

Community Emergency Plan

Pavilion Lake Area

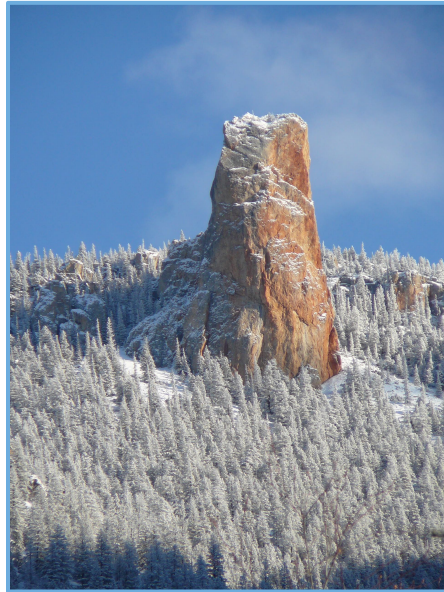


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Key definitions

Emergency	An event that requires prompt coordination of actions to protect the health, safety or welfare of people, or to limit damage to property or the environment.
Hazard	A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.
Resilience	Resilience is the capacity to adapt; by persevering, recuperating or changing to reach and maintain an acceptable level of functioning. Disaster resilience is built through empowering organizations, communities and society to share responsibility for keeping hazards from becoming disasters.
Risk	The combination of the likelihood and the consequence of a specified hazard event happening.
Vulnerability	Physical, social, economic and environmental factors or processes, that increase the susceptibility of a community to negative impacts from hazards. It is also a measure of how well prepared and equipped a community is to minimize impacts and cope with hazards.

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2017

Introduction

The SLRD Emergency Management Program provides emergency management services to the ~5,000 SLRD residents in the four Electoral Areas and partners closely with member municipalities. In addition to the Emergency Management Program, the SLRD funds and/or operates select Emergency Services in the region including:

- 9-1-1 Services
- Diking and drainage
- Fire and Rescue Services
- Wildfire Fuel Management Program.

Major emergencies and disasters are on the increase in Canada and worldwide. Disaster effects may be direct (e.g. damage to house, loss of income) or indirect (e.g. increased insurance premiums, reduced air quality due to smoke from wildfires elsewhere).

A number of communities in the SLRD are geographically isolated from traditional first responder organizations such as fire, police and emergency medical services. Communications and other infrastructure may be limited or prone to outages. The effect of this geographical separation is that communities will likely lead their own response, making community knowledge, preparation and skill building a vital aspect of emergency preparedness and increasing the resilience of these communities to adverse events.

The purpose of a Community Risk Assessment (CRA) is to guide practical steps in preparedness, response, recovery and mitigation that reduce both the likelihood of emergencies and the consequences when disaster cannot be avoided. Risk information also informs community residents, business owners, and institution managers of the hazards to expect and how best to prepare for them. Further, A CRA provides a platform from which to progress community-level emergency management and evacuation policy and planning.

A Community Action Plan (CAP) provides a blueprint for communities to increase their resilience through increasing skills, knowledge and connectedness – benefiting the community before a major emergency, during response and through the recovery process.

Community Overview

Pavilion Lake is located in Marble Canyon along Highway 99 and approximately midway between the towns of Lillooet and Cache Creek which lie ~50km in either direction. There is a small community of lakeshore residences, some recreational and seasonal only, located on the lake's eastern shore adjacent to the highway. Nearby is a rural farming and ranching community with properties spread through the marble canyon area. The community of ~30 fulltime residents and ~60 seasonal residents are predominantly exposed to wildland interface fire hazard in this area, while debris floods and severe storms are also a concern. The community has the potential to become isolated due to the effects of any of these hazards.

Demographics

Mainly full time residents and farming property owners in the wider Pavilion area, mainly recreational users along Pavilion Lake

Land Use

Single family homes, agriculture and recreational.

Critical infrastructure

Drinking Water	Independent water supply per household from well, tank or stream filtration.
Sanitary/Waste Water Treatment	Septic tank or field.
Electrical Power Systems	BC Hydro supply available to some residences, some residences are off-grid
Gas Heating Systems	No piped gas delivery system, but some properties have storage tanks up to 500 gallons (1,892ltrs)
Communications	Landline, internet access. No cellphone reception.

Response Capabilities

Structural fire	No structural fire protection
Wildland interface fire	Crews dispatched from Lillooet

Medical	Nearest BCAS base is Lillooet
Police	Nearest RCMP detachment in Lillooet
Evacuation	Opportunity for evacuation training from SLRD staff.
Communication	Landline and internet access available, subject to any infrastructure impacts. No cellphone service.

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Hazard, Risk and Evacuation

PAVILION LAKE HAZARD PROFILE

Flood	Debris Flow/ Landslide	Interface Fire	Severe Storm/ Utility failure	Earthquake	Hazardous Material

KEY:*

HIGH RISK

MODERATE RISK

LOW RISK

UNLIKELY

*Note that risk does not equal impact. A low risk event may still occur with high impact.

The risk assessment examines the high and moderate risk hazards.

Evacuation Routes

Depending on the hazard location, evacuation from the Pavilion Lake area would be via Highway 99 towards Cache Creek or Lillooet at the direction of first responders. The recommended evacuation route will also be printed on the official evacuation notice delivered by first responders and/or published on the SLRD website. There is significant potential for areas of the community to become isolated if their evacuation route becomes impassable due to washout, landslide or fire at a single point.

Community Muster Point, if required, will be:

Bryson Pit (also suitable for heli-evac if necessary)

The Muster Point will be used if evacuation by bus or RCMP escort due to road conditions, or to receive additional information or supplies (e.g. bottled water) before evacuating.

Types of Evacuation

Evacuation Alert

This is the time to get ready to leave, putting together 'grab and go' bags with essential supplies, papers and prescriptions, and making any other arrangements to leave the property with all household members and pets. Residents may self-evacuate (voluntary) during this time, particularly if they have mobility issues or health conditions that may make it difficult to evacuate quickly. This is also the time to move livestock to safer areas.

Evacuation Order

Mandatory evacuation occurs when a population is ordered to leave a defined area according to a formal written document that outlines the impact area and why an evacuation is necessary.

Shelter-in- -Place

Essentially, an instruction to the public to stay inside for safety reasons. It may also mean "seal the room", i.e. take steps to stop outside smoke or other contaminants from entering the room.

Evacuation Rescind

Formal notification that it is safe to return to the evacuated area. The affected area may still be under an Evacuation Alert under further notice, if the hazard still presents a threat.

Debris Flow/Landslide

Landslides include a range of downhill earth movements, including slope failure, rock falls and debris flows. Landslides can be extremely destructive and are caused by a number of pre-existing and contributing factors that cause the slope to fail, including heavy rainfall or rapid snowmelt, erosion, poor construction practices, freezing and thawing, earthquakes and volcanic eruptions.

Concave slopes like gullies and ravines are particularly susceptible to debris flows because they tend to concentrate surface water runoff and accumulate surface water and loose soil. Debris flows can be initiated due to both natural factors and man-made intervention.

With the changing climate the Pavilion Lake Area landslide risk may also be changing. Changing rainfall patterns and increased rainfall intensity, alongside increased wildfire risk and post-wildfire slope instability due to erosion can all contribute to increased land movement hazard in the area from erosion and instability. Areas along HWY 99 by Pavilion Lake have shown an increase in debris flow activity in recent years, especially following periods of heavy rainfall. Pavilion Lake properties, as well as HWY 99, have been impacted. It is likely that this debris flow activity will increase with climate change.

EVACUATION PROTOCOL:

Evacuate if directed by first responders (imminent threat, tactical evacuation), and/or if an evacuation order is issued by the SLRD due to conditions being assessed as dangerous enough to warrant an evacuation of identified properties. First responders and the SLRD will take a conservative approach in assessing debris flow evacuation trigger points, to ensure resident safety. Evacuation will apply to all identified properties at risk, which may result in a partial or full evacuation of the affected community.

Trigger points for evacuation are taken from the BC Forest Service Wet Weather Safety Guidelines (rainfall and snow melt), provincial experts and conditions at the time.

Evacuation Alert Trigger Points

- Rainfall event forecast of 25 – 45mm or more in less than 24 hours
- Rainfall event forecast of 25 – 45mm or more in less than 24 hours, plus snow melt calculations (see table #1 below)
- Cumulative rainfall of 40mm or more over >5 days, with additional continued rain forecast and/or snow melt calculations (see table #1 below).

Snow Melt Soil Moisture Input

Snow melt is an important factor in determining the total soil moisture input. The following tables provide guidance as to the amount of snow melt **that must be added** to the

precipitation forecast or recorded in a rain gauge in applicable situations. Snow melt must be considered at or above the slope where the melt event is occurring.

Table #1: 24 Hour Snowmelt additions during rain-on-snow events

Average temperature	Open Area			Forested Area		
	Wind*			Wind*		
	Low	Moderate	High	Low	Moderate	High
0.5-2.0°C	3mm	10mm	25mm	1mm	5mm	11mm
2.1 – 5.0°C	15mm	35mm	75mm	5mm	10mm	25mm
5.1-10.0°C	25mm	70mm	120mm	10mm	28mm	40mm
10.1-15°C	35mm	95mm	160mm	15mm	40mm	60mm

***Low Wind** (<10 km/hr): Leaves and small twigs in constant motion speed; wind extends light flag

Moderate Wind (10-20km/hr, gusts >30km/hr): Small trees sway, maps/paper difficult to hold still.

High Wind (>20km/hr, gusts >40km/hr): Whole trees in motion, clouds moving rapidly, rain blowing sideways.

Tactical Evacuation Trigger Points

Heavy rainfall is occurring, and ANY of the following are observed:

- Sudden muddy water in creeks (especially in gullies)
- Sudden lack of flow in creeks during wet weather
- Cracks appearing in the soil
- Small (anything $\geq 1\text{m} \times 1\text{m}$) sloughs of soil occurring
- Landslides occurring in the general area, or sounds of landslides occurring
- Blocked culverts
- Forecast rainfall is occurring, and stream full conditions are occurring or close to occurring.
- Thunderstorm or heavy rainfall event not forecast, generating torrential downpours and/or observed debris activity in the affected slide areas.
- Cumulative rainfall of 45mm over >5 days or more, with additional continued rain forecast, plus additional snow melt calculations from table #1 (above).

Interface Fire

The Pavilion Lake area community is located in a wildfire environment, surrounded by forested areas. Wildfires will happen – exclusion is not a choice. The variables in a wildfire scenario are:

- when the fire occurs, and
- where the fire occurs.

Historically, a number of spot fires have occurred in the area and wildfires of note have occurred in the vicinity, including a 2003 fire which burned for 40 days and resulted in the community being placed under evacuation alert.

Potential ignition of an interface fire includes a lightning or human caused forest fire, a structural fire in the community that spreads to the wildland area, and ignition relating to a vehicle collision or sparking that spreads.

The consequences of an Interface Fire event have the potential to be severe/catastrophic for the community depending on ignition point, dryness, and wind conditions.

EVACUATION PROTOCOL:

At the **Evacuation Alert** stage:

- Residents with mobility or chronic health issues may choose to voluntarily evacuate to ensure their safety and continuity of care. If they choose to stay at this time, they should contact the SLRD Emergency Program staff to discuss their situation and/or make arrangements with a neighbor if they do not have a vehicle, and their primary healthcare provider if evacuation is medically complicated (e.g. dialysis, oxygen tanks).
- All other residents should make preparations to leave, ensuring that they have a plan for the safe evacuation of all people and pets, gather essential documents, medicines and necessities of food, clothing and other items.

At the **Evacuation Order or Tactical Evacuation** stage:

- At the direction of BC Wildfire Service, RCMP or other authorized First responders, residents will evacuate according to the evacuation route directions given.
- All residents must leave, ensuring that all people and pets in their household safely evacuate, and taking the previously gathered essential documents, medicines, necessities of food, clothing and other items. If these items have not been gathered in advance, there may be no time to take anything at the time of evacuation.
- Emergency Support Services (ESS) will be provided to those evacuated, including emergency accommodation if required.

Hazardous Materials

Residents of the Pavilion area are located alongside the main arterial road, Highway 99 and near the CN Rail corridor. A variety of hazardous materials are transported through this road

and rail corridor, and fuel spills are also possible, with the consequential risk of fire.

Depending on the substance released and its location, sheltering in place may be the only viable option.

The consequences of a Hazardous Materials spill are likely to be highly variable, depending on the substance, proximity, volume, time of day and speed of notification to residents.

EVACUATION PROTOCOL:

At the direction of the Interior Health Authority, Ministry of Environment officials or first responders, residents will Shelter in Place or Evacuate depending on the hazardous substance involved. In the event of evacuation, Emergency Support Services (ESS) will be provided to those evacuated, including emergency accommodation if required.

In the specific case of a leak from a propane storage tank located near this community, evacuation to an area above the tank is a priority. Propane gas stays near the ground and will travel downhill as it disperses. If an evacuation is recommended by the Ministry of Environment Spill Response team and/or resulting from Fortis BC risk assessment, the fastest possible route for safe evacuation of the community will be determined at the time based on the tank's location and prevailing conditions.

Flood

Flooding is a risk at Pavilion Lake. Historically, there have been heavy rain events in conjunction with a valve gate failing to open, resulting in flooded residences and washing out some cabin bottoms.

EVACUATION PROTOCOL:

Evacuate if directed by first responders (imminent threat, tactical evacuation), and/or if an evacuation order is issued by the SLRD due to conditions being assessed as dangerous enough to warrant an evacuation of identified properties. First responders and the SLRD will take a conservative approach in assessing flood risk evacuation trigger points, to ensure resident safety.

Evacuation Alert Trigger Points:

An evacuation alert would be triggered by Environment Canada, the River Forecast Centre forecasting conditions that trigger a flood watch, and/or on site observation of those conditions.

Evacuation Order Trigger Points:

Evacuate if heavy/torrential rainfall is occurring, and ANY of the following are observed:

- A flood warning is issued by the River Forecast Centre
- Sudden lack of flow in creeks during wet weather
- Landslides occurring in the general area, or sounds of landslides occurring
- Forecast rainfall is occurring, and stream full conditions are occurring or close to occurring.

Severe Storm (All Seasons)

The community may become temporarily isolated by a severe winter snow storm or summer storm with high winds that down trees and potentially knock out power lines nearby, or cause debris flows. Extended power outages presents health and safety risks including food spoilage, shortage and inability to store medications requiring refrigeration (e.g. insulin). Downed landlines would leave the areas of the community without 9-1-1 service. Blocked access along the Yalakom and Bridge River Roads or Highway 99 compromises community access to emergency health services.

EVACUATION PROTOCOL:

Shelter in place until downed power lines are confirmed by BC Hydro as no longer hazardous. If emergency assistance is required, call 9-1-1 (if able). If a storm related evacuation is required, follow the instructions of first responders and official information from the SLRD. In the event of evacuation, Emergency Support Services (ESS) will be provided to those evacuated, including emergency accommodation if required.

Residents who are vulnerable due to health conditions should discuss a plan in advance with their primary healthcare provider. This may include voluntary self-evacuation when a severe storm event is forecast, access to a back up power supply, and additional supplies of medication or an emergency prescription.

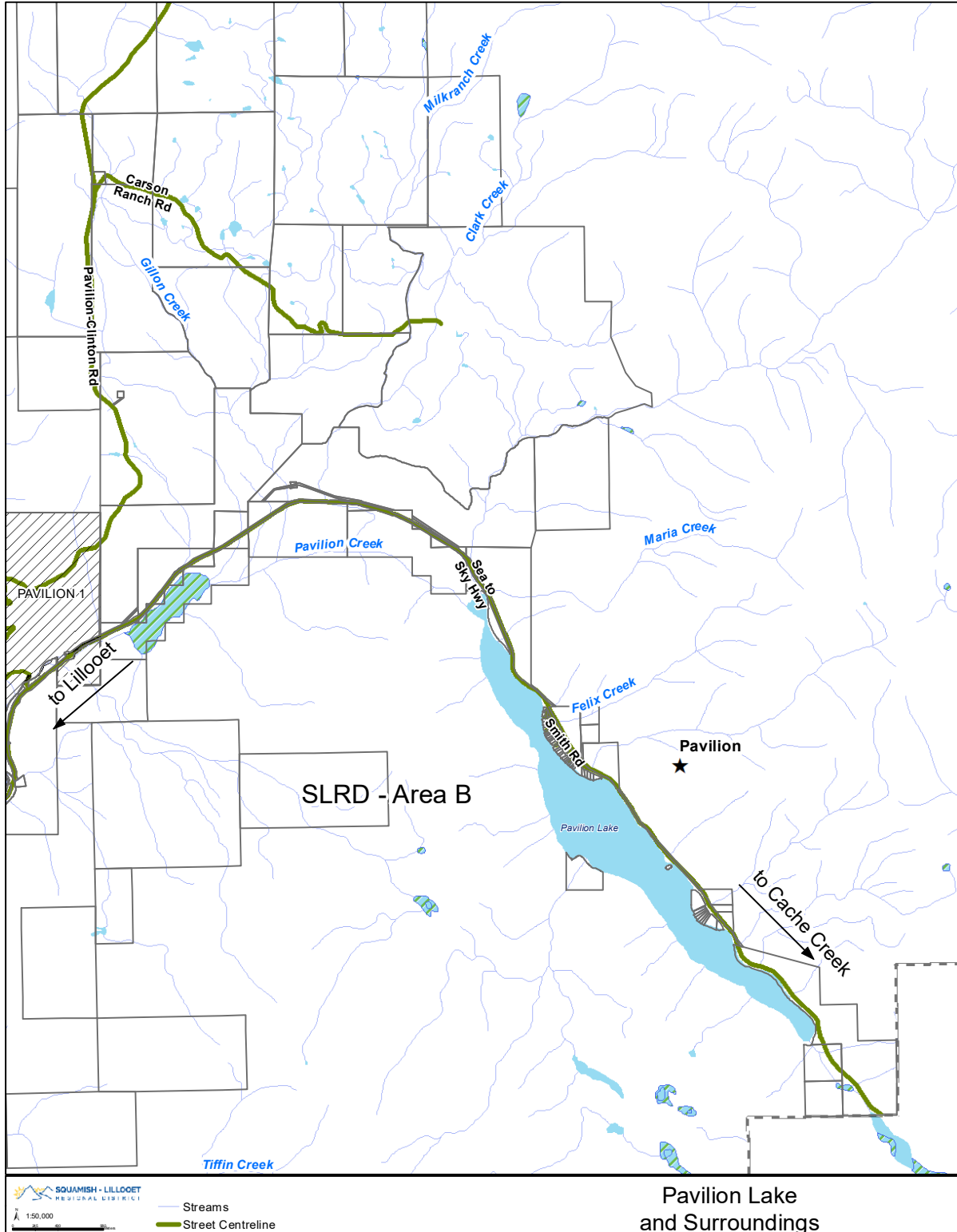
SLRD ALERT.
Be in the know, not in the dark.

Free emergency notification service
direct from the SLRD to you.
Text, voice message and email options

Sign up: <http://www.slrd.bc.ca/SLRDAlert>

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Community Map – Pavilion Lake



Community Action Plan

The SLRD will work with community representatives every three (3) years to review, assess and update the Community Action Plan.

Historical Actions

- The Pavilion Lake community has a well-established FireSmart program, with annual debris disposal days.
- Some community members have S100 training
- there is a wildfire suppression equipment trailer in the community. [location TBC by community]
- Independent water and waste treatment system may be a protective element in the event of damaged infrastructure in neighbouring communities.

Current and Future Potential Actions by the Community

- Establish a **Neighbourhood Emergency Team (NET)** with members who have completed a criminal record check (free for volunteers and required in order to be placed in many volunteer roles during response). The SLRD can support the NET through training in basic emergency preparedness, evacuation notification, recovery considerations and other relevant topics that facilitate a two-way knowledge exchange of local government emergency processes and community capacity building. The SLRD can also connect communities to funding when it is available (e.g. FireSmart) and may sponsor a training session by an external provider for multiple communities if budget is available and there is sufficient demand. NET team members would be utilised in a disaster response as qualified volunteers under the direction of the relevant agency. The size of the NET, its organization and the level of training is at the discretion of the community and is independent of the SLRD.

NET team members may be progressively trained in:

- First Aid and simple triage
- Evacuation Processes
- Radio Communication
- Locating victims and resources
- BC Wildfire S-100 Basic Fire Suppression and Safety
- Work to achieve official FireSmart Community status
- Work with the SLRD to develop a basic Disaster Recovery Plan
- Identify vulnerable residents and develop a plan with them for their continued safety in the event of a major emergency (EMBC resources available to assist planning)
- Identify and document skilled individuals in the community (e.g. doctors, nurses, electricians, engineers).

- Practice evacuation notification with the delivery of emergency preparedness public information resources to each house (these resources available through the SLRD)
- Campaign to get all residents signed up to the SLRD Alert emergency mass notification system for direct communication by email, text and landline from SLRD to residents and their nominated emergency contacts.

Looking for more information to make your community Disaster Resilient?

SLRD	www.slrd.bc.ca/services/emergency-management
GENERAL	http://www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery
ANIMALS	http://www.cdart.org/beprepared.htm
COMMERCIAL LIVESTOCK	https://www.slrd.bc.ca/inside-slrd/reports/commercial-livestock-relocation-guide
FIRE SMART	www.firesmartcanada.ca