



FireSmart Hazard Assessment Report Tachet

This document was developed in a combined effort between the First Nations Emergency Services (FNESS) and the community of Tachet. The FireSmart report is designed to be used as a resource in which the residents of Tachet can implement a community plan from. The FireSmart report looks at what was determined to be the highest risk area of the community and the issues this area faces. Included in the FireSmart report are recommendations from the Local FireSmart Representative (LFR) as well as a detailed outline of the next steps the Tachet community needs to take to become nationally recognized as a FireSmart community.



FireSmart Demonstration House

Location: Knox Mountain, Kelowna B.C.
Pictures By: www.kelownanow.com

Table of Contents

Introduction	3
Definition of the Ignition Zone	3
Description of Severe Case Wildland Fire in Local Area	5
Site Description	6
Assessment Process.....	7
Observations and Solutions.....	7
Recommendations.....	13
Successful FireSmart Mitigations.....	15
Next Steps	15
Signature of Local FireSmart Representative	18
References	19
Appendix 1 FireSmart Hazard Assessment	19
Appendix 2 Map of Assessment Area	19
Appendix 3 FireSmart Community Plan	20

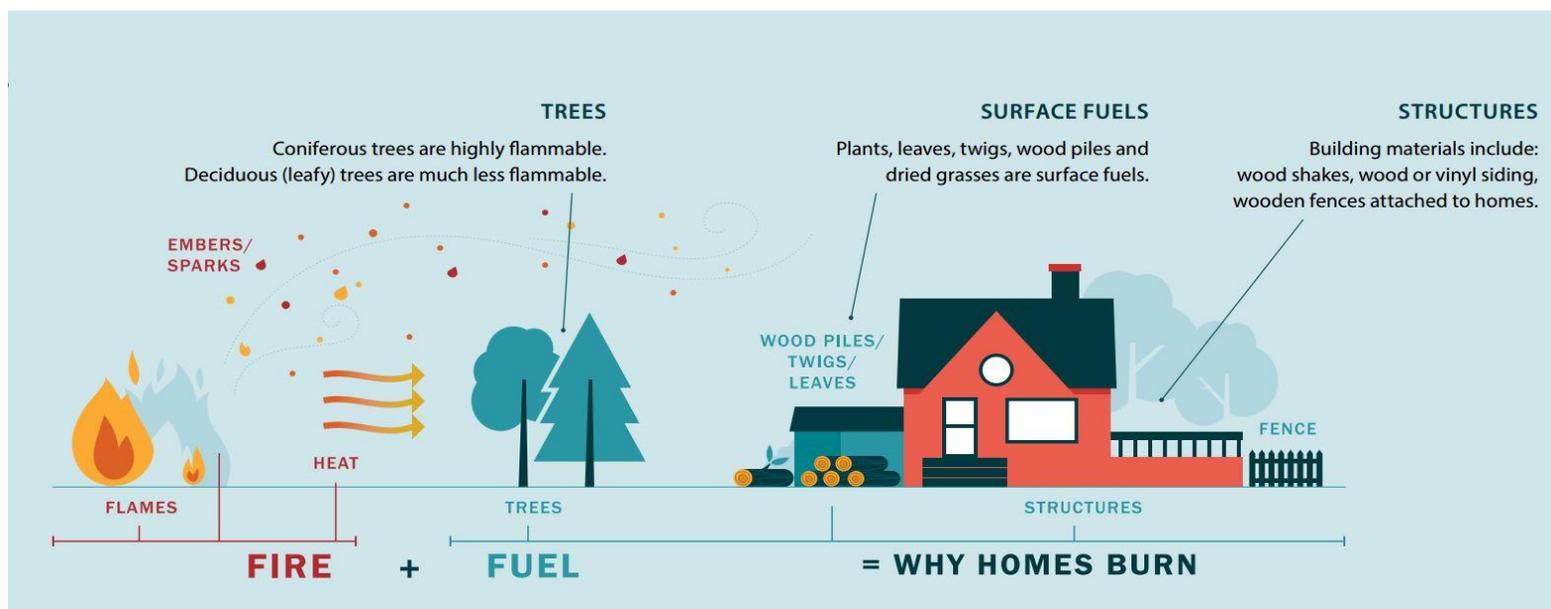
Introduction

The FireSmart Canada Community Recognition Program is designed to provide an effective management approach for preserving wildland living aesthetics while reducing community ignition potential. The program can be tailored for adoption by any community and/ or neighbourhood association that is committed to ensuring its citizens maximum protection from wildland fire. The following report is intended as a resource to be used by the residents of Tachet to create a FireSmart Community Plan. The plan developed from this information should be implemented in a collaborative manner, updated and modified as needed.

On July 25th 2018 Brenden Mercer from First Nations Emergency Services Society (FNESS) completed a Neighbourhood Wildland Fire Risk Hazard Assessment. The priority area for this assessment was determined with the help of Barbra Tom and Murphy Patrick. It was determined that the community required an assessment on the main residential reserve since it presented several houses that could benefit from incorporating FireSmart principles.

Definition of the Ignition Zone

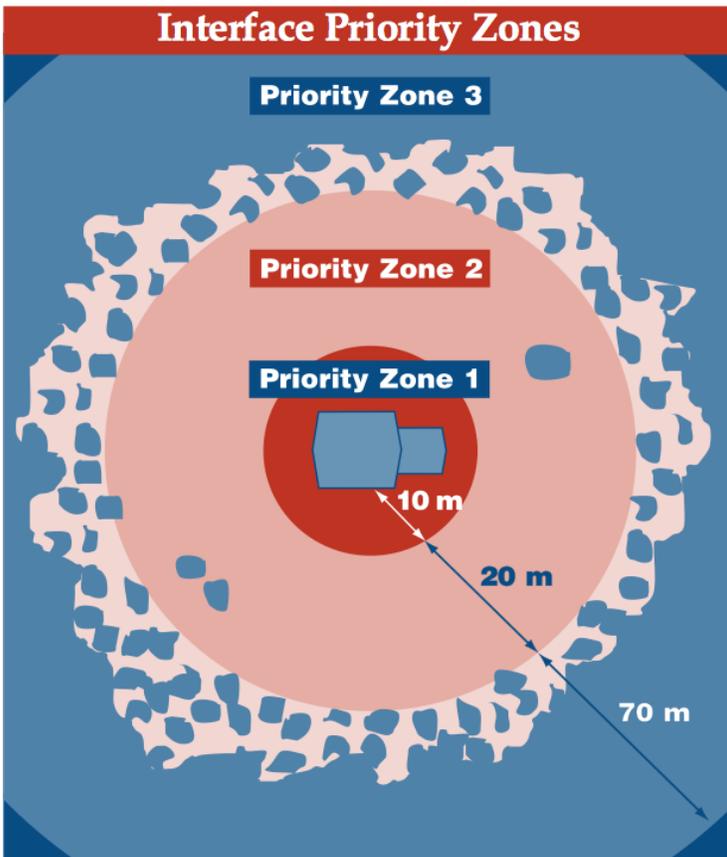
The First Nations community of Tachet is located in a wildfire prone environment as evidenced by the numerous historical wildfires occurring around the community. In the 1920's - 1930's there were a few larger fires in the geographical area which included Fire#223 which was approximately 58,284ha's, Fire#175 was about 2,981ha's and Fire#110 was 10,323ha's. In the 1950's there was another 291 hectare fire fairly close to Tachet.



This demonstrates that large scale wildfire can occur given the right conditions. Wildfires will happen – exclusion is not a choice. The variables in a wildfire scenario are when the fire will occur and where. This assessment addresses the wildfire related characteristics of the Tachet community. It examines the areas exposure to wildfire as it relates to ignition potential. The assessment does not focus on specific homes, but rather examines the community as a whole.

A house burns because of its relationship with everything in its surrounding ignition zone – the house and its immediate surroundings. To avoid home ignition a homeowner must eliminate the wildfires potential relationship with his/her house. This can be accomplished by interrupting the natural path a fire takes. Changing a fires path by clearing the ignition zone is an easy to accomplish task that can prevent home loss. To accomplish this, flammable items such as excessive vegetation must be removed from the area immediately around structures to prevent flames from contacting it. Also, reducing the volume of live vegetation will reduce the wildfire intensity as it nears the home.

Included in this assessment are observations made while visiting the Tachet main residential reserve. The assessment addresses the ease with which home ignitions can occur under severe wildfire conditions and how these ignitions may be avoided within the ignition zones of residents.



Priority Zone 1 & 1a: It is best to establish a fuel free zone around your home by reducing and or eliminating all flammable fuels within 10m of a structure.

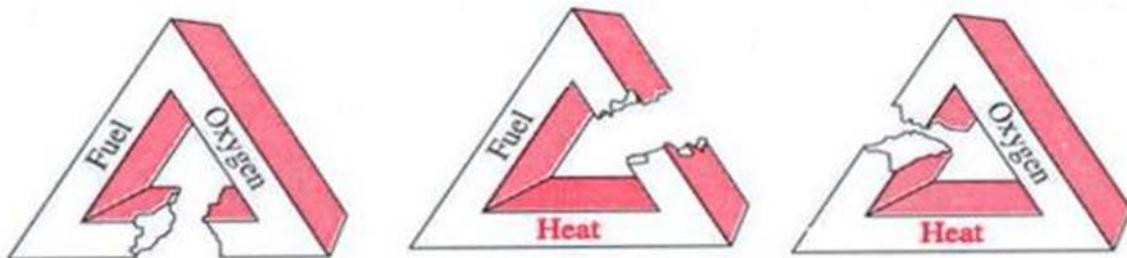
Priority Zone 2: In this zone it is best to modify the fuel through thinning, pruning and removing excess surface fuels which will reduce the intensity of a fire. This zone occurs between 10 – 30 meters from the structure.

Priority Zone 3: The best approach to take when treating fuels that are 30 – 100 meters away is to thin and prune trees.

The results of the assessment show (under current conditions) that wildfire behaviour and subsequent losses will be dominated by the unique characteristics of Tachet. The good news is that residents will be able to substantially reduce their exposure to loss by addressing community vulnerabilities. Relatively small investments in time and effort will reap great rewards in community wildfire safety.

Description of Severe Case Wildland Fire in Local Area

Fire intensity and spread rate depend on the fuel type, fuel conditions, and the weather conditions prior and during ignition and the topography. The images below illustrate the 3 required components for fire. Removing one of these elements breaks the fire triangle resulting in the fire going out. FireSmart focuses on reducing or eliminating the potential fuel sources around the home because it is the easiest factor to manipulate.



In addition to the fire triangle the following relationships between fire behaviour, fuel, weather and topography are other factors to consider.

- Fine fuels ignite more easily and spread fire faster with higher intensities than coarser fuels. For a given fuel, the more there is and the more continuous it is, the faster the fire spreads and the higher the intensities. Fine fuels take a shorter time to burn than coarser fuels.
- The weather conditions affect the moisture content of the dead and live vegetative fuels. Dead fine fuel moisture content is highly dependent on relative humidity and the degree of sun exposure. The lower the relative humidity and greater exposure to the sun the lower the fuel moisture content will be. Lower fuel moistures produce higher spread rates and intensities.

- Wind speed significantly influences the rate of fire spread and fire intensity. The higher the wind, the greater the spread rate, intensity and ember transport distances.
- Topography influences fire behaviour principally by the steepness of the slope. However, the configuration of the terrain such as narrow draws, saddles and so forth can influence fire spread and intensity. In general, the steeper the slope, the higher the uphill fire spread and intensity.

Site Description

The community of Tachet is located where the Fulton River meets Lake Babine just a few kilometers south of Granisle and about 100km north of Burns Lake. The community has approximately 130 full time residents with a satellite band office and water treatment plant.

Biogeoclimatic zone maps for the province place the community of Tachet in a Sub Boreal Spruce moist cold (SBSmc2) at lower elevations and Engelmann Spruce Sub Alpine Fir moist cold (ESSFmc) at higher elevations. The Biogeoclimatic zone designation places the community in a Natural Disturbance Type 3 (NDT3) area at lower elevations which means the forests surrounding the community could experience major fires on a 125 year cycle. This NDT3 also experiences some of the largest fires in the entire province with some exceeding 100,000 hectares. At higher elevations slightly further away from the community the area is classified as a Natural Disturbance Type 2 (NDT2) which indicates fire disturbances occur on average once every 200 years. The assessment area can be seen below and on the map in appendix 2 of this report.



Assessment Process

On July 25th 2018 Brenden Mercer from First Nations Emergency Services Society (FNESS) travelled to Tachet. The purpose of travel was to complete a FireSmart Hazard Assessment for the community. Utilizing the local knowledge of the area provided by Barbra Tom and Murphy Patrick the main residential IR was chosen. The hazard assessment is not designed to provide detailed information about each home in a subdivision but rather the subdivision as a whole. During the assessment we drove around the area for a few hours documenting hazards along with taking the necessary pictures to complete a FireSmart Hazard Assessment Report. During the assessment important details regarding the hazards and solutions were recorded onto the FireSmart Hazard Assessment Form (Appendix 1). Using the details recorded on the hazard assessment the FireSmart Hazard Assessment Report will be written and sent to the FireSmart Board members. Since FireSmart looks at the subdivision as a whole it would be encouraged that each homeowner looks at their property while going through the checklist located in the FireSmart Homeowners Manual or online at the [FireSmart Canada](#) website.

Observations and Solutions

The following section will highlight the main observations and provide some guidance on possible solutions as determined by the FireSmart Hazard Assessment;

Structures

- **Roofing Assembly**

- **Type of roof** – It seems the majority of roofs are asphalt shingles with a few metal roofs in the assessment area. Asphalt shingle and metal roof are good and should be the minimum standard. Some of the asphalt roofs on the abandoned structures or out buildings could use some repairs since roofs are the most vulnerable to ember showers. When roofs have missing or damaged shingles it can allow ember's to accumulate and eventually ignite a structure.





- **Roof cleanliness** - Most of the occupied structures have good roofs that are clean and free of debris. Leaves and other debris can easily accumulate on the roofs and in gutters when vegetation is close to the structure. During the summer months this material can dry out quickly and be easily ignited posing a serious risk to the structure. Removing vegetation that overhangs the structure can help to reduce this risk.



- **Building Exterior**

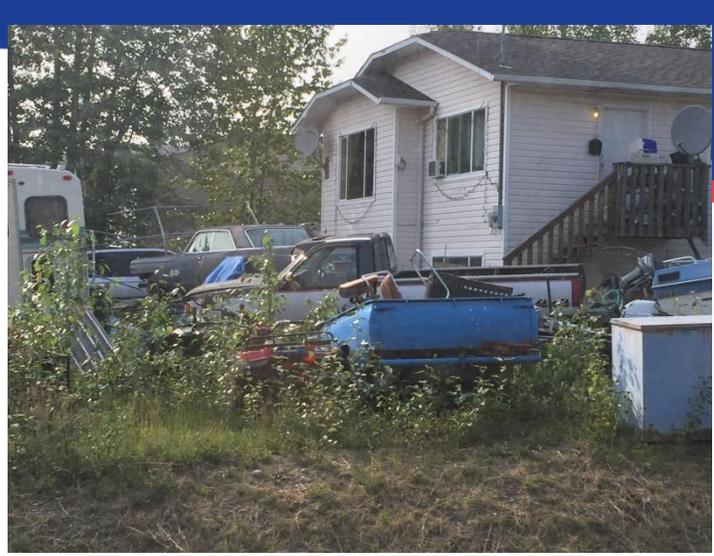
- **Siding, decks & eaves** - A lot of the structures in the community have vinyl or wood siding and in the case of the fire hall it has metal siding. Vinyl siding has a tendency to melt when it is exposed to radiant heat which can expose vulnerabilities in the structure. Utilizing a hardy plank siding for new home developments or siding replacement over time would be very beneficial, because it has proven to be very resistant to fire.



- **Windows & doors** - The majority of windows observed appeared to be double paned and this should be standard for new developments and renovations over time. Research has shown when single pane windows are impacted by radiant heat they break a lot easier allowing embers to enter the structure. Some of the abandoned homes had broken windows that could allow ember's to enter the structure. Boarding these windows up would help to reduce the risk of ember's entering the structure and causing an ignition.



- **Ember accumulator features** - During the assessment there were several areas observed that could easily accumulate embers given the right conditions. Some of these areas occurred underneath decks and porches where fuels can accumulate over time. Sheathing in these areas would prevent vegetation from growing, debris and embers from accumulating.



- **Nearby Combustibles** – There were a few homes with firewood located adjacent to the home and a few with wood away from the home or in a shed. A wood shed should ideally be constructed to FireSmart standards utilizing proper siding and roofing materials so that embers can't enter. Ideally firewood should be located at least 10m from a structure during the wildfire season. If 10m is not an option the pile should still be separated from the structure. Having nearby sprinklers to wet the pile during increased fire danger days can reduce the risk of ignitions. Vegetation growing around unused vehicles should be regularly maintained so that it reduces the risk of accidental ignitions.

Priority Zone 1a (0 -1.5m)

- **Priority Zone 1a** - Is also known as the non-combustible zone around the structure where any flammable vegetation should be removed so that potential fuel is separated from the structure. Creating a non-combustible area around the structure could be completed by using materials like gravel, brick, concrete and / or other xeriscaping practices.

Priority Zone 1 (1.5 -10 m)



- **Over story vegetation** – Many homes in the community don't have any vegetation in this zone. Where vegetation occurs it is best to remove it so that it can't contribute litter on the roof or gutters. Deciduous is lower risk than a coniferous tree but under the right conditions the tree along with leaves can still burn and pose a risk to the structure. Creating defensible space around the home is critical to reducing the chance of home ignitions during a wildfire event.



- **Ladder Fuels** – Some residents have ladder fuels present in this zone. Ideally any combustible vegetation in this zone would be removed since it can significantly increase the chances a structure survives a wildfire.



- **Surface fuel** – In this priority zone there was some taller grass in the area which could provide fire a continuous fuel source all the way up to a structure. Grass should be regularly mowed especially when it comes into contact with structures, wood piles or is growing underneath decks.

Priority Zone 2 (10-30 m)



- **Over story vegetation** – Some resident have deciduous bushes and trees in this zone along with the odd conifer. Where vegetation does occur in this zone it could be beneficial to thin out the brush and prune any conifer trees.

- **Ladder fuels** – Where vegetation was present in this priority zone it did not appear any treatments have been conducted. Pruning coniferous trees and thinning out the deciduous bushes it can reduce the intensity of any wildfire as it approaches structures.

- **Surface fuel** – There are some areas that have longer grass in this zone. If these grasses dry out during the summer months they could pose a serious risk to the nearby structures. It would be ideal to develop a regular maintenance schedule.

Priority Zone 3 (30-100 m+)



- **Light Fuel** – Some areas around the community are primarily grasses and deciduous shrubs. These areas would benefit from regular mowing of the grasses and cutting down deciduous shrubs. Deciduous shrubs along with the piles scattered through the community could be chipped or hauled to safe area to be burned.



- **Moderate Fuel** – There are some areas around the community that would classify as a moderate fuel load because there is a lot of deciduous brush, trees and some scattered conifers. These areas could benefit from some vegetation management activities to thin out the brush, prune conifers and either burn or chip the debris.

Topography

- **Slope** – The community sits on a slope that ranges from 10 -30%. Wildfires that occur on slopes quite often move a lot faster than flat ground.

Infrastructure – Access / Egress, Signage



- **Access Routes** – The community has several loops roads which are ideal in the event of emergencies.
- **Roads** – The community seems to have roads that are wide enough for a fire truck to use. It seems like emergency services could access the homes easily if required.
- **Fires Service Access** – The majority of homes had short driveways which is beneficial for fire services to access an area if required. Long driveways can make access more difficult for emergency services.



- **Street Signs / House Numbers** – The homes seemed to have a house number. These are important for any first responders when entering a community they might be unfamiliar with.

Fire Suppression – Water Supply, Fire Services, Homeowner Capability

- **Water Supply** – There is a working fire hydrant system in the subdivision.



- **Fire Service** – A volunteer fire service is present in the community. Fire fighters are great candidates to help the FireSmart board and become community champions. Funding programs allow for community members to become Local FireSmart Representatives (LFR's).

- **Homeowner Suppression Equipment** – It is likely some residents will have the basic equipment such as shovels, hoses, sprinklers and lawn mowers. Providing community members with the proper tools can allow them to reduce the risk on their property.

Fire Ignition and Prevention – Utilities, Chimneys, Burn Barrels / Fire Pits, Ignition Potential

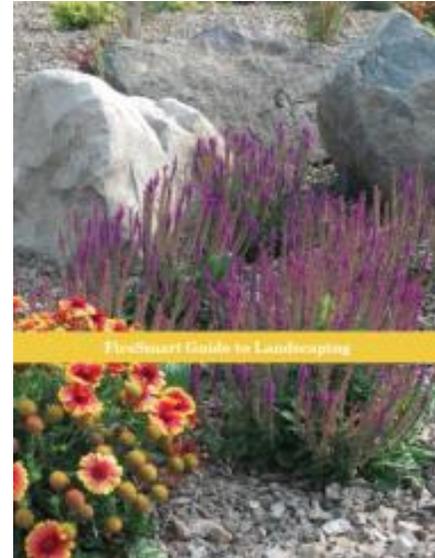
- **Utilities** – Being pro-active in reducing the vegetation as it encroaches on power lines can help prevent accidental ignitions. Additionally keeping propane tanks far away from structures, free from debris and enclosed with chain link fence as shown in the picture below is good practice.

- **Chimney, Burn Barrels / Fire Pits** – There were no fire pits or burn barrels observed during the assessment. If community members do have fires it would be beneficial to encourage them review the FireSmart standards before constructing their own fire pit.



Recommendations

The FireSmart Community Recognition Program 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 their properties. It is important for them to understand the implications of the choices they are 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 while eliminating the fires potential relationship with the house. This can be accomplished by disconnecting the house from high and/or low intensity wildfire that could occur around it as well as being conscious of the effects of wind driven embers. A good reference to understand the effects of embers on homes during a wildfire is the video called [Wildfire Ember Highlights](#) that can be found on YouTube via the hyperlink.

The following section of this report provides recommendations for consideration by the FireSmart board concerning the wildfire safety issues that were identified as priorities for Tachet during the assessment.

- Educate the residents of Tachet about the realities of wildfire in the area and the steps that can be taken to FireSmart homes. This can be accomplished by hosting FireSmart education days and inviting local fire chiefs, FNESS or BC Wildfire Service representatives to come share their knowledge and experiences with the community. Each homeowner should be encouraged to use the [FireSmart Home Assessment](#) to critically evaluate their home.
- Organize a FireSmart event day for local residents. The event day can include the volunteer portion of the FireSmart recognition process by having people complete an agreed upon task prior to the event day.



- Organize a FireSmart board led by community members who are aware of the dangers of fire and want to help their community. The FireSmart board can access a lot of useful information on the [FireSmart Canada](#) website to share with the community.
- Encourage FireSmart landscaping practices over time by removing highly flammable fuels adjacent to the house. Refer to the [FireSmart Guide to Landscaping](#).
- Develop and or maintain a good working relationship with local fire departments along with fire officials from other areas to ensure good support for FireSmart activities.
- The Union of B.C. Municipalities (UBCM) along with FNESS and the BC Wildfire Service can assist communities with accessing funding to complete FireSmart activities. This FireSmart funding is currently available through the [Community Resiliency Investment \(CRI\) Program](#).
- The National Fire Protection Association (NFPA) has a lot of good information on how to develop new fire protection bylaws and building codes in your community. This information is certainly worth looking at and potentially implementing in your community. The hyperlinks below are some of the standards worth reviewing;
 - [NFPA 1141](#) - Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas
 - [NFPA 1142](#) - Standard on Water Supplies for Suburban and Rural Fire Fighting
 - [NFPA 1144](#) - Standard for Reducing Structure Ignition Hazards from Wildland Fire
- The FireSmart board should look at developing a community plan which essentially identifies several FireSmart related activities that the board would like to accomplish and provides a tentative completion date for each activity. Please refer to appendix 3 for additional information on how to develop a community plan.

Successful FireSmart Mitigations

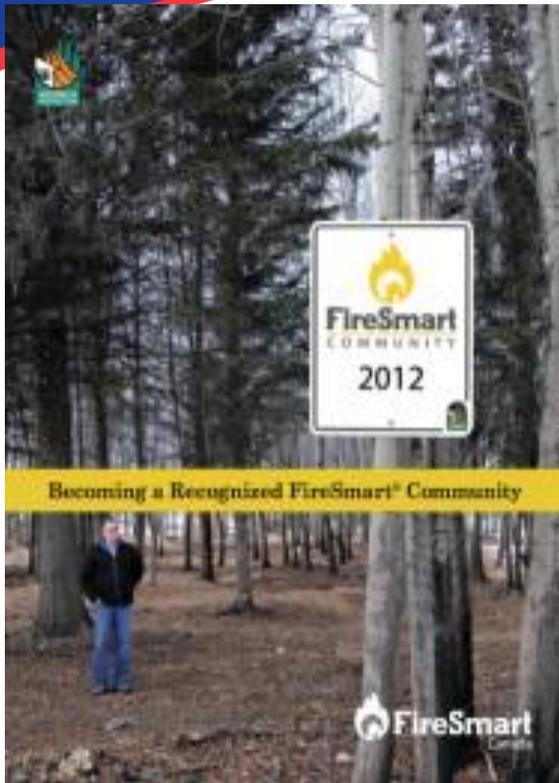
When adequately prepared, a house can likely withstand a wildfire without the intervention of the fire service. Further, a house and its surrounding community can be both FireSmart and compatible with the areas ecosystem. The FireSmart communities program is designed to enable communities to achieve a high level of protection against wildfire loss even as suitable ecosystem balance is maintained. Increased green space around the house as well as keeping combustible materials away from the house will increase the chance your home is protected from wildfire.



Both pictures courtesy of NBC News article lone house, surrounded by scorched earth, survives wildfire

Next Steps

After reviewing the contents of this assessment and its recommendations the Tachet FireSmart Board in consultation with its advisors will determine whether or not it wishes to continue seeking FireSmart community recognition status. The FireSmart board should contact FNESS in the future if they have any questions or require assistance in planning FireSmart events for their community.



If the report and recommendations are accepted and recognition will be sought, Tachet FireSmart Board will create agreed – upon, area specific solutions to the FireSmart Community Hazard Assessment Report Recommendations, and prepare a FireSmart community plan in cooperation with their Local FireSmart Representative and local fire agency personnel who may be acting as advisors.

Assuming the Tachet community seeks to achieve recognition as a FireSmart community, the FireSmart board will need to complete the following 8 steps to become nationally recognized as a FireSmart community

1. Contact Local Fire Smart Representative (LFR) – Completed

- FNESS has several LFR's on staff that would be more than willing to assist your community with FireSmart. It may also be beneficial to communicate with LFR's in your local area and get training for your community members when the LFR course is offered.

2. Have LFR complete a community FireSmart Hazard Assessment – Completed

- The community FireSmart hazard assessment was completed by Brenden Mercer, RFT LFR. Individual structure and site assessments can still be completed for each resident that will identify concerns specific to that structure.

3. Local FireSmart Rep to complete a detailed report to provide recommendations to help start the Fire Smart Program – Completed

- The FireSmart report was developed by Brenden Mercer, RFT LFR from First Nations Emergency Services Society (FNESS)

4. Start a Fire Smart Board – In Progress

- Sponsor a Local FireSmart Board that is in charge of maintaining the FireSmart community program and recognition status. The board can

include anyone whom wants to participate including residents, fire chiefs, chief & council, maintenance workers, etc.

5. Complete Fire Smart Community Action Plan – *In Progress*

- The FireSmart board should look at developing a community plan which essentially identifies several FireSmart related activities that the board would like to accomplish and provides a tentative completion date for each activity. Please refer to appendix 3 for additional information on how to develop a community plan.

6. Host a Fire Smart Event/Cleanup day – *In Progress*

- Invest a minimum of \$2.00 annually per capita in local FireSmart events and activities (work completed by municipal employees or volunteers, using municipal or other equipment, can be included as can provincial/ territorial grants dedicated to that purpose).

7. Apply for National Fire Smart Recognition Status – *In Progress*

- Submit an application form with the supporting documentation to FireSmart Canada. This application documents participation in the FireSmart communities program with respect to the above criteria.

8. Renew on an Annual Basis – *In Progress*

- Complete another education or event day, compile the supporting documentation and then submit a renewal application to FireSmart Canada. All the forms can be found online at the [FireSmart Canada](#) website.

Signature of Local FireSmart Representative

A handwritten signature in black ink that reads "Brenden Mercer". The signature is written in a cursive style with a large initial 'B'.

Brenden Mercer, RFT, LFR
First Nations Emergency Services Society (FNESS)
(250) 377-7600
October 25th 2018
www.FNESS.bc.ca

References

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Ministry of Forests. Biodiversity Guidebook.

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Appendix 1 FireSmart Hazard Assessment

See Attached

Appendix 2 Map of Assessment Area

See Attached

Appendix 3 FireSmart Community Plan

The following is a basic example of a FireSmart community action plan with some common activities listed. This plan should be developed by the FireSmart board along with their advisors if applicable. The objective of the action plan is to identify several activities that will benefit the community. Once the activities that are most relevant to your community are agreed upon the next step is to decide on who will be completing the work and the timelines for completion. Your community plan is one of the required deliverables to receive national recognition as a FireSmart community.

FireSmart Community Action Plan					
Event #	Activity	Who is going to do this?	Start Date	End Date	Progress
1	Host a community education & awareness Day				
2	Host a community wide cleanup				
3	Distribute FireSmart informational brochures to residents				
4	Cut grass around fire hydrants to provide easy access				
5	FireSmart board meetings				
6	Apply for FireSmart funding				
7	Review housing policies and building codes				
8	Remove unnecessary debris from homes				
9	Apply for Community Wildfire Protection Plan funding				