Peel2041
Regional Official Plan Review

Wildland Fire

Peel 2041 Discussion Paper

November 2018



Region of Peel
working with you

Table of Contents

Section **Page**

EXECUTIVE SUMMARY I

1. INTRODUCTION 1
1.1 Wildland Fire and the Environment Themed Regional Official Plan Amendment (ROPA) 1

2. BACKGROUND 3
2.1 What are Wildland Fires? 3

3. OVERVIEW OF PROVINCIAL POLICY STATEMENT, 2014, POLICY 3.1.8 – WILDLAND FIRE 7
3.1 Provincial Reference Manual on Planning for Wildland Fire Hazard 8

4. PROVINCIAL WILDLAND FIRE RISK ASSESSMENT & MITIGATION STANDARDS 9
4.1 Wildland Fire Risk Assessment Standards 9
4.1.1 Site Level Assessments 9
4.1.2 Wildland Fire Forest Types 9
4.1.3 Generalized Mapping of Wildland Fire Hazards in Peel Region 10
4.2 Risk Mitigation Standards 10
4.2.1 Protecting Natural Heritage 11
4.2.2 Planning and Design 11
4.2.3 Vegetation (Fuel) Management and Structural Mitigation 12
4.3 Risk Mitigation Standards 12
4.3.1 Provincial Recommendations for Official Plan Implementation 14
4.4 Applicability of Provincial Recommendations in the ROP 14
4.4.1 Simplified Broad-Level Assessment of Peel Region 14

5. POLICY OPTIONS 19
5.1 Where to Insert Wildland Fire Policies 20
5.2 Wildland Fire Hazards Mapping in the ROP 20
5.3 Complete Application Requirements in ROP 21
5.4 Definition of Natural Hazards 21

6. CONCLUSION 23

7. WORKS CITED 25

APPENDICES: HAZARDOUS FOREST TYPES FOR WILDLAND FIRE MAPPING IN PEEL REGION 27

A. MNRF Potential Hazardous Forest Types for Wildland Fire (Peel Wide) 27
B. ELC Forest Types Corresponding to Wildland Fire Risk (Peel Wide) 28
C. Forest/Woodland Communities Corresponding to Wildland Fire (Peel Wide) 29
D. Forest/Woodland Communities Corresponding to Wildland Fire (Caledon) 30
E. Forest/Woodland Communities Corresponding to Wildland Fire (Mississauga) 31

List of Figures

Figure 2.1: The Wildland Urban Interface 4
Figure 2.2: Wildland Fire Behaviour (from Top to Bottom): Convection, Direct Flame, and Radiant Heat . 5
Figure 4.1: Vegetation Management Zones 12
Figure 4.2: MNRF Generalized Mapping in Streetsville, Mississauga 15

List of Tables

Table 4.1: Examples of Wildland Fire Risk Assessment Information and Mitigation Approaches and Relevant Planning Act Tools that can be used to Enforce/Require them 13
Table 4.2: MNRF Reference Manual Hazardous Forest Types and comparable ELC Community Series and Ecosites 17

Executive Summary

As part of the Peel 2041: Regional Official Plan Review, the Region of Peel is conducting a wildland fire policy review to ensure that the Regional Official Plan (ROP) is consistent with the wildland fire policy in Ontario's Provincial Policy Statement, 2014 (PPS).

Introduced in 2014 as part of the Province's update to PPS 2005, the 2014 PPS Policy 3.1.8 states that development is to be generally directed outside of lands that are at risk of wildland fires due to the presence of hazardous forest types for wildland fire. Development may be permitted on those lands if the risk of wildland fire can be mitigated in accordance with Provincial assessment and mitigation standards. These standards, as well as Provincial guidance on how municipalities may implement PPS Policy 3.1.8, are provided in the Province's Wildland Fire Risk Assessment and Mitigation Reference Manual (Reference Manual). The Ministry of Natural Resources and Forestry (MNRF) has also provided generalized mapping of potential hazardous forest types for wildland fire across Ontario.

The key Provincial recommendations for official plan implementation of PPS Policy 3.1.8 are:

- Include policies that recognize wildland fire hazards as risks to public health and safety and as hazards that should be avoided

- Identify where hazardous forest types for wildland fire may be located, based on a municipally-led "broad-level" assessment that refines MNRF's generalized mapping

- Provide tools/mechanisms to ensure that site-level risk assessments and environmentally appropriate mitigation measures are conducted and implemented by proponents of development through the development application process (e.g. provide screening maps; describe the risk assessment and mitigation measures that are to be demonstrated/required as part of complete applications)

Given the location of potential hazardous forest types and the delegation of planning approval authority to Local Municipalities for most Planning Act applications in Peel Region, Regional staff recommend that PPS Policy 3.1.8 be implemented in the ROP through general policies that reflect PPS Policy 3.1.8 and support local municipalities in further implementation as appropriate. Furthermore, given the coarse resolution of the MNRF mapping, it is recommended that local municipalities refine the MNRF mapping when preparing development application screening maps

- THIS PAGE IS INTENTIONALLY BLANK -

1. Introduction

1.1 Wildland Fire and the Environment Themed Regional Official Plan Amendment (ROPA)

The Region of Peel is currently undertaking a five year review and update of the Region of Peel Official Plan (ROP) known as "Peel 2041: Regional Official Plan Review". The Ontario Planning Act requires municipalities to update their official plans to ensure that the policies stay current, conform to Provincial Plans, are consistent with Provincial policy statements, and achieve their goals and objectives.



Peel 2041 includes a focused review of ten policy areas to ensure conformity with a number of recent Provincial plans and policies. The *Provincial Policy Statement, 2014* (PPS) was recently amended to include wildland fire policies.

The purpose of this discussion paper is to provide an overview of wildland fire hazard planning Ontario and wildland fire hazards in Peel, and recommend policy options for the Regional Official Plan to ensure that it is consistent with provincial policy direction.

This discussion paper was prepared in consultation with the Province and with consideration of the location and extent of potentially hazardous forests for wildland fire in Peel Region, as identified by the Ministry of Natural Resources and Forestry.

- THIS PAGE IS INTENTIONALLY BLANK -

2. Background

2.1 What are Wildland Fires?

Wildland fires are fires that burn in treed or forested areas. In a natural ecosystem, wildland fires can be a necessary aspect of natural regeneration and ecosystem health. Wildland fires in proximity to development, however, have the potential to cause property damage and impact public health and safety of individuals and communities. The severity and potential of wildland fires occurring depends on many factors, including forest type, the presence of fuels within the forest (trees, brush, flammable grasses, and debris), topography and weather.

Wildland fire hazards are created when development encroaches in areas containing hazardous forest types for wildland fire. Development can intersect with hazardous forest types in different ways. Interface areas are locations where development and forest meet at a well-defined boundary. Intermix areas are typically found outside settlement areas where new development extends into undeveloped forest areas (see Figure 2.1).

Wildland fires can be classified into three types based on behaviour. Ground fires are fueled by organic soil and woody material and burn beneath the forest floor. Surface fires burn needles, branches and twigs that are on the forest floor, as well as young trees and the bottom branches of older trees. Crown fires burn at the top of trees and at the ground and surface.

The presence and behaviour of wildland fires are determined by forest species composition and condition, weather and topography (Ministry of Natural Resources, 2017). Some examples of forest species that are highly flammable and associated with extreme or high wildland fire risk are red cedars, red and white pine and ground junipers. Forests that contain large portions of immature conifer trees close to each other, or contain large amounts of woody debris on the ground or diseased trees are also associated with extreme or high wildland fire risk[1]. Wildland fire can spread to houses and buildings through flying embers, direct flame contact, and radiant heat (see Figure 2.2).

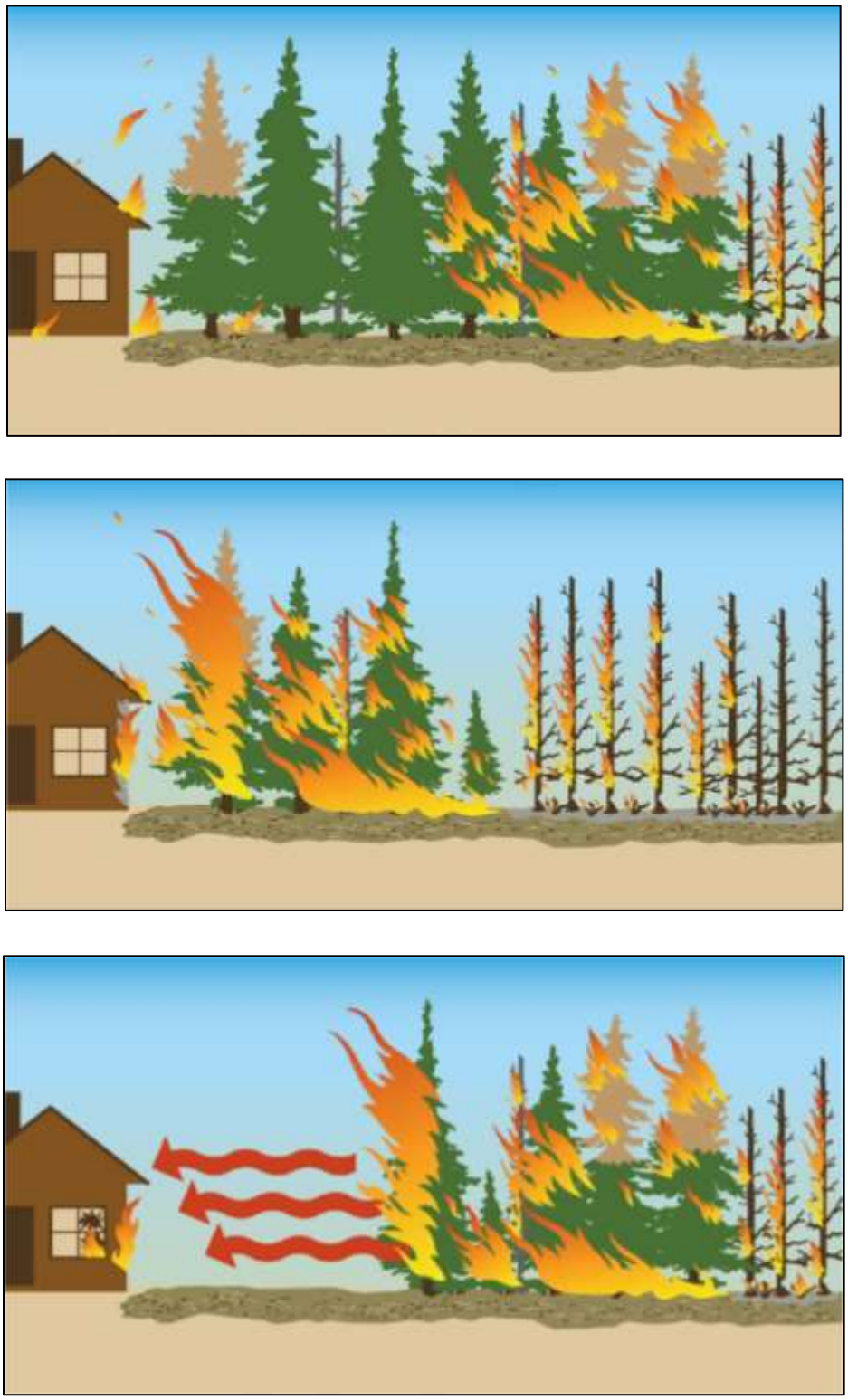
[1] For more information about the types of wildland fires and characteristics of hazardous forest types refer to the Province's Wildland Fire Assessment and Mitigation Reference Manual.

Figure 2.1: The Wildland Urban Interface



Source: Ministry of Natural Resources and Forestry, 2017, p.8

Figure 2.2: Wildland Fire Behaviour (from Top to Bottom): Convection, Direct Flame, and Radiant Heat



Source: Ministry of Natural Resources and Forestry, 2017, p.16-17

- THIS PAGE IS INTENTIONALLY BLANK -

3. Overview of Provincial Policy Statement, 2014, Policy 3.1.8 – Wildland Fire

In Southern Ontario, wildland fires historically have been addressed primarily through municipal emergency management programs under the *Emergency Management and Civil Protections Act*. In Northern Ontario, forest fire management activities are also governed by the Province of Ontario's *Forest Fires Protection Act* and the *Wildland Fire Management Strategy*. However, land use planning also plays an important role in preventing wildland fire threats. Through planning policy and regulation, new development may be required to be located, landscaped and designed in a way that prevents or minimizes wildland fires and fire risk.

In recognition of the supportive role of land use planning in managing the threat of wildland fires, in 2014, the Province of Ontario updated the *Provincial Policy Statement* (PPS) to provide new direction regarding wildland fire risk and land use planning in Ontario. The PPS now recognizes wildland fire as a natural hazard and directs that municipalities consider and plan for avoiding and mitigating losses to their communities due to wildland fire. According to the Province, "the goal of these policies is that land use planning decisions contribute to reducing the loss of life or injury or property damage due to wildland fire" (MNRF, 2017, p.11).

Policy 3.1.8 in the PPS (2014) states:

> 3.1.8 *Development shall generally be directed to areas outside of lands that are unsafe for development due to the presence of hazardous forest types for wildland fire.*
>
> *Development may however be permitted in lands with hazardous forest types for wildland fire where the risk is mitigated in accordance with wildland fire assessment and mitigation standards.*

The PPS defines *Hazardous forest types for wildland fire* as "forest types assessed as being associated with the risk of high to extreme wildland fire using assessment tools provided by the Province" (PPS, 2014).

According to provincial guidance, the wildland fire hazard policy is triggered when development, as defined by the PPS, is proposed within the vicinity of forested areas containing wildland forest hazard types. The wildland fire policies of the PPS, 2014 do not apply if a proposal does not meet the definition of development. Proposals that comply with existing planning instruments and only require a permit under the *Building Code Act* are not subject to the wildland fire hazard policies. (MNRF, 2017)

3.1 Provincial Reference Manual on Planning for Wildland Fire Hazard

Policy guidance on the implementation of the wildland fire hazard policies and the assessment and mitigation standards referenced by PPS Policy 3.1.8 are set out in the Ministry of Natural Resources and Forestry's (MNRF) (2017) *Wildland Fire Risk Assessment and Mitigation Reference Manual* ("Reference Manual").

The Reference Manual provides direction on:

- When the PPS wildland fire policy is applicable;
- Municipal-level and site-level assessments, including who should undertake an assessment, what should be considered in an assessment and when should they be conducted;
- Principles and examples of wildland fire mitigation measures;
- How wildland fire mitigation measures may be implemented through the land use planning process for *Planning Act* applications; and
- How official plans should be updated to be consistent with PPS Policy 3.1.8 and address the assessment and mitigation standards that are described in the Manual.

MNRF has also provided generalized mapping of hazardous forest types for wildland fire, based on LANDSAT and Forest Resource Inventory data, last updated in April 2017 (MNRF, 2017). This mapping is described in further detail in Section 3.3 of this Discussion Paper.

4. Provincial Wildland Fire Risk Assessment & Mitigation Standards

4.1 Wildland Fire Risk Assessment Standards

The following sections summarize information contained in MNRF's Reference Manual and provide an initial regional assessment of where wildland fire policy is applicable in Peel. The information describes MNRF's recommended approaches to conducting wildland fire assessments, wildland fire forest types, and the results of an initial broad-scale, generalized mapping of wildland fire hazards in Peel, produced by Regional staff using provincial and regional data, in accordance with provincial direction.

4.1.1 Site Level Assessments

A wildland fire assessment is an evaluation of an area to determine the presence and level of wildland fire risk. The Reference Manual recommends that all development proposals include an initial wildland fire assessment and, if necessary, more detailed assessment to determine wildland fire risk. A more detailed assessment is not necessary if an initial assessment determines that the lands subject to development and within 100m of the proposed development do not contain forest cover, or the forest cover is not a hazardous forest type for wildland fire. However, if forest cover is found to be present, further assessment is required to determine the level of risk associated with the forest. These site-level assessments are to be conducted by proponents of development and reviewed by planning authorities. If the risk of fire is determined to be high-extreme, proponents should identify appropriate mitigation measures that could reduce the risk level to moderate or low.

In other words, two levels of site assessment are recommended to be undertaken to screen and assess development applications for wildland fire hazards:

- **Level 1 Site Assessment** (to be undertaken for all applications) – an initial scan of forest cover, informed by aerial photography and/or screening maps. If there is no cover present, no further action is necessary; and, if forest cover is present,

- **Level 2 Site Assessment** – an evaluation of the wildland fire risk given the characteristics of forests on "the subject lands and lands within the vicinity (to the extent possible) and/or within 100 metres of the proposed building locations", informed by site visits (p.23).

4.1.2 Wildland Fire Forest Types

The hazard level of treed or forested areas associated with high to extreme wildland fire behaviour is determined by two key factors: forest composition (i.e. species present) and forest condition (health, density, structure, presence of ground fuels). Detailed descriptions of the forest composition and conditions associated with hazardous forest types are provided in the Province's Reference Manual. Conifer forests (immature red and white pine) and mixed wood forests containing greater than 50% conifer species, and immature or unmanaged pine plantations are examples of hazardous forest types that may be found in Peel.

4.1.3 Generalized Mapping of Wildland Fire Hazards in Peel Region

MNRF has provided generalized wildland fire hazard mapping for all of Ontario to support municipalities in implementing the PPS wildland fire policy and reviewing site-level assessments. MNRF's generalized mapping in Peel indicates some potentially hazardous forest types in the Town of Caledon and limited hazards in the cities of Mississauga and Brampton (see Appendix A).

MNRF guidance provides the option to municipalities to refine the provincial generalized mapping through a "broad-level assessment" using MNRF's data as a starting point, as the provincial data provides only a coarse scale assessment of forested and treed areas and does not represent a complete assessment of fire risk. Some of the factors that could be considered during a broad-level assessment, in addition to tree species, are forest condition, road patterns, water bodies and historic fire patterns. Aerial photography and forestry inventory information are examples of information sources for the assessment.

The results of broad-level assessments are recommended by MNRF to inform the types of planning measures municipalities adopt in light of the PPS wildland fire policy and hazardous forest types information maps. The maps may also be referenced in official plans for information and screening purposes, although site-level assessments will still be necessary at the time of development application.

A simplified, Peel-wide broad-level assessment has been conducted by Regional staff (see Section 3.4.1 below) to refine the boundaries of MNRF's hazardous areas. The simplified assessment shows fewer hazardous areas in the City of Mississauga compared to the MNRF mapping, but identifies small areas of potentially hazardous forests in the City of Brampton and larger extents in the Town of Caledon. Regional staff recommend that further broad-level assessment be undertaken by local municipalities, using more detailed local forestry inventory data if available, and taking into consideration the capacity of local fire service to respond to fire in addition to those factors discussed in the Reference Manual.

4.2 Risk Mitigation Standards

This section summarizes Provincial standards for mitigating wildland fire risk through land use planning. These standards are founded on the principles of environmental appropriateness, scales of mitigation, and creating a defensible space through vegetation management.

Wildland fire mitigation approaches include:

- planning and design;
- vegetation management; and,
- structural mitigation.

These approaches can be applied at various scales (neighbourhood, site, and structure), depending on the characteristics of the wildfire hazards and natural heritage features and areas that are present, and the scale and nature of the development proposal. In all cases, appropriate mitigation approaches should not negatively impact natural heritage features and areas.

4.2.1 Protecting Natural Heritage

Hazardous forest types for wildland fire may be found within natural heritage features and areas (e.g. significant woodlands, significant wildlife habitat) that are important for their ecological functions, biodiversity and social value, and are also subject to protection under section 2.1 Natural Heritage in the PPS. Development and site alteration is not permitted in natural heritage features and areas, or is only permitted if "it has been demonstrated that there will be no *negative impacts* on the natural features or their *ecological functions"* (PPS policy 3.1.5). Similarly, the term "*wildland fire assessment and mitigation standards*" is defined by the PPS to mean "environmentally appropriate mitigation measures".

Thus, development applications proposing mitigation measures to reduce the risk of wildland fire must demonstrate that the measures will be environmentally appropriate and will have no negative impact on natural features. Applications for development and site alteration must be consistent with the policies of the PPS for natural heritage and conform to the applicable natural heritage policies of the Region of Peel Official Plan and local official plan. MNRF notes that if there are no mitigation measures that could avoid negative impact, the proposed development should not be permitted.

In Peel, natural heritage features are identified and protected in the ROP and local municipal official plans. Consideration for other official plan goals, objectives and policies, such as policies to maintain and enhance the urban forest canopy and manage invasive species, should also be made when identifying and evaluating proposed mitigation measures. Consequently, not all of the approaches that are provided in the Reference Manual and summarized in the sections below, especially vegetation management measures, may be appropriate in Peel.

Environmental Impact Studies are commonly required as part of a complete application to ensure that proposed development will not have negative impact. Applications in areas where hazardous forest types are identified could therefore be required to submit a wildland fire risk assessment and mitigation plan in conjunction with or as a part of an Environmental Impact Study.

4.2.2 Planning and Design

Relocating development and infrastructure away from areas known to be at high risk of wildland fire if possible is the priority of PPS 3.1.8. The Reference Manual states that sensitive land uses such as child care centres or places where large groups of people gather (e.g. hospitals or churches) should not be located within hazardous forests.

Also, neighbourhood (e.g. subdivision, secondary plan) and site plans can be designed to avoid and/or mitigate the risks of fire to buildings and structures. Ensuring sufficient lot sizes for maintaining a defensible vegetation space, designing the layout of subdivisions to avoid hazardous areas, and reducing maximum permitted density in high risk areas, are examples of planning and design mitigation measures.

4.2.3 Vegetation (Fuel) Management and Structural Mitigation

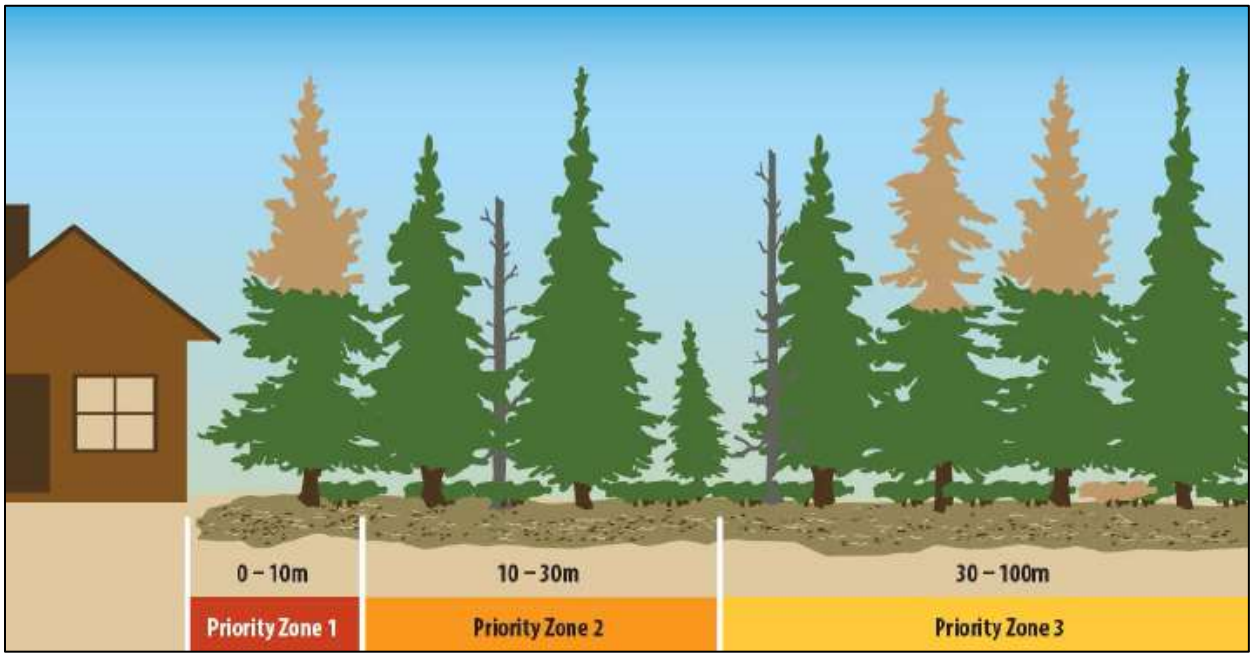
Vegetation management measures reduce the amount of forest fuels within a 100m "Priority Zone" around buildings to create a defensible vegetation space. The appropriate application of vegetation management measures can vary across the Priority Zone (Figure 4.1).

Some examples of vegetation management techniques are:

- surface level-fuel (e.g. dropped needles and woody debris) reduction;
- replacing highly flammable vegetation with fire-resistive vegetation (also called 'fuel conversion');
- thinning the forest canopy; and,
- pruning trees to remove lower branches.

Structural mitigation refers to the use of heat-resistant exterior materials and building design to reduce the risks of fire caused by radiant heat.

Figure 4.1: Vegetation Management Zones



Source: Ministry of Natural Resources and Forestry, 2017, p. 43

4.3 Risk Mitigation Standards

The Province recommends that proponents of development undertake wildfire risk assessments and propose site-specific mitigation measures. Municipalities are recommended to ensure that assessments are completed satisfactorily and that appropriate mitigation measures are proposed and implemented through the planning process. Table 4.1 below summarizes examples of assessment and mitigation measures, and the planning tools available to Ontario municipalities through the *Planning Act* to implement these measures.

Not all of the assessment recommendations and risk measures suggested by the Province may be appropriate in the Region of Peel and its local municipal planning contexts, or for all *Planning Act* applications. Furthermore, initial screening and reviews of wildland fire assessment/mitigation information submitted as part of complete applications may require the expertise of supporting municipal departments (e.g. fire and emergency services) or external agencies (e.g. conservation authorities), as is currently the case for other technical studies.

Table 4.1: Examples of Wildland Fire Risk Assessment Information and Mitigation Approaches and Relevant Planning Act Tools that can be used to Enforce/Require them

		Examples	Relevant Planning Tools
Assessment		• Mapping g showing where forested areas exist in relation to lands proposed for development and proposed structures/buildings. • Description of forest condition and composition within 100m of existing/proposed structures.	• Official Plan Complete Application policies
Mitigation	*Planning & Design*	• Prohibiting or locating sensitive land uses areas away from hazardous forest types • Clustering lots together and locating lots away from hazardous areas	• Official Plan policies and land use designations; • Secondary Plan policies; • Zoning by-laws; • Urban Design guidelines
	Vegetation	• Limiting landscaping to fire-resistant vegetation • Requiring regular tree pruning • Ecological management of hazardous forest types adjacent to development	• Subdivision and site plan conditions of approval; • Urban Design guidelines • Requiring vegetation management plans as a complete application study requirement
	Structural	• Using flame-resistant building materials • Installing exterior sprinklers	• Building Code (where applicable)

Source: Ministry of Natural Resources and Forestry, 2017; National Fire Protection Association, 2013

4.3.1 Provincial Recommendations for Official Plan Implementation

Specifically regarding official plans, Provincial guidance recommends that official plans be updated to implement PPS Policy 3.1.8 through policies that:

- Recognize wildland fire as a risk to public health and safety;
- Direct development away from lands unsafe for development due to the presence of hazardous forest types for wildland fire, and allowing development if risk is mitigated according to the Province's assessment and mitigation standards;
- Identify areas of known and potential hazardous forest types for wildland fire in a manner that corresponds to the level of confidence in the information source;
- Promote environmentally appropriate mitigation measures; and,
- Provide tools for identifying wildland fire risks and environmentally appropriate mitigation measures at the development application stage such as providing screening maps and describing what types of studies and information should be submitted.

4.4 Applicability of Provincial Recommendations in the ROP

Land use planning responsibilities in Peel are shared between the Region of Peel and the local municipalities. Except for Regional Official Plan Amendments and local Official Plan Amendments resulting from comprehensive official plan reviews, the approval authority for development applications under the *Planning Act* is delegated to the local municipalities. The designation of land uses (e.g. institutional, residential) is also determined at the local level. The Credit Valley Conservation Authority and the Toronto and Region Conservation Authority support the Region of Peel and its local municipalities in reviewing and commenting on technical studies related to natural heritage during the application review process.

As a result, while the general policy framework to reflect the PPS direction would be appropriate in a ROP, recommendations from the Province regarding more site-specific implementation and mitigation (vegetation/structural) are more appropriately administered at the local municipal level in consultation with conservation authorities.

It is therefore anticipated that the policies that will be introduced to the Region's Official Plan resulting from this wildland fire policy review would primarily be general in nature and provide policy direction to the local municipalities, in consultation with conservation authorities, to implement provincial direction through local planning approvals.

4.4.1 Simplified Broad-Level Assessment of Peel Region

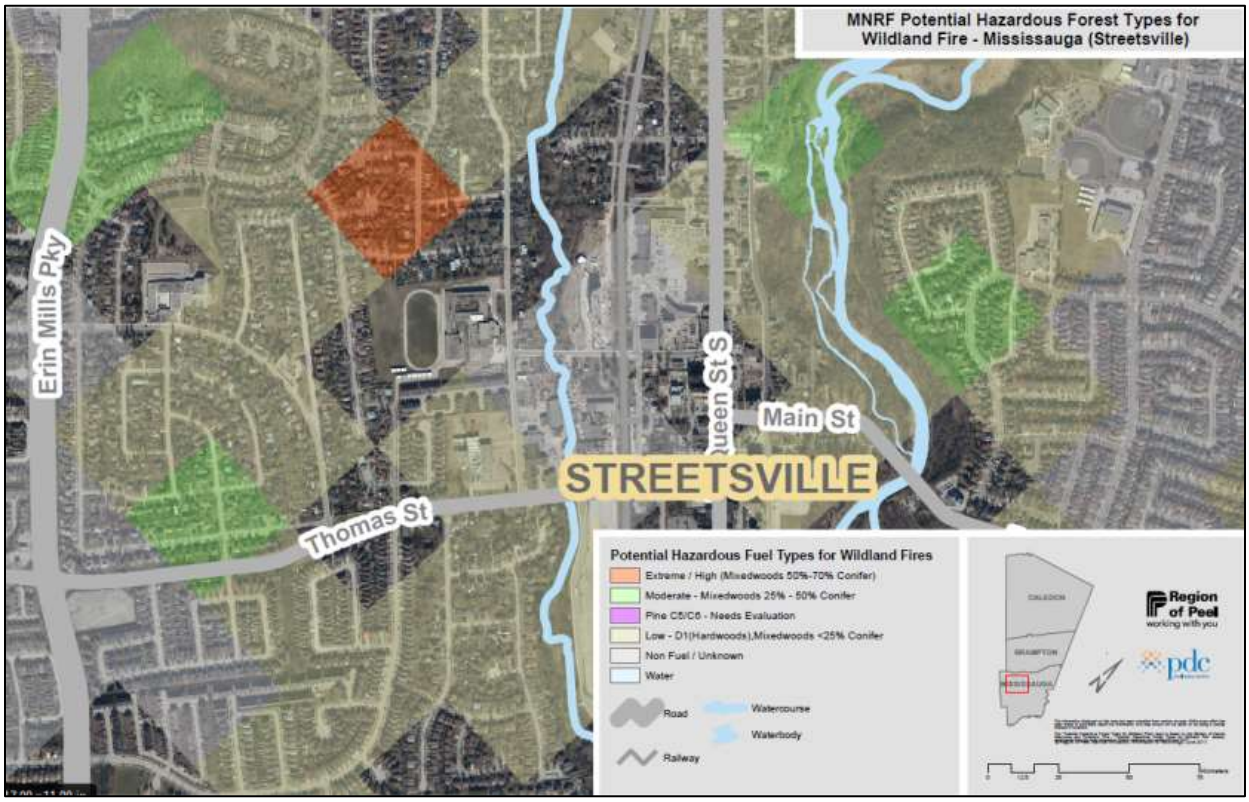
As recommended in the Reference Manual, Regional staff have conducted a broad-level assessment of hazardous forest types in Peel. Given limitations in data at the regional level, a simplified broad-level assessment of the region was undertaken. The simplified assessment is based on Ecological Land Classification (ELC) forest, woodland and cultural plantation community series and ecosite data that generally correspond to the forest composition characteristics of hazardous forest types described in the

Province's Reference Manual (see Appendices B to E). The forest and plantation communities used in the simplified broad-level assessment are defined by the ELC as areas where greater than 60% of the ground surface has tree cover (also known as absolute cover); woodland is defined areas with 25% to 60% tree cover.

The community series and ecosite ELC datasets are more refined in scale than MNRF's generalized data, and therefore are suitable for a broad-level assessment of the region. The ELC polygons were identified through air-photo interpretation and, in some cases, site visits that took into consideration settlement patterns. In contrast, MNRF's mapping appears to have been developed through remote sensing techniques that are coarse in scale, raster-based, and do not take into consideration factors beyond forest species composition.

For example, MNRF mapping shows large areas of potentially hazardous forest types in Mississauga's heavily urbanized southern communities, whereas the ELC-based assessment shows significantly less. MNRF mapping also shows a small area of potential hazards in Mississauga's Streetsville community without apparent regard for development patterns or road network, whereas the ELC mapping does not identify that area as hazardous (Figure 4.2). The ELC dataset may therefore be more suitable than MNRF's mapping as a reference for municipalities when reviewing development applications.

Figure 4.2: MNRF Generalized Mapping in Streetsville, Mississauga



However, while this simplified assessment method, based on the ELC, may be appropriate for the purposes of a *region*-wide broad-level assessment and *initial* refinement of MNRF's mapping, local municipalities are encouraged to also conduct broad-level assessments, building on the Region's ELC-based assessment and/or using more detailed forestry and other information that are available at the local level. As recommended by MNRF, the purpose of these assessments are to help inform local reviews of planning applications that require Level 2 Site Assessments. All applications are recommended to undergo an initial screening of forest cover.

Overall, the ELC mapping identifies more potentially hazardous forest types in Peel than MNRF's generalized mapping, particularly in the City of Brampton and Town of Caledon. This is because the ELC's community and ecosite units are more general in definition than MNRF's hazardous forest types (see Table 4.2) and were mapped using ecological land classification methods and more refined local air photo interpretation techniques. In the City of Mississauga, ELC mapping excludes much of MNRF's generalized mapping because of the limited number of communities and ecosites that fall within the ELC's tree cover thresholds for forests, woodlands, and plantations. More detailed species information, which may be available at the local municipal level, could improve the accuracy of the broad-level assessment. If more detailed data is not available, local municipalities may utilize MNRF's mapping in conjunction with ELC data.

Table 4.2: MNRF Reference Manual Hazardous Forest Types and comparable ELC Community Series and Ecosites

Forest species composition corresponding to hazardous forest types (from MNRF Reference Manual)	**Corresponding ELC Communities/Ecosites and their vegetation and environmental characteristics**	
"Extreme: • Immature jack pine • Boreal spruce • Black or white spruce • Balsam fir • Immature red, white pine High: • Mature jack pine • Mixedwood with >50% conifer (jack pine, spruce, balsam fir, immature red or white pine) In Southern Ontario, red cedar and ground juniper are highly flammable." (p.18)	Conifer Forest Communities	• Tree cover >60% • Conifer tree species >75% of canopy
	Mixed Forest Communities	• Tree cover >60% • Conifer tree species >25% and deciduous species >25% of canopy cover
	Cultural Woodland Communities	• 35% <tree cover ≤ 60% • Community resulting from, or maintained by, cultural or anthropogenic-based disturbances
	Cultural Coniferous Plantations Ecosites	• Tree cover > 60% • Conifer tree species > 75% of canopy • Community resulting from, or maintained by, cultural or anthropogenic-based disturbances
	Cultural Mixed Plantation Ecosites	• Tree cover > 60% • Conifer tree species > 25% and deciduous species > 25% of canopy cover • Community resulting from, or maintained by, cultural or anthropogenic-based disturbances

Source: Ministry of Natural Resources and Forestry, 2017; Lee et al., 1998

- THIS PAGE IS INTENTIONALLY BLANK -

5. Policy Options

Currently, wildland fires are not explicitly recognized as hazards within the Regional Official Plan. Natural and human-made hazards are addressed in section 2.4 ("Natural and Human Made Hazards") of the ROP. The general objectives of section 2.4 are:

2.4.1 General Objectives

2.4.1.1 To ensure that *development* and *site alterations* are not permitted in areas where site conditions or location may pose a danger to public safety, public health or result in property damage.

2.4.1.2 To encourage a coordinated approach to the use of the land and the management of water in areas subject to *flooding* in order to minimize social disruption.

2.4.1.3 To ensure that methods used to *protect* existing development at risk from *natural hazards*, do not negatively impact the *integrity* of the *ecosystem*.

Section 2.4 contains hazard-specific subsections focused on flooding, slope instability and erosion hazards, and "Other Natural and Human-made Hazards" (i.e., "other naturally occurring hazards such as those created by topographic constraints" (policy 2.4.6.2.1); and oil, gas, salt hazards), but does not specifically refer to wildland fires. Given the recommendations in the Province's Reference Manual regarding official plan implementation of the PPS wildland fire policy, the ROP should be amended to more explicitly acknowledge wildland fire as a risk to public health and safety and provide direction on wildland fire risk assessment and mitigation in the planning process.

The following sections will discuss potential policy options to incorporate wildland fire hazard policy into the ROP. These options include:

- Inserting a new section and policy objective in section 2.4 titled "Wildland Fire Hazards" or incorporate policy for wildland fire hazards in section 2.4.5 "Other Natural and Human-made Hazards"
- Amending the preamble in Section 2.4 to acknowledge hazardous forest types for wildland fire as a potential hazard that are considered by the ROP
- Inserting new policies to:
  - Direct the local municipalities to include policies in their official plans to ensure that development shall generally be directed to areas outside of lands that are unsafe due to the presence of hazardous forest types for wildland fire or ensure that development is mitigated in accordance with wildland fire assessment and mitigation standards established by the Province and in consultation with the conservation authorities;
  - Support the area municipalities in implementing mitigation measures that are environmentally appropriate; and,

- Support the area municipalities in undertaking more refined wildland fire assessment mapping.

5.1 Where to Insert Wildland Fire Policies

Subsection 2.4.6 Other Natural and Human-Made Hazards directs local municipalities to plan for "other naturally occurring hazards" including hazards created by topographic constraints and human-made hazards associated with oil and gas wells and former mineral aggregate operations. Wildland fire hazard policies could be included in section 2.4.6. with corresponding policies to implement the provincial direction.

However, given that the PPS provides a specific policy about wildland fire hazards, and in light of guidelines set out in the Province's Reference Manual, it is recommended that the Region consider inserting a new section 2.4.6 titled "Wildland Fires" following section 2.4.5 to reflect the PPS policy direction and provide general guidance for more detailed policy and implementation at the local level. Inserting a new section on wildland fires is consistent with how other hazards explicitly addressed by the PPS are treated within the ROP. The existing section 2.4.6 will be renumbered to 2.4.7.

If a new policy section is added, it is recommended that a brief objective statement be included consistent with the objective statements for other hazards types in section 2.4.

5.2 Wildland Fire Hazards Mapping in the ROP

Provincial guidance regarding mapping of hazardous forest types provides the option to either include mapping as an appendix to an official plan or provide the information as a screening map to be referenced in the official plan but not form part of the official plan. The MNRF further advises that since forest cover conditions may change over time due to natural regeneration of forested areas and/or forest management practices, any hazardous forest types mapping should not be static and may require periodic updates to remain current.

The information on hazardous forest types in Peel is limited and is based on broad, generalized mapping provided by MNRF or generated using ELC forest cover data. Consequently, the use of this information as an intial screening tool for municipalities when reviewing development applications requires appropriate consideration, as it may only provide partial information of the potential extent of hazardous forest types for wildland fire.

Given the location and extent of currently mapped hazardous forest cover in Peel, a simplified screening process for forest cover, in consultation with local fire and emergency services and parks and forestry staff, using general forest cover mapping of hazardous forest types is recommended.

The MNRF Reference Manual recommends that all development applications located within or adjacent to forest cover undergo at least an initial screening. The development of planning application screening processes and supporting mapping information is typically a component of local land use planning implementation.

In summary, policy options for the ROP regarding mapping include:

- Providing no mapping of hazardous forest types in the ROP, given the coarse resolution of available mapping on wildland fire hazards
- Providing mapping of hazardous forest types as a figure in the ROP for reference purposes only
- Providing policy direction to provide wildland fire hazard mapping in local official plans or as reference mapping for application screening purposes as appropriate

5.3 Complete Application Requirements in ROP

The provincial policy guidance recommends that planning authorities ensure sufficient information is provided by development proponents to enable an assessment of hazardous forest types and wildland fire risk. The authority to specify complete application requirements is provided under the *Planning Act* and both the ROP and Local Municipal Official Plans contain lists of complete application requirements for this purpose. It is anticipated that in most instances where wildland fire hazards are identified, complete application requirements to submit wildland fire assessments and any associated supporting studies (e.g. environmental impact studies; vegetation management plan for wildland fire) will be a requirement at the local level. Potential study requirements for complete ROPA applications are listed in section 7.3.6 of the ROP and include "Natural hazard land studies, including the delineation of hazard lands". In the event that a wildland fire assessment may be needed to support an amendment to the ROP, it is recommended that section 7.3.6 be amended to list this study requirement as an optional requirement.

In summary, policy options for the ROP regarding complete applications include:

- Amending section 7.3.6 to list "wildland fire assessments and related studies" as a complete application requirement if required

5.4 Definition of Natural Hazards

In recognition of the PPS, 2014 direction, it is recommended that the definition of the ROP term 'natural hazards' be amended to include wildland fire hazards. The term 'natural hazards' is defined in the ROP as:

> ***Natural hazards:*** hazards due to *flooding*, erosion, dynamic beaches, and unstable slopes, soils and bedrock that may pose a danger to public safety or public health or result in property damage.

Outside of section 2.4, the term 'natural hazards' is used elsewhere in the ROP in policies that express Regional Council's intentions to: 1) identify and regulate development on lands exposed to natural hazards jointly with conservation authorities and area municipalities (2.1.3.3); 2) not permit development within significant wetlands, significant habitat of endangered and threatened species and other significant features unless natural hazards are addressed in accordance with section 2.4 (2.3.2.17); and 3) encourage local municipalities to prepare policies for urban growth centres that address natural hazards (5.3.2.4.i). Thus, adding wildland fire hazards to the definition of 'natural hazards' would be

consistent with the intent of PPS 3.1.8; that is, to reduce wildland fire risk through identifying and preventing development in hazardous areas, and adopting environmentally appropriate mitigation measures where relocation is not feasible.

Additionally, the new wildland fire policies of the ROP may introduce new terminology to the ROP. It is recommended that the ROP refer to the PPS for the definition of new wildland fire related terms. These terms and definitions are provided below for ease of reference:

> ***Hazardous forest types for wildland fire****: means forest types assessed as being associated with the risk of high to extreme wildand fire using risk assessment tools established by the Ontario Ministry of Natural Resources and Forestry, as amended from time to time."*
>
> ***Wildland fire assessment and mitigation standards:*** *means the combination of risk assessment tools and environmentally appropriate mitigation measures identified by the Ontario Ministry of Natural Resources and Forestry to be incorporated into the design, construction and/or modification of buildings, structures, properties and/or communities to reduce the risk to public safety, infrastructure and property from wildland fire.* (PPS, 2014)

In summary, additional administrative policy options for the ROP include:

- Amending the existing definition for "natural hazards"; and
- Utilizing PPS wildland fire-related terminology and referencing the PPS for their definition.

6. Conclusion

As part of the Peel 2041 Official Plan Review, the Regional Official Plan may be amended to reflect new Provincial policy and guidance regarding wildland fire hazard risks and how they may be assessed and mitigated through municipal land use planning.

Possible policy options for the Regional Official Plan include inserting policies that encourage and support local municipalities to adopt official plan policies that discourage development in areas where hazardous forest types for wildland fire are present, implement environmentally appropriate mitigation measures, and refine provincial wildland fire hazards mapping as appropriate. These policies could be located in a new wildland fire hazards subsection in section 2.4 Natural Hazards, or within the existing subsection 2.4.6 (Other Natural and Human-Made) in the ROP. Additionally, the ROP could be amended to add wildland fire risk assessments as a potential study requirement for complete applications, and introduce new glossary terms related to wildland fire.

- THIS PAGE IS INTENTIONALLY BLANK -

7. Works Cited

Lee, H.T., Bakowsky, W.D., Riley, J., Bowles, J., Puddister, M., Uhlig, P., & McMurray, S. (1998). *Ecological Land Classification for Southern Ontario: First approximation and its application* [SCSS Field Guide FG-02]. Ontario, Canada: Ontario Ministry of Natural Resources and Forestry.

National Fire Protection Association. (2013). *Community wildlife safety through regulation: A best practises guide for planners and regulators.* Available online from: http://www.nfpa.org/~/media/files/public-education/by topic/wildland/wildfirebestpracticesguide.pdf?la=en

Ontario Ministry of Municipal Affairs and Housing. (2014). *Provincial Policy Statement.*

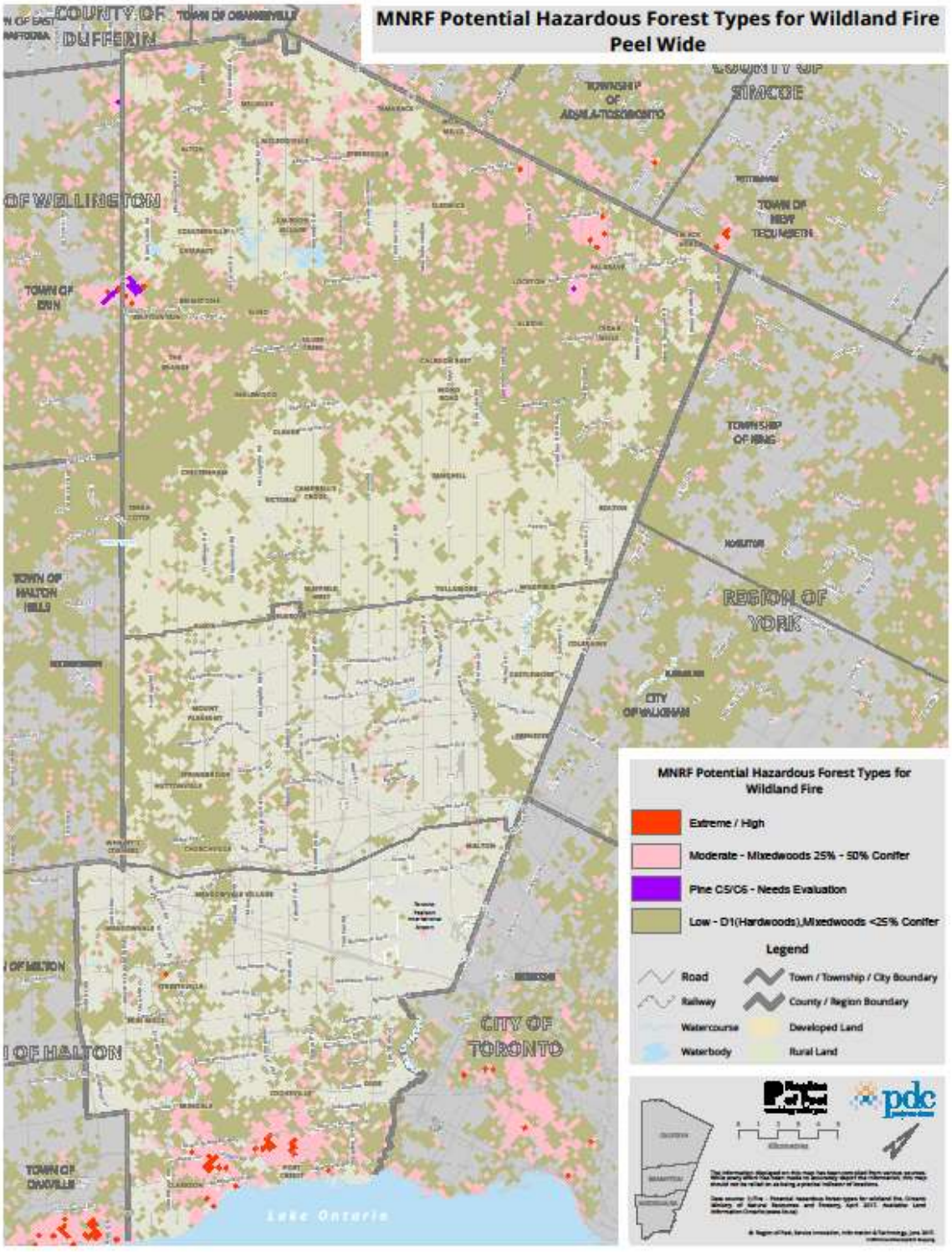
Ontario Ministry of Natural Resources and Forestry. (2017). *Wildland fire risk assessment and mitigation reference manual in support of the Provincial Policy Statement, 2014.* Available online from: http://apps.mnr.gov.on.ca/public/files/er/mnrf-wildland-fire-report.pdf

Regional Municipality of Peel. (2016). *Region of Peel Official Plan Office Consolidation.*

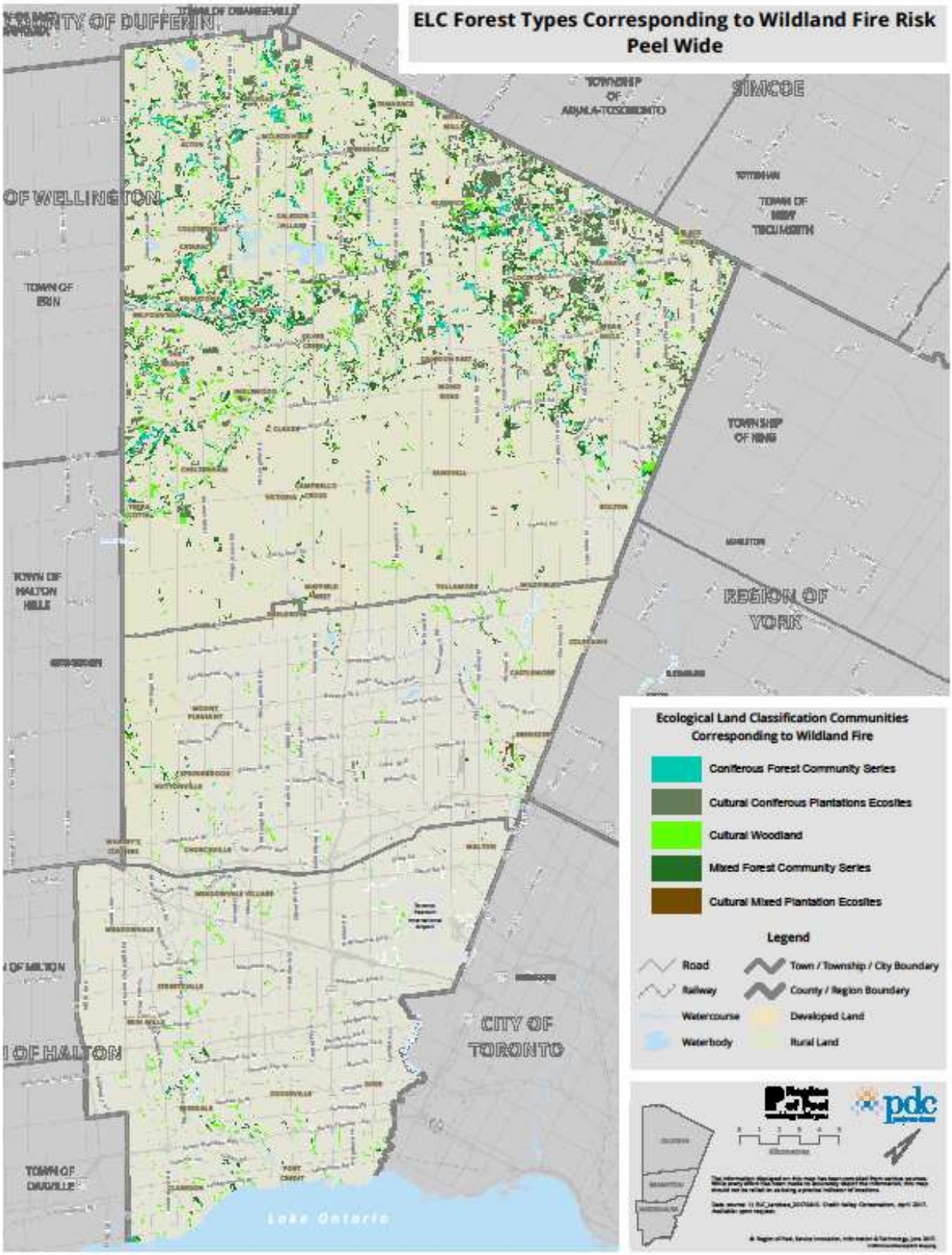
- THIS PAGE IS INTENTIONALLY BLANK -

Appendices: Hazardous Forest Types for Wildland Fire Mapping in Peel Region

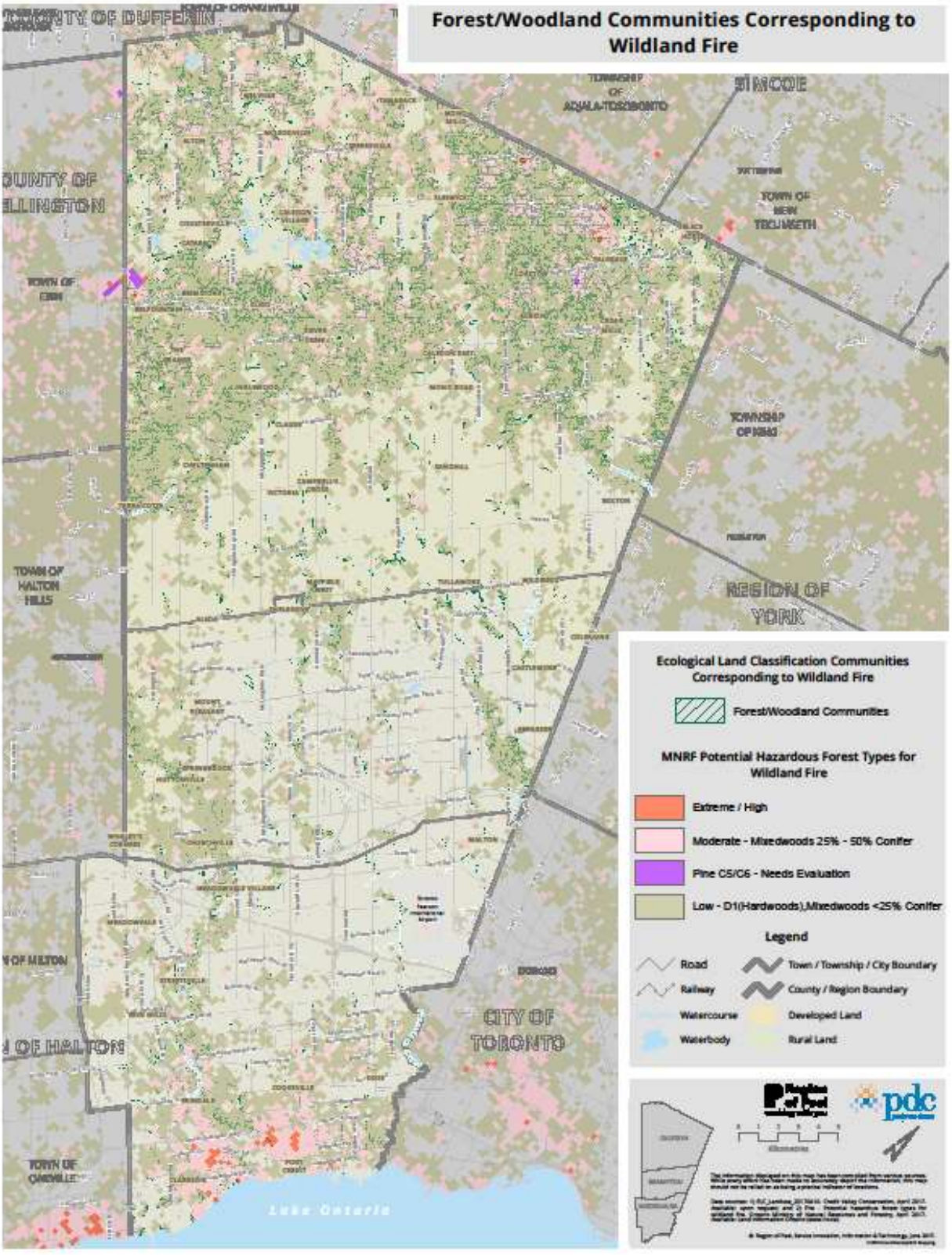
A. MNRF Potential Hazardous Forest Types for Wildland Fire (Peel Wide)



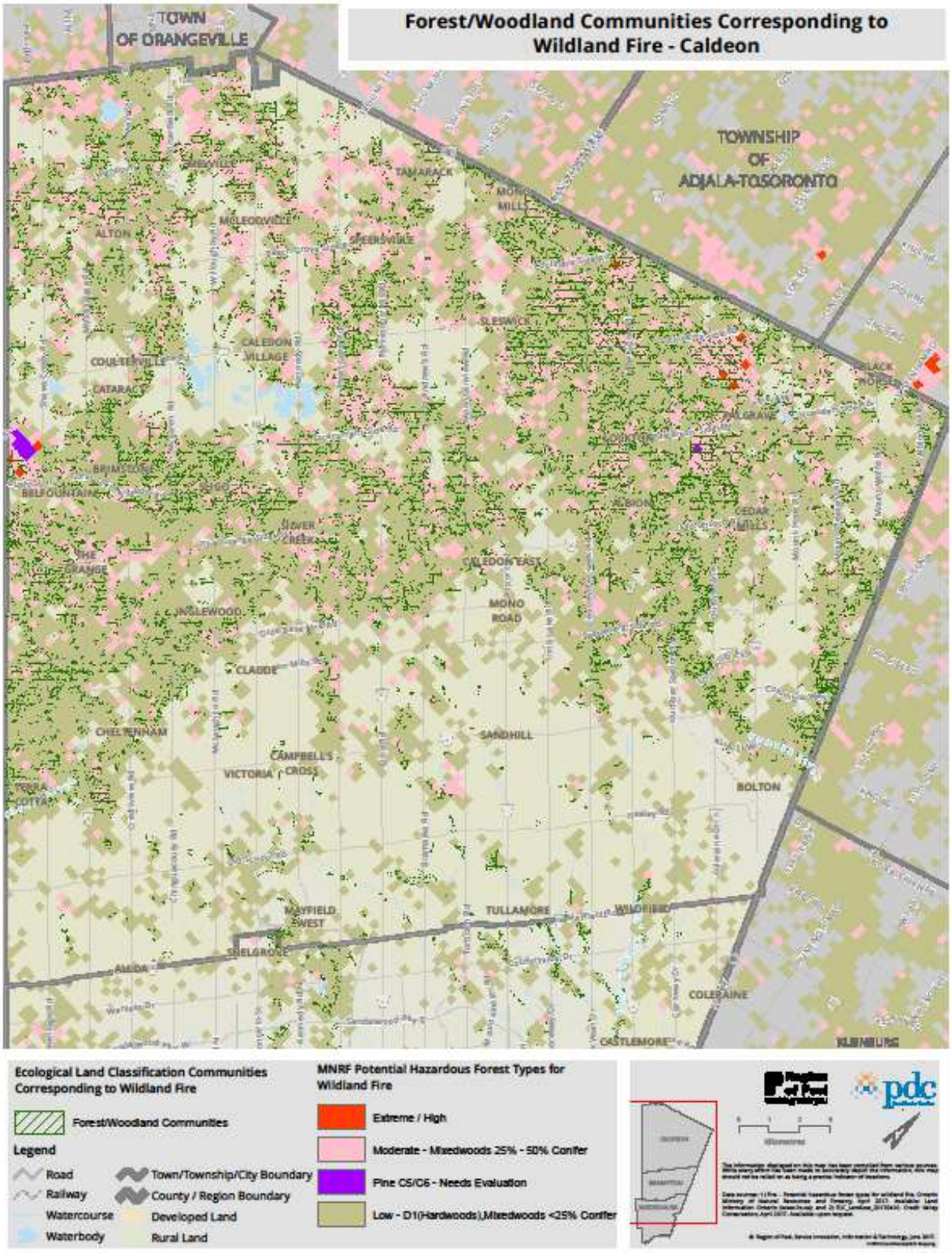
B. ELC Forest Types Corresponding to Wildland Fire Risk (Peel Wide)



C. Forest/Woodland Communities Corresponding to Wildland Fire (Peel Wide)



D. Forest/Woodland Communities Corresponding to Wildland Fire (Caledon)



E. Forest/Woodland Communities Corresponding to Wildland Fire (Mississauga)

