

The background features a repeating pattern of various icons in a light blue and green color scheme. The icons include: a hand holding a green branch, a group of three people, a handshake, a house with a blue dome, a house with a blue roof, a person pointing at a screen, a person holding a document, and a person holding a green branch. The icons are arranged in a grid-like pattern, with some icons appearing larger than others.

FireSmart – Introduction to Reducing Wildfire Risks

Laura Stewart, Provincial FireSmart Specialist

February 28, 2024
Red Deer, Alberta

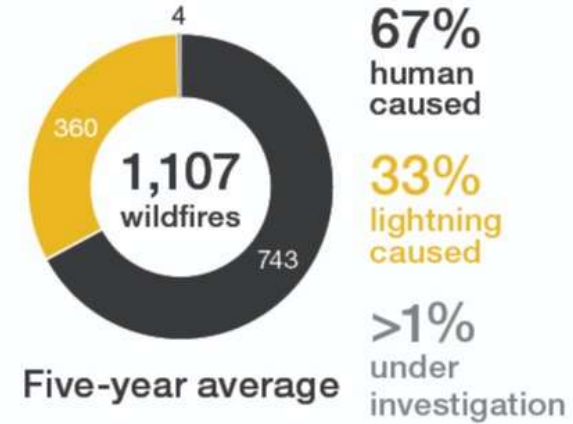
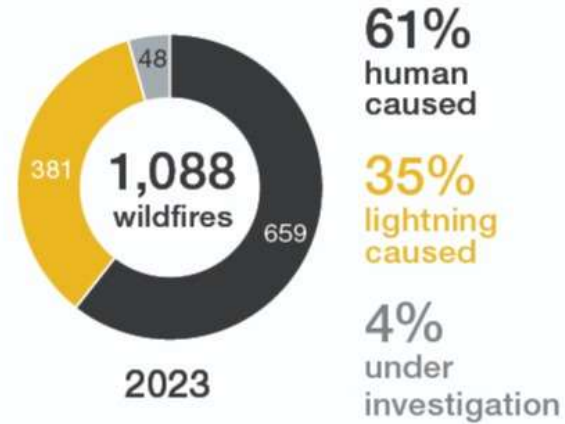
Agenda

1. Introduction
2. What is FireSmart?
3. Why FireSmart?
4. Understanding the FireSmart system
5. The WUI
6. The Home Ignition Zone
7. Questions



2023 Wildfire Season in Alberta

1,088 wildfires

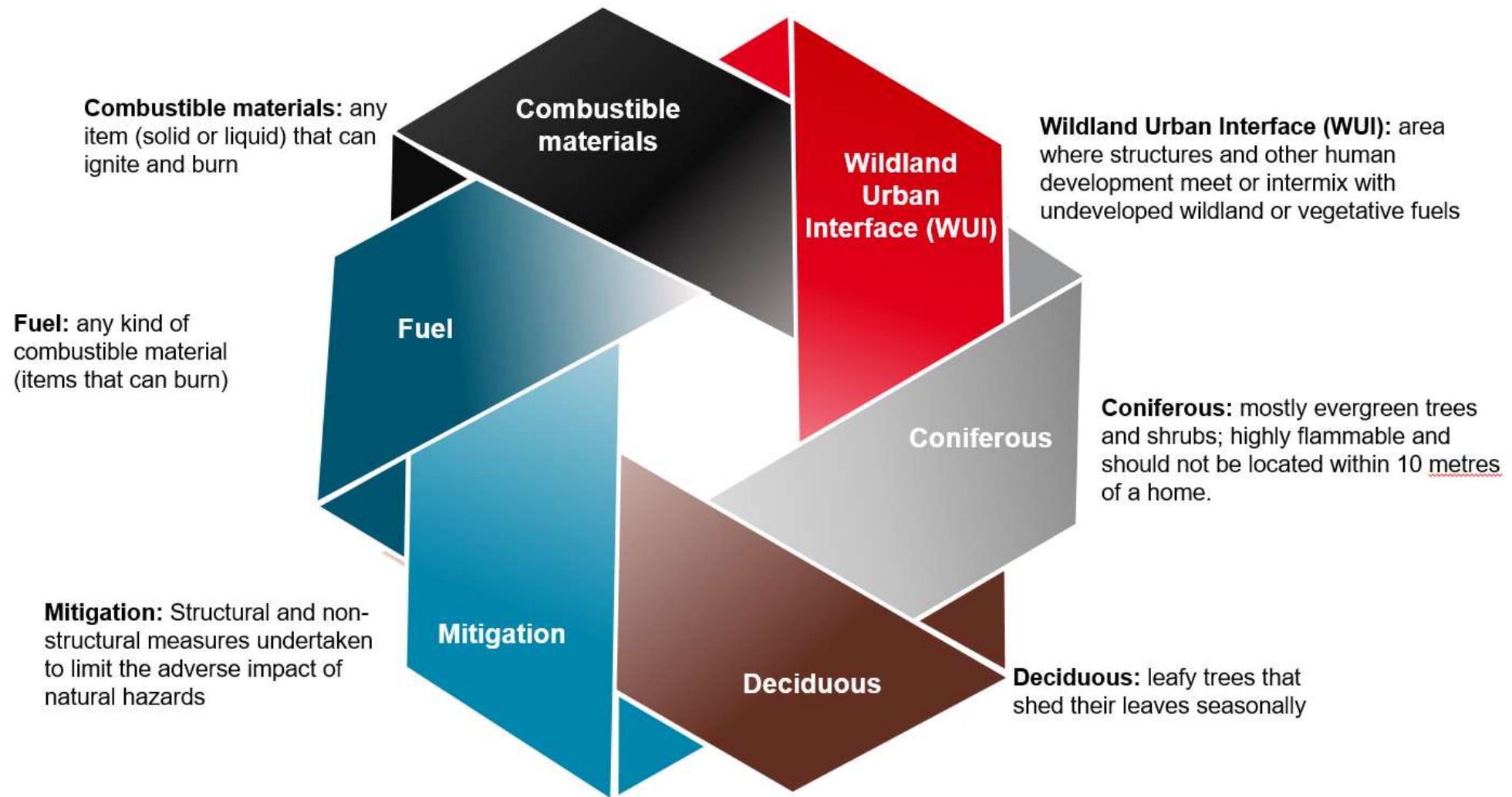


Top wildfire causes



* A wildfire that has been intentionally lit, which includes but is not limited to arson.

Key definitions



What is FireSmart?

FireSmart is about living with and managing the risk of wildfire.

- FireSmart is the Canadian standard recognized by all provinces and territories.
- It's based on National Fire Protection Association (NFPA) standards and has evolved over 40 years.
- It's backed by a vast amount of field, laboratory and modelling research.
- FireSmart guidelines have proven their legitimacy as measures of hazard.
- FireSmart methods have been demonstrated time and time again to reduce the risk of losses, under even the most extreme fire conditions.



Why FireSmart?

- Alberta is experiencing a serious and sustained increase in extreme wildfire behaviour in the Wildland-Urban Interface (WUI).
- Climate change and land-use change are projected to make wildfires more frequent and intense, with a global increase of extreme fires of:
 - Up to 14% by 2030,
 - 30% by the end of 2050, and
 - 50% by the end of the century.



United Nations Environment Programme (2022). Spreading like Wildfire – The Rising Threat of Extraordinary Landscape Fires. A UNEP Rapid Response Assessment. Nairobi.



Wildfire Disaster Sequence





Stopping the transition of fire from **wildland** fuels to **built** (urban) fuels significantly reduces the likelihood of a disaster.

Three Scales of FireSmart™

- Landscape



- Community



- WUI



Fire Service Employment Models in Alberta

- **Model 1**: Full-time Career,
- **Model 2**: Composite Departments: mix of Full-time Career, Part-time Career, and Paid-on-Call Professional,
- **Model 3**: Paid-on-Call Departments: 100% available volunteer professionals, perhaps led by a Full-time Chief or Chief Officer compliment,
- **Model 4**: Volunteer Departments: 100% available volunteer professionals who do not receive remuneration

Alberta Situation Report

- 80% of the provincial population is protected by **Models 1 & 2**
- 85% of the landmass is protected by **Models 3 & 4**

The Seven FireSmart Disciplines

1. Education



2. Emergency Planning



3. Vegetation Management



4. Legislation



5. Interagency Cooperation



6. Cross Training



7. Development



Interagency Cooperation



- Strong partnerships are essential.
- Developing a FireSmart Committee, coordinating reviews of new developments, Mutual Aid Fire Control Agreements, regular meetings and mock disaster planning and exercises are all part of interagency cooperation.

Education



- Citizen involvement is the cornerstone of the FireSmart program.
- Education is one of the most important disciplines to meet the overall goal of FireSmart development and protecting structures in the wildland-urban interface.
- Research and science have taught us that homeowners can effectively reduce the risk of wildfire to homes and properties.

Vegetation Management



- Fuel Removal
- Fuel Reduction
- Species Conversion

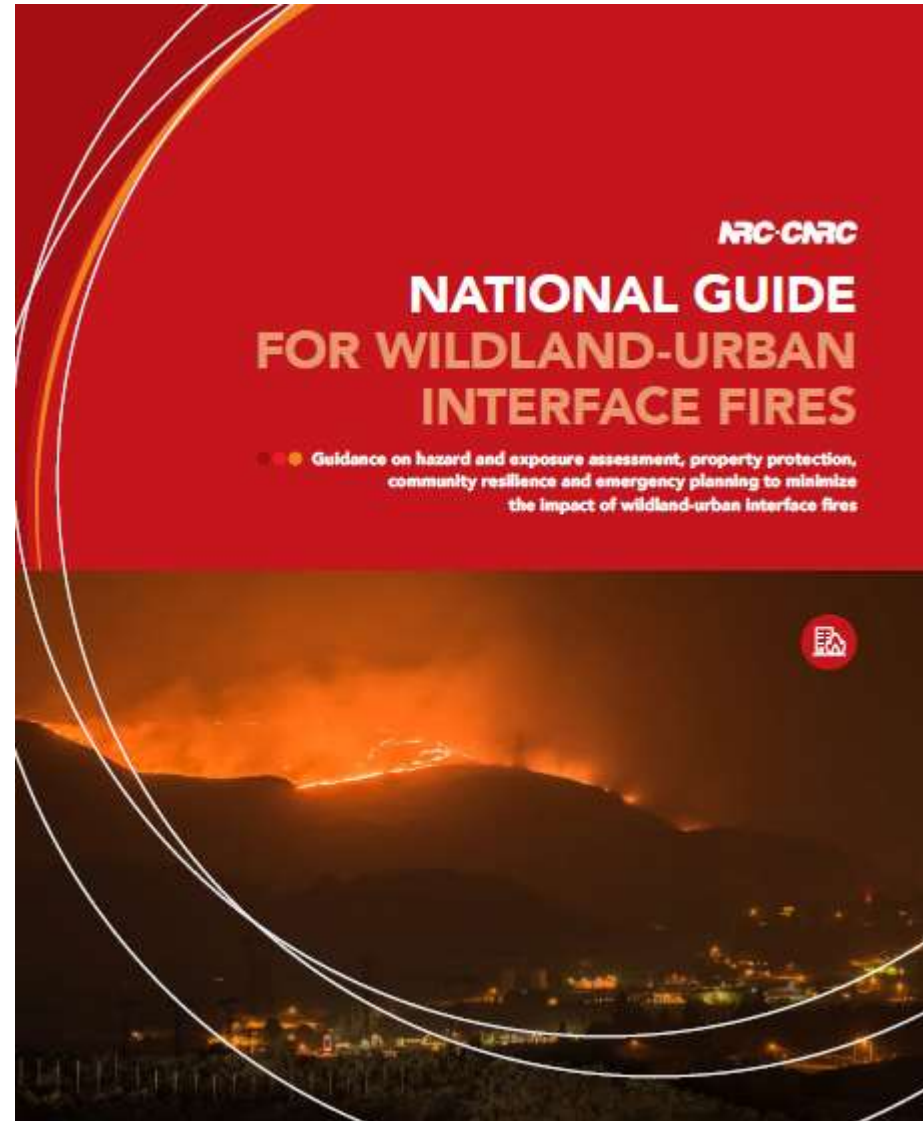
Legislation



Legislation is necessary to implement items that are critical to the loss of structures to wildfire.

- Municipal Bylaws
- Architectural Guidelines
- Development Standards

National Guide for Wildland-Urban Interface Fires



Development



- Development standards play a significant role in reducing the potential impact a wildfire will have on a community.
- The risk can be effectively reduced through structural design, building materials, landscaping choices and property maintenance.

FireSmart Development



Emergency Planning



Recognition of wildfire in emergency planning.

- Municipal Emergency Plans
- Wildfire Control Plans
- Wildfire Preparedness Guide
- Wildfire Mitigation Strategy

Cross Training



- Cross training helps emergency crews from all agencies to safely and effectively respond to wildfire in and adjacent to communities.
- The goal is a shared understanding of responsibilities—not making wildland firefighters into structural firefighters or the reverse.

Applying the FireSmart™ System to Strengthen Community Wildfire Resilience



Enhance Collaboration and Coordination



Interagency Cooperation

Educate and Empower the Whole of Society



Education

Reduce Wildfire Risk



Vegetation Management



Legislation



Development

Improve Wildfire Response



Emergency Planning



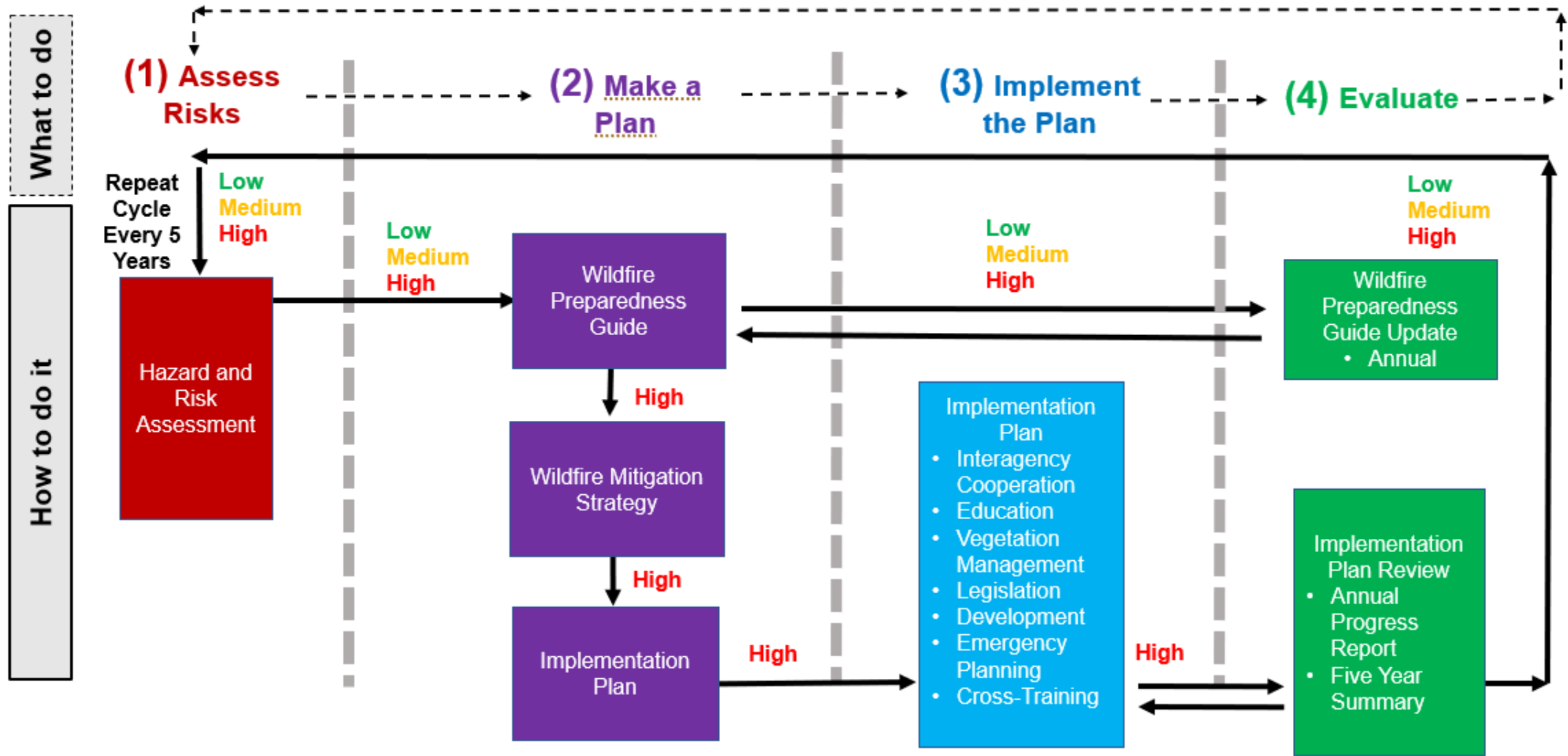
Cross Training



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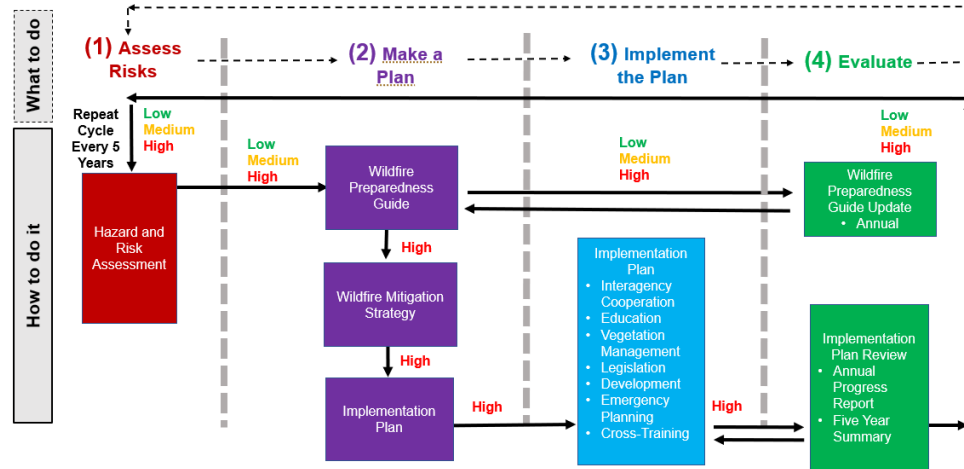


Alberta FireSmart Community Wildfire Risk Management Cycle



Step by step

Alberta Wildfire Resilient Community Best Practice	Select One Per Question				
	Yes	In Progress	Plan to within 1 year	No Plans	N/A
Assess Risks					
1. Risk Assessment- Complete a Community Wildfire Hazard and Risk Assessment (All communities)					
Make a Plan					
2. Wildfire Preparedness Guide- Complete a Wildfire Preparedness Guide (Medium and high-risk communities)					
3. Mitigation Strategy- Complete a Wildfire Mitigation Strategy (High-risk communities only)					
Implement Plan					
Enhance Collaboration and Cooperation					
4. Interagency Cooperation- Form a Local/Regional FireSmart Committee with representatives from varied agencies with subject matter expertise in the FireSmart disciplines identified in the Wildfire Mitigation Strategy to coordinate implementation e.g., local/provincial government, industry, critical infrastructure managers, Indigenous rights holders, etc.					
5. Interagency Cooperation- Create Wildfire Mitigation Strategy implementation plan with tasks, responsibilities, deadlines, reporting schedule					
6. Interagency Cooperation- Hold regularly scheduled FireSmart Committee meetings to discuss Wildfire Mitigation Strategy implementation plan progress					
Educate and Empower the Whole of Society					
7. Education- Circulate and make readily available FS Canada approved education resources to residents (e.g., Three Steps to a Cost-Effective FireSmart Home, FireSmart Begins at Home App, etc.)					
8. Education- Deliver wildfire resilience education training and programs to residents (e.g., FireSmart 101, Advanced FireSmart Home Assessments, and FS Canada Neighbourhood Recognition Program)					
9. Education- Provide financial incentives to install wildfire resistant building materials and/or complete maintenance activities on private property					
Reduce Wildfire Risk					
10. Vegetation Management- Complete vegetation management projects prioritized in the Wildfire Mitigation Strategy					

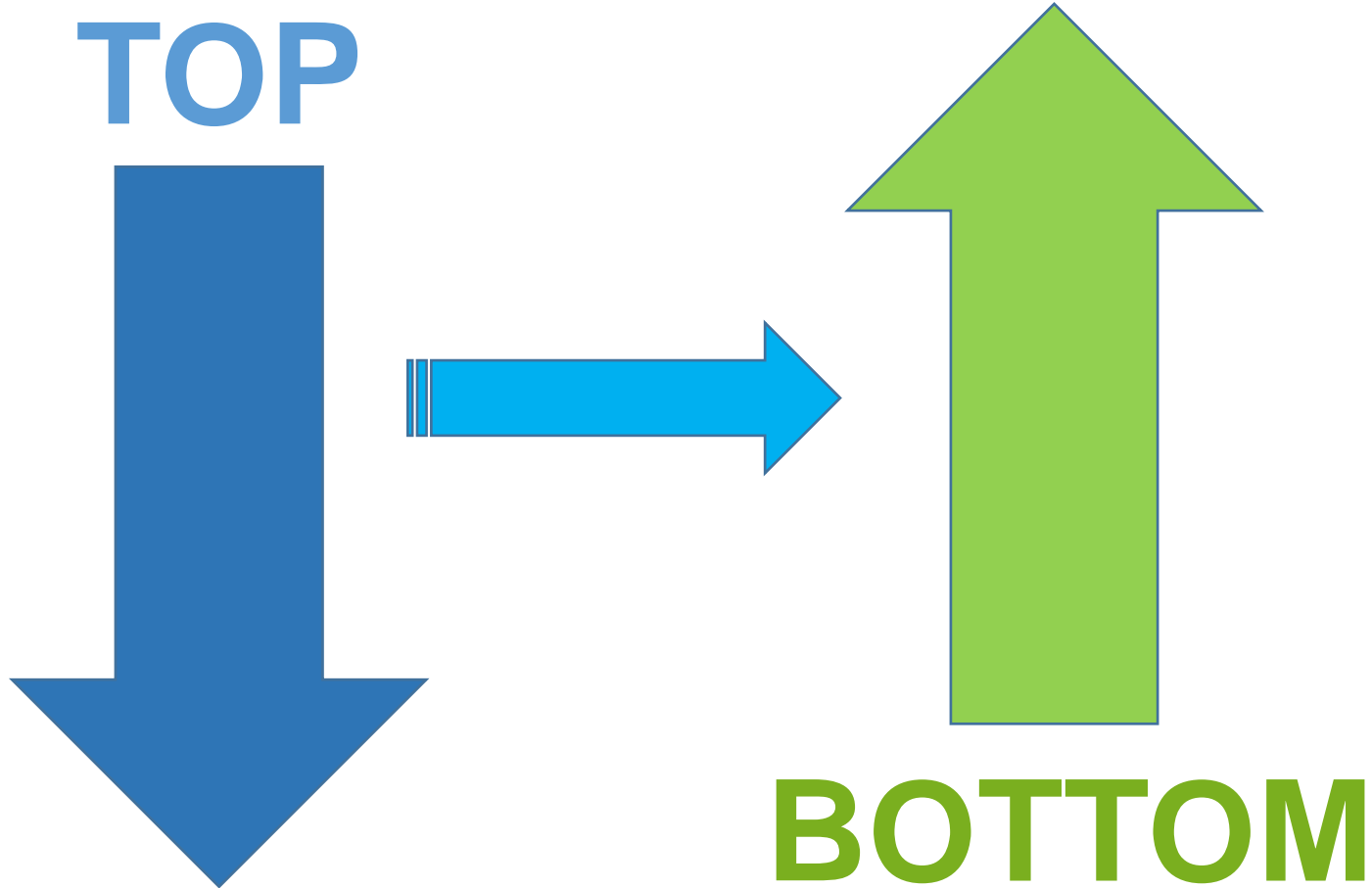


11. Vegetation Management- Evaluate treated vegetation management areas annually to determine if maintenance is required					
12. Legislation- Implement wildfire-resilient by-laws/plans, where authorized, to require the use of wildfire-resistant building and landscaping materials					
13. Development- Include wildfire-resilient best practices in all development guidelines, architectural guidelines, and engineering standards, where authorized, to limit fire spread (e.g., spatial separation between residential structures, setbacks from slopes, fuel breaks)					
14. Development- Include wildfire resilient best practices in all development guidelines, architectural guidelines, and engineering standards, where authorized, to provide emergency services during a wildfire event (e.g., safe access and egress, refuge areas, emergency shelters, water supply for firefighting)					
Improve Emergency Response					
15. Emergency Planning- Complete annual reviews and updates to resource sharing agreements between jurisdictions					
16. Emergency Planning- Complete annual reviews and updates to local/regional government emergency plans, wildfire preparedness guide and procedures					
17. Emergency Planning- Complete annual review and update to the wildland-urban interface (WUI) structure protection plan/ sprinkler plans					
18. Cross-Training- Conduct annual structural and wildland firefighter cross-training exercises					
19. Cross-Training- Conduct annual emergency response planning and coordination exercises between emergency managers and critical infrastructure managers (e.g., telecommunications, transportation, hydro, water, health care, etc.)					
Evaluate					
20. Annual Update- Complete an annual update to the Wildfire Preparedness Guide (Medium and high-risk communities)					
21. Annual Progress Reports- Complete an annual implementation review of the Wildfire Mitigation Strategy (High-risk communities only)					
22. Five Year Implementation Report- Complete a five-year implementation review of the Wildfire Mitigation Strategy (High risk communities only)					

Simplify the process for communities



Community-led approach to FireSmart



Wildfire Community Co-planning Project

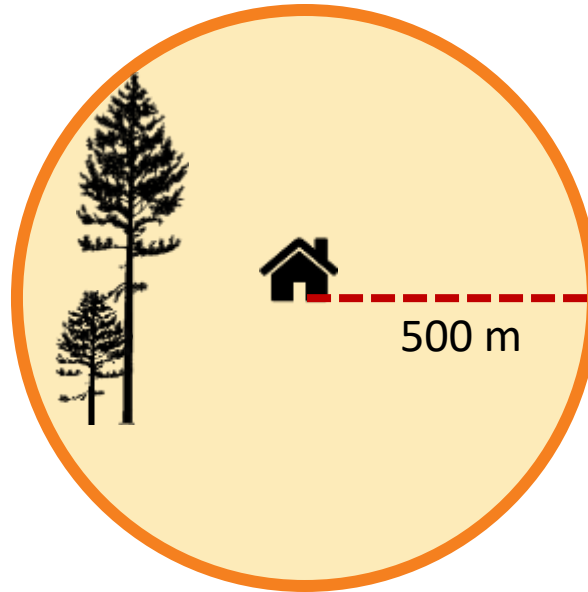
University of Alberta, Dr. Jen Beverly



Wildfire Community Co-planning Project

University of Alberta, Dr. Jen Beverly

International Journal of Wildland Fire 2010, 19, 299–313



Longer range embers



Shorter range embers



Radiant Heat



 **FireSmart**
Wildfire Exposure
Assessment

A planning tool for identifying
values at risk and prioritizing
mitigation effort.

Wildland-Urban Interface (WUI)

The area where structures and other human development meet or intermix with undeveloped wildland or vegetative fuels.

Interface



Intermix



Built Fuels vs. Wildland Fuels...It's All Fuel to a Wildfire

3/14/2024

What is a WUI fire?

A wildfire that has spread into the wildland-urban interface that may involve the ignition and burning of structures.

When the fuel being consumed by a wildfire ...



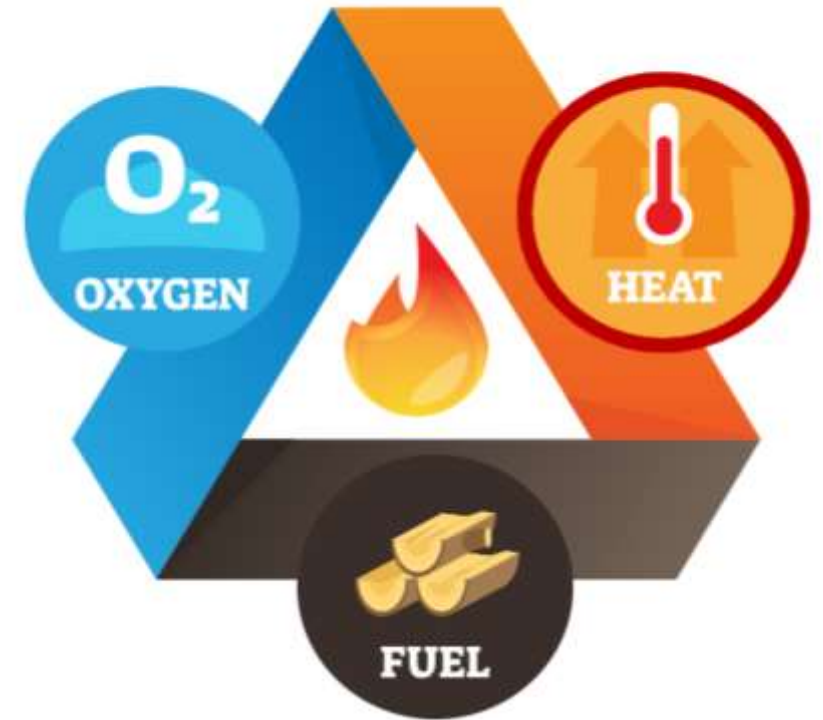
... changes from wildland fuel to urban fuel.



Understanding fire

What does fire need?

- **Heat:** needed for the initial ignition of fire and to maintain the fire and enable it to spread
- **Fuel:** any kind of combustible material; the moisture content determines how easily it will burn
- **Oxygen:** air contains about 21% oxygen; most fires require at least 16% oxygen content to burn



The FireSmart Approach

Remove, reduce and convert combustible fuel from the Fire Triangle to reduce ignition potential and fire intensity.



How do homes ignite?

There are three main sources of structure ignition from a WUI fire:

- Embers – Short (100m) & long-range (500m)
- Radiant Heat (30m)
- Direct Flame Impingement (Flame-length)



2016 Horse River Wildfire



Wildfire damage

fast facts

- 90% of homes with non-combustible roofs and 10 metres of clearance will survive a major wildfire.
- Metal roofing is 95% less likely to catch fire in the event of a wildfire.
- **An estimated 90% of homes damaged or destroyed by wildfires are ignited by embers.**
- 90% of homes are lost due to poor design (complex exterior wall assembly, complex roof design).



EXTENDED ZONE
10m to 30m

INTERMEDIATE ZONE
1.5m to 10m

IMMEDIATE ZONE
0m to 1.5m

HOME IGNITION ZONE



FireSmart Actions in the Home Ignition Zone

MITIGATED PROPERTY

Immediate and Intermediate Zones
0 – 10 m

Clean
gutter

Mowed
grass

Leaf litter, branches, and other
ground fuels removed



Extended Zone
10 – 30 m

Trees separated
and pruned

Fire cannot “ladder”
up pruned trees

Shrubs further
from house and
not under trees

Fire quickly runs out
of ground fuels



EXTENDED ZONE

10m to 30m

INTERMEDIATE ZONE

1.5m to 10m

IMMEDIATE ZONE

0m to 1.5m



EXTENDED ZONE

10m to 30m

INTERMEDIATE ZONE

1.5m to 10m

IMMEDIATE ZONE

0m to 1.5m



UNMITIGATED PROPERTY



FireSmart Programs and Materials:



How resilient to wildland fire is your home and property? Walk around your home and answer the questions below. Then consider implementing the recommended actions as you perform maintenance and renovations in each of the three Home Ignition Zones.

IMMEDIATE ZONE

0 m to 1.5 m

The Immediate Zone should be a non-combustible area that starts at the house and extends to a 1.5 metre perimeter around the home and any attachments. Treat outbuildings to the same standards as your home.

1. Does the structure have acceptable fire-rated roofing material?

- YES A Class-A fire-rated roof assembly offers the best protection. Metal, asphalt, clay, and composite rubber tiles are all options. Untreated wood shakes create a dangerous combination of combustible material and crevices for embers or sparks to accumulate and enter. Refer to manufacturers' guidelines to maintain the fire resistance of your roof.
- NO

2. Are the roof and gutters non-combustible and clean of debris?

- YES Every inside-corner of your roof is a place where debris and embers can collect. Regularly check and clean combustible debris, like needles and leaves, from the roof and gutters. Consider installing commercial screens or covers over gutters to reduce debris accumulation.
- NO

FireSmart Training Framework



ROLE STRUCTURE & TRAINING

**SUPPORTING MITIGATION PROGRAMS
ACROSS THE COUNTRY**

-  Level 1: FireSmart Ambassador
-  Level 2: NRP Specialist
-  Level 3: HIZ Specialist
-  Level 4: Program Coordinator



FireSmart Training Framework



 **FIRESMART
AMBASSADOR**

 **A FREE FOUR MODULE
ONLINE TRAINING**

 FireSmart[™]
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FireSmart Alberta Website



We have a new website!

Visit www.firesmartalberta.ca for access to resources and information to help build wildfire resilience in Alberta!

