



Regional District of Bulkley-Nechako

HRVA Electoral Area' E' Understanding Community Resiliency

March 2022

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

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Preface

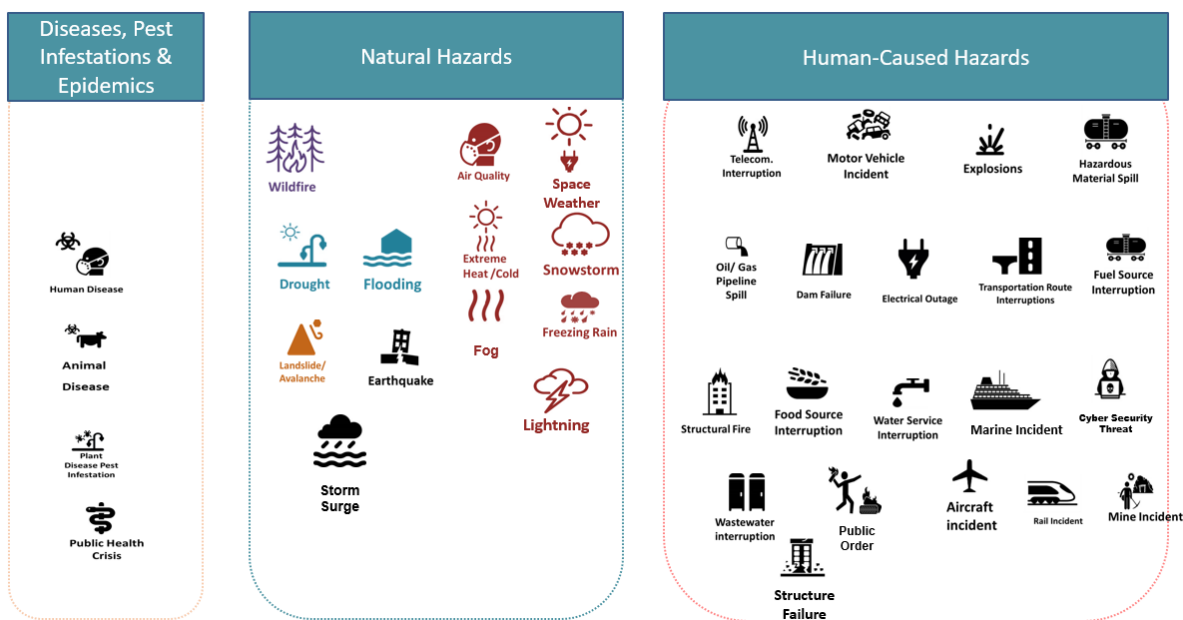
Purpose of Backgrounder and Workbook

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 'E', Francois/Ootsa Lake Rural.

The Electoral Area 'E' 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 'E' HRVA advisory 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 'E' to manage specific hazards and generate enough understanding of the community in order to complete the next step in the HRVA process; scoring likelihood and consequences.

Summary of Selected 38 Hazards for Electoral Area 'E'



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 Planning (Current)
- Southside Emergency Preparedness Committee September 2010

Reports/studies

Fire

- Southside Wildfire Risk Reduction Tactical Plan 2021
- [Community voices as agents of change: 2018 wildfire experiences in the southside. By Susan Miller, UNBC May 2021](#)

Flooding

- [Nechako Reservoir Dam Emergency Plan \(DEP\)](#) Nov 2020
- Inundation Maps for Area E: Skins Lake Spillway ([Maps 1-5](#))
- [RDBN Floodplain Management Bylaw No. 1878, 2020](#) and [Mapping](#)

Geotechnical

- [Geotechnical Report Guidelines RDBN brochure](#)

Policies and other resources

- [Cheslatta Carrier Nation Comprehensive Community Plan March 2017](#)
- RDBN [Southside Rural Community Plan Resource Document \(Electoral Area E\)](#)

Health

- [Lakes District Aboriginal Community Resource Guide – A tool for collaborative planning in patient care – Jan 2019](#)

Mining Studies

- Huckleberry Mine tailings storage facilities [Emergency Preparedness and Response plan Extracted from: Operation, Maintenance and Surveillance Manual ; Section 9 Prepared by BGC, June 31, 2013](#)

Community Planning Studies

- [Regional District of Bulkley-Nechako Electoral Area E - Francois/Ootsa Lake Rural ELECTORAL AREAS HOUSING NEEDS REPORT](#)

Regional Resources

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

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 'E'.



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).

Participants are 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 E.

Social Factors¹



POPULATION

CULTURE

In 2016, 13% of Area E identified as First Nation, a 5% Canadian German population

Land Area
15,897 KM²



HOUSING

	# OF PRIVATE DWELLINGS	SINGLE DETACHED	ATTACHED HOUSING	MOVEABLE HOUSING
Area E	620	550	15	60
Southbank	45	40	-	5
Cheslatta 1	53	25	-	5
Francois Lake 7	6			
Omineca 1	1			
Uncha Lake 13 A	7			
Skins Lake 16A	6			
Skins Lake 16 B	7			
Tatla't East 2	1			

2016

< 14YRS



seniors

Area E	1,512*	21 %	22 %
Southbank	112*	22%	0 %
Cheslatta 1	49*	24 %	6 %
Francois Lake 7	10		
Omineca 1	5		
Uncha Lake 13 A	10		
Skins Lake 16A	5		
Skins Lake 16 B	23		
Tatla't East 2	5		

2021 Cheslatta 1 population statistics report a -42% population change since 2016

HOUSEHOLD INCOME

MEDIAN HOUSEHOLD INCOME BEFORE TAX

% OF LOW-INCOME HOUSEHOLDS

Area E	\$ 66,091	21.3 %
Southbank	\$ 66,816	-
Cheslatta 1	\$ 37,248	-

LANGUAGE



In 2016, 99 % of Area E report English and 1% French as their official language.



Person with Disabilities

25 % potentially living with a disability = 378 in Rural Area E

¹ (Canada S. , 2016) the population # for Area E, Southbank and Cheslatta 1 are from 2021, the remainder stats are from 2016.

Support Services

Southside Health and Wellness Centre

Offers nursing services, nurse practitioner and physical series, mental health & addictions services, Free short term equipment loans for Southsiders, Community health representative for First Nations.

Community Services

THE LINK



based out of Burns Lake The LINK works to enhance the health and socio-economic well-being of individuals, children and families in the Lakes District.

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

- Foodbank services are provided through the LINK every Wednesday to the Southside. The community paramedics then deliver to those who can not leave their homes.

Southside Mobile food centre food hampers numbers:

2019: 264

2020: 346

2021: 261

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.

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 Francois Lake Ootsa Rural, that would mean about 378 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

Area E

Southbank

Cheslatta 1

**PARTICIPATION
RATES**

61.7 %

81.8 %

30.8 %

**EMPLOYMENT
RATES**

52.8 %

72.7 %

30.8 %

**UNEMPLOYMENT
RATES**

15 %

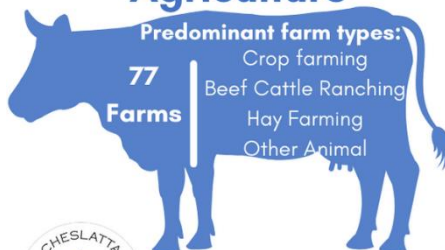
0 %

50 %

Economy

Largest Industries based on Employment in Area E

Agriculture



Cheslatta Carrier Nation Businesses

- Chief Louis Paddle Company
 - Nootsenay Enterprises
- Cheslatta Community Forest
- Tsacho Enterprises, Cheslatta Forest Products Ltd
 - Bad Boys Contracting
 - Cheslatta Archives
- Cheslatta Carrier Nation Contracting
 - Pondsosy Bay Resort
 - CHickimin Bay Portage
 - Danskin Garage
- Cheslatta Marine Services
- Cheslatta Training Centre

Forestry



- Burns Lake Community Forest
- Chinook Community Forest
- other small operators



Fishing



ADMIN

Public

Administration



Healthcare

Other Contributing Industries & Employers

- Education Services
- Transportation and Warehousing
- Manufacturing
- Construction
- Retail Sales
- Accommodation & Food Services
- professional, scientific
- Mining exploration
- Tourism



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.

(Barry P. Booth, 2001) (Zirnhelt, Miller, & McGregor, 1997)



Ecosystem Environment

The Lakes District forests are largely areas of young forest, the result of past several decades of harvesting activities and large fires. The forest are primarily composed of lodgepole pine, spruce-leading stands, balsam-leading stands and deciduous stands (i.e., aspen and cottonwood).

Predominant Natural Features



- Nechako Reservoir north arm includes Ootsa Lake, Whitesail Lake, and Whitesail Reach, the south arm Eutsuk Lake, Nataalkuz Lake, Chedakuz Arm, Knewstubb Lake, Tetachuck Lake and others.
- Other lakes in the area include Francois Lake, Tchesinkut Lake, Uncha Lake, Binta Lake, Tatalaska Lake, Takysi Lake, Knap Lake, Cheslatta Lake, and many more.

Parks



- 5 BC Parks - With two large parks being Tweedsmuir North Park and Eniako Park
- 27 Recreation Sites (a number of which are managed by the Lakes Outdoor Recreation Society)



Air Quality

- Health Risks during forest fire
- No purple air quality monitoring stations

Wildfires



- 2018 there were 7 large fires that burnt 188,000 ha of forest within Electoral Area E.
- Forest fires are an integral part of the ecosystems of the Lakes TSA and stand replacing fires are frequent.
- Fires provide nutrient cycling, complexity, resiliency, and biological legacies within the ecosystem.
- between 1933 and 2009 in the Lakes TSA fires burnt an average of 400 ha per year and rarely exceeded 1000 ha. Averages have since increased.

Pine Beetle

In the Lakes TSA, the Mountain Pine Beetle outbreak began in the late 1990's and the peak in mortality occurred in 2005. It is currently (2019) estimated that about 76 percent of the mature pine volume - or 49 percent of the commercially available volume - was killed by the mountain pine beetle.



Cheslatta Nation Environmental stewardship Projects:

- Uman Traditional fish study
- Cariboo Habitat & Restoration Inventory
- Lichen Reestablishment program
- driftwood mitigation
- Traditional use villages, campsites, & trails study update
- Guardian program
- Ne Too Project (Kenny Dam Water Release Facility)

⁴ Parks BC: Entiako, Little Andrews Bay, Tweedsmuir North Park and Protected Area, Uncha Mountain Red Hills, Wistaria.

Rec sites: Agate Point, Binta Lake North, Binta Lake South, Cheslatta River, Colleymount, Eastern Lake, Francois West, Government Point, Guyishton Lk. Rec. Site/Trail, Indian Bay, Knapp Lake, Lund Lake, McClure Pit, Moose Lake, Nadina Lake, Noralee East, Noralee West, Ootsa Landing, Parrott Lake, Poplar Lake, Sweeney Lake E, Sweeney Lake W, Takysie Lake, Top Lake South, Trout Lake, Twinkle Lake, Uncha 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 7 8}

Physical Critical Infrastructure



⁵ There are community water systems in Electoral Area 'D'(Endako, Fraser Lake & Fort Fraser) that service anywhere from 2 – 10000(potential) connections. Information on water facilities can be found on [Northern Health Drinking Water reports and summaries under](#) Francois Lake, Grassy Plains, .

⁶ Internet: There are 7 internet service providers in the region (Corporation, 2019), and a seventh, Starlink scheduled for 2021.

⁷ Radio: There are 2 radio channels: CFUG-FM 94.9 FM and VF2230 98.1 FM; and 6 television stations through the Burns Lake & District Rebroadcasting Society: CBC, CHEK Victoria, CTV National, Detroit Public TV, Global Knowledge Network.

⁸ [First Nations Community Water System Water Risk Summary for](#) Cheslatta, Skin Tyee, Nee-Tahi-Buhn.

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 'E'? What considerations need to be considered? And are these considerations localized to specific geographic areas?

Climate Change

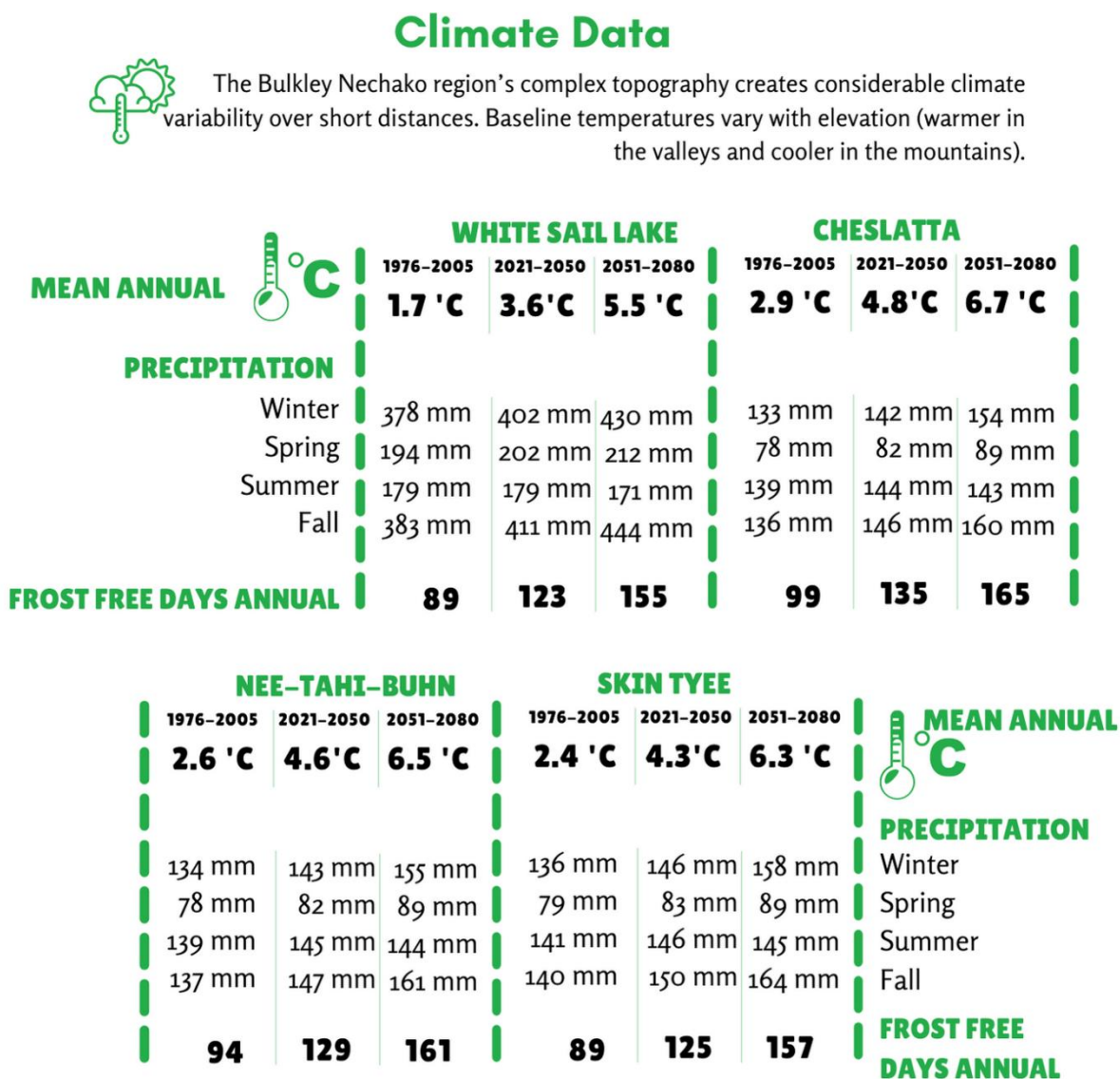
Climate change is not an abstract future concern, but rather a current, evolving reality experienced in Canada today. Canada's climate has been increasing in temperature and is predicted to continue to increase in the coming years. According to the recent Canada's Changing Climate Report, Canada's climate 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).

Skeena Natural Resource Region Climate Projections (Foord, 2016)

Climate projections for the northern regions and districts were made for 2055 (2041–070). Mean annual temperature in the Skeena Natural Resource Region is projected to increase by 3.1°C, with minimum temperatures increasing more than maximum temperatures. Mean annual precipitation for the Nadina District is projected to increase by 5%. Increases will likely be as rainfall because precipitation as snow is projected to decrease by about 35%. Precipitation is projected to increase the most in the fall. The number of growing degree-days will increase, and the number of frost-free days will increase. The greatest increase in the number of frost-free days is projected to occur in the spring. 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, four indigenous community climate predications are as seen in the chart below:



*Climate Data for Whitesail Lake, Cheslatta, Nee-Tahi-Buhn and Skin Tyee Nations GHG emissions continue to increase at current 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 business 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

For each identified hazard, complete the hazard scenario worksheet. These scenario worksheets are designed to help guide the committee throughout the HRVA process and will be provided to committee members as a tool during the likelihood and consequence scoring step of the HRVA.

Please work with fellow workshop participants to complete the hazard Scenario worksheets by writing notes under each hazard scenario. Please reference the revised Hazard Identification backgrounder for information and historical information on each hazard selected.

In the hazard identification workshop participants started discussing primary hazards and the concept of cascading hazards that may arise due to a hazard occurring in an area. For example, flooding may cause transportation interruptions, electrical outages, etc. Please refer to both the Hazard ID backgrounder and the Summary of the Hazard ID workshop to help inform your contributions to the completion of these worksheets.

Natural Hazards

Wildfire



Scenario Description:

In May multiple forest fire starts on the Southbank area and north area of Francois Lake from lightening strikes. Winds are high, the spring drought conditions create a dry forest fuel that results in the fire growing rapidly and uncontrolled. The winds are pushing the fires south towards Tchesinkut Lake and south towards Danskin, and Uncha Lake threatening the residents and making travel in the region challenging. Evacuation orders have been issued to rural residents along Francois Lake, rural residents on the south side of Grassy Plains and the. [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:

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 'E' 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

Human-Caused Hazards

Marine Vehicle Incident



Scenario Description:

It is winter and there was a reported mechanical failure resulting in the Barge Ferry that crosses Francois Lake to sink. There were no lives lost. This incident will cut off all emergency services and impact the direct transportation route for all southside residents. Winter conditions create additional challenges for transportation.

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 'E' 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



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 35 and 16. Road contractors are working to reopen the roads, but this will take many days, particularly for the rural Francois Lake residents and southside residents.

The early season snowstorm left BC Hydro customers in the region without power, water, and many trees have knocked down local power lines. 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.

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

List Secondary or cascading hazards that may result:

- Loss of water service on Southside due to Three Nations water system having no backup power (will need to clarify with Three Nations Water System providers).

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 'E' 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

Animal Disease Crisis

Scenario Description:

*It is summer and there are reports of farms in Area E 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 E. 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.*

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

List Secondary or cascading hazards that may result:

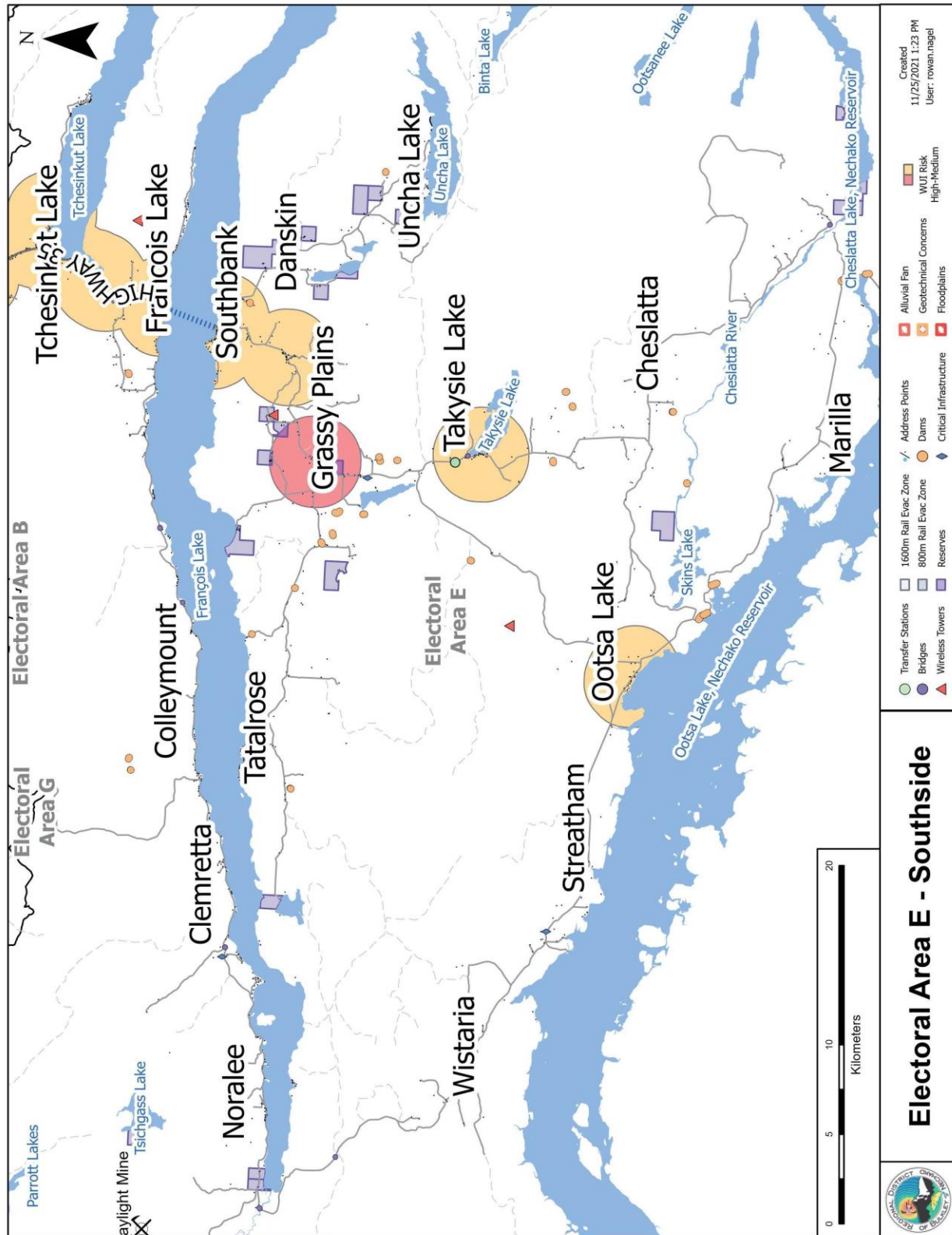
Triggering Event (Root causes of this type of event):

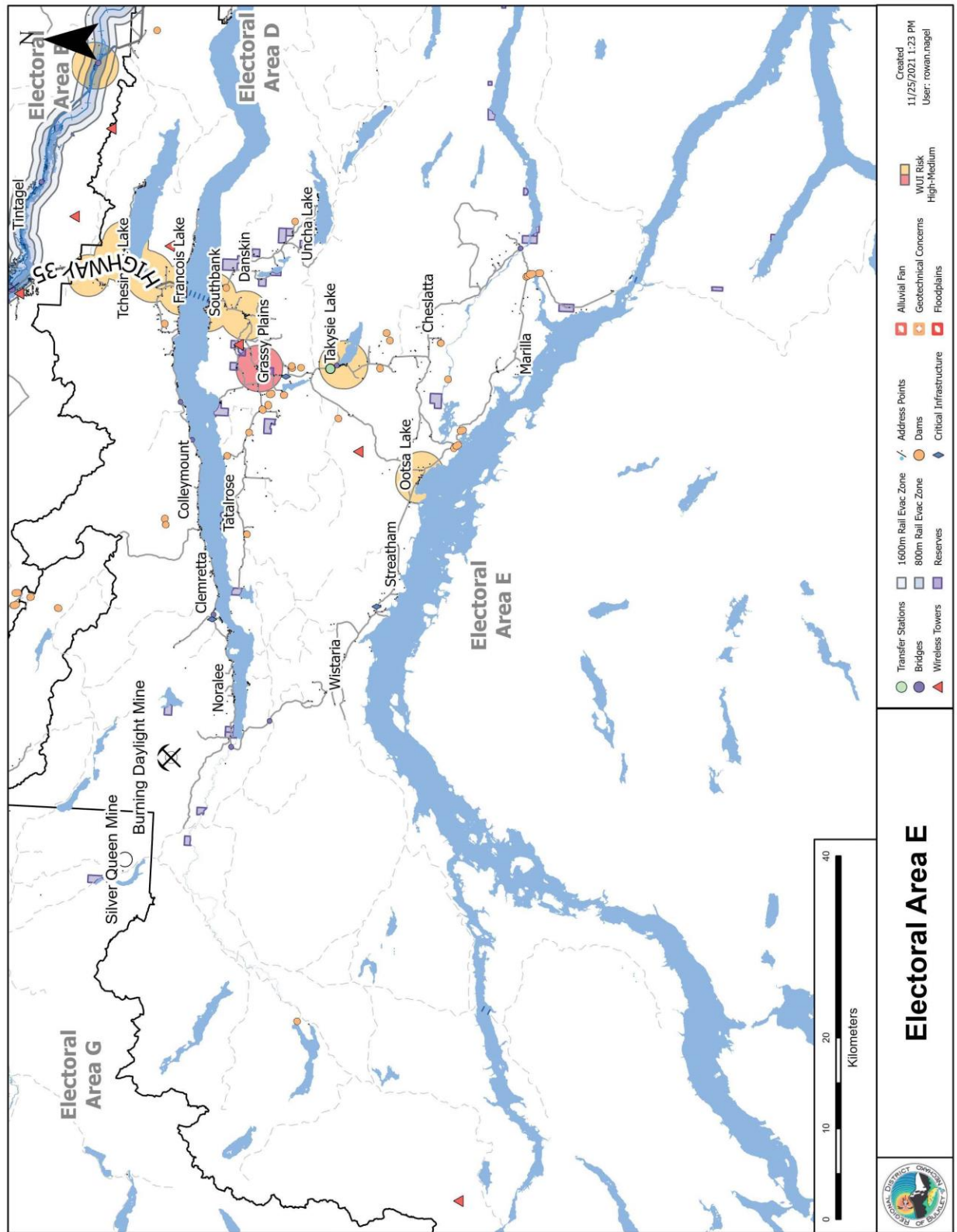
Impact Summary

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

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 'E' KNOWN HAZARDS MAP





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