# Apex - Clearview

## FIRESMART COMMUNITY ASSESSMENT REPORT

Prepared for:
Regional District of Okanagan Similkameen

NOVEMBER 2020

Brandy Maslowski
FRONTLINE OPERATIONS GROUP, LTD. | 11510 UPPER SUMMIT DRIVE, COLDSTREAM BC V1B 2B4

# Summary of Recommendations

The FireSmart program provides detailed guidelines and recommendations to reduce home ignition potential during a wildfire. The recommendations made in this report must be considered *in addition* to those contained in the FireSmart *Protecting Your Community from Wildfire* manual.

## APEX – CLEARVIEW FIRESMART RECOMMENDATIONS:

### FireSmart Neighbourhood

1. Create a local FireSmart Board
2. Establish Community Contact List (means of communication)
3. Create FireSmart plan for years 1-3 and form a planning committee
4. Educate the community - Public Presentation and dissemination of educational materials
5. Plan a community FireSmart Event
6. Attain FireSmart Community Recognition and renew annually

### Vegetation Management

1. Remove all ladder fuels (i.e. low-lying branches) within 2m reach of the ground or to max. of 50% for shorter trees.
2. Remove all branches in contact with the home.
3. Increase spacing between conifers – preferably to 3m. If possible, if would be best to remove all conifers within 10m of the home. Residents should work progressively from Zone 1 (0-10m) through to Zone 2 (10-30m) and Zone 3 (30-100m).

### Structural Options

1. Remove or store appropriately all combustibles in Zone 1 – including personal items such as trailers, recreational vehicles, tools, building materials, etc.
2. Apply FireSmart principles to any outbuilding within 15m of a structure.
3. Remove firewood stacks from Zone 1 during times of wildfire threat.
4. When away for lengths of time during high wildfire threat, consider items such as rattan door mats, flammable patio furniture, children's toys, trash cans, BBQs, etc. as combustibles and store away.
5. Sheath in the undersides of porches, decks and balconies where wildfire embers can accumulate.
6. Screen vents and openings with corrosion resistant 3-millimetre wire mesh.
7. Maintain clean roofs and gutters or install gutter leaf and debris guards.

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# 1.0 Introduction

The FireSmart approach is designed to provide an effective management approach for preserving wildland living aesthetics while reducing community ignition potential during a wildland urban interface (WUI) fire. The program can be tailored for the adoption by any community and/or neighborhood association that is committed to ensuring its citizens maximum preparation for wildland fire. The following Community Assessment Report (CAR) is intended to be a resource for residents of Apex - Clearview for carrying out the recommendations and actions.

The CAR was developed by a trained Local FireSmart Representative (LFR). This assessment addresses the wildfire-related characteristics of Apex - Clearview. It examines the area's exposure to wildfire as it relates to ignition potential. The assessment does not focus on the specific homes but examines the community as a whole.

Funding for the Apex - Clearview FireSmart project was provided through the Community Resiliency Investment program and was provided by the Union of BC Municipalities. The grant enabled the Regional District of Okanagan Similkameen (RDOS) to retain the services of Frontline Operations Group to conduct the project.

Community assessment was carried out on June 5, 2020.

# 2.0 Definition of Ignition Zone

Apex - Clearview is located in a wildfire environment. The wildland areas surrounding the community are typical ecosystems that have developed, historically, from frequent low intensity fires. With the introduction of modern forest protection policies, the typical fire cycle has been interrupted thus contributing to a host of cascading ecological effects including the buildup of forest fuels.

Wildfires will continue to occur in this region – wildfire exclusion is not a viable choice. In 2018 the province of British Columbia was subjected to one of the worst fire seasons in its history. Over 1.35 million hectares were burnt and around 66 evacuations were ordered, affecting 2,211 properties.

During a wildfire, a house burns because of its relationship with everything in its surrounding home ignition zone. To avoid a home ignition, a homeowner must eliminate the wildfire's potential relationship with their house. This can be accomplished by interrupting the natural path a fire takes by clearing fuel from the home ignition zone. To accomplish this, flammable material such as excessive vegetation and flammable debris must be removed from the areas surrounding the structure. This will prevent ignition of fuel sources in proximity of the structure and prevent direct flame contact with the home. Reducing the volume of fuels and reducing a fire's ability to spread into the tree canopy can help to lower the intensity of the wildfire as it nears the home.

Included in this assessment are observations made while visiting Apex – Clearview. The assessment addresses the ease with which home ignitions can occur under severe wildfire conditions and how these ignitions might be avoided within the home ignition zones of affected residents. Apex - Clearview residents can reduce the risk of structure loss during a wildfire by taking actions within their home ignition zones – which includes a house and its immediate surroundings within 100 metres (Figure 1).

Given the extent of these zones, the ignition zones of several homes sometimes overlap, and often spill over onto adjacent public or community land.

The results of the assessment indicate that wildfire behavior and subsequent losses will be dominated by the residential characteristics of this area. The good news is that residents will be able to substantially reduce their exposure to loss by addressing community vulnerabilities. Relatively small investments of time and effort will reap great rewards in wildfire safety.

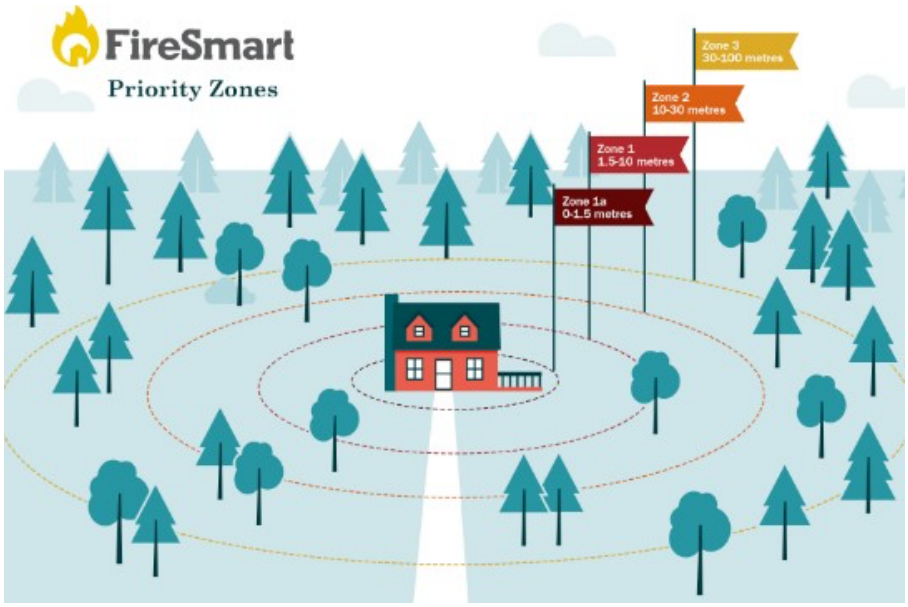


*Figure 1 FireSmart Canada utilizes the concept of priority zones surrounding a home to help residents prioritize their hazard reduction efforts. A home's immediate surroundings (Zones 1 and 1a) are of immediate concern to the homeowner and should be targeted aggressively to reduce ignition hazards to the home.*

## 3.0 Description of the Fire Environment

Wildland fire behavior is influenced by the interaction of three broad environmental factors: fuel, weather and topography. Collectively these factors describe the fire environment and determine the intensity and rate of spread of a wildland fire. A working knowledge of the factors that characterize the fire environment is helpful for building an awareness of hazard mitigation at the site level.

### 3.1 Fuels

In the context of wildland fire, fuel refers to the organic matter involved in combustion. In Canada, wildland fuels are classified into 16 fuel types within the Canadian Forest Fire Behavior Prediction (FBP) System. The FBP system is informed by the Canadian Forest Fire Danger Rating System (CFFDRS), which is the primary tool to obtain predictive wildfire management intelligence used by agencies across Canada.

When dealing with the wildland urban interface environment fuel can extend beyond the surrounding vegetation. Fuels can include a structure's composition, neighbouring buildings, vehicles and other combustible materials found around the home.

### 3.1.1 Fuel Layers

The structure and arrangement of fuels are described in terms of their horizontal and vertical continuity within three broad layers of the fuel complex – ground fuels, surface fuels and canopy (or aerial) fuels (Figure 2). Ground fuels occupy the *duff layer* and the uppermost portions of the soil mineral horizon. In general terms, the duff layer is comprised of decomposing organic material and is found beneath the litter layer and above the uppermost soil mineral horizon (A-horizon). The components of the duff layer lack identifiable form due to decomposition (as opposed to the *litter layer*, which is composed of identifiable material).

The surface fuel layer begins above the duff layer and extends 2m vertically. Surface fuels are characterized by the litter layer (leaves, needles, twigs, cones, etc.) as well as plants and dead woody material up to a height of 2m. In some cases, surface fuels may act as *ladder fuels* that can carry fire from the surface fuel layer into the canopy layer.

Canopy fuels are the portions of shrubs and trees that extend from 2m above the duff layer, upwards to the top of the fuel complex. Certain tree species, such as several spruce species (Picea sp.) are characterized by branches extending down to the forest floor, whereby these lower branches act as ladder fuels. Other species, particularly those found in drier, fire-maintained ecosystems, such as Ponderosa pine, lack these ladder fuels and form a distinct separation between the surface fuel layer and canopy fuel layer.

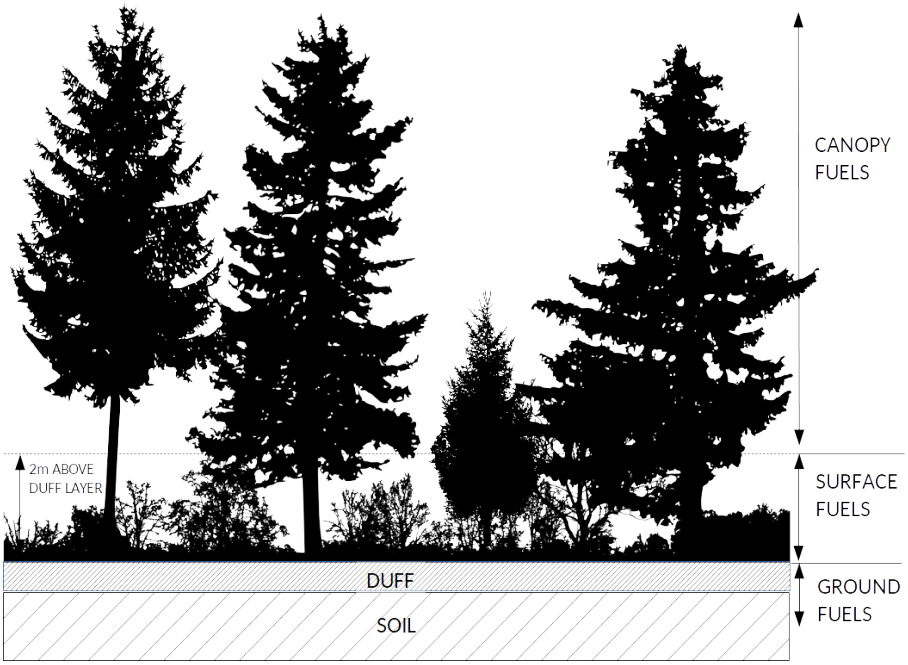


*Figure 2 Wildland fuels can be described within three broad fuel layers: Ground fuels, surface fuels (to a height of 2m above the duff layer), and canopy fuels. Canopy fuels are also referred to as aerial fuels*

### 3.1.2 Fuel Size

Wildland fuel can be further described in terms of relative size – so called *fine fuels* and *coarse* or heavy fuels. Fine fuels include leaves and conifer needles, grasses, herbs, bark flakes, lichen, twigs etc. Large branches, downed logs and other large woody material are considered coarse or heavy fuels. Fine fuels have a higher surface area to volume ratio than coarse fuels, and this characteristic influences the rate of drying and ease of ignition.

With a higher surface area to volume ratio than course fuels, fine fuels are more readily influenced by changes in environmental conditions (e.g. relative humidity, wind, precipitation etc.). As well, dead fine fuels react to changes in environmental conditions at a relatively faster rate than green (i.e. live) fine fuels.

When available to burn, fine fuels ignite more easily and spread fire faster than coarser fuels. This characteristic makes fine fuels particularly susceptible to ignition from firebrands (or embers). Additionally, fine fuels are more susceptible to becoming firebrands – mobile ignition sources – as they are lighter and more easily made airborne. Finally, fine fuels take a shorter time to burn out than coarser fuels.

## 3.2 Weather

Weather conditions affect the moisture content of wildland fuels and influence the rate of spread and intensity of a wildland fire. Weather is the most dynamic element of the fire environment and the most challenging to assess and forecast. There are four main components of weather to consider when discussing wildland fire behavior: wind, temperature, relative humidity and precipitation.

### 3.2.1 Wind

Wind speed and direction influences the rate and direction of spread of a wildland fire. The application of wind on open flame has the effect of tilting the flame away from the wind, and, in the case of wildland fire, placing the flame into closer proximity (or contact) with downwind fuels, thus contributing to fire spread.

Wind can also contribute to a preheating effect on fuel immediately downwind from open flame. Wind hastens the drying process of exposed fuel, with the rate of drying being a function of the surface area to volume ratio. Having a relatively higher surface area to volume ratio, fine fuel moisture content is affected to a greater degree by wind when compared to coarse fuel.

Lastly, wind can also contribute to spotting. Burning material (i.e. firebrands) can be lofted into the air and deposited onto unburned fuels, resulting in a spot fire. The spotting distance is dependent on a number of factors, including fire intensity, windspeed and direction, and the ease of ignition of the new fuel bed.

### 3.2.2 Temperature and Relative Humidity

Relative humidity is the ratio, in percent, of the amount of moisture in a parcel of air to the total amount which that parcel can hold at the given temperature and atmospheric temperature.
If the parcel of air is warmed, the volume of air correspondingly increases, in turn increasing the capacity of the parcel to hold moisture, resulting in a decrease in the relative humidity of the parcel of air. Conversely, if the parcel of air is cooled, the volume of air decreases, as does the moisture-holding capacity, resulting in an increase in the relative humidity of the parcel of air.

$$rH = \frac{\text{Amount of moisture currently in the air}}{\text{Amount of moisture air can hold}} \times 100$$

The moisture content of wildland fuel is constantly seeking to equalize with moisture content of the surrounding air. This effect is most pronounced in dead fuel. When the relative humidity is high, dead fine fuels will readily absorb moisture from the air and conversely, when the relative humidity is low, dead fine fuels will readily give up moisture to the air.

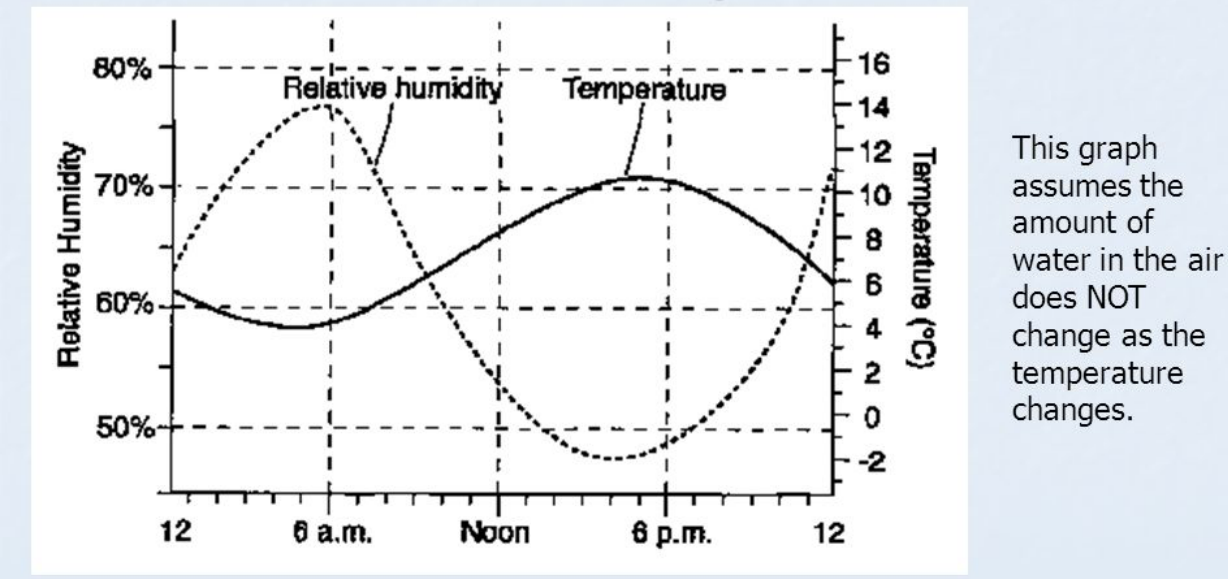


*Figure 3 shows the relationship between temperature and relative humidity, as temperatures increase and the overall water content in the air does not change, relative humidity decreases. This affects fire behavior through the increased drying of fuels*

### 3.2.3 Precipitation

The effect of moisture on wildland fuel is dependent on the size and state of the fuel. The moisture content of dead fine fuel is highly reactive to changes in relative humidity, precipitation and wind. Fine fuels require less precipitation to reach saturation than coarse fuels, and in turn, dry out at a faster rate.

Precipitation's arrival in the form of thunderstorms can inadvertently increase fire behavior, even if for short time. Thunderstorms can generate large influxes in wind through in and out flows, and downdrafts which have adverse effects on fire behavior.

## 3.3 Topography

In the context of the fire environment, topography refers to the shape and features of the landscape. Of all the topography factors in fire behavior, the primary importance for an understanding of fire behavior is slope. When all other factors are equal, a fire will spread faster up a slope than it would across flat ground. When a fire burns on a slope, the upslope fuel particles are closer to the flame compared to the downslope fuels. This pre-heating effect on upslope fuels contributes to fast upslope fire spread. As well, hot air rising along the slope tilts the flame uphill which further increasing the ease of ignition of upslope fuels.

Topography influences fire behavior principally by the steepness of the slope. However, the configuration of the terrain such as narrow draws, saddles and so forth can also influence fire spread and intensity. Slope aspect (i.e. the cardinal direction that a slope faces) determines the amount and quality of solar radiation that a slope will receive, which in turn influences plant growing conditions and drying rates.

# 4.0 Site Description

The Apex community is located in the south Okanagan approximately 35km southwest of Penticton, BC. It is a local ski resort community, located adjacent to Beaconsfield Mountain. The community is accessible by one access and egress point at the junction of Apex Mountain Rd. and Green Mountain Rd.

Apex – Clearview includes 36 properties, some with outbuildings. The neighborhood is located in the northeast portion of the community and is surrounded by rising slopes.

All structures feature a variety of ember accumulator features such as complex roof shapes, deck configurations and open (unsheathed) deck constructions and open carports. Lots are of varying sizes but mostly similar size and configuration with homes are separated from each other by 10-20m. Some of the natural vegetation on the properties has been retained with additions of planted trees, hedges and ornamental plants.

## 4.1 Fuel Type

Classifying fuel complexes in British Columbia according the FBP fuel types is an imperfect process, given the diversity of ecosystems in the province in comparison to the rest of Canada. When considering FBP fuel types for a particular fuel complex, the actual species composition is of less importance than the overall stand structure characteristics. In the Apex - Clearview area, the most appropriate FBP fuel type(s) are:

### 4.1.1 C3 Fuel Type*

This fuel type is characterized by pure, fully stocked (1000–2000 stems/ha) jack pine (*Pinus banksiana* Lamb.) or lodgepole pine (*Pinus contorta* Dougl. ex Loud.) stands that have matured at least to the stage of complete crown closure. The base of live crown is well above the ground. Dead surface fuels are light and scattered. Ground cover is feather moss (*Pleurozium schreberi*) over a moderately deep (approximately 10 cm), compacted organic layer. A sparse conifer understory may be present.

### 4.1.2 C4 Fuel Type*

This fuel type is characterized by pure, dense jack pine (*Pinus banksiana* Lamb.) or lodgepole pine (*Pinus contorta* Dougl. ex Loud.) stands (10,000–30,000 stems/ha) in which natural thinning mortality results in a large quantity of standing dead stems and dead downed woody fuel. Vertical and horizontal fuel continuity is characteristic of this fuel type. Surface fuel loadings are greater than in fuel type C3, and organic layers are shallower and less compact. Ground cover is mainly needle litter suspended within a low shrub layer (*Vaccinium* spp.).

**Excerpts taken from the CFFDRS FBP*

## 4.2 Fire Weather

Apex - Clearview is located at an elevation of approximately 1700m (~5500ft). The community is likely to see generally cooler weather in the summer when compared to Penticton, BC, as well as more snow in the winter. Temperatures typically drop 3°C for every 1000ft (~300m) of elevation gain.

## 4.3 Topography

The Apex – Clearwater neighborhood is surrounded by slopes on all sides. Wildfire in this environment would likely run upslope, as fire trends towards upslope growth (see section 3.3). However, this type of wildfire growth can lead to increased wildfire behaviour resulting in firebrand (ember) production. These firebrands can be dangerous ignition sources that result in the damage or loss of homes that have not received FireSmart mitigations.

## 4.4 Local Wildfire History

Within a 2km radius from the neighborhood, there has been 6 wildfires since 1953. All of which have been under 0.1ha in size, and with the exception of one, been lightning caused. The most recent notable wildfires within the Apex Mountain area were both in 2014, Boot Hill (101ha) and Apex Mountain (345ha). Apex Mountain fire resulted in evacuation alerts.

# 5.0 Assessment Process

The Apex - Clearview community was assessed by Local FireSmart Representative, Brandy Maslowski, on June 5, 2020. The community and adjacent vegetation within a least a 100m radius were assessed and observations were recorded using the FCCRP Community Hazard Assessment Form (see Appendix 3). The assessment process noted a number of attributes that contribute both negatively and positively towards the risk of property damage/loss due to a wildfire event.

The objective of the project was to educate homeowners on the use of the FireSmart Site and Structure Hazard Assessment Form to help identify and prioritize hazards as they relate to wildland fire and their homes. The community formed a FireSmart Board and is currently seeking FireSmart recognition status for 2020. They have created a FireSmart Plan, held a community event on July 11, 2020, tracked

volunteer hours, and all paperwork has been submitted to FireSmart BC and subsequently FireSmart Canada for Community Recognition.

# 6.0 Observations and Issues

The following observations were noted during the community wildfire hazard assessment. See Appendix 3 to view the entire community wildfire hazard assessment form and notations.

## 6.1 Roof Assemblies

A mix of roofing materials in use. Roofing materials observed include ULC rated materials (mainly asphalt), 3 tin roofs as well as at least one home with wood shakes. No roofs were observed with accumulated combustible debris. The fire resistance of most roofing materials is reduced when accumulated debris burn on the roof's surface.

## 6.2 Building Exteriors

A broad range of siding materials were observed, including wood, stucco, vinyl and cement board. Multiple homes had decorative cedar shakes as a partial siding. A recommendation for homes that cannot re-side the entirety of the home is to consider creating a 15cm ground to siding clearance using a non-combustible or fire resilient material. Eave conditions were not observed.

## 6.3 Nearby Combustibles

Mainly patio furniture and picnic furniture. Fences are not prevalent in this community. During fire season, store firewood at least 10m from the building. When choosing outdoor furniture, consider the flammability, particularly when in close proximity to the house during the summer months. During times when home owners are away from their homes for a length of time during the summer (i.e. vacation) it is recommended that this furniture is stored away.

## 6.4 Vegetation

Apex – Clearwater is primarily surround by lodgepole pine stands, with the additional presence of spruce and balsam. Within the PZ-1 (0-10m) there is no notable prevalence of bark mulch or coniferous ornamental plans (i.e. juniper and/or cedar hedges). Homes, however, are well established within the natural tree line. Majority of the forest stand contains untreated ladders fuels and dense crown. Attention should be given to reducing ladder fuels and increasing the space between trees or groups of trees to avoid wildfire spread up and through the crown.

# 7.0 Recommendations

FireSmart seeks to create a sustainable balance that will allow communities to live safely while maintaining environmental harmony in a wildland urban interface (WUI) setting. Homeowners already balance their decisions about fire protection measures against their desire for certain flammable components on the properties. It is important for them to understand the implications of the choices

they're making. These choices directly relate to the ignitability of their home ignition zones during a wildfire.

A homeowner/community must focus attention on the home and surrounding area and take action to eliminate a wildfire's potential relationship with the house. This can be accomplished by disconnecting the house from high and/or low-intensity fire that could occur around it, and by being conscious of the devastating effects of wind driven embers.

The following section of this report provides recommendations for consideration by the Apex - Clearview community concerning wildfire safety issues that were identified as priorities during the assessment:

### FireSmart Neighbourhood

1. Create a local FireSmart Board
2. Establish Community Contact List (means of communication)
3. Create FireSmart plan for years 1-3 and form a planning committee
4. Educate the community - Public Presentation and dissemination of educational materials
5. Plan a community FireSmart Event
6. Attain FireSmart Community Recognition and renew annually

### Vegetation Management

1. Remove all ladder fuels (i.e. low-lying branches) within 2m reach of the ground or to max. of 50% for shorter trees.
2. Remove all branches in contact with the home.
3. Increase spacing between conifers – preferably to 3m. If possible, if would be best to remove all conifers within 10m of the home. Residents should work progressively from Zone 1 (0-10m) through to Zone 2 (10-30m) and Zone 3 (30-100m).

### Structural Options

1. Remove or store appropriately all combustibles in Zone 1 – including personal items such as trailers, recreational vehicles, tools, building materials, etc.
2. Apply FireSmart principles to any outbuilding within 15m of a structure.
3. Remove firewood stacks from Zone 1 during times of wildfire threat.
4. When away for lengths of time during high wildfire threat, consider items such as rattan door mats, flammable patio furniture, children's toys, trash cans, BBQs, etc. as combustibles and store away.
5. Sheath in the undersides of porches, decks and balconies where wildfire embers can accumulate.
6. Screen vents and openings with corrosion resistant 3-millimetre wire mesh.
7. Maintain clean roofs and gutters or install gutter leaf and debris guards.

## 8.0 Successful FireSmart Mitigations

When adequately prepared, a house can likely withstand a wildfire without the intervention of the fire service. Further, a house and its surrounding community can be both FireSmart and compatible with the area's ecosystem. The FireSmart Communities program is designed to enable communities to achieve a high level of protection against wildfire loss even as a sustainable ecosystem balance is maintained.

With the exception of major fuel removal on larger properties and roof or deck replacement, most FireSmart hazard mitigations around the home can inexpensive and straightforward. In many ways, hazard mitigation and spring yard work go together and can be scheduled over time. Small consistent FireSmart work can make a big difference in whether a home will survive during a WUI fire. This community has a strong, active and forward-thinking Fire Department who embraces the FireSmart principles and continually brings events and messaging to the community. They have a cooperative shared tools program at the Fire Department that residents can use and have made a commitment to continue supporting the residents in their local continued FireSmart work.

## 9.0 Next Steps

The recommendations and FireSmart guidelines noted above are proven and time-tested to be effective in reducing the risk of wildfire losses. It is believed that there is great potential for the community and its residents to work together to reduce the wildfire threat quickly and substantially by acting to mitigate priority issues.

The Apex – Clearview community has sought recognition status for 2020 and are encouraged to continue to follow the required steps for annual FireSmart renewal:

FireSmart Neighbourhood

1. Maintain the current local FireSmart Board
2. Use the Neighbourhood Contact List to share consistent messaging
3. Update the FireSmart plan each year and hold several planning meetings
4. Educate the community - presentation and dissemination of educational materials
5. Plan an annual community FireSmart Event
6. Renew FireSmart Neighbourhood Recognition annually

## 10.0 Signature of Local FireSmart Representative

| Signed: | Date signed: | |
|---|---|---|
| | | |
| | | |

## APPENDIX 1: Resources

- FireSmart Canada
  https://www.firesmartcanada.ca

- FireSmart British Columbia
  https://firesmartbc.ca

- FireSmart Begins at Home Assessment
  https://firesmartbc.ca/wp-content/uploads/2019/07/FireSmart-Home-Assessment.pdf

- FireSmart Canada Community Recognition Program (FCCRP)
  - Program information
    https://firesmartbc.ca/resource/how-to-apply-for-the-firesmart-canada-community-recognition-program-fccrp/

  - Application form
    https://firesmartbc.ca/wp-content/uploads/2019/01/FCCRP-Application-Form-1.pdf

- FireSmart Guide to Landscaping
  https://www.firesmartcanada.ca/mdocs-posts/firesmart-guide-to-landscaping/

- FireSmart Videos
  - Fire Smart Home Development Guide
    https://www.youtube.com/watch?v=5k7HDONAW1M&t=2s

  - FireSmart Home Ignition Zone
    https://www.youtube.com/watch?v=k0ClodnHp2c&t=1s

## APPENDIX 2: Glossary of Terms

| | |
|---|---|
| AOI | Area of Interest – the area of study; in terms of FireSmart, encompasses all homes and properties included within the neighbour |
| Aspect | Cardinal direction (North, South, East, West) of the slope face |
| CAR | Community Assessment Report – report prepared by the LFR evaluating issues contributing to community ignition potential and making recommendations for mitigation |
| CFFDRS | Canadian Forest Fire Danger Rating System – a national system for rating the risk of forest fires in Canada |
| Conifer | Tree, shrubs and plants that bears cones and needle-like or scale-like leaves that are typically evergreen; softwood and contain resins and turpentine |
| Danger Class | A rating system for expected wildfire behaviour based on the likelihood of ignition, expected rate of spread and availability of fuels; rated from low to extreme |
| Deciduous | Tree, shrubs and plants with leaves that shed during the fall and winter, typically hardwood and potentially will flower |
| Duff Layer | Decomposing organic material, found beneath the litter layer and above the uppermost soil mineral horizon (A-horizon) |
| Ember | Layman's term for *Firebrand* |
| Ember Accumulator | Any feature within the Home Ignition Zone that can collect embers or firebrands during a wildfire event |
| FBPs | Fire Behaviour Prediction Systems – provides quantitative estimates of potential head fire spread rate, fuel consumption, and fire intensity, as well as fire descriptions |
| FCCRP | FireSmart Canada Community Recognition Program |
| Firebrand | Flaming or glowing fuel particles that can be carried naturally by wind, convection currents, or by gravity into unburned fuels |
| FireSmart Board | The group of volunteers responsible for implementing the FCCRP in their community |
| FireSmart Plan | Name of the simple action plan prepared by the FireSmart Community Board in response to the FireSmart Community Assessment Report accepted by them |

| | |
|---|---|
| Fuels | *Ground Fuels* – occupy the duff layer and the uppermost portions of the soil mineral horizon<br><br>*Surface Fuels* – begins above the duff layer and extends 2m vertically; characterized by the litter layer (leaves, needles, twigs, cones, etc.) as well as plants and dead woody material up to a height of 2m<br><br>*Canopy fuels* – the portions of shrubs and trees that extend from 2m above the duff layer, upwards to the top of the fuel complex; also referred to as *Aerial Fuels* |
| Hazard | *In terms of FireSmart*, any ignition source that may result in wildfire ignition or contribute to increased wildfire behaviour |
| Home Ignition Zone | Four concentric zones – non-combustible and zones 1-3 – that include the home and its surroundings up to 100m; each zone has its own recommended FireSmart guidelines |
| Ladder Fuels | Fuel that provides vertical continuity between surface fuel and canopy fuel strata, increasing the likelihood that fire will carry from surface fuel into the crowns of shrubs and trees |
| LFR | Local FireSmart Representative – a FireSmart knowledgeable person that has completed the LFR workshop training and facilitates implementation of the FCCRP by local residents |
| Litter Layer | A layer of leaves, needles, fine twigs, and other organic material on the forest or grassland floor that has undergone little or no decomposition. |
| Mitigation | The action of reducing the severity or seriousness of something |
| Rate of Spread | The growth of a wildfire measured in time and distance |
| Spotting | Behaviour of a fire that produces firebrands that are transported by ambient winds, fire whirls, and/or convection columns causing spot fires ahead of the main fire perimeter |
| Wildfire Behaviour | The manner in which a fire reacts to its fire environment (topography, weather, and fuels) |
| Wildfire Community Hazard Assessment Form | A wildfire hazard assessment form created by FireSmart Canada used by the LFR to record observations and hazards seen |
| Wildfire Intensity | The amount of energy or heat release per unit of time |
| WUI | Wildland Urban Interface – the zone of transition between wildland forest and human development |

# APPENDIX 3: FCCRP COMMUNITY WILDFIRE HAZARD ASSESSMENT FORM

This Community Wildfire Hazard Assessment form provides a written evaluation of the overall community wildfire hazard – the prevailing condition of structures, adjacent vegetation and other factors affecting the FireSmart status of a small community or neighbourhood. This hazard is based on the **hazard factors** and **FireSmart recommended guidelines** found in **FireSmart: Protecting Your Community from Wildfire** (Partners in Protection, 2003) and will assist the Local FireSmart Representative in preparing the FireSmart Community Assessment Report. **NOTE: Mitigation comments refer to the degree to which the overall community complies or fails to comply with FireSmart recommended guidelines with respect to each hazard factor**

| **Community Name: Apex - Clearview (36 plots)** | | **Date: Friday, June 5, 2020** |
|---|---|---|
| **Assessor Name: B. Maslowski** | | **Accompanying Community Member(s): G. Lindsay & K. Johnston** |
| **Hazard Factor** | **Ref** | **Mitigation Comments** |
| **1. Roof Assemblies** | | |
| a. Type of roofs<br>ULC rated (metal, tile, asphalt, rated wood shakes) unrated (unrated wood shakes) | 2-5<br>3-21 | A mix of roofing materials in use. Roofing materials observed include ULC rated materials (mainly asphalt), 3 tin roofs as well as at least one home with wood shakes. |
| b. Roof cleanliness and condition<br>* *Debris accumulation on roofs/in gutters; curled damaged or missing roofing material; or any gaps that will allow ember entry or fire impingement beneath the roof covering* | 2-6 | No roofs were observed with accumulated combustible debris. The fire resistance of most roofing materials is reduced when accumulated debris burns on the roof surface. Gutter accumulations were not able to be observed. |
| **2. Building Exteriors** | | |
| 2.1 Materials | | |
| a. Siding, deck and eaves | 2-7<br>2-8<br>2-9 | A broad range of siding materials were observed, including wood, stucco, vinyl and cement board. Multiple homes had decorative cedar shakes as partial siding. Eave conditions were not observed. |
| b. Window and door glazing (single pane, sealed double pane) | 2-10 | Window construction can be difficult to assess at the community level. However, given the age and characteristics of the homes in the community, it can be assumed that most windows are double pane, which provide at least moderate protection. Regarding windows, focus vegetation management or removal within 10m of windows and glass doors, paying particular attention to fuels that could impinge on large picture windows. |
| c. Ember Accumulator Features (scarce to abundant)<br>* *Structural features such as open eaves, gutters, unscreened soffits and vents, roof valleys and unsheathed crawlspaces and under-deck areas* | | Scarce. Any exposure is attributed to under-deck areas and deck board surfaces. For under-deck areas, remove combustible accumulations that could be ignited by embers. If able to do so, enclose or at minimum screen, ember accumulator features. Screening should consist of corrosion-resistant, 3mm non-combustible wire mesh. |
| d. Nearby Combustibles – firewood, fences, outbuildings | 2-11 | Mainly patio or picnic furniture. Fences are not prevalent in this community. During fire season, store firewood at least 10m from the building. When choosing outdoor furniture, consider the flammability, particularly when in close proximity to the house during summer months. |

| Hazard Factor | Ref | Mitigation Comments |
|---|---|---|
| **3. Vegetation** | | |
| 3.1 **PZ-1:** Vegetation - 0 - 10m from structure **Page Reference 3-5** | | |
| a. Overstory forest vegetation (treated vs. untreated) | 2-14 | On the east flank slope the overstory in the PZ-1 is predominantly pine and spruce. Some homes are completely nestled in the well-established conifers and in most cases, these are presenting a fuel hazard to adjacent homes. |
| b. Ladder fuels (treated vs untreated) | 2-17 | Majority of ladder fuels in PZ-1 are attributed to mature pine that have branches extending down to ground level. Although these may be generally self-pruning, extensive mitigation and limb clearing would be of great benefit. |
| c. Surface fuels - includes landscaping mulches and flammable plants (treated vs untreated) | 2-16 | There is not a notable prevalence of bark mulch for landscaping ground cover or coniferous ornamental plants (e.g. juniper; cedar; and cypress). Most PZ-1 landscaping is kept natural to the surrounding environment. Pine and spruce are highly abundant or thick and often found immediately adjacent to buildings. Due to volatile compounds, as well as a form and structure these conifers are conducive to ignition and flaming combustion. |
| 3.2 **PZ-2:** Vegetation - 10 - 30m from structures **Page Reference 3-9** | | |
| a. Forest vegetation (overstory) treated vs untreated | 2-14 | Primarily pine and spruce. ALL UNTREATED. |
| b. Ladder fuels treated vs untreated | 2-17 | Majority of ladder fuels within PZ-2 are untreated. |
| c. Surface fuels treated vs untreated | 2-16 | PZ-2 is filled with dead and down. |
| 3.3 **PZ-3:** Vegetation - 30 - 100m from structures **Page Reference 3-13** | | Provide mitigation comments on the prevailing PZ3 fuel type |
| a. Light fuel - deciduous – grass, shrubs | 2-16 | Embers pose a hazard. Heavy fuel everywhere in PZ-3. |

| Hazard Factor | Ref | Mitigation Comments |
|---|---|---|
| b. Moderate fuel - mixed wood – light to moderate surface and ladder fuels, shrubs | 2-17 | Embers pose a hazard. Heavy fuel everywhere in PZ-3. |
| c. Heavy fuel - coniferous - moderate to heavy surface and ladder fuels, shrubs | 2-14 | Embers pose a hazard. Heavy fuel everywhere in PZ-3. Prevailing fuel types are a mixture of C2 Boreal Spruce, C3 Mature Jack or Lodgepole Pine and C4 Immature Jack or Lodgepole Pine. |
| d. Logging slash, dead/down fuel accumulations | 2-16 | Abundant dead/down fuel accumulations observed. This is prime decadent forest ready to go. |
| e. Diseased forest – without foliage vs with foliage | | Pine Beetle health factors were observed in surrounding forest areas but those areas have been logged. |
| f. Fuel islands within community - treated vs untreated | | Several fuel islands exist within the community including a strip in front of Clearview, an area around the skating loop and a patch between Clearview and Creekside. Even with fuel treatment, the wildfire behaviour threat will most likely remain high. |
| **4. Topography** | | |
| 4.1 Slope (within 100m of structures) | | |
| a. Slope - Flat or < 10 %, 10 – 30% or >30% | 2-19 | This area of Apex has slopes >40% which lend themselves to high fire spread potential. |
| 4.2 Buildings setback on slopes >30 %, position on slope Provide mitigation comments on items a – c as applicable | | |
| a. Setback from top of slope > 10m, or bottom of slope – valley bottom.<br>b. Buildings located mid-slope<br>c. Setback from top of slope <10m, or upper slope | 2-12 | Setback may be an issue in some cases such as below the Clearview residences. Lower east backing homes have 6M clearance. Careful attention should be given to downslope fuel accumulations, landscaping and any person-caused accumulations or dumping of combustibles downslope from structures that could contribute to upslope fire spread and increased fire intensity. |

| Hazard Factor | Ref | Mitigation Comments |
|---|---|---|
| **5. Infrastructure – Access / Egress, Roads, Driveways and Signage** | | |
| 5.1 Access Routes – Road Layout To FireSmart Recommended Guideline? | | |
| a. Single Road or Looped Road | 3-28 | Single access community with no secondary means of egress. |
| 5.2 Roads- width, grade, curves, bridges and turnarounds | | |
| a. To FireSmart Recommended Guideline? | 3-30 | There are two areas of concern: one being the last, most northerly turnaround and the sharp turn into Clearview. Both are not suitable for fire apparatus to maneuver a turn around. |
| 5.4 Fire Service Access / Driveways - Grade, Width/Length, Turnarounds | | |
| a. To FireSmart Recommended Guideline? | 3-30 | Ministry of Transportation & Infrastructure (MOTI) is responsible for the roadways. Driveway access is primarily inconsequential for fire response except for Clearview. |
| 5.5 Street Signs / House Numbers | | |
| a. To FireSmart Recommended Guideline? | 3-30 | No, The addressing system is not ideal - confusing. Those numbers that are in place are often hard to see, especially at night. |
| **6. Fire Suppression - Water Supply, Fire Service, Homeowner Capability** | | |
| 6.1 Water Supply | | |
| a. Fire Service water supply – hydrants, static source, tender or no water supply | 3-32 | 4-5 Hydrants with sufficient pressure to serve fire service needs for structural fires. |
| 6.2 Fire Service | | |
| a. Fire Service < 10 minutes or > 10 minutes, no fire service | 2-25 | Apex Volunteer Fire/Rescue. Drive time is <10 minutes. |
| 6.3 Homeowners Suppression Equipment | | |
| a. Shovel, grubbing tool, water supply, sprinklers, roof-top access ladder | 3-28 | Limited to typical garden tools and equipment. |

| Hazard Factor | Ref | Mitigation Comments |
|---|---|---|
| **7. Fire Ignition and Prevention – Utilities, Chimneys, Burn Barrel / Fire Pit, Ignition Potential** | | |
| 7.1 Utilities | | |
| a. To FireSmart Recommended Guideline? | 2-24 | Utilities are underground. Municipal water system with no septic. |
| 7.2 Chimneys, Burn Barrel / Fire Pit | | |
| a. To FireSmart Recommended Guideline? | 2-22 | No burn barrels. Prevalence of campfires is an ignition potential concern for all areas of Apex. Chimneys not assessed. |
| 7.3 Ignition Potential Provide mitigation comments on items a – d as applicable | | |
| a. Topographic features adversely affect fire behaviour<br>b. Elevated probability of human or natural ignitions<br>c. Periodic exposure to extreme fire weather or winds<br>d. Other | 2-21 | a. Apex is situated in a tunnel which is essentially a bowl full of fuel. There will always be some amount of fire threat associated with this area as the wind moves from the SW up the tunnel.<br>b. Prevalence of campfires as mentioned above can be a recipe for human ignitions.<br>c. The Okanagan typically experiences periods of extreme fire weather each summer. |

**General Comments**

Desire for residents to live in homes nestled in the trees contributes to home ignition potential in this area.
A reduction, spacing, and trimming of conifers within PZ-1 should be a high priority for homeowners.
A campaign to properly address homes would be ideal in this area.
Fuel management efforts within the Clearview community will be tempered by the hazard presented by surrounding prime decadent forested areas.