



# Fire Management Planning Guideline for Provincial Parks and Conservation Reserves

Version 2.0  
June 16, 2011

**The purpose** of this guideline is to assist MNR staff in fire management planning for protected areas. Fire management planning is a process for identifying the actions needed to restore the natural role of fire in protected areas while ensuring the protection of life, property and values from the adverse effects of fire. This guideline assists with assessing the type of fire management that is appropriate for a protected area and outlines the planning requirements to implement it. The guideline should be used to prepare a fire response or fire management plan for a provincial park or conservation reserve, as well as during preparation of protected area management direction and 10-year examinations. The guideline supports implementation of the Fire Management Policy for Provincial Parks and Conservation Reserves

**Directives pour la planification de la gestion des incendies dans les parcs provinciaux et les réserves de conservation (*ébauche*)**

Ce document a été conçu pour aider le personnel du MRN à planifier la gestion des incendies dans les zones protégées. La planification de la gestion des incendies est un processus visant à déterminer les mesures à prendre pour rétablir le rôle naturel du feu dans les zones protégées tout en assurant la protection de la vie, des biens et des richesses naturelles contre les effets négatifs du feu. Ce document permet d'évaluer le type de gestion des incendies qu'il convient d'adopter dans une zone protégée donnée et il énonce les exigences en matière de planification pour mettre en œuvre ces principes de gestion. Il servira à préparer une intervention en cas d'incendie ou à élaborer un plan de gestion des incendies pour un parc provincial ou une réserve de conservation, et sera également utile lors de la préparation des orientations de gestion d'une zone protégée et des vérifications décennales. Ces directives appuient la mise en œuvre de la Politique relative à la gestion des incendies dans les parcs provinciaux et les réserves de conservation.

*Cette publication hautement spécialisée Fire Management Planning Guideline for Provincial Parks and Conservation Reserves n'est disponible qu'en Anglais en vertu du Règlement 411/97 qui en exempte l'application de la Loi sur les services en français. Pour obtenir de l'aide en français, veuillez communiquer avec Karen Hartley au ministère des Richesses naturelles au 705-755-5107.*



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## 1.0 INTRODUCTION

Ontario's system of protected areas includes over 650 parks and conservation reserves with an area of 9.5 million hectares – a land mass equal to the area of Ontario south of Algonquin Provincial Park. Protected areas contribute significantly to maintaining ecological health, protecting Ontario's natural heritage and conserving the biological and geological diversity of the province. Many also provide outdoor recreation opportunities; either intensively at campgrounds and tourism facilities, or extensively via backcountry camping, canoeing and hiking.

Fire is an important ecological process, fundamental to restoring and maintaining ecological integrity and sustainability throughout the province. Many ecosystems within Ontario's protected area network require fire for renewal and ecological health. These fire-dependent ecosystems will not continue to exist within Ontario's protected areas unless they are exposed to fire in the coming decades.

Fire management and protected area staff must work jointly to balance the need to restore and maintain fire processes in protected areas with the need to protect public health and safety, and other values, from the potential adverse effects of fire. Fire management planning can help to achieve this balance by documenting, analyzing and communicating the desired fire management activities within a protected area.

### 1.1 Purpose of This Guideline

Fire management planning is a process for identifying the actions needed to achieve resource management objectives through fire response and use while ensuring the protection of life, property and values from the adverse effects of fire. The Fire Management Policy for Provincial Parks and Conservation Reserves (OMNR 2004b) requires the development of fire management direction for all protected areas. This guideline was developed to assist and direct Ontario Ministry of Natural Resources (MNR) staff through the fire management planning process in protected areas. Fire management planning requires the participation of staff with knowledge and experience in planning, ecology, biology, fire science and fire behaviour. This guideline outlines the process and content requirements for each planning step.

There are several triggers for fire management planning for protected areas. Broad direction for fire management should be developed during preparation of the management plan or statement for the protected area. If detailed planning is required, it may occur concurrently with preparation of the protected area management direction, or can be completed subsequently as resources are available. Fire management planning may be triggered during the 10-year examination of management plans or statements. Finally, fire management planning may be initiated in response to a resource management issue that may not have been identified or addressed in the management direction for the protected area.

The guideline is not a collection of fire ecology and effects; rather, it provides guidance to planning teams on the types of information and analyses that are needed to undertake the fire management planning process. A supporting toolkit is available (see Section 1.4) to assist staff with finding and accessing some of the additional resources and literature necessary for fire management planning.

Communication between protected area staff and the fire program is critical throughout the fire management planning process. Many factors, external and internal to the protected area, influence the type of fire response and fire use options that are available. Early contact and on-going communication between these program areas will ensure that the fire management activities that are identified are feasible and suitable for achieving the resource management goals of the protected area.

Fire management requires an adaptive management approach. Adaptive management principles should be considered and applied by the planning team throughout the fire management planning process. The guidance and planning process described in this guideline provides the framework for applying an adaptive management approach.

## 1.2 Policy Framework

Within the MNR, several program areas have applicable legislation, policy, and operational responsibilities for fire management in protected areas. A summary of key direction is provided below. Staff involved in fire management planning should be familiar with these documents in their entirety.

Primary legal, policy and strategic direction for fire management in protected areas include:

***Provincial Parks and Conservation Reserves Act (PPCRA)***: Establishes the maintenance of ecological integrity, including ecological processes such as fire, as a primary principle in planning and management of provincial protected areas.

***Forest Fire Management Policy for Ontario*** (OMNR 1989): Describes the principles, responsibilities, objectives, function and design of Ontario's Forest Fire Management Program.

***Forest Fire Management Strategy for Ontario*** (OMNR 2004a): Provides direction for the management of fire to protect human life and values while utilizing fire's beneficial ecological and hazard reduction effects in resource management.

***Fire Management Policy for Provincial Parks and Conservation Reserves*** (OMNR 2004b): Recognizes the role of fire in restoring and maintaining the ecological integrity of protected areas and promotes fire management planning in provincial parks and conservation reserves.

Additional documents that have been developed to provide more specific guidance for protected area planning, fire management and fire operations include:

***Ontario Protected Areas Planning Manual*** (OMNR 2009): Establishes a provincially consistent approach to the preparation of management plans or statements for protected areas.

***A Class Environmental Assessment Act for Provincial Parks and Conservation Reserves (Class EA-PPCR)*** (OMNR 2005): Identifies the range of projects conducted in or for provincial parks and conservation reserves that are subject to the Class EA-PPCR and

describes processes for evaluating environmental effects and consultation requirements. Fire management is identified as a project that is subject to the Class EA-PPCR.

***Prescribed Burning Operations Policy*** (OMNR 2008a): Establishes the requirements for the preparation of prescribed burn plans, in accordance with the *Prescribed Burn Manual* (OMNR 2008b).

***Guidelines for the Use of Modified Response and Monitoring during Managed Fire Operations*** (OMNR 2006b): Provides guidance for identifying areas on Crown lands where the preferred initial response to forest fires is modified response and monitoring to achieve ecological benefits or hazard reduction.

### 1.3 Information Management

Information used in fire management planning should be stored in the Protected Areas Planning Information Repository (PAPIR). PAPIR is an internal file storage system accessible to MNR staff to facilitate the capture and dissemination of information during the planning process for protected areas. A guide on the use of PAPIR, including standard file naming conventions, the file folder structure, and the Project Information File (PIF) is available in the link to the protected areas manual guidelines provided in Section 1.4.

### 1.4 Additional Resources

A Fire Management Planning Toolkit is available online. This toolkit provides links to a variety of information that will assist in fire management planning, such as fire policy, fire research reports and examples of fire response and fire management plans. It can be accessed through the following link:

[Fire Management Planning Toolkit](#)

The Ontario Protected Areas Planning Manual (OMNR 2009) and associated guidance documents provide information and advice that are useful for fire management planning in provincial parks and conservation reserves. Examples of topics include: preparing terms of reference; consultation requirements and best practices; coordination of planning processes; compiling background information; identifying values; information management, and; monitoring. The planning manual and guidance documents can be found at the following link:

[Protected Areas Planning Manual Guidelines](#)

### 1.5 Key Fire Management Terms

The Forest Fire Management Strategy for Ontario (OMNR 2004a) provides detailed information on the province's fire management zones and the approved options for responding to and using fire in each zone. In order to proceed through the remainder of this guideline, an understanding of the three fire response and two fire use options available in Ontario is essential. The three fire response options include full and modified response and monitoring. The two fire use options are prescribed fire and prescribed burning.

The AFFES staff on the planning team can assist in providing additional explanation of the fire response and fire use options. Definitions of these and other terms related to fire

management also can be found in the glossary of the Forest Fire Management Strategy for Ontario (OMNR 2004a).

## **FIRE RESPONSE AND FIRE USE OPTIONS**

### **FIRE RESPONSE**

Fire Response is the management of forest fires (naturally ignited or human-caused) to meet public safety, economic and land-use objectives. There are three fire response options:

#### Full Response

Full response requires suppression action to be taken on the entire fire perimeter to acquire control and to minimize area burnt.

#### Modified Response

Modified response requires suppression action be taken on key areas of the fire perimeter to steer and direct the fire to achieve desired objectives.

#### Monitored Response

Monitored response is an option where forest fires are observed and assessed to determine the response option required to minimize social disruption and/or economic impact while achieving resource management objectives.

### **FIRE USE**

Fire use is the application of fire to achieve specific ecological or hazard reduction objectives. There are two fire use options:

#### Prescribed Fire

A prescription specifying the range of fire indices that is acceptable if a forest fire occurs is identified and approved in advance. Forest fires that occur in the area and are within the prescribed indices are managed using the appropriate fire response.

#### Prescribed Burning

Prescribed burning is the deliberate and planned application of fire in accordance with MNR policy and guidelines to a specific area to achieve predetermined objectives.



## 2.0 OVERVIEW OF THE FIRE MANAGEMENT PLANNING PROCESS

### 2.1 Coordination

The Fire Management Policy for Provincial Parks and Conservation Reserves (2004b) establishes responsibility for fire management planning. Fire management planning for protected areas is a shared responsibility among Ontario Parks Branch, MNR Regions, Aviation, Forest Fire and Emergency Services Branch (AFFES) and Natural Heritage, Lands and Protected Spaces Branch (NHLPS).

Park zones and MNR districts should coordinate fire management planning among parks and conservation reserves, respectively, within their administrative boundaries. Coordination involves setting zone or district priorities through work planning, coordinating review and approval of fire management planning documents and providing advice and support to local protected area managers on the planning process.

Fire management planning is expected to be led most commonly by the local protected area manager, with support from the fire program. The park superintendent may lead planning for a provincial park; the area supervisor, or a designate, may lead planning for conservation reserves. In some circumstances, the park zone or region may lead the planning process for a protected area, that does not have the local capacity to do so, or when a plan is being prepared for multiple protected areas. Leads or co-leads for initiatives involving both provincial parks and conservation reserves should be negotiated between the responsible zone, district and protected area managers.

Protected area managers are responsible for contacting the local fire management supervisor at the initiation of the fire management planning process. The fire management supervisor will work with the regional fire program to obtain fire staff support for plan development. The regional response and operations manager will ensure the participation of the fire program in the planning process and review and approval of fire management planning documents on behalf of AFFES.

Parks and Protected Areas Policy Section is a resource for advice on fire management planning policy and procedures for protected areas and provincial priorities. Similarly, the Planning and Information Section of AFFES Branch, is a source of advice and information related to AFFES policies, procedures and priorities.

### 2.2 Planning Requirements

Fire management planning requirements vary depending on the fire management activities that are feasible and the resource management goals and objectives of the protected area. Three levels of planning have been identified relative to the complexity of fire management for an area. The planning process can be streamlined for less complex situations. More

comprehensive planning is necessary for certain types of fire management, for sites that require a range of activities and for those sites where a systematic approach to prescribed burning is desirable.

The fire management planning process is described in detail throughout the guideline. Key steps are briefly summarized below:

**1) *Determine the fire management planning level:***

The first step is to consider and apply screening criteria to determine the appropriate level of fire management planning (as discussed in Section 3.0). The three levels of planning are based on the resource management objectives for the protected area, opportunities for fire response and the potential for fire use.

For Level 1, no further fire management planning is required. Level 2 involves the preparation of a fire response plan. Level 3 requires the preparation of a fire management plan.

Regardless of the planning level, any prescribed burns must be planned in accordance with the Prescribed Burn Operations Policy (OMNR 2008a) and the Forest Fire Management Strategy for Ontario (OMNR 2004a).

**Fire Response Plan:**

An operational plan that identifies the preferred response to forest fires within a planning area to achieve general objectives for the beneficial effects of fire while protecting life, property and values. Fire response includes full, modified or monitored response.

**Fire Management Plan:**

A strategic plan that describes the preferred fire management direction within a protected area to achieve specific resource management objectives and outcomes, while ensuring the protection of life, property and values. Fire management direction may include any combination of fire response and/or use. A fire management plan is a type of secondary plan.

**2) *Assess requirements to amend protected area management direction:***

The level of planning selected should be assessed for consistency with the fire management direction in the management plan or statement for the protected area. For Level 1, any inconsistency with the management direction should be documented; however, an amendment is not required. For Level 2 (fire response plan), amendments to the protected area management direction or deferment of fire management planning should be considered if there is a discrepancy. For Level 3 (fire management plan), the fire management plan is a type of secondary plan and therefore amends the management direction (Section 4.0).

**3) *Organize the planning team:***

Further planning will be required if Level 2 or Level 3 fire management is to proceed. A planning team should be assembled to determine appropriate fire management options and approaches and to undertake the required planning. A terms of reference should identify a schedule and deliverables to direct the team, as well as anticipated requirements for consultation and engagement (Section 5.0).

**4) *Prepare the fire response plan (Level 2) or fire management plan (Level 3)***

For Level 2 planning, desired fire response options will be documented in a fire response plan (Section 6.0).

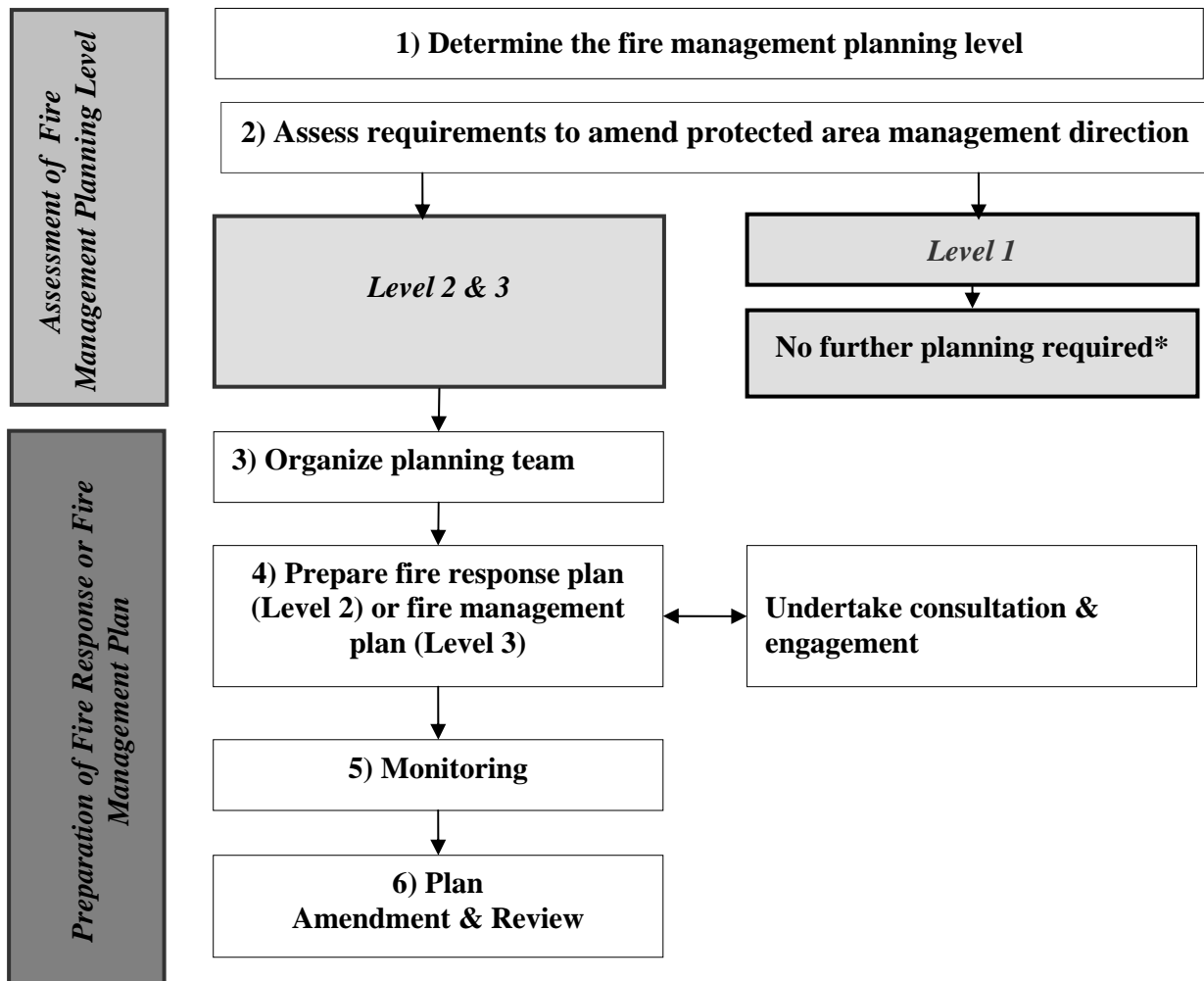
For Level 3 planning, desired fire response and fire use options will be assessed by the planning team and documented in a fire management plan (Section 7.0).

**5) Monitoring:**

Monitoring of plan implementation and the effectiveness of actions is necessary to support adaptive management (Section 8.0).

**6) Plan amendment and review:**

Plans must be reviewed within a specified term and follow specific procedures for plan amendments (Section 9.0).



\* Level 3 planning could be considered to direct a complex prescribed burn program. Prescribed burn plans must be prepared in accordance with the Prescribed Burn Operations Policy.

Figure 1. Overview of Fire Management Planning Process





This section will assist with determining the appropriate fire management planning level for a protected area. The three levels of planning are described and criteria are provided for selecting the appropriate level.

The guidance in this section should be used during management planning for protected areas to assist with determining the permitted fire responses and uses to include in the management plan or statement. Some general advice on incorporating fire management direction into the Management Direction Template associated with the [protected areas planning manual guidelines](#) is provided in Table 1.

In addition, this section can be used to confirm the fire management direction during the term of an existing management plan or statement and for examinations. If management direction exists for a protected area, it should be used as a source of information to assist with applying the criteria. In some cases, the fire management direction in an existing management plan or statement may not be consistent with the results of the criteria assessment. Section 4.0 provides guidance on evaluating when an amendment or update to an existing plan or statement should be considered before proceeding with further fire management planning.

### 3.1 Grouping Protected Areas for Planning

Multiple protected areas that are adjacent, or near by, could be considered for one comprehensive fire management or fire response plan. If the planning team is considering grouping multiple areas, the objectives and resource management policies of the protected areas should support similar or complementary fire management approaches.

### 3.2 Description of Planning Levels

The types of fire response and fire use to be implemented, the values that are present and the resource management objectives for the protected area will determine the level of fire management planning required. There are three fire management planning levels that can be applied. These are described below. Planning requirements for each level are summarized in Table 1.

#### Values:

Natural, cultural and socio-economic attributes or features that may be affected, either beneficially or detrimentally, by fire

Table 1. Summary of planning requirements for each fire management planning level.

Fire Management Planning Level	Fire Response and Use Options <sup>1</sup>	Fire Management Plan Type	Protected Area Management Direction
<b>Level 1</b>	<ul style="list-style-type: none"> <li>• <b>Full response</b></li> <li>• <b>Prescribed burning</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>No further planning required</b></li> <li>• Prescribed burn plans, as per the Prescribed Burning Operations Policy (2008a)</li> </ul>	<ul style="list-style-type: none"> <li>• Indicate full response and “yes” for prescribed burning in Appendix 1</li> <li>• Rationalize the need for prescribed burning in Section 6.0</li> </ul>
<b>Level 2</b>	<ul style="list-style-type: none"> <li>• <b>Modified response</b></li> <li>• <b>Monitoring</b></li> <li>• Full response</li> <li>• Prescribed burning</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Fire Response Plan</b></li> <li>• Prescribed burn plans, as per the Prescribed Burning Operations Policy (2008a)</li> </ul>	<ul style="list-style-type: none"> <li>• Indicate full, modified and monitored response and “yes” for prescribed burning</li> <li>• Rationalize the need for a fire response plan in Section 6.0</li> </ul>
<b>Level 3</b>	<ul style="list-style-type: none"> <li>• <b>Prescribed fire</b></li> <li>• Modified response</li> <li>• Monitoring</li> <li>• Full response</li> <li>• Prescribed burning</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Fire Management Plan</b></li> <li>• Prescribed burn plans, as per the Prescribed Burning Operations Policy (2008a)</li> </ul>	<ul style="list-style-type: none"> <li>• Indicate full, modified and monitored response and “yes” for prescribed burning and prescribed fire</li> <li>• Rationalize the need for a fire management plan in Section 6.0</li> </ul>
<b>Other Resource Management Plans</b>	<ul style="list-style-type: none"> <li>• <b>Refer to Section 3.3 to determine fire response and use options for the protected area</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Not applicable</b></li> <li>• Prescribed burn plans, as per the Prescribed Burning Operations Policy (2008a)</li> </ul>	<ul style="list-style-type: none"> <li>• Indicate the fire response and use options that may be used in the protected area in Appendix 1</li> <li>• Rationalize the need for modified or monitored response, prescribed fire or prescribed burning in Section 6.0</li> </ul>

1 Bolded text indicates new or different options from the preceding row.

### 3.2.1 Level 1- Full Response and Prescribed Burning.

This is the most basic type of fire management planning. Size, location or shape of the protected area, or presence of values, may limit the use of fire. Level 1 planning should be selected when the only appropriate fire management option is full response and prescribed burning.

This level of planning is suitable if:

- Values are such that risk would be too high to consider any other fire management options than full response and prescribed burning, or;
- The protected area is located Outside the Fire Region (as defined by the *Forest Fires Prevention Act*) and the municipal fire department can only provide full response to fires; prescribed burning may be undertaken but does not warrant a prescribed burn strategy, or;
- The protected area is located inside the fire region within a municipal protection area and the municipality cannot provide fire response or use options beyond Level 1.

### **3.2.2 Level 2 - Fire Response Plan**

Level 2 planning should be conducted when full, modified and/or monitored response options may be employed to achieve broad fire ecology or hazard reduction objectives. Prescribed burning may be used on a limited basis and planned in accordance with the Prescribed Burn Operations Policy (OMNR 2008a). If prescribed burns are anticipated to be used extensively (e.g., repeated prescribed burning conducted over several years and/or at multiple sites), then Level 3 planning should be considered.

This level of planning is used if:

- resource management objectives in the protected area management direction do not require further elaboration and can be achieved through full, modified and monitored response; prescribed burning may be undertaken on a limited basis, but does not warrant strategic planning, and
- prescribed fire is not necessary to achieve resource management objectives (i.e., a particular type of fire or detailed fire indices are not needed), and
- the protected area is conducive to the use of modified response and/or monitoring (size, shape, boundaries, location).

During development of the fire response plan, the planning team may decide that the desired combination of prescribed burns and fire response within the protected area and the issues associated with each is actually more complex than originally thought. Alternatively, the planning team may decide that prescribed fire is a desired type of fire use. In both cases, Level 3 fire management planning is required.

### **3.2.3 Level 3 - Fire Management Plan**

This is the most comprehensive level of planning. Level 3 planning is suitable in a number of situations, including: when there are specific ecological targets; complex value protection issues exist; a range of fire response and use options are available to address targets or issues, or; an extensive or complex prescribed burning program is intended. Level 3 planning is required if prescribed fire is to be used.

Fire management plans are considered to be a type of secondary plan because they provide further elaboration of the objectives related to fire response and use in the protected area management direction.

#### **Secondary Plan:**

Plans that may be prepared, generally for complex topics, where approved management direction does not provide sufficient policy direction to address a certain topic. Secondary plans are treated as amendments to management direction.  
(OMNR 2009)

This level of planning is used if:

- Further elaboration of the protected area management direction is needed to develop specific resource management goals and objectives to be achieved through fire response and use
- More detailed planning is needed to ensure that significant values in or adjacent to the protected area are not adversely affected by fire

- Prescribed fire is a desired fire use
- A combination of fire use (prescribed fire and prescribed burning) and fire response options (full, modified and monitoring) are appropriate for use in the protected area

This level is also an option for protected areas that meet the criteria for Level 1 planning, but would like to undertake a prescribed burning program that would require repeated burns of multiple areas over several years. In this case, Level 3 planning can be used to assist with identifying and documenting objectives of the program, areas to be burned, frequency of burning, monitoring, etc.

During preparation of a fire management plan, the planning team may decide that the proposed fire use option of prescribed fire is limited or that specific goals and objectives are not attainable. Should this situation develop during the planning process, Level 3 fire management planning can be replaced with Level 2, development of a fire response plan.

### ***3.2.4 Incorporating fire management planning requirements into other types of resource management plans***

Fire management planning requirements may be incorporated into other types of resource management plans. This may be a desirable option if fire is only one of several methods that are intended to be used to achieve diverse management goals. For example, vegetation management in a protected area may be undertaken for a variety of reasons, such as invasive species control, restoration of rare ecosystems and enhancement of wildlife habitat. Fire may have only a minor role, or be used in combination with other methods, to address broader vegetation management objectives. For example, for Level 1 planning, the details of a prescribed burning program could be incorporated into a vegetation management plan for a protected area. If a protected area meets the criteria for Level 2 or 3 planning, this guideline should be used to develop the content for the fire management components of the plan to ensure that critical elements such as risk assessment and identification of fire management compartments are adequately addressed. In these more complex situations, Parks and Protected Areas Policy Section and the Planning and Information Section of AFFES should be consulted early in the process for advice on how to meet requirements for the fire management component of the plan.

## **3.3 Criteria to Determine the Planning Level**

There are several factors to consider in determining the fire management planning level that is most suitable for the protected area. The six criteria described below and summarized in Figure 2 will assist with selecting the appropriate level of planning. The rationale for the planning level that is selected, based on an assessment of the criteria, should be documented and filed within the applicable protected areas folder in PAPIR.

### **1) Is the protected area located Outside the Fire Region (OFR) as defined by the Forest Fires Prevention Act?**

The area of the province that is OFR coincides with the Southern Ontario Fire Management Zone delineated in the Forest Fire Management Strategy for Ontario (OMNR 2004a). Generally only full response and prescribed burning are permitted in this zone. Fire response is provided by the local municipality. If the protected area is located OFR, then Level 1 planning is indicated.

Level 3 planning is an option if an on-going prescribed burning program is intended that merits additional strategic planning. Level 3 planning should also be considered if the protected area manager wishes to negotiate modified fire response with the municipal fire department.

If the protected area is not located OFR, then the remaining criteria should be applied to determine the appropriate level of fire management planning.

**2) Is the protected area of sufficient size and shape to contain a reasonably large fire, or does it contain islands or peninsulas with few values that would be detrimentally affected by fire, or other areas where fire can be contained?**

The size and shape of a protected area influences the ability to contain fires and protect values. Large protected areas, or two or more contiguous protected areas, that are over 45,000 ha, with a compact shape, will usually have more options for fire response and use than those that are small or with an irregular configuration. Some protected areas or groups of protected areas, that are less than 45,000 ha also may have opportunities for a wider range of fire management options if there are areas where fire can be contained, with few values that would be detrimentally affected. For example, islands and peninsulas, or areas surrounded by natural or anthropogenic fire breaks, could be candidate areas for a greater range of fire response and use options. Level 2 or 3 planning may be appropriate for protected areas that meet these conditions. Additional criteria below must be considered to determine the most suitable level.

If this criterion is not met, then Level 1 planning is indicated. Level 3 planning may be considered if a prescribed burning program is intended that merits additional strategic planning.

**3) Is fire management an appropriate tool for achieving resource management objectives?**

The fire regime of the region should be considered in determining if fire management is appropriate for maintaining or restoring the ecological integrity of the protected area. Fire regimes vary across the province. In some regions, such as the boreal forest, fire is the dominant natural disturbance agent influencing the composition, structure and pattern of vegetation across the landscape. In other areas, such as the deciduous forest region, naturally ignited fire was historically less common but essential for maintaining fire dependent communities such as tallgrass prairie and savannah.

Fire management may also be appropriate to reduce the fire hazard associated with areas affected by insect infestation, disease or blowdown.

Further consideration should be given to Level 2 or 3 planning if fire management is an appropriate tool for achieving resource management objectives related to either maintenance/restoration of ecological integrity or fire hazard reduction. Assess the remaining criteria to determine if Level 2 or 3 planning is suitable.

If this criterion is not met, then Level 1 planning is indicated.

**4) Is the protected area located within a municipal protection area where the municipality can only provide full response (suppression) to fires?**

MNR is responsible for fire management inside the fire region of the province (all areas that are not OFR); however, municipalities within the fire region are assigned this responsibility, by agreement. MNR can provide the full range of fire response and use options in managing fire. Most municipal fire departments are only capable of offering full response.

If the protected area is located inside the fire region and MNR is responsible for fire management delivery, then Level 2 or 3 planning may be appropriate. Likewise, in some exceptional circumstances, Level 2 or 3 may be suitable if a municipality is responsible for fire response and is capable of providing monitored or modified response or prescribed fire. Assess the remaining criteria to determine if Level 2 or 3 planning is suitable.

Level 1 planning is indicated if the protected area is located within a municipal protection area where fire management capability is limited to full response (i.e., suppression). In this case, Level 3 planning may be considered if an on-going prescribed burning program is intended that merits additional strategic planning.

**5) Can adverse impacts of forest fire on significant values in or adjacent to the protected area be mitigated?**

The presence, density and significance of values within and adjacent to the protected area that require protection from fire can limit fire management options. Consideration should be given to all values (natural, cultural and socio-economic) that may be affected, either beneficially or detrimentally, by fire. Risk to values can be decreased through tactics such as assigning different levels of protection commensurate with the risk to the value, reducing fire hazards near values and reducing the chance of escaped fire by improving or creating fire breaks.

Protected areas that have large areas with few values, or values that are concentrated in a few areas, and places where fire can be contained due to natural or anthropogenic fire breaks are good candidates for Level 2 or 3 planning. Assess the last criterion to determine whether Level 2 or 3 is most suitable.

Level 1 planning is indicated if the risk to values is considered too high and/or fire containment is problematic. In these cases, Level 3 planning may be considered if a prescribed burning program is intended that merits additional strategic planning.

**6) Is it necessary to develop specific resource management goals and objectives to be achieved through fire response and use?**

Fire is an ecological process that is critical for maintaining or restoring the ecological integrity of many protected areas. The most basic objective of fire management in protected areas is to maintain or restore fire as a natural disturbance agent. This objective is based on the assumption that any fire disturbance will help to maintain or shift the composition, structure and pattern of vegetation towards one that is more characteristic of a natural fire regime.

For some protected areas, no further refinement of this objective may be desired or necessary. Alternatively, the availability of information and resources for fire

management planning may not warrant the development of detailed objectives. If either of these conditions applies to the protected area, then Level 2 planning should be selected.

Level 3 planning should be selected if further planning is necessary to develop detailed resource management objectives to be achieved through fire response and fire use. At this level of planning, there is generally some knowledge of the vegetation communities of the protected area and how they have been affected by fire exclusion. There may be specific communities where remedial action is required to restore or maintain them, usually using a variety of fire management options. Level 3 planning supports a comprehensive approach to investigating the vegetation communities of the protected area, the effects of fire suppression, setting targets for the desired vegetation composition, structure and pattern, and preparing specific prescriptions to achieve these targets.

Consideration of the following factors can help to assess if Level 3 planning is warranted:

- There are significant vegetation communities present in the protected area that require a particular type of fire for renewal or maintenance (e.g., low intensity surface fires necessary to renew red pine and white pine stands).
- The species, structure, composition and/or spatial arrangement of vegetation are important for wildlife management.
- There are areas of hazardous fuels that require special consideration to reduce the risk of severe fires or adverse impacts on values.
- The significance, number or arrangement of values entails more detailed planning to minimize the risk of detrimental effects from fire.
- There is the potential for a high level of public or stakeholder interest.

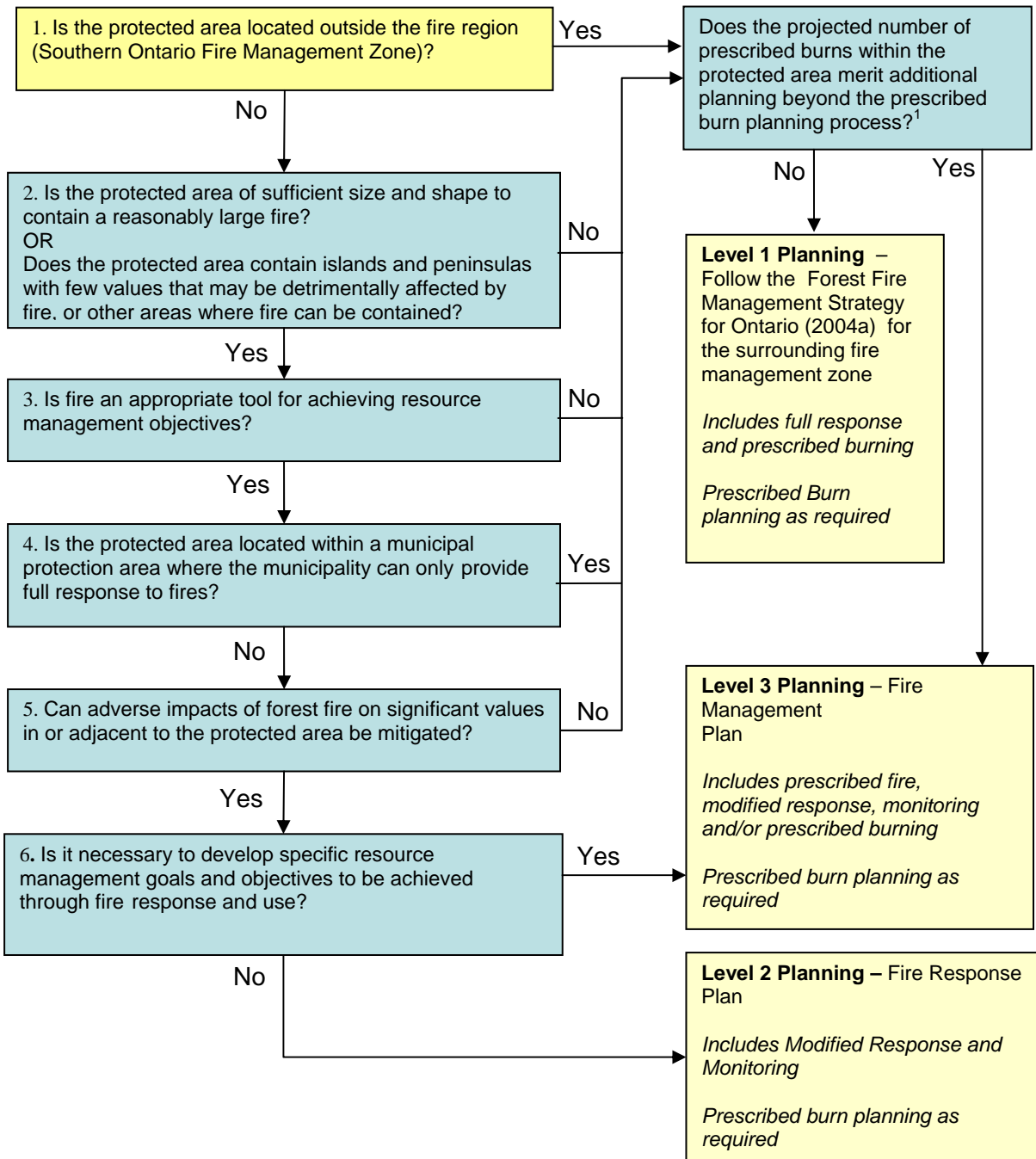


Figure 2. Determining the level of fire management planning.

1 Level 3 planning should not be considered if fire is not an appropriate tool for achieving resource management objectives (i.e., the answer to criteria 3 is “no”).



## 4.0 ASSESSING REQUIREMENTS TO AMEND OR UPDATE PROTECTED AREA MANAGEMENT DIRECTION

Fire management planning is intended to facilitate the implementation of the protected area's management direction specific to fire. The level of fire management planning should be supported by the broad direction provided in the management plan or statement for the protected area. Although the Class EA-PPCR allows fire management projects to occur without an approved management plan or statement, generally, Level 2 and 3 fire management planning should only proceed if the type of fire management that is being contemplated is consistent with the protected area management direction.

If the management direction for a protected area does not support the desired level of fire management planning, then an amendment or administrative update to the plan or statement should be considered. Determining whether an administrative update is sufficient or if an amendment is warranted should be based on guidance for adjusting management direction that is provided in the Ontario's Protected Areas Planning Manual (OMNR 2009) and [associated guidelines](#).

Amendments to management direction to reflect changes in the fire management of the protected area should be coordinated with project evaluation and consultation processes of the Class EA-PPCR. Section 5.0 of this guideline provides advice on coordinating the planning and consultation requirements of the Class EA-PPCR and the PPCRA.

There are several ways that fire management may be addressed in existing protected area management documents:

### **A. Fire Management Direction Supports the Desired Level**

The protected area management document contains policies that allow for the desired level of fire management:

In this case, the fire management planning team can proceed with Level 1, 2 or 3 fire management planning

- For Level 1 and 2, no amendment or update to the management direction is needed.
  - Example: A conservation reserve in the Boreal Zone of the Forest Fire Management Strategy for Ontario has a grandfathered management statement that was developed without consultation. The management statement identifies the intent to develop a fire response plan and enables the use of modified response and monitoring. Development of fire response plan to provide operational direction consistent with the management statement requires no update or amendment to the management statement.

- For Level 3, the fire management plan is considered a secondary plan and requires an amendment to the protected area management document. All requirements for amending management direction apply to secondary plans.
  - Example: A provincial park in the Parks Zone of the Forest Fire Management Strategy for Ontario has a management plan that was developed with consultation and outlines the intent to develop a fire management plan. MNR will follow the process for **amending** protected area management direction in developing the fire management plan. Note, regular amendment procedures would apply even if the management plan does not enable the fire management plan.

## **B. Fire Management Direction Does Not Support the Desired Level**

The fire management direction in the protected area management document does not adequately address the desired fire use and fire response options or has no fire management direction.

In either case, the fire management planning process should include an amendment or update to the management direction:

- For Level 1, prepare an administrative update.
- For Level 2, preparation of the fire response plan and amendment or update of the management direction should be done at the same time.
  - Example: A provincial park in the Boreal Zone of the Forest Fire Management Strategy for Ontario has a grandfathered management statement that was developed without consultation. The management statement directs that all fires will be subject to initial attack and suppression. Since then, opportunities for using modified response and monitoring in the park have been identified. MNR will follow the process for amending protected area management direction to enable modified response and monitoring. Development of the fire response plan should be coordinated with the amendment process.
- For Level 3, the fire management plan is an amendment to the protected area management document. All requirements for amending management direction apply to secondary plans.

## **C. Protected area management direction does not exist but is scheduled for preparation in the near future.**

In this case, fire management planning (Level 1, 2 or 3) should be coordinated with protected area management planning or delayed until approved management direction is available.

## **D. Protected area management direction does not exist and preparation of the management direction is not scheduled in the near future.**

In this case fire response for the protected area will be as directed in the Forest Fire Management Strategy for Ontario (OMNR 2004a). Level 2 or 3 fire management planning is not recommended if protected area management direction does not exist.

Figure 3 summarizes the recommended steps for each of the described scenarios.

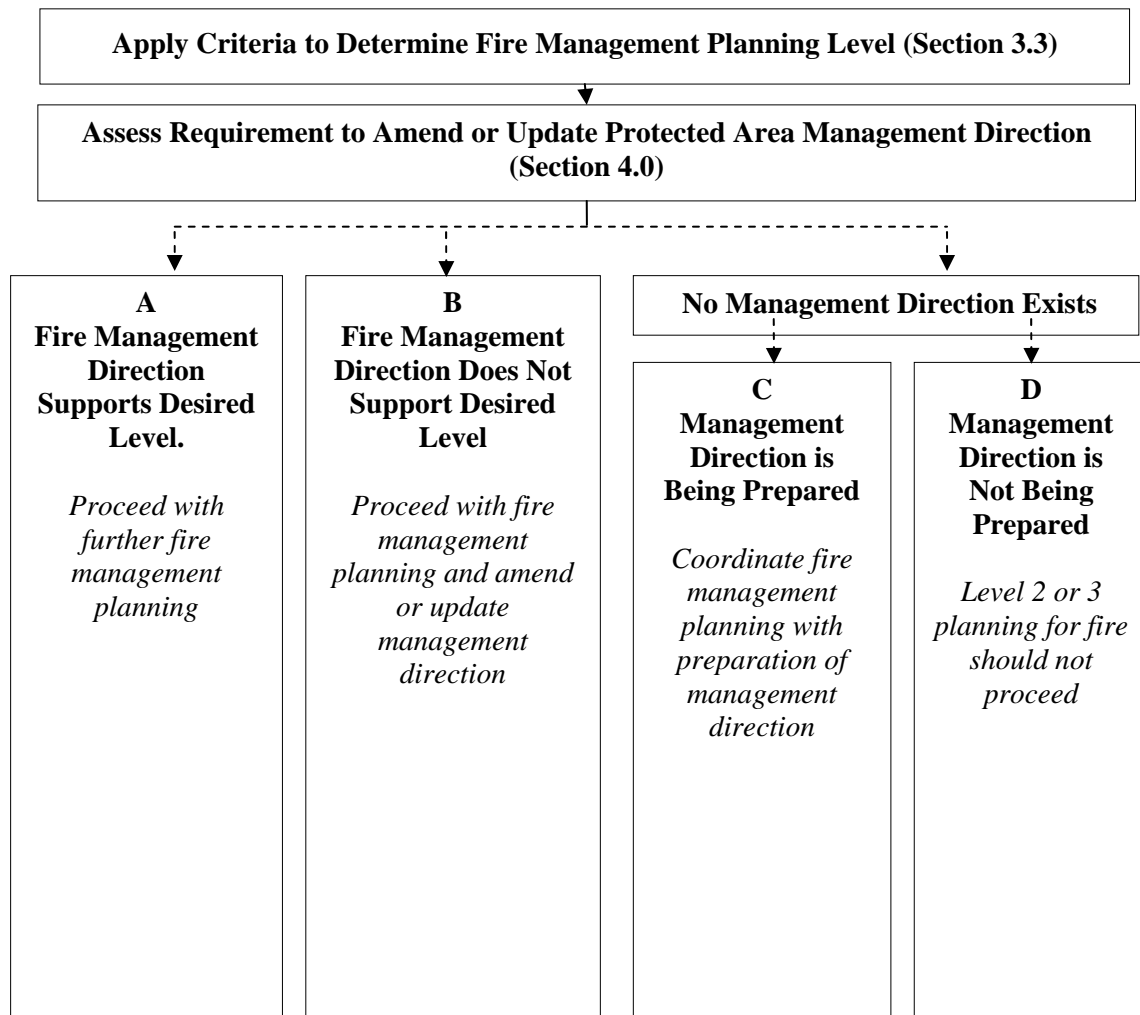


Figure 3. Decision key for determining further planning steps based on an assessment of the selected fire management planning level and the protected area management direction.





## 5.0 THE PLANNING PROCESS

### 5.1 Planning Team

If Level 2 or 3 fire management planning has been selected, a planning team should be established to:

- confirm the need for Level 2 or 3 planning
- complete the required plan (fire response or fire management plan)
- carry out any required consultation and engagement

The zone manager or district manager, in cooperation with the regional fire management program manager, are responsible for approving the terms of reference for the project and for ensuring that the appropriate MNR staff are assigned to develop the plan.

#### 5.1.1 Minimum Expertise

At a minimum, the planning team must include representation from the protected area(s) and the fire program. Areas of expertise that are necessary include:

- land and resource management planning (e.g., zone and/or district planner)
- biology/ecology/forestry (e.g., park, zone and/or district biologist/ecologist, district forester)
- fire science and behaviour (e.g., fire behaviour analyst, fire science and planning specialist)
- fire management planning (e.g., fire science and planning specialist)
- fire management operations (e.g., fire management operations supervisor, senior fire technician)
- local knowledge of the protected area and its management (e.g., superintendent, assistant superintendent, park warden, area supervisor, area technician, partners)

#### 5.1.2 Other Expertise – Plan Advisors

The expertise of specialists in forestry, information management, GIS analysis, modelling, species at risk, public consultation, cultural heritage, or other fields is beneficial to the planning team. Advice from MNR districts on adjacent land uses, resource management and planning initiatives is also necessary. Depending on the nature and complexity of the plan, it is appropriate for these specialists to serve as plan advisors or team members.

#### 5.1.3 Roles and Responsibilities

Fire management planning teams for provincial parks should be chaired by the park superintendent unless a designate is identified. Teams for conservation reserves are expected

to be chaired by the area supervisor or designate. The role of the chair is to coordinate the activities of the planning team and serve as liaison with local Aboriginal communities, stakeholders and the public. Consideration may be given to hiring consultants or contract staff to fulfill key roles, such as coordinating team activities or writing the plan.

The local fire management supervisor should support the project by assigning the appropriate fire staff to the team and ensure that the regional response and operations manager is kept informed of the progress of the plan development. It is important that the fire management supervisor supports the planning process and outcomes because the staff from the fire management headquarters will have key implementation responsibilities.

Team members are generally responsible for preparing the fire response or fire management plan and supporting consultation and engagement activities. Specific responsibilities will vary depending on the expertise and position of the team member. An important role of team members is to liaise with other staff in their program areas to keep them informed of the planning process and coordinate their input.

A primary author or editor should be assigned at the beginning of the process. The role of the author or editor will be to prepare the draft and final versions of the plan with the input and contributions of the team.

For planning in provincial parks, the team will report through the park superintendent to the zone manager and the regional response and operations manager. For conservation reserves, reporting will be through the area supervisor to the district manager and the regional response and operations manager. The zone manager or district manager and the regional response and operations manager will oversee the work of the team and be responsible for reviewing and approving all deliverables. If a plan is being prepared for a group of provincial parks and conservation reserves, the team will report to the manager(s) of the zone and district that has been agreed upon as the lead or co-lead for the project and the regional response and operations manager.

## 5.2 Terms of Reference

A terms of reference should be prepared to guide the activities of the planning team. The terms of reference explains the rationale for initiating fire management planning and the planning level that has been selected; proposes the steps for preparing the plan; and, lists the general schedule of tasks and target timelines. It identifies staff roles and responsibilities, review and approval requirements and budget needs. The Ontario Protected Areas Planning Manual (OMNR 2009) and [associated guidelines](#) provides guidance that could be adapted for the development of terms of reference for fire management planning.

The terms of reference must be approved by the zone or district manager and the regional response and operations manager. In the case of planning for a group of protected areas, the terms of reference must be approved by the zone or district manager(s) assigned as the lead or co-lead for the project and the regional response and operations manager. In some circumstances, approval of the terms of reference for a fire management plan will be at the director level, depending on whether the management direction for the protected areas is a plan or statement.

### 5.3 Schedule and Deliverables

The terms of reference should include a schedule and list of deliverables for completing the planning process, including review and approval points. The specific schedule and deliverables for each plan will vary depending on the level of fire management planning, the Class EA-PPCR category and the degree of consultation and engagement. Generally, plan development will consist of four stages: 1) preparation of the terms of reference and establishment of the planning team; 2) compilation of background information and development of fire management options; 3) development of the draft plan; and 4) final plan preparation and approval (Figure 4). Sources of information and analysis completed as part of the second stage should be maintained in the Project Information File (PIF) of the applicable protected areas folder within PAPIR; preparation of a background information document is not necessary.

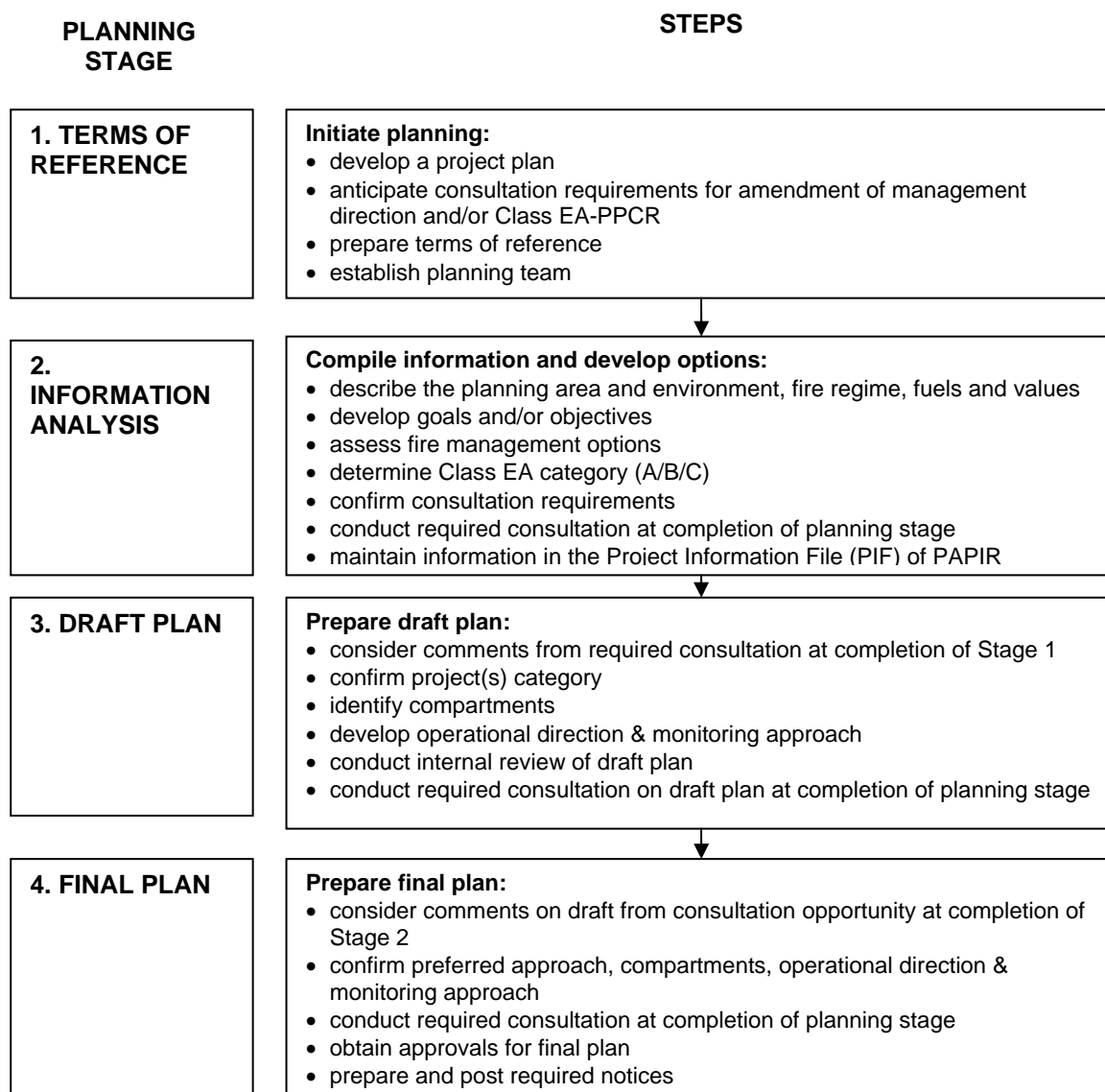


Figure 4. Generic fire management planning stages and steps.

Approval to proceed at the end of each stage by the zone or district manager and the regional response and operations manager is recommended, as well as before any identified consultation or engagement. Section 5.4 provides guidance on determining the minimum consultation requirements of the Class EA-PPCR and PPCRA and coordinating planning

processes. Figure 4 and the guidance in Section 5.4 should be used to develop a customized schedule and deliverables that are appropriate for each fire management planning project.

## 5.4 Aboriginal Involvement

Aboriginal communities whose interests or traditional uses may be affected by the implementation of a fire response or management plan should be offered an opportunity to participate in the planning process. Many Aboriginal communities have traditional knowledge of fire ecology and behaviour and may have a history of using fire to manage resources. Planning teams can gain a better understanding of Aboriginal knowledge, interests and values by working with communities to develop involvement processes that are respectful of local knowledge, values and science (OMNR 2009).

Information and advice contributed by Aboriginal communities will be considered along with other factors to inform many parts of the fire management planning process. Examples include: description of the planning area, past and current fire regime; identification of values; development of goals and objectives, and; preparation of strategic actions and operational direction.

The Ontario Protected Areas Planning Manual (2009a) and [associated guidelines](#) provide direction and advice for involving Aboriginal communities at all stages of planning. Aboriginal involvement can be facilitated through a range of activities, such as: field visits, planning team membership, collecting or confirming background information, identification of values, interactive mapping and community meetings. Involvement will also include opportunities to review and comment on planning documents. Aboriginal communities should be involved in identifying the approach that will work best for them based on community priorities and perspectives. Approaches to Aboriginal involvement will in part be influenced by available resources and the allocation of those resources (OMNR 2009).

Early and on-going discussions of Aboriginal communities' interests help to determine if potential management decisions could affect Aboriginal and treaty rights (OMNR 2009). Where established or asserted Aboriginal or treaty rights may be adversely affected, the Ministry has a legal duty to consult in a way that is meaningful and, where appropriate, make reasonable efforts to accommodate Aboriginal and treaty rights.

All involvement opportunities available to the public are also available to Aboriginal communities; however, a customized approach to Aboriginal involvement is useful to best meet the unique needs of each Aboriginal community (OMNR 2009).

## 5.5 Public and Stakeholder Involvement

Public and stakeholder consultation and engagement should be determined based on the requirements of other planning processes. These include the process for amending protected area management direction and the Class EA-PPCR. Any required consultation should be conducted at the end of each fire management planning stage, as described in the schedule and deliverables section of this guideline (Section 5.3) and outlined in Figure 4.

### **5.5.1 Protected Area Management Direction**

Section 4.0 describes the circumstances under which an amendment to management direction, or the development of new management direction, should be coordinated with the fire management planning process. Consultation requirements for amending or developing new management direction are outlined in the Ontario Protected Areas Planning Manual (OMNR 2009) and [associated guidelines](#).

### **5.5.2 Class EA-PPCR**

All fire related undertakings are “projects” under the Class EA-PPCR. The Class EA-PPCR sets out the minimal requirements for consultation for each category of project (A, B, C or D). It is expected that many fire management projects will fall into Category “A”.

The preparation of fire response plans may not require any consultation other than that prescribed by the Class EA-PPCR. If all the projects in the fire response plan are Category A, then the Class EA allows the projects to proceed without consultation. Despite this provision, notification that a plan has been prepared must be provided to affected Aboriginal communities, adjoining landowners and other potentially affected parties. In addition, the protected area manager may elect to offer the opportunity to contribute information and share any concerns during the planning process.

The preparation of fire management plans must fulfill the consultation requirements of both the Class EA-PPCR for evaluating projects and the PPCRA for amending management direction. As a result, affected Aboriginal communities and stakeholders must be offered the consultation opportunities required by one or both of these planning processes.

### **5.5.3 Coordination of Planning Processes**

Consultation opportunities to meet the requirements of different planning processes should be coordinated when feasible. Guidance on coordinating protected area management planning and Class EA-PPCR project evaluation is provided in the Ontario Protected Areas Planning Manual (OMNR 2009) and [associated guidance](#).

## **5.6 Best Practices**

There are several sources of guidance on consultation strategies and approaches for protected areas planning and management. Refer to the Ontario Protected Areas Planning Manual (OMNR 2009) and [associated guidelines](#) for guidance on best practices.

## **5.7 Public Education**

Although not the purpose of these guidelines, there may be opportunities to inform the public, stakeholders and Aboriginal communities of the broader, beneficial ecological and hazard reduction roles of fire on the landscape. Often this can best be accomplished through natural heritage education programs in parks or partnerships such as “Friends of” protected area groups, stewardship councils or other interested non-government organizations. Programs and partnerships such as these can be of great assistance in advancing the concept of fire as a necessary ecological process on the landscape.

## 5.8 Plan Review and Approval

Generally, the process for review and approval of fire response and fire management plans should be consistent with protected area planning protocols. The park zone or district should coordinate review and approval of all draft documents.

Approval levels and routing for documents developed during all fire management planning stages are listed in Table 2. In addition, Ontario Parks main office (for provincial parks), regional offices (for conservation reserves), Parks and Protected Areas Policy Section (NHLPS) and Integrated Services Section (AFFES) should review terms of

Table 2. Approval levels and routing for fire management planning stages.

Stage	Approval Level	Fire Response Plan	Fire Management Plan
<b>1. Terms of Reference</b>	<i>Approval</i>	<ul style="list-style-type: none"> <li>• zone or district manager*</li> <li>• regional response and operations manager</li> </ul>	<ul style="list-style-type: none"> <li>• zone or district manager*+</li> <li>• regional response and operations manager</li> </ul>
	<i>Routing for Approval</i>	<ul style="list-style-type: none"> <li>• fire management supervisor</li> <li>• park superintendent or area supervisor</li> </ul>	<ul style="list-style-type: none"> <li>• fire management supervisor</li> <li>• park superintendent or area supervisor</li> </ul>
<b>2. Information Analysis</b>	N/A	N/A	N/A
<b>3. Draft Plan</b>	<i>Approval</i>	<ul style="list-style-type: none"> <li>• zone or district manager*</li> <li>• regional response and operations manager</li> </ul>	<ul style="list-style-type: none"> <li>• zone or district manager*</li> <li>• regional response and operations manager</li> </ul>
	<i>Routing for Approval</i>	<ul style="list-style-type: none"> <li>• fire management supervisor</li> <li>• park superintendent or area supervisor</li> </ul>	<ul style="list-style-type: none"> <li>• fire management supervisor</li> <li>• park superintendent or area supervisor</li> </ul>
<b>4. Final Plan</b>	<i>Approval</i>	<ul style="list-style-type: none"> <li>• zone or district manager*</li> <li>• regional response and operations manager</li> </ul>	<ul style="list-style-type: none"> <li>• Minister of Natural Resources (or delegated authority)*</li> </ul>
	<i>Routing for Approval</i>	<ul style="list-style-type: none"> <li>• fire management supervisor</li> <li>• park superintendent or area supervisor</li> </ul>	<ul style="list-style-type: none"> <li>• Director, Ontario Parks or regional director</li> <li>• zone or district Manager</li> <li>• park superintendent or area supervisor</li> <li>• Director, Aviation, Forest Fire and Emergency Services Branch</li> <li>• regional response and operations manager</li> <li>• fire management supervisor</li> </ul>

\* Review required by Ontario Parks main office (for provincial parks), regional offices (for conservation reserves), Parks and Protected Areas Policy Section (NHLPS) and Provincial Planning and Information Section (AFFES) prior to release or Minister’s approval.

+ Director level approval is required for Terms of Reference for protected areas with a management plan.

reference, draft and final plans prior to release to the public or stakeholders, or approval by the Minister (or delegated authority).

The draft fire response or fire management plan must be reviewed within MNR prior to release for consultation. A list of MNR organizational units that must be included in the review are listed in Table 3. Plans for a group of protected areas should be circulated to all affected park zones, districts and regions.

**Table 3. Minimum distribution list for internal MNR review of draft fire response and fire management plans.**

<b>Organizational Unit</b>	<b>Conservation Reserve</b>	<b>Provincial Park</b>
<b>Regional Operations Division</b>		
<ul style="list-style-type: none"> <li>• Program Coordination Section, Integration Branch</li> <li>• Region(s)</li> <li>• District(s)</li> </ul>	✓	✓
<b>Provincial Services Division</b>		
<i>Ontario Parks Branch</i> <ul style="list-style-type: none"> <li>• Park Zone(s)</li> <li>• Operations and Development Section</li> <li>• Marketing and Communications Section</li> </ul>		✓
<i>Aviation, Forest Fire and Emergency Services Branch</i> <ul style="list-style-type: none"> <li>• Provincial Fire Program</li> <li>• Provincial Planning and Information Section</li> <li>• Regional Fire Management Centre</li> <li>• local fire management headquarters</li> </ul>	✓	✓
<b>Policy Division</b>		
<ul style="list-style-type: none"> <li>• Parks and Protected Areas Policy Section, Natural Heritage, Lands and Protected Spaces Branch</li> </ul>	✓	✓
<b>Other</b>		
<ul style="list-style-type: none"> <li>• MNR program areas that could be affected by implementation of the plan or that were represented on the planning team or as advisors</li> </ul>	✓	✓





## 6.0 GUIDANCE FOR PREPARING A FIRE RESPONSE PLAN

This section provides guidance on the standards, content and suggested resources for preparing fire response plans for protected areas. A fire response plan template is provided in the fire management planning toolkit. The template and guidance are intended to guide planning teams through a process for identifying potential fire response options by location, while avoiding or minimizing the risk of adverse effects. The template and guidance are consistent with and enhance the requirements of the Guidelines for the Use of Modified Response and Monitoring during Managed Fire Operations (OMNR 2006b) for fire response planning in protected areas.

Implementation of the fire response option(s) described in a fire response plan is subject to the Class EA-PPCR. Generally, the projects in a fire response plan will meet the criteria for Category A. If any of the projects are screened to a higher category (e.g., due to a high level of public concern), then the planning team should elevate the fire management planning process to Level 3 (preparation of a fire management plan).

### 6.1 Guide to the Fire Response Plan Template

#### General formatting

The template is pre-formatted, including fonts, headings, cover pages, etc.

#### Approvals Page

A standard approvals page is included in the template.

#### Table of Contents, List of Figures and Tables

The template is pre-formatted to auto-generate a table of contents from the pre-formatted headings. Update the table of contents as necessary to reflect additions, deletions, or changes in headings, figures or tables throughout the document.

#### Preface

The purpose of the preface is to describe the legislative and policy authority for the preparation of fire response plans for protected areas. Standardized text is provided in the template.

#### Summary

This section should provide a brief synopsis of the fire response plan.

#### 1.0 Introduction

This section should provide a brief introduction to the purpose of the plan and provide the planning context. Include a purpose statement that explains why a fire response plan was prepared. Generally, the purpose of a fire response plan is to direct the location and type of fire response within the plan area. One of the primary reasons for preparing a fire response plan for a protected area is to achieve the beneficial effects of fire in ecosystems and

landscapes where fire is a major disturbance factor. Other reasons may relate to reduction of fire hazards or other resource management objectives.

In addition to the purpose statement, the introduction should describe the planning context. Explain how the fire response plan relates to the goals and objectives of the management plan or statement for the protected area(s) and any other Crown lands included in the plan. Any other complementary plans, such as resource management or emergency response plans should be referenced and the relationship to the fire response plan described.

In general, the activities described in fire response plans will be Category A projects under the Class EA-PPCR. Refer to the Class EA-PPCR to confirm the project category. Include a statement to explain the relation of the plan to the Class EA-PPCR and to indicate the project category.

Finally, the introduction should include a statement that the plan only addresses fire response. Fire use, including prescribed fire and prescribed burning, must be planned for through other processes, as described in section three of this guideline.

### 2.0 Description of the Planning Area

Fire response plans may address one or more protected areas or a combination of protected areas and other Crown lands (e.g., enhanced management areas, forest reserves). The plan may address all or portions of these lands (e.g., islands and peninsulas). Furthermore, these areas may be dispersed over large geographic areas with intervening lands that are not included in the plan (e.g., other Crown lands, patent and federal lands). For these reasons, it is important that the geographic scope of the fire response plan is clearly identified.

In this section, list the protected areas and other lands addressed by the fire response plan. Clearly identify whether the plan applies to the entire land base or only a portion of it. For greater clarity and as appropriate, list or describe those lands that are excluded from the plan. Include a statement that the adjacent or intervening lands will continue to receive fire response as per the direction in the Forest Fire Management Strategy for Ontario (OMNR 2004a).

A regional setting map should be inserted that clearly labels those areas included in the fire response plan. The table in the template has been provided to assist planning teams in documenting the location of the protected areas and other designated lands addressed in the plan relative to MNR administrative and ecological boundaries. All maps in the plan should be created following protected area mapping standards.

### 3.0 Interaction of Fire within the Protected Area

The purpose of this section is to outline the interaction of fire within the protected area and the surrounding landscape to provide the context and rationale for the fire response plan.

#### 3.1 Fire Regime

This section should provide a general description of the fire regime of the area in the context of the region. This information is important in documenting the ecological role of fire in the protected area. The parameters of the fire regime will influence the development of the fire response direction in subsequent sections of the plan. The aim of the fire response direction should be to move conditions in the protected area towards those characteristic of a natural regime.

In addition to having some knowledge of the general fire regime of the region, it is important to understand the fire ecology of the vegetation communities within the protected area. Some communities are dependent on fire for renewal or maintenance, while others will be reduced by fire disturbance. The type and severity of fire will affect how the vegetation responds and the composition, structure and landscape patterns of the resulting communities.

**Fire Regime:**

The kind of fire activity or pattern of fires that generally characterize a given area (OMNR 2004a).

In this section, describe the fire regime for the region. Include additional information on the fire regime characteristics of the dominant vegetation communities. At a minimum, consult Van Sleetwen (2006) for information on the fire regime for the ecodistrict in which the protected area is located. Other sources of information can be found in Section 7.0.

3.2 Fire Management History

An understanding of the past and current fire management response for the protected area is necessary to assess changes to the natural fire regime and associated impacts that may have resulted. This information will assist in developing the appropriate objectives for the plan.

In this section, describe the existing fire response direction for the protected area with reference to the fire management zone (from the Forest Fire Management Strategy for Ontario, OMNR 2004a) in which the protected area is located. Document the historic fire response based on readily available information, such as notable changes to fire management policy through time (e.g., response level and area). Note any prescribed burns that have been conducted. Provide a description of the effects of the past and current fire response policy.

4.0 Risk Assessment

The risk assessment section of the plan is intended to assess the potential risk to values of fire occurrence or exclusion through an evaluation of the forest fuels and values within the protected area. This information will assist with delineating compartments (areas) for fire response or use and developing the appropriate direction for specific portions of the protected area.

4.1 Fuels Assessment

The purpose of this section is to assess the probability of fire in or near the protected area and to develop a prediction of the range of fire behaviour that could occur at different times of year. This requires assessment of fuel types and their distribution, as well as how these factors interact with fire weather indices, topography and natural and anthropogenic fuel breaks.

The term “fuels” usually refers to aboveground living and dead surface vegetation but may also include roots and organic soils such as peat. The type, quantity, size, arrangement and distribution of fuels are all factors that affect fire behaviour, including ease of ignition, rates of spread and fire type.

Sources of information to assist with identifying fuels include forest resource inventories (FRI), ground surveys and aerial photography. Standard Canadian Forest Fire Behaviour Prediction System (FBP) fuel types can be derived from these sources. A useful way to document this information is to develop a map of the fuel types.

This section should include:

- a general description of fuel types
- map of fuel types (optional)
- how fire weather indices impact fire behaviour relative to the fuel type and time of year
- identification of areas and times of year with high probability of fire occurrence and/or risk of problematic control

#### 4.2 Values Potentially Affected By Fire

This section forms the foundation of the plan by identifying values in the protected area that could be affected either negatively or beneficially by fire. This assessment of values does not negate the need to do a values impact assessment when responding to a forest fire.

#### **Fire and Natural Values**

Certain types of fire may be beneficial to rare vegetation communities that are fire dependent. Suppressing fires could result in these communities succeeding to a different type but the occurrence of fire would help to maintain or restore them.

Values can be considered individually or as groups in the same geographic area. Values include natural and cultural values, recreation and land uses, and socio-economic values (including infrastructure) that are contained within or adjacent to a protected area. Information on values is available from a number of sources. Additional guidance for gathering, interpreting and analyzing information on protected area values, such as assembling background information and values and pressures analysis, is available in the [protected areas planning manual guidelines](#). Guidance for identifying cultural heritage resources under the Class EA-PPCR is available in OMNR 2006c.

Special attention should be paid to documenting the occurrence of species at risk and their habitats. Park and zone ecologists and district species at risk biologists should be contacted for current information on species at risk. Park and zone staff can provide information on local populations, recovery planning, habitat regulations, the potential effects of fire and fire response, as well as any permits or other requirements under the *Endangered Species Act*.

The district planner and forester should be consulted for information on land use and resource management plans for areas adjacent to the protected area. This information will assist with ensuring that fire response within protected areas complements the objectives of other planning initiatives. For example, it may be necessary to assign a higher priority for fire suppression near the boundaries of the protected area to ensure that fire does not spread into an area allocated for harvest in a forest management plan. Areas adjacent or near to the protected area that require special consideration should be identified as a value in this section of the plan.

Information on Aboriginal site values is generally acquired from individuals or groups within Aboriginal communities who may be affected by a planning project (OMNR 2009). The [protected areas planning manual guidelines](#) outline strategies for involving Aboriginal communities in planning, including consideration of funding to support their participation, as well as other resources that are available for learning about a community's culture, history and interests. MNR may provide support to Aboriginal communities to collect information about Aboriginal site values. This may help Aboriginal communities to more effectively participate in the Aboriginal involvement process. Existing information also may be

available from sources, such as MNR staff with an existing relationship with a community (e.g., Park Superintendent, District Resource Liaison Specialist), reports about or by the community, and input provided on other resource management topics.

Once values have been identified, the risk to individual or grouped values should be assessed based on the location of the value relative to the fuel type and the risk of problematic control at different times of year. Preliminary fire management recommendations for each value or group of values should be developed based on the risk assessment. If the risk to the value or group of values is too high, full response would be the primary action to a fire. However, if the risk to the value is low, other response options may be considered. The level of risk to values may change seasonally. For example, a species at risk may use an area only during certain times of year. Similarly, the risk of detrimental effects to park or conservation reserve users would be expected to be highest during periods of peak visitation.

<b>Examples of Values</b>	
<b>Category</b>	<b>Examples</b>
<b>Natural values</b>	<ul style="list-style-type: none"> <li>• significant wildlife habitat (e.g., heronries, migration and staging areas, moose calving areas, spawning areas)</li> <li>• species at risk and their habitat</li> <li>• rare species or vegetation communities</li> <li>• old growth forest</li> <li>• significant geological features</li> <li>• outstanding examples of representative landform-vegetation types in the ecodistrict or those that are critical to meeting representation targets</li> </ul>
<b>Cultural values</b>	<ul style="list-style-type: none"> <li>• historical values</li> <li>• Aboriginal site values (e.g., burial sites, cultural trees, community meeting areas)</li> </ul>
<b>Recreational and land uses</b>	<ul style="list-style-type: none"> <li>• areas supporting ecologically sustainable recreational uses (beaches, trails, scenic landforms, campgrounds, etc.)</li> <li>• areas supporting ecologically sustainable traditional outdoor heritage uses (hunt camps, trap lines, etc.)</li> </ul>
<b>Socio-economic values</b>	<ul style="list-style-type: none"> <li>• access roads</li> <li>• communities and settlements</li> <li>• infrastructure</li> <li>• resource uses (e.g. trap lines, wood allocation)</li> </ul>

### **Examples of Information Sources on Values**

- protected area management plans/statements
- protected area inventories (life science, earth science, cultural, recreational)
- Ontario Parks Inventory and Monitoring (OPIAM) database
- Protected Area Planning Information Repository (PAPIR)
- Natural Resources and Values Information System (NRVIS)
- Natural Heritage Information Centre (NHIC)
- land use and resource management plans for adjacent areas (e.g., forest management plans)
- MNR district and park zone staff
- input received during consultation and engagement

Preventative measures, in addition to response options, may be considered to reduce the risk to values of problematic fire control. Examples include FireSmart<sup>1</sup> planning to reduce fire hazards around buildings (OMNR 2004c), harvest of standing dead trees to decrease fuel levels, or improving or creating fire breaks in advance of a fire event. These additional measures should be included as part of the fire management recommendations for the value.

Values that can be delineated by a point or a polygon should be shown in a values map. Park zoning, as applicable, should be included, as well as adjacent land uses (e.g., forest management unit boundaries). It is particularly important that values that could be adversely affected by fire are mapped to assist fire personnel with locating and protecting them during fire operations, such as reconnaissance flights. Values requiring protection from fire should be added to NRVIS if they are not already documented in this database. Note that information on some values, such as some species at risk, are considered sensitive and should be kept confidential.

Values should be listed in the table provided in the template. The following information should be included for each value or groups of values:

- a unique numerical identifier (this will be used in later sections of the plan for referencing the values located in each fire management compartment),
- a description of the location of the value,
- the fuel type the value is located within,
- a description of the sensitivity of the value to fire or fire exclusion and the potential impacts of fire occurrence (refer to the screening criteria of the Class EA-PPCR for factors to consider in assessing impacts), and
- recommended fire management activities to either protect the value or achieve the beneficial effects of fire.

#### ***4.3 Fire Control Risks (Risk Tolerance)***

In this section of the plan, provide a summary of the opportunities and limitations for fire management based on the assessment of fuels and values in Sections 4.1 and 4.2. The analysis of fuels and values should have lead the team to gain a preliminary idea of areas

<sup>1</sup> FireSmart is a program that provides information to help communities and homeowners to take action and protect their properties and adjacent natural resources from the risk of wildfires.

requiring different levels of protection or exposure to fire in relation to values that are present, fuel types, anticipated fire behaviour and the potential for problematic control. The summary should broadly identify and describe areas of the protected area with similar fuel types and predicted fire behaviour and associated opportunities or constraints.

### 5.0 Objectives

This section should outline the resource management objectives to be achieved through fire management. Objectives must be consistent with existing, approved protected area management direction and be achievable through the use of full, monitored and/or modified fire response.

If specific resource management objectives have been identified that require a specific type of fire or comprehensive planning, the team should reassess if Level 2 planning is appropriate or if a fire management plan should be prepared (Level 3 planning). Refer to Section 3.0 on planning levels and Section 7.0 on fire management plans to assist in this evaluation.

If the objectives are general in scope, a fire response plan is appropriate. In general, objectives will relate to maintaining or restoring aspects of ecological integrity, the protection of human health, safety and infrastructure, and fire hazard reduction. Objectives related to natural heritage education also could be considered.

In developing objectives, the planning team should consider:

- the relevant policy, goals and objectives established for the protected area
- changes to the fire regime and ecological impacts that have been documented
- values, fuels and the results of the risk assessment

In this section, list the objectives of the fire response plan and describe how they support or amend the policy direction for the protected area.

### 6.0 Fire Response Direction

This section of the plan provides the fire response direction for the protected area(s) and outlines the actions to be taken during implementation of the plan to mitigate the negative impacts of fire.

#### 6.1 Fire Response Compartments

This section details the desired fire response options throughout the protected area(s) to achieve the stated objectives. The delineation of areas for fire response and determination of the response direction is based on integrating the information on values, fuels, risk assessment, impacts of current and past fire management and the fire regime that was assessed in the background sections of the plan.

In delineating compartments, a number of factors should be considered to reduce the risk of potential adverse effects and escaped fires, including:

- landforms that act as natural fire breaks
- water bodies that may act as containment features
- prevailing wind conditions
- fuels
- roads (if present)
- other buffers to prevent fire spread

- location of values in or adjacent to the protected area that could be negatively affected by fire
- priorities for fire suppression relative to the risk of adverse impacts
- opportunities for creating or enhancing fire breaks to improve containment

The response that is identified for specific compartments should be commensurate with the values at risk. Full response is indicated for compartments with a high density of values that could be detrimentally affected by fire occurrence or to protect values in adjacent lands, such as along protected area boundaries. Modified or monitored response may be set for compartments where fire would be beneficial, that have few values that would be adversely affected and where fire can be contained. Actions to protect human life, property and values within each compartment should be identified, as well as the priorities for response. Priorities among compartments for fire response may also be considered and documented.

The fire response for each compartment should be described in the plan. Provide a brief summary of the fire response, fire compartments that were identified and the rationale for why they were established. Use the table in the template to provide details of the fire response direction. The following information should be included for each compartment:

- purpose of the compartment and the rationale for its design from ecological and fire management operational perspectives
- the priority for response relative to other compartments
- description of the general geographic location, configuration and area
- list of values from Section 4.2 of the plan that are contained within the compartment
- the fire response options that will be used and how they will be applied
- any other activities to protect specific values within the compartment from the detrimental effects of fire that were identified during the risk assessment (e.g., implementation of FireSmart around buildings, use of minimum impact suppression techniques).

Text describing the desired response (full, modified or monitored) by geographic area should be supported with a map and decision key for rapid assessment of the actions to take during fire operations. The decision key is used as a quick reference at time of fire arrival to ensure appropriate and consistent direction is applied during fire operations. The decision key should provide a clear and simple guide to the initial response to use in the event of a fire, depending on the risk to values and the location of the fire. Generally, the key should direct full response for fires that are not located within the planning area (unless this is not consistent with direction for the fire management zone) and those that threaten human life, infrastructure, property or other values. Otherwise the desired fire response for the areas within the plan area should be indicated. In addition, the key should include the decision making process for determining if a different response is necessary based on an evaluation of the success of the initial fire response. Example decision keys are located within the Fire Management Planning Toolkit.

The fire response map should clearly indicate the response direction within the protected area (full, modified and/or monitored response); irrelevant information should be excluded.

### 6.2 Fire Operations

The purpose of this section is to explain how the plan will be implemented to ensure the protection of public health, safety, property and values. Generally, fire operation activities are guided by standard operating procedures of AFFES and Ontario Parks (e.g., fire assessment reporting procedure, emergency and evacuation plans for operating parks).

Completion of the Fire Assessment Report is a standard operating practice that is used to determine the appropriate response at the time of a fire based on an assessment of the fire behaviour and the threat to human life, property and values. The priority of areas for fire response, and appropriate response actions, will be based on the approved fire assessment report.

Although the identification of values is a key step in developing the plan, it is possible that previously unknown values may be identified while responding to a fire. During fire response, all values will be identified in a Fire Assessment Report and appropriate action will be taken to protect the identified values. Default text for this section is provided in the template that can be used or altered at the discretion of the planning team.

During the term of the plan, the local fire management supervisor should lead annual preparedness planning with protected area staff. The purpose of preparedness planning is to review protocols, update any operational, communications or emergency response plans, and identify specific roles, responsibilities and contact information.

### 6.3 Minimum Impact Suppression Techniques

The Forest Fire Management Strategy for Ontario (2004a), directs the use of “light on the land” techniques to minimize the impacts of fire response in protected areas “due to the many environmentally and culturally significant sites that may be disturbed by fire suppression activities” (OMNR 2004a). A default paragraph is provided in the template to express this direction and describe “light on the land” techniques.

### 7.0 Monitoring

This section should provide an outline of the monitoring that will be conducted to assess the effects of the actions taken to implement the plan. Monitoring is an essential part of an adaptive management cycle. Monitoring is necessary to evaluate the effectiveness of management actions and to determine if adjustments to objectives or approaches are needed. Section 8.0 of the guideline provides guidance on identifying a monitoring and reporting framework for assessing implementation of the plan. The template includes an example of a table that may be used for summarizing a monitoring framework for the plan. Refer to the [protected areas planning manual guidelines](#) for guidance on identifying indicators to assess achievement of objectives.

### 8.0 Plan Amendment and Review

This section is intended to communicate the term of the plan and provide direction on the process for review and amendment. Refer to Section 9.0 of the guideline for further details on the process for reviewing and amending the fire response plan. Default text for this section has been included in the template.

### 9.0 References

Include a list of the references used in preparation of the fire response plan.

### Appendices

Tables, maps and figures may be included in the body of the plan or as appendices. Include any other appendices, as needed.





## 7.0 GUIDANCE FOR PREPARING A FIRE MANAGEMENT PLAN

This section provides guidance on the standards, content and suggested resources for preparing a fire management plan. A fire management plan template is provided in the fire management planning toolkit. The template and associated guidance are intended to guide planning teams through a process for compiling and analyzing the information necessary to develop fire management direction for a protected area.

Implementation of the fire response and use projects described in a fire management plan is subject to the Class EA-PPCR. If any of the projects in the fire management plan screen to a Category B or C, supplementary information, in addition to that needed to prepare the fire management plan, is necessary to meet the requirements for project documentation and evaluation. These additional requirements are identified in the guidance and template and should be included if any of the projects described in the plan screen to Category B or C.

Fire management plans are deemed to be secondary plans. As such, a fire management plan amends protected area management direction. Guidance for coordinating the planning and consultation requirements of the PPCRA and the Class EA-PPCR is provided in Section 5.4.

### 7.1 Guide to the Fire Management Plan Template

#### General formatting

The template is pre-formatted, including fonts, headings, cover pages, etc.

#### Approvals Page

A standard approvals page is included in the template.

#### Table of Contents, List of Figures and Tables

The template is pre-formatted to auto-generate a table of contents from the pre-formatted headings. Update the table of contents as necessary to reflect additions, deletions, or changes in headings, figures or tables throughout the document.

#### Preface

The purpose of the preface is to describe the legislative and policy authority for the preparation of fire management plans for protected areas. Standardized text is provided in the template.

#### Summary

This section should provide a brief synopsis of the fire management plan.

#### 1.0 Introduction

This section should describe why a fire management plan was prepared for the site and outline how the plan complements any other relevant planning documents such as the

management plan/statement for the protected area, vegetation management plans or emergency response operational plans.

If the fire management plan includes projects that screen to a Category B or C under the Class EA-PPCR, then a specific purpose statement that links the plan to the Class EA-PPCR should be included (i.e. the problem or opportunity to be addressed and why). In addition, a statement should be included in the introduction that explains that the plan is amending the management direction for the protected area and that the amendment is being coordinated with the Class EA-PPCR process.

The Class EA-PPCR requires consideration of alternatives to the undertaking for Category B and C projects. Fire management planning in protected areas is intended to create a disturbance and landscape pattern that is characteristic of a natural fire regime. Technically feasible alternatives to the project (alternatives to managing fire response and use) may be described, and assessed, as appropriate. Examples include tree planting, mechanical/chemical site preparation and/or tending (mowing, ploughing). In some circumstances, the planning team may wish to include an alternative that may be technically feasible, but not permitted by legislation or policy (e.g., forest harvesting). In these cases, the plan should identify that the alternative is not eligible for consideration due to policy or legislative prohibitions.

The null alternative (do nothing) must be considered. The null alternative to reintroducing fire is full suppression. In the introduction, briefly describe full suppression as an alternative to a fire management plan. Provide a brief explanation of why managing fire response and use is preferred over the null alternative, with respect to potential environmental effects and relative effectiveness.

## 2.0 Description of the Planning Area

### 2.1 Location and Administration

Fire management plans may address one or more protected areas or a combination of protected areas and other Crown lands (e.g., enhanced management areas, forest reserves). The plan may address all or portions of these lands (e.g., islands and peninsulas). Furthermore, these areas may be dispersed over large geographic areas with intervening lands that are not included in the plan (e.g., other Crown lands, patent and federal lands). For these reasons, it is important that the scope of the plan is clearly identified.

In this section, list the protected areas and other lands addressed by the plan. Clearly identify whether the plan applies to the entire land base or only a portion of it. For greater clarity and as appropriate, list or describe those lands that are excluded from the plan. Include a statement that the adjacent or intervening lands will continue to receive fire response as per the direction in the Forest Fire Management Strategy for Ontario (OMNR 2004a).

A regional setting map should be inserted that clearly delineates those areas included in the plan. The table in the template has been provided to assist planning teams in documenting the location of the protected areas and other designated lands addressed in the plan relative to MNR administrative and ecological boundaries. All maps in the plan should be created by following the protected area mapping standards.

## 2.2 Climate and Fire Weather, Landforms, Topography, Vegetation, Protected Area Boundary Configuration

The purpose of this section is to document the ecology and geology of the protected area from landscape to local scales. The interaction of climate, landforms, topography and vegetation influences fire behaviour and effects. Knowledge of the physiography of the area contributes to understanding how past fires have influenced landscape patterns, as well as predicting the probability of future fires and their effects on succession. The information in this section will form a baseline for assessing the impacts of past fire management, developing objectives and actions to reduce or reverse these impacts, and assessing and mitigating risk.

Much of the information to complete this section may be found in park management plans, resource management plans and life and earth science inventories and check sheets. The section headings listed below are intended as a guide for the information that should be included in the plan. Headings may be changed or reorganized at the discretion of the planning team.

2.2.1 Climate and Fire Weather- Describe the weather patterns and fire indices that affect the protected area throughout the fire season (April through to the end of October). The fire weather indices will indicate how often the weather conditions will sustain a fire or create conditions for problematic control. Highlight the fire season weather conditions conducive to fire start, spread and problematic control. As applicable, note any observed signals of climate change (e.g., earlier start to the fire season, more lightning caused fires, etc.) and the effects this may have on park management (e.g., more fire bans, area closures, travel restrictions).

2.2.2 Landforms- This section should describe the predominant landforms of the region and the protected area. Relate how the landforms may influence fire behaviour and the potential effects of fire on sensitive landforms, such as those with steep relief or that are prone to erosion.

2.2.3 Topography- Slope, aspect, elevation and the spatial arrangement of natural features are all elements that affect fire occurrence and behaviour, as well as ecological succession after fire. Relate any significant topography of the protected area that could influence fire behaviour or fire management opportunities (e.g., waterbodies that could serve as fire breaks)

2.2.4 Dominant Vegetation- Summarize the dominant vegetation communities of the protected area, making note of any effects of the fire history of the site (e.g., “the dominant vegetation is fire origin jack pine (age 90-120 years)”) and how the landforms and topography of the site may have influenced these patterns.

2.2.5 Boundary configuration- Describe the protected area boundary configuration, particularly with respect to how the area and shape may create or limit opportunities for fire management.

2.2.6 Other natural or anthropogenic firebreaks- Provide an overview of other features that may function as firebreaks, such as roads.

## 3.0 Interaction of Fire with the Protected Area

The purpose of this section is to outline the interaction of fire with the protected area landscape in order to provide some context for the subsequent consideration of options for fire response or use within the protected area.

### 3.1 Fire Regime

One of the key steps in fire management planning is to investigate the fire regime of the specific area or the region. Investigating the fire regime is important for several reasons. It will provide a baseline for evaluating changes in the current fire regime due to the effects of fire management (e.g., full suppression). It will inform the development of objectives relative to achieving a forest condition characteristic of a natural fire regime. Finally, it will assist with determining the fire response and use options to achieve restoration of natural fire disturbance processes and landscape patterns.

#### **Fire Regime:**

The kind of fire activity or pattern of fires that generally characterize a given area (OMNR 2004a).

The fire regime varies across the province depending on the interaction of climate, landforms and vegetation (Van Sleuwen 2006). An investigation of the fire regime should consider the following:

- The importance of fire as a natural disturbance factor in the protected area and surrounding landscape
- Temporal and spatial scales of assessments; assessments based on short term records (<50 years) can easily lead to misguided management plans, as can generalizations of fire over large areas based on local studies
- The characteristics of fires in the area, including: frequency; fire cycle (length of time necessary to burn an area equal to the area of interest); intensity and severity; type of fire (e.g., surface, ground or Crown fires); size and spatial pattern; seasonality
- The response of the vegetation communities of the protected area to fire and the influence of past fires on their composition and spatial patterns

There are many methods, resources and tools that are available to assist with characterizing the natural fire regime. The level of investigation and analysis that is undertaken should be balanced with the available resources and the confidence level necessary for selecting appropriate and achievable objectives.

In this section of the plan, describe the characteristics of the natural fire regime of the region and provide an indication of the importance of fire as a natural disturbance factor in the protected area. Summary tables may be used to document the extent to which each dominant vegetation community in the protected area is fire-initiated or maintained. The description of the natural fire regime that is provided in the plan should be as complete as possible based on the best available information.

### 3.2 Changes to the Fire Regime

This section is intended to document the recent fire history of the protected area and surrounding region and discuss changes to the fire regime that may have resulted since the inception of fire suppression. This information will assist the planning team in assessing the ecological impacts of changes to the fire regime and in the development of objectives and goals for the fire management plan.

Most evidence suggests that fire regimes in many of Ontario's ecosystems have changed dramatically since the mid-1800s. The number of fires and area burned from approximately 1850 to the 1940's may reflect an "unnatural" level of fire activity associated with railway building, settlement and land clearing, prospecting, etc. Ward and Tithecott (1993) indicate that fire cycles have lengthened since the 1930's due to an effective fire exclusion policy. In addition to the effects of long-term fire suppression, fire dependant ecosystems may be

fragmented by agricultural lands, resource extraction activities (e.g., logging, mining), transportation and utility corridors, and urban areas.

The planning team should consider the fire regime that created the selected baseline ecosystem condition, any changes that may have occurred and how these changes have affected the protected area. The provincial fire archives are an excellent database that can be used to gather information on the recent fire history for comparison with the fire regime. In addition, some protected areas have detailed fire history studies for their land base or nearby land bases.

Projected changes to the fire regime due to a changing climate should also be assessed in this section. In general, the number and severity of fires is expected to increase in the province over the next century, with the degree of change varying geographically in relation to temperature, precipitation and other factors. Wotton et al. (2005) and Lemieux et al. (2007) are examples of studies that have investigated the potential effects of climate change on the fire regime in Ontario.

A summary of this information may be best displayed in tabular format as well as displayed using a fire history map for the protected area. The recent fire history is often summarized by documenting the number of fires and area burned by decade. A comparison of this data with parameters of the natural fire regime may show that the amount of fire in the protected area and the regional landscape has declined over time. Use tables, maps or figures, as appropriate to assist with displaying and interpreting this data.

### 3.3 Ecological Impacts

The purpose of this section is to investigate and summarize any evidence of the ecological effects of past fire management policies and practices in the protected area. This information is important in clarifying the resource management issues to be addressed by the fire management plan. Understanding the ecological impacts will assist in setting objectives and outcomes relating to the desired ecosystem condition to be achieved through fire management and the appropriate options to achieve them.

This section should document any fire suppression effects of changes to the fire regime. Include a description of any species and age-class shifts and/or fuel accumulations (likely legacies of fire suppression) in featured fire dependant communities in the protected area relative to changes in the fire regime parameters.

Things to consider in investigating how the protected area has been affected by changes to the fire regime include:

- Was Aboriginal people's use of the land a significant cause of ignitions in the past? (for example, see Miller et al. 2008)
- Is an observed increase in the number of fires due to more ignitions or is it an artefact of better/more intensive fire detection?
- Are vegetation community changes due to fire suppression or simply a natural shift in fire regime?
- How has the protected area changed from the desired forest/ecosystem condition?
  - Has fire suppression had any influence in terms of insect, disease, weather damage, outside the bounds of natural variation?
  - Have historical harvesting operations had an influence on forest composition? How can fire management be used to "restore" this forest condition, or are other vegetation management tools more appropriate?

- Is the forest composition, age and landscape pattern of the protected area within the range of natural variation?
- Is the protected area ecosystem as a whole, or portions of the ecosystem, in need of active restoration work?

**Examples of resources for investigating the fire regime and ecological impacts of past fire management practices**

- local studies of the fire regime (if available)
- Studies from adjacent areas (caution should be exercised in extrapolating research results from one area to another)
- The Protected Area Planning Information File (PAPIR)
- Forest management plans for adjacent Sustainable Forest Licences (SFL) (documents age class shifts/gaps, successional trends, natural “depletions” due to insect/disease)
- landscape modeling conducted for forest management planning to estimate the Simulated Range of Natural Variation for forest composition, stand age and landscape pattern
- forest management and fire ecology literature (e.g., VanSleeuwen 2006)
- Aboriginal traditional knowledge of fire history, behaviour and ecology (e.g., Miller et al. 2008)
- forest insect and disease survey reports  
[http://www.mnr.gov.on.ca/en/Business/Forests/2ColumnSubPage/STEL02\\_166919.html](http://www.mnr.gov.on.ca/en/Business/Forests/2ColumnSubPage/STEL02_166919.html)
- OMNR digital fire atlas (only includes records since the 1920’s; dates of earliest records vary across the province)
- historical and current FRI
- LANDSAT imagery
- land surveys and other records that describe the historical forest condition and burned areas
- forest harvest histories (local history books, local knowledge)
- studies of projected changes to the fire regime due to climate change (e.g., Wotton et al. 2005, Lemieux et al. 2007)

Models, used in combination with other sources of information, may be a useful tool for assessing some of the effects of fire suppression. Models may provide an estimate of the range of variation of specific parameters to be expected under a natural fire regime, which can then be compared with the observed forest. For example, models used in forest management planning or other resource management applications may be able to assist with evaluating the effects of fire suppression on the composition, structure and patterns of vegetation in the protected area. As with all models, it is important to be aware of the assumptions, limitations and data inputs in order to evaluate their utility for a particular protected area.

#### 4.0 Risk Assessment

The risk assessment section of the plan is intended to assess the potential risk to values of fire occurrence or exclusion through an evaluation of the forest fuels and values within the protected area. This information will assist with delineating compartments (areas) for fire response or use and developing the appropriate direction for specific portions of the protected area.

#### 4.1 Fuels Assessment

The purpose of this section is to assess the probability of fire in or near the protected area and develop a prediction of the range of fire behaviour that could occur at different times of year. This requires assessment of fuel types and their distribution, as well as how these factors

interact with the fire weather indices, topography and natural and anthropogenic fuel breaks that were described in Section 2.0.

The term “fuels” usually refers to aboveground living and dead surface vegetation but may also include roots and organic soils such as peat. The type, quantity, size, arrangement and distribution of fuels are all factors that affect fire behaviour, including ease of ignition, rates of spread and fire type.

Sources of information to assist with identifying fuels include forest resource inventories (FRI), ground surveys and aerial photography. Standard Canadian Forest Fire Behaviour Prediction System (FBP) fuel types can be derived from these sources. A useful way to document this information is to develop a map of the fuel types.

This section should include:

- a general description of fuel types
- map of fuel types (optional)
- how fire weather indices impact fire behaviour relative to the fuel type and time of year
- identification of areas and times of year with high probability of fire occurrence and risk of problematic control

#### 4.2 Values Potentially Affected By Fire

This section forms the foundation of the plan by identifying values in the protected area that could be affected either negatively or beneficially by fire. This assessment of values does not negate the need to do a values impact assessment when responding to a forest fire.

#### **Fire and Natural Values**

Certain types of fire may be beneficial to rare vegetation communities that are fire dependent. Suppressing fires could result in these communities succeeding to a different type but the occurrence of fire would help to maintain or restore them.

Values can be considered individually or as groups in the same geographic area. Values include natural and cultural values, recreation and land uses, and socio-economic values (including infrastructure) that are contained within or adjacent to a protected area. Information on values is available from a number of sources. Additional guidance for gathering, interpreting and analyzing information on protected area values, such as assembling background information and values and pressures analysis, is available in the [protected areas planning manual guidelines](#). Guidance for identifying cultural heritage resources under the Class EA-PPCR is available in OMNR 2006c.

Special attention should be paid to documenting the occurrence of species at risk and their habitats. Park and zone ecologists and district species at risk biologists should be contacted for current information on species at risk. These staff can provide information on local populations, recovery planning, habitat regulations, the potential effects of fire and fire response, as well as any permits or other requirements under the *Endangered Species Act* (2006).

The district planner and forester should be consulted for information on land use and resource management plans for areas adjacent to the protected area. This information will assist with ensuring that fire response within protected areas complements the objectives of other

planning initiatives. For example, it may be necessary to assign a higher priority for fire suppression near the boundaries of the protected area to ensure that fire does not spread into an area allocated for harvest in a forest management plan. Areas adjacent or near to the protected area that require special consideration should be identified as a value in this section of the plan.

Information on Aboriginal site values is generally acquired from individuals or groups within Aboriginal communities who may be affected by a planning project (OMNR 2009). The [protected areas planning manual guidelines](#) outline strategies for involving Aboriginal communities in planning, including consideration of funding to support their participation, as well as other resources that are available for learning about a community’s culture, history and interests. MNR may provide support to Aboriginal communities to collect information about Aboriginal site values. This may help Aboriginal communities to more effectively participate in the Aboriginal involvement process. Existing information also may be available from sources, such as MNR staff with an existing relationship with a community (e.g., Park Superintendent, District Resource Liaison Specialist), reports about or by the community, and input provided on other resource management topics.

<b>Examples of Values</b>	
<b>Category</b>	<b>Examples</b>
<b>Natural values</b>	<ul style="list-style-type: none"> <li>• significant wildlife habitat (e.g., heronries, migration and staging areas, moose calving areas, spawning areas)</li> <li>• species at risk and their habitat</li> <li>• rare species or vegetation communities</li> <li>• old growth forest</li> <li>• significant geological features</li> <li>• outstanding examples of representative landform-vegetation types in the ecodistrict or those that are critical to meeting representation targets</li> </ul>
<b>Cultural values</b>	<ul style="list-style-type: none"> <li>• historical values</li> <li>• Aboriginal site values (e.g., burial sites, cultural trees, community meeting areas)</li> </ul>
<b>Recreational and land uses</b>	<ul style="list-style-type: none"> <li>• areas supporting ecologically sustainable recreational uses (beaches, trails, scenic landforms, campgrounds, etc.)</li> <li>• areas supporting ecologically sustainable traditional outdoor heritage uses (hunt camps, trap lines, etc.)</li> </ul>
<b>Socio-economic values</b>	<ul style="list-style-type: none"> <li>• access roads</li> <li>• communities and settlements</li> <li>• infrastructure</li> <li>• resource uses (e.g. trap lines, wood allocation)</li> </ul>

### Examples of Information Sources on Values

- protected area management plans/statements
- protected area inventories (life science, earth science, cultural, recreational)
- Ontario Parks Inventory and Monitoring (OPIAM) database
- Protected Area Planning Information Repository (PAPIR)
- Natural Resources and Values Information System (NRVIS)
- Natural Heritage Information Centre (NHIC)
- land-use and resource management plans for adjacent areas (e.g., forest management plans)
- MNR district and park zone staff
- input received during consultation and engagement

Once values have been identified, the risk to individual or grouped values should be assessed based on the location of the value relative to the fuel type and the risk of problematic control at different times of year. If the risk to the value or group of values is too high, full response would be the primary action to a fire. However, if the risk to the value is low, other response options may be considered. The level of risk to values may change seasonally. For example, a species at risk may use an area only during certain times of year. Similarly, the risk of detrimental effects to park or conservation reserve users would be expected to be highest during periods of peak visitation.

Preliminary fire management recommendations for each value or group of values should be developed based on the risk assessment. Preventative measures, in addition to response options, may be considered to reduce the risk to values of problematic fire control. Examples include FireSmart<sup>2</sup> planning to reduce fire hazards around buildings (OMNR 2004c), harvest of standing dead trees to decrease fuel levels, or improving or creating fire breaks in advance of a fire event. These additional measures should be included as part of the fire management recommendations for the value.

Values that can be delineated by a point or a polygon should be shown in a values map. Park zoning, as applicable, should be included, as well as adjacent land uses (e.g., forest management unit boundaries). It is particularly important that values that could be adversely affected by fire are mapped to assist fire personnel with locating and protecting them during fire operations, such as reconnaissance flights. Values requiring protection from fire should be added to NRVIS if they are not already documented in this database. Note that information on some values, such as some species at risk, is considered sensitive and should be kept confidential.

Values should be listed in the table provided in the template. The following information should be included for each value or groups of values:

<sup>2</sup> FireSmart is a program that provides information to help communities and homeowners to take action and protect their properties and adjacent natural resources from the risk of wildfires.

- a unique numerical identifier (this will be used in later sections of the plan for referencing the values located in each fire management compartment),
- a description of the location of the value,
- the fuel type the value is located within,
- a description of the sensitivity of the value to fire or fire exclusion and the potential impacts of fire occurrence (refer to the screening criteria of the Class EA-PPCR for factors to consider in assessing impacts), and
- recommended fire management activities to either protect the value or achieve the beneficial effects of fire.

#### 4.3 Fire Control Risks (Risk Tolerance)

In this section of the plan, provide a summary of the opportunities and limitations for fire management based on the assessment of fuels and values in Sections 4.1 and 4.2. The analysis of fuels and values should have lead the team to gain a preliminary idea of areas requiring different levels of protection or exposure to fire in relation to values that are present, fuel types, anticipated fire behaviour and the potential for problematic control. The summary should broadly identify and describe areas of the protected area with similar fuel types and predicted fire behaviour and associated opportunities or constraints.

#### 5.0 Goals, Objectives, Approaches and Outcomes

##### 5.1 Goals

Provide an over-arching goal(s) for fire management in the protected area. The goal should be developed in the context of broader protected area objectives, the Fire Management Policy for Provincial Parks and Conservation Reserves (OMNR 2004b) and the information compiled in the preceding sections of the fire management plan.

##### **Example of a Goal Statement**

*The goal of fire management in the protected area – is to restore fire as an integral ecosystem process for maintaining and restoring ecological integrity while ensuring the prevention of value loss, personal injury, economic and social disruption.*

##### 5.2 Objectives, Approaches and Outcomes

The setting of objectives is a requirement for adaptive management because it is against these that success of the project will be measured and actions adjusted in response to monitoring or new information. The objectives should be S.M.A.R.T. (specific, measurable, achievable, reasonable and timely) and clearly, linked to the overall goal. This information will be valuable for reporting (State of Protected Areas Reporting, AFFES Performance Measures, etc.) and for audit purposes.

In general, objectives will relate to maintaining or restoring aspects of ecological integrity, the protection of human health, safety and infrastructure, and fire hazard reduction. Objectives related to natural heritage education also could be considered.

In developing objectives, the planning team should consider:

- the relevant policy, goals and objectives established for the protected area
- changes to the fire regime and ecological impacts that have been documented
- values, fuels and the results of the risk assessment

**Examples of some objectives, approaches and outcomes**

Objective 1:

*Protect human life and infrastructure from unwanted fire.*

#	Approach	Outcome	Relative Priority**	Relative Timeframe*
1.1	<i>Apply full response to any fire that has the potential to threaten human life, safety, property or infrastructure</i>	<i>No loss of life, property or infrastructure due to fire over the period of the plan</i>	1	<i>Ongoing</i>
1.2	<i>Prioritize values x, y, z for full response during escalated fire activity</i>	<i>No loss of values x, y, z due to fire</i>	1	<i>Ongoing</i>
1.3	<i>Reduce fuel loads around value x</i>	<i>Reduction of the quantity of fuels around value x</i>	2	<i>Short-term</i>
1.4	<i>Create fire break along northern boundary area</i>	<i>Continuous break in fuels along northern boundary</i>	2	<i>Short-term</i>
1.5	<i>Implement FireSmart around buildings within the park/conservation reserve</i>	<i>FireSmart planning implemented for 10 buildings</i>	2	<i>Short-term</i>
1.6	<i>Encourage FireSmart of private infrastructure</i>	<i>Information on FireSmart distributed to neighbouring municipalities</i>	3	<i>Ongoing</i>

Objective 2:

*Restore and maintain the composition, structure and pattern of vegetation that is characteristic of a natural fire regime*

#	Approach	Outcome	Relative Priority**	Relative Timeframe*
2.1	<i>Use managed fire response and/or prescribed fire to renew declining older forest stands.</i>	<i>Increase in area of young forest</i>	1	<i>Long-term</i>
2.2	<i>Use prescribed fire or burning to regenerate red and white pine stands</i>	<i>Maintenance of red and white pine forest</i>	1	<i>On-going</i>
2.3	<i>Apply managed fire response in areas succeeding to shade tolerant species.</i>	<i>Reduction in area of shade tolerant species</i>	2	<i>Long-term</i>

\* Timeframes: short-term=complete within 5 years; long-term= complete in >5 years; on-going=actions that recur

\*\* Priorities: 1=critical; 2=necessary; 3=beneficial

Objectives to maintain or restore ecological integrity should be consistent with the principles of ecological restoration in protected areas (Parks Canada and the Canadian Parks Council 2008). In general, the objective should be to maintain or move ecosystems towards a structure, composition and function that are within the range of natural variation. Selection of a reference condition may require the consideration of multiple spatial (site, landscape) and temporal (pre-settlement, settlement period, fire suppression era) scales depending on the site and the available information. Determining what is “natural” can be a challenge; however, the research and analysis done to characterize the fire regime and ecological

impacts of changes to the regime should provide a frame of reference for developing effective objectives and outcomes.

Approaches should be identified for achieving each objective. The approaches are the steps or actions that need to happen to achieve the objective. For each approach identify a relative timeframe for completing the approaches or actions.

Outcomes should be identified for each approach. The outcome should state the desired result of the approach or action. Outcomes establish the benchmarks for measuring achievement of the objectives and should be developed in conjunction with a framework for monitoring. To the extent possible, identify quantifiable outcomes that relate to the objective, such as hectares of forest burned or restored. Quantified outcomes, however, should have a sound ecological or operational basis that is explained in the plan. If there is inadequate information or analysis to quantify outcomes, then a qualitative statement is preferred (e.g., an increase or decrease in the area of a particular forest type or age class).

In this section, list the objectives of the fire management plan and associated approaches for achieving the objectives. For each approach, include the desired outcome, with an indication of the relative priority and timeframe for implementation. In addition, describe how the goals and objectives of the fire management plan support or amend the policy direction for the protected area.

#### *6.0 Fire Management Options*

The Forest Fire Management Strategy for Ontario (OMNR 2004a) defines a range of options for the management of fire (see Section 1.5 of this guideline). This section of the fire management plan should evaluate the feasibility of these techniques to achieve the objectives of the fire management plan.

#### *6.1 Description of Fire Management Options*

This section should describe each type of managed fire response (full, monitored, modified) and use (prescribed fire and burning) and evaluate its application in the protected area to achieve the stated goals and objectives.

Generally, it will be necessary to employ a combination of fire responses and uses. The evaluation of each type of fire response and use will assist in identifying the combination that will best achieve the objectives of the plan while protecting values and minimizing social disruption.

In evaluating each type of fire response and use, the following factors should be considered:

- Will the fire response or use achieve all or part of one or more of the objectives?
- Are there priority areas for fire management where this fire response or use is the optimal or only option for achieving objectives?
- Is the fire response or use consistent with the zoning and permitted uses of the protected area?
- Are there any risks to known values of employing this fire response or use or conflicts with other objectives? Can risks and conflicts be mitigated?
- Are there areas where there is an unacceptable risk of fire escape if this fire response or use is used?
- What are the potential environmental effects of the fire response or use and can negative impacts be mitigated?

### 6.2 Preferred Fire Management Approach

Identify the preferred alternative and provide the rationale for the selection, identifying the combination of fire responses and uses that will be employed and the general area where each would be applied.

Outline how the planning team arrived at the preferred option, particularly if there was any debate about the ability to mitigate any of the threats – i.e., outline how the team feels that the mitigation can be achieved if there is any perceived concern.

### 6.3 Relationship to Environmental Assessment

The fire management options described in Section 6.1 are projects that are subject to the Class EA-PPCR. The Class EA-PPCR requires that projects be assigned to a Class EA-PPCR category, which determines the level of detail and consultation required to evaluate them. The purpose of this section is to document the Class EA-PPCR categories for the preferred fire management approach and to explain how this was determined. A Screening Criteria Table (Table 4.1 of the Class EA-PPCR) should be included in an appendix of the plan for any projects that were screened to Category B or C but is not necessary for Category A projects.

Additional information is required for Category C projects. If any of the projects are screened into Category C, include a summary of the implications of not proceeding with the project.

### 7.0 Fire Management Direction

This section describes the application of the fire response and use options outlined in Section 6.2 of the plan.

#### 7.1 Fire Management Compartments

The purpose of this section is to describe the fire management activities that should take place in different parts of the protected area to achieve the stated objectives and outcomes. This will usually be done by dividing the protected area into compartments as per the selected fire response and use options. This can be a complex process, usually accomplished by integrating information and analysis that was synthesized in preceding sections of the plan and informed by “expert” opinion. The analysis and methods used to delineate compartments and develop management direction should be clear, repeatable and defensible.

In delineating compartments, a number of factors should be considered to reduce the risk of adverse effects and escaped fires, including:

- landforms that act as natural fire breaks
- water bodies that may act as containment features
- prevailing wind conditions
- fuels
- roads (if present)
- other buffers to prevent fire spread
- location of values in or adjacent to the protected area that could be negatively affected by fire
- priorities for fire suppression relative to the risk of adverse impacts
- opportunities for creating or enhancing fire breaks to improve containment

Integrating the knowledge of the local fire regime, prevailing fire spread directions and the location of key values, hazard fuels and the results of the risk assessment is important at this step. Ideally, secure fire containment features described in earlier sections of the plan (roads, lakes) should form the compartment boundaries. Where these are not available, anti-fuels (hardwood dominated stands, rock outcrops, swamps, etc.) can be “joined” to form defensible boundaries. Compartments should be easily distinguishable from the air and ground (i.e., by using roads, water bodies, etc. as boundaries).

Fire growth models and fire probability models can be used to assist in defining compartments by modelling fire spread under various fuel and weather conditions. In addition, prescribed burns and FireSmart techniques can be used to strengthen compartment boundaries at strategic locations by creating impediments to fire spread. These techniques should be a prerequisite to fire management approaches that have a higher level of risk, such as allowing more intense fires to achieve an ecological objective. The application of managed fire and prescribed fire can be more flexible when the compartment boundaries are secure and the risk of fire escape is minimized.

The fire response that is identified for specific compartments should be commensurate with the values at risk and the outcomes to be achieved. Full response is indicated for compartments with a high density of values that could be detrimentally affected or to protect values in adjacent lands, such as along protected area boundaries. Modified or monitored response may be identified for compartments where fire would be beneficial, that have few values that would be adversely affected and where fire can be contained. The approach for compartments may vary depending on the season (e.g., pre- and post-green up) and weather. Actions to protect human life, property and values within each compartment should be identified, as well as the priorities for response. Priorities among compartments for fire response may also be considered and documented.

Fire use is indicated when a specific type and intensity of fire is necessary to achieve the desired effect on a particular vegetation community. Prescribed fire is based on fire occurring by chance within a specified range of indices and conditions. If the uncertainty associated with prescribed fire is unacceptable, then prescribed burning should be considered. Prescribed fire and prescribed burning may be stipulated for the same compartment if the desired outcomes can be achieved through either type of fire use. Prescribed burning to achieve specific resource management objectives may be the only option in compartments where full response is necessary due to the risk to values.

Generally areas identified for fire use should be delineated as separate compartments. Fire use compartments should identify the desired response in the event of a wildfire. For example in a prescribed fire compartment the appropriate fire response should be described if the fire is out of prescription. Likewise for a prescribed burn compartment the desired response to a wildfire needs to be identified.

The fire response and use for each compartment should be described in the plan. Provide a brief summary of the fire management approach, fire compartments that were identified and the rationale for why they were established.

The table in the template may be used to provide details of the fire response and use direction for each compartment. The following information should be included in the table for each compartment:

- purpose of the compartment and the rationale for its design from ecological and fire management operational perspectives
- the priority for response relative to other compartments
- description of the general geographic location, configuration and area
- list of values from the values table that are contained within the compartment
- the fire response and use options that will be used and how they will be applied to achieve ecological objectives and to protect the values within the compartment that could be detrimentally affected by fire
- for prescribed fire compartments, use the appropriate fire terminology to describe the fire effects and parameters (e.g., frequency, fire cycle, magnitude, type, spatial extent, seasonality) to assist with prescription setting in the operations schedule
- any other activities to protect specific values within the compartment from the detrimental effects of fire that were identified during the risk assessment (e.g., implementation of FireSmart around buildings, use of minimum impact suppression techniques)

A map of the configuration of compartments should be included for public consultation or engagement, and changes made based on input from stakeholders. The map should clearly indicate the fire response and use direction within the protected area (full, modified and/or monitored response, prescribed fire, prescribed burning); extraneous information should be excluded.

### 7.2 Fire Operations

The purpose of this section is to explain how the plan will be implemented to ensure the protection of public health, safety, property and values. Generally, activities to implement fire management are guided by standard operating procedures of AFFES and Ontario Parks (e.g., fire assessment reporting procedure, emergency and evacuation plans for operating parks).

Although the identification of values is a key step in developing the plan, it is possible that previously unknown values may be identified while responding to a fire. During fire response, all values will be identified in a Fire Assessment Report and appropriate action will be taken to protect the identified values. Default text for this section is provided in the template that can be used or altered at the discretion of the planning team.

During the term of the plan, the local fire management supervisor should lead annual preparedness planning with protected area staff. The purpose of preparedness planning is to review protocols, update any operational, communications or emergency response plans and identify specific roles, responsibilities and contact information. Prescriptions for prescribed fire compartments should be developed as part of preparedness planning and reviewed annually.

For complex fire management plans, a separate annual operating schedule should be prepared that directs daily fire management activities. An annual operating schedule is required if the fire management plan includes compartments with prescribed fire. When an annual operating schedule is developed, this section of the fire management plan would then explain the relationship between the fire management plan and the annual operating schedule. Suggested wording is provided in the template for circumstances in which an annual operating schedule will be prepared.

The annual operating schedule is intended to provide yearly direction on implementation of the fire management plan. It should identify the fire staff and the protected area staff who are responsible for implementing the plan, their roles and responsibilities and their contact

information. The schedule should set out any protocols for informing the public, other agencies and MNR executive in the event of a fire. It should also set out how the potential for fires to occur will be monitored and how fires will be assessed once they occur (i.e., the use of the fire assessment report).

The annual operating schedule is where the prescription for the prescribed fire compartments will be documented. The prescribed fire prescriptions should describe the fuel types and the range of fire behaviour indices that will achieve the objectives for the compartment. There should also be statements about when and how to apply the prescription such as a three day projection. This should include a procedure for when the fire start is within prescription but the forecast is such that the fire will be out of prescription and could be a problem to control.

The prescription should include the ranges of the fire weather indices that will be applied. At a minimum, the Drought Code (DC) and the Build Up Index (BUI) should be considered to ensure safe operations and achieve the objectives. These should be developed by a qualified Fire Behaviour Analyst (FBAN), be reviewed and documented by an independent FBAN and approved by the local fire management supervisor.

The information and prescriptions in the annual operating schedule should be reviewed annually and adjusted as needed.

### 7.3 Minimum Impact Suppression Techniques

The Forest Fire Management Strategy for Ontario (OMNR 2004a), directs the use of “light on the land” techniques to minimize the impacts of fire response in protected areas “due to the many environmentally and culturally significant sites that may be disturbed by fire suppression activities” (OMNR 2004a). Suggested wording is provided in the template to express this direction and describe “light on the land” techniques.

### 8.0 Monitoring

This section should provide an outline of the monitoring that will be conducted to assess the effects of the actions taken to implement the plan and to meet Class EA-PPCR requirements. Monitoring is an essential part of an adaptive management cycle. Monitoring is necessary to evaluate the effectiveness of management actions and to determine if adjustments to objectives, outcomes or approaches are needed. Section 8.0 of the guideline provides guidance on identifying a monitoring and reporting framework for assessing implementation of the plan. An example of an approach for summarizing a monitoring framework in the plan is shown in the text box.

### 9.0 Plan Amendment and Review

This section is intended to communicate the term of the plan and the approach for reviewing and amending it. This section also identifies how adjustments to actions and outcomes will be made within the term of the plan in response to monitoring results and new information, consistent with adaptive management principles. Refer to Section 9.0 of the guideline for details on the plan amendment and review process. A default paragraph for the fire management plan is provided in the template.

### 10.0 References

Cite the references used in preparation of the fire management plan.

### Appendix 1: Record of Class EA-PPCR Screening

Provide a record of the Class EA-PPCR screening for each fire management project that is proposed in the fire management plan (e.g., full, monitored, modified response; prescribed

fire and burning). This appendix is not necessary if none of the projects described in the plan screened to Category B or C.

**Example of a monitoring framework for a fire management plan  
(adapted from [protected areas planning manual guidelines](#))**

Obj. #	Approach #	Indicator	Indicator Ratings				Information Source
			Poor	Fair	Good	Very Good	
1	1.1	% of fires successfully suppressed during initial attack	0-30	31-60	61-95	>95	Fire reports
	1.2	# of values lost due to fire during escalated fire activity	1	N/A	N/A	0	Fire reports
	1.3	distance from value that fuels have been reduced	0	0-10m	10-30m	30-100m	FireSmart Site Hazard Assessment Report
2	2.1	% increase in the area of forest in age classes <40 years old	5	6-10	11-20	>20	FRI data and/or satellite imagery
	2.2	# of prescribed fires or burns in pine stands	0	1-2	3-4	5	Fire Assessment Reports; pb burn records
	2.3	% of fire starts in shade tolerant forest stands that were allowed to burn	0-25	26-50	51-75	>75	Fire Assessment Reports

Appendix 2: Summary of Public Consultation

A record of public consultation should be included in an appendix to the plan. Refer to Section 5.4 of the guideline on “Consultation and Engagement”.

Describe the consultation that has taken place to date regarding the plan. The appendix must be updated at the end of each phase of consultation. For each phase that has been completed, list the name of the phase and include information on the date of consultation, methods used (e.g., direct notice, news ads, OP website, etc), who was contacted and a summary of comments.

At the draft plan stage the next steps in the fire management planning process must be explained. Name the next phase of planning, describe the steps involved, and indicate how the information from the current phase of consultation will be used. Describe the purpose of consultation during the next phase of planning, methods to be used and anticipated date. At

the final plan stage, describe how the comments from the draft plan stage changed the document.

Appendix 3: Glossary

Many of the terms used in fire management and ecology are not in common usage or have specific meaning. A glossary may be included in the fire management plan to assist readers who may not be familiar with this lexicon. Draw on appropriate references for authoritative definitions of terms, such as the 2000 Glossary of Forest Fire Management Terms (Canadian Interagency Forest Fire Centre CIFFC), as well as definitions provided in MNR policy and guidance [e.g., Forest Fire Management Strategy for Ontario (2004a)].



## 8.0 MONITORING AND REPORTING

Fire response and management plans should include a description of how the implementation of the plan will be monitored and the effectiveness of actions evaluated. This section provides guidance for planning teams to design an appropriate and cost-effective program to measure the implementation and effectiveness of fire management activities. Planning teams should refer to the [protected areas planning manual guidelines](#) for additional guidance on monitoring.

Monitoring is an essential part of adaptive management. Monitoring allows for the evaluation of project objectives and provides essential information to adjust management prescriptions, approaches and outcomes if identified objectives are not being achieved. Even in the absence of activity monitoring is essential. For example, compartments reliant on managed fire response or prescribed fire to achieve objectives may require a change in approach to prescribed burning if all fires are suppressed due to high risk conditions or if no forest fires ignite in the area.

The Class EA-PPCR prescribes project monitoring, evaluation and reporting requirements to assess environmental effects of projects and confirm the effectiveness of mitigation measures. Monitoring must be considered throughout the planning of Category B, C and D projects. The amount and type of monitoring is dependent on the project, anticipated effects, and the degree of certainty associated with the effectiveness of techniques and mitigation measures. The Class EA-PPCR requires consideration of the need for monitoring and a description of a monitoring program, if one is required. Descriptions must include the purpose of monitoring, acceptable outcomes, monitoring methods, and how and when reporting of results and any remedial actions will be completed. In developing a monitoring program, the planning team should refer to the Class EA-PPCR for project monitoring, evaluation and reporting requirements.

The purpose of monitoring will vary from plan to plan, depending on the objectives of the plan, the site conditions, geographic location, the potential for adverse effects, etc. Monitoring may be conducted to evaluate the effectiveness of actions, as well as to measure what actions have been taken. In general, monitoring should be designed and conducted to assess progress towards achieving outcomes and objectives of plans and to evaluate if mitigative measures were successful.

Monitoring should be considered at the time that objectives and outcomes are being developed, including the level of effort and resources for data collection and analysis. Measurable objectives and outcomes will assist with identifying what needs to be measured and acceptable outcomes for evaluating management activities. During plan development, outcomes may need to be adjusted to more closely align with what can be measured and monitored. The purpose of monitoring will influence what is measured, program design and methods, and how the results are reported, as well as costs and required resources.

The design of a monitoring program and the methods used will vary depending on the questions to be answered, the spatial and temporal scales necessary to detect the effects of actions, the data resolution required, and the resources available. Some measures will be possible to assess at coarse scales. For example, remotely sensed data (e.g., National Forest Inventory photography, FRI mapping, aerial photography, satellite imagery) can provide baseline information from which to assess landscape level changes in vegetation over time. These inventories are repeated at regular intervals and, when overlaid with area burned and fire response during the same period, can provide a time series for evaluating vegetation response to fire events and management actions. Other measures will demand a field sampling program to collect fine scale data at a site or stand level. Field collection of quantitative data collection and analysis may be necessary to evaluate immediate to long-term fire effects. In other cases, more qualitative measures, such as time series photography, may be satisfactory.

Planning teams should investigate existing inventory and monitoring frameworks and methodologies to assess their utility in designing and implementing a monitoring program for a specific plan. For example, the Ontario Parks Inventory and Monitoring Program (OPIAM) (McCaul et al. 2008) provides guidance and describes methodologies for consistent collection, storage and dissemination of life science inventory and monitoring information collected in provincial protected areas. Another example is a prescribed burning monitoring protocol that was developed for Rondeau Provincial Park that may have application to other protected areas (Johnson et al. 2003). Parks Canada has developed minimum acceptable standards for monitoring fire use in national parks (Parks Canada Agency 1997) and a guide to monitoring ecological integrity (Parks Canada Agency 2005 and 2007). Fire monitoring standards and protocols developed by other jurisdictions may be useful references (e.g., USDI National Park Service 2003).

Other programs may already collect data that could be used to assess the effectiveness of fire management activities or monitor the actions taken. AFFES collects information on every reported fire, including such data as the location of the fire, date, area burned, fuel type, duration of the fire, and description and location of suppression activity. Several programs have permanent sampling plots with existing data sets that could be used as a baseline for assessing effects following a fire. In addition, zone ecologists or park superintendents may have records of research conducted in specific protected areas.

The frequency and methods for reporting on results of monitoring will be dependent on the plan and the specific monitoring program. Methods and frequency of reporting also may vary among the different components of a monitoring program, depending on how the information will be used. For example, information on fire events, response and prescribed burning activity is important data for the annual review of fire response and fire operations plans. Existing internal reporting mechanisms, such as Fire Assessment Reports and prescribed burn Post Burn Reports, may be sufficient to assist with these reviews. Results of fire effects monitoring may warrant more formal or public reporting at longer intervals to support the 10-year review of all plan types.

At a program level, AFFES prepares an annual Performance Measures Report that summarizes data on fire activity and management response by fire management zone; ten of the largest provincial parks are included in the Parks Fire Management Zone. Within the protected areas program, fire disturbance in protected areas is assessed in the State of the Protected Areas Report, which is prepared on a 5-year schedule. While these reports roll up

data from across the province, they do not include information that is specific to individual protected areas.

Information management is essential in designing a monitoring program. As mentioned, AFFES maintains a fire archive of all reported fires. The protected areas program has different applications for storing and managing protected areas data, such as OPIAM, for life science monitoring and inventory data, and the Protected Areas Planning Information Repository (PAPIR), for managing information related to planning processes. Other corporate applications, such as NRVIS, also may be relevant. In developing a monitoring program, planning teams should identify information management needs and address how these will be met.





## 9.0 AMENDMENT AND REVIEW

### 9.1 Fire Response Plans

As part of annual preparedness planning, response plans should be reviewed at the end of each fire season and adjustments made to the response direction, as required. A post season operational review should be done by protected area staff and AFFES staff involved in implementing the plan throughout the fire season.

Amendments may be needed in reaction to the results of fire response activities during the fire season, monitoring or new information. For example, if an island burned during a season and it is determined that subsequent burns would have negative environmental impacts then future direction may be to suppress fires for a period of time. The routing and approvals for amendments is the same as for approval of the fire response plan (Table 2, Section 5.5).

The maximum term for a fire response plan is 10 years, which is the period during which projects of a recurring nature may proceed under the Class EA-PPCR. The plan must be formally reviewed after the 10-year term expires, or sooner as may be deemed necessary by the MNR. The review of the plan should include an assessment of how effective the direction is at meeting objectives of the plan and the protected area. The review will determine if any modifications to the projects are necessary. Refer to the Class EA-PPCR for direction on the review process for recurring projects. The results of the review may require that a new fire response plan be prepared, that the plan be amended as described above, or that the plan is still relevant and will continue to be implemented.

### 9.2 Fire Management Plans

As part of annual preparedness planning, implementation of the fire management should be reviewed at the end of each fire season. If there is an annual operating schedule, changes to operational direction should be done by protected area staff and AFFES staff.

Fire management plans may be updated or amended in response to new information or monitoring. For example, monitoring of a fire management project(s) in the fire management plan may indicate that a project was not effective at meeting objectives (i.e., vegetation composition, structure and landscape pattern is not within the desired range). Therefore adaptive management actions are required in order to meet fire management plan objectives.

Once a fire management plan is completed it, in effect, amends the protected area management direction and becomes part of that greater protected area management direction. As such, fire management plans are subject to the same requirements for administrative updates and amendments as protected area management direction. Furthermore, fire management plans must be included in the examination of the management plan or statement for the protected area. The process for making amendments, administrative updates and

conducting examinations is described in the Ontario Protected Areas Planning Manual (OMNR 2009) and [associated guidelines](#).

Requirements of the Class EA-PPCR (OMNR 2005) must also be considered in making changes to fire management plans. Under the Class EA-PPCR, recurring projects described in a plan may proceed for a period of up to 10 years. Refer to the Class EA-PPCR for direction on the review process for recurring projects and for information on consultation requirements. Processes for protected areas management planning (i.e., administrative updates, amendments, examinations) and modifications or review of recurring projects under the Class EA-PPCR should be coordinated, when feasible.

Any changes to the direction in a fire management plan must be approved by both protected area and fire managers, as per Table 2 in Section 5.5.



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