

AGENDA

REGULAR MEETING OF COUNCIL

Monday, October 5, 2020

7:00 p.m.

Council Chambers, Municipal Hall

355 West Queens Road,

North Vancouver, BC

Council Members:

Mayor Mike Little

Councillor Jordan Back

Councillor Mathew Bond

Councillor Megan Curren

Councillor Betty Forbes

Councillor Jim Hanson

Councillor Lisa Muri



www.dnv.org

THIS PAGE LEFT BLANK INTENTIONALLY

REGULAR MEETING OF COUNCIL

7:00 p.m.
Monday, October 5, 2020
Council Chamber, Municipal Hall,
355 West Queens Road, North Vancouver

AGENDA

BROADCAST OF MEETING

- Online at <http://app.dnv.org/councillive/>

CLOSED PUBLIC HEARING ITEMS NOT AVAILABLE FOR DISCUSSION

- Bylaw 8262 – OCP Amendment 1923 Purcell Way
- Bylaw 8263 – Rezoning 1923, 1935, 1947 and 1959 Purcell Way

1. ADOPTION OF THE AGENDA

1.1. October 5, 2020 Regular Meeting Agenda

Recommendation:

THAT the agenda for the October 5, 2020 Regular Meeting of Council for the District of North Vancouver is adopted as circulated, including the addition of any items listed in the agenda addendum.

2. PUBLIC INPUT

(limit of three minutes per speaker to a maximum of thirty minutes total)

3. RECOGNITIONS

4. DELEGATIONS

5. ADOPTION OF MINUTES

5.1. September 14, 2020 Regular Council Meeting

p. 9-16

Recommendation:

THAT the minutes of the September 14, 2020 Regular Council meeting are adopted.

6. RELEASE OF CLOSED MEETING DECISIONS

7. COUNCIL WORKSHOP REPORT

8. REPORTS FROM COUNCIL OR STAFF

With the consent of Council, any member may request an item be added to the Consent Agenda to be approved without debate.

If a member of the public signs up to speak to an item, it shall be excluded from the Consent Agenda.

Recommendation:

THAT items _____ are included in the Consent Agenda and be approved without debate.

**8.1. Bylaw 8442: 2020-2023 Taxation Exemptions by Council Bylaw 8379, p. 19-32
2019 – Amendment Bylaw 8442, 2020**

File No. 05.1940

Report: Manager – Community Planning and Manager – Revenue & Taxation,
September 16, 2020

Attachment 1: 2020-2023 Taxation Exemptions by Council Bylaw 8379, 2019
Amendment Bylaw 8442, 2020 (Amendment 1)

Attachment 2: Taxation Exemptions by Council Guidelines Policy

Attachment 3: Excerpt from *Community Charter*

Recommendation:

THAT “2020-2023 Taxation Exemptions by Council Bylaw 8379, 2019 Amendment Bylaw 8442, 2020 (Amendment 1)” is given FIRST, SECOND and THIRD Readings;

AND THAT prior to considering adoption of the Bylaw, public notice be given in accordance with Section 227 of the *Community Charter*.

8.2. Bylaw 8436: Solid Waste Management Bylaw 8436, 2020 p. 33-81

File No. 11.5360.90/007.000

Report: Manager – Public Works and Section Manager – Fleet and Solid Waste,
September 23, 2020

Attachment 1: Solid Waste Management Bylaw 8436, 2020

Attachment 2: Solid Waste Removal Bylaw 7631, 2007

Attachment 3: Solid Waste Bylaw Matrix: Details of Additions and Amendments

Attachment 4: Bylaw Notice Enforcement Bylaw 7458, 2004 Amendment Bylaw 8437,
2020 (Amendment 52)

Recommendation:

THAT “Solid Waste Management Bylaw 8436, 2020” is given FIRST, SECOND and THIRD Readings;

AND THAT “Bylaw Notice Enforcement Bylaw 7458, 2004, Amendment Bylaw 8437, 2020 (Amendment 52)” is given FIRST, SECOND and THIRD Readings.

8.3. Bylaw 8463: Extension of Temporary Outdoor Business Areas to October 2021 – COVID 19 Recovery **p. 83-89**
File No. 08.3170.20/513.000

Report: Manager – Real Estate and Properties, September 22, 2020
Attachment 1: Bylaw 8463: Fees and Charges Bylaw 6481, 1992 Amendment Bylaw 8463, 2020 (Amendment 67)

Recommendation:

THAT “Fees and Charges Bylaw 6481, 1992 Amendment Bylaw 8463, 2020 (Amendment 67)” is given FIRST, SECOND and THIRD Readings.

THAT “Fees and Charges Bylaw 6481, 1992 Amendment Bylaw 8463, 2020 (Amendment 67)” is ADOPTED.

8.4. 2021 Community Resiliency Investment Program Grant **p. 91-264**
File No.

Report: Acting Assistant Fire Chief – Public Safety and Fire Chief, September 18, 2020

Attachment 1: CRI Application Form

Attachment 2: CRI Worksheets 1: 2020 Community Resiliency Investment Program FireSmart Community Funding & Supports

Attachment 3: CWPP Update Wildland Urban Interface (WUI) Fire Risk Management Update

Recommendation:

THAT the 2021 Community Resiliency Investment (CRI) Program Grant Application entitled District of North Vancouver Fire Rescue Services (DNVFRS) FireSmart Community Risk Reduction and Resiliency Initiatives Program 2021 is supported.

8.5. Loukidelis Report **p. 265-314**
File No.

Report: Chief Administrative Officer, September 23, 2020

Attachment 1: Review of Adoption of District of North Vancouver Bylaw 8402, 2019

Recommendation:

THAT the actions identified in the September 23, 2020 report of the Chief Administrative Officer entitled Loukidelis Report is supported;

AND THAT staff are directed to make the necessary changes and report back to Council by the end of 2020.

9. REPORTS

9.1. Mayor

9.2. Chief Administrative Officer

9.3. Councillors

9.4. Metro Vancouver Committee Appointees

- 9.4.1. Industrial Lands Strategy Task Force – Councillor Back**
- 9.4.2. Housing Committee – Councillor Bond**
- 9.4.3. Indigenous Relations Committee – Councillor Hanson**
- 9.4.4. Board – Councillor Muri**
- 9.4.5. Regional Parks Committee – Councillor Muri**
- 9.4.6. Liquid Waste Committee – Mayor Little**
- 9.4.7. Mayors Committee – Mayor Little**
- 9.4.8. Mayors Council - TransLink – Mayor Little**
- 9.4.9. Performance & Audit Committee – Mayor Little**
- 9.4.10. Zero Waste Committee – Mayor Little**

10. ADJOURNMENT

Recommendation:

THAT the October 5, 2020 Regular Meeting of Council for the District of North Vancouver is adjourned.

MINUTES

THIS PAGE LEFT BLANK INTENTIONALLY

**DISTRICT OF NORTH VANCOUVER
REGULAR MEETING OF COUNCIL**

Minutes of the Regular Meeting of the Council for the District of North Vancouver held at 7:04 p.m. on Monday, September 14, 2020 in the Council Chambers of the District Hall, 355 West Queens Road, North Vancouver, British Columbia.

Present: Mayor M. Little
Councillor J. Back
Councillor M. Bond
Councillor M. Curren
Councillor B. Forbes
Councillor J. Hanson
Councillor L. Muri

Staff: Mr. D. Stuart, Chief Administrative Officer
Mr. G. Joyce, General Manager – Engineering, Parks & Facilities
Mr. D. Milburn, General Manager – Planning, Properties & Permits
Ms. T. Atva, Manager – Community Planning
Mr. J. Gordon, Manager – Administrative Services
Mr. M. Hartford, Section Manager – Development Planning
Ms. S. Dale, Confidential Council Clerk
Ms. J. Simpson, Confidential Council Clerk
Ms. C. Archer, Clerk Typist 3 – via Webex

1. ADOPTION OF THE AGENDA

1.1. September 14, 2020 Regular Meeting Agenda

MOVED by Councillor BACK

SECONDED by Councillor CURREN

THAT the agenda for the September 14, 2020 Regular Meeting of Council for the District of North Vancouver is adopted as circulated.

CARRIED

2. PUBLIC INPUT

2.1. Ms. Stefani Baker:

- Spoke in support of Seymour estates;
- Commented on the diverse housing mix;
- Suggested that diverse housing will help promote a healthy community; and,
- Urged Council to support this development.

2.2. Ms. Karen Harmon:

- Spoke in support of the Seymour Estates proposal;
- Spoke regarding the rent-to-own program and commented on its benefits;
- Commented on the diverse housing mix;
- Commented on the proposed transportation infrastructure improvements; and,
- Encouraged Council to approve the proposed development.

2.3. Mr. Fred Rathje:

- Spoke in support of the Seymour Estates Project;
- Spoke to the issue of affordability on the North Shore;
- Commented on the site's proximity to transit; and,
- Spoke to the importance of creating a walkable community with better bicycle infrastructure and less reliance on vehicles in the Maplewood area.

2.4. Ms. Emily Vinet, via Webex:

- Spoke in support of item 8.3 regarding the Seymour Estates proposal;
- Spoke to the issue of affordability and commented that many families are forced to relocate outside their community;
- Opined that more housing diversity is needed in North Vancouver; and,
- Commented on the close proximity to transit, recreation, shops and greenspace.

2.5. Ms. Jess Daniels, via Webex:

- Spoke in support of item 8.3 regarding the Seymour Estates proposal;
- Spoke to the challenges of being able to afford to live in North Vancouver;
- Spoke in support of the proposed project; and,
- Encouraged Council to approve the proposed development.

2.6. Ms. Rene Cravioto, via Webex:

- Spoke in support of the proposed Seymour Estates project;
- Expressed concern that families are being displaced from their neighbourhoods;
- Encouraged the developer to provide a generous tenant relocation and compensation package;
- Spoke to the opportunity for young families to be able to afford living on the North Shore; and,
- Commented on the close proximity to transit, recreation, shops and greenspace.

2.7. Ms. Cathi Wetsch, via Webex:

- Opined that the Seymour Estates development will be a great addition to the neighbourhood;
- Commented on accessibility of the proposed units; and,
- Encouraged Council to proceed to a Public Hearing.

2.8. Mr. Riaan De Beer

- Spoke in support of item 8.3 regarding the Seymour Estates proposal;
- Spoke to the history and context of the proposed development;
- Commented on the site's proximity to the transit corridor;
- Commented on the housing diversity provided by the proposed development, filling a need for increased rental supply and affordable housing options;
- Noted that community consultation has taken place and the developer has worked with the community to address their needs; and,
- Advised that the revised proposal will adhere to and provide an enhancement of Step Code 3 with proposed green building measures that include electric heat pump technology without reliance on fossil fuels for any phase of the development.

2.9. Mr. Sylvain Celaire, via Webex:

- Spoke on behalf of Modo Car Co-op;

- Spoke in support of the proposed Seymour Estates development;
- Provided a history of the Modo car sharing program;
- Advised that residents of rental units are generally supportive of car sharing programs; and,
- Commented that car sharing programs are most successful in higher density areas.

2.10. Mr. Kelly Jordan, via Webex:

- Spoke in support of item 8.3 regarding the Seymour Estates proposal;
- Opined that the proposed development will provide affordable housing options;
- Commented on the benefits of the rent-to-own program; and,
- Suggested the proposed development may help the younger generation stay in North Vancouver.

2.11. Ms. Joy Hayden, via Webex:

- Spoke in support of the proposed Seymour Estates development;
- Commented that the proposed development may help the younger generation stay in North Vancouver; and,
- Commented on the diverse housing mix.

3. RECOGNITIONS

Nil

4. DELEGATIONS

Nil

5. ADOPTION OF MINUTES

5.1. July 20, 2020 Regular Council Meeting

MOVED by Councillor BACK

SECONDED by Councillor MURI

THAT the minutes of the July 20, 2020 Regular Council meeting are adopted.

CARRIED

5.2. July 27, 2020 Public Hearing

MOVED by Councillor BACK

SECONDED by Councillor MURI

THAT the report of the July 27, 2020 Public Hearing is received.

CARRIED

5.3. July 27, 2020 Special Council Meeting

MOVED by Councillor BACK

SECONDED by Councillor MURI

THAT the minutes of the July 27, 2020 Special Council meeting are adopted.

CARRIED

5.4. July 30, 2020 Special Council Meeting

MOVED by Councillor BACK

SECONDED by Councillor MURI

THAT the minutes of the July 30, 2020 Special Council meeting are adopted.

CARRIED

6. RELEASE OF CLOSED MEETING DECISIONS

Nil

7. COUNCIL WORKSHOP REPORT

Nil

8. REPORTS FROM COUNCIL OR STAFF

8.1. Housing Needs Report – Application for Funding

File No. 10.5040.01/000.000

MOVED by Councillor BOND

SECONDED by Councillor CURREN

THAT staff are directed to submit an application to the Union of British Columbia Municipalities (UBCM) Housing Needs Report Program, for \$50,000 in grant funding to support the preparation of the Housing Needs Report, as described in the August 26, 2020 report of the Community Planner entitled Housing Needs Report – Application for Funding.

CARRIED

8.2. Snow and Ice Removal

File No.

Public Input:

Ms. Devina Briggs-Hammoud:

- Spoke in support of implementing a Snow Angels Program in the District of North Vancouver; and,
- Commented that a Snow Angels Program would provide an opportunity to help those in need.

MOVED by Councillor BACK
SECONDED by Councillor CURREN

THAT the District require that homeowners with sidewalks in front of their homes clear those sidewalks during significant snowfall events;

AND THAT staff are directed to report back on possible updates to “Street and Traffic Bylaw No. 7125, 2004”, which would require that businesses with sidewalks in front of their businesses be cleared in a more timely manner during significant snowfall events;

AND THAT staff report back on snow clearing priorities with respect to bike lanes and possible improvements;

AND THAT staff report back on the possibility of creating a Snow Angels Program, similar to the City of North Vancouver.

CARRIED

**8.3. Bylaws 8423, 8424, and 8425: Rezoning and Housing Agreement
Bylaws for a Mixed-Use Development at 904 - 944 Lytton Street
(Seymour Estates)**

File No. 08.3060.20/025.17

Public Input:

Mr. Peter Teevan:

- Spoke in support of the Seymour Estates proposal;
- Opined that the District does not need more luxury condos;
- Commented that there is an urgent need for more market and sub-market rentals; and,
- Spoke favourably to the rent-to-own program.

Mr. John Carrodus:

- Questioned if the proposal will be a zero fossil fuel site; and,
- Spoke in support of the Seymour Estates development once informed the development would be fossil fuel free.

MOVED by Mayor LITTLE
SECONDED by Councillor BACK

THAT “District of North Vancouver Rezoning Bylaw 1396 (Bylaw 8423)” is given FIRST Reading;

THAT “Housing Agreement Bylaw 8424, 2020” is given FIRST Reading;

THAT “Housing Agreement Bylaw 8425, 2020” is given FIRST Reading;

AND THAT “District of North Vancouver Rezoning Bylaw 1396 (Bylaw 8423)” is referred to a Public Hearing.

CARRIED

Opposed: Councillors HANSON and MURI

**8.4. 1210-1260 West 16th Street – Council Early Input
Rezoning and Development Permit Application**
File No. 08.3060.20/044.17

Public Input:

Mr. Simon Richards, Cornerstone Architecture:

- Spoke to the history and context of the proposed development;
- Advised that the community has spoken in support of the proposed development;
- Commented on the site's proximity to transit;
- Spoke to the generous tenant relocation and compensation package;
- Mentioned that car share memberships will be provided at occupancy; and,
- Advised that the proposed development will have a negligible impact on increased traffic.

MOVED by Councillor HANSON

SECONDED by Mayor LITTLE

THAT Staff be directed to prepare bylaws based on the applicant's rezoning application.

CARRIED

8.5. UBCM Reconsideration of: NEB8 Greenhouse Gas Limits for New Buildings
File No.

Councillor MURI left the meeting at 10:01 pm and returned at 10:02 p.m.

MOVED by Councillor CURREN

SECONDED by Councillor BOND

THAT Council support that the recommendation by City of Port Moody "NEB8 Greenhouse Gas Limits for New Buildings" be removed from the UBCM Resolutions Committee recommendation from Not Endorse Block and be considered as an amended block at the 2020 UBCM Convention;

AND THAT the reasons to pull the motion from the Not Endorse Block be sent to UBCM Executive by noon on Friday, September 18, 2020.

CARRIED

9. REPORTS

9.1. Mayor

Mayor Little reported on the following:

- The completion of the Interchange on Highway 1;
- Future Council meetings will be a combination of in-person attendance and virtual participation;
- Thanked TransLink for providing him with a face mask; and,

- Advised that the District of North Vancouver continues to be committed to providing excellent customer service as we navigate through COVID-19.

9.2. Chief Administrative Officer

Mr. David Stuart, Chief Administrative Officer, provided an update on the COVID-19 pandemic and noted the following:

- Community recreation centres, libraries, facilities, and parking lots are being carefully reopened;
- District services will be returning to close to normal in the coming month;
- Residential property taxes are 90% collected as of September 2, 2020, which is in line with prior years;
- Business and industrial taxes are now 63% collected with a due date for final payments on September 30, 2020;
- Any net losses will be stabilized through the use of reserves and the financial plan will be amended before the end of the year but the District is in good financial shape;
- Many of the 2020 capital projects will be pushed forward to 2021; and,
- The big issue remains how to meaningfully engage the public.

9.3. Councillors

9.3.1. Councillor Curren reported on the following:

- Her recent biweekly Climate Caucus meetings;
- Her attendance at the anti-racism public forum on September 14, 2020 in West Vancouver; and,
- Her attendance at the memorial for black bears Plum and Huckleberry.

9.3.2. Councillor Muri requested a Council Workshop on key learnings and takeaways from the COVID-19 pandemic and suggested reviewing the Official Community Plan.

9.4. Metro Vancouver Committee Appointees

9.4.1. Industrial Lands Strategy Task Force – Councillor Back

Nil

9.4.2. Housing Committee – Councillor Bond

Councillor Bond reported on his attendance at the September 9, 2020 Metro Vancouver Housing Committee and advised that the Metro Vancouver Housing Committee is exploring the potential to include integrated childcare facilities in future development projects.

9.4.3. Indigenous Relations Committee – Councillor Hanson

Nil

9.4.4. Board – Councillor Muri

Nil

9.4.5. Regional Parks Committee – Councillor Muri

Nil

9.4.6. Liquid Waste Committee – Mayor Little

Nil

9.4.7. Mayors Committee – Mayor Little

Nil

9.4.8. Mayors Council - TransLink – Mayor Little

Nil

9.4.9. Performance & Audit Committee – Mayor Little

Nil

9.4.10. Zero Waste Committee – Mayor Little

Nil

10. ADJOURNMENT

MOVED by Councillor MURI

SECONDED by Mayor LITTLE

THAT the September 14, 2020 Regular Meeting of Council for the District of North Vancouver is adjourned.

CARRIED
(10:27 p.m.)

Mayor

Municipal Clerk

REPORTS

THIS PAGE LEFT BLANK INTENTIONALLY

AGENDA INFORMATION	
<input checked="" type="checkbox"/> Regular Meeting	Date: <u>Oct 5, 2020</u>
<input type="checkbox"/> Other:	Date: _____

 TA Dept. Manager	 GM/ Director	 CAO
---	--	---

The District of North Vancouver

REPORT TO COUNCIL

September 16, 2020
File: 05.1940

AUTHOR: Tina Atva, Manager of Community Planning
Rozy Jivraj, Manager of Revenue & Taxation

SUBJECT: 2020-2023 Taxation Exemptions by Council Bylaw 8379, 2019 -
Amendment Bylaw 8442, 2020

RECOMMENDATION:

THAT the "2020-2023 Taxation Exemptions by Council Bylaw 8379, 2019 Amendment Bylaw 8442, 2020 (Amendment 1)" be read a FIRST, SECOND and THIRD time.

AND THAT prior to considering adoption of the Bylaw, public notice be given in accordance with Section 227 of the *Community Charter*.

REASON FOR REPORT:

In compliance with the provisions of the *Community Charter*, and the District's Taxation Exemptions by Council Guidelines policy, members of the Community Services Advisory Committee (CSAC) have reviewed applications from five agencies for Permissive Tax Exemptions (PTEs) for the 2021-2023 taxation years. Staff have prepared the amending bylaw (**Attachment 1**) for Council's consideration based upon CSAC's recommendations.

SUMMARY:

According to provisions of the Community Charter, Council may, on or before October 31st of each year, adopt a bylaw to exempt certain lands or improvements (or both) from municipal taxation for the following year. In 2019, Council approved Bylaw 8379, which provided taxation exemptions from 2020-2023. Since then, staff have received additional applications for consideration. As per the Taxation Exemptions by Council Guidelines policy (**Attachment 2**), members of CSAC carefully reviewed applications from five agencies relating to seven properties. These applications are recommended for approval and are reflected in the amendment Bylaw provided in Attachment 1.

BACKGROUND:

The Taxation Exemption by Council Guidelines policy, adopted by Council in 2007, was developed to recognize the contribution of non-profit organizations to the well-being of the citizens of the municipality. The policy includes specific criteria that must be met by organizations applying for a PTE. The Community Services Advisory Committee, which has

been given the authority by Council to review PTE applications, has assessed each of the new applications to ensure they comply with the criteria.

The Taxation Exemption by Council Guidelines policy also establishes that a maximum of 0.6% of the total municipal tax levy (the “financial cap”) may be granted as tax exemptions under Section 224 of the Community Charter (See **Attachment 3**, for an excerpt from the Charter). When funding requests exceeds the financial cap, CSAC has authority to allocate funds to applicants (within the limits of the financial cap) in the best interests of the District and make recommendations to Council. Under this authority, some applicants might receive 100% of a funding request while other applicants might receive less than 100%.

The policy further states that Council will approve a PTE bylaw in Council’s second year which will be in effect for the term of Council’s mandate. This approval occurred last year (2019), when Council approved Bylaw 8379 and PTEs for 69 properties. New applications received in other years, will only be considered if there is room in the financial cap, and if Council deems a service to be a District service or deems there to be a community need.

The estimated PTEs for the applications being recommended this year by CSAC is \$16,671.

ANALYSIS:

Between June 17, 2020 and August 10, 2020, members of CSAC reviewed PTE applications from five agencies for seven properties. CSAC members determined that all seven properties met the tax exemption criteria outlined in the Tax Exemptions by Council Guidelines policy.

In addition to fulfilling other administrative criteria, non-profit organizations must provide one or more of the following services per the policy:

- Direct social and community services to District residents; and/or
- Arts and cultural activities of demonstrable benefit to District residents and that can be reasonably considered to provide a unique extension of municipal arts and cultural services; and/or
- Recreational services to District residents that can reasonably be considered an extension of municipal recreational services.

A summary of the recommended applications are outlined below.

Hollyburn Family Services Society

Hollyburn Family Services is a charitable not-for-profit mandated to provide services to youth and seniors living on the North Shore who are at risk of homelessness or otherwise subject to unsafe living conditions. CSAC has recommended that Hollyburn Family Services Society receive a PTE for a secondary transition home on District land, for youth aged 18 to 24 who have been homeless, and are currently employed and enrolled in a post-secondary program. The house offers them a safe place to live and study until they graduate and earn a living wage.

**SUBJECT: 2020-2023 Taxation Exemptions by Council Bylaw 8379, 2019 -
Amendment Bylaw 8442, 2020**

September 16, 2020

Page 3

Marineview Housing Society

Marineview Housing Society has served North Shore residents since 1975, focusing on psycho-social rehabilitation, supportive care, and providing low-income housing for individuals recovering from mental illness. CSAC has recommended that the Marineview Housing Society receive a PTE for one single family property, which will be used to provide care and low income housing to individuals recovering from mental illnesses.

North Shore Crisis Services Society

The North Shore Crisis Services Society works to promote a secure and abuse-free environment for women and children, providing shelter, second-stage housing, and other support services. CSAC has recommended that the North Shore Crisis Services Society receive a PTE for one such facility.

North Shore Disability Resource Centre Association

The North Shore Disability Resource Centre Association provides North Shore residents with residential support, community services, and informational resources for accessing disability assistance. CSAC has recommended that the North Shore Disability Resource Centre receive a PTE for three affordable and accessible housing units, which will be reserved for District residents living with disabilities.

SAP Outdoor Association

SAP Outdoor Association provides an alternative approach to primary education, focusing on hands-on, child-directed learning in both indoor classrooms and outdoors in the nearby forest. The program follows the BC curriculum, with an emphasis on social and emotional development, and provides flexible learning environments for children with various behavioural and mental health needs. CSAC has recommended that SAP Outdoor Association receive a PTE for their main facility. The space will also be available for use as a meeting space to further train educators on alternative approaches to education and also provide for LGBTQIA+ and diversity training.

Timing/Approval Process:

Pursuant to Section 224 of the *Community Charter*, Council is required to adopt Permissive Tax Exemption Bylaws by October 31st of each year. Pursuant to Section 227 of the *Community Charter*, public notice must be provided prior to adoption of the Bylaw Amendment.

Financial Impacts:

Based on the recommendations in this report, an additional \$16,671 in permissive tax exemptions is proposed for the 2021-2023 taxation years. If approved, a total of \$445,109 in permissive tax exemptions would be granted by the District in the 2021 taxation year. This amount is well within the financial cap of \$626,564 and leaves \$181,455 available for future utilization.

Social Policy Implications:

By providing permissive tax exemptions to non-profit organizations that deliver preventative and support services, the District furthers the aim of social sustainability by leveraging our resources effectively to help meet the needs of people in our community.

**SUBJECT: 2020-2023 Taxation Exemptions by Council Bylaw 8379, 2019 -
Amendment Bylaw 8442, 2020**

September 16, 2020

Page 4

Options:

The following options are available for Council's consideration:

1. Approve the recommendations of the Community Services Advisory Committee regarding 2020-2023 Taxation Exemptions by Council Bylaw 8379, 2019 Amendment Bylaw 8442, 2020 (Amendment 1);
2. Deny the permissive tax exemptions applications; or
3. Advise staff to contact the applicants and advise them to re-apply in 2024 so that Council can consider all of the permissive tax exemptions at one time.

Respectfully submitted,



Tina Atva
Manager, Community Planning





Rozy Jivraj
Manager of Revenue & Taxation

Attachment 1: 2020-2023 Taxation Exemptions by Council Bylaw 8379, 2019 Amendment Bylaw 8442, 2020 (Amendment 1)

Attachment 2: Taxation Exemptions by Council Guidelines Policy

Attachment 3: Excerpt from Community Charter

REVIEWED WITH:					
<input type="checkbox"/> Community Planning	_____	<input type="checkbox"/> Clerk's Office	_____	External Agencies:	
<input type="checkbox"/> Development Planning	_____	<input type="checkbox"/> Communications	_____	<input type="checkbox"/> Library Board	_____
<input type="checkbox"/> Development Engineering	_____	<input checked="" type="checkbox"/> Finance		<input type="checkbox"/> NS Health	_____
<input type="checkbox"/> Utilities	_____	<input type="checkbox"/> Fire Services	_____	<input type="checkbox"/> RCMP	_____
<input type="checkbox"/> Engineering Operations	_____	<input type="checkbox"/> ITS	_____	<input type="checkbox"/> NVRC	_____
<input type="checkbox"/> Parks	_____	<input type="checkbox"/> Solicitor	_____	<input type="checkbox"/> Museum & Arch.	_____
<input type="checkbox"/> Environment	_____	<input type="checkbox"/> GIS	_____	<input type="checkbox"/> Other:	_____
<input type="checkbox"/> Facilities	_____	<input type="checkbox"/> Real Estate	_____		
<input type="checkbox"/> Human Resources	_____	<input type="checkbox"/> Bylaw Services	_____		
<input type="checkbox"/> Review and Compliance	_____	<input checked="" type="checkbox"/> Planning			

The Corporation of the District of North Vancouver

Bylaw 8442

A bylaw to amend 2020-2023 Taxation Exemptions by Council Bylaw 8379, 2019

The Council for The Corporation of the District of North Vancouver enacts as follows:

Citation

1. This bylaw may be cited as “2020-2023 Taxation Exemptions by Council Bylaw 8379, 2019 Amendment Bylaw 8442, 2020 (Amendment 1)”.

Amendments

2. 2020-2023 Taxation Exemptions by Council Bylaw 8379, 2019 is amended as follows:
 - a) The following subsection is added to Section 2.a. and is exempt from taxation for the remaining three years (2021 to 2023):
 17. Marineview Housing Society – supportive housing, Lot 17, Block 31, District Lot 553, Plan 2406, PID 005-751-349 (990 East Keith Road, registered in the name of Marineview Housing Society – Roll # 080-0182-5600-7)
 - b) The following subsections are added to Section 2.d. and are exempt from taxation for the remaining three years (2021 to 2023):
 19. Hollyburn Family Services Society – transitional housing, Lot C, Block 3, District Lots 612 and 613, Plan 15643, PID 005-852-781 (894 Orwell Street, registered in the name of The Corporation of the District of North Vancouver and leased to Hollyburn Family Services Society – Roll # 090-1564-3000-2);
 20. North Shore Crisis Services Society, Lot B, Block 2, District Lot 791, Plan 10072 (registered in the name of the Corporation of the District of North Vancouver and leased to North Shore Crisis Services Society – Roll # 100-0508-9200-2);
 21. SAP Outdoor Association – educational and training facility, Lot C, Block 1, District Lot 552, Plan 10849, PID 009-283-609 (1390 West

22nd Street, registered in the name of the Corporation of the District of North Vancouver and leased to SAP Outdoor Association – Roll # 011-0163-8025-8).

c) The following subsections are added to Section 2.j. and are exempt from taxation for the remaining three years (2021 to 2023):

25. North Shore Disability Resource Centre Association – accessible housing, Strata Lot 60, District Lot 2022, Group 1, New Westminster District Strata Plan EPS4096 Together with an Interest in the Common Property in Proportion to the Unit Entitlement of the Strata Lot as Shown on Form V, PID 031-140-815, (202 – 2785 Library Lane, registered in the name of North Shore Disability Resource Centre Association – Roll #999-4040-9660-3);
26. North Shore Disability Resource Centre Association – accessible housing, Strata Lot 67, District Lot 2022, Group 1, New Westminster District Strata Plan EPS4096 Together with an Interest in the Common Property in Proportion to the Unit Entitlement of the Strata Lot as Shown on Form V, PID 031-140-882, (302 – 2785 Library Lane, registered in the name of North Shore Disability Resource Centre Association – Roll #999-4040-9667-0);
27. North Shore Disability Resource Centre Association – accessible housing, Strata Lot 75, District Lot 2022, Group 1, New Westminster District Strata Plan EPS4096 Together with an Interest in the Common Property in Proportion to the Unit Entitlement of the Strata Lot as Shown on Form V, PID 031-140-963, (402 – 2785 Library Lane, registered in the name of North Shore Disability Resource Centre Association – Roll #999-4040-9675-1).

READ a first time

READ a second time

READ a third time

NOTICE given in accordance with Section 227 of the *Community Charter* on the ____ of _____ and the ____ day of _____, 2020.

ADOPTED

Mayor

Municipal Clerk

Certified a true copy

Municipal Clerk

THIS PAGE LEFT BLANK INTENTIONALLY



The Corporation of the District of North Vancouver

CORPORATE POLICY MANUAL

Section:	Finance	5
Sub-Section:	Permissive Tax Exemptions	1970
Title:	TAXATION EXEMPTIONS BY COUNCIL GUIDELINES	3

POLICY

The *Community Charter* provides that on or before October 31 in any year, Council may, by bylaw, exempt land and/or improvements from municipal property taxes. In addition to the *Community Charter* requirements, those organizations applying for exemption must comply with the guidelines set out in this policy.

REASON FOR POLICY

The Council recognizes that such organizations contribute to the well being of the citizens of the Municipality and to the improvement of their quality of life, and that exemption from taxation by Council may effectively promote enhanced community services.

AUTHORITY TO ACT

Retained by Council

PROCEDURECriteria for Taxation Exemption by Council

Exemptions provided for in Section 224 (General Authority for Permissive Tax Exemptions) and covered by these guidelines are at the discretion of Council. There is no obligation to give an exemption. Council may also consider partial exemptions of less than 100%.

A financial cap equal to 0.6% of the tax levy applies to Section 224 exemptions only and specifically exclude Section 225 (Partnering, heritage, riparian and other special exemption authority) or Section 226 (Revitalization tax exemptions). When the funding requested exceeds the financial cap of 0.6% of the tax levy, the Community Services Advisory Committee has authority to allocate funds to applicants (within the limits of the financial cap) in the best interests of the District and make its recommendation to council. Under this authority some applicants might receive 100% of a funding request while other applicants might receive less than 100%.

Council may impose restrictions on the use of the property and may require the applicant to enter into an operating agreement or other legal agreement as a condition of an exemption. (eg: a requirement that sports groups be open to the public on Saturdays).

Organizations applying for taxation exemptions must successfully meet each general criteria.

1.0 General Criteria

- 1.1 Exemptions are based on the Section 224 use of the property, not on the charitable status of the organization as a whole.
- 1.2 In the case of non-profit organizations seeking permissive tax exemption on private property, only private property that is entirely used for charitable, philanthropic will be considered for exemption (ie: no partial exemptions based on portions of property used for charitable or philanthropic).
- 1.3 The operations of the applicant on the property must be consistent with municipal policies, plans, bylaws, codes and regulations.
- 1.4 In the case of non-profit organizations seeking tax exemption, only property that is utilized to provide services for and/or to support to all District residents, without discrimination, will be considered.

- 1.5 PTEs will not be considered where Council believes that an exemption will result in the inappropriate downloading of responsibilities and costs of other levels of government to local taxpayers.
- 1.6 Organizations that disparage others are not eligible for a Permissive Tax Exemption.
- 1.7 Receipt of a Permissive Tax Exemption will be taken into consideration when organizations apply for other municipal grants.
- 1.8 Organizations must meet the guidelines of section 224 of the Community Charter;
- 1.9 Organizations must be non-profit and must provide needed:
- direct social & community services to District residents; or
 - arts and cultural activities of demonstrable benefit to District residents and that can be reasonably considered to provide a unique extension of municipal arts and cultural services; or
 - recreational services to District residents that can reasonably be considered an extension of municipal recreational services,
- 1.10 Organizations must offer services primarily to the broader community of citizens of the District of North Vancouver, and justify the need for that service;
- For the purposes of general provisions 1.9 and 1.10, in establishing need for direct social, community, cultural or recreational services, the Community Services Advisory Committee has the power to make a distinction between addressing "need" and providing "choice" and will recommend to Council only those applications that address need.
- 1.11 Organizations must show evidence of ongoing, active volunteer involvement;
- 1.12 Organizations must present proof of financial responsibility and accountability;
- The organization must provide any financial information and supporting information requested and, at a minimum, provide the previous year's financial statements as per Section 7.1.
 - In assessing applications, the DNV will consider the ability of the organization to raise its own revenues.
- 1.13 Organizations must provide evidence of seeking funding from other sources, including exemptions from other levels of Government;

2.0 Applications

- 2.1 Application Form - The application form supplied by the municipality must be utilized by all applicants for tax exemption. The application form requires organizations to:
- 2.1.1 declare under which subsection of section 224(2) of the *Community Charter* they are claiming the exemption;
 - 2.1.2 provide a full description of the organization, its purposes and programmes;
 - 2.1.3 provide all necessary documentation to support the status they claim; and
 - 2.1.4 provide financial statements in accordance with section 7 of this policy.
- 2.2 Completeness of Information Supplied - Unless all required information is supplied or a suitable explanation offered as to why this information cannot be supplied, the tax exemption application will not be considered.

2.3 Deadline - The deadline for applications in any year shall be set by the Community Services Advisory Committee and be strictly adhered to. The deadline must be on or before April 30th of the year preceding the year of tax exemption. Applications received after the deadline will only be considered if they meet the criteria under Section 2.4

2.4 Applications for Exemption Received after the Deadline – Subject to the provisions of the *Community Charter*, requests for exemption by Council which are received after the deadline will only be considered if they meet the following conditions:

2.4.1 The application complies with the tax exemption by Council guidelines as outlined in Section 1.0 of this policy;

2.4.2 The requirement for exemption was not reasonably foreseeable at the date of the deadline for exemptions for the current period;

2.4.3 Adequate justification is provided for not meeting the deadline for application for exemption for the current period.

2.4.4 A taxation exemption application form is completed.

Staff will review any application received after the deadline and provide recommendations to Council.

3.0 Review Process

3.1 Applications will be received by staff.

3.2 In the second year of council's mandate, the applications will be reviewed by the Community Services Advisory Committee, working with a staff liaison. A report and the necessary bylaw will be prepared for Council consideration by August 31st. Additional material, including completed applications, will be forwarded to Council only if specifically requested by Council.

3.3 Council approves a Permissive Tax Exemption bylaw once every three years in the second year of a Council's three year mandate. The bylaw is in effect for a three year period. The bylaw is supported by a full review of all applications.

3.4 New applications received in years one and three of a council mandate, will only be considered if there is room in the financial cap, if Council deems a service to be a District service or deems there to be a community "need".

3.5 Once Permissive Tax Exemption applications have been reviewed by the Community Services Advisory Committee and, it is confirmed that the total applications exceed the financial cap of .6% of the tax levy, the Community Services Advisory Committee will have the authority to allocate funds to applicants within the limits of the financial cap and make their recommendation to council. Staff will work with the Committee to establish allocation mechanisms.

4.0 Publication of Taxation Exemptions by Council Process and Criteria

4.1 The District Taxation Exemptions by Council Process and Guidelines will be publicized by posting a notice advising the Community of the Tax Exemption by Council process and criteria.

4.2 Taxation Exemptions by Council will be reported annually.

5.0 Council to Provide Notice of Permissive Tax Exemptions Prior to Adoption of Bylaw

- 5.1** Pursuant to Section 227 of the *Community Charter*, prior to adoption of a proposed bylaw to exempt property from taxation, Council is required to give notice of the bylaw. The notice must:
- 5.1.1** identify the property that would be subject to the bylaw,
 - 5.1.2** describe the proposed exemption,
 - 5.1.3** state the number of years that the exemption may be provided, and
 - 5.1.4** provide an estimate of the amount of taxes that would be imposed on the property if it were not exempt, for the year in which the proposed bylaw is to take effect and the following 2 years.

6.0 Acknowledgement of Taxation Exemptions by Council

- 6.1** All recipients of tax exemptions from the District of North Vancouver are required to publicly acknowledge the exemption.
- 6.2** This information is to be communicated to all beneficiaries, either in the local newspaper or through a letter, as well as, if applicable, in a prominent location in their publication.
- 6.3** If such publication lists community and government organizations in North Vancouver, such a list should also include the Council of the District of North Vancouver.

7.0 Accountability

- 7.1** When applying for a taxation exemption by Council, or upon request, the applicant will supply an audited financial statement for the most recent fiscal year, or where audited financial statements are not available, the applicant will supply financial statements that have been verified as correct by two signing officers from the organization.

Approval Date:	May 6, 2002	Approved by:	Regular Council
1. Amendment Date:	September 10, 2007	Approved by:	Regular Council
2. Amendment Date:		Approved by:	
3. Amendment Date:		Approved by:	

General authority for permissive exemptions

224 (1) A council may, by bylaw in accordance with this section, exempt land or improvements, or both, referred to in subsection (2) from taxation under section 197 (1) (a) [*municipal property taxes*], to the extent, for the period and subject to the conditions provided in the bylaw.

(2) Tax exemptions may be provided under this section for the following:

(a) land or improvements that

- (i) are owned or held by a charitable, philanthropic or other not for profit corporation, and
- (ii) the council considers are used for a purpose that is directly related to the purposes of the corporation;

(b) land or improvements that

- (i) are owned or held by a municipality, regional district or other local authority, and
- (ii) the council considers are used for a purpose of the local authority;

(c) land or improvements that the council considers would otherwise qualify for exemption under section 220 [*general statutory exemptions*] were it not for a secondary use;

(d) the interest of a public authority, local authority or any other corporation or organization in land or improvements that are used or occupied by the corporation or organization if

- (i) the land or improvements are owned by a public authority or local authority, and
- (ii) the land or improvements are used by the corporation or organization for a purpose in relation to which an exemption under this Division or Division 6 of this Part would apply or could be provided if the land or improvements were owned by that corporation or organization;



(e) the interest of a public authority, local authority or any other corporation or organization in land or improvements that are used or occupied by the corporation or organization if

- (i) the land or improvements are owned by a person who is providing a municipal service under a partnering agreement,
- (ii) an exemption under section 225 [*partnering and other special tax exemption authority*] would be available for the land or improvements in relation to the partnering agreement if they were used in relation to the service,
- (iii) the partnering agreement expressly contemplates that the council may provide an exemption under this provision, and
- (iv) the land or improvements are used by the corporation or organization for a purpose in relation to which an exemption under this Division or Division 6 of this Part would apply or could be provided if the land or improvements were owned by that corporation or organization;

(f) in relation to property that is exempt under section 220 (1) (h) [*buildings for public worship*],

- (i) an area of land surrounding the exempt building,
 - (ii) a hall that the council considers is necessary to the exempt building and the land on which the hall stands, and
 - (iii) an area of land surrounding a hall that is exempt under subparagraph (ii);
- (g) land or improvements used or occupied by a religious organization, as tenant or licensee, for the purpose of public worship or for the purposes of a hall that the council considers is necessary to land or improvements so used or occupied;
- (h) in relation to property that is exempt under section 220 (1) (i) *[seniors' homes]* or (j) *[hospitals]*, any area of land surrounding the exempt building;
- (h.1) in relation to land or improvements, or both, exempt under section 220 (1) (l) *[independent schools]*, any area of land surrounding the exempt land or improvements;
- (i) land or improvements owned or held by an athletic or service club or association and used as a public park or recreation ground or for public athletic or recreational purposes;
- (j) land or improvements owned or held by a person or organization and operated as a private hospital licensed under the *Hospital Act* or as a licensed community care facility, or registered assisted living residence, under the *Community Care and Assisted Living Act*;
- (k) land or improvements for which a grant has been made, after March 31, 1974, under the *Housing Construction (Elderly Citizens) Act* before its repeal.
- (3) The authority under subsection (2) (e) and (g) to (j) is not subject to section 25 (1) *[prohibition against assistance to business]*.
- (4) Subject to subsection (5), a bylaw under this section
- (a) must establish the term of the exemption, which may not be longer than 10 years,
 - (b) may only be adopted after notice of the proposed bylaw has been given in accordance with section 227 *[notice of permissive tax exemptions]*, and
 - (c) does not apply to taxation in a calendar year unless it comes into force on or before October 31 in the preceding year.
- (5) Subsection (4) (a) and (b) does not apply in relation to exemptions under subsection (2) (f), (h) and (h.1).
- (6) If only a portion of a parcel of land is exempt under this section, the bylaw under this section must include a description of the land that is satisfactory to the British Columbia Assessment Authority.
- (7) A bylaw under this section ceases to apply to property, the use or ownership of which no longer conforms to the conditions necessary to qualify for exemption and, after this, the property is liable to taxation.

AGENDA INFORMATION	
<input checked="" type="checkbox"/> Regular Meeting	Date: <u>October 5, 2020</u>
<input type="checkbox"/> Other:	Date: _____

 Dept. Manager	 GM/ Director	 CAO
---	--	---------

The District of North Vancouver REPORT TO COUNCIL

September 23, 2020

File: 11.5360.90/007.000

AUTHOR: Len Jensen, Manager of Public Works
Michael Toland, Section Manager – Fleet and Solid Waste

SUBJECT: Solid Waste Management Bylaw 8436, 2020

RECOMMENDATION:

THAT the Solid Waste Management Bylaw, 8436, 2020, is given FIRST, SECOND, and THIRD Readings;

AND THAT the Bylaw Notice Enforcement Bylaw 7458, 2004, Amendment Bylaw 8437, 2020 is given FIRST, SECOND and THIRD Readings.

REASON FOR REPORT:

To introduce a new Solid Waste Management Bylaw to replace the Solid Waste Removal Bylaw 7631, 2007 to reflect changes to the District's solid waste collection system, comply with Metro Vancouver's Integrated Solid Waste and Resource Management Plan, and address improvements to the management of municipal solid waste (MSW).

SUMMARY:

The current Solid Waste Removal Bylaw was last reviewed and updated in 2007 and so a significant rewrite is necessary for the following reasons:

- Transition to a carted collection system with the introduction of garbage and organics carts for residential use
- To integrate the provisions of Metro Vancouver's Integrated Solid Waste and Resource Management Plan
- Drive for zero waste and waste reduction which has prompted increased regulation of municipal solid waste at a regional level through mechanisms such as disposal bans, tracking of total tonnages generated and waste stream contamination rates
- Development of enforcement tools to improve and expand management and enforcement capability

The revised Solid Waste Management Bylaw proposes the following changes:

1. Single Family
 - Clarify the set out requirements for curbside collection
 - Define solid waste containers as District property which are not to be modified, damaged, lost, or stolen
 - Specify that the District-owned solid waste containers are the only receptacles permitted for curbside garbage and organics collection
 - Require solid waste containers be stored on private property when not set out for collection
 - Include an assisted collections program for residents with limited physical mobility
2. Multi Family
 - Require garbage, organics, and recycling waste streams
 - Require multi-stream recycling (paper, containers, and glass)
 - Prohibit the storage or placement of bulk containers on roads, sidewalks and highways
3. Industrial, Commercial, and Institutional (ICI)
 - Require garbage, organics, and recycling waste streams for ICIs serviced by the District
4. Wildlife Attractant Management
 - Require the proper storage and management of solid waste containers and waste as a key attractant for black bears and other wildlife
 - Require all attractant material on a property be stored securely so as not to attract wildlife
5. Streetscape
 - Prohibit the dumping of household waste, ICI waste, and construction or demolition waste in any public solid waste container located on District land
6. Recyclable Material Collection
 - Rename the annual *recyclable material collection* fee as the *environmental fee* to better reflect its purpose (i.e. use of the recycling depot at the North Shore Transfer Station, streetscape waste containers, public education programs)
 - Remove mention of residential recycling as a District service, as it is now the responsibility of Recycle BC
7. Collection Route and Frequency
 - Allow the General Manager to:
 - change collection routes, days, and frequency if necessary
 - determine the collection location from any property
 - exclude properties from collection service if fail to comply with the provisions of the bylaw

BACKGROUND:

At a Regular Council Meeting held September 2015, the previous Council approved the implementation of a carted waste collection. Associated with implementing carts, it has become necessary to repeal the Solid Waste Removal Bylaw, 7631 and adopt a new bylaw that reflects the current system.

In 2017, garbage and organics carts were introduced to single-family and participating multi-family households in the District. These wheeled, locking carts are animal resistant (but not animal proof) and are available in 140L or 240L capacity. The carts form the solid waste collection service provided by Solid Waste staff on a weekly basis.

The use of carts necessitated changes to waste collection practices, including cart set out requirements, household waste management, and wildlife attractant management. The new carted collection system requires corresponding bylaw regulations that reflect the operational requirements of this system and enable the District to better manage its solid waste collection system and take enforcement action when required.

EXISTING POLICY:

Solid Waste Removal Bylaw 7631, 2007
Bylaw Notice Enforcement Bylaw 7458, 2004

Metro Vancouver's Integrated Solid Waste and Resource Management Plan

ANALYSIS:

The matrix (Attachment 3) summarizes key additions and changes in the new Solid Waste Management Bylaw.

Timing/Approval Process:

The approval and implementation of the new Solid Waste Management Bylaw in 2020 would support existing operations and assist with any future changes to Solid Waste operations..

Concurrence:

The new Solid Waste Management Bylaw has been developed by Solid Waste staff in collaboration with the Municipal Solicitor. The Finance Department and Bylaw Services were consulted in reviewing the new bylaw. Input and direction on the wildlife attractant management section was received from the North Shore Black Bear Society.

Financial Impacts:

The 2020 Solid Waste rates were approved by Council in December 2019. Solid Waste utility fees and commercial fees remain the same for the duration of 2020. The solid waste fees listed in Schedule A of the bylaw are amended at the end of each calendar year.

Changes to fees are recommended to support current Solid Waste services:

- Assisted Collections fee
- Centralized Collection fee
- Environmental fee

Liability/Risk:

No known liabilities or risks.

Social Policy Implications:

The new bylaw will support waste diversion, staff health and safety, enforcement capabilities, and initiatives to prevent wildlife encounters, which meets the needs of residents and staff, and aligns with regional solid waste objectives.

Environmental Impact:

The bylaw supports waste diversion targets set by the District and Metro Vancouver.

The wildlife attractant management section has been significantly expanded and updated over what exists in the current bylaw. Owners are required to responsibly manage their solid waste to help prevent black bears and other wildlife from becoming habituated to an area. The new bylaw provides specific enforcement provisions in respect of managing attractants. Human-bear conflicts will be managed by enforcing solid waste container set out times and preventing attractants from being accessible to wildlife. These regulations carry substantial fines to reflect the seriousness of the requirements and to encourage compliance. The fine for setting carts at the curb the night before collection has been strengthened, as first offenses will result in a \$100 fine, and a \$500 fine will apply for subsequent offenses. No warnings will be given. Enforcement activity will be augmented by education programs on how best to manage waste when living in bear country.

Conclusion:

Approval of the Solid Waste Management Bylaw 8436, 2020 will provide the tools to manage daily operations, assist with waste reduction programming and reaching regional diversion targets, and support enforcement efforts.

Options:

Option 1–

That the bylaw be given FIRST, SECOND, and THIRD readings.

Option 2 –

That the bylaw not be given FIRST, SECOND, and THIRD readings.

Respectfully submitted,



Len Jensen
Manager – Public Works



Michael Toland
Section Manager – Fleet and Solid Waste

Attachment 1 – Solid Waste Management Bylaw 8436, 2020

Attachment 2 – Solid Waste Removal Bylaw 7631, 2007

Attachment 3 – Solid Waste Bylaw Matrix: Details of additions and amendments

REVIEWED WITH:					
<input type="checkbox"/> Community Planning	_____	<input type="checkbox"/> Clerk's Office	_____	External Agencies:	
<input type="checkbox"/> Development Planning	_____	<input type="checkbox"/> Communications	_____	<input type="checkbox"/> Library Board	_____
<input type="checkbox"/> Development Engineering	_____	<input type="checkbox"/> Finance	_____	<input type="checkbox"/> NS Health	_____
<input type="checkbox"/> Utilities	_____	<input type="checkbox"/> Fire Services	_____	<input type="checkbox"/> RCMP	_____
<input type="checkbox"/> Engineering Operations	_____	<input type="checkbox"/> ITS	_____	<input type="checkbox"/> NVRC	_____
<input type="checkbox"/> Parks	_____	<input type="checkbox"/> Solicitor	_____	<input type="checkbox"/> Museum & Arch.	_____
<input type="checkbox"/> Environment	_____	<input type="checkbox"/> GIS	_____	<input type="checkbox"/> Other:	_____
<input type="checkbox"/> Facilities	_____	<input type="checkbox"/> Real Estate	_____		
<input type="checkbox"/> Human Resources	_____	<input type="checkbox"/> Bylaw Services	_____		
<input type="checkbox"/> Review and Compliance	_____	<input type="checkbox"/> Planning	_____		

THIS PAGE LEFT BLANK INTENTIONALLY

The Corporation of the District of North Vancouver

Bylaw 8436

A bylaw to establish and maintain a system for the collection of solid waste pursuant to section 8 of the *Community Charter* (SBC 2003, c.26)

The Council for The Corporation of The District of North Vancouver enacts the following:

PART I – TITLE

Title

1. This bylaw may be cited as "Solid Waste Management Bylaw 8436, 2020".

PART II - INTERPRETATION

Definitions

2. In this bylaw:

"Assisted collection" means the provision of assistance by the *Collector* as authorized by the *General Manager of Engineering* pursuant to section 26 of this bylaw;

"Attractant" means any substance or material, with or without an odour, which could reasonably be expected to attract *wildlife* or does attract *wildlife* and includes, without limitation, household waste, food products (whether intended for humans, animals, or birds), diapers, grease, oil, antifreeze, paint and petroleum products;

"Bulk container" means bulk *solid waste containers*, bulk *organics containers*, bulk cardboard containers and bulk *recyclable containers*;

"Bulk Container Collection Service" means the system established under this bylaw by the *District* for the collection and disposal of *solid waste* from *multi-family properties* and commercial, institutional or industrial *properties* that have been authorized to receive the *Bulk Container Collection Service* by the *General Manager of Engineering* pursuant to subsection 17(a) or (b) of this bylaw;

"Bylaw Enforcement Officer" means the person(s) appointed to this position by the *District* whose duties include enforcing and carrying out the provisions of this bylaw;

"Bylaw Notice" means a bylaw notice issued for violation of this bylaw pursuant to the *Bylaw Notice Enforcement Bylaw 7458, 2004*;

"Centralized collection location" means the placing of *solid waste* from two or more dwelling units for collection at a location and in a manner as approved by the *General Manager of Engineering* pursuant to subsection 17(d);

“Collection day” means the day scheduled for the collection of *solid waste* from a given *property* in accordance with the *Collection Calendar*;

“Collection Calendar” means the schedule for *solid waste* collection approved by the *General Manager of Engineering* which is produced by the *District* and delivered to residents of the *District* and/or published on the *District’s* website;

“Collector” means a person who is contracted, employed or appointed by the *District* to collect and remove *solid waste* and includes Recycle BC and any successor or replacement;

“Construction and demolition waste” means any and all debris and rubbish that originates and is discarded, rejected, or abandoned from any construction site or demolition site (partial or total) and includes, without limitation, building materials, glass, wood, earth, rocks, trees, stumps and debris removed from excavations;

“Curbside Collection Service” means the system established under this bylaw by the *District* for the collection and disposal of *solid waste*, but does not include the *Bulk Container Collection Service*;

“District” means the District of North Vancouver;

“Environmental Protection Officer” means the person(s) appointed to this position by the *District* whose duties include enforcing and carrying out the provisions of this bylaw;

“Food waste” includes fruit and vegetables, meat, fish, bones, seafood shells, coffee grounds and filters, tea bags and leaves, eggshells, dairy, coffee, tea, pasta, rice, baked goods, food-soiled paper and any other such material identified and communicated by the *District* to the residents as suitable for collection and composting as food waste;

“Garbage” means rubbish, non-recyclable materials, waste, litter, refuse or other discarded materials, excluding *hazardous waste*, *organics*, *recyclable material* or other materials communicated by the *District* to the residents as not acceptable for collection;

“Garbage container” means a container owned and supplied by the *District* to contain *garbage* to be put out for collection under the *Curbside Collection Service*;

“General Manager of Engineering” means the General Manager Engineering, Parks and Facilities or a person designated in writing by the General Manager Engineering, Parks and Facilities to act in his/her place;

“Hazardous waste” means waste, natural or man-made, which is radioactive, toxic, pathogenic, corrosive or explosive, or any substances now or hereafter included in the definition of hazardous waste in the *Hazardous Waste Regulations* BC Reg. 63/88

under the *Environmental Management Act*, SBC 2003, c. 53, as amended or replaced, or any other substance which constitutes or creates a health or safety risk;

“*Highway*” means a street, road, lane, bridge, viaduct and any other way open to public use, other than a private right of way on private property and includes the boulevard and sidewalk;

“*Invasive species*” means any invasive plant species that has the potential to pose undesirable or detrimental impacts on people, animals or ecosystems and includes the plants listed in Schedule A of the *Weed Control Regulation*, BC Reg. 143/2011, as amended or replaced;

“*Multi-family property*” means a *property* upon which is located a multi-family complex, duplex, triplex, row-house, condominium building or any other residential building (including a mixed use building) containing more than 3 dwelling units;

“*Non-compliance Tag*” means a notice placed on a *solid waste container* that was not collected describing which requirements of this bylaw were not complied with;

“*Occupant*” means a person occupying a *property* within the *District* and, where the *property* is unoccupied, means the *owner*, but does not include a person who is a boarder, roomer or lodger;

“*Organics*” means *food waste* and *yard trimmings*;

“*Organics container*” means a container owned and supplied by the *District* to contain *food waste* and *yard trimmings* to be put out for collection under the *Curbside Collection Service*;

“*Owner*” has the meaning prescribed in the *Community Charter*, SBC 2003 c. 26;

“*Park Ranger*” means the person(s) appointed to this position by the *District* whose duties include enforcing and carrying out the provisions of this bylaw;

“*Prohibited waste*” means all waste of any kind, including *solid waste*, *construction and demolition waste*, *invasive species* and includes, without limitation, any material defined as “Banned Material” in the *Greater Vancouver Sewerage and Drainage District Tipping Fee and Solid Waste Disposal Regulation Bylaw No. 306, 2017*, as amended or replaced from time to time;

“*Property*” means a parcel of land in the *District* upon which any building or group of buildings is located, and includes strata lots and separately occupied or leased areas within a building;

“*Recyclable material*” means the materials described in Schedule 5 of the Recycling Regulation, BC Reg. No. 449/2004, as amended or replaced and any other such material identified and communicated by the *District* or the *collector* to the residents as suitable for collection as *recyclable material*;

"Recycling container" means a container approved by the *District* or the *collector* to store *recyclable material*;

"Residential dwelling" means a *property* upon which is located a single family residential building, a two-family residential building as defined in the *District of North Vancouver Zoning Bylaw 3210*, as amended or replaced, a townhouse, or any other *property* approved by the *General Manager of Engineering* pursuant to subsection 17(a) or (b) of this bylaw to receive *Curbside Collection Service*;

"Secondary Suite" has the meaning prescribed in the *District of North Vancouver Zoning Bylaw 3210*, as amended or replaced;

"Solid waste" means *garbage, food waste, recyclable material, and yard trimmings*;

"Solid Waste Collection Service" means the *District's* system of collection and disposal of residential and commercial *solid waste* and includes the *Curbside Collection Service* and the *Bulk Container Collection Service*;

"Solid waste container" means a *garbage container or organics container*;

"Transfer Station" means the facility operated by the Greater Vancouver Sewerage and Drainage District ("GVS & DD") for the transfer of *solid waste* collected on the North Shore to other facilities;

"Unacceptable organics" includes *invasive species, rocks, dirt, sod, used mushroom medium, manure, pet feces or litter, dead animals, and lumber*;

"Waste Compliance Officer" means the person(s) appointed to this position by the *District* whose duties include enforcing and carrying out the provisions of this bylaw;

"Wildlife" means birds and any mammal not normally domesticated, including but not limited to bears, cougars, coyotes, wolves, foxes, raccoons and skunks;

"Wildlife resistant container" means a *solid waste container* or other refuse container that is designed to discourage and prevent access by *wildlife* whose material and construction is of sufficient strength and design to prevent access by *wildlife* during storage and which has a sturdy cover capable of being completely closed and secured with a latching device (or an alternative acceptable to the *General Manager of Engineering*). For use other than residential, such container must be made of metal and be self-latching;

"Wildlife resistant enclosure" means a fully enclosed structure consisting of walls, roof and door(s), with no more than a one-centimetre gap or opening at any location, capable of being securely latched and of sufficient strength and design to prevent access to the contents by *wildlife*;

"Yard trimmings" includes weeds, leaves, grass and tree, plant or shrubbery cuttings less than 7.5 cm in diameter and less than one meter in length.

PART III – PROHIBITIONS

3. A person must not:

- (a) cause, allow or permit any *prohibited waste* to collect, accumulate or remain on real *property*, unless it is securely contained in a *solid waste container* meeting the specifications in this bylaw or is being composted;
- (b) deliver, place, bury or dump, or cause or allow to be delivered, placed, buried or dumped, any *prohibited waste* on any *highway*, public place or land in the *District* other than at the *Transfer Station*, other authorized recycling or waste disposal facility or the land on which the *prohibited waste* was generated;
- (c) transport any *prohibited waste* unless such *prohibited waste* is adequately secured either in a closed container or by tarping or other method to ensure the *prohibited waste* does not escape from the vehicle;
- (d) cause, allow or permit any *recyclable material* or *organics* to be discarded as *garbage*;
- (e) place *hazardous waste* at curbside, *centralized collection location* or in a *bulk container* for collection by the *District*;
- (f) remove, take, salvage or convert for his or her own use *solid waste* placed at any *property*, *centralized collection location* or in any *bulk container* as part of the *Solid Waste Collection Service* unless the person is:
 - (i) the person who initially placed the material for collection; or
 - (ii) an employee or agent of the *District*; or
 - (iii) a *collector*.
- (g) place *solid waste* that originates from one *property* in front of another person's *property*, in another person's *solid waste container*, or in the *solid waste container* of a different *property* without the permission of the *owner* or *occupant* of that *property*;
- (h) place wet solid waste in any solid waste container unless it is drained of excess moisture;
- (i) place or allow liquid, rainwater or other free water to run into or accumulate in any *solid waste container*;

- (j) interfere with, threaten or in any way obstruct any *District* employee, *collector*, contractor or agent while they are engaged in the provision of the *Solid Waste Collection Service*; or
 - (k) cause, allow or permit any *solid waste container* to be filled above the top of the container or such that the lid cannot be closed.
4. Every *owner* or *occupant* must clean up any *prohibited waste* deposited by such *owner* or *occupant* onto any *highway* or boulevard or which has escaped from the *solid waste container* put out for collection by such *owner* or *occupant*.
5. No land within the *District* other than the *Transfer Station* may be used as a *solid waste* disposal site unless authorized by the *General Manager of Engineering*.

Wildlife Attractant Management

6. A person must not store any *attractant* outdoors except where such *attractant* is secured in:
- (a) a *wildlife resistant container*; or
 - (b) a container that is located within a *wildlife resistant enclosure*.

This section 6 does not apply to refuse put out for collection in *solid waste containers* on the *collection day* and put out in accordance with all applicable requirements of this bylaw.

7. Every *owner* and *occupant* of a *residential dwelling* must ensure that in respect of such *property*:
- (a) any fruit that has fallen from a tree is removed from the ground within 3 days and, if stored outdoors, stored in a *wildlife resistant container*;
 - (b) any bird feeder containing bird feed, suet, nectar or other bird food is suspended on a cable or other device in such a manner that it is inaccessible to *wildlife*, except birds, and that the area below such feeder is kept free of accumulations of seeds and *attractants*;
 - (c) any composting activity is carried out and any composting device or equipment is maintained in such a manner so as not to attract *wildlife*;

- (d) barbecue or other outdoor cooking equipment and tools that remain outdoors are kept clean and free of residual food or grease;
- (e) any refrigerator, freezer, storage container or similar appliance or apparatus located outdoors that contains *attractants* is located and locked so as to be inaccessible to *wildlife*;
- (f) any *attractants* are stored so as to be inaccessible to *wildlife*;
- (g) bees and beehives are kept in such a manner so as to not attract *wildlife*.

PART IV – NOTICE TO REMOVE SOLID WASTE

8. Where an *owner* or *occupant* has caused, allowed or permitted any *prohibited waste* to accumulate or remain on a *property* in contravention of section 3(a), a *bylaw enforcement officer* may deliver a notice to the *owner* or *occupant* of the *property* requiring the removal of the *solid waste* within the time specified in the notice.
9. A person who has received a notice under section 8 of this bylaw must comply with the requirements of that notice within the time specified in the notice.
10. Where a notice is given pursuant to section 8 of this bylaw and, in the opinion of the *bylaw enforcement officer*, the *solid waste* has not been removed:
 - (a) within the time specified on the notice; or
 - (b) in the manner specified in the notice; or
 - (c) sufficiently to satisfy the requirements of the notice,

the *District* may, by its employees, agents or contractors, enter the *property* and remove the *solid waste* in the manner the *bylaw enforcement officer* considers necessary and appropriate and charge the cost of the work to the *owner* of the *property*.
11. The cost of carrying out the work pursuant to section 10 must be paid by the *owner* of the *property* and is due and payable upon receipt of notice from the *District*. Any such charges remaining unpaid at December 31 of that year will be added to and form part of the taxes payable on the *property* as taxes in arrears.

PART V – SOLID WASTE COLLECTION SYSTEM

12. Every *owner* or *occupant* of a *property* in the *District* must dispose of all *garbage*, *organics*, and *recyclable material* produced on such *property* through any of the following:

- (a) the *Solid Waste Collection Service*;
 - (b) a private solid waste collection service; or
 - (c) by otherwise removing or arranging for the removal of the *solid waste* to the *Transfer Station* or other authorized *solid waste* disposal location.
- 13. Only *solid waste* generated within the geographical boundaries of the *District* is eligible for collection under the *Solid Waste Collection Service*.
- 14. The *Curbside Collection Service* is provided to *owners* and *occupants* of *properties* that have been approved to receive *curbside collection service* by the *General Manager of Engineering* pursuant to subsection 17(a) or (b) of this bylaw.
- 15. The *Bulk Container Collection Service* is provided to *owners* and *occupants* of *multi-family properties* and commercial, institutional or industrial properties that have been authorized to receive the *Bulk Container Collection Service* by the *General Manager of Engineering* pursuant to subsection 17(a) or (b) of this bylaw.
- 16. Only the *District* and commercial *collectors* may collect *solid waste* that has been put out for collection in accordance with this bylaw.

PART VI – AUTHORITY OF GENERAL MANAGER OF ENGINEERING

- 17. The *General Manager of Engineering* is authorized to:
 - (a) determine the type of collection service that will be provided by the *District* to any *property*, either *Curbside Collection Service* or *Bulk Container Service*;
 - (b) approve the application by an *owner* or *occupant* to receive the *Curbside Collection Service* or *Bulk Container Service* on the terms and conditions prescribed by the *General Manager of Engineering*;
 - (c) approve the application by an *owner* or *occupant* to receive *assisted collection* in accordance with section 26 of this bylaw;
 - (d) approve a *centralized collection location* for the *Curbside Collection Service*;
 - (e) make changes to the number and type of *solid waste containers* that are supplied to or which may be purchased by *owners* or *occupants* of *property*;
 - (f) specify the placement of a *solid waste container* in a manner, location or at times that differ from the requirements in section 24;

- (g) deliver a notice requiring an *owner* or *occupant* of a *residential dwelling* to store any *solid waste* generated at such *residential dwelling* in a *wildlife resistant enclosure*, except when such *solid waste* is placed out for collection, where satisfied that the *solid waste* from such *residential dwelling* is not being managed in compliance with the requirements in sections 6(a), 7(e) or (f), 22(g) or 24(a) of this bylaw. The authority in this section 17(g) may also be exercised by *bylaw enforcement officers*. Any *owner* or *occupier* who has been issued a notice under this section must comply with the conditions specified in the notice; and
- (h) deliver a notice to temporarily suspend the delivery of the *Solid Waste Collection Service* to a *property* where, in the opinion of the *General Manager of Engineering*, the *owner* or *occupant* has obstructed or interfered with delivery of the *Solid Waste Collection Service* or has been issued two or more *Bylaw Notices* in relation to violations of sections 22, 23 or 24 of this bylaw and the duration of such suspension will be determined by the *General Manager of Engineering*, acting reasonably.

PART VII – CURBSIDE COLLECTION SERVICE

Solid Waste Containers

- 18. The *Curbside Collection Service* will only be provided to *residential dwellings* that utilize the *solid waste containers* owned and supplied by the *District* and comply with all applicable requirements of this bylaw.
- 19. All *District*-supplied *solid waste containers* remain the property of the *District* and must remain with the *property* to which they were issued.
- 20. The *owner* of a *residential dwelling* may, upon paying the applicable fee prescribed in Schedule A to this bylaw, exchange or obtain additional *solid waste containers* as set out in Schedule A.
- 21. An *owner* or *occupant* of a *residential dwelling* may request that the *District* repair or replace a *solid waste container* that has been lost, damaged or stolen and in the case of replacement, the *owner* or *occupant* must pay the applicable fees prescribed in Schedule A.

Requirements for Putting Solid Waste Containers Out for Collection

- 22. Every *owner* or *occupant* of a *residential dwelling* must ensure that:
 - (a) all *garbage* is deposited, contained and put out for collection in a *garbage container*;

- (b) all *organics* are deposited, contained and put out for collection in an *organics container*;
- (c) all *recyclable material* is deposited, contained and put out for collection in a *recycling container*;
- (d) only acceptable materials as specified in this bylaw are put out for collection and that no *unacceptable organics* are put out for collection in an *organics container*;
- (e) the *solid waste containers* supplied to such *residential dwelling* are maintained in a clean and sanitary condition, without modification, free of liquids and free of paint or graffiti;
- (f) dust (including vacuum dust), dog hair and human hair is securely bagged and sanitary products are double bagged;
- (g) where a *solid waste container* is stored outside of a building, the lid of the *solid waste container* remains closed and locked at all times, except when the container is put out for collection on a *collection day*;
- (h) no *solid waste container* put out for collection has an aggregate weight that exceeds:
 - (i) 55 kilograms for a 140-litre *solid waste container*;
 - (ii) 100 kilograms for a 240-litre *solid waste container*;
- (i) the *solid waste containers* are marked with the address of the *residential dwelling* to which the container was supplied by the *District* (noting that per section 19 the *District* remains the owner of the container and that the container must remain with the *residential dwelling* when an *owner* or *occupant* moves); and
- (j) the *solid waste containers* are stored in a location which does not encroach upon or project over a *highway* or other public place and does not impede or endanger vehicle, bicycle or pedestrian traffic.

23. The *owner* or *occupant* of a *residential dwelling* must:
- (a) store and put out for collection *solid waste* generated from such *residential dwelling*, including *solid waste* generated by any tenants of such *residential dwelling*, in accordance with all applicable requirements of this bylaw; and
 - (b) ensure that any tenant or *occupant* of such *residential dwelling*:
 - i. has the *solid waste containers* necessary to dispose of the *solid waste* generated by the tenant or *occupant*; and
 - ii. stores such *solid waste containers* in accordance with the requirements of this bylaw.
24. The *owner* or *occupant* of a *residential dwelling* must put *solid waste containers* out for collection on the *collection day* designated in the *Collection Calendar* in accordance with the following requirements, except as otherwise authorized by the *General Manager of Engineering* pursuant to section 17(f):
- (a) placed at the curb for collection not earlier than 5:30 a.m. and not later than 7:30 a.m. on the designated *collection day* and removed from the curb by no later than 9:00 p.m. the same day;
 - (b) not overflowing or filled or compacted such that the contents cannot be completely emptied;
 - (c) placed as near as possible to the road or lane and positioned with cart handles facing the travelled portion of the road or lane and in a location that permits convenient handling from ground level;
 - (d) if picked up from the road, positioned as near as possible and not more than one metre from the curb or edge of pavement, placed on the road (not up at top of curb level), and with at least 1 metre of clearance space on all sides from any parked vehicles or other obstacles and in a manner that not does not interfere with the passage of vehicles, bicycles or pedestrians;
 - (e) if picked up from the lane, placed near to the *property* line, at ground level and readily accessible from the lane, and with at least 1 metre of clearance space on all sides from any parked vehicles or other obstacles and in a manner that not does not interfere with the passage of vehicles, bicycles or pedestrians; and
 - (f) not exceed the following container limits:
 - i) *Garbage* – no more than two 140-litre *garbage containers*;

- ii) *Organics* – as many 240-litre *organic containers* as have been paid for in accordance with Schedule A of this bylaw.

Note: these limits apply to any *residential dwelling* with a *secondary suite*.

- 25. Any *solid waste container* placed out for collection in a manner which does not comply with this bylaw will be marked with a *non-compliance tag* and will not be collected until the requirements of this bylaw are met.

Assisted Collection

- 26. The *owner* or *occupant* of a *residential dwelling* who is unable to comply with the requirements of section 24(a) as a result of limited physical mobility and who does not have an able-bodied person assisting with their household activities may apply to the *General Manager of Engineering* for *assisted collection*. If satisfied that the individual requires such assistance, the *General Manager of Engineering* may authorize the provision of *assisted collection* by the *Collector* in exchange for payment of the *assisted collection* fee prescribed in Schedule A. The *General Manager of Engineering* may require an applicant to provide proof of the physical challenge from a physician. *Assisted collection* may be cancelled by the *General Manager of Engineering* at any time.

PART VIII – BULK CONTAINER COLLECTION SERVICE

- 27. *Multi-family*, commercial, industrial and institutional properties must arrange for the removal and disposal of *garbage*, *recyclable material* and *organics* using either the *Bulk Container Collection Service* provided the *District* under this bylaw or by a service provided by a commercial *solid waste* collector, provided however that a *property* may receive the *Curbside Collection Service* where approved by the *General Manager of Engineering* pursuant to subsection 17(a) or (b).
- 28. Upon acceptance of an application by the *owner*, the *District* will provide the *Bulk Container Collection Service* to *multi-family*, commercial, industrial and institutional *properties* with collection in accordance with the terms and conditions and for the cost prescribed in Schedule A.

Bulk Containers

- 29. All *solid waste* collected from any *multi-family property* or from any commercial, industrial or institutional *property* must (unless approved for the *Curbside Collection Service* in accordance with subsection 17(a) or (b) of this bylaw) be put out for collection in *bulk containers* which meet the following requirements:

- (a) designed to store and dispose of *solid waste* and be emptied mechanically by and into a *solid waste* collection vehicle;
 - (b) constructed of rigid plastic or galvanized or painted steel and equipped with a lid;
 - (c) have a capacity of more than 0.75 cubic metres;
 - (d) installed on a concrete pad and screened from public view;
 - (e) kept with lid closed and maintained so as to prevent access to the contents by *wildlife*;
 - (f) stored in a manner and location that does not encroach upon or project over a *highway* or other public place, does not impede or endanger vehicle, bicycle or pedestrian traffic and that is, in the opinion of the *General Manager of Engineering*, reasonably accessible; and
 - (g) meet such other requirements as may be required by the *General Manager of Engineering*;
30. Owners and occupants who receive a *bulk container collection service*, whether or not provided by the *District*, must have sufficient *bulk containers* to store and dispose of all *solid waste* generated on the *property* in accordance with the requirements of this bylaw.
31. Owners or occupants who receive the *District's Bulk Container Collection Service* must rent *bulk container(s)* from the *District* for the fee prescribed in Schedule A.

PART IX – HEALTH ACT PROVISIONS

32. Nothing contained in this bylaw will be construed as prohibiting any owner or occupant of *property* from disposing of *solid waste* in any manner permitted pursuant to the *Public Health Act*, SBC 2008, c. 28, as amended or replaced.

PART X – FEES, BILLING AND COLLECTION

33. Every owner of a *residential dwelling* to which *Curbside Collection Service* is available must pay all applicable collection and other fees prescribed in Schedule A of this bylaw which are due and payable at the same time and in the same manner as property taxes and are payable regardless of whether or not the owner utilizes the *Curbside Collection Service*.
34. Every owner or occupant to which the *Bulk Container Collection Service* is provided by the *District* must pay:

- (a) the applicable monthly bulk container fees prescribed in Schedule A of this bylaw. Fees are billed monthly in respect of the preceding month and are due and payable within 30 days from the date of the billing. The *owner* is responsible for the payment of all accounts in arrears and fees are subject to interest if unpaid after the due date at a rate of 2% per month, calculated monthly and not in advance; and
 - (b) the annual environmental fee prescribed in Schedule A of this bylaw which is due and payable at the same time and in the same manner as property taxes.
35. An *owner* of a *property* to which a *centralized collection location* is available must pay the annual *centralized collection location fee* specified in Schedule A which is due and payable at the same time and in the same manner as property taxes and is payable regardless of whether or not the *owner* utilizes the *centralized collection location*.

PART XI – OFFENCES AND ENFORCEMENT

Entry

36. *Bylaw enforcement officers* and *waste compliance officers* are authorized, in accordance with section 16 of the *Community Charter*, SBC 2003, c. 26, as amended or replaced, to enter at any reasonable time onto property to inspect and determine whether the regulations of this bylaw are being met.

Obstruction

37. A person must not interfere with, delay, obstruct or impede a *bylaw enforcement officer* or designate or other person lawfully authorized to enforce this bylaw in the performance of duties under this bylaw.

Violations

38. Every person who violates any of the provisions of this bylaw or who suffers or permits any act or thing to be done in contravention of this bylaw or who neglects to do or refrains from doing any act or thing which violates any of the provisions of this bylaw will be liable to the penalties hereby imposed and each day that such violation is permitted to exist will constitute a separate offence.

Penalty

39. Every person who commits an offence contrary to the provisions of this bylaw is liable on summary conviction to a penalty of not more than \$50,000.00 in addition to the costs of the prosecution.

Designation of Bylaw

40. This bylaw is designated under section 264 of the Community Charter as a bylaw that may be enforced by means of a ticket in the form prescribed.

Designation of Bylaw Enforcement Officer

41. *Bylaw enforcement officers, environmental protection officers, waste compliance officers, park rangers* and members of the Royal Canadian Mounted Police are designated to enforce this bylaw by means of a ticket under section 264 of the Community Charter.

Ticketing

42. Pursuant to Sections 264(1)(c) and 265(1)(a) of the *Community Charter*, the table below sets out the designated expressions for offences under this bylaw with the corresponding bylaw section number and fine amount:

DESIGNATED EXPRESSION	SECTION	FINE
		\$
Allow <i>prohibited waste</i> to accumulate	3(a)	300
Dump or bury <i>prohibited waste</i>	3(b)	500
Transport unsecured <i>prohibited waste</i>	3(c)	300
Discard of <i>recyclable material as garbage</i>	3(d)	200
Place <i>hazardous waste</i> out for collection	3(e)	500
Scavenge	3(f)	200
Place <i>solid waste</i> at another's property	3(g)	200
Place wet waste in <i>solid waste container</i>	3(h)	150
Allow water to accumulate in <i>solid waste container</i>	3(i)	150
Obstruct or interfere with <i>District</i> employee	3(j)	500
Over-fill <i>solid waste container</i>	3(k)	150
Fail to clean up <i>prohibited waste</i>	4	200
Use land as disposal site	5	500
Store <i>attractants</i> outdoors not in <i>wildlife resistant container</i>	6(a)	300
Store <i>attractants</i> outdoors not in <i>wildlife resistant enclosure</i>	6(b)	500
Fail to remove fruit	7(a)	250
Fail to manage bird feeder	7(b)	250
Fail to manage compost	7(c)	250
Fail to keep barbecue clean	7(d)	250
Fail to make appliance inaccessible to wildlife	7(e)	300
Fail to store <i>attractants</i> so inaccessible to	7(f)	500

DESIGNATED EXPRESSION	SECTION	FINE
<i>wildlife</i>		
Fail to manage bees	7(g)	250
Fail to comply with notice to remove <i>prohibited waste</i>	8	300
Fail to comply with notice to store <i>solid waste</i> in <i>wildlife resistant enclosure</i>	17(g)	500
Place garbage not in <i>garbage container</i>	22(a)	150
Place organics not in <i>organics container</i>	22(b)	150
Place <i>recyclable material</i> not in <i>recycling container</i>	22(c)	150
Place unacceptable materials out for collection	22(d)	150
Fail to keep <i>solid waste container</i> in sanitary condition	22(e)	150
Fail to bag dust	22(f)	150
Fail to lock lid of <i>solid waste container</i>	22(g)	300
Overweight <i>solid waste container</i>	22(h)	250
<i>Solid waste container</i> encroaching	22(j)	500
Fail to dispose of solid waste per bylaw	23(a)	250
Fail to ensure tenant has <i>solid waste container</i>	23(b)(i)	150
Fail to ensure tenant stores <i>solid waste container</i> per bylaw	23(b)(ii)	150
Place <i>solid waste container</i> out for collection outside times permitted	24(a)	First violation: 250 2 nd & subsequent Violations: 500
Over-fill <i>solid waste container</i>	24(b)	150
Place <i>solid waste container</i> too far from road	24(c)	150
Place <i>solid waste container</i> improperly on road	24(d)	150
Place <i>solid waste container</i> improperly on lane	24(e)	150
More <i>solid waste containers</i> than permitted	24(f)	150
Obstruct <i>bylaw enforcement officer</i>	37	500

PART XI – MISCELLANEOUS

Severability

43. If a section, subsection, paragraph, subparagraph or phrase of this bylaw is for any reason declared invalid by a Court of competent jurisdiction, the decision shall not affect the validity of the remaining portions of this bylaw.

Repeal

44. Solid Waste Removal Bylaw 7631, 2007 is hereby repealed and all references in other *District* bylaws to Solid Waste Removal Bylaw 7631, 2007 are hereby amended to refer to Solid Waste Management Bylaw 8436, 2020.

READ a first time

READ a second time

READ a third time

ADOPTED

Mayor

Municipal Clerk

Certified a true copy

Municipal Clerk

Schedule A to Bylaw 8436

1. Annual Solid Waste Collection Fees

Description	Single & Multi-Family Property with Curbside Collection	Multi-Family Property without Curbside Collection
Garbage and organics collection		
240L Garbage and up to two 240L Organics	\$281.80	N/A
140L Garbage and up to two 240L Organics	\$240.15	
Two 140L Garbage and up to two 240L Organics (available only to houses with secondary suites)	\$365.15	
Fee for collection from centralized collection location, per unit	\$240.15	\$240.15
Additional organics carts, per cart	\$44.15	N/A
Exchange fee for exchange, replacement, return or acquisition of additional Solid Waste Container (per transaction)	\$50.00	N/A
Container Replacement Fee (lost/stolen/damaged) – these fees refunded if container recovered and replacement container returned to District	\$145 – 240L \$135 – 140L	N/A
Environmental fee	\$33.05	\$23.85
Assisted collection fee	\$75	N/A

All flat rate annual charges are due and payable at the same time and in the same manner as taxes.

Exchanges after March 31st 2020:

- Cart additions which result in a collection fee increase, will be pro-rated from the first quarter following the change and the pro-rated collection fee increase is payable upon request of the change.
- Cart exchanges which result in a collection fee increase will not be pro-rated in the year of the exchange; the increased annual collection fee will apply beginning January 1st of the following year.
- Cart exchanges or returns resulting in a collection fee decrease, will be pro-rated from the quarter in which the change occurs and will be offset against the exchange fee. Any balance owing is payable upon request of the change. Credit balances will be applied to the property tax account.

2. Bulk Container Collection Fees

Description	Container Size				
	1 Yard	2 Yard	3 Yard	4 Yard	6 Yard
Container Rental:					
Cardboard Container Monthly Rental Fee	N/A	\$50.50	\$50.50	\$50.50	\$50.50
Cardboard Container Monthly Rental Fee with Jitney	N/A	\$61.75	\$61.75	\$61.75	\$61.75
Solid Waste Container Monthly Rental Fee	\$16.50	\$17.50	\$18.50	\$19.50	\$21.75
Solid Waste Container Tipping Fees: (Charge per Tip)					
(a) Residential					
(i) with 1 - 3 containers	\$23.00	\$28.00	\$33.75	\$40.75	\$50.50
(ii) with 4 - 7 containers	N/A	\$26.25	\$32.25	\$38.75	\$47.75
(iii) with 8 - 11 containers	N/A	\$25.00	\$30.50	\$36.75	\$45.75
(iv) with 12+ containers	N/A	\$22.25	\$23.50	\$33.00	\$40.00
(b) Schools, Churches, Institutional	N/A	\$30.75	\$37.25	\$44.75	\$58.00
(c) Commercial, Industrial (1 tip/ week)	N/A	\$33.00	\$41.50	\$49.50	\$57.50
1 tip/ 2 weeks	N/A	\$37.50	\$46.25	\$56.50	\$59.50
1 tip/ 4 weeks	N/A	\$40.50	\$49.00	\$57.50	\$61.75
On request	N/A	\$43.75	\$51.50	\$59.50	\$63.75
Organic Waste Cart Tipping Fees: (Fee per 240 L cart per month)					
First Cart – tipped weekly		\$76.25			
Second, Third and Fourth Cart – tipped weekly		\$38.50			
Five and more Carts – tipped weekly		\$16.75			
Charges per Tip in addition to Container Tipping Fees:					
(a) Casters	\$4.25				
(b) Locks	\$1.50				
(c) Jitney (Includes Casters)	\$23.75				
Other Fees:					
Service Requests	\$50/hour				

THIS PAGE LEFT BLANK INTENTIONALLY



THE DISTRICT OF NORTH VANCOUVER

SOLID WASTE REMOVAL BYLAW

BYLAW 7631

Effective Date – July 16, 2007

CONSOLIDATED FOR CONVENIENCE ONLY

This is a consolidation of the bylaws below. The amending bylaws have been combined with the original bylaw for convenience only. This consolidation is not a legal document. Certified copies of the original bylaws should be consulted for all interpretations and applications of the bylaw on this subject.

Original Bylaw	Date of Adoption
Bylaw 7631	July 16, 2007
Amending Bylaw	Date of Adoption
Bylaw 7692	December 17, 2007
Bylaw 7763	REPEALED
Bylaw 7775	June 1, 2009
Bylaw 7816	December 14, 2009
Bylaw 7872	December 13, 2010
Bylaw 7912	December 15, 2011
Bylaw 7920	February 6, 2012
Bylaw 7971	December 12, 2012
Bylaw 8023	December 9, 2013
Bylaw 8089	December 15, 2014
Bylaw 8153	December 14, 2015
Bylaw 8199	November 28, 2016
Bylaw 8280	December 4, 2017
Bylaw 8353	July 23, 2018
Bylaw 8389	December 2, 2019

The bylaw numbers in the margin of this consolidation refer to the bylaws that amended the principal bylaw (Solid Waste Removal Bylaw – Bylaw 7692). The number of any amending bylaw that has been repealed is not referred to in this consolidation.

THE CORPORATION OF THE DISTRICT OF NORTH VANCOUVER

BYLAW 7631

A bylaw to establish and maintain a system for the collection of solid waste pursuant to section(s) of the *Local Government Act* (RSBC 1996, c.323)
(repeals Bylaw 5848, Waste Removal Bylaw)

The Council for The Corporation of The District of North Vancouver enacts the following:

PART 1 - TITLE

Title

1. This bylaw may be cited as **"SOLID WASTE REMOVAL BYLAW"**.

PART II - INTERPRETATION

Definitions

2. In this bylaw,

"Bulk Container" means bulk solid waste containers and bulk recyclable containers.

"Bulk Container Collection Service" means the system established under this bylaw by the *District* for the collection and disposal of solid waste from multi-family properties and from commercial institutional or industrial properties.

"Bylaw Enforcement Officer" means the person(s) appointed by the *District* whose duties include enforcing and carrying out the provisions of this bylaw.

"Collection Day" means the day scheduled for the collection of solid waste from a given property in accordance with the schedule produced annually by the *District*.

"Collector" means a person who is contracted, employed or appointed by the *District* to collect and remove solid waste.

"Curbside Collection Service" means the system established under this bylaw by the *District* for the collection and disposal of solid waste, but does not include the *Bulk Container Collection Service*.

"Director of Engineering" means the person holding the office of Director of Engineering or their duly authorized representative.

"District" means the District of North Vancouver.

"Garbage" includes rubbish, discarded materials, ashes, floor sweepings, discarded animal or vegetable matter or food.

"Hazardous Waste" means waste, natural or man-made, which is radioactive, toxic, pathogenic, corrosive or explosive, or any substances now or hereafter included in the definition of hazardous waste in the *Environmental Management Act Hazardous Waste Regulations* BC Reg. 63/88 as amended from time to time, or any other substance which constitutes or creates a health or safety risk.

"Multi-Family Property" means a property or a strata development upon which is located an apartment complex, townhouse(s), a condominium building or any other residential building containing more than 3 residential dwelling units.

"Non-compliance Tag" means a notice of violation issued in accordance with this bylaw.

"Occupant" means a person occupying a *property* within the *District* and, where the *property* is unoccupied, means the *owner*, but does not include a person who is a boarder, roomer or lodger.

"Owner" means the person or persons, including a corporation or company, who is liable under the *Community Charter* or successor legislation to pay real property taxes in the District of North Vancouver.

"Property" means a parcel of land in the *District* upon which any building or group of buildings is located, and includes strata lots and separately occupied or leased areas within a building.

"Recyclable Material" means those items described in Schedule C attached to this bylaw.

"Recycling Container" means the Blue Box, Blue Bag, Yellow Bag or other container approved by the *District* to store *recyclable material*.

"Residential Garbage Tag" means a sticker issued by the *District* as a receipt for the prepayment of the services provided under Part I.

"Residential Drop-Off" means *solid waste* originating from a residential *property* within a municipality or area provided for in Section 28 and brought to the *Transfer Station* in a privately owned vehicle by the *owner* or *occupant* of the *property* from which the *solid waste* originated.

"Residential Waste Cart" means a wheeled waste cart purchased from the *District* and which can be picked up by the *District's* semi-automated hoist system.

"Secondary Suite" means a self-contained suite with a separate entrance and separate bathroom within a building in a single-family zone under the *District's* Zoning Bylaw.

"Single Family Property" means a *property* with a detached single family residential building on it and includes a bare land strata lot with a detached single family residential building on it.

"Solid Waste" means *garbage*, *recyclable material* and *yard trimmings*.

"Solid Waste Collection Service" means the *District's* system of collection and disposal of residential and commercial *solid waste*.

"Solid Waste Container" means a container used to hold *garbage*, *yard trimmings* or *recyclable material*, and equipped with a close-fitting lid or cover.

"Transfer Station" means the facility operated by the Greater Vancouver Sewerage and Drainage District (GVS & DD) for the transfer of *solid waste* collected on the North Shore to other facilities.

"Transfer Station Operator" means the contractor engaged by the GVS & DD to operate and maintain the *Transfer Station*.

"Weigh Scale Operator" means the contractor engaged by the GVS & DD to operate and maintain the weigh scale at the *Transfer Station*.

"Wildlife" means any mammal not normally domesticated, including but not limited to bears, cougars, coyotes, wolves, foxes, raccoons and skunks.

"Wildlife resistant enclosure" means a fully enclosed structure consisting of walls, roof, and door(s), with no more than a one-centimetre gap or opening at any location, capable of being securely latched and of sufficient strength and design to prevent access to the contents by *wildlife*.

"Yard Trimmings" means weeds, leaves, grass cuttings, and tree, plant or shrubbery cuttings, Christmas trees, small limbs less than 15 cm in diameter and 0.9 meters in length.

"*Yard Trimmings Container*" means any container approved by the *District* to store *yard trimmings* including kraft yard bags especially designed for *yard trimmings* collection, a rigid plastic or galvanized metal can with a *Yard Trimmings* decal applied and a securely tied bundle.

PART III – PROHIBITIONS

3. No person shall cause, allow or permit any *garbage* to collect, accumulate or remain on real *property*, unless it is securely contained in a *solid waste container* meeting the specifications in this bylaw.
4. No person shall deliver, place, bury or dump, or cause or allow to be delivered, placed, buried or dumped, any *garbage* anywhere in the *District* other than at the *transfer station*.
5. No person shall transport any *garbage* without securing the materials in a manner that will ensure that all of the materials will reach the *transfer station*. This will require that all materials shall be secured in a closed container or by a tarping method.
6. No person shall cause, allow or permit any *recyclable material* or *yard trimmings* to be discarded as *garbage*.
7. No person may place at curbside or in a *bulk container* for collection by the *District hazardous waste* or any other materials listed in Schedule D of this bylaw.
8. No person shall deposit or leave any *solid waste* or other discarded material on any highway, public place or land other than the land on which the *solid waste* was generated, and no person shall remove *solid waste* from a *property* except for the purpose of disposal in accordance with this bylaw.
9. No person shall remove, take, salvage or convert for his or her own use *garbage*, *recyclable material* or *yard trimmings* placed at any curbside collection location or in any *bulk container* as part of the *solid waste collection service* unless the person is:
 - a) the person who initially placed the material for collection; or
 - b) an employee or agent of the *District*; or
 - c) a *collector*.
10. No person shall place *solid waste* in front of another person's *property* without the permission of that person.
11. No person shall place *solid waste* in another person's *solid waste container* without the permission of that person.
12. No person shall cause, allow or permit any *solid waste container* to be filled above the top of the container or any plastic bag to be filled in such a way that the plastic ties cannot be securely fastened.
13. No person shall interfere with, threaten or in any way obstruct any of the *District's* employees, contractors or agents while they are engaged in the provision of the *solid waste collection service*.

PART IV – NOTICE TO REMOVE GARBAGE

14. Where an *owner* or *occupant* has caused, allowed or permitted any *garbage*, including but not limited to any discarded materials identified in Schedule D, to accumulate or remain on *property* in contravention of Section 3, the *bylaw enforcement officer* may cause a notice in writing to be

delivered to the *owner* or *occupant* of the *property* requiring the removal of the *garbage* within 14 days of receipt of such notice.

15. Notice to an *owner* or *occupant* may be hand delivered, left in the mail box or dropped through the mail slot in the front door of the residence on the property which is the subject of the notice.
16. Where a notice is given pursuant to this bylaw and, in the opinion of the *bylaw enforcement officer*, the *garbage* has not been removed:
 - a) within the time specified on the notice; or
 - b) in the manner specified in the notice; or
 - c) sufficiently to satisfy the requirements of the notice;the *District* may, by its employees, agents or contractors, enter the property and remove the *garbage* in the manner the *bylaw enforcement officer* considers necessary and appropriate and charge the cost of the work to the *owner* of the *property*.
17. Any charges incurred pursuant to Section 16 shall be due and payable upon receipt of notice from the *District* and any such charges remaining unpaid at December 31 of that year shall be added to and form part of the taxes payable on the *property* as taxes in arrears.

PART V – GENERAL PROVISIONS OF WASTE REMOVAL

18. Every *owner* or *occupant* of a *property* in the *District* shall, at least once each week, dispose of any *solid waste* produced on such *property* through any of the following means:
 - a) by the *solid waste collection service*;
 - b) by a private *solid waste collection service*; or
 - c) by otherwise removing or arranging for the removal of the *solid waste* to the *Transfer Station* or an authorized place of *solid waste* disposal.
19. Only *garbage*, *recyclable material* and *yard trimmings* generated within the geographical boundaries of the *District* are eligible for collection under the *solid waste collection service* unless otherwise permitted under this bylaw.
20. The *curbside collection service* shall serve *Owners* and *Occupants* of:
 - a) *single family properties*; and
 - b) *multi-family properties* that have *District*-approved applications for the *curbside collection service*.
21. The *bulk container collection service* shall serve *owners* and *occupants* of *multi-family properties* and commercial, institutional or industrial properties that have *District*-approved applications for the *bulk container collection service*.
22. No wet waste shall be placed in any *solid waste container* of *garbage* unless it is drained of excess moisture and wrapped in waterproof material. No liquid, rainwater or other free water shall be put or placed in, or allowed to run into, or accumulate in any *solid waste container*.
23. *Owners* or *occupants* of *multi-family properties* and commercial, institutional or industrial properties shall make their own arrangements for the removal and disposal of *garbage*, *recyclable material* and *yard trimmings*, unless they have *District*-approved applications for the *bulk container collection service* or the *curbside collection service*.
24. Every *owner* or *occupant* shall clean up any waste which escapes onto the highway, street, lane or public way from the solid waste put out for collection.

PART VI - CONTAINERS

General Specifications

25. *Owners and occupants* shall ensure that *garbage, recyclable material, and yard trimmings* are stored and placed in a sanitary manner, and in a way that will not injure persons handling them. A *solid waste container* shall not be used if it is broken, hazardous, unsanitary, or dangerous to persons handling it.
26. Every *owner or occupant* of a *property* shall acquire and maintain in good repair and in a sanitary condition, a sufficient number of *solid waste containers* to store all *solid waste* generated on the *property* until the *solid waste* is collected for disposal.
27. If a *solid waste container* for *garbage or yard trimmings* is a can or bin, it must have firmly fitting lids, and be protected from the weather and from the accumulation of water within the container.
28. Where *garbage* is stored outside a building, the *solid waste container(s)* for the *garbage* must be stored in a *wildlife resistant enclosure*, except during such times that the *solid waste container(s)* are put out for collection in accordance with this bylaw.
29. *Solid waste containers* must be stored in a location which does not encroach on or project over a highway or other public place.

Single Family Properties

30. *Garbage* to be collected under the *curbside collection service* from a *single family property* must be in one of the following types of *solid waste containers*:
 - a) a covered receptacle which shall be cylindrical, watertight, metal or plastic, and have a capacity of not more than 77 litres, the contents of which may not exceed a weight of 20 kilograms;
 - b) a tightly secured plastic bag which will have a capacity of not more than 77 litres, the contents of which may not exceed 20 kilograms;
 - c) another type of waste receptacle approved by the *Director of Engineering*; or
 - d) a *residential waste cart* purchased from the *District*, the contents of which may not exceed 140 litres or 40 kilograms.
31. *Yard trimmings* to be collected under the *curbside collection service* must be in one of the following types of containers:
 - a) a covered receptacle which shall be cylindrical, watertight, metal or plastic, and have a capacity of not more than 77 litres, the contents of which may not exceed a weight of twenty (20) kilograms;
 - b) another type of waste receptacle approved by the *Director of Engineering*;
 - c) a *residential waste cart* purchased from the *District*, the contents of which may not exceed 80 kilograms;
 - d) twigs and branches tied using garden string or twine in bundles of not more than 0.9 metres in length and 30 centimetres in diameter; or
 - e) grass clippings, leaves, small trimmings, plants and flowers secured in kraft bags and may not exceed a weight of twenty (20) kilograms per bag.

Recycling Service

32. *Recyclable material* to be collected under the *solid waste collection service* must be placed in *recycling containers*.

Multi-Family and Commercial Properties

33. All *garbage* collected from a *multi-family property* (unless approved for the *curbside collection service*) or from a commercial, industrial or institutional *property*, must be in *bulk containers* which meet the following requirements unless different requirements are otherwise authorized by the *Director of Engineering*:
 - a) A rigid plastic or galvanized or painted steel container, with a lid, constructed to store and dispose of *solid waste* emptied mechanically by and into a *solid waste* collection vehicle and having a capacity of more than 0.75 cubic metres; and
 - b) Installed on a concrete pad and screened from public view.
34. *Owners* and *occupants* who receive a *bulk container collection service*, whether or not provided by the *District*, shall be required to have sufficient *bulk containers* to store and dispose of all *solid waste* generated on the *property* in compliance with this bylaw.
35. *Owners* or *occupants* who receive the *District's bulk container collection service* must:
 - a) rent *bulk container(s)* from the *District*;
 - b) have sufficient *recycling containers* to store all *recyclable material* generated on the *property*.

PART VII – COLLECTION OF WASTE

Single Family Properties

36. Only the *District* and *collectors* may collect *solid waste* that has been placed for collection in accordance with this bylaw.
37. All *garbage*, *recyclable material*, and *yard trimmings* which an *owner* or *occupant* chooses to have collected and disposed of by the *District* under this bylaw shall be placed at curbside for collection not earlier than 05:30 a.m. and not later than 07:30 a.m. on the designated *Collection Day* unless otherwise notified in writing. All emptied *solid waste containers* shall be removed from the curb within 18 hours of collection.
38. All *garbage*, *recyclable material* and *yard trimmings* shall be placed in a readily accessible location in full view of and within two and one-half (2½) metres of the street serving the *property*. The *Director of Engineering* may designate lane pick-up, where the *Director of Engineering* considers this appropriate.
39. The *District* shall provide weekly *curbside collection service* to *single family properties*, including those with *secondary suites*, for the following quantities of *solid waste* only:
 - a) up to 154 litres of *garbage* contained in not more than two 77 litre *garbage containers*, plastic bags or bundles, or one 360 litre *residential waste cart* half full, or one 140 litre *residential waste cart*.
 - b) up to six kraft bags or containers of *yard trimmings* in clearly marked *yard trimmings containers* of not more than 77 litres each, or one 360 litre *residential waste cart* and three 77 litre containers or kraft bags, or two 360 litre *residential waste carts*, or two 140 litre *residential waste carts* and three kraft bags or 77 litre containers, or six bundles; and
 - c) unlimited amounts of *recyclable material* in *recycling containers*.
40. An *owner* or *occupant* may have *garbage* in excess of the permitted 154 litres by purchasing and attaching a separate *residential garbage tag* to each additional *solid waste container*, holding not more than 77 litres of *garbage*, for the fee specified in Schedule A of this bylaw. Each *residential garbage tag* is valid for one load of *garbage* only.
41. All *solid waste* put out for collection which does not comply with the requirements of this bylaw will not be collected and will be marked with a *non-compliance tag* setting out the reason why it was not collected.

Multi-Family and Commercial Properties

42. Multi-family, commercial, industrial and institutional properties are required to have a *bulk container collection service* provided by either the *District* under this bylaw or by other authorized *collectors* in accordance with this bylaw unless the *multi-family property* is provided weekly *curbside collection service* as approved by the *Director of Engineering*.
43. Upon receipt of an application from the *owner* of a *multi-family property*, the *District* will provide *bulk container collection service* to that *property* up to two times per week for the cost set out in Schedule A, provided the *collector* can reasonably access the storage location of the *bulk container*.
44. The *District* will provide *recycling containers* to *multi-family properties* and provide weekly collection of *recyclable material*, provided the *collector* can reasonably access the *recycling containers*.
45. The *District* will provide *container garbage* and cardboard collection service to multi-family, commercial, industrial and institutional *properties* with collection of up to two times per week in accordance with the terms and conditions and for the cost set out in Schedule A, upon receipt of an application from the *owner* and provided the *collector* can reasonably access the storage location of the *bulk garbage container*.

PART VIII – DISPOSAL OF SOLID WASTE

Disposal Site

46. No land within the *District* other than the *Transfer Station* may be used for *solid waste* disposal unless authorized by the *Director of Engineering*.

Transfer Station Regulations

47. Any person bringing *solid waste* to the *Transfer Station* shall observe the following regulations:
 - a) *Solid waste* may only be deposited at the *Transfer Station* during the hours established for operation by the Greater Vancouver Sewerage and Drainage District.
 - b) A number of materials will not be accepted at the *Transfer Station* as identified by the Greater Vancouver Sewerage and Drainage District.
 - c) The *Weigh Scale Operator* will not accept any *solid waste* from any person who cannot produce satisfactory proof that the *solid waste* originated from *property* within the *District* or from *property* within an area for which an agreement has been entered into.

PART IX – BILLING AND COLLECTION

48. Every *owner* of a *single family property* to which *solid waste collection service* is available will be charged an annual fee which is due and payable at the same time and in the same manner as property taxes and as set out in Schedule A of this bylaw.
49. Every *owner* of a *multi-family property* to which recycling collection service is available will be charged an annual fee which is due and payable at the same time and in the same manner as property taxes as set out in Schedule A of this bylaw.
50. Every *owner* or *occupant* to which *bulk container collection service* is provided by the *District* shall pay the applicable rates set out in Schedule A of this bylaw. Fees shall be billed monthly in respect of the preceding month, and are due and payable within 30 days from the date of the billing. The *Owner* of a real *property* is responsible for the payment of all accounts in arrears.
51. Any fee or charge as set out in Schedule A of this bylaw shall be subject to interest if unpaid after the due date. Interest shall be at the rate of 2% per month, calculated monthly and not in advance.

52. Any fee or charge imposed by this bylaw, which is unpaid on December 31, is deemed to be taxes in arrear and may be collected in the same manner and with the same remedies as ordinary taxes on the *property*.

PART X –HEALTH ACT PROVISIONS

53. Nothing contained in this bylaw shall be construed as prohibiting any *owner* or *occupant* of *property* from disposing of *solid waste* in any manner permitted pursuant to the *Health Act*.

PART XI – OFFENCE AND ENFORCEMENT

Enforcement

54. Every person who offends against or violates any of the provisions of this bylaw or who suffers or permits anything to be done in contravention or violation of any of the provisions of this bylaw, or who neglects to do, or refrains from doing anything required to be done by any of the provisions of this bylaw, is guilty of an infraction of this bylaw and, upon conviction, is liable to a fine not exceeding \$2,000.00.
55. A separate offence shall be deemed to occur on each day that the offence occurs or continues.
56. Every person who commits an offence against this bylaw shall be liable upon summary conviction to a fine or to imprisonment, or to both a fine and imprisonment, not exceeding the maximum allowed by the *Offence Act*, as amended.

Designation of Bylaw

57. This bylaw is designated pursuant to Section 264 of the *Community Charter* as a bylaw that may be enforced by means of a ticket in the form prescribed.
58. Members of the Royal Canadian Mounted Police and *Bylaw Enforcement Officers* are designated to enforce this bylaw by means of a ticket pursuant to Section 264 of the *Community Charter*.
59. The words and expressions set forth in Column 1 of Schedule B designate the offence committed under the bylaw section number appearing in Column 2 opposite the respective words or expressions.

Ticketing

60. The amounts appearing in Column 3 of Schedule B are the fines set pursuant to Sections 265(1)(a) and (b) of the *Community Charter* for the corresponding offences designated in Column 1.

SEVERABILITY

61. If any provision of this bylaw is held invalid by a Court of competent jurisdiction, then that invalid portion shall be severed and the remainder of this bylaw shall be deemed to have been adopted without the severed portion.

REPEAL

62. The Waste Removal Bylaw (Bylaw 5848) and any amendments thereto are hereby repealed effective January 1, 2008.

EFFECTIVE DATE

63. This bylaw comes into force January 1, 2008.

SCHEDULE A TO BYLAW 7631

1. Solid Waste Collection Fees (Yearly)

Description	Single & Multi-Family Property with Curbside Collection	Multi-Family Property without Curbside Collection
Garbage and organics collection (240L Garbage and up to two 240L Organics)	\$281.80	N/A
Garbage and organics collection (140L or 120L Garbage and up to two 240L Organics)	\$240.15	N/A
Garbage and organics collection (Two 140L or two 120L Garbage and up to two 240L Organics-available only to houses with secondary suites)	\$365.15	N/A
Additional organics – For third and additional carts, per cart	\$44.15	N/A
Exchange fee for exchange, replacement, return or acquisition of additional Solid Waste Container (per transaction)	\$50.00	N/A
Container Replacement Fee (lost/stolen/damaged) – these fees refunded if container recovered and replacement container returned to District. This fee is also payable where containers are lost during construction/development where the container will not be replaced due to change of use.	\$145 – 240L \$135 – 140L/120L	N/A
Recyclable material collection	\$33.05	\$23.85

All flat rate annual charges are due and payable at the same time and in the same manner as taxes.

Exchanges after March 31st 2020:

- Cart additions which result in a collection fee increase, will be pro-rated from the first quarter following the change and the pro-rated collection fee increase is payable upon request of the change.
- Cart exchanges which result in a collection fee increase will not be pro-rated in the year of the exchange; the increased annual collection fee will apply beginning January 1st of the following year.
- Cart exchanges or returns resulting in a collection fee decrease, will be pro-rated from the quarter in which the change occurs and will be offset against the exchange fee. Any balance owing is payable upon request of the change. Credit balances will be applied to the property tax account.

2. Bulk Container Fees

Description	Container Size				
	1 Yard	2 Yard	3 Yard	4 Yard	6 Yard
Container Rental:					
Cardboard Container Monthly Rental Fee	N/A	\$50.50	\$50.50	\$50.50	\$50.50
Cardboard Container Monthly Rental Fee with Jitney	N/A	\$61.75	\$61.75	\$61.75	\$61.75
Solid Waste Container Monthly Rental Fee	\$16.50	\$17.50	\$18.50	\$19.50	\$21.75
Solid Waste Container Tipping Fees: (Charge per Tip)					
(a) Residential					
(i) with 1 - 3 containers	\$23.00	\$28.00	\$33.75	\$40.75	\$50.50
(ii) with 4 - 7 containers	N/A	\$26.25	\$32.25	\$38.75	\$47.75
(iii) with 8 - 11 containers	N/A	\$25.00	\$30.50	\$36.75	\$45.75
(iv) with 12+ containers	N/A	\$22.25	\$23.50	\$33.00	\$40.00
(b) Schools, Churches, Institutional	N/A	\$30.75	\$37.25	\$44.75	\$58.00
(c) Commercial, Industrial (1 tip/ week)	N/A	\$33.00	\$41.50	\$49.50	\$57.50
1 tip/ 2 weeks	N/A	\$37.50	\$46.25	\$56.50	\$59.50
1 tip/ 4 weeks	N/A	\$40.50	\$49.00	\$57.50	\$61.75
On request	N/A	\$43.75	\$51.50	\$59.50	\$63.75
Organic Waste Cart Tipping Fees: (Fee per 240 L cart per month)					
First Cart – tipped weekly		\$76.25			
Second, Third and Fourth Cart – tipped weekly		\$38.50			
Five and more Carts – tipped weekly		\$16.75			
Charges per Tip in addition to Container Tipping Fees:					
(a) Casters	\$4.25				
(b) Locks	\$1.50				
(c) Jitney (Includes Casters)	\$23.75				
Other Fees:					
Service Requests	\$50/hour				

Amended by: 7692, 7775, 7816, 7872, 7912, 7920, 7971, 8023, 8089, 8153, 8199, 8280, 8353, 8389

SCHEDULE B

PENALTIES FOR OFFENCES TO SOLID WASTE BYLAW 7631

<u>Column 1</u>	<u>Column 2</u>	<u>Column 3</u>
Offence	Section No.	Fine (\$)
Accumulation of garbage	3	200.00
Dumping or burying of garbage	4	500.00
Transport garbage without securing	5	500.00
Improper disposal of recyclable material or yard trimmings	6	100.00
Placing for collection hazardous waste	7	500.00
Placing for collection other prohibited substance	7	200.00
Depositing solid waste on highway	8	200.00
Scavenging	9	200.00
Obstruct or interfere with District employee	13	500.00
Failure to remove garbage after notice	14	200.00
Putting out liquids	22	50.00
Failure to clean up	24	100.00
Improper storage of solid waste	25	100.00
Solid waste containers not placed or removed in a timely fashion	37	100.00
Improper disposal of waste	46	100.00

SCHEDULE C

RECYCLABLE MATERIAL COLLECTED BY THE DISTRICT

1. Newspapers includes #8 newspaper, and newspaper inserts as delivered, special news de-ink quality, flexographic ink, loose, fresh, dry, not sunburned, but excludes mixed paper, glossy magazines and paper other than newspaper.

2. Mixed Paper includes boxboard, paper shopping bags, old corrugated cardboard having liners of either test liner jute or kraft, white and coloured ledger paper, computer paper, envelopes, junk mail (3rd class mail), flyers, magazines, catalogues, newsprint, telephone books, paper egg cartons, pizza boxes and any other 100% paper fibre products, but excludes newspapers, co-mingled containers and any mixed paper which is wet, soiled or contaminated with substances other than paper fibre.

3. Co-mingled
Containers includes all colours of glass food and beverage bottles or jars, all ferrous or nonferrous metal food and beverage cans and tins, all rigid plastic bottles and containers identified by the Society of Plastics Institute (S.P.I.) codes #1, #2, #4 and #5, but excludes drinking glasses, ceramics, pyrex, window glass, china, porcelain, light bulbs, containers with food or food residue, aerosol cans, paint cans, food trays, tetra paks, and wax coated containers. All containers shall be prepared by rinsing out the contents, flattening cans and plastic bottles, and removing lids, plastic neck rings and metal wraps from glass or plastic bottles or jars.

SCHEDULE D

MATERIALS UNACCEPTABLE FOR GARBAGE COLLECTION

Blue box recyclable material:

- corrugated cardboard
- newspapers and flyers
- mixed papers including magazines, telephone directories and boxboard;
- rigid plastic containers numbered 1, 2, 4 and 5

Yard trimmings;

Materials subject to provincially required stewardship programs:

- beverage containers except milk and milk products;
- household paints, stains and their containers including aerosols;
- waste lubricating oil and its containers;
- oil filters;
- pesticides, solvents and flammable liquids and their containers;
- prescription and non-prescription drugs and their containers;
- automotive tires;
- lead acid batteries;
- electronic goods including computers and their peripherals, desk-top printers and televisions;

Hazardous waste;

Explosive, toxic, corrosive, caustic, hot or flammable, combustible or oxidizing substances, objects or mechanisms;

Hypodermic needles;

Bio-medical waste, sharps or infectious materials;

Dead animals, animal feces or viscera;

Sod, rocks, gravel, soil, cement, asphalt and other similar material;

Construction and demolition materials including gypsum board (gyproc);

Derelict motor vehicles or motor vehicle parts;

Materials originating from industrial and/or agricultural operations;

Rubber tires;

Refillable propane cylinders;

Scrap metal;

Any refrigerator, freezer or other large appliance;

Any single container or item of waste, material or structure exceeding any of the following:

- a volume of 3 cubic metres,
- a length of 1.5 metres,
- and/or a weight of 30Kg;

Waste materials not identified as acceptable for landfilling pursuant to any permit or certificate issued by the Provincial Ministry of Environment;

Trees, tree stumps, logs, land-clearing debris, timbers and fence posts more than 150 mm in diameter; or

Industrial or commercial spools.

THIS PAGE LEFT BLANK INTENTIONALLY

Solid Waste Bylaw Matrix

Current Solid Waste Removal Bylaw 7631	Proposed Solid Waste Management Bylaw 8436	Rationale
Solid Waste Removal Bylaw 7631 The original bylaw was developed in 2007.	Solid Waste Management Bylaw 8436	The new title represents the scope of Solid Waste services.
Interpretation Section The defined terms reflect an older collection system, prior to the use of carts.	Interpretation Section New definitions include: assisted collections, attractants, centralized collection location, construction and demolition waste, food waste, garbage container, organics container, prohibited waste, solid waste collection calendar, Waste Compliance Officer.	New definitions have been added, some definitions have been consolidated or edited, and others have been removed to provide clarity to staff and the public.
Prohibitions Requires more specific language. Lacks sections that have come to the Solid Waste Department's attention through operational experience.	Prohibitions Refers to "prohibited waste" instead of "garbage" as defined in the interpretation section. All prohibitions are under one header in the bylaw, whereas previously prohibitions were dispersed throughout.	Additional sections are required to provide clear direction for what is and is not acceptable for the management and collection of solid waste. This section will assist Solid Waste staff when encountering issues and disputes that pertain to daily operations.
Wildlife Attractant Management Limited mention of wildlife attractant management.	Wildlife Attractant Management Provides very specific requirements for management attractants, including: <u>A person must not:</u> Store solid waste outdoors except in a container that is wildlife resistant or in a wildlife resistant enclosure. <u>A person ought to:</u> Pick up fallen fruit within three days, keep bird feed inaccessible to wildlife, compost effectively, keep barbecues and equipment clean, keep outdoor refrigerators and freezers inaccessible, store grease, and keep bees and beehives so to not attract wildlife.	Attractant management information is required to be in the bylaw, given waste is a known attractant and non-natural food source for black bears and other wildlife. Adding this section provides staff with the enforcement tools to prevent black bears in particular, from becoming habituated to areas with known food sources.

Current Solid Waste Removal Bylaw 7631	Proposed Solid Waste Management Bylaw 8436	Rationale
Containers (Single Family) Refers to 77L cans, and does not refer to District-owned carts. Limited reference to what is expected of homeowners and tenants when managing solid waste containers.	Containers (Single Family) Notes that the solid waste containers used for storage and collection are the property of the District. Expands upon the requirements for using solid waste containers, such as all carts must remain at the property they are assigned to, and missing, damaged, additional, or stolen carts, subject to fees outlined in Schedule A.	Changes are required due to the transfer to a carted collection system, and the need for specific cart set out requirements. For waste reduction purposes, cart capacity limits were set to encourage residents to divert recyclables and organics from the landfill when the carts were first introduced. The existing bylaw only refers to the previous capacity limits and the use of garbage tags, which are no longer applicable.
Containers (Multi Family and ICI) Limited reference to what is expected of homeowners and tenants when managing solid waste containers.	Containers (Multi Family and ICI) Includes MF and ICI collection requirements, such as: Requires bulk container collection service to store and dispose of all solid waste generated on a property.	Multi-family and ICI's who receive the District bulk container service, must have recycling containers, to encourage diversion from landfill.
Collection of Waste (Single Family) Refers to old collection system and set out requirements. Refers to garbage tags for excess waste which are no longer permitted.	Solid Waste Collection (Single Family) Refers to how and when the carts must be set out for curbside collection. Expands on set out requirements and operational requirements for collection service. Notes that where at all applicable, curbside collection service can be provided to multi-family properties.	More explicit mention of cart set out procedure due to the transition to a carted system. Some townhomes and row houses can be included in the single family collection schedule and be provided garbage and organics carts.
Collection of Waste (Multi Family and ICI) Refers to multi-family recycling collection service.	Solid Waste Collection (Multi Family and ICI) Excludes mention of recycling service, as it is the responsibility of Recycle BC.	Residential recycling service is no longer a function of the District, and is now the responsibility of Recycle BC.

Current Solid Waste Removal Bylaw 7631	Proposed Solid Waste Management Bylaw 8436	Rationale
Assisted Collection No mention of cart assistance for residents with limited physical mobility.	Assisted Collection Assisted Collections program for residents with limited physical mobility, who have been approved by the Solid Waste Department for regular cart assistance.	Requests for assistance with receptacles increased as a result of changing to a carted system and with enforcement of the cart set out times, as residents cannot leave carts at the curb. To formalize the program, ensure it is for the intended users only.
Recyclable Material Collection Fee Lists the annual Recyclable Material Collection fee for single family and multi-family property owners.	Environmental Fee Renamed Recyclable Material Collection fee to Environmental Fee.	Renaming is required to ensure the fee reflects the services that it funds. Residential recycling service is no longer a function of the District. This annual fee funds services such as streetscape collection, illegal dumping clean up, use of the recycling area of the North Shore Transfer Station and education programs.
Centralized Collection Fee No mention of fee for multi family properties with centralized waste collection services.	Centralized Collection Fee Inclusion of a centralized collection fee to multi family properties where bulk container service is required.	Where deemed appropriate, a centralized collection fee would be charged to MF properties such as row houses, where carted curbside collection service is not feasible. As an alternative for these properties, solid waste can be collected using bulk containers.
Schedules B and C Lists all accepted and prohibited items from the waste streams.	Schedules B and C Removed Schedules B and C as this information is now included in the interpretation section.	To avoid the use of lists which can become outdated. To keep the bylaw current if any disposal ban changes, EPR program changes, or other updates are to occur.

0

THIS PAGE LEFT BLANK INTENTIONALLY

The Corporation of the District of North Vancouver

Bylaw 8437

A bylaw to amend Bylaw Notice Enforcement Bylaw 7458, 2004

The Council for The Corporation of the District of North Vancouver enacts as follows:

Citation

1. This bylaw may be cited as “Bylaw Notice Enforcement Bylaw 7458, 2004 Amendment Bylaw 8437, 2020 (Amendment 52)”.

Amendments

2. Bylaw Notice Enforcement Bylaw 7458, 2004 is amended by:

- a. deleting subsection 8(b) and replacing with the following:

- (b) The following are designated classes of persons that may be appointed as screening officers:

Chief Bylaw Officer, Supervisor-Bylaw Enforcement, Bylaw Enforcement Officer, Parking Bylaw Enforcement Officer, Community Service Clerk-Bylaw, Animal Services Coordinator, Animal Welfare Officer, Manager-Development Services, Section Manager – Environmental Sustainability (Operations), Environmental Protection Officer, Environmental Control Technician, Assistant Chief Building Official, Building Inspector 2, Plumbing Inspector 2, Section Manager-Natural Parkland and Operations, Community Forester, Section Manager – Garage, Fleet and Solid Waste, Solid Waste Coordinator, Water Conservation Officer, Assistant Fire Chief-Public Safety, Captain-Public Safety, Property Use/Business Licence Bylaw Enforcement Coordinator, Traffic Technologist, Traffic Technician, Program Manager-Construction Traffic Management, Program Coordinator-Utilities.

- b. deleting section 10(b) and replacing with the following:

- (b) Bylaw Enforcement Officer, Parking Bylaw Enforcement Officer, Animal Services Coordinator, Animal Welfare Officer, Park Ranger, Section Manager Environmental Sustainability (Operations), Environmental Protection Officer, Environmental Control Technician, Field Arborist, Community Forester, Property Use/Business Licence Bylaw Enforcement Coordinator, Building Inspector, Mechanical Inspector, Electrical Inspector, Traffic Technologist, Traffic Technician, Program

Manager-Construction Traffic Management, Waste Compliance Officer,
Program Coordinator-Utilities and Water Conservation Officer;

- c. deleting the provisions relating to Solid Waste Removal Bylaw 7631, 2007 in Schedule A and replacing with the following:

Bylaw Section	Description The following fines apply to the contraventions below:	A1 Penalty Amount (\$)	A2 Discounted Penalty: Within 14 days (\$)	A3 Late Payment: After 28 days (\$)	A4 Compliance Agreement Available	A5 Compliance Agreement Discount (\$)
Solid Waste Management Bylaw 8436, 2020						
3(a)	Allow <i>prohibited waste</i> to accumulate	300	225	450	NO	N/A
3(b)	Dump or bury <i>prohibited waste</i>	500	375	750	NO	N/A
3(c)	Transport unsecured <i>prohibited waste</i>	300	225	450	NO	N/A
3(d)	Discard of <i>recyclable material as garbage</i>	200	150	300	NO	N/A
3(e)	Place <i>hazardous waste</i> out for collection	500	375	750	NO	N/A
3(f)	Scavenge	200	150	300	NO	N/A
3(g)	Place <i>solid waste</i> at another's property	200	150	300	NO	N/A
3(h)	Place wet waste in <i>solid waste container</i>	150	115	225	NO	N/A
3(i)	Allow water to accumulate in <i>solid waste container</i>	150	115	225	NO	N/A
3(j)	Obstruct or interfere with <i>District</i> employee	500	375	750	NO	N/A
3(k)	Over-fill <i>solid waste container</i>	150	115	225	NO	N/A
4	Fail to clean up <i>prohibited waste</i>	200	150	300	NO	N/A
5	Use land as disposal site	500	375	750	NO	N/A
6(a)	Store <i>attractants</i> outdoors not in <i>wildlife resistant container</i>	300	225	450	NO	N/A
6(b)	Store <i>attractants</i> outdoors not in <i>wildlife resistant enclosure</i>	500	375	750	NO	N/A
7(a)	Fail to remove fruit	250	190	375	NO	N/A
7(b)	Fail to manage bird feeder	250	190	375	NO	N/A
7(c)	Fail to manage compost	250	190	375	NO	N/A
7(d)	Fail to keep barbecue clean	250	190	375	NO	N/A
7(e)	Fail to make appliance inaccessible to wildlife	300	225	450	NO	N/A
7(f)	Fail to store <i>attractants</i> so inaccessible to <i>wildlife</i>	500	375	750	NO	N/A
7(g)	Fail to manage bees	250	190	375	NO	N/A
8	Fail to comply with notice to remove <i>prohibited waste</i>	300	225	450	NO	N/A
17(g)	Fail to comply with notice to store <i>solid waste</i> in <i>wildlife resistant enclosure</i>	500	375	750	NO	N/A
22(a)	Place garbage not in <i>garbage container</i>	150	115	225	NO	N/A
22(b)	Place organics not in <i>organics container</i>	150	115	225	NO	N/A

22(c)	Place <i>recyclable material</i> not in <i>recycling container</i>	150	115	225	NO	N/A
22(d)	Place unacceptable materials out for collection	150	115	225	NO	N/A
22(e)	Fail to keep <i>solid waste container</i> in sanitary condition	150	115	225	NO	N/A
22(f)	Fail to bag dust	150	115	225	NO	N/A
22(g)	Fail to lock lid of <i>solid waste container</i>	300	225	450	NO	N/A
22(h)	Overweight <i>solid waste container</i>	250	190	375	NO	N/A
22(j)	<i>Solid waste container</i> encroaching	500	375	750	NO	N/A
23(a)	Fail to dispose of solid waste per bylaw	250	190	375	NO	N/A
23(b)(i)	Fail to ensure tenant has <i>solid waste container</i>	150	115	225	NO	N/A
23(b)(ii)	Fail to ensure tenant stores <i>solid waste container</i> per bylaw	150	115	225	NO	N/A
24(a)	Place <i>solid waste container</i> out for collection outside times permitted First violation: 2 nd and subsequent violation:	100 500	75 375	150 750	NO	N/A
24(b)	Over-fill <i>solid waste container</i>	150	115	225	NO	N/A
24(c)	Place <i>solid waste container</i> too far from road	150	115	225	NO	N/A
24(d)	Place <i>solid waste container</i> improperly on road	150	115	225	NO	N/A
24(e)	Place <i>solid waste container</i> improperly on lane	150	115	225	NO	N/A
24(f)	More <i>solid waste containers</i> than permitted	150	115	225	NO	N/A
37	Obstruct <i>bylaw enforcement officer</i>	500	375	750	NO	N/A

READ a first time

READ a second time

READ a third time

ADOPTED

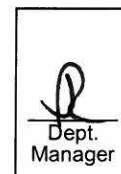
Mayor

Municipal Clerk

Certified a true copy

Municipal Clerk

AGENDA INFORMATION	
<input checked="" type="checkbox"/> Regular Meeting:	Date: October 5, 2020
<input type="checkbox"/> Other:	Date: _____



The District of North Vancouver REPORT TO COUNCIL

Date: September 22, 2020
File: 08.3170.20/513.000

AUTHOR: Janine Ryder, Manager – Real Estate and Properties

SUBJECT: Extension of Temporary Outdoor Business Areas to October 2021– Covid-19 Recovery

RECOMMENDATIONS:

1. THAT Bylaw 8463, to amend the Fees and Charges Bylaw, be given first, second and third readings.
2. THAT Bylaw 8463 be adopted.

REASON FOR REPORT:

On June 15, 2020, Council approved Bylaw 8443 which amended the Fees and Charges Bylaw, to establish the bylaw fees and charges associated with Temporary Business Areas at \$0.00 until October 31, 2020. The Provincial Government has extended their Temporary Expanded Service Area (TESA) authorization to October 31, 2021. This report provides a bylaw amendment to extend the expiry date of the amended Fees and Charges Bylaw until October 31, 2021 for Temporary Business Areas.

ANALYSIS

On May 22, 2020, the Provincial Liquor and Cannabis Regulation Branch (LCRB) issued Policy Directive no. 20-13 enabling food primary (e.g. restaurants), liquor primary (e.g. pubs), and manufacturing licensees (e.g. wineries, breweries and distilleries) to apply for a Temporary Expanded Service Area (TESA) Authorization. All TESA authorizations were originally set to expire on October 31, 2020. On September 18, 2020, the Province issued Policy Directive 20-26 extending the expiry of the TESA authorizations until October 31, 2021. If local government is supportive of the extension, the LCRB will reissue authorization letters to licensees with existing TESA's prior to October 31, 2020.

The District has approved thirteen Temporary Business Areas both on-site (private property) and off-site (public property, such as road allowances). Businesses continue to look for ways to accommodate physical distancing, the Temporary Outdoor Business Areas increases the size of the existing service areas allowing for increased person/patron capacities. Businesses have expressed that the Temporary Business Areas should be extended, and are looking for innovative ways to attract person/patrons throughout fall and winter.

**SUBJECT: Expansion of Temporary Outdoor Business Areas to October 2021 –
Covid-19 Recovery**

September 22, 2020

Page 2

Fees and Charges Bylaw Amendment

The proposed bylaw amendment is included as Attachment 1. The amendment allows for the fees and charges associated with Temporary Outdoor Business Areas to be \$0.00, including any fees that would otherwise be payable for the temporary relocation of activities associated with a business to District road allowance, for the purpose of meeting COVID-19 guidelines established by senior levels of government. The proposed bylaw amendment will expire on October 31, 2021.

This bylaw also includes a housekeeping item that increases the maximum fee applicable to Business Licences to \$5,000.

Temporary Outdoor Business Area Policy and Guidelines

Staff are reviewing and updating the administrative and guidelines policy to allow for winterizing the Temporary Outdoor Business Areas for patios and retail spaces both on-site (private property) and off-site (public property).

Staff will contact each business owner that has an approved Temporary Outdoor Business Area, to discuss any changes in the policy and guidelines. The existing permits will be extended until October 31, 2021, if requested by the business owner. Staff will also continue to expedite any new applications for Temporary Outdoor Business Areas.

CONCLUSION

Temporary patio spaces and outdoor business areas are tools for businesses to expand their service areas to fulfil public health objectives for physical distancing. The amendment to the Fees and Charges Bylaw will set the bylaw fees at \$0.00 for Temporary Outdoor Business Areas through to October 31, 2021.

Options:

1. THAT Bylaw 8463, to amend the Fees and Charges Bylaw, be given first, second and third readings; and
2. THAT Bylaw 8463 be adopted.
(Staff Recommendation)

OR

3. THAT no further action be taken at this time.

Respectfully submitted,



Janine Ryder
Manager – Real Estate and Properties

**SUBJECT: Expansion of Temporary Outdoor Business Areas to October 2021 –
Covid-19 Recovery**

September 22, 2020

Page 3

REVIEWED WITH:		
<input type="checkbox"/> Community Planning _____	<input type="checkbox"/> Clerk's Office _____	External Agencies:
<input type="checkbox"/> Development Planning _____	<input type="checkbox"/> Communications _____	<input type="checkbox"/> Library Board _____
<input type="checkbox"/> Development Engineering _____	<input type="checkbox"/> Finance _____	<input type="checkbox"/> NS Health _____
<input type="checkbox"/> Utilities _____	<input type="checkbox"/> Fire Services _____	<input type="checkbox"/> RCMP _____
<input type="checkbox"/> Engineering Operations _____	<input type="checkbox"/> ITS _____	<input type="checkbox"/> NVRC _____
<input type="checkbox"/> Parks _____	<input type="checkbox"/> Solicitor _____	<input type="checkbox"/> Museum & Arch. _____
<input type="checkbox"/> Environment _____	<input type="checkbox"/> GIS _____	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Facilities _____	<input type="checkbox"/> Real Estate _____	
<input type="checkbox"/> Human Resources _____	<input type="checkbox"/> Bylaw Services _____	
<input type="checkbox"/> Review and Compliance _____	<input type="checkbox"/> Planning _____	

THIS PAGE LEFT BLANK INTENTIONALLY

ATTACHMENT 1

The Corporation of the District of North Vancouver

Bylaw 8463

A bylaw to amend Fees and Charges Bylaw 6481, 1992

The Council for The Corporation of the District of North Vancouver enacts as follows:

Citation

- 1) This bylaw may be cited as "Fees and Charges Bylaw 6481, 1992 Amendment Bylaw 8463, 2020 (Amendment 67)".

Amendments

- 2) Fees and Charges Bylaw 6481, 1992 is amended as follows:
- a) by changing the dates under the heading "Liquor Related Applications" in Schedule "B" from October 31, 2020 to October 31, 2021;
 - b) by changing the date under the heading "Development Permit - Minor" in Schedule "B" from October 31, 2020 to October 31, 2021;
 - c) by changing the dates under the heading "Building Permit Fee" in Schedule "B" from October 31, 2020 to October 31, 2021;
 - d) by changing the date in the last row under the heading "Development Permit - Major" in Schedule "B" from October 31, 2020 to October 31, 2021;
 - e) by changing the date in the first row under the heading "Permit" in Schedule "B" from October 31, 2020 to October 31, 2021; and
 - f) by changing the business licence Maximum Fee under the heading "Other Fees" applicable to all Business Licences" in Schedule "E" from \$4,854.80 to \$5,000.00.
- 3) Bylaw 8443, 2020 is amended as follows: by changing the date in section 2(f) from October 31, 2020 to October 31, 2021.

READ a first time

READ a second time

READ a third time

ADOPTED

**SUBJECT: Expansion of Temporary Outdoor Business Areas to October 2021 –
Covid-19 Recovery**

September 22, 2020

Page 5

Mayor

Municipal Clerk

**SUBJECT: Expansion of Temporary Outdoor Business Areas to October 2021 –
Covid-19 Recovery**

September 22, 2020

Page 6

Note: Subsection 12(a)(iii) of Ministerial Order M192, made by the Minister of Public Safety and Solicitor General under the *Emergency Program Act* in response to the COVID-19 declared emergency and dated June 17, 2020, permits a council to adopt a bylaw on the same day that it has been given third reading despite section 135(3) of the *Community Charter* if the bylaw is made in relation to Section 194 of the *Community Charter* [municipal fees]. Due to urgent circumstances, the District of North Vancouver has availed itself of this temporary power where warranted.

Certified a true copy

Municipal Clerk

THIS PAGE LEFT BLANK INTENTIONALLY

COUNCIL AGENDA/INFORMATION			
<input type="checkbox"/> In Camera	Date:	Item #	
<input checked="" type="checkbox"/> Regular	Date: <u>October 5, 2020</u>	Item #	
<input type="checkbox"/> Agenda Addendum	Date:	Item#	
<input type="checkbox"/> Info Package			
<input type="checkbox"/> Council Workshop	DM#	Date:	Mailbox:

NW
Dept.
Manager

BH
GM/
Director

W
CAO

The District of North Vancouver REPORT TO COUNCIL

September 18th, 2020

File:

AUTHOR: Nathan Walker - Acting Assistant Fire Chief - Public Safety
Brian Hutchinson - Fire Chief

SUBJECT: 2021 Community Resiliency Investment Program Grant

RECOMMENDATION:

THAT Council support the 2021 Community Resiliency Investment (CRI) Program Grant Application entitled "District of North Vancouver Fire Rescue Services (DNVFRS) FireSmart Community Risk Reduction and Resiliency Initiatives Program 2021".

REASONS FOR REPORT:

To update Council on the CRI Program Grant Application that has been prepared by DNVFRS based on the Community Wildfire Protection Plan (CWPP) Update. A Council resolution is required to support the 2021 CRI Program Grant Application.

BACKGROUND:

As introduced by the Union of BC Municipalities (UBCM), in 2020 the "CRI Program is intended to reduce the risk of wildfire to communities in BC through community funding, supports and priority fuel management on Crown land. The program was launched in 2018 and more than 120 First Nations and local governments have received funding." FireSmart principles, public education, inter-agency emergency planning and exercising, training and fuel treatment are all key proposed activities.

On October 28, 2019, Council supported application to the CRI Program for a 2020 CRI Grant. On January 31, 2020, Chief Administrative Officer David Stuart received written approval from the Union of B.C. Municipalities that District of North Vancouver was successful with its 2020 CRI Grant application.

The 2020 CRI FireSmart Community Funding was a combination of DNVFRS projects, as well, a portion was dedicated to fuel treatment. DNVFRS received approval for \$53,000 towards projects during 2020 related to education and outreach, planning, inter-agency cooperation, emergency planning, and cross training.. The fuel treatment project received funding of \$9,281 and is being held over to 2021 due to extended timelines for the work to be completed. As such additional fuel treatment funding is not being requested for the 2021 CRI Grant.

The 2021 CRI grant application requires the applicant to have a CWPP that supports the application, as well, for the grant itself must be supported by Council Resolution. Council endorsed the CWPP Update on October 7, 2019. The 2021 CRI Grant specifically helps to advance the following initiatives identified in the CWPP Update:

- Establishment of a Wildfire Development Permit Area, that requires new buildings to comply with FireSmart, National Fire Protection Association (NFPA), and District-developed standards for non-flammable building 2021 CRI Grant Worksheet envelope materials;
- Provision of specialized training to local fire department and DNV staff for Interface Fire Response.

TIMING/APPROVAL PROCESS

The 2021 CRI Grant Application was pre-reviewed by Tony Botica, Wildfire Prevention Officer – Coastal Fire Centre, BC Wildfire Services; as is required as part of the application process. The Application together with a copy of the CWPP Update and the Council Resolution deadline is October 9, 2020.

CONCURRENCE

The following DNV departments and external stakeholders have reviewed and concur with the report: DNV Environmental Sustainability (Operations), Fire & Rescue Services, Planning, Finance and North Shore Emergency Management.

FINANCIAL IMPACTS

The 2021 CRI Grant Application provides additional resources for program administration, development, and delivery as represented in the Fire Department Operations Budget for 2021. The Environment Sustainability (Operations) section would continue with Fuel Mitigation projects on lands within the DNV as approved in the 2020 CRI Grant.

LIABILITY/RISK

The Application supports completion of recommendations outlined in the current CWPP Update, which reduces liability by demonstrating an ongoing work plan and commitment to wildfire risk reduction. The CRI supports ecological protection and 'urgent climate action' supporting Council's July 8, 2019 climate and ecological emergency declaration "THAT staff are directed to incorporate more urgent climate action and ecological protection into strategic and financial planning processes".

COMMUNICATION AND EDUCATION

Wildfire hazard maps and the Wildfire Protection DPA maps are available on GeoWeb in the Hazards application, along with public access to the CWPP and FireSmart educational information via the DNV website at <http://www.dnv.org/programs-services/community-wildfire-protection-plan>.

SOCIAL POLICY IMPLICATIONS

Understanding, communicating and managing wildfire risk is integrated with community values of recreation, environmental protection, public safety and sustainability.

ENVIRONMENTAL IMPACT

Fuel treatment projects have already demonstrated the ecosystem restoration benefits coupled with wildfire risk reduction. Ongoing fuel treatment with subsequent replanting will increase our community safety from wildfire risk while restoring forests to a healthier condition.

EXISTING POLICY

The CRI grant directly supports goals and actions in the Climate Change Adaptation Strategy (CCAS) by reducing risk and building community resilience to climate-related events such as wildfires (CCAS Goals 1 and 2, Objectives 3 and 5, and Required Actions 3.2 and 5.1). The CRI Grant supports the CWPP and the Wildfire Hazard Development Area (Objective 2 "proactively manage conditions affecting potential fire behaviour, thereby increasing the probability of successful fire suppression and containment, and thereby minimizing adverse impacts").

CONCLUSION

The DNV has been very successful to date with wildfire mitigation measures resulting from the collaboration, creativity, leveraging of external funding opportunities and community support. The DNV has a demonstrated capacity to continue to build resilience in our urban interface and in our forests that protect people, infrastructure, environmental and recreational assets from wildfire hazard. We continue to provide a regional leadership role in the assessment, mitigation and preparation of wildland-urban interface wildfire response planning.

Respectfully submitted,



Nathan Walker – Acting Assistant Fire Chief – Public Safety
Brian Hutchinson – Fire Chief

Attachments:

1. CRI Application Form (eDoc#4512241)
2. CRI Worksheets 1: 2020 Community Resiliency Investment Program FireSmart Community Funding & Supports (eDoc #4512246)
3. CWPP Update Wildland Urban Interface (WUI) Fire Risk Management Update (eDoc #4129268)

THIS PAGE LEFT BLANK INTENTIONALLY

Community Resiliency Investment Program

2021 FireSmart Community Funding & Supports

Application Form

Please complete and return the application form and all required attachments by October 9, 2020.

All questions are required to be answered by typing directly in this form. If you have any questions, contact cri-swpi@ubcm.ca or (250) 356-2947.

SECTION 1: Applicant Information	CRI- <i>(administrative use only)</i>
Name of Local Government or First Nation: District of North Vancouver Fire & Rescue Services (DNVFRS)	Complete Mailing Address: 1110 Lynn Valley Rd. North Vancouver, BC, V7J1Z9
Contact Person*: Nathan Walker	Position: Assistant Fire Chief - Public Safety
Phone: 604-990-3663	E-mail: nwalker@dnv.org

* Contact person must be an authorized representative of the applicant (i.e. staff member or elected official).

<p>SECTION 2: Type of Application – Please identify the type of application you are submitting and provide the required information. Refer to Section 3 in the Program & Application Guide for eligibility.</p>
<p>1. Type of Application (select one only):</p> <p><input checked="" type="checkbox"/> Single applicant (as identified in Section 1 of the application form)</p> <p><input type="checkbox"/> Regional Project for Multiple Eligible Applicants. Please list all of the partnering eligible applicants included in this application:</p> <p><input type="checkbox"/> Regional Projects for Regional District Applications Including Multiple Electoral Areas. Please list all electoral areas included in this application and submit a separate Worksheet 1 for each:</p>
<p>2. Rationale for Regional Projects (only). Please provide a rationale for submitting a regional project application and describe how this approach will support cost-efficiencies in the total funding request.</p>

<p>SECTION 3: Project Summary</p>
<p>3. Name of the Project:</p> <p>DNVFRS FireSmart Community Risk Reduction and Resiliency Program</p>

4. Project Summary. Please provide a summary of your project in 150 words or less.

DNVFRS is committed to reducing the risk and impact of wildfire in our community through enhancing our planning, preparedness, response and recovery capabilities. Working together with staff from throughout our municipality as well as our inter-agency partners, we will continue to mitigate our risks through planning a wildfire exercise, further development of education and outreach programs, supporting additional community groups to become FireSmart communities, and supporting additional wildland fire training.

The new Community Wildfire Protection Plan (CWPP) Update was adopted by Council on October 7, 2019. The CWPP Update Recommendation #12 is to "proceed with detailed assessment, prescription development, and treatment of hazardous units identified and prioritized in this CWPP". Summary rational for each PTU in CWPP Update page 63 Table 15 Proposed Treatment Area Summary Table. Section 4. Wildfire Threat and Risk summarizes the factors that contribute to and were assessed in the determination of wildfire threat around the community. CWPP Update page 63 Table 15 Proposed Treatment Area Summary Table for area descriptions PTU 1 and 3 and Map 11 Proposed and Past Treatments page 69 details locations. These 2 treatment areas total 26.4ha and are identified as High Risk priority interface areas on DNV land close to houses. The CWPP Update align and support this CRI Grant Submission.

5. Fire Centre (use check boxes). Indicate which Fire Centre the proposed activities are located in (check all that apply).

☐ Cariboo Fire Centre

☒ Coastal Fire Centre

☐ Kamloops Fire Centre

☐ Northwest Fire Centre

☐ Prince George Fire Centre

☐ Southeast Fire Centre

6. Project Cost & Funding Request:

Total project cost:\$150000.00

Total funding request for FireSmart activities (as indicated on Worksheet(s) 1): \$150000.00

Total funding request for fuel management activities (as indicated on Worksheet 2): \$0.00

Total project funding request: 150,000

Have you applied for or received funding for this project from other sources? If yes, please provide details below.

7. Progress to Date. If you were approved for funding under the 2019 and/or 2020 CRI FireSmart Community Funding & Supports programs, please describe the activities that have been completed to date and/or what activities your community has not yet completed but will be undertaking to increase resiliency.

2019 project: none

2020 project: 1. Education: Pre-fire Season Wildfire Open House and Door Hanger Program (\$5000)

- 3 FireSmart Pilot Projects (\$6000) 1/3 Complete, 2/3 on-going

2. Planning: FireSmart Assessment starting with critical infrastructure, FD and Municipal buildings. (\$12,000)

Assessments complete, recommendations and hazard mitigations on-going

3. Interagency Co-operation: North Shore FireSmart Community (\$6000) Staff time for a regional planning group and training session to meet and align community risk reduction and targeted education with regards to wildfire and FireSmart
4. Emergency Planning: Multi-site real-time interagency wildfire exercise testing readiness and response and communications (\$12,000) - Includes activation of EOC, DOC, EOU, SPU, BC Wildfire/Metro support and communications. Table top exercise, to be complete by Oct.2020
- SPU deployment in Woodlands as part of inter-agency wildfire exercise and community outreach event. (\$4000) - test readiness and response in restricted access/.egress area, demonstrate SPU to community and engage in FireSmart education
5. Cross Training: FireSmart training (\$3924) staff time for LFR training of 7 DNVFRS staff
- Further, if any activities that were funded under the 2019 and/or 2020 CRI FireSmart Community Funding & Supports programs were impacted or delayed by COVID-19 or public health requirements, please describe:
6. Fuel Management: (\$9241) On-going

SECTION 4: Requirements for Funding (refer to Section 4 of Program & Application Guide)

- 8. Engagement Prior to Submitting an Application.** In order to qualify for funding, applicants must demonstrate their level of engagement with a BCWS Wildfire Prevention Officer, FNESS Fuel Management Liaison/Specialist, and, if applicable, the FLNRORD district, region, or relevant Land Manager to ensure project alignment with Land Manager priorities.

Please indicate the name(s) and title(s) of the person(s) you engaged with and describe the extent of that engagement.

Tony Botica, Wildfire Prevention Officer - Coastal Fire Centre
 BC Wildfire Services
 250-951-4262
 250-927-3311 Cell
 tony.botica@gov.bc.ca

- 9. Acceptable Plan.** In order to qualify for funding, applicants must have a current and acceptable plan that includes assessment and identification of FireSmart and/or fuel management priorities (i.e. Community Wildfire Protection Plan, Community Wildfire Resiliency Plan, or Crown Land WRR Tactical or Fuel Management Plan, etc.).

Please outline how your community meets this requirement. Note: applicants that do not have a current and acceptable plan may apply to develop or update a plan.

District of North Vancouver Community Wildfire Protection Plan
 Created by B.A. Blackwell & Associates Ltd. 2007

Attach completed plans, assessments, and/or excerpts from higher-level plans with the application form.

SECTION 5: Wildfire Risk & Rationale

- 10. A. WUI Wildfire Risk Class.** What is the WUI Risk Class (1 – 5) for the general area of interest of your community or proposed activities, including the WUI polygon name, from the risk class map? Refer to Appendix 1 of the Program & Application Guide.

WUI Polygon - Map Grid 92G_SW. Refer to 10.B for justification of High and Extreme WUI Wildfire Risk Class based on Threat Plots from CWPP.

DNV has approximately 10,000 homes in the Wildfire Hazard DPA. The majority of these homes are adjacent to forested areas classified at (5) moderate. The DNV has homes within its municipal boundary that are boat access only, or, have restricted egress routes through (5) moderate classified forested areas. There are also Fire Limit Areas with limited access to fire suppression water (Section 6.1.2). Classification increases to (6) moderate in some forested areas.

B. If local assessments provide additional evidence of higher wildfire risk than the WUI Risk Class, provide specific evidence of wildfire risk (reference to appropriate section of a CWPP/CWRP or other plan, etc.).

The CWPP Update Appendix E plots locations that field work was undertaken to summarize the Wildland Urban Interface threat. Ratings were applied for Wildfire Behaviour Threat from Low to Extreme, as well, Wildland Urban Interface Threat from Low to Extreme. Based on this assessment, there are multiple areas in the DNV that are classed as High and Extreme.

Excerpt from Appendix E - WUI Threat Plot Locations

WUI Plot#	Geographic Location	Wildfire Behaviour Threat Class	WUI Threat Class
ALBA-1	Upper Delbrook	High	High
CART-1	McCartney Woods	High	Extreme
CART-2	McCartney Woods	High	Extreme
CLIF-1	Cliffwood	High	Extreme
GROUS-2	Grousewoods	High	High
GROUS-3	Grousewoods	High	High
GROUS-4	Grousewoods	High	High
HALL-1	Delbrook	High	Extreme
PARK-1	Parkgate	High	High
SKY-1	Upper Delbrook	High	High
SKY-2	Upper Delbrook	High	Extreme

The local wildfire threat assessment (CWPP 4.3) prioritized locations based on PSTA WTA class, proximity to values at risk, prevailing fire season winds, slope position o value, land ownership, local knowledge, and observations. A total of 41 threat plots were completed (Appendix E). Over 26% of the plots are rated high and/or extreme for wildifre behaviour and wildfire threat.

Section 4. Wildfire Threat and Risk summarizes the factors that contribute to and were assessed in the determination of wildfire threat around the community. These factors include the natural fire regime and ecology, the Provincial Strategic Threat Analysis, and the local wildfire risk analysis completed for the AOI.

Critical infrastructure assessments (CWPP Table 3) are key consequences to be considered. Access and evacuation are also key concerns addressed in the CWPP Update Page 92-95. FireSmart priority areas have been identified in the CWPP Update (Table 17).

As outlined in CWPP Section 5, proactively developing a risk mitigation strategy aims to increase resiliency of our community with a goal towards reducing our risks from extreme to high/medium, and from high to medium. The strategic recommendations in the CWPP align with the CRI Grant request for: FireSmart approach to reduce fire risk in the community through education, assessments, emergency planning, cross training, and demonstration project aligns with recommendations in CWPP Updated (Table 1).

Additional evidence for higher wildfire risk (e.g. CWPP/CWRP extract, copies of assessments, etc.) is required to be submitted with the application form.

C. For the purpose of FireSmart Community Funding & Supports grants, identify the risk category that you are applying under:

- ☐ Lower risk of wildfire (may apply for a base grant of up to \$50,000)
- ☒ Higher risk of wildfire (may apply for a base grant of up to \$150,000)

11. Other Rationale. What other rationale or evidence is there for undertaking the proposed project? This may include local hazards identified in the Emergency Plan; threat levels identified in Hazard Risk & Vulnerability Analysis and/or other risk assessments; demonstrated history of repeated and/or significant interface wildfires and evacuations; or other rationale.

DNV Climate Change Adaption Strategy July 2019 (<https://www.dnv.org/programs-and-services/climate-change-adaptation-strategy>) identified wildfire as one of the primary risks to the community. Required Action 3.2 states "remaining (CWPP) recommendations should be implemented"

Evidence of other rationale (e.g. Local Authority Emergency Plan extract, copies of assessments, etc.) is required to be submitted with the application form.

SECTION 6: Detailed Project Information

12. Proposed Activities. Please refer to Section 6 of the Program & Application Guide for eligibility, and complete Worksheet 1: Proposed Activities & Cost-Estimate. Worksheet 1 is required to be completed for all applications and all projects must include an Education component.

13. Increasing Resiliency. Please indicate how the proposed project will increase community resiliency by undertaking community-based FireSmart planning and activities that reduce the community's risk from wildfire.

14. Partnerships & Collaboration. Please identify any other authorities you will collaborate with on the proposed project (e.g. community or resident organizations, First Nation or Indigenous organizations, or other local governments) and outline how you intend to work together.

15. Additional Information. Please share any other information you think may help support your submission.

SECTION 7: Application Check List

Required Submissions

Related Attachments

☒ Application Form

☐ Completed plans, and/or assessments, or excerpts from higher-level plans, as required in Q. 9

☐ Other rationale, as required in Q. 10 and 11

☒ Completed Worksheet 1: Proposed Activities & Cost Estimate

☒ Completed FireSmart Assessments for structures proposed for FireSmart Projects for Critical Infrastructure, as required in Q. 7

☐ For fuel management activities only: Completed Worksheet 2: Proposed Fuel Management Activities

☐ Overview map of the community, previously completed treatments, proposed treatments for this application, and planned future treatments

☐ PDF map and Google Earth compatible KML file, at appropriate scale, outlining the area of interest, proposed treatment units, land status and tenure overlaps

☐ If available, current wildfire threat assessment plots and/or fuel loading data and rationale for the proposed treatment unit(s)

☐ For fuel management treatment only, a copy of the completed (signed and sealed) prescription and project spatial layer

☐ For prescribed fire only, a copy of the completed burn plan (in addition to the prescription) and project spatial layer

☐ For fuel management treatment on Provincial Crown land only, an email from the Land Manager indicating information sharing with First Nations has been completed

☒ Council, Board or Band Council resolution, indicating support for the current proposed activities and willingness to provide overall grant management

☐ For regional projects only: Council, Board or Band Council resolution, from each partnering community that clearly states approval for the applicant to apply for, receive and manage the grant funding on their behalf

Submit the completed Application Form and all required related attachments as e-mail attachments to cri-swpi@ubcm.ca and note “**2021 CRI**” in the subject line. Submit your application as either a Word or PDF file(s). If you submit by e-mail, hardcopies and/or additional copies of the application are not required.

SECTION 8: Signature – Applications are required to be signed by an authorized representative of the applicant. Please note all application materials will be shared with the Province of BC and the BC FireSmart Committee.

I certify that: (1) to the best of my knowledge, all information is accurate and (2) the area covered by the approved project is within the applicant's jurisdiction (or appropriate approvals are in place).

Name: Nathan Walker

Title: Assitant Fire Chief - Public Safety

Signature*:

An electronic or original signature is required.

Date:

* Signatory must be an authorized representative of the applicant (i.e. staff member or elected official).

THIS PAGE LEFT BLANK INTENTIONALLY

Community Resiliency Investment Program

2021 FireSmart Community Funding & Supports

Worksheet 1: Proposed Activities & Cost Estimates

This worksheet is required to be completed for all applications.

Please complete and return the worksheet with the full FireSmart Community Funding & Supports application package. If you have any questions, contact cri-swpi@ubcm.ca or (250) 356-2947.

New in 2021 - For *Regional Projects for Regional District Applications Including Multiple Electoral Areas* only, a separate Worksheet 1 is required for each electoral area that is included in the application.

Instructions:

In Section 2 below, indicate the proposed activities, cost-estimate and calculation, outcomes and performance measures, and funding request subtotal for each of the eligible activities (as identified in Table 1 of Section 6 of the Program & Application Guide) that you plan to undertake.

New in 2021 - Category 1 (Education) is required to be completed in all applications.

Detailed Cost Estimate and Calculation: Provide a detailed cost estimate and calculation for each proposed activity. Include information on how cost estimates were developed (i.e. hourly meeting room costs, mileage for travel, estimated days of incremental staff time, hourly/daily rates and types of equipment and estimated hours of use, etc.). In cases where other contributions are included for proposed activities, please clearly distinguish between the requested CRI funding amount and other contributions, including in-kind contributions. Additional cost information may be requested.

Note: Costs related to incremental applicant staff and administration costs should be included as part of detailed cost estimate and calculation for each proposed activity. Refer to Additional Eligible Costs & Activities in Section 6 of the Program & Application Guide for more information.

Proposed Outcomes: Provide information on the expected outcome of each proposed activity and list any policies, practices, plans or documents that will be developed or amended as a result of your project. As noted in the Program & Application Guide, higher application review scores will be given to projects that clearly increase community resiliency by undertaking community-based FireSmart planning and activities that reduce the community's risk from wildfire.

Proposed Performance Measures: Indicate how the proposed activities will be evaluated, including the specific performance measures that will be used.

Worksheet 1: Proposed Activities & Cost Estimates

SECTION 1: Applicant Information	CRI- <i>(for administrative use only)</i>
Name of Local Government or First Nation: District of North Vancouver Fire & Rescue Services (DNVFRS)	Name of Project: DNVFRS FireSmart Community Risk Reduction and Resiliency Initiatives Program
<u>For Regional District applications only</u>	
Name of Electoral Area:	

SECTION 2: Proposed Activities

To order materials from FireSmart BC free of charge, check the resources you would like to receive and indicate the number of copies (noting the identified maximums).

<input checked="" type="checkbox"/> FireSmart Begins at Home Manual (max. 350): 350	<input checked="" type="checkbox"/> FireSmart Canada Guide to Landscaping (max. 200): 200
<input checked="" type="checkbox"/> Becoming a Recognized FireSmart Community (max.10): 10	<input checked="" type="checkbox"/> FireSmart Canada Community Recognition User Reference Guide (max. 1): 1
<input checked="" type="checkbox"/> FireSmart Protecting your Community from Wildfire (max. 1): 1	<input checked="" type="checkbox"/> FireSmart Bookmark (max. 100): 100
<input checked="" type="checkbox"/> FireSmart Structure Ignition Zone Poster (max. 50): 50	

1. Education

New in 2021, all applications are required to include an education component in this section. This may include general FireSmart education, or be related to a proposed activity in Categories 2 through 8 below or proposed fuel management activities.

Proposed Activities	Detailed Cost Estimate <u>and</u> Calculation	Proposed Outcomes	Performance Measures
FireSmart education related to categories 2 through 8 or proposed fuel management activities: Category 7	See category 7 Fire Safety House renovation		.

Promote/distribute FireSmart educational activities and tools: FireSmart Social Media Campaign Door Hanger Campaign	Media Creation: 1 staff x 1 day x \$500 + Targeted Geofencing media \$20 x 30 days = \$1100 5 Staff x 2 days x \$500 = \$5000 Total = \$6100	Create and strengthen community awareness of FireSmart initiatives and event advertizing Distribute FireSmart door hangers to 2500 residences in the Wildfire DPI	Create interest and produce a large turnout to events CWPP #6,14,20,22,32. "Develop a social media stratgey....FireSmart..." CWPP Item #23,24,27,28,31,32reach and record target of 2500 homes.
Education for the reduction of local human-caused fires: Redesign Outdoor burning cards, and Outdoor burning summer campaign to align with Fire Hazard rating	1 staff x 2 days x \$500 = \$1000 Printed cards and online media = \$1000 Total = \$2000	Social media and in person summer campaign to promote Outdoor safety in parks and trails. Redesign and print Outdoor burning cards for inperson community events	Track number of cards distributed, number of events attended, number of online likes and shares. Reduce number of Outdoor burning responses, incidents and comlaints.
Wildfire Community Preparedness Day: Wildfire Community Preparedness Day: Community Workshop	2 Staff x 1 day x \$500 = \$1000 Presentation Materials =\$500 and incentives =\$100 (WASP sprinklers) x 20 =\$2000 Total = \$3500	Identify gaps and provide additional resources Public exposure and education Identify Risks	CWPP Item #6,14,20,22,32....Promote FireSmart, workshops, townhall meetings, identify risks
FireSmart day, events and workshops, and wildfire season open houses: Outdoor community events. Wildland Fire demonstration FireSmart and information events (3 different communities)	3 events x 5 Staff x 1 day x \$500 =\$7,500 Incentive and demo materials (WASP) Sprinklers - 20 x \$100 = \$2000 Total = \$9,500	Test Structure Protection Unit (SPU) deployment, education and outreach in an at risk community, demo NS resources and create public investment in FireSmart	Community attendance, media coverage and target 3 FireSmart projects. CWPP Item# 23,24,27,28
FireSmart Canada Neighbourhood Recognition: 3 Community Projects	3 Staff x 4 days x \$500 = \$6000	Support FireSmart Community Program	Target 3 high risk communities within the WUI for FireSmart Recognized Communities.

			CWPP Item #18,26 "work towards FireSmart community recognition"
Other:			
FUNDING REQUEST SUBTOTAL	\$27100.00		

Example performance measures: target attendance and/or number of hours at educational activities, Wildfire Community Preparedness Day and any FireSmart events; estimated completion date of application for FireSmart Canada Neighbourhood Recognition.

2. Planning

For Community Wildfire Resiliency Plans (CWRPs), applicants are required to provide a general description of the Area of Interest (AOI) and estimated hectares within the eligible Wildland Urban Interface (WUI). In addition, the cost calculation for a CWRP is required to be broken down as outlined below. Refer to Appendix 4 for map and spatial data requirements for CWRPs.

Note that the development of a Community FireSmart Resiliency Committee (as part of the initial CWRP process) should be included under Category 4 (Interagency Cooperation) below.

Proposed Activities	Detailed Cost Estimate <u>and</u> Calculation	Proposed Outcomes	Performance Measures
Develop a CWRP: AOI / provide general geographic area of CWRP: Estimated hectares of eligible WUI (1 km) in the AOI: <i>Refer to the CWRP template and guidance document</i>	Development Process: Wildfire Risk Assessment: FireSmart Disciplines: Fuel Mgmt. TU Identification: Template Development (including maps and spatial data): Total Activity Cost: \$		
Amend an existing plan (i.e. CWRP/CWPP): Estimated hectares of eligible WUI (1 km) in the AOI:			

<i>Refer to the CWRP template and guidance document and/or 2018 CWPP template</i>			
Develop policies/practices for FireSmart First Nations land or publicly owned land:			
Develop policies/practices for FireSmart First Nations owned buildings and publicly owned buildings:			
Conduct FireSmart Assessments for First Nations and/or publicly owned buildings in order to support future FireSmart projects for critical infrastructure (Category 7): FireSmart assessments of Municipal, School District and First Nations buildings. Expanding project work from 2020	6 staff x 4 days x \$500 = \$12,000	DNV FireSmart critical infrastructure, DNV FD buildings complete in 2020, continue with other DNV, school district and First Nations buildings.	Leading by example by assessing and making FireSmart improvements. Engage with other public owned stakeholders in the DNV and First Nation land. CWPP Item #10, 25. "LFRs to complete FireSmart assessments of critical infrastructure...as identified in CWPP table 3..."
Other:			
FUNDING REQUEST SUBTOTAL	\$12000		

Example performance measures: list of policies and plans that are proposed for review and/or amendment; target for number of completed assessments.

3. Development Considerations

Proposed Activities	Detailed Cost Estimate <u>and</u> Calculation	Proposed Outcomes	Performance Measures
Amend OCPs, Comprehensive Community Plans and/or bylaws:			

Revise landscaping requirements:			
Establish Development Permit Areas for Wildfire Hazard:			
Include wildfire prevention and suppression considerations in the design of subdivisions:			
Amend referral processes for new developments to ensure multiple departments are included:			
Other:			
FUNDING REQUEST SUBTOTAL	\$		

Example performance measures: list of plans or development requirements that are proposed for review and/or amendment; number and location of target areas for development permit areas.

4. Interagency Co-operation

Proposed Activities	Detailed Cost Estimate <u>and</u> Calculation	Proposed Outcomes	Performance Measures
Community FireSmart Resiliency Committees: North Shore FireSmart Community	4 staff x 2 days x \$500 = \$4000	Regional Planning Group annual meeting to align Community Risk Reduction and Targeted Education with regards to Wildfire and FireSmart initiatives.	Alignment of FireSmart messaging and potential programs across the North Shore (NV District, West Van, NV City, Bowen Island, Lions Bay, Squamish Nation, Tseil-Watuth) CWPP Item #30,32,49,50 "...coordinate and facilitate engagement with all key

			stakeholders....collaborative solutions.."
Multi-agency fire and/or fuel management tables:			
Indigenous cultural safety and cultural humility training:			
Attend 2021 FireSmart BC Conference: Note: this is limited to two staff per applicant for costs related to travel, accommodation and per diems only (wages are not eligible).	Max. funding is \$1,000 per attendee		
Other: Interagency training, familiarization and cooperation	2 staff x 3 days x \$500 = \$3000	SPU deploy to small neighbouring communities for mutual training and Wildfire Interface training. Take the SPU to Bowen Island, Squamich and Lions Bay.	Annual Training session and familiarity with neighbouring municipalities having considerable Wildfire Structural Interface.
FUNDING REQUEST SUBTOTAL	\$ 7000.00		

Example performance measures: estimated meeting frequency and attendance at committee meetings or fuel management tables; target attendance for Indigenous cultural safety; target attendance for conference and plan for sharing learnings in home community.

5. Emergency Planning

Proposed Activities	Detailed Cost Estimate <u>and</u> Calculation	Proposed Outcomes	Performance Measures
Cross-jurisdictional meetings and tabletop exercises, including seasonal wildfire readiness meetings: Multi-site, real-time interagency Wildfire Exercise; testing readiness, communications and response	2 staff x 2 days x \$500 = \$2000 (pre-planning) 20 Staff x 1 day x \$500 = \$10,000 Total = \$12,000	Test interagency readiness and response to a wildfire event. Exercise to include activation of EOC, DOCs, Extended Operations Unit, SPU, BC Wildfire/Metro	Timelines for resource response on duty resources and mutual aid and support services. CWPP Item #31,47,48 "interface training...joint

		Vancouver Support, and Communications	wildland fire and risks inherent with natural areas."
Assess structural protection capacity as required for wildfire response: Multi agency, multi jurisdiction, multi company training exercise building off the table top.	Day 1: 20 Staff x 1 day x \$500 = \$10,000 Day 2: 20 Staff x 1 day x \$500 = \$10,000 Total = \$20,000	Real life exercise to build off the table top. Deploy companies and SPUs to a Wildfire DPA area to test interagency readiness and response.	Identify successes and performance gaps.
Community emergency preparedness events focused on wildfire: 3 events for 2021; Deploy and demonstrate SPU and Wildfire response at community event in DPA	3 events x 5 Staff x 1 day x \$500 = \$7,500 Incentive and demo materials (WASP) Sprinklers - 20 x \$100 = \$2000 Total = \$9,500	Test Structure Protection Unit (SPU) deployment, education and outreach in an at risk community (3 different communities), demo NS resources and create public investment in FireSmart	Community attendance, media coverage and target 3 FireSmart projects. CWPP Item# 23,24,27,28
Other:			
FUNDING REQUEST SUBTOTAL	\$41500.00		

Example performance measures: estimated meeting frequency and attendance at meetings and exercises; extent of structure protection assessments; target attendance for community emergency preparedness events.

6. FireSmart Training & Cross Training

Proposed Activities	Detailed Cost Estimate <u>and</u> Calculation	Proposed Outcomes	Performance Measures
Local FireSmart Representative (LFR) Training:	5 staff x 2 days x \$500 = \$5000	Increased capacity for community assessments and FireSmart community recognition. Train remaining Public Safety Staff not captured in 2020, plus Wildland Instructor group	Recognition by FireSmart BC CWPP Item #18,26,27,28 "...maintain Local FireSmart Representatives on staff...."
Support LFR training to qualify as facilitators:	Limited to co-facilitating three workshops		

Cross-train fire department members			
SPP-WFF1 Wildland Firefighter Level 1:			
S-100 Basic fire suppression and safety:			
S-185 Fire entrapment avoidance and safety:			
ICS-100 (volunteer only):			
Cross-train emergency management personnel			
ICS-100:			
Professional development to increase capacity for FireSmart activities: Note: this is limited to two staff per applicant for costs related to travel, accommodation and per diems only (wages are not eligible):	Max. funding is \$1,000 per attendee		
Other:			
FUNDING REQUEST SUBTOTAL	\$5000.00		

Example performance measures: estimated training frequency and attendance; list of professional development opportunities.

7. FireSmart Projects for Critical Infrastructure

To be eligible for funding, all FireSmart Projects must have a completed FireSmart assessment at the time of application submission. Refer to Category 2 (Planning) for information on applying for assessments.

Eligible projects must be First Nations owned buildings or publicly owned buildings that are currently designated as critical to support effective emergency response to a wildfire event. This includes structures designated as Emergency Operations Centres or Emergency Support

Services facilities (i.e. reception centres, group lodging locations for evacuees), water pump stations, communications towers, and electrical generating stations, but does not include all critical infrastructure identified through the Local Authority Emergency Plan.

Proposed Activities	Detailed Cost Estimate <u>and</u> Calculation	Proposed Outcomes	Performance Measures
Replacing building materials: Renovate and repurpose the Fire Safety House to a FireSmart Fire Safety House	Building materials = \$10,000 Labour = \$15,000 Total = \$25,000	Educational and community outreach prop. Our Fire Safety house can be repurposed with FireSmart siding, roof materials, WASP sprinklers, etc and brought to open houses and community events to demonstrate FireSmart assessments and results.	Increase community outreach and engagement with a visual and hands-on prop to demonstrate the value and effectiveness of a FireSmart house and property.
Undertaking vegetation management:			
Other:			
FUNDING REQUEST SUBTOTAL	\$25000.00 Max. funding is \$25,000		

Example performance measures: the extent to which the recommendations in the FireSmart assessment will be achieved; the degree to which the hazard level will be reduced for the structure.

8. FireSmart Activities for Residential Areas

To be eligible for funding, all FireSmart activities for residential areas must be located in FireSmart Noncombustible Zone and Priority Zones 1, 2 and 3. Refer to Appendix 2 in the Program & Application Guide for funding requirements for FireSmart rebate programs.

Proposed Activities	Detailed Cost Estimate <u>and</u> Calculation	Proposed Outcomes	Performance Measures
Planning for residential areas:			
FireSmart Home Ignition Zone Assessments:	Activities to be completed per structure: Number of structures to be assessed:		

	Cost per structure: Total activity cost: \$		
FireSmart Neighbourhood Plans:			
Neighbourhood Wildfire Risk Assessments:			
Offer local rebate programs:	Max. rebate is \$500 per property		
Provide off-site debris disposal:			
Other:			
FUNDING REQUEST SUBTOTAL	\$		

Example performance measures: target for completed number of assessments; number and location of target areas for planning activities; target number and value for approved rebates; estimated frequency of debris disposal activities and the number of residential property or home owners participating.

TOTAL FUNDING REQUEST FOR WORKSHEET 1	\$117,600		
--	-----------	--	--

Please ensure that the total funding request for FireSmart activities provided here matches the information provided in Question 6 on the Application Form.

THIS PAGE LEFT BLANK INTENTIONALLY

District of North Vancouver Community Wildfire Protection Plan Update



Submitted by:

B.A. Blackwell & Associates Ltd.
270 – 18 Gostick Place
North Vancouver, BC, V7M 3G3
Ph: 604-986-8346
Email: babblackwell@babblackwell.com

Submitted to:

Guy Exley
Community Forester,
Environmental Services
District of North Vancouver
355 West Queens Road
North Vancouver, BC V7N 4N5
Ph: 604 990 2350
Email: exleyg@dnv.org



ACKNOWLEDGEMENTS

The authors would like to thank the following District of North Vancouver staff: Guy Exley (Community Forester); Julie Pavey (Section Manager, Environmental Sustainability); Susan Rogers (Parks Manager); Communications staff Catherine Haboly (District Spokesperson) and Stephanie Smiley (Coordinator); Carolyn Drugge (Section Manager, Infrastructure Planning, Natural Hazards); Shaun Carroll (Manager, Utilities); Joanne Slazyk (Senior Project Engineer); Wayne Maskall (Section Manager Natural Parkland); Richard Boase (Environmental Protection Officer); and Brian Hutchinson (Fire Chief) and Haida Fortier (Assistant Chief) of District of North Vancouver Fire Rescue Services. The authors would also like to thank the following members of North Shore Emergency Management: Fiona Dercole (Director) and John Chapman (Emergency Planning Officer). These individuals invested substantial time in meetings, answering questions, and reviewing, and commenting on the contents of this document.

In addition, the authors would like to thank staff from the BC Wildfire Service, including: Tony Botica (Wildfire Prevention Officer), Jessica Duncan (Prevention Specialist) and Orin Caddy (Forest Protection Technician); staff from Metro Vancouver Watershed Environmental Management, Mike Neale (Watershed Protection Officer), as well as BC Parks (Sea to Sky). The input provided by Greg Riley of BC Hydro (Distribution) is also appreciated.

The authors extend their appreciation to the Squamish, Tsleil-Waututh, and Musqueam First Nations.

This report would not be possible without the Strategic Wildfire Prevention Initiative (SWPI) Program and funding from the Union of British Columbia Municipalities (UBCM).

REGISTERED PROFESSIONAL SIGN AND SEAL

EXECUTIVE SUMMARY/ SUMMARY OF CWPP RECOMMENDATIONS

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 Strategic Wildfire Prevention Working Group, CWPPs aim to develop strategic recommendations to assist in improving safety and to reduce the risk of damage to property from wildfires.

This CWPP Update will provide the District of North Vancouver (DNV) with a framework that can be used to review and assess areas of identified moderate and high fire risk within the DNV. Additionally, the information contained in this report should help to guide the development of emergency plans, emergency response, evacuation plans, communication and education programs (including FireSmart), bylaw development in areas of fire risk, and the management of potentially hazardous forest lands adjacent to the community.

Since the development of the last CWPP in 2007, the District of North Vancouver has implemented all the recommendations from the CWPP, with the exception of one (Recommendation 25). The most notable actions include implementation of the following¹:

- Establishment of a Wildfire Development Permit Area, that requires new buildings to comply with FireSmart, National Fire Protection Association (NFPA), and District-developed standards for non-flammable building envelope materials (Recommendations 10 and 11);
- Prescription development for approximately 72.4 ha and fuel treatment on approximately 57 ha of land surrounding the community (Recommendations 27-29);
- Provision of specialized training to local fire department and DNV staff for Interface Fire Response (Recommendation 26); and
- Development of a forest health strategy to address issues associated with dwarf mistletoe infected western hemlock (Recommendation 32).

Wildfire management requires a multi-faceted approach for greatest efficacy and risk reduction outcomes. A total of 52 strategic recommendations are summarized in Table 1 below. In addition, these recommendations are included and more thoroughly discussed in their appropriate sections within the document. Ultimately, the recommendations within this plan should be considered a toolbox of options to help reduce the wildfire threat to the community. There is not one course of action or combination of actions that provides the answer to the challenge of wildfire risk in communities; the DNV must further prioritize based on resources, strengths, constraints, and availability of funding, regularly updating priorities and its course of action, as variables and circumstances change through time.

¹ A full enumeration of recommendations from the 2007 CWPP can be found in Appendix L – Summary of 2007 Community Wildfire Protection Plan Recommendations.

Table 1. Summary of CWPP Recommendations by Document Section.

Document Section 2: Local Area Description (2.5.3: Local Government/First Nations Policies and Recommendations)				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
Objective: Review and amend the current District of North Vancouver regulatory framework to incorporate wildfire mitigation and preparedness considerations.				
1	10	Moderate	Review the Official Community Plan (OCP), Section 4.2 – Parkland Standards and Acquisition and associated documents (e.g., Parks and Open Space Strategic Plan, 2012) and consider strategic parkland acquisition and parks maintenance through a wildfire risk lens, including consideration for long-term maintenance costs and access.	Eligible for UBCM Community Resiliency Investment (CRI) Program Funding ²
2	12	High	Review the OCP Schedule B Bylaw 7671 and Wildfire Hazard DPA Guidelines section to include language regarding management of non-compliant hedging and other vegetation in proximity to homes after the post-development inspection has been signed-off by a Qualified Professional (QP). ³	Local government funding/UBCM CRI Program Funding
3	12	High	Review the OCP Schedule B Bylaw 7671 and Wildfire Hazard DPA Guidelines section and set a procedure for establishing and updating fire testing standards to ensure alternative and novel non-flammable exterior building materials are pre-approved in a timely manner for use in the WUI. ³	Local government funding/UBCM CRI Program Funding
4	13	High	Review and update the fire testing standards and materials section of the Wildfire Hazard DPA Guidelines to identify and define a list of approved building materials and review and update the approved materials list on a bi-annual basis or as new proposals come forward from builders. These materials should be reviewed by a recognized expert in the building material field, with consideration for recent and applicable research findings prior to granting approval for use in the WUI. ³	Local government funding

² UBCM Community Resiliency Investment (CRI) Program. Refer to Section 5.1 and the Union of BC Municipality's website (<https://www.ubcm.ca/EN/main/funding/lgps/community-resiliency-investment.html>) for further information.

³ Additional recommendations (15-17) related to the Wildfire Hazard DPA are provided in Section 5.2.2).

Document Section 2: Local Area Description (2.5.3: Local Government/First Nations Policies and Recommendations)				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
5	14	Moderate	Review the Solid Waste Removal Bylaw 7631 to include language specific to green waste, not just garbage, under the prohibitions section to ensure that there is a legally enforceable bylaw to prevent flammable materials to accumulate, collect or to remain on the property unless securely contained.	Local government funding
6	15	Moderate	Create incentives and/or targeted education and outreach to promote FireSmart renovations of exterior elements of existing buildings within the Wildfire Hazard DPA, recognizing that the Wildfire Hazard DPA and the Construction Bylaw pertain only to new construction and do not address the vulnerability of existing older homes. See recommendation 19 for strategy suggestion and funding opportunities.	Local government funding
7	17	Low	Update the DNV Invasive Plant Management Strategy, 2015 to target monitoring and resources to areas with known invasive species occurrences in the wildland urban interface, where new forests are being established or where stand conversion has occurred. Continue addressing invasive species management during fuel treatment implementation in the DNV wildland urban interface, in order to improve forest resilience and promote ecological restoration of degraded sites.	Local government funding
Document Section 3: Values at Risk				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
Objective: Protect critical infrastructure and mitigate post wildfire impacts				
8	22	Low	The North Shore Emergency Management (NSEM) in collaboration with the three North Shore communities should lobby the Provincial government or local Medical Health Officer(s) to develop a strategy for communities to draw upon when they are exposed to smoke from wildfire for extended periods of time. This strategy may include smoke exposure risk assessments, exposure reduction measures, and a decision-key for when to evacuate a community due to wildfire smoke.	Local government funding/ North Shore Emergency Management Funding

Document Section 3: Values at Risk				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
9	23	Moderate	The use of fire-resistant construction materials, building design and landscaping should be considered for all critical infrastructure within the District boundaries when completing upgrades or establishing new infrastructure. Additionally, vegetation setbacks around critical infrastructure should be compliant with FireSmart guidelines.	Local government funding
10	23	High	It is recommended that formal FireSmart assessments (by a Qualified Professional) be completed of critical infrastructure such as the fire halls, emergency operations centre, water infrastructure, and others as identified in this CWPP (Table 3) and by the District.	Local government funding (Local FireSmart Representatives)
11	23	Moderate	The District should work with Metro Vancouver to develop a back-up water delivery plan, to be enacted in the event of an emergency. Annual testing of this plan is recommended.	Local government funding
Document Section 5: Risk Management and Mitigation Factors Recommendations				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
Objective: Reduce Wildfire Threat through Fuel Management				
12	62	High	Proceed with detailed assessment, prescription development, and treatment of hazardous units identified and prioritized in this CWPP.	UBCM CRI Program Funding/Local Government Funding
13	70	Moderate	Treatment monitoring to be completed by a qualified professional to schedule next set of maintenance activities (5 – 10 years out). This can be completed with a CWPP update, as it was for this document, or as a stand-alone exercise.	UBCM CRI Program Funding/Local Government Funding
Document Section 5: Risk Management and Mitigation Factors Recommendations				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
Objective: Reduce Wildfire Hazard on Private Land				
14	78	Low	The DNV should consider applying for a FireSmart demonstration grant through the CRI program. This type of fuel treatment can display the practices and principles of FireSmart activities to the public in the form of demonstration treatments.	UBCM CRI Program Funding/Local Government Funding
15	79	High	Review the DP process to assess the outcomes of DP applications and long-term compliance with DP recommendations on an ongoing basis to facilitate improvements to the process.	Local Government Funding (annual/bi-annual basis)

Document Section 5: Risk Management and Mitigation Factors Recommendations				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
16	79	Moderate	Develop a landscaping standard which lists flammable non-compliant vegetation and landscaping materials, non-flammable drought and pest resistant alternatives, and tips on landscape design to reduce maintenance, watering requirements, avoid wildlife attractants, and reduce wildfire hazard. Consider making it publicly available for residents and homeowners outside of the DP area (can be provided at issue of building permit and made available at the DNV Office or other strategic locations).	Local Government Funding
17	79	Low	Engage the development/building community (may include developers, builders, landscapers, and architects) in any amendments to the DP process. This can be accomplished through workshops/informational sessions and/or information packages to increase awareness of wildfire risk and to educate and inform regarding the DP process and expectations. This initiative should be a collaborative effort between the three North Shore communities to ensure similar standards apply across the North Shore area.	Local Government Funding
18	81	Moderate	Continue to maintain trained Local FireSmart Representatives (LFRs) on staff to assist and engage various neighbourhoods in complying with FireSmart principles at both the neighbourhood and individual home-level.	Local Government Funding
Document Section 5: Risk Management and Mitigation Factors Recommendations				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
19	83	High	The DNV should apply for funding from the UBCM CRI Program to develop a local FireSmart rebate program. This will allow homeowners to access partial rebates for FireSmart activities on their properties, if rated as high or extreme risk in a FireSmart home and property assessment. The rebate program is described in detail in Appendix 2 of the CRI Program 2020 FireSmart Community Funding and Supports – Program & Application Guide ⁴ and must adhere to the goals of FireSmart, as outlined in Section 5.2.1.	Local Government Funding

⁴ UBCM, 2019. Retrieved online at: <https://www.ubcm.ca/assets/Funding~Programs/LGPS/CRI/cr-2020-program-guide.pdf>

Document Section 5: Risk Management and Mitigation Factors Recommendations				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
Objective: Increase Public Wildfire Awareness				
20	84	High	This report and associated maps should be made publicly available through webpage, social media, and public FireSmart meetings.	Local Government Funding
21	84	Moderate	Complete or schedule periodic updates of the CWPP to gauge progress and update the threat assessment (hazard mapping) for changes in fuels, forest health, land planning, stand structure or changes to infrastructure in the interface. The frequency of updates is highly dependent upon major changes which would impact the DNV's wildfire threat assessment or the rate at which wildfire risk reduction efforts are implemented. An evaluation of major changes (including funding program changes that may lead to new opportunities) and the potential need for a CWPP update should be initiated every 5 - 7 years.	UBCM CRI Program funding (two eligibility tiers: \$25,000 or \$150,000; eligibility is based on local wildfire risk rating)/ local government funding to supplement
22	85	Moderate	Develop a social media strategy and ensure that its full power is leveraged to communicate fire bans, high or extreme Fire Danger days, wildfire prevention initiatives and programs, easily implementable FireSmart activities, updates on current fires and associated air quality, road closures, and other real-time information in an accurate and timely manner. It is recommended that communications are coordinated via weekly fire calls. ⁵ This may be combined with incentive programs such as neighbourhood or community chipping days (see recommendation #51).	Local Government Funding
23	85	High	Promote FireSmart approaches for wildfire risk reduction to DNV residents through Town Hall meetings, workshops and/or presentations. Workshops should target priority neighbourhoods, and a FireSmart display set should be developed than can be transferred between community centres and libraries. Aim to conduct the engagement/promotion campaign prior and during the fire season. Continue supplying FireSmart materials to homeowners in the interface during these engagement campaigns. This initiative can be part of a North Shore-wide effort.	UBCM CRI Program Funding/Local Government Funding

⁵ Appendix K has general communication and social media information.

Document Section 5: Risk Management and Mitigation Factors Recommendations				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
24	85	Moderate	Engage in regular education initiatives targeting residential properties within the Wildfire Hazard DPA, including but not limited to door-to-door distribution of FireSmart door hangers.	UBCM CRI Program Funding/Local Government Funding
25	85	High	Use the planned Maplewood Fire and Rescue Centre (within the Wildfire Hazard DPA) to demonstrate the use of flame proof/fire resistant building materials and FireSmart landscaping with interpretive low flammable landscaping and environmental enhancement areas open to the public. Interpretive/education materials may be provided onsite and/or on the District website.	Local Government Funding
26	85	Moderate	Work towards FireSmart community recognition, at the neighbourhood level and facilitate uptake into the FireSmart Canada Community Recognition Program (FSCCRP). This will help reduce fire risk and aid in further funding applications.	FireSmart Grant
27	85	Moderate	Facilitate the FSCCRP uptake within the DNV and enhance its applications by including the following: 1) inviting BCWS crews to participate in and support the annual FireSmart events set up by participating neighbourhoods. 2) Encourage individual homeowner participants to complete the self-administered FireSmart home assessment tool. 3) Include within the FireSmart Canada Community Assessment Report the standard recommendation that participating neighbourhoods hold a home hazard assessment workshop as one of their FireSmart events.	UBCM CRI Program Funding/Local Government Funding
28	86	Low	Promote the use of the FireSmart Home Partners Program offered by the Partners in Protection Association, which facilitates voluntary FireSmart assessments on private property. Use the opportunity to educate the home or business owner about the hazards which exist on their property and provide easy improvements to reduce their risk.	Local Government Funding

Document Section 5: Risk Management and Mitigation Factors Recommendations				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
29	86	Low	Encourage schools to adopt and deploy existing school education programs to engage youth in wildfire management and risk reduction. There is emergency preparedness curriculum available provincially, which includes preparedness for a variety of natural hazards, including wildfire (Master of Disaster). Other options/value-added activities include consulting with Association of BC Forest Professionals (ABCFP) and British Columbia Wildfire Service (BCWS) (Fraser Fire Zone), as well as local fire department and FireSmart representatives to facilitate and recruit volunteer teachers and experts to help with curriculum development to be delivered in elementary and secondary schools (field trips, guest speakers, etc.).	Local Government Funding
30	86	High	The North Shore Emergency Management should coordinate and facilitate engagement with all key stakeholders (BCWS, BC Parks, recreational groups/representatives, DNV staff, industrial operators, City of North Vancouver, District of West Vancouver representatives, Metro Vancouver staff, and local First Nations) to formalize an Interface Steering Committee. The purpose of the steering committee would be to identify wildfire related issues in the area and to develop collaborative solutions to minimize wildfire risks.	Local Government Funding
31	86	Moderate	Work towards educating homeowners within fire limits areas (i.e., outside of the road accessible fire service area). This is particularly applicable to boat access only residents. It is common, especially in the case of second homeowners/vacation owners, for them to be unaware of the lack of fire services in their area (in the event they call 911).	Local Government Funding

Document Section 5: Risk Management and Mitigation Factors Recommendations				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
32	86	High	Given the historically high proportion of preventable human-caused fire ignitions (see Section 2.3) and the high public and recreational usage of parks, trails and green spaces in the District and the backcountry beyond, the DNV should develop public education focused on increasing awareness of open burning restrictions and/or good wildfire prevention practices. This could include information on how ignitions can occur (including the range of human-related activities that can create a spark or heat source sufficient to ignite a wildfire), how easily they can occur and how they can be prevented. Public information or signage could be posted at busy parks and trailheads and/or posted on the District's website in the form of seasonal notices (similar to summer parking and access notices posted for popular destinations).	Local Government Funding
Objective: Reduce Wildfire Risk from Industrial Sources				
33	87	Moderate	Work with industrial operators such as BC Hydro and Fortis BC to ensure that high risk activities, such as grubbing/brushing and right-of-way mowing work do not occur during high fire danger times to reduce chance of ignitions as per the <i>Wildfire Act</i> . It is recommended that communications are coordinated via weekly fire calls.	Local Government Funding
34	87	High	Work with industrial operators (i.e., BC Hydro) to ensure that rights-of-way do not contain fine fuel accumulations (< 7.5 cm, easily cured) and significant regeneration of conifer vegetation prior to and during the fire season and are maintained in a low hazard state (to serve as fuel breaks).	Local Government Funding
Document Section 6: Wildfire Response Resources Recommendations				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
Objective: Improve Water Availability for Emergency Response				
35	91	Moderate	Conduct an assessment of diesel supply for backup generators (scenario-based - e.g. assuming bridges are blocked/inaccessible). This recommendation relates to Required Action 2.2. in the DNV's Climate Change Strategy: invest in backup power equipment for critical functions and develop a fueling strategy.	Local Government Funding

Document Section 6: Wildfire Response Resources Recommendations				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
36	91	High	Consider purchasing a tender or tank to provide additional on-site water storage for fire suppression use in the Woodlands area and the Baden Powell trail.	Local Government Funding
37	91	Moderate	Consider installing an alarm system to warn of de-pressurization of water lines. This recommendation relates to Required Action 1.2. in the DNV's Climate Change Strategy (Develop and implement additional technological tools to assist in situational awareness and emergency response communication).	Local Government Funding
38	92	High	Consider a variety of approaches to improve District water availability and ensure domestic water needs are not compromised in an emergency event that requires sustained use of large quantities of water (i.e., from concurrent structural and wildland firefighting events).	Local Government Funding
39	92	High	All new development outside existing District water systems should have a water system which meets or exceeds minimum standards of NFPA 1142, <i>Standard on Water Supplies for Suburban and Rural Fire Fighting</i> . The fire department should review the water supply to ensure it provides sufficient placement, flow, and reliability for suppression needs and that secondary power is available in the event of power outages.	Local Government Funding
Objective: Improve Access/Egress to Enhance Emergency Preparedness and Include Wildfire Considerations when Trail Planning				
40	93	Low	Restrict public access into work zones in the event of wildfire suppression activities in the Mt. Seymour Parkway/Seymour area to ensure public safety and reduce the risk of entrapment ⁶ .	Local Government Funding
41	94	Moderate	Devise trails or corridors with a minimum 3-4 m width, that are suitable for ATV use in remote or limited access areas (i.e., surrounding the Deep Cove and Seymour areas) in the event of an emergency.	Local Government Funding
42	94	Moderate	Acquire an ATV or off-road vehicle (i.e., Polaris side by side) and equip with fire suppression equipment. This vehicle can be used for rapid access in remote or limited access areas within the District boundaries.	Local Government Funding

⁶ Fire entrapment is a life-threatening situation that occurs when individuals are threatened by a sudden change in fire conditions and are unable to utilize escape routes to access safety zones.

Document Section 6: Wildfire Response Resources Recommendations				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
43	94	Moderate	Develop an evacuation strategy for the area served by Indian River Drive.	Local Government Funding
44	94	Moderate	Complete and participate in regular testing of, and updates to, the evacuation plan.	Local Government Funding
45	94	Moderate	Develop a community wildfire pre-planning brochure to be shared with key DNV, Metro Vancouver and NSEM staff, that addresses the following: 1) locations of staging areas; 2) identifies water reservoirs, communications requirements (i.e., radio frequencies), minimum resource requirements for structure protection in the event of an interface fire, and values at risk; and 3) maps of the area of interest. Collaborate with the District of West Vancouver to ensure similar information is provided.	Local Government Funding
46	95	Low	Develop a Total Access Plan for the DNV to map and inventory trail and road network in natural areas for suppression planning, identify areas with insufficient access and to aid in strategic planning. Georeferenced maps with ground-truthed locations of potential optimal firebreaks should be developed as part of the Total Access Plan and shared with fire suppression personnel and BCWS to support emergency response in the event of a wildfire. The plan should be updated every five years, or more regularly, as needed to incorporate additions and/or changes.	Local Government Funding
47	95	Moderate	Include a qualified professional with experience in operational wildland/interface fire suppression in the planning and strategic siting of future trails and parks.	Local Government Funding
Objective: Enhance Wildfire Equipment and Training				
48	96	High	The DNVFRS should continue working with BCWS to maintain an annual structural and interface training program. It is recommended the DNVFRS engage in yearly practical wildland fire training with BCWS that covers at a minimum: pump, hose, hydrant, air tanker awareness, and employment of SPUs. Interface training should include completion of a joint wildfire simulation exercise and safety training specific to wildland fire and risks inherent with natural areas.	UBCM CRI Program Funding/Local Government Funding

Document Section 6: Wildfire Response Resources Recommendations				
Item	Page No.	Priority	Recommendation/Next Steps	Funding Source
Objective: Enhance Wildfire Equipment and Training				
49	96	High	Ensure that the DNVFRS maintains the capability to effectively suppress wildland fires, through wildfire-specific training sessions. Ensure all DNVFRS members continue to have SPP-WFF 1 at a minimum. Consider expanding the training program to maintain a high level of member education and training specific to interface and wildland fires. The Office of the Fire Commissioner (OFC) also offers SPP-115 (formerly S-115) to train structural firefighters on the use of wildfire pumps and hose, and fire service hose and hydrants in the application of structural protection units (SPUs); consider training all members to this standard.; the DNVFRS should continue the practice of staying up to date on wildfire training opportunities, and to train members in this capacity, as training resources/budgets allow.	UBCM CRI Program Funding/Local Government Funding
Objective: Encourage FireSmart Initiatives				
50	98	Low	Work with local distributors and homeowners within the District. The objective is to improve education of homeowners and remove some barriers to FireSmart action. Local distributors can include: hardware stores, garden centers, and aggregate providers	Local Government Funding
51	98	Moderate	Expand on existing programs which serve to remove barriers to action for homeowners by providing methods for them to cheaply and easily dispose of wood waste removed from their property. The current yard trimmings bin collection and North Shore Transfer Station for-fee tipping may be expanded to include scheduled community chipping opportunities, or yard waste dumpsters available by month in neighbourhoods. Programs should be available during times of greatest resident activity (likely spring and fall). Consider making community chipping programs available to interested strata properties.	UBCM CRI Program Funding/Local Government Funding
Objective: Enhance Protection of Municipal Infrastructure from Wildfire				
52	98	Moderate	Complete a vulnerability assessment of all critical infrastructure, secondary power sources, and fuel availability. Review current capability of secondary power sources, identify vulnerabilities, and prioritize needs, in the case of prolonged or extensive power outages. Upgrade or realign resources, as prioritized.	Local Government Funding

TABLE OF CONTENTS

Acknowledgements.....	i
Registered Professional Sign and Seal	ii
Executive Summary/ Summary of CWPP Recommendations.....	iii
Commonly Used Acronyms.....	xix
SECTION 1: Introduction	1
1.1 Purpose	1
1.2 CWPP Planning Process.....	2
1.2.1 Consultation	2
1.2.2 Identification of Values at Risk and Local Wildfire Threat Assessment	3
1.2.3 Development of a Risk Management Strategy	4
1.2.4 Building Community Engagement and Education Strategy	4
SECTION 2: Local Area Description	4
2.1 Area of Interest	4
2.2 Community Description	6
2.3 Past Wildfires, Evacuations and Impacts	8
2.4 Current Community Engagement	8
2.5 Linkages to Other Plans and Policies.....	9
2.5.1 Local Authority Emergency Plan	9
2.5.2 Affiliated CWPPs	9
2.5.3 Local Government/First Nation Policies and Recommendations	10
2.5.4 Higher Level Plans and Relevant Legislation	15
2.5.5 Ministry or Industry Plans	18
SECTION 3: Values At Risk.....	19
3.1 Human Life and Safety	20
3.2 Critical Infrastructure	22
3.2.1 Electrical Power.....	23
3.2.2 Communications, Pipelines and Municipal Buildings	23
3.2.3 Water and Sewage	25
3.3 High Environmental and Cultural Values	27
3.3.1 Drinking Water Supply Area and Community Watersheds.....	27
3.3.2 Cultural and Recreational Values	28
3.3.3 High Environmental Values	29
3.4 Other Resource Values.....	30
3.5 Hazardous Values.....	30
SECTION 4: Wildfire Threat and Risk.....	30

4.1	Fire Regime, Fire Danger Days and Climate Change	31
4.1.1	Fire Regime	31
4.1.2	Fire Weather Rating	36
4.1.3	Climate Change	37
4.2	Provincial Strategic Threat Analysis	41
4.2.1	PSTA Final Wildfire Threat Rating	43
4.2.2	Spotting Impact	44
4.2.3	Head Fire Intensity	46
4.2.4	Fire History	48
4.3	Local Wildfire Threat Assessment	49
4.3.1	Fuel Type Verification	49
4.3.2	Proximity of Fuel to the Community	53
4.3.3	Fire Spread Patterns	53
4.3.4	Topography	54
4.3.5	Local Wildfire Threat Classification	55
SECTION 5:	Risk Management and Mitigation Factors	57
5.1	Fuel Management	58
5.1.1	Proposed Treatment Units	60
5.1.2	Maintenance of Previously Treated Areas	69
5.2	FireSmart Planning and Activities	74
5.2.1	FireSmart Goals and Objectives	74
5.2.2	Key Aspects of FireSmart for Local Governments	77
5.2.3	Priority Areas within the AOI for FireSmart	82
5.3	Communication and Education	83
5.4	Other Prevention Measures	87
SECTION 6:	Wildfire Response Resources	87
6.1	Local Government and First Nation Firefighting Resources	88
6.1.1	Fire Department and Equipment	88
6.1.2	Water Availability for Wildfire Suppression	89
6.1.3	Access and Evacuation	92
6.1.4	Training	95
6.2	Structure Protection	96
References	99
Appendix A – Wildfire Threat Assessment – FBP Fuel Type Change Rationale		102
Appendix B – Wildfire Threat Assessment Worksheets and Photos		103
Appendix C – Maps		104
Appendix D – Wildland Urban Interface Defined		105

Appendix E – WUI Threat Plot Locations	107
Appendix F – Fuel Typing Methodology and Limitations.....	110
Appendix G – WUI Threat Assessment Methodology.....	111
Appendix H – Principles of Fuel Management.....	115
Appendix I – FireSmart Fuel Treatments	120
Appendix J – FireSmart Construction and Landscaping.....	121
Appendix K – Communication and Education.....	124
Appendix L – Summary of 2007 Community Wildfire Protection Plan Recommendations	125

List of Tables

Table 1. Summary of CWPP Recommendations by Document Section.....	iv
Table 2. Summary of AOI by land ownership.....	5
Table 3. Critical Infrastructure Identified in 2018 field visits.....	24
Table 4. Critical Infrastructure Identified in 2018 CWPP field visits (water and sewage infrastructure)...	26
Table 5. Publicly available occurrences of Red and Blue-listed species recorded within the AOI.....	29
Table 6. Hazardous Infrastructure Identified in CWPP field visits.	30
Table 7. BEC zones and natural disturbance types found within the AOI.	32
Table 8. Overall PSTA Wildfire Threat Analysis for the AOI (rounded to the nearest hectare).....	43
Table 9. Head Fire Intensity Classes and Associated Fire Behaviour.	47
Table 10. Fuel Type Categories and Crown Fire Spot Potential. Only summaries of fuel types encountered within the AOI are provided (as such, other fuel types, i.e., C-1, C-2, C-4, C-6, C-7 and S-1/2/3 are not summarized below).	51
Table 11. Proximity to the Interface.	53
Table 12. Slope Percentage and Fire Behaviour Implications.....	55
Table 13. Slope Position of Value and Fire Behaviour Implications.....	55
Table 14. Fire behaviour threat summary for the AOI.....	56
Table 15. Proposed Treatment Area Summary Table.....	63
Table 16. Maintenance schedule for previously treated polygons within the study area. Priority 1 = high, 2 = moderate, 3 = low, 4 = no maintenance activities anticipated for the next five years.	71
Table 17. Summary of FireSmart Priority Areas.....	82
Table 18. Fire department capacity and equipment within the AOI.	89
Table 19. Summary of WUI Threat Assessment Worksheets.	107
Table 20. Description of variables used in spatial analysis for WUI wildfire threat assessment.....	112

List of Maps

Map 1. Area of Interest (AOI).....	6
Map 2. Values at Risk within the AOI.....	20
Map 3. Biogeoclimatic Zones within the AOI.....	33

Map 4. Fire Regime, Ecology and Climate Change.....	40
Map 5. Historical Fire Density.....	42
Map 6. Provincial Strategic Threat Rating.....	44
Map 7. Spotting Impact within the AOI.....	46
Map 8. Head Fire Intensity within the AOI.....	48
Map 9. Updated Fuel Type.....	52
Map 10. Local Fire Behaviour Threat Rating and WUI Threat Rating.....	57
Map 11. Proposed and Past Fuel Treatments.....	69

List of Figures

Figure 1. Average number of danger class days for the Capilano weather station. Summary of fire weather data for the years 2002 - 2018.....	37
Figure 2. Wind rose for Capilano weather station based on hourly wind speed data during the fire season (April 1 – October 31) 2002-2018. Data courtesy of GVRD. The length of each bar represents the frequency of readings in percent and bar colour indicates the windspeed range.	54
Figure 3. Diagram of the various, coordinated levels of the FireSmart program. CWPP: Community Wildfire Protection Plan, FSCCRP: FireSmart Canada Community Recognition Program, HIZ: Home Ignition Zone.	75
Figure 4. Wildland/urban interface disaster sequence. It is possible to break up the disaster sequence by decreasing the number of highly ignitable homes exposed to embers, therefore reducing the number of homes ignited and removing the consequences of multiple structures lost.	77
Figure 5. Illustration of intermix and interface situations.	105
Figure 6. Firebrand caused ignitions: burning embers are carried ahead of the fire front and alight on vulnerable building surfaces.	106
Figure 7. Radiant heat and flame contact allows fire to spread from vegetation to structure or from structure to structure.	106
Figure 8. 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.	117
Figure 9. 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.	117
Figure 10. Comparison of stand level differences in density and mortality, and the distribution of live and dead fuels in these types of stands.....	118
Figure 11. Illustration of the principles of thinning to reduce the stand level wildfire hazard.	119
Figure 12. Illustration of FireSmart zones.....	120

COMMONLY USED ACRONYMS

BCWS	British Columbia Wildfire Service
BEC	Biogeoclimatic Ecosystem Classification
BMP	Best Management Practices
CDC	B.C. Conservation Data Centre
CFFDRS	Canadian Forest Fire Danger Rating System
CRI	Community Resiliency Investment Program
CWPP	Community Wildfire Protection Plan
DNV	District of North Vancouver
DNVFRS	District of North Vancouver Fire and Rescue Services
DP	Development Permit
DPA	Development Permit Area
FBP	Fire Behaviour Prediction System
FESBC	Forest Enhancement Society of British Columbia
FMP	Fire Management Plan
FSCCRP	FireSmart Canada Community Recognition Program
HIZ	Home Ignition Zone
MVRD	Metro Vancouver Regional District
MFLNRORD	Ministry of Forests, Lands, Natural Resource Operations, and Rural Development
NRD	Natural Resource District
NFPA	National Fire Protection Association
NSEMO	North Shore Emergency Management Office
NSEOC	North Shore Emergency Operations Centre
NSR	North Shore Rescue
OCP	Official Community Plan
OFC	Office of the Fire Commissioner
POSSP	Parks and Open Space Strategic Plan
PSTA	Provincial Strategic Threat Analysis
PTU	Proposed Treatment Unit
QP	Qualified Professional
SPU	Structural Protection Unit
SWPI	Strategic Wildfire Prevention Initiative
TSA	Timber Supply Area
UBCM	Union of British Columbian Municipalities
WUI	Wildland Urban Interface

SECTION 1: INTRODUCTION

The District of North Vancouver (DNV) staff have recognized wildfire mitigation and planning to be a foundational component of emergency planning and preparedness. In 2017, B.A. Blackwell and Associates Ltd. was retained to assist the DNV in developing an update to the previous 2007 Community Wildfire Protection Plan which was titled *District of North Vancouver Community Wildfire Protection Plan*, hereinafter referred to as the 2007 CWPP. This CWPP Update document revisits the 2007 CWPP with a focus on integrating the updated Provincial Strategic Threat Analysis (PSTA), BC Wildfire Service (BCWS) fuel type mapping, and the updated and improved wildfire threat analysis methodology. Furthermore, DNV staff recognized that there have been significant changes since 2007 which have had a direct impact on wildfire mitigation activities and programs. The aforementioned changes include: significant growth and development in the last decade; implementation of bylaws regarding building regulation, parks and green spaces and development services; and changes in fuels surrounding the community.

Although forest fires are both inevitable and essential to the health of forested ecosystems, the 2003, 2004, 2009, 2010, 2015, 2017 and 2018 wildfire seasons resulted in significant economic, social and environmental losses in BC. The 2018 fire season impacted various regions of the province, leading to 66 evacuation orders and approximately 1,355,000 hectares burned, surpassing the 2017 fire season.⁷ The final suppression costs for the 2018 fire season are estimated at over \$615 million.⁷ Other recent wildfire disasters—like those experienced in Slave Lake, Alberta (2011), Washington State (2014 and 2015), Fort McMurray, Alberta (2016) and BC and California (2017-2018) demonstrate the vulnerability of communities and the potential toll of wildfires on families, neighbourhoods and the economy of entire regions. These events, along with critical lessons learned and important advances in knowledge and loss prevention programs, have spurred the need for greater consideration and due diligence with respect to fire risk in the wildland urban interface⁸ (WUI).

1.1 PURPOSE

The purpose of this CWPP Update is to identify and update the wildfire risks within and surrounding the DNV, to describe the potential consequences of a wildfire impacting the area, and to examine options and strategies to reduce wildfire risk to the community. This CWPP Update provides a reassessment of the level of risk with respect to changes in the area that have occurred recently, giving the DNV a more current and accurate understanding of the threats to human life, property and critical infrastructure faced by the community from wildfires. The goal of this CWPP, in addition to defining the threats, is to identify measures necessary to mitigate these threats and outline a plan of action for implementing these measures. Specifically, this CWPP Update is intended to serve as a framework to inform the

⁷ BC Wildfire Service. Wildfire Season Summary. Available online at: <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/about-bcws/wildfire-history/wildfire-season-summary>

⁸ Wildland/urban interface is defined as the presence of structures in locations in which conditions result in the potential for their ignition from flames and firebrands/embers of a wildland fire (National Fire Protection Association). See Appendix D for a more detailed discussion.

implementation of specific actions and strategies that will serve to: 1) reduce the likelihood of wildfire entering the community, 2) reduce the impacts and losses to property and critical infrastructure if a wildfire were to occur, and 3) reduce the negative economic and social impacts of wildfire to the community.

1.2 CWPP PLANNING PROCESS

This CWPP Update is a review and synthesis of the background information and current data related to the area of interest (AOI) which represents the DNV municipal boundary. The CWPP process consists of four general phases:

- 1) **Consultation involving key local government representatives, structural and wildfire specialists, and stakeholders.** Consultation and information sharing occurred at various stages of the CWPP development and ensured linkages with relevant existing land use plans, legislation, and policy currently in place.
- 2) **Identification of the values at risk and assessment of the local wildfire threat.** Wildfire threat assessment takes into consideration natural fire regime and ecology, Provincial Strategic Threat Analysis (2017), ground truthing, fuel type verification, completion of WUI Threat Forms and GIS wildfire threat analyses.
- 3) **Developing a risk mitigation strategy.** This phase provides a guide for the DNV to implement mitigation and risk reduction activities. The risk mitigation strategy accounts for prioritization of fuel treatments, FireSmart activities, and wildfire response recommendations that will reduce wildfire risk locally.
- 4) **Building a community engagement and education strategy.** This phase includes presentation of the CWPP Update to the Board or Council, the formation of a Wildfire Working Group as well as comprehensive consultation with First Nations, government and non-governmental agencies. This CWPP Update provides recommendations for ongoing community education and engagement to support successful implementation of the CWPP.

1.2.1 Consultation

Broad engagement with local government, provincial government landowner representatives, stakeholders and First Nations played a key role in developing this CWPP update.

The first step in the consultation process was to assemble key players in the 'Wildfire Working Group'. This group comprised key internal DNV staff, including but not limited to the District of North Vancouver Fire and Rescue Services (DNVFRS), Environment, Infrastructure Planning, Natural Hazards, Parks, Communications, Utilities, Engineering and representatives from North Shore Emergency Management (NSEM). Non-DNV staff participating in the Wildfire Working Group also included a Distribution representative from BC Hydro. A total of three Wildfire Working Group meetings were held. The objectives of these meetings were to obtain information about wildfire risk mitigation initiatives currently in place or that had been completed, existing plans, policies, and current resources; to identify

areas of concern and DNV vulnerabilities; and, finally, to determine priorities and potential mitigation strategies. Members of the Wildfire Working Group were consulted on an ongoing basis throughout plan development and were integral in providing Plan review and approval.

BCWS representatives from the Coastal Fire Centre and Fraser Zone were consulted as follows: 1) at the onset of the project planning phase and 2) throughout the CWPP update development process, both via the submission of Fuel Type Change Rationales and questionnaire regarding concerns and priorities of BCWS with respect to wildfire and emergency planning in the DNV; and 3) to provide review and revision of draft document upon plan completion.

Information sharing took place with the following First Nations groups: Halalt, Kwikwetlem, Lake Cowichan, Lyackson, Shxw'ow'hamel, Skawahlook, Soowahlie, Squamish, Sto:lo, Stz'uminus, and Tsleil-Waututh Nations; the Cowichan and Penelakut tribes; and the Musqueam and Seabird Island Bands, as identified through the Consultative Areas Database, and in consultation with MFLNRORD and the DNV. The Nations, Bands and Tribes were consulted during the development of the CWPP with regards to locations of existing or potential cultural values at risk requiring protection consideration. Information sharing consisted of an initial phone call, and subsequent distribution of a referral letter and information package (i.e., maps, an explanation of the CWPP, and a CWPP draft document). The First Nations were provided the Plan for review and feedback.

Additional stakeholders were consulted to identify synergies, opportunities for collaboration, and ensure linkages with adjacent and overlapping planning. These stakeholders included Metro Vancouver, BC Parks, BC Hydro and the Canada Mortgage and Housing Corporation. Combined, these various consultation and engagement opportunities have generated a shared understanding of the CWPP objectives and expected outcomes among local government, stakeholders, residents, and land managers.

1.2.2 Identification of Values at Risk and Local Wildfire Threat Assessment

The risks associated with wildfire must be clearly identified and understood before a CWPP can define strategies or actions to mitigate risks. The identified values at risk are described in Section 3. Wildfire threat in the DNV was assessed through a combination of the following approaches:

- Natural fire regime and ecology (Section 4.1);
- Provincial Strategic Threat Analysis (Section 4.2); and
- Local wildfire threat analysis (Section 4.3).

The relationship between wildfire hazard, threat and risk can be demonstrated in the following example. If a fire (the hazard) ignites and spreads towards a community, the wildfire can become a threat to life and property, with an associated risk of loss, where:

$$\text{Wildfire risk} = \text{Probability} \times \text{Consequence}$$

and:

- Wildfire risk is defined as the potential losses incurred to human life, property and critical infrastructure within a community in the event of a wildfire;
- Probability is the likelihood of fire occurring in an area and is related to the susceptibility of an area to fire (e.g., fuel type, climate, probability of ignition); and
- Consequences refer to the repercussions associated with fire occurrence in a given area (i.e., higher consequences are associated with densely populated areas, or areas of high biodiversity, etc.).

1.2.3 Development of a Risk Management Strategy

An effective risk management strategy was developed considering a full range of activities relating to the following:

- Fuel management;
- FireSmart planning and activities;
- Community communication and education;
- Other prevention measures;
- Structure protection and planning (i.e., FireSmart activities);
- Emergency response and preparedness;
- Evacuation and access; and
- Planning and development.

1.2.4 Building Community Engagement and Education Strategy

Engaging the community from local government staff and officials, to key stakeholders and residents in wildfire protection planning activities is key to ensuring successful implementation. A community engagement and education strategy is described in Section 5.3.

A presentation to the DNV Board will aim to ensure high level approval and support for this CWPP.

SECTION 2: LOCAL AREA DESCRIPTION

This section defines the Area of Interest (AOI) and describes the community of North Vancouver within the AOI. It also summarizes the current community engagement in wildfire prevention and mitigation and identifies linkages to other plans and policies with relevance to wildfire planning.

2.1 AREA OF INTEREST

The District of North Vancouver, situated on the north shore of the Burrard Inlet at the foothills of the Coastal Mountain Range, stretches from Indian Arm in the east to the Capilano River Canyon in the west. The District has a total land area of 160.76 square km (2016 Census). Within its boundaries there is a mix of residential, commercial, heavy industrial, and waterfront properties as well as a large area of wildland including three river canyons (Capilano River, Lynn Creek and Seymour River). Parkland makes

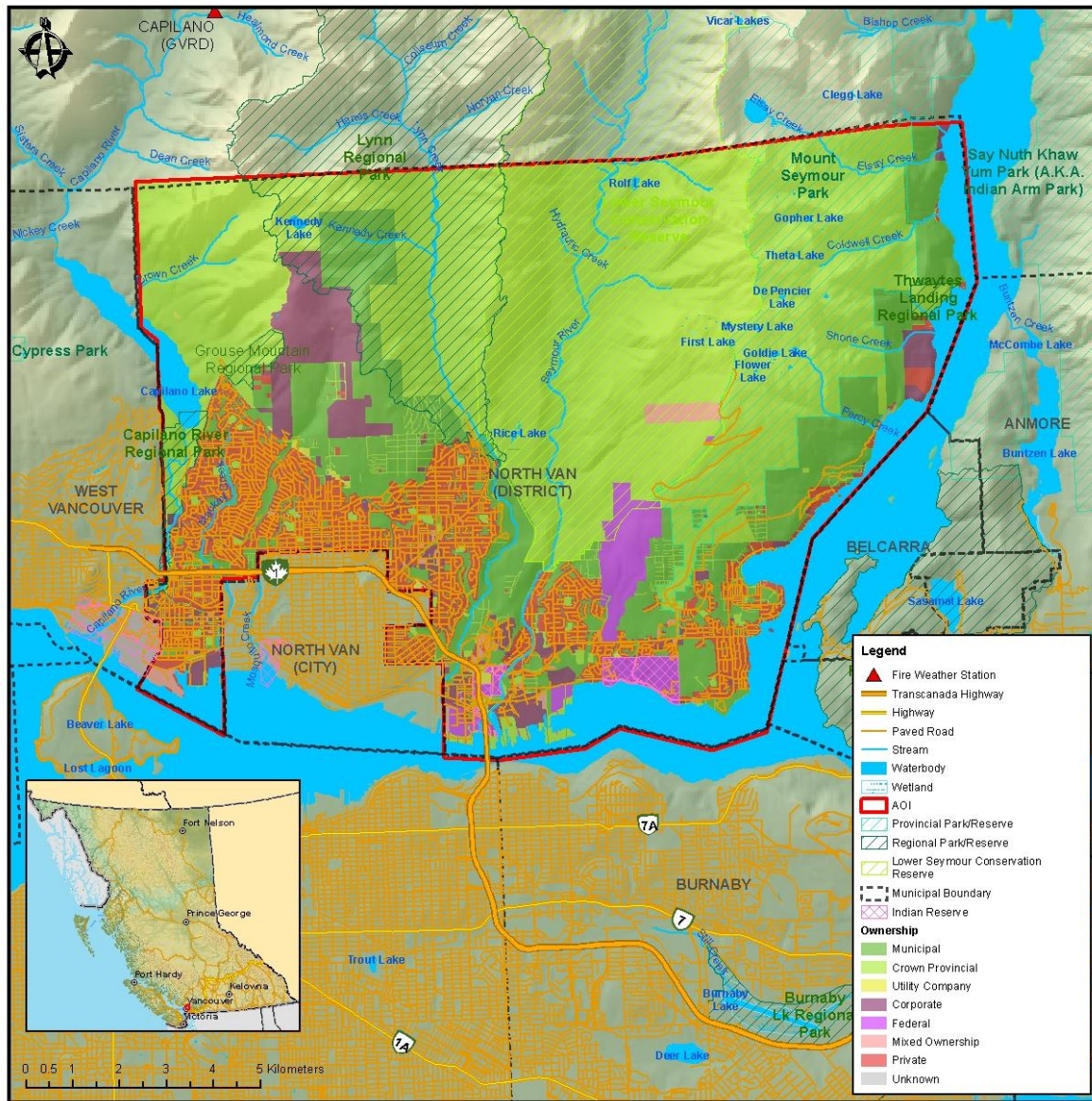
up approximately 19 per cent of the District, including such features as Grouse Mountain, Lynn Headwaters Regional Park, and Mount Seymour Provincial Park.

North Vancouver's dramatic topography is one of its defining characteristics. Rugged shorelines, steep terrain, numerous creeks and watercourses, and spectacular views provide an extremely attractive setting of international renown. North Vancouver is an exceedingly popular destination year-round for outdoor recreation in many forms including hiking, skiing, snowshoeing, and mountain biking.

The AOI for the CWPP is illustrated below in Map 1. The AOI includes the municipal boundary, which encompasses all developed areas and the wildland urban interface (with a minimum density of six structures per square kilometer), within DNV jurisdiction. The current AOI is bounded in the east by Indian Arm, to the south by the City of North Vancouver and Burrard Inlet, and in the west by the Capilano River. The AOI is approximately 17,764 ha in size. A breakdown of the AOI's land ownership is provided in Table 2.

Table 2. Summary of AOI by land ownership.

Land Ownership	Hectares
Corporate	901
Crown Provincial	11,551
Federal	454
Mixed Ownership	151
Municipal	2,949
Private	1,730
Unknown	1
Utility Company	28
Total	17,764



Map 1. Area of Interest (AOI).

2.2 COMMUNITY DESCRIPTION

The District of North Vancouver is one of 21-member municipalities that make up Metro Vancouver, formerly the Greater Vancouver Regional District. The DNV along with the City of North Vancouver, the District of West Vancouver and Lions Bay make up the Metro Vancouver sub-region known as the North Shore.⁹ In addition to the 21 municipalities, Metro Vancouver contains one Treaty Nation (Tsawwassen First Nation) and an electoral area. The four North Shore municipalities are provided shared services

⁹ District of North Vancouver. Official Community Plan. 2018

such as roads and utilities, and partnerships exist for recreation and emergency planning services. At the District level, services provided include land use planning, fire protection services, water treatment, waste water collections, and bylaw development and enforcement. The DNV in its entirety has a population of 85,395 and covers approximately 161 km².¹⁰

The DNV has been inhabited by the Coast Salish Aboriginal Peoples from time immemorial. The Tsleil-Waututh, Squamish and Musqueam Nations are among the Coast Salish Nations that historically occupied the land, some of whom continue to live within the AOI today. The AOI encompasses two Indian Reserves: Burrard Inlet No.3 and Seymour Creek No.2, which pertain to the Tsleil-Waututh and Squamish Nation, respectively. The AOI is topographically diverse, with areas ranging from sea level to approximately 1,450 m in elevation. This topographical variability is exhibited by the presence of low-lying areas, rolling hills and mountainous terrain. The AOI comprises multiple lakes and streams, including Capilano Lake. The entire eastern and southern extent of the AOI is bounded by Indian Arm and Burrard Inlet, respectively.

The DNV economy historically was driven by the forest industry (logging and milling), shipping, and shipbuilding. Although the port and its industries remain of importance to the local economy, in recent decades the economic focus has shifted to light industry and manufacturing, retail and wholesale trade, a wide range of private and public service industries, construction, information and cultural industries, tourism, and residential development.

Fire protection within the AOI is the responsibility of the DNVFRS. A shared services agreement (automatic aid) exists between this department and the North Vancouver City Fire Department and West Vancouver Fire Rescue. The DNVFRS has a standing agreement in place with the BCWS and Metro Vancouver Watershed Protection. In the event of an interface fire or wildfire, BCWS aid is requested; however, BCWS may task Metro Vancouver Watershed Protection to action the fire on their behalf.

Highway 1, which runs east-west and bisects the District is the primary access/egress route within the District. Arterial roads such as Marine Drive, Capilano Road, Lonsdale Avenue, Lynn Valley Road and Mount Seymour Parkway provide access to and from developments located in interface areas within the District. In the event of a wildfire, the eastern portion of the District of North Vancouver, specifically Deep Cove and developed areas surrounding Indian River Drive, have limited emergency egress routes. This narrow and forested corridor is an area of particular concern not only with respect to limited emergency egress, but also due to lack of an alternate evacuation route. This limits the ability of fire crews to respond to fires and safely evacuate residents. Indian Arm communities that are accessible only by boat are also of significant concern with respect to evacuation and access for first responders.

¹⁰ Statistics Canada. 2016 Census. North Vancouver, District Municipality [Census Subdivision], British Columbia.

2.3 PAST WILDFIRES, EVACUATIONS AND IMPACTS

BCWS Coastal Fire Zone staff communicated that the majority of past wildfire activity within the AOI was human-caused and ignitions are primarily due to poor recreation practices (both boat and road access recreation areas). BCWS staff reported that fires within the northern portion of the AOI (managed by Metro Vancouver) are generally responded to by the Metro Vancouver Regional District (MVRD) Watershed Protection Team, which is an initial attack team trained to respond to wildland fires. The BCWS has a response agreement in place with the MVRD, that ensures immediate and efficient deployment of resource, as needed.

Based on the BCWS historical wildfire dataset, the largest fire to burn within the District AOI occurred in 1924, with an estimated area of 252 ha. In 2018, multiple small fires occurred within and around the DNV AOI, with the most notable one being the Whyte Lake fire in West Vancouver, which burned for more than one week and covered an estimated 3 ha perimeter. This fire burned in difficult terrain, caused trail closures on the Baden Powell and Black Mountain trails and led to both visual distractions and smoke conditions along the Sea-to-Sky Highway. Another fire, sighted early into the fire season, on May 14, 2018, near Lions Bay (Tunnel Bluffs), burned approximately 1 ha and was similarly difficult to fight due to mountainous/steep terrain. The Tunnel Bluffs fire caused two hikers to become stranded above the fire line, who required rescue via helicopter. These two fires, in combination with the 2017 and 2018 local and Province-wide wildfires, have alerted the DNV, Metro Vancouver Watershed Protection and member North Shore municipalities to the potential for large, catastrophic wildfires occurring within and surrounding the present AOI.

The BCWS historical ignition dataset demonstrates that the proportion of human-caused fires within the DNV AOI is greater than that of the province as a whole. This ignition data shows that within the District AOI, approximately 60% of ignitions since 1950 have been human-caused versus 40% in the province of BC.¹¹ This statistic may be explained by the lower proportion and occurrence of lightning strikes in the Metro Vancouver area relative to other areas in the province. Additionally, high recreational use within many parts of the AOI may also contribute to this statistic. See Section 5.3 for a recommendation related to increasing public awareness of wildfire ignitions and prevention.

2.4 CURRENT COMMUNITY ENGAGEMENT

There is widespread recognition and awareness, from both District staff and the community, of the threat posed to the community by wildfire, and support for hazard mitigation activities. There has been significant community engagement in FireSmart initiatives to this point. FireSmart materials and door hangers are distributed by the DNV door to door to residents and links to FireSmart Canada resources and fire regulation related bylaws are provided on the DNV website. Recommendations for further education and communication initiatives that may be undertaken by the District are provided in Section 5.3. Furthermore, the fire department is consulted during community development planning, through the wildfire hazard development permitting process. Several bylaws that relate to wildfire have been

¹¹ BCWS, 2018

adopted by the District. These include the *Fire Bylaw (No. 7481)* that addresses burning compliance and prohibits the accumulation of combustible materials on properties that create a fire hazard, and the *Solid Waste Removal Bylaw (No. 7631)* that authorizes the District to control and manage against dumping activities. Both the *Smoking Regulation Bylaw (No. 7792)* and the *Park Regulation Bylaw (No. 8310)* control the use of fire in the District and in District parks. The District has an established wildfire hazard development permit area that addresses new development in the wildland urban interface, and sets standards based on FireSmart principles for building material use, landscaping and appropriate setbacks from forested areas. Future initiatives should focus engagement efforts during times of high public uptake (during or post wildfire season) in order to maximize the resources available for community engagement.

2.5 LINKAGES TO OTHER PLANS AND POLICIES

Following is a summary of District and Regional policies and guidelines that relate to strategic wildfire management, wildfire threat reduction, operational fuel treatments and emergency planning.

2.5.1 Local Authority Emergency Plan

Emergency preparedness and response is managed jointly by the District of North Vancouver and its two neighbour municipalities, the City of North Vancouver and District of West Vancouver, as part of a comprehensive North Shore Emergency Operations Plan that serves the three communities.¹² The plan was developed to optimize the response, resources and planning for major emergencies that may occur within the District and its North Shore member municipalities. The plan outlines the Department Operations Centre (DOC) and Emergency Operations Centre (EOC) functions and activation, Incident Command Post (ICP) functions, guidelines for emergency response (communications, personnel identification, documentation, etc.), and hazard-specific roles and procedures. The hazard-specific roles and procedures for wildland interface fires list the possible major effects of such an event, the potential actions that may be required to address these effects, the associated actions of the DOC, EOC, and any resources that could aid in response. Emergency response is coordinated using the BC Emergency Management System (BCEMS) Site and Site Support Standard, with designated DOC and EOC locations and Incident Command (IC) for site level response. A Provincial Emergency Operations Centre (PREOC) and a Provincial Emergency Coordination Centre (PECC) may also be established if the emergency is large in scale.

2.5.2 Affiliated CWPPs

A CWPP for the District of West Vancouver is being developed concurrently by the same consultant, ensuring consistency in recommendations and synergies within proposed future fuel treatment works.

¹² North Shore Fire Services – Major Emergency Operations Plan, 2018.

2.5.3 Local Government/First Nation Policies and Recommendations

The intent of this section is to review all relevant local government plans, policies and bylaws and identify sections within that are relevant to the CWPP Update. This review included Greater Vancouver Regional District (hereinafter referred to as Metro Vancouver) bylaws, however, no recommendations were provided for any Metro Vancouver bylaws as they are not within the scope of this CWPP Update. The following municipal bylaws, strategies and policies are relevant to wildfire planning in the District of North Vancouver AOI.

Bylaw No. 7900, 2011: District of North Vancouver Official Community Plan

The District of North Vancouver Official Community Plan (OCP) is a general statement of the objectives and policies of the local government, while providing the DNV with a long-range framework to guide, monitor and evaluate future land uses and development throughout the area. The following sections contain objectives and policies which are directly relevant to wildfire risk reduction, emergency response, and community resilience post-disaster as described below. The DNV Council is set to initiate a review of the 2011 OCP in 2019.

2011 DNV OCP Section 4.2: Parkland Standards and Acquisition

This section covers the policies and objectives surrounding parkland acquisition and ways to manage these areas more effectively. It notes that the DNV should consider the purchase or dedication of additional natural parkland through the Parks Acquisition Strategy where these lands provide important trail linkages, ecological functions, waterfront access, protect natural hazardous lands or offer unique educational, cultural or recreational opportunities.

RECOMMENDATION #1: Review the OCP, Section 4.2 – Parkland Standards and Acquisition and associated documents (e.g., Parks and Open Space Strategic Plan, 2012) and consider strategic parkland acquisition and parks maintenance through a wildfire risk lens, including consideration for long-term maintenance costs and access. Consider amendments where needed, including the following: 1) require the use of a Qualified Professional (QP) in review, assessment, and siting of parks and park access prior to acceptance; and 2) ensure that bylaws provide the DNV authority to request modification (either fuels, access, or siting) based upon QP recommendation and prior to acceptance to ensure that the park is received in, and able to be maintained in, an acceptable range of risk.

2011 DNV OCP Section 5.5: Roads Network and Goods Movement

This section summarizes the District's objectives surrounding the movement of goods and people, while also improving safety and minimizing impacts to local neighbourhoods. It mentions the facilitation of emergency vehicle access across the road networks, as this will aid in more efficient response times and improved overall access. Following this, the DNV should explore the possibilities around new east-west road network linkages to reduce trip length and ensure alternate access when one is blocked.

2011 DNV OCP Section 6.4: Personal and Public Safety

The objective of this section is to create safe and caring communities. Several policies stated in this section relate to effective and collaborative emergency response including wildfire response in the

District and on the North Shore. Fire halls need to be located strategically to deliver effective service and contribute to the fabric of the community, while a fire service policy should be created to define appropriate service levels. The DNV should ensure that effective and coordinated services supporting personal safety including policing, emergency aid, fire safety, disaster response, and support services are in place across the District as demonstrated by their continued relationship with North Shore Emergency Management (NSEM) in jointly preparing emergency response planning and the North Shore Emergency Operations Centre (NSEOC).

2011 DNV OCP Section 6.5: Heritage and Archaeological Resources

This section of the OCP outlines the District's commitment to identify and protect heritage and archaeological sites and recognize the history and contributions of First Nations to the North Vancouver area. This is particularly relevant in the case that the DNV undertakes fuel management projects where there is potential to damage archaeological values. See Section 3.3.2 of this 2017 CWPP Update document for more details on the *Heritage Conservation Act* and how to ensure that archaeological values are protected prior to and during operational projects, through the use of desk-top and field value identification and First Nations consultation.

2011 DNV OCP Section 9.1: Biodiversity Policies

This objective of this section is to protect the ecological integrity of the ecosystem by reducing threats such as habitat fragmentation and invasive species. Policies within this section include supporting the protection and enhancement of biodiversity through implementation of environmental development permit areas and guidelines and encouraging and facilitating the protection of rare, endangered and vulnerable species and ecosystems through habitat management, enhancement and restoration. Also mentioned is the need to develop and implement an integrated invasive species management strategy, with partners, to reduce the spread of invasive species throughout the DNV. The governance tools the District has implemented to uphold biodiversity goals include Environmental Protection Bylaw 6515, and the Streamside Protection and Natural Environment Development Permit Areas (DPA) in Schedule B of the OCP. These policies and associated strategies and bylaws are particularly relevant to fuel management projects.

2011 DNV OCP Section 9.2: Urban Forest and Soil Systems

The objective of this section is to protect the forested character and enhance the health of the trees and soils within the DNV. The retention and protection of old growth trees in urban and upland areas is promoted, while the general management of upland forested areas for future generations is also promoted. Policy 4 states that the urban forest interface must be managed to improve the species mix and mitigate risk of disease or natural hazards such as wildfire and windthrow. The Forest Resilience Strategy for the DNV, prepared by B.A. Blackwell and Associates Ltd. (2019), is a companion document to this CWPP Update, and will detail improving forest resiliency to the threat of wildfire. This section of the OCP, related policy and the associated Forest Resilience Strategy are relevant to future fuel treatment planning.

2011 DNV OCP Section 9.4: Natural Hazards Policies

The objective of this section is to reduce and mitigate the risk associated with natural hazards within the DNV. All three policies are relevant to wildfire mitigation:

1. Develop and implement natural hazard development permit areas in relation to landslide, flood, debris flow and forest interface wildfire risks.
2. Facilitate mitigation measure to reduce risks of flooding and watershed related debris flow(s)/flood(s) and forest interface wildfire.
3. Continue to develop information and communications systems to advance the natural hazard management system.

2011 DNV OCP Section 10.4: Climate Change Adaptation

The objective of this section is to proactively adapt to climate change and to reduce greenhouse gas emissions. It states that the DNV must consider climate change implications in environmental management efforts to conserve biodiversity and enhance forest health. Policy 1 notes that the DNV should work with the North Shore Emergency Management and other service organizations to prepare for and respond to emergencies created by extreme weather events which can be attributed to climate change. The impact of climate change on wildfire is discussed in greater detail in Section 4.1.3 and must be considered in emergency response preparation.

2011 DNV OCP Schedule B – Development Permit Areas

Part 4 Section 1: Wildfire Hazard

The *Wildfire Hazard DPA* and corresponding Development Approval Information are established to:

1. Ensure that development within the Wildfire Hazard DPA is managed in a way that:
 - a) minimizes the risk to property and people from wildfire hazards;
 - b) promotes activities to reduce wildfire hazards while still addressing environmental issues;
 - c) minimizes the risk of fire to the District's forests;
2. Proactively manage conditions affecting potential fire behavior, thereby increasing the probability of successful fire suppression and containment, and thereby minimizing adverse impacts;
3. Conserve the visual and ecological assets of the forest for the benefit of present and future generations; and
4. Reduce the risk of post-fire landslides, debris flows and erosion.

RECOMMENDATION #2: Review the OCP Schedule B Bylaw 7671 and Wildfire Hazard DPA Guidelines section to include language regarding management of non-compliant hedging and other vegetation in proximity to homes after the post-development inspection has been signed-off by a QP.

RECOMMENDATION #3: Review the OCP Schedule B Bylaw 7671 and Wildfire Hazard DPA Guidelines section and set a procedure for establishing and updating fire testing standards to ensure alternative and novel non-flammable exterior building materials are pre-approved in a timely manner for use in the WUI.

RECOMMENDATION #4: Review and update the fire testing standards and materials section of the Wildfire Hazard DPA Guidelines to identify and define a list of approved building materials and review and update the approved materials list on a bi-annual basis or as new proposals come forward from builders. These materials should be reviewed by a recognized expert in the building material field, with consideration for recent and applicable research findings prior to granting approval for use in the WUI.

Part 4 Section 3: Slope Hazard

The *Slope Hazards DPA* and corresponding Development Approval Information Area addresses ways to reduce risk to people and property, minimize impacts to areas below steep slopes, reduce overall slope hazard and encourage ongoing maintenance and professional design of structures in these areas. These identified slope hazard areas have relevance to fuel treatments, that must be prescribed with consideration given to slope stability. These areas also have relevance to fire suppression response as structures on steep slopes are vulnerable to increased fire behaviour potential and should be the immediate focus of initial attack; while recognizing the greater suppression difficulty and firefighter safety issues related to steep slopes.

DNV Bylaw No. 7481, 2004: Fire Bylaw

Within this bylaw are many policies, definitions and objectives that pertain to building codes, public duties and obligations, emergency response, burning regulations and all other fire related activities. This bylaw covers many relevant and crucial points that aid in the creation of a community wildfire protection plan. Below is a list of each relevant section:

- Part 1: Fire Chief and Fire Department
- Part 2: Permitting
- Part 3: Fire Protection Equipment
- Part 4: Reference Requirements
- Part 5: Regulations
- Part 6: Safety and Egress
- Part 7: Assistance Response
- Part 8: Inspections
- Part 9: Enforcement
- Part 10 & 11: Ticketing and Cost Recovery

DNV Bylaw No. 7016, 1988: Inspection and Testing of Fire Protection Equipment Bylaw

This bylaw states that all fire protection equipment or fire suppression systems required to be serviced under the BC Fire Code must ensure that the inspection or test is performed by a Fire Protection Technician and ensure that it is recorded, tagged or labeled with the appropriate date. Although this bylaw primarily pertains to structural fire-fighting equipment, the provision for protecting water supplies for fire protection is directly related to wildland fire-fighting.

DNV Bylaw No. 8145, 2017: Development Servicing Bylaw

This bylaw covers the utilities and infrastructure within the DNV such as water, sewage, roadways and general development. Subsection 2.5, Fire Flows, defines the requirements for developments to be able

to supply appropriate amounts of water in case of a fire, and outlines these flow rates in Table 2.5a. This bylaw also covers fire lines, fire metering, fire hydrant placement and other fire safety systems such as sprinklers, alarms and lights.

DNV Bylaw No. 7619, 2006: North Shore Disaster Bylaw

This bylaw provides the framework that authorizes the three North Shore Municipalities to implement and establish any disaster response or recovery measure as deemed necessary based on needs of the three municipalities. This includes the establishment of the North Shore Emergency Operations Centre (NSEOC). The three North Shore municipalities have identical Disaster Bylaws which stipulate that they will work together for the greatest good using all available resources.

DNV Bylaw No. 7304, 2002: Emergency Plan Bylaw

This bylaw defines who will be a member of the North Shore Emergency Planning and Operations group and identifies the role in disaster training programs and the review and revision of the North Shore Disaster Plan as required. The bylaw also defines at the municipal level who is involved in the emergency operations group and their roles and responsibilities in controlling an emergency or disaster. Section four of the bylaw defines the powers to declare a state of emergency and or the means in which the Emergency or Disaster plan can be implemented.

DNV Bylaw No. 7631, 2004: Solid Waste Removal Bylaw

This bylaw summarizes the policies and objectives for the removal of solid waste throughout the DNV. It states that no person shall cause, allow or permit any garbage to collect, accumulate or remain on property, unless contained within a specified solid waste container. The accumulation of such debris can impair emergency access or egress, as well as increase the amount of combustible material on said premises. Effective solid waste management policies are integral to avoiding illegal dumping of debris from pruning or thinning operations which can become a significant fire hazard.

RECOMMENDATION #5: Review the Solid Waste Removal Bylaw 7631 to include language specific to green waste, not just garbage, under the prohibitions section to ensure that there is a legally enforceable bylaw to prevent flammable materials to accumulate, collect or to remain on the property unless securely contained.

DNV Bylaw No. 2279, 1957: Waterworks Regulation Bylaw

This bylaw summarizes the use of water services throughout the DNV. Section 16, Fire Services, states that when a fire-service connection is installed on any premises, said connection must be sealed until needed for fire-related reasons. Once the seal is broken due to a fire related incident, it must be re-sealed shortly after to prevent the use or consumption of water for any other purpose besides fire. This bylaw also states that only authorized personnel may open or use a fire hydrant if needed.

DNV Bylaw No. 8271, 2017: Construction Bylaw

This bylaw overviews the administration and enforcement of BC Building Code requirements and regulates general construction throughout the DNV. The sole purpose of this bylaw is to provide a limited

and interim spot-checking function for reasons of health, safety and protection of persons, property, and the environment. It mentions the installation of fire places, spark arrestors, fire alarms and fire sprinklers, along with proper firestopping and firewalls when building new developments. It continues on to describe these in more detail; outlining fire limit areas as outlined in Schedule C within this bylaw.

RECOMMENDATION #6: Create incentives and/or targeted education and outreach to promote FireSmart renovations of exterior elements of existing buildings within the Wildfire Hazard DPA (homes constructed prior to the establishment of the DPA in 2012), recognizing that the Wildfire Hazard DPA and the Construction Bylaw pertain only to new construction and do not address the vulnerability of existing older homes. Incentives should target roof replacements as a first priority, followed by replacement of exterior siding and decking with flame-proof/fire resistant materials (to be defined as per recommendations 3 and 4) to increase the resiliency of homes and neighbourhoods in the WUI. These incentives may include granting rebates for roof replacement. Education can be broadened (beyond vegetation management) to include information on available, approved materials and associated costs. See recommendation 20 for strategy suggestion and funding opportunities.

DNV Bylaw No. 8310, 2018: Parks Regulation Bylaw

This bylaw states that no person shall light a fire without a valid permit within any park, excluding the use of cooking devices such as barbecues as long as the fire hazard rating is low. Additionally, no person shall discard or place upon the ground or on any other vegetation any lighted or extinguished match, cigar, cigarette or other burning substance.

DNV Bylaw No. 7456, 2004: Fireworks Regulation Bylaw

This bylaw outlines the rules regarding the possession, acquisition and discharge of fireworks within the DNV. It overviews means of applying for a permit, the sale and distribution of fireworks and the penalties associated with failing to comply with this bylaw.

2.5.4 Higher Level Plans and Relevant Legislation

District of North Vancouver Climate Change Adaptation Strategy 2017

The Climate Change Adaptation Strategy aims to support climate change initiatives and long-term adaptation planning, while incorporating these throughout all District activities and into policy documents. Not only does this help provide an opportunity to enhance the District's adaptive capacity and resiliency, but it can also reduce the long-term costs and impacts associated with climate change.

This document outlines four main types of climatic change: 1) temperature; 2) precipitation; 3) extreme weather; and 4) sea level rise. The goals of this strategy are to build upon District activities currently taking place that can help prepare the corporation and community for climate change, while being able to identify new initiatives that could help strengthen the already occurring adaptation efforts. Lastly, the strategy outlines the need to bring in a range of staff and community members together to collaborate on a strategy that addresses the multidisciplinary challenges posed by climate change.

A number of Required Action (RA) objectives are relevant to community wildfire protection planning, including the following:

- RA 1.2 – *Develop and implement additional technological tools to assist in situational awareness and emergency response communication during and after an emergency.* Current systems in use include remote monitoring and control of pump stations, and GPS tracking of municipal vehicles. The DNV also has access to the Rapid Notify emergency notification system.
- RA 2.1 – *Identify critical functions that are vulnerable to power outages and develop priority response and power restoration protocols.* This action is intended to address energy needs for critical infrastructure and functions that are vulnerable to power outages and develop priority response and power restoration protocols.
- RA 2.2 – *Invest in backup power equipment for critical functions and develop a fueling strategy.* Alternatives for power generation must be provided for vulnerable systems and systems with existing backup generation must be analyzed and reprioritized.
- RA 3.2 – *Update the Community Wildfire Protection Plan and implement recommendations to reduce wildfire risk and strengthen the capacity to respond.* This recommendation is largely being addressed by this CWPP Update to the 2007 CWPP, and a companion document, the Forest Resilience Strategy for the DNV, prepared by B.A. Blackwell and Associates Ltd. (2019).
- RA 5.1 – *Proactively manage all District-owned forested areas to increase forest resilience, health, and structure and reduce other natural hazards.* The District’s fuel management work is ecosystem based and designed to be sensitive to riparian and wetland areas, with the goals of restoring natural biodiversity and replacing invasive species. Additional proactive work is required (including beyond the WUI) to increase forest resilience, health and structure while reducing other natural hazards.

District of North Vancouver Parks and Open Space Strategic Plan (POSSP) 2012

This document provides a comprehensive strategy for the maintenance, development and renewal of the parks, trails and open spaces throughout the District of North Vancouver over the next 10 years. It identifies park and recreational needs, trends and gaps, while also listing recommendations to address those needs. The document provides an analysis of existing park inventory, and identifies the possibility for new facilities, future capital projects, the current operational pressure points and service levels, as well as the opportunities and deficiencies in the present parks system.

High-use recreational parks and trails can be beneficial when high-use times provide increased early detection and reporting for fires. Alternatively, these areas can also potentially be locations of increased ignitions in the interface (high-use areas). For trails in particular, depending upon the width, clearance and surfacing, they can provide points of access for suppression efforts, serve as surface fire fuel breaks, and act as control lines for suppression efforts if a fire is nearby.

District of North Vancouver Invasive Plant Management Strategy 2015

This strategy aims to build upon a number of currently ongoing management initiatives, while providing a framework and policies for strategic management of invasive plants in the DNV to meet five primary goals:

1. Educate and communicate why invasive plants are a problem;
2. Prevent new invasive plants from establishing and spreading;
3. Detect where invasive plants are growing early and accurately;
4. Control invasive plants safely and effectively; and
5. Restore natural habitat affected by invasive plants.

The document continues to list the highest priority recommendations in order to meet the goals and objectives laid out within.

RECOMMENDATION #7: Update the DNV Invasive Plant Management Strategy, 2015 to target monitoring and resources to areas with known invasive species occurrences in the wildland urban interface, where new forests are being established or where stand conversion has occurred. Continue addressing invasive species management during fuel treatment implementation in the DNV wildland urban interface, in order to improve forest resilience and promote ecological restoration of degraded sites.

Urban Forest Climate Adaptation Framework for Metro Vancouver 2017¹³

This document provides a comprehensive framework for building urban forest resilience and addressing climate change requirements at a regional level, through the following steps:

1. Risk identification within regional and urban forests;
2. Assessment of urban forest vulnerabilities to issues such as forest health, pests, invasive species, and wildfire;
3. Development of guidelines to build resilience (i.e., through species selection, management techniques, soil and planting infrastructure and water management guidelines); and
4. Development of a 144 species selection decision support tool.

The framework is complemented by a *Design Guidebook*¹⁴ and a tree species selection database¹⁵, which considers urban forest climate change adaptation requirements and provides best management practices for landscape and development design. Additionally, the guidebook serves as a reference guide for Metro Vancouver member municipalities in support of landscape design for existing and new

¹³ Diamond Head Consulting. 2017. Urban Forest Climate Adaptation Framework for Metro Vancouver. Tree Species Selection, Planting and Management

¹⁴ Diamond Head Consulting. 2017. Design Guidebook – Maximizing Climate Adaptation Benefits with Trees

¹⁵ Diamond Head Consulting. 2017. Urban Forest Climate Adaptation – Tree Species Selection Database. Available online at: <http://www.metrovancouver.org/services/regional-planning/conserving-connecting/resources/Pages/default.aspx>

developments. This framework has relevance to fuel treatment planning, particularly if re-planting or species conversion treatments are prescribed.

Metro Vancouver 2040 Shaping Our Future, 2017¹⁶

This document outlines a Regional vision and strategy for sustainable growth within all member municipalities. The document identifies the importance of environmental protection and climate change impact (Goal 3), and provides the following four strategies to guide high-level management decisions within Metro Vancouver:

Strategy 3.1: Protect conservation and recreation lands;

Strategy 3.2: Protect and enhance natural features and connectivity;

Strategy 3.3: Encourage land use and transportation infrastructure that reduce energy consumption and greenhouse gas emissions, and improve air quality; and

Strategy 3.4: Encourage land use and transportation infrastructure that improve the ability to withstand climate change impacts and natural hazard risks (wildfire, earthquakes, flooding, mudslides, etc.).

Sensitive Ecosystem Inventory for Metro Vancouver and Abbotsford, 2010-2012¹⁷

This technical report outlines the methodology and results of a Sensitive Ecosystem Inventory (SEI) to generate a standardized ecological mapping layer for the Region. This SEI contains ecosystems that are ‘Sensitive Ecosystems’ (i.e., wetlands and old forest), and ‘Modified Ecosystems’ (human modified but with significant ecological and biological value). Several class and subclasses within each ecosystem type are assigned and delineated in the inventory. This inventory is an important resource to support land and environmental decisions and is relevant in the context of fuel treatment planning. A considerable portion of the AOI is classified as ‘Sensitive Ecosystems’ (i.e., wetlands and old forest) or ‘Modified Ecosystems’ (human modified but with significant ecological and biological value). Several classes and subclasses within each ecosystem type are assigned and delineated in the inventory.

2.5.5 Ministry or Industry Plans

Reviewing and incorporating other important forest management planning initiatives into the CWPP planning process is a critical step in ensuring a proactive and effective wildfire mitigation approach.

The South Coast Response Fire Management Plan (FMP)¹⁸ was developed for the Sea to Sky Natural Resource District (NRD), the Sunshine Coast NRD, and the Chilliwack NRD. The FMP was reviewed to identify any regional fire management planning objectives and their interpretation in the context of management considerations for the District AOI. The 2018 South Coast FMP identifies values at risk and prioritizes broad categories of values as ‘themes’ for response planning through the Resource Strategic Wildfire Allocation Protocol (RSWAP). The South Coast FMP briefly speaks to the concept of wildfire

¹⁶ Metro Vancouver. Regional Growth Strategy. Adopted 2011 and updated to 2017.

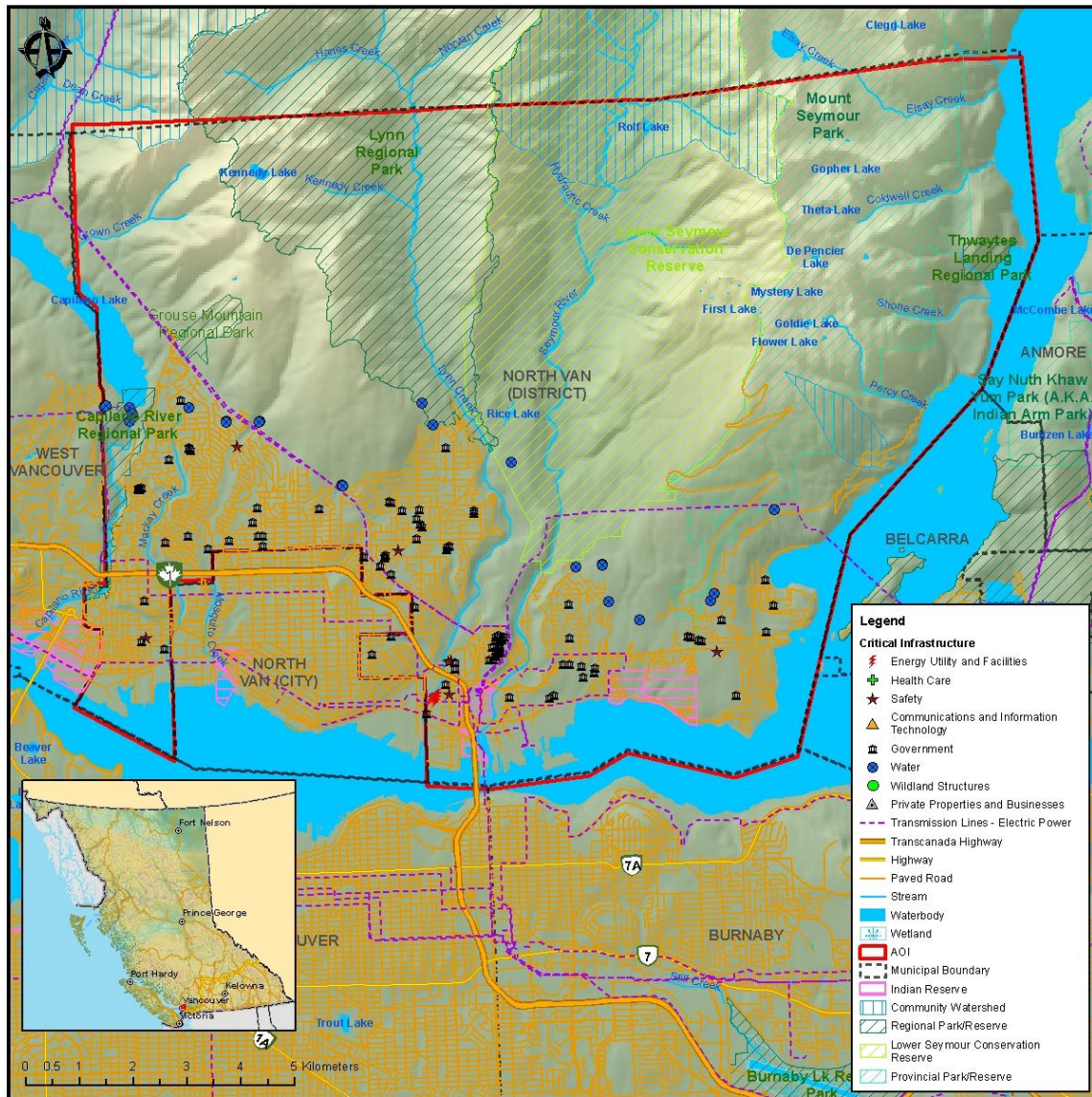
¹⁷ <http://www.metrovancouver.org/services/regional-planning/PlanningPublications/SEITechnicalReport.pdf>.

¹⁸ South Coast Fire Management Plan. 2018. (Internal government document)

prevention engineering within the region, which includes fuel management such as locally identified fuel breaks, proposed treatment areas, or demonstration and operational treatment areas. In order to reduce local fire threat and to build defensible space around critical infrastructure and/or residential neighbourhoods, this CWPP identifies various fuel treatment opportunities (Section 5.1.1).

SECTION 3: VALUES AT RISK

The following is a description of the extent to which wildfire has the potential to impact the values at risk (VAR) within the District of North Vancouver AOI. VAR or the human and natural resources that may be impacted by wildfire include human life and property, critical infrastructure, high environmental and cultural values, and other resource values. VAR also include hazardous values that pose a safety hazard. Key identified VAR are illustrated below in Map 2.



Map 2. Values at Risk within the AOI.

3.1 HUMAN LIFE AND SAFETY

One of the primary goals of the BCWS is to support emergency response and provide efficient wildfire management on behalf of the BC government. BCWS aims to protect life and values at risk, while ensuring the maintenance and enhancing the sustainability, health and resilience of BC ecosystems.¹⁹

¹⁹ BC Provincial Coordination Plan for Wildland Urban Interface Fires. 2016. Retrieved online at: https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/provincial-emergency-planning/bc-provincial-coord-plan-for-wuifire_revised_july_2016.pdf

Human life and safety are the first priority in the event of a wildfire. A key consideration is the evacuation of at-risk areas and safe egress. Evacuation can be complicated by the dynamic nature of wildfire, which can move quickly. Evacuation takes time and safe egress routes can be compromised by wildfire causing limited visibility, or by traffic congestion and/or accidents.

The population distribution (both people and structures) within the AOI is important in determining the wildfire risk and identifying mitigation activities. The population of the DNV has slightly increased in recent years. It was last measured at 85,935 residents in 2016, up 1.8% from 2011.²⁰ This compares to 5.6% growth in the province of British Columbia during the same years. According to the 2016 Census there are 32,624 private dwellings in the DNV, approximately 1,508 of which are occupied on a part-time basis. The aforementioned figures are calculated using the 2016 Census population statistics from the District of North Vancouver.

The District of North Vancouver is a major destination for outdoor recreation in the Lower Mainland, including hiking, mountain biking, kayaking and paddle boarding. These activities can occur year-round, but are especially popular during the fire season (April – October). Several parks throughout the AOI experience high-use throughout the year: Lynn Canyon Park, Grouse Mountain and Capilano River Regional Parks, Cates Park, Deep Cove Park, Panorama Park, Myrtle Park, Bridgman Park, Princess Park and Mosquito Creek Park. Additionally, the seasonal increase in population due to tourism within the AOI also raises concern with regards to potential evacuation in the event of a wildfire. Furthermore, the Trans-Canada Highway acts as a main travel hub for commuters, tourists and recreationalists who are either heading up the Sea-to Sky Corridor or south/east to other Metro Vancouver municipalities, which may lead to additional pressures on emergency management resources, in the event of an evacuation.

Knowledge of and access to updated structure locations within an area is a critical step in efficient and successful emergency response planning and the development of mitigation strategies and recommendations. Field visits to the AOI and access to recent orthophotography and spatial data from the District has enabled the development of an updated structures dataset that accounts for new development in the interface.

Smoke exposure is another important consideration when assessing the risks of wildfire to human life and safety. An increase in the number, extent and duration of wildfires due to climate change is anticipated to impact air quality in the Lower Fraser Valley and add to air pollution in the Metro Vancouver region, in addition to increased ground-level ozone²¹. Wildfire smoke contains many substances that can be harmful to human health, including particulate matter, carbon monoxide, volatile organic compounds, and toxic gases.²² Those with pre-existing health conditions and firefighters are particularly at risk.

²⁰ Statistics Canada. 2016 Census.

²¹ Metro Vancouver. 2018. Climate 2050 Discussion Paper

²² Wildfire Smoke and Your Health. US Forest Service. Retrieved from https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5318238.pdf

RECOMMENDATION #8: The North Shore Emergency Management (NSEM) in collaboration with the three North Shore communities should lobby the Provincial government or local Medical Health Officer(s) to develop a strategy for communities to draw upon when they are exposed to smoke from wildfire for extended periods of time. This strategy may include smoke exposure risk assessments, exposure reduction measures, and a decision-key for when to evacuate a community due to wildfire smoke.

3.2 CRITICAL INFRASTRUCTURE

Protection of critical infrastructure during a wildfire event is an important consideration for emergency response effectiveness, ensuring that coordinated evacuation can occur if necessary, and that essential services can be maintained and/or restored quickly in the case of an emergency. Critical infrastructure includes emergency and medical services, electrical and gas services, transportation, water, social services, and communications infrastructure. Table 3 provides an inventory of critical infrastructure identified by District staff and during field visits, while Map 2 provides a visual depiction of the critical infrastructure within the AOI.

The District of North Vancouver Fire and Rescue Services (DNVFRS), the Emergency Operations Centre (EOC) located in the North Shore Emergency Management Office, and Lions Gate Hospital are critical to emergency response services in the community. However, in the event of a localized emergency within the District, adjacent municipalities with health care and emergency response facilities may also be able to provide rapid emergency response (DNVFRS has automatic aid agreements in place with other Fire Services, jurisdictions and agencies). These facilities provide the foundation for incident command and response during a large fire event and therefore must be prepared to deal with large and complex situations.

Protection of critical infrastructure is an essential wildfire preparedness function. Survival and continued functionality of these facilities not only support the community during an emergency, but also determine to a great degree, the extent and cost of wildfire recovery and economic and public disruption during post wildfire reconstruction. Critical infrastructure provides important services that may be required during a wildfire event or may require additional considerations or protection. As outlined in Section 5.2, FireSmart principles are important when reducing wildfire risk to critical infrastructure and are reflected in the outlined recommendations. During field visits, it was observed that the District's critical infrastructure (e.g., fire hall, ambulance station, water pump stations, etc.) is in various levels of compliance with FireSmart principles. While some structures may be relatively FireSmart with respect to landscaping within the immediate FireSmart priority zones, many are located adjacent to forest lands. Formal FireSmart assessments of critical infrastructure along with vegetation management have been completed by the District for select critical infrastructure (i.e., water towers and fire hall #3).

RECOMMENDATION #9: The use of fire-resistant construction materials, building design and landscaping should be considered for all critical infrastructure within the District boundaries when completing upgrades or establishing new infrastructure. Additionally, vegetation setbacks around critical infrastructure should be compliant with FireSmart guidelines.

RECOMMENDATION #10: It is recommended that formal FireSmart assessments (by a Qualified Professional) be completed of critical infrastructure such as the fire halls, emergency operations centre, water infrastructure, and others as identified in this CWPP (Table 3) and by the District.

3.2.1 Electrical Power

Electrical service for the DNV is received through a network of wood pole and underground distribution infrastructure supplied by BC Hydro which runs in the east-west direction through the eastern portion of the District and towards the Capilano Watershed in the western portion of the District. Neighbourhoods with small, street-side wooden poles connecting homes are particularly vulnerable to fire. It is recommended that utility right-of-way best management practices (BMP) such as, regular brushing and clearing of woody debris and shrubs be employed to help reduce fire risk, utility pole damage and subsequent outages.

A large fire has the potential to impact this service by causing a disruption in network distribution through direct or indirect means. For example, heat from the flames or fallen trees associated with a fire event may cause power outages. Consideration must be given to protecting this critical service and providing power back up at key facilities to ensure that the emergency response functions are reliable. Metro Vancouver and District owned pump stations that rely on electricity to distribute water and maintain hydrant pressure for suppression activities are of particular concern.

RECOMMENDATION #11: The District should work with Metro Vancouver to develop a back-up water delivery plan, to be enacted in the event of an emergency. Annual testing of this plan is recommended.

Secondary power sources are important to reduce critical infrastructure vulnerability in the event of an emergency which can cut power for days, or even weeks. Secondary power is available for some critical infrastructure (RCMP Detachment, District Hall, Fire Halls, and the Emergency Operating Centre) via emergency backup generators. These generators are powered by either diesel, natural gas, or propane. Vulnerabilities for secondary power sources include mechanical failure, potentially insufficient power sources should a wide-scale outage occur, and fuel shortage in the event of very long outages or if a fire prevents access to the site. Refer to Section 6.1.2 for discussion and recommendations related to backup power and water availability for fire suppression.

3.2.2 Communications, Pipelines and Municipal Buildings

The DNV is serviced by one hospital (Lions Gate Hospital), and multiple municipal buildings. There is a network of FortisBC distribution pipelines that supplies the DNV with natural gas. A map of the FortisBC natural gas distribution system for the DNV is not available to external companies. As such, it is not

possible to identify specific areas that may be vulnerable to wildfire. However, a publicly available service area map²³ of British Columbia indicates that an intermediate natural gas transmission transects the AOI. The FortisBC company website states that employees will consult with local authorities and BCWS in the event of a wildfire. A full inventory of critical infrastructure for communications, pipelines and municipal buildings with locations is presented in Table 3, below.

Table 3. Critical Infrastructure Identified in 2018 field visits.

Critical Infrastructure Type	Location
Animal Welfare Shelter	2580 Capilano Rd
Seymour Youth Centre	2425 Mount Seymour
Deep Cove Cultural Centre	4360 Gallant Ave
Lynn Valley Kids Club Preschool	3361 Mountain Highway
Hendry Hall	815 11th St
Parkgate Community Centre	3625 Banff Ct
DNV Fire Hall #1	1110 Lynn Valley Rd
DNV Fire Hall #2	480 Mountain Highway
DNV Fire Hall #3	550 Montroyal Blvd
DNV Fire Hall #4	3891 Mt Seymour Pkwy
DNV Fire Hall #5	1221 15th St W
Fire Training Centre	900 St Denis Ave
Mollie Nye House	940 Lynn Valley Rd
Capilano Library	3045 Highland Blvd
Parkgate Library	3675 Banff Ct
Lynn Valley Library	1277 Lynn Valley Rd
DNV Municipal Hall	355 W Queens Rd
DNV Museum of Archives	3203 Institute Rd
DNV Operations Centre	1370 Crown St
Lynn Valley Community Recreation Centre	3590 Mountain Hwy
Delbrook Community Recreation Centre	851 W Queens Rd
Karen Magnussen Community Recreation Centre	2300 Kirkstone Rd
North Vancouver Tennis Centre	280 Lloyd Ave
Seylynn Community Recreation Centre	625 Mountain Hwy
Ron Andrews Community Recreation Centre	931 Lytton St
Capilano University	2055 Purcell Way
Kenneth Gordon Maplewood School	420 Seymour River Pl
Brockton School	3467 Duval Rd

²³ <https://www.fortisbc.com/About/ServiceAreas/Pages/default.aspx>

Critical Infrastructure Type	Location
Sherwood Park Elementary School	4085 Dollar Rd
Upper Lynn Elementary School	1540 Coleman St
Seymour Heights Elementary School	2640 Carnation St
Braemar Elementary School	3600 Mahon Ave
Blueridge Elementary School	2650 Bronte Dr
Dorothy Lynas Elementary School	4000 Inlet Crescent
Carisbrooke Elementary School	510 Carisbrooke Rd E
Cousteau French International School	3657 Fromme Rd
Saint Pius X Elementary School	1150 Mt Seymour Rd
Cove Cliff Elementary School	1818 Banbury Rd
Canyon Heights Elementary School	4501 Highland Blvd
Lions Gate Christian Academy	919 Tollcross Road
Vancouver Waldorf School	2725 St Christophers Rd
Seycove Secondary School	1204 Caledonia Ave
Ross Road Elementary School	2875 Bushnell Pl
Montroyal Elementary School	5310 Sonora Dr
Cleveland Elementary School	1255 Eldon Rd
Brooksbank Elementary School	980 13th St E
Capilano Elementary School	1230 20th St W
Argyle Secondary School	1131 Frederick Rd
Handsworth Secondary School	1044 Edgewood Rd
Boundary Elementary School	750 26th Street East
Andre-Piolat School	380 W Kings Rd
Eastview Elementary School	1801 Mountain Hwy
Highlands Elementary School	3150 Colwood Dr
Norgate Elementary School	1295 Sowden St
Mountainside Secondary School	3365 Mahon Ave
Lynn Valley Elementary School	3207 Institute Rd
Windsor Secondary School	931 Broadview Dr
Lynnmour Elementary School	800 Forsman Ave

3.2.3 Water and Sewage

The District of North Vancouver receives all its domestic supply from the Greater Vancouver Water District (GVWD). Water is sourced from two reservoirs, the Capilano and Seymour Reservoirs via the Seymour-Capilano Filtration Plant.²⁴ The GVWD and the DNV have adopted a multi-barrier approach to

²⁴ DNV Water and Sewer Services. Available online at: <https://www.dnv.org/drinking-water-quality>

reducing the risk of water borne infections, which includes: watershed protection, water treatment, distribution system maintenance and water quality monitoring. A detailed account of water availability for wildfire suppression is provided in Section 6.1.2, while Table 4 below outlines the locations of DNV reservoirs and wastewater plants.

The DNV has two separated sewer drainage systems: storm and sanitary. The storm water sewer drains into local waterways, eventually flowing into Burrard Inlet.²⁴ The sanitary sewer drains into the Lions Gate Wastewater Plant for processing.²⁴

Table 4. Critical Infrastructure Identified in 2018 CWPP field visits (water and sewage infrastructure).

Critical Infrastructure Type	Location
Cleveland Dam (Capilano Lake Reservoir)	End of Capilano Park East Service Rd
Seymour Dam (Seymour Lake Reservoir)	End of Seymour Falls Dam Rd
Seymour-Capilano Water Treatment Plant	4400 Lillooet Rd
Lions Gate Wastewater Plant (outside of AOI)	101 Bridge Rd, West Vancouver
Greater Vancouver Water District	4400 Lillooet Rd
Blueridge Booster Pump Station	Hyannis Drive/Hyannis Point
Braemar Reservoirs (2)	Braemar Rd E
Capilano Chlorination House	End of Capilano Park East Service Rd
Capilano Reservoir	End of Capilano Park East Service Rd
Capilano Pump Station	4500 Capilano Park Road
Glenmore Pump Station	Glenmore Dr
Glenmore Reservoir	Glenmore Dr
Hyannis Pump Station	Hyannis Dr/ Larkhall Cres
Hyannis Reservoirs (2)	North of Blairview Ave
Marion (Lynn Valley) Pump Station	4395 Rice Lake Rd
Mountain Highway Reservoirs (2)	4757-4753 Mountain Highway
Northlands Pump Station	Northlands Golf Course
Prospect Road Reservoirs (2)	North end of Prospect Rd
Ramsey Pump Station	McNair Dr/Armour Ct
Ramsey Road Reservoir	McNair Dr/Armour Ct
Sarita Pump Station	5140 Sarita Avenue
Sarita Reservoir	5140 Sarita Avenue
Skyline Pump Station	4901 Chalet Pl
Skyline Reservoirs (2)	4901 Chalet Pl

Critical Infrastructure Type	Location
Woodlands Reservoir	Indian River Cres/Frames Pl
Woodlands Sunshine Pump Station	Indian River Cres

3.3 HIGH ENVIRONMENTAL AND CULTURAL VALUES

The following section identifies high environmental and cultural values and where they are located. Environmental, cultural and recreational values are high throughout the AOI. A more detailed account of environmental and biodiversity aspects of this region is presented in Section 3.3.3.

3.3.1 Drinking Water Supply Area and Community Watersheds

As outlined above, the DNV receives its potable water from the Greater Vancouver Water District reservoirs. Protection from contamination for these valuable water sources is ensured through the following avenues: 1) restricted access to watersheds; 2) restoration of disturbed areas and deactivation of watershed roads that are no longer in use; 3) management of watershed via minimal intervention (i.e., in the event infrastructure is required); and 4) cooperative management with adjoining municipalities to preserve water quality.²⁵

District staff did not express immediate concerns related to water availability from the Greater Vancouver Water District distribution system. Each year since 2001 the DNV has produced a comprehensive drinking water quality report which includes information regarding bacteriological quality, physical parameters, chemical parameters and operator training and certification. This report is then submitted to Vancouver Coastal Health's Medical Health Officer for review.

The AOI overlaps the Capilano, Seymour and Sunshine community watersheds. The first two are located in the northern portions of the AOI, while the latter is located northwest of the communities of North Woodlands and Sunshine. Due to their status as community watersheds, special management considerations are required within and adjacent to their perimeter to maintain timing of flow and the volume and quality of the water source.

Six watersheds exist within the DNV AOI. From west to east, these include the Capilano River, Mackay Creek, Mosquito Creek, Lynn Creek, Seymour River, and Coldwell Creek. As stated above, portions of the Capilano, Seymour, and Coldwell Creek (Sunshine) watersheds are designated as community watersheds and have therefore been assigned additional protection under the *Forest & Range Practices Act* (FRPA). All of these watersheds feed into residential and urban areas prior to entering Burrard Inlet, where forest cover is only maintained directly adjacent to the stream or river channel. Within the Metro Vancouver watersheds (Capilano and Seymour) there are considerable old growth stands, otherwise, forest stands within the watersheds consist of primarily second growth stands of western hemlock, amabilis fir, Sitka spruce, Douglas-fir, and western redcedar at lower elevations, with predominantly old growth yellow-

²⁵ Metro Vancouver Drinking Water Management Plan 2011. Available online at: <http://www.metrovancouver.org/services/water/WaterPublications/DWMP-2011.pdf>

cedar and mountain hemlock at higher elevations. Black cottonwood, red alder, and bigleaf maple are deciduous tree species present within these watersheds, typically only at lower elevations. Species diversity decreases with increase in elevation within the watersheds and stands become dominated by mountain hemlock and amabilis fir, a smaller component of yellow-cedar and a shrub understorey. Stand density and species composition varies depending on the disturbance history (type and extent) and the local environmental factors (soil moisture and nutrient regimes, topography). Disturbances within the AOI that influence the above factors consist of both human-related and natural disturbances such as insect and disease outbreaks, wildfire, windthrow, landslides, and timber harvesting.

In conjunction with this CWPP Update, a Post-Wildfire Rehabilitation Plan (Blackwell, 2019) was developed to address the impacts to water quality and slope stability, including the elevated risks from landslide and debris flows following a wildfire event on DNV lands. The aforementioned plan sets out a strategy for short-term emergency stabilization and long-term rehabilitation of burned areas and protection of key watershed values.

3.3.2 Cultural and Recreational Values

The Coast Salish are the main First Nations group whose territory overlaps the DNV. Within this group, a total of 15 First Nations with aboriginal interests were identified in the AOI using the BC Consultative Areas Database. These include the following mainland-based First Nations: Kwikwetlem Nation, Squamish Nation, Musqueam Indian Band, Tsleil-Waututh Nation, Sto:lo Nation and Sto:lo Tribal Council, Soowahlie First Nation, Shxw'ow'hamel First Nation, Skawahlook First Nation, and Seabird Island Band, and the following Vancouver Island based First Nations: Halalt First Nation, Stz'uminus First Nation, Cowichan Tribes, Lake Cowichan First Nation, Lyackson First Nation, and Penelakut Tribe.

Archaeological sites and remains in BC that pre-date 1846 are protected from disturbance, intentional and inadvertent, by the *Heritage Conservation Act* (HCA), which applies on both private and public lands. Sites that are of an unknown age that have a likely probability of dating prior to 1846 (i.e., lithic scatters) as well as Aboriginal pictographs, petroglyphs, and burials (which are likely not as old but are still considered to have historical or archaeological value) are also 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.

Due to site sensitivity, the locations of archaeological sites may not be made publicly available. However, data provided by the MFLNRORD Archaeology Branch confirms that numerous sites exist in the AOI. Prior to stand modification for fire hazard reduction, and depending on treatment location, preliminary reconnaissance surveys may 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 archaeological 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 all identified First Nations at the site level and with sufficient time for review and input regarding their rights and interests prior to prescription finalization or implementation.

Recreational and tourist values in the District are significant. Several top ranked tourist attractions and heavily visited sites and trails are located in the AOI including: Grouse Mountain Resorts, Capilano Suspension Bridge, Lynn Canyon Park, Lynn Headwaters Regional Park, Quarry Rock, the Baden Powell trail, Mount Seymour Provincial Park, and Maplewood Farm among others. In addition to hiking trails, the DNV has extensive renowned and well-used mountain bike trail networks, particularly on Fromme and Seymour mountains. Consequently, the District serves as a busy recreational area and access hub to backcountry areas beyond. Considerations for raising awareness of wildfire prevention among the public and backcountry user groups (i.e., mountain bikers, hikers, trail runners, dog walkers and others) are discussed in Section 5.3.

3.3.3 High Environmental Values

The Conservation Data Centre (CDC), which is part of the Environmental Stewardship Division of the Ministry of Environment and Climate Change Strategy, is the repository for information related to plants, animals and ecosystems at risk in BC. To identify species and ecosystems at risk within the AOI, 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 three occurrences of Red-listed species and one occurrence of Blue-listed species (Table 5). Additionally, the AOI overlaps with one masked occurrence. Through consultation with the CDC and a biologist or qualified professional, all site level operational plans must determine if these occurrences 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. The BC Species & Ecosystems Explorer, which allows combined searches for species and ecological communities, should also be consulted at the prescription phase. Due to potential limitations of existing databases, consultation with a QP with local knowledge may also be recommended at the prescription phase.

Table 5. Publicly available occurrences of Red and Blue-listed species recorded within the AOI.

Common Name	Scientific Name	Category	BC List	Habitat Type
Pacific Water Shrew	<i>Sorex bendirii</i>	Vertebrate Animal	Red	Terrestrial: Forest Needleleaf; Riparian: Old Growth
Small-Spored Rock Moss	<i>Andreaea sinuosa</i>	Nonvascular Plant	Red	Terrestrial: Rock Outcrop

Common Name	Scientific Name	Category	BC List	Habitat Type
Northern Red-legged Frog	<i>Rana aurora</i>	Vertebrate Animal	Blue	Terrestrial: Forest Needleleaf; Riverine: Creek
Poor Pocket Moss	<i>Fissidens pauperculus</i>	Nonvascular Plant	Red	Terrestrial: Silt Outcrop

3.4 OTHER RESOURCE VALUES

There are multiple resource values associated with the land base in the AOI, including recreation and tourism, wildlife habitat, drinking water supplies, and many others.

The Fraser Timber Supply Area (TSA) does not encompass the DNV, as it is an urbanized region in which no primary forestry activities occur. As such, higher level planning documents associated with the TSA do not apply and fuel reduction treatments will not have an effect on the timber harvesting land base.

3.5 HAZARDOUS VALUES

Hazardous values are defined as values that pose a safety hazard to emergency responders. Generally, the DNV does not have a significant number of industrial sites or facilities that can be considered hazardous values at risk. A comprehensive list of hazardous values within the AOI is included in Table 6.

The management and treatment of fuels in proximity to hazardous infrastructure is critical in order to reduce the risks associated with both structural fire and wildfire. Specifically, best management practices recommended for management of hazardous values include: 1) incorporating FireSmart planning and setback requirements for all infrastructure in this category; and 2) maintaining emergency fuel/propane emergency shut off procedures to be enacted immediately and efficiently in the event of an approaching wildfire or ember shower.

Table 6. Hazardous Infrastructure Identified in CWPP field visits.

Critical/Hazardous Infrastructure Name	Location
North Shore Transfer Station	30 Riverside Dr West
Waste Control Services Recycling & Shredding Depot	1493 Dominion St
Neptune Bulk Terminals	1001 Low Level Rd
North Vancouver Sulfur Terminal	1995 West 1 st St
North Shore Wastewater Treatment Plant	Pemberton Ave and West 1 st St (under construction)

SECTION 4: WILDFIRE THREAT AND RISK

This section summarizes the factors that contribute to and were assessed in the determination of wildfire threat around the community. These factors include the natural fire regime and ecology, the Provincial Strategic Threat Analysis, and the local wildfire risk analysis completed for the AOI.

4.1 FIRE REGIME, FIRE DANGER DAYS AND CLIMATE CHANGE

The ecological context of wildfire and the role of fire in the local ecosystem under historical conditions is an important basis for understanding the current conditions and the potential implications of future conditions on wildfire threat to the community. Historical conditions may be altered by the interruption of the natural fire cycle (i.e., due to fire exclusion, forest health issues, human development) and/or climate change.

4.1.1 Fire Regime

Ecological Context and Forest Structure

The Biogeoclimatic Ecosystem Classification (BEC) system describes zones by vegetation, soils, and climate. Map 3 outlines the BEC zones found within the AOI. Regional subzones are derived from relative precipitation and temperature. Subzones may be further divided into variants based upon climatic variation and the resulting changes in the vegetative communities; variants are generally slightly drier, wetter, snowier, warmer, or colder than the climate of the regional subzone.²⁶ The following section is synthesized from information found on MFLRNORD's Research Branch BECWeb.²⁶

BEC zones have been used to classify the Province into five Natural Disturbance Types (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 acceptable²⁷.

The DNV AOI is characterized by the following BEC subzones in order of highest to lowest occurrence within the AOI:

Coastal Western Hemlock Dry Maritime Subzone (CWHdm) – NDT 2

The CWHdm is the dominant BEC subzone, comprising 55% of the District AOI (Table 7) at lower to mid elevations (0-650 m). The CWHdm is characterized by relatively mild winters and warm, dry summers. Moisture deficiencies occur uncommonly on zonal sites. These ecosystems support Douglas-fir, western redcedar, and western hemlock forest stands. The CWHdm is classified as a Natural Disturbance Type 2 – forest ecosystems with infrequent stand initiating events where fires are often of moderate size (20 to 1000 ha) with a mean return interval of fire of approximately 200 years.²⁷ Many of these fires occur after periods of extended drought and produce a forested landscape characterized by extensive areas of mature forest with intermixed patches of younger forests.²⁷ Although the fire frequency is not high and fires are generally not large, pre-planning and preparation are essential to reduce the negative impacts of a wildfire.

²⁶ <https://www.for.gov.bc.ca/HRE/becweb/resources/classificationreports/subzones/index.html>

²⁷ Province of British Columbia, 1995. Biodiversity Guidebook, s.l.: s.n.

Coastal Western Hemlock Very Wet Maritime Subzone Montane Variant (CWHvm2) – NDT 1

The CWHvm2 is the second most common BEC subzone in the AOI, representing approximately 21% of the District AOI, occupying the elevation sites above CWHvm1 within the AOI. In southern BC it occurs at elevations of approximately 650 to 1000 m²⁸. The climate of the CWHvm2 is wet and humid, with cool short summers and cool winters with substantial snowfall²⁸. Western hemlock, amabilis fir, yellow cedar and mountain hemlock are common tree species in these ecosystems. The CWHvm2 is classified as NDT 1 – forest ecosystems with rare stand-initiating events. These are forest ecosystems that experience relatively small disturbances in terms of spatial extent. They have historically resulted in uneven-aged, heterogeneous stand structures from rare and small disturbances caused by fire, wind and/or landslides. The CWH ecosystems in this NDT experience a mean disturbance interval of 250 years.²⁷

Coastal Western Hemlock Very Wet Maritime Subzone Submontane Variant (CWHvm1) – NDT 1

The CWHvm1 represents approximately 18% of the AOI (Table 7) at lower to mid elevations (0-650 m) above the CWHdm. The CWHvm1 is characterized by wet and humid climate with relatively mild and warm winters and cool summers. This BEC subzone and variant receive a high level of precipitation, though variability exists and is highly dependent on topography. These ecosystems support western hemlock, amabilis fir and to a lesser extent, western red cedar forest stands. The CWHvm1 has a similar NDT as the CWHvm2.

Mountain Hemlock Moist Maritime Subzone Windward Variant (MHmm1) – NDT 1

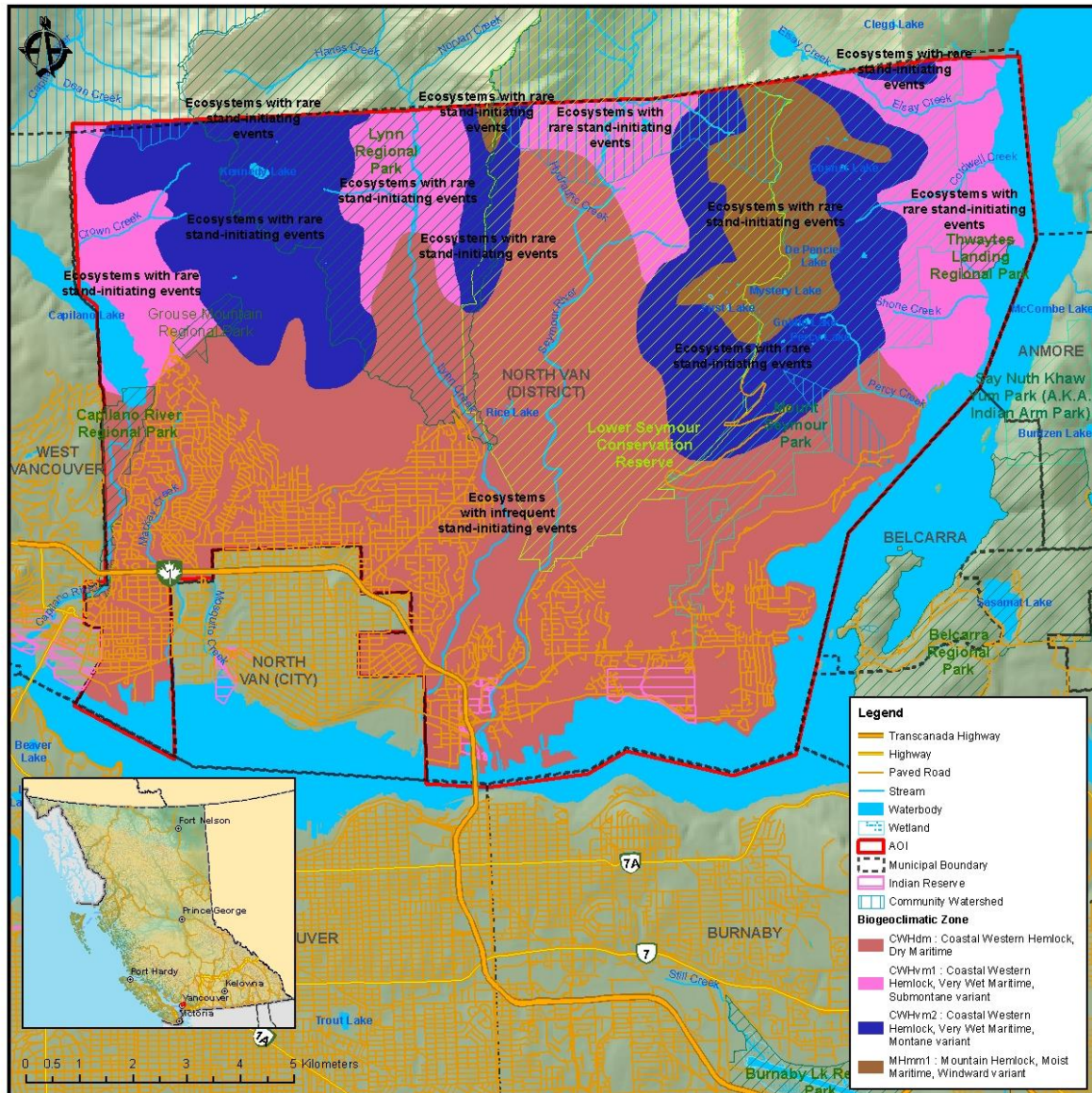
The MHmm1 makes up a small proportion (approximately 6%) of the DNV AOI (Table 7) and occupies the highest elevation sites within the AOI at approximately 800-1350 m, above the CWHvm2. The MHmm1 is characterized by a wet climate with cold, wet winters and cool, moist summers. This BEC subzone and variant receives a high level of precipitation, typically in the form of snow, and snowpacks can persist well into the summer months. These ecosystems support stands of mountain hemlock, amabilis fir and to a lesser extent, yellow-cedar. The MHmm1 is classified as NDT 1, similar to the CWHvm2 and CWHvm1. The MH ecosystems in this NDT experience a mean disturbance interval of 350 years.²⁷

Table 7. BEC zones and natural disturbance types found within the AOI.

Biogeoclimatic Zone	Natural Disturbance Type	Area (ha)	Percent (%)
CWHdm: Coastal Western Hemlock, Dry Maritime	NDT 2	9,746	55%
CWHvm1: Coastal Western Hemlock, Very Wet Maritime, Submontane variant	NDT 1	3,275	18%
CWHvm2: Coastal Western Hemlock, Very Wet Maritime, Montane variant	NDT 1	3,751	21%

²⁸ Green and Klinka, 1994.

Biogeoclimatic Zone	Natural Disturbance Type	Area (ha)	Percent (%)
MHmm1: Mountain Hemlock, Moist Maritime, Windward variant	NDT 1	991	6%
TOTAL		17,764	100%



Map 3. Biogeoclimatic Zones within the AOI.

Forest Health Issues

Several forest health issues were identified during field assessments in the DNV AOI. Invasive species commonly occur in many of the parks and protected areas in the municipality, with some areas having low to no forest cover due to invasive species competition during stand establishment or development. The occurrence of species such as English holly and English ivy were noted in low-disturbance interface forest stands within 200 m from the nearest road or establishment. The removal of invasive species should occur concurrently with fuel treatments to ensure cost efficiencies. Site monitoring should occur post-treatment to evaluate treatment efficacy and assess further mitigation requirements. English holly treatment may be in the form of manual removal, with small plants being pulled to remove the roots and large plants cut at the root collar to suppress the growth of future sprouts. English ivy mitigation can occur via manual pruning or pulling of the plant at the root and removal of resulting plant material from the site, avoiding cuttings, as those can sprout. Areas treated for English ivy removal should be mulched or covered in chips produced during the fuel treatment, and frequently monitored and managed post-treatment.

Impacts of hemlock dwarf mistletoe were noted throughout most second-growth western hemlock leading stands (particularly prevalent in Lynn Headwaters Regional Park and near Mount Fromme). Dwarf mistletoe causes stem and branch swelling, with research showing that hemlock mistletoe results in significant reductions in radial growth, annual volume and height increment in mature hemlock trees²⁹ and increased susceptibility to other disturbances such as windthrow. Highly infected stems and limbs represent a hazard from both a fuel management and public safety perspective. In order to increase forest resilience within the DNV, it is recommended that second-growth hemlock leading stands within 300 m of interface development or critical infrastructure be assessed and targeted for restoration treatments. Given the potential for windthrow and increased surface fuel loading resulting from hemlock dwarf mistletoe, it is imperative that the DNV consider strategies to reduce the hazard associated with these types of stands. Strategies could include implementing patchy gap openings, where hemlock dwarf mistletoe infected trees are targeted for removal, followed by low-density planting of other site-appropriate species. Post-treatment planting will help ensure that the natural hemlock infill process is delayed or mitigated. Example areas of previous small-scale restoration projects that showcase the aforementioned approaches are located northeast of the intersection between Mountain Highway and the Baden Powell Trail on Mount Fromme (i.e., north of the Upper Lynn and Braemar neighbourhoods).

The Coast Forest Health Overview outlines forest health issues present within the Fraser TSA.³⁰ This overview and forest health strategy (2015-2017) outlines several forest health issues that are most prevalent within the timber supply area. Of particular concern, due to the severity or extent of outbreaks, are the Douglas-fir beetle, Swiss needle cast and Douglas-fir needle cast, root diseases (primarily laminated root disease and *Armillaria* spp.), drought, and windthrow. Outbreaks of western

²⁹ Thomson, Alan & B. Smith, R & Alfaro, Rene. (2011). Growth patterns in immature and mature western hemlock stands infected with dwarf mistletoe. *Canadian Journal of Forest Research*. 14. 518-522. 10.1139/x84-096.

³⁰ 2015-17 Coastal Timber Supply Areas Forest Health Overview. 2015.

hemlock looper and western spruce budworm were a concern in the past, however, occurrences of these pests have declined in recent years.

Spatial data available through DataBC³¹ indicates one instance of Douglas-fir beetle (2013, low severity infection of 7.8 ha) adjacent to the Seymour River. Two flooding damage instances of high and moderate severity (3 ha in 2013 and 2015, respectively) were also noted. Flood damage can result in high levels of windthrow due to the destabilization of infected trees' root systems. One instance of windthrow was noted in Cates Park in 2007 (9 ha). Mortality and reduced vigour of western redcedar was also noted during field assessments of the AOI. These forest health factors have implications for the fire behaviour potential, level of surface fuel accumulation in affected stands, as well as access and working conditions for fire fighters in the event of wildfire.

Human Development and Natural Events

Since the establishment of communities in the AOI, there have been numerous anthropogenic and natural changes that have occurred on the landscape. Most land cover change in the AOI in recent years can be described as residential and commercial development. This process entails land clearing and road building. Abiotic and biotic natural events have typically occurred at small geographic scales. The overall implication of human development is an increase in human ignition potential with a decrease in hazardous fuels cover as land clearing for human development generally increases the non-fuel and O-1a/b fuel types.

The following is a list of notable changes observed within the AOI and a description of associated implications regarding wildfire behaviour.

- Residential and industrial land development has occurred in the AOI since the mid-19th century, following settlement by early pioneers engaging in resource-based activities. Over the past 50 years, new residential development has expanded from the existing neighborhoods of Lynn Valley, Lonsdale, Deep Cove, Norgate, Capilano Highlands, and Edgemont Village³². This has resulted in an increased wildland-urban interface in particular areas (Section 5.2.3) and an increase in fire suppression in ecosystems that had a historic fire interval of 200-350 years. Population growth is expected to continue and the DNV's favourable climate, high recreational and landscape values, and proximity to Vancouver make it a desirable place to live and work or retire.
- Front-country and backcountry use of trails within the DNV has increased in recent years, with one study citing a 6-fold increase in use of the North Vancouver mountain biking trails since

³¹ https://catalogue.data.gov.bc.ca/pt_BR/dataset/pest-infestation-polygons (current as of September, 2017)

³² North Vancouver Museum and Archives, North Van History Highlights. Accessed from <https://nvma.ca/education/history/#toggle-id-40>

2006.³³ Increased recreational use of forested areas has implications for human caused ignitions, particularly when these activities are undertaken during the dry summer months. Backcountry activities have the added complication of being areas with poor access for suppression efforts.

- Since the 2007 CWPP, fuel treatments have been undertaken in approximately 51 ha within the DNV AOI. These treatments have reduced fine and medium surface fuel loading and laddering potential adjacent to values at risk. Further monitoring and management of these areas will be required in the future in order to maintain the reduced fire threat and fire behaviour potential.

4.1.2 Fire Weather Rating

The Canadian Forestry Service developed the Canadian Forest Fire Danger Rating System (CFFDRS) to assess fire danger and potential fire behaviour. Fire Danger Classes provide a relative index of the ease of ignition and the difficulty of suppression. A network of fire weather stations is maintained during the fire season by MFLNRORD 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, restrict high risk activities when appropriate, and to determine hazard ratings associated with bans and closures.

The BC *Wildfire Act* [BC 2004] and *Wildfire Regulation* [BC Reg. 38/2005] specify responsibilities and obligations with respect to fire use, prevention, control and rehabilitation, and 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. Ground crews easily contain fires 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.

It is important for the development of appropriate prevention programs that the average exposure to periods of high fire danger is determined. 'High fire danger' is considered as Danger Class ratings of 4

³³ "Regional economic impact study shows major growth of mountain bike tourism in Sea to Sky Corridor". Independent Sports News. Accessed from <http://www.independentsportsnews.com/2018/06/21/regional-economic-impact-study-shows-major-growth-mountain-bike-tourism-sea-sky-corridor/>

(High) and 5 (Extreme). Danger class days were summarized to provide an indication of the fire weather in the AOI. Considering fire danger varies from year to year, historical weather data can provide information on the number and distribution of days when the AOI is typically subject to high fire danger conditions, which is useful information in assessing fire risk.

Figure 1 displays the average frequency of Fire Danger Class days between the months of April and October. The data summarized comes from the Capilano weather station (daily data for the years 2002 – 2018). According to Figure 1, the months with the highest average number of ‘high’ fire danger class days are July and August. Historically, ‘high’ fire danger days also occur in June and September. The average number of ‘extreme’ fire danger class days is highest in July, August, and September. July historically has the highest number of days in the ‘extreme’ class when compared to June and September and August has the highest number of ‘high’ danger class days.

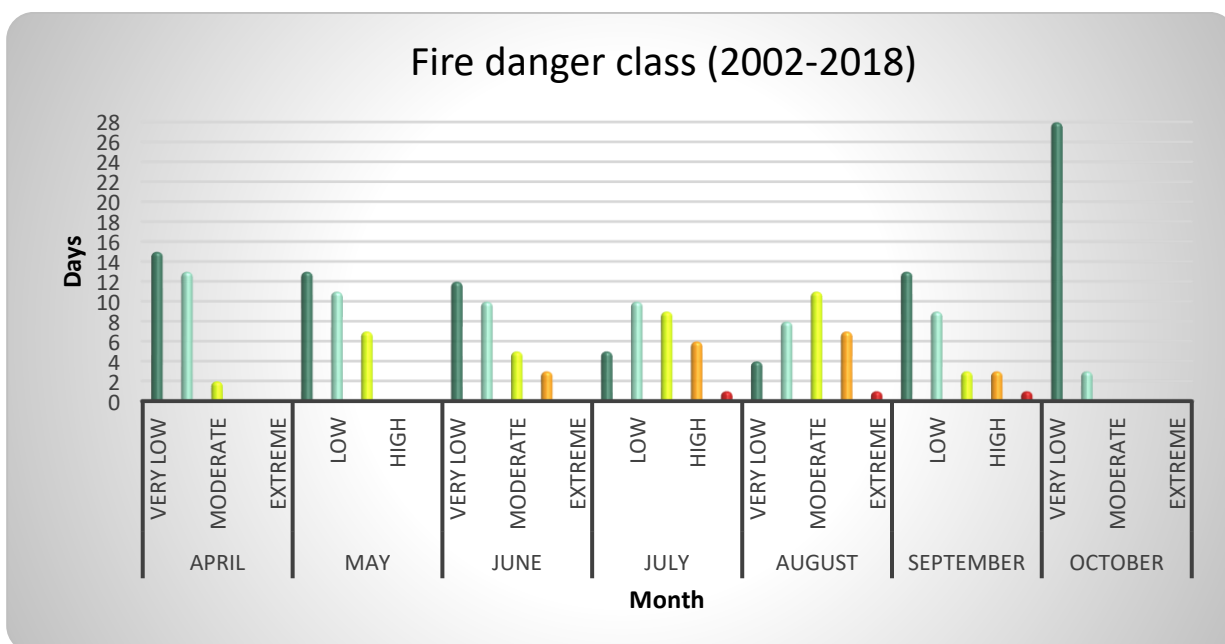


Figure 1. Average number of danger class days for the Capilano weather station. Summary of fire weather data for the years 2002 - 2018.

4.1.3 Climate Change

Climate change is a serious and complex aspect to consider in wildfire management planning. Warming of the climate system is unequivocal, and since the 1950s, each of the last three decades has been successively warmer at the Earth’s surface than any preceding decade since 1850. The period from 1983 to 2012 was likely the warmest 30-year period of the last 1400 years in the Northern Hemisphere.³⁴

³⁴ Intergovernmental Panel on Climate Change. (2014) Climate change 2014: Synthesis report, summary for policymakers. 32p.

Numerous studies outline the nature of these impacts on wildland fire across Canada, and globally. Although there are uncertainties regarding the extent of the impacts of climate change on wildfire, it is clear that the frequency, intensity, severity, duration and timing of wildfire and other natural disturbances is expected to be altered significantly with the changing climate.³⁵ Despite the uncertainties, trends within the data are visible. As reported in the DNV's 2017 *Climate Change Adaptation Strategy*³⁶, temperatures in the DNV have increased by approximately 1.2°C since 1980. Wildfire emerged as a top threat to the DNV in the aforementioned strategy which details the following climatic changes projected for the 2050s relative to a 1980s baseline:

- Increase in average annual temperatures by approximately 2.9 °C;
- Increase in average number of hot summer days (above 30 °C) from 2 to 13 days per year;
- Increase in the temperature of extreme hot days, expected to happen once every 20 years (with a 5% chance of occurring any year), from 33 °C to 38 °C;
- Decrease in annual summer precipitation by 18%, and increase in maximum number of consecutive dry days per year from 19 to 23 days on average;
- Decrease in snowpacks by an average of 89% with rates of decline projected to vary from approximately 100% near sea level to less than 30% at higher elevations (the tops of Grouse and Seymour mountains); and
- Decrease in number of days with ice (68%) and a 63% decrease in the number of days with frost, which could lead to an increase in pests and invasive species.

Climate change projections modelled by the Pacific Climate Impacts Consortium are outlined in the *Climate Summary for South Coast Region*³⁷. Similar trends are projected to the 2050s from a 1961 to 1990 baseline. Projected changes for the South Coast region include a 1.7 °C increase in annual temperature, a 6% increase in annual precipitation, but with a 14% decline in precipitation during the summer, and a decrease in snowfall in winter (-24%) and spring (-54%).³⁸

An increased frequency of natural disturbance events is expected to occur as a result of climate change with coincident impacts to ecosystems. These include:

- Storm events, including catastrophic blowdown and damage to trees from snow and ice;
- Wildfire events and drought; and
- Increased winter precipitation may result in slope instability, mass wasting, increased peak flows (loss of forest cover from fire or other disturbance may increase the chance of mass wasting).

³⁵ Dale, V. et al. 2001.

³⁶ Climate Change Adaptation Strategy. Accessed from: <https://www.dnv.org/sites/default/files/edocs/climate-change-adaptation-strategy.pdf>

³⁷ Accessed from: https://www.pacificclimate.org/sites/default/files/publications/Climate_Summary-South_Coast.pdf

³⁸ All projected change values are the ensemble median - a mid-point value, chosen from a PCIC standard set of Global Climate Model (GCM) projections.

Insects and disease occurrence of spruce beetle and Swiss needle cast may increase; outbreaks of western hemlock looper may increase.³⁹ Other research regarding the intricacies of climate change and potential impacts on wildfire threats to Canadian forests has found that:

- Fuel moisture is highly sensitive to temperature change and projected precipitation increases will be insufficient to counteract the impacts of the projected increase in temperature. Results conclude that future conditions will include drier fuels and a higher frequency of extreme fire weather days.⁴⁰
- The future daily fire severity rating (a seasonally cumulative value) is expected to have higher peak levels and head fire intensity is expected to increase significantly in Western Canada. A bi-modal (spring-late summer) pattern of peak values may evolve to replace the historical late summer peak which is the current norm.⁴¹ The length of fire seasons is expected to increase and the increase will be most pronounced in the northern hemisphere, specifically at higher latitude northern regions. Fire season severity seems to be sensitive to increasing global temperatures; larger and more intense fires are expected and fire management will become more challenging.^{42, 43}
- More extreme precipitation events (increased intensity and magnitude of extreme rainfall) are expected, particularly in April, May and June, along with dry periods between major events (increased summer drought periods). Annual runoff is also expected to increase and the timing of peak flows are anticipated to occur earlier in the spring.⁴⁴
- Future climatic conditions may be more suitable for, or give competitive advantage to, new species of plants, including invasive species.

In summary, climate scientists expect that the warming global climate will trend towards wildfires that are increasingly larger, more intense and difficult to control. Furthermore, it is likely that these fires will be more threatening to WUI communities due to increased potential fire behaviour, fire season length, and fire severity. This trend is expected to be disproportionately felt in northern latitudes.⁴⁵

³⁹ MFLNRO, 2016.

⁴⁰ Flannigan, M.D et al. 2016.

⁴¹ deGroot, W. J. et al. 2013.

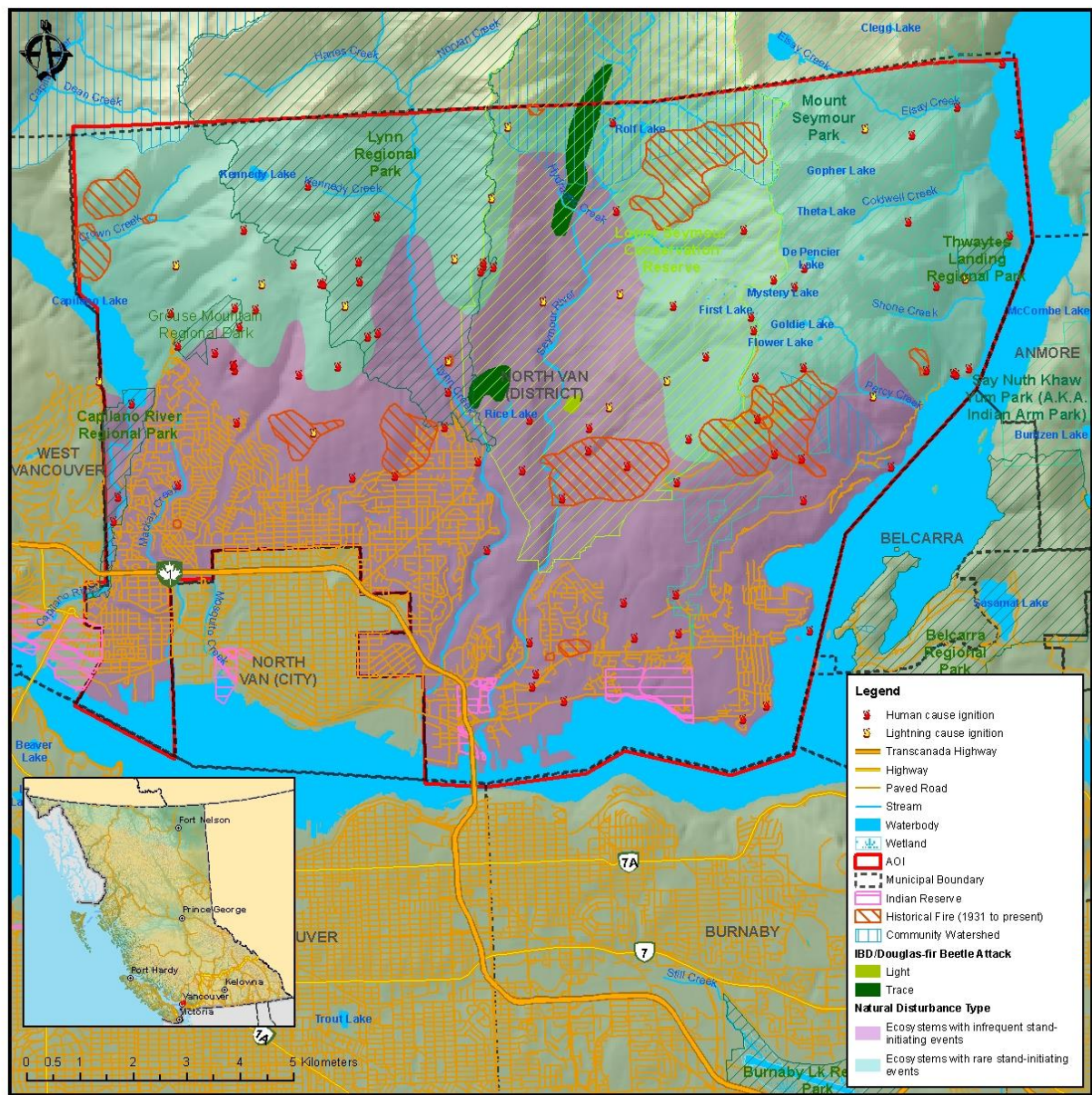
⁴² Flannigan, M.D et al. 2013.

⁴³ Jandt, R. 2013. Alaska Fire Science Consortium Research Brief 2013-3.

⁴⁴ British Columbia Agriculture & Food Climate Action Initiative, 2012.

⁴⁵ <https://pics.uvic.ca/sites/default/files/uploads/publications/Adapt-FraserMetroVan%20Crawford.pdf>

⁴⁵ All research noted was completed for Canada or globally, not for the AOI. Direct application of trends may not be appropriate, although general expectations for Canada were noted to be consistent across multiple studies.



Map 4. Fire Regime, Ecology and Climate Change.

4.2

PROVINCIAL STRATEGIC THREAT ANALYSIS

The Provincial Strategic Threat Analysis (PSTA) evaluates multiple data sets to provide a coarse (high-level) spatial representation of wildfire threats across BC. The information in this section is a synthesis of the BCWS' Provincial Strategic Threat Analysis 2017 Wildfire Threat Analysis Component.⁴⁶ Three inputs are combined to create the PSTA Wildfire Threat Analysis (WTA) Component:

- 1) **Historic fire density:** represents the ignition and fire spread potential based upon historic patterns and fire density weighted by fire size (larger fire perimeters were given a higher weight in order to reflect the greater cost and damage usually associated with larger fires) (see Map 5 below).
- 2) **Spotting impact:** represents the ability of embers or firebrands from a burning fire to be sent aloft and start new fires in advance of the firefront, or outside of the fire perimeter. Spotting is most often associated with high intensity crown fires in coniferous fuels and structure losses. For the WTA, the spotting analysis is based on estimating the threat to a given point on the landscape from the fuels surrounding it, up to a distance of 2 km. Spotting distances greater than 2 km are rare and unpredictable.
- 3) **Head fire intensity (HFI):** represents the intensity (kW/m) of the fire front, a measure of the energy output of the flaming front. HFI is directly related to flame length, fire spread rate and fuel consumption and a fire's leading edge. There is a strong correlation between HFI, suppression effort required and danger posed to suppression personnel. The HFI used in the WTA was developed using the 90th percentile fire weather index value.

The final wildfire threat analysis value was developed through an average weighting process of the aforementioned three layers: fire density 30%; HFI 60%; and spotting impact 10%. Water bodies were automatically given a value of (-1). The values were then separated into 10 classes (1 – 10) which represent increasing levels of overall fire threat (the higher the number, the greater the fire threat); threat class 7 is considered the threshold. Threat classes of 7 and higher are locations where the threat is severe enough to potentially cause catastrophic losses in any given fire season, when overlapping with values at risk. Classes were grouped into the following general threat class descriptions: low (1 – 3); moderate (4 – 6); high (7 – 8); and, extreme (9 – 10).

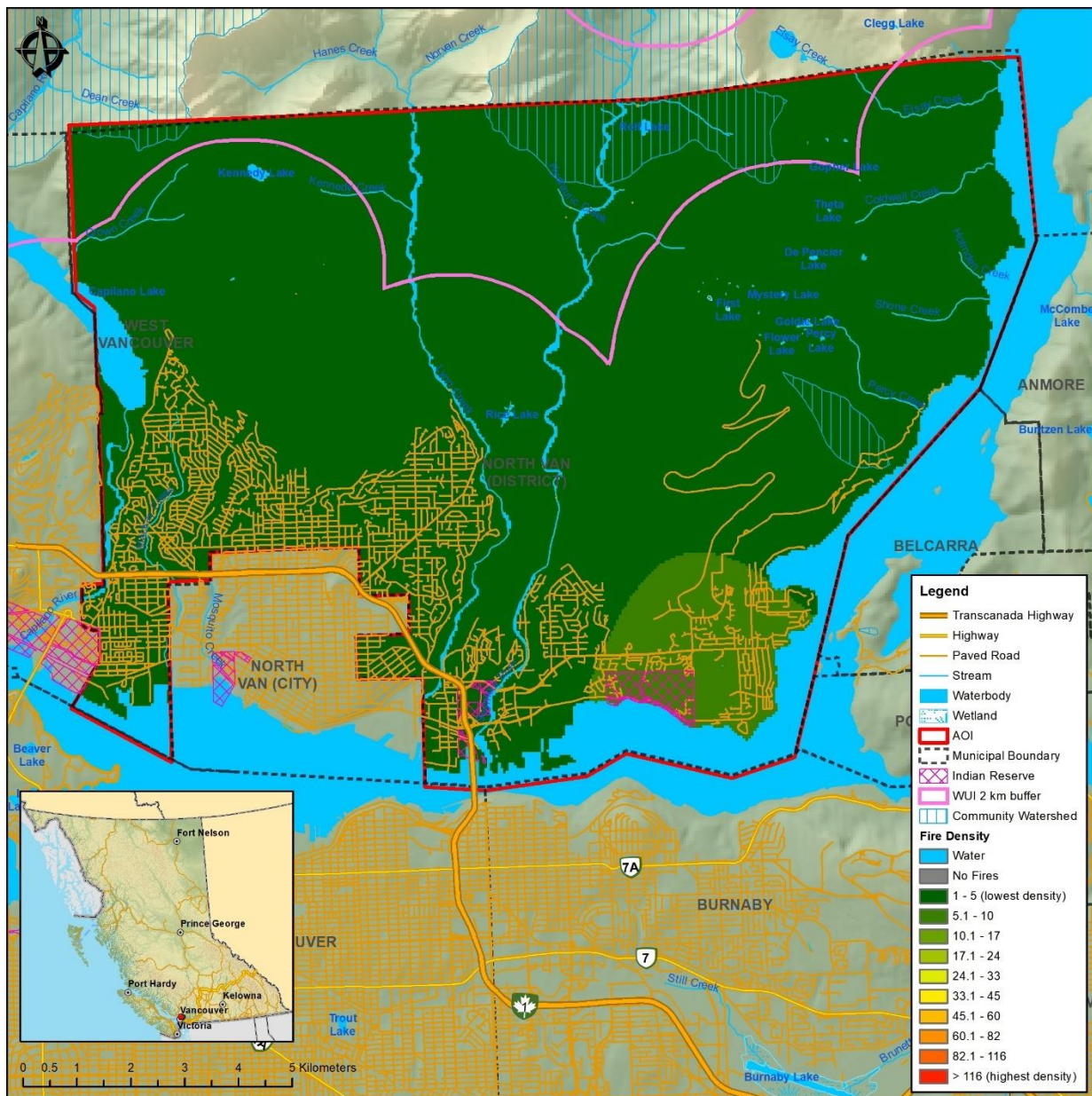
There are considerable limitations associated with the WTA Component based upon the accuracy of the source data and the modeling tools, the most notable being:

- Limited accuracy and variability of the fire history point data;
- Sensitivity to fuel type and the associated limitations of using fuel type approximations for fire behaviour modelling; and

⁴⁶ BC Wildfire Service. 2017. *Provincial Strategic Threat Analysis: 2017 Update*. Retrieved from: ftp://ftp.for.gov.bc.ca/HPR/external/publish/PSTA/Documents/Provincial%20Strategic%20Threat%20Analysis_2017%20Update.pdf.

- 90th percentile rating for HFI, which represents a near worst-case scenario which may be artificial in some circumstances.

The WTA serves to provide a provincial-level threat assessment for resource and land managers and local governments in order to complete landscape fire management planning and strategically plan efficient and effective wildfire risk reduction initiatives (i.e., placement or prioritization of fuel treatment areas, identification of values at risk, FireSmart planning, etc.). The WTA is then validated at the stand level in order to produce a finer, more accurate assessment of local threat.



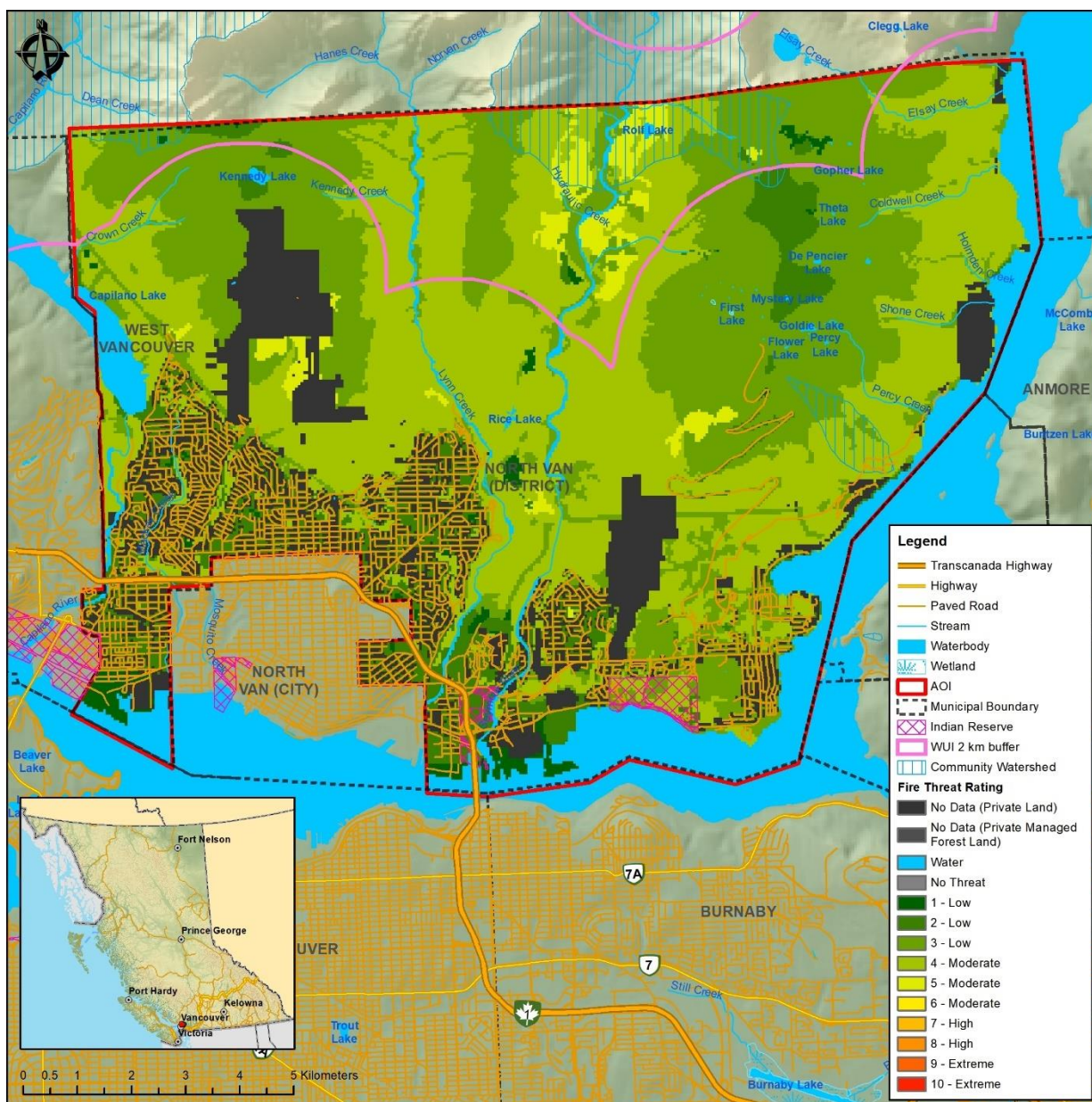
Map 5. Historical Fire Density.

4.2.1 PSTA Final Wildfire Threat Rating

Approximately 13 % of the AOI is categorized as either private land or private managed forest land and has no data for wildfire threat in the (PSTA). Low threat areas cover 41% of the AOI and water covers 9%. Approximately 38% of the AOI is categorized as having a moderate wildfire threat rating in the provincial Wildfire Threat Analysis (Table 8). According to the PSTA, the AOI does not contain high or extreme threat rating (Map 6).

Table 8. Overall PSTA Wildfire Threat Analysis for the AOI (rounded to the nearest hectare).

Threat Class	Area (ha)	Threat Class Description	Percent of AOI
-3	2,240	No Data (Private Land)	13%
-2	0	No Data (Private Managed Forest Land)	0%
-1	1,531	Water	9%
0	0	No Threat	0%
1	227	Low	41%
2	1,769		
3	5,218		
4	6,368		
5	411	Moderate	38%
6	0		
7	0		
8	0		
9	0	High	0%
10	0		
Total	17,764	-	100%



Map 6. Provincial Strategic Threat Rating.

4.2.2 Spotting Impact

Spotting impact is modelled by fuel type and distance class from a given fuel type. The layer estimates the threat of embers impacting a given point on the landscape from the fuel types surrounding it.

It has been found that, during extreme wildfire events, most home destruction has been a result of low-intensity surface fire flame exposures, usually ignited by embers in advance of the fire front. Firebrands can be transported long distances ahead of the wildfire, across fire guards and fuel breaks, and accumulate in densities that can exceed 600 embers per square meter. Combustible materials found

adjacent or near to values at risk can provide fire pathways allowing spot surface fires ignited by embers to spread and carry flames or smoldering fire into contact with structures.

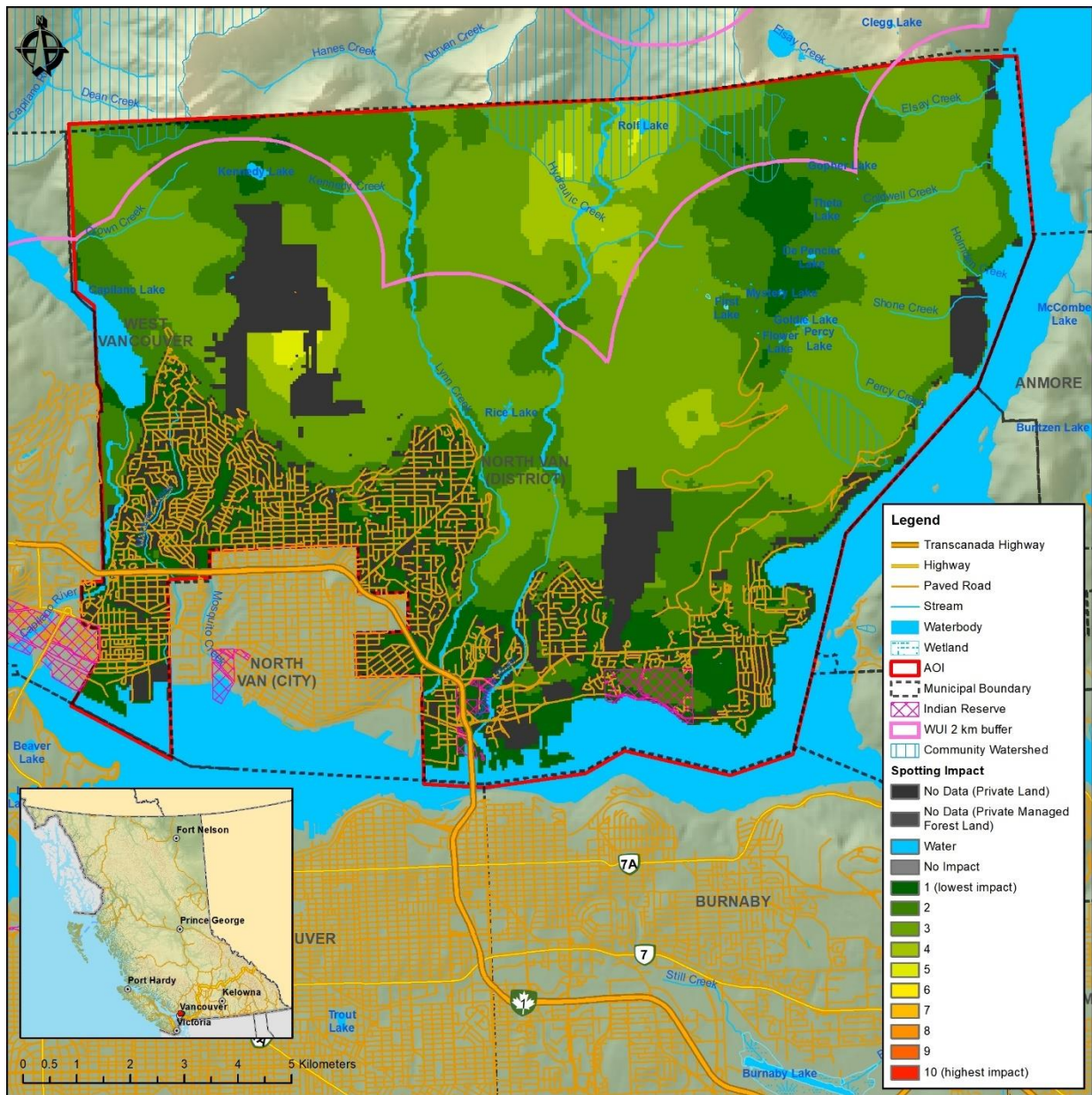
For example, an investigation of home destruction from the 2016 Fort McMurray, Alberta fire found that the vast majority of home ignitions in the interface (outer edges of urban neighbourhoods) were attributable to embers alighting on combustible material (home or adjacent areas).⁴⁷ Similarly, reports from the 2010 Fourmile Canyon fire outside Boulder, Colorado, found that only 17% of the 162 homes destroyed were attributed to crown fire.^{48,49} Instead of high intensity flames or radiant heat, the majority of homes ignited as a result of firebrands (or embers), which ignited the home directly or ignited lower-intensity surface fires adjacent to structures.⁴⁹ Post-fire studies have shown that it is uncommon for homes to be partially damaged by wildfire; survivability is based upon whether or not the structure, or area adjacent to the structure, ignites.

The AOI is generally low in terms of spotting impact, with isolated areas of moderate potential impact around Grouse Mountain Resort, Hydraulic Creek, and Rolf Lake and low-moderate impact to the west of Mount Seymour Road (Map 7).

⁴⁷ Westhaver, A. 2017. *Why some homes survived. Learning from the Fort McMurray wildland/urban interface fire disaster*. A report published by the Institute for Catastrophic Loss Reduction – ICLR research paper series – number 56. https://www.iclr.org/images/Westhaver_Fort_McMurray_Final_2017.pdf

⁴⁸ Calkin, D., J. Cohen, M. Finney, M. Thompson. 2014. *How risk management can prevent future wildfire disasters in the wildland-urban interface*. 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/>.

⁴⁹ Graham, R., M. Finney, C. McHugh, J. Cohen, D. Calkin, R. Stratton, L. Bradshaw, N. 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.



Map 7. Spotting Impact within the AOI.

4.2.3 Head Fire Intensity

HFI is correlated with flame length and fire behaviour. The greater the fire intensity (kW/m), or HFI and fire intensity class, the more extreme the fire behaviour is likely to be and the more difficult the fire will likely be to suppress (Table 9 and Map 8).

In the AOI, generally speaking, the highest fire intensity class is 9, which represents a blowup or conflagration with extreme and aggressive fire behaviour (Table 9). Class 9 as well as class 6, representing highly vigorous surface fire with torching and/or continuous crown fire; and class 4,

representing vigorous surface fire with occasional torching, are quite uncommon in the AOI (<1% to 1% of the area, respectively). Classes 1 and 3 dominate throughout at 26% and 25% of the AOI area, respectively (Map 8). Class 3 is described as vigorous surface fire and classes 2 and 1 are described as moderate vigour surface fire and smouldering surface fire, respectively.

Table 9. Head Fire Intensity Classes and Associated Fire Behaviour.

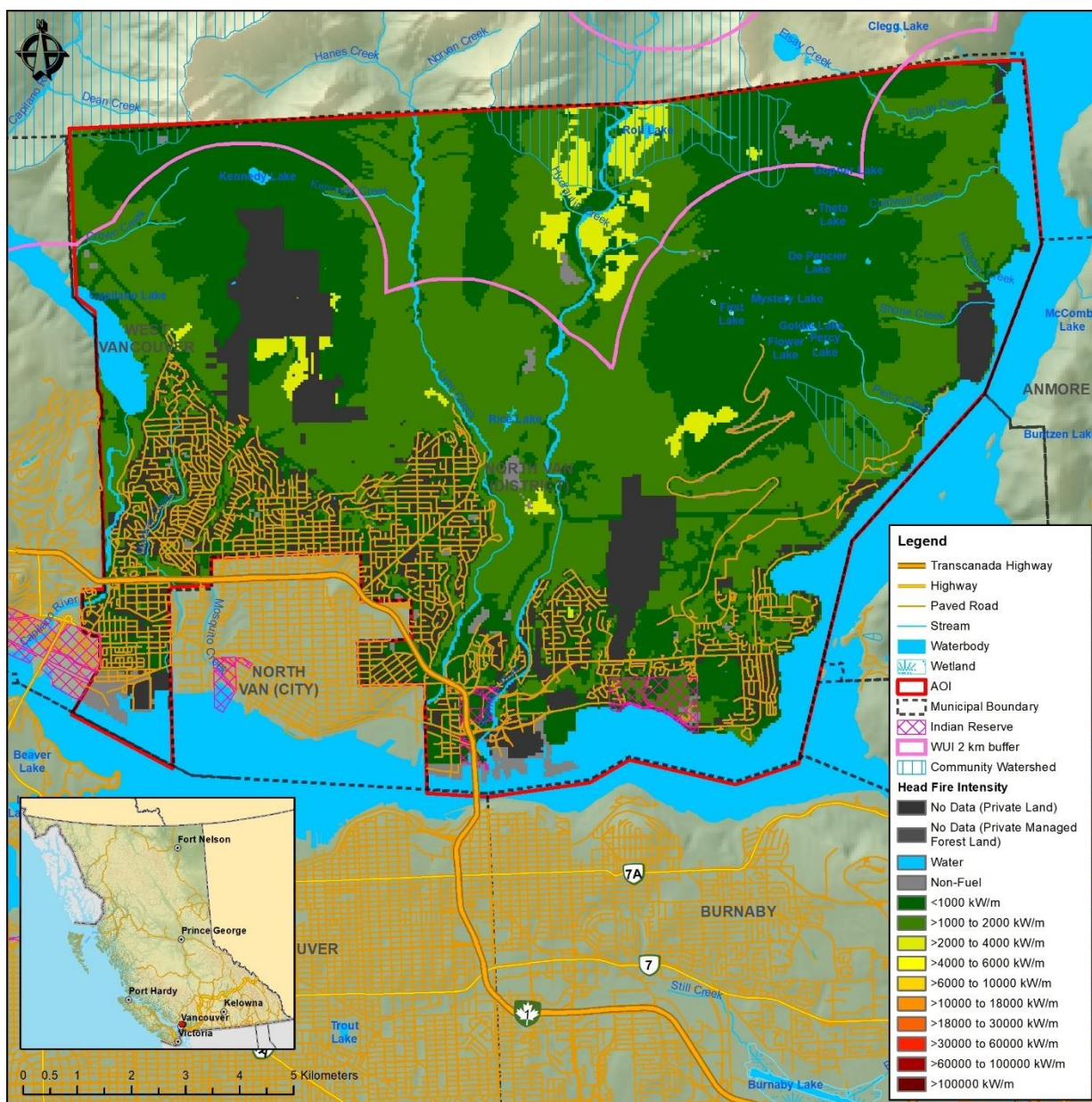
PSTA - HFI Class	Fire Intensity kW/m	Fire Intensity Class ⁵⁰	Percent of AOI	Flame Length (meters) ⁵¹	Likely Fire Behaviour ⁵²
1	0.01 – 1,000	2	39%	< 1.8	Smouldering surface fire
2	1,000.01 – 2,000	3	36%	1.8 to 2.5	Moderate vigour surface fire
3	2,000.01 – 4,000	4	2%	2.5-3.5	Vigorous surface fire
4	4,000.01 – 6,000	5	0%	3.5 to 4.2	Vigorous surface fire with occasional torching
5	6,000.01 – 10,000	5	<1%	4.2 to 5.3	Vigorous surface fire with intermittent crowning
6	10,000.01 – 18,000	6	0%	12.3 to 18.2	Highly vigorous surface fire with torching and/or continuous crown fire
7	18,000.01 – 30,000	6	<1%	18.2 to 25.6	Extremely vigorous surface fire and continuous crown fire
8	30,000.01 – 60,000	6	<1%	>25.6 ⁵³	Extremely vigorous surface fire and continuous crown fire, and aggressive fire behaviour
9	60,000.01 – 100,000	6	0%	>25.6	Blowup or conflagration, extreme and aggressive fire behaviour
10	≥ 100,000	6	<1%	>25.6	Blowup or conflagration, extreme and aggressive fire behaviour

⁵⁰ Head fire intensity should be classified by intensity class not fire rank. Fire rank is a visual description of conifer fires for air operations.

⁵¹ For calculating Flame Length, Bryam (1959) was used for surface fire (<10 000 kW/m) and Thomas (1963) was used for crown fire situations (>10 000 kW/m).

⁵² These characteristics will be different in open and closed forest fuel.

⁵³ With HFI over 30 000 kW/m the function of the equation are stretched beyond the expectation of the equation, fire is under the influence too many other factors.



Map 8. Head Fire Intensity within the AOI.

4.2.4 Fire History

Fire ignition and perimeter data are depicted in Map 4. Fire ignition data for the area is available for 1950-2017 and fire perimeter data from 1919-2017. Based on the fire ignition data, there have been 81 fire incidents within the AOI during that time period; 46 of which were human-caused and 35 of which were of miscellaneous/undetermined cause. Small and large historical wildfires have burned throughout the AOI, with a range in area from 2 ha to 252 ha. Based on the fire perimeter data, of the 18 fires that burned within the AOI, 17 were human-caused and one was lightning caused. All but one of these fires occurred between 1920 and 1941. The most recent fire occurred on the east side of Lynn Peak in

September 1967. This fire history demonstrates that the vast majority of fires in the AOI occurred due to humans and that the common fires and relatively large scales seen in the first half of the 20th century have not occurred since.

4.3 LOCAL WILDFIRE THREAT ASSESSMENT

WUI Threat Assessments were completed over six field days in February and March 2018, in conjunction with verification of fuel types. WUI Threat Assessments were completed in interface (i.e., abrupt change from forest to urban development) and intermix (i.e., where forest and structures are intermingled) areas of the AOI 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 visited.

Field assessment locations were prioritized based upon:

- PSTA WTA class – Field assessments were clustered in those areas with WTA classes of 5 or higher.
- Proximity to values at risk – Field assessments were clustered in the intermix and interface, as well as around critical infrastructure.
- Prevailing fire season winds – More field time was spent assessing areas upwind of values at risk.
- Slope position of value – More field time was spent assessing areas downslope of values at risk. Similarly, values at top of slope or upper third of the slope were identified as particularly vulnerable.
- Land ownership – Crown provincial and municipal land was the main focus of field assessments.
- Local knowledge – Areas identified as hazardous, potentially hazardous, with limited access/egress, or otherwise of particular concern due to vulnerability to wildfire, as communicated by local fire officials.
- Observations – Additional areas potentially not recognized prior to field work were visually identified as hazardous and assessed during the week.

A total of 41 WUI threat plots were completed and over 174 other field stops (i.e., qualitative notes, fuel type verification, and/or photograph documentation) were made across the AOI (see Appendix E for WUI threat plot locations).

4.3.1 Fuel Type Verification

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.⁵⁴ Fuel typing is recognized as a blend of art and science. Although a subjective process, the most appropriate fuel type was assigned

⁵⁴ Forestry Canada Fire Danger Group. 1992. Development and Structure of the Canadian Forest Fire Behavior Prediction System: Information Report ST-X-3.

based on research, experience, and practical knowledge; this system has been used within BC, with continual improvement and refinement, for 20 years.⁵⁵ It should be noted that there are significant limitations with the fuel typing system which should be recognized. Major limitations include: a fuel typing system designed to describe fuels which do not occur within the AOI, fuel types which cannot accurately capture the natural variability within a polygon, and limitations in the data used to create initial fuel types.⁵⁵ Details regarding fuel typing methodology and limitations are found in Appendix F. There are several implications of the aforementioned limitations, which include: fuel typing further from the developed areas of the study has a lower confidence, generally; and, fuel typing should be used as a starting point for more detailed assessments and as an indicator of overall wildfire threat, not as an operational, or site-level, assessment.

Table 10 summarizes the fuel types by general fire behaviour (crown fire and spotting potential) that exist within the DNV AOI. In general, the fuel type that may be considered hazardous in terms of fire behaviour and spotting potential in the AOI is the C-3 fuel type, particularly if there are large amounts of woody fuel accumulations or denser understory ingrowth. The C-5 fuel type has a moderate potential for active crown fire when wind-driven.⁵⁵ An M-1/2 fuel type can sometimes be considered hazardous, depending on the proportion of conifer stems within the forest stand; conifer fuels include those in the overstory as well as those in the understory. 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. Regular monitoring of fuel types and wildfire threat assessment should occur every 5 – 10 years to determine the need for threat assessment updates and the timing for their implementation.

⁵⁵ Perrakis, D.B., Eade G., and Hicks, D. 2018. Natural Resources Canada. Canadian Forest Service. *British Columbia Wildfire Fuel Typing and Fuel Type Layer Description* 2018 Version.

Table 10. Fuel Type Categories and Crown Fire Spot Potential. Only summaries of fuel types encountered within the AOI are provided (as such, other fuel types, i.e., C-1, C-2, C-4, C-6, C-7 and S-1/2/3 are not summarized below).

Fuel Type	FBP/CFDDRS Description	AOI Description	Wildfire Behaviour Under High Wildfire Danger Level	Fuel Type – Crown Fire/Spotting Potential
C-3	Mature jack or lodgepole pine	Fully stocked, late young forest (western red cedar, hemlock, and/or Douglas-fir), with crowns separated from the ground.	Surface and crown fire, low to very high fire intensity and rate of spread	High*
C-5	Red and white pine	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	Low
M-1/2	Boreal mixed wood (leafless and green)	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)	<26% conifer (Very Low); 26-49% Conifer (Low); >50% Conifer (Moderate)
D-1/2	Aspen (leafless and green)	Deciduous dominated stands.	Always a surface fire, low to moderate rate of spread and fire intensity	Low
W	N/A	Water	N/A	N/A
N	N/A	Non-fuel: irrigated agricultural fields, golf courses, alpine areas void or nearly void of vegetation, urban or developed areas void or nearly void of forested vegetation.	N/A	N/A

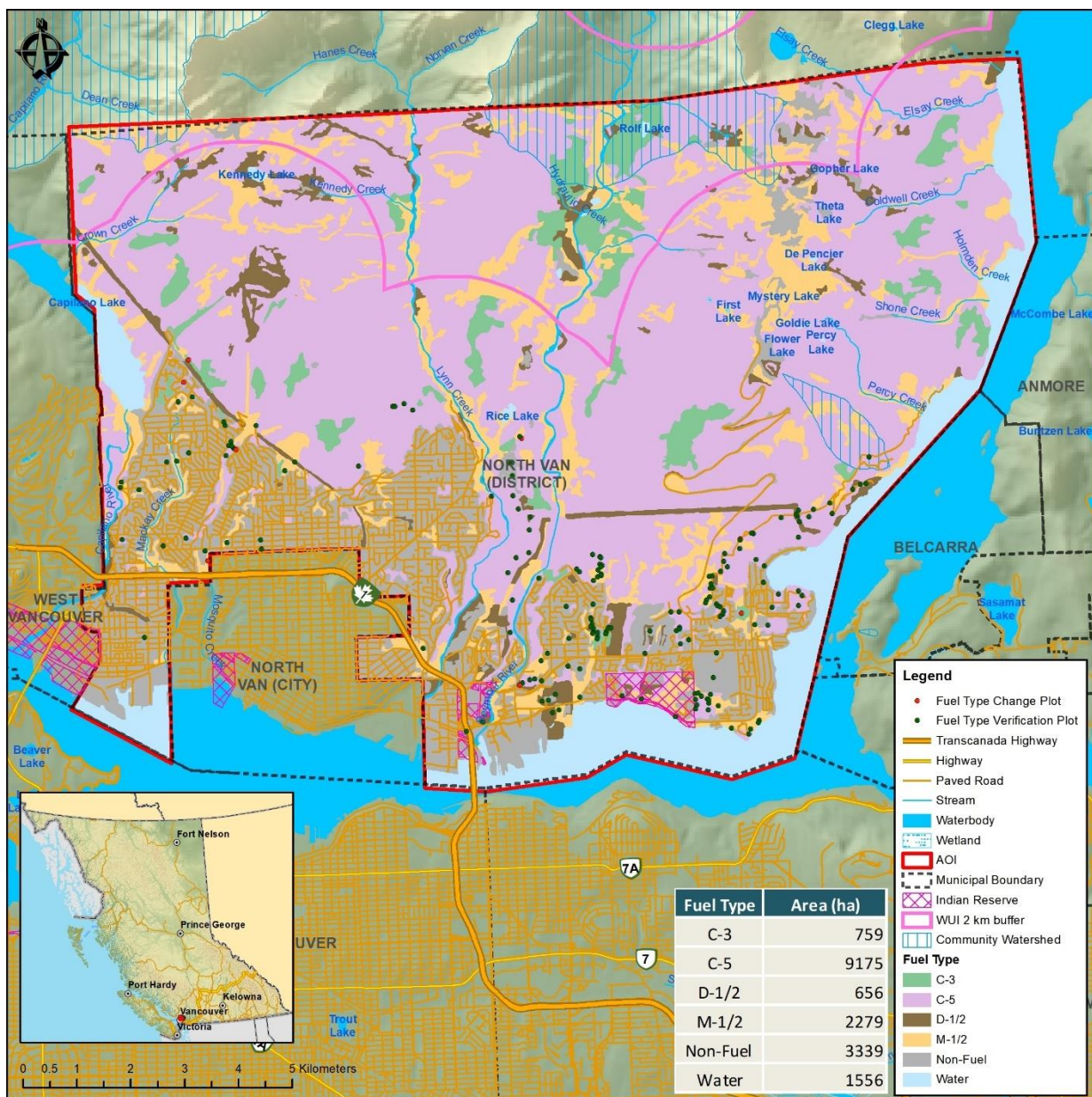
*C-3 fuel type is considered to have a high crown fire and spotting potential within the AOI due to the presence of moderate to high fuel loading (dead standing and partially or fully down woody material), and continuous conifer ladder fuels (i.e., western redcedar, Cw, and/or Douglas-fir, Fd).

During field visits, eight recurring patterns of fuel type errors were found in the provincial dataset. They were:

- C-5 fuel types being incorrectly identified by the PSTA as M-1/2;
- C-3 fuel types identified as D-1/2
- C-3 fuel types identified as M-1/2;

- D-1/2 fuel types identified as M-1/2;
- M-1/2 fuel types identified as C-5;
- C-3 fuel types identified as C-5;
- C-5 fuel types identified as D-1/2; and
- M-1/2 fuel types identified as D-1/2.

All fuel type updates were approved by BCWS, using stand and fuel descriptions and photo documentation for the review process (see Appendix A for submitted fuel type change rationales).



Map 9. Updated Fuel Type.

4.3.2 Proximity of Fuel to the Community

Fire hazard classification in the WUI is partly dictated by the proximity of the fuel to developed areas within a community. More specifically, fuels closest to the community are considered to pose a higher hazard in comparison to fuels that are located at greater distances from values at risk. As a result, it is recommended that the implementation of fuel treatments prioritizes fuels closest to structures and/or developed areas, in order to reduce hazard level adjacent to the community. Continuity of fuel treatment is an important consideration, which can be ensured by reducing fuels from the edge of the community outward. Special consideration must be given to treatment locations to ensure continuity, as discontinuous fuel treatments in the WUI can allow wildfire to intensify, resulting in a heightened risk to values. In order to classify fuel threat levels and prioritize fuel treatments, fuels immediately adjacent to the community are rated higher than those located further from developed areas. Table 11 describes the classes associated with proximity of fuels to the interface.

Table 11. Proximity to the Interface.

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

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

4.3.3 Fire Spread Patterns

Wind speed, wind direction, and fine fuel moisture condition influence wildfire trajectory and rate of spread. Wind plays a predominant role in fire behaviour and direction of fire spread and is summarized in the Wind Rose from the local representative Greater Vancouver Regional District (GVRD) weather station, Capilano.⁵⁶ A more representative MFLNRORD weather station (and associated Initial Spread Index reporting) was not available for the AOI. The wind rose data is compiled hourly and provides an estimate of prevailing wind directions and wind speed in the area of the weather station.

During the fire season (April – October) winds are predominantly from the northeast and to a lesser degree from the east with wind speeds of 0-5 km/hour the majority of the time and increasing 5-10

⁵⁶ Data provided by GVRD (Metro Vancouver).

km/hour. Winds occur from the northeast at speeds of 0-5 km/hour less than 20% of the time, and at speeds of 5-10 km/hour approximately 3% of the time. Winds from the east occur approximately 12% of the time (predominantly at speeds of 0-5 km/hour and up to 10 km/hour). Winds occur least frequently from the west (approximately 6% of the time), and from the southwest, southeast, north and south, in declining order (less than 5% of the time). The highest wind speeds (5 to 10 km/hour) tend to occur more frequently from the west and southwest during the fire season. Potential treatment areas were identified and prioritized with the predominant wind direction in mind; wildfire that occurs upwind of a value poses a more significant threat to that value than one which occurs downwind.

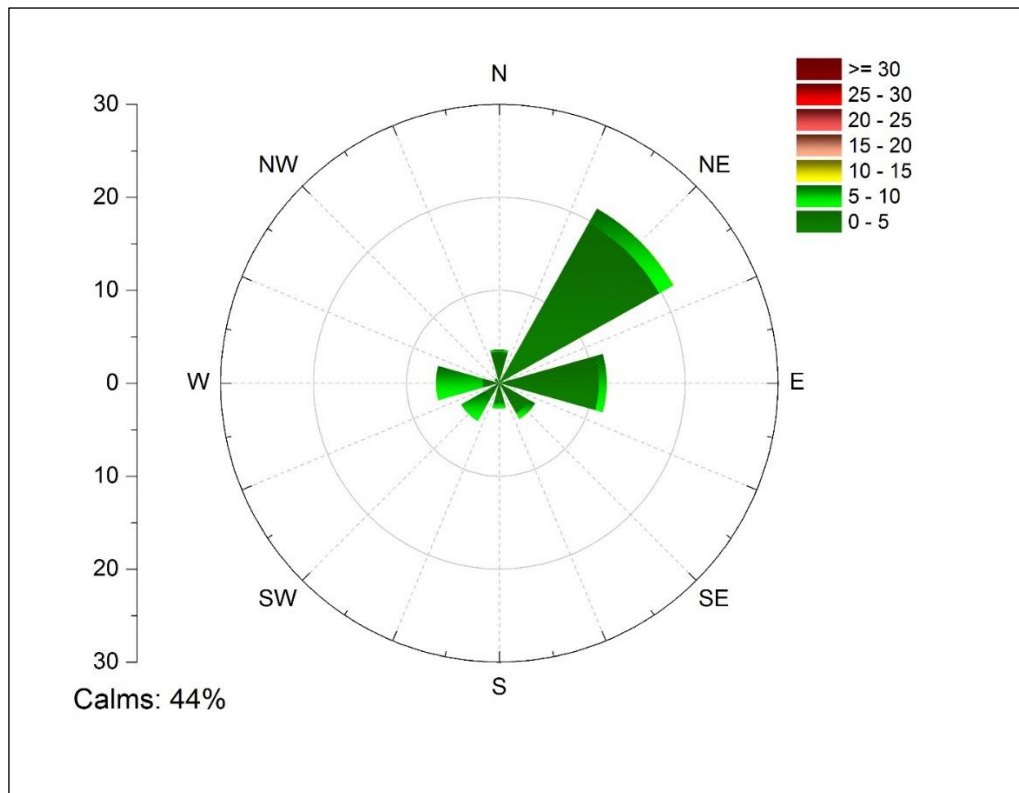


Figure 2. Wind rose for Capilano weather station based on hourly wind speed data during the fire season (April 1 – October 31) 2002-2018. Data courtesy of GVRD. The length of each bar represents the frequency of readings in percent and bar colour indicates the windspeed range.

4.3.4 Topography

Topography is an important environmental component that influences fire behaviour. Considerations include slope percentage (steepness) and slope position where slope percentage influences the fire's trajectory and rate of spread and slope position relates to the ability of a fire to gain momentum uphill. Other factors of topography that influence fire behaviour include aspect, elevation and land configuration.

Slope Class and Position

Slope steepness affects solar radiation intensity, fuel moisture (influenced by radiation intensity) and influences flame length and rate of spread of surface fires. Table 12 summarizes the fire behaviour implications for slope percentage (the steeper the slope the faster the spread). In addition, slope position affects temperature and relative humidity as summarized in Table 13. A value placed at the bottom of the slope is equivalent to a value on flat ground (see Table 12). A value on the upper 1/3 of the slope would be impacted by preheating and faster rates of spread (Table 13). Just under half of the AOI (41%) is on less than 20% slope and will likely not experience accelerated rates of spread due to slope class. Approximately 59% percent of the AOI is likely to experience an increased or high rate of spread. On the larger topographic scale, the DNV and its commercial, recreational, and residential developments would be considered to be at the bottom of the slope through to the upper slope in the higher elevation residential areas in the AOI.

Table 12. Slope Percentage and Fire Behaviour Implications.

Slope	Percent of AOI	Fire Behaviour Implications
<20%	41%	Very little flame and fuel interaction caused by slope, normal rate of spread.
21-30%	13%	Flame tilt begins to preheat fuel, increase rate of spread.
31-45%	14%	Flame tilt preheats fuel and begins to bathe flames into fuel, high rate of spread.
46-60%	10%	Flame tilt preheats fuel and bathes flames into fuel, very high rate of spread.
>60%	22%	Flame tilt preheats fuel and bathes flames into fuel well upslope, extreme rate of spread.

Table 13. Slope Position of Value and Fire Behaviour Implications.

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

4.3.5 Local Wildfire Threat Classification

Using the verified and updated fuel types combined with field wildfire threat assessments, local wildfire threat for the AOI was updated. Using the 2016 methodology, 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).

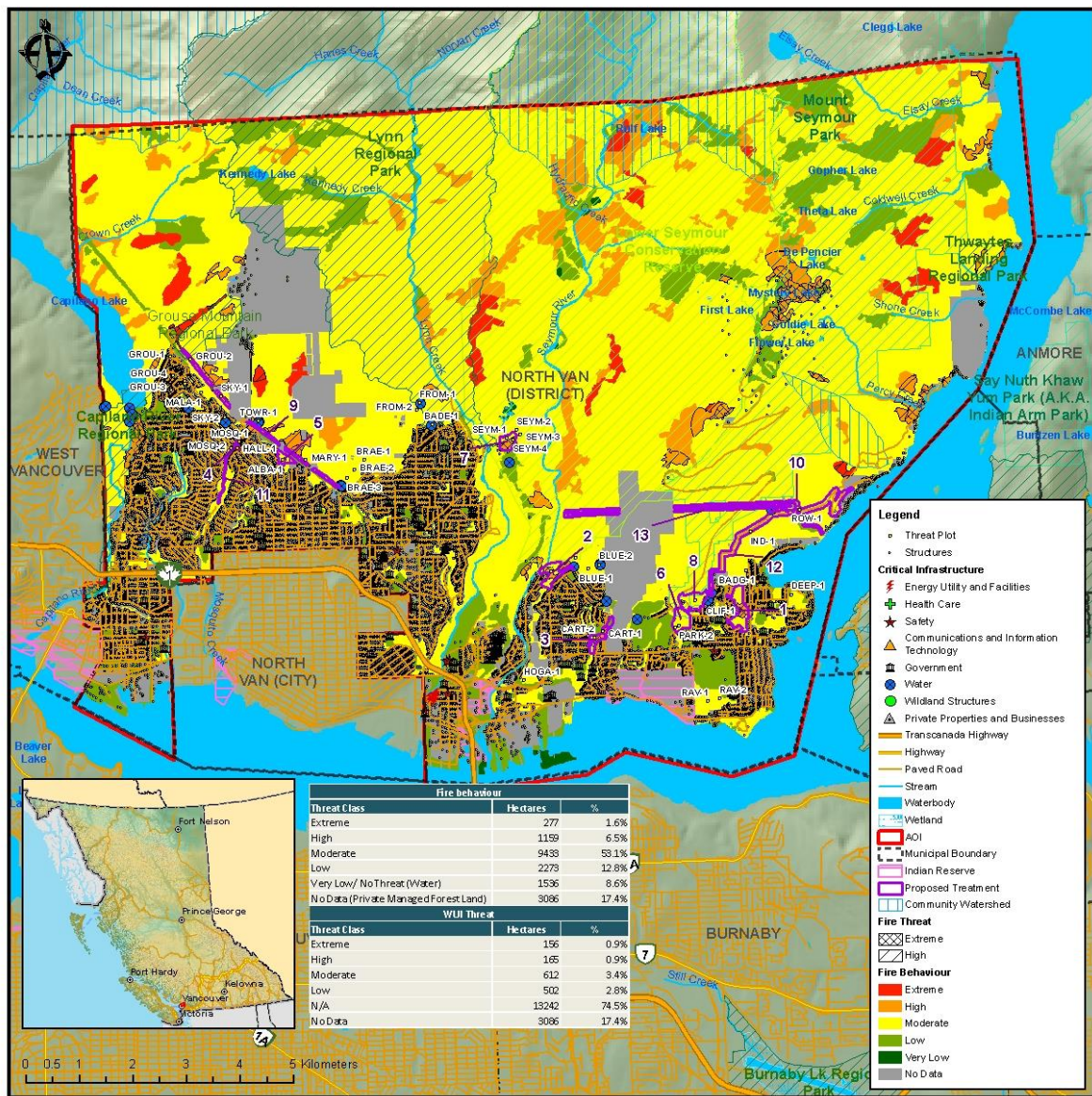
The result of the analysis shows that the AOI is composed of a mosaic of very low, low, moderate and high threat class stands with a minor component of extreme threat class. The variability in wildfire threat is dictated primarily by the level of natural and anthropogenic disturbances that have historically occurred and persist on the landbase. The AOI is 2% extreme threat class rating, 7% high, 53% moderate, 13% low and 9% very low/water (Table 14). The remaining 17% of the AOI is classified as private land and as such has not been allocated fire threat data. Assessment of fire threat on private land is not funded by the Strategic Wildfire Protection Initiative (SWPI) and is therefore outside the scope of this CWPP. Table 14 also indicates the differences between the original PSTA threat rating and this CWPP's corrected fire behaviour threat.

The areas that represent the highest wildfire behavior potential within the AOI are patchy areas of high and extreme threat class in the Lynn Headwaters Regional Park area, adjacent and north of residential properties along Skyline Drive and Montroyal Boulevard, along the western portions of Lower Seymour Conservation Reserve, northwest of properties in Sunshine Beach neighbourhood, and in the forested areas south and west of Grouse Mountain.

For detailed methodology on the local threat assessment and classification, please see Appendix G – WUI Threat Assessment Methodology.

Table 14. Fire behaviour threat summary for the AOI.

Wildfire Behaviour Threat Class	2017 PSTA Data	2017 CWPP
	Percent of AOI	Percent of AOI
Extreme	0%	2%
High	0%	6%
Moderate	38%	53%
Low	40%	13%
Very Low/ No Threat (Water)	9%	9%
No Data (Private Land))	13%	17%



Map 10. Local Fire Behaviour Threat Rating and WUI Threat Rating.

SECTION 5: RISK MANAGEMENT AND MITIGATION FACTORS

This section outlines a wildfire risk management and mitigation strategy that accounts for fuel types present within the community, local ecology, hazard, terrain factors, land ownership, and capacity of Local Government and First Nations. Wildfire risk mitigation is a complex approach that requires cooperation from applicable land managers/owners, which includes all level of governments (local, provincial, federal and First nations), and private landowners. The cooperative effort of the aforementioned parties is crucial in order to develop and proactively implement a wildfire risk mitigation

program. Development of a successful wildfire risk mitigation strategy is dependent on hazard identification within the community, which accounts for forest fuels, high risk activities, frequency and type of human use, and other important environmental factors. The resulting wildfire risk management and mitigation strategy aims to build more resilient communities and produces strategic recommendations or actionable items that can be categorized as follows:

1. Fuel management opportunities to reduce fire behaviour potential in the WUI;
2. Applications of FireSmart approaches to reduce fire risk and impacts within the community; and
3. Implementation of communication and education programs to inform and remind the public of the important role it plays in reducing fire occurrence and impacts within its community.

5.1 FUEL MANAGEMENT

Fuel management, also referred to as vegetation management or fuel treatment, is a key element of wildfire risk reduction. For the purpose of this discussion, fuel management generally refers to native vegetation/fuel modifications in forested areas greater than 30 m from homes and structures. The principles of fuel management are outlined in detail in Appendix H.

Fuel treatments have been completed on approximately 57 ha within the DNV AOI since the development of the 2007 CWPP. These fuel treatments have occurred primarily on DNV municipal land and a small portion of provincial Crown land and consisted of interface fuel treatments surrounding values at risk, such as water infrastructure and residential neighbourhoods. Treatments generally consisted of understorey thinning, pruning of ladder fuels, and removal of fine fuel, coarse woody debris, and invasive species. To complement the work completed to date and to further reduce the wildfire risk in the AOI, the objectives for fuel management are to:

- Reduce wildfire threat on private and public lands nearest to values at risk; and
- Reduce fire intensity, rate of spread, and ember/spot fire activity such that the probability of fire containment increases and the impacts on the forested landscape and the watershed are reduced (create more fire resilient landscapes).

Ideally, these objectives will enhance protection to homes and critical infrastructure. Caveats associated with this statement include: 1) wildfire behaviour will only be reduced if the fire burns in the same location as treatments occurred, and 2) protection of homes and critical infrastructure is highly dependent upon the vulnerability to ignition by embers (ignition potential) directly around the value at risk. In summary, fuel treatments alone should not be expected to protect a community from the effects of wildfire, namely structure loss.

Fuel treatments are designed to reduce the possibility of uncontrollable crown fire through the reduction of surface fuels, ladder fuels and crown fuels. However, the degree of fire behaviour reduction achieved by fuel management varies by ecosystem type, current fuel type, fire weather, slope and other variables and it is important to note that it does not stop wildfire.

Historically, funds from public sources, such as the Forest Enhancement Society of BC (FESBC) and the Union of British Columbia Municipalities (UBCM), were only eligible to be used on Crown lands and could not be used to treat private land. While this is still the case for the FESBC program, the new Community Resiliency Investment (CRI) Program (formerly SWPI) provides funding for selected FireSmart activities and planning on private land (subject to program requirements and limits).⁵⁷ It is important to recognize that almost a quarter of the AOI (9.7%) is located on private land, which increases some of the challenges encountered in mitigation of fuels on private lands. The best approach to mitigate fuels on private lands is to urge private landowners to comply with FireSmart guidelines (as described below in Section 5.2) and to conduct appropriate fuel modifications using their own resources (CRI program funding may be available). In general, when considering fuel management to reduce fire risk, the following steps should be followed:

- Carefully anticipate the likely wildfire scenarios to properly locate fuel modification areas;
- Acquire an understanding of local ecological, archaeological, and societal values of the site;
- Prescriptions should be developed by a qualified professional forester working within their field of competence;
- Public consultation should be conducted during the process to ensure community support;
- Potential treatment areas and draft prescriptions should be referred to First Nations with sufficient time for meaningful review and input;
- Treatment implementation should weigh the most financially and ecologically beneficial methods of fulfilling the prescription's goals;
- Treatment implementation should consider the possibility of invasive species spread during treatments and mitigation options should be considered;
- 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.

The fuel treatment opportunities identified in this document include the use of interface fuel breaks and primary fuel breaks as defined in Section 5.1.1, to reduce the wildfire potential around the AOI. Potential treatment activities include fuel removal, thinning, stand conversion, pruning, and chipping, or a combination of two or more of these activities. Stand conversion has been shown to be effective at reducing wildfire potential in mixed-wood or conifer dominated stands and is recommended as a BMP to encourage a higher deciduous component. This approach generally involves a thin-from-below to reduce ladder fuels and crown fuels continuity, targeting the removal of conifer species and the retention of broadleaf species.

⁵⁷ 2019 CRI FireSmart Community Funding & Supports – Program & Application Guide. Retrieved online at: <https://www.ubcm.ca/assets/Funding~Programs/LGPS/CRI/cri-2019-program-guide.pdf>

5.1.1 Proposed Treatment Units

Funding opportunities from UBCM have historically been limited to Crown provincial, Regional District, or municipal land under the SWPI Program. The UBCM SWPI funding stream (in place at the time this CWPP was developed) has transitioned, as of September 2018, into a new provincial program, the Community Resiliency Investment (CRI) Program, that will consider fire prevention activities on provincial Crown land and private land, in addition to local government and reserve land⁵⁸. Fire prevention activities on private land that may be funded under this program are related to FireSmart activities (including FireSmart planning and assessments, local rebate programs for completion of eligible FireSmart activities, and provision of off-site disposal of vegetation management debris), subject to program requirements. This does not preclude other current and future funding opportunities or potential industrial partnerships and changes to existing programs.

The potential treatment areas represent moderate or high fire hazard areas which are either close to values at risk (structures or infrastructure) or have been identified as landscape level fuel treatments and are located on provincial or municipal Crown land. It should be noted that the location of proposed treatment units on these land ownership types does not imply that high and extreme hazard areas do not exist on private land within the AOI. As stated in Section 5.1, mitigation approaches should also be pursued on private land where hazard exists, bearing in mind the different funding resources and objectives on these land types. Recommendation for treatment in areas of moderate fire hazard were limited to areas which would increase efficacy of, and/or create continuity between areas of low threat/no fuel areas). All polygons identified for potential treatment have been prioritized based on fire hazard, operational feasibility, estimated project cost, type and number of values at risk, common fire weather (wind direction), and expected efficacy of treatment. Although potential treatment areas have been ground-truthed during field work, additional refinement of the polygons will be required at the time of prescription development. Polygons will require detailed site-level assessment to stratify treatment areas (and areas of no treatment), identify values and constraints, and identify and engage all appropriate Provincial agencies, First Nations, and stakeholders.

Recommended potential treatment areas within the AOI are outlined in Table 15 and displayed in Map 11. These fuel treatment opportunities include the use of trailside treatments, interface fuel treatments (the treatment of both patches of fuels and linear interface fuel breaks), and primary fuel breaks, as defined below.

Fuel Treatment Types

The intent of establishing a fuel break (and associated treated patches) is to modify fire behaviour and create a fire suppression option that is part of a multi-barrier approach to reduce the risk to values (e.g.,

⁵⁸ This new funding program (up to \$50 million over three years) was initiated as per recommendations from the 2017 BC Flood and Wildfire Review Report by Abbott and Chapman (<https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/bc-flood-and-wildfire-review-addressing-the-new-normal-21st-century-disaster-management-in-bc-web.pdf>). Program details are available on the UBCM's website: <https://www.ubcm.ca/EN/main/funding/lgps/community-resiliency-investment.html>

structures). A fuel break in and of itself, is unlikely to stop a fire under most conditions. The application of appropriate suppression tactics in a timely manner with sufficient resources, is essential for a fuel break to be effective. Lofting of embers (i.e., “spotting”) over and across a fuel break is a possibility (increasing with more volatile fuel types and fire weather) and has the potential to create spot fires beyond the fuel break that can expand in size and threaten values at risk, or land directly on or near structures and ignite them. To address spotting, fuels between the fuel break and the values at risk should be evaluated and treated to create conditions where extinguishment of spot fires is possible. FireSmart standards should also be applied to structures and associated vegetation and other fuel to reduce the risk of structures igniting. A multi-barrier approach that reduces the risk to values can include: establishing multiple fuel breaks (Interface Fuel Break and Primary Fuel Break), addressing fuels between the fuel break and structures (Interface Fuel Treatments), and applying FireSmart Standards to structures and the surrounding vegetation. Fuel breaks require periodic maintenance to retain their effectiveness.

Trailside Treatments

Trailside treatments are implemented to address hazardous fuels adjacent to publicly used trails, where ignition potential may be higher due to increased recreational use by hikers and both motorized and non-motorized off-road vehicles. The primary objective of these treatments is to reduce potential fire intensity and the probability of ignition, which is achieved through the creation of a defensible space surrounding these features. Potential strategies include reducing ladder and surface fuels, increasing crown base height of trees, and retaining fire-resistant tree species. Trailside treatments vary in size and are typically in the form of linear features which follow trail systems.

Interface Fuel Breaks

Fuel breaks on Crown Land immediately adjacent to private land and in close proximity to the wildland urban interface and/or intermix areas, are termed ‘interface fuel breaks’. These are designed to modify fire behaviour, create fire suppression options, and improve suppression outcomes. Interface fuel treatments are relatively small (approximately 100 metres wide) and when treated with appropriate fuel reduction measures, can break the crown fire threshold and reduce the risk of a crown fire reaching values at risk. Treatment widths can be varied to allow for alignment and to take advantage of natural and man-made fire resilient features that enhance effectiveness. Surface fire spread across the fuel treatment and spotting across the fuel treatment are both concerns and rely on suppression actions to be effective. In order to reduce potential fire intensity and spotting, fuel on private land between the interface fuel treatment and structures should be treated according to FireSmart vegetation management standards. Structures in interface areas should be constructed or retrofitted to FireSmart design standards.

Primary Fuel Break

Primary Fuel Breaks are located on Crown Land in strategic locations beyond the interface fuel treatments. Private land may be included in a primary fuel break so that the break represents a continuous fuel reduced area. Primary Fuel Breaks are designed to modify fire behaviour and create fire

suppression options that reduce the risk of a crown fire reaching a community and/or adjacent private lands. Primary Fuel Breaks may be located to completely surround a community or be strategically placed upwind of communities and perpendicular to fire season winds. Primary Fuel Breaks have sufficient width and appropriate fuel reduction measures to break the crown fire threshold and reduce fire intensity such that overstory fire moves to the ground surface and spread rates are reduced. While there are no absolute standards for fuel break width or fuel manipulation in the literature and fuel break width will vary based on fuel type, topography, and expected fire behaviour⁵⁹, a 300-metre fuel break width is generally recommended. Fuel breaks should be designed to take advantage of natural and man-made fire resilient features and topography to enhance effectiveness. Surface fire spread across, and spotting over the fuel break are both concerns, and depend on the application of suppression resources to be effective.

RECOMMENDATION #12: Proceed with detailed assessment, prescription development, and treatment of hazardous units identified and prioritized in this CWPP.
--

⁵⁹ Agee, J.K., Bahro, B., Finney, M.A., Omi, P.N., Sapsis, D.B., Skinner, C.N., van Wagtendonk, J.W., Weatherspoon, C.P. The use of shaded fuelbreaks in landscape fire management. *Forest Ecology and Management*, 127 (2000), 55-66.

Table 15. Proposed Treatment Area Summary Table.

FTU # and Stratum	Geographic Area	Priority	Total Area (ha)	Treatment Unit Type/ Objective	Local Fire Threat (ha)			Overlapping Values/Treatment Constraints*	Treatment Rationale
					Extreme/H igh	Mod	Low/Very Low		
1	Cliffwood	High	17.8	Interface Fuel break Objective /Fuel treatment will result in residual stands with characteristics that will reduce continuity of fuel loads, crown and surface fire behaviour, and wildfire risk.	4.2	11.6	2.0	No overlapping values or treatment constraints were identified for this proposed treatment unit (PTU).	This PTU is located west of Deep Cove Rd and straddles the communities of Indian River and Cove Cliff. This area has been recommended for treatment due to its proximity to private residences (<100 m) and the presence of high hazard fuel type (C-3 fuel type) and moderate fuel loading. The stand is also composed of patches of moderate hazard C-5 and M-1/2 fuel types. Recommended treatments include removal of understorey conifers, pruning to increase crown base height, and removal of surface fuels.
2	Seymour River	High	12.4	Interface Fuel break Objective /Fuel treatment will result in residual stands with characteristics that will reduce continuity of fuel loads, crown and surface fire behaviour, and wildfire risk.	4.7	7.0	0.7	A masked species at risk (SAR) occurrence overlaps this PTU. This PTU is also located within the Lower Seymour Conservation Reserve. Consultation with a biologist and Metro Vancouver must occur during the prescription development phase and prior to implementation to ensure all concerns are addressed.	This PTU is located at the end of Riverside Drive within the Lower Seymour Conservation Reserve and adjacent to the community of Blueridge. It is comprised of C-3 and C-5 fuel types and contains a recreation trail which has high frequency of use. Stand density varies within this unit, from high understorey Hw densities, to more open, mature stands of Fd, Hw and Cw. This PTU is also adjacent to two previous treatment areas which were implemented in 2011. Recommended treatments include removal of understorey conifers, pruning to increase crown base height, and removal of surface fuels.

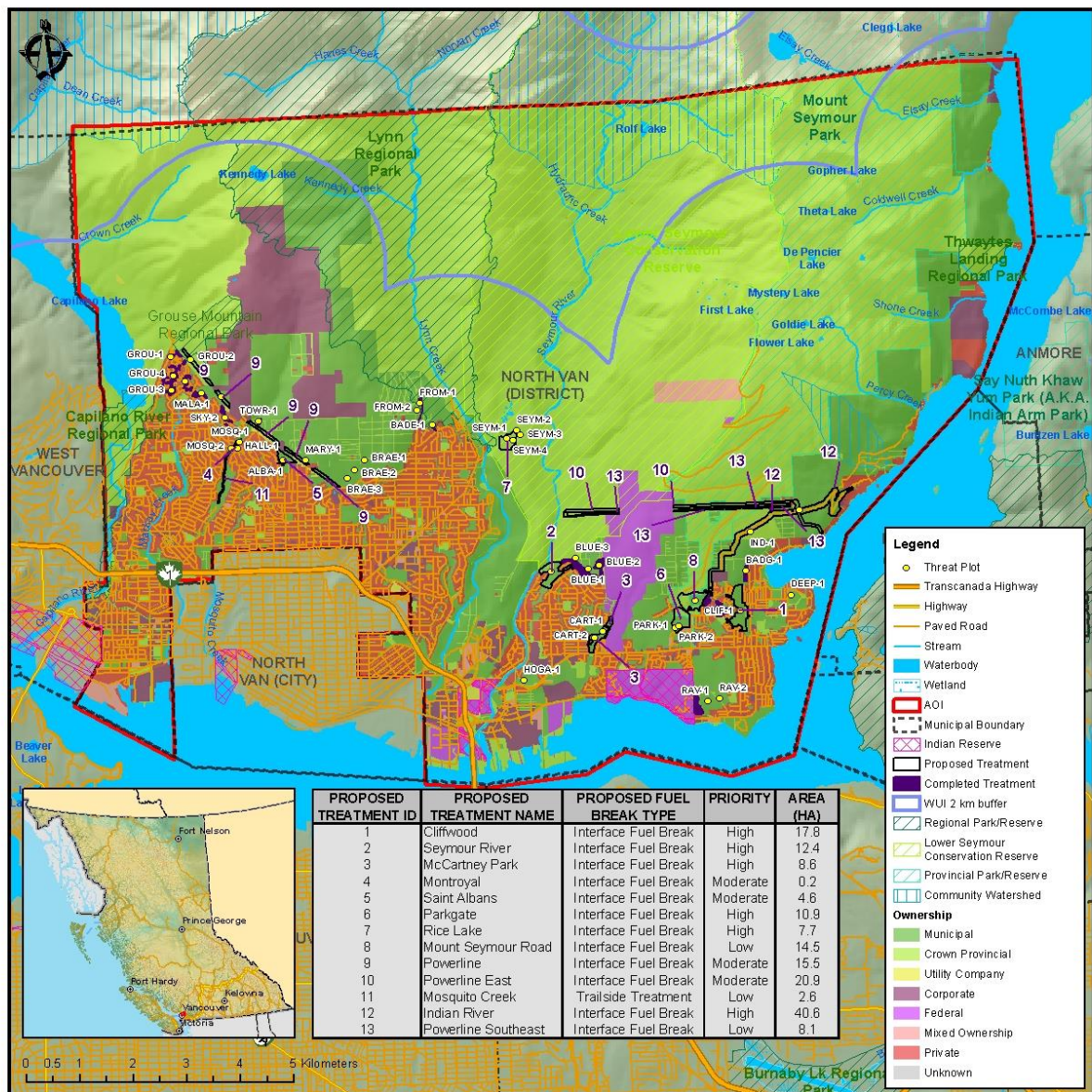
FTU # and Stratum	Geographic Area	Priority	Total Area (ha)	Treatment Unit Type/ Objective	Local Fire Threat (ha)			Overlapping Values/Treatment Constraints*	Treatment Rationale
					Extreme/H igh	Mod	Low/Very Low		
3	McCartney Park	High	8.5	Interface Fuel break Objective/Fuel treatment will result in residual stands with characteristics that will reduce continuity of fuel loads, crown and surface fire behaviour, and wildfire risk.	3.8	2.3	2.4	No overlapping values or treatment constraints were identified for this PTU.	This PTU is located adjacent (<100m) to private residences and surrounds the east, west and south sides of the sports field in McCartney Creek Park. High density conifer stands surround the trail system. This area has been recommended for treatment due to its proximity to private residences, and the high hazard fuel type (C-3 fuel type) and fuel loading present. The combination of low crown base heights, interlocking crowns, and ladder fuels, results in an increased potential for crown fire behaviour. Recommended treatments include removal of understorey conifers, pruning to increase crown base height, and removal of surface fuels.
4	Montroyal	Moderate	0.2	Interface Fuel break Objective/Fuel treatment will result in residual stands with characteristics that will reduce continuity of fuel loads, crown and surface fire behaviour, and wildfire risk.	0.2	0.0	0.0	No overlapping values or treatment constraints were identified for this PTU.	This PTU is located adjacent (<100m) to private residences and surrounds DNV critical infrastructure. This area has been recommended for treatment due to its proximity to private residences/infrastructure, and the high hazard fuel type (C-3 fuel type) present within the polygon. The combination of low crown base heights, interlocking crowns, and ladder fuels, results in increased potential for crown fire behaviour. Recommended treatments include removal of understorey conifers and pruning to increase crown base height.

FTU # and Stratum	Geographic Area	Priority	Total Area (ha)	Treatment Unit Type/ Objective	Local Fire Threat (ha)			Overlapping Values/Treatment Constraints*	Treatment Rationale
					Extreme/H igh	Mod	Low/Very Low		
5	Saint Albans	Moderate	4.7	Interface Fuel break Objective/Fuel treatment will result in residual stands with characteristics that will reduce continuity of fuel loads, crown and surface fire behaviour, and wildfire risk.	1.5	3.0	0.2	Partial overlap with masked SAR occurrence. Consultation with a biologist must occur during the prescription development phase and prior to implementation to ensure all concerns are addressed.	This PTU is located adjacent (<100m) to private residences and south of a BC Hydro right-of-way (currently acting as a fuel break) in the community of Upper Delbrook. This area has been recommended for treatment due to its proximity to private residences, the presence of high hazard fuel type (C-3 fuel type) within the polygon, and its potential to bolster the existing fuel break to the north (BC Hydro right-of-way). Recommended treatments include removal of understorey conifers, pruning to increase crown base height, and removal of surface fuels.
6	Parkgate	High	10.9	Interface Fuel break Objective/Fuel treatment will result in residual stands with characteristics that will reduce continuity of fuel loads, crown and surface fire behaviour, and wildfire risk.	0.0	9.9	1.0	Partial overlap with red-listed pacific water shrew (<i>Sorex bendirii</i>) occurrence and overlap with Mount Seymour Provincial Park. Taylor Creek bisects the unit on its western side. Consultation with a biologist and BC Parks must occur during the prescription development phase and prior to implementation to ensure all concerns are addressed.	This PTU is located between Mount Seymour Road and Parkgate Park, north of residences along Banff Crescent and Parkgate Community Centre. This area was identified for treatment due to its proximity to homes (<100 m), conifer dominated stands (C-3 and C-5 fuel types), and patches of high fuel loading. Recommended treatments include removal of understorey conifers, pruning to increase crown base height, and removal of surface fuels.

FTU # and Stratum	Geographic Area	Priority	Total Area (ha)	Treatment Unit Type/ Objective	Local Fire Threat (ha)			Overlapping Values/Treatment Constraints*	Treatment Rationale
					Extreme/H igh	Mod	Low/Very Low		
7	Rice Lake	High	7.7	Interface Fuel break Objective/Fuel treatment will result in residual stands with characteristics that will reduce continuity of fuel loads, crown and surface fire behaviour, and wildfire risk.	4.1	3.2	0.4	Full overlap with masked occurrence of SAR and full overlap with red-listed Johnson's hairstreak (<i>Callophrys johnsoni</i>). Consultation with a biologist must occur during the prescription development phase and prior to implementation to ensure all concerns are addressed.	This PTU is located south of Rice Lake in the Lower Seymour Conservation Reserve and is adjacent (<100m) to DNV critical infrastructure. This area has been recommended for treatment due to its proximity to critical infrastructure and the presence of high hazard fuel type (C-3 fuel type) within the polygon. The stand is also composed of patches of C-5 and M-1/2 fuel type with moderate hazard rating. Recommended treatments include removal of understorey conifers, pruning to increase crown base height, and removal of surface fuels.
8	Mount Seymour Road	Low	14.4	Interface Fuel break Objective/Fuel treatment will result in residual stands with characteristics that will reduce continuity of fuel loads, crown and surface fire behaviour, and wildfire risk.	0.0	13.8	0.6	Partial overlap with red-listed Johnson's hairstreak (<i>Callophrys johnsoni</i>) and overlap with Mount Seymour Park. Consultation with a biologist and BC Parks must occur during the prescription development phase and prior to implementation to ensure all concerns are addressed.	This PTU is located east of Mount Seymour Rd and north of the community of Indian River. The polygon is adjacent (<100m) to private property. This area has been recommended for treatment due to its proximity to private residences. The combination of low crown base heights, interlocking crowns, and ladder fuels, results in an increased potential for crown fire behaviour. Recommended treatments include removal of understorey conifers, pruning to increase crown base height, and removal of surface fuels.

FTU # and Stratum	Geographic Area	Priority	Total Area (ha)	Treatment Unit Type/ Objective	Local Fire Threat (ha)			Overlapping Values/Treatment Constraints*	Treatment Rationale
					Extreme/H igh	Mod	Low/Very Low		
9	Powerline	Moderate	15.5	Interface Fuel break Objective/Fuel treatment will result in residual stands that lower overall wildfire behaviour, reduce fuel loading and bolster access/egress route into and out of Sasquatch Park.	8.2	6.8	0.5	Partial overlap with masked SAR occurrence and partial overlap with red-listed pacific water shrew (<i>Sorex bendirii</i>) occurrence. Consultation with a biologist must occur during the prescription development phase and prior to implementation to ensure all concerns are addressed.	This PTU is located on Crown land above (northeast) of the power line right-of-way (ROW) which runs northwest from Braemar Road to the gravel parking lot at the base of Grouse Mountain. This primary fuel break is intended to bolster the ability of the ROW to act as a fuel break. The dominant fuel types present in this PTU are C-3, C-5, and M-1/2. Stand densities, fuel loading, and ladder fuel continuity vary widely along the length of the PTU. When implemented, this fuel break will increase safety and improve access for firefighters actioning a fire approaching from the contiguous forest above the ROW or from a fire approaching from the residential neighbourhoods below.
10	Powerline East	Moderate	21	Interface Fuel break Objective/Fuel treatment will result in residual stands that lower overall wildfire behaviour, reduce fuel loading and bolster access/egress route into and out of Sasquatch Park.	0.0	13.5	7.5	Partial overlap with masked SAR occurrence and with Mount Seymour Provincial Park. Consultation with a biologist and BC Parks must occur during the prescription development phase and prior to implementation to ensure all concerns are addressed.	This PTU is located on Crown land above (north) of the power line right-of-way (ROW) which runs northwest from Seymour River to the shores between Deep Cove and the Indian Arm Communities. This primary fuel break is intended to bolster the ability of the ROW to act as a fuel break. The dominant fuel types present in this PTU are C-5 and M-1/2. Stand densities, fuel loading, and ladder fuel continuity vary widely along the length of the PTU. When implemented, this fuel break will increase safety and improve access for firefighters actioning a fire approaching from the contiguous forest above the ROW or from a fire approaching from the residential neighbourhoods below.

FTU # and Stratum	Geographic Area	Priority	Total Area (ha)	Treatment Unit Type/ Objective	Local Fire Threat (ha)			Overlapping Values/Treatment Constraints*	Treatment Rationale
					Extreme/H igh	Mod	Low/Very Low		
11	Mosquito Creek	Low	2.5	Trailside Treatment	0.2	2.3	0.0	No overlapping values or treatment constraints were identified for this proposed treatment unit (PTU).	The Mosquito Creek PTU is a proposed trailside treatment located along Moquito Creek and south of the Montroyal PTU. The stands characteristic of this area are a mix of C-5 and M-1/2 fuel types with a moderate conifer component (30-60%). A light treatment is recommended, involving removal of understory conifer trees, pruning of retained stems to increase crown base heights and surface fuel removal.
12	Indian River	High	40.6	Interface Fuel break Objective/Fuel treatment will result in residual stands that lower overall wildfire behaviour, reduce fuel loading and bolster access/egress route into and out of Sasquatch Park.	0.0	39.1	1.5	Small overlap with Mount Seymour Provincial Park. Consultation with BC Parks must occur during the prescription development phase and prior to implementation to ensure all concerns are addressed.	This PTU is located along Indian River Dr on Crown land and is the only access/egress route to the remote Indian Arm Communities. This area has been strategically identified as a fuel break to reduce potential fire behaviour and improve suppression and/or evacuation efforts in the event of a wildfire.
13	Powerline Southeast	Low	8.1	Interface Fuel break Objective/Fuel treatment will result in residual stands that lower overall wildfire behaviour, reduce fuel loading and bolster access/egress route into and out of Sasquatch Park.	0.0	1.1	7.0	Partial overlap with a masked SAR occurrence and with Mount Seymour Park. Consultation with a biologist and BC Parks must occur during the prescription development phase and prior to implementation to ensure all concerns are addressed.	This PTU is located across the ROW from Blueridge #1 and has been identified as a proposed treatment to enhance the effectiveness of the ROW and Blueridge #1 to act as a fuel break. It has been assigned a lower priority due to the presence of mixed and deciduous stands along its length.



Map 11. Proposed and Past Fuel Treatments.

5.1.2 Maintenance of Previously Treated Areas

The DNV has shown leadership in completing fuel management projects within the AOI to reduce associated wildfire hazard. These activities have been implemented between 2010 and 2018 for a combined total treated area of 57 ha (Map 11). These are primarily interface fuel treatments and trailside treatments focused on forested municipal land adjacent to residential neighbourhoods and surrounding critical infrastructure within the DNV. These polygons are in various states of hazard, some of which required additional fuel management activities (maintenance) in order to be reduced to moderate, or

lower, threat class rating. Maintenance activities may include understory thinning and/or surface fuel continuity reduction (removal of excess woody debris).

Maintenance of previously treated polygons should be a priority for the DNV. All polygons that were previously treated were assessed during field visits; polygons were prioritized for maintenance activities, such as removing standing dead and suppressed stems, reducing surface fuels, or additional thinning (overstorey reduction and thinning suppressed conifers or conifer regeneration, see Table 16. The return interval for maintenance activities depends upon site productivity and type and intensity of treatment. Less productive areas can likely withstand a longer frequency between maintenance activities, while more productive areas would require treatments more often.

<p>RECOMMENDATION #13: Treatment monitoring to be completed by a qualified professional to schedule next set of maintenance activities (5 – 10 years out). This can be completed with a CWPP update, as it was for this document, or as a stand-alone exercise.</p>
--

Table 16. Maintenance schedule for previously treated polygons within the study area. Priority 1 = high, 2 = moderate, 3 = low, 4 = no maintenance activities anticipated for the next five years.

Intake Year	Polygon Name/ Treatment Unit	Location	Area (Ha)	Plot Name and Threat Rating	Priority	Target timeline for return (years from 2019)	Comment
2008	AP1640-1	Grousewood Park	0.6	Walkthrough	1	1 - 3	Additional thinning should be completed to reduce crown fuels continuity and increase strata fuel gap. Other activities should include removal of small diameter standing mortality and surface fuels.
2008	AP1640-10		0.1				
2008	AP1640-11		0.02				
2008	AP1640-12		0.2				
2008	AP1640-13		0.9	GROU-3, High			
2008	AP1640-14		0.1	Walkthrough			
2008	AP1640-15		0.4				
2008	AP1640-16		0.03				
2008	AP1640-17		0.02				
2008	AP1640-18		0.2				
2008	AP1640-19		0.3				
2008	AP1640-2		0.04				
2008	AP1640-20		0.1				
2008	AP1640-21		0.01				
2008	AP1640-22		0.02				
2008	AP1640-3		0.01				
2008	AP1640-4		0.1				
2008	AP1640-5		0.4	GROU-5, High			
2008	AP1640-6		0.2	Walkthrough			
2008	AP1640-7		0.03				
2008	AP1640-8		0.1				
2008	AP1640-9		0.1				
2008	AP2370-1		0.04				
2008	AP2370-2		0.5	4	5 - 10	No maintenance activities anticipated in the next five years. Walk-through to assess for and recommend future maintenance needs should be completed 2024 – 2029.	
2008	AP2370-3		0.4				

Intake Year	Polygon Name/ Treatment Unit	Location	Area (Ha)	Plot Name and Threat Rating	Priority	Target timeline for return (years from 2019)	Comment
2008	AP2370-4	Grousewood Additional	1.0	GROU-5, Moderate	4	5 - 10	No maintenance activities anticipated in the next five years. Walk-through to assess for and recommend future maintenance needs should be completed 2024 – 2029.
2008	AP2370-5	Areas	0.4	Walkthrough			
2008	AP2660-1	Woodlands	0.6	Walkthrough			
2008	AP2660-10	Prospect	0.3	TOWR-1, Moderate			
2008	AP2660-11		0.1	Walkthrough			
2008	AP2660-12	McNair	0.01				
2011	AP2660-2	Hyannis	3.4	BLUE-2, Moderate			
2008	AP2660-3	Mountain Hwy	0.5	FROM-1, Moderate			
2008	AP2660-4		0.1	Walkthrough			
2008	AP2660-5		0.2				
2008	AP2660-6	McNair	0.2	BADE-1, Moderate			
2008	AP2660-7		0.1	Walkthrough			
2008	AP2660-8		0.03				
2008	AP2660-9		0.1				
2010	AP3620-1	Roche Point	3.6				
2011	SWPI2-1	Hyannis	0.5				
2011	SWPI2-2	Hyannis	1.4				
2011	SWPI2-3	Hyannis	0.6				
2011	SWPI2-4	Hyannis	0.5				
2011	SWPI2-5	Hyannis	0.9				
2011	SWPI2-6	Hyannis	3.2				
2011	SWPI2-7	Hyannis	0.6				
2013	SWPI394-1	Indian River South	2.0				
2013	SWPI394-2	Indian River North	1.5				

Funding Intake Year	Polygon Name/ Treatment Unit	Location	Area (Ha)	Plot Name and Threat Rating	Priority	Target timeline for return (years from 2019)	Comment
2013	SWPI394-3	Indian River Water Tower	2.0	Walkthrough	4	5 - 10	No maintenance activities anticipated in the next five years. Walk-through to assess for and recommend future maintenance needs should be completed 2024 – 2029.
2013	SWPI394-4	Badger	1.7				
2013	SWPI394-5	Indian River North	0.3				
2013	SWPI394-6	Firehall	0.5	MOSQ-1, Moderate			
2013	SWPI394-7	Owl	0.8	GROU-1, Moderate			
2013	SWPI394-8	Firehall	0.1	Walkthrough			
2013	SWPI394-9	Owl	0.1				
2013	SWPI394-10	Malaspina Park	0.1				
2013	SWPI394-11	Skyline	1.0	SKY-2, High	2	1 - 3	Additional thinning should be completed to reduce crown fuels continuity and increase strata fuel gap. Other activities should include removal of small diameter standing mortality and surface fuels.
2013	SWPI394-12	Skyline	0.2	Walkthrough	4	5 - 10	No maintenance activities anticipated in the next five years. Walk-through to assess for and recommend future maintenance needs should be completed 2024 – 2029.
2013	SWPI394-13	Malaspina Park	0.8				
2013	SWPI394-14	Malaspina Park	0.1				
2017	TUA	St Mary’s	5.5				
2017	TUC		0.1				
2017	TUA	Braemar Park	3.8				
2017	TUB		0.2				
2017	TUA	Mountain Hwy	4.3				
2017	TUA	Hoskins Rd	2.1				
2017	TUB	Hoskins Rd	0.4				
2017	TUC	Hoskins Rd	0.1				

5.2 FIRESMART PLANNING AND ACTIVITIES

This section provides detail on: 1) the current level of FireSmart implementation and uptake within the community; 2) identified FireSmart subdivisions and/or acceptance into the FireSmart Canada Community Recognition Program (FSCCRP); and 3) recommended potential FireSmart activities that can be applied within the AOI at a future date.

5.2.1 FireSmart Goals and Objectives

FireSmart® is the comprehensive nationally accepted set of principles, practices and programs for reducing losses from wildfire.⁶⁰ FireSmart spans the disciplines of hazard/threat assessment; regional planning and collaboration; policy and regulations; public communication and education; vegetation/fuel management; training and equipment; and, emergency preparedness and response. FireSmart concepts provide a sound framework for advancing the goal of wildfire loss reduction, as it is a common goal shared with CWPPs.

The FireSmart approach and concepts, including recommended FireSmart guidelines⁶¹, have been formally adopted by almost all Canadian provinces and territories, including British Columbia in 2000; FireSmart has become the de facto Canadian standard. FireSmart is founded in standards published by the NFPA. The objective of FireSmart is to help homeowners, neighbourhoods, whole communities and agencies with fire protection and public safety mandates to work together to prepare for the threat of wildfire in the WUI. Coordinated efforts between all levels of planning and action are integral to effectively and efficiently reducing the risk to communities.

The following are key principles of FireSmart:

- Wildland fires are a natural process and critical to the health of Canadian ecosystems.
- Mitigation and response efforts must be carefully coordinated through all stages of planning and implementation.
- Threats and losses due to wildfires can be reduced by working together. Responsibility for effectively mitigating hazards must be shared between many entities including homeowners, industry, businesses and governments.⁶²
- There are seven broad disciplines to help address the threat of wildfire: education, vegetation management, legislation and planning, development considerations, interagency cooperation, emergency planning, and cross training.⁶²
- Solutions are required at all scales from individual backyards, to communities and the wider landscape. In order to succeed, these efforts must be integrated across the mosaic of land ownership (Figure 3).

⁶⁰ FireSmart is the registered trademark held by the Partners in Protection Association.

⁶¹ FireSmart guidelines first published in the 1999 manual *"FireSmart: Protecting Your Community from Wildfire"*, with a second edition published in 2003.

⁶² <https://www.firesmartcanada.ca>

- The ultimate root of the WUI interface problem is the vulnerability of structures and homes to ignition during wildfire events, in particular vulnerability to embers. This leads to an emphasis on risk mitigations on private properties.

The highest level of planning within the FireSmart program is strategic direction, such as that provided in CWPPs.

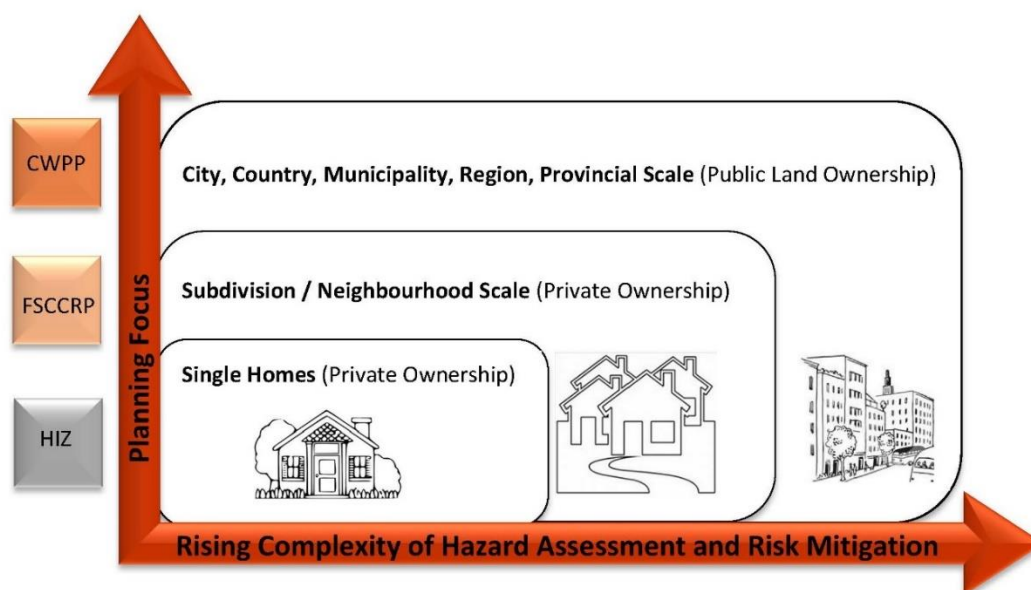


Figure 3. Diagram of the various, coordinated levels of the FireSmart program.⁶³ CWPP: Community Wildfire Protection Plan, FSCCRP: FireSmart Canada Community Recognition Program, HIZ: Home Ignition Zone.

Home Ignition Zone

Multiple studies have shown that the principal factors regarding home loss to wildfire are the structure's characteristics and immediate surroundings; the area that determines the ignition potential is referred to as the Home Ignition Zone (HIZ).^{64,65} The HIZ includes the structure itself and four concentric, progressively wider Priority Zones. HIZ Priority Zones are based upon distance from structure: 0 to 1.5m (Priority Zone 1a- fuel free zone), 0 – 10 m (Priority Zone 1), 10 – 30 m (Priority Zone 2), and 30 – 100 m (Priority Zone 3). These zones help to guide risk reduction activities, with Recommended FireSmart Guidelines being most stringent closest to the structure. The likelihood of home ignition is mostly determined by the area within 30 m of the structure (Priority Zones 1a, 1 and 2). Recommended FireSmart guidelines address a multitude of hazard factors within the HIZ: building materials and design; vegetation (native or

⁶³ Figure and content developed by A. Westhaver. Adapted by A. Duszynska, 2017.

⁶⁴ Reinhardt, E., R. Keane, D. Calkin, J. Cohen. 2008. Objectives and considerations for wildland fuel treatment in forested ecosystems of the interior western United States. *Forest Ecology and Management* 256:1997 - 2006.

⁶⁵ Cohen, J. Preventing Disaster Home Ignitability in the Wildland-urban Interface. *Journal of Forestry*. p 15 - 21.

landscaped materials); and the presence of flammable objects, debris, and vulnerable ignition sites. More detail on priority zones can be found in Appendix I.

It has been found that, during extreme wildfire events, most home destruction has been a result of low-intensity surface fire flame exposures, usually ignited by embers. Firebrands can be transported long distances ahead of the wildfire, across fire guards and fuel breaks, and accumulate within the HIZ in densities that can exceed 600 embers per square meter. Combustible materials found within the HIZ combine to provide fire pathways allowing spot surface fires ignited by embers to spread and carry flames or smoldering fire into contact with structures.

Because ignitability of the HIZ is the main factor driving structure loss, the intensity and rate of spread of wildland fires beyond the community has not been found to necessarily correspond to loss potential. For example, FireSmart homes with low ignitability may survive high-intensity fires, whereas highly ignitable homes may be destroyed during lower intensity surface fire events.⁶⁵ It is for this reason that the key to reducing WUI fire structure loss is to reduce home ignitability; mitigation responsibility must be centered on homeowners. Risk communication, education on the range of available activities, and prioritization of activities should help homeowners to feel empowered to complete simple risk reduction activities on their property.

FireSmart Canada Community Recognition Program

In the case of adjacent homes with overlapping HIZs, a neighbourhood (or subdivision) approach can be an effective method of reducing ignition potential for all homes within the neighbourhood. The FireSmart Canada Community Recognition Program (FSCCR Program) is an 8-step resident-led program facilitated by trained Local FireSmart Representatives designed for this purpose. It provides groups of residents with critical information and a means of organizing themselves to progressively alter hazardous conditions within their neighbourhood. The program also facilitates FireSmart knowledge and practices to quickly filter downwards onto the property of individual residents to further mitigate wildfire hazards at the single-home scale within the HIZ.

WUI Disaster Sequence

Calkin et al (2014) coined the 'WUI disaster sequence', a six-step sequence which has been used to describe the situation in which the firefighting capacity of a community is overwhelmed by wildland/interface fires in highly ignitable communities: 1) extreme wildfire behaviour weather combined with, 2) a fire start, which 3) exposes numerous homes with high ignition potential, and results in numerous structures burning, 4) overwhelms suppression efforts and capabilities, and 5) leads to unprotected homes, and therefore 6) considerable structure loss (Figure 4).

Once multiple homes are ignited in an urban area, there is increasing potential for fire to spread from structure to structure, independently of the wildland vegetation. This is known as an urban conflagration.

Effective fire protection depends on ignition resistant homes and properties during extreme wildfire events.⁶⁶

Overall, FireSmart leads to communities that are better adapted to wildfire, more resilient and able to recover following wildfires by sustaining fewer losses and disruption, and safer places to live and recreate. Action by homeowners is the number one priority for reducing structure loss in the event of a WUI fire, but the overall adaptation of the community to wildfire is multi-pronged and the landscape should not be ignored.⁶⁶

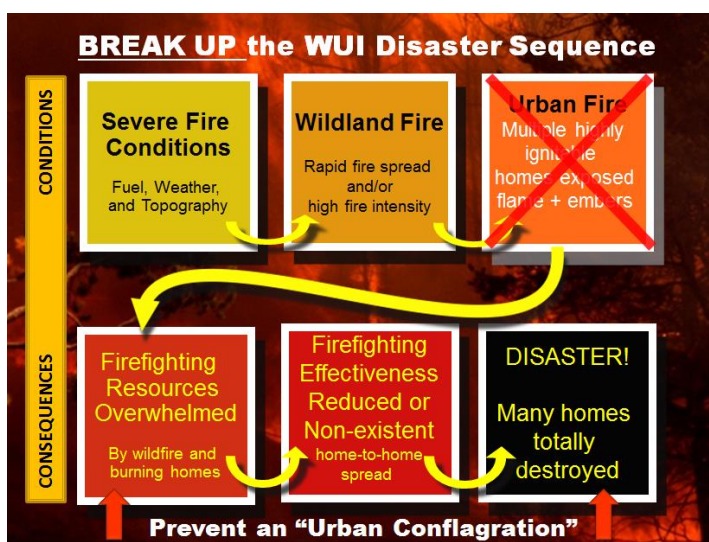


Figure 4. Wildland/urban interface disaster sequence.⁶⁷ It is possible to break up the disaster sequence by decreasing the number of highly ignitable homes exposed to embers, therefore reducing the number of homes ignited and removing the consequences of multiple structures lost.

5.2.2 Key Aspects of FireSmart for Local Governments

Reducing the fire risk profile of a community through FireSmart implementation requires coordinated action from elected officials, local government planners, developers, private land owners and industrial managers. This section presents various options of FireSmart practices, which when enacted, provide avenues for reducing fire risk within the community. An evaluation of the current level of FireSmart implementation within the DNV is also presented in this section.

Communication, Education and Partnerships

Communicating effectively is a key aspect of any education strategy. Communication materials must be audience specific and delivered in a format and through mediums that reach the target audience. Audiences should include home and landowners, students, local businesses, elected officials, DNV staff, and local utilities providers. 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.

⁶⁶ Calkin, D., J. Cohen, M. Finney, M. Thompson. "How risk management can prevent future wildfire"

⁶⁷ Graphic adapted from Calkin et. al, by A. Westhaver.

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.

The DNV (primarily the DNVFRS) has undertaken a considerable amount of public education outreach in the community to date. This can be expanded upon and/or adapted to further enhance wildfire preparedness and education. The DNV should consider developing a school fire education program to include an element of wildfire preparedness education to be presented annually in elementary or high schools. Programming could include volunteer/advocacy work from professional foresters, wildland firefighters or prevention officers, and DNV staff. The DNV should consider holding a wildland specific Fire Prevention Day or Week, or similarly formatted event, in the spring prior to the wildfire season. Timely educational materials to increase preparedness would be most effective immediately prior to the fire season.

A full list of recommendations pertaining to the Communication, Education and Partnerships strategy is presented in Section 5.3.

FireSmart Vegetation Management

Some examples of actionable items for the DNV with regards to vegetation or fuel management and the FireSmart approach include: 1) policy development and implementation of FireSmart maintenance for community parks and open spaces; 2) implementing fire resistive landscaping requirements as part of the development permitting process; and 3) provision of collection services for private landowners with a focus on pruning, yard and thinning debris.

The DNV has engaged in a proactive vegetation management strategy, targeting high-use areas near values at risk, within and immediately adjacent to developed areas. Furthermore, the DNV currently enforces FireSmart landscaping requirements within a wildfire development permit area. The DNV also provides yard trimmings bin collection service to all residents within the District. Yard trimmings that exceed the size of the yard trimmings cart can be dropped off at the North Shore Transfer Station for a tipping fee of \$95/tonne. More detailed recommendations regarding municipal policies and bylaws are provided below in Planning and Development.

RECOMMENDATION #14: The DNV should consider applying for a FireSmart demonstration grant through the CRI program. This type of fuel treatment can display the practices and principles of FireSmart activities to the public in the form of demonstration treatments. These small projects are not necessarily completed to reduce fire behaviour or increase stand resiliency in any measurable way, but instead are prioritized more by their visibility to the public and combining the treatment with elements of public education (signage, community work days, public tours, active demonstrations of operations, etc.).

Planning and Development

Municipal policies and bylaws are tools available to mitigate wildfire risk to a community. It is recognized that, 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 play a role in reducing the chance of structure loss from wildfire.

The planning and development objectives for the District of North Vancouver are:

- To include wildfire considerations in the planning and acquisition strategy for parks and recreational areas.
- To utilize regulatory and administrative tools to reduce wildfire hazard on private land and increase number of homes compliant with FireSmart guidelines (with low ignition potential).

RECOMMENDATION #15: Review the DP process to assess the outcomes of DP applications and long-term compliance with DP recommendations on an ongoing basis to facilitate improvements to the process.

RECOMMENDATION #16: Develop a landscaping standard which lists flammable non-compliant vegetation and landscaping materials, non-flammable drought and pest resistant alternatives, and tips on landscape design to reduce maintenance, watering requirements, avoid wildlife attractants, and reduce wildfire hazard. Consider making it publicly available for residents and homeowners outside of the DP area (can be provided at issue of building permit and made available at the DNV Office or other strategic locations). For further assistance in creating a FireSmart landscape and to obtain a list of fire-resistant plants, refer to the FireSmart Guide to Landscaping at <https://www.firesmartcanada.ca/resources-library/firesmart-guide-to-landscaping>.⁶⁸

Other helpful links for finding fire resistant landscaping options can be found at:

- <http://www.wacdpmc.org/images/Fire-Resistant-Plants.pdf>
- <http://www.firefree.org/wp-content/uploads/2016/02/Fire-Resistant-Plants.pdf>
- <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/prevention/for-your-home-community>
- <http://articles.extension.org/pages/32729/selecting-firewise-plants>

RECOMMENDATION #17: Engage the development/building community (may include developers, builders, landscapers, and architects) in any amendments to the DP process. This can be accomplished through workshops/informational sessions and/or information packages to increase awareness of wildfire risk and to educate and inform regarding the DP process and expectations. This initiative should be a collaborative effort between the three North Shore communities to ensure similar standards apply across the North Shore area.

Additional recommendations for amendments to policies and bylaws were discussed in Section 2.5.3.

⁶⁸ Government of Alberta “FireSmart Guide to Landscaping”

Subdivision Design

Subdivision design should include consideration to decrease the overall threat of wildfire. 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. In communities and/or developed areas within the DNV, on-street parking can contribute hazards on narrow or dead-end roads, which are already unlikely to have a high capacity under heavy smoke conditions.⁶⁹ When the time for evacuation is limited, poor access has contributed to deaths associated with entrapments and vehicle collisions during wildfires.⁷⁰ Methods 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.⁶⁹ These factors should be considered during the review of applications for new developments occurring on vacant lots within the DNV's wildland urban interface.

For new development in remote areas where hydrants are limited or unavailable (or it is otherwise determined by the DNV that adequate or reliable water supply systems may not exist), the NFPA 1142 can be used to help determine minimum requirements for alternative water supply (natural or artificial). Alternative water sources, such as dry hydrant systems, water usage agreements for accessing water on private land, private wells or cisterns, etc., should be reviewed by the DNV and the fire department prior to development approval.

Increasing Local Capacity

Local capacity for emergency management and efficient response to wildland urban interface fires can be enhanced by addressing the following steps:

- Development and/or maintenance of Structural Protection Units (SPUs) which can be deployed in the event of a WUI fire;
- Conducting a comprehensive review of Emergency Management BC SPU deployment procedures for the purpose of fighting interface fires;
- Provision of sprinkler kits to community residents (at a cost) – this is particularly applicable to FireSmart priority neighbourhoods identified in Section 5.2.3 such as the Indian Arm communities; and
- Engagement in annual cross-training exercises with adjacent fire departments and/or BCWS in order to increase both local and regional emergency preparedness with regards to structural fire and wildfire training.

A detailed account of current local capacity for the District of North Vancouver and recommendations to address gaps is provided in Section 6.

FireSmart Compliance within the Area of Interest

As could be expected, there is a wide range of FireSmart compliance on private properties in the AOI. There are large differences in the degree to which FireSmart best practices are visible within individual

⁶⁹ Cova, T. J. 2005. Public safety in the wildland-urban interface: Should fire-prone communities have a maximum occupancy? *Natural Hazards Review*. 6:99-109.

⁷⁰ De Ronde, C. 2002. Wildland fire-related fatalities in South Africa – A 1994 case study and looking back at the year 2001. *Forest Fire Research & Wildland Fire Safety*, Viegas (ed.), <http://www.fire.uni-freiburg.de/GlobalNetworks/Africa/Wildland.cdr.pdf>

HIZs, and in neighbourhoods throughout the District of North Vancouver communities. Landscaping in the AOI is also in a range of FireSmart compliance. Generally speaking, many homes in the Woodlands neighbourhood, an interface area, are predominantly wood construction and lack defensible space between property footprints and adjacent forested areas. Similarly, many homes that are boat access only or have single road access along the west side of Indian Arm do not maintain 10 m defensible space. Accumulations of conifer foliage in roof corners and gutters was not uncommon across the AOI. Storage of combustible items under decks, carports, and other horizontal surfaces was also noted. On the other hand, many residences in the DNV are surrounded by lawn, 10 m defensible space, and/or hardscaping (rocks), all of which are FireSmart compliant. Most neighbourhoods within the DNV represent the full spectrum of FireSmart compliance rates, from no defensible space and wood constructions to completely FireSmart compliant homes. Within the AOI, the neighbourhood of Norgate displays the highest FireSmart compliance rate.

Aside from differing levels of awareness, understanding and acceptance of recommended FireSmart guidelines by residential and commercial property owners, there are a number of other factors that add variability to the level of FireSmart compliance within the AOI. Ultimately, these also impact the vulnerability of structures and the amount of effort required to achieve a FireSmart rating for individual homes, neighbourhoods or the communities as a whole. These factors include but are not limited to: the age of homes or subdivision; design features and favored building materials of the era; proximity to forested area (both on private land and adjacent provincial or municipal Crown land); density, lot size and lay-out of the subdivision; positioning of the home or neighbourhood in relation to slope, aspect and prevailing winds; and the stage and maturity of landscaping.

Neighbourhoods in the DNV AOI were unofficially surveyed during field work. The following observations were made:

- Wildfire hazard levels range from low to high across neighbourhoods within the AOI;
- The bulk of hazards are associated with conditions of natural and landscaped vegetation immediately surrounding residential properties;
- For new development, where landscaping is not yet completed, educational approaches may aid in promoting fire resistant landscaping options and achieving defensible space in the HIZ;
- Hazards are magnified in some neighbourhoods due to poor access (i.e., presence of private and gated roads) and distance from nearest water supply or fire hydrant location; and
- All neighbourhoods have good opportunities to mitigate risk through individual and collective action.

<p>RECOMMENDATION #18: Continue to maintain trained Local FireSmart Representatives (LFRs) on staff to assist and engage various neighbourhoods in complying with FireSmart principles at both the neighbourhood and individual home-level.</p>
--

5.2.3 Priority Areas within the AOI for FireSmart

This section identifies priority areas within the AOI that would benefit from FireSmart planning and activities. These priorities are based on general field observations and input from the DNV and are not based on a scientific sample or formal data collection. Recommended FireSmart activities are essentially the same for each neighbourhood or area; however, it is recommended that the DNV prioritize the neighbourhoods in Table 17.

Table 17. Summary of FireSmart Priority Areas.

Area	FireSmart Y/N	FireSmart Canada Recognition Received Y/N	Recommended FireSmart Activities
Priority Area #1: Indian Arm communities, including Woodlands, Sunshine, Alder Creek, Fernlee, Brighton Beach	N	N	<p>The following is a non-extensive list of FireSmart activities for which the District can engage suggested neighbourhood residents:</p> <ol style="list-style-type: none"> 1) Provide guidance to ensure landscaping complies to the FireSmart standard; 2) Incentivise private landowners to engage in retrofitting homes with building materials and design based on NFPA 1144 or FireSmart standards; 3) Encourage prompt removal of combustible construction materials or yard waste from private properties; and 4) Continue coordinating monthly or bi-monthly yard waste removal days prior to and during the fire season to reduce WUI fire hazard.
Priority Area #2: Riverside Drive	N	N	
Priority Area #3: Skyline Drive north of Montroyal Boulevard	N	N	
Priority Area #4: Capilano (areas that border Capilano River and MacKay Creek Greenbelt)	N	N	
Priority Area #5: Highlands and Canyon Heights (areas that border MacKay Creek and Mosquito Creek)	N	N	
Priority Area #6: Delbrook (areas that border Mosquito creek on the west and Thane Creek greenbelt on the east)	N	N	
Priority Area #7: Grousewoods, Cleveland, Upper Delbrook, Carisbrooke, Braemar	N	N	
Priority Area #8: Upper Lynn, Lynn Canyon, West Lynn Terrace, Upper West Lynn, Lower West Lynn, and Lynnmour North	N	N	
Priority Area #8: Riverside West (adjacent to Seymour River)	N	N	
Priority Area #9: Blueridge, Northlands, Parkgate, Indian River	N	N	
Priority Area #10: Maplewood, Windridge, Windsor Park, Dollarton, Roche Point (south of Mt. Seymour Parkway)	N	N	

Area	FireSmart Y/N	FireSmart Canada Recognition Received Y/N	Recommended FireSmart Activities
Priority Area #11: Critical infrastructure (i.e., water and wastewater treatment facilities)	Y (partially)	N/A	Based on field observations, most critical infrastructure has had some level of FireSmart setback from forested areas. Consider conducting frequent (2-3 years) maintenance treatments to ensure the wildfire risk does not reach higher than moderate. It is recommended that fuel treatments be considered for areas adjacent to critical infrastructure in order to bolster the effect of previous FireSmart treatments. FireSmart treatments may include thinning from below to reduce ladder fuels and crown fire potential, pruning of retained trees to 3 m, and reducing surface fuels. Additionally, consider adding regular brushing activities to the maintenance treatment schedule to control weeds and grasses around critical infrastructure.

RECOMMENDATION #19: The DNV should apply for funding from the UBCM CRI Program to develop a local FireSmart rebate program. This will allow homeowners to access partial rebates for FireSmart activities on their properties, if rated as high or extreme risk in a FireSmart home and property assessment. The rebate program is described in detail in Appendix 2 of the CRI Program 2020 FireSmart Community Funding and Supports – Program & Application Guide and must adhere to the goals of FireSmart, as outlined in Section 5.2.1.

5.3 COMMUNICATION AND EDUCATION

Establishing effective communications and actively engaging key stakeholders in risk reduction activities are keystones to building a FireSmart community. Without the support and involvement of residents, businesses, public officials, and industry, the efforts of public officials, fire department, and others to reduce wildfire losses will be hindered. In many communities, there is a general lack of understanding about interface fire, the relationship between ignition potential and loss of homes, and the simple steps that can be taken to minimize risk on private land. In addition, public perceptions regarding responsibility for risk reduction and the ability of firefighters to safely intervene to protect homes during a wildfire are often underdeveloped or inaccurate.

Based on the consultation completed during the development of this Plan, it is evident that DNV staff and some residents have a good level of awareness of interface fire risk and a strong level of commitment to continue to grow their understanding. However, field observations highlighted the need to further educate the community at large on what private land owners can do to build a FireSmart community and take personal responsibility for the ignition potential of their homes, businesses, lands, and neighbourhoods. Often, the risk of wildfire is at the forefront of public awareness during or after major wildfire events, whether close to home or further afield. The challenge is to retain this level of awareness beyond these times. The communication and education objectives for the DNV are:

- To improve public understanding of fire risk and personal responsibility by increasing resident and property owner awareness of the wildfire threat in their community, to establish a sense of responsibility for risk mitigation among property owners, and to empower them to act;
- To enhance the awareness of, and participation by, elected officials and all WUI stakeholders regarding proactive WUI risk mitigation activities;
- To reduce or avoid ignitions from industrial sources; and
- To increase awareness of human-caused ignitions.

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 help provide unique and local solutions to reducing wildfire risk. The DNV should consider collaborating with NSEM and other North Shore communities to create an Interface Steering Committee to coordinate wildfire risk reduction efforts. The steering committee could include key stakeholders such as DNV staff, District of West Vancouver and City of North Vancouver representatives, Squamish Nation, Tsleil-Waututh First Nation, DNVFRS, Metro Vancouver, BCWS, BC Parks, recreational groups/representatives, local environmental groups, and industrial operators.

As previously discussed in Section 3.3.2, the District is a busy recreational area and access hub to backcountry areas in the District and beyond. Raising the awareness of the public including those accessing the backcountry is an important consideration to address the risk of fire ignition and encourage adherence to open burning restrictions and good practices.

Moving from the CWPP to implementation of specific activities requires that the community is well informed of the reasons for, and the benefits of specific mitigation activities. In order to have successful implementation, the following communication and public education recommendations are made:

RECOMMENDATION #20: This report and associated maps should be made publicly available through webpage, social media, and public FireSmart meetings.
--

RECOMMENDATION #21: Complete or schedule periodic updates of the CWPP to gauge progress and update the threat assessment (hazard mapping) for changes in fuels, forest health, land planning, stand structure or changes to infrastructure in the interface. The frequency of updates is highly dependent upon

major changes which would impact the DNV's wildfire threat assessment or the rate at which wildfire risk reduction efforts are implemented. An evaluation of major changes (including funding program changes that may lead to new opportunities) and the potential need for a CWPP update should be initiated every 5 - 7 years.

RECOMMENDATION #22: Develop a social media strategy and ensure that its full power is leveraged to communicate fire bans, high or extreme Fire Danger days, wildfire prevention initiatives and programs, easily implementable FireSmart activities, updates on current fires and associated air quality, road closures, and other real-time information in an accurate and timely manner.⁷¹ This may be combined with incentive programs such as neighbourhood or community chipping days (see recommendation #49)

RECOMMENDATION #23: Promote FireSmart approaches for wildfire risk reduction to DNV residents through Town Hall meetings, workshops and/or presentations. Workshops should target priority neighbourhoods, and a FireSmart display set should be developed that can be transferred between community centres and libraries. Aim to conduct the engagement/promotion campaign prior and during the fire season. Continue supplying FireSmart materials to homeowners in the interface during these engagement campaigns. This initiative can be part of a North Shore-wide effort.

RECOMMENDATION #24: Engage in regular education initiatives targeting residential properties within the Wildfire Hazard DPA, including but not limited to door-to-door distribution of FireSmart door hangers.

RECOMMENDATION #25: Use the planned Maplewood Fire and Rescue Centre (within the Wildfire Hazard DPA) to demonstrate the use of flame proof/fire resistant building materials and FireSmart landscaping with interpretive low flammable landscaping and environmental enhancement areas open to the public. Interpretive/education materials may be provided onsite and/or on the District website.

RECOMMENDATION #26: Work towards FireSmart community recognition, at the neighbourhood level and facilitate uptake into the FireSmart Canada Community Recognition Program (FSCCRP). This will help reduce fire risk and aid in further funding applications.

RECOMMENDATION #27: Facilitate the FSCCRP uptake within the DNV and enhance its applications by including the following: 1) inviting BCWS crews to participate in and support the annual FireSmart events set up by participating neighbourhoods. 2) Encourage individual homeowner participants to complete the self-administered FireSmart home assessment tool. 3) Include within the FireSmart Canada Community Assessment Report the standard recommendation that participating neighbourhoods hold a home hazard assessment workshop as one of their FireSmart events.

⁷¹ Appendix K has general communication and social media information.

RECOMMENDATION #28: Promote the use of the FireSmart Home Partners Program offered by the Partners in Protection Association, which facilitates voluntary FireSmart assessments on private property. Use the opportunity to educate the home or business owner about the hazards which exist on their property and provide easy improvements to reduce their risk.

RECOMMENDATION #29: Encourage schools to adopt and deploy existing school education programs to engage youth in wildfire management and risk reduction. There is emergency preparedness curriculum available provincially, which includes preparedness for a variety of natural hazards, including wildfire (Master of Disaster). Other options/value-added activities include consulting with Association of BC Forest Professionals (ABCFP) and British Columbia Wildfire Service (BCWS) (Fraser Fire Zone), as well as local fire department and FireSmart representatives to facilitate and recruit volunteer teachers and experts to help with curriculum development to be delivered in elementary and secondary schools (field trips, guest speakers, etc.).

RECOMMENDATION #30: The North Shore Emergency Management should coordinate and facilitate engagement with all key stakeholders (BCWS, BC Parks, recreational groups/representatives, DNV staff, industrial operators, City of North Vancouver, District of West Vancouver representatives, Metro Vancouver staff, and local First Nations) to formalize an Interface Steering Committee. The purpose of the steering committee would be to identify wildfire related issues in the area and to develop collaborative solutions to minimize wildfire risks.

RECOMMENDATION #31: Work towards educating homeowners within fire limits areas (i.e., outside of the road accessible fire service area). This is particularly applicable to boat access only residents. It is common, especially in the case of second homeowners/vacation owners, for them to be unaware of the lack of fire services in their area (in the event they call 911).

RECOMMENDATION #32: Given the historically high proportion of preventable human-caused fire ignitions (see Section 2.3) and the high public and recreational usage of parks, trails and green spaces in the District and the backcountry beyond, the DNV should develop public education focused on increasing awareness of open burning restrictions and/or good wildfire prevention practices. This could include information on how ignitions can occur (including the range of human-related activities that can create a spark or heat source sufficient to ignite a wildfire), how easily they can occur and how they can be prevented. Public information or signage could be posted at busy parks and trailheads and/or posted on the District's website in the form of seasonal notices (similar to summer parking and access notices posted for popular destinations).

5.4 OTHER PREVENTION MEASURES

In addition to fuel treatment and community communication and education, fire prevention in the AOI is also addressed via the following avenues: 1) public display of danger class rating signs throughout the AOI, which should be updated on a weekly basis; 2) ability to restrict access to back country areas similar to provincial requirements, if necessary; and 3) enforcement of local bylaws such as the Fire Protection Equipment; Fireworks Regulation; Fire; Smoking Regulation; Wildfire Hazard DPA; Solid Waste Removal; Park Regulation, North Shore Emergency Management Office Agreement; Emergency Plan; and North Shore Disaster bylaws. The aforementioned activities are either currently being applied or have potential to be applied in order to reduce the potential and threat of wildfire ignitions within the AOI. The public display of danger class rating signs should be updated on a weekly basis.

Risk of human-caused ignition within the AOI is not limited to private property owners and individual residents. Power lines and industrial activities pose a risk of ignition, particularly in areas where cured fuels or fuel accumulations exist. Tree failures adjacent to power lines (transmission and distribution) are common occurrences and represent significant risks to ignition within the AOI. A cooperative approach for addressing the industrial area concerns must be undertaken by the DNV and pertinent industrial partners. Additionally, there is a high risk of ignitions due to high use of existing trails that overlap and are adjacent to BC Hydro transmission light right-of-ways. This has been recognized and identified in Section 5.1.1 where fuelbreaks have been recommended.

RECOMMENDATION #33: Work with industrial operators such as BC Hydro and Fortis BC to ensure that high risk activities, such as grubbing/brushing and right-of-way mowing work do not occur during high fire danger times to reduce chance of ignitions as per the Wildfire Act. It is recommended that communications are coordinated via weekly fire calls.

RECOMMENDATION #34: Work with industrial operators (i.e., BC Hydro) to ensure that rights-of-way do not contain fine fuel accumulations (< 7.5 cm, easily cured) and significant regeneration of conifer vegetation prior to and during the fire season and are maintained in a low hazard state (to serve as fuel breaks).

SECTION 6: WILDFIRE RESPONSE RESOURCES

This section provides a high-level overview of the local government resources accessible for emergency response and preparedness use. Accordingly, in emergency situations when multiple fires are burning in different areas of the Province, resource availability may be scarce. Therefore, local government preparedness and resource availability are critical components of efficient wildfire prevention and planning. Deployment of provincial resources occurs as per the process detailed in the *Provincial*

Coordination Plan for Wildland Urban Interface Fires document⁷². The aforementioned document establishes a protocol for collaborative and integrated emergency management in the event of WUI fires within British Columbia.

6.1 LOCAL GOVERNMENT AND FIRST NATION FIREFIGHTING RESOURCES

Firefighting efforts and effectiveness can be affected by access to secondary power sources, water pressure and supply, and existing local government contingency plans. In the event of a wildfire emergency situation and loss of power, the majority of critical infrastructure in the DNV has secondary power sources. However, should a wide-scale outage occur, known vulnerabilities to secondary power sources include mechanical failure and potential fuel shortages. The DNV has also identified issues with water pressure within particular areas that have fire hydrant service, and there are known limitations to water supply for firefighting in areas not supplied by the District water systems and consequently without hydrant service. Specific limitations of water availability with regards to wildfire suppression are detailed in Section 6.1.2.

Formal automatic aid agreements are in effect between the DNVFRS and local fire departments in neighbouring jurisdictions (West Vancouver Fire & Rescue and North Vancouver City Fire Department). In the event of a WUI fire emergency, automatic aid in the AOI is activated, as required, between these fire departments and also lead to aid requests with BCWS. DNVFRS and DNV Operations developed an agreement in 2018 for an Extended Operations Unit consisting of 35 operations staff that are trained in S-100, S-185, ICS-100.

6.1.1 Fire Department and Equipment

Fire protection within the AOI is the responsibility of the DNVFRS. Table 18 provides an overview of the fire services capacity in the AOI, including fire department personnel and equipment. In total, the DNVFRS fire protection services cover the entire area within the District municipal boundary that is accessible by road or boat. This excludes mountain ranges and undeveloped forested lands. The DNV has agreements in place with BCWS and the Metro Vancouver Watershed Protection Department for fire protection in these areas.

DNVFRS personnel are full-time, paid firefighters. The main personnel deficiencies reported by DNVFRS related to difficulties ensuring that all members are trained in structure protection training workshop (SPP-115), that higher level wildland firefighter training is also incorporated (e.g. Strike Team/Task Force Leader, Structure Branch Director, Helicopter Operations), and a lack of Danger Tree Assessors. The DNVFRS's equipment is listed in Table 18 below and includes capability to draft from natural water sources by truck draft or using portable pumps. An additional Type-II SPU, an off-road capable wildfire

⁷² Provincial Coordination Plan for Wildland Urban Interface Fires. 2016. Available online at: https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/provincial-emergency-planning/bc-provincial-coord-plan-for-wuifire_revised_july_2016.pdf

response vehicle, salt-water pumping capacity, and a watercraft for remote/boat access locations were cited as equipment deficiencies for the DNVFRS.

Table 18. Fire department capacity and equipment within the AOI.

Fire Protection Zones	Fire Department	Number of Stations	Number of Members	Apparatus type and number*
District of North Vancouver municipal boundary	District of North Vancouver Fire Rescue Services	5	140 full-time equivalent career members	4 Utilities (crew cab), 6 Engines, 1 Tower, 3 Squads, 1 Rescue, 1 Command, 1 Wildland, and 1 Duty Chief, 2 Quints, 1 Support, 1 Training Unit, 1 Hazmat, 1 Hazmat Support, 2 Type-II SPU, 1 Initial Attack Vehicle, 1 Extended Operations Unit trailer and wildfire equipment (water bladders, portable pumps, hand tools, forestry hose, and chainsaws). DNVFRS also has 6 non-specialized vehicles for prevention, education, and emergency communications.
*The DNV Parks Department has additional firefighting equipment, including a 500-gallon water tank on a 1 tonne truck, hydrant adaptors, hoses, a Honda stroke pump, wildfire bladders, pulaskis, backpack pumps, and chainsaws.				

Members of the DNVFRS undergo significant training focused on structural firefighting and annual structure protection program wildland firefighter level 1 (SPP-WFF 1) and SPP-115 training. The DNVFRS has in-house SPP-WFF 1, S-100, S-185, and ICS-100 train-the-trainers. The DNVFRS does not, however, have a junior firefighter work experience program. DNVFRS is planning to train 14 members as Wildlife Danger Tree Assessors in early 2019. Every two years a multi-agency exercise is held with Metro Vancouver Wildfire and BCWS. In 2019, this training exercise will occur on the North Shore and will involve a dry lightning wildfire simulation. It is recommended that all DNVFRS members continue to receive at a minimum SPP-WFF1 (or equivalent) training, and that fire department members engage in yearly practical wildland fire training with BCWS that covers at a minimum: pump, hose, hydrant, air tanker awareness, and employment of SPUs. The aforementioned cross-training opportunity should continue to include joint wildfire simulation exercises such as the Dry Lightning 3 exercise that was held on the North Shore in 2019. This level of training would improve the local fire department's ability to respond to wildfires within the DNV and adjacent communities.

Over the previous 8 years (2011-2018), the DNVFRS responded to an average of 238 calls per year (wildland and structure fire calls), of which an average of 49 per year were wildland (bush) fires. This ranged from a low of 30 wildland fire calls in 2011 to a high of 69 in 2013 and 2015. In 2018, the DNVFRS responded to 53 wildland fire calls.

6.1.2 Water Availability for Wildfire Suppression

Water is the single most important suppression resource. In an emergency response scenario, it is critical that sufficient water supply be available. The Fire Underwriters Survey summarizes their

recommendations regarding water works systems fire protection requirements, in the document entitled *Water Supply for Public Fire Protection* (1999).⁷³ Some key points from this document include the need for:

- Duplication of system parts in case of breakdowns during an emergency;
- Adequate water storage facilities;
- Distributed hydrants, including hydrants at the ends of dead-end streets;
- Piping that is correctly installed and in good condition; and
- Water works planning should always take worst-case-scenarios into consideration. The water system should be able to serve more than one major fire simultaneously, especially in larger urban centers.

Water service within the DNV is an important component of emergency response for a wildland urban interface fire in the event of a large-scale emergency, and in particular for structural fires. As previously noted in Sections 3.2.3 and 3.3.1, water service is provided by a DNV operated system which relies on surface water from Metro Vancouver reservoirs (Seymour and Capilano). For suppression within the AOI, hydrant (and draft well) service in the AOI is limited to the extent of these District water systems. In consultation with the DNVFRS, it was noted that hydrants are available throughout the majority of the District, and water supply and pressure are generally good. However, there are portions of the District without hydrant protection or with poor supply or pressure. The DNV has developed a Master Requirement (SPE 103) for this Fire Limits Area, which encompasses homes located in areas with limited water supply, limited access, and increased response times by the DNVFRS.⁷⁴ The following areas are included in the Fire Limits Area:

- 4700 and greater Blocks Prospect Road,
- 4900 and greater Blocks Skyline,
- 4300 and greater Blocks St. Georges Ave,
- 4300 and greater Blocks St. Mary's Ave,
- 1500 and greater Blocks Lillooet Road,
- 4400 and greater Blocks Marion Road,
- 4500 and greater Blocks Lynn Valley Road,
- 2200 and greater Blocks Indian River Crescent,
- 4000 and greater Blocks Indian River Drive,
- 2800 and greater Blocks Panorama Drive,
- Eastridge Road - even addresses only,
- Any construction above the 1050 ft (320 m) elevation,
- The areas designated as Woodlands, Sunshine and Cascades, and

⁷³ <http://www.scm-rms.ca/docs/Fire%20Underwriters%20Survey%20-%201999%20Water%20Supply%20for%20Public%20Fire%20Protection.pdf>

⁷⁴ Fire Limits Area – Sprinklers, Master Requirement SPE 103. District of North Vancouver.

- The area designated as Indian Arm.

Water supply in the DNV has been susceptible to drought events in past years, sometimes resulting in a reduction of reservoir levels to 60% capacity.⁷⁵ As noted in Section 4.1.3, the combination of reduced snowpack and drought events could have a considerable effect on water supply into the future, particularly during the summer months.⁷⁶ To supplement water availability for firefighting, the DNVFRS can draft from natural static water sources such lakes, rivers, and ponds using either truck mounted or portable pumps. However, these sources are also at risk of drying or experiencing reduced water levels during drought events, which typically coincide with high and extreme fire danger rating days. Two Vancouver Fire Boats that may be deployed to assist the DNV also have capability for ship to shore pumping from ocean water sources. In addition, Grouse Mountain has the ability to use available snow-making machinery to pump water for fire suppression during the fire season. Natural water sources within the District are known and mapped.

The WWG stated that in the event of prolonged power outage, the capacity of the District water system and reservoirs to operate under these conditions is limited. The DNV pump stations do not have onsite backup power, however, three small and one large portable generator can be available to power these systems if required. In the event that the Lynn Pump Station (primary pump station) loses power, the secondary pump station at the top of Skyline Drive will lose power as well. This will result in 24 hours of remaining capacity for water provision to the DNV and 6 hours of water provision for firefighting capacity. The DNV's current water infrastructure and system was not designed to support domestic, structural firefighting, and wildland firefighting needs concurrently. The DNV's water system provides adequate supply of water for domestic water use and structure protection. Therefore, hydrant spacing, hydrant location, flow rates, and capacity are all based on meeting these aforementioned needs. Drawing a water system down to fight a fire may result in rapid depressurization of the affected water lines.

RECOMMENDATION #35: Conduct an assessment of diesel supply for backup generators (scenario-based - e.g. assuming bridges are blocked/inaccessible). This recommendation relates to Required Action 2.2. in the DNV's Climate Change Strategy: invest in backup power equipment for critical functions and develop a fueling strategy.

RECOMMENDATION #36: Consider purchasing a tender or tank to provide additional on-site water storage for fire suppression use in the Woodlands area and the Baden Powell trail.

RECOMMENDATION #37: Consider installing an alarm system to warn of de-pressurization of water lines. This recommendation relates to Required Action 1.2. in the DNV's Climate Change Strategy (Develop and implement additional technological tools to assist in situational awareness and emergency response communication).

⁷⁵ District of North Vancouver. 2017. Climate Change Adaptation Strategy: Acting Now for a Resilient Future.

⁷⁶ Metro Vancouver. 2018. Climate 2050 Discussion Paper.

RECOMMENDATION #38: Consider a variety of approaches to improve District water availability and ensure domestic water needs are not compromised in an emergency event that requires sustained use of large quantities of water (i.e., from concurrent structural and wildland firefighting events). For example, the DNV can commission a scenario-based cost/benefit analysis to improve limitations of the DNV water system so that it can support domestic water needs, structural firefighting, and wildland firefighting demands, concurrently in the event of an emergency. This analysis should identify the resources required to upgrade the current DNV water system, the costs associated with implementation, and develop a workplan that targets priority high risk areas first (i.e., areas of low pressure, as mapped by the DNV).

RECOMMENDATION #39: All new development outside existing District water systems should have a water system which meets or exceeds minimum standards of NFPA 1142, *Standard on Water Supplies for Suburban and Rural Fire Fighting*⁷⁷. The fire department should review the water supply to ensure it provides sufficient placement, flow, and reliability for suppression needs and that secondary power is available in the event of power outages.

6.1.3 Access and Evacuation

Road networks in a community serve several purposes including providing access for emergency vehicles, providing escape/evacuation routes for residents, and creating fuel breaks. Access and evacuation during a wildfire emergency often must happen simultaneously and road networks should have the capacity to handle both. In the event of a wildfire emergency, Highway 1 is the primary access/egress route within the District running east and west. Marine Drive, Capilano Road, Lonsdale Avenue, Lynn Valley Road and Mount Seymour Parkway are arterial roads that provide access to and from developments located in interface areas within the District.

A significant emergency evacuation concern has been identified for Indian River Drive and boat access only communities along Indian Arm. There is currently no secondary exit or bypass from these areas to provide reliable egress for area residents and visitors. The Indian River Drive single access/egress route is vulnerable to wildfires, vehicular accidents, and rockfall/geotechnical hazards. If a wildfire were to block Indian River Drive or any of the major evacuation routes described above, smoke and poor visibility, car accidents, wildlife, traffic congestion, and other unforeseen circumstances can further complicate evacuations and hinder safe passage. Boat access communities of Indian Arm can only be serviced by the Vancouver Fire Boats with relatively long response times (approximately 45 minutes). Deep Cove also has limited emergency egress, particularly the neighbourhood accessed by Panorama Drive, a narrow, single route that also experiences considerable traffic from visitors to the Village of Deep Cove, Panorama Park and Quarry Rock. Traffic congestion is a recognized issue on the North Shore (INSTPP, 2018)⁷⁸ and may

⁷⁷ National Fire Protection Association (NFPA). 2017. Standard on Water Supplies for Suburban and Rural Fire Fighting. Retrieved online at: <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1142>

⁷⁸ <https://www.instpp.ca/uploads/1/2/1/6/121600566/instpp-full-report.pdf>

exacerbate existing evacuation and access issues in the event of a wildfire emergency, particularly with respect to Seymour area in the east of the AOI that is accessed by Mt. Seymour Parkway.

RECOMMENDATION #40: Restrict public access into work zones in the event of wildfire suppression activities in the Mt. Seymour Parkway/Seymour area to ensure public safety and reduce the risk of entrapment⁷⁹.

While the Indian River Drive corridor/Woodlands area, and boat access only Indian Arm communities; Panorama Drive; and Grousewoods are areas of greatest concern identified by the Wildfire Working Group, various other neighbourhoods within the AOI are located on single access roads or are isolated neighbourhoods that cause suppression or evacuation concerns (i.e., Underwood and Skyline Drive). Some of the critical infrastructure within the AOI is reached via narrow forested roads, which may impede suppression efforts and response times. Furthermore, there is a significant portion of land within the AOI which is inaccessible by roads.

Emergency access and evacuation planning is of particular importance in the event of a wildfire event or other large-scale emergency. The District of North Vancouver has developed an evacuation guidelines document (2009); however, the emergency evacuation plan is currently being updated (2019) under the leadership of NSEM in the form of a multi-jurisdictional North Shore emergency evacuation plan. This includes an evaluation of alternative evacuation routes considering the current context and challenges on the North Shore. This CWPP Update and associated recommendations will be considered in the development of the North Shore evacuation plan which includes basic contingencies in the event of a wildland/interface fire (i.e., contacts and roles of local government personnel). However, the ERP does not specify evacuation routes to be used during an emergency situation (in the absence of identified evacuation routes, it was noted by the Wildfire Working Group that all mapping is readily available through the District GIS Department). Evacuation would be conducted by first responders, RCMP, and the North Shore Rescue team. Currently, in the event of a wildfire emergency within the AOI, the Gerry Brewer Building (North Vancouver RCMP detachment and North Shore Emergency Management office), at 147 E 14th St in the City of North Vancouver, can be designated as the EOC for the three North Shore municipalities. It is recommended that the District develop a detailed evacuation plan that includes the following provisions:

- Mapping and identification of safe zones, marshaling points and aerial evacuation locations;
- Planning of traffic control and accident management;
- Identification of volunteers that can assist during and/or after evacuation; and
- Development of an education/communication strategy to deliver emergency evacuation procedures to residents.

⁷⁹ Fire entrapment is a life-threatening situation that occurs when individuals are threatened by a sudden change in fire conditions and are unable to utilize escape routes to access safety zones.

Recreation trails built to support ATVs can provide access for ground crews and act as fuel breaks for ground fires, particularly in natural areas. Strategic recreational trail development to a standard that supports ATVs, and the installation of gates or other barriers to minimize access by unauthorized users can be used as a tool that increases the ability of local fire departments to access interface areas.

RECOMMENDATION #41: Devise trails or corridors with a minimum 3-4 m width, that are suitable for ATV use in remote or limited access areas (i.e., surrounding the Deep Cove and Seymour areas) in the event of an emergency.

RECOMMENDATION #42: Acquire an ATV or off-road vehicle (i.e., Polaris side by side) and equip with fire suppression equipment. This vehicle can be used for rapid access in remote or limited access areas within the District boundaries.

In order to effectively use the trails as crew access or fuel breaks during suppression efforts, it is recommended to develop a Total Access Plan. This plan should be made available to the DNVFRS, other local fire departments (under mutual aid agreement), Metro Vancouver Watershed Protection and the BCWS in the event that they are aiding suppression efforts on an interface fire in the AOI. The plan should include georeferenced maps with associated spatial data and ground-truthed locations of potential optimal firebreaks, identify the type of access available for each access route, identify those trails that are gated or have barriers, and provide information as to how to unlock or remove barriers. The plan should also identify those natural areas where access is insufficient. Access assessment should consider land ownership, proximity of values at risk, wildfire threat, opportunities for use as fuel break or control lines, trail and road network linkages where fuel-free areas or burn off locations can be created or used as potential sprinkler locations; and requirements for future maintenance activities such as operational access for fuel treatments and other hazard reduction activities.

In addition to providing the safest, quickest, and easiest access routes for emergency crews, a Total Access Plan would minimize the need for using machinery or motorized access in an otherwise undisturbed area. This would reduce the risk of soil disturbance and other environmental damage, as well as reduce rehabilitation costs.

RECOMMENDATION #43: Develop an evacuation strategy for the area served by Indian River Drive.

RECOMMENDATION #44: Complete and participate in regular testing of, and updates to, the evacuation plan.

RECOMMENDATION #45: Develop a community wildfire pre-planning brochure to be shared with key DNV, Metro Vancouver and NSEM staff, that addresses the following: 1) locations of staging areas; 2) identifies water reservoirs, communications requirements (i.e., radio frequencies), minimum resource requirements for structure protection in the event of an interface fire, and values at risk; and 3) maps of

the area of interest. Collaborate with the District of West Vancouver to ensure similar information is provided.

RECOMMENDATION #46: Develop a Total Access Plan for the DNV to map and inventory trail and road network in natural areas for suppression planning, identify areas with insufficient access and to aid in strategic planning. Georeferenced maps with ground-truthed locations of potential optimal firebreaks should be developed as part of the Total Access Plan and shared with fire suppression personnel and BCWS to support emergency response in the event of a wildfire. The plan should be updated every five years, or more regularly, as needed to incorporate additions and/or changes.

RECOMMENDATION #47: Include a qualified professional with experience in operational wildland/interface fire suppression in the planning and strategic siting of future trails and parks.

6.1.4 Training

The DNVFRS maintains a current level of structural protection training as described in Section 6.1.1. Additionally, the DNVFRS trains all members to SPP-WFF 1 with annual refresher training. The DNVFRS is also committed to training its members to SPP-115 (focused on the use of wildfire pumps and hose, as well as the use of fire service hose and hydrants, in the application of sprinklers on structures) with 65 personnel currently trained and an additional 25 scheduled for yearly training starting with the year 2020. Additionally, the DNVFRS is considering adding training elements including Wildlife Dangerous Tree Assessor certification for some members in 2019. It must be noted, that outside of the DNVFRS, additional wildland interface fire suppression capacity exists within the DNV's Parks department, with Extended Operations Unit staff trained in S100, S185 and ICS100. Provision of training opportunities for structural firefighters in the realm of wildland firefighting is critical to building capacity for suppression and emergency management at the local level. It is recommended that all fire department members continue to receive SPP-WFF 1 (or equivalent) at minimum, and that the fire department engage in yearly practical wildland fire training with BCWS.

The current level of communication between the DNVFRS and BCWS is dictated by fire season demands and generally occurs via North Shore Emergency Management coordinated multi-jurisdictional seasonal wildfire readiness workshops and, when fire danger rating is high or extreme, via weekly wildfire coordination calls. These multi-agency engagement activities are also attended by the three North Shore municipality fire departments, parks departments, and communications departments; as well as the Squamish Nation and Tsleil-Waututh Nation, and during high or extreme fire danger rating, by BC Parks, Metro Vancouver Watershed Fire Protection, Cypress Mountain Resort, Grouse Mountain Resort, North Shore Rescue, Royal Canadian Marine Search and Rescue, and British Properties.. The BCWS participates in community events or public education opportunities as requested by the North Shore fire departments; most recently, this included a Wildfire Day in 2018 attended by all three fire departments, BCWS, and Metro Vancouver Watershed Protection. The DNVFRS currently engages in annual cross-training with BCWS and Metro Vancouver and participates in a multi-agency response exercise/simulation ever two

years. Ongoing cross-training with the BCWS would enable the DNVFRS to prepare its responders with the technical and practical firefighting experience in order to action both structural and wildland fires.

It is recommended that the DNVFRS continue working cooperatively with the BCWS (Fraser Fire Zone, Cultus/Haig Fire Base) to conduct yearly mock exercises, where information and technical/practical knowledge are shared, such as: fireline construction, Mark 3 pump operations, sprinkler protection, skid pack operations, portable water tank deployment, and wildland hose operations. These practices also provide training to wildland crews on hydrant hookup methods, as well as an avenue to discuss working together on inter-agency fires. Continuing the practice of conducting joint training/multi-agency exercises will strengthen regional emergency response and firefighting training. Operationally, the DNVFRS participated as members of an incident command team and response to the 2018 White Lake Fire in the District of West Vancouver which resulted in valuable learning and experience.

RECOMMENDATION #48: The DNVFRS should continue working with BCWS to maintain an annual structural and interface training program. As part of the training, it is recommended to conduct annual reviews to ensure PPE and wildland equipment resources are complete, in working order, and the crews are well-versed in their set-up and use. It is recommended the DNVFRS engage in yearly practical wildland fire training with BCWS that covers at a minimum: pump, hose, hydrant, air tanker awareness, and employment of SPUs. Interface training should include completion of a joint wildfire simulation exercise and safety training specific to wildland fire and risks inherent with natural areas. 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.

RECOMMENDATION #49: Ensure that the DNVFRS maintains the capability to effectively suppress wildland fires, through wildfire-specific training sessions. Ensure all DNVFRS members continue to have SPP-WFF 1 at a minimum. Consider expanding the training program to maintain a high level of member education and training specific to interface and wildland fires. The Office of the Fire Commissioner (OFC) also offers SPP-115 (formerly S-115) to train structural firefighters on the use of wildfire pumps and hose, and fire service hose and hydrants in the application of structural protection units (SPUs); consider training all members to this standard.; the DNVFRS should continue the practice of staying up to date on wildfire training opportunities, and to train members in this capacity, as training resources/budgets allow.

6.2 STRUCTURE PROTECTION

The DNVFRS is well resourced in structural suppression equipment, and wildland equipment (i.e., one Initial Attack vehicle, one Extended Operations Unit Trailer, hand tools, hose and associated appliances). The wildland equipment is primarily used to defend properties close to road access while the DNVFRS has noted the need for a small watercraft to defend water access and remote properties. The fire department maintains a current level of training in both wildfire and structural firefighting (see Section 6.1.1 for additional detail). The DNVFRS is equipped with two Structural Protection Units (SPUs). The UBCM owns

four complete SPUs, each equipped to protect 30 – 35 structures. The kits are deployed by the MFLNRORD/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.

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 are primary considerations in developing FireSmart neighbourhoods. Housing built using appropriate construction techniques and materials in combination with fire resistant landscaping are less likely to be impacted by interface fires. Sprinkler protection for new home construction is also being provided through the District's Wildfire Hazard DPA, when recommended by the QP.

While many BC communities established to date were built without significant consideration of 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. More details on FireSmart construction can be found in Appendix J.

The DNV has implemented a Wildfire Hazard DPA that dictates building materials and FireSmart landscaping requirements for new construction. However, FireSmart principles can be voluntarily implemented by homeowners in numerous ways. It is recommended that homeowners take a building envelope – out approach, that is, starting with the home and working their way out. Addressing little projects first can allow for quick, easy, and cost-effective risk reduction efforts to be completed sooner, while larger, more costly projects can be completed as resources and planning allow. For example, prior to the fire season, clearing roofs and gutters of combustible materials (leaves and needles), clean out any combustible accumulations or stored materials from under decks, moving large potential heat sources such as firewood, spare building materials or vehicles as far from the structure as possible, maintaining a mowed and watered lawn, removing dead vegetation, and pruning trees are actionable steps that residents can start working on immediately. 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>.

The structure protection objectives for the DNV are to:

- Encourage private homeowners to voluntarily adopt FireSmart principles on their properties and to reduce existing barriers to action;
- Enhance protection of critical infrastructure from wildfire (and post-wildfire impacts); and

- Enhance protection of residential/commercial structures from wildfire.

RECOMMENDATION #50: Work with local distributors and homeowners within the District. The objective is to improve education of homeowners and remove some barriers to FireSmart action. Local distributors can include: hardware stores, garden centers, and aggregate providers. Initiatives may include:

- 1) Developing and delivery of FireSmart workshop(s) for local distributors on FireSmart issues and solutions/advice for homeowners. These distributors can be educated upon which supplies are FireSmart and in what configuration they can be used (for example, external sprinkler system equipment, aggregates and ground cover, wire mesh for vents, deck skirting).
- 2) Advocating for a FireSmart branding in the retail stores (could be stickers on shelf pricing or a FireSmart-specific section) to increase public exposure to projects that can be done at a relatively low cost.
- 3) Develop general cost implications of improvements so property owners can prioritize replacements.

RECOMMENDATION #51: Expand on existing programs which serve to remove barriers to action for homeowners by providing methods for them to cheaply and easily dispose of wood waste removed from their property. The current yard trimmings bin collection and North Shore Transfer Station for-free tipping may be expanded to include scheduled community chipping opportunities, or yard waste dumpsters available by month in neighbourhoods. Programs should be available during times of greatest resident activity (likely spring and fall). Consider making community chipping programs available to interested strata properties.

RECOMMENDATION #52: Complete a vulnerability assessment of all critical infrastructure, secondary power sources, and fuel availability. Review current capability of secondary power sources, identify vulnerabilities, and prioritize needs, in the case of prolonged or extensive power outages. Upgrade or realign resources, as prioritized.

REFERENCES

- Agee, J.K., B. Bahro, M.A. Finney, P.N. Omi, D.B. Sapsis, C.N. Skinner, J.W. van Wagtendonk and C.P. Weatherspoon. 1999. The use of shaded fuelbreaks in landscape fire management. *Forest Ecology and Management* 48(1): 1-12.
- B.A. Blackwell & Associates Ltd. 2019. Forest Resilience Strategy – District of North Vancouver. Contract Report.
- B.A. Blackwell & Associates Ltd. 2019. Post Fire Rehabilitation Plan – District of North Vancouver. Contract Report.
- BC Wildfire Service. 2018. Wildfire Causes. Retrieved from: <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/about-bcws/wildfire-response/fire-characteristics/causes>
- BC Wildfire Service. 2017. Provincial Strategic Threat Analysis: 2017 Update. Retrieved from: ftp://ftp.for.gov.bc.ca/HPR/external/!publish/PSTA/Documents/Provincial%20Strategic%20Threat%20Analysis_2017%20Update.pdf.
- Calkin, D., J. Cohen, M. Finney, M. Thompson. 2014. How risk management can prevent future wildfire disasters in the wildland-urban interface. *Proc Natl Acad Sci U.S.A.* Jan 14; 111(2): 746-751. Retrieved from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3896199/>.
- Cohen, J. 2000. Preventing Disaster: Home Ignitability in the Wildland-Urban Interface. *Journal of Forestry* 98(3): 15 - 21. Retrieved from: https://www.fs.fed.us/rm/pubs_other/rmrs_2000_cohen_j002.pdf
- Cova, T. J. 2005. Public safety in the wildland-urban interface: Should fire-prone communities have a maximum occupancy? *Natural Hazards Review*. 6:99-109.
- Dale, V., L. Joyce, S. McNulty, R. Neilson, M. Ayres, M. Flannigan, P. Hanson, L. Irland, A. Lugo, C. Peterson, D. Simberloff, F. Swanson, B. Stocks, B. Wotton. 2001. *Climate Change and Forest Disturbances*. *BioScience* 2001 51 (9), 723-734.
- de Groot, W. J., M. D. Flannigan, A.S. Cantin. 2013. Climate change impacts on future boreal fire regimes. *Forest Ecology and Management*. 294: 35 -44.
- De Ronde, C. 2002. Wildland fire-related fatalities in South Africa – A 1994 case study and looking back at the year 2001. *Forest Fire Research & Wildland Fire Safety*, Viegas (ed.), <http://www.fire.uni-freiburg.de/GlobalNetworks/Africa/Wildland.cdr.pdf>
- Diamond Head Consulting. 2017. Urban Forest Climate Adaptation Framework for Metro Vancouver. Tree Species Selection, Planting and Management. Submitted to Metro Vancouver. Retrieved from: <http://www.metrovancouver.org/services/regional-planning/PlanningPublications/UrbanForestClimateAdaptationFrameworkTreeSpeciesSelection.pdf>.

- Diamond Head Consulting. 2017. Design Guidebook – Maximizing Climate Adaptation Benefits with Trees. Submitted to Metro Vancouver. Retrieved from: <http://www.metrovancouver.org/services/regional-planning/PlanningPublications/DesignGuidebook-MaximizingClimateAdaptationBenefitswithTrees.pdf>.
- District of North Vancouver. 2017. Climate Change Adaptation Strategy, Acting Now for a Resilient Future. Retrieved from: <https://www.dnv.org/sites/default/files/edocs/climate-change-adaptation-strategy.pdf>.
- Flannigan, M.D., B.M. Wotton, G.A. Marshall, W.J. deGroot, J. Johnston, N. Jurko, A.S. Cantin. 2016. Fuel moisture sensitivity to temperature and precipitation: climate change implications. *Climatic Change* (2016) 134: 59 -71. Retrieved from: <https://link.springer.com/content/pdf/10.1007%2Fs10584-015-1521-0.pdf>.
- Flannigan, M.D., A.S. Cantin, W.J. de Groot, M. Wotton, A. Newbery, L.M. Gowman. 2013. Global wildland fire season severity in the 21st century. *Forest Ecology and Management* (2013) 294: 54 - 61.
- Forestry Canada Fire Danger Group. 1992. Development and Structure of the Canadian Forest Fire Behavior Prediction System: Information Report ST-X-3. Retrieved from: <http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/10068.pdf>.
- 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.
- Green, R. N., and K. Klinka. 1994. A Field Guide for Site Identification and Interpretation for the Vancouver Forest Region. Land Management Handbook Number 28. Retrieved from: <https://www.for.gov.bc.ca/hfd/pubs/docs/lmh/lmh28.pdf>
- Intergovernmental Panel on Climate Change. 2014. Climate change 2014: Synthesis Report Summary for Policymakers. 32p. Retrieved from: https://www.ipcc.ch/site/assets/uploads/2018/02/AR5_SYR_FINAL_SPM.pdf
- INSTPP. 2018. Integrated North Shore Transportation Planning Project (INSTPP) – Findings and Recommendations of the Staff Working Group to Improve Access and Mobility for the North Shore. Retrieved from: <https://www.instpp.ca/uploads/1/2/1/6/121600566/instpp-full-report.pdf>
- Jandt, R. 2013. Alaska Fire Science Consortium Research Brief 2013-3. Retrieved from: https://accap.uaf.edu/sites/default/files/AFSC_RB2013-3v3-corrected.pdf
- Meidinger, D., J. Clark, D. Adamoski. 2014. Sensitive Ecosystem Inventory for Metro Vancouver and Abbotsford 2010-2012. Retrieved from: <http://www.metrovancouver.org/services/regional-planning/PlanningPublications/SEITechnicalReport.pdf>

- Metro Vancouver. 2018. Climate 2050 Discussion Paper. Retrieved from:
http://www.metrovancouver.org/services/air-quality/AirQualityPublications/AQ_C2050-DiscussionPaper.pdf
- Metro Vancouver. 2017. Regional Growth Strategy Bylaw No. 1136, 2010. Metro Vancouver 2040 Shaping Our Future. Retrieved from: <http://www.metrovancouver.org/services/regional-planning/PlanningPublications/RGSAdoptedbyGVRDBoard.pdf>
- Metro Vancouver Drinking Water Management Plan. 2011. Retrieved from:
<http://www.metrovancouver.org/services/water/WaterPublications/DWMP-2011.pdf>
- Ministry of Forests, Lands, and Natural Resource Operations. 2016. BC Provincial Government extension note 'Adapting natural resource management to climate change in the West and South Coast Regions'. Accessed online at: <https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/nrs-climate-change/regional-extension-notes/coasten160222.pdf>
- Ministry of Forests, Lands and Natural Resource Operations. 2015. Coast Area 2015-17 Coastal Timber Supply Area Forest Health Overview. Retrieved from:
https://www.for.gov.bc.ca/ftp/HFP/external/!publish/Forest_Health/TSA_FH_Strategies/2015-Coast%20FH%20Strategy.pdf
- Perrakis, D.B., Eade, G and Hicks, D. 2018. BC Wildfire Service. Natural Resources Canada, Canadian Forest Service. *British Columbia Wildfire Fuel Typing and Fuel Type Layer Description 2018 Version*. Retrieved from: <https://cfs.nrcan.gc.ca/publications?id=39432>
- Reinhardt, E., R. Keane, D. Calkin, J. Cohen. 2008. Objectives and considerations for wildland fuel treatment in forested ecosystems of the interior western United States. *Forest Ecology and Management* 256:1997 - 2006. Retrieved from:
https://www.fs.fed.us/rm/pubs_other/rmrs_2008_reinhardt_e001.pdf
- The Province of British Columbia. 1995. Biodiversity Guidebook. Retrieved from:
<https://www.for.gov.bc.ca/hfd/library/documents/bib19715.pdf>
- The Province of British Columbia. 2016. British Columbia Provincial Coordination Plan for Wildland Urban Interface Fires. Retrieved from: https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/provincial-emergency-planning/bc-provincial-coord-plan-for-wuifire_revised_july_2016.pdf
- Thomson, Alan & B. Smith, R & Alfaro, Rene. (2011). Growth patterns in immature and mature western hemlock stands infected with dwarf mistletoe. *Canadian Journal of Forest Research*. 14. 518-522. 10.1139/x84-096.
- Westhaver, A. 2017. Why some homes survived. Learning from the Fort MacMurray wildland/urban interface fire disaster. Institute for Catastrophic Loss Reduction. ICLR research paper series number 56. Retrieved from:
https://www.iclr.org/images/Westhaver_Fort_McMurray_Final_2017.pdf

APPENDIX A – WILDFIRE THREAT ASSESSMENT – FBP FUEL TYPE CHANGE RATIONALE

Provided separately as PDF package.

APPENDIX B – WILDFIRE THREAT ASSESSMENT WORKSHEETS AND PHOTOS

Provided separately as PDF package.

APPENDIX C – MAPS

Provided separately as PDF package.

APPENDIX D – WILDLAND URBAN INTERFACE DEFINED

The traditional and most simple definition for the wildland/urban interface (WUI) is “the place where the forest meets the community”. However, this definition can be misleading. Incorrectly, it implies that neighbourhoods and structures well within the perimeter of a larger community are not at risk from wildfire. As well, it fails to recognize that developments adjacent to grassland and bush are also vulnerable.

A more accurate and helpful definition of the WUI is based on a set of conditions, rather than a geographical location: “the presence of structures in locations in which conditions result in the potential for ignition of structures from the flames, radiant heat or embers of a wildland fire.” This definition was developed by the National Fire Protection Association and is used by the US Firewise program. It recognizes that all types of wildland fuel/fire can lead to structural ignition (i.e. forest, grassland, brush) and also identifies the three potential sources of structural ignition.

Two situations are differentiated. Locations where there is a clean/abrupt transition from urban development to forest lands are usually specified as the “interface” whereas locations where structures are embedded or mingled within a matrix of dense wildland vegetation are known as the “intermix”. An example of interface and intermixed areas is illustrated in Figure 5.

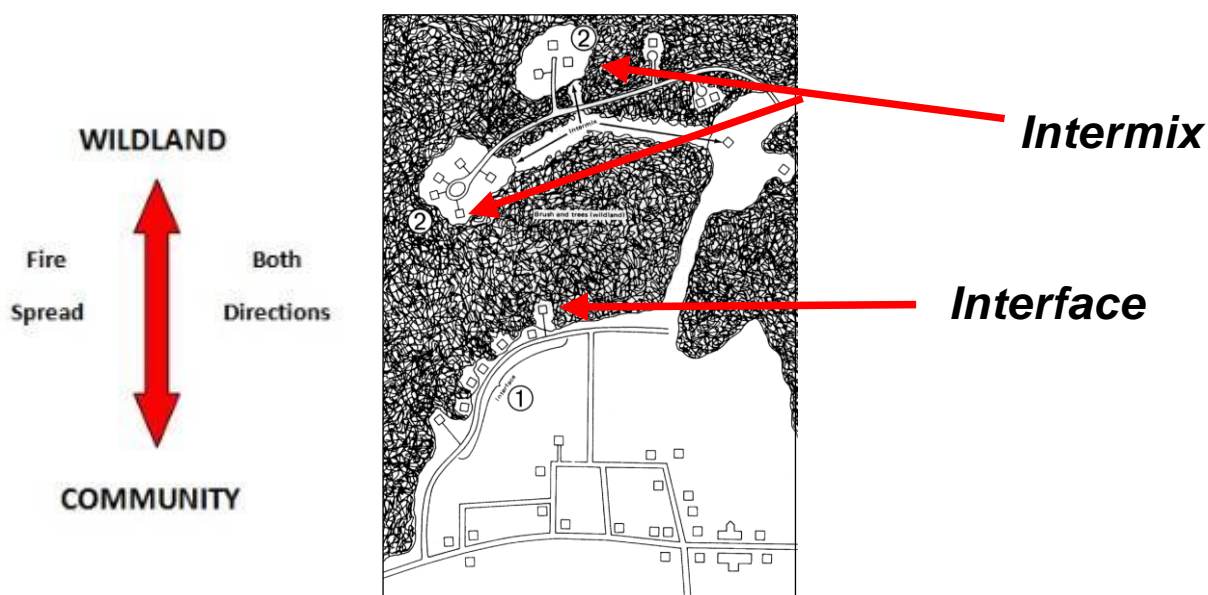


Figure 5. Illustration of intermix and interface situations.

Within the WUI, 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.

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.

Current research confirms that the majority of homes ignited during major WUI events trace back to embers as their cause (e.g. 50% – 80+ %). Firebrands can be transported long distances ahead of the wildfire, across any practicable fire guards, and accumulate on horizontal surfaces within the home ignition zone in densities that can reach 600+ /m². Combustible materials found within the home ignition zone combine to provide fire pathways allowing spot fires ignited by embers to spread and carry flames or smoldering fire into contact with structures.

APPENDIX E – WUI THREAT PLOT LOCATIONS

Table 19 displays a summary of all WUI threat plots completed during CWPP field work. The original WUI threat plot forms and photos will be 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 19. Summary of WUI Threat Assessment Worksheets.

WUI Plot #	Geographic Location	Wildfire Behaviour Threat Class	WUI Threat Class*
ALBA-1	Upper Delbrook	High	High
BADE-1	Upper Lynn	Moderate	N/A
BADG-1	Deep Cove	Moderate	N/A
BLUE-1	Blueridge	Moderate	N/A
BLUE-2	Blueridge	Moderate	N/A
BLUE-3	Blueridge	Moderate	N/A
BLUE-4	Riverside East	High	High
BRAE-1	Braemar	Moderate	N/A
BRAE-2	Braemar	Moderate	N/A
BRAE-3	Carisbrooke	Moderate	N/A
CART-1	McCartney Woods	High	Extreme
CART-2	McCartney Woods	High	Extreme
CLIF-1	Cliffwood	High	Extreme
DEEP-1	Deep Cove	Moderate	N/A
FROM-1	Upper Lynn	Moderate	N/A

WUI Plot #	Geographic Location	Wildfire Behaviour Threat Class	WUI Threat Class*
FROM-2	Upper Lynn	Moderate	N/A
GROUS-1	Grousewoods	Moderate	N/A
GROUS-2	Grousewoods	High	High
GROUS-3	Grousewoods	High	High
GROUS-4	Grousewoods	High	High
GROUS-5	Grousewoods	Moderate	N/A
HALL-1	Delbrook	High	Extreme
HOGA-1	Riverside East	Moderate	N/A
MALA-1	Cleveland	Moderate	N/A
MARY-1	Carisbrooke	Moderate	N/A
MOSQ-1	Upper Delbrook	Moderate	N/A
MOSQ-2	Delbrook	Moderate	N/A
PARK-1	Parkgate	High	High
PARK-2	Parkgate	Moderate	N/A
RAV-1	Roche Point	Moderate	N/A
RAV-2	Dollarton	Moderate	N/A
SEY-1	Indian River	Moderate	N/A
SEYM-1	Lower Seymour Conservation Area	Moderate	N/A
SEYM-2	Lower Seymour Conservation Area	Moderate	N/A
SEYM-3	Lower Seymour Conservation Area	Moderate	N/A
SEYM-4	Lower Seymour Conservation Area	High	Moderate

WUI Plot #	Geographic Location	Wildfire Behaviour Threat Class	WUI Threat Class*
SKY-1	Upper Delbrook	High	High
SKY-2	Upper Delbrook	High	Extreme
TOWR-1	Upper Delbrook	Moderate	N/A
IND-1	Indian River Rd	Moderate	N/A
ROW-1	Indian River Rd	Moderate	N/A

*Note that WUI threat scores are only collected for untreated polygons that rate high or extreme for Wildfire Behaviour Threat score. Whereas, for treated polygons, WUI threat scores are collected regardless of Wildfire Behaviour Threat score.

APPENDIX F – FUEL TYPING METHODOLOGY AND LIMITATIONS

The initial starting point for fuel typing for the AOI was the 2017 provincial fuel typing layer provided by BCWS as part of the *2017 Provincial Strategic Threat Analysis* (PSTA) data package. This fuel type layer 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 very low on private land. The PSTA threat class for all private land within the AOI was not available. Fuel types within the AOI have been updated using orthoimagery of the AOI with representative fuel type calls confirmed by field fuel type verification. Polygons not field-verified were assigned fuel types based upon similarities visible in orthophotography to areas field verified. Where polygons were available from the provincial fuel typing layer, they were utilized and updated as necessary for recent harvesting, development, etc.

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 sub-boreal forest types, which do not occur within the AOI. As a result, the AOI fuel typing is a best approximation of the Canadian Forest Fire Danger Rating System (CFFDRS) classification, based on the fire behaviour potential of the fuel type during periods of high and extreme fire danger within the South Coast region. Additionally, provincial fuel typing depends heavily on Vegetation Resource Inventory (VRI) data, which is gathered and maintained in order to inform timber management objectives, not fire behaviour prediction. For this reason, VRI data often does not include important attributes which impact fuel type and hazard, but which are not integral to timber management objectives. Examples include: surface fuels and understory vegetation.

In some cases, 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 not of sufficiently high resolution to make a fuel type call. Where fuel types could not be updated from imagery with a high level of confidence, the original PSTA fuel type polygon and call were retained.

For information on the provincial fuel typing process used for PSTA data as well as aiding in fuel type updates made in this document, please refer to Perrakis et al, 2018.

APPENDIX G – 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 (sometimes not included)
- 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 AOI as possible (within time, budget and access constraints). Threat Assessment plots are completed on the 2012 version form, and as per the Wildland Urban Interface Threat Assessment Guide.

For clarity, the final threat ratings for the AOI 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 41 WUI threat plots on a variety of fuel types, aspects, and slopes and an additional 174+ 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 20 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.

Table 20. Description of variables used in spatial analysis for WUI wildfire threat assessment.

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	

WUI Threat Sheet Attribute	Used in Analysis?	Comment
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 AOI 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 and 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 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.

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 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 4.3.1) impacts the threat assessment, as well.

APPENDIX H – 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 overstory 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, understory 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 8 and Figure 9). 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 10). 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.

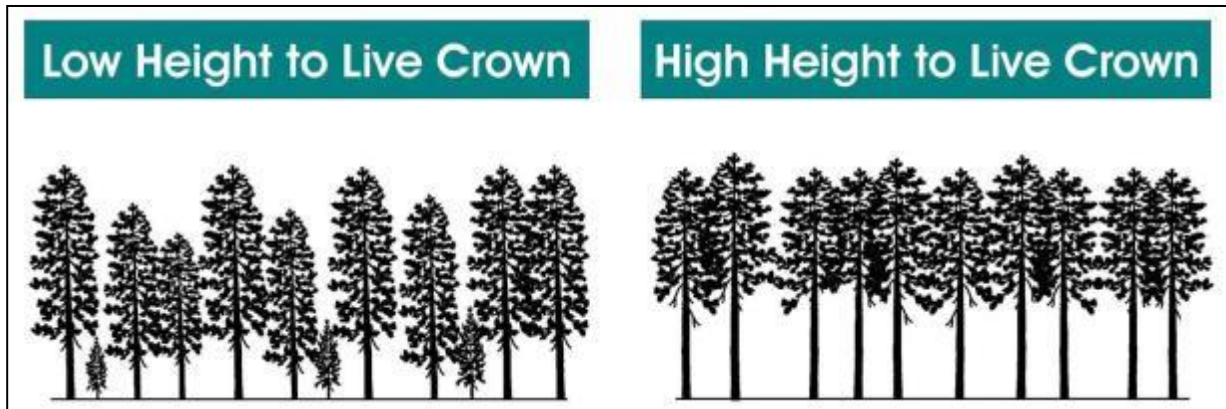


Figure 8. Comparison of stand level differences in height-to-live crown in an interior forest, where low height to live crown is more hazardous than high height to live crown.

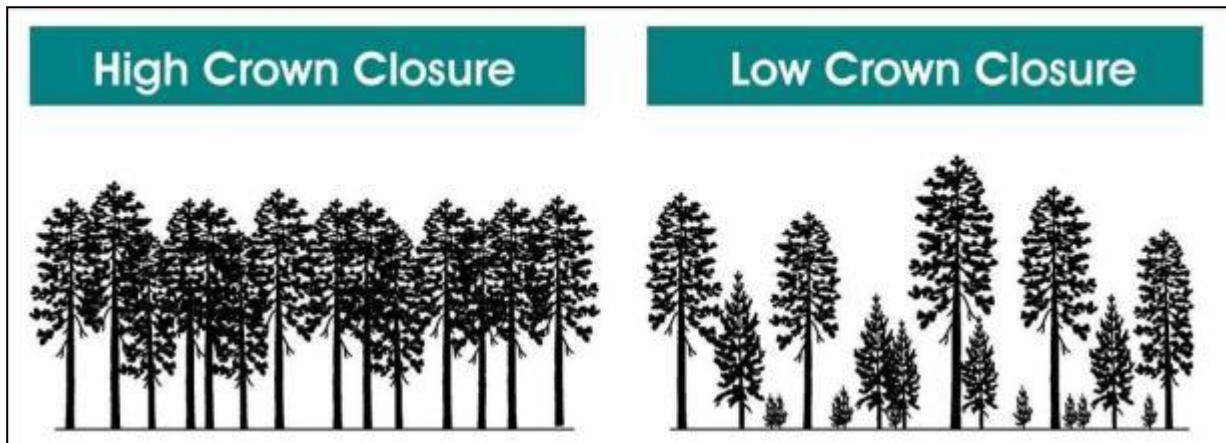


Figure 9. Comparison of stand level differences in crown closure, where high crown closure/continuity contributes to crown fire spread, while low crown closure reduces crown fire potential.

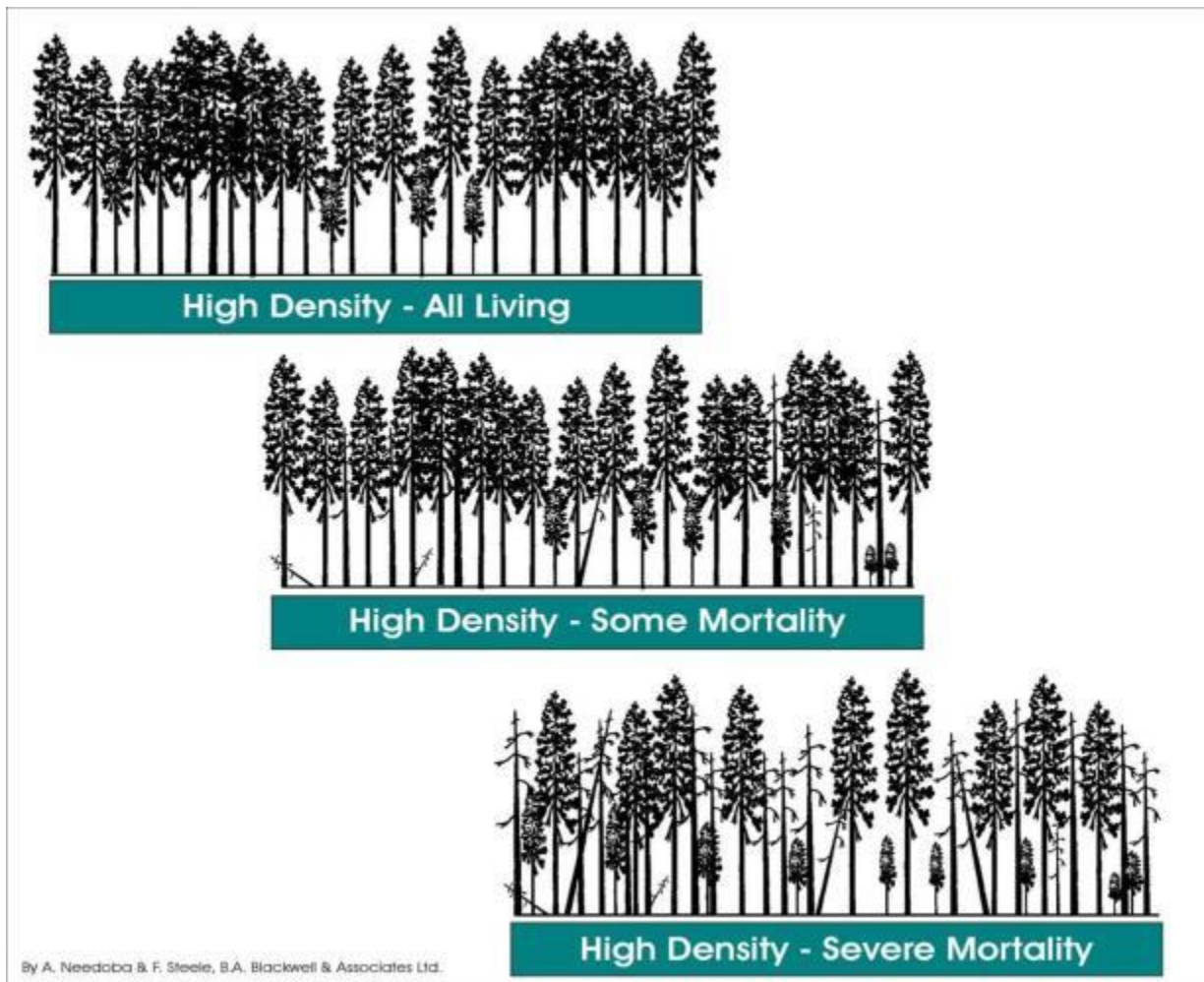


Figure 10. Comparison of stand level differences in density and mortality, and the distribution of live and dead fuels in these types of stands.

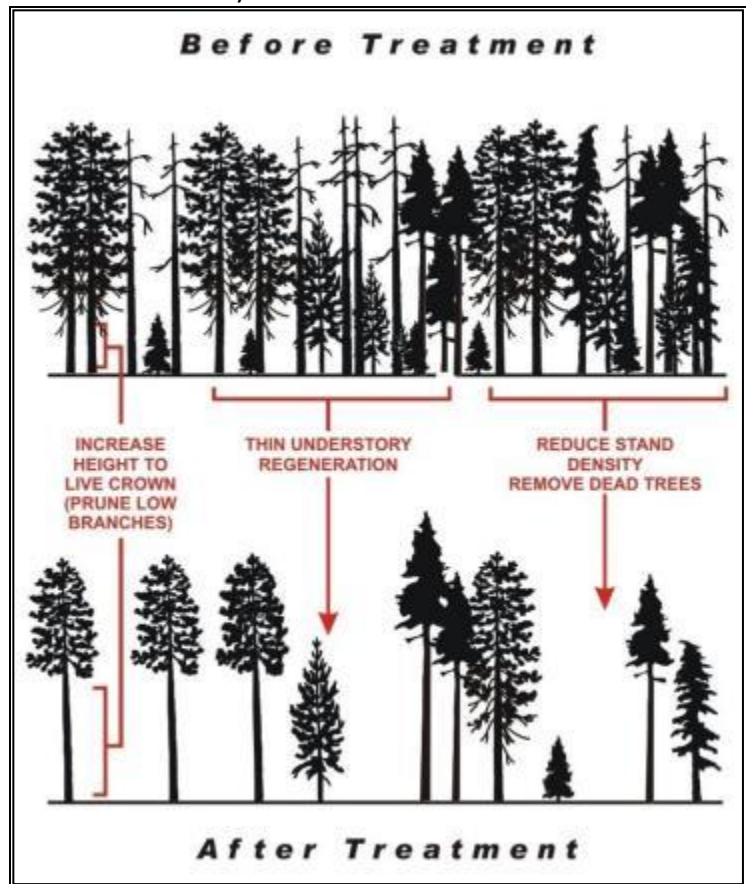
Thinning is a preferred approach to fuel treatment (Figure 11.) and offers several advantages compared to other methods:

- 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 11. 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 District communities. 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 I – 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.

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).

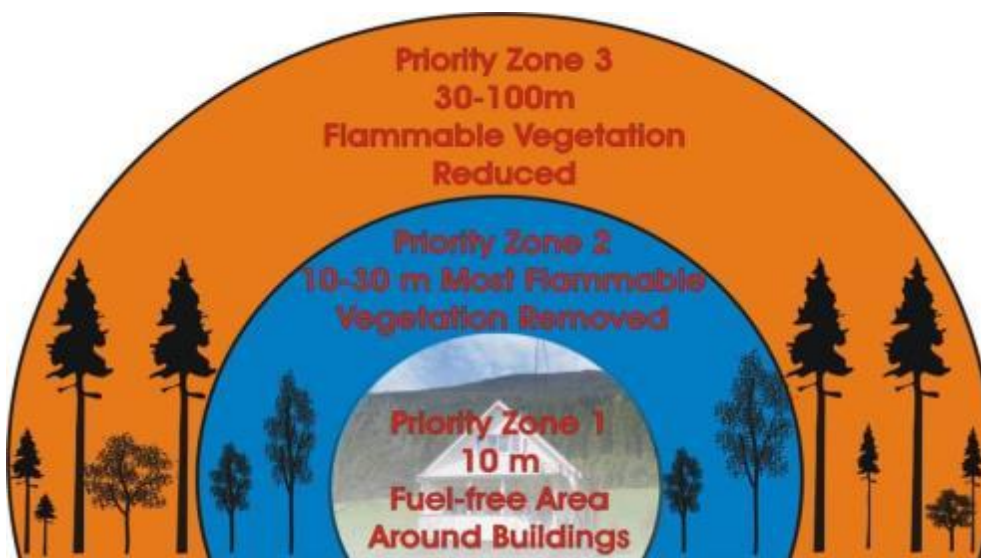


Figure 12.
Illustration
of FireSmart
zones.
(Figure adapted
from FireSmart)

APPENDIX J – FIRESMART CONSTRUCTION AND LANDSCAPING

Two recent studies by Westhaver (2015, 2017) found that certain “fatal flaws”, such as high-flammability landscaping like bulky ornamental junipers and large, easily ignited fuel sources (e.g. motorized vehicles, firewood, construction materials, *etc.*) were sufficiently influential to result in structure ignition of homes otherwise assessed as “Low” hazard by overwhelming the advantages provided by highly fire resistant structures⁸⁰.

In the 2017 Fort McMurray investigations (Westhaver) it was found that the most notable observed attributes of the surviving interface homes were: vegetation and fuels within the HIZ which were compliant with FireSmart practices, HIZs with relatively few combustible objects and ignition sites (examples of ignition sites include: combustible accumulations on roofs, gutters, *etc.*) , and Low to Moderate structural hazard ratings.^{81,82} This investigation, and other similar investigations, indicate that the FireSmart principles can be effective at reducing structure loss, particularly in the urban perimeter where fire initially spreads from the forest to structures. .

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

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.

⁸⁰ Westhaver, A. 2017. *Why some homes survived. Learning from the Fort McMurray wildland/urban interface fire disaster*. A report published by the Institute for Catastrophic Loss Reduction – ICLR research paper series – number 56. https://www.iclr.org/images/Westhaver_Fort_McMurray_Final_2017.pdf

⁸¹ Ibid.

⁸² Using the FireSmart hazard assessment system.

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. Horizontal surfaces, such as decks, of flammable materials are vulnerable to ignition from embers. Fire resistant decking/ patio materials will reduce the ignitability of the home.

Combustible Materials:

Combustible materials stored within 10 m of residences are also considered a significant issue. Woodpiles, propane tanks, recreational motorized vehicles, 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 homes.

FireSmart Landscaping

Future landscaping choices should 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.⁸³

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

⁸³ *Fire Resistant Plants for Home Landscapes: Selecting plants that may reduce your risk from wildfire*. 2006. A Pacific Northwest Extension Publication (PNW 590).

branching habit, compact form, dense foliage, as well as a moderate growth rate. Dwarf and ornamental conifers such as Arborvitae hedging are popular choices, 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 AOI). The majority of the areas would be within Zone 3b.

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;
- 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 K – COMMUNICATION AND EDUCATION

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, municipal officials and staff, community members, and other community groups. Education and communication messages should be engaging, empowering, 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.

Websites and social media are some of the most cost-effective methods of communication available. Pew Research Center recently found that approximately 60% of Americans get their news from social media; 44% get their news from Facebook.⁸⁴ 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.⁸⁵

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-share 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 and create compelling content to communicate the message. 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.’⁸⁶

⁸⁴ Pew Research Center Journalism and Media. Social media news use: Facebook leads the pack. May 25, 2016. Accessed December 17, 2017 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/.

⁸⁵ 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.

⁸⁶ The Pew Research Center finds that 69% of Facebook users are 49 and younger. Only 8% of Facebook users are older than 65.

APPENDIX L – SUMMARY OF 2007 COMMUNITY WILDFIRE PROTECTION PLAN RECOMMENDATIONS

Communication and Education

Recommendation 1: The North Vancouver english and non-english news media (e.g., North Shore News, North Shore Outlook, Farhang etc.) should be engaged on this issue with the intention of furthering public education and communication. Further interest can be cultivated and encouraged to improve the transfer of information to the public by more frequent media contact.

Recommendation 2: The District should work with local developers to construct a FireSmart show home or public building to be used as a tool to educate and communicate the principles of FireSmart to the public. The demonstration home would be built to FireSmart standards using recommended materials for interface communities. Additionally, vegetation adjacent to the home would be managed to guidelines outlined in the FireSmart program.

Recommendation 3: DNVFRS and the DNV should enhance their existing website to provide more detailed information on community fire risks and proactive steps individual homeowners can take to make their homes safer. During the fire season, fire danger and links to wildfire information should be prominently displayed. Educational initiatives such as FireSmart demonstration/pilot projects should be added to the DNVFRS site.

Recommendation 4: Solar powered signage consisting of current fire danger and warnings to be careful with fire should be posted at all major entrances to the community (exits from Highway 1) and at high use park entrances. Signs should be updated with current fire danger information as required.

Recommendation 5: District of North Vancouver Fire and Rescue Services should work with the Regional Chamber of Commerce to educate the local business community, particularly businesses that depend on forest use (i.e., tourism and recreation), on FireSmart preparation and planning. Public education programs should be enhanced by: 1) integrating a unit of “FireSmart” and wildfire safety into the local elementary school curriculum promoting the principles of community wildfire protection at a young age in order to improve awareness over time. This unit could be part of a general emergency preparedness teaching program; 2) creating a “FireSmart” sticker program where Fire Department personnel and community volunteers attend residences and certify them as meeting “FireSmart” guidelines.

Recommendation 6: The District should investigate working with other lower mainland municipalities and the MOFR to develop a regional approach to enhancing education and communication related to this issue.

Recommendation 7: The District should consider applying for UBCM funding to carry out a fuel treatment pilot project that will strategically mitigate fuel hazard within the treatment area. This pilot project will provide a tool to demonstrate the principles of fuel hazard reduction treatments to the public and

contribute to fire risk reduction within the District. The recommended location of this fuel treatment pilot is in one or more of the polygons shown in Figure 16. A detailed prescription signed by a Qualified Professional is required for each of the areas.

Structure Protection

Recommendation 8: It is recommended that the District conduct detailed FireSmart assessments in identified high risk areas of the community to further communicate and promote fire risk reduction on private property. The WRMS developed for the District provides a sound scientific framework on which to complete more detailed local neighbourhood risk assessments.

Recommendation 9: The District should investigate the policy tools available for reducing wildfire risk within the municipality. These include voluntary fire risk reduction for landowners, bylaws for building materials and subdivision establishment, covenants for vegetation set-backs, incentives such as exclusion from a fire protection tax, education and establishment of Wildfire Development Permit Areas.

Recommendation 10: Specifically, the District should begin a process to review and revise existing bylaws including the Fire bylaw and building codes to be consistent with the development of a FireSmart Community. In areas of identified high wildfire risk, consideration should be given to the creation of Wildfire Development Permit Areas and a Wildfire section within the Fire bylaw that mandates fire resistant building materials, sprinkler protection, providing for good access for emergency response, and specifies fuel management on both public and private property.

Recommendation 11: If Wildfire Development Permit Areas are established, the District should require roofing materials that are fire retardant with a Class A and Class B rating within new subdivisions in the Wildfire Development Permit Areas. While it is recognized that wholesale changes to existing roofing materials within the District are not practical, a long-term replacement standard that is phased in over the roof rotation period would significantly reduce the vulnerability of the community. The District should obtain legal advice regarding the implementation of building requirements that are more restrictive than the BC Building Code. While restrictions to rated roofing are not supported in the Code at this time, there are several communities who have or are undergoing various processes (e.g., lobbying, legal opinion, declaration of hazard by Fire Chief) to enact roofing bylaws within their Wildfire Development Permit Areas.

Recommendation 12: The District should consider working with the Building Policy Branch to create a structure that would enable the District to better address wildland urban interface protection considerations for buildings.

Recommendation 13: The District should investigate developing a landscaping standard for vegetation within Wildfire Development Permit Areas. If enforcement resources permit, this standard should be applied to all new properties within the proposed Wildfire Development Permit Areas and be implemented on existing properties when building permits are requested for renovations/retrofits. If

enforcement is not possible, then education and incentives for homeowners to plan FireSmart landscaping should be considered.

Recommendation 14: Many homes and businesses are built immediately adjacent to the forest edge. In these neighbourhoods, coniferous trees and vegetation are often in direct contact with homes. The District should incorporate building set backs into a policy or bylaw with a minimum distance of 10 m when buildings border the forest interface.

Recommendation 15: Where applicable, the District should work closely with the Province and GVRD to identify, document and address hazardous fuel types on crown land within and adjacent to District boundaries and residential neighbourhoods. Effort must be directed at encouraging the Province and the GVRD to initiate a fuel treatment program for these lands and this may include coordinating lobbying initiatives with other local governments from within the Lower Mainland.

Recommendation 16: The District Tree Bylaw should be reviewed to ensure that it does not limit the ability of homeowners to address genuine wildfire hazards, as determined by the Fire Chief, associated with trees on private property immediately adjacent to homes.

Emergency Response

Recommendation 17: The District must work towards improving access in identified areas of the community that are considered isolated and that have inadequately developed access for evacuation and fire control (for example, by opening dead end roads [bollards] and connecting roads).

Recommendation 18: A District evacuation plan should be developed and appropriate evacuation routes should be mapped, considering Disaster Response Routes (DRR). Major evacuation routes should be signed and communicated to the public. The plan should identify loop roads and ensure access has sufficient width for two way traffic. In addition, alternative emergency responder access should be considered. For example, the Fromme Mountain gravel road, the firelanes in Woodlands and BC Hydro right-of-way access. Fuel treatments such as overstory thinning along these access routes should be considered in order to create fuel breaks and improve firefighter safety.

Recommendation 19: 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 subdivisions.

Recommendation 20: Where forested lands abut new subdivisions, 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 subdivisions design. These roads both improve access to the interface for emergency vehicles and provide a fuel break between the wildland and the subdivision.

Recommendation 21: Given the values at risk identified in this plan, it is recommended that, during periods of high and extreme fire danger (danger class IV and V), the District work with adjacent

municipalities and the Ministry of Forests and Range to maintain a local helicopter with a bucket on standby within 15 minutes of the community. Depending on specific circumstances, coordination with the GVRD may be necessary.

Recommendation 22: Residences and businesses on steep slopes are vulnerable to increased fire behaviour potential and should be the immediate focus of initial attack if there is a fire start within these areas. Flame length and rate of spread will increase on these slopes, resulting in suppression difficulty and increased safety issues for both wildland and structural fire fighters. More detailed assessment work is required to identify these areas.

Recommendation 23: During a large wildfire it is probable that lower elevations (location of fire rescue service, potential reception centres, the EOC and the Lion's Gate hospital) could be severely impacted by smoke. It is recommended that contingency plans be developed in the event that smoke causes evacuation of critical emergency facilities in North Vancouver. The District should co-operate with Provincial and Regional governments to develop an alternate incident command location and mobile facility in the event that the District is evacuated. A mobile command centre could also be used by emergency services for other major incidents/disasters. Individual smoke management systems for key buildings (e.g., fire halls, hospitals, District Hall, etc.) may be required.

Recommendation 24: The District should consider purchasing two additional interface fire trucks, community sprinkler protection kits, large volume fire hose, portable pumps and firefighter personal protection (PPE) to adequately resource the interface area. During periods of high fire risk, trucks should be stationed within the Grousewoods, Lynn Valley and Seymour areas.

Recommendation 25: The District should consider conducting a review of critical water infrastructure to determine whether water flow and pressure will be adequate in an interface fire emergency. The review should consider water supply, water delivery volumes/pressure, pumping capacity and vulnerability of reservoirs; particularly in the upper portions of the District.

Training

Recommendation 26: The current level of training is considered adequate, but given the risk of fire to the community, the District of North Vancouver Fire and Rescue Services and Development Services should adopt an advanced program that fosters continuous improvement and skill renewal, establish a fast attack team during periods of extreme fire danger and conduct training and scenario-based training exercises with other responding agencies.

Vegetation (Fuel) Management

Recommendation 27: The District should investigate the potential for fuel management programs. In some areas it may be necessary to work closely with the GVRD and the Province. Any treatments that take place on sloped sites must be prescribed with consideration given to slope stability. Where slope stability may be an issue, a Professional Geotechnical Engineer should review the treatment prescription.

Recommendation 28: A number of high hazard areas immediately adjacent to or embedded in the community have been identified as part of the wildfire risk assessment. The hazardous fuel types that are within the District boundary and that are outside the hatched 'Assessment Areas Only' should be the focus of a progressive thinning program implemented over the next 5 to 10 years. The areas with 'Assessment Areas Only' should be evaluated in detail to determine whether a thinning treatment would provide any benefit. The use of a fire growth model such as FARSITE or Prometheus could provide an indication of the efficacy of fuel treatments on the landscape.

Recommendation 29: A qualified professional (Registered Professional Forester), with a sound understanding of fire behaviour and fire suppression, should develop fuelbreak plans and fuel treatment prescriptions.

Recommendation 30: Prioritize the development of a fuel break network that builds on existing breaks such as the BC Transmission Corridors running through the District. Investigate the feasibility of using this network as staging areas for suppression crews and for developing open area nodes at strategic locations to enhance usability (e.g., heli pads, gravel access roads).

Recommendation 31: The District should work with British Columbia Transmission Corporation (BCTC) to ensure that transmission infrastructure can be maintained and managed during a wildfire event. Maintaining the transmission corridor to a fuel break standard will provide the community with a more reliable power supply that is less likely to fail during a fire event and will reduce the probability of fire spreading into the community. In addition, the District should work with BCTC to schedule slashing and clean-up of debris resulting from vegetation management on transmission rights-of-way and identified high risk areas.

Recommendation 32: The District should consider developing a comprehensive forest health strategy to address long-term forest health issues associated with the legacy of dwarf mistletoe infected western hemlock left by historic logging at the turn of the century.

Recommendation 33: The existing arboriculture program should be expanded to include a combined approach that addresses both public safety (hazard trees) and wildfire risk (hazardous fuels issues).

Recommendation 34: The District should consider thinning and surface fuel reduction to a FireSmart standard 3-5 metres on either side of high-use trails as identified by the District. Where appropriate consider improving access for small emergency vehicles by increasing surface trail widths to 3.4 metres.

Recommendation 35: The District should undertake a comprehensive Sensitive Ecosystem Inventory that addresses both flora and fauna issues. This will ensure the standard of fuel management and other development planning activities meet or exceed current legislated environmental standards.

Wildfire Rehabilitation Planning


Recommendation 36: The District should develop a plan for post fire rehabilitation that considers the procurement of seed, seedlings and materials required to regenerate an extensive burn area (1,000-5,000

ha). The opportunity to conduct meaningful rehabilitation post fire will be limited to a short fall season (September to November). The focus of initial rehabilitation efforts should be on slope stabilization, environmental impacts and infrastructure protection. These issues should form the foundation of an action plan that lays out the necessary steps to stabilize and rehabilitate the burn area and that considers potential environmental impacts of fire.

Recommendation 37: The District should investigate the potential of partnering with residents to promote treatment of public lands adjacent to private property. Private land owners could be encouraged to not only clean their own yards of debris and brush but also be responsible for the removal of debris and brush from public lands immediately adjacent to them to a depth of 20 meters. Removal of material would be coordinated with the spring yard waste pickup program.

Recommendation 38: The District should access funding options and incentives to encourage compliance with changes to roofing and building materials, assist property owners with fuel mitigation. A minimal increase in property taxes could facilitate treatments on public lands.

AGENDA INFORMATION	
<input checked="" type="checkbox"/> Regular Meeting	Date: <u>October 5, 2020</u>
<input type="checkbox"/> Other:	Date: _____

Dept. Manager	GM/ Director	 CAO
------------------	-----------------	--

The District of North Vancouver REPORT TO COUNCIL

September 23, 2020

File:

AUTHOR: David Stuart, Chief Administrative Officer

SUBJECT: Loukidelis Report

RECOMMENDATION:

That Council endorses the actions identified in the September 23, 2020 report from the Chief Administrative Officer and directs staff to make the necessary changes and report back to Council by the end of 2020.

REASON FOR REPORT:

To review the recommendations contained in the February 2020 *Review of Adoption of district of North Vancouver Bylaw 8042, 2019* by David Loukidelis, QC (*the Loukidelis Report*).

SUMMARY:

At the direction of Council, an independent third party, David Loukidelis QC, was tasked with reviewing the events and processes that led to the adoption of Bylaw 8402 (*"Pigeon Prohibition Bylaw"*). The review resulted in twelve recommendations. The purpose of this report is to share staff's perspective on the twelve recommendations and obtain Council direction with respect to any action to be taken. Two legal matters concerning alleged conflict of interest and the legality of the bylaw are before the courts and so are not referenced in this report.

BACKGROUND:

The District had a Bylaw (*Keeping of Pigeons, Bylaw 4078*) adopted in 1971. In July 2019, Council directed staff to draft a Bylaw to "ban the keeping of pigeons". Council adopted the Bylaw 8402 on November 18, 2019, to come into effect May 1, 2020.

Intense public scrutiny ensued following adoption of Bylaw 8402, which questioned the integrity of Council's bylaw adoption process. In response, the District engaged David Loukidelis, QC to independently examine and report on the events leading up to enactment of District of North Vancouver Bylaw 8402, including the training and support for District Councillors on conflict of interest and freedom of information matters, and the policies and processes related to how policy proposals are formulated, analysed and brought to the Council table for consideration.

ANALYSIS:

The terms of reference provided to Mr. Loukidelis, and his subsequent recommendations, are forward-looking. The Loukidelis Report is attached for reference and can be found at <https://www.dnv.org/sites/default/files/edocs/independent-review-report-02192020.pdf>.

This staff report focuses on proposed actions in response to the Loukidelis Report recommendations. For a full understanding of the recommendations and response, review of the Loukidelis Report is advised.

Recommendation 1: The District should assess its Code of Ethics in the context of current case law and public expectations, to ensure that it addresses in sufficient detail the various aspects of conflict of interest rules and other ethical principles.

Staff Note: More detail on conflict of interest can be inserted into the Code of Ethics, recognizing that circumstances can be quite nuanced and situation specific.

Recommendation 2: The District should consider enhancing its conflict of interest materials for both Council members and election candidates. This could take the form of enhanced workshop presentation materials, with more detailed discussion points and scenarios (perhaps drawing on the facts of decided cases), to help illustrate the practical application of the rules. The District should also consider providing Council members with a guidance document on conflict of interest, which could include a tip sheet or frequently-asked-questions summary for easy reference.

Staff Note: Staff can work with our Solicitor to enhance the presentation and handout materials on conflict of interest used for Council orientation

Recommendation 3: The District should consider enhancing its conflict of interest support for Council members by periodically conducting scenario-based discussions of the conflict of interest rules in Council workshops or free-standing learning sessions. The District should also consider refreshing Council's awareness through periodic email reminders attaching the written materials recommended above.

Staff Note: Questions arise periodically from Council members as to whether a conflict exists. It may be more timely, practical and relevant to share with all of Council the circumstances that gave rise to the question of whether or not a conflict exists and the basis on which a decision is made.

Recommendation 4: The District should consider amending its independent legal advice policy to require Councillors to share the factual foundation for the advice in writing with the Chief Administrative Officer, and to discuss it with the Chief Administrative Officer, before the advice is sought. (An alternative would be to strongly encourage councillors to share this information with the District, with Council being informed where a councillor declines to do so.)

Recommendation 5: The District should consider amending its independent legal advice policy to require Councillors to share their independent legal advice about a conflict of interest matter with the Chief Administrative Officer and Municipal Solicitor, in confidence, who could inform Council about the lawyer's conclusion, where necessary and on a confidential basis. (An alternative would be to strongly encourage councillors to share the independent legal advice with the District, with Council being informed where a councillor declines to do so.)

Staff Note: The District's independent legal advice policy can be amended to require members of Council to share the factual foundation for a possible conflict of interest with the Chief Administrative Officer prior to seeking independent legal advice and to provide a copy of the written opinion to the CAO and the District Solicitor in confidence. Members of Council are responsible for declaring a possible conflict and recusing themselves. In the event the independent legal advice concludes that a conflict exists and the member chooses not to declare or recuse themselves, the CAO would advise Council accordingly.

Recommendation 6: Because the District's independent legal advice policy's cap on aggregate amount available to all Councillors for independent legal advice has not changed since 2010, the District should consider amending that policy to increase the annual aggregate amount.

Recommendation 7: The District should consider amending its independent legal advice policy to remove the existing 75% District contribution level and replace it with a full indemnity clause.

Staff Note: The current policy can be amended to fund independent legal advice at 100% and increase the amount available to \$30,000 per annum, to be funded out of a specific contingency account set up for this purpose.

Recommendation 8: The District should consider reviewing its indemnification policy for litigation in which Councillors are named as parties, to determine whether that policy fully accounts for the various legal risks, and therefore costs, that Councillors might face in their work in good faith.

Staff Note: The current policy can be reviewed to assess whether its application should be broadened to include indemnification for litigation not involving damages where Council members have acted in good faith and in the District's own interests. The review can also consider increasing the monetary cap funding available to Council as a whole, with the District's Solicitor responsible for managing litigation costs expended, and reporting annually as to the amount spent.

Recommendation 9: The District should enhance its freedom of information and privacy training for both Council members and election candidates by creating a guide or tip sheet about key issues in these two areas. Workshop materials and discussion should also cover privacy and freedom of information matters.

Staff Note: Similar to the recommendation on conflict of interest materials, staff can amend our presentation and hand out materials for candidate and Council orientation.

Recommendation 10: The District should consider amending its procedure bylaw and relevant policies to enhance its processes for bringing matters to Council, as follows:

- a) A Councillor who wishes to propose a new bylaw, policy, program or activity (or an amendment), will discuss an outline of the proposal with the appropriate general manager, and the Chief Administrative Officer will be kept informed and may participate in that discussion;
- b) If the proposal appears to be viable from a legal, technical and fiscal perspective, the Councillor may place a Report to Council on the agenda;
- c) If Council supports the proposal, it will direct staff to study the proposal in more depth and bring forward options for action, in a fully considered staff Report to Council,
- d) Council will direct staff to pursue the option it considers desirable. If the District implements this recommendation, it should ensure that the new policy is aligned with existing District policy on staff providing information to Councillors, on staff reports to Council, and on provision of information to Council.

Staff Note: Staff recommend a two-step process where:

- a) *Council members (with or without staff assistance) using a simple template, submit a report for Council's consideration which the Clerk places on the next appropriate agenda. The recommendation would be to refer the matter in question to staff for a report back.*
- b) *Within an agreed timeline, staff would report back to Council with a thorough technical analysis of the issues and options for consideration. Staff may seek further clarification or input from the originating author.*

Recommendation 11: The District should consider amending its policy on Councillors seeking information from staff, to clarify which information requests are routine and which are not. The District should also consider amending this policy to provide for centralized submission of Councillor requests or, at the very least, centralized request tracking.

Staff Note: The District has a number of policies covering these issues which could be refreshed and consolidated. Earlier this year, additional resources were added to support Council and track both requests from Council members and requests from the public to Mayor and Council.

Recommendation 12: The District should review its policy on Councillor requests for internal legal advice, to determine whether it should be clarified or amended.

Staff Note: Access to internal legal advice should be approved in advance by the General Manager of Corporate Services to ensure the matters under consideration are properly framed and where appropriate, that the response is shared with staff and Council.

FINANCIAL IMPACTS:

Except for the potential increase to indemnities, the financial impact for implementing the action referred to above is relatively minor.

LIABILITY/RISK:

Implementing the actions referred to above may reduce the risk of legal action, the costs associated with defending the action and the consequences of District decisions being overturned.

SOCIAL POLICY IMPLICATIONS:

The changes referred to above will assist the District in restoring public confidence that may have been lost as a result of the manner in which the "Pigeon Prohibition" Bylaw was adopted.

PUBLIC INPUT:

Public input on the matter was shared with the independent third party who conducted the review. The Loukidelis Report was shared publicly when it was released in February and is available at DNV.org.

CONCLUSION:

The District of North Vancouver is committed to transparency and continual improvement in our service to the community. The actions proposed in this report respond to the findings in the Loukidelis Report and are aimed at providing greater certainty and confidence in District policy-setting processes for Council, staff and the public. Staff are of the view that all of the necessary bylaw and policy changes mentioned above can be submitted to Council for consideration by the end of 2020.

OPTIONS:

1. Council can endorse all of the actions identified and direct staff to make the necessary changes; or
2. Council can endorse some of the actions identified, amend or decline some of the actions and direct staff to make the necessary changes

Respectfully submitted,

David Stuart
Chief Administrative Officer

REVIEWED WITH:					
<input type="checkbox"/> Community Planning	_____	<input type="checkbox"/> Clerk's Office	_____	External Agencies:	
<input type="checkbox"/> Development Planning	_____	<input type="checkbox"/> Communications	_____	<input type="checkbox"/> Library Board	_____
<input type="checkbox"/> Development Engineering	_____	<input type="checkbox"/> Finance	_____	<input type="checkbox"/> NS Health	_____
<input type="checkbox"/> Utilities	_____	<input type="checkbox"/> Fire Services	_____	<input type="checkbox"/> RCMP	_____
<input type="checkbox"/> Engineering Operations	_____	<input type="checkbox"/> ITS	_____	<input type="checkbox"/> NVRC	_____
<input type="checkbox"/> Parks	_____	<input checked="" type="checkbox"/> Solicitor	_____	<input type="checkbox"/> Museum & Arch.	_____
<input type="checkbox"/> Environment	_____	<input type="checkbox"/> GIS	_____	<input type="checkbox"/> Other:	_____
<input type="checkbox"/> Facilities	_____	<input type="checkbox"/> Real Estate	_____		
<input type="checkbox"/> Human Resources	_____	<input type="checkbox"/> Bylaw Services	_____		
<input type="checkbox"/> Review and Compliance	_____	<input type="checkbox"/> Planning	_____		

REVIEW OF ADOPTION OF DISTRICT OF NORTH
VANCOUVER BYLAW 8402, 2019

David Loukidelis QC

February 2020

TABLE OF CONTENTS

SUMMARY	2
Outline of Events	2
Recommendations About District Policies and Practices	4
INTRODUCTION	7
Background to This Report	7
Local Government in British Columbia	7
Scope of Findings	9
Acknowledgement	10
OUTLINE OF EVENTS	11
CONFLICT OF INTEREST OVERVIEW	22
Legal & Policy Context	22
Council's Awareness of the Rules on Conflict of Interest	24
Conflict of Interest Support for Councillor Forbes	26
Support for Councillors on Conflict of Interest Matters	27
Enhancing the District's Code of Ethics for councillors	28
Enhancing conflict of interest materials for councillors	29
Ongoing education about conflict of interest matters	30
Independent legal advice on conflict of interest	31
Review of the ILA indemnity cap	33
Review of the District's indemnification policy	33
Enhancing freedom of information and privacy materials and support	34
ROLES OF COUNCIL, COUNCILLORS & STAFF	35
Present Approach for Reports to Council	35
Modified Approach for Reports to Council	36
Councillor Requests to Staff for Information and Support	38
Councillor Requests for Internal Legal Advice	39
CONCLUSION	40
Appendix 1—Terms of Reference	41
Appendix 2—List of Individuals Interviewed	43

SUMMARY

This report reviews the events leading up to enactment of District of North Vancouver Bylaw 8402, 2019, which will, on coming into force on May 1, 2020, prohibit the keeping of pigeons in the District. It examines the training and support for District councillors on conflict of interest and freedom of information matters. It also discusses policies and processes related to how policy proposals are formulated, analysed and brought to the Council table for consideration.

Outline of Events

This is a convenient summary of events surrounding the bylaw's enactment:

- Councillor Forbes expressed concerns about the keeping of birds, and about her neighbour's pigeons, going back at least to 2017. This included making submissions to the Council of the day.
- She brought her concerns to the attention of District bylaw enforcement staff and communicated with them on many occasions through to the end of 2018.
- After her election as a councillor in October 2018, Councillor Forbes communicated and met with the District's General Manager, Planning, Properties and Permits, about her concerns regarding pigeons. On November 2, 2018, she asked him about amendments to the 1971 bylaw and was told that Council direction would be needed to initiate any changes.
- In early April 2019, Councillor Muri contacted Dan Milburn about Councillor Forbes's concerns and in an April 4, 2019 email he brought Councillor Muri up to speed on the background. On April 24, 2019 she emailed him about "repeal of the pigeon bylaw". On the same day, Councillor Muri forwarded Dan Milburn's email of that date to Councillor Forbes.
- Over the course of April and May 2019, Dan Milburn assisted Councillor Muri in writing a report to Council proposing that Council amend the 1971 bylaw. On May 17, 2019, Councillor Muri told Dan Milburn that she had concerns with the latest version of the report. On May 17, 2019, as well, Councillor Muri asked Councillor Forbes to call her. Neither can recall if a phone call took place in response to that request.
- On June 21, 2019, Councillor Muri forwarded to Councillor Forbes an email from District staff about the pigeon bylaw. Neither Councillor Muri nor Councillor Forbes indicated that a phone call took place in response to this email. They both noted that this was about nine months ago, and they speak to each other often about a range of municipal and community matters.
- On June 25, 2019, Councillor Forbes texted Councillor Muri and Councillor Curren about, among other things, processes for proposing matters to Council, with a question to Councillor Muri "(Lisa – pigeons?)".

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

- On July 6, 2019, Councillor Forbes emailed the two councillors again, sending material about health hazards of birds and, among other things, saying “Please just pass an actual bylaw outlawing them, not rescinding our current bylaw.” Her email also clearly stated that she would be recusing herself from voting on the matter.
- On July 8, 2019, Council considered Councillor Muri’s report to Council and Councillor Forbes recused herself from the matter, stating, “I have a conflict with this so I’m going to step out.” She then left the meeting. Council then resolved to direct staff to prepare a bylaw prohibiting the keeping of pigeons in the District.
- On October 28, 2019, Council gave the prohibition bylaw three readings. When that item arose on the agenda Councillor Forbes said, “I’m declaring a conflict because I have been involved in a situation like this, so I’m stepping aside.” The Mayor responded by saying “personal conflict?” and Councillor Forbes agreed. She then left the meeting.
- On November 4, 2019, the bylaw was given final adoption. Councillor Forbes stated, “I voluntarily have recused myself on this item on the agenda, so I am recusing myself again tonight.” Councillor Forbes then left the meeting.
- At the November 18, 2019, Council meeting Councillor Forbes read a statement, which noted that she had followed staff advice and independent legal advice and had recused herself out of an abundance of caution from the Council discussions on the bylaw. She stated that if she made any error it was inadvertent and in good faith, with her understanding as a new councillor of the conflict of interest rules.

These facts emerge from the records and interviews that were considered in this review:

- Before her election in 2018, Betty Forbes expressed concern about the keeping of pigeons. She expressed concern about her neighbour’s pigeons, but she also expressed concern about the health risks of pigeons and other birds in urban settings generally.
- After the 2018 election, Councillor Forbes continued to express these concerns, including in dealings with District staff.
- In the spring of 2019, Councillor Forbes communicated her concerns to Council Muri and Councillor Curren. Councillor Muri also had own concerns about keeping pigeons in the District’s urban environment and Councillor Curren had concerns about using any animal for sport or entertainment.
- Councillor Forbes asked both Councillor Curren and Council Muri to support a bylaw prohibiting the keeping of pigeons. This request was explicitly stated in her July 6, 2019 email to them.
- In that email, Councillor Forbes told Councillor Muri and Councillor Curren that she would be recusing herself from the matter. She did so at the July 8, 2019 Council meeting, at which Council considered Council member’s report. Councillor Forbes again recused herself when Council gave three readings to the bylaw at the October 28, 2019 meeting, and again when Council gave the bylaw final adoption at its November 4, 2019 meeting.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

- At the November 18, 2019 Council meeting, Councillor Forbes read a statement, in which she stated that she had recused herself “out of an abundance of caution”, and that any error was inadvertent and in good faith, “with my understanding as a new councillor of the conflict of interest rules.”
- It is clear Councillor Forbes communicated with District staff about her concerns with pigeons, including her neighbour’s pigeons, after the 2018 election but before her July 8, 2019 recusal from the matter. It is also clear that, before her first recusal, she communicated with Councillor Muri and with Councillor Curren about this issue, including by asking them to support a prohibition on keeping pigeons.
- There is no evidence before me to suggest that, after her July 8, 2019 recusal, Councillor Forbes communicated with anyone—whether District staff or elected officials—about the bylaw’s subject.

Recommendations About District Policies and Practices

The following recommendations are made later in this report.

Enhancing the District’s Code of Ethics for councillors

Recommendation 1: The District should assess its Code of Ethics in the context of current case law and public expectations, to ensure that it addresses in enough detail the various aspects of the conflict of interest rules and other ethical principles.

Enhancing conflict of interest materials for councillors

Recommendation 2: The District should consider enhancing its conflict of interest materials for both Council members and election candidates. This could take the form of enhanced workshop presentation materials, with more detailed discussion points and scenarios (perhaps drawing on the facts of decided cases), to help illustrate the practical application of the rules. The District should also consider providing Council members with a guidance document on conflict of interest, which could include a tip sheet or frequently-asked-questions summary for easy reference.

Recommendation 3: The District should consider enhancing its conflict of interest support for Council members by periodically conducting scenario-based discussions of the conflict of interest rules in Council workshops or free-standing learning sessions. The District should also consider refreshing Council’s awareness through periodic email reminders attaching the written materials recommended above.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

Independent legal advice on conflict of interest

Recommendation 4: The District should consider amending its independent legal advice policy to require councillors to share the factual foundation for the advice in writing with the Chief Administrative Officer, and discuss it with the Chief Administrative Officer, before the advice is sought. (An alternative would be to strongly encourage councillors to share this information with the District, with Council being informed where a councillor declines to do so.)

Recommendation 5: The District should consider amending its independent legal advice policy to require councillors to share their independent legal advice about a conflict of interest matter with the Chief Administrative Officer and Municipal Solicitor, in confidence, who could inform Council about the lawyer's conclusion, where necessary and on a confidential basis. (An alternative would be to strongly encourage councillors to share the independent legal advice with the District, with Council being informed where a councillor declines to do so.)

Review of the ILA indemnity cap

Recommendation 6: Because the District's independent legal advice policy's cap on aggregate amount available to all councillors for independent legal advice has not changed since 2010, the District should consider amending that policy to increase the annual aggregate amount.

Recommendation 7: The District should consider amending its independent legal advice policy to remove the existing 75% District contribution level and replace it with a full indemnity clause.

Review of the District's indemnification policy

Recommendation 8: The District should consider reviewing its indemnification policy for litigation in which councillors are named as parties, to determine whether that policy fully accounts for the various legal risks, and therefore costs, that councillors might face in their work in good faith.

Enhancing freedom of information and privacy materials and support

Recommendation 9: The District should enhance its freedom of information and privacy training for both Council members and election candidates by creating a guide or tip sheet about key issues in these two areas. Workshop materials and discussion should also cover privacy and freedom of information matters.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

Modified approach for reports to Council

Recommendation 10: The District should consider amending its procedure bylaw and relevant policies to enhance its processes for bringing matters to Council, as follows:

- (a) A councillor who wishes to propose a new bylaw, policy, program or activity (or an amendment), will discuss an outline of the proposal with the appropriate general manager, and the Chief Administrative Officer will be kept informed and may participate in that discussion,
- (b) If the proposal appears to be viable from a legal, technical and fiscal perspective, the councillor may place a report to Council on the agenda,
- (c) If Council supports the proposal, it will direct staff to study the proposal in more depth and bring forward options for action, in a fully considered staff report to Council,
- (d) Council will direct staff to pursue the option it considers desirable.¹

If the District implements this recommendation, it should ensure that the new policy is aligned with existing District policy on staff providing information to councillors, on staff reports to Council, and on provision of information to Council.

Councillor requests to staff for information and support

Recommendation 11: The District should consider amending its policy on councillors seeking information from staff, to clarify which information requests are routine and which are not. The District should also consider amending this policy to provide for centralized submission of councillor requests or, at the very least, centralized request tracking.

Councillor requests for internal legal advice

Recommendation 12: The District should review its policy on councillor requests for internal legal advice, to determine whether it should be clarified or amended.

¹ This step is already addressed in District policy 1-10530-10, Staff Reports to Council.

INTRODUCTION

Background to This Report

This report flows from my review of the circumstances leading adoption of District of North Vancouver *Pigeon Prohibition Bylaw 8402, 2019* ("bylaw"), which was given final adoption by the Mayor and Council of the District of North Vancouver ("District") on November 4, 2019. When it comes into force on May 1, 2020 the bylaw will prohibit the keeping of pigeons in the District.

It is fair to say that, in the lead-up to final adoption, and afterward, there was a considerable amount of public controversy and media coverage about the bylaw. Some of the response was positive, but there has also been criticism. Some of the attention has focused on the role of individual councillors in the bylaw's drafting and passage.

On November 25, 2019, a few weeks after the bylaw was adopted, Council resolved to direct the District's Chief Administrative Officer, David Stuart, to secure an independent review of its adoption. I was retained to do that review, which I conducted under terms of reference finalized on December 5, 2019.²

In terms of steps taken, my work involved examination of records that the District had disclosed in response to several freedom-of-information requests and records provided by the District at my request.³ I reviewed video recordings of several Council meetings and workshops and interviewed every member of Council and five senior District staff.

Local Government in British Columbia

This is not the place for a treatise on the nature and workings of modern local governments, but a few observations help set the context for this report.

As the term 'local government' suggests, British Columbia's municipalities and regional governments are very close to their communities. They provide vital local services, such as sewer, water and other infrastructure services, that are indispensable to the health and wellbeing of their communities. They provide other important services to support and foster the health of their communities and individual residents. Their closeness to their communities means they are perhaps uniquely able to identify, understand and respond effectively to a wide range of other community and individual concerns or needs.

² A copy of the terms of reference is found in Appendix 1. My retainer was finalized on November 27, 2019.

³ For clarity, these further records were outside the scope of the various freedom-of-information requests.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

Elected local officials are responsible for acting in their communities' public interest. This is underscored in British Columbia's *Community Charter*, which articulates several "principles of municipal governance".⁴ These recognize "municipalities and their councils" as a "democratically elected, autonomous, responsible and accountable" order of government. The principles acknowledge that municipalities and their councils are "established and continued by the will of the residents of their communities". The *Community Charter* also affirms that, in performing their functions, councils need the "authority to determine the public interest of their communities", while seeking "balance and certainty in relation to the differing interests of their communities".

The obligation of elected municipal officials to act collectively in their communities' public interest is nicely underscored in this passage:

... the council is entrusted with responsibility for governing, not just in the interest of those who elected them, but in the interest of the community generally, that is, *in the public interest*. This is a fairly vague and controversial concept, however. It is a generalized judgment of what is best for individuals, *as a part of a community*. From the perspective of particular individuals and interest groups, the public interest may be conceived differently and, as amongst them, views of the public interest will inevitably conflict. A council making its decision on the public interest will identify and weigh a wide variety of competing considerations: the demands of various interested parties, the advice of its experts, data from its own research resources. And it will undoubtedly be influenced by the preferences expressed by the electorate. The decision is ultimately a matter of choice and what a council decides is necessarily its own collective perception of the public interest. [original italics]⁵

The District's Code of Ethics for Council members, and individuals appointed to District committees or advisory bodies, also reflects the obligation to act in the public interest. It requires Council members to "conduct their business with integrity, in a fair, honest and open manner"⁶ and to "base their decisions on the merits and substance of the matter at hand, rather than on unrelated considerations."⁷

Of course, each elected official brings unique skills, experiences and policy positions to the council table. In the absence of a party-political system in most British Columbia communities, their varied perspectives on what is in the public interest offer a richness of perspective that enhances the quality of policy and legislation established by a council when, considering these perspectives, it acts collectively in the public interest.

⁴ These are expressed in section 1 of the *Community Charter*, from which the above quotations are taken.

⁵ A. McDonald, "In the Public Interest: Judicial Review of Local Government" (1983), 9 Queen's L.J. 62, page 100. MacLachlan J. cited this passage with approval, in dissent, in *Shell Canada Products Ltd. v. Vancouver (City)*, [1994] 1 SCR 231, at page 246.

⁶ Paragraph 1.

⁷ Paragraph 6.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

It is almost always the case, however, that a council must rely on the expert advice and support of the municipality's staff to be able to grapple successfully with increasingly complex and sensitive local issues and to navigate the murky waters of the public interest. This calls for a respectful and responsive dialogue between elected officials and public servants, to ensure that the public interest is best served. This dialogue requires establishment and faithful adherence to clear and efficient processes to support a council's vision of what is in the public interest. The need for a solid framework for this vital dialogue is a key theme of several of the recommendations set out later.

Scope of Findings

The December 5, 2019 terms of reference include reviewing "the actions of Council as a whole, and of individual councillors, in relation to the proposing and adoption of [the] bylaw". The specified outcome is stated to be a report to the District's Chief Administrative Officer, setting out "findings of fact and recommendations". The terms of reference contemplate that the recommendations may include, for example, "any recommended enhancements in relation to the manner in which bylaws are proposed for council's consideration and adopted or in relation to ethics, conflict of interest and freedom of information and privacy matters." The terms of reference do not contemplate legal findings, i.e., findings about the legal nature or consequences of anyone's conduct.

Two legal proceedings have been initiated in the Supreme Court of British Columbia. One seeks to invalidate the bylaw. The other seeks a declaration that Councillor Betty Forbes and Councillor Lisa Muri are disqualified from holding office and that their offices are vacant. The District is named as a respondent in both proceedings. The legal validity of the bylaw is now before the Court, as is the legal nature and consequences of the two councillors' actions. It is for the Court to address those legal issues.

The terms of reference are in any case forward-looking. They focus on important policy issues such as procedures for bringing matters to Council, the role of staff in supporting councillors' policy initiatives, conflict of interest training and advice for councillors, freedom of information training, and more. This report addresses all those issues and makes specific recommendations for review and enhancement of related policies and procedures.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

Acknowledgement

In closing, I should underscore that everyone with whom I dealt in conducting this review has been fully cooperative. This includes all members of Council, individual Council members and all District staff.

The findings and recommendations in this report are mine alone, as are any errors or omissions.

*David Loukidelis QC*⁸

February 18, 2020

⁸ Deputy Attorney General of British Columbia 2010-2012, Chair of the Alberta Law Enforcement Review Board 2012-2018, Information and Privacy Commissioner for British Columbia 1999-2010. Called to the British Columbia Bar 1985.

OUTLINE OF EVENTS

This section outlines events related to adoption of the bylaw.⁹ Other information relevant to the specific issues that are discussed after this chronology is discussed later.

Betty Forbes was elected as a member of the District's Council in the October 2018 local government election, which also saw others elected to Council for the first time. On May 15, 2017, before she was being elected, Betty Forbes sent a document to the Mayor and Council of the day, giving reasons for her opposition to a bylaw being proposed to permit the keeping of chickens. The May 15, 2017 document referred to her concern that the keeping of chickens would decrease property values, saying, "according to some real estate professionals I have talked with a coop in a neighbour's property **will impact buyers offer**. Why am I going to pay financially for the choice my neighbours make? Ask yourself if people really pay the extremely high housing prices in the DNV to live next to farm animals" (bold in original).¹⁰ The document also mentioned that her neighbour kept pigeons and referred to what she saw as the District's failure to enforce the existing bylaw, the *Keeping of Pigeons Bylaw, Bylaw 4078* ("1971 bylaw"). On May 16, 2017, Betty Forbes spoke at the Council meeting at which the keeping of chickens was discussed. She expressed concerns about health issues raised by the keeping of chickens and pigeons and asked that Council review the 1971 bylaw.

On February 13, 2018, Betty Forbes emailed the then Mayor, Richard Walton. Her email stated that she had been trying to get action from the District about her neighbour's pigeons since "spring 2017", specifically, about his alleged failure to comply with the 1971 bylaw's requirements. Her email stated that her neighbour had failed to obtain a permit under the 1971 bylaw. She provided details of alleged violations of the 1971 bylaw and asked that the bylaw be amended—consistent with the proposed bylaw on keeping hens—so that only one

⁹ The chronology is based on records and recordings provided by the District and interviews. A list of individuals interviewed is found at Appendix 2. Some of the facts set out below are based on what individuals told me in their interviews and these sources are footnoted only where in my view that is truly necessary. It is convenient to note here that an individual resident, who described himself as an unsuccessful council candidate, contacted me by email on several occasions, offering information and commentary that, he apparently believed, I should address in my work. I have considered that material and it clearly addresses matters outside the terms of reference (including, for example, events related to the last local government election and activities of a specific community association). Since it is not relevant, this material is not mentioned again.

¹⁰ Twelve separate freedom of information requests were made in 2019 under the *Freedom of Information and Protection of Privacy Act* for records related to this matter. The District disclosed this email to more than one requester under that legislation. This document's contents are therefore in the public domain and, it is important to underscore, were quoted in the media last November. For example, a November 4, 2019 online CBC News story describes Betty Forbes' May 2017 submission to Council and attributes these quotes to her: "'A new neighbour moved in,' said Forbes. The coop was 'ramshackle' and 'an eyesore.' And, she warned, it would harm the value of her property. 'I know it sounds pretty cold,' she told council, 'but there is an impact to having coops in backyards to properties next door to that. I've spoken with a couple of real estate agents, and they've told me it will definitely have an effect.'" J. McElroy, "Pigeon feud: North Vancouver approves ban targeting councillor's neighbour", CBC News (online), November 4, 2019. Article accessed February 11, 2020: <https://www.cbc.ca/news/canada/british-columbia/pigeons-north-vancouver-prohibition-1.5347419>.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

pigeon coop could be located on a property. On February 14, 2018, Mayor Walton forwarded Betty Forbes' email to Carol Walker—the District's Chief Bylaw Officer—and Cristina Rucci, also a District employee, stating that she "seems to have reasonable concerns" and adding, "What am I missing?"

On July 26, 2018, Betty Forbes emailed Dan Milburn, the District's General Manager, Planning, Properties and Permits, referring to a conversation between them on that date. Her email provided details of incidents involving her neighbour's pigeons allegedly flying around her property, roosting on structures located on her property and flying into glass on her property. She stated that nothing had been done about the problem and asked to be told "what the outcome of this will be". She also asked that the 1971 bylaw be "updated in line with the new chicken bylaw." Shortly after this email, Betty Forbes again emailed Dan Milburn, attaching photographs of pigeons.

Dan Milburn responded on July 27, 2018, acknowledging the additional information and indicating that a District bylaw enforcement officer would visit the property. He stated that the bylaw enforcement officer would work "to obtain bylaw compliance with respect to the Keeping of Pigeons Bylaw." Betty Forbes responded the same day, asking, "[w]hat are the steps to get this bylaw updated?", and Dan Milburn responded that day saying, "As I mentioned, it is not currently in our work plan to update the" 1971 bylaw. He stated that "Council would need to direct staff to prepare amendments to the Bylaw. However, it is not on our list of priority issues at this time."

On August 8, 2018, Betty Forbes emailed Dan Milburn asking for an update on whether a bylaw enforcement officer had spoken to the owner of the pigeons about her concerns. Dan Milburn's staff responded in his absence. On August 28, 2018, District bylaw enforcement staff visited Betty Forbes' neighbour. Among other things, they advised him that he needed a permit for his pigeons under the 1971 bylaw.

On October 25, 2018, after she was elected but before she was sworn in, Betty Forbes emailed Dan Milburn, with a copy to the then Mayor, asking that her long-standing concerns be addressed. On October 26, 2018, Dan Milburn responded, addressing her as "Councillor-Elect Forbes". His response indicated that she had spoken with one of his colleagues, who had apparently conveyed that she would like to have her neighbour's pigeons removed. His email indicated that bylaw enforcement staff had visited the neighbour's property in the middle of August 2018 and conducted a "thorough site inspection". He noted that it was open to her to provide further evidence to support her concerns.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

On October 29, 2018, Dan Milburn and Carol Walker met with Councillor Forbes and reviewed the District's bylaw enforcement activities and her most recent emails.¹¹ Dan Milburn sent a follow-up email to her the same day, and on November 2, 2018 he again emailed her, asking for any evidence to confirm her complaints about pigeons. Among other things, he asked her to "confirm whether pigeons have been observed 'perching, roosting or nesting' on your property or on public lands...since this summer" (original underlining). He said this was because "to proceed with progressive enforcement actions we will need to confirm evidence of such a recent breach of the bylaw", noting that the neighbour had contended that removal of six pigeons in August has eliminated the problem." He also acknowledged that Councillor Forbes found "this whole matter very frustrating."¹²

Dan Milburn's email closed with the following paragraph:

As for making amendments to the Keeping of Pigeons Bylaw, staff would need direction from Council. After you're sworn-in as a Council member you may propose a resolution at a Regular Meeting of Council, in accordance with the Council Procedures Bylaw, commending the repeal or amendment to the Keeping of Pigeons Bylaw. The Clerk can provide you with further advice on the procedures, and I would be happy to draft a brief report and resolution for your consideration, should you choose to pursue this matter further.¹³

On April 4, 2019, Dan Milburn forwarded his July 27, 2018 email to Councillor Forbes to Councillor Lisa Muri. This was in response to a voicemail Councillor Muri had left for him. His email to Councillor Muri noted that he had spoken to Councillor Forbes after receiving her July 27, 2018 email, then stated, "Essentially, we were hoping to receive any evidence that the pigeons were still a problem. (Our bylaw staff have gone by the site but seen no evidence.)" He referred to the need for evidence that "the pigeons [are] still flying over, and perching, roosting or nesting on public lands or private property in contravention of the Bylaw", noting that evidence is needed "to pursue enforcement action, because the Keeping of Pigeons Bylaw permits this use." The email concluded by noting that Dan Milburn personally "would have no concerns if Council were to decide to repeal this bylaw", as the keeping of pigeons "is a very uncommon type of use in the community." Councillor Muri responded on April 4 stating, "Let's start the process of repeal".

¹¹ That system's records indicate very extensive number of contacts by telephone and email from Betty Forbes about concerns with her neighbour's pigeons. The records also indicated that District bylaw enforcement staff met and otherwise communicated with the neighbour on several occasions about the concerns. There were, for example, two visits to the neighbour's property in May 2019. The District's records also indicate that District enforcement staff concluded that the neighbour apparently had, as of May 2019, brought the situation into compliance with the 1971 bylaw.

¹² A November 29, 2018, District bylaw enforcement system note indicates that, as of that date, no response had been received.

¹³ Dan Milburn did not provide Councillor Forbes any advice on conflict of interest at any time. Dan Milburn interview.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

On April 24, 2019, Councillor Muri again emailed Dan Milburn. The email subject line was "Repeal of the pigeon bylaw", with the text being limited to "Will this make the May 6th agenda as requested?" Dan Milburn emailed Councillor Muri a short while later, stating "I had not anticipated you expected this on May 6th Regular Agenda" and telling her by phone that same day that the report would not be ready for the May 6 meeting. He added that he would provide Councillor Muri "with draft reports for all the issues we have discussed this week (including the repeal of the Keeping of Pigeons Bylaw)." Councillor Muri responded by email, saying "Ok thanks".

About 30 minutes later Councillor Muri forwarded Dan Milburn's email to Councillor Forbes, without comment. Councillor Forbes answered on April 24, 2019, with the email's sole content being this symbol: ":((". Councillor Lisa Muri responded almost immediately to Councillor Forbes, stating, "It will be fine, we can waive the hearing if we need one."

On April 26, 2019, Dan Milburn emailed Councillor Muri, attaching five draft reports, including a draft of the report recommending repeal of the 1971 bylaw, as requested in her April 4, 2019 email. On May 6 and 10, 2019, Dan Milburn emailed Councillor Muri, offering to assist with any changes or edits that she wished to make to the various reports. (He had assisted Councillor Muri with drafting her report in the first place.)¹⁴

On or about May 17, 2019, Dan Milburn spoke with Councillor Muri by phone about the pigeon matter, and he emailed her on May 17, 2019 to confirm his takeaway from their conversation. He attached to his follow-up email a revised version of the draft report to Council about keeping pigeons; that version would have resulted in a bylaw amendment to "require kept pigeons to be enclosed within a coop or cage at all times". His emailed included these passages:

You indicated that the proposed bylaw repeal would not address Councillor Forbes' concerns, because if the bylaw were repealed, her neighbour would still be allowed to keep his pigeons as a nonconforming use.

You mentioned that you instead what the bylaw amended to prohibit the release of the pigeons because they can't be controlled.

Please have a look at the attached draft report and let me know if I got it right this time, or if any further changes are needed.

Councillor Muri responded on May 17, 2019, saying, among other things, that the new draft report version did not address the situation adequately, saying, "Like chicken bylaw, numbers of pigeons, size of aviary, pest control, permitting etc should be a part of the report, which it

¹⁴ Dan Milburn interview.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

is not. I would rather get it right the 1st time.” Dan Milburn responded that day with another version of the draft report, this one referring also to amendments regulating “number of pigeons, enclosure standards, pest control and permitting etc.”

That same day, Councillor Muri emailed Councillor Forbes, stating, “Please call me.”¹⁵ The email did not indicate why Councillor Muri was asking Councillor Forbes to call. When asked about this, Councillor Muri noted the number and variety of communications councillors have with each other, with District staff and with the public, and stated that she could not recall whether Councillor Forbes had called her in response to her email. Councillor Forbes also could not recall whether she had phoned Councillor Muri. She noted that the email was sent almost a year ago and that she and Councillor Muri speak frequently about a wide range of matters, and she could not recall speaking with her in response to that email.

On June 21, 2019, Councillor Muri again emailed Councillor Forbes, forwarding to her a June 20, 2019 email from Deirdre Rogers, a District employee. Deirdre Rogers had emailed Councillor Muri a document from a member of District staff.¹⁶ Her email to Councillor Muri had the subject line “Keeping of Pigeons Bylaw”. Councillor Forbes responded to Councillor Muri the next day, asking “Is this new, it is dated April?” Councillor Muri responded minutes later, saying only, “Call me if you have a voice”. Again, neither Councillor Muri nor Councillor Forbes indicated that a phone call took place between them in response to this email.

On June 25, 2019, Councillor Forbes sent a text message to Councillor Muri and Councillor Curren. This is the only possibly relevant passage from that message: “I would like to discuss new procedure for bylaw to bring topics/reports to council (Lisa – pigeons?)”. Councillor Curren did not reply and Councillor Muri’s response did not deal at all with the request just quoted.

On July 6, 2019, Councillor Forbes sent three emails to Councillor Muri and Councillor Curren.¹⁷ Her email expressed the view that the 1971 bylaw “is totally outdated and I would request pigeons be specifically not allowed by bylaw in the District of North Vancouver”:

I am sending this to you to let you know my priority request is to pass a new bylaw, outlawing pigeons in the District of North Vancouver. This has been done by other municipalities (I can send examples). Pigeons are not a protected bird species. They can carry over 60 diseases as this article outlines. Who would want this next to

¹⁵ This email, like others between the two councillors, was sent using what appears to be a personal, not District, email account. These emails were produced as part of the District’s responses to freedom of information requests under the *Freedom of Information and Protection of Privacy Act*.

¹⁶ In my view, the contents of this staff record are not relevant here.

¹⁷ There were three emails because Councillor Forbes was forwarding the existing pigeon-related bylaw an article about health concerns related to birds, and this apparently required a series of emails due to the sizes of the attachments. The substantive content of her emails, as it relates to any action by Council, is accurately condensed above.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

them or flying over their property or public property and putting children & others health in jeopardy?

I have a pool that pigeons fly over and poop as well as flying and roosting on the rest of my property. This is a health hazard to anyone using my pool etc. I also have droppings on my property (tiles, cement, deck, roof, shed, fence etc.), feathers, and they fly into my glass railings and sometimes my glass sliding doors. They also roost on my roof, shed, fence, and trees that hang over my yard. Please note in this article all the other diseases that can be spread by other animals in contact first with pigeons and then with humans or pets after. Central nervous systems can be affected, breathing etc. Diseases are also carried by the vermin that are attracted by the pigeons and their coop food.

...

Please just pass an actual bylaw outlawing them, not rescinding our current bylaw.

Please consider the above issues.

Her third email also said this:

I will be recusing myself from discussion and voting if you feel that is best (I believe it would be) but if you would like further information such as details of pigeon bylaw from 1970's, details of my actions over the past 2 plus years and lack of enforcement from the DNV bylaw department please let me know.¹⁸

Councillor Forbes also forwarded her three emails to Mayor Little on July 6. He called her shortly after and asked her to stop sending him anything about pigeons and Councillor Forbes complied.¹⁹

On July 8, 2019, Council considered an April 26, 2019 report to Council from Councillor Muri. That report recommended that District staff "be directed to prepare a bylaw for Council's consideration to amend the Keeping of Pigeons Bylaw (No. 4078) as described in this report." The report acknowledged that the keeping of pigeons "is an uncommon activity in the District", but added that there had "been documented cases of domestic pigeons perching, roosting, feeding and straying onto private property and public lands disturbing the peaceful enjoyment of homeowners and residents." Councillor Muri's report said this about the problems being encountered in the District:

¹⁸ For clarity, the July 6, 2019 emails were sent before Councillor Forbes recused herself at the July 8, 2019 Council meeting (as she did again on two later occasions).

¹⁹ Councillor Forbes interview. No further communications between Councillor Forbes and the Mayor were evident.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

Specific problems include:

- pigeons flying over private property and public lands,
- pigeons roosting and defecating on private property and public lands, and
- pigeon food attracting rats and vermin.

The video recording of the Council meeting disclosed that Councillor Muri stated that her information about these problems with pigeons came from Councillor Forbes. Councillor Muri told me that she also had her own concerns about keeping pigeons in an urban environment, as opposed to in a less developed community, which was the case when the 1971 bylaw was enacted.²⁰

Some councillors spoke to the motion. Councillor Curren indicated she supported the motion because she had concerns about using any animal for sport or entertainment. Councillor Hanson indicated that he would like to have more information before moving forward, including because he did not know how many pigeon owners would be affected and noting that Council had not heard from them.²¹

The report that Councillor Muri tabled before Council recommended that the existing bylaw “be amended to require kept pigeons to be enclosed within a coop or cage at all times”, and not be allowed to “stray, perch, roost, nest, fly or feed outside of a suitable and fully enclosed coop or cage while in the District.” It also recommended that the existing bylaw be amended to include regulations similar to those applicable to the keeping of domestic hens, including the number of pigeons, enclosure standards, pest control and permitting. However, as the video of the Council meeting indicates, and the meeting minutes confirm, at the meeting Councillor Muri clarified that the direction to staff should be to prepare a bylaw prohibiting pigeons altogether, and this was the motion that Council approved.

When Councillor Muri’s motion on the matter was called at the July 8, 2019 Council meeting Councillor Forbes raised her hand and the Mayor recognized her to speak.²² Councillor Forbes is heard on the video recording of that meeting to state “I have a conflict with this so I’m going to step out.” The Mayor told her it is necessary to be more specific about the nature of a conflict, saying: “Councillor Forbes you have to describe your conflict”, adding “I think it is that your immediate neighbour is a keeper of them and so you’re excusing yourself. Is that correct”. Councillor Forbes replied “yes” and the video shows that she then left the Council chamber.

²⁰ Interview with Councillor Muri.

²¹ District staff clarified that there would be an opportunity for input at a later stage.

²² Item 9.5 on the agenda.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

Councillor Muri told me that, after the July 8, 2019 Council resolution approving her motion to direct District staff to prepare a bylaw prohibiting the keeping of pigeons, she had no telephone or other communications with either Councillor Curren, Councillor Forbes or District staff about the bylaw's subject.²³

On October 24, 2019, Carol Walker, the District's Chief Bylaw Officer, wrote to the neighbour, advising that Council had directed staff to prepare a bylaw to prohibit the keeping of pigeons. She enclosed a copy of her October 16, 2019 report to Council, described further below, which had the pigeon prohibition bylaw attached to it. The letter also stated, "As the District is aware that you keep pigeons, you are invited to comment on the proposed action, by contacting the undersigned and/or attending the council meeting."²⁴

On October 28, 2019, Dan Milburn emailed all Council members with a history of bylaw complaints involving pigeon keeping, dating back to 1995.²⁵ At its meeting later that day Council considered Carol Walker's October 16, 2019 report. The report described the existing bylaw and its history. It then described, in very general and brief terms, the proposed bylaw and set out two options. The first was to give three readings to the prohibition bylaw and the second was to "[d]irect staff to take other action".

Council gave the bylaw three readings at that meeting. When Mayor Little called the agenda item, he stated, "Councillor Forbes is declaring a conflict", adding "You have to say the nature of the conflict." Councillor Forbes then said, "I'm declaring a conflict because I have been involved in a situation like this, so I'm stepping aside." The Mayor responded by saying "personal conflict?", to which Councillor Forbes responded "Yup". The Mayor then thanked Councillor Forbes and she was seen to leave the Council chamber.

Council gave the bylaw what is known as final adoption at its November 4, 2019 meeting. When the Mayor called that agenda item for consideration, he stated "We have had a councillor who has recused herself in the past". He then invited Councillor Forbes to speak. She stated, "I voluntarily have recused myself on this item on the agenda, so I am recusing myself again tonight." The Mayor thanked her, and she was seen to leave the Council chamber.

²³ Interview with Councillor Muri.

²⁴ Carol Walker interview; Charlene Grant interview. This was consistent with District practice in such cases. The neighbour responded the next day stating, in essence, that his pigeons were not a problem.

²⁵ This complaint history was requested by Councillor Matthew Bond, and also by Councillor Megan Curren, the former of whom also asked to know how many pigeon permits had been issued (Dan Milburn reported that no permits had been issued).

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

At the November 18, 2019, Council meeting, Councillor Forbes read this statement aloud:

There has recently been both media and community interest with respect to any role that I may have played with respect to the 1971 bylaw banning the keeping of pigeons in the district. Tonight is the first opportunity I have had to make a public statement to both council and the community. It has always been my intention to act with integrity in the best interest of the District, both as a private citizen and more recently as a councillor. I have followed the advice given to me by staff and by independent legal advice on this matter. Out of an abundance of caution, I recused myself from the council discussions on the bylaw. If I have erred in any way, I assure council and the community that it was done inadvertently and in good faith with my understanding as a new councillor of the conflict of interest rules. I hope with this public statement we can turn the page on this issue and focus on providing the citizens of the district with the good governance that they deserve. Let us all get back to doing what we were elected to do, and I sincerely hope that we can move forward from this and work collaboratively and collegially to do the business the people of the district need us to do.²⁶

Councillor Forbes then asked the Chief Administrative Officer for “additional training” for both newly elected and returning councillors on conflict of interest and freedom of information matters. He responded by noting that training had been provided for candidates before the election, and for Council after the election. He noted that such training can only be general in nature and acknowledged that it might be helpful for all of Council to understand in more detail how the various pieces of legislation work.

This is a convenient summary of events surrounding the bylaw’s enactment:

- Councillor Forbes expressed concerns about the keeping of birds, and about her neighbour’s pigeons, going back at least to 2017. This included making submissions to the Council of the day.
- She brought her concerns to the attention of District bylaw enforcement staff and communicated with them on many occasions through to the end of 2018.
- After her election as a councillor in October 2018, Councillor Forbes communicated and met with the District’s General Manager, Planning, Properties and Permits, about her concerns regarding pigeons. On November 2, 2018, she asked him about amendments to the 1971 bylaw and was told that Council direction would be needed to initiate any changes.
- In early April 2019, Councillor Muri contacted Dan Milburn about Councillor Forbes’s concerns and in an April 4, 2019 email he brought Councillor Muri up to speed on the background. On April 24, 2019 she emailed him about “repeal of the pigeon bylaw”.

²⁶ Each of the quotes from the District’s video recordings of Council meetings are my own transcription.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

On the same day, Councillor Muri forwarded Dan Milburn's email of that date to Councillor Forbes.

- Over the course of April and May 2019, Dan Milburn assisted Councillor Muri in writing a report to Council proposing that Council amend the 1971 bylaw. On May 17, 2019, Councillor Muri told Dan Milburn that she had concerns with the latest version of the report. On May 17, 2019, as well, Councillor Muri asked Councillor Forbes to call her. Neither can recall if a phone call took place in response to that request.
- On June 21, 2019, Councillor Muri forwarded to Councillor Forbes an email from District staff about the pigeon bylaw. Neither Councillor Muri nor Councillor Forbes indicated that a phone call took place in response to this email. They both noted that this was about nine months ago, and they speak to each other often about a range of municipal and community matters.
- On June 25, 2019, Councillor Forbes texted Councillor Muri and Councillor Curren about, among other things, processes for proposing matters to Council, with a question to Councillor Muri "(Lisa – pigeons?)".
- On July 6, 2019, Councillor Forbes emailed the two councillors again, sending material about health hazards of birds and, among other things, saying "Please just pass an actual bylaw outlawing them, not rescinding our current bylaw." Her email also clearly stated that she would be recusing herself from voting on the matter.
- On July 8, 2019, Council considered Councillor Muri's report to Council and Councillor Forbes recused herself from the matter, stating, "I have a conflict with this so I'm going to step out." She then left the meeting. Council then resolved to direct staff to prepare a bylaw prohibiting the keeping of pigeons in the District.
- On October 28, 2019, Council gave the prohibition bylaw three readings. When that item arose on the agenda Councillor Forbes said, "I'm declaring a conflict because I have been involved in a situation like this, so I'm stepping aside." The Mayor responded by saying "personal conflict?" and Councillor Forbes agreed. She then left the meeting.
- On November 4, 2019, the bylaw was given final adoption. Councillor Forbes stated, "I voluntarily have recused myself on this item on the agenda, so I am recusing myself again tonight." Councillor Forbes then left the meeting.
- At the November 18, 2019, Council meeting Councillor Forbes read a statement, which noted that she had followed staff advice and independent legal advice and had recused herself out of an abundance of caution from the Council discussions on the bylaw. She stated that if she made any error it was inadvertent and in good faith, with her understanding as a new councillor of the conflict of interest rules.

These facts emerge from this review:

- Before her election in 2018, Betty Forbes expressed concern about the keeping of pigeons. She expressed concern about her neighbour's pigeons, but she also expressed concern about the health risks of pigeons and other birds in urban settings generally.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

- After the 2018 election, Councillor Forbes continued to express these concerns, including in dealings with District staff.
- In the spring of 2019, Councillor Forbes communicated her concerns to Councillor Muri and Councillor Curren. Councillor Muri also had own concerns about keeping pigeons in the District's urban environment and Councillor Curren had concerns about using any animal for sport or entertainment.
- Councillor Forbes asked both Councillor Curren and Councillor Muri to support a bylaw prohibiting the keeping of pigeons. This request was explicitly stated in her July 6, 2019 email to them.
- In that email, Councillor Forbes told Councillor Muri and Councillor Curren that she would be recusing herself from the matter. She did so at the July 8, 2019 Council meeting, at which Council considered Council member's report. Councillor Forbes again recused herself when Council gave three readings to the bylaw at the October 28, 2019 meeting, and again when Council gave the bylaw final adoption at its November 4, 2019 meeting.
- At the November 18, 2019 Council meeting, Councillor Forbes read a statement, in which she stated that she had recused herself "out of an abundance of caution", and that any error was inadvertent and in good faith, "with my understanding as a new councillor of the conflict of interest rules."
- It is clear Councillor Forbes communicated with District staff about her concerns with pigeons, including her neighbour's pigeons, after the 2018 election but before her July 8, 2019 recusal from the matter. It is also clear that, before her first recusal, she communicated with Councillor Muri and with Councillor Curren about this issue, including by asking them to support a prohibition on keeping pigeons.
- There is no evidence before me to suggest that, after her July 8, 2019 recusal, Councillor Forbes communicated with District staff or Council members about the bylaw.

CONFLICT OF INTEREST OVERVIEW

Legal & Policy Context

British Columbia's *Community Charter* contains a range of provisions that address conflicts of interest on the part of elected local government officials.²⁷ It provides that a conflict of interest can take the form of a direct or indirect pecuniary interest in a matter, or another interest in the matter that constitutes a conflict of interest.²⁸ Council members who consider that they are in a conflict of interest on a matter must declare their conflict.²⁹

A council member who has "a direct or indirect pecuniary interest in a matter" is prohibited from attending, or participating in, any meeting that considers or discusses the matter, voting on any question related to that matter, and attempting in any way—whether before, during or after a meeting—to influence the voting on any question relating to the matter.³⁰ These restrictions only apply where there is "a direct or indirect pecuniary interest" in the matter—they do *not* apply where a council member has "another interest in the matter that constitutes a conflict of interest".

The penalty for contravening any of the restrictions is disqualification from holding office "unless the contravention was done inadvertently or because of an error in judgement made in good faith."³¹

The District's Corporate Policy Manual contains a Code of Ethics for council members.³² It refers to the goal of "effective, responsible and responsive government" and states the following as its goals in guiding Council members:

- public business is conducted with integrity, in a fair, honest and open manner,
- members respect one another, the public and staff, and recognize the unique role and contribution each person has in making the District a better place to work and live,
- their conduct in the performance of their duties and responsibilities with District be above reproach, and
- the decision-making processes are accessible, participatory, understandable, timely and just, in addition to the requirements of applicable enactments.³³

²⁷ These are found in Division 6, Part 4, of the *Community Charter*.

²⁸ Section 100(2).

²⁹ Section 100(2).

³⁰ Section 101(2). Section 101(1) states that these restrictions apply even if the council member has not declared the conflict as required, but only where the member has a direct or indirect pecuniary interest.

³¹ The disqualification under section 108.1 becomes effective if the Supreme Court of British Columbia declares the council member disqualified, upon application by 10 or more electors or the municipality.

³² The code also applies to anyone Council appoints to a board, committee, commission, panel or task force. The code is section 1-0530-11 of the Corporate Policy Manual. (was adopted in 2000 and was last amended in 2015.)

³³ Code, page 1.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

The Code of Ethics imposes the following specific duties on Council members:

- All “members will conduct their business with integrity, in a fair, honest and open manner”,
- Members must “comply with all applicable federal, provincial, and local laws in the performance of their public duties”, including the *Community Charter*,
- The “conduct of members in the performance of their duties and responsibilities with the District must be fair, open and honest”,
- All members must “perform their duties in accordance with the policies and procedures and rules of order established” by council,
- Council members must “base their decisions on the merits and substance of the matter at hand, rather than on unrelated considerations”,
- Members must “publicly share substantial new information that is relevant to a matter under consideration by the Council or a committee, which they may have received from sources outside of the public decision-making process”,
- In relation to conflicts of interest, council members must be “aware of and act in accordance with Division 6 [of Part 4] of the *Community Charter*, and shall fulfil part (c) of their Oath of Office”,
- Last, members of Council are required to “respect and adhere to the council-Chief Administrative Officer structure of government”, under which “Council determines the policies of the District with the advice, information and analysis provided by the public, committees, and District staff”.³⁴

The Code of Ethics states that it is to be provided to candidates for election and that Council members are requested to sign the statement appended to it, “affirming they have read and understood” the Code of Ethics.

The Code of Ethics is stated to be “self-enforcing”, with councillors being responsible for being “thoroughly familiar” with its terms and having the “primary responsibility to assure that these ethical standards are understood and met”.³⁵ The Code of Ethics is not, however, entirely “self-enforcing”, as it explicitly states that “Council may impose sanctions on members whose conduct does not comply with the District’s ethical standards, such as a motion of censure.”³⁶

As noted earlier, the oath of office sworn by Council members addresses conflicts of interest. Each swears that the member “will faithfully perform the duties of my office and will not allow any private interest to influence my conduct in public matters”. Each member also swears

³⁴ Code, pages 2 and 3.

³⁵ The Code of Ethics also provides for annual review by Council, with updating as considered necessary.

³⁶ In the case of committee members who are not members of Council, the Council may also rescind the member’s appointment.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

that, “as required by the *Community Charter*, I will disclose any direct or indirect pecuniary interest I have in a matter and will not participate in the discussion of the matter and will not vote in respect of the matter.”

It is useful to underscore at this point that the District’s Code of Ethics clearly states that each Council member has the “primary responsibility” to understand and comply with its standards of ethical conduct, which incorporate the conflict of interest provisions in the *Community Charter* and the oath of office sworn by council members. Again, members of Council are, like all citizens, presumed to know the law, including the *Community Charter* rules on conflict of interest.

Council’s Awareness of the Rules on Conflicts of Interest

The following discussion outlines the conflict of interest training made available to election candidates and to Council member. This is necessary because, as discussed below, some Council members felt that more information and training about conflicts of interest would be desirable (although some believed that enough information had been made available).

In advance of the 2018 election, District staff held a workshop for council candidates. This workshop included conflict of interest matters. Soon after the 2018 election a series of workshops was held for Council.³⁷ On November 6, 2018, the District’s Municipal Solicitor, Richard Parr, presented a series of slides about conflict of interest issues. Councillor Forbes and all other Council members except Councillor Muri attended this session.

The legal section of the November 6, 2018 workshop slides covered the following topics: having an “open mind” (“being amenable to persuasion”), avoiding the “perception that one is motivated or influenced by an interest other than public interest” and “statutory conduct rules” that “provide a procedural framework for avoiding such perceptions”. The discussion also covered “what is a conflict”, the “procedure for recusing oneself”, “consequences of participating when in conflict”, and “statutory exceptions”. Last, the discussion covered: “disclosure requirements”, “gifts”, “inside/outside influence”, “use of insider information”, and “disqualification”.

Review of the video recording of the workshop discloses that the discussion of the conflict of interest rules consumed about 20 minutes, with the Municipal Solicitor leading Council through the topics just mentioned. Points about conflict of interest matters were also made by the Mayor, the Chief Administrative Officer, the General Manager of Corporate Services, Charlene Grant, and the Clerk, James Gordon. The following summarizes, in general terms, the main points made to Council as part of the presentation and related discussion:

³⁷ There were seven workshops in total, covering a broad range of governance matters for the information of Council members.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

- A common definition of the term conflict of interest was provided,
- The *Community Charter* provisions around pecuniary and non-pecuniary conflicts of interest were summarized,
- Examples of situations in which a Council member might be in a direct pecuniary conflict of interest, an indirect pecuniary conflict of interest, or non-pecuniary conflict of interest were given, and there was discussion of the examples,
- The consequences of participating in a matter, or influencing or attempting to influence it, when in a pecuniary (as opposed to non-pecuniary conflict of interest) were discussed,
- Exceptions to the *Community Charter* rules were outlined,
- The Chief Administrative Officer told Council members that, as a rule of thumb, if they ever think that they might have a conflict, they should contact him or the General Manager of Corporate Services (the General Manager of Corporate Services emphasized this comment),
- The Chief Administrative Officer also told Council that if a councillor clearly was in a conflict of interest, staff would recommend that the councillor declare the conflict,
- In saying this, the Chief Administrative Officer noted again that councillors can obtain independent legal advice if there is any question in their mind about the matter,
- Mayor Little reiterated the comment that independent legal advice would be made available to Council members,
- The Chief Administrative Officer underscored for Council members that it is their responsibility to decide what to do, while suggesting that often the public perception favours recusal (the Municipal Solicitor echoed this comment and again noted that independent legal advice is available),
- Mayor Little commented that once a Council member has recused himself or herself, the member may not participate in the matter, including by having discussions with other councillors outside a meeting,
- The Municipal Solicitor summarized the consequences of participating, influencing or attempting to influence a matter when in a pecuniary conflict, subject to the defence of error in good faith, noting that if a Council member has relied on a lawyer's opinion that there is no conflict, this may—clearly, depending on the circumstances—be of assistance in a disqualification proceeding,
- As already noted, during the discussion, the Mayor, Chief Administrative Officer and others offered examples of circumstances in which a Council member might or might not have a conflict of interest. (One example involved the distinction between a Council member who is a realtor and votes on a matter directly affecting her or his pecuniary interest, and a Council member whose spouse is a realtor, with the Council member voting on a matter that affects his or her spouse's pecuniary interest. Another example involved a Council member is a member of a private club whose interests are engaged in a matter before Council.)

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

In addition to the information and discussion at the Council orientation session, Council members were given a copy of the District's Code of Ethics and asked to sign it.³⁸ They also each swore the oath of office.

On January 14, 2019, an outside lawyer for the District attended the Council meeting and gave a general overview of legal issues for councillors' benefit. Some of those present recalled that conflict of interest rules had been discussed, although the focus was on other legal issues.³⁹

In addition to the in-person training described above, as the following discussion discloses, the Chief Administrative Officer, and other senior staff, are available to informally advise members of Council in this area. They also facilitate the provision of independent legal advice, as provided in District policy, where a member of Council wishes to obtain advice. These support services are valuable resources for Council.

Conflict of Interest Support for Councillor Forbes

Although I make no legal findings about Councillor Forbes's actions, it is useful to offer an outline of the information and support available to her conflict of interest in relation to the bylaw. This helps inform assessment of the broader question, addressed below, about the information and support for all councillors in conflict of interest matters.

Before the July 8, 2019, meeting, Councillor Forbes spoke to District staff about her possibly being in a conflict of interest. She spoke to the Chief Administrative Officer, Clerk and Mayor.⁴⁰ Councillor Forbes told me that she found what she was told about whether she was in a legal conflict of interest to be "confusing".⁴¹ Despite this, she decided to go with her "gut feeling" and step away, owing to her personal experience with the issue.⁴²

The Chief Administrative Officer spoke with Councillor Forbes more than once in the summer and autumn of 2019 about whether she was in a conflict of interest. This was consistent with his long-standing practice of supporting Council members by providing informal, non-legal, advice. He told Councillor Forbes that he is not a lawyer. He expressed the view that, while

³⁸ Councillor Forbes told me that she remembered signing a piece of paper but could not definitively say whether it was the Code of Ethics. She also told me, however, that she is sure that she would have received it.

³⁹ Councillor Muri interview. Councillor Forbes interview.

⁴⁰ Interviews of Councillor Forbes, David Stuart and Jim Gordon. Jim Gordon, the Clerk, stated that he had given Councillor Forbes information about how to obtain legal advice, referring her to Charlene Grant, the General Manager of Corporate Services.

⁴¹ Councillor Forbes interview. She also told me that before either the October 28, 2019 or November 4, 2019 Council meeting, a member of staff approached her and told her that she was not in a conflict of interest and did not need to recuse herself. She told me that she nonetheless did so, because it was the right thing to do.

⁴² Councillor Forbes interview. As discussed below, Councillor Forbes asked District staff how to obtain independent legal advice on the issue and she did ultimately obtain that advice.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

there might be reasons for her not being a conflict, the optics of her being involved would not be good. He told her that she could get independent legal advice under the District's policy.⁴³

Richard Parr, the Municipal Solicitor, received a call on July 9 or 10, 2019 from Councillor Muri about conflict of interest. He then spoke to Charlene Grant, the General Manager of Corporate Services, about obtaining legal advice for Councillor Forbes.⁴⁴ On July 10, 2019, he emailed Councillor Forbes, giving her the name and phone number for a lawyer who could advise her “on the conflict issue.” Early that afternoon, Charlene Grant emailed both Richard Parr and Councillor Forbes, alluding to the latter’s conversations with staff about possible conflict of interest: “Possibly, you no longer feel the need for outside counsel, but I wanted to reiterate that we can provide this if you do. Please don’t hesitate to call if you have further questions I can assist with.”

Councillor Forbes responded two weeks later, on July 24, 2019, stating that she required “some further clarification on this”, adding that she had not yet called the lawyer. She said, “Please let me know if I should call him or arrange to meet with you and/or Jim to discuss some details of recusing myself.” Charlene Grant responded that day, confirming that Councillor Forbes was “entitled to be reimbursed for independent legal advice regarding potential conflict of interest per our Corporate Policy 6-2400-2” and suggesting that Councillor Forbes familiarize herself with the policy before contacting the lawyer. Her email closed by saying, “Of course, you can choose to recuse yourself independently of this.”

Councillor Forbes eventually obtained legal advice from the law firm that District staff had emailed her about on July 10, 2019. She received that advice in a September 6, 2019 letter from a lawyer at that firm.⁴⁵ Councillor Forbes told me that this advice also confused her, so she called the lawyer who wrote the letter (she did not say when that call was made). The lawyer was, however, on parental leave, so Councillor Forbes did not discuss it with a lawyer.⁴⁶

Support for Councillors on Conflict of Interest Matters

Each elected official is, again, responsible for knowing the legal rules on conflict of interest. Application of those rules to real-world situations can be complex, but compliance in every case remains the duty of elected officials, not municipal staff or lawyers.

Although there can be no getting around this duty, municipalities have every incentive to support elected officials in understanding the rules. This is so for reasons of good governance,

⁴³ David Stuart interview.

⁴⁴ Richard Parr interview.

⁴⁵ I have not seen or asked to see that letter, as this was not necessary for my review.

⁴⁶ Councillor Forbes interview.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

but also because it can protect a municipality from having its actions invalidated because an elected official voted on, or participated in, a matter while in an undeclared conflict of interest. It thus helps avoid litigation costs and reduces the risk of unnecessary public controversy over failure to comply with the rules.

These considerations, and my discussions with various Council members and District staff, lead me to make recommendations below to further enhance conflict of interest training and support for Council members.

Adoption of the recommendations will involve additional work for Council and staff alike—and there are many pressing issues for both—but the adage about an ounce of prevention should be kept in mind when considering whether to follow them.

Enhancing the District's Code of Ethics for councillors

In my view, the District's Code of Ethics could set clearer and more specific rules on conflict of interest matters. Although the Code of Ethics has valuable things to say about ethics, discussions with Council members and staff revealed a desire for these to be reviewed against case law and public expectations.⁴⁷

The Code of Ethics' guidance is undoubtedly high-level. On conflict of interest, it merely states that Council members must "be aware of and act in accordance with Division 6 of the *Community Charter* and shall fulfil part (c) of their *Oath of Office*."⁴⁸ As another example, it deals with accepting benefits from anyone who has, or wishes to have, "dealings with the District", but does not offer more guidance for councillors.⁴⁹ It prohibits councillors from accepting "gifts or favours"—including "money, property, position or favour of any kind—while permitting them to accept "appropriate refreshments or meals", but without clarifying what this means.

It is neither necessary nor appropriate to offer specific amendments to the Code of Ethics. Rather, the District should assess whether the Code of Ethics offers sufficiently clear and comprehensive—and reasonable and practical—rules for councillors to follow in meeting

⁴⁷ The Code of Ethics was last revised in 2015 and the relevant part of the Corporate Policy Manual was last amended in

⁴⁸ Paragraph 8.

⁴⁹ Paragraph 9: "Members shall not accept any money, property, position or favour of any kind whether to be received at the present or in the future, from a person having, or seeking to have dealings with the District, save for appropriate refreshments or meals, except where such a gift or favour is authorized by law, or where such gifts or favours are received as an incident of the protocol, social obligation or common business hospitality that accompany the duties and responsibilities of the member. A member may participate in District programs open to the public and may purchase District property or goods offered for public sale."

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

public expectations. A survey of comparable documents established by other British Columbia municipalities could be of assistance in doing this.⁵⁰

It is convenient to note here that the District should consider including in the Code of Ethics—or the District’s Corporate Policy Manual—a duty for Council members who have concluded that they are in a conflict of interest to notify the Chief Administrative Officer and Mayor of this fact, certainly before any Council consideration of the matter in question.⁵¹

Recommendation 1: The District should assess its Code of Ethics in the context of current case law and public expectations, to ensure that it addresses in sufficient detail the various aspects of conflict of interest rules and other ethical principles.

Enhancing conflict of interest materials for councillors

In public administration it is always possible to learn from experience and find ways to improve how things are done. This is such a case, so I make recommendations below for enhancing the information and training made available to members of Council on conflict of interest matters. This is not to suggest that the existing approach, exemplified in the training and support described above, is unambiguously lacking. In fact, while some Council members felt that more should be done, others—including some who were elected for the first time in 2018—felt that the support and information they were given was good. Some District staff also believed that support on conflict of interest was reasonable, while acknowledging expressing openness to suggestions for enhancements in this area.

In my view, the November 6, 2018 workshop materials on conflict of interest reflect the generality inherent in any discussion of legal rules in the absence of specific facts. At the same time, the associated discussion of those rules helpfully offered more specific guidance through discussion of hypothetical scenarios verbally offered by the Mayor and the Chief Administrative Officer. While this scenario-based discussion was helpful, in my view the conflict of interest training for Council members could be enriched by greater detail in the written materials and greater use of case studies or scenarios. Two related recommendations are therefore made.

The first relates to written materials for Council members. The District should consider expanding its slide presentation for workshops by including points made in court decisions on conflict of interest. The presentation should also, in my view, include scenarios—some of

⁵⁰ For example, the City of Vancouver’s Code of Conduct for council members usefully elaborates on specific components of the conflict of interest rules. The District could consider this approach, while always making it clear that the law prevails over the Code of Ethics. The City of Vancouver Code of Conduct also contains clear rules on gifts and similar benefits, setting monetary limits, rules for valuation, and so on.

⁵¹ As noted below, the District should consider requiring a councillor who believes she or he may be in a conflict of interest to consult with the Chief Administrative Officer.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

which could be based on decided cases—for discussion. These could address all types of conflict, direct and indirect pecuniary and other conflicts.

The District should also consider creating a reasonably fulsome guide for councillors on conflict of interest, which could include principles derived from cases, and scenarios discussing situations of conflict that, experience shows, are most likely to arise. This guide could include a tip sheet or frequently-asked-questions summary for easy reference.

It is clear Council members know that senior District staff are always available to provide general, non-legal, advice where they believe that they might be in a conflict of interest.⁵² It is equally clear that Council members know that independent legal advice can be made available to them under District policy. Information about these support services should, however, be included in the recommended enhanced written materials, to ensure councillors are aware of this valuable resource. The District's materials should, however, should underscore that councillors are responsible for complying with the law, that the materials do not override the law, and that councillors should get advice where there is doubt (while also noting the availability of staff and legal advice).

Recommendation 2: The District should consider enhancing its conflict of interest materials for both Council members and election candidates. This could take the form of enhanced workshop presentation materials, with more detailed discussion points and scenarios (perhaps drawing on the facts of decided cases), to help illustrate the practical application of the rules. The District should also consider providing Council members with a guidance document on conflict of interest, which could include a tip sheet or frequently-asked-questions summary for easy reference.

Ongoing education about conflict of interest matters

Councillors acknowledged that staff are always available to advise on specific conflict of interest matters. It is also apparent that individual councillors sometimes discuss specific conflict of interest issues with their peers, and sometimes the rules are discussed in general terms at Council workshops. Nonetheless, some councillors felt that it would be useful to have a more formalized program, involving discussion at periodic Council workshops or in free-standing sessions on conflict of interest.

⁵² The availability of staff to advise councillors is affirmed in, for example, the District's Corporate Policy Manual, policy 6-2400-2, which deals with reimbursement of the costs of independent legal advice (which is discussed below). Paragraph 1 notes that "As an optional preliminary step, a member of council considering a potential conflict of interest may wish to discuss the circumstances with either the Chief Administrative Officer or the Municipal Clerk for an initial opinion on the matter." (Again, see below for discussion of whether a councillor should be required to reach out to the Chief Administrative Officer.)

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

This is also my view: ongoing education is undoubtedly desirable in this area, to help secure and maintain public trust in the propriety of their elected representatives' actions and thus public institutions. A key recommendation is to build on the scenario-based orientation approach recommended above. This could take the form of discussion of scenarios and recent legal developments at Council workshops, or at free-standing learning sessions, possibly supplemented by periodic email reminders about key conflict of interest considerations. The District should consider refreshing Council's awareness in this area at least mid-term for each Council, and preferably annually.

Recommendation 3: The District should consider enhancing its conflict of interest support for Council members by periodically conducting scenario-based discussions of the conflict of interest rules in Council workshops or free-standing learning sessions. The District should also consider refreshing Council's awareness through periodic email reminders attaching the written materials recommended above.

Independent legal advice on conflict of interest

Several individuals, both Council members and District staff, commented on the District's policy on obtaining independent legal advice for Council members about potential conflicts of interest.

This policy ("ILA policy")⁵³ permits a Council member to engage a lawyer to provide independent legal advice about a potential conflict of interest.⁵⁴ The policy states that advice obtained by a Council member is the member's "property", but it also says that, if the advice would assist the District in defending any legal action, it is "expected the council member will make every effort to provide the District's solicitor with the independent legal advice and any supporting information."⁵⁵

Those who expressed a view on this issue recognized the importance of ensuring that councillors have independent legal advice and can obtain it readily. However, some thought that the District's interests are sufficiently engaged in such cases that the District should have access to a member's legal advice even where there is no litigation against it (and especially when there it). Some also felt that the District should be able to ensure that the information made available to advising lawyers is accurate and complete, since facts are all-important in giving legal advice.

⁵³ This is District policy 6-2400-2, found in the Corporate Policy Manual.

⁵⁴ The member is entitled to reimbursement of 75% of the cost of obtaining that advice, and the annual aggregate amount available for all Council members is \$5,000.00 (with the aggregate being subject to increase by Council).

⁵⁵ ILA policy, paragraph 5 of the procedure section.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

The competing interests are obvious here. On the one hand, councillors have an interest in obtaining legal advice independent of the District and in preserving the privilege they hold over that advice. On the other hand, if the District knows what advice has been given, and on what factual basis, *before* Council proceeds with a matter in which a councillor has a potentially fatal conflict, this helps ensure that Council collectively acts on a proper footing, protects the interests of the District and avoids unnecessary litigation costs and public controversy.

The District should consider amending amend its ILA policy to require councillors to disclose the factual foundation for legal advice to the Chief Administrative Officer, and discuss it with the Chief Administrative Officer, before the advice sought. That information would be provided to the Chief Administrative Officer on a confidential basis.

The District also should consider requiring councillors to provide the Chief Administrative Officer, and the Municipal Solicitor, with a copy of the legal advice they obtain, again on a confidential basis. The Chief Administrative Officer or Municipal Solicitor could be authorized to inform Council about the lawyer's conclusion, where necessary and on a confidential basis.

Some might find this objectionable, since the advice would be privileged to the councillor's benefit and Canadian law gives strong protection to privilege.⁵⁶ On the other hand, the District's interests are undoubtedly at stake in many if not all cases where a conflict of interest might invalidate its actions. The following recommendations therefore attempt to strike an appropriate balance between the interests of councillors and the District. As an alternative, the District could amend the policy to strongly encourage councillors to take both of the two steps just described.

Recommendation 4: The District should consider amending its independent legal advice policy to require councillors to share the factual foundation for the advice in writing with the Chief Administrative Officer, and discuss it with the Chief Administrative Officer, before the advice is sought. (An alternative would be to strongly encourage councillors to share this information with the District, with Council being informed where a councillor declines to do so.)

⁵⁶ One concern might be whether disclosure to the District would be a waiver of the privilege for all purposes. There could be practical workarounds to this, which is one reason for the recommendation that the Municipal Solicitor be consulted on these suggestions.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

Recommendation 5: The District should consider amending its independent legal advice policy to require councillors to share their independent legal advice about a conflict of interest matter with the Chief Administrative Officer and Municipal Solicitor, in confidence, who could inform Council about the lawyer's conclusion, where necessary and on a confidential basis. (An alternative would be to strongly encourage councillors to share the independent legal advice with the District, with Council being informed where a councillor declines to do so.)

Review of the ILA indemnity cap

The District's ILA policy was last amended a decade ago, setting the limit for outside legal advice at \$5,000.00 annually for all councillors in the aggregate. It is reasonable to expect—certainly, to hope—that outside legal advice is not needed often. This amount should nonetheless be reviewed, to account for inflation over the past ten years and to ensure that Council as a whole is not at risk because legal advice is not obtained when it should be.

Recommendation 6: Because the District's independent legal advice policy's cap on aggregate amount available to all councillors for independent legal advice has not changed since 2010, the District should consider amending that policy to increase the annual aggregate amount.

The present ILA policy caps the District's contribution to advice at 75% of the total cost (presumably the GST and PST, which are both paid on legal fees). The District should consider whether this partial indemnity might discourage a councillor from obtaining legal advice due to the 25% share they must pay. Because the District's own interests are, realistically, engaged where there may be a conflict, it should consider providing full indemnity where staff advice cannot resolve uncertainty and a councillor needs legal advice.

Recommendation 7: The District should consider amending its independent legal advice policy to remove the existing 75% District contribution level and replace it with a full indemnity clause.

Review of the District's indemnification policy

A related issue that came to light during the review is the District's indemnification policy for councillors who are caught up in litigation connected with their work as councillors. At present, District policy only indemnifies councillors where the litigation is for damages. Many legal proceedings do not involve damage claims. The District should consider reviewing this policy, with a view to possibly broadening its application, so as to better protect councillors who have acted in good faith and the District's own interests.

Recommendation 8: The District should consider reviewing its indemnification policy for litigation in which councillors are named as parties, to determine whether that policy fully accounts for the various legal risks, and therefore costs, that councillors might face in their work in good faith.

Enhancing freedom of information and privacy materials and support

Although it is not related to conflict of interest, it is appropriate to address freedom of information compliance here, since it is related to other issues discussed in this report.

Some of the records that the District disclosed in response to freedom of information requests it received under the *Freedom of Information and Protection of Privacy Act* were emails sent and received by councillors who had used personal email accounts. These records had been produced to the District in response to its internal request for responsive records. Some Council members told me they had been surprised that emails or text messages using their personal email accounts or personal mobile phones might be amenable to freedom of information requests, on the basis that they are the District's custody or control for the request purposes.⁵⁷ Some District staff thought, for this reason alone, that Council might benefit from further training and support on freedom of information and privacy matters under the legislation.

My conclusion is that the District could enhance its support for Council members—notably newly elected councillors who have no experience in these matters—by creating brief guidance materials on key freedom of information and privacy concepts. A tip sheet that could be given to Council members would, for example, help them understand their (and the District's) duties under the *Freedom of Information and Protection of Privacy Act*. A prominent example of desirable guidance is that councillors should not use personal email for District business and, if they do, those emails will be within the District's control for freedom of information purposes, as this situation illustrates.

The District also should consider enhancing its election candidate and Council workshop presentations in the area of freedom of information and privacy materials.

Recommendation 9: The District should enhance its freedom of information and privacy training for both Council members and election candidates by creating a guide or tip sheet about key issues in these two areas. Workshop materials and discussion should also cover privacy and freedom of information matters.

⁵⁷ The *Freedom of Information and Protection of Privacy Act* provides that a request may be made for access to any record "in the custody or under the control" of a public body such as the District. If the threshold of custody or control is passed, the record must be disclosed in response to the request, subject to application of the access exemptions contained in the legislation.

ROLES OF COUNCIL, COUNCILLORS & STAFF

This part of the report considers how proposals for Council action originate and are brought to Council's attention for consideration.

Present Approach for Reports to Council

The bylaw that prompted this review was brought forward for adoption by one councillor, Councillor Muri. Her report to council, and the draft bylaw, were both prepared with the input and drafting support of District staff.⁵⁸ This was undoubtedly permitted under the District's *Council Procedure Bylaw, Bylaw 7414* ("procedure bylaw"). This was also consistent with District practice over roughly the last decade.

Section 16 of the procedure bylaw provides that a councillor may submit to the Clerk a report to council, which must be in the Council report format, regarding "an item to be included on a future Council meeting agenda". The Clerk is then *required* to place such reports on the next Council agenda. Section 16 requires such reports to "contain relevant explanatory information and background" and to "make a clear recommendation for Council action."⁵⁹

In addition, District policy provides as follows:

Upon request, staff will provide information to Council members or information and reports for Council or Executive Committee meetings when preparation does not require substantial staff time or costs. However, if it requires substantial staff time or costs, an authorizing Council resolution is required.⁶⁰

This approach gives councillors considerable freedom to develop their own policy proposals, which will reflect their own skills, experience and policy positions. As noted earlier, councillors' different perspectives can enrich Council's decisions about what is in the public interest, thus improving its policy and legislative actions. At the same time, Council has many demands on its time and energy and a system that gives individual councillors broad leeway to bring forward reports, and seek Council's attention, could clutter a Council's agenda and impede its ability to effectively pursue a coherent policy agenda.

The present approach also creates the risk that Council will consider proposals that would have benefitted from the expert input of staff which could have identified legal, technical or

⁵⁸ This is not unheard of by any means, but it has resource and policy implications, as discussed below.

⁵⁹ This provision obviously does not stop Council from resolving *not* to proceed with a councillor's recommendation. It might do so because the report contains insufficient explanation or background, or because Council decides for policy or technical reasons not to support the recommendation.

⁶⁰ Policy 1-0530-4, Provision of Information to Council.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

fiscal challenges with, or barriers to, a councillor's proposal.⁶¹ Any municipal council requires the advice and support of its expert staff to make good policy and legislative choices. A process that risks Council making a decision without the considered advice of staff, or without a sound evidentiary foundation and well-considered policy and legal analysis, is therefore not optimal.

The District's present approach could be modified to support councillors in advancing their policy proposals while protecting the community's interest in Council pursuing a coherent policy vision, and proceeding with proposals that benefit from fulsome evidentiary, policy analysis and legal analysis by District staff. This balance can be struck through amendments along the lines of the approach outlined below, noting that a good many of those interviewed, both Council members and senior staff, supported sensible changes in this area.⁶² It should also be noted that the proposed changes would be consistent with the District's Code of Ethics, which provides as follows:

13. Policy Role of Members

Members shall respect and adhere to the council-Chief Administrative Officer structure of government as practiced in the District of North Vancouver. In this structure, the Council determines the policies of the District with the advice, information and analysis provided by the public, committees, and District staff.

Modified Approach for Reports to Council

The first step in a new process would be to enable staff input early in the process. If a councillor wished to propose a new or amended bylaw, policy, program or activity,⁶³ the councillor would prepare a brief proposal outline and discuss it with the appropriate District general manager.⁶⁴ The general manager would inform the Chief Administrative Officer, who could discuss it with the councillor where desirable. These discussions would support councillors—and Council—by assessing at an early stage whether proposals are within the District's legal authority and whether they are feasible given the District's fiscal and

⁶¹ This case offers an example of this challenge. At Council's October 28, 2019 consideration of the bylaw, Councillor Curren asked staff about the approach other local governments have taken to the keeping of pigeons. The General Manager, Planning, Properties and Permits, responded that staff had not done a "full scan", though he was able to offer general observations about how other local governments approach animal-related issues. Councillor Curren indicated that she would have preferred to have more information about the issue.

⁶² If the procedure bylaw is amended to adopt this recommendation, changes to District policy 1-0530-10, Staff Reports to Council, would likely also be necessary.

⁶³ One councillor thought that if a councillor's proposal was within the existing framework of bylaws, policies, and operations, the councillor should be able to initiate a proposal without following a process such as that proposed above.

⁶⁴ The District should consider whether this step should be mandatory for councillors—there is a very strong argument that it should be—or whether they are merely encouraged to follow it. A requirement that councillors take this first step would not (as noted below) stop them from seeking to add items to the Council agenda and it would considerably tighten up processes.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

operational resources. These discussions would, in other words, lead to early identification of proposals that are not viable from legal, technical or fiscal perspectives. It would be up to the councillor to decide whether to place the proposal on the Council agenda despite doubts about its viability.⁶⁵

If a proposal appears viable, the sponsoring councillor could place a brief yet sufficiently informative report on the Council agenda.⁶⁶ If Council supports the proposal it would direct staff to research it and bring forward a Council report, analyzing the policy and technical issues and offering options to Council. Council would direct staff to implement the option Council favours (e.g., directing staff to prepare a bylaw or bylaw amendment).

Staff would not write reports to Council for individual councillors. They would prepare reports only where Council has so directed. One benefit of this would be to minimize the risk of a perception among councillors, or the public, that staff are, by assisting individual councillors with their policy proposals, aligned with the councillors' policy views. This would, in other words, buttress the principle of public service neutrality.⁶⁷

In closing, it should be emphasized that such a process would not preclude councillors from seeking to add items to a Council meeting agenda, noting the process for agenda items under section 18 of the procedure bylaw.

Recommendation 10: The District should consider amending its procedure bylaw and relevant policies to enhance its processes for bringing matters to Council, as follows:

- (e) A councillor who wishes to propose a new bylaw, policy, program or activity (or an amendment), will discuss an outline of the proposal with the appropriate general manager, and the Chief Administrative Officer will be kept informed and may participate in that discussion,***
- (f) If the proposal appears to be viable from a legal, technical and fiscal perspective, the councillor may place a report to Council on the agenda,***
- (g) If Council supports the proposal, it will direct staff to study the proposal in more depth and bring forward options for action, in a fully considered staff report to Council,***

⁶⁵ Of course, Council would almost certainly ask staff for their advice in these cases. A variation on this approach might be to formalize staff advice where a councillor chooses to proceed despite staff, with Council receiving the staff advice, to inform it of the legal, operational or fiscal considerations.

⁶⁶ These reports could have staff input on a case-by-case basis, but the District will want to consider carefully how this might be controlled, as it clearly could have implications for staff resources. This aspect of a new approach could be tied into the recommendations below about clarifying the policy on councillor requests to staff for information.

⁶⁷ For clarity, this review disclosed no basis for believing that District staff are anything other than appropriately neutral in their work. The issue is solely one of possible perceptions to the contrary: the approach proposed here would help counter any such perceptions.

*(h) Council will direct staff to pursue the option it considers desirable.⁶⁸
If the District implements this recommendation, it should ensure that the new policy is aligned with existing District policy on staff providing information to councillors, on staff reports to Council, and on provision of information to Council.*

Councillor Requests to Staff for Information and Support

The District should also consider clarifying its policy on councillors seeking information from staff.⁶⁹

At present, councillors may ask staff at any level in the organization for “routine information, facts and/or documents which are readily available, and the staff member is authorized to release” them. If the request is for information that is “sensitive”, “not readily available” or “requires interpretation of District policies or procedures”, it should be directed to “senior staff”.⁷⁰ Where senior staff are of the opinion that “preparation of the information requires substantial staff time or cost, the requesting Council member will be advised that a Council resolution directing that the requested information be provided is required.”

This policy implicitly requires less senior staff to alert more senior staff about an information request from a councillor, to enable senior staff to decide whether senior staff should respond or whether, because it would require substantial staff time or cost, requires Council direction is needed. This policy also relies on individual judgement about what qualifies as “routine” information or documents that are “readily available”, with no guidance on what these terms mean. Although it could admittedly be challenging to offer greater clarity, better guidance about which requests for information are “routine” and which are not, and about the classes of information and documents that are “readily available”, is desirable.

Either way, the District should consider establishing a coordinating function for such requests. The District has recently enhanced the support services available to councillors, building on the functions of what was known as the confidential clerk to councillors. That position could be tasked with tracking councillors’ requests for information, and informing relevant managers, who could step in where necessary. The District might also consider requiring all councillor requests to be made through this position, as opposed to that position having only a tracking function. Regardless of whether the tracking or centralized request version is adopted, this proposal would help senior staff identify requests that do or do not require their involvement or Council’s direction.

⁶⁸ This step is already addressed in District policy 1-10530-10, Staff Reports to Council.

⁶⁹ This is District policy 1-10530-8, Staff Handling of Individual Council Member Requests for Information.

⁷⁰ This term is elaborated as “Assistant Manager, Departmental Manager, Director or Municipal Manager depending on the nature of the request and the Council member’s preference”.

Recommendation 11: The District should consider amending its policy on councillors seeking information from staff, to clarify which information requests are routine and which are not. The District should also consider amending this policy to provide for centralized submission of councillor requests or, at the very least, centralized request tracking.

Councillor Requests for Internal Legal Advice

Another policy consideration that came to light arises from the District's current policy on councillors seeking legal advice from the Municipal Solicitor:

In all cases where an individual member of Council seeks a legal opinion from the Municipal Solicitor on matters concerning the operations of the District and that member's duties and responsibilities pertaining thereto, the Council member must first inform the Municipal Manager.⁷¹ The Solicitor's opinion will be circulated to all members of Council and the Manager for information.⁷²

The policy also provides that, to ensure the Chief Administrative Officer and Council are kept informed, copies of any written replies from the Municipal Solicitor are to be circulated to other Council members and the Chief Administrative Officer.

This obviously addresses cases where the Municipal Solicitor's advice is given in writing. It appears that councillors sometimes seek, and obtain, advice verbally. This makes it difficult to fulfil the letter and spirit of the policy on councillors seeking legal advice. On the other hand, enforcing the process that requires all councillor requests for legal advice to be submitted through the Chief Administrative Officer, or creating a policy that requires *all* advice to councillors to be written and then circulated, could have resource and efficiency implications. Accordingly, the only recommendation is that the District should consider whether the existing policy could be clarified (or amended substantively).

Recommendation 12: The District should review its policy on councillor requests for internal legal advice, to determine whether it should be clarified or amended.

⁷¹ The policy later states that the councillor must "orally...describe the main purpose of that enquiry".

⁷² Policy 6-2400-1, Consultation with Municipal Solicitor by Individual Council Members.

CONCLUSION

As contemplated by the terms of reference, this report has set out the circumstances leading up to adoption of the bylaw. In addition, although the review revealed no material concerns about how the District deals with matters addressed in this report, this report's main message is that, as always, the inevitable clarity of hindsight offers opportunities for the District to learn from experience and enhance how things are done. My recommendations are offered in that spirit.

APPENDIX 1
Terms of Reference

DISTRICT OF NORTH VANCOUVER
BYLAW PROCESS REVIEW
TERMS OF REFERENCE
December 5, 2019

BACKGROUND

On November 4, 2019, the mayor and council of the District of North Vancouver (District) adopted Bylaw 8402. When it comes into force on May 1, 2020, Bylaw 8402 will ban the keeping of pigeons in the District.

Concerns have been expressed by members of the public and council members about how Bylaw 8402 was proposed and adopted. Questions have been raised about the role of some councillors in their consideration of and voting for Bylaw 8402. Questions have also been raised about the ethics and conflict of interest training and resources available to mayor and council.

At its November 25, 2019 meeting, council directed the chief administrative officer to secure an independent review of matters surrounding the adoption of Bylaw 8402.

This document sets out the objectives of the independent review and outlines key steps of the review.

OBJECTIVES

In light of this background, the independent reviewer is to review the following:

1. In relation to Bylaw 8402 specifically, the actions of Council as a whole, and of individual councillors, in relation to the proposing and adoption of that bylaw;
2. In relation to bylaws generally, the policies and processes in place for how members of Council may propose bylaws or amendments;
3. Awareness on the part of council, and individual council members, about their respective conflict of interest and ethical obligations, and the training and supports available to understand these obligations, in relation to the proposing and adoption of Bylaw 8402 and generally;
4. District policies, bylaws and other materials that the reviewer considers appropriate in relation to the above matters, including the District's Code of Ethics.

Review of Adoption of District of North Vancouver Bylaw 8402, 2019

PROCESS STEPS

The reviewer will review all materials that he considers appropriate and the District will promptly make all requested materials available to the reviewer. These include all bylaws, policy and procedure materials, communications of any kind related to the above matters and media reports.

The reviewer will also conduct in-person and telephone interviews with council members and District employees as the reviewer considers appropriate and the District will use best efforts to make all such individuals available for interview.

OUTCOMES

The reviewer will prepare a report to the District's chief administrative officer setting out the reviewer's findings of fact and recommendations about matters described above. The recommendations may include, for example, any recommended enhancements in relation to the manner in which bylaws are proposed for council's consideration and adopted or in relation to ethics, conflict of interest and freedom of information and privacy matters.

The reviewer will deliver the final report to the District's chief administrative officer before February 15, 2020.

APPENDIX 2
List of Individuals Interviewed

These individuals were interviewed:

Elected Officials

Mike Little, Mayor
Mathew Bond, Councillor
Jordan Back, Councillor
Megan Curren, Councillor
Betty Forbes, Councillor
James Hanson, Councillor
Lisa Muri, Councillor

District Staff

David Stuart, Chief Administrative Officer
Charlene Grant, General Manager, Corporate Services
Dan Milburn, General Manager, Planning, Properties & Permits
Jim Gordon, Manager, Administrative Services/Municipal Clerk
Richard Parr, Municipal Solicitor
Carol Walker, Chief Bylaw Officer