Yes	
TOPOGRAPHY SUBCOMPONENT		
Aspect	Yes	
Slope	Yes	Elevation model was used to determine slope.
Terrain	No	
Landscape/ topographic limitations to wildfire spread	No	
STRUCTURAL SUBCOMPONENT		
Position of structure/ community on slope	No	
Type of development	No	
Position of assessment area relative to values	Yes	Distance to structure is used in analysis; position on slope relative to values at risk is too difficult to analyze spatially.

The field data is used to correct the fuel type polygon attributes provided in the PSTA. The corrected fuel type layer is then used as part of the initial spatial analysis process. The other components are developed using spatial data (BEC zone, fire history zone) or spatial analysis (aspect, slope). A scoring system was developed to categorize resultant polygons as having relatively low, moderate, high or extreme Fire Threat, or Low, Moderate, High or Extreme WUI Threat.

These attributes are combined to produce polygons with a final Fire Behaviour Threat Score. To determine the Wildland Urban Interface Score, only the distance to structures is used. Buffer distances are established as per the WUI Threat Assessment worksheet (<200, 200-500 and >500) for polygons that have a 'high' or 'extreme' Fire Behaviour Threat score. Polygons with structures within 200m are rated as 'extreme', within 500m are rated as 'high', within 2km are 'moderate', and distances over that are rated 'low'.

There are obvious limitations in this method, most notably that not all components of the threat assessment worksheet are scalable to a GIS model, generalizing the Fire Behaviour Threat score. The WUI Threat Score is greatly simplified, as determining the position of structures on a slope, the type of development and the relative position are difficult in an automated GIS process. This method uses the best available information to produce the initial threat assessment across the study area in a format which is required by the UBCM SWPI program.

Upon completion of the initial spatial threat assessment, individual polygon refinement was completed. In this process, the WUI threat plots completed on the ground were used in the following ways:

- fuel scores were reviewed applied to the fuel type in which the threat plot was completed;
- conservative fuel scores were then applied to the polygons by fuel type to check the initial assessment;
- high and extreme Wildfire Behaviour Threat Class polygons were reviewed in google earth to confirm their position on slope relative to values at risk.

In this way, we were able to consider fuel attributes outside the fuel typing layer, as well as assessment area position on slope relative to structures, which are included in the WUI threat plot worksheet.

APPENDIX D: FIRESMART CONSTRUCTION AND LANDSCAPING

FIRESMART CONSTRUCTION

Roofing Material:

Roofing material is one of the most important characteristics influencing a home's vulnerability to fire. Roofing materials that can be ignited by burning embers increases the probability of fire related damage to a home during an interface fire event.

In many communities, there is no fire vulnerability standard for roofing material. Homes are often constructed with unrated materials that are considered a major hazard during a large fire event. In addition to the vulnerability of roofing materials, adjacent vegetation may be in contact with roofs, or roof surfaces may be covered with litter fall from adjacent trees. This increases the hazard by increasing the ignitable surfaces and potentially enabling direct flame contact between vegetation and structures.

Soffits and Eaves

Open soffits or eaves provide locations for embers to accumulate, igniting a structure. Soffits and eaves should be closed. Vents which open into insulated attic space are of particular concern, as they provide a clear path for embers to a highly flammable material inside the structure. Any exhaust or intake vents that open into attic spaces should resist ember intrusion with non-combustible wire mesh no larger than 3 mm.

Building Exterior - Siding Material:

Building exteriors constructed of vinyl or wood are considered the second highest contributor to structural hazard after roofing material. These materials are vulnerable to direct flame or may ignite when sufficiently heated by nearby burning fuels. The smoke column will transport burning embers, which may lodge against siding materials. Brick, stucco, or heavy timber materials offer much better resistance to fire. While wood may not be the best choice for use in the WUI, other values from economic and environmental perspectives must also be considered. It is significantly less expensive than many other materials, supplies a great deal of employment in BC, and is a renewable resource. New treatments and paints are now available for wood that increase its resistance to fire and they should be considered for use.

Balconies and Decking:

Open balconies and decks increase fire vulnerability through their ability to trap rising heat, by permitting the entry of sparks and embers, and by enabling fire access to these areas. Closing these structures off limits ember access to these areas and reduces fire vulnerability.

Combustible Materials:

Combustible materials stored within 10 m of residences are also considered a significant issue. Woodpiles, propane tanks and other flammable materials adjacent to the home provide fuel and ignitable surfaces. Locating these fuels away from structures helps to reduce structural fire hazards and makes it easier and safer for suppression crews to implement suppression activities adjacent to a house or multiple houses.

FIRESMART LANDSCAPING

Future landscaping choices must be limited to plant species with low flammability within 10 m of the building. Coniferous vegetation such as Juniper, Cypress, Yew or Cedar hedging or shrubs of any height should not be planted within this 10 m zone as these species are considered highly flammable under extreme fire hazard conditions.

Decorative bark mulch, often used in home landscapes is easily ignitable from wildfire embers or errant cigarettes and can convey fire to the home. Alternatives to bark mulch include gravel, decorative rock, or a combination of wood bark and decorative rock.[57]

LANDSCAPING ALTERNATIVES

The landscaping challenges faced by many homeowners pertain to limited space, privacy and the desire to create visually explicit edge treatments to demarcate property ownership from adjacent lots with evergreen vegetation screens. Ornamental plant characteristics fulfilling these criteria have an upright branching habit, compact form, dense foliage, as well as a moderate growth rate. Dwarf and ornamental conifers such as Arborvitae hedging are popular choices and grow well in the study area. Yet conifers such as these which have needle or scale-like foliage are highly flammable and not compliant with FireSmart principles and should be omitted from the 10 m Fire Priority Zone of the planned home footprint.

There are a number of broadleaved deciduous and evergreen plants with low flammability which can be used for landscaping within FireSmart PZ 1 (within 10 m of structures). Landscaping should be selected for the appropriate Canadian Plant Hardiness Zone (see www.planthardiness.gc.ca for the Hardiness Zone specific to the various study area). The majority of the areas would be within Zone 7. Hedge and shrub examples which thrive in Zone 7 and are low flammability include, but are not limited to: boxwood, wolf willow, Oregon grape, mock orange, euonymus, cranberry cotoneaster, firethorn, Cheyenne privet, and rose.

Plants that are fire resistant/ have low flammability generally have the following characteristics:

- Foliage with high moisture content (moist and supple),
- Little dead wood and do not tend to accumulate dry and dead foliage or woody materials, and
- Sap that is water-like and without a strong odour.[3]

It is important to note that even fire resistant plants can burn if not maintained. Grass, shrubs, and herbs must be maintained in a state that reduces fire hazard by maintaining foliar moisture content. This can be accomplished by:

- Choosing plant species that are well-adapted to the site (microclimate and soil conditions of the parcel);
- Incorporating a landscape design where shrubs, herbs, and grasses are planted in discrete units manageable by hand watering;

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[57] *Fire Resistant Plants for Home Landscapes: Selecting plants that may reduce your risk from wildfire*. 2006. A Pacific Northwest Extension Publication (PNW 590).

- Removal of dead and dying foliage; and/or,
- Installing irrigation.

Depending solely on irrigation to maintain landscaping in a low flammability state can be limiting, and may actually increase the fire hazard on the parcel, particularly in times of drought and watering restrictions. Lack of irrigation in times of watering restrictions may create a landscape which is unhealthy, unsightly, as well as dead, dry, and highly flammable.

There are a number of resources available to aid in development of FireSmart compliant landscaping curriculum or educational material; links can be found below.

The Canadian and U.S. systems for determining Plant Hardiness Zones differ.

- The USDA bases hardiness zones on minimum winter temperatures only: http://planthardiness.ars.usda.gov/PHZMWeb/Default.aspx,
- The Canadian system bases them on seven climatic factors including frost free days, and minimum and maximum temperature: http://www.planthardiness.gc.ca/

APPENDIX E: FIRESMART FUEL TREATMENTS

The following information regarding fuel treatments is based on the FireSmart Manual (Partners in Protection 2002).

Priority Zone 1 is a 10 m fuel free zone around structures. This ensures that direct flame contact with the building cannot occur and reduces the potential for radiative or conductive heat to ignite the building. While creating this zone is not always possible, landscaping choices should reflect the use of less flammable vegetation such as deciduous shrubs, herbs and other species with low flammability. Coniferous vegetation such as juniper or cedar shrubs and hedges should be avoided, as these are highly flammable. Any vegetation in this zone should be widely spaced and well setback from the house.

Priority Zone 2 extends from 10 to 30 m from the structure. In this zone, trees should be widely spaced 5 to 10 m apart, depending on size and species. Tree crowns should not touch or overlap. Deciduous trees have much lower volatility than coniferous trees, so where possible deciduous trees should be preferred for retention or planting. Trees in this area should be pruned as high as possible (without compromising tree health), especially where long limbs extend towards buildings. This helps to prevent a fire on the ground from moving up into the crown of the tree or spreading to a structure. Any downed wood or other flammable material should also be cleaned up in this zone to reduce fire moving along the ground.

Priority Zone 3 extends from 30 to 100 m from the home. The main threat posed by trees in this zone is spotting, the transmission of fire through embers carried aloft and deposited on the building or adjacent flammable vegetation. To reduce this threat, cleanup of surface fuels as well as pruning and spacing of trees should be completed in this zone (Partners in Protection 2002).
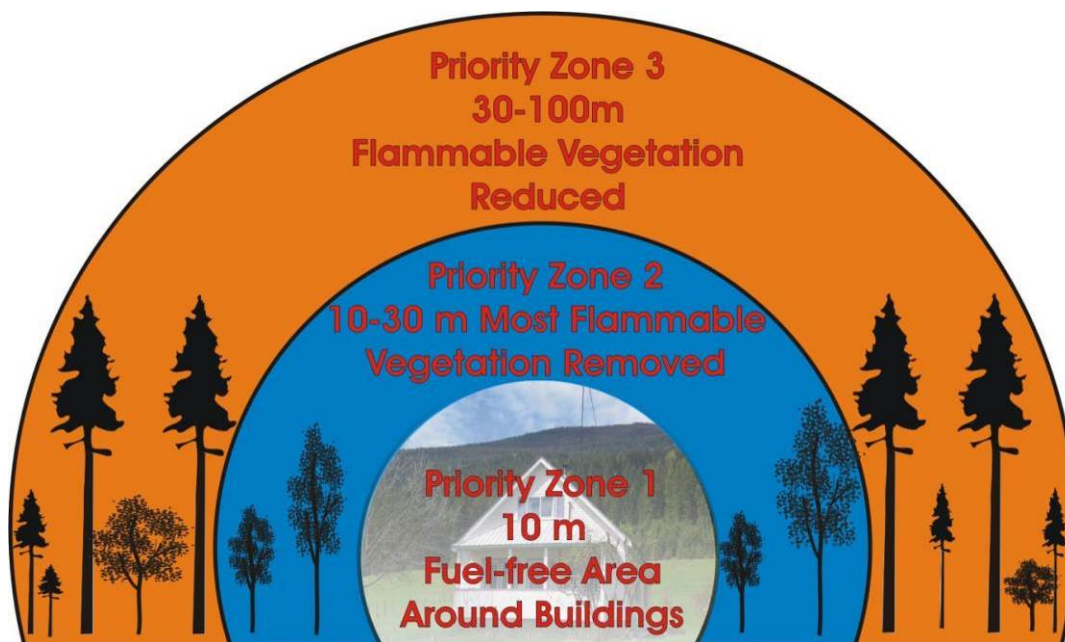
Figure 28. Illustration of FireSmart zones.
(Figure adapted from FireSmart)

APPENDIX F: PRINCIPLES OF FUEL MANAGEMENT

Fuel or vegetation management is a key element of the FireSmart approach. Given public concerns, fuel management is often difficult to implement and must be carefully rationalized in an open and transparent process. Vegetation management should be strategically focused on minimizing impact while maximizing value to the community. The decision whether or not to implement vegetation management must be evaluated against other elements of wildfire risk reduction to determine the best avenue for risk reduction. The effectiveness of fuel treatments is dependent on the extent to which hazardous fuels are modified or removed and the treatment area size and location (strategic placement considers the proximity to values at risk, topographic features, existing fuel types, etc.) in addition to other site specific considerations. The longevity of fuels treatments varies by the methods used and site productivity.

What is fuel management?

Fuel management is the planned manipulation and/or reduction of living and dead forest fuels for land management objectives (*e.g.*, hazard reduction). Fuels can be effectively manipulated to reduce fire hazard by mechanical means, such as tree removal or modification, or abiotic means, such as prescribed fire. The goal of fuel management is to lessen potential fire behavior proactively, thereby increasing the probability of successful containment and minimizing adverse impacts to values at risk. More specifically, the goal is to decrease the rate of fire spread, and in turn reduce fire size and intensity, as well as crowning and spotting potential (Alexander, 2003).

Fire Triangle:

Fire is a chemical reaction that requires fuel (carbon), oxygen and heat. These three components make up the fire triangle and if one is not present, a fire will not burn. Fuel is generally available in adequate quantities in the forest. Fuel comes from living or dead plant materials (organic matter). Trees and branches lying on the ground are a major source of fuel in a forest. Such fuel can accumulate gradually as trees in the stand die. Fuel can also build up in large amounts after catastrophic events such as insect infestations. Oxygen is present in the air. As oxygen is used up by fire it is replenished quickly by wind. Heat is needed to start and maintain a fire. Heat can be supplied by nature through lightning or people can be a source through misuse of matches, campfires, trash fires and cigarettes. Once a fire has started, it provides its own heat source as it spreads through a fuel bed capable of supporting it.

Forest Fuels:

The amount of fuel available to burn on any site is a function of biomass production and decomposition. Many of the forest ecosystems within BC have the potential to produce large amounts of vegetation biomass. Variation in the amount of biomass produced is typically a function of site productivity and climate. The disposition or removal of vegetation biomass is a function of decomposition. Decomposition is regulated by temperature and moisture. In wet maritime coastal climates, the rates of decomposition are relatively high when compared with drier cooler

continental climates of the interior. Rates of decomposition can be accelerated naturally by fire and/or anthropogenic means.

A hazardous fuel type can be defined by high surface fuel loadings, high proportions of fine fuels (<1 cm) relative to larger size classes, high fuel continuity between the ground surface and overstorey tree canopies, and high stand densities. A fuel complex is defined by any combination of these attributes at the stand level and may include groupings of stands.

Surface Fuels:

Surface fuels consist of forest floor, understorey vegetation (grasses, herbs and shrubs, and small trees), and coarse woody debris that are in contact with the forest floor. Forest fuel loading is a function of natural disturbance, tree mortality and/or human related disturbance. Surface fuels typically include all combustible material lying on or immediately above the ground. Often roots and organic soils have the potential to be consumed by fire and are included in the surface fuel category.

Surface fuels that are less than 7 cm in diameter contribute to surface fire spread; these fuels often dry quickly and are ignited more easily than larger diameter fuels. Therefore, this category of fuel is the most important when considering a fuel reduction treatment. Larger surface fuels greater than 7 cm are important in the contribution to sustained burning conditions, but, when compared with smaller size classes, are often not as contiguous and are less flammable because of delayed drying and high moisture content. In some cases, where these larger size classes form a contiguous surface layer, such as following a windthrow event or wildfire, they can contribute an enormous amount of fuel, which will increase fire severity and the potential for fire damage.

Aerial Fuels:

Aerial fuels include all dead and living material that is not in direct contact with the forest floor surface. The fire potential of these fuels is dependent on type, size, moisture content, and overall vertical continuity. Dead branches and bark on trees and snags (dead standing trees) are important aerial fuels. Concentrations of dead branches and foliage increase the aerial fuel bulk density and enable fire to move from tree to tree. The exception is for deciduous trees where the live leaves will not normally carry fire. Numerous species of moss, lichens, and plants hanging on trees are light and easily ignited aerial fuels. All of the fuels above the ground surface and below the upper forest canopy are described as ladder fuels.

Two measures that describe crown fire potential of aerial fuels are the height to live crown and crown closure (Figure 29 and Figure 30). The height to live crown describes fuel continuity between the ground surface and the lower limit of the upper tree canopy. Crown closure describes the inter-tree crown continuity and reflects how easily fire can be propagated from tree to tree. In addition to crown closure, tree density is an important measure of the distribution of aerial fuels and has significant influence on the overall crown and surface fire conditions (Figure 31). Higher stand density is associated with lower inter tree spacing, which increases overall crown continuity. While high density stands may increase the potential for fire spread in the upper canopy, a combination of high crown closure and high stand density usually results in a reduction in light levels associated with these stand types. Reduced light levels accelerate self-tree pruning, inhibit the growth of lower branches, and decrease the cover and biomass of understory vegetation.
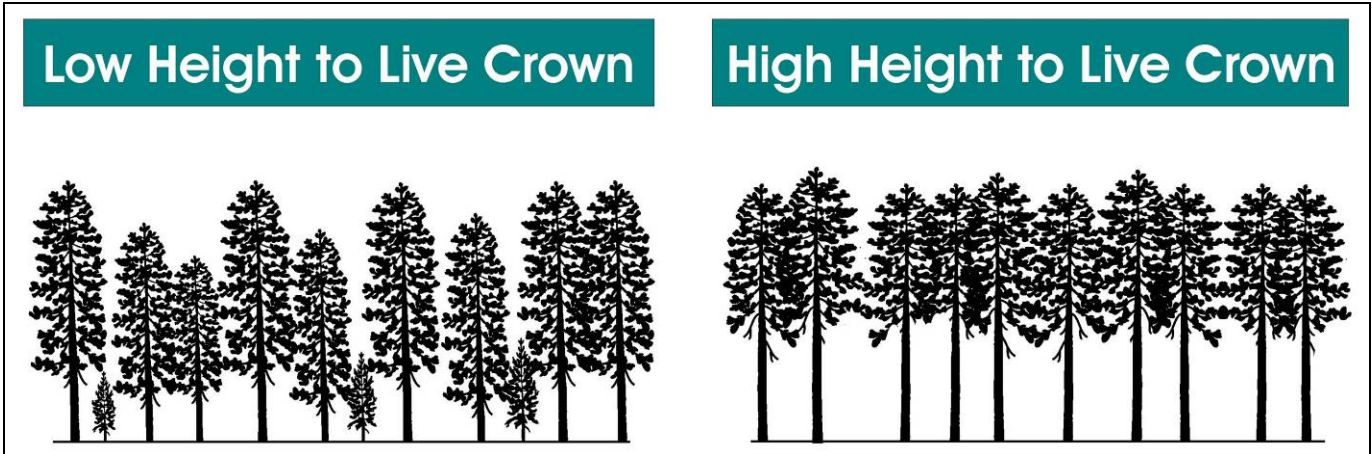
Figure 29. Comparison of stand level differences in height-to-live crown in an interior forest, where low height to live crown is more hazardous than high height to live crown.
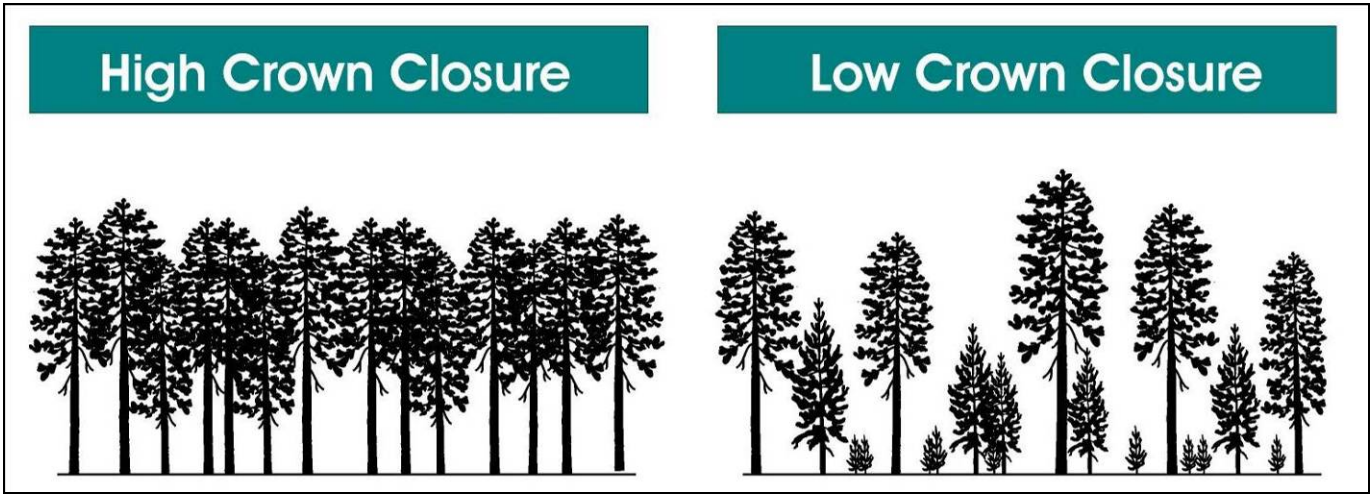
Figure 30. Comparison of stand level differences in crown closure, where high crown closure/continuity contributes to crown fire spread, while low crown closure reduces crown fire potential.

By A. Needoba & F. Steele, B.A. Blackwell & Associates Ltd.
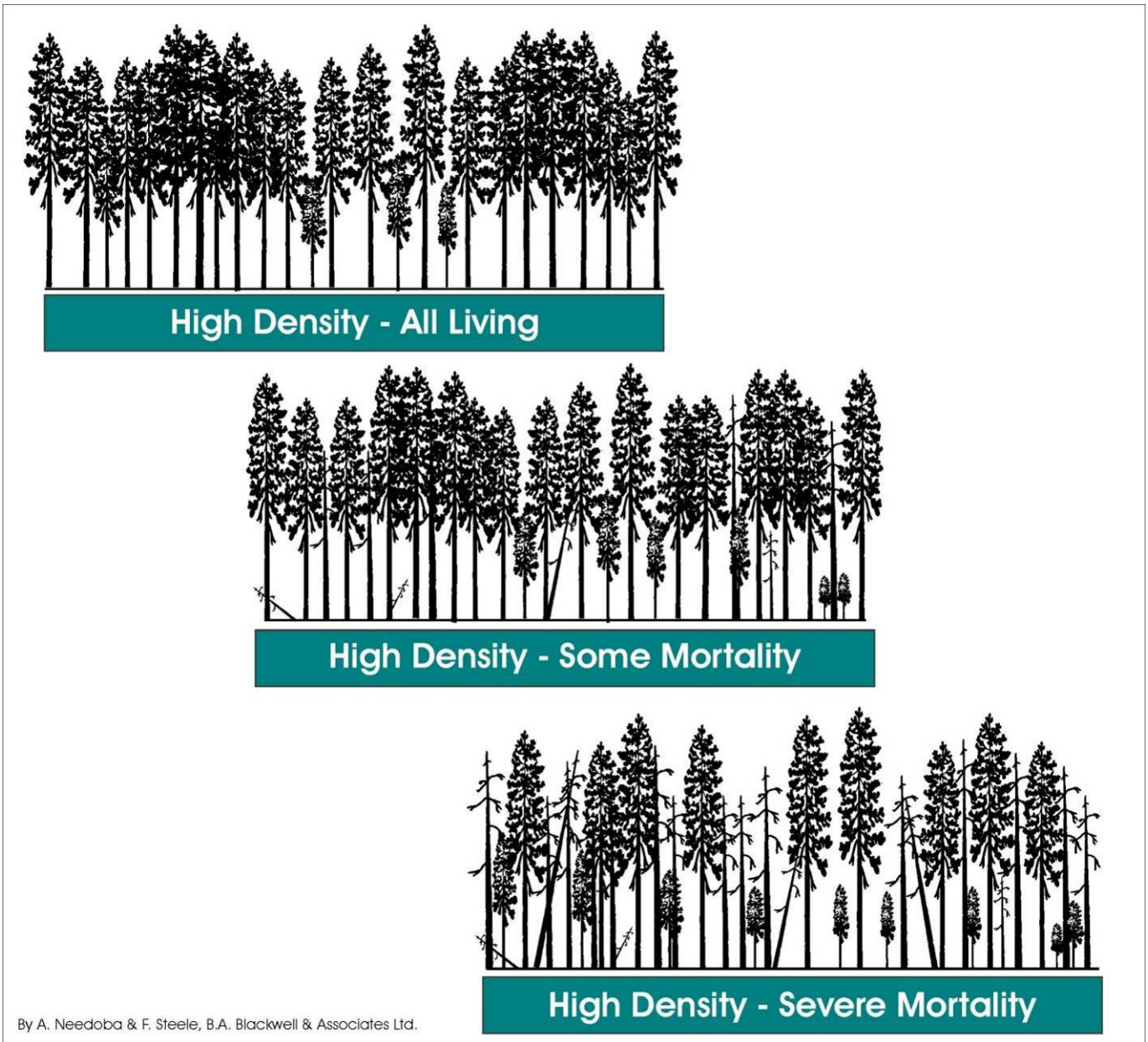
Figure 31. Comparison of stand level differences in density and mortality, and the distribution of live and dead fuels in these types of stands.

Thinning is a preferred approach to fuel treatment (Figure 32.) and offers several advantages compared to other methods:

- Thinning provides the most control over stand level attributes such as species composition, vertical structure, tree density, and spatial pattern, as well as the retention of snags and coarse woody debris for maintenance of wildlife habitat and biodiversity.
- Unlike prescribed fire treatments, thinning is comparatively low risk, and is less constrained by fire weather windows.

- Thinning may provide marketable materials that can be utilized by the local economy.
- Thinning can be carried out using sensitive methods that limit soil disturbance, minimize damage to leave trees, and provide benefits to other values such as wildlife.

The main wildfire objective of thinning is to shift stands from having a high crown fire potential to having a low surface fire potential. In general, the goals of thinning are to:

- Reduce stem density below a critical threshold to minimize the potential for crown fire spread;
- Prune to increase the height to live crown to reduce the potential of surface fire spreading into tree crowns; and
- Remove slash created by spacing and pruning to minimize surface fuel loadings while still maintaining adequate woody debris to maintain ecosystem function.

Figure 32. Illustration of the principles of thinning to reduce the stand level wildfire hazard.
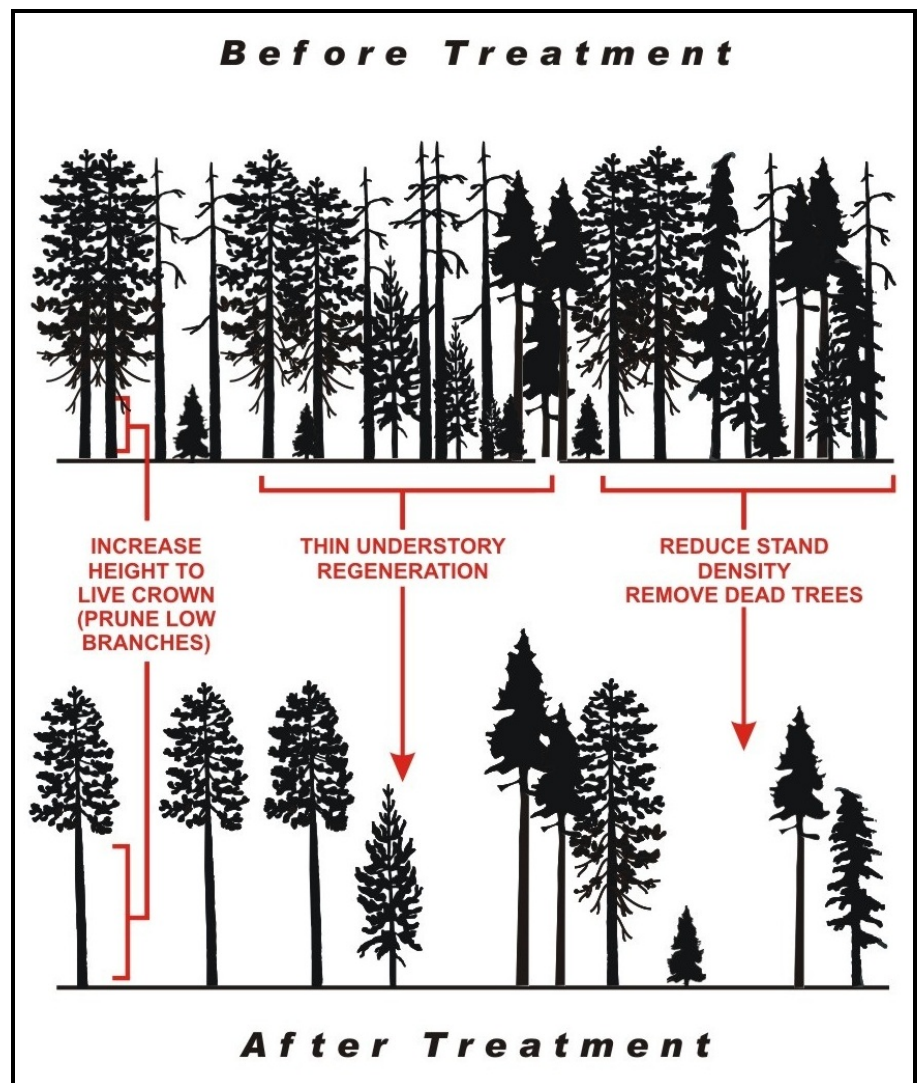
Fuel type, weather and topography are all primary factors that influence the spread of fires. The three most important components of weather include wind, temperature and humidity. Fuel type and slope are primary concerns related to fire spread along the forested areas on the slopes surrounding the Village. The steepness of a slope can affect the rate and direction a fire spreads and generally fires move faster uphill than downhill, and fire will move faster on steeper slopes. This is attributed to (MFLNRO, 2014):

- *On the uphill side, the flames are closer to the fuel;*
- *The fuels become drier and ignite more quickly than if on level ground;*
- *Wind currents are normally uphill and this tends to push heat flames into new fuels;*
- *Convected heat rises along the slope causing a draft which further increases the rate of spread; and*
- *Burning embers and chunks of fuel may roll downhill into unburned fuels, increasing spread and starting new fires.*

APPENDIX G: LANDSCAPE LEVEL FUELBREAK MANAGEMENT

The information contained within this section has been inserted from "The Use of Fuelbreaks in Landscape Fire Management" by James K. Agee, Benii Bahro, Mark A. Finney, Philip N. Omi, David B. Sapsis, Carl N. Skinner, Jan W. van Wagtendonk, and C. Phill Weatherspoon. This article succinctly describes the principles and use of fuelbreaks in landscape fire management.

The principal objective behind the use of fuelbreaks, as well as any other fuel treatment, is to alter fire behaviour over the area of treatment. As discussed above, fuelbreaks provide points of anchor for suppression activities.

Surface Fire Behaviour:

Surface fuel management can limit fireline intensity (Byram 1959) and lower potential fire severity (Ryan and Noste 1985). The management of surface fuels so that potential fireline intensity remains below some critical level can be accomplished through several strategies and techniques. Among the common strategies are fuel removal by prescribed fire, adjusting fuel arrangement to produce a less flammable fuelbed (e.g., crushing), or "introducing" live understory vegetation to raise average moisture content of surface fuels (Agee 1996). Wildland fire behaviour has been observed to decrease with fuel treatment (Buckley 1992), and simulations conducted by van Wagtendonk (1996) found both pile burning and prescribed fire, which reduced fuel loads, to decrease subsequent fire behaviour. These treatments usually result in efficient fire line construction rates, so that control potential (reducing "resistance to control") can increase dramatically after fuel treatment.

The various surface fuel categories interact with one another to influence fireline intensity. Although more litter and fine branch fuel on the forest floor usually results in higher intensities; however, that is not always the case. If additional fuels are packed tightly (low fuelbed porosity), they may result in lower intensities. Although larger fuels (>3 inches) - are not included in fire spread models, as they do not usually affect the spread of the fire (unless decomposed [Rothennel 1991]), they may result in higher energy releases over longer periods of time when a fire occurs, having significant effects on fire severity, and they reduce rates of fireline construction.

The effect of herb and shrub fuels on fireline intensity is not simply predicted. First of all, more herb and shrub fuels usually imply more open conditions. These should be associated with lower relative humidity and higher surface windspeeds. Dead fuels may be drier - and the rate of spread may be higher - because of the altered microclimate compared to more closed canopy forest with less understory. Live fuels, with higher foliar moisture while green, will have a dampening effect on fire behaviour. However, if the grasses and forbs cure, the fine dead fuel can increase fireline intensity and localized spotting.

Conditions That Initiate Crown Fire:

A fire moving through a stand of trees may move as a surface fire, an independent crown fire, or as a combination of intermediate types of fire (Van Wagner 1977). The initiation of crown fire behaviour is a function of surface fireline intensity and of the forest canopy: its height above ground and moisture content (Van Wagner 1977). The critical surface fire intensity needed to initiate crown fire behaviour can be calculated for a range of crown base heights and foliar moisture contents, and represents the minimum level of fireline intensity necessary to initiate crown fire (Table 1; Alexander 1988, Agee 1996). Fireline intensity or flame length below this critical level may result in fires that do not crown but may still be of stand replacement severity. For the limited range of crown

base heights and foliar moistures shown in Table 11, the critical levels of flame length appear more sensitive to height to crown base than to foliar moisture (Alexander 1988).

Table 19. Flame lengths associated with critical levels of fireline intensity that are associated with initiating crown fire, using Byram's (1959) equation.

Foliar Moisture Content (%)	Height of Crown Base Separation			
	2 meters	6 meters	12 meters	20 meters
	6 feet	20 feet	40 feet	66 feet
	M (ft)	M (ft)	M (ft)	M (ft)
70	1.1 (4)	2.3 (8)	3.7 (12)	5.3 (17)
80	1.1 (4)	2.5 (8)	4.0 (13)	5.7 (19)
90	1.3 (4)	2.7 (9)	4.3 (14)	6.1 (20)
100	1.3 (4)	2.8 (9)	4.6 (15)	6.5 (21)
120	1.5 (5)	3.2 (10)	5.1 (17)	7.3 (24)

If the structural dimensions of a stand and information about foliar moisture are known, then critical levels of fireline intensity that will be associated with crown fire for that stand can be calculated. Fireline intensity can be predicted for a range of stand fuel conditions, topographic situations such as slope and aspect, and anticipated weather conditions, making it possible to link on-the-ground conditions with the initiating potential for crown fires. In order to avoid crown fire initiation, fireline intensity must be kept below the critical level. Managing surface fuels can accomplish this, such that fireline intensity is kept well below the critical level; raising crown base heights such that the critical fireline intensity is difficult to reach is another option. In the field, the variability in fuels, topography and microclimate will result in varying levels of potential fireline intensity, critical fireline intensity, and therefore, varying crown fire potential.

Conditions That Allow Crown Fire To Spread:
The crown of a forest is similar to any other porous fuel medium in its ability to burn and the conditions under which crown fire will or will not spread. The heat from a spreading crown fire into unburned crown ahead is a function of the crown rate of spread, the crown bulk density, and the crown foliage ignition energy. The crown fire rate of spread is not the same as the surface fire rate of spread, and often includes effects of short-range spotting. The crown bulk density is the mass of crown fuel, including needles, fine twigs, lichens, etc., per unit of crown volume (analogous to soil bulk density). Crown foliage ignition energy is the net energy content of the fuel and varies primarily by foliar moisture content, although species differences in energy content are apparent (van Wagtendonk et al. 1998). Crown fires will stop spreading, but not necessarily stop torching, if either the crown fire rate of spread or crown bulk density falls below some minimum value.

If surface fireline intensity rises above the critical surface intensity needed to initiate crown fire behaviour, the crown will likely become involved in combustion. Three phases of crown fire behaviour can be described by critical levels of surface fireline intensity and crown fire rates of spread (Van Wagner 1977, 1993): 1) a passive crown fire, where the crown fire rate of spread is equal to the surface fire rate of spread, and crown fire activity is limited to individual tree torching; 2) an active crown fire, where the crown fire rate of spread is above some

minimum spread rate; and 3) an independent crown fire, where crown fire rate of spread is largely independent of heat from the surface fire intensity. Scott and Reinhardt (in prep.) have defined an additional class, 4) conditional surface fire, where the active crowning spread rate exceeds a critical level, but the critical level for surface fire intensity is not met. A crown fire will not initiate from a surface fire in this stand, but an active crown fire may spread through the stand if it initiates in an adjacent stand.

Critical conditions can be defined as the level below which active or independent crown fire spread is unlikely. To derive these conditions, visualize a crown fire as a mass of fuel being carried on a "conveyor belt" through a stationary flaming front. The amount of fine fuel passing through the front per unit time (the mass flow rate) depends on the speed of the conveyor belt (crown fire rate of spread) and the density of the forest crown fuel (crown bulk density). If the mass flow rate falls below some minimum level (Van Wagner 1977) crown fires will not spread. Individual crown torching, and/or crown scorch of varying degrees, may still occur.

Defining a set of critical conditions that may be influenced by management activities is difficult. At least two alternative methods can define conditions such that crown fire spread would be unlikely (that is, mass flow rate is too low). One is to calculate critical windspeeds for given levels of crown bulk density (Scott and Reinhardt, in prep.), and the other is to define empirically derived thresholds of crown fire rate of spread so that critical levels of crown bulk density can be defined (Agee 1996). Crown bulk densities of 0.2 kg m^{-3} are common in boreal forests that burn with crown fire (Johnson 1992), and in mixed conifer forests, Agee (1996) estimated that at levels below 0.10 kg m^{-3} crown fire spread was unlikely, but no definitive single "threshold" is likely to exist.

Therefore, reducing surface fuels, increasing the height to the live crown base, and opening canopies should result in a) lower fire intensity, b) less probability of torching, and c) lower probability of independent crown fire. There are two caveats to these conclusions. The first is that a grassy cover is often preferred as the fuelbreak ground cover, and while fireline intensity may decrease in the fuelbreak, rate of spread may increase. Van Wagtendonk (1996) simulated fire behaviour in untreated mixed conifer forests and fuelbreaks with a grassy understory, and found fireline intensity decreased in the fuelbreak (flame length decline from 0.83 to 0.63 m [2.7 to 2.1 ft]) but rate of spread in the grassy cover increased by a factor of 4 (0.81 to 3.35 m/min [2.7-11.05 ft/min]). This flashy fuel is an advantage for backfiring large areas in the fuelbreak as a wildland fire is approaching (Green 1977), as well as for other purposes described later, but if a fireline is not established in the fuelbreak, the fine fuels will allow the fire to pass through the fuelbreak quickly. The second caveat is that more open canopies will result in an altered microclimate near the ground surface, with somewhat lower fuel moisture and higher windspeeds in the open understory (van Wagtendonk 1996).

Fuelbreak Effectiveness:

The effectiveness of fuelbreaks continues to be questioned because they have been constructed to varying standards, "tested" under a wide variety of wildland fire conditions, and measured by different standards of effectiveness. Green (1977) describes a number of situations where traditional fuelbreaks were successful in stopping wildland fires, and some where fuelbreaks were not effective due to excessive spotting of wildland fires approaching the fuelbreaks.

Fuelbreak construction standards, the behaviour of the approaching wildland fire, and the level of suppression each contribute to the effectiveness of a fuelbreak. Wider fuelbreaks appear more effective than narrow ones. Fuel treatment outside the fuelbreak may also contribute to their effectiveness (van Wagtendonk 1996). Area treatment such as prescribed fire beyond the fuelbreak may be used to lower fireline intensity and reduce spotting as a wildland fire approaches a fuelbreak, thereby increasing its effectiveness. Suppression forces must be willing and able to apply appropriate suppression tactics in the fuelbreak. They must also know that the fuelbreaks exist, a common problem in the past. The effectiveness of suppression forces depends on the level of funding for people, equipment, and aerial application of retardant, which can more easily reach surface fuels in a fuelbreak. Effectiveness is also dependent on the psychology of firefighters regarding their safety. Narrow or unmaintained fuelbreaks are less likely to be entered than wider, well-maintained ones.

No absolute standards for width or fuel manipulation are available. Fuelbreak widths have always been quite variable, in both recommendations and construction. A minimum of 90 m (300 ft) was typically specified for primary fuelbreaks (Green 1977). As early as the 1960's, fuelbreaks as wide as 300 m (1000 ft) were included in gaming simulations of fuelbreak effectiveness (Davis 1965), and the recent proposal for northern California national forests by the Quincy Library Group (see web site http://www.qlg.org for details) includes fuelbreaks 390 m (0.25 mi) wide. Fuelbreak simulations for the Sierra Nevada Ecosystem Project (SNEP) adopted similar wide fuelbreaks (van Wagtendonk 1996, Sessions et al. 1996).

Fuel manipulations can be achieved using a variety of techniques (Green 1977) with the intent of removing surface fuels, increasing the height to the live crown of residual trees, and spacing the crowns to prevent independent crown fire activity. In the Sierra Nevada simulations, pruning of residual trees to 3 m (10 ft) height was assumed, with canopy cover at 1-20% (van Wagtendonk 1996). Canopy cover less than 40% has been proposed for the Lassen National Forest in northern California. Clearly, prescriptions for creation of fuelbreaks must not only specify what is to be removed, but must describe the residual structure in terms of standard or custom fuel models so that potential fire behaviour can be analyzed.

Date: **Tuesday, October 3, 2017**

To: **Nikki Gilmore, Chief Administrative Officer**

From: **Jill Brooksbank, Sr. Communications Coordinator**

Subject: **Updated Communications Policy**

PURPOSE

The purpose of this report is to present the updated Communications Policy to Council for adoption.

BACKGROUND

The Village of Pemberton's existing Communications Policy was approved by Council in March 2008, attached as Appendix A. Since then, the Village has introduced updated methods of communicating both internally and externally.   The updated Policy incorporates new communications technologies and methods, in addition to an update of Communications Procedures.

Further, the former policy does not incorporate the Village's branding requirements nor speaks to how the policy relates to other active Village of Pemberton policies. As well, the former policy references public information tools (i.e. Pemberton Page, Roundabout Sign and Gateway Banner) that are either no longer used or have been incorporated into other policies and/or bylaws. It also references administrative processes that have been revised and incorporated into operational and administrative policies and procedures and are not relevant to a Communications Policy.

An update of the Village's Communications Policy and Style Guide is 2017 Action Item in the Village's Strategic Communications Plan.

DISCUSSION & COMMENTS

The purpose of a Communications Policy is to ensure the delivery of effective and consistent communications, both internally and externally.

The presented Communications Policy is an update of the 2008 Communications Policy and does not have any major changes attached as Appendix B.

Below is a summary of updates to the Communications Policy:

- Change Staff overseeing policy from Administrative Assistant to Communications Coordinator;
- Addition of Emergency and Crisis Communications Procedures;

- Update to Communications Procedures;
- Addition of Internal Communications Procedures; and
- Removal of Procedures covered under other Village of Pemberton Polices.

Communications procedures related to Council have remained the same.

COMMUNICATIONS

Should this Policy be adopted, the Office of the CAO will distribute the Communications Policy and related Styling Guide to both Council and Staff.

LEGAL CONSIDERATIONS

There are no legal considerations at this time. It should be noted however, that the Advertising Requirements set out in the updated Communications Policy is mandated in Section 94 of the *Community Charter*.

IMPACT ON BUDGET & STAFFING

There are no impacts to the budget or staff hours for consideration at this time. Communications and implementation of the Communications Policy is part of the day-to-day workplan of the Department of the CAO.

INTERDEPARTMENTAL IMPACT & APPROVAL

The updated Communication Policy will be incorporated into the daily routine of all staff and can be accommodated.

IMPACT ON THE REGION OR NEIGHBOURING JURISDICTIONS

As the Communications Policy is an internal document, it has no impact on other jurisdictions.

ALTERNATIVE OPTIONS

There are no alternative options for consideration.

POTENTIAL GOVERNANCE CONSIDERATIONS

The adoption of the updated Communication Policy is aligned with the Village's Strategic Priority of Good Governance whereby the Village is committed to citizen engagement, being an open and accountable government and to fiscal responsibility; and Excellence in Service whereby the Village is committed to delivering the highest quality level municipal services within the scope of our resources.

RECOMMENDATIONS

THAT the 2008 Communications Policy be rescinded.

THAT the updated Communications Policy be adopted as presented.

ATTACHMENTS:

Appendix A: 2008 Communications Policy
Appendix B: Updated Communications Policy

Submitted by:	Jill Brooksbank, Sr. Communications Coordinator
CAO Approval by:	Nikki Gilmore, Chief Administrative Officer

COMMUNICATION POLICY

Adopted by Council: March 4, 2008 Mtg No. 1199

Village of PEMBERTON

Purpose

1. To develop information channels to enhance the communication with internal and external customers and residents and to ensure that information is provided effectively, efficiently and accurately;

2. To ensure all information is disseminated in a timely and consistent manner;

3. To inform customers and residents about Village of Pemberton business, programs, procedures, activities, policies and vision to increase knowledge and understanding in the work place and the Village;

4. To ensure information disseminated is factual, accurate and complete to the best ability of the Village, within the mandate of the *Local Government Act* and *Community Charter* and other legal requirements.

5. To establish communication procedures which support the Village being a helpful, accessible and consistent source of information;

6. To foster a consistent, professional image in all business dealings related to the Village of Pemberton.

Best Practices:

1. Communication with stakeholders will be an integral component in corporate decision making;

2. The Village will seek opportunities to directly inform and involve public in policy development and decision-making, based on the principle of open, two way communication;

3. The Village will seek to continually improve accessibility to information for the public and its staff, with proven technology;

4. Negative or inaccurate information from third parties will be challenged and corrected to ensure fair representation of the Village, Council members, staff and the community.

Overall Objectives:

1. To build positive awareness of the Village among Pemberton stakeholders and residents;

2. To foster Pemberton residents understanding of and involvement in their local government.

External Communications

1. To set guidelines for communication with the media, outside agencies, the public and residents to ensure accurate and complete information is provided regarding local government decisions and issues and to reduce the potential for factual discrepancy;

2. To deliver Village of Pemberton information through mediums which effectively attract the attention of those who need to know in clear, concise, readily understood language;

3. To maintain a constant flow of information to the public and residents through various mediums;

4. To adopt a proactive approach to dealing with the media;

   - The chief spokesperson for the Village is the Mayor. The Mayor is the authorized spokesperson to speak with media on behalf of the Village related to decisions and outcomes arrived at by Council.

     The Administrator or his/her designate is authorized to speak with the media on policy matters or on matters affecting the administration of the Village;

   - Councillors will not act as spokespersons for the Village unless they have **first** consulted with the Mayor and been authorized by the Mayor;

   - Councillors may speak externally about Village issues and topics discussed provided that confidential requirements are followed and that their statements do not undermine the corporation's reputation or the integrity of Council's decision making process;

   - When written communications from stakeholders/residents are made directly to the Mayor or individual Councillors, the Administrator will be informed and an appropriate response determined in collaboration with other departments as necessary.

5. The Mayor shall be authorized to write general letters of support for community events, activities, and undertakings throughout the Village. Copies of all such letters shall be retained within the Village's general filing and outgoing correspondence file.

6. All communication respecting Village policy and positions shall be in accordance with this communication policy.

Adopted March 4, 2008
Meeting No. 1199   Page 2

Village of Pemberton
Regular Council Meeting No. 1457
Tuesday, October 3, 2017
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Council

1. Council Meetings

    *   The yearly schedule of Council Meetings will be placed on the local bulletin board located at the Village Office and at the Post Office by December 31ˢᵗ of each year, posted on the Village website and advertised in the local papers in January of each year as per Section 127 (1) (b) of the *Community Charter*;;

    *   Reports prepared by staff shall not be made available to the public until after being delivered to the Council;

    *   Agenda packages with reports will be made available to the public through the website on Fridays prior to a Tuesday Council Meeting and in the event of a delay agenda packages will be made available by the Monday prior after 9:00 a.m.;

    *   It is acknowledged that the preparation of some reports will require consultation with members of the public (i.e. standing/select committees, applicants, stakeholders etc.) and that members of the public may be contacted with information regarding the report being placed on a Council Agenda, but the report will not be released to the public, in any case, until received by the Council Members;

    *   Reports being received by Council at a closed (In Camera) meeting shall not be made available to any member of the public except with the authorization of the Council or through the *Freedom of Information and Privacy Protection Act* process;

    *   When Regular Council Meetings are to be conducted outside of the normal location that the change be advertised in the local media, notices posted on the local notice boards and on the website.

Logo Use

Any use of the Village Logo for flyers, displays, signage, sponsorship etc. must be approved by the Village prior to installation or use. Requests must be made in writing to the Administrator and must include an explanation of use or purpose for use.

Use of the Village Logo by any Village department must be reviewed for look, style and formatting by the Administrative Assistant managing logo use in order to ensure consistency.

Adopted March 4, 2008
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Public Information

1. Statutory Advertising/Newspapers

   Provision of notices published as part of statutory requirements under the provisions of the *Local Government Act, the Community Charter*, or any other government statute, must be approved by the Administrator and may be referred to Council for approval if necessary (i.e. public hearing notices, election notices, etc.).

2. Information Advertising/Newspaper and Radio

   The Administrator and Department Heads are authorized to advertise routine and administrative and operational information. All advertisement must be reviewed by the Administrative Assistant responsible for logo use. Advertisement of council and committee meetings, employment opportunities, watering restrictions, hazard awareness, recreation programs/registration guides and activity schedules are examples of this type of information and must comply with the format established for logo use/layout.

3. Press Releases

   Press Releases are encouraged to promote Village activities, decisions, projects and services. Department Heads may submit drafts of Press Releases to the Administrator for verification before publishing. Press Releases are to be reviewed and approved by the Administrator and Mayor and are to be sent from the Village Offices on official Village letterhead in order to be copied to media, Council, Department Heads, Village employees, bulletin boards and posted on the Village website. The contact person for Council matters is the Mayor and the contact person for operational or administrative matters is the Administrator or a staff member as determined by the Administrator.

4. Public Service Announcements

   Public Service Announcements (PSA) will be used to convey timely or time sensitive information to the public (ie: Boil Water Advisory). The Village will utilize free public service announcement opportunities where available and appropriate for the message/target audience.

5. Pemberton Page

   The Pemberton Page will be published monthly in the Whistler Question and will be used to keep the residents of the Village up to date on activities pertaining to the Village. Administration will coordinate with the Village communications consultant to produce the monthly segment for the Whistler Question. Content will be finalized by the Administrator or his/her designate. Articles in the Pemberton Page will vary from issue to issue but will generally be to inform and update residents on the activities or projects undertaking by the Village.

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6. Display Case

   The Village has a display case in the lobby of the Village Office that is available to community groups or organizations (Library, PVTAA, Museum etc) for use to promote specific community events.

7. Flyers and Brochures

   Staff are encouraged to consult with other departments in the preparation of information material to ensure standard in design, content and tone to enable the development of the corporate identity. As well, departments will piggy-back on information distribution opportunities where possible. (ie: Utility Billing with water conservation information).

8. Roundabout Sign Board

   The Community Events Billboard, situated at the roundabout near the railroad tracks, is available free of charge to advertise community events. All bookings are done through the Village Office and a refundable deposit of $50.00 is required to be submitted at the time of booking to reserve the space. Deposits can made by cash, cheque, or interact.

   By resolution of Council all bookings are from Sunday- Saturday, and for one week only. Signs are attached with wood screws and it is the responsibility of the user group to install and remove any sign. The billboard fits up to 4' by 8'.

9. E-NEWS

   Village E-News will be distributed via email no later than the Monday prior to a Council meeting to a designated list of subscribers. The E-News will be used to keep its subscribers up to date on recent news items, encourage visitation of the Village website, and provide notice of when agenda packages become available online. Content will be drafted by the Administrative Assistant and approved by the Administrator.

   Village E-News shall not be sent more than by-weekly, however the subscriber list may be utilized in the event of a PSA. Any person may subscribe or unsubscribe by visiting www.pemberton.ca.

10. Gateway Banner

    Please see the Village's *Gateway Banner Policy* for complete policy details.

    The Gateway Banner poles, situated on either side of Portage Road near the entrance to the Village, are available to community organizations for a fee of $150 to hang of a banner in promotion of community events. Bookings are taken on a first come, first serve basis. The banner, supplied by the community organization and conforming to the specifications outlined in the Gateway Banner Policy, is be installed and taken down by the Village of Pemberton Works Department.

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Customer Service

1. Promotional Material

   Items produced for the Village to promote or market the Village for the purpose of attracting business, tourism, development, commercial enterprise or film industry interest will be approved by the Village unless otherwise delegated.

   Advertisements provided by the Village for promotional material not produced by the Village will be approved by the Administrator. A final proof of the advertisement will be provided to the Village for sign off by the Administrator or designate.

   Advertisements displaying the Village's logo or proclaiming the Village's support will be subject to approval by the Administrator or designate.

2. Website (www.pemberton.ca)

   The Village will maintain an updated user friendly website to provide the public with information regarding Council decisions, Council Meeting schedule, minutes and agendas, by-laws, activities/events, and ongoing local government business. Village staff will maintain the bulletin board on the Home Page of the website, providing the public with quick access to improve community issues. Press releases will also be available on the website.

   All requests for posting information to the website will be coordinated through the Administrative Assistant responsible for the website.

   Information appearing on the Village website will not be used to promote an individual business or type of business over any other, but will always strive to promote the Village as a whole.

   Information appearing on the Village website will not be used to promote an individual political philosophy, but will strive to promote Village philosophies, strategic planning and goals as envisioned by the Village Council as a whole.

3. Email

   Email is to be used for business purposes and should be business like in format and tone. Full sentences, proper grammar, and punctuation are expected.

   Email received during the course of Village business becomes part of the Village record and is subject to scrutiny under the *Freedom of Information and Privacy Protection Act*.

   Email correspondence sent out by the Village will be identifiable through a signature line that includes the name, title, department, address, contact information and confidentiality clause.

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4. Telephone

Priority is given to telephone calls made to the Village telephone number during regular office hours. Any messages left will be returned promptly.

Telephone calls to key department phone numbers during regular office hours will always be answered personally, promptly and courteously.

Telephone callers calling the Village for the purpose of statement of opinion or to make complaint will be told their opinions or complaints are to be submitted in writing by completing a Customer Service Request form and must include a return address in order to be considered by staff or Council.

5. Surveys

From time to time, the Village may conduct surveys or polls through the use of an outside agency specializing in conducting public opinion surveys and polls to garner public opinion regarding community issues, policy direction and customer satisfaction.

Handling Correspondence

1. Incoming Correspondence

- The Administrator shall route correspondence in accordance with the following guidelines:

- Correspondence addressed to "Mayor" or a specific "Councillor" from local residents, unless of a personal nature, will be placed on the appropriate Council or Committee agenda, with a copy of the correspondence being placed in the Mayor's or Councillors mailbox.

  Correspondence addressed to staff members shall only be referred to the Council or Committee agendas if they have relevance to a current policy matter or issue on the Council or Committee agenda.

- Correspondence that is unsigned, unaddressed, form letters, or journal information will not be actioned.

- When correspondence addressed to a Councillor marked "personal" or "confidential" is received it will be placed in the Councillor's mailbox unopened, with the date of receipt stamped on the envelope.

- All correspondence addressed to Mayor and Council will be placed on the agenda, or circulated via the Council mailboxes.

2. Outgoing Correspondence

- All official correspondence of the Village of Pemberton shall be sent out under the letterhead of the Village and shall be used for the purpose of obtaining or giving information or conveying the official position of the Village established by resolution adopted at a regularly constituted meeting. All

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official correspondence under the signature of the Mayor shall be reviewed by the Administrator or his/her designate before being sent out by VOP staff with appropriate filing for archive purposes.

- All correspondence sent by the Village to a federal or provincial minister shall be sent out under the signature of the Mayor.

- It shall be the policy of the Village to have staff prepare and the Administrator shall review all official correspondence on behalf of the Mayor and Council.

- Correspondence arising from a Council meeting will be prepared within one (1) week following the meeting.

- Copies of all outgoing correspondence shall be placed in an outgoing correspondence file and be made available for Councils' viewing.

Internal Staff Communications

- Staff are encouraged to promote communication within the organization. Internal communication will be augmented through the use of technology for those with computer access. Internal communication tools include:

  - Regular staff meetings
  - Email
  - Bulletin Board

Council/Staff Communications

- Procedures for communication between Village Council and staff are intended to maintain the level of trust and working effectiveness existing between Council members and staff.

-
- Councillors, individually, must use judgment in their contact with staff and recognize that they do not have authority to direct staff.

- Written communications from Council members to staff will be sent to the Administrator who shall determine which staff member will address the inquiries. The expectation is that the Administrator will be kept advised of discussions by the Council member and staff.

- Staff are encouraged to provide reasonable amounts of factual (statutory, by-law, historical) information to the Council members through the Administrator. This serves to keep the Administrator informed about the use of department resources and information requests. If the request is time sensitive or lengthy, or goes beyond providing standard factual information, (i.e. opinions or perceptions, discussion notes, legal opinions, etc.), potentially political requests, or request for information which is not strictly factual and involves interpretation or opinion will be dealt with directly by the Administrator.

- Following each Council Meeting the Administrator shall communicate action items addressed by Council and designate responsibility for follow up.

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- Reports to Council for agenda packages must be sent electronically to the Manager of Administrative Services no later than noon the Wednesday prior to the Council Meeting. All Reports to Council will be reviewed and approved by the Administrator. Any reports received after the Wednesday deadline may be held until the next Council Meeting.

Information Tools

- Orientation packages will be provided for new employees and elected officials.

- To enhance customer service and internal referrals, organizational telephone and contact lists which briefly identify the service they provide will be prepared by the Administration Department.

- A link to the websites of all neighbouring jurisdictions or municipalities shall be maintained on the Village of Pemberton's website.

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Communications Policy

Village of PEMBERTON

Department:	Personnel	Policy No.:	
Sub-department:	Administrative	Created By:	Jill Brooksbank
Approved By:	Council	Amended By:	
Approved Date:		Amendment:	
Meeting No.:		Meeting No.:	

POLICY PURPOSE

The purpose of this policy is to define appropriate Staff and Council conduct for the delivery of effective and consistent internal and external communications.

It is the policy of the Village of Pemberton to:

1. Engage in two-way dialogue with our community and stakeholders in a transparent, timely and consistent manner;
2. Inform our constituents and stakeholders about Village of Pemberton business, programs, procedures, activities, policies and vision to increase knowledge and understanding of the Village's role as a municipal government;
3. Ensure information disseminated is factual, accurate and complete to the best ability of the Village, and meeting the requirements set out in the Community *Charter, Local Government Act,* and other legal requirements.
4. Establish innovative communication practices which support the Village being a helpful, accessible and consistent source of information;
5. Foster a consistent, professional image in all business dealings related to the Village of Pemberton.
6. Increase community engagement and participation in municipal and community matters.

REFERENCES

Village of Pemberton Strategic Communications Plan

Village of Pemberton Social Media Policy

Village of Pemberton Customer Service Policy

Village of Pemberton Bullying, Harassment and Discrimination Policy

Village of Pemberton Emergency Plan

Village of Pemberton Style Guide

Village of Pemberton Council Procedure Bylaw as amended from time to time

Community Charter – Section 117 – Duty to Respect Confidentiality

	Communications Policy
Village of PEMBERTON	
Department: Personnel	Policy No.:
Sub-department: Administrative	Created By: Jill Brooksbank
Approved By: Council	Amended By:
Approved Date:	Amendment:
Meeting No.:	Meeting No.:

POLICY

Roles and Responsibilities

Role of the Mayor

The Mayor is the designated spokesperson to represent the Village of Pemberton as follows:

- Official Spokesperson for the Village of Pemberton; and
- Liaison with other government elected officials (if appropriate).

In the event that the Mayor is absent, the Acting Mayor or the CAO will be the spokesperson.

Role of the Chief Administrative Officer (CAO)

The Chief Administrative Officer approves all statements, press releases, memos and other communications provided to the community, stakeholders, media or other audiences.

The CAO is responsible for:

- Briefing Mayor and Council;
- Briefing Village of Pemberton employees or designating a Staff member to do so;
- Authorizing the release of notices to the media and general public; and
- Designate a Staff Spokesperson if technical information is requested.

Role of Communications Coordinator

- Assists CAO with determining messaging;
- Drafting/preparing statements;
- Prepares a Q&A for internal purposes for spokesperson preparation;
- Responds to media calls and coordinates media interviews;
- Disseminates information to internal and external stakeholders
- Coordinates press conferences and escorts media (if required);
- Creates and maintains contact log of media requests;
- Develops key message points;
- Prepares public statements and press materials; and
- Distributes press materials.

Communications Policy

Department:	Personnel	Policy No.:	
Sub-department:	Administrative	Created By:	Jill Brooksbank
Approved By:	Council	Amended By:	
Approved Date:		Amendment:	
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PROCEDURE

The Office of the CAO, through the Communications Coordinator, is responsible for strategic communication and coordination of the flow of information to the public and media by managing public messaging and the overall look and feel of the Village's branding through the Village of Pemberton Style Guide.

It is imperative that Village initiatives, projects and issues be communicated to the community in a timely matter. Managers shall meet with the Communications Coordinator to discuss upcoming projects and issues to facilitate communication planning at least four to six weeks prior to project commencement.

Community Communications

Communications issued from the Village of Pemberton must be timely, concise and easily understood. All communications must be written in plain English, and abbreviations should be avoided where possible.

Information in all formats is well identified as being from the Village of Pemberton, in accordance to the Village's Style Guide.

Public information is easily accessible and shall be available for review in-person, via email or on the website.

The Council calendar will be updated regularly. Council, Committee and Commission agenda packages will be available at www.pemberton.ca at least seventy-two (72) hours before the Meeting date except in the instance of a Special Meeting of Council. Council, Committee and Commission meeting minutes will be uploaded to the website once they are signed. For further information on Council procedures, please review the Council Procedure Bylaw.

Advertising

If advertising is deemed necessary, the relevant Department Manager will consult with the Communications Coordinator to determine appropriate approach.

Public Notices must follow the public notice requirements set out in Section 94 of the *Community Charter*. Notices must be formatted on the Public Notice and/or Have Your Say ad template and signed off by the Corporate Officer.

Communications Policy

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Sub-department:	Administrative	Created By:	Jill Brooksbank
Approved By:	Council	Amended By:	
Approved Date:		Amendment:	
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Village of PEMBERTON

Once approved, ads will be distributed to all Staff to ensure employees are informed of municipal matters.

Consultation and Outreach

Consultation and outreach will be coordinated between the Communications Coordinator and the Department for which the outreach program is required to coordinate design and communications requirements.

The Communications Coordinator must be involved in any initial discussions regarding upcoming consultations to ensure consultation needs are able to be accommodated.

Media Relations

Media inquiries, whether by phone, e-mail, letter, or in person, should be directed to the Communications Coordinator and addressed promptly to accommodate publication or broadcast deadlines, wherever possible. As per the Customer Service Policy, inquiries should be acknowledged within forty-eight (48) hours.

In most cases, interview requests will be directed to the Mayor. Councillors will not act as spokespersons for the Village unless they have been designated in the absence of the Mayor.

If the media are seeking information that is technical in nature, the Chief Administrative Officer may designate a Staff spokesperson.

Emergency and Crisis Communications

In a crisis, coordinated communication must be used to maintain or restore confidence. Departments must advise the CAO's Office as soon as they identify an event or situation occurring in or affecting their Department that may attract widespread interest to the Media.

The Communications Coordinator and CAO, in consultation with the Mayor, will coordinate a response and determine how to best distribute the information.

Electronic Communications (Email, website and social media)

Emails are to be used strictly for the purposes of Village of Pemberton business. Emails may not be used for the purposes of setting up personal web accounts. All Council and Staff emails should be limited to those that are work related and that applies to all recipients, as stated in the Customer Service Policy. All email correspondence is subject to FOIPPA (Freedom of Information and the Protection of Privacy Act).

Department:	Personnel	Policy No.:	
Sub-department:	Administrative	Created By:	Jill Brooksbank
Approved By:	Council	Amended By:	
Approved Date:		Amendment:	
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Communications Policy

The Village of Pemberton website is managed by the Communications Coordinator. Staff wishing to add to or amend content on the website should contact the Communications Coordinator or designate who will assist with creating appropriate messaging and post on the Village website.

Personal social media accounts may not be used for conducting Village business or contacting residents or businesses. For Social Media procedures and guidelines, please refer to the Village of Pemberton Social Media Policy.

Internal Communications

Before information is disseminated to the public, all Staff will be advised of the situation via an all-Staff meeting or email, and forward-facing Staff will be given key messaging. Once this has been completed, information will immediately be disseminated through the Village's various communications channels.

The Communications Coordinator and/or the Chief Administrative Officer will provide regular updates to Council and Staff related to the crisis via Staff meeting, by phone and/or email

> Staff Communications – To inform Staff, a variety of mediums must be used as not all Staff have access to computers or email. Staff notices and information will be issued via email, on the Staff notice board and regular Staff meetings. For detailed policy regarding Staff communications, please see Customer Service Policy

> Manager/Supervisor and Staff Communications – Managers/supervisors must communicate with employees openly, often and, before information in made public.

> Councillor Inquiries and Communications – The point of contact between Council and Staff is the Chief Administrative Officer. Any Council inquiries (verbal or written) received by Staff must be directed to the Chief Administrative Officer. In some circumstances, the CAO may refer Councillors to senior Staff if their inquiry is technical in nature in which case a response should be provided within twenty-four (24) hours. All correspondence to Council must be email carbon copied to the Chief Administrative Officer.

Department:	Personnel	Policy No.:	
Sub-department:	Administrative	Created By:	Jill Brooksbank
Approved By:	Council	Amended By:	
Approved Date:		Amendment:	
Meeting No.:		Meeting No.:	

Use of the Village of Pemberton Logo and Branding

Any use of the Village Logo must be approved by the Communications Coordinator prior to installation or use. Requests must be made to the Communications Coordinator and must include an explanation of use or purpose for use.

Use of the Village Logo by any Village department must be reviewed for look, style and formatting by the Communications Coordinator to ensure consistency.

Village of PEMBERTON

Date: **October 3, 2017**

To: **Nikki Gilmore, Chief Administrative Officer**

From: **Lena Martin, Manager of Finance & Administration**

Subject: **Councillor Equipment Purchase Policy**

PURPOSE

The purpose of this report is to introduce a Councillor Equipment Purchase Policy to replace the outdated Councillor Computer Policy.

BACKGROUND

In 2009, in order to be more environmentally sustainable by reducing the use of paper and copying, the Council Computer Purchase Policy was adopted, attached as Appendix A.

In January, 2016 the policy was amended to include the allowance of a smart phone or blackberry. A subsequent review of the Policy noted that it was based on the Council term of three rather than four years, the Policy was further updated to reflect the new schedule, attached as Appendix B.

DISCUSSION & COMMENTS

As the Policy description has changed to include other equipment (smartphones), staff have prepared a new Councillor Equipment Purchase Policy for consideration. The Policy establishes that the Village (VOP) will provide a $1,000 stipend towards the purchase of a laptop computer, a computer tablet or a smartphone ('Equipment') for each of Mayor and Council for business purposes, within approved budgets at the beginning of each term.

COMMUNICATIONS

There are no communications considerations at this time.

LEGAL CONSIDERATIONS

There are no legal, legislative or regulatory considerations at this time.

IMPACT ON BUDGET & STAFFING

There is no additional impact to staff or budget and the policy can be managed within the Finance Departments regular schedule.

IMPACT ON THE REGION OR NEIGHBOURING JURISDICTIONS

This policy has no impact on other jurisdictions.

ALTERNATIVE OPTIONS

There are no alternative options presented for consideration.

POTENTIAL GOVERNANCE CONSIDERATIONS

A review and amendment of the Councillor Equipment Purchase Policy meets with Strategic Priority Two: Good Governance whereby the Village is committed to being accountable government and to fiscal responsibility.

RECOMMENDATIONS

THAT the Councillor Computer Purchase Policy, approved June 2, 2009 and amended January 19, 2016, be repealed.

**AND THAT** the Councillor Equipment Purchase Policy be adopted as presented.

ATTACHMENTS:

Appendix A: Councillor Computer Purchase Policy – Updated January 19, 2016
Appendix B: Councillor Equipment Purchase Policy – Updated October 3, 2017

Submitted by:	Lena Martin, Manager of Finance and Administrative Services
CAO Approval by:	Nikki Gilmore, Chief Administrative Officer
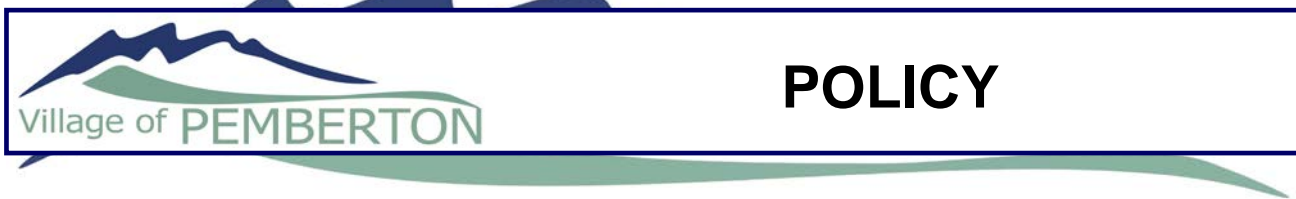
POLICY

Councillor Computer Purchase Policy

Purpose

One of the Village of Pemberton strategic goals is to be more environmentally sustainable by reducing the use of paper and copying. To support this strategic goal the Village (VOP) will supply a laptop computer for each of Mayor and Council for business purposes, to the extent possible within approved budgets. Each Councillor must sign a Computer Equipment Agreement, declaring that they will return the computer equipment at the end of their term.

Policy

1.0 The make/model/type of the equipment supplied shall be determined by the Village based on the current computer standards used and will comply with the operating requirements of the current configuration in use at the Village of Pemberton offices.

2.0 The equipment supplied will include Microsoft Office (Word, Excel, Power Point, Outlook), Adobe Reader and Anti- Virus Protection (or current equivalent at time of purchase).

3.0 All equipment will be maintained by the Village's computer contractor at Village expense.

4.0 All computers will remain the property of the Village, unless purchased by the Councillor, in accordance with Section 5 of this policy.

5.0 Computer equipment will be eligible for upgrade every three years.

6.0 The budgeting for Councillor's computer equipment will be based on the election cycle, with provision for equipment in the year of each election so that funds are available for equipping incoming Councillors.

7.0 Councillors may purchase the used equipment at the time of upgrade or replacement (every three years) or at the end of their term in office, for the depreciated value of the computer.

8.0 If a Councillor chooses not to purchase the computer equipment at the end of their term in office, the computer equipment will be returned on or before the Councillors last day as a member of Council.

9.0 Councillors will return their equipment upon request at anytime by an authorized VOP officer.

10.0 If a Councillor wishes to upgrade before the end of three years, the Councillor must pay to VOP the prorated value of the cost of the original computer equipment. The prorated value is calculated by the following formula (considered on a case by case basis):

(a) Divide the original purchase price by 36 (3 yrs. X 12 months)
(b) Subtract the number of months since the computer was purchased from 36 to determine the number of remaining months in the computer's 3 year life.
(c) Multiply the product of step (a) by the results of step (b) to determine the prorated amount to be paid by the Councillor to VOP.
(d) Should the Councillor wish to retain any of the equipment being replaced under this provision, for personal use, they shall pay an additional amount as set out in Section 5 of this policy. Otherwise, all replaced equipment shall be returned to VOP.

11.0 Once computer equipment is allocated all Council and Committee agenda packages will be provided electronically. Hard copies will only be provided in exceptional cases.

Approved: June 2, 2009

Councillor Equipment Purchase Policy

Village of PEMBERTON

Department:	Finance	Policy No.:	FIN-XXX
Sub-department:	Council	Created By:	Lena Martin
Approved By:	Council	Amended By:	
Approved Date:	3 October 2017	Amendment:	
Meeting No.:		Meeting No.:	

POLICY PURPOSE

In order to be more environmentally sustainable by reducing the use of paper and copying, the Village (VOP) will allocate to each member of Council a $1,000 stipend to remunerate the Councillor in the purchase of a laptop computer, a computer tablet and/or a smartphone ('Equipment') for business purposes, within approved budgets. Each member of Council must submit for reimbursement, as per the Village's expense reimbursement policy, the Equipment stipend within the first year of their term.

POLICY

1. The make/model/type of the Equipment requested shall be reviewed using the Village computer standards and will comply with the operating requirements of the current configuration in use at the Village of Pemberton offices.

2. The Equipment must include Microsoft Office (Word, Excel, Power Point, Outlook), Adobe Reader and Anti-Virus Protection (or current equivalent at time of purchase).

3. All Equipment will be maintained, for the Councillor, by the Village's computer contractor at Village's expense until the end of the Councillors term.

4. Councillors that leave office before the end of the term are to return the prorated (x/ 48mths x $1,000) remaining value of the stipend.

5. The budgeting for Councillor's equipment will be based on the election cycle, with provision for equipment in the first year of each election so that funds are available for equipping incoming members of Council.

6. Once the Equipment stipend is expensed all Council and Committee agenda packages will be provided electronically. Hard copies will only be provided in exceptional cases.

Councillor Equipment Purchase Policy

Department:	Finance	Policy No.:	FIN-XXX
Sub-department:	Council	Created By:	Lena Martin
Approved By:	Council	Amended By:	
Approved Date:	3 October 2017	Amendment:	
Meeting No.:		Meeting No.:	

REPEAL

Councillor Computer Purchase Policy approved June 2, 2009 and amended January 19, 2016 is hereby repealed and replaced with Councillor Equipment Purchase Policy, FIN-XXX.

REPORT TO COUNCIL

Date: **October 3, 2017**

To: **Nikki Gilmore, Chief Administrative Officer**

From: **Suzanne Bélanger, Operations & Development Services Coordinator**

Subject: **Street Naming -Tiyata Development**

PURPOSE

The purpose of this report is to introduce for approval street names for the new Tiyata Subdivision roads within their current & future subdivisions.

BACKGROUND

On September 12 of this year, Council adopted the Street Naming and Civic Addressing Bylaw No. 819 to regulate the assignment of street name and addressing numbers within the Village of Pemberton. On the same day, Council also approved the Street Naming Terms & Names Listing. Section 3B of the Bylaw established the street naming categories as follows:

The proposed street names within the Village of Pemberton must be reasonably easy to spell and pronounce, have no adverse connotations or the same as used in neighbouring jurisdictions and are:

   i.   Names that reference local pioneers, flora and fauna, native plants and local animals;

   ii.   Have significance to the history of the Pemberton Valley and First Nations Traditional history;

   iii.   Names of Pemberton residents who have achieved remarkable success in their field at the local, provincial, federal or international levels; or connected to the community as a whole;

   iv.   Specifically for the Industrial Park, have the name themed on industry;

   v.   Based on the Street names established in the Street Naming Listing as approved by Council and amended from time to time.

DISCUSSION & COMMENTS

Phase 1 and 2 of the Tiyata Development located off Portage Road is currently in its final stage of subdivision and the legal plan will be soon registered at the Land Title Office. Phase 3 and 4 are expected to move forward shortly thereafter. Shown below is the subdivision layout:
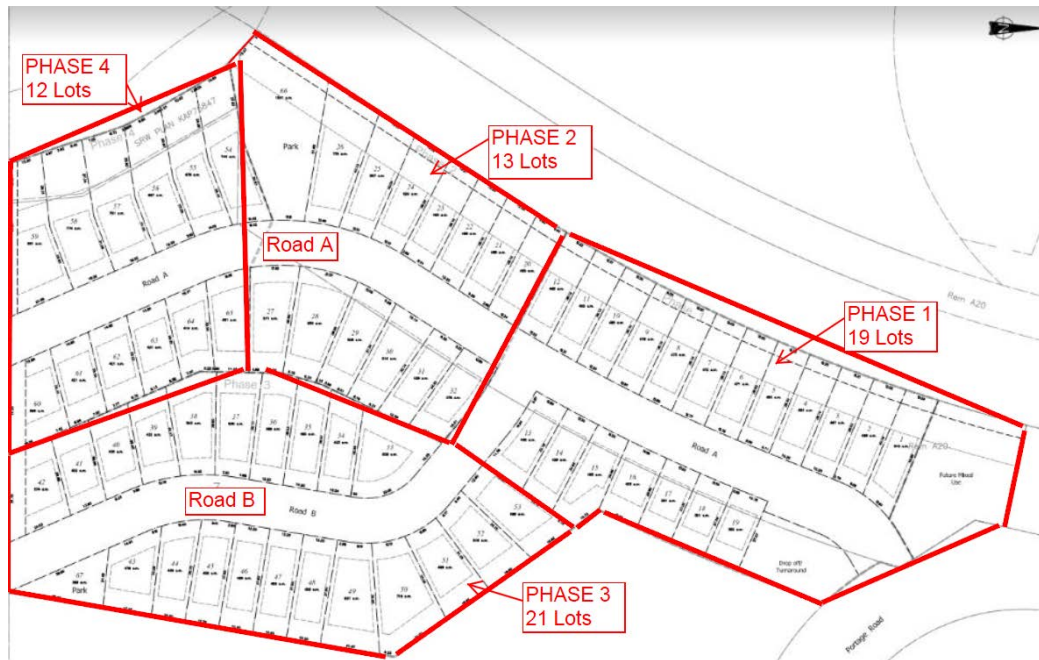
Following the procedure set out in the newly adopted Bylaw, the Developer, Bruce Van Mook, has submitted a formal request to the Development Services Department with the following name suggestions in order of preference along with identification of the category and how the proposed names apply as noted below:

ROAD A:

Proposed Names	Meaning	Criteria
1. **Tiyata Boulevard** (Requires Council Approval)	Tiyata is a First Nations term meaning "at home".	3B (ii) **Have significance to** the history of the Pemberton Valley and **First Nations Traditional history**
2. **Mill Road** (Included in the Approved Street Naming Listing)	The site was partially a Cedar Shake Mill around the 80's.	3B (ii) **Have significance to the history of the Pemberton Valley** and First Nations Traditional history
3. **Fleetwood Road** (Requires Council Approval)	Bruce Van Mook's wife's Grandfather (Jack Edwards) had a deep connection to Pemberton as he owned a logging operation in the Pemberton region for many years in the 60's/70's, called Fleetwood Logging.	3B (iii) Names of Pemberton residents who have achieved remarkable success in their field at the local, provincial, federal or international levels; **or connected to the community as a whole**

ROAD B:

Proposed Names	Meaning	Criteria
1. Phare Crescent (Requires Council Approval)	To honour the Phare family, long-time residents who have given to the community through multigenerational volunteerism, donations of financial/equipment/materials and through involvement in many business that have supported the community immeasurably over time.	3B (iii) Names of Pemberton residents who have achieved remarkable success in their field at the local, provincial, federal or international levels; **or connected to the community as a whole**
2. Mill Crescent (Included in the Approved Street Naming Listing)	The site was partially a Cedar Shake Mill around the 80's	3B (ii) **Have significance to the history of the Pemberton Valley** and First Nations Traditional history
3. Fleetwood Road (Requires Council Approval)	Bruce Van Mook's wife's Grandfather (Jack Edwards) had a deep connection to Pemberton as he owned a logging operation in the Pemberton region for many years in the 60's/70's, called Fleetwood Logging.	3B (iii) Names of Pemberton residents who have achieved remarkable success in their field at the local, provincial, federal or international levels; **or connected to the community as a whole**

As per the Bylaw the naming of streets has been delegated to the Manager of Operations and Development Services; however, in the event that a proposed name has significance to the history of Pemberton or is honouring a local resident then the street naming proposal must be referred to Council for approval if the name is not already listed on the approved Street Naming List.

The proposed street naming options listed above meet with the established Street Naming Criteria; however as two of the naming options presented (Tiyata and Fleetwood) relate to section 3B (ii) and (iii) of Bylaw No. 819, 2017, Council review and approval is required.

COMMUNICATIONS

Upon approval of the new street names, staff will advise the Developer so that they may proceed with the installation of the street signs.

Following the legal plan registration, Village Staff will notify all agencies of the new names and addresses.

LEGAL CONSIDERATIONS

The process by which streets are named has been established in the Street Naming & Civic Addressing Bylaw No. 819, 2017. As such, there is no legal review required.

IMPACT ON BUDGET & STAFFING

As per section 3 D (v) of Bylaw No. 819, 2017, all cost associated with the design, fabrication and installation of street signs within a new development are borne by the Developer. As such, there is no impact on the Village's operations budget.

INTERDEPARTMENTAL IMPACT & APPROVAL

The facilitation of street naming is undertaken by the Operations & Development Services Department and is incorporated into the day to day work plan as required and can be accommodated.

Interdepartmental Approval by:	Tim Harris, Manager of Operations & Development Services

IMPACT ON THE REGION OR NEIGHBOURING JURISDICTIONS

The establishment of new streets and names for those streets has no impact on the region or neighbouring jurisdictions. Upon registration of the street names and establishment of the civic addressing, new mapping will be prepared and provided to the appropriate authorities such as BC Assessment, ECOMM and the Village of Pemberton Fire Rescue Department.

ALTERNATIVE OPTIONS

There are no alternative options for consideration at this time.

POTENTIAL GOVERNANCE CONSIDERATIONS

This project falls under Strategic Priority Three: Excellence in Service whereby the Village is committed to delivering the highest quality of municipal services within the scope of our resources.

RECOMMENDATIONS

THAT the following street names be approved for the Tiyata Development:
    Road A: Tiyata Boulevard
    Road B: Phare Crescent

Submitted by:	Suzanne Bélanger, Operations & Development Services Coordinator
Manager Approval by:	Tim Harris, Manager of Operations and Development Services
CAO Approval by:	Nikki Gilmore, Chief Administrative Officer
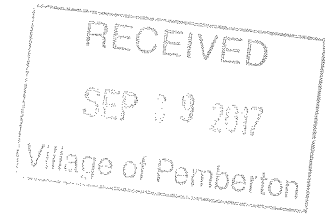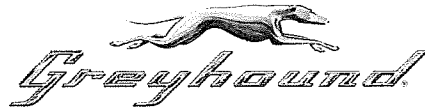
September 13, 2017

Greetings Your Worship:

Greyhound Canada Transportation ULC has filed an application with the B.C. Passenger Transportation Board for elimination certain route points and the reduction of Minimum Route Frequencies that has the possibility of affecting intercity bus service in your community. Details of these changes appear in the enclosed Public Notice.

Should your community have any comments regarding this proposal, please notify the B.C. Passenger Transportation Board at the address set out in the Public Notice by **Friday October 13, 2017**.

Yours sincerely,

Brad Scott
BC District Manager, Passenger Services
Greyhound Canada Transportation ULC

100 Woolridge Street, Coquitlam, BC V3K 5V4

PUBLIC NOTICE OF APPLICATION TO REDUCE MINIMUM ROUTE FREQUENCY AND ELIMINATE CERTAIN ROUTE POINTS.

Greyhound Canada Transportation ULC (Greyhound)

B.C. Passenger Transportation Board ("Board") Application # 256-17

Posting Period September 13, 2017 to October 13, 2017

Please take note that Greyhound has applied to the Board to amend its Passenger Transportation License # 70414 to reduce minimum route frequencies to two per week in each direction and eliminate certain route points (as indicated) on the following routes:

- A: Alberta Border & Highway 1 - Vancouver
- B1: Kamloops - Kelowna
- B2: Kelowna - Penticton
- C: Vancouver - Osoyoos
- D: Kelowna - Alberta Border & Highway 3
- E: Prince George – Vancouver
- G: Alberta Border & Highway 2 - Dawson Creek
- N: Alberta Border & Highway 16 – Vancouver
- P: Kelowna – Vancouver
- S1: Vancouver – Pemberton / Mt. Currie

This application is part of an effort to offer a viable, streamlined Intercity Bus Service in response to a challenging transportation environment that is characterized by diminishing ridership, escalating costs and increased competition from publicly subsidized services. Despite significant efforts over the past several years to reduce costs as well as other measures to adapt to the market, Greyhound continues to suffer important losses from its passenger operations in BC.

This application seeks to reduce minimum route frequencies to allow the company flexibility in adapting schedules to respond to market demand without the requirement of an application before the Board. Service frequencies will not necessarily be reduced as a result.

It also seeks to eliminate certain route points that have low passenger use in order to reduce travel time for the majority of users and better respond to market demand.
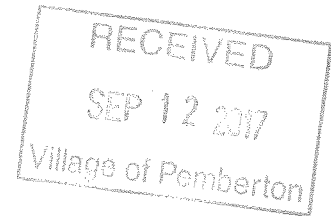
Business as Usual Pending Regulatory Review and Approval

Greyhound's BC operations will continue to operate normally on these routes during the regulatory process review period-the Company does not foresee any changes to operations in 2017. Subject to the outcome of the Board's review of our application we do not anticipate these changes will come into effect until early 2018. We expect no impact on passenger ticketing and package transport for the remainder of this year.

- More information about the application, including, changes affecting other routes and the "Applicant's Rationale" by Greyhound is available at www.ptboard.bc.ca/bus.htm.

- The Passenger Transportation Board will consider written comments it receives by **Friday October 13, 2017**.

- Send comments to the Passenger Transportation Board at Box 9850 STN PROV GOVT, Victoria BC, V8W 9T5, or by fax at (250) 953-3788 or email at ptboard@gov.bc.ca.

- The Board forwards comments to Greyhound. Comments from private individuals are subject to a privacy and confidentiality agreement that Greyhound Canada Transportation ULC has made with the Board.

Eliminated Route Points:

- A: Alberta Border & Highway 1 – Vancouver (West Louise Lodge, Field Junction, Glacier Park East Gate, Rogers Pass, Oyama and Agassiz).

- B1:   Kamloops – Kelowna (Monte Lake, Westwold, Falkland, Oyama)

- B2:   Kelowna – Penticton (n/a)

- C: Vancouver – Osoyoos (Agassiz, Manning Park, Eastgate, Town of Princeton, Hedley, Village of Keremeos)

- D: Kelowna - Alberta Border & Highway 3 (Beaverdell)

- E: Prince George – Vancouver (McLeese Lake, Spences Bridge, Shaw Springs, Village of Lytton, North Bend, Boston Bar, Spuzzum, Yale, Laidlaw, Bridal Falls, Agassiz)

- G: Alberta Border & Highway 2 - Dawson Creek (n/a)

- N: Alberta Border & Highway 16 – Vancouver (Agassiz)

- P: Kelowna – Vancouver (Agassiz)

- S1:   Vancouver – Pemberton / Mt. Currie (West Vancouver, Brittania Beach, Pinecrest/Black Tusk, Mount Currie) *Some trips may terminate at the Resort Municipality of Whistler instead of the Village of Pemberton.

202368/484123
MT DOCS 17032447v2

Village of Pemberton
Regular Council Meeting No. 1457
Tuesday, October 3, 2017
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BC MUNICIPAL
CLIMATE
LEADERSHIP
COUNCIL

RECEIVED
SEP 1 2 2017
Village of Pemberton

September 6, 2017

Mayor Mike Richman and Councillors
Village of Pemberton
7400 Prospect Street
Pemberton, BC V0N 2L0

RE: Climate Leadership Institute

Dear Mayor Mike Richman and Councillors,

With local governments influencing over 55% of greenhouse gas emissions in British Columbia, locally elected officials need the practical skills and knowledge to lead their community into a green future. To help its peers, the BC Municipal Climate Leadership Council is hosting the Climate Leadership Institute from November 1-3 at the Hilton Vancouver Airport. CLI offers leadership training in three core areas:

> **Communicating:** Learn ways to effectively communicate the importance of acting on climate change and build support with your stakeholders.

> **Planning:** Learn best practices and policies to ensure that a climate action lens is incorporated in every decision your community makes over the long term.

> **Knowledge sharing:** Hear about successful solutions and innovative ideas in reducing greenhouse gas emissions and energy use in other BC communities and learn how to adapt them to your own community.

The Village of Pemberton has already demonstrated leadership on climate action by reporting on corporate and community climate change initiatives for CARIP to the Province of BC. BCMCLC invites you, Mayor and Councillors, to join us at the Climate Leadership Institute to further advance climate action in your community.

The ideal time to lead on climate action is now with the BC government's renewed commitment through its Climate Leadership Plan and federal government support through the Pan Canadian Framework on Clean Growth and Climate Change and future infrastructure funding for municipalities.

A program agenda and information on our keynote speakers is available on BCMCLC's website at http://bcmclc.ca/cli/. To register for this event, visit http://climatleadershipinstitute.eventbrite.ca. An early registration fee of $245 is offered until October 1.

Best Regards,

Richard Walton, Mayor of the District of North Vancouver and Chair of BCMCLC

From: no-reply@webguidecms.ca [mailto:no-reply@webguidecms.ca]
Sent: Tuesday, September 19, 2017 11:23 PM
To: Nikki Gilmore; Sheena Fraser; Elysia Harvey
Subject: Website Submission: Write to Mayor & Council - pemberton.ca

Form Submission Info

First Name: Fran

Last Name: Cuthbert

Street Address: ███████████

PO Box: ██

Town/City: Pemberton

Province: B.C.

Postal Code: V0N 2L0

Phone Number: ████████

Email: ███████████████

Please attach any related documents (if applicable):

Message to Mayor & Council: Dear Honorable Mayor Richman and members of council:

I am writing to express concern over the use of the Community Barn and hours. Last Sunday, an event at the barn the band played until 10 p.m. The base was so loud it vibrated our home, and disrupted our Sunday evening. We did not receive a notice of this event. Why was a loud event allowed on a Sunday evening until 10 p.m. ?

Many of us would have liked to enjoy a calm evening ahead of the work and school week. If the barn is to be used on a Sunday evening, the ending hours should be earlier and notice to the adjacent residents should have been delivered.

The second concern is, we received notice for the upcoming Barn Dance and notice of extension of hours. We were surprised to read of the extension of hours without consultation to the residents who hear the band. This is a great community event, but I do not agree with the extension of the hours for the band to play until 12:30.

I think consideration should have been given to all the adjacent neighbors, and support the current noise bylaw. This is encouraging and supporting more extension of the hours promoting "time creeping". Perhaps the band quits at 12:30 a.m., but the noise does not end at 12:30 a.m. For us, perhaps the band ends at 12:30 but we listen to everyone leaving and being noisy well

after 12:30 a.m. People are not quiet after an evening of partying, we hear it every weekend when people leave the bar and walk home.

I would like to see for future events at the barn which involve bands, that notice be given to all the surrounding residents and prior to any extension of hours outside the noise bylaw the residents be consulted.

My other question is, how many events per year are permitted for bands at the barn? I appreciate your consideration of my request.

Sincerely,

Fran Cuthbert

███████████████

HARRISON HOT SPRINGS

Naturally Refreshed

September 19, 2017

City of Abbotsford
32315 South Fraser Way
Abbotsford, BC V2T 1W7

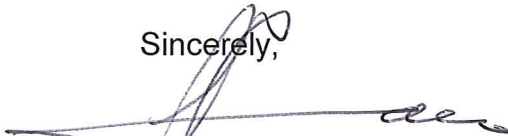**Attention: Mayor Henry Braun**

Dear Mayor Braun and Council:

Subject: Support for 2017 UBCM Resolution, City of Abbotsford

Thank you for your letter of September 5, 2017 seeking Council's support on the resolutions submitted to UBCM on the issues of the Opioid Crisis in the Province of British Columbia. Your letter was before Council at its Regular meeting on September 18, 2017 for consideration.

I am happy to report that on September 18, 2017 Council endorsed your motions to the Union of British Columbia Municipalities seeking consideration of the resolutions.

Sincerely,

Leo Facio
Mayor

cc: Union of British Columbia Municipalities

Municipal Office: P.O. Box 160, 495 Hot Springs Road, Harrison Hot Springs, BC V0M 1K0
E info@harrisonhotsprings.ca W www.harrisonhotsprings.ca
T 604 796 2171 F 604 796 2192

Village of Pemberton
Regular Council Meeting No. 1457
Tuesday, October 3, 2017
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BCEHS | **BC Emergency Health Services**

Date: September 21, 2017

To: Mayors and Directors of Communities in Vancouver Coastal Health Selected for Community
         Paramedicine

From: Linda Lupini, Executive Vice President, Provincial Health Services Authority and BC Emergency
         Health Services

Re: **COMMUNITY PARAMEDICINE INITIATIVE – VANCOUVER COASTAL HEALTH**

We are pleased to advise that the following six communities have been selected for the provincial
rollout of the Community Paramedicine Initiative: Bella Bella, Bella Coola, Bowen Island, Madeira Park,
Pemberton, and Texada Island.

Community paramedicine will provide British Columbians in rural and remote communities with better
access to primary health care and a more stabilized paramedic presence for emergency response. It is
being implemented by BC Emergency Health Services (BCEHS) in partnership with the Ministry of Health,
the regional Health Authorities, the Ambulance Paramedics of BC (Local 873), the First Nations Health
Authority and others.

Recruitment and Placement Schedule
The following community paramedics have now been hired into regular part-time positions. They began
their 14-week orientation program on September 11 and will start working in their communities the
week of December 18:

Community	Community Paramedic	Community	Community Paramedic
Bella Coola	Jeffrey Snow	Madeira Park	Cheryl Jensen
Bowen Island	Janis Treleaven Keith Tyler	Pemberton	Melissa Caldwell

One position in each of Bella Bella, Bella Coola and Texada Island remains unfilled, and will be reposted
in early October 2017.

Selection of Community Paramedics
The selection process is being carried out within the parameters of the Collective Agreement between
the Ambulance Paramedics of BC (CUPE 873) and BCEHS. All applicants must hold at least a Primary Care
Paramedic (PCP) license with an IV endorsement to ensure they have the training and experience to
perform the tasks of a community paramedic. Priority is being given to those currently residing in or
attached to the communities where they are applying.

1

In those communities where there are no paramedics with the necessary qualifications, or none that are interested in applying, every effort has been made to recruit a qualified paramedic from the immediate region.

More information is available by visiting **bcehs.ca** and clicking on Our Services/Programs & Services/Community Paramedicine.

Please let us know if you have any questions by emailing **communityparamedicine@bcehs.ca**.

Sincerely,

Linda Lupini

cc: Karin Olson, Chief Operating Officer – Coastal, Vancouver Coastal Health
        Dr. Ross Brown, Co-Senior Medical Director – Coastal, Vancouver Coastal Health
        Barbara Fitzsimmons, Chief Operating Officer, BCEHS
        Nancy Kotani, Chief Transformation Officer and CPI Project Lead, BCEHS
        Rita Jervis, CPI Project Director, BCEHS
        Rick Mowles, Area Director, Northern Region and CPI Operations Lead, BCEHS
        Joe Acker, Area Director, Vancouver Coastal Districts, BCEHS

2

OPEN QUESTION PERIOD POLICY

THAT the following guidelines for the Open Question Period held at the conclusion of the Regular Council Meetings:

1) The Open Question Period will commence after the adjournment of the Regular Council Meeting;

2) A maximum of 15 minutes for the questions from the Press and Public will be permitted, subject to curtailment at the discretion of the Chair if other business necessitates;

3) Only questions directly related to business discussed during the Council Meeting are allowed;

4) Questions may be asked of any Council Member;

5) Questions must be truly questions and not statements of opinions or policy by the questioner;

6) Not more than two (2) separate subjects per questioner will be allowed;

7) Questions from each member of the attending Press will be allowed preference prior to proceeding to the public;

8) The Chair will recognize the questioner and will direct questions to the Councillor whom he/she feels is best able to reply;

9) More than one Councillor may reply if he/she feels there is something to contribute.

Approved by Council at Meeting No. 920
Held November 2, 1999

Amended by Council at Meeting No. 1405
Held September 15, 2015