Community Emergency Plan

Yalakom Valley

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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 in Electoral Area D
- 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

The Yalakom community is a diverse group of families with a steady population of ~70 permanent residents. Homesteads have developed using principles of sustainability and self-reliance. Families grow large gardens and produce a significant percentage of organic food locally.

The topography of the area consists of highly incised, steep valleys in the southern portion of the area, with benchlands along the lower Yalakom River and Bridge River. The northern Yalakom Watershed has gentler terrain and long ridges in transition to the Fraser Plateau. The geology is highly variable and complex. Nearly 25 per cent of the area is alpine.

The climate in the Yalakom Valley is very dry throughout the year due to the rainshadow effect of the Coast Range. The valley exhibits some of the hottest, driest ecosystem types in British Columbia along the low elevation benches. Over the last thirty-five years, residents have noticed changes in local climate with more variable conditions, including timing of seasons, temperature, and precipitation. Residents report that the danger from wildfire has increased dramatically.

Within the Yalakom Valley, wildfire, landslides and hazards related to La Joie or Terzaghi Dams, such as spills and flooding, have the most potential to create emergency situations.

Demographics

Mainly full time residents and farming property owners

Land Use

Single family homes, agriculture and forestry.

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	All residences are off-grid, with a combination of micro-hydro and solar.
Gas Heating Systems	No
Communications	Internet access via satellite, including a few households with VoIP telephones. No cellphone reception, no landline.

	Community owns and operates a radio telephone system for internal communications within the Valley.

Response Capabilities

Structural fire	No recognized structural fire protection
Wildland interface fire	Crews dispatched from Lillooet. Many community members have S100 training.
Medical	Nearest BCAS base is Lillooet. Several community members are trained to advanced levels of first aid.
Police	Nearest RCMP detachment in Lillooet
Evacuation	Opportunity for evacuation training from SLRD staff.
Communication	Satellite internet access available, subject to any infrastructure impacts. No cellphone service. Radio phone network for intra-Valley communication. A few households have VoIP telephones.

Hazard, Risk and Evacuation

YALAKOM VALLEY COMMUNITY EMERGENCY PLAN

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

Evacuation from the Yalakom Valley would be along the Bridge River Road towards 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. A much longer and considerably more circuitous route would be via the Lillooet-Pioneer Road to Gold Bridge along Carpenter Lake and from there to Pemberton or Lillooet. There is significant potential for areas of the community to become isolated if their evacuation route becomes impassable due to washout or fire at a single point.

Community Muster Point, if required, will be at the junction of the Yalakom, Bridge River and Lillooet-Pioneer Roads (known as the Moha Junction) – [location TBC by community]. The Muster Point will be used if evacuation is by RCMP escort due to road conditions, or to receive additional information or supplies 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 Yalakom Valley landslide risk may also be changing. A 1995 terrain stability report for the Ministry of Environment concluded that,

> Field and air photo observations suggest that terrain in the Yalakom River area is more susceptible to instability than to erosion. Major sources of sediment input to the Yalakom River and its tributaries come from natural slides and bank-cutting on steep valley sides. Even though earthflows are typically slow moving in the area (0.1 – 5 m/year), such terrain polygons can be major sediment sources if they exist alongside creeks where active bank-cutting occurs…Forest harvesting on some steep terrain must be accomplished with great care…The effects of forest removal on slow-moving earthflows are unknown, and potential cutblocks should be examined by slope stability specialists (J.M. Ryder and Associates Terrain Analysis Inc., 1995, p20).

Changing rainfall patterns and increased rainfall intensity, alongside increased wildfire risk and post-wildfire slope instability due to erosion all point to increased land movement hazard in the area both from erosion and instability.

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 for 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 ≥1m x 1m) 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 Yalakom Valley community is located in a wildfire environment, surrounded by predominantly pine 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 2009 evacuation order due to wildfire and a2010 fire which grew to over 600 hectares 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.
- Commercial and hobby livestock should be moved. There is funding available through the BC Ministry of Agriculture to assist producers in relocating commercial livestock during an evacuation alert phase.

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.

Severe Storm (All Seasons)

The communities may become temporarily isolated by a severe winter snowstorm or a summer storm with high winds and torrential downpours. Damage to independent utility infrastructure (e.g. solar or wind power generation) may take time to repair. Blocked roads and winter road conditions can compromise access to and by emergency services. Limited and off grid communication infrastructure could make reaching 9-1-1 service challenging.

EVACUATION PROTOCOL

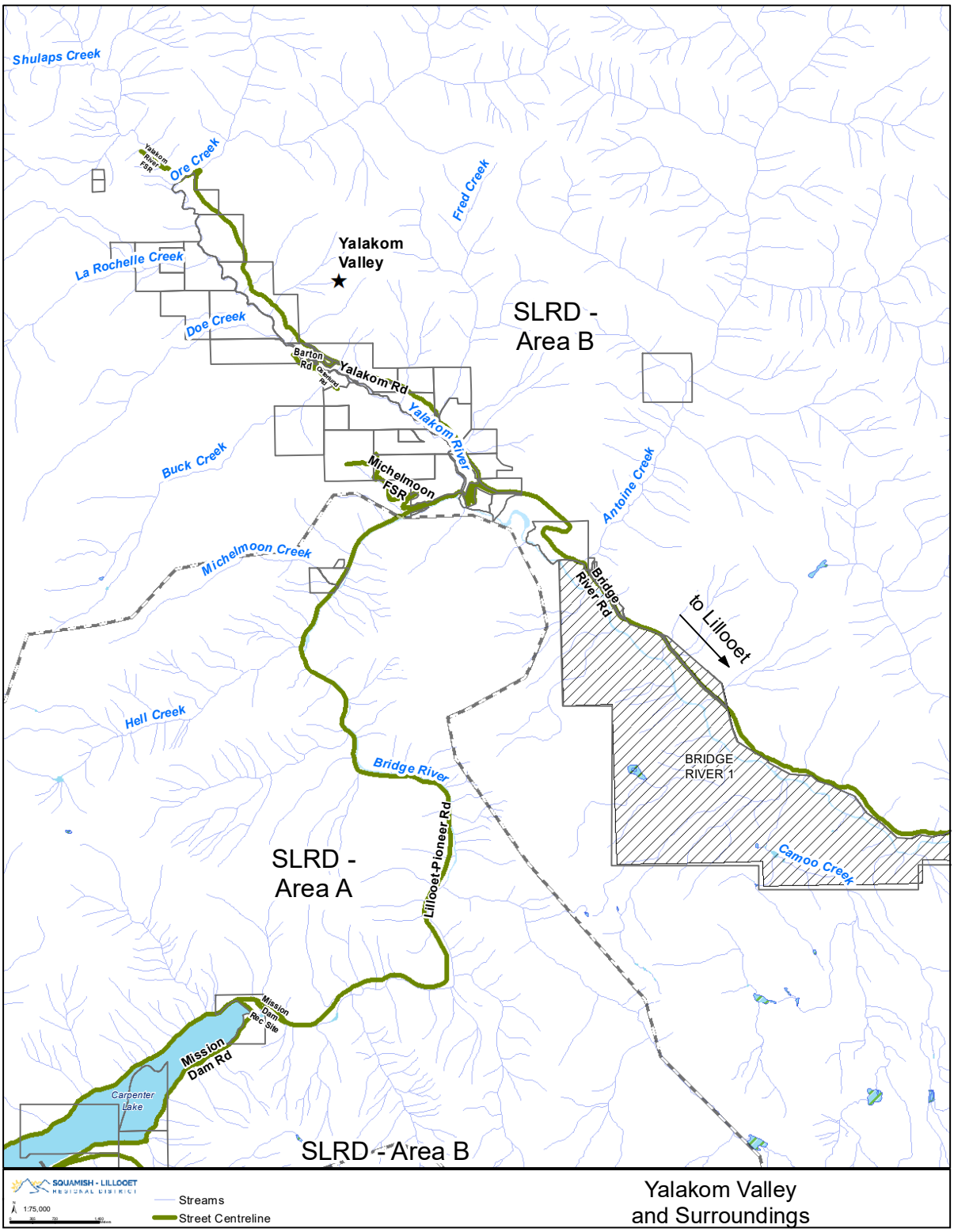
- Shelter in place until storm has passed. Exit structures with caution due to potential for structural debris, fallen trees, pooling water and other hazards. If emergency assistance is required, call 9-1-1 if possible. If a storm related evacuation is required, follow the instructions of first responders and official information from the SLRD. Emergency Support Services (ESS) are available to full time residents of the affected area, including emergency accommodation.
- 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.
- A 'telephone tree' notification (including amateur radio operators) or a direct door-to-door notification system led by identified community contacts is recommended for areas of predominantly rural and recreational property where people either do not have phone/internet access or specifically come to these areas to get away from being 'connected'.

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

Community Map – Yalakom Valley



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 Yalakom community is self-sufficent in a number of ways. Residents have organized and trained for medical emergencies, wildfire initial attack, and have a radio phone network for intra-Valley coomunications.
- 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.
- 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 – or key contact residents with internet access - 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**