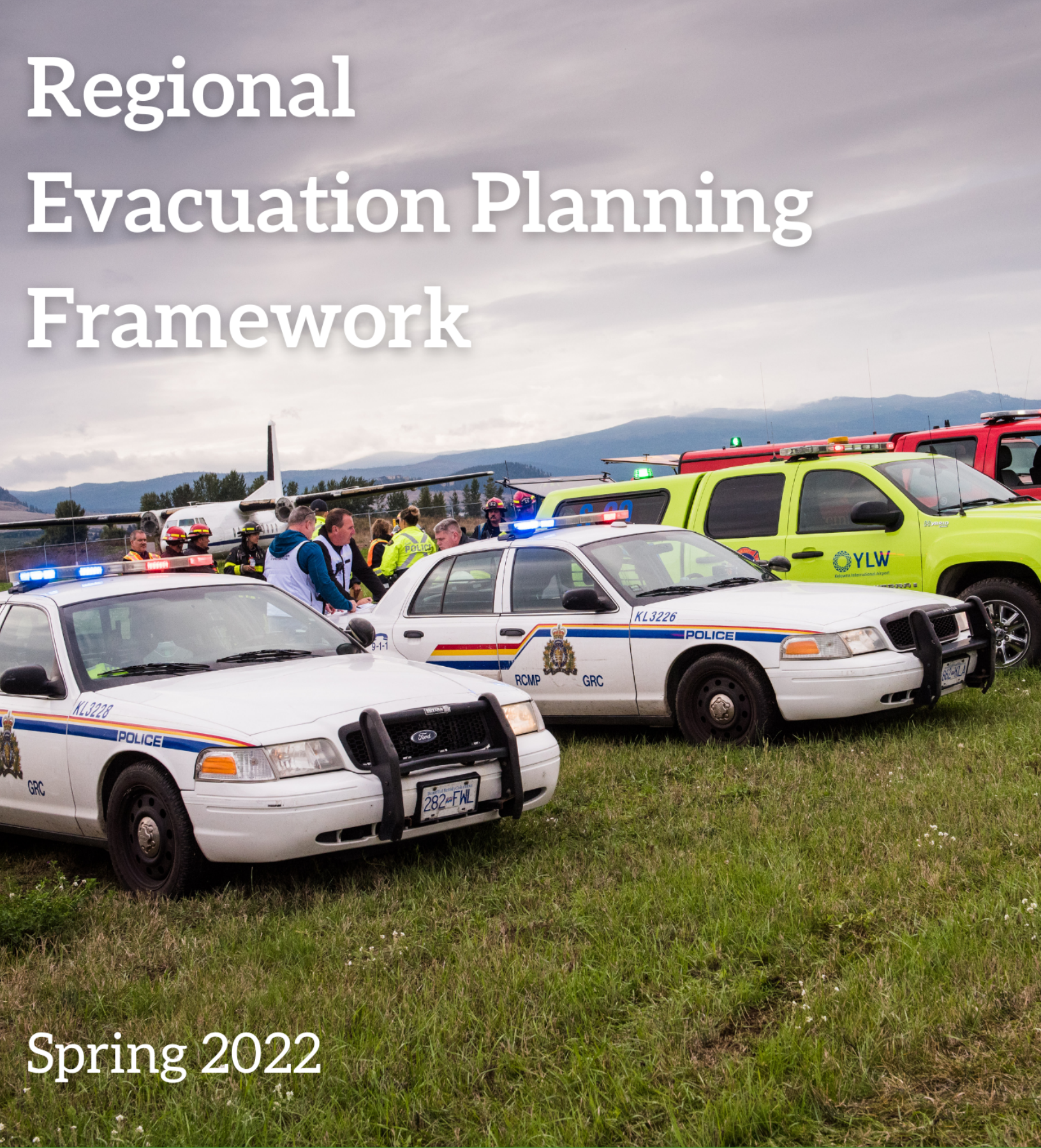
Regional Evacuation Planning Framework



Spring 2022

Regional District of Central Okanagan

City of Kelowna

City of West Kelowna

Peachland On the Lake

Lake Country
Life. The Okanagan Way.

Westbank First Nation

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This document was prepared by Sundog Solutions Emergency Management Consulting. GIS Data & Analysis was provided by Nick Zukanovic, GIS Analyst with Geographical Group and maps were produced by Frontline Operations Group.

All components of this project and document development took place on the unceded traditional territories of the Syilx people.

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Glossary

BCEMS	BC Emergency Management System – A comprehensive framework that helps to ensure a coordinated and organized approach to emergencies and disasters. The standard practice provincial government ministries and Crown corporations; it is the recommended best practice for all emergency management stakeholders in BC and applies to emergencies, disasters, and catastrophic events
EMBC	Emergency Management BC – the provincial coordination and support body for emergency management within the province
EOC	Emergency Operations Centre – Location or facility where responsible officials gather during an emergency to direct and coordinate emergency operations.
ESS	Emergency Support Services
Evacuation Alert	To inform the affected population of a potential or impending threat to their safety – allows at-risk populations extra time to evacuate
Evacuation Order	A formal written document under which the impacted population is ordered to evacuate the area specified immediately
Evacuation Rescind	Notice issued when the emergency which necessitated the evacuation is under control and the hazard/emergency zone is declared safe
Evacuation Zone	Larger area surrounding the Hazard Zone, in which residents are evacuated to remove them from the potential or actual threat to their safety or health
FLNRORD	Ministry of Forest, Lands and Natural Resources Operations and Rural Development
Freshet	The period of time when rivers swell from snowmelt, generally April to July. Freshet flooding occurs when atmospheric conditions lead to rapid snowmelt and normal stream channels become overwhelmed
Hazard	Events or physical conditions that have the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, damage to the environment, interruption of business, or other types of harms or losses
Hazard Event	A hazard that has already materialized and is impacting people or property (e.g. a hazardous waste spill, structure or interface fire within the community)

Hazard Zone	Area under direct threat with a high degree of risk to persons or property. There is to be no occupancy or staging within the hazard zone
ICS	Incident Command System – A standardized on-site management system designed to enable effective, efficient incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure
MoTI	Ministry of Transportation and Infrastructure – responsibility for roads and storm drainage in the rural areas of the RDCO
PECC	Provincial Emergency Coordination Centre
PREOC	Provincial Regional Emergency Operations Centre
RCMP	Local detachment of the Royal Canadian Mounted Police – authority for policing and security
Risk	Likelihood x consequence
Shelter-in-Place	The act of ordering people to stay indoors, rather than physically evacuating from the community. Most often used in order to reduce exposure to airborne contaminants, or in the event of an active shooter or terrorist attack
SOLE	State of Local Emergency
Steering Committee	Collective group of regional representatives that have a vested interest in emergency management and provide guidance throughout document development process
Strategic	Pre-planned evacuations in response to hazard events that provide adequate warning and preparation time. Uses the “Three Stage Evacuation Process”: Alert, Order, Rescind
Tactical	An evacuation resulting from a hazard impact that forces immediate action thereby allowing little or no warning and limited preparation time. Ordered at the site level by the Incident Commander
The “Framework”	This document - The Regional Evacuation Planning Framework
RDCO	Regional District Central Okanagan

1 Introduction

The Regional District Central Okanagan (RDCO) faces multiple hazards that could necessitate a large-scale evacuation or shelter-in-place initiative, including flood, wildfire, landslide, and hazardous material release, predominantly. The experience both within the RDCO, as well as that of other regional districts and municipalities, has shown the importance of having a plan in place to facilitate the rapid organization and implementation of an evacuation or shelter-in-place initiative.

In recent years the RDCO and partner municipalities have experienced significant hazard events requiring both small and large scale evacuations. Most recently, the summer of 2021 highlighted the wildfire risk that exists throughout the region as well the challenges associated with evacuating residential developments with limited access and egress.

Based on this context, the RDCO identified the need to develop a Regional Evacuation Planning Framework. This Framework will complement the existing regional approach to emergency management and plans and will provide additional guidance for planning and coordination of an evacuation or shelter-in-place response for any or all communities within the regional boundaries. To achieve this, the RDCO applied for a provincial grant offered by the UBCM and enlisted Sundog Solutions to develop the Regional Evacuation Framework under contract. This initial phase of the Evacuation Route Planning for the Central Okanagan will provide an overview of the main hazards throughout the region and identify neighbourhoods with the highest level of risk. Many of the recommendations within this document will provide guidance for additional work to be completed in subsequent evacuation planning phases.

Emergency planning is a dynamic process. This Regional Evacuation Planning Framework is only one part of preparedness efforts that include training, exercises, and the debriefing of actual events. As the RDCO evolves, so will the Evacuation Route Framework and subsequent plans, which will be regularly reviewed and adapted. Due to the nature of major emergencies, there may be a need to adapt plans during an evacuation or shelter-in-place. Therefore, this Framework acts as the foundation for continuous planning efforts rather than a final, rigid solution.

1.1 Plan Objectives

The objectives of Phase 1 of the Regional Evacuation Planning Framework are to:

- Identify high priority areas throughout the Regional District based on local hazard analysis;
- Provide hazard and access challenge data to populate the EOC Dashboard;
- Discuss mapping needs and options for templates that all member municipalities could access to enhance evacuation planning through a consistent approach; and,
- Participate in a Tabletop Exercise to address challenges and promote communication among stakeholders.

The protection of life, livelihood and critical infrastructure is the key principle and the primary objective of this evacuation planning effort.

1.2 Framework Structure

This Framework is structured to provide the following components:

- An overview of the region, its hazards, challenges, and high-risk areas for planning considerations;
- Strategies and tools to effectively plan for evacuations including various considerations to discuss prior to and during an evacuation; and,
- Recommendations for future planning.

1.3 Vision

The vision for the Framework is:

- For all agencies in the RDCO with jurisdiction, responsibility, or resources for evacuation to come together and collaboratively develop an evacuation process and plan to effectively evacuate a partial or entire community;
- Based on realistic scenarios, strategies, resources and timelines, so it will be effective in practice;
- To enable evacuations to be executed effectively in a coordinated manner; and
- To demonstrate communities and agencies coming together to protect and service the public in times of emergency.

This document should be used in conjunction with the existing Emergency Plan and mapping for the RDCO.

1.4 Scope

The RDCO Regional Evacuation Planning Framework provides a consistent approach to planning for and managing evacuations across the region. This will be accomplished through a focused exercise and hazard analysis – the results from the exercise and data collection will inform the development of an Evacuation Route Planning Framework for the RDCO that captures recommendations and high-level regional considerations to inform future planning and hazard mitigation.

Focus areas, or Areas of Interest (AOIs), for Phase 1 were identified by the RDCO Evacuation Plan Steering Committee based on egress challenges and proximity to hazard risk. The Framework considers travel route and access/egress challenges as well as alternative means of transportation, where possible. Additionally, the Framework outlines recommendations for improving evacuation outcomes as well as considerations for future planning.

Specific deliverables attached to this phase of evacuation planning include:

- A review of existing plans related to emergency planning and hazards;
- Hazard assessment mapping related to identified AOIs for wildfire, flood and terrain stability;
- A tabletop exercise with steering committee members and key stakeholders;

- Development of a Regional Evacuation Planning Framework including recommendations for future planning;
- Maps of AOIs; and,
- A presentation of the project to the Regional Board.

2 Methodology

The Regional District Central Okanagan (RDCO) is located on the traditional territory of the Syilx people in the southern interior of British Columbia straddling Okanagan Lake and situated between the Columbia and Coast Mountain ranges (Figure 1). The region is bordered by the Regional District of Kootenay Boundary (RDKB) to the east, The Thompson-Nicola Regional District (TNRD) to the west, the Regional District of North Okanagan (RDNO) to the North, and the Regional District of Okanagan Similkameen to the South. The Central Okanagan is Canada's fastest growing and most entrepreneurial region and is comprised of six distinct but closely related communities including two unincorporated electoral areas (Central Okanagan West and Central Okanagan East), four member municipalities (Peachland, West Kelowna, Kelowna and Lake Country), and six Indian Reserves (Westbank First Nation and Okanagan Indian Band).

The Regional District is home to more than 222,000 (2021 Census) residents and spans over 314,000 hectares of diverse topography ranging from shoreline, hillside, orchard, vineyard, and agriculture land. The original Emergency Management Plan for the RDCO was published in 2004 and updated in 2019 when the RDCO passed a bylaw to enter into a regional emergency program with member municipalities and Westbank First Nation. This Regional Evacuation Framework, and its accompanying documents, will act as additional guidance to assist with the execution of an evacuation or shelter-in-place initiative to support regional programming.

This Framework is considered an 'all-hazard' guide and can be used to plan an evacuation from any hazard that occurs. Through discussions with the Steering Committee and a review of available plans and historical events, interface and wildfires, flooding, and slope instability were identified as the three most consistently, high-risk hazards throughout the regional district. For this reason, the Framework will investigate the risk of each of these hazards throughout the region and outline specific considerations when evacuating or sheltering-in-place due to their occurrence.

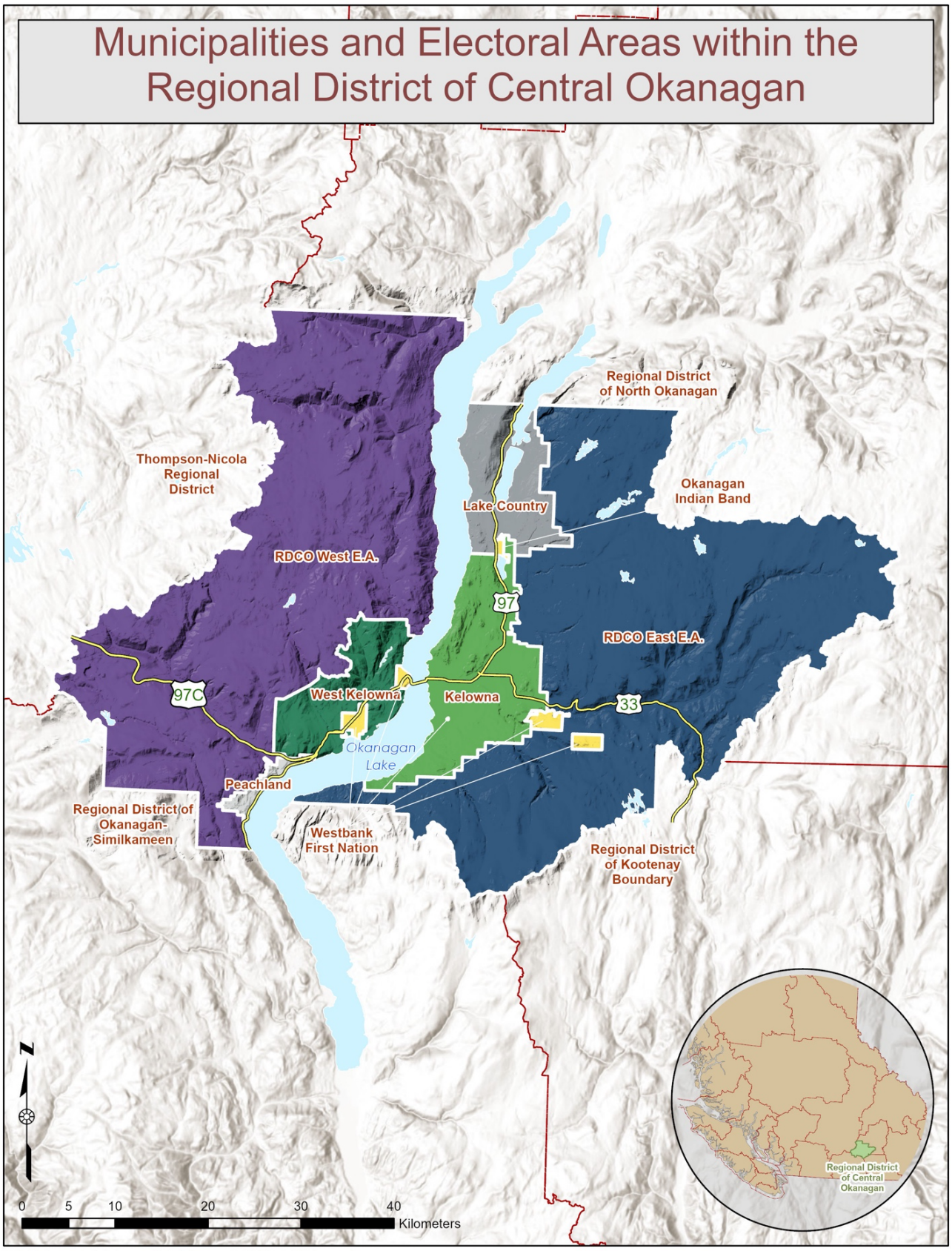


Figure 1: Map of Regional District of Central Okanagan

2.1 Assumptions

General Assumptions about emergency planning include:

- Emergency management is a dynamic process. This means that The Framework is a snapshot of preparedness activities and actual events may require a change in what has been written within. The subsequent Evacuation Route Plans should be regularly tested, reviewed and adapted to reflect lessons learned from tests and actual experiences.
- Emergency response requires room for flexibility and improvisation. The nature of emergencies and disasters is such that not all aspects of a response can be planned for. The structures and systems described in the Evacuation Framework should therefore be seen as guidelines that can be adjusted and adapted by those responsible for evacuation.

Specific Assumptions about Evacuation Planning are:

- **Shelter-in-Place**
    - Spontaneous Evacuation may occur despite warnings to shelter-in place rather than evacuate
- **Evacuation**
    - Spontaneous evacuation will occur when there is enough warning of the threat. Between 5 and 20 percent of the people at risk will self-evacuate before being directed to do so
    - Some people will refuse to evacuate, regardless of the threat
    - Some individuals will require transportation support to evacuate
    - Some owners of animals will refuse to evacuate unless arrangements have been made to care for their animals
    - Many evacuees will seek shelter with relatives, friends or motels rather than use government-provided facilities
    - For some hazards, such as flooding and tsunami, designated evacuation routes must be used to safely evacuate people
    - The day of the week and time of day will determine if individuals/families will be at their homes or separated at work/school
    - Many hazards provide a warning period which allows for a planned evacuation and re-entry
    - Approximately 10-20 percent of the population impacted will require some form of assistance from local ESS teams in Receptions Centres or Groups lodging facilities. This figure could vary depending on the compositions of the community.

2.2 Phase 1 Methods

2.2.1 Information Review and Gap Analysis

Following the initial Steering Committee Meeting, participants were asked to share any plans and relevant information with the consultant that could help inform the Regional Evacuation Framework. The following document were provided and reviewed:

- RDCO Emergency Plan
- Community Structure Protection Plans: Joe Rich, Ellison, Peachland/Trepanier
- Wildfire Risk Management Plan
- Ntityix Resources Ltd. Wildfire Risk Management Plan
- RDCO Flood Mitigation Planning Technical Report and Resource Guide
- Postill Lake Fuel Management Project
- Mill Creek and Mission Creek Flood and Hazard Mapping
- City of West Kelowna Evacuation Mapping
- City of West Kelowna Community Wildfire Protection Plan
- RDCO Parks Community Wildfire Protection Plan
- Post-wildfire Natural Hazard Assessment of the White Rock Lake Fire

All documents submitted were reviewed along with additional research from the consultant and conversations with the RDCO. This included an onsite vehicle tour of several areas of concern and additional background on population, historic hazard events and known high-risk areas.

With this additional information it was determined that a phased approach to developing Evacuation Route Plans for the region would be the most effective use of the grant awarded. This approach also allows the RDCO to obtain a high-level overview of the various components to be incorporated into the plans, identify priorities, and ultimately develop an action plan to be carried out over the coming years. With engagement from partner communities this approach will encourage participation and input from those that have in-depth local knowledge of areas that pose challenges in their respective jurisdictions.

2.2.2 Steering Committee

This project was guided by a diverse and multi-jurisdiction steering committee, who has provided input at various key stages during the development of the Regional Evacuation Framework. Participants included staff from various local government departments (fire services, engineering, planning, forestry, GIS), non-government organizations, and First Nations communities. The participants included:

- Regional District of Central Okanagan
    - Emergency Operations Centre
    - Joe Rich Fire Department
    - Ellison Fire Department
    - North Westside Fire Department
    - Wilsons Landing Fire Department
- Westbank First Nation

- Ntityix Resources LP
- Okanagan Indian Band
- City of Kelowna
    - Kelowna Fire Department
- City of West Kelowna
    - West Kelowna Fire Department
- District of Peachland
    - Peachland Fire Department
- District of Lake Country
- BC Ministry of Forests, Lands, Natural Resource Operations, and Rural Development
- Ministry of Transportation and Infrastructure
- BC Wildfire Service
- Royal Canadian Mounted Police

2.2.3 Preliminary Hazard and Risk Evaluation

The Regional Evacuation Planning Framework is considered "all-hazard" meaning the evacuation process and strategies can be used to coordinate a partial or full evacuation for any threat or hazard. Although the plan can be implemented for any or all hazards, a review of the hazards that could necessitate an evacuation was included in the planning process. This review can inform the potential scale of evacuation, the intensity of the event, an estimated amount of time between the onset and the need for evacuation, and specific considerations for each hazard.

2.2.3.1. Areas of Interest

The Hazard and Risk Evaluation began with identifying the most at-risk communities throughout the region, referred to as Areas of Interest (AOIs). Consideration was given to 1) Access/egress 2) proximity to identified hazards 3) population density 4) historical events and 5) presence of single points of failure or critical infrastructure. Additionally, the Steering Committee provided input on concerns within their respective communities and from the data and discussions, the following AOIs were identified. Maps of each AOI can be found in Appendix B through G.

Phase 1 Areas of Interest

- AOI 1: Westside Road (North)
    - Trader's Cove
    - Lake Okanagan Resort
    - La Casa
    - Fintry Delta
    - Upper Fintry
    - Valley of the Sun
    - Ewings Landing
    - Estamont
    - Killiney Beach
    - Westshore Estates

- AOI 2: Westside Road (South)
    - West Kelowna Estates (including Bear Creek Road and Rose Valley Road)
    - Bear Creek Provincial Park
- AOI 3: Trepanier
    - Maxwell Road/Paradise Valley
- AOI 4: Joe Rich
- AOI 5: Ellison
- AOI 6: McCulloch Lake

Following the identification of the AOIs for this phase of the project, existing data was gathered into a format that could be inserted into the RDCO EOC Dashboard. As mentioned above, this information can help to inform the presence of hazards, development of trigger points, access and egress challenges, proximity to critical transportation nodes and critical infrastructure, etc.

The information gathered for Geographic Information System (GIS) purposes came from provincially available data as well as existing hazard data provided by the RDCO. This data is by no means comprehensive, and the hazard rating levels are limited to where historical hazard assessments had previously been completed. Although some data may be out-of-date and will not be representative of recent wildfire events, the data can provide a broad overview of hazard areas, historical events, the threat level and can help the RDCO identify areas where they would like to complete additional hazard mapping.

2.2.3.1. Hazard Analysis

The three hazards that were reviewed during the hazard analysis were wildfire, flood, and landslide. Through conversations with the Steering Committee and a review of historical disaster events, it was determined that these hazards pose the highest risk to residents and show the highest likelihood of future occurrence. The hazard data is available on the EOC Dashboard and a summary of the hazard data for each AOI can be found in Appendix I through K of this document.

The hazard analysis can be used to help determine the level of risk present in each AOI and subsequently highlights challenges and considerations for evacuation route planning.

2.2.3.1. Wildfire

Wildfire data was compiled from the Provincial Strategic Threat Analysis (PSTA) as well as existing Community Wildfire Protection Plan (CWPP) data for Lake Country and West Kelowna provided by Frontline Operations Group as well as the recent CWPP for the RDCO Parks. Where there was complete data coverage from the CWPP for an AOI, the PSTA data was ignored. Using this data, the threat level was identified for each AOI and a 2km buffer was added to assist with determining evacuation trigger points. As the provincial data is updated annually or biannually, the recent wildfire events are not incorporated into this analysis. A future thorough analysis by way of a CWRP for each AOI is advisable to gain a better understanding of the threat throughout the region.

2.2.3.1. Slope Stability

Slope instability or, landslide and debris slide threat, has garnered more attention over the last year following a significant wildfire season. Several residential developments along Westside Road are of particular concern as they are situated below the White Rock Lake Wildfire burn area with several creeks and steep slopes that will require further monitoring. The spreadsheet of data compiled for this project is based off the Terrain Stability Mapping from the provincial government. Along with the Terrain Stability Guidebook, this data can provide the EOC with a broad overview of high risk areas to monitor but in no way should be used as the sole method of predicting the likelihood or unlikelihood of a landslide.

2.2.3.1. Flood

Flood risk continues to be a concern for several areas throughout the RDCO with the potential to require evacuation if environmental conditions combine with seasonal runoff. Dike breach or failure could also cause the need to evacuate particularly in the Mission Creek, Mill Creek, and Bellevue Creek areas. Flood risk data was retrieved from provincial data as well as recent data collected during the development of the RDCOs Regional Floodplain Management Plan. The hazard data provided in Appendix I illustrates, 20 year, 100 and 200 year inundation levels, 100 year lake level flood scenario, and 200 year, creek and river levels.

2.2.4 Tabletop Exercise

A tabletop exercise was facilitated with the Steering Committee as a Capstone to Phase 1 of the Regional Evacuation Planning Framework. Twenty-two participants joined from across the region and were presented with a hazard and evacuation scenario that required discussion and collaboration to determine appropriate courses of action, multi-agency coordination and cooperation. This session was held virtually on January 28, 2022.

This process allowed the group to identify areas of uncertainty and challenges as well as identify potential solutions and strategies through a unified approach. This exercise also facilitated a discussion around what the group would find useful in future planning which helped identify priorities and inform the recommendations for subsequent phases of the Evacuation Route Planning process.

2.3 Summary

The RDCO's regional approach to emergency management illustrates the benefit of collaborating with regional partners and neighbouring First Nation communities to provide holistic emergency management solutions for all phases (mitigations, preparedness, response and recovery). This Regional Evacuation Planning Framework aims to follow those principles established by the regional approach to ensure collaborative and inclusive planning that addresses the diverse needs of the region's residents.

A regional approach to evacuation route planning fosters a shared understanding of roles and responsibilities by internal and external regional partners to improve the efficacy and capability

of future evacuation scenarios. Partners located outside of, but adjacent to, the RDCO boundaries were included in the planning process to ensure there is an understanding of shared impacts, foster working relationships and facilitate communications during an emergency that may impact surrounding jurisdictions. This is especially prudent in areas, such as Westside Road, where RDCO residents may have to travel through OKIB land during an evacuation. Providing a framework and templates to guide additional planning ensures a consistent format and approach throughout the region which will ultimately increase capacity and capability of the emergency management team for both planning and response of evacuation scenarios.

3 Strategies

There are several strategies, techniques, and tools available to plan and execute evacuations. These strategies are based on industry standards and best practice. Within this section, strategies are provided for: deciding to evacuate, making a plan and considering timing, directing and controlling traffic, resources required, and delivering messaging.

Evacuation strategies are implemented to best manage or enhance the capacity of roadways, modify routes to keep traffic moving, and manage the evacuation safely. A mass evacuation of the RDCO would likely overwhelm the capacity of major highway corridors. As a result, during an evacuation of communities within the RDCO, evacuation strategies will be required to reduce congestion and keep traffic moving. Traffic congestion is well-documented and is known to lengthen evacuation clearance times, contribute to evacuee discomfort and stress, and increase demand for enroute services such as food, water, fuel, emergency response vehicles and tow trucks.

The specific evacuation scenario at the time of the emergency and the availability of resources, will dictate which strategies are implemented and in what capacity. Not all evacuation strategies will be viable or appropriate in every evacuation scenario. This section should be considered a toolbox for decision makers, meaning that only those strategies required and viable for the specific evacuation scenario will be implemented. Detailed checklists for implementing the specific evacuation strategies and locations where the evacuation strategies may be effective should be included in the Operational Evacuation Plans developed in future phases of the Evacuation Route Planning process.

3.1 Process

Evacuation involves the process of removing persons and/or animals from an area of danger or threat of danger. One of the challenges when organizing an evacuation is understanding how to bring together the available information, reconcile conflicting priorities and make effective decisions as a team. When planning or preparing for an evacuation it is important to consider the ‘who, what, when, where why and how’ (Figure 2: Evacuation Planning Process) when reviewing the situation and determining priorities.

Ordering residents to evacuate is recognized as one of the most difficult decisions a local authority is likely to make. It should occur when the EOC Director, in consultation with the Incident Commander, deems the risk to the community is high or the community can no longer provide the necessities of life (food, water, shelter).

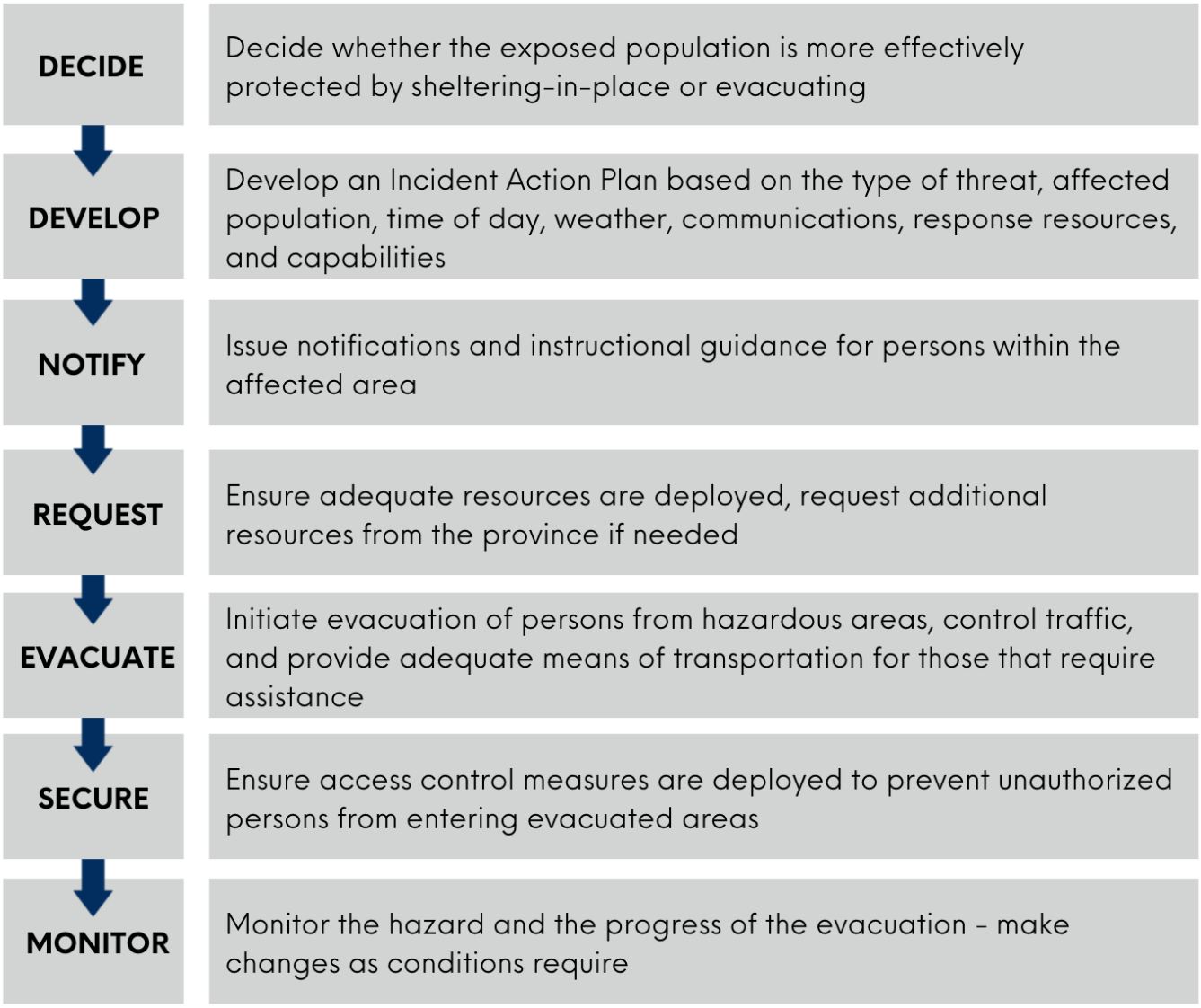


Figure 2: Evacuation Planning Process

3.2 Decision to Evacuate

The Evacuation process involves the removal of people, animals and livestock from a dangerous, or potentially dangerous area, to a safer location.

Each Operational Evacuation Route Plan should outline procedures and resources for all activities within the section defined by a green rectangle in Figure 3, including:

- ✓ Prioritizing/Phasing
- ✓ Egress
- ✓ Assembly points
- ✓ Vulnerable populations
- ✓ Animals and Livestock

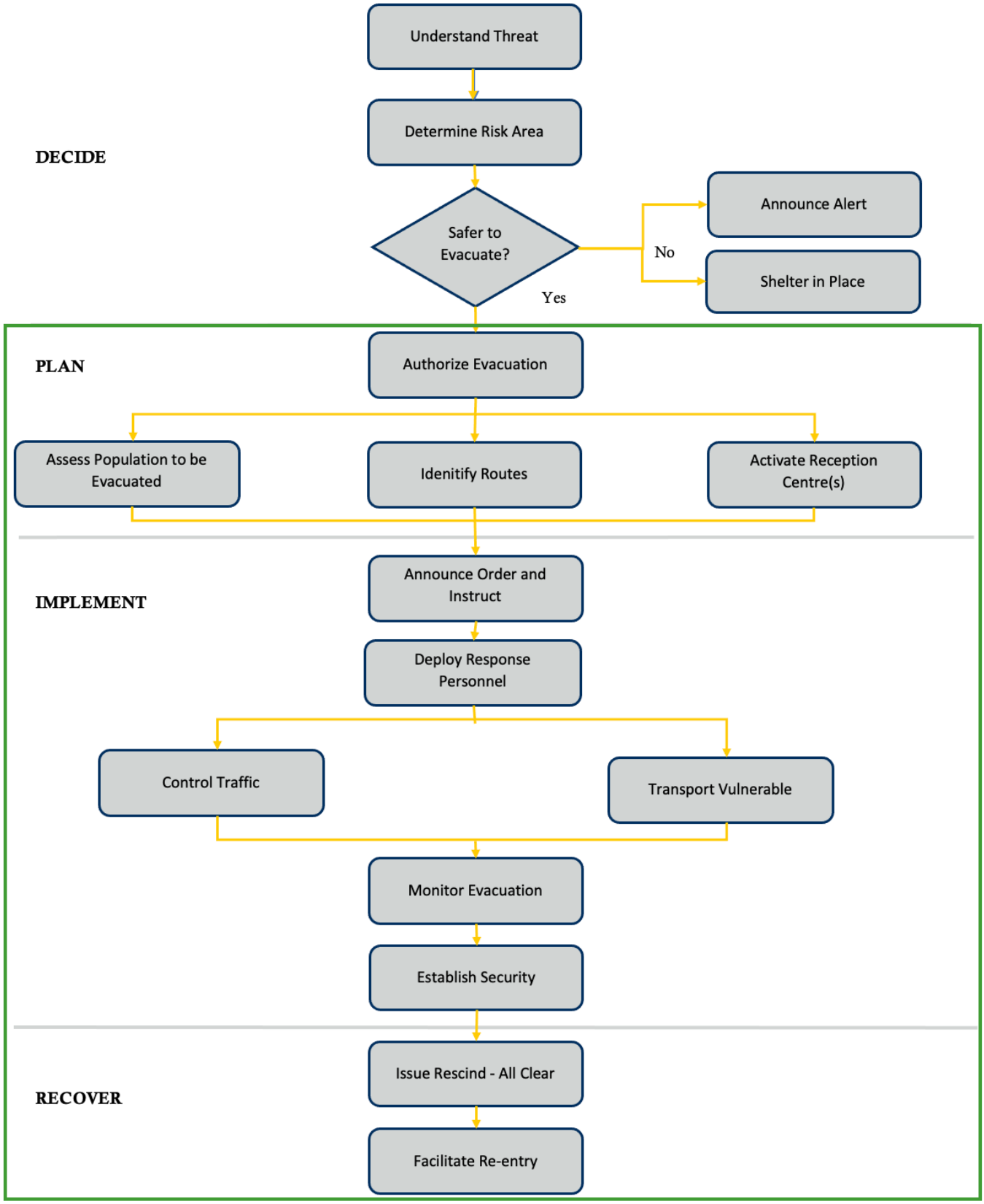


Figure 3: Evacuation Planning Steps

The identification of trigger points and indicators will likely happen on an ad hoc basis, dependant on the type of hazard being dealt with. The following formula (Figure 4: Evacuation Timeline Formula) can be used to estimate the time required to mobilize resources and evacuees to assist with determining appropriate trigger points.

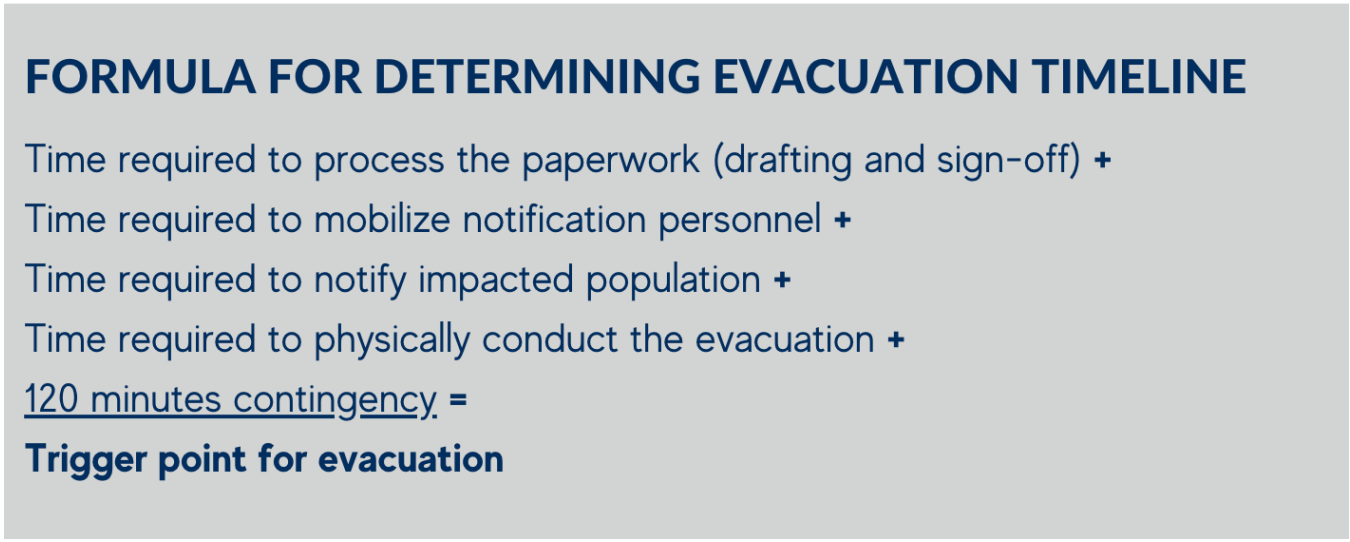


Figure 4: Evacuation Timeline Formula

3.3 Evacuation Phasing

Evacuation phasing involves scheduling the departure times of evacuees by evacuation zone, so that people are evacuated in stages, rather than all at once to reduce congestion on roadways. Although the goal of an evacuation is to move people away from the threat as quickly as possible, a single concentrated travel departure pattern can inhibit overall traffic movement, particularly where there are critical constraints, such as intersections and merging lanes. In addition, because evacuations usually involve movement in a single direction away from the hazard, evacuees closest to the hazard can sometimes experience the longest travel times.

Although a phased evacuation may take longer overall to execute, it will provide a more efficient systematic evacuation through better traffic control, lower highway volumes and will decrease the likelihood of backups and driver travel times. Whenever possible, a phased evacuation is preferable. Public communication will be critical to promote trust and adherence as compliance with a phased approach may be challenging if people perceive a serious threat.

There are different strategies to implement phased evacuations, and the specific evacuation scenario at the time of the emergency will dictate if, and in what capacity, a phased evacuation is implemented. These strategies include:

1. Issuing sequential evacuation orders that begin evacuations in areas closest to the hazard first, and then working away from the hazard. This ensures that people most at risk are moved out of the hazard area first.

2. Issuing evacuation orders to evacuation zones closest to the outbound end of the community first and working backwards across the community. This Framework moves the outbound neighborhoods out of the way, so inbound traffic can move through.
3. Evacuating the neighborhoods with the densest population areas first, as this will take the longest.
4. Asking non-resident populations to leave during the evacuation alert stage to reduce the number of people that need to evacuate once the need for evacuation is confirmed, and an evacuation order is issued.
5. Allowing people, who will take more time to evacuate (e.g. people with disabilities or medical health issues), to leave first to ensure they have the time they need to evacuate safely. Coordinate with the IHA during the Alert stage to ensure facilities have enough time to relocate vulnerable patients and residents in their care.

Note: Because it is impossible to enforce phased evacuations, they are a guidance-only strategy and will need to be included in public education prior to an evacuation, and once an evacuation is possible or confirmed. Public information is important to avoid shadow evacuees: people outside a declared evacuation zone, who evacuate unnecessarily or at the incorrect time. Shadow evacuees congest roadways and inhibit the egress of those evacuating from an area at risk.

3.4 Destination Assignment

Another strategy to modify demand in an evacuation is to assign evacuees to specific destinations. Destination assignment involves assigning evacuees to specific routes and destinations to decrease congestion on main evacuation routes. This strategy involves asking or directing evacuees, or in a worst-case scenario implementing roadblocks to compel compliance to a specific route or destination.

While destination assignment is an option, it is preferred that people are able to select their own route and destination, as they are more likely to have support at their preferred destination. If circumstances justify destination assignment, it is preferred that it be voluntary. Making destination assignment mandatory by way of a roadblock should be a last-resort option, as it can force people to unfamiliar areas where they lack support, and separate families and friends. Only in the most immediately life-threatening situations should people be evacuated without being able to gather their family, friends, and pets.

3.5 Assembly Areas

If public transport is being used, assembly point areas should be designated for people to report to. Assembly areas will be determined based on the type and location of the emergency.

3.5.1 Transportation Assistance

People who are unable to travel to the designated assembly points for transportation should develop a personal emergency plan with a family, friend or neighbour that can provide them assistance and/or transportation assistance. If this is not an option, they should be directed to

contact the EOC to arrange transportation directly from their residence. The EOC call center can ask a series of questions to determine transportation needs and forward the information to the EOC Operations desk for review and implementation.

3.5.2 Requests for Additional Transportation Resources

At the request of local government, EMBC will coordinate and provide additional resources in support of evacuation operations. The local government should put in a resource request for extra transportation resources, ideally as soon as an evacuation is considered and definitely at the evacuation alert stage.

3.5.3 Transportation Options for People with Pets

In addition to people, pets must also be considered during evacuation planning. For the purpose of this plan, household pets are defined as domesticated pets (e.g. dogs, cats, birds, rodents) that are traditionally kept in the home for pleasure, rather than commercial purposes and can travel in commercial carriers and be housed in temporary facilities. In coordination with EMBC and ESS, the RDCO EOC should make every attempt to ensure that dedicated transportation resources are available to people with pets.

Ultimately it is the pet owner's responsibility to ensure they have an emergency evacuation plan in place that includes their pets. Information on what should be included in a personal emergency plan can be found on the EMBC website.

3.6 Reception Centres

Reception Centers are safe gathering places for people displaced from their homes as a result of an emergency or disaster. At a Reception Center, individuals can register and receive Emergency Support Services (ESS) as well as information about emergency situation including the evacuation.

The services that are provided at a Reception Center include, but are not limited to:

- Registration
- Referrals for food, clothing, lodging and/or amenities
- Reunification with family or friends
- Emotional support
- Assisting persons with special needs
- First aid
- Multi-cultural services
- Pet care

3.7 Traffic Management

3.7.1 Coordination

The EOC, in coordination with the RCMP, will provide direction on the best routes to be used to facilitate an evacuation. Routes may need to be selected at the time of the incident

depending on the type of hazard and degree of risk. The individual Evacuation Route Plans should identify the best/most direct routes out of each community within the regional district boundaries. Evacuation Routes should be separate from disaster routes intended for use by emergency responders and support vehicles. Future planning should include identifying specific capacity thresholds, including Westside Road, Highway 97, Highway 33, and Okanagan Bridge.

The following factors should be considered when selecting evacuation routes:

- Most evacuees utilize personal transportation
- Approximate vehicle capacity thresholds for routes based on
    - An average flow rate of 800-1,200 vehicles/hour/lane on arterial roadways
    - Average flow rate of 1,800 vehicles/hour/highway
- The average vehicle occupancy is four persons but evidence from real life evacuation show that families will tend to use two vehicles if they have them
- Route markings and identification
- Safety and condition of infrastructure
    - Bridges
    - Roads
    - Congestion point

3.7.2 Traffic Control

The EOC Operations will coordinate RCMP liaison to determine the appropriate traffic designate which may be MoTI dependant on impacted area. Measures may be established and controlled at key intersection and at access control points to major evacuation routes if needed.

In some cases, it may be necessary to control traffic on other routes to minimize impact on the evacuation traffic. The following information, may assist in planning;

- Many commuters will return home to gather family and belongings before beginning an evacuation
- Time of day (morning vs. night) and day of the week (weekday or weekend) will dictate where people will be and will affect the number of evacuees that may need assistance and/or transportation
- Evacuation routes may require maintenance and blockage extrication to keep routes flowing. Highways and public roads in rural areas are the responsibility of MOTI, all other roads are the responsibility of the local municipality or First Nation
- Emergency and support vehicles require clearly identified lanes/routes to provide not only access to the evacuation/shelter-in-place zone, but also to exit from the zone
- Assembly points need to be identified that are familiar with the population at risk
- Mass transit routes may require a designated route or lane to facilitate and promote use of this means of evacuation

3.7.3 Strategies

Many traffic management strategies exist to help expedite the evacuation process. While all strategies are intended to improve evacuation traffic flow, any potential impacts should be considered in decision-making.

Implementing traffic management strategies in an evacuation is complex. To ensure that traffic management strategies are coordinated and implemented safely, it is recommended that a Traffic Management Plan (TMP) be developed as an addendum to the Evacuation Route Plan. The TMP would outline the specific traffic control devices that will be used and how they will be implemented. This may include text descriptions, customized traffic control layouts, and customized drawings of temporary traffic control devices (signs, signals, lighting, channelizing devices, paving markings, etc.) and traffic control persons. The TMP should meet standards of MoTI's *Traffic Management Manual for Work on Roadways* and incorporate best practice from the provincial *Disaster Response Transportation Strategy*.

Some traffic management strategies to consider are:

- Detours
- Road Closures and Access Control such as restricting inbound traffic to Emergency Services
- Flashing Signals
- Traffic Cones and Delineators
- Evacuation Lane Reconfiguration
- Signage
    - Dynamic Message Signs
    - Portable Changeable Message Signs
    - Printed Signage
- Modifying Highway Travel Speed
- Signal Timing Modification

3.7.4 Control Points

- Traffic controls should be established at key intersections and at access control points to major evacuation routes as needed
- In some cases, it may be necessary to control traffic on other routes to minimize the impact on the evacuation traffic
- Traffic control points will be designated by the RCMP
- Each traffic control point should have a minimum of one tow truck equipped with fuel to assist stranded motorists or to remove disabled vehicles – on highway routes this should be coordinated by MoTI
- If possible, an ambulance should also be assigned to the primary control point

3.7.5 Enroute Services

During a mass evacuation, evacuees may need support enroute to keep moving. Making provisions, such as fuel stations, portable restrooms, water, tow trucks, dispersed emergency services, and shelter opportunities along the evacuation routes will improve effectiveness of an evacuation.

Further traffic analysis is required to identify appropriate locations in which to station these services and should be included in future evacuation route planning.

Fuel

Ensuring adequate fuel supplies is a key component to a successful evacuation. Fuel service must be maintained during emergencies both at pump stations in the evacuating community and at services stations enroute. To facilitate this, future planning should include the addition of all gas stations in the RDCO to the EOC dashboard.

Local gas stations should be notified of a mass evacuation, as early as possible, to enable them to increase their fuel supplies in preparation for a surge in demand. If time and resources allow, fuel trucks should be staged at various locations enroute to provide emergency fuel supply and reduce the likelihood of stalled vehicles interrupting traffic flow.

Depending on the evacuation scenario, the EOC may want to consider rationing fuel to a dollar or liter limit to help avoid fuel outages. It is common during emergencies that people panic and purchase excessive amounts of fuel which can lead to insufficient fuel supplies.

Tow Trucks

Tow trucks should be stationed to attend to vehicles that are blocking traffic lanes due to mechanical problems, insufficient fuel or collisions.

Temporary Comfort Stations

If time and resources allow, temporary comfort stations will be set up along the evacuation route with portable toilets and water in locations that do not have existing rest stops.

Law Enforcement

If time and resources allow, law enforcement can be dispersed along evacuation routes to expedite response to incidents that present a safety risk to the public and/or first responders.

4 Security

As an area is being evacuated, access control measures must be established. Security may be obtained by establishing staffed access control points and barricades at key locations around the perimeter. The objective of access control is to:

- Provide a controlled area from which an emergency evacuation will take place and prevent entry by unauthorized persons
- Protect lives by controlling entry into hazard areas
- Maintain law and order in the hazard area
- Specific criteria for allowing entry into closed areas will be established for each incident

4.1 No Access

- Prohibits the public from entering the closed area
- Authorized personnel are the only ones allowed access (i.e. local, provincial work as required)
- Media representatives will be allowed access on a controlled basis

4.2 Temporary Access

- Allows persons into closed areas according to access criteria established by the EOC director
- Entry criteria should define the persons who will be allowed and whether motor vehicles are allowed
- A log of all vehicles/people entering the area will be kept at each point and forwarded to the EOC
- Staffing at access control points will be assigned in coordination with the RCMP and may include members of RCMP, SAR, or contracted security professionals

5 Notification

The notification of an evacuation in a timely and effective manner is one of the most important steps that must be completed during an emergency event. Under the *Local Authority Emergency Management Regulation*, the RDCO is required to establish "procedures by which those persons who may be harmed or who may suffer loss are notified of an emergency or impending disaster".

Timely notification is essential to ensure that residents are aware of the emergency situation and have all the information needed to evacuate safely. For further information and recommendations on communications during evacuations, refer to the EOC Communications Toolkit on the EMBC website.

There are several ways in which the RDCO can notify their community of an evacuation including:

- ✓ Broadcast media – local radio and television
- ✓ Sirens
- ✓ Public address systems
- ✓ Door-to-door visits
- ✓ Notice boards
- ✓ Social media platforms (Facebook, Twitter, etc)
- ✓ Amateur radio
- ✓ Website
- ✓ Print media
- ✓ Automatic notification systems

**Send a copy of all evacuation notices to the appropriate EMBC PREOC, who can then share and amplify the information on Emergency Info BC's website, Twitter, and Facebook feeds.

5.1 Evacuation Notification System

The RDCO does not currently subscribe to an evacuation notification system, however, Central Okanagan residents are encouraged to sign up for email updates to receive notifications from the Emergency program at cordemergency.ca. Exploring the use of a notification system is one tool that could be helpful to increase awareness and allow the RDCO to reach residents quickly and efficiently in the event of a disaster event that requires evacuation.

5.2 Door-to-door

Door-to-door notification is still one of the best practices for notifying residents of an Evacuation Order. Trials and experience have shown that door knocking, when conducted by the emergency services, is the most effective method of issuing notifications during an emergency or evacuation, it is however, extremely resource intensive and slow.

If door knocking is used as a method of ordering evacuations, then it is recommended that doorknockers:

- ✓ Are uniformed members of a recognized organization
- ✓ Work from a script
- ✓ Provide handouts of written information to residents if possible

Generally, upon notification of the Order and through request, the following agencies will coordinate the door-to-door notification process for the impacted area(s) on behalf of the RDCO EOC.

- ✓ RCMP
- ✓ The volunteer Fire Department
- ✓ Search and Rescue (SAR)
- ✓ RDCO Staff

If the capacity to provide door-to-door notifications is beyond what the RDCO EOC can provide, a resource request can be submitted to the PREOC to source additional resources.

The steps for facilitating door-to-door notifications include:

- ✓ Request the assistance of the RCMP, Fire Department or SAR, and provide:
  - Evacuation Notification Kit containing:
    - Evacuation clipboard with Evacuation Recording Procedures and Evacuation Logs
    - Colour-coded flagging tape rolls
    - Waterproof pens
  - Copies of the Evacuation Order with a map of the geographic boundaries of the affected area
- ✓ Ensure each notification team has a method of communication (i.e. phone or radio)

5.3 House Marking

In British Columbia, a system of flagging tape in four different colours is a best practice which allows police and volunteers to quickly identify the status of any residence in an evacuation area.

The tape is attached to a location that can be viewed during a windshield evaluation to identify residents who:

BLUE	Not home/no answer and must be canvassed again
PINK	Have been notified of an order to evacuate
YELLOW	Have been verified as evacuated
ORANGE	Have been notified and are refusing to evacuate

6 Host Communities

When it is not possible to keep evacuees in the impacted community, it is common to ask neighbouring communities to help by providing shelter and care to the evacuees as needed. It is important for First Nations and Local Authorities to reach out to potential host communities in advance of an evacuation to pre-establish relationships and communication channels. There is no obligation for another community to act as a host community; fostering proactive, strong relationships with other communities will encourage mutual assistance in times of need.

For information on how host communities can be reimbursed for eligible costs associated with hosting another community's evacuees, refer to the Host Community Response Costs memo located on EMBC's website.

If possible, evacuees should be hosted in a community that is similar to the one they are evacuating from. For example, if evacuating a First Nations community, consider sending evacuees to another First Nations community of similar size where evacuees may feel more comfortable.

Note: do not send evacuees to another community without first confirming the host community is able, willing, and ready to receive and support your evacuees. Include EMBC in these discussions, wherever possible.

There are a few ways in which an evacuating First Nation or Local Authority can support a host community:

- ✓ Confirm with the host community that they are able to receive evacuees, and provide details on how many evacuees are being sent and any special considerations they should be aware of (e.g. number of vulnerable people, etc.)
- ✓ Provide an approved Extraordinary Evacuee Authorization Form to any evacuee not covered under an Evacuation Order to ensure the host community's ESS team has appropriate validation to support the evacuees
- ✓ When possible, evacuate vulnerable people with a support person (e.g. health care worker or care giver) able to assist with their safety, reducing the burden on the host community
- ✓ Provide a regular information-briefing schedule for the host community and evacuees
- ✓ Maintain consistent, planned contact between the evacuating community's officials and the host community's officials
- ✓ Evacuate local community staff with their residents so they can provide support to the host community in matters concerning their residents
- ✓ Where possible, designate a Community Navigator to act as a liaison for the evacuees and provide a point of contact for the host community emergency support structures.
- ✓ Further support for the host community's ESS team can be provided via a request through EMBC

7 Public Information

Once the decision to issue an evacuation alert or order has been made, the local authority will provide information to the public through official channels, including details about the hazard conditions, areas affected and evacuation activities and actions they should take to ensure safety.

All public notifications and information for advanced notice evacuations should be coordinated through the local government EOC Information Officer (IO) and approved by the EOC Director. It can be helpful to have pre-scripted information available to the EOC IO to expedite the process.

7.1.1 Key Considerations

Public information should consider:

- ✓ Multiple sources – timely, accurate, relevant information should be provided through official channels
- ✓ Repetition – clear, concise messaging should be repeated
- ✓ Timeliness – information should be shared with the public as early and possible and regular updates should be provided
- ✓ Clear messaging – messages should be simple, clear, concise, consistent, and free from technical jargon
- ✓ Translation and language options – if needed, key messages should be translated for residents and visitors

7.1.2 Message Dissemination

The local government will share the information through the following channels:

Local Government Website (cordemergency.ca)

The main portal for up-to-date information will be the local government website. An emergency alert should be posted on the home page of the website. Emergency alerts can be issued for current emergency events, including evacuation alerts and orders. Instructions for people in the evacuation area, regular updates and situation reports should be posted as new information becomes available.

Radio and Television Broadcasts

Radio and television broadcasters are a critical resource during an emergency. Residents and visitors rely heavily on local broadcaster for emergency information.

Evacuation information and updates should be supplied to local and provincial media sources for broadcast on radio and television. This will be particularly effective if the internet is not available or if people are in their vehicles and need updated information while travelling.

If the regional website is functioning, radio and television broadcasters should be asked to monitor the local government website for the most current updates and to broadcast the information in a simple, clear, concise, and consistent format. Information can also be shared with broadcasters through media releases.

Social Media

In addition to municipal websites, the RDCO EOC should share timely information regarding the evacuation on social media. The information posts should include a link to the local government website for more information.


@CO_Emerg


Facebook.com/CORDEmergency/

8 Reciprocal Agreements/Arrangements

The RDCO has embraced the structure of a truly regional emergency program and through the established bylaw with the region's municipalities the EOC has access to various resources to staff the EOC and support functions. The addition of reciprocal agreements with neighbouring

Regional Districts and First Nations would greatly strengthen their capacity to provide for evacuees in the event of a large scale or mass evacuation scenario.

9 Administration and Logistics

The information throughout this plan can be used by the emergency management team and partner agencies alike for general knowledge about the evacuation process for the RDCO. The detailed procedures for executing an evacuation, in the form of checklists, decisions trees, templates, mapping, contact information, etc. can be found in the RDCO EOC activation guide.

Detailed information and arrangements for individual communities, as mentioned in section 11.1, should be made available in the Operational Evacuation Route Plan for each neighbourhood, community and/or municipality.

10 Plan Development and Maintenance

The RDCO is responsible for maintaining their Regional Emergency Program, and associated documents such as this one, and should ensure that the Regional Evacuation Framework is:

- Updated annually, or as needed, to reflect current contact information, position titles, etc.
- Reviewed after events or exercises and updated if required, reflecting lessons learned and changes in other plans
- Practiced annually with partner agencies and stakeholders through a tabletop exercise or similar, to ensure compatibility and relevance of the plan

11 Recommendations

Phase 1 of the RDCO Evacuation Route Planning project examined existing plans and processes, reviewed local hazards and hazard levels, identified AOIs with evacuation challenges, and developed an overarching regional framework to inform future phases of evacuation route planning and provide a consistent approach to planning for and managing evacuations. The recommendations developed throughout Phase 1 provide additional clarification on identified gaps and challenges and actions that can be taken to address them. These recommendations should be reviewed by the Steering Committee and prioritized into an Action Plan which will help determine task for future phases of the evacuation planning process. The Action Plan should include time frames and the person, role or organization responsible for each task.

Recommendations will focus on:

- Plans and procedures
- Access, egress and traffic management
- Communication
- Public Information
- Resources
- Training and Exercises

11.1 Plans and Procedures

There is a need to establish formalized Operational Evacuation Guides for each municipality, and unincorporated community in the RDCO that can guide the response efforts, assist in developing priorities, identify egress challenges, outline preferred transportation routes and identify intersections that will require traffic control. Additionally, continuing to build on the Regional Evacuation Planning Framework to provide guidance on response leadership, designate roles and responsibilities and overview of the lead agency for specific hazard events will help streamline the evacuation process.

Recommendation #1

Develop Operational Evacuation Guides for each unincorporated community and municipality in the RDCO to include traffic, parcel and population density analyses to determine evacuation timing. This will facilitate the development of pre-determined evacuation trigger points as well as adhoc evacuation planning. Include mapping and locations for assembly points, traffic control points/signage, Critical Infrastructure, evacuee destinations and single points of failure. Include a detailed process and timeline for evacuation procedures to better understand the time constraints and inform decision making and trigger points for evacuating.

Recommendation #2

Work with local ESS volunteers to determine appropriate reception centres and develop MoU's where necessary to ensure locations are accessible in the event of an evacuation. By identifying appropriate locations for reception centres throughout the region, the EOC can quickly determine the most appropriate destination for the impacted population and communicate that to the public and response agencies to limit confusion and anxiety of evacuees.

Recommendation #3

Complete a comprehensive Hazard Risk and Vulnerability Analysis (HRVA) to better understand the region's needs and prioritize planning efforts.

Recommendation #4

Develop an Evacuation Route Plan template that can be used by member municipalities to build their respective plans. The template can guide municipalities through the planning process and provide considerations and details to include. The template can also include standard maps and icons to be used to ensure a consistent approach throughout the region.

Recommendation #5

Complete a Community Wildfire Resiliency Plan (CWRP) for Westside Road, Joe Rich, Ellison, Trepanier and Upper Glenrosa. This will further increase the EOCs understanding of the wildfire risk in this area and help to determine evacuation triggers and route options.

Recommendation #6

Review Framework and Operational Plans annually and/or following an evacuation to ensure information is current and relevant.

Recommendations #7

To ensure that traffic management strategies are coordinated and implemented safely, it is recommended that a Traffic Management Plan (TMP) be developed as an addendum to the Evacuation Route Plan. The TMP would outline the specific traffic control devices that will be used and how they will be implemented. This may include text descriptions, customized traffic control layouts, and customized drawings of temporary traffic control devices (signs, signals, lighting, channelizing devices, paving markings, etc.) and traffic control persons.

Recommendation #8

Develop a Re-entry Plan to ensure an efficient, safe and consistent approach to determining when an area is fit for re-entry following an evacuation. This could be a series of checklists and flowcharts that clearly layout the considerations that need to be made, and steps taken, to ensure the area is safe prior to allowing residents back into their homes.

11.2 Access, Egress and Traffic Management

The Steering Committee identified the need to identify all 'one-way-in/one-way-out' communities in the region and record them in the EOC Dashboard. Although there is a significant amount of local knowledge among the designated EOC staff, their local knowledge on access/egress challenges should be recorded to ensure continuity and a shared understanding.

Recommendation #9

In partnership with the RDCO's municipalities, work with GIS specialists to map 1) all limited access neighbourhoods and single points of failure that could pose a challenge during an evacuation 2) high-traffic and congestion points along primary evacuation routes and critical transportation nodes considering Glenrosa and other high-density neighbourhoods within the AOIs and 3) critical access points and intersections and determine if each requires a physical person or signage to manage traffic flow during an evacuation. This could be accomplished individually or as a series of workshops – local engagement and knowledge will be a key success factor for this exercise.

Recommendation #10

Once all minimal access routes, critical access points and congestion points are mapped, install signage along routes for increased public awareness and facilitated evacuations.

Recommendation #11

Develop Decision Trees and Flow Charts as part of the Operational Evacuation Plans to streamline processes for managing access and communicating with resource partners.

Recommendation #12

Explore options for designating Forest Service Roads (FSRs) as viable secondary evacuation routes for those developments that have limited egress. Determine how to maintain and/or verify their condition prior to each hazard season.

Recommendation #13

Explore options for evacuation by water if land access is not a viable option. This option would primarily address developments along Westside Road as well as Casa Loma in West Kelowna. If plans will be made to include a water evacuation as part of a strategic evacuation, vessels and procedures will need to comply Transport Canada.

Recommendations #14

Several developments along Westside Road have limited access and egress (one point of entry/exit). It is recommended that opportunities for a secondary access point be examined to accommodate the ability to execute an evacuation in a timely manner.
Identified developments with limited access along Westside Road include:

- Lake Okanagan Resort
- La Casa
- Fintry Delta
- Upper Fintry
- Valley of the Sun
- Estamont
- Westshore Estates

Recommendation #15

Engage an engineer to complete a route capacity and traffic assessment of Westside Road, Highway 33 in Joe Rich and public roadways in upper Ellison. This could greatly increase the EOC's ability to plan appropriately and ensure evacuation route planning is feasible. It will also increase the understanding of time requirements and inform evacuation phasing needs.

11.3 Communication

Communication, both internal and external, is one of the most critical components of emergency management. Based on recent evacuations and feedback from the Steering Committee, communication was identified as one of the top areas for improvement. Among the comments, strengthening communication and relationships with partner agencies and neighbouring communities was a common priority for all participants. Although some actions will rely on communication and timely information sharing from external stakeholders to accomplish, building relationships and a culture of teamwork among regional and provincial partners can significantly strengthen emergency response and situational awareness capabilities. Critical information can then be shared with the public and response agencies in a timely manner to improve response outcomes and facilitate evacuation route planning.

Recommendation #16

Develop a list of local and provincial contacts that can be accessed by all members of the EOC and ensure the list is updated on a regular basis. Reach out directly to agency, community and provincial representatives prior to hazard season to establish best contacts and build rapport.

Recommendation #17

Foster a connection with the BC Wildfire Service (BCWS) to ensure they understand the importance of communicating to the RDCO EOC when they are doing work on FSRs in the region. This will facilitate the ability to place signage in the area to reduce traffic and ensure the safety of BCWS operations and the public.

Recommendation #18

Develop communication flow charts for each agency/stakeholder to reinforce processes, roles and responsibilities.

Recommendation #19

Explore options for improving communication between field personnel and the EOC (i.e., GIS platforms: Collector, Lightship).

11.4 Public Information

In addition to building good communication between the EOC, the incident site and any other impacted entities, the way in which information is delivered to the public will play a critical role in the success of the evacuation. This includes the timeliness, clarity and accuracy of the information being released by the EOC and how knowledgeable residents are on local hazards, evacuation procedures and their responsibilities during the process.

Recommendation #20

Develop hazard-specific preparedness information guides to be distributed to homes in identified high-risk areas prior to hazard season to increase awareness and personal preparedness.

Recommendation #21

Prepare standard, customizable signage that can be posted at community access points to show identified evacuation routes, assembly points, etc. as well as provide preparedness information for households.

Recommendation #22

Explore additional opportunities for improved public preparedness and personal accountability such as neighbourhood FireSmart and emergency preparedness campaigns.

Recommendation #23

Explore the option of subscribing to an Emergency Notification System to improve capability of notifying residents in a timely manner and disseminating evacuation information. There are several options for a geo-based platform that are easy to use and simple for residents to sign up for (Alertable, Voyent Alert!, Civic Ready, etc.).

Recommendation #24

Develop a template re-entry package that contains information for residents on steps to take when re-entering their home after an evacuation and dealing with damage, rotten food, debris, etc. This will facilitate and expedite the re-entry process while ensuring that residents are prepared to deal with the outcomes of a disaster.

Recommendations #25
Develop a template notification package for agencies that deliver notifications to residents. This can provide guidance to first responders on appropriate and consistent messaging and clear, concise messaging for evacuees. Include what action must be taken, the evacuation route, destination, what they should bring and how to stay updated.

11.5 Resources

Often, protracted or large-scale emergency response requirements can exhaust regional resources and will require external support. Based on recent disaster events and projected increases, there is a high likelihood that the region will be faced with a disaster scenario that could overwhelm local resources. A resource directory should be collated for all suitably qualified engineers, contractors, and suppliers that are available to increase response capacity during an emergency.

Recommendation #26

Develop mutual aid agreements with communities adjacent to the RDCO that may be impacted by the same event to strengthen response capacity and increase options for managing evacuees.

Recommendation #27

Review and update the RDCO's EOC resource list seasonally. Ensure it includes suitably qualified engineers, contractors and suppliers. If there are gaps, consider posting an EOI for seasonal EOC contractors that can be called upon if needed.

11.6 Training and Exercising

Developing and maintaining a plan is only one part of ensuring the EOC is able to effectively manage an evacuation. Regular training and exercising ensures that challenges are identified, and solutions and strategies are incorporated prior to an event requiring evacuation. It also allows for inclusion of any lessons learned from recent evacuations that could facilitate future responses and provides an opportunity for relationship-building with stakeholders and partners.

Recommendation #28

Develop an annual evacuation training and exercise program for staff and stakeholders in order to strengthen evacuation procedures. Meet and train with both internal and external partners to ensure relationships stay strong and roles and responsibilities are clear. This will help to foster a culture of open communication and trust and lead to an effective and successful evacuation process.

12 Next Steps

Phase one of the Evacuation Planning Process for the RDCO identified six AOIs that require additional focused planning and considerations as well as 28 recommendations to strengthen the RDCOs ability to execute an evacuation.
In order to effectively leverage these recommendations and continue the momentum set forth in Phase 1, the Steering Committee should convene for an Action Planning Workshop at their earliest opportunity. This will allow members to discuss and prioritize each recommendation and assign a person or department to each task. Once the recommendations are prioritized the emergency management team can develop a Strategic Plan to identify clear deliverables and outcomes for future phases of evacuation planning.

Prioritizing the AOIs would be a good first step. Following that, when completing the Operational Evacuation Route Plan and/or Community Mapping for each AOI it would be beneficial to organize a workshop that includes local emergency responders and staff to capture local knowledge. Consider including a GIS technician in this process who can translate the information provided onto the EOC dashboard.

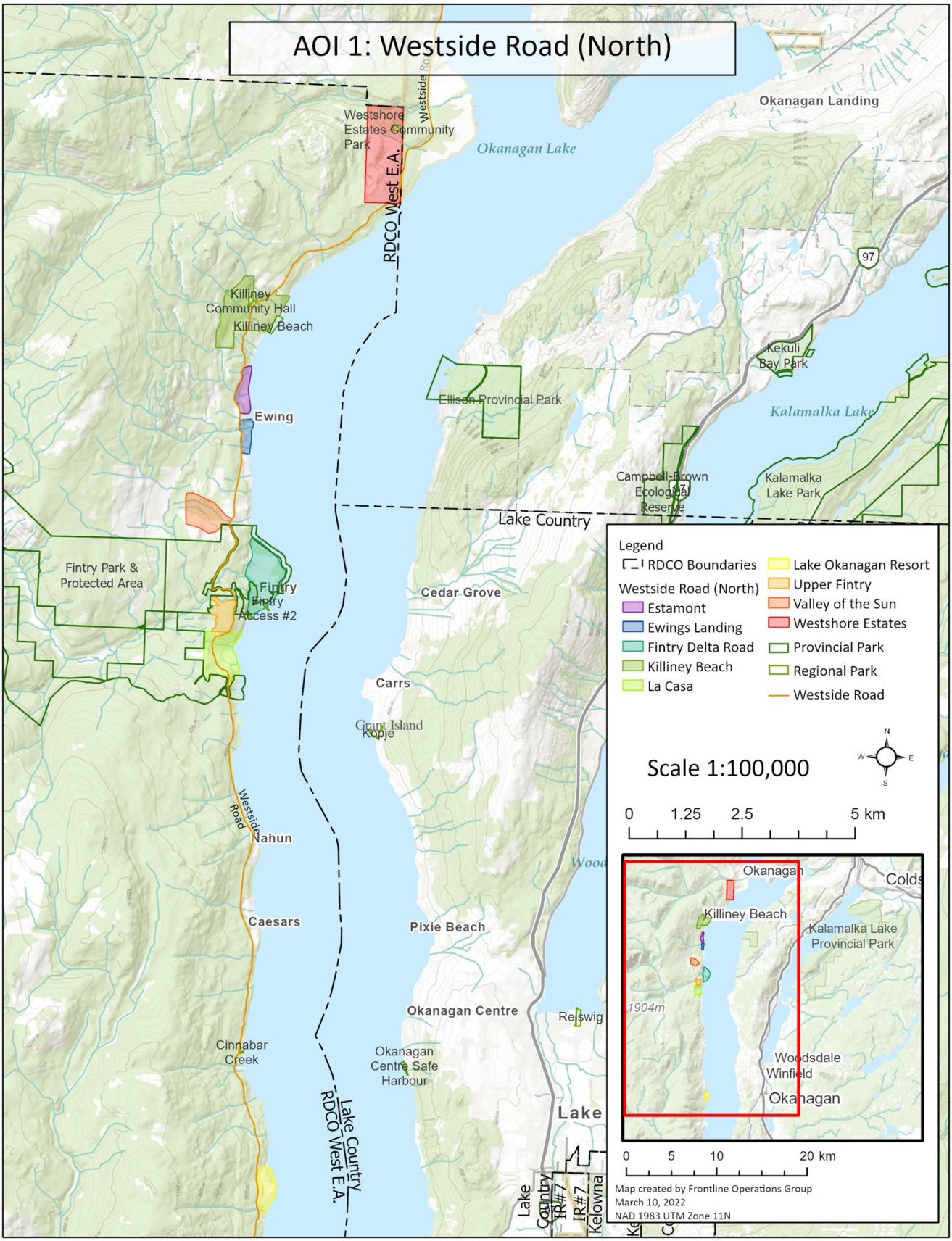
Evacuation Planning for a large area such as the RDCO with both rural and populated urban settings will be an ongoing project. Priorities will likely shift as you move through each Phase but keep in mind that each step taken to further understand and address the vulnerabilities and gaps in your region will assist the EOC in the event of an evacuation. By creating a short-term Action Plan and subsequent long-term Strategic Plan you can begin to map out priorities for future phases and foster continued momentum on a critical component of a strong emergency program.

APPENDIX A. Resources

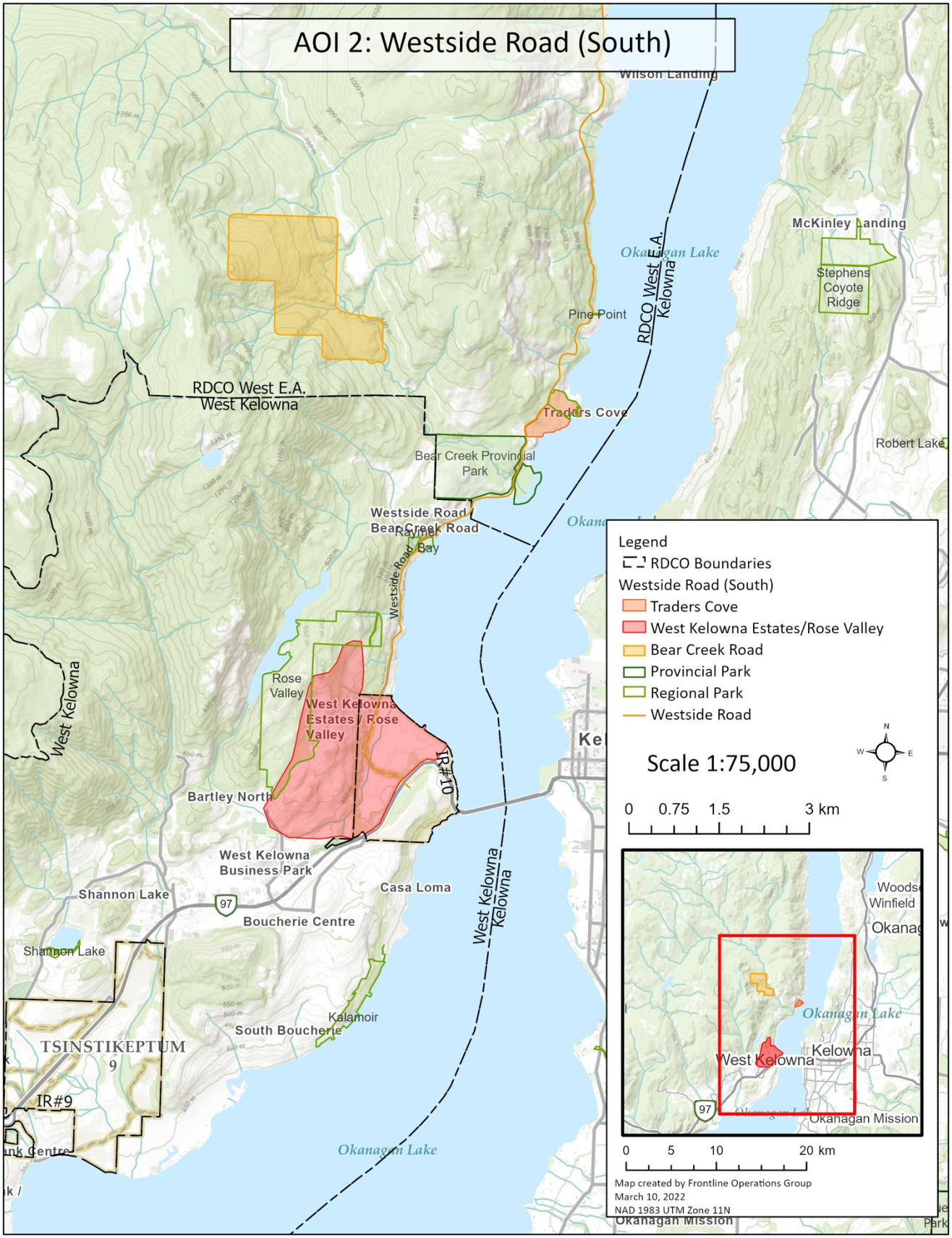
Resource	URL
BC Emergency Management Systems Guide (BCEMS)	https://www2.gov.bc.ca/gov/content/safety/emergency-preparednessresponse-recovery/emergency-management-bc/bcems
Declaring a State of Local Emergency in BC	https://www2.gov.bc.ca/assets/gov/public-safety-and-emergencyservices/emergency-preparedness-responserecovery/embc/policies/declaring_a_state_of_local_emergency_in_bc_jan_2019.pdf
Disaster Response Routes	https://www2.gov.bc.ca/gov/content/transportation/driving-and-cycling/traveller-information/routes-and-driving-conditions/disaster-response-routes
EMBC Emergency Operations Centre Operational Guidelines	https://www2.gov.bc.ca/gov/content/safety/emergency-preparednessresponse-recovery/local-emergency-programs/guidelines
EMBC Regional Office	https://www2.gov.bc.ca/gov/content/safety/emergency-preparednessresponse-recovery/contact-us
Emergency Support Services (formerly Emergency Social Services) Field Guide	https://www2.gov.bc.ca/assets/gov/public-safety-and-emergencyservices/emergency-preparedness-response-recovery/ess/fieldguide/essfieldguide.pdf
EOC Communication Toolkit	https://www2.gov.bc.ca/assets/gov/public-safety-and-emergencyservices/emergency-preparedness-response-recovery/localgovernment/local_gov_communications_toolkit.pdf
EOC Expenditure Authorization Form (EAF)	https://www2.gov.bc.ca/assets/gov/public-safety-and-emergencyservices/emergency-preparedness-response-recovery/localgovernment/eoc-forms/eoc_expenditure_authorization_form.pdf
Evacuee Living Assistance Guidelines	https://www2.gov.bc.ca/assets/gov/public-safety-and-emergencyservices/emergency-preparedness-responserecovery/embc/policies/503_evacuee_living_assistance_annex_-_guidelines_aug_2016.pdf

Financial Assistance for Emergency Response and Recovery Costs	https://www2.gov.bc.ca/assets/gov/public-safety-and-emergencyservices/emergency-preparedness-response-recovery/localgovernment/financial_assistance_guide.pdf
Host Community Response Costs	https://www2.gov.bc.ca/assets/gov/public-safety-and-emergencyservices/emergency-preparedness-response-recovery/localgovernment/emergency_management_bc_-_host_community_response_costs_memo.pdf
Introduction to the Incident Command System	https://www2.gov.bc.ca/assets/gov/environment/air-landwater/spills-and-environmental-emergencies/docs/intro-ics.pdf
Local Authority Emergency Management Regulation	http://www.bclaws.ca/civix/document/id/lc/statreg/380_95
Managing Access to Areas Under Evacuation Order	Evacuation Order https://www2.gov.bc.ca/assets/gov/public-safety-and-emergencyservices/emergency-preparedness-responserecovery/managing_access_to_areas_under_evacuation_order.pdf
Ministry of Agriculture Livestock Relocation	https://www2.gov.bc.ca/gov/content/industry/agricultureseafood/business-market-development/emergencypreparedness/livestock-relocation
Provincial Support for Livestock Relocation During an Emergency, EMBC Policy 2.01	https://www2.gov.bc.ca/assets/gov/public-safety-and-emergencyservices/emergency-preparedness-responserecovery/embc/policies/201_provincial_support_for_livestock_relocation_policy_aug_2016.pdf
Regional District of Central Okanagan Emergency Management	https://www.rdco.com/en/living-here/emergency-management.aspx
Regional District of Central Okanagan Emergency Operations Center	https://www.cordemergency.ca

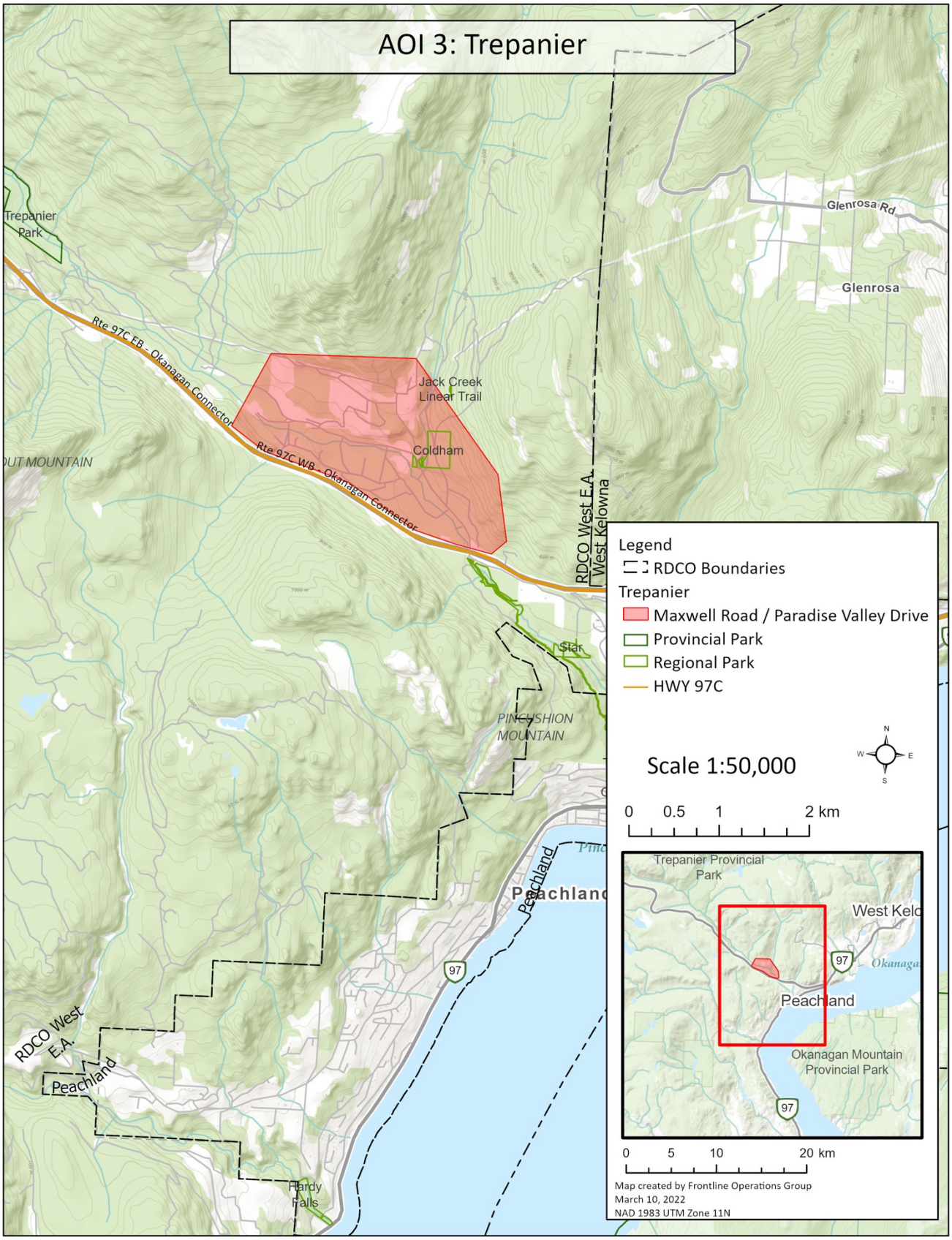
APPENDIX B. AOI 1: Westside Road (North)



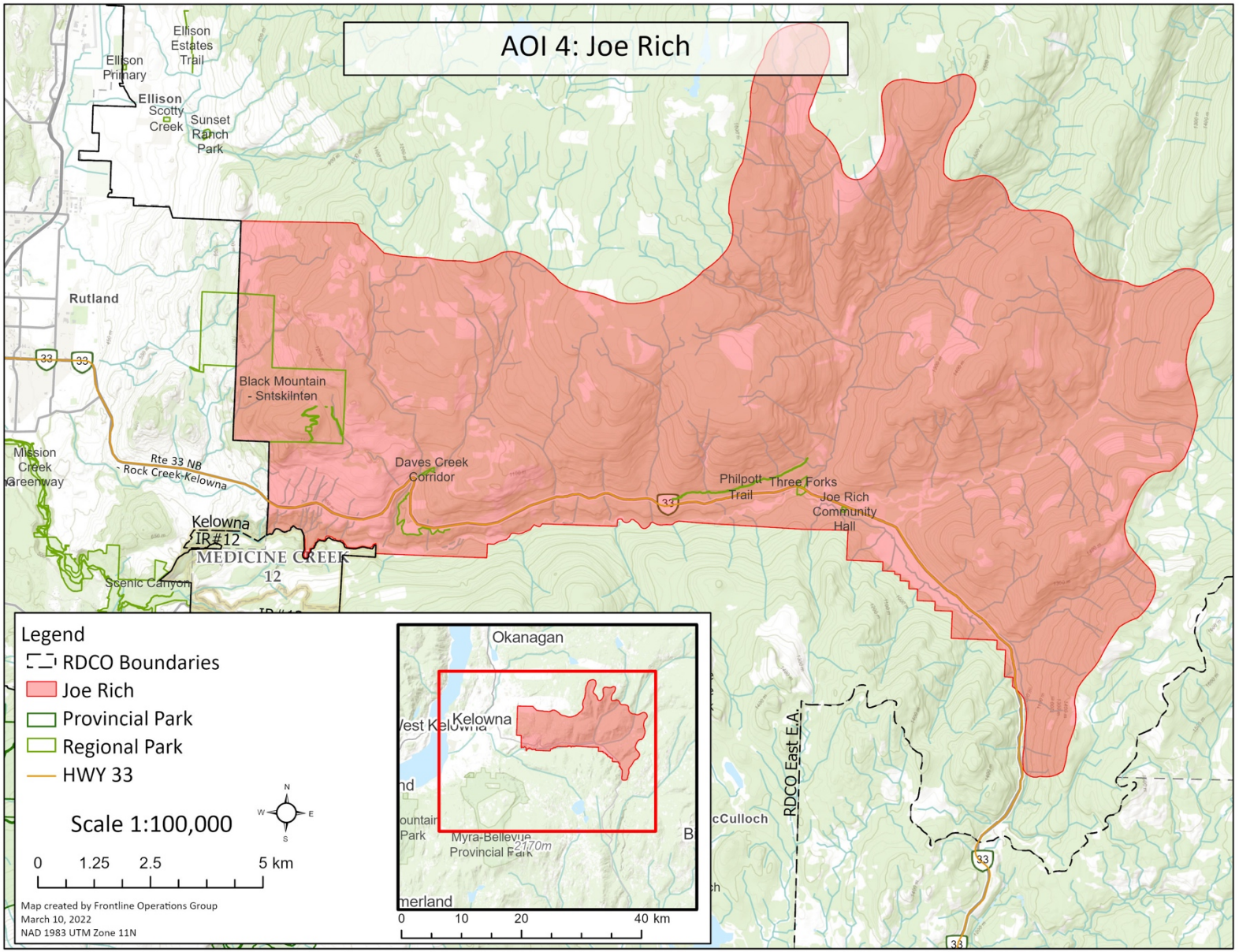
APPENDIX C. AOI 2: Westside Road (South)



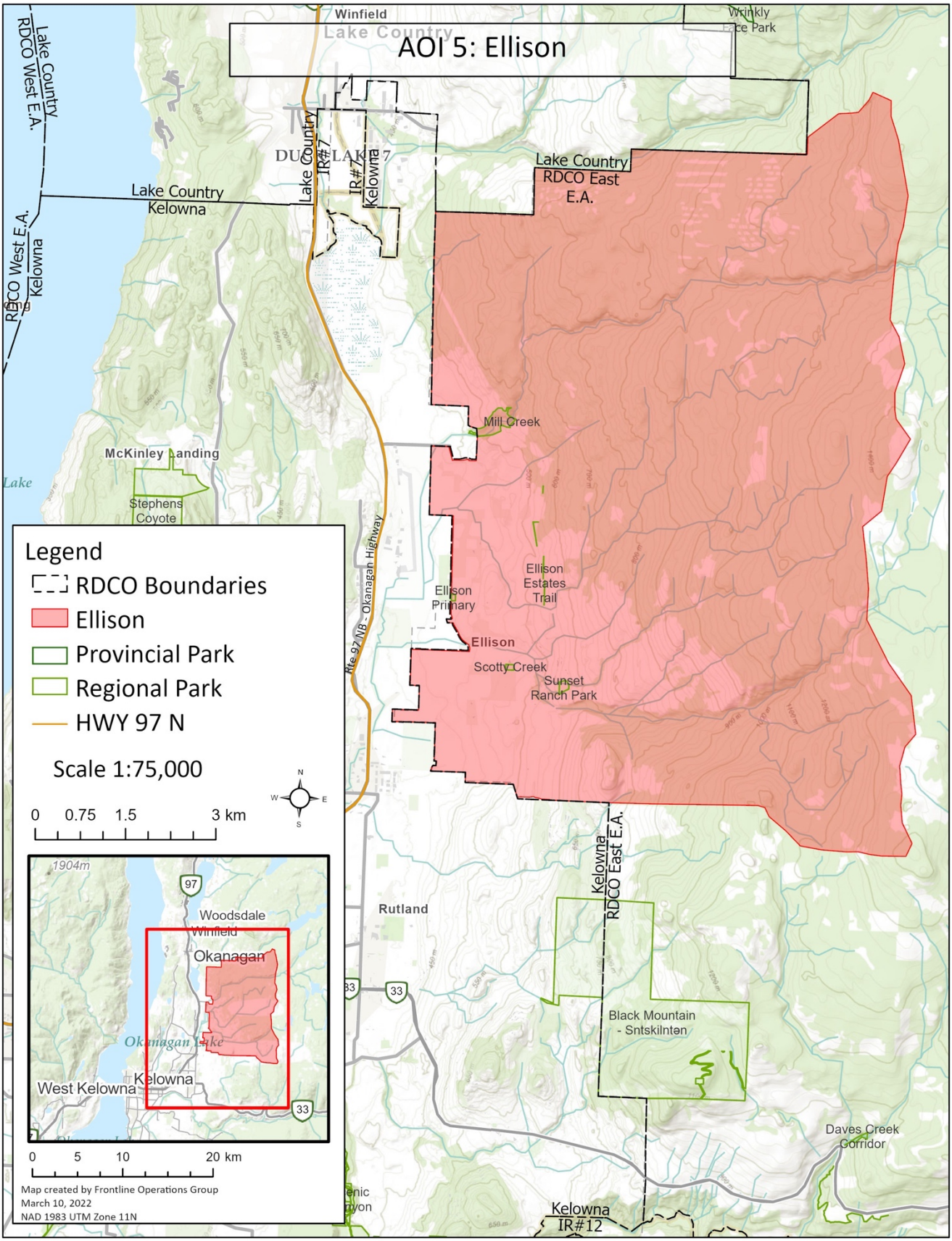
APPENDIX D. AOI 3: Trepanier



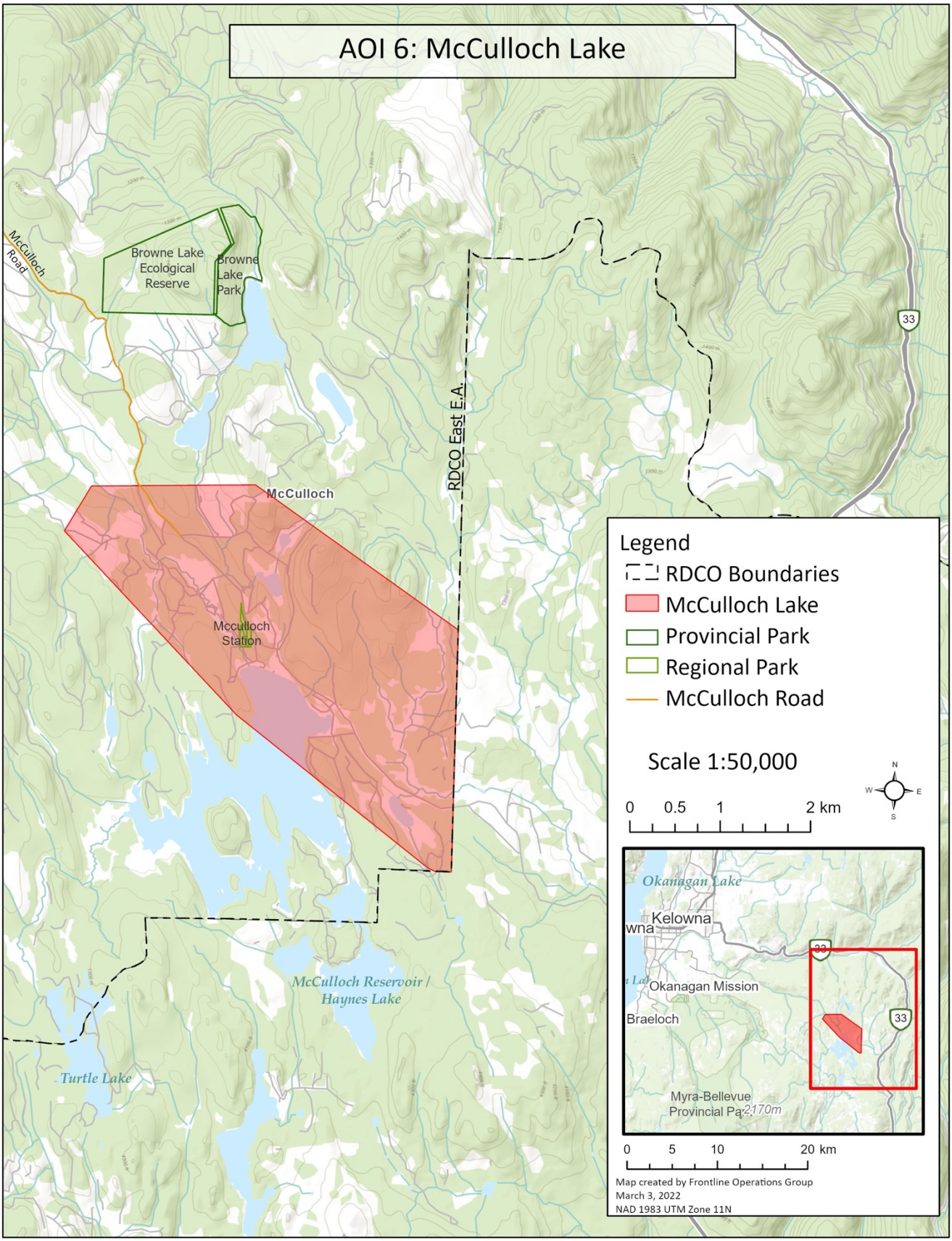
APPENDIX E. AOI 4: Joe Rich



APPENDIX F. AOI 5: Ellison



APPENDIX G. AOI 6: McCulloch Lake



APPENDIX H. Public Mapping Example

The following graphic is one example of what could be produced for each AOI and distributed to residents to increase awareness and promote preparedness. It provides a map of the area, information on the phases of an evacuation and how to prepare your household.
Maps could include:

- Primary and secondary evacuation routes
- Water access point if using
- Assembly points
- Traffic control and or signage points
- Destination

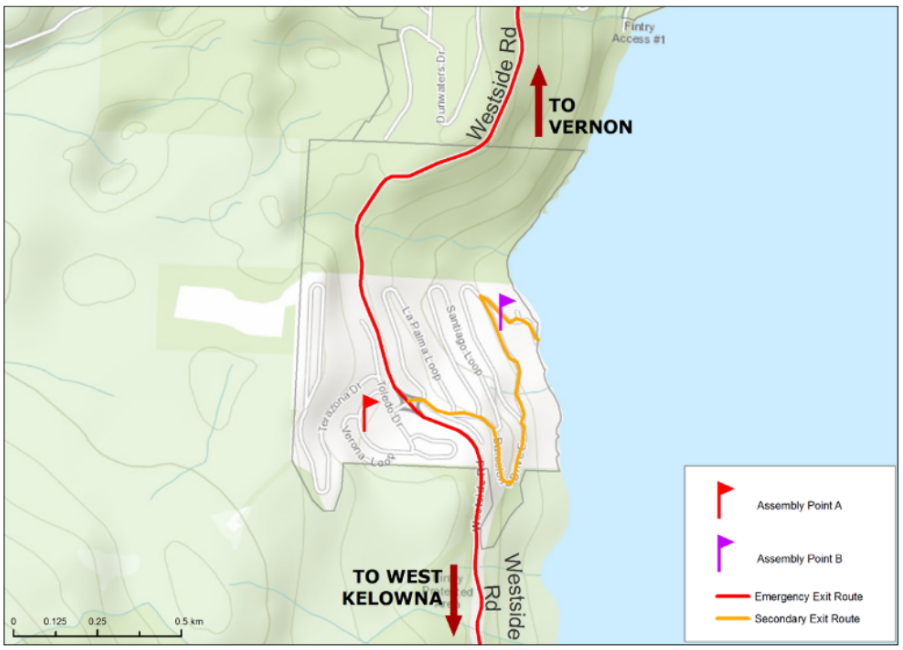
It was identified through discussion in Phase 1 that it would be valuable to include local emergency responders and representatives in the community mapping process, to be carried out in future planning phases.

Along with public mapping, single points of failure and key signage locations could be mapped, with input from the same group, and recorded in the EOC dashboard to further facilitate evacuation route planning.

La Casa

Community Evacuation Profile

Regional District of Central Okanagan



Prepare Your Home in Case You Need to Evacuate

Each household is responsible for preparing themselves and their family for the possibility of evacuation.

There are 3 stages to an evacuation. Familiarize yourself with your responsibility during each stage to help response personnel operate as efficiently as possible.

1

EVACUATION ALERT

Informs the public of an impending threat. This is the time to get your grab-and-go bag handy and be prepared to evacuate if needed

2

EVACUATION ORDER

There is an immediate danger and you MUST leave if ordered to do so. Details on routes and destinations will be provided

3

EVACUATION RESCIND

When the threat is under control and the area is safe, residents will be notified that they can return

KNOW YOUR HAZARDS

If you aren't sure which hazards are in your area, visit **cordemergency.ca** for more information

MAKE A PLAN

Create an emergency plan for your household. Find templates and guidance at preparedbc.ca

BUILD YOUR KIT

Build an emergency kit for your home that will allow you to be sufficient for up to 72 hours.

Build a grab-and-go bag with all essentials that is easy to pack with little notice.

APPENDIX I. Flood Hazard Data

Community	Flood Hazard 20 yr	Flood Hazard 100/200year	Lake Data Available in AOI?	River data available in AOI?	Notes
Ellison	Yes	Yes	No	Yes	Only data for the NE of the AOI
Estamont	Yes	Yes	Yes	No	Shoreline area
Ewings Landing	Yes	Yes	Yes	No	Shoreline area
Fintry Delta	Yes	Yes	Yes	No	Shoreline area
Glenrosa	No	No	Yes	No	Area above 200yr inundation
Joe Rich	Yes	Yes	No	Yes	Data along Mission Creek
Killiney Beach	Yes	Yes	Yes	No	Shoreline area
La Casa	Yes	Yes	Yes	No	Shoreline area
Lake Okanagan Resort	Yes	Yes	Yes	No	Shoreline area
Trepanier	Yes	Yes	No	Yes	Data along Trepanier Creek
McCulloch Lake	No data	No data	No	No	
Traders Cove	Yes	Yes	Yes	No	Shoreline area
Upper Fintry	No	No	Yes	No	Area above 200yr inundation
Upper Glenrosa	No	No	Yes	No	Area above 200yr inundation
Valley of the Sun	No	No	Yes	No	Area above 200yr inundation
West Kelowna Estates	Yes	Yes	Yes	No	Data along Trepanier Creek
Westside Road North	No	No	Yes	No	Area above 200yr inundation

Sources:
Flood and hazard mapping for Mission Creek, Mill Creek, Peachland, NHC Okanagan Mainstem Floodplain Mapping.
200yr data available for Mission Creek, Mill Creek, Trepanier Creek, Peachland (River)
100yr data available from NHC Okanagan Mainstem Floodplain Mapping (Lake)

Disclaimer:
Some areas do not have hazard data, meaning no analysis has been done and does not translate to no hazard present in the area. This summary in no way predicts the likelihood or unlikelihood of a flood or flood related event.
All data and results have been downloaded from the provincial government and the data is being displayed – no conclusions have been made.

APPENDIX J. Wildfire Hazard Data

Community	High or Extreme PSTA Fire Threat inside AOI	High or Extreme PSTA Fire Threat inside 2km buffer	Local CWPP data available?	CWPP complete coverage?	High or Extreme CWPP Fire Threat inside AOI?	High or Extreme CWPP Fire Threat inside 2km buffer?
Ellison	Yes	Yes	Yes, Lake Country	Partial, North	Yes	Yes
Estamont	No	Yes				
Ewings Landing	No	Yes				
Fintry Delta	Yes	Yes				
Glenrosa	See CWPP		Yes, West Kelowna	Yes	No	Yes
Joe Rich	Yes	Yes				
Killiney Beach	Yes	Yes				
La Casa	Yes	Yes				
Lake Okanagan Resort	Yes	Yes				
Trepanier	Yes	Yes	Yes, West Kelowna	Partial, East	Yes	Yes
McCulloch Lake	Yes	No data				
Traders Cove	No	Yes	Yes, West Kelowna	Partial, SW	No	Yes
Upper Fintry	Yes	No		No		
Upper Glenrosa	See CWPP		Yes, West Kelowna	Yes	Yes	Yes
Valley of the Sun	No	No				
West Kelowna Estates	See CWPP		Yes, West Kelowna	Yes	Yes	Yes
Westside Road North	Yes	No				

Sources:
Provincial Strategic Threat Analysis (PSTA), Lake Country CWPP, West Kelowna CWPP.

Notes:
A 2km buffer was placed around each AOI as the potential maximum spotting distance.
The PSTA Guide should be referenced to understand the limits of the data and how wildfire threat is calculated.
All private lands have no data in PSTA/CWPP and these areas have NOT been assessed.
Where local CWPP/CWRP data is available, CWPP/CWRP data should be referenced over PSTA data.
Only CWPP/CWRP data created by Frontline Operations Group is shown in the spreadsheet.

Disclaimer:
Some areas do not have hazard data, meaning no analysis has been done and does not translate to no hazard present in the area. This summary in no way predicts the likelihood or unlikelihood of a wildfire or wildfire event.
All data and results have been downloaded from the provincial government and the data is being displayed – no conclusions have been made.

APPENDIX K. Terrain Stability Data

Community	Polygons with potentially unstable terrain	% covered by TER project	Unstable terrain potential
Ellison	24	57	Yes
Estamont	1	10	Yes
Ewings Landing	1	95	Yes
Fintry Delta	2	68	Yes
Glenrosa		0	Unknown
Joe Rich	152	72	Yes
Killiney Beach		0	Unknown
La Casa	3	5	Yes
Lake Okanagan Resort		0	Unknown
Trepanier	2	93	Yes
McCulloch Lake	1	25	Yes
Traders Cove		0	Unknown
Upper Fintry		0	Unknown
Upper Glenrosa		0	Unknown
Valley of the Sun	1	100	Yes
West Kelowna Estates		0	Unknown
Westside Road North		0	Unknown

Notes:

- If a community has any potentially unstable polygons or unstable polygons (IV,V) from terrain it is classified as Yes.
- If a community has no potentially unstable or unstable polygons (IV,V) and has 95% coverage of terrain classification it is classified as No.
- If a community has no potentially unstable or unstable polygons (IV,V) and has less than 95% coverage of terrain classification it is classified as Unknown.

95% was used here as usually boundaries in GIS data do not match and a 5% variability is fair for errors regarding boundaries.
Please refer to the table below and the slope stability guide for explanations of class IV and V.
Each and every terrain stability project report needs to be referenced to make any type of determination of terrain stability or landslide potential.

Table 3. Terrain stability classification[a]

Terrain stability class	Interpretation
I	• No significant stability problems exist.
II	• There is a very low likelihood of landslides following timber harvesting or road construction. • Minor slumping is expected along road cuts, especially for 1 or 2 years following construction.
III	• Minor stability problems can develop. • Timber harvesting should not significantly reduce terrain stability. There is a low likelihood of landslide initiation following timber harvesting. • Minor slumping is expected along road cuts, especially for 1 or 2 years following construction. There is a low likelihood of landslide initiation following road construction.
IVR	• Expected to contain areas with a moderate likelihood of landslide initiation following road construction and a low or very low likelihood of landslide initiation following timber harvesting.
IV	• Expected to contain areas with a moderate likelihood of landslide initiation following timber harvesting or road construction.
V	• Expected to contain areas with a high likelihood of landslide initiation following timber harvesting or road construction.

[a] Modified from: *Land Management Handbook 18* (Chatwin *et al*, 1994). The classification addresses landslides greater than 0.05 ha in size, conventional timber harvesting practices, and sidecast road construction.

Disclaimer:
Some areas do not have hazard data, meaning no analysis has been done and does not translate to no hazard present in the area. This summary in no way predicts the likelihood or unlikelihood of a landslide or debris slide.
All data and results have been downloaded from the provincial government and the data is being displayed – no conclusions have been made. The polygons have been summarized for the areas of *Potentially Unstable* or *Unstable* polygons.