



Regional District of Bulkley-Nechako
HRVA Electoral Area' F'
**Understanding
Community Resiliency**
May 2022

Table of Contents

PREFACE	3
Purpose of Backgrounder and Workbook	3
CHAPTER 3: UNDERSTANDING COMMUNITY RESILIENCY	4
Existing Risk Reduction Measures	4
Critical Emergency Response Services.....	6
Community Vulnerabilities	7
Social Factors	8
Economic Factors.....	9
Environmental Vulnerabilities.....	11
Physical Infrastructure Vulnerabilities	12
Underlying Risk Drivers	13
Climate Change.....	13
Supply Chains.....	14
Hazard Scenarios	15
Flooding	15
Wildfire	16
Electrical Outage.....	18
Animal Disease Crisis.....	20
APPENDIX 1 – ELECTORAL AREA 'F' KNOWN HAZARDS MAP	21
CITED WORKS	23

Preface

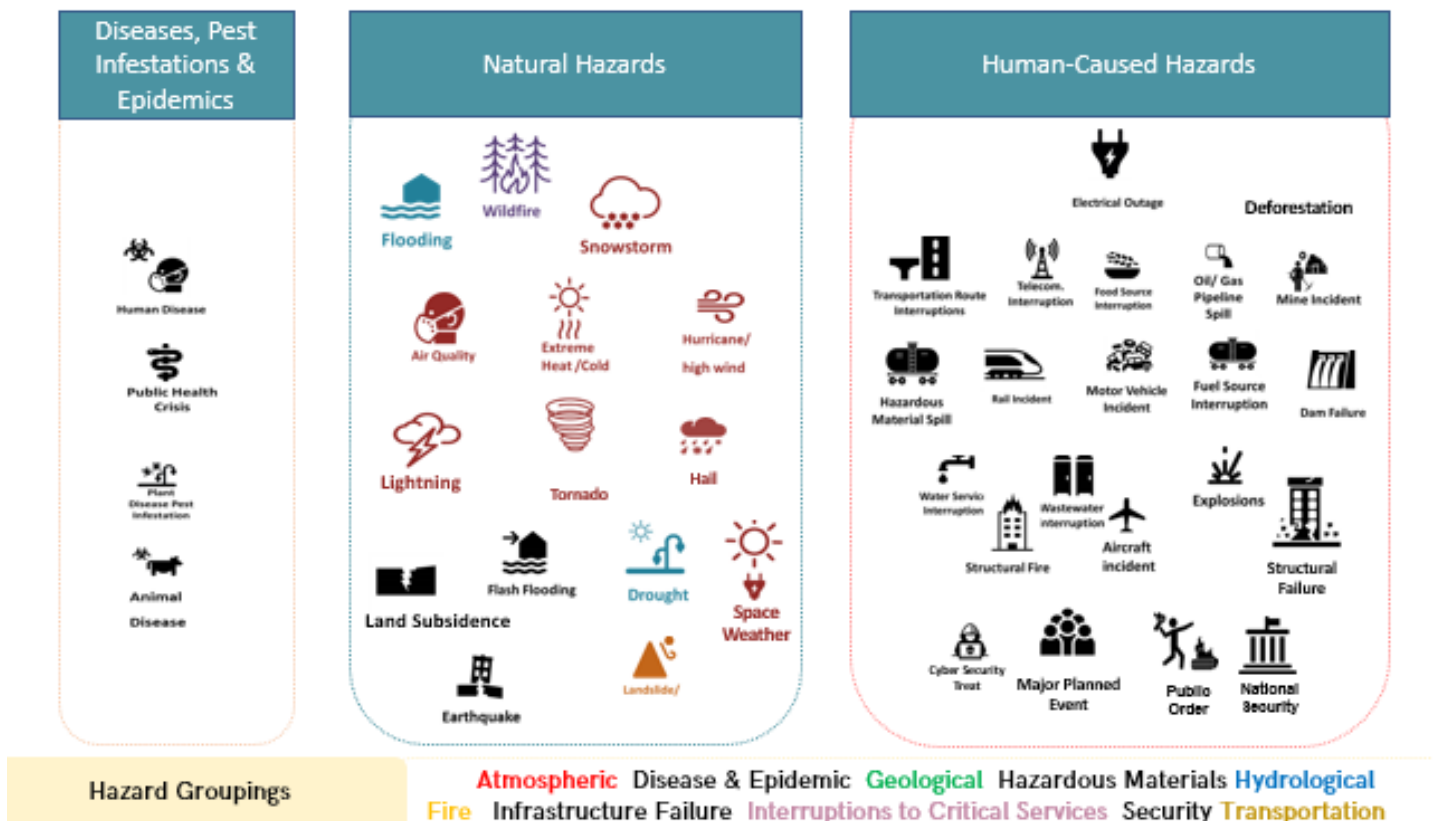
Purpose of Backgrounder and Workbook

The Regional District of Bulkley-Nechako (RDBN) is in central British Columbia with an area of 77,000 square kilometres. The RDBN is broken down into 7 Electoral Areas (EA). The focus of this document is Electoral Area 'F', Vanderhoof Rural.

The Electoral Area 'F' Understanding Community Resiliency Backgrounder will provide information and resources to committee members to inform the scope and conversations of the Hazard, Risk, and Vulnerability Analysis's (HRVA) Committee meeting. In addition, the background paper is designed to help guide committee members through the research and background materials to prepare for the upcoming likelihood and consequence scoring for each identified hazard.

An HRVA contributes to building resilience to disasters by understanding risk, risk drivers, and risk reduction strategies. There are many ways to assess risk & resilience in a community. This chapter will outline several suggested key pieces of information to help develop an understanding of community capacity, strength, exposure, and vulnerability to hazards, all of which contribute to a community's resilience in the face of disasters. The goal is to describe what is happening in Electoral Area 'F' to manage specific hazards and generate enough understanding of the community in order complete the next step in the HRVA process; scoring likelihood and consequences.

Summary of Selected 42 Hazards for Electoral Area 'F'



CHAPTER 3: UNDERSTANDING COMMUNITY RESILIENCY

Existing Risk Reduction Measures

The following section lists the known hazard information resources and community emergency planning documents that are available. This is a preliminary list that will be augmented through engagement with municipalities, first responders, subject matter experts, and community members. The following list is organized first by community emergency plans, followed by a listing of known hazard reports and studies in the area.

Community Emergency Plans

- Regional District of Bulkley-Nechako Emergency Preparedness Plan 2003 updated in 2011. This plan is being replaced by a Comprehensive Emergency Management Plan, with the following addendums approved by the Regional Board of Directors:
 - Livestock Evacuation Plan 2020
 - Crisis Communication Plan 2020
 - Pandemic Response 2020
 - Evacuation Route Plan 2022
- District of Vanderhoof Emergency Management Plan
- Saik'uz First Nations Emergency Plan 2018
- Hazard Risk and Vulnerability Assessment for the District of Vanderhoof 2007

Reports/studies

Fire

- Provincial wildland urban interface fuel management program
- Saik'uz Community Wildfire Protection Plan
- Vanderhoof Community Forest Wildfire Risk Management Plan 2018
-

Flooding

- [Nechako Reservoir Dam Emergency Plan \(DEP\)](#) Nov 2020
- Inundation Maps for Area F: Vanderhoof ([Maps 13-18](#))
- Ministry of Environment [Flood Plain mapping](#) along the Nechako River
- [District of Vanderhoof Flood Plain Management Bylaw no. 1174, 2017](#)
- [RDBN Floodplain Management Bylaw No. 1878, 2020](#)

Geotechnical

- [Geotechnical Report Guidelines RDBN brochure](#)

Rail Disaster

- [Railway Accidents, Spills and Casualties in Canada and Northern BC \(Dec 2020\)](#)

Air quality

- [Vanderhoof Woodstove Exchange Program](#)

Water

- [Assessment of the Vanderhoof South Drinking Water Supply: Source Water Characteristics 2005](#)

Policies and other resources

- [RDBN Vanderhoof Rural Official Community Plan](#)
- [Vanderhoof Official Community Plan 2020](#)
- Saik'uz Comprehensive Community Plan

Community Planning Studies

- [District of Vanderhoof Housing Needs Assessment 2020](#)

Regional Resources

- [Regional Adaptation Strategies: Bulkley-Nechako & Fraser-Fort George](#)
- [RDBN Food and Agriculture Plan 2020](#)

Oil and Gas Pipeline Spill







- PNG Pipeline has a strong emergency and safety program, including a [Transmission Pipeline Emergency Response Plan](#).
- Coastal GasLink has prepared a [comprehensive Emergency Response Plan](#)

Critical Emergency Response Services

Many critical services are located in the municipal boundaries. Below is a preliminary listing of response services and available resources within Electoral Area 'F'.

Area 'F'

First Response Agencies

 Vanderhoof RCMP Victim Services RCMP office	 Saik'uz Fire Hall 1 Fire Chief 11 volunteers	 BC Ambulance 771 Station
 Nechako Valley Search and Rescue 30 operational members 3 search managers, 12 swift water rescue & 10 ice rescue technicians	Clucuz Lake Fire Department 1- engine 1- tender 16 volunteers, no paid staff	Vanderhoof Fire Department 1 Full Time Staff 29 members 2 Engines 2 Tenders (1500 gal & 3000gal) Rescue Vehicle Bush Truck (300gal) Chiefs Pick up
 Van/Jam Fire Zone 4 Initial attack crews, 1 Unit Crew, 6 officers	 RDBN EOC	 Vanderhoof ESS 11 volunteers

Community Vulnerabilities

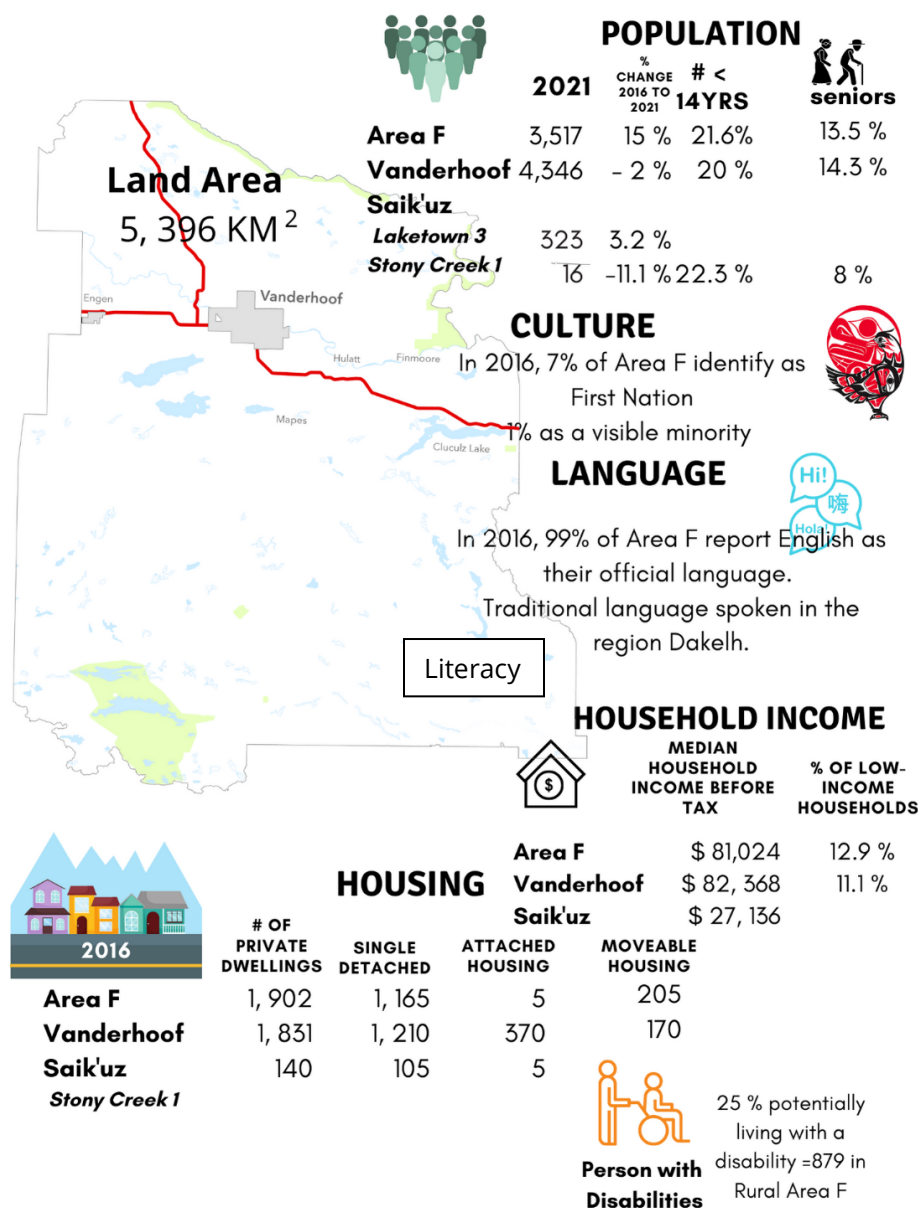
To fully understand how a hazard might impact a community, it is necessary to consider the degree of vulnerability to the hazard. While being situated in a hazardous zone is a key determinant of risk, a community's vulnerability defines the susceptibility of the people, property, industry, resources, and the environment to harm should a hazard event occur.

The Provinces HRVA guide defines Vulnerability by the people, property, infrastructure, industry and resources, or environments that are exposed to adverse impact from a hazard event. There are four groups of vulnerabilities to consider: social, economic, physical, and environmental.

In this section we will begin to explore the four groups of vulnerabilities that may be considered in this project. This information is a starting point in the collection of known vulnerabilities within the region. The intention is that the HRVA process will help to strengthen our collective community knowledge of our vulnerabilities to enable future conversations that will focus on resilience strategies. Both vulnerability and resiliency are important, and closely related concepts for evaluating a community's ability to cope with the impacts of a hazard event. It is important to differentiate between the two:

- Vulnerability looks at the factors that increase a community's susceptibility to damage from a hazard;
- Resiliency is a measure of a community's ability to resist or recover from damage (SOPAC, 2002).

At the May 10th, 2022, Understanding Community Resiliency Workshop participants were asked to consider and provide further details of the social, economic, environmental, and physical conditions that they perceive to have the potential to contribute to vulnerability within Electoral Area F. The discussion and input from that meeting have been integrated into this document.

Social Factors^{1 2}

The category 'Movable dwelling' includes mobile homes and other movable dwellings such as houseboats, recreational

¹ (Canada S., 2016)

Vanderhoof 2021 Population numbers 15 % population change since 2016 stats. Bulkley-Nechako F population numbers -2 % population change since 2016.

NOTE: There is a common acceptance by RDBN residents that there was a census undercount throughout the region. It is believed that the population has not decreased to the extent surveyed and has remained relatively stable throughout the region (Nechako, 2014).

²Statistics Canada released its 2017 Canadian Survey on Disability in 2019. This report, and its dataset, offers national and provincial insights into the prevalence of disability across Canada, including the type and severity of a disability, as well as the economic circumstances for persons with one or more disabilities. Unfortunately, data representing more granular geographies like the Fort St James Rural are not available, meaning discussions must remain at the provincial level.

The 2017 survey classifies a disability as falling within one of eleven categories: pain, flexibility, mobility, mental health, seeing, hearing, dexterity, learning, memory, developmental, or unknown.

Support Services

EMERGENCY HOUSING 12 Units Homeless Rent Support	TRANSITIONAL SUPPORTED & ASSISTED LIVING UNITS 51 Units	INDEPENDENT SOCIAL HOUSING 34 Units low income Families	RENTAL ASSISTANCE 14 Units
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Social Housing

- The District of Vanderhoof's non-market housing contributions make up 21% of RDBN services, including 12% of emergency shelter / housing spaces, 26% of transitional supported & assisted living units, and 23% of independent social housing units.
- As of June 2021, the BC Housing waitlist had 8 District of Vanderhoof applicants remained unserved

Community Services

Connexus Community Resources

providing a variety of programs and services to help and support individuals and families including counselling services for children, youth and families



Northern Health Mental Health & Addictions Program

includes a combination of functions with Interprofessional teams, as well as some specialty services, i.e. Developmental Disabilities Mental Health (DDMH), Acquired Brain Injury (ABI), etc. Youth addictions counselling and referral, elderly services counselling, early psychosis, eating disorders, vocational and recreation rehabilitation

Saik'uz Health Services and Elders Coordinator

provides high-quality, accessible health care for on-reserve members. Elders Coordinator supporting elders in the community.

Adah Dene Healing Society (ADHS)

services FSJ and surrounding communities including PG. The project will provide healing opportunities to Survivors and Intergenerationally Impacted people through individual counselling, a series of workshops and training for project staff.

Good Neighbours Committee

advocates for a diverse welcoming inclusive vibrant progressive community for all.

NeighbourLink Vanderhoof

offer thrift store, assistance registering with BC Food Bank, weekly Wednesday lunch, weekly free Thursday brunch, "best moms and dads" support group, emergency shelter and food vouchers program for travellers.

Carrier Sekani Family Services

Carrier Sekani Family Services, under the guidance of our elders, has been given the mandate to establish a comprehensive infrastructure for social, health, and legal programs, for the eventual take over of these services by the Nations themselves.

Community

Food

Programs

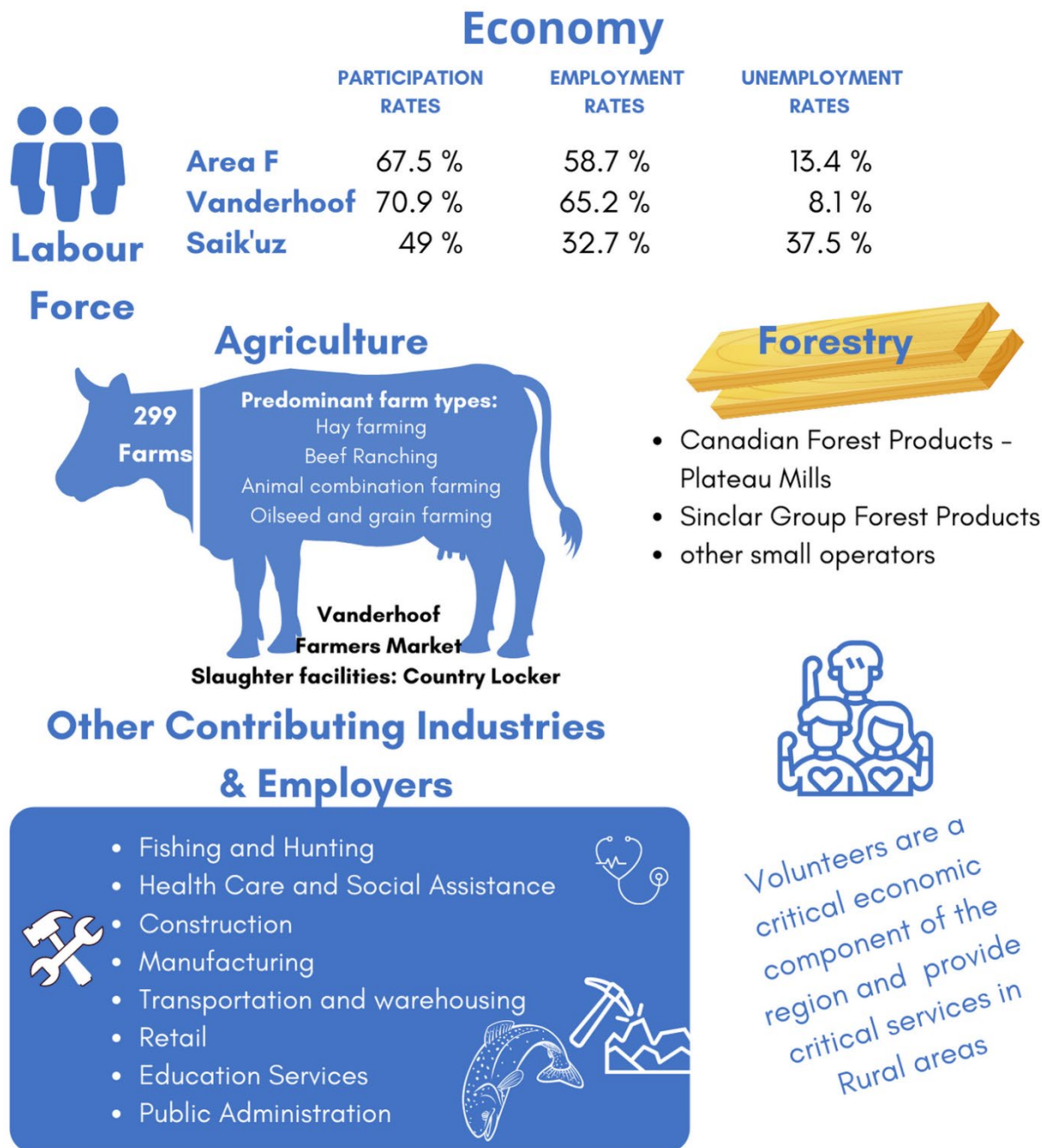


- **Nechako Valley Food Network** empowers the community to grow and eat locally. Organizes the Vanderhoof community garden and local food producers directory. governed by the **Nechako Healthy Community Alliance**, a nonprofit society aimed at supporting local initiatives.
- **NeighbourLink Vanderhoof** offers Food Bank services, weekly Wednesday lunch, weekly free Thursday brunch, and food vouchers program.

In 2017, 926,100 British Columbians aged 15 years old or older reported having at least one disability, or about 25% of all residents in that age cohort. If the same proportion applied to Vanderhoof Rural, that would mean about 1,105 residents could be living with a disability.

Economic Factors³

Economic resilience drives a community's recovery post-disaster (FEMA, 2013). Therefore, economic vulnerability is a key determinant of a community's ability to withstand and rebound from a hazard event. Single industry communities may be more susceptible to harm than those with diverse economic sectors (Bergstrand, 2015). It is important to better understand and consider economic vulnerabilities when developing plans and strategies build disaster resiliency.



³ (BC Ministry of Agriculture, 2013). (Strategies, 2020)

Environmental Vulnerabilities⁴

Environmental vulnerability measures how damage to the natural environment impacts a community's ability to withstand and recover from a hazard event. The natural environment can provide a protective buffering service that reduces the magnitude of impacts of hazard events. For example, wetland and riparian areas reduce flooding by absorbing flood waters, providing erosion and sedimentation control, and recharging groundwater.



Ecosystem Environment

Forests of the area are mostly lodgepole pine and spruce, with scattered patches of aspen and birch. A history of frequent wildfires has left a natural mosaic of forest ages. Old forests (greater than 250 years) are relatively uncommon in this area, except for the scattered groves of old-growth Douglas-fir, and the few higher elevation mature Engelmann spruce and sub-alpine fir forests.

Predominant Natural Features



1
Hydrometric
Station

Nechako River, Stuart River, Cluculz
Lake Tachick Lake, Nulki Lake,
Bobtail Lake.

Parks



- 1 BC Park
- 19 Recreation Sites and Trails

Air Quality



- given the District's inverted weather patterns resulting from the "bowl-shaped" landscape, air quality is a continual environmental concern
- Health Risks during forest fire
- One Provincial air quality monitoring station and three purple air stations

Flood Zones

Nechako River
Rio Tinto Inundation Zones

447 residents in
flood zones

Fish Habitats

Nechako White Sturgeon
Salmon

Migratory Birds

Nechako River Migratory Bird Sanctuary

Forest Endemic's

- Spruce Beetle current endemic
- Pine Beetle historic endemic



Wildfires

- 1056 address is High urban interface risk area & 2596 addresses in medium wildfire risk areas
- Large historic fires

⁴ Parks BC: Finger-Tatuk.

Rec sites: Arthur Lake, Chutanli Lake, Cobb Lake, Cutoff Creek, Fish Lake North, Fish Lake South, Frank Lake, Gluten Lake, Graveyard Lake West, Greer Creek, Grizzly Lake, Hogsback Lake, Home Lake, Kuyakuz Lake, Lavoie Lake, Suscha Falls Area, Suscha Lake, Tanli Lake, Woodcock Lake.

Physical Infrastructure Vulnerabilities

Physical vulnerability is a measure of how damage to a community's buildings, facilities, and infrastructure, e.g., transportation, electricity, telecommunication, water supply etc., can impact a community's ability to withstand and recover from a hazard event. Public Safety Canada defines critical infrastructure (CI) as: "services essential to the health, safety, security or economic well-being of Canadians and the effective functioning of government" (Canada P. S., 2021). The following ten sectors are considered critical infrastructure in Canada: Health; Food; Finance; Water; Information and Communication Technology; Safety; Energy and Utilities; Manufacturing; Government; and Transportation. Forecasting the failure of these complex sector is challenging as weaknesses in the system may be unknown until the infrastructure fails. Also, the responsibility for various critical assets and infrastructure is divided between different levels of government and public and private agencies, further adding to the difficulty of preparing for and mitigating against critical infrastructure disruption and damage.^{5 6}



⁵ There are 39 community water systems in Electoral Area 'F' that service anywhere from 1 – 1000 connections. Information on water facilities can be found on Northern Health Drinking Water reports and summaries under Vanderhoof.

⁶ [First Nations Community Water System Water Risk Summary](#) Saik'uz.

Underlying Risk Drivers

There are additional factors which increase a community's susceptibility to hazards. As a committee it may be helpful to discuss possible "underlying disaster risk drivers" to help differentiate them from hazards and risks and help identify additional vulnerabilities. According to the United Nations Office of Disaster Risk Reduction (UNISDR), underlying disaster risk drivers, or factors, may include:

- Poverty, inequality, and literacy
- Climate change and variability
- Unplanned and rapid urbanization
- Unsustainable uses of natural resources
- Declining ecosystems
- Lack of disaster risk considerations in land management and environmental and natural resource management
- Demographic change
- Lack of regulations and incentives for private disaster risk reduction investment
- Non disaster risk-informed policies
- Complex supply chains
- The limited availability of technology

Which of these factors should be considered in Electoral Area 'F'? What considerations need to be considered? And are these considerations localized to specific geographic areas?

Climate Change

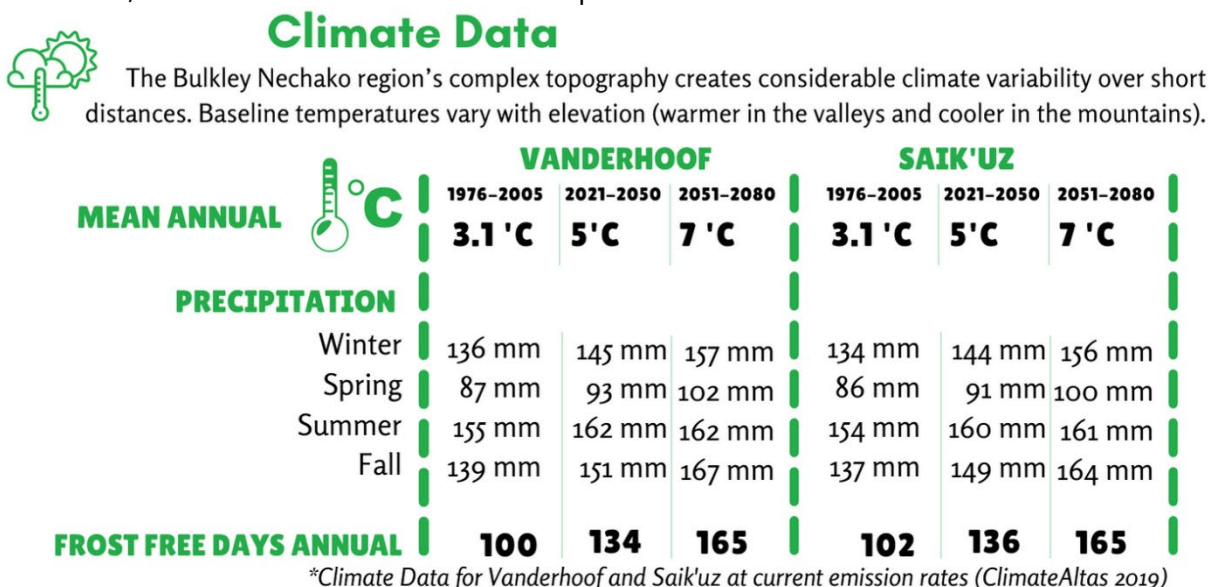
Climate change is not an abstract future concern, but rather a current, evolving reality experienced in Canada today. Canada's climate has been increasing in temperature and is predicted to continue to increase in the coming years. According to the recent Canada's Changing Climate Report, Canada's climate is warming at a rate nearly twice the global average (Bush, 2019). Projections suggest that by the years 2081 to 2100, Canada's climate will increase by 1.8°C if emissions are reduced, or up to 6.3°C if emissions remain high (Bush, 2019).

The Preliminary Strategic Climate Risk Assessment for British Columbia states that, by the year 2050, the greatest risks to all British Columbia as a result of climate change will be severe wildfire seasons and seasonal water shortages (BC Ministry of Environment and Climate Change Strategy, 2019). Climate change is likely to affect most hazards faced in the region. According to the BC Ministry of Environment and Climate Change, "the likelihood of most risk events increases over time based on projections of future climate change" (Strategy, 2019)

Omineca Natural Resource Region Climate Projections (Foord, 2016)

Mean annual temperature in the Omineca Natural Resource Region is projected to increase by 3.5°C with minimum temperatures increasing more than maximum temperatures. Mean annual precipitation is projected to increase by 7%. Any increases will likely be as rainfall because precipitation as snow is projected to decrease by about 30% (ranging from -10% in Mackenzie District to -40% in the Robson Valley). The number of growing degree-days will increase, and the number of frost-free days will increase. Evaporation and climate moisture deficit will increase despite moderate increases in growing-season precipitation.

According to the [Climate Atlas of Canada](#), a web resource that combines climate science, mapping, and storytelling to bring the global issue of climate change closer to home for Canadians, Vanderhoof and Saik'uz climate predications are as seen in the chart below:



Supply Chains

Disasters disrupt pre-existing networks of supply. In many communities our reliance on just-in-time inventory practices, combined with the heavy use of technology to fulfill orders can result in supply gaps and significant delays in restoring services. This can cause panic among residents, failure to meet the health and medical needs of the population, and if unmanaged, turn an emergency into a disaster.

The food supply in the region can be threatened in an event of a disaster outside the region. The main grocery stores across the region are supplied 50% from the lower mainland and the remainder coming from Edmonton/Alberta. In response to the 2021 November floods in the lower mainland the large chain stores were quick to develop continuity plans to reroute trucking through the US, into Alberta and back over to the North.

Fuel supply in the region can also be threatened in an event of a disaster outside the region. Most of the fuel is transported from Alberta via Trans Mountain Pipeline and railway. Prince George is the [distribution centre](#), where fuel is then trucked to its destination. There is a refinery in Prince George that refines gasoline, diesel, propane butane and heavy oil.

Hazard Scenarios

During the workshop participants worked through and completed the four-hazard scenario worksheet. These scenario worksheets were designed to help guide the committee throughout a discussion of vulnerabilities and impacts of specific events. These scenarios will be provided to committee members as a tool during the likelihood and consequence scoring step of the HRVA.

Flooding



Scenario Description:

Snow packed mountains and spring thaws have brought rivers, creeks, lakes to record flood levels. In Engen freshet and increased release of water from the Skins Lake spillway has caused residents on the Nechako River to be threatened by flooding from Braeside in through Vanderhoof.

Environment Canada has forecast several days of heavy rainfall combined with warmer temperatures, which will hasten snow melt and cause a further rise in river levels. The [River forecast center has issued a flood warning](#) guaranteeing some flooding in known flood areas of Vanderhoof and rural areas. Residents are concerned about the safety of their homes and water supply.

By the end of the second day of rains, residents are experiencing severe flooding. The Nechako River has crested and not showing any signs of receding.

Citizens in your community are asking for guidance on what they should do.

Environment Canada projects another 3 days of heavy rain and continued warm temperatures at higher elevations. If needed, please add more detail to the scenario as we go along.

List Secondary or cascading hazards that may result:

Loop Road @ Murray Creek
Debris damage to bridge
Sanitary sewer infiltration
Storm sewer backups
Ground water flooding – no evacuations
Panic
well infiltration
utilities

Triggering Event (Root causes of this type of event):

Ice jams/ break
Freshet
Loss of confidence in industry

Impact Summary

- **What social, economic, environmental, and physical factors may increase the community's susceptibility to damage because of this hazard?**
- **Are there specific neighbourhoods in Area 'F' that have vulnerabilities? What conditions exist that have the potential to contribute to vulnerability within this neighbourhood?**

Public information
Riverside park – lake now that has creep is it
Cost to residents
Sackner Rd
Rio Tinto – commercial focus vs residents

New residents – younger residence don't know the risk Houses in flood prone areas Stoney creek River view Reed Drive Connaught 1 st 2nd	
Likelihood Rating <i>(Please Circle)</i>	Consequence Severity <i>(Please Circle)</i>
E – Almost Certain to Occur D – Likely to Occur C – Probable to Occur B – Unlikely to Occur A – Very Rare to Occur	4 – Extreme Impact 3 – High Impact 2 – Moderate Impact in town 1 – Low Impact - Area F 0 – No Impact



Wildfire

Scenario Description:

In July multiple forest fire starts between Nulki Lake and Mapes from lightening strikes. Winds are high and the summer drought conditions create a dry forest fuel that results in the fire growing rapidly and uncontrolled. The winds are pushing the fires threatening the residents to the Northeast and making travel in the region challenging. Evacuation orders have been issued in partnership with Saik'uz First Nation to reserve and rural residents in the area. This will be a massive evacuation affecting up to 442 number of residents. [Fire behavior is a rank 5-6](#). If needed, please add more detail to the scenario as we go along.

List Secondary or cascading hazards that may result:

Residents on evacuation alert and order unable to get communications
Misunderstanding of evacuation areas
Security of houses in evacuation areas
Communications – telecommunication interruptions
Power outages – resulting in loss of food stocks.
Food security
Public order
Environmental impacts
FN food supply

Triggering Event (Root causes of this type of event):

Lightening
Humans causes
Rail
mischief

Impact Summary

- **What social, economic, environmental, and physical factors may increase the community's susceptibility to damage because of this hazard?**
- **Are there specific neighbourhoods in Area 'F' that have particular vulnerabilities? What conditions exist that have the potential to contribute to vulnerability within this neighbourhood?**

Groomer forests create additional risk of fire and unnatural behaviours

Impact on biodiversity in the region.

Riparian areas on creeks when fire hits them they follow the riparian area burning into residential areas.

Saik'uz started in 2021 with 50 homes being fire smarted and a critical infrastructure assessment done. Still 170 homes to go.

<p>Canfor 50 people lost their logging jobs because of forest fires. Impact on tourism, camping, fishing hunting Impact on small businesses Clucuz Lake vulnerable to wildfires due to access, Saik'uz as well. 12 mile Lake near land fire vulnerable to fire.</p>	
Likelihood Rating <i>(Please Circle)</i>	Consequence Severity <i>(Please Circle)</i>
<p>Clucuz Lake – D – Likely N Highway – D – Likely S Highway – E – Almost Certain Vanderhoof – C – Probable</p> <p>E – Almost Certain to Occur D – Likely to Occur C – Probable to Occur B – Unlikely to Occur A – Very Rare to Occur</p>	<p>4 – Extreme Impact 3 – High Impact 2 – Moderate Impact 1 – Low Impact 0 – No Impact</p>



Electrical Outage

Electrical Outage

Scenario Description:

On October 28, a massive snowstorm that hit northern British Columbia dumped 2.5-3 ft. (75-90 cm) of wet heavy snow in over night. It resulted in a combination of two weather systems, a warm Pacific and a large cold front, colliding. Roads and Highways in the region have been temporarily closed, including Highway 16. Road contractors are working to reopen the roads, but this will take many days, particularly for the rural residents.

The early season snowstorm left BC Hydro customers in the region without power, and many trees have knocked down local power lines. The substation in Vanderhoof was down and due to impassable roads crews in some areas were relying on helicopters to access problem areas.

Six days after the storm, still many households remained without power and most of these were unlikely to get service back for several more days. Temperatures of -15 were set in the forecast.

List Secondary or cascading hazards that may result:

Watering of livestock need electricity in dead of winter

Heating issues

Health issues

Sewer and water pumps

Fuel

Contamination issues

Transportation corridors

Saik'uz lift station and pumps have no backup generation. 3-4 hand pumps on reserve

Triggering Event (Root causes of this type of event):

Snow storms

Motor vehicle accidents – Bednesti near Cluculz lake a dump truck knocked out power west for days.

Wildfire

Public disorder

Impact Summary

- **What social, economic, environmental, and physical factors may increase the community's susceptibility to damage this hazard?**
- **Are there specific neighbourhoods in Area 'F' that have particular vulnerabilities? What conditions exist that have the potential to contribute to vulnerability within this neighbourhood?**

SAR has 2 set up snowmobiles to check on rural residents

Pipes in houses freezing

Freezers, fridges need replacing

Trees that fall on power lines – clearing these trees is a challenge and hazard, BC hydro is delayed.

Grocery stores if power goes out have trouble serving public

Likelihood Rating <i>(Please Circle)</i>	Consequence Severity <i>(Please Circle)</i>
E – Almost Certain to Occur	4 – Extreme Impact
D – Likely to Occur	3 – High Impact
C – Probable to Occur	2 – Moderate Impact
B – Unlikely to Occur	1 – Low Impact
A – Very Rare to Occur	0 – No Impact



**Animal
Disease**

Animal Disease Crisis

Scenario Description:

*It is summer and there are reports of farms in Area F losing mass amounts of cattle in a short period of time. Testing of the carcasses exposes that there is a large Bovine Spongiform Encephalopathy (BSE) outbreak in Area F. Fear surrounding the potential health risks of BSE to humans, such as Creutzfeldt-Jakob disease, drives panic in the region and in supply chains. **Bovine spongiform encephalopathy (BSE)**, commonly known as **mad cow disease**, is an incurable and invariably fatal [neurodegenerative disease](#) of [cattle](#). The [time between infection and onset of symptoms](#) is generally four to five years.^[2] Time from onset of symptoms to death is generally weeks to months.*

List Secondary or cascading hazards that may result:

Panic
Food supply chain
Hobby farmers
Cost of beef
Cross infection and health care impacts

Triggering Event (Root causes of this type of event):

Farm to farm or farm to slaughter transfer

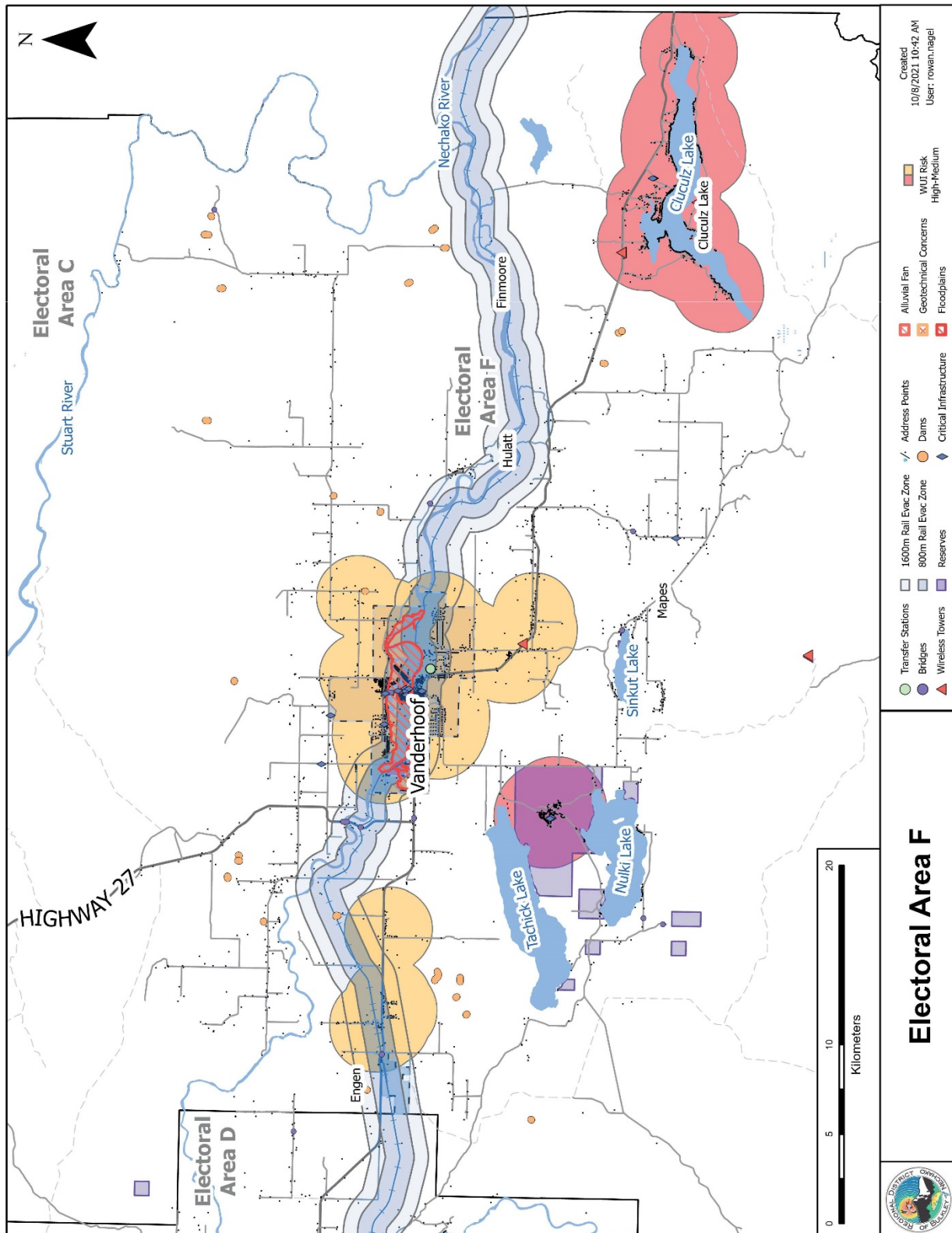
Impact Summary

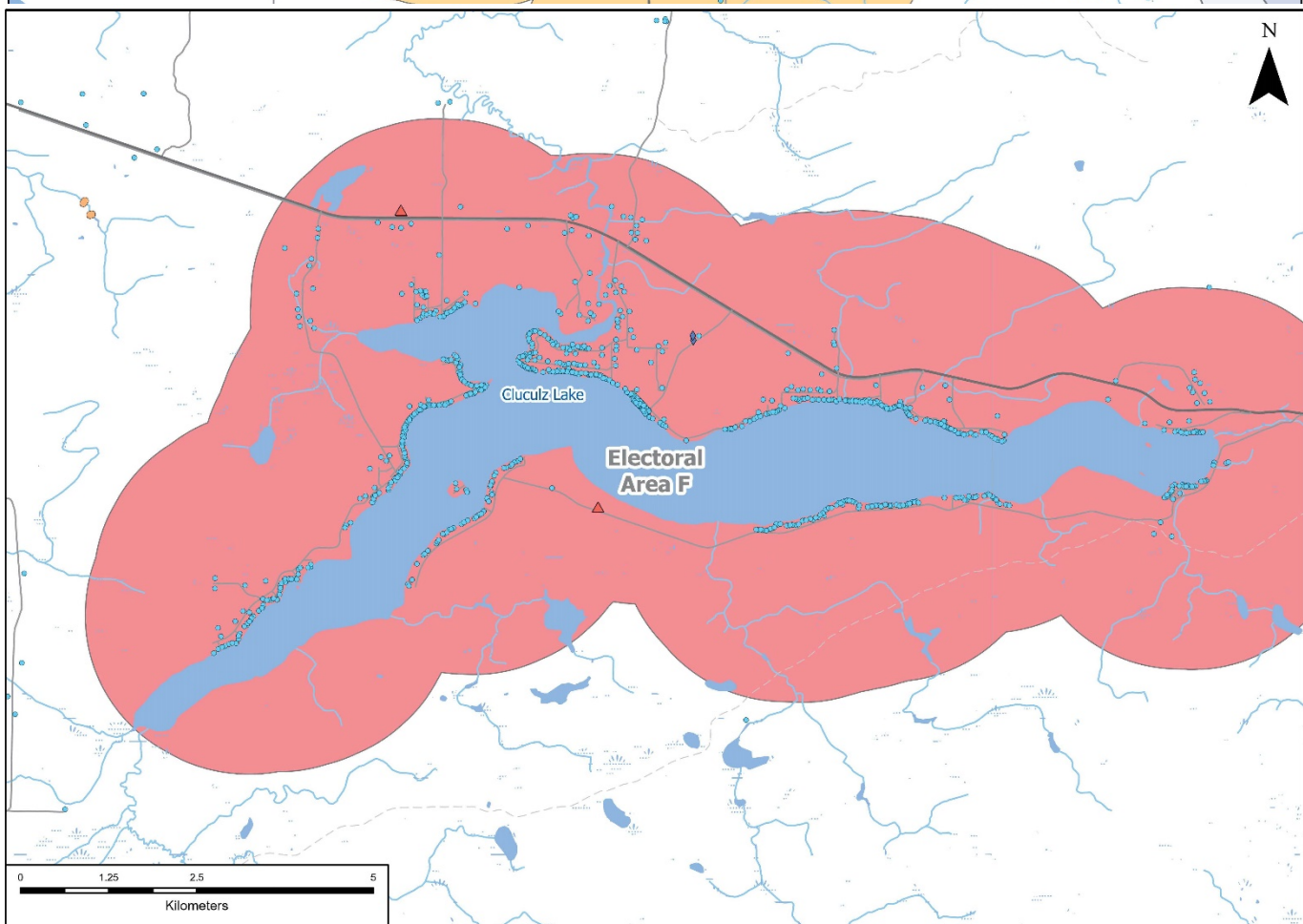
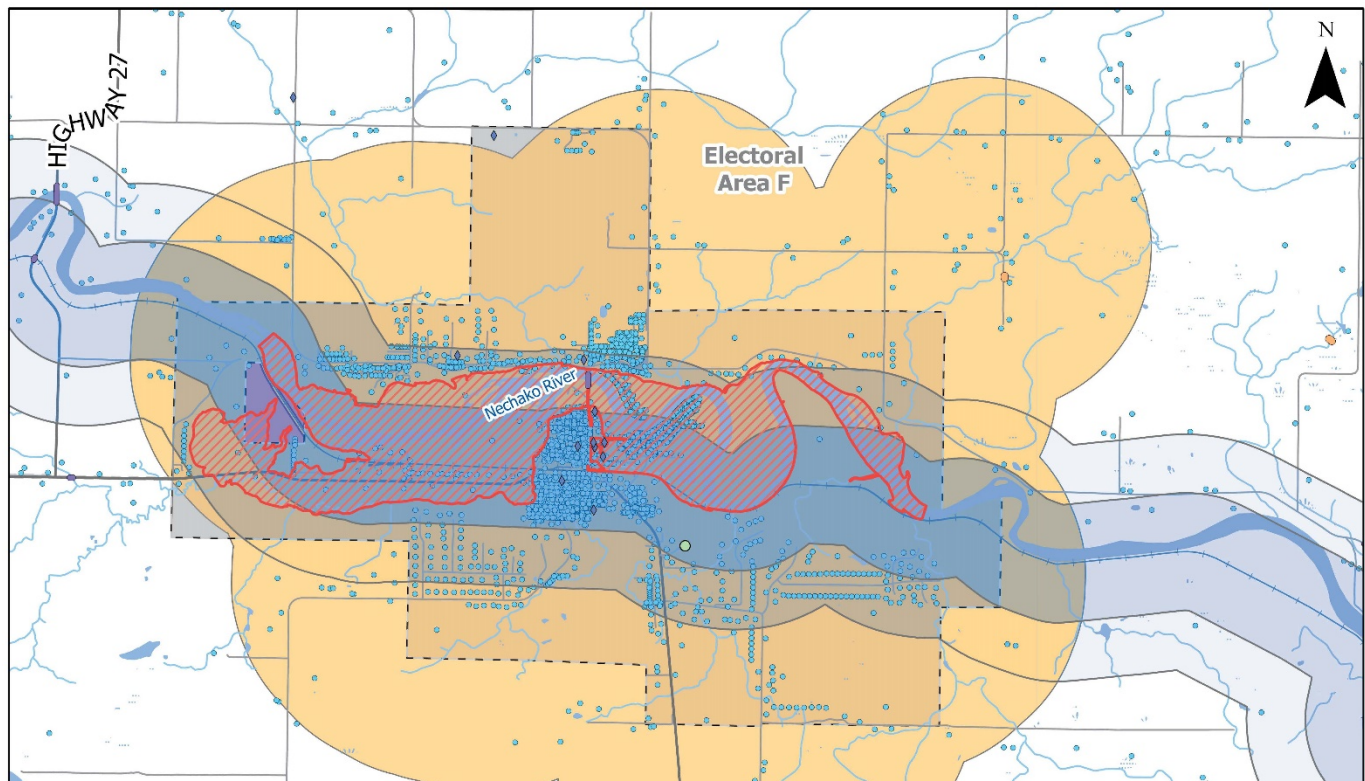
- **What social, economic, environmental, and physical factors may increase the community's susceptibility to damage from this hazard?**
- **Are there specific neighbourhoods in Area 'F' that have particular vulnerabilities? What conditions exist that have the potential to contribute to vulnerability within this neighbourhood?**

All areas impacted except Cluculz lake
Literacy issues
Impact to local producers
Disposal of animals burning.

Likelihood Rating <i>(Please Circle)</i>	Consequence Severity <i>(Please Circle)</i>
E – Almost Certain to Occur	4 – Extreme Impact
D – Likely to Occur	3 – High Impact
C – Probable to Occur	2 – Moderate Impact
B – Unlikely to Occur	1 – Low Impact
A – Very Rare to Occur	0 – No Impact

Appendix 1 – ELECTORAL AREA 'F' KNOWN HAZARDS MAP





Electoral Area F Cluculz Lake

- | | | | | |
|---------------------|------------------------|---------------------------|-------------------------|------------------------|
| ● Transfer Stations | □ 1600m Rail Evac Zone | ● Address Points | ■ Alluvial Fan | ■ WUI Risk High-Medium |
| ● Bridges | □ 800m Rail Evac Zone | ● Dams | ■ Geotechnical Concerns | |
| ▲ Wireless Towers | ■ Reserves | ◆ Critical Infrastructure | ■ Floodplains | |

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