

Developing a Wildfire Preparedness Guide



Increasing situational awareness when a wildfire threatens your community

Agriculture and Forestry, Government of Alberta

January 2020

Developing a Wildfire Preparedness Guide

ISBN 978-1-4601-4609-5

© Her Majesty the Queen in Right of Alberta, as represented by the Minister of Agriculture and Forestry, 2019

Available online <https://open.alberta.ca/publications/9781460146095>

This publication is issued under the Open Government License – Alberta (<https://open.alberta.ca/licence>). Please note that the terms of this license do not apply to any third-party materials included in this publication.

Email: firesmart@gov.ab.ca

Table of Contents

Introduction	4
Sourcing Data and Information	5
Gathering Input	5
Reviewing Existing Plans	6
Conducting Field Reconnaissance	6
Creating a Wildfire Preparedness Guide	7
Major Components.....	7
Developing the Operational Map	8
Identifying the Planning Area	8
Identifying Values-at-Risk.....	8
Identifying the Community Zone Features	9
Identifying any Existing Vegetation Management Treatments.....	9
Identify Other Developments and Features on the Landscape.....	9
Developing the Preparedness Information Sheet	10
Identifying the Emergency Contacts	10
Identify Communications Information.....	10
Identifying Functional Roles	10
Identifying an Evacuation Protocol.....	11
Critical Infrastructure and Hazardous Values-at-risk.....	12
Document Upkeep	13
Distribution of the Wildfire Preparedness Guide.....	13
Updating the Wildfire Preparedness Guide	13
Appendix 1	14
Data Considerations and Document Examples	14

Introduction

What is a Wildfire Preparedness Guide?

Emergency responders use a Wildfire Preparedness Guide (WPG) when a wildfire threatens a community. The information in a WPG will form the foundation of the Incident Action Plan (IAP), and has value throughout the duration of a wildland urban interface (WUI) incident. Ownership of the WPG falls to the community or municipality that it was for.

Information contained in a WPG includes an operational map, designated radio channels, emergency contacts, evacuation protocols and routes, values-at-risk (VAR) information, existing municipal fuel treatments, roles and responsibilities, and more.

Why build a Wildfire Preparedness Guide?

The intent of the WPG is to increase situational awareness of emergency responders, enabling timely and informed decision-making. The coordinated response to the initial stages of a WUI incident is critical for the safeguarding of human life and local property; a WPG provides information that is essential to accomplishing this.

What does this manual provide?

This manual is a reference for municipal representatives, community leaders, contract planners and government employees for use during the planning, development and updating of WPG documents; it contains a methodology, an example template, and additional information developed by Alberta Wildfire with input from various partners.

A note on funding the creation of Wildfire Preparedness Guides

Communities with wildfire hazard are encouraged to engage local experts and other partners in the creation of a WPG. If financial assistance is needed, the Forest Resource Improvement Association of Alberta's (FRIAA) FireSmart Program offers funding to produce and maintain WPG documents as funding is available.

Sourcing Data and Information

Gathering Input

Groups and individuals who are engaged in the production of a WPG will likely bring a range of expertise and resources to the project. It is important to ensure that all partners have an opportunity to review and provide input on final WPG documents.

Provincial

Individuals representing Alberta Wildfire, Office of the Fire Commissioner, and Alberta Emergency Management Association (AEMA) will be able to provide insight and expertise on various topics including emergency management, the Incident Command System (ICS), wildfire prevention, wildfire operations and the overall WPG creation process.

As well, through a Forest Area office, additional mapping and spatial data knowledge may be made available to assist in the development of a WPG.

Municipal

Community leaders and municipal employees will have in-depth knowledge about the municipality and VAR priorities. As well, they will provide a link to the local government and administration.

Involving the Director of Emergency Management (DEM) will provide expertise in relation to the local municipal emergency plan. Local health services, the local fire department and RCMP should be consulted for valuable insight concerning both evacuation and WUI response.

Indigenous

Local First Nations Field Officers with AEMA will be essential contacts for producing plans for First Nations and Métis communities. Representatives from nearby First Nations and Métis communities may additionally provide input regarding important landscape and cultural values.

Local Industry

Representatives from the local forest industry will be able to provide pertinent harvest planning and land access information. Consulting with other local industry representatives to determine emergency response capabilities, camp locations, active sites, access and other possible information and opportunities is beneficial.

Reviewing Existing Plans

A WPG document should complement any standard operating procedures, policy, or guidelines that a community already has in place.

Existing plans that will be useful to review while creating the WPG include previously completed WPG documents, municipal evacuation plans, mutual-aid agreements, fire control agreements, and general municipal emergency plans.

Conducting Field Reconnaissance

Developing an effective WPG requires the validation of the mapping product and the data that feeds it. Verifying fuel types, values at risk locations and other data points included in the plan is essential for creating a robust document.

Aerial reconnaissance will provide valuable information for the primary contributors to the WPG and can allow for easy verification and updating of existing information.

Creating a Wildfire Preparedness Guide

Major Components

There are two fundamental pieces of the WPG document, the operational map and the preparedness information sheet. In paper format, these components should be printed on both sides of one 11" x 17" laminated piece of paper and made easily accessible to first responders. In an electronic format, both components should be made available in the same georeferenced PDF document. Examples, templates and more information formatting the WPG is included in Appendix 1.

The Operational Map

This map provides information relating to the WPG planning area, VAR, community features, access and egress, existing vegetation management and other sites of interest. This data is then overlaid onto imagery that portrays an up to date aerial view of the planning area.

Consistency is critically important for the value of these documents. Appendix 1 includes data and mapping standards that should be followed to ensure that those using these documents in an operational setting are working with a familiar product.

The Preparedness Information Sheet

Included in this piece of the WPG is specific information regarding emergency contacts, incident communications, VAR, fire behavior prediction fuel type map, evacuation protocols, responsibilities and functional roles, and more detailed values at risk information (locations, names, and comments).

The contents of the preparedness information sheet requires that plan contributors work together to clearly define and communicate fundamental information needed for emergency response. This piece of the WPG also requires annual spring review to ensure the currency of the information included. More information on updating the WPG document is located on page 13.

Developing the Operational Map

Identifying the Planning Area

Plan contributors will begin by establishing the boundaries of a planning area. The area can include one community or a mixture of several communities and other values on the landscape. Existing jurisdictional and political boundaries should be viewed as an opportunity to establish new partnerships and not as a restriction on how WPG are developed.

Geographic features like rivers, drainages and mountain ranges often play a role in identifying the planning area. These geographical features may dictate the direction of fire spread.

Another method for determining a planning area is to use a predefined radius that encompasses values that are being considered in the plan. Generally, a two-kilometer radius is used for the operational map and a ten-kilometer radius is used for fuel type maps.

Identifying Values-at-Risk

VAR are defined as manufactured improvements or developments and natural resources that have measurable or intrinsic worth and could be destroyed or damaged by wildfire. There are different categories of VAR:

- Standard – these are the most common types of VAR. Structures and sites like homes, campgrounds, commercial facilities, etc.
- Critical – these values provide services that are critical to the well-being of residents. Resources may be allocated for fire suppression to protect these values over others. Example include communication towers, hospitals, water treatment facilities, etc.
- Special – these are categorized as being natural, cultural, historical or spiritual sites that are important to a community. They may include cemeteries, religious sites, wildlife zones, etc.
- Dangerous Goods – these may be a safety threat to emergency responders or the public. Facilities under this classification may include fuel stations, landfills, oil and gas infrastructures, etc.

Working closely with community leaders is critical for correct and complete identification of VAR that fall into each category.

It is possible, especially with special VAR, that data may be sensitive in nature and might not be able to be shared publicly. It is important to engage directly with the community when identifying and categorizing VAR.

Identifying the Community Zone Features

Community zone features are pre-existing within the identified planning area and when used strategically will allow for more effective wildfire suppression. There are a number of community zone features that can be identified and included in the operational map: dry hydrants, egress routes, fire hydrants, locked gates, safety zones, staging areas, and water sources. This may not be a complete list of features for all communities; be sure to add new features as required.

Pre-identifying community zone features will increase situational awareness among emergency response resources and aide them in strategic and tactical decision making.

Egress routes are particularly important for the initial stages of a WUI incident. These should be numbered on the operational map sequentially starting at the north cardinal direction and progressing clockwise. Egress routes included in the WPG should reflect any existing emergency response planning already completed by the community.

As well, special concern should be given if including safety zones on the operational map. These areas *must* be readily accessible, adequately sized and resilient to a dynamic wildfire situation. Careful evaluation should be used if selecting and pre-identifying these areas.

For easy access by partners and incoming incident management teams (IMT), community zone features are to be maintained in file geodatabases managed by the local Forest Area or the municipality. Details regarding spatial data can be found in Appendix 1.

Identifying any Existing Vegetation Management Treatments

Any existing vegetation management work that has occurred within the planning area should be identified. Data associated with areas of previous vegetation management treatment can generally be obtained from the local Forest Area, the municipality, or FRIAA.

While collecting information on existing vegetation management, it is a good time validate the integrity of these areas and determine if any additional maintenance work is required to improve functionality. If areas are no longer meeting the objectives of the initial prescription they should not be included in the operational map.

Identify Other Developments and Features on the Landscape

These developments are pre-existing within the community zone and can influence wildfire operation strategies and tactics. Examples which should be identified include: active and inactive well sites, pipelines, utility lines, rail lines, log yards and recreational areas. It can also be useful to highlight private land and label roads within the planning area.

Developing the Preparedness Information Sheet

Identifying the Emergency Contacts

An emergency contact list provides emergency responders with access to a wide variety of key partners, such as municipal emergency management staff, the local fire department, wildfire management staff, industry representatives, and other important contacts. It is recommended to only include phone numbers that are managed on a continual basis, with twenty-four hour lines being ideal if available.

The minimum recommended list for emergency contacts to be included as part of the WPG is the local AF Fire Center, an Alberta Emergency Management Agency contact, a contact associated with the county or community, different industry partners (rail, utilities, timber, telecoms), and the local RCMP detachment.

Part of the annual upkeep of the WPG includes ensuring all contact information is up to date.

Identify Communications Information

In a WUI incident, communication between resources is paramount to a successful response. Repeatedly, post incident analysis points to communications between responding resources as an area for future improvement.

When establishing communications information, it is important to first review any existing communications plans that might already be established between mutual aid partners.

Agriculture and Forestry's *'Forestry Division Radio Guide'* is an excellent resource for finding information pertaining to air advisory channels, air monitoring, tactical wildfire operations, tactical heavy equipment and tactical structure protection information for use as communications info.

The minimum recommended channels included in a WPG are air advisory, air monitoring, mutual aid command, wildfire tactical (operations, equipment, and structure protection).

Identifying Functional Roles

The three main operational functions during an interface wildfire are evacuation and security, wildfire operations and structure protection. The WPG should identify which agencies will play the lead role in certain functions; for example, Alberta Wildfire for wildfire operations, local police for evacuation and local municipal firefighting services for structure protection.

All agencies may be required to provide support different functions as the situation dictates and when it is safe to do so.

Identifying an Evacuation Protocol

If a wildfire threatens lives and property, an evacuation might be required. Depending on the nature and scope of the event, evacuations may be limited to a single building or can affect a large area such as a whole city. A WPG should not be seen as a replacement for adequate municipal evacuation planning; the WPG simply provides an understanding of how strategic or tactical evacuations will occur in the event of a wildfire threatening a community.

- A strategic evacuation is done by first declaring a State of Local Emergency (SOLE) under the authority of the Emergency Management Act and the local Emergency Management Bylaw. Strategic evacuations involve extensive communications from the community to those impacted and scale from an evacuation alert into an evacuation order.
- Tactical evacuations might be performed when a wildfire develops and advances quickly, leaving no time to implement a SOLE. An Incident Commander may need to take immediate action to evacuate those in danger. Tactical evacuations are voluntary and cannot be enforced.

An essential component of general evacuation planning is calculating the expected time to evacuate the community. Considerations for any special assistance that may be required at facilities such as hospitals, nursing homes, schools, and day cares is needed. A simple formula can help estimate evacuation timelines:

$$\begin{aligned} & \textit{Time notify} + \textit{time mobilize} + \textit{time conduct} + 120 \textit{ minutes} \\ & = \textit{timeline for evacuation} \end{aligned}$$

The time taken to notify the community includes the drafting, dissemination and confirmation of communications. The time taken to mobilize the community allows time to prepare to evacuate, providing specific consideration for vulnerable populations. The time taken to conduct allows for physically moving a population out of harm's way, accounting for a phased approach along known egress routes. An additional two hours is included to allow for the dynamic nature of WUI incidents.

This formula can be scaled up or down to meet planning needs. The final timeline can be viewed as a rough estimate for advising evacuation based on current and forecasted fire behavior.

There are many aspects to evacuation planning that cannot be included in the WPG. It is recommended that communities utilize the *Community Evacuation Guidelines and Planning Considerations* document available at www.alberta.ca when creating evacuation plans.

Critical Infrastructure and Hazardous Values-at-risk

Identified critical infrastructure and hazardous VAR should be further detailed in the information preparedness sheet. The identified values are to be numbered and in a tabularized format along with the following information:

- Value name
- GPS location
- Additional comments that may be important in the event of incident. Information such as phone numbers and contact information, details about specific hazards, etc.
- Color coded based on value type (critical or hazardous)

Including these VAR details, in addition to the operational map contents will help facilitate the safest and most effective initiation of structure protection and general suppression efforts.

Standard and special VAR are not included in the Preparedness Information Sheet as typically communities will have too many unique values in these categories to include detailed information such as GPS location additional comments. The locations of these VAR types are accounted for in the Operational Map component of the WPG.

Document Upkeep

Distribution of the Wildfire Preparedness Guide

In order for the WPG to increase situational awareness of emergency responders, enabling timely and informed decision-making, it must be made readily available. The document should be produced in both hardcopy and electronic formats:

- Hardcopy paper versions are versatile and ideal for planning and collaborating with a group of people. Paper copies of the preparedness guide should be housed in response vehicles, duty offices, local fire halls and other places where they can be easily accessed in the event of a WUI incident.
- Electronic versions of the document, available in a geo-referenced PDF format are critical for use of the WPG document by first responders. The prevalence of devices such as smart phones and tablets also means that developing the WPG, as an electronic document is very effective in increasing the situational awareness of incoming personnel. Geospatial mapping applications, such as Avenza, are required to use the WPG this way.

Once complete, the WPG should be shared with local emergency responders, any additional assisting agencies, and each of the other partners that collaborated on the final product.

Updating the Wildfire Preparedness Guide

A community's WPG should be reviewed by contributing partners each year and updated accordingly. When updating the document agencies should consider items such as:

- Agencies, names, titles and phone numbers
- Additional vegetation management that may have occurred over the past year
- Updates provided by partners

In Alberta, the wildfire season starts March 1 of each year; updating of the WPG should occur before this date on an annual basis. Bringing partners together each spring to go over updates and changes to the WPG also provides a good opportunity to discuss the previous and upcoming fire seasons, lessons learned and possible procedural improvements.

Responsibility for updating the WPG falls to the agency that owns the document.

Appendix 1

Data Considerations

Consistency among WPG documents is important for first responders arriving to an incident. As much as possible when developing a WPG, standard terminology, templates and map symbols should be used.

Wildfire Management Branch staff have access to preloaded base maps and layer files which can be used to help with the development of operational maps. Use of these files will ensure a standard set of map symbology and formatting in mapping products. The recommended symbols can be seen in the templates included this appendix.

Spatial data that is compiled during the production of the WPG can be centrally stored within a file geodatabase by the local Forest Area, or by the municipality. This will allow for quick and easy access by an IMT during response to wildfire. Community zone features should account for various attributes, some fundamentals include:

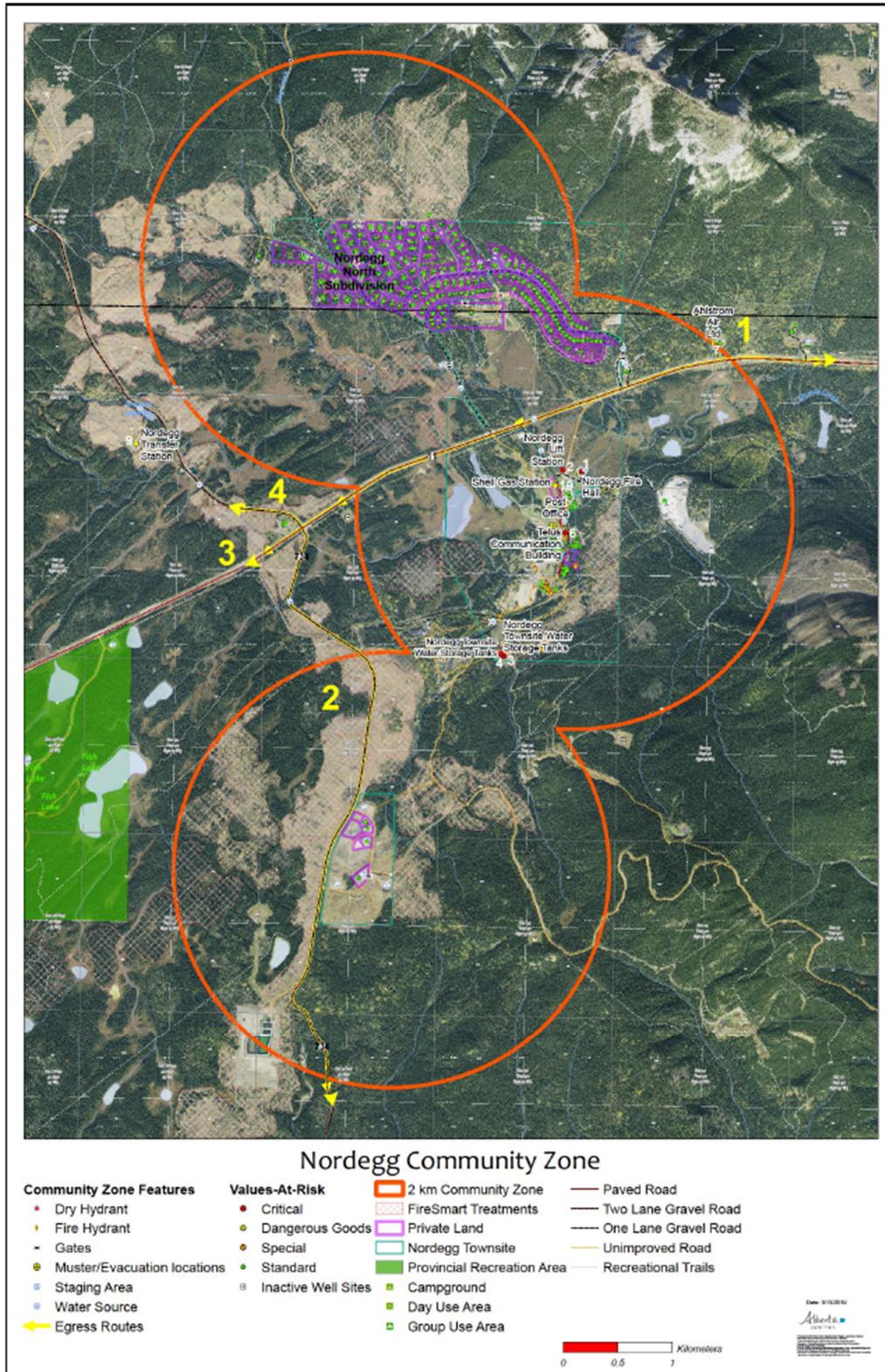
- Type of feature
- Creation and modification dates
- Corresponding forest area and community zone
- Latitude and longitude
- Data source
- Comments

Document Layout

The WPG document should be produced as follows:

- Hardcopy WPG documents are to be printed at 11"x17" and have both components printed on the same sheet, front and back.
- Electronic versions of the operational maps should be 34"x22" and have the preparedness information sheet embedded in the same PDF file.

Example Operational Map



Example Preparedness Information Sheet

COMMUNITY Wildfire Preparedness Guide — DATE Month/Year											
Emergency Contacts		Fire Behavior Prediction Fuel Type Map									
<p>Agriculture and Forestry Fire Center Office PHONE Duty Officer PHONE Alberta Emergency Management Agency Agency Response Centre PHONE County <i>Regional Fire Rescue Services Duty Officer</i> NAME Office PHONE Cell PHONE Chief Administrative Officer/Municipal Manager: NAME Office PHONE Cell PHONE Fire Chief: NAME Office PHONE Cell PHONE RCMP Emergency/Search and Rescue PHONE Detachment Phone (Regular Hours) PHONE Detachment Phone (After Hours) PHONE Timber COMPANY Emergency PHONE Office PHONE Pipeline COMPANY Emergency PHONE Office PHONE Utilities COMPANY Emergency PHONE Office PHONE Other COMPANY Emergency PHONE Office PHONE</p>											
		Evacuation Protocol / Functional Roles									
		<table border="1"> <thead> <tr> <th>Functional Role</th> <th>Agency Responsible</th> </tr> </thead> <tbody> <tr> <td>Evacuation / Evacuation Alert / Evacuation Order</td> <td></td> </tr> <tr> <td>Wildfire</td> <td></td> </tr> <tr> <td>Structure/Non Structure Fire</td> <td></td> </tr> </tbody> </table>		Functional Role	Agency Responsible	Evacuation / Evacuation Alert / Evacuation Order		Wildfire		Structure/Non Structure Fire	
Functional Role	Agency Responsible										
Evacuation / Evacuation Alert / Evacuation Order											
Wildfire											
Structure/Non Structure Fire											
Communications											
Air Advisory 129.800 MHz Aircraft Monitoring FireNet Channel, Area Dispatch Callsign Command (Mutual Aid Channel) 156.835 MHz Wide Band Tactical (Wildfire) Fireline Channel (Primary) Fireline Channel (Secondary) Tactical (Heavy Equipment) Fireline Channel Tactical (Structure Protection) Community Specific											
Critical Infrastructure and Dangerous Goods Values-at-Risk											
Label	Value Name	Lat/Long	Comment								
1	Critical VAR	52° 28.850' -116° 4.324'									
2	Dangerous Goods VAR	52° 28.678' -116° 4.291'									