

B.A. Blackwell & Associates FireSmart Workshop Bowen Island

August 2018



B. A. Blackwell
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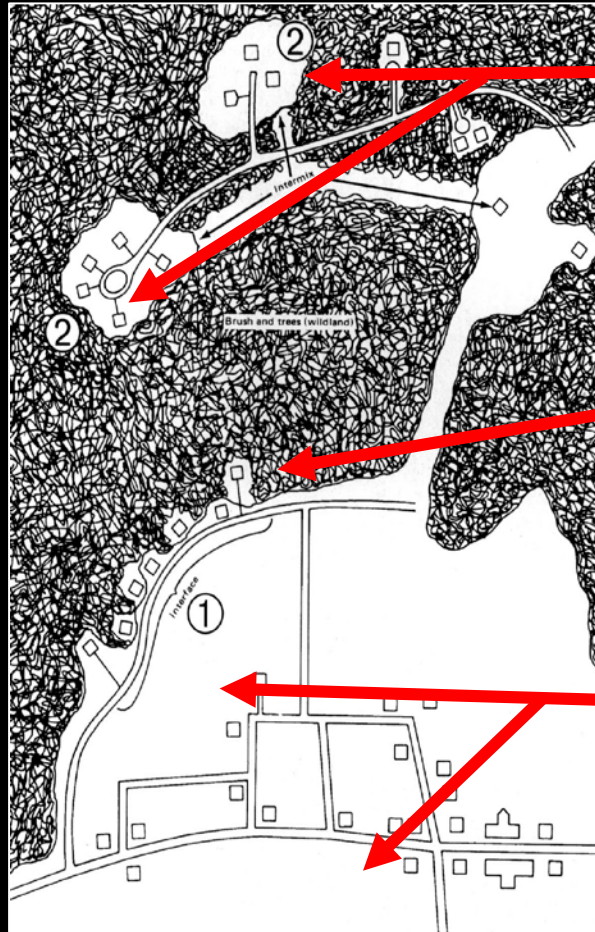


The Risk from Wildfire

- 2003, 2009, 2015 and 2017 BC wildfire seasons resulted in valuable economic, social and environmental losses
- These losses emphasize the need for greater consideration and due diligence with respect to fire risk in the wildland urban interface (WUI)



Background



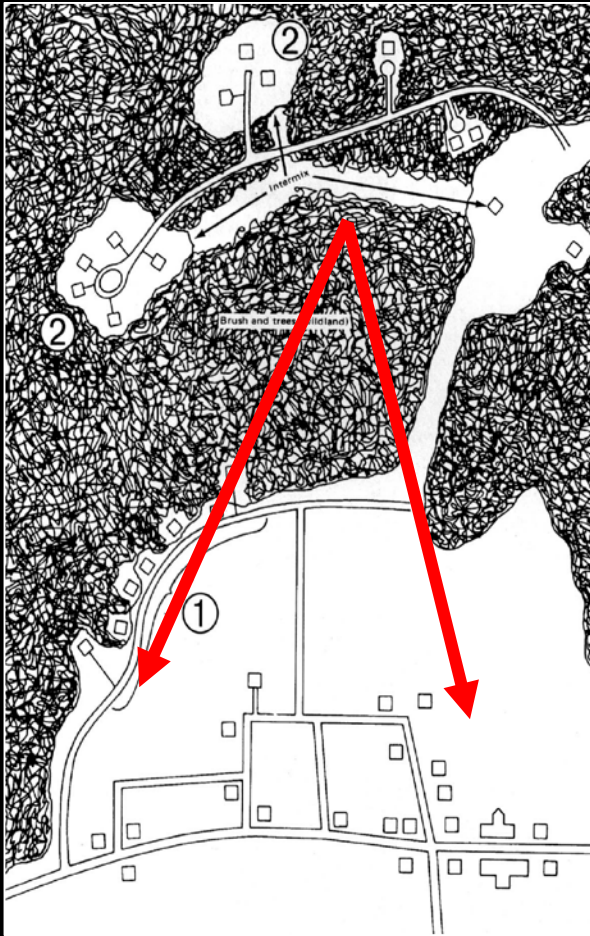
Intermix
*Isolated developments
embedded within the forest*

Interface
*Where the “forest meets the
community”*

Spot Fire Risk



Background



- How does fire threaten the interface?

Fire Threat...

Wildland
↓ ↑
Community

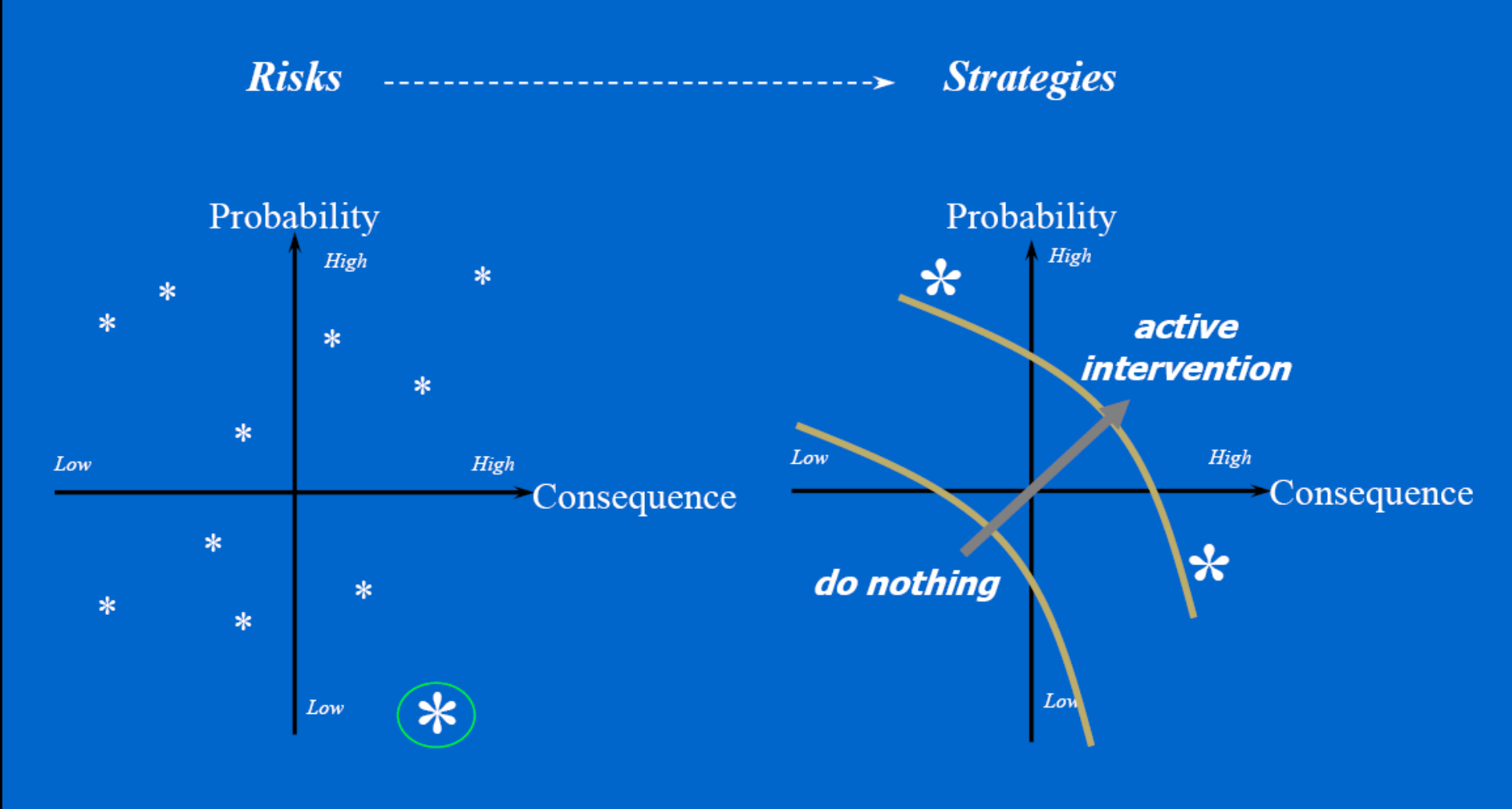


Analyzing Risk

$$\text{RISK} = \text{PROBABILITY} \times \text{CONSEQUENCES}$$



Analyzing Risk



Forest Interface



Background

Firebrand caused ignitions

How are Buildings Ignited by Wildfire?

1. Firebrand caused ignitions:



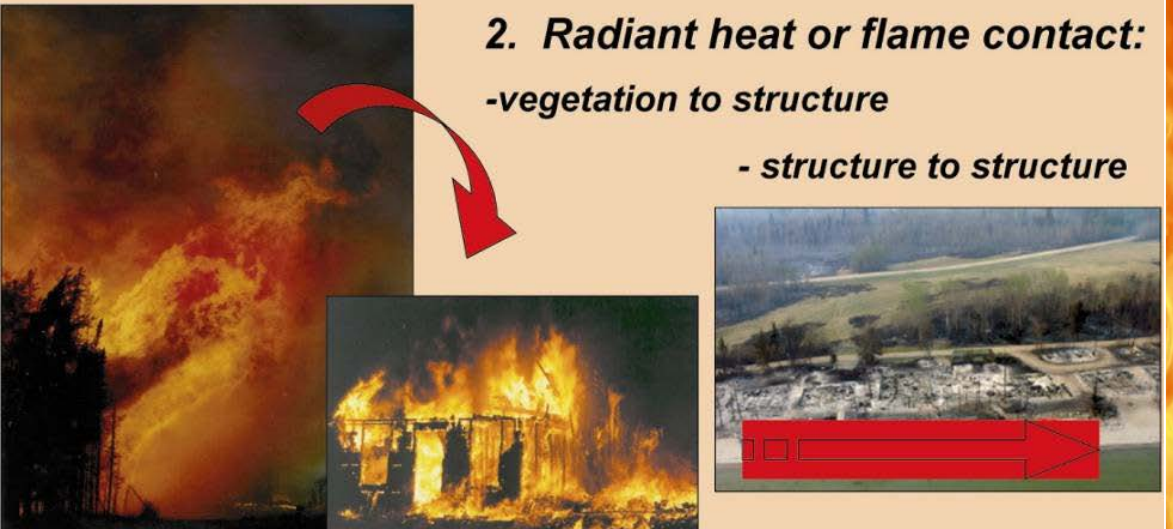
The diagram illustrates the process of firebrand ignition. It starts with a photograph of a wildfire in a forest. A red arrow points from the wildfire to a photograph of a glowing ember on a wooden surface. Another red arrow points from the ember to a photograph of a building engulfed in flames. A third red arrow points from the burning building back to the wildfire, completing a cycle.

Radiant heat/flame contact

How are Buildings Ignited by Wildfire?

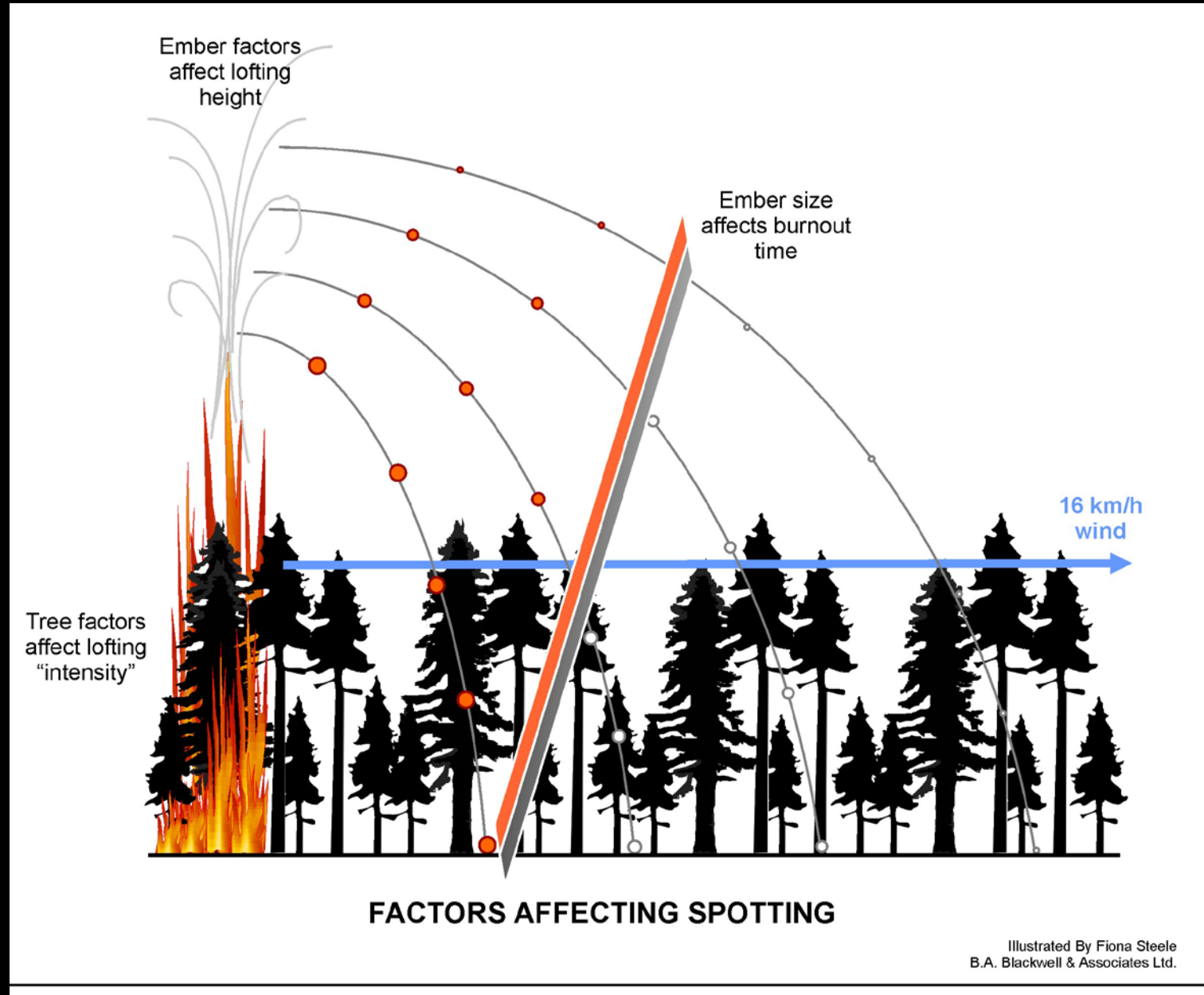
2. Radiant heat or flame contact:

- vegetation to structure
- structure to structure



The diagram illustrates two ways buildings are ignited by wildfire. On the left, a photograph of a wildfire is shown with a red arrow pointing to a photograph of a building engulfed in flames. On the right, a photograph of a destroyed building is shown with a red arrow pointing to it from the wildfire. A large red arrow at the bottom points from the destroyed building towards the right.

Fire Behaviour



Placeholder for video – address is

<https://disastersafety.org/wildfire/>.

Use the Wildfire Ember Storm (2011) is 2
min long



Objectives

- To help communities in the wildland urban interface (WUI) mitigate or reduce their wildfire risk; and
- To assist communities in being better adapted to wildfires and more resilient when they occur.

with **FireSmart**



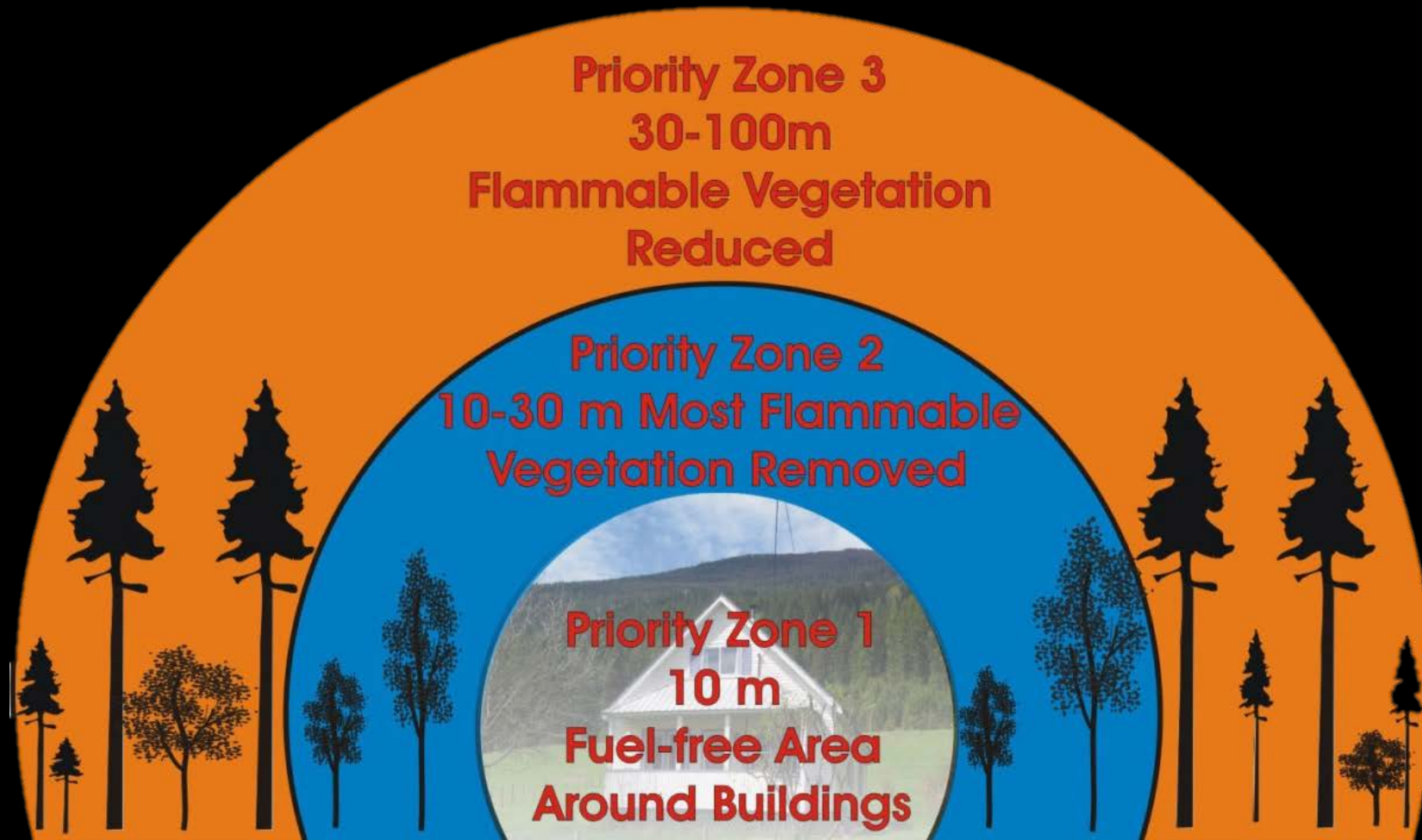
FireSmart

- Two main avenues to FireSmart a home:
 1. Change the vegetation type, density and setback from the building (vegetation management/landscaping); and
 2. Change the structure to reduce vulnerability of fire and the potential for fire to spread to or from a building.



FireSmart

Change the vegetation type, density and setback from the building



FireSmart

- Homeowners and businesses can take steps to reduce the probability of:
 - Fire moving from the forest to a building/home; or
 - Spreading from a building/home to the forest
- FireSmart provides practical tools and information on how to reduce the risk of interface fires
www.firesmartcanada.com



Structure Protection

Fire Priority Zone 1 (red)

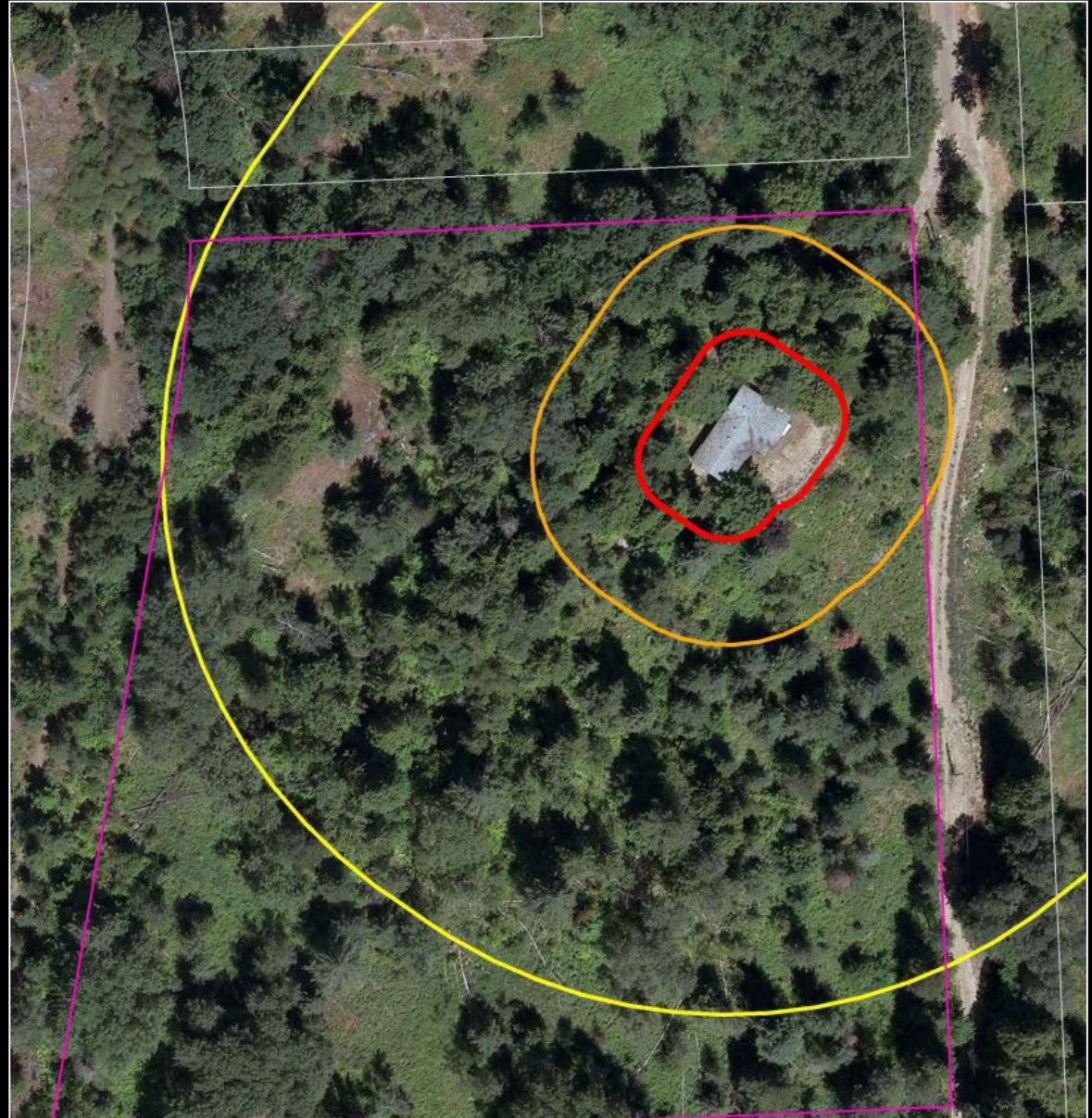
- 10 m radius

Fire Priority Zone 2 (orange)

- 30 m radius

Fire Priority Zone 3 (yellow)

- 100 m radius



Structure Protection



Photo: Westhaver, A. Learning from the Fort McMurray Wildfire Disaster, 2016.



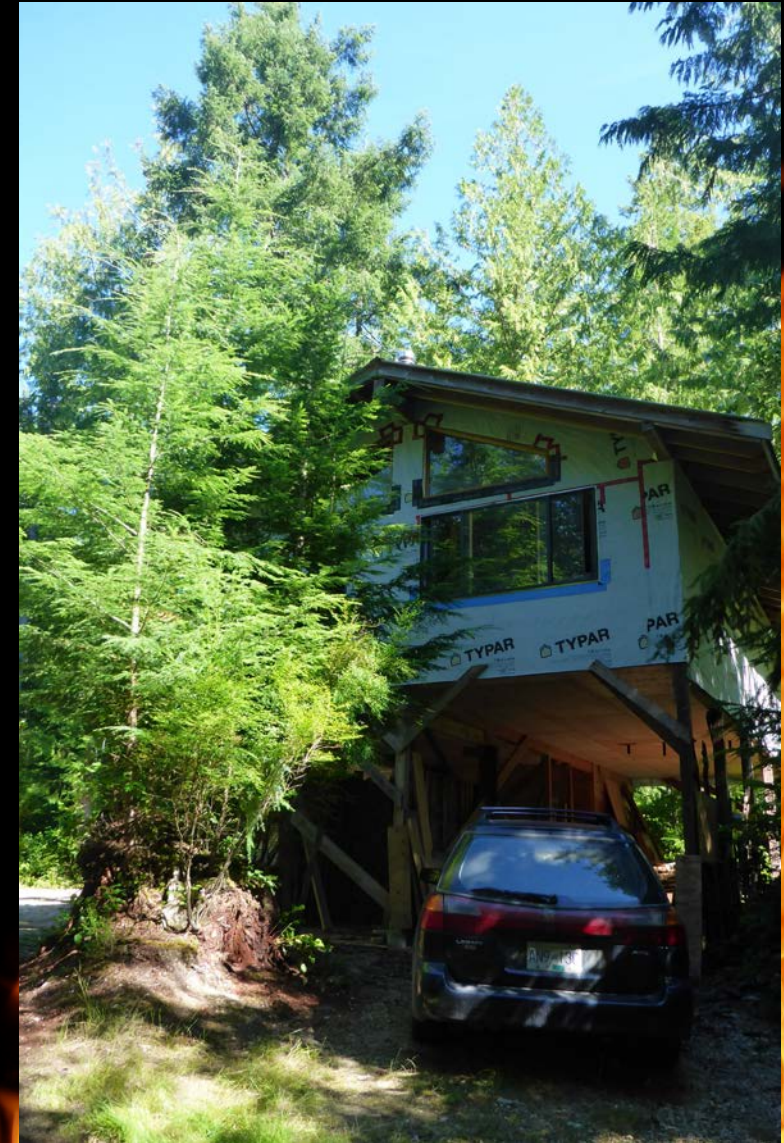
Challenges Implementing FireSmart

- Awareness of risk
- Lack of Engagement
- Cost
- Fuel / biomass disposal
- Perceived actions required to be FireSmart
- Construction materials of existing housing stock
- Lack of funding opportunities



Fire Priority Zone 1

- 10 m fuel free zone around home:
 - Ensure that direct flame contact with the building cannot occur
 - Reduces the potential for radiative heat to ignite the building
 - Avoid vegetation such as juniper or cedar bushes/hedges



Fire Priority Zone 1

1. Change the structure to reduce vulnerability of fire and the potential for fire to spread to or from a building.

- Roofing material
- Building Exterior / Siding Material
- Balconies and Decking
- Combustible Materials



Exterior Building Materials



Non-Compliant Cladding



Flammability of Coniferous Vegetation



Photos: Wildfires spread in Southern California

Shrubs burn near a home in Ventura on December 5.

Compliant Landscaping



Non-Compliant Landscaping



Western redcedar
Thuja plicata / Thuja occidentalis



Yew
Taxus baccata / brevifolia



Juniper
Juniperus sp.

Fire Priority Zone 1



Cisterns for water storage during the dry summer months

Exterior rooftop sprinklers to wet down the home and 10 m zone around the home



Landscaping – Limbing

Limbing the lower branches of large conifers in Fire Priority Zone 1 mitigates the risk from wildfire;

and

Retains ecosystem services provided by older tree stock



Landscaping – Crown Thinning



Before



After

Results of FireSmart



A 'FireSmart' Home



<https://www.bhg.com/fire-smart-landscaping/>



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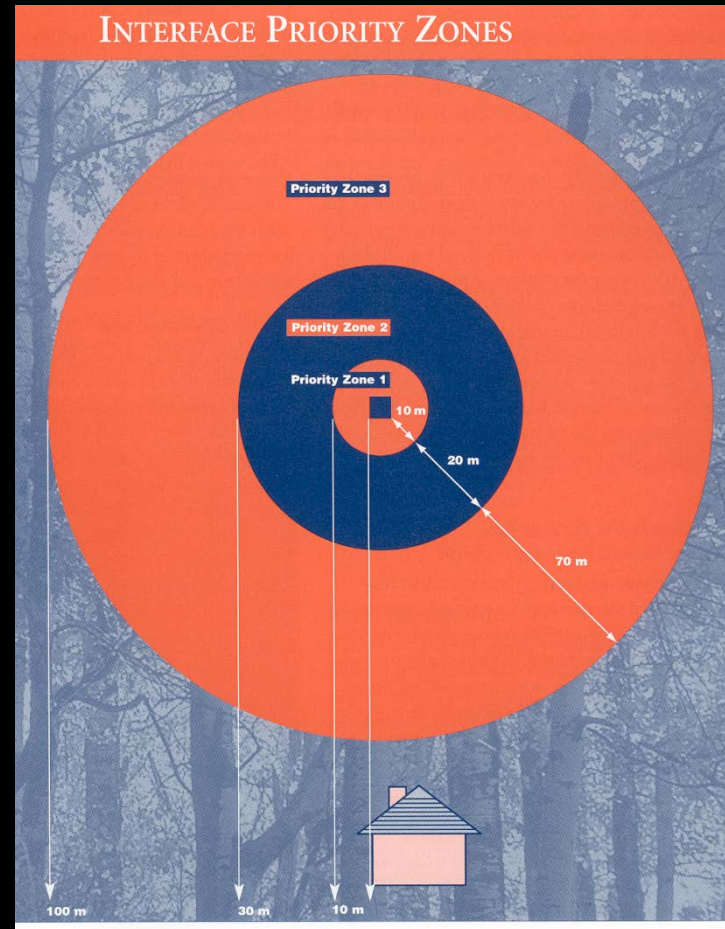
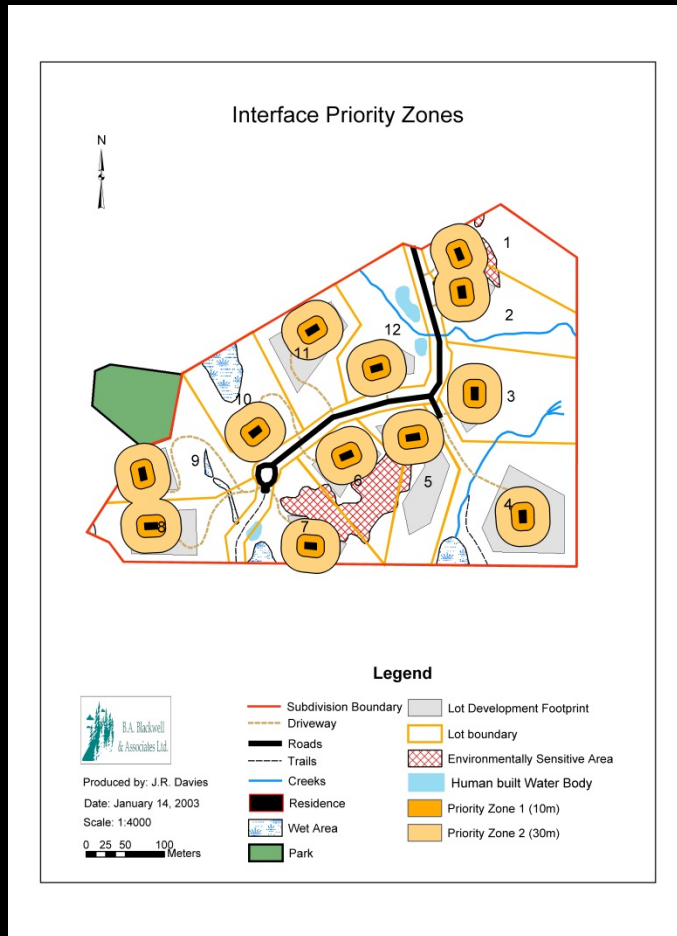
<http://www.firesmartdurango.com>

Fire Priority Zone 2

- 30 m fuel free zone:
 - Most flammable vegetation removed
 - Tree crowns should not touch or overlap
 - Trees should be pruned as high as possible to prevent a ground fire moving into the tree crowns
 - Downed wood or other flammable material should be cleaned up to reduce fire moving along the ground

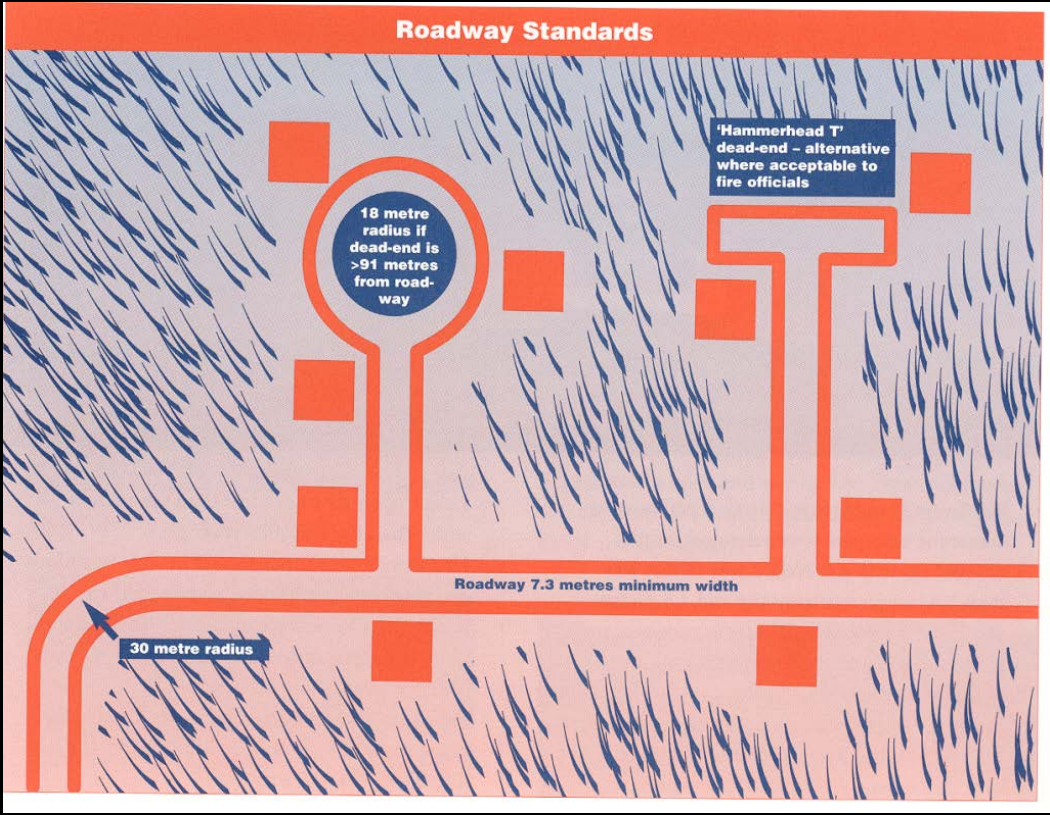


Creation of Defensible Space

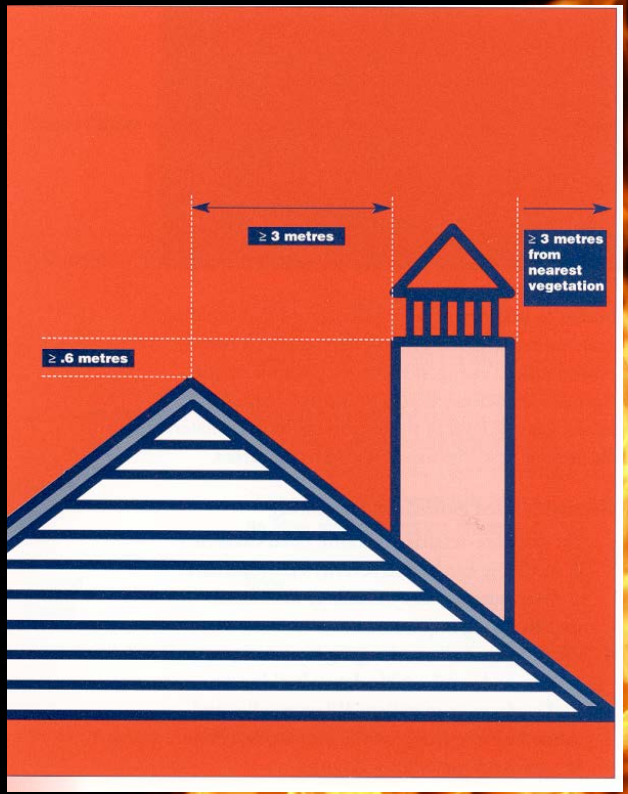


Other Elements of a FireSmart Community

Access Management



Building Standards



FireSmart

Fire Priority Zone 3:

- Main threat posed by trees in this zone is spotting
- Clean up surface fuels
- Prune and space trees

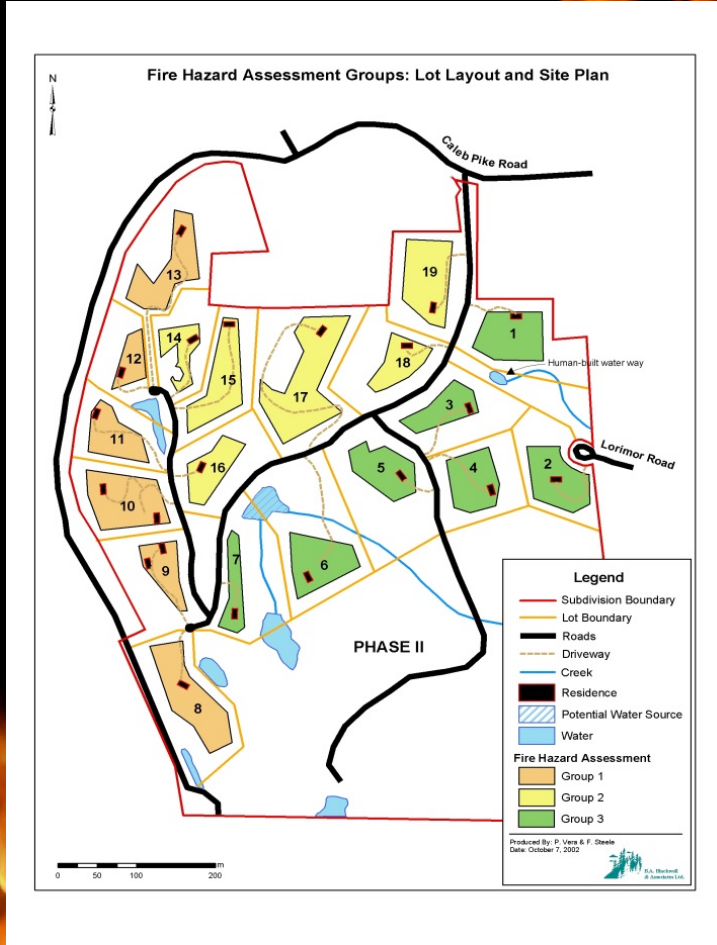
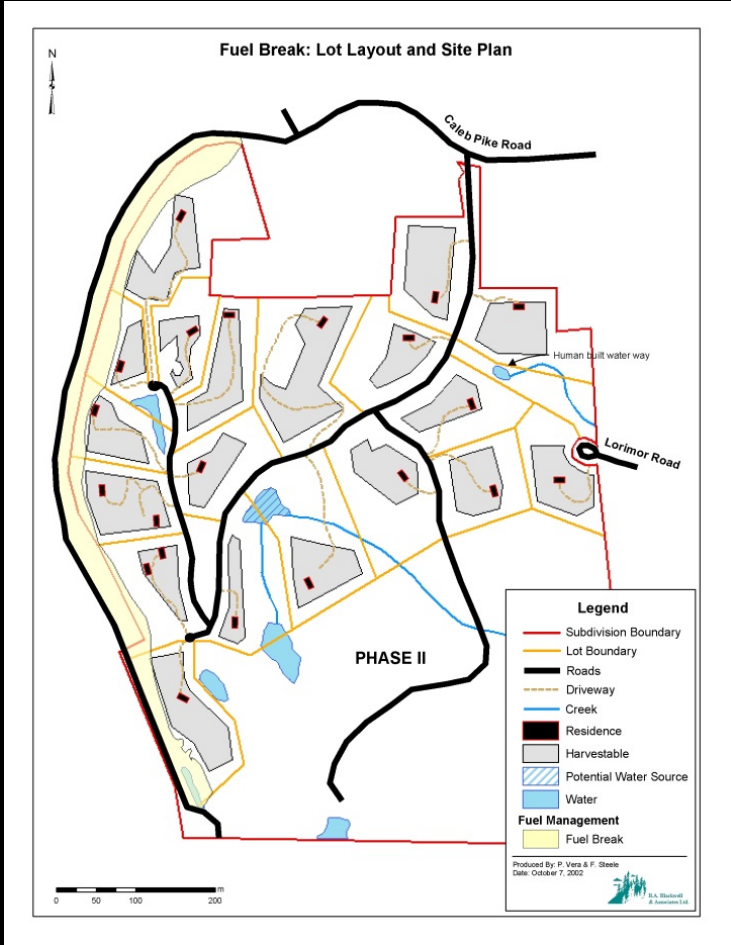


Fuel Treatment



FireSmart at the Subdivision Community Level

Combining Individual Property Assessments for Development of Community Level Protection Strategies



Evacuation

- Is a major consideration during wildfire events
- Is necessary for communities with single access only
- Unincorporated communities with limited access (*e.g.* isolated or boat-accessible only)



What To Do?



- Voluntary action to decrease vulnerability
- Request government-led programs which reduce barriers to action
- Take the *Local FireSmart Representative Workshop*



Landscape Level Fuel Breaks

- Can complement individual / volunteer FireSmart efforts
- Are available for government funding if they occur on Crown land
- Provide protection at a larger scale for the whole community

