



Regional District of Bulkley-Nechako

HRVA Electoral Area' C' Understanding Community Resiliency

February 2022

“Know the Risks, Make a Plan, Be Prepared”

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Preface

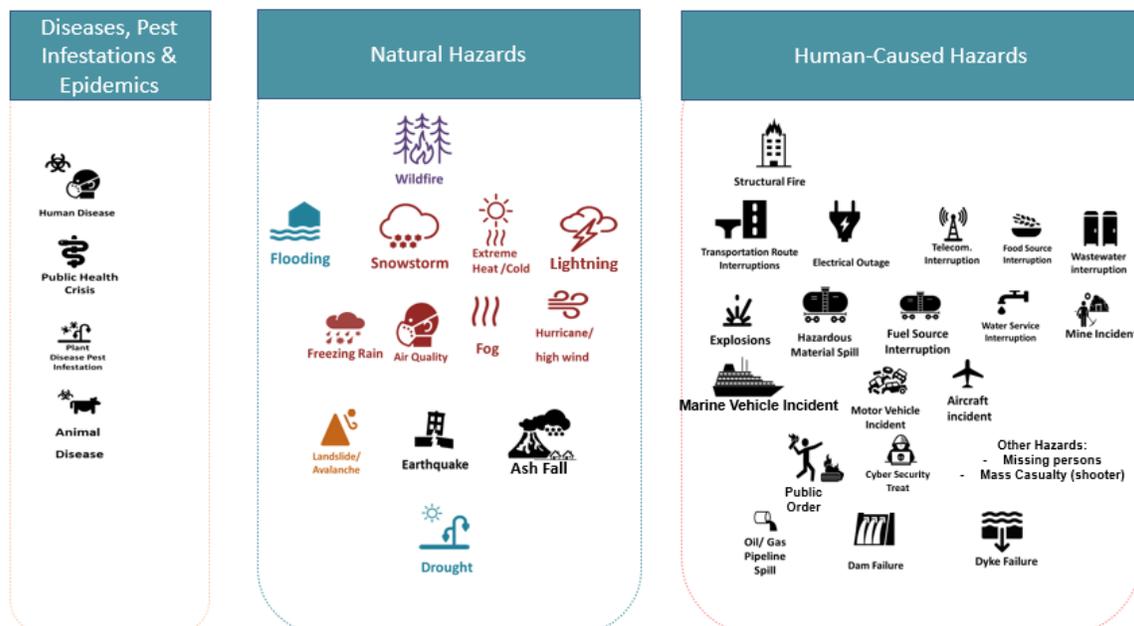
Purpose of Backgrounder and Workbook

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 'C', Fort St James Rural.

The Electoral Area 'C' 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. The background paper is designed to help guide you as you read through the research and background materials to prepare for the upcoming workshop and for the next step in the HRVA process; Scoring likelihood and consequences of each identified hazard. This background paper will suggest questions for reflection and consideration, which will support our upcoming meeting/workshop discussions. To maximize our time together at the HRVA Committee meetings/workshops, we encourage all participants to review the chapter distributed in advance of any planned meeting. The hope is that additional information and Traditional Knowledge will be collected and informed by discussions with the Electoral Area 'C' (EA) HRVA Committee.

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 'C' 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 39 Hazards for Electoral Area 'C'



Hazard Groupings
 Atmospheric Fire Disease & Epidemic Geological Hazardous Materials Hydrological Infrastructure Failure Interruptions to Critical Services Security Transportation

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 (Currently in Draft Form)
- District of Fort St James [Emergency Management Program Municipality Emergency Plan](#) 2019
- Takla Nation Emergency Plan Updated Jan 2020
- Nak'azdli Indian Band Emergency Plan Updated
- Tl'azt'en First Nations Emergency Plan Updated
- Yekooche First Nation Emergency Plan Updated
- Binche Whut'en First Nation Emergency Plan

Reports/studies

Climate Change

- [Takla Lake First Nations Climate Change Vulnerability & Risk Assessment](#) 2016

Fire

- Village of Fort St James Community Wildfire Protection Plan 2021

Flooding

- [RDBN Floodplain Management Bylaw No. 1878, 2020](#) and [Mapping](#)
- Ministry of Environment [Flood Plain mapping](#) along the Stewart River and Lake at Fort St. James
- 2021 Flood Prediction Enhancement Emergency Management BC, Water stewardship BC and Tl'azt'en Nation Emergency Management a new river level monitoring gauge was installed at the Tachie River Boat Launch and calibrated with the Stuart River water level and flow gauge

Geotechnical

- [Geotechnical Report Guidelines RDBN brochure](#)

Policies and other resources

- [RDBN Fort St James Rural Official Community Plan – Under Review](#)
- [Fort St James Official Community Plan 2010](#)

- Takla Lake Community Plan
- Yekooche First Nations Physical Development Plan (2003) and Yekooche Community Transformation Plan.
- [Tl'azt'en Nation Comprehensive Community Plan in progress \(2021- current\)](#)
- [Nak'azdli Community Plan](#)

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 'C'.

Area 'C' Response Agencies



FSJ RCMP

Victim Services
Tache RCMP office



BC Ambulance

FSJ Station 761



Luck Bay Fire Hall

Operated by the FSJ Fire Department

Takla Lake Fire Department

FSJ Fire Department

1 Full Time Staff
1 Part-Time Office Support
19 Volunteers
2000 Spartan 75' Aerial
2010 Spartan Pumper
2003 Spartan Pumper
2001 Freightliner Pumper
2013 Ford Rescue Vehicle
1998 Freightliner FL80 Tender
2011 Tailwind Box Trailer
2005 GMC sierra pickup



FSJ

Search and Rescue

operational members



RDBN

EOC



Van/Jam Fire Zone

forward attack base, crews out of
Vanderhoof



FSJ ESS

Mobilization trailer
6 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.

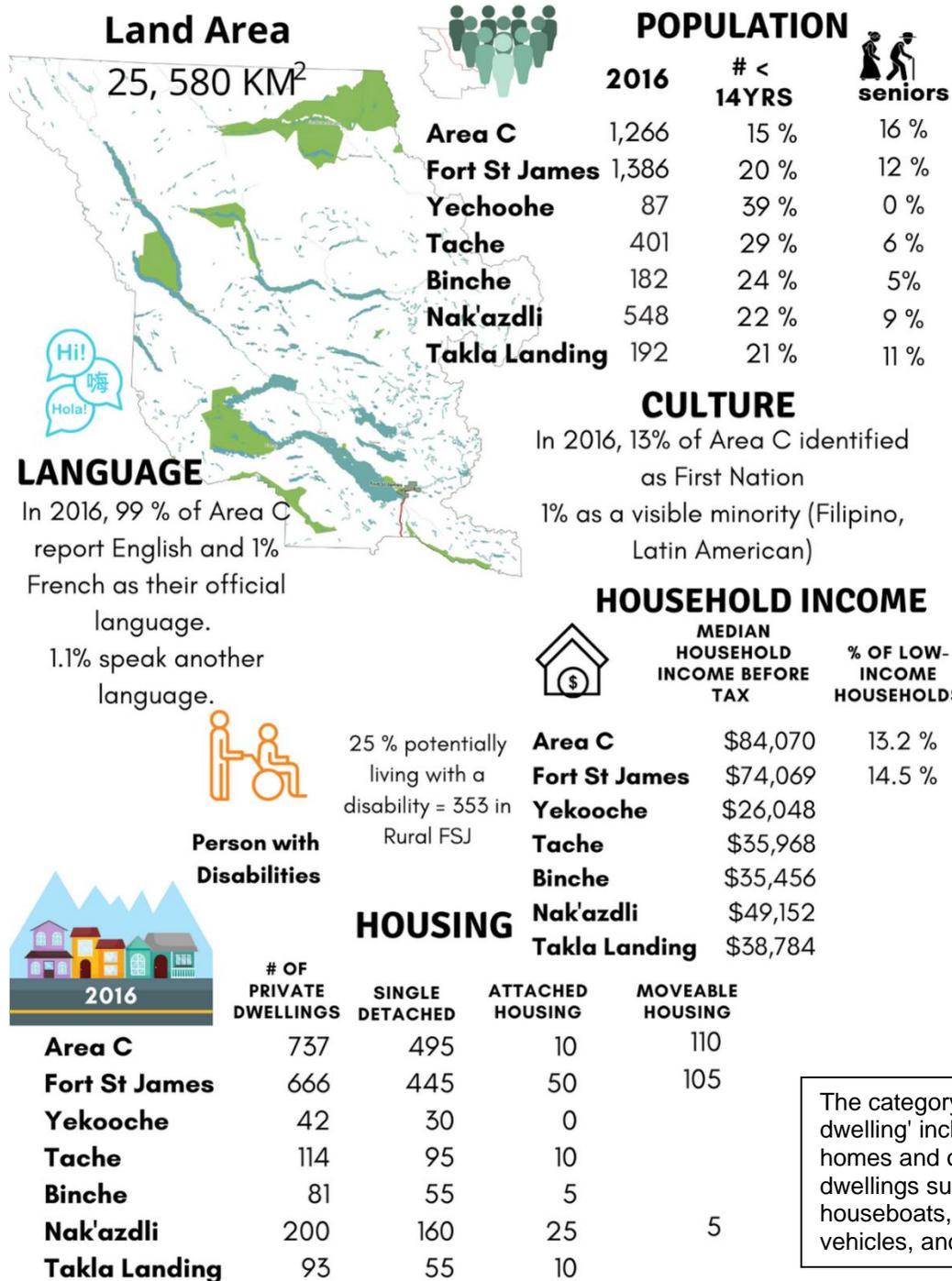
The Provinces HRVA guide defines Vulnerability by the people, property, infrastructure, industry and resources, or environments that are exposed to adverse impact from a hazard event. There are four groups of vulnerabilities to consider: social, economic, physical, and environmental.

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 February 15th, 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 C. The discussion and input from that meeting have been integrated into this document.

Social Factors^{1 2}



¹ (Canada S. , 2016)

[Fort St James 2021 Population](#) numbers -13.3 % population change since 2016 stats. [Bulkley-Nechako C](#) population numbers -10.8% 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



Fireweed Safe Haven Services

Emergency shelter for women & their children, Violence Counselling

Connexus Community Resources

Counselling services for children, youth and families

Northern Health Mental Health & Addictions Program

Community Services 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



Nezul Be Hunuyeh Child and Family Services

services to families of the Tl'azt'en and Nakaz'dli communities

Nak'azdli Health Centre

Maternal child health programs, Children's Oral Health Initiative, parent support programs, Counselling and community health services, harm reduction, home care, Health promotion, and Parental health.

Nak'azdli Youth Centre

Nak'azdli operates a drop-in Centre for all youth located in the Fort St James area.

The KEY Resource Centre (Knowledge Empowers You)

space for community members to interact, have a snack and play games. offer health, life and literacy outreach services.

The Learning HUB

Programs and resources for Life Long Learning hosts community-wide literacy events and provides Citizenship and Immigration Canada (CIC) Settlement Services Program.



Community Food Programs

- **Stuart Lake Outreach Group** Third Wednesday of each month provide food hampers, Tuesday and Thursday Lunch Program
- **Fort St James Meals on Wheels** Program expanding
- **Fort St James Food Bank**
- **Stuart Lake Seniors Association lunch program** 3 days a week
- **Takla Lake FN meals on Wheels** Program

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.

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 Smithers 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.

Labour Force	Economy		
	PARTICIPATION RATES	EMPLOYMENT RATES	UNEMPLOYMENT RATES
Area C	71.5 %	61.2 %	14.5 %
Fort St James	66.9 %	56.3 %	16.5 %
Yekooche	63.6 %	36.4 %	42.9 %
Tache	46.6 %	25.9 %	44.4 %
Nek'azli	62.8 %	43 %	31.5 %
Takla Landing	48.4 %	29.4 %	33.3 %



Agriculture



Forestry

- Apollo Forest Products
- Hampton Lumber
- Tache Lumber Mill
- Tanizul Timber Ltd.
- Sustut Holdings
- Takla Development Corporation
- John Price Research Forest / Chuzghun Resource Corporation
- Fort St James Community Forest
- other small operators

Other Contributing Industries & Employers

- BioEnergy North Plant FSJ
- Mining Mount Milligan
- Pinche Mine long term maintenance
- Mining exploration
- Health Care and Social Assistance
- Construction
- Manufacturing
- Education Services
- Recreation
- Tourism
- Retail
- Public Administration



Volunteers are a critical economic component of the region and provide critical services in Rural areas

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 are mostly lodgepole pine and spruce, with balsam at higher elevations and scattered patches of aspen. There are some areas of Douglas-fir, particularly along the shores of Stuart Lake. A history of frequent wildfires has left a mosaic of forest ages. Old and mature balsam stands are found in the northern portion of the area, and are also associated with some patches of Douglas-fir elsewhere.

Predominant Natural



Features

Stuart Lake, Pinchi Lake, Tezzeron Lake, Trembleur Lake, Babine Lake, Takla Lake, Tchentlo Lake and the Stuart River and Necoslie River

3 Hydrometric Station

Parks

- 13 BC Parks/ Ecological Reserves
- 22 Recreation Sites and Trails
- 1 RDBN Park Trout Creek



Air Quality



- Health Risks during forest fire
- One purple air quality monitoring station in Takla Landing

Flood Zones

Stuart River and Stuart Lake
 Many small tributaries in the area

Fisher Habitats

Nak'azdli hatchery program

Great Divide

Water from the Nation Lake flows into the Arctic Ocean - Unique in our Regional District

216 residents in flood zones in Fort St James and Nak'adli Whu'en

Mineral Deposits

- 227 mineral occurrences in the Fort St. James LRMP Area

⁴ Parks BC: Chase, Mount Blanchet, Mount Pope, Mudzenchoot, Nation Lakes, Omineca Park and Protected Area, Paarens Beach, Rubyrock Lake, Sowchea Bay, Stuart Lake Marine, Stuart River, Sutherland River Park and Protected Area, Takla Lake Marine
 Rec sites: Ahdatay, Battleship Bay, Camp Lake, Camsell Lake, Chuchi Lake North, Cripple Lake, Dem Lake, Dolphin Lake, Grassham Lake, Great Beaver Lake, Inzana Lake, Kalder Lake, Kloch Lake, Sakeniche Crossing, Sarah Point, Takatoot Lake, Tchentlo Hot Springs, Teardrop Lake, Tezzeron Lake, Tsilcoh Falls, Tureen Lake, Whitefish Bay.

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 7 8 9}

Physical Critical Infrastructure **Communication**



Health Services

- Stuart Lake General Hospital
- Doctors Clinics
- Northern Interior Health Unit FSJ
- FSJ Medical Clinic
- FSJ Better at Home Program
- FSJ Northern Health Lifeline Program
- Community Paramedicine Program
- Yakooche Health & Wellness Centre
- Tache Health Office
- Health Centre Nak'azdli Whu't'en
- Nancy Tom Health Centre Binche
- Takla health Clinic
- Heritage Manor II assisted Living
- Pioneer Lodge FSJ



- Cellular: Rogers, Telus, Virgin, Public, Bell
- Internet: Telus, Mascon, Evolve using DSL, cable and fixed wireless - Rogers and Bell providing mobile wireless only
- Fort St James TV Society - Fort St. James Rebroadcasting Society
- Caledonia Courier - Fort St. James News
- 5 radio stations and 6 public broadcasting TV stations
- Amateur Radio Club
- Forestry Radio Network

Utilities

- BC Hydro Power along Hwy 27 - substations in FSJ
- Pacific Northern Gas along Hwy 27

School

- SD 91:
- David Hoy Elementary School
- Fort St. James Secondary School

Other:

- College of New Caledonia
- Takla Schools
- Nak'albun Elementary
- Eugene Joseph Elementary School (K- 7) and Daycare, Head Start
- Nak'azdli Whu't'en Child Care Centre
- Jean Marie Joseph School Yekooche K -9

Community Water and Sewer



Sewer



- Fort St. James Community Water and Sewer systems - urban containment boundary and Nak'azdli Reserve
- Tl'azten Middle River Community water - High Risk - Sewer system - low risk
- TACHE NO. 1 - Community Water Supply & Distribution System - high Risk- Sewer system - low risk
- Takla Lake FN Community Water Supply & Distribution Community Sewer - Low Risk
- BINCHE NO. 2 - Community Sewage Collection & Treatment System - Medium to Low Risk Water Supply & Distribution System - source risk is High
- NAK'AZDLI - Community Water Supply & Distribution & Sewage Collection Systems - low risk
- YE KOO CHE NO. 3 - Community Water - High Risk -
- 29 Private water systems



Landfill

- Clearview Landfill

Transfer Station

- Ft St James transfer station and recycling depot

Transportation

- MOTI Rds, Highway 27, & Forestry Rds
- BC Bus Northern PG-PR
- CN Rail
- FSJ Airstrip & Stewart River Water Aerodrome
- Takla Landing Water Aerodrome
- Takla Development Corporation charter aircraft services
- Takla Transit Bus, FSJ, PG
- TEAM Bus - Tache, Binche, FSJ, PG
- FSJ Seniors Helping Seniors program



Community Halls

- Fort St James Community Hall
- Kwah Hall
- Takla Community Hall
- Yekooche Elders Hall
- Binche Community Centre

⁵ There are 29 community water systems in Electoral Area 'C' that service anywhere from 2 – 300 connections. Information on water facilities can be found on [Northern Health Drinking Water reports and summaries under Fort St James and Regional District Bulkley Nechako.](#)

⁶ TEAM Bus Tache and Binche, Takla Lake Shuttle Bus

⁷ Internet: There are 7 internet service providers in the region (Corporation, 2019), and a seventh, Starlink scheduled for 2021.

⁸ Radio: There are 10 radio channels: VF2099 97.9 FM; VF2100 99.9 FM; VF2101 101.9 FM; VF2103 103.9 FM; VF2064 97.1 FM; VF2164 96.1 FM; VF2166 98.1 FM; CIFJ 1480 AM; CIRX-FM-2 94.7 FM; CBUV-FM 91.9 FM; and 19 television stations broadcasting through the Fort St. James Rebroadcasting Society.

⁹ [First Nations Community Water System Water Risk Summary](#) Takla, Tl'azten, Binche, Nak'azdle, Yekooche.

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 'C'? 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, Houston climate predications are as seen in the chart below:

 **Climate Data**
The Bulkley Nechako region's complex topography creates considerable climate variability over short distances. Baseline temperatures vary with elevation (warmer in the valleys and cooler in the mountains).

FORT ST. JAMES

	1976-2005	2021-2050	2051-2080
MEAN ANNUAL  °C	2.4 'C	4.4'C	6.4 'C
PRECIPITATION			
Winter	139 mm	148 mm	160 mm
Spring	90 mm	96 mm	106 mm
Summer	155 mm	162 mm	163 mm
Fall	140 mm	152 mm	169 mm
FROST FREE DAYS ANNUAL	102	136	165

**Climate Data for Fort St. James at current emmission rates ([ClimateAtlas 2019](#))*

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.

Lack of disaster risk considerations in land management and environmental and natural resource management

Hazard Scenarios

At the February 15th, 2022, Understanding Community Resiliency Workshop participants completed the following 3 of the 6 hazard scenario worksheets. These scenario worksheets were designed to help guide the committee through an alternative discussion process that would help to highlight and articulate additional vulnerabilities within the Electoral Area.

The blank hazard scenario worksheets were designed to help guide the committee throughout the HRVA process and can be used by individuals or organizations a tool during the likelihood and consequence scoring step of the HRVA.

Natural Hazards



Flooding

Scenario Description:

Snow packed mountains and spring thaws have brought rivers, creeks, lakes to record flood levels. 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 first day of incessant rain guarantees some flooding in known flood areas of Sowchea Bay and Nak'azdli. Some residents are concerned about the safety of their homes and water supply.

By the end of the second day of rains, communities are experiencing severe flooding. The Stewart River is still likely two days from cresting. The river level is now increasing quickly, and some small creeks have almost become rivers themselves.

On day three, residents in the community begin reporting flooded basements, and there is a run-on pumps at all local hardware stores. 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:

- Transportation Interruptions.
- Sewage System interruptions - how vulnerable is it - fresh water
- possible power outages / cell towers (radio tower at fire hall), fiber optics - interruptions.

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

- Climate change
- Deforestation

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 'C' that have vulnerabilities? What conditions exist that have the potential to contribute to vulnerability within this neighbourhood?**
- **Focus the conversation on the impacts as the event is happening (recovery will be a focus of conversation at future meetings).**

- Stuart river floods about a week after Takla
- North Road - North of FSJ would be gone - Doesn't matter how big the culvert is still flooded out - shut off everything North of - no access to secondary means of egress means the Teardrop - Road between Tache Road - no access to North Road.
- Critical mass gets the most resources - with this weather event meaning Stuart and Nechako would be flooding, meaning that resources may focus on larger communities and call for a widespread response. The more remote the more self-reliant the communities would have to be.
- Anyone beyond the 's' turns beyond Sowchea would be cut off. Area along Cottonwood to ash would be cut off. No way in or out other than boat access - potential up Cunningham Road.
 - Community of Jet boaters
 - Network of ATV and snowmobile trails in Area C- clubs and resources could be mobilized. Many recreationalists have access to forestry radios. Idea - establishing forestry radio channels in an emergency - depends on response services and

responders. (Atlin had a set up and used a marine channel 16 to communicate during emergencies)	
<ul style="list-style-type: none"> ▪ Highwater on Stuart caused flooding in Nak'azdli - Started building up dikes in the area to help prevent flooding. ▪ In Tache - Sunny Side and Tache- lower communities affected - Not cut off potentially relocate ▪ Concerns in Yekooche. ▪ two winters ago the flow increased double in the wintertime - rare events. ▪ more vulnerable people are the higher the consequences - economic, health... 	
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 1 – Low Impact 0 – No Impact



Wildfire

Scenario Description:

In May multiple forest fire starts near Fort St James and North near Takla Nation from lightening strikes. Winds are high and the spring 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 and making travel in the region challenging. Evacuation alerts have been issued to rural residents, First Nations Communities, and residents in Fort St. James. [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:

- Risk of loss of life
- Air Quality
- Loss of property - housing, infrastructure

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

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 'C' that have particular vulnerabilities? What conditions exist that have the potential to contribute to vulnerability within this neighbourhood?**
- **Focus the conversation on the impacts as the event is happening (recovery will be a focus of conversation at future meetings).**
 - Straight into evacuation planning - how does it affect the community - Survival planning.
 - Mount Milligan has multiple buses that move people - Could be a resource or probability of getting the greatest number of people out of a community at the same time - School buses could be a resource. - busses might be there but there might not be the drivers who are licensed.
 - High number of people with class ones in FSJ - FSJ needs to work on with SD 91 on this scenario of local resources. Need to have SD on board on response.
 - Nak'azdli has a school bus
 - How do we warn people in cabins and remote areas of threats - pockets of people and cabins - how do we let people know that they need to get out and where they go?
 - ex. shovel lake fire - RCMP and search and rescue are contacting people and moving through the rural areas.

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

Human-Caused Hazards

Hazard Material Spill and Motor Vehicle Incident

Scenario Description:

It is summer and there was a reported head on collision with an industrial truck carrying hazardous mine chemicals and a 10-passenger van.

There are several serious life-threatening life injuries. The truck has caused significant damage to the bridge crossing the Stewart River making it unpassable and the truck has spilt its contents into the river and on the bridge deck and caught fire requiring fire response.

If needed, please add more detail to the scenario as we go along.

List Secondary or cascading hazards that may result:

- Interruptions to critical infrastructure
- Environmental damage
- Forest fire
- Water contamination and wells.

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

- increase of industrial traffic in the region.
- if in the shoulder season - black ice- other road conditions - bridge decks can get slippery

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 'C' that have particular vulnerabilities? What conditions exist that have the potential to contribute to vulnerability within this neighbourhood?**
- **Focus the conversation on the impacts as the event is happening (recovery will be a focus of conversation at future meetings).**
 - Had a couple of close calls - fuel truck upset at 10 or 11 km and shut down the highway - 20 years ago.
 - School bus full of kids turning left at Sowchea Road - logging truck coming the other way – another vehicle rear ended the bus and pushed bus forward instead of into oncoming traffic. Everyone was okay but not out of the range of possibilities.
 - multi-jurisdictional - hazmat out of PG, Environment Canada, MOTI,
 - powerful hydraulic in Stuart River downstream of the bridge - deep hole 40-50 ft deep in the river. Fast moving river - hazardous material maybe taken down stream quickly - a lot of people who take water from the river downstream - contamination would spread out very quickly.
 - Hazard material mining trucks plaques taken through FSJ - why are these chemicals going through FSJ rather than going to the north? Only 45 min to go the other way and is a much better road.
 - From fire response FSJ is well suited to deal with it. - Fire department does not have resources to deal with the hazard spill into the river would need provincial resources for assistance
 - BC ambulance does not have the capacity to deal with 10 - need to call in at least two ambulances from Vanderhoof for support.
 - Critical service interruption - no food coming into the community.
 - Highways have been closed for 8 hours in the past on different events - if we are blocking off highway where do we stage traffic in the interim - i.e. logging trucks coming into town- communication of logging trucks to pause before town.



Hazardous
Material Spill

<ul style="list-style-type: none"> ▪ example blockage a few years ago backed up industrial traffic in the community and up north road - now more trucks creating a larger issue- creating local traffic issues. ▪ would this incident have effect on power and communication in the community – do these services pass in the area of the bridge? yes but higher in the air. ▪ fatalities with logging trucks have happened in the region and on the highway. ▪ Intersection of Highway and Sowchea road is a dangerous crossing - MOTI has been improving the intersection, but requires further work. ▪ Increased weights and loads of logging truck creating additional risk – Road restrictions on weight were changed for Pine beetle logs, but have not been reverted with the forestry practices changing - green timber and heavier loads increasing risk on highways. 	
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 1 – Low Impact 0 – No Impact

Electrical Outage



Electrical Outage

<p>Scenario Description:</p> <p><i>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 27 and Highway 16. Road contractors are working to reopen the roads, but this will take many days, particularly for the rural residents up Stewart and Takla Lake.</i></p> <p><i>The early season snowstorm left BC Hydro customers in the region without power, and many trees have knocked down local power lines. The main transmission line to Fort St James was down and due to impassable roads crews in some areas were relying on helicopters to access problem areas.</i></p> <p><i>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.</i></p>	
<p>List Secondary or cascading hazards that may result:</p>	
<p>Triggering Event (Root causes of this type of event):</p>	
<p>Impact Summary</p> <ul style="list-style-type: none"> ➤ What social, economic, environmental, and physical factors may increase the community’s susceptibility to damage this hazard? ➤ Are there specific neighbourhoods in Area ‘C’ that have particular vulnerabilities? What conditions exist that have the potential to contribute to vulnerability within this neighbourhood? ➤ Focus the conversation on the impacts as the event is happening (recovery will be a focus of conversation at future meetings). 	
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 1 – Low Impact 0 – No Impact

Diseases, Pest Infestation & Epidemics



Animal Disease Crisis

Scenario Description:

*It is summer and there are reports of farms in Area C loosing 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 C. 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:

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

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 'C' that have particular vulnerabilities? What conditions exist that have the potential to contribute to vulnerability within this neighbourhood?

Likelihood Rating *(Please Circle)*

E – Almost Certain to Occur
D – Likely to Occur
C – Probable to Occur?
B – Unlikely to Occur
A – Very Rare to Occur

Consequence Severity *(Please Circle)*

4 – Extreme Impact
3 – High Impact
2 – Moderate Impact
1 – Low Impact
0 – No Impact



Plant Disease Pest Infestation

Scenario Description:

After several relatively warm winters, a massive outbreak of spruce beetle and fir beetle results in the loss of millions of hectares of spruce and fir forests in the Prince George (Fort St James) TSA over the next 15 years. We are going to look at the impacts of this infestation on the forest sector and communities in the Fort St James Rural Area C. If needed, please add more detail to the scenario as we go along.

List Secondary or cascading hazards that may result:

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

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 'C' that have particular vulnerabilities? What conditions exist that have the potential to contribute to vulnerability within this neighbourhood?

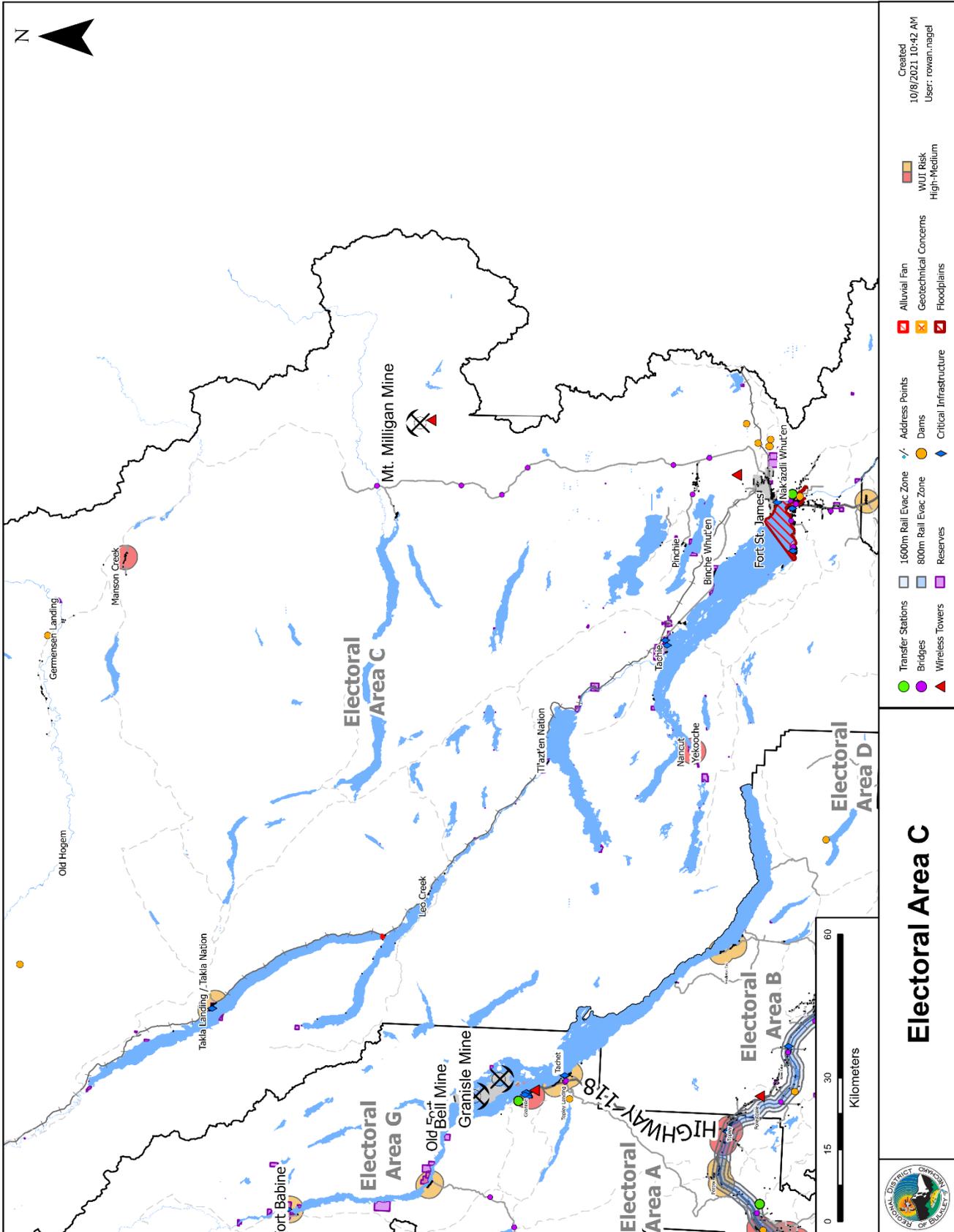
Likelihood Rating *(Please Circle)*

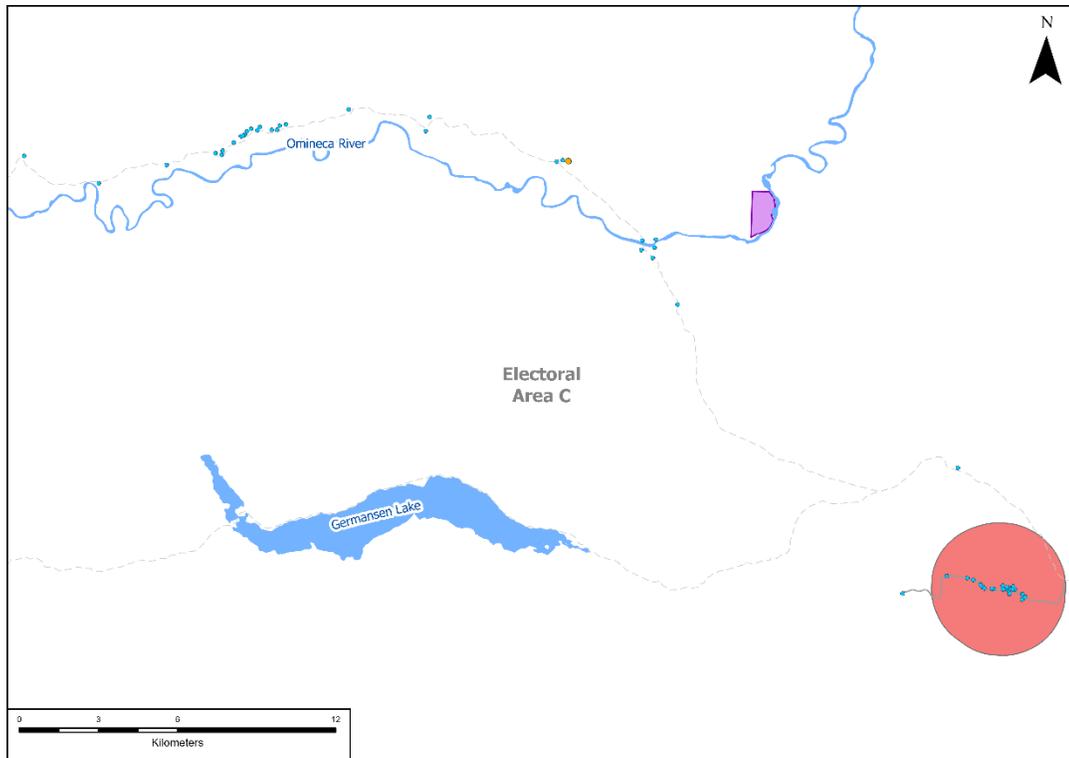
E – Almost Certain to Occur
D – Likely to Occur
C – Probable to Occur
B – Unlikely to Occur
A – Very Rare to Occur

Consequence Severity *(Please Circle)*

4 – Extreme Impact
3 – High Impact
2 – Moderate Impact
1 – Low Impact
0 – No Impact

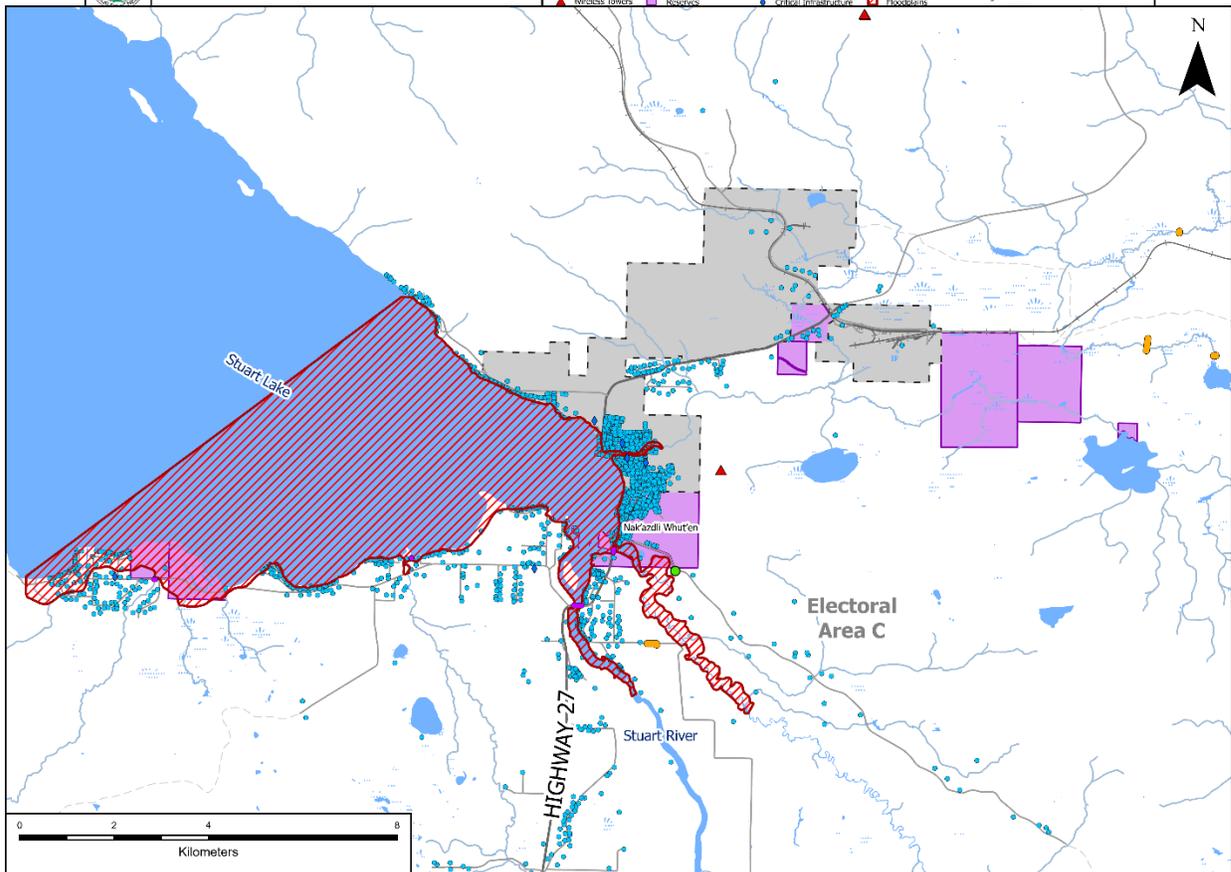
Appendix 1 – ELECTORAL AREA 'C' KNOWN HAZARDS MAP





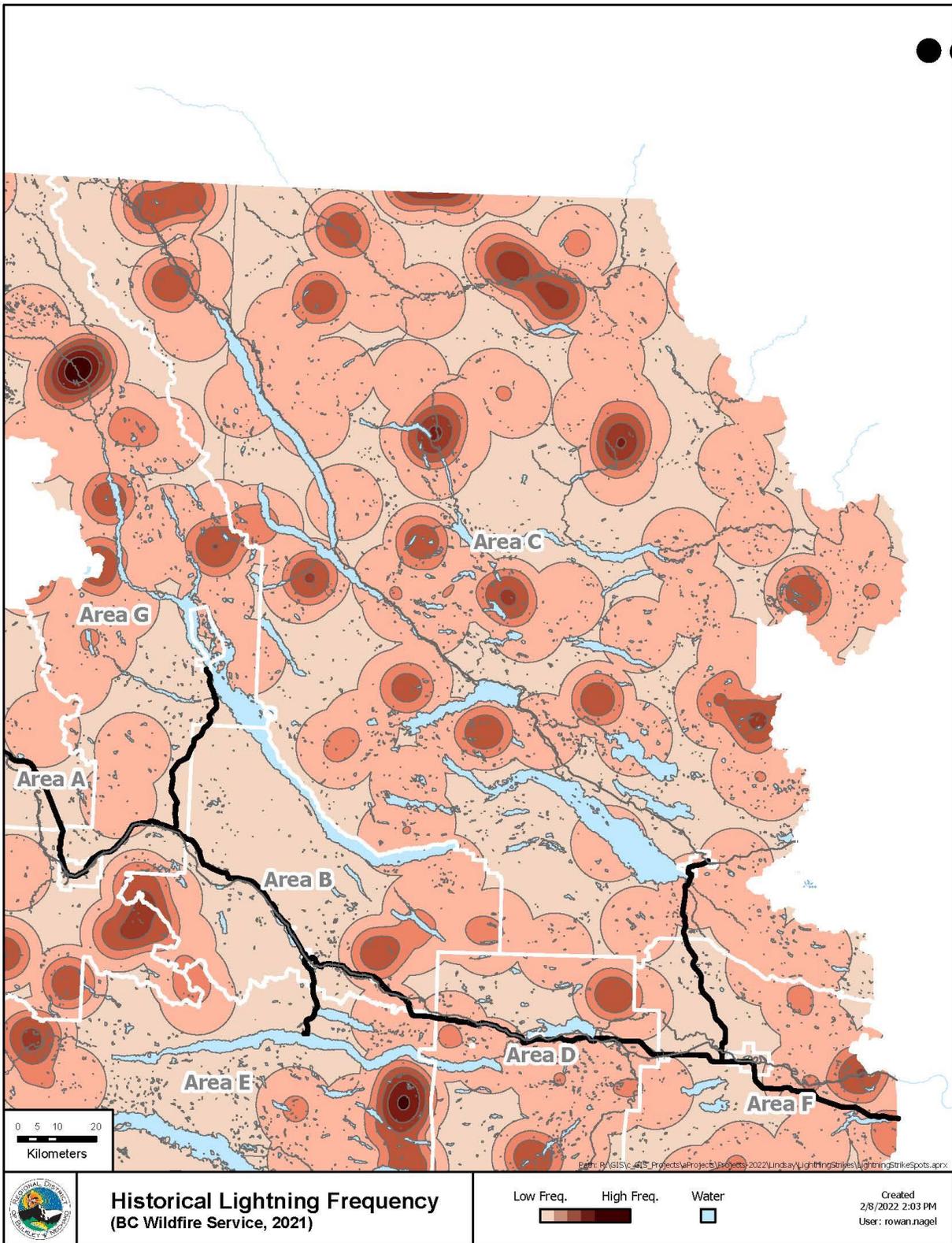
Electoral Area C North

Transfer Stations	1600m Rail Evac Zone	Address Points	Alluvial Fan	Geotechnical Concerns	WUI Risk High-Medium	Created 10/8/2021 10:42 AM User: rowan.nagel
Bridges	800m Rail Evac Zone	Dams	Floodplains			
Wireless Towers	Reserves	Critical Infrastructure				



Electoral Area C Fort St James

Transfer Stations	1600m Rail Evac Zone	Address Points	Alluvial Fan	Geotechnical Concerns	WUI Risk High-Medium	Created 10/8/2021 10:42 AM User: rowan.nagel
Bridges	800m Rail Evac Zone	Dams	Floodplains			
Wireless Towers	Reserves	Critical Infrastructure				



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