Ministry of Natural Resources

Ontario

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FIRESMART®
Community Wildfire Planning
Guidance Document

Aviation, Forest Fire & Emergency Services
ontario.ca/fireprevention

INTRODUCTION

Why is it important for communities to plan for wildfire?

Ontario averages over 1400 wildfires annually with an average of 40,000 hectares burned every year. The potential exists for an increase in the number of challenging fires over a longer period of time as communities'[1] continue to expand into the wildland urban interface areas.

There is a variety of legislation that delegates communities with the responsibility to manage wildland fires within their geographic region. Whether a community chooses to extinguish fires utilizing their local fire departments or decide to contract out services for wildland fire suppression services, it is an important part of community wildfire planning to assess the communities' capabilities to meet the increasing challenges.

If wildfire threatened your community, how would it respond?

If firefighters couldn't contain the fire, what structures might be lost?

How would families and businesses recover?

How would the local economy be affected?

What measures need to be taken to keep citizens and firefighters safe?

Through proper planning, a community can reduce its risk from and increase its ability to respond to wildfire. It is the community and its stakeholders who are best at assessing their current condition and finding solutions that work. Through FireSmart[2] planning, communities can proactively mitigate and respond to wildfires.

The Ministry of Natural Resources is one of the stakeholders that can assist communities' with wildfire planning. As part of a comprehensive strategic planning initiative this document has been prepared to assist communities' with wildfire planning. It can also be used by communities' as a stand-alone guide to address wildfire mitigation and response issues. The Ministry of Natural Resources can provide advisory support to communities', including training, meeting facilitation, and plan review to make planning efforts successful.

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[1] Communities can be defined as a city, town, cottage subdivision or recreation area where a group of people reside and have a common interest in fire protection strategies to protect the landscape and values located within

[2] FireSmart is a program that encourages certain building, landscaping and maintenance practices to reduce vulnerability to wildfire. FireSmart Communities is a national recognition program that promotes FireSmart practices.

THE PLANNING PROCESS

The planning process outlined in this document recommends six steps to create a comprehensive, workable wildfire plan.

Many communities have existing emergency response plans. It may be beneficial to refer back to these plans in completing the steps outlined in this document.

By following these steps, communities' should be able to:

- Achieve wide stakeholder involvement
- Assess vulnerabilities to the community's current resources and infrastructure
- Identify areas that need improvement
- Implement an emergency response and hazard mitigation plan

STEP 1: Identify stakeholders

The safety of the citizens of any community is a shared responsibility between the citizens, local municipal officials, industry leaders, and various government agencies. The ultimate effectiveness of a wildfire plan in making significant changes in a community depends on the support of the people who live and work there, as well as those agencies that have an interest in wildfire planning. When a broad range of appropriate stakeholders are involved in the planning process, the plan is more likely to address all of the relevant issues and gain greater acceptance from the community.

Many communities have existing emergency planning groups that can function as a ***FireSmart*** Committee. Involving a wide range of stakeholders from within the community will ensure that all community concerns are addressed.

Examples of possible stakeholders to involve in fire planning efforts:

- Farmers
- Insurance Agencies Newspaper/Media
- Small Business Owners
- Government: Mayor, Council, & City Planners
- Emergency Management Officials
- Police Department, Fire Department (city and rural)
- Planning and Zoning Commissions
- Conservation Authorities
- Chamber of Commerce Representatives
- Forestry Groups – Model Forests
- Community Clubs
- Cottage Associations
- Local Development Corporations
- Professional Associations, Builders Recreation Groups
- Tourism Officials

List the **names, affiliations** and **phone numbers** of the planning committee members.

Once a FireSmart Committee is established, the Committee should develop a mission statement for their FireSmart project.

An example would be:

"The goal of the FireSmart Committee is to develop a cooperative program among the public, and stakeholders that have a vested interest to minimize the risk, cost and loss of values that may result from wildland fires occurring in and around the community".

STEP 2: Developing FireSmart Management Zones

Assessing an entire municipality, township or community may be a little daunting so it is helpful to divide the community into manageable working areas.

This step will divide your community into FireSmart managment zones. To do this you require a map showing the following information;

- Community boundary
- Roads
- Water bodies
- Fire Resource locations
- Mutual Aid Resource locations
- Values
- Corridor areas; railway, hydro, pipeline

When drawing the zone boundaries utilize natural or man made boundaries on the map to create the zone. Utilize different colors for each boundary line to help make them stand out from one another. When zones are established use the assessment tool (Appendix D) to evaluate each zone to prioritize the risk.

Appendix E is an example of a small community broken down into four management zones. Zones are assigned a priority number for planning purposes based on the immediate risk from potential wildfire activity. Activities may occur within each zone at any time, however by prioritizing the work area key projects can be focused on each year.

As indicated in Step 5, mitigation strategies can occur over a 3 to 5 year period. By breaking the community into FireSmart planning zones based on the general assessment of areas at risk, the committee can establish short term and long term goals. By having a FireSmart plan in place municipal officials can submit applications to solicit funding support for various projects over a managed time period.

During the planning stage work projects may not occur until funding has been obtained. While the identified risk is still present, the FireSmart program may offer ways to reduce this risk and prevent an incident from occurring. A good example of this would be a road way that has been assessed with a bridge that will not support emergency vehicles. If replacing the bridge is 5 years away the committee can mitigate this risk by placing signage notifying emergency services that the area is inaccessible. Fire departments can look at using different equipment within this area to provide fire protection services.

STEP 3: Describe the community

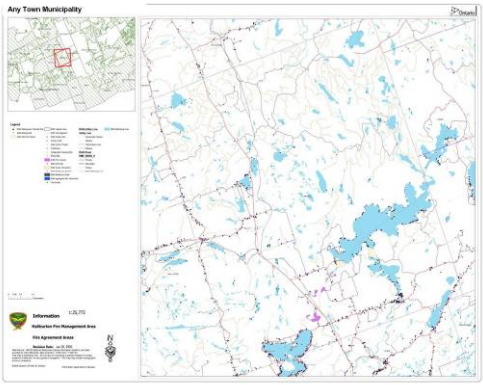
The community description identifies the area the wildfire plan will affect, as well as resources that can be used to achieve the goals of the plan. It also provides an opportunity to list assets and resources that may be threatened by a wildfire. Much of the information below may be available by reviewing any existing Emergency Plan.

1. Population

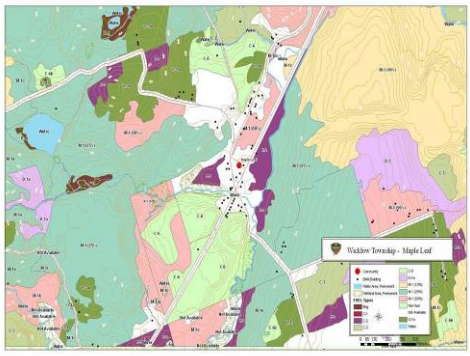
Provide information regarding the population of the area covered by this plan, both rural and municipal. The area the plan will affect should correspond to the fire protection zones that surround the community. Seasonal populations should also be considered in tourism areas.

2. Estimated Property/Infrastructure Values at Risk.

The initial step is to identify areas that are at risk from wildland fires. These areas can be delineated through the use of satellite imagery or values mapping through GIS services. Not all areas of a community will be at risk from wild land fires. The planning process should focus on areas identified to be at risk.



To do this the committee will require a map of the community that shows the following items;
- Roads, Values, Lakes and Rivers Appendix A
- Topographical and forest cover fuel type maps Appendix B & C



By working with your FireSmart management zones a general work plan can be easily developed to be able to conduct FireSmart survey assessments and map out the results. Many communities have fire response zones that have already broken out the community into geographic regions with well identified boundaries within their fire suppression agreement with the MNR.

3. Economic Values at Risk

Describe how the loss of businesses and homes would affect the local economy (tourism, agriculture, forestry operations) e.g. local sawmill

4. Natural Resources at Risk

Describe the natural resources at risk in the surrounding area, such as parks, lakes, rivers, conservation areas, and wildlife refuges.

5. Forestry Operations

Identify and map areas of logging, silvicultural operations or community forests.

6. Commercial Entities

List the contact information, location, and potential need for wildfire risk assessment for commercial entities.

7. Corridors and Transportation

Identify major infrastructure, including railroad, highways, high tension hydro lines and pipelines.

8. Preventive Measures or By-Laws

Describe any pertinent restrictive ordinances or other regulations that concern or impact wildfire. For example, list any regulations regarding building construction materials, burning permits, vegetation removal, tree trimming requirements and so forth.

9. Land Use Assessment

Evaluate all areas within the Municipal jurisdiction and assign land use values to assess potential wildland ignition sources. Land classification systems will help with the preparation of a mitigation strategy targeted to reduce the risk of wildland fires from starting from various user groups. This assessment will include such groups as farmland, recreation areas, forestry operations, rural residential and recreation areas etc.

10. Evaluate Fire History

Collect wildland fire statistics and evaluate common ignition sources to develop strategies to mitigate fire starts in the community.

11. Fire Suppression Resources

On the community map locate fire halls, equipment caches, mutual aid resources, water sources etc.

STEP 4: Infrastructure & property assessment

FireSmart community infrastructure assessments and homeowner property assessments in areas identified at risk will indicate the work needed to bring areas up to FireSmart standards. Mapping the results will also help develop a multi year work strategy. By developing a long term plan it allows planners time to apply for infrastructure funding for community upgrades and enables the FireSmart Committee to focus on key priority areas in each management zone. Appendix D is the **Community Risk Assessment Tool**, which provides a general template to organize risk assessment values.

An infrastructure assessment evaluates conditions that may improve or hamper emergency response during a wildfire. The community should work with the municipal officials and utility companies to complete this section.

A. Access/Community Location

Provide detailed information about emergency access in the community. This allows emergency responders from other communities or agencies that are unfamiliar with the area to easily locate the community in the event of a catastrophic wildfire.

B. Roads

Provide information regarding the condition and types of roads. Will roads and bridges be able to handle heavy emergency response equipment? Can emergency response equipment easily enter and exit residential areas? Can mutual aid agencies find roads easily?

Reviewing and mapping the following items may be useful when assessing infrastructure:

- Presence of readable road signs, fire emergency numbers on homes or driveways.
  - Large clear concise signage is important under smoke conditions
- Presence of paved, gravel, and dirt roads.
- Number of roads that will support (#) ___ lanes of traffic.
- Presence of loop roads.
- Presence of dead-end roads. Review turnaround space available at the end of the road for emergency equipment.

Since roads can provide places from which to fight wildfires, identifying these resources prior to a wildfire is crucial information for emergency response personnel.

C. Driveways in Subdivisions & Rural areas

Provide a general assessment of the driveways with regard to emergency equipment access. Are width and height clearance and road grades adequate for emergency equipment? Do individual homeowners have their name and address or emergency lane numbers posted in visible locations?

D. Structures

Assess the vulnerability of structures to ignition by completing ***FireSmart*** Homeowner Property Assessments.

Map the property assessments to rank the hazard condition identified (Appendix E). This map will allow the committee to monitor results as homeowners and community members complete work projects. The ultimate goal is to show a steady decrease of high and moderate risk areas. Knowing certain mitigation strategies have been implemented in certain areas will allow suppression crews to focus on dealing with the wildland fire if it occurs.

Research shows that if a wildland fire ignites a building within a community, it is often that burning structure rather than the wildfire itself which will ignite other structures. For this reason, it is important to understand how a wildfire would likely enter the community and which structures are most vulnerable.

Using the ***FireSmart*** Homeowner's Assessment will be useful when evaluating the vulnerability of structures:

- Use of defensible space around buildings
    - Open decks or porches
- Type of building construction
    - Roof construction
- Visibility/access from the main road
    - Forest/grass fuels

Prevailing wind direction (buildings on certain sides of town may be more vulnerable).

Community assessments should be organized by the local Fire Department and may be conducted through volunteer groups, summer students or property owners themselves.

Appendix F and G may also be useful to complete the assessment.

E. Bridges and Culverts

Assess infrastructure for potential obstacles to emergency response. Consider weight, height, and width of emergency vehicles. Can bridges support emergency equipment? Are culverts easily crossed by emergency equipment? Identify alternative routes.

F. Utilities

Assess and provide information on the utilities serving the community.

Damaged utilities, such as downed electrical lines or propane tanks, present hazards to the public and emergency response personnel.

They can hamper communications during a disaster and create health and safety issues.

Note areas where utilities may be at a higher risk for damage during a wildfire.

1) Telephone service is (below/above) **ground.**

Provided by: _____ _
Telephone #: _____

Cell phone zones (where coverage exists or is not available).

2) Electrical service is (below/above/both) **ground.**

Provided by: _____
Telephone #: _____

3) Corridor areas: natural gas pipelines, rail.

Contact information available for emergencies.

4) Note primary water sources such as: central water systems, individual wells, dry hydrants or additional private water sources.

5) Radio communication zones.
Are there areas with no reception? Are all areas cell phone friendly?

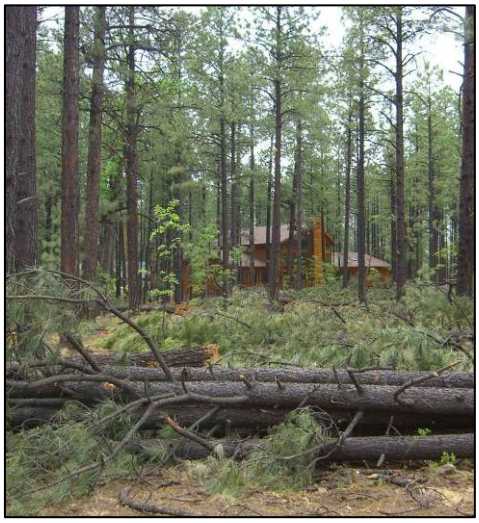
G. Wildfire Risk

The committee can now evaluate the community's fire risk, using the data collected that includes its fire history, the presence of hazardous fuels in the area, and related issues identified from FireSmart surveys. The risk assessment guide will help to determine the fire severity rating along with the risk assessment rating for any given area. For those communities that have fire suppression agreements with the MNR, this work will have already been completed with the agreement workbook.

As described in **Section D**, a community's risk from wildfire is related to the vulnerability of the structures within it. Wildfire risk, though, also consists of other factors, such as the amount of flammable fuels around the community. An increased wildfire risk may be found in areas containing an accumulation of trees, shrubs and grasses. Open grasslands and conservation areas may also contain high fuel loads. During drought conditions, these areas can contribute to more extreme wildfire behaviour. Analyzing the fuels will help identify areas where mitigation actions can reduce fuels, where fire breaks are needed, or where the community should work together with land owners to reduce risks.

Another factor affecting a community's wildfire risk is the historic occurrence and cause of wildfires. After analyzing these factors, a community may find for example, that most wildfires occur in April and October, and most are caused by agricultural or debris burning. The community may decide that implementing a wildfire awareness campaign during those months could lessen the risk from wildfire.

The Community Risk Assessment Tool (Appendix D) evaluates all of these factors and provides an overall assessment rating for the general area of concern.



The risk analysis identifies:

1) Forest Fire Fuel Rating
2) Values at risk (community values assessment)
3) Fire severity rating
4) Probability of fire ignition and area fire history
    a. Month/Year of Fire
    b. Fire cause
    c. Hectares burned
    d. Prevailing wind direction
5) Overall risk assessment rating

STEP 5: Wildfire mitigation

After assessing the condition of the community's infrastructure (A through G in Step 4) and its vulnerability to wildfires, the community now needs to determine how it will address those issues and reduce its vulnerability. This part of the plan is the hazard mitigation section, and it states the goals of the community, identifies specific actions needed to meet these goals, identifies timelines for achieving the goals, and lists responsible parties, resources and priorities. Appendix H provides an example of how mitigation priorities may be identified, assessed and actioned.

A. GOALS

Provide a brief statement of the goals of the Community Wildfire Plan.

Goals should address the following:

- Fuel Reduction/Modification
- Facilities and Equipment
- Infrastructure Improvements (Utilities, Water Developments, Equipment Acquisition/Repair)
- Wildfire Prevention Education/Awareness (FireSmart programs)
- Historical data base to monitor results of prevention/education programs. (Focus strategies on causal agents)

Examples of possible goals

1) Decrease fuels to reduce wildfire intensity and impact in and around the community and maintain those areas in a FireSmart condition.
2) Educate community members to prevent, prepare for and respond to wildfire.
3) Actively address identified regulatory issues impacting community wildfire prevention and response needs.
4) Regularly evaluate, update and maintain planning commitments.
5) Achieve FireSmart Communities status as part of wildfire preparation efforts.
6) Improve campgrounds, parks for campfire safety (FFPA[3] regulations) reduces impacts to tourism.
7) Evaluate by-laws and update as required to meet prevention goals and strategies.

Example of fuels modification: Before and After

[3] The Forest Fires Prevention Act and Regulations has requirements aimed at reducing forest fires and ensuring public safety.

B. ACTIONS

Describe the specific projects or actions needed to complete the goals of the plan.

Examples of possible actions

Fuel modification projects will be implemented through:

1) Educational campaigns utilizing informational meetings, brochures, FireSmart workshops, and a community assessment by a fire expert.
2) Group services, such as hauling, cutting, chipping, and roofing.
3) School and youth community service projects.
4) Fuel break development and establishment with the assistance industry and wildland fire experts.
5) Community roadside cutting, spraying, and reseeding projects.

C. IDENTIFICATION OF RESPONSIBLE PARTIES, RESOURCES AND PRIORITIES

Outline how the action items will be accomplished by listing responsible parties (person who is responsible for each action), resources (assets needed to complete actions), and priorities (designating each action as high, medium or low priority). Include a timeframe for completing the goal/action item.

D. MONITORING AND EVALUATION

Describe how this plan will be monitored and evaluated over the next 3 to 5 years. How will the document remain a living document? Who will make sure the information is current and correct?

E. ENFORCEMENT

Train staff to investigate Wildland fire causes to be able to pursue cost collection from responsible parties under local by-laws or the FFPA. This will reduce out of pocket costs and will improve resource utilization. This can be accomplished through By-Laws and By-Law enforcement officers.

STEP 6: Wildfire response

After assessing the community's vulnerability to wildfire and planning how to address mitigation issues, this next step is critical to determine how the community will respond to a wildfire. This part of the plan identifies areas where local services can provide adequate protection services within the community and identifies areas where suppression services for wildland fires will have to be provided by other groups. This section of the plan describes the community's emergency response structure. It lists emergency support equipment and identifies what the emergency support units require to safely and efficiently respond to a wildfire. For those communities that enter into a fire suppression agreement with the Ministry of Natural Resources, this information will already have been completed when evaluating fire response zones.

The community should work with fire departments, law enforcement, emergency medical services and the EMO to complete this section.

A. Emergency Services Equipment

Describe and list the types of emergency services and equipment available within the municipality that is designed to suppress and support wildland fire operations. This would also include any Mutual Aid agreements currently in place to support the community in times of Emergency.

Identify potential suppliers for rental equipment to support wildfire operations i.e. bulldozers, ATV's, boats

B. Wildfire Preparation Plan

Communities should have a wildfire "Preparation Plan" in the event a wildfire exceeds local fire department capability.

If, during a wildfire incident, the local fire department determines that the fire is going to exceed their capacity to control it safely and efficiently, they will call on their mutual aid partners for support. The department must also have a mechanism in place to request assistance from the Ministry of Natural Resources if the fire exceeds the capacity of mutual aid.

Working with emergency response personnel, the community should determine what steps to take if a wildfire exceeds local suppression efforts.

Addressing the following issues in a response plan may save time, money, property and lives:

1) Emergency notification procedures
2) Briefing template for incoming personnel on safety and hazards
    a. Templates should include information on jurisdiction, incident location, fire size and behaviour, weather, fuels, topography, hazards and assets at risk
3) How local fire departments will coordinate their efforts
4) Factors in determining evacuation vs. shelter-in-place
5) How to accomplish evacuations
6) Traffic control for evacuations and incident management
7) If an Incident Command System is put in place by authorities, who in the community will be a liaison?
8) Pre-determined locations for:
    a. Incident Command Post
    b. Staging Areas
    c. Fire base camps

C. Early Warning Systems

Are early warning systems (sirens, radio/TV broadcasts) in place in the community?

D. Water Sources

Map areas where water may be obtained during a wildfire. Areas include: ponds, hydrants, dry hydrants, cisterns, water tanks, swimming pools or other water storage areas.

E. Training Needs and Equipment

Municipal fire departments must assess the current and needed equipment and training to respond to a wildfire event.

Training programs available for Wildland Fire Agencies are as follows:

SP103 Municipal Fire Fighter Course

- Entry level fire fighter course
- Equipment maintenance
- Wildland suppression strategies using power pumps, hose and hand tools effectively
- Pre-requisite to the SP230 course

SP230 Strategies and Tactics Course

- For Fire Officers or Fire Officer Candidates
- Advanced fire behaviour understanding
- Designed to assist Fire Officers to be able to assess fires & employ various suppression strategies
- Wildland fire safety principles

Aircraft Safety Training

- How to work with MNR aircraft
- Safety protocols during water bombing activities

FireSmart Community Training

- Presentations to train staff on how to conduct assessments
- Community planning guide
- Homeowner engagement strategies

F. Resource Evaluation Plan and Strategic Plan to Upgrade

Municipalities should develop an action plan that identifies areas to improve wildland fire response within the community over a managed period of time. This will include training programs, equipment upgrades and agreements to improve response capabilities within to reduce costs to the municipality.

The goal for any community should be to improve their response capabilities so they can expand there area of responsibility and reduce the costs of contracting out fire suppression services.

SUPPORT MAPS

Maps are a critical part of a wildfire plan. They identify areas that contain hazardous fuels, infrastructure that will not support emergency vehicles, evacuation routes and so forth. They also provide emergency response personnel with crucial information needed during an incident, such as the exact location of transportation routes and critical facilities, emergency water supplies. Copies of maps should be included in an appendix of the plan as well as made available to all local emergency personnel and to any additional resources that may be called upon during a wildfire event.

Suggested maps - Community Assessment maps should consist of the following:

Roads, values, water bodies	Appendix A
Forest fuels, topography	Appendix B
Satellite imagery	Appendix C
3 to 5 year strategy zones mapped	Appendix E
Assessment survey results mapped out	Appendix F and Appendix G

Suppression map including:

- Water sources marked for truck access
- Fire resource locations
- Roads, infrastructure
- Significant hazard areas marked i.e. blow down, logging, no access etc.

Fire response zones (zones that are made up based on access and common hazard conditions)

CONCLUSION

The key to successful wildfire planning is extensive participation from a wide variety of community representatives. With broad stakeholder support, a wildfire plan represents the dedication of individuals proactively protecting their community. Through proper planning, communities can take action now to mitigate or prevent the destructive effects of a wildfire, as well as be prepared to properly respond to a wildfire.

The Ministry of Natural Resources is dedicated to helping communities create successful wildfire plans. Our trained staff can assist communities with various aspects of the planning process and can schedule on-site assistance when requested. To support community planning efforts the MNR has developed a FireSmart Communities training CD to help established FireSmart Committees begin planning for their community.

The goal of any emergency planning process is to prepare agencies to be able to respond adequately to the emergency situation within their jurisdiction. The planning process should also identify areas where improvements can be made so that municipalities can become more self-sufficient in dealing with local emergencies. An effective planning strategy will eventually improve the community's infrastructure to the degree where the community can provide adequate emergency services for their entire community without contracting out services.

ADDITIONAL WILDFIRE PLANNING RESOURCES

INTERNET SITES:

ontario.ca\fireprevention

www.ofm.gov.on.ca/english/default.asp

www.oafc.on.ca/home.asp

http://www.partnersinprotection.ab.ca/

PUBLICATIONS:

FireSmart Communities Manual

Ontario ***FireSmart*** Homeowners Booklet

Community Risk Assessment Analysis

Ministry of Natural Resources

Ontario

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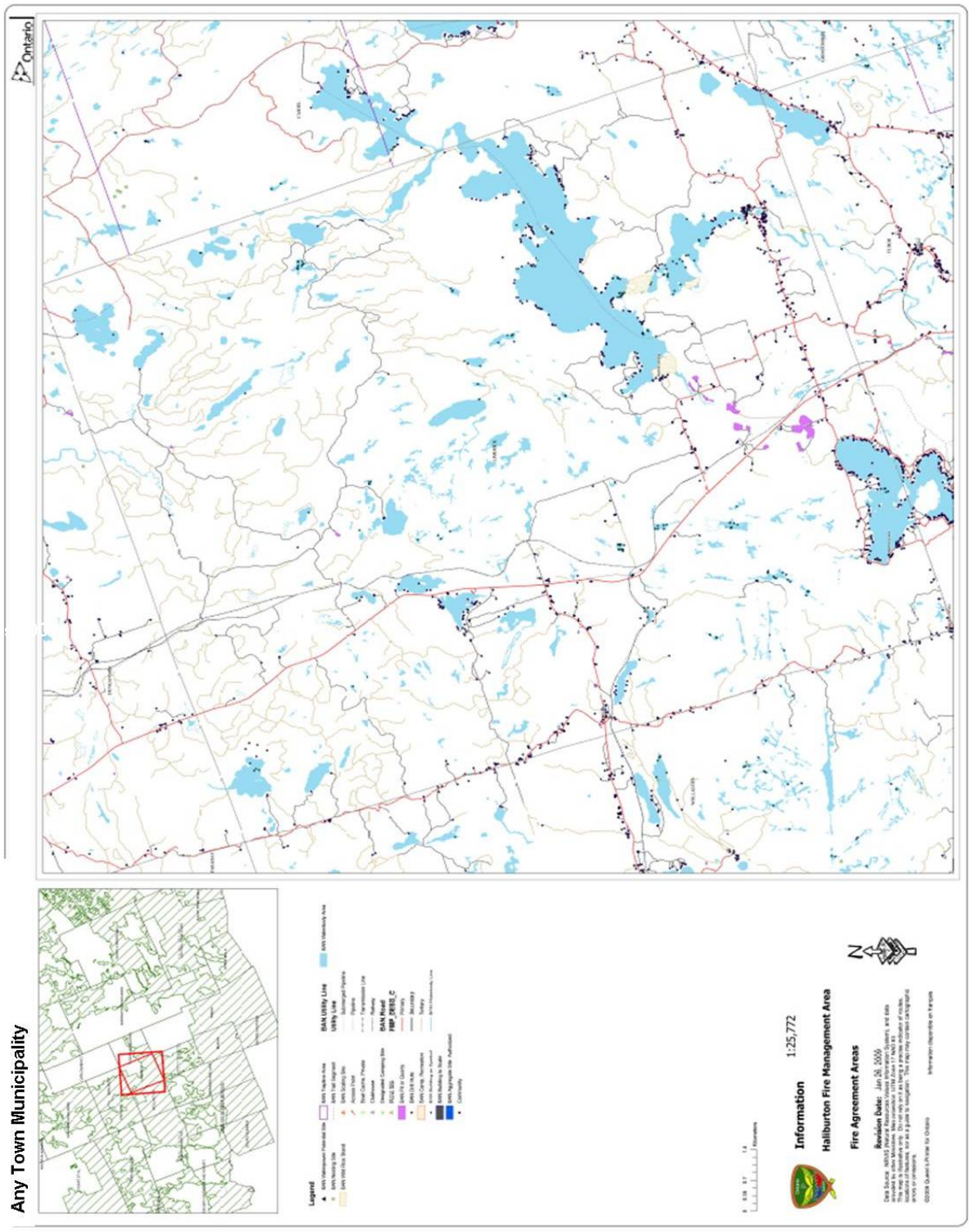
Appendices

Appendix A:
Values, Roads and Water Bodies Map



Many communities have access to GIS data and can create maps of their area to work from. The MNR will assist those areas that require this service. By using this type of map in conjunction with satellite imagery where available, a committee can quickly break the community down into working areas.

Appendix B:
Topography and Forest Fuel Cover Map

Forest cover will help the committee identify where areas of concern are within the management area. Conifer, mixed wood and hardwood fuels represent different concerns during the fire season. By identifying these areas and using the Forest Fuel Risk Assessment Tool committees will better understand where high risk areas are located in the management area.

Appendix C:
Satellite Imagery

Many areas in Ontario can utilize high resolution satellite images to identify key areas that may be at risk in the interface areas. This can be instrumental to help the committee formulate an action plan to begin assessing their community. Much of the initial planning of a FireSmart community can be accomplished using these tools before actually implementing field work and assessments.

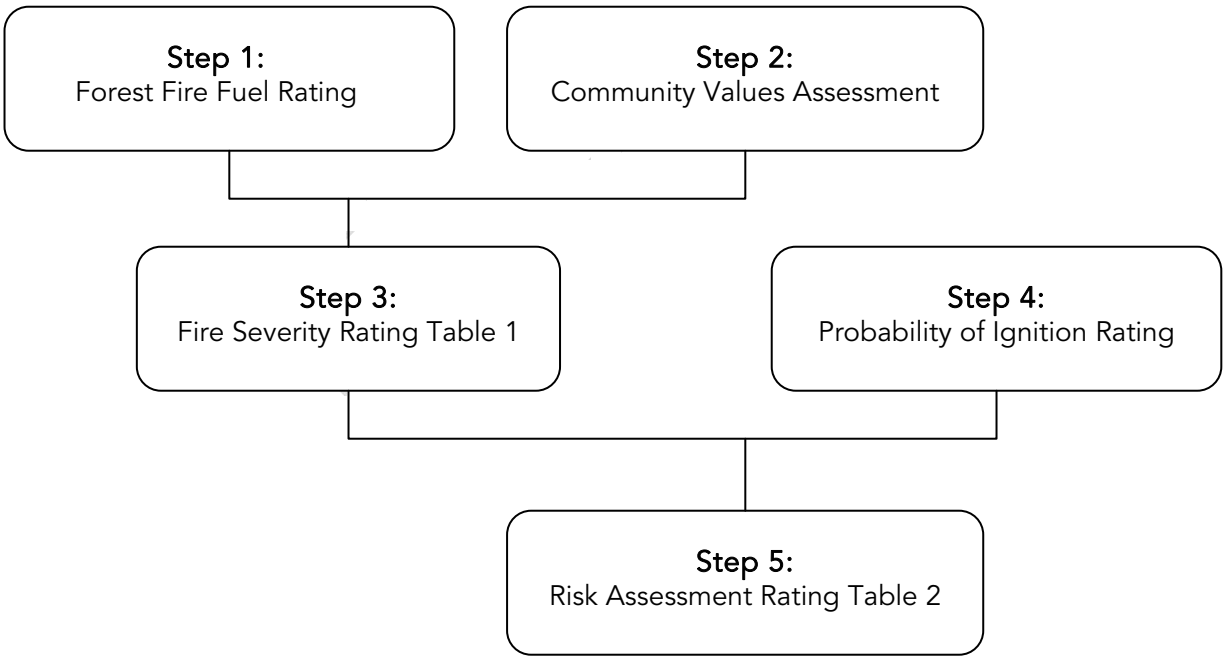
Appendix D:
Community Risk Assessment Tool

Introduction

The risk assessment analysis has been developed to help communities to be able to identify the potential risk their community may face under moderate to high fire hazard situations. The risk assessment analysis combined with the resource capabilities analysis will help fire planners better understand what level of fire response they can manage. It will also provide a starting point to begin formulating a plan to upgrade resources to work safer and more efficient within their community.

The risk assessment rating is determined by combining the ignition potential of a fire to start in a given assessment area with the fire severity rating determined by the forest fire fuels and identified values located in an assessment area.

Risk Assessment Analysis Flow Chart



STEP 1: Forest Fire Fuel Rating

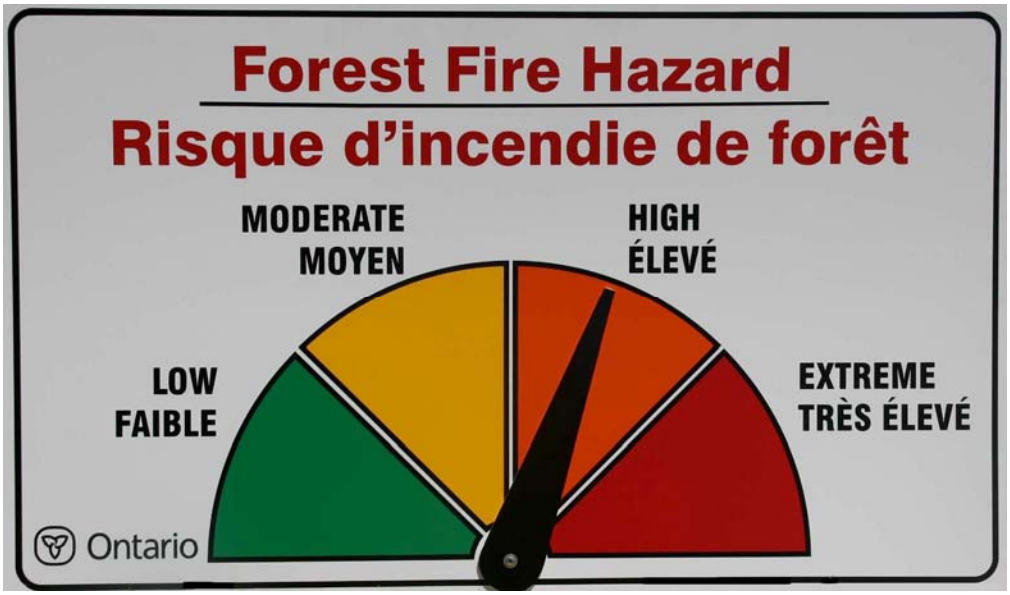
This assessment determines the predominant forest fire fuel type for the assessment area. The assessed value will be used in **Table 1 (Fire Severity Rating)**.

The time of year for assigning a forest fire fuel type value is for that period when all fuels are in a greened up state. During the spring all areas are at risk from surface fires due to the accumulation of cured dead fuels. Normal FireSmart assessments will identify what areas would be at risk during this time period.

This assessment will identify the primary fuel type concern during **late spring to fall fuel conditions.**

The immediate area of concern for assessments would be the general area in and around identified values i.e. residential subdivision or industrial parks. For areas that are identified as forest values only, the whole area would be assessed to provide a general anticipated fire impact.

Planners should focus the assessment on expectations for a moderate to high fire hazard condition. It is generally expected that fires under low fire hazard conditions would not likely cause problems on a large scale. For fires that occur under extreme conditions it is expected that fire behaviour requires a higher level of response and the general FireSmart plan would identify a process to plan for this. Fire hazard conditions are based on the MNR fire danger rating system that communities utilize to inform the public of fuel conditions within their immediate area. This information is typically obtained through the MNR weather station data that local fire departments monitor.



Forest Fuel Risk Rating

HIGH

Conifer plantations unmanaged– areas that have been planted with spruce, pine and have branches (ladder fuels) that reach the ground or have slash build up under the tree canopy.

- Conifer forests; areas that are natural with pine, spruce, balsam fir
- Mixed wood forests (75%, 50% conifer); with storm damage or slash fuels
- Slash or storm damaged fuels; areas with fuels lying horizontal on the ground.
- Grass fuels; heavy accumulation of dead material in the spring and fall. Usually unmanaged farmlands or meadows.

Cedar, Hemlock, Tamarack areas are typically not a fire concern.


Jack Pine


Storm Damage

MODERATE

- Conifer plantations that are managed and have no ladder fuels or slash on the ground
- Mixed wood forests (75%, 50% conifer)


Mixedwood (50%)


Pine Plantation

LOW

- Mixed wood forest; with 25% conifer
- Hardwood forests; (maple, birch, oak, poplar)
- Grass in a greened up state; pertain to open fields or under story fuels within forested areas.

The risk values are during normal seasonal values. During times of extreme fire hazard all fuels have the potential to all be high risk under the right conditions.
All fuel values can increase in hazard with an increase of horizontal fuels on the ground. For example mixed wood fuels with storm damage may move from a moderate hazard to high hazard. This reflects the combination of two categories influencing fire behaviour.

STEP 2: Community Values Assessment

Values ratings are based on several factors and are subjective to community interpretation. Houses, businesses, community infrastructure, recreation areas, conservation areas, forests can all be listed as values. The assessed value rating in this category will also be used in **Step 3 (Table 1: Fire Severity Rating)**.

Establishing what rating a value should be assigned will be determined by the importance of the value to the community along with the interface assessment of defensible boundaries around the value.

Houses or infrastructure that are built into a forested area and can be impacted by fire would naturally be high.

Forested areas that are not intended for recreational or economic values would likely be rated as low even if they were susceptible to fire.

However if a local sawmill relied on the local forests this would influence the hazard rating given.

:Values Risk Rating

HIGH

- Assessment area has multiple structural/industrial values at risk in the assessment area
- Main transportation corridors can be impacted from wildfire along with hydro corridors, rail lines
- Environmental issues will likely occur with fires in this area
- Fires occurring in this zone will likely require extended fire service operations
- This area will be impacted by smoke management issues reaching further into community
- Recreation areas with in this zone have high day use activities and include areas of campgrounds and areas of seasonal residences
- Agency responses will require a highly coordinated plan to suppress the fire and evacuate the general areas

MODERATE

- Structural/industrial values area present but scattered. Fire breaks occur between areas of concern. Generally values are located in isolated pockets within this assessment area
- Environmental issues will be localized
- Smoke management issues will likely only impact the immediate area
- No major infrastructure located within this zone that has the potential to impact the whole community
- Fire activities are not likely to require extended services
- Local fire suppression services will likely be able to manage most incidents with this area but may require mutual aid to provide community backup support while engaging fires within this zone

LOW

- Isolated values located within this area
    - No industrial applications
- No expected smoke issues from fires within this zone to the general community
- Fire responses not expected to be more than one day and will not likely involve all fire suppression staff from community

STEP 3: Fire Severity Rating (Table 1)

Using the assessed values from **Step 1** and **Step 2**, the planner can now determine the severity rating. Once the severity rating has been plotted the planner can now review the severity definitions as a final review to ensure that this description best represents the expected fire response for the assessment area. This is a last evaluation to make adjustments before the final rating for the assessment area is applied to the **Risk Assessment Rating (Table 2)** in **Step 5.**

Table 1: Fire Severity Rating

		FUEL TYPE HAZARD		
		LOW	MOD	HIGH
COMMUNITY VALUE	LOW	NEGLIGIBLE	NEGLIGIBLE	MARGINAL
	MODERATE	NEGLIGIBLE	MARGINAL	CRITICAL
	HIGH	MARGINAL	CRITICAL	CATASTROPHIC

Severity Ratings

NEGLIGIBLE

- Little disruption to services, no economic impact, minor environmental impact, no values in area
- Consequences are dealt with by routine operations

MARGINAL

- Local disruption, minor economic impact, moderate environmental impact, minor values lost
- Localized smoke issues

CRITICAL

- Potential for evacuations, major road closures, communication disruptions, serious injuries, significant environmental impact, high potential for values lost
- Likely requirements for multi agency involvement
- Mutual aid possible
- Community smoke management issues

CATASTROPHIC

- Multiple injuries possible and high risk for fatalities occurrence, extended evacuations, significant economic and environmental impacts, high probability of values lost
- Multiple agency fire responses

STEP 4: Probability of Ignition Rating

The probability of wildfires starting within an assessment zone can be determined by examining fire statistics for the past 10 years and evaluating potential fire ignition sources for any given area.

Expected land use features should also be considered. The following area activities will increase the likelihood of fires occurring;

- Rail lines
- Power lines
- Recreation areas for hikers, ATV use and remote access camping sites
- Forest harvest operations
- Community growth into interface areas

Once an evaluation of fire statistics and land use has been completed the planner can select the proper descriptive term for the area. This selection will then be carried to **Step 5 - Risk Assessment Rating (Table 2)** to determine the overall risk for this area.

PROBABILITY OF IGNITION RATINGS

UNLIKELY

- No fires recorded in the last 10 years
- Remote areas with little public/industrial activities
- Lightning is likely the main ignition source
- Fuel types not typically a concern under normal summer fire conditions
- No anticipated activities within this area to increase ignition potential i.e. harvesting or recreation activities

SELDOM

- Last fire incidents occurred 5 to 10 years ago
- This area is a minimal public/industrial zone
- Lightning would be the main ignition source with a slight increase of human ignition probability
- Remote access recreation areas
- Fires could occur at some time
- No anticipated increase of public activities within this area

OCCASSIONAL

- 1 - 5 fires have occurred in last 5 years
- Fires should occur at some time
- This is a moderate use area that includes some industrial application
- Some public/industry activities that occur in this area have the possibility to ignite wildland fires
- Moderate recreational areas with hiking and ATV trails, day use sites.

LIKELY

- Several fires have occurred in last 5 years
- Fires will occur in most circumstances
- Most fires are the result of human activity
- Moderate to High use area involving public and industrial activities
- Moderate expansion into interface areas
- Area is subject to growth which would possibly increase ignition potential

FREQUENT

- Fires are normally expected every year
- High use public and industrial area
- Area of high urban development that expands into the interface areas
- Fire will occur under most circumstances

STEP 5: Risk Assessment Rating (Table 2)

Planners should now use the values obtained from Step 3 and Step 4 to determine the general risk for the assessment area.

Table 2: Risk Assessment Rating

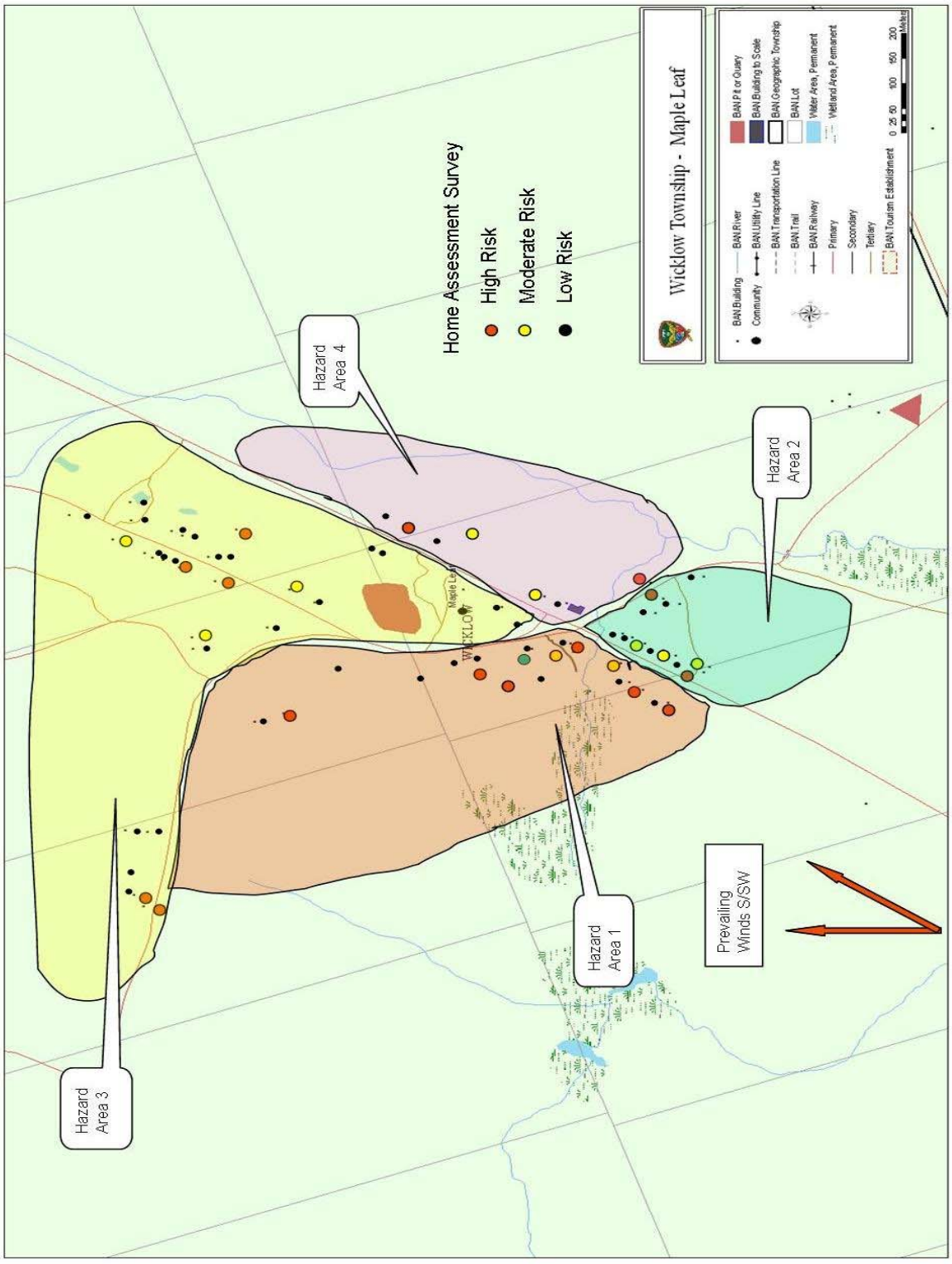
		PROBABILITY OF IGNITION (from Table 2)				
Assessment Area	FIRE SEVERITY RATING (from Table 1)	Unlikely	Seldom	Occasional	Likely	Frequent
Response Zone 1	Negligible	D	D	D	D	C
	Marginal	D	D	C	C	B
	Critical	D	C	B	B	A
	Catastrophic	C	C	B	A	A

Legend:

A =	Extreme Risk
B =	High Risk
C =	Moderate Risk
D =	Low Risk

The obtained fire hazard risk rating will help FireSmart Committees to prioritize work programs and be able to better formulate a planning process to mitigate the identified risk in their FireSmart community plan.

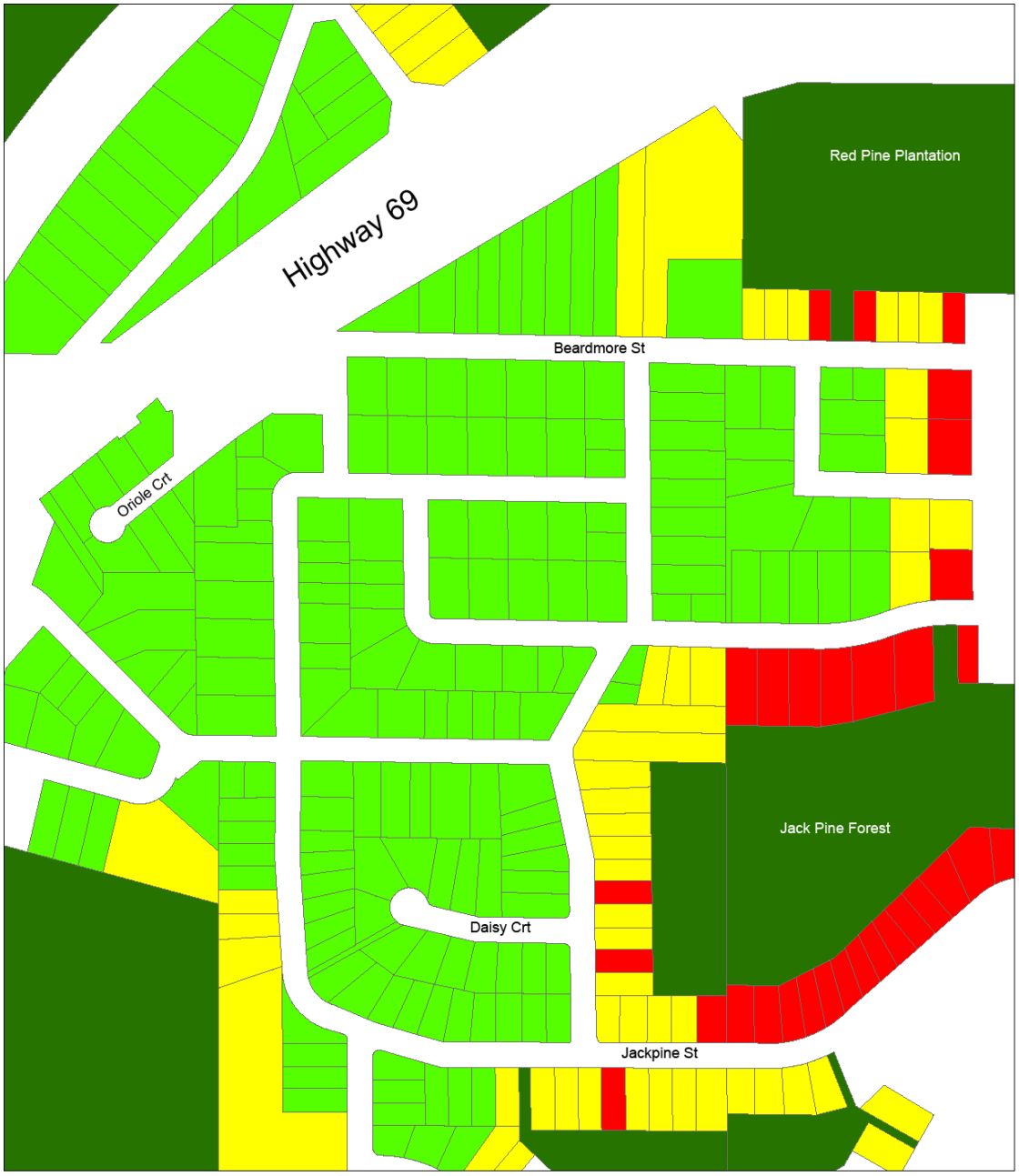
Appendix E:
Community Zone Assessments



Creating FireSmart planning zones can be based on geographic references. Lakes, roadways, rail lines are effective ways to create management zones to work from. Many communities use existing fire response zones (MPA or CPA) to begin work from.

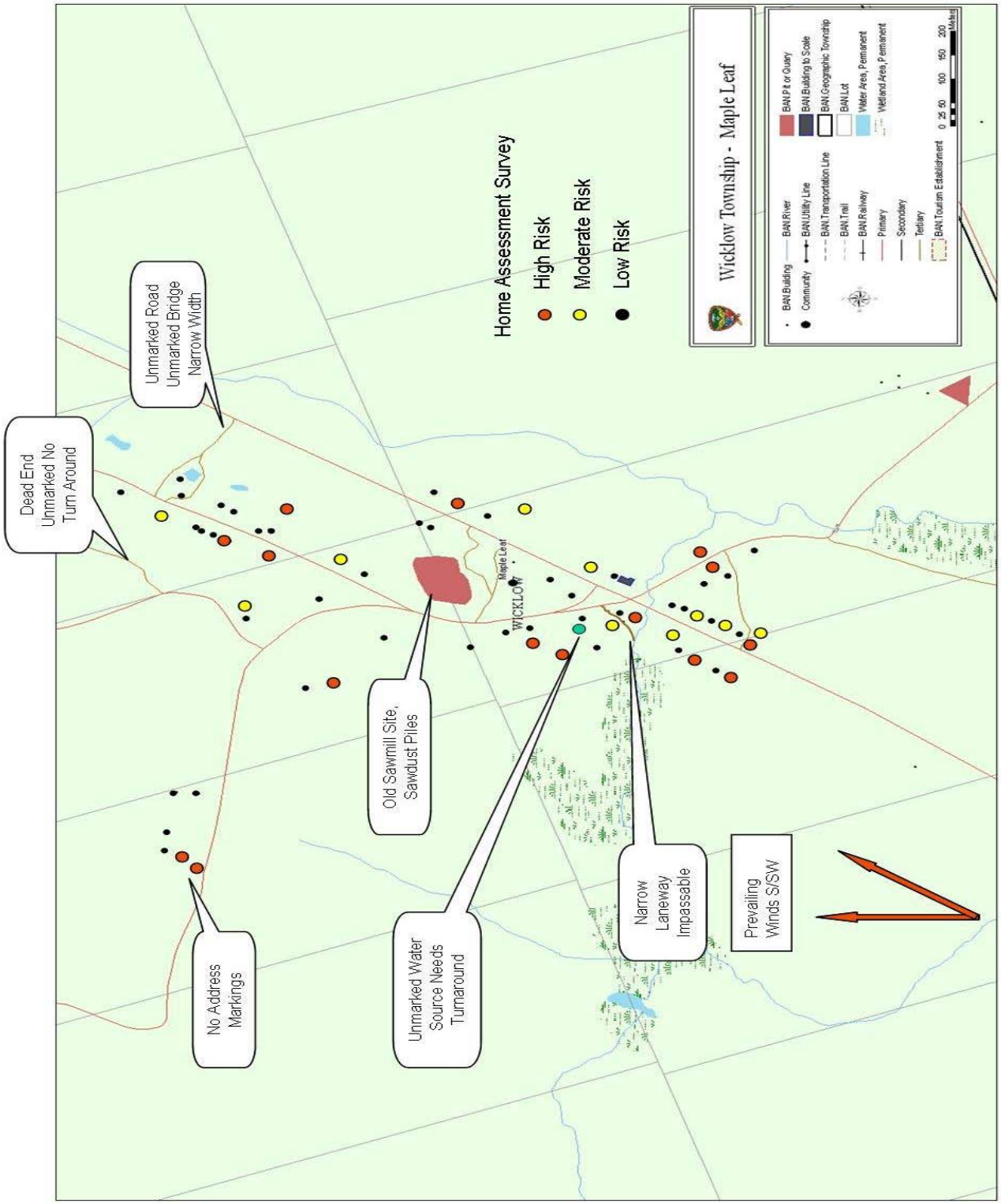
For those communities that enter into municipal agreements with the MNR, much of this work has been completed when the Municipal Agreement workbook was utilized.

Appendix F:
Residential Assessment – MPAC GIS Data



Individual home assessments can be mapped and monitored over time to be able to survey the progress of the FireSmart initiatives. As homeowners work to improve properties or the community mitigates any general hazard, the map can be updated to show a decreased area of concern.

Appendix G:
Community Assessment Map



This is another example of a working template to monitor survey results and provide support to the committee when formulating an action plan to implement FireSmart strategies.

Appendix H:
Mitigation Strategy

Community, structure or area at risk	Type of Treatment	Method of Treatment	Role/ Responsibility	Time Table	Committee recommendations	Overall Priority
Domtar Plywood Mill	Fire Break	Create 30 m fire break around wood stock piles and infrastructure	Domtar	Fall 2009 1 to 2 weeks	No crowns touching, residual trees pruned, remove debris	Very High
Riverside Subdivision	Road access improvement and bridge replacement	Create larger turn around areas and replace bailey bridge	Municipal	Fall 2009 and spring 2010	Apply for infrastructure funds on bridge replacement. Local roads improvement fund for turn around	High
Valley Hydro Line	Vegetation Removal	Bulldoze areas and cut and chip. Community firewood project	Valley Hydro supported by Municipal forestry division	Spring 2010 to Fall 2011	Council to petition Valley Hydro for maintenance work. Look at by-laws to support	High
Cityview Campground	FireSmart education training	Fire prevention officer to conduct training	Private landowner and municipality	Summer 2010	Approved by Fire Chief under general prevention	Medium