



Regional District of Bulkley-Nechako
Hazard, Risk & Vulnerability Analysis
April 6, 2023

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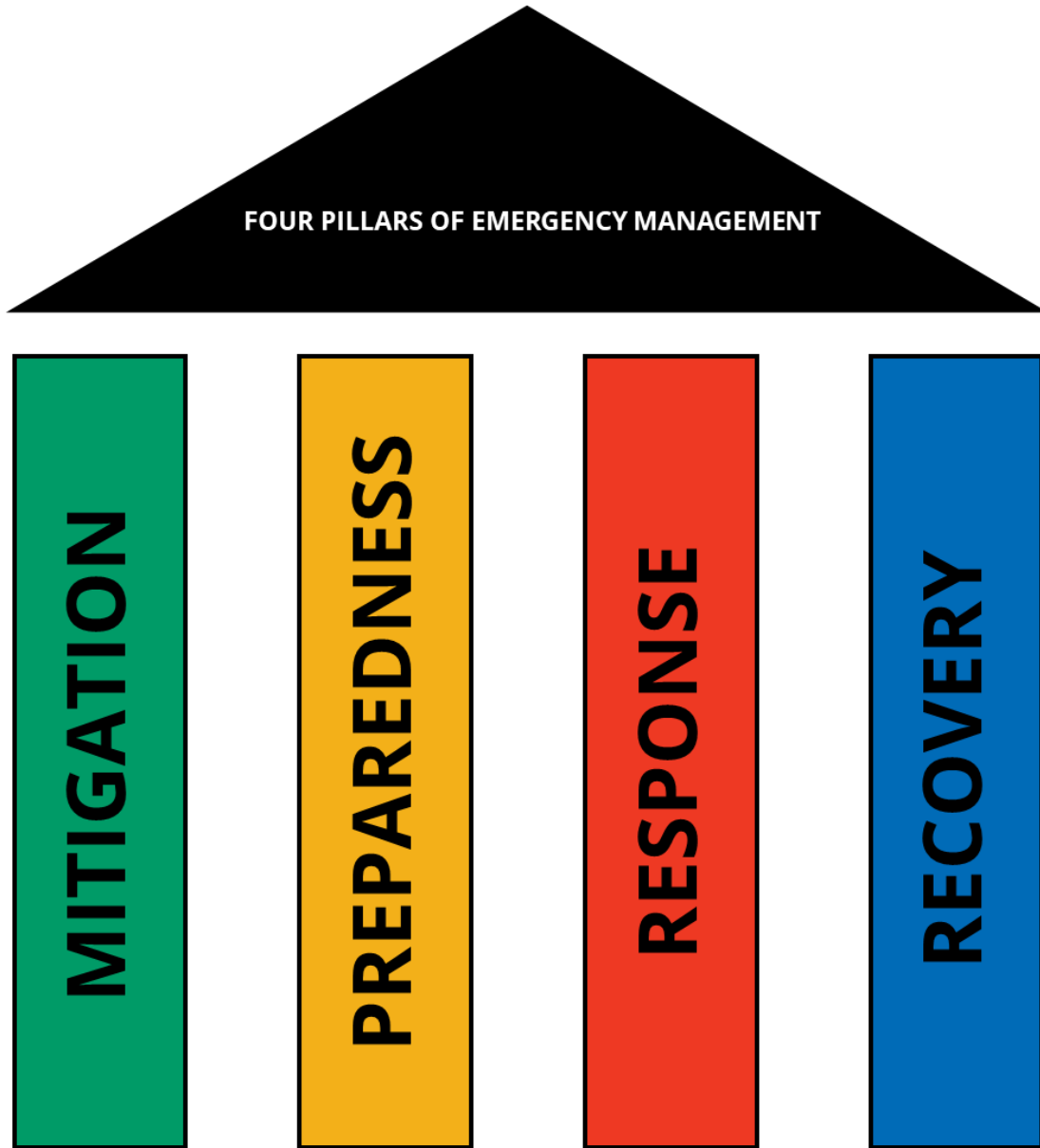
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Regional District of Bulkley-Nechako

Emergency Management Mission Statement

Building a safer future through effective partnerships with local government, First Nations, emergency services agencies, the private sector, volunteer agencies, and the residents of the Regional District of Bulkley-Nechako to save lives, protect property, and reduce the effects of emergencies through mitigation, preparedness, response, and recovery activities.



Revision History

Revision #	Date	Summary of Changes	Revised By
00		Initial Document	Deborah Jones-Middleton

Definitions

Within the Comprehensive Emergency Management Plan there are several acronyms used, below is a list of the acronyms and the definition.

CEMP	Comprehensive Emergency Management Plan
EA	Electoral Area
EPA	<i>Emergency Program Act 1996</i>
HRVA	Hazard, Risk & Vulnerability Analysis
HSAR	Houston Search & Rescue
LAEMR	<i>Local Authority Emergency Management Regulation</i>
MOF	Ministry of Forests
MOTI	Ministry of Transportation and Infrastructure
RDBN	Regional District of Bulkley-Nechako
SAR	Search & Rescue



INTRODUCTION

“In its analysis, an HRVA considers several factors, including the unique geographical area and functions of a community or organization, and any societal, environmental, economic, political, or reputational risks. The results of an HRVA give the emergency management program the information it needs to develop an emergency plan, set priorities for action, and allocate time and resources accordingly.”

British Columbia Emergency Management System

General

The Hazard, Risk and Vulnerability Analysis (HRVA) is a foundational step towards enhancing the Regional District of Bulkley-Nechako (RDBN) Emergency Management Program. The objective of this process is to increase regional awareness and resilience to natural, technological, and conflict-related hazards by informing the Comprehensive Emergency Management Plan (CEMP). The HRVA will be an appendix of the CEMP and is a living document that guides the RDBN Emergency Management Program.

Purpose Statement

As environmental-based hazards are increasing in scope, intensity, and frequency, the RDBN continues to explore and invest in improvement opportunities to increase the resiliency of the region. The most significant hazards in the RDBN include flooding and wildfire in wildland urban interface areas. Hazards like these expose the Region's vulnerabilities and create increasing risks to residents.

The previous HRVAs were conducted in 2002. Since the current RDBN Emergency Preparedness Plan was written in 2003 and updated in 2011, there have been significant changes in agency, best practices, and terminology.

In the summer of 2018, the RDBN responded to 16 interface wildfires, resulting in 64 evacuation orders, alerts and extensions that affected approximately 3,475 people. This emergency and the subsequent independent review highlighted this "new normal" of large-scale emergencies, their consequences, and the stress these events put on the RDBN's limited resources. The need was identified for innovative solutions and engagement of residents in emergency management.

The HRVA supports the development of a collective community understanding of hazards and the promotion of activities to enhance our regional awareness and resilience. The findings from this analysis will serve as a tool in updating the CEMP and determining the work plan for the Protective Services Department.



Scope

The scope of the HRVA covered the geographic area of the RDBN. The Committees reviewed all 57 categorized natural and human-caused hazards that could potentially disrupt the RDBN and require a response. The Committees also received information on each of the hazards that had historically impacted the RDBN.

Out of Scope

The HRVA did not assess the risk or impacts within the boundaries of member municipalities and First Nations located with the EA. However, the Committee recognized that hazards occur across jurisdictional boundaries. The HRVA did not assess hazards specific to individual properties and climate change modelling was not in the scope of this project.

Authority

This HRVA is a requirement mandated by the *Local Authority Emergency Management Regulation (LAEMR)* of the *EPA*. Section 6 (2) of the *Emergency Program Act 1996 (EPA)* requires local authorities to, “prepare or cause to be prepared local emergency plans respecting preparation for, response to, and recovery from emergencies and disasters.” According to Section 2 (1) (a) and (b) of the *LAEMR*, the local emergency plans must reflect the potential emergencies, and disasters that could affect the jurisdictional area. The local authority’s assessment of the relative risk of occurrence and the potential impact on people and property must be considered.

Committees

The RDBN HRVA was conducted by Committees for each EA. The Committees were led by the Electoral Area Director and invited representatives from municipalities, First Nations, local community members, provincial agencies, and local response groups.

The Regional District of Bulkley-Nechako appreciates the time and commitment invested into the program by the members of each EA Committee and their contributions to the HRVA for the EA and the RDBN as a whole.



HAZARD IDENTIFICATION

“A hazard is a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption, or environmental degradation. Hazards may be natural, anthropogenic or socionatural in origin.”

United Nations Office for Disaster Risk Reduction

Geographic Setting

The RDBN is in central British Columbia and covers 77,987 square kilometers. The western boundary of the RDBN is located approximately two kilometres east of Telkwa High Road junction and 2 kilometres west of River Road junction. The eastern boundary is about 500 metres east of Lloyd Drive and 1.3 kilometres west of Bobtail Forest Service Road. The northern boundary runs along the 56th parallel North of Takla Lake and the southern boundary runs along the 53rd parallel within the northern portion of Tweedsmuir Park.

The RDBN spans the traditional territories of many First Nations, including the Dakelh, Nedut'en, Tse'khene and Wit'suwit'en peoples.

The following map below identifies each Electoral Area (EA) and municipality, and the First Nations in the geographic area of the RDBN. Following the map is a high-level description of each of the seven Electoral Areas, identifying the differences in size, incorporated and unincorporated communities, and First Nations.



RDBN MAP



Electoral Area A (Smithers/Telkwa Rural)

EA A covers 3,677 square kilometres and has 5,587 residents identified in the 2021 Census. Some of the unincorporated communities in EA A are Driftwood Creek, Glentanna, Evelyn, Quick, Hudson Bay Mountain Ski Community, the area surrounding the Village of Telkwa and the Town of Smithers, and many small neighbourhoods.

The geographic scope of the EA includes the Town of Smithers, located halfway between the cities of Prince Rupert and Prince George along Highway 16, and the Village of Telkwa.

EA A is situated on the Yintah (land) and traditional territory of the Wet'suwet'en, home to the Gitdumden (Wolf/Bear) and Laksilyu (Small Frog) Clans' people.

Electoral Area B (Burns Lake Rural)

EA B covers 3,905 square kilometres and has 1,706 residents identified in the 2021 Census. The unincorporated communities in EA B include Decker Lake, Donald Landing, Palling, Rose Lake, Sheraton, Tintagel, Pendleton Bay, and Forestdale.

The geographic scope of the EA includes the Village of Burns Lake, located in the heart of the Lakes District on Highway 16 between the Village of Fraser Lake and the District of Houston. The Village of Burns Lake serves as the supply centre for approximately 7,000 residents from the surrounding areas.

EA B is in Nedut'en/Witsuwit'en Traditional Territory. There are three First Nation communities in the geographic area:

- Wet'suwet'en First Nation with 247 members, including those living on the Broman Lake and Palling reserves.
- Ts'il Kaz Koh (Burns Lake Band) with 188 members, including those living on the Burns Lake 18 reserve.
- Lake Babine Nation with 2,561 members, including those living on the Woyenne reserve in the Burns Lake area.

Electoral Area C (Fort St. James Rural)

EA C covers 27,184 square kilometres and has 1,266 residents identified in the 2021 Census. Some of the unincorporated areas in EA C are Manson Creek, Germansen Landing, Leo Creek, Tachie, Nancut, Pinchie, Takla Landing, Old Hogem, and Trembleur.

The geographic scope of the EA includes the District of Fort St. James, located on the eastern end of Stuart Lake approximately 61 kilometers north of the District of Vanderhoof. The District of Fort St. James serves as the main supply centre for approximately 4,500 people living in the EA.

The geographic area of EA C is in the Dakelh and the Tse'khene Traditional Territories. There are five First Nation communities:



- Tl'azt'en Nation, with approximately 600 members living in one of the main communities of Tache, approximately 65 km northeast of Fort St. James, Dzitl'ainli on Leo Creek Road alongside Trembleur Lake, K'uzche on the Tache River.
- Binche Whut'en with ten reserves and approximately 730 members, is located northeast of Fort St. James at the mouth of the Binche River.
- Nak'azdli Whut'en, located adjacent to Fort St. James, with seventeen reserves including the Nak'azdli reserve with approximately 614 members.
- Takla Lake Nation is located approximately 400km west of Prince George. The band services 17 reserves totaling 809 hectares with a population of approximately 855 members. The main community is at Takla Landing, on the north end of Takla Lake.
- Yekooche First Nation is located about 85 km northwest of Fort St James. It comprises 4 reserves on a total of roughly 180 hectares. 120 of the 227 members live on Reserve #3 (Yekooche) located along the northwest arm of Stuart Lake.

Electoral Area D (Fraser Lake Rural)

EA D covers 4,781 square kilometres and has 1,607 residents identified in the 2021 Census. The unincorporated communities in EA D include Fort Fraser, Endako, and East Francois Lake or Glenannan.

The geographic area of the EA includes the Village of Fraser Lake, with a population of 965, located near the centre of Fraser Lake on Highway 16 between the District of Vanderhoof and the Village of Burns Lake.

EA D is in the Dakelh Traditional Territory with three First Nation communities:

- Stelat'en First Nation has approximately 583 band members. The Stellakoquo Reserve is located at the west end of Fraser Lake near the mouth of the Stellako and Endako Rivers and has approximately 200 residents.
- The Nadleh Whut'en First Nation has approximately 600 band members. The Nautley reserve is located west of Fort Fraser. The Band Office provides services to 7 reserves.
- The Cheslatta Carrier Nation has five reserves within the EA that are supported by the Band Office located in the geographic area of EA E.

Electoral Area E (Francois/Ootsa Lake Rural)

EA E encompasses 17,745 square kilometres and has 1,512 residents identified in the 2021 Census. Electoral Area E is unique in that there is no municipality within its borders; instead it consists of a number of robust unincorporated communities including: Tchesinkut Lake, Francois Lake, Southbank, Colleymount, Clemretta, Noralee, Grassy Plains, Danskin, Uncha Lake, Takysie Lake, Tatalrose, Wistaria, Streatham, Ootsa Lake, Cheslatta, and Marilla.

The geographic scope of EA E is in the Nedut'en/Witsuwit'en Traditional Territory with three First Nation communities:

- The Cheslatta Carrier Nation has approximately 383 members. The Band Office, based at Southbank on the south shore of Francois Lake, supports 8 reserves totalling at approximately 1403 ha.



- Skin Tyee Nation has a membership of approximately 184 people. The main community and Band Office of the Skin Tyee Nation is located at Uncha Lake on the Skins Lake 16B reserve.
- Nee Tahi Buhn has approximately 140 members and 5 reserves covering approximately 657 ha. The most populated reserve, Uncha Lake 13A, is located on the northeastern end of Uncha Lake.

Electoral Area F (Vanderhoof Rural)

EA F spans 5,617 square kilometres and has 3,517 residents identified in the 2021 Census. The unincorporated communities within the EA are Engen and Cluculz Lake.

The geographic area of the EA includes the District of Vanderhoof, with a population of approximately 4,326 residents

The geographic scope of the EA F is in the Dakelh Traditional Territory with three First Nation communities:

- Saik'uz First Nation is a community of approximately 342. The primary community is situated on the east end of Nulki Lake, 14 kilometres south of the town of Vanderhoof. There are 10 reserves with a total area of 3,235 hectares.
- Nazko First Nation has two unpopulated reserve totalling approximately 107 ha in size.
- Nadleh Whut'en has 1 reserve, Fondeur 9, which is 64.8 ha in size.

Electoral Area G (Houston/Granisle Rural)

EA G covers 15,091 square kilometres and has 836 residents identified in the 2021 Census. The unincorporated communities within the EA include Perow, Kuldo, Smithers Landing, Topley, Topley Landing, and Buck Flats.

The geographic area of the EA includes the Village of Granisle, located on the shores of Babine Lake, and the District of Houston, located along Highway 16 between the Villages of Burns Lake and Telkwa.

EA G is within the Nedut'en/Witsuwit'en Territory. There are three populated reserves within the EA:

- Wit'at Reserve located 165 miles northeast of Burns Lake, at the mouth of Babine Lake, the population is approximately 200 members.
- Old Fort Reserve located approximately 20 miles northeast of Granisle on Babine Lake with temporary residents dwelling there up to 10 months of the year and is only accessible by boat.
- Tachet Reserve is located 60 miles northwest of Burns Lake, near Topley Landing, at the mouth of Fulton River with a population of more than 200 members.



Population

The total population of the geographic region is 38,630 according to Statistics Canada 2021 Census. The following breakdown includes the EA, municipalities, and First Nations populations within the geographic area of each EA.

Regional Population		
Electoral Area A (Smithers/Telkwa Rural)		
Rural	5,587	
Town of Smithers	5,378	
Village of Telkwa	1,474	
Total EA A (Smithers/Telkwa Rural)		12,439
Electoral Area B (Burns Lake Rural)		
Rural	1706	
Village of Burns Lake	1659	
Wet'suwet'en First Nation	248	
Ts'il Kaz Koh (Burns Lake Band)	183	
Lake Babine Nation Woyenne reserve	603	
Total EA B (Burns Lake Rural)		4399
Electoral Area C (Fort St. James Rural)		
Rural	1266	
District of Fort St. James	1386	
Tl'azt'en Nation	449	
Binche Whut'en	80	
Nak'azdli Whut'en	701	
Takla Lake Nation	213	
Yekooche First Nation	92	
Total EA C (Fort St. James Rural)		4187
Electoral Area D (Fraser Lake Rural)		
Rural	1607	
Village of Fraser Lake	965	
Nadleh Whuten Band	253	
Stellat'en First Nation	211	
Total EA D (Fraser Lake Rural)		3036
Electoral Area E (Francois/Ootsa Lake Rural)		
Rural	1512	
Cheslatta Carrier Nation	151	
Nee-Tahi-Buhn Band	35	
Skin Tyee Band	52	
Total EA E (Francois/Ootsa Lake Rural)		1750
Electoral Area F (Vanderhoof Rural)		
Rural	3517	
District of Vanderhoof	4346	
Saik'uz First Nation	331	
Total EA F (Vanderhoof Rural)		8194
Electoral Area G (Houston/Granisle Rural)		
Rural	836	
District of Houston	3052	
Village of Granisle	337	
Lake Babine Nation Babine reserve	200	
Lake Babine Nation Tachet reserve	200	
Total EA G (Houston/Granisle Rural)		4625
Total regional population		38,630



Hazard Identification

Each EA Committee reviewed information on 57 potential hazards and determined which hazards were applicable to their area and should receive likelihood and consequence scores. The number of hazards scored in each EA was as follows:

Number of Hazards Reviewed by EA	
Total EA A (Smithers/Telkwa Rural)	37
Total EA B (Burns Lake Rural)	36
Total EA C (Fort St. James Rural)	39
Total EA D (Fraser Lake Rural)	42
Total EA E (Francois/Ootsa Rural)	38
Total EA F (Vanderhoof Rural)	42
Total EA G (Houston/Granisle Rural)	37

Additional hazards considered outside of the original 57 hazards were: deforestation in EA F and mass casualty and missing persons in EA C.

The hazards that were not considered by any of the committees were:

- Coastal Flooding.
- Liquefaction.
- Nuclear Incident.
- Seiche.
- Space Debris.
- Storm Water Flooding (urban, local, pluvial).
- Submarine Slides.
- Tsunami.
- Volcanic Flow.

Each committee member was asked to score the likelihood of a hazard occurring as follows:

- Rare.
- Unlikely.
- Probable.
- Likely.
- Almost Certain.




















































Each committee member was also asked to score the potential consequence of a hazard using low, medium, high, or extreme for each of the following categories:

- Fatalities.
- Injury/Illness.
- Displacement.
- Property Damage.
- Support System Impact.
- Cultural Impact.
- Critical Infrastructure.
- Environmental.
- Economic.
- Reputational.
- Psychosocial.

To best reflect the results for each hazard, the likelihood scores were accumulated, and the mean was determined. Finally, the consequence scores were accumulated, and the average was determined. The table below shows the identified hazards in order of the consequence scoring for each EA. Each EA's hazard likelihood and consequence scores were then accumulated by hazard, and the outcome for the RDBN was determined in the same way.

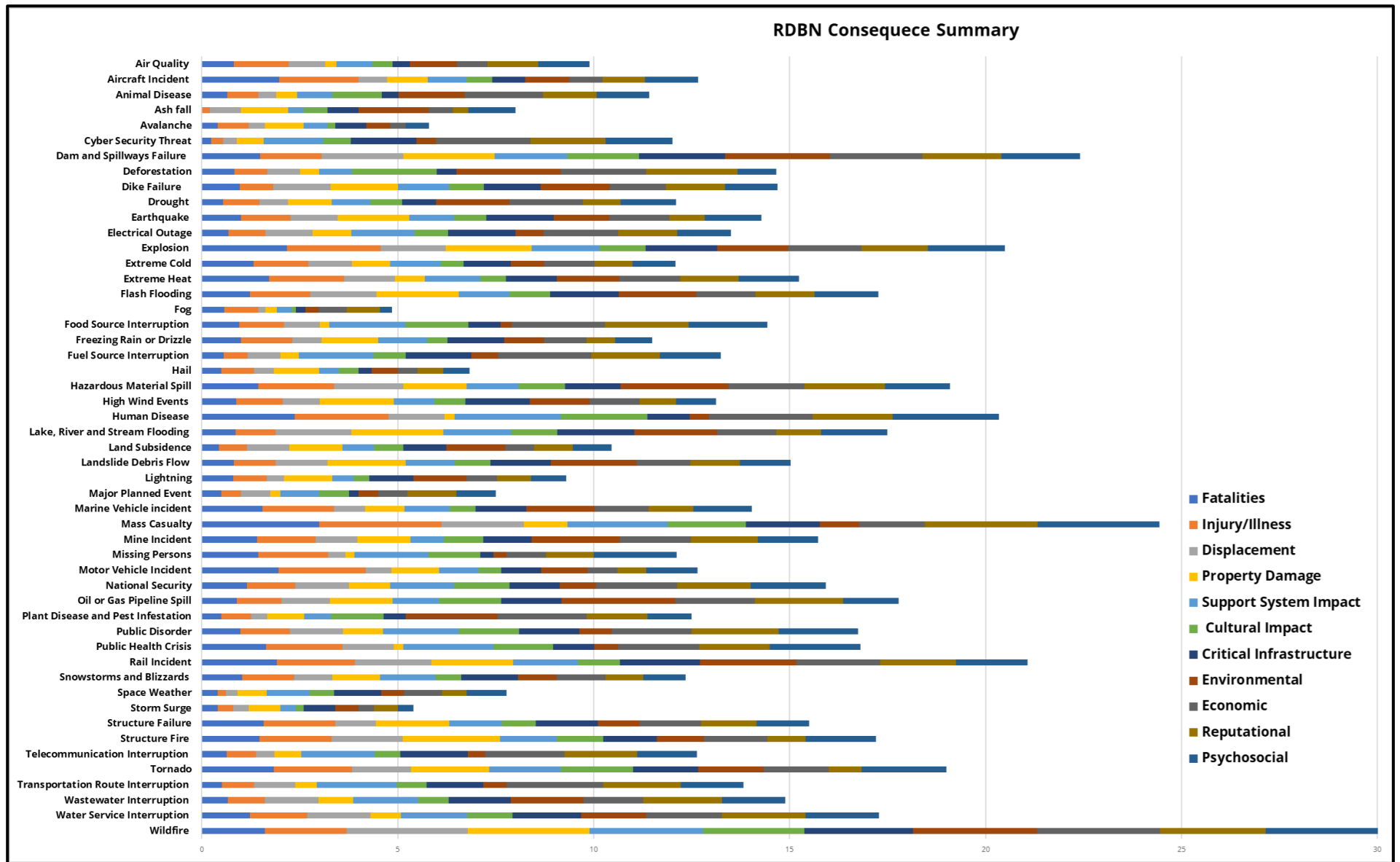


Hazard Summary

Hazard Name	Current Likelihood	Current Consequence	Future Likelihood
 Wildfire	D - Likely	30	D - Likely
 Mass Casualty	A - Rare	24	A - Rare
 Dam and Spillways Failure	B - Unlikely	22	B - Unlikely
 Rail Incident	C - Probable	21	D - Likely
 Explosions	B - Unlikely	20	B - Unlikely
 Hurricane, Typhoon, Highwind Event	D - Likely	20	D - Likely
 Hazardous Material Spill	C - Probable	19	D - Likely
 Tornado	A - Rare	19	A - Rare
 Oil or Gas Pipeline Spill	C - Probable	18	C - Probable
 Lake, River, and Stream Flooding	D - Likely	17	D - Likely
 Water Service Interruption	C - Probable	17	C - Probable
 Flash Flooding	B - Unlikely	17	B - Unlikely
 Structure Fire	D - Likely	17	D - Likely
 Public Health Crisis	C - Probable	17	D - Likely
 Public Disturbance	C - Probable	17	D - Likely
 National Security Threat	C - Probable	16	C - Probable
 Mine Incident	B - Unlikely	16	B - Unlikely
 Structure Failure	B - Unlikely	15	C - Probable
 Extreme Heat	D - Likely	15	D - Likely
 Landslide, Debris Flow	C - Probable	15	C - Probable
 Wastewater Interruption	B - Unlikely	15	C - Probable
 Dike Failure	B - Unlikely	15	B - Unlikely
 Deforestation	B - Unlikely	15	B - Unlikely
 Food Source Interruption	C - Probable	14	C - Probable
 Earthquake	B - Unlikely	14	B - Unlikely
 Marine Vehicle Incident	C - Probable	14	C - Probable
 Transportation Route Interruption	C - Probable	14	C - Probable
 Electrical Outage	D - Likely	13	E - Almost Certain
 Fuel Source Interruption	C - Probable	13	C - Probable
 Human Disease	D - Likely	13	D - Likely
 Aircraft Incident	B - Unlikely	13	C - Probable
 Motor Vehicle Incident	D - Likely	13	D - Likely
 Telecommunications Interruption	D - Likely	13	D - Likely
 Plant Disease and Pest Infestation	C - Probable	12	D - Likely
 Snowstorms and Blizzards	E - Almost Certain	12	E - Almost Certain
 Missing Persons	B - Unlikely	12	B - Unlikely
 Drought	C - Probable	12	D - Likely
 Extreme Cold	D - Likely	12	D - Likely
 Cyber Security Threat	C - Probable	12	D - Likely
 Freezing Rain or Drizzle	D - Likely	11	D - Likely
 Animal Disease	C - Probable	11	C - Probable
 Land Subsidence and Sinkholes	B - Unlikely	10	B - Unlikely
 Air Quality	D - Likely	10	D - Likely
 Lightning	E - Almost Certain	9	E - Almost Certain
 Ash Fall	B - Unlikely	8	B - Unlikely
 Space Weather	B - Unlikely	8	B - Unlikely
 Major Planned Event	B - Unlikely	8	B - Unlikely
 Hail	B - Unlikely	7	B - Unlikely
 Avalanche	A - Rare	6	B - Unlikely
 Storm Surge	A - Rare	5	A - Rare
 Fog	C - Probable	5	D - Likely

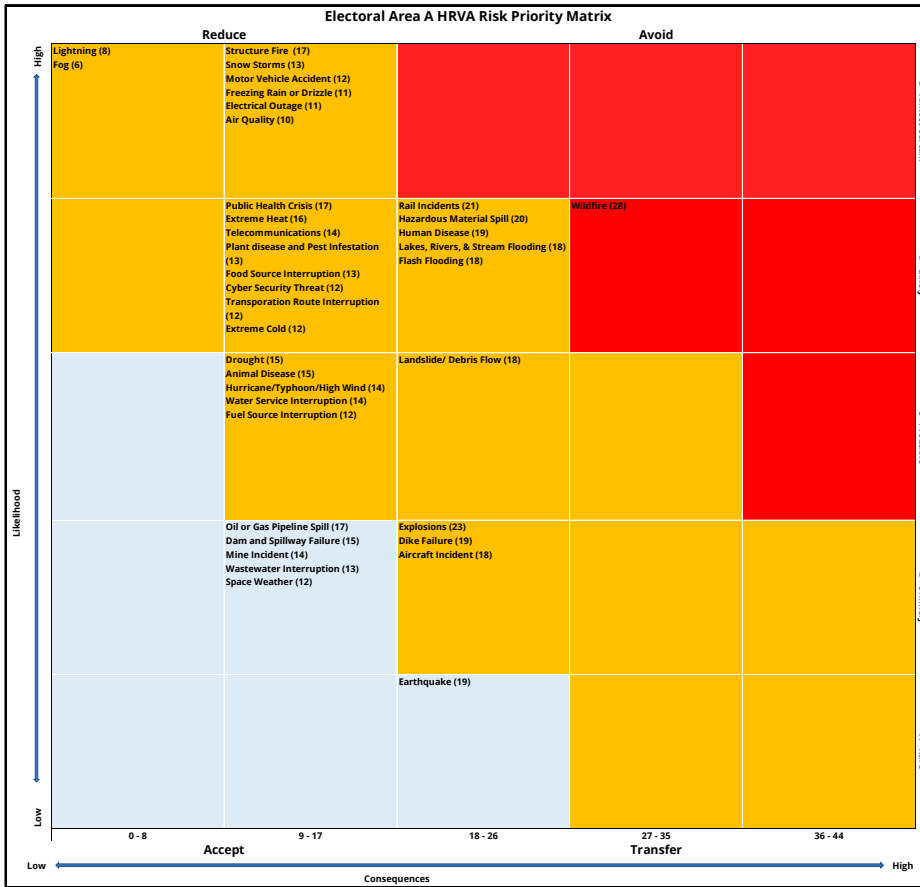


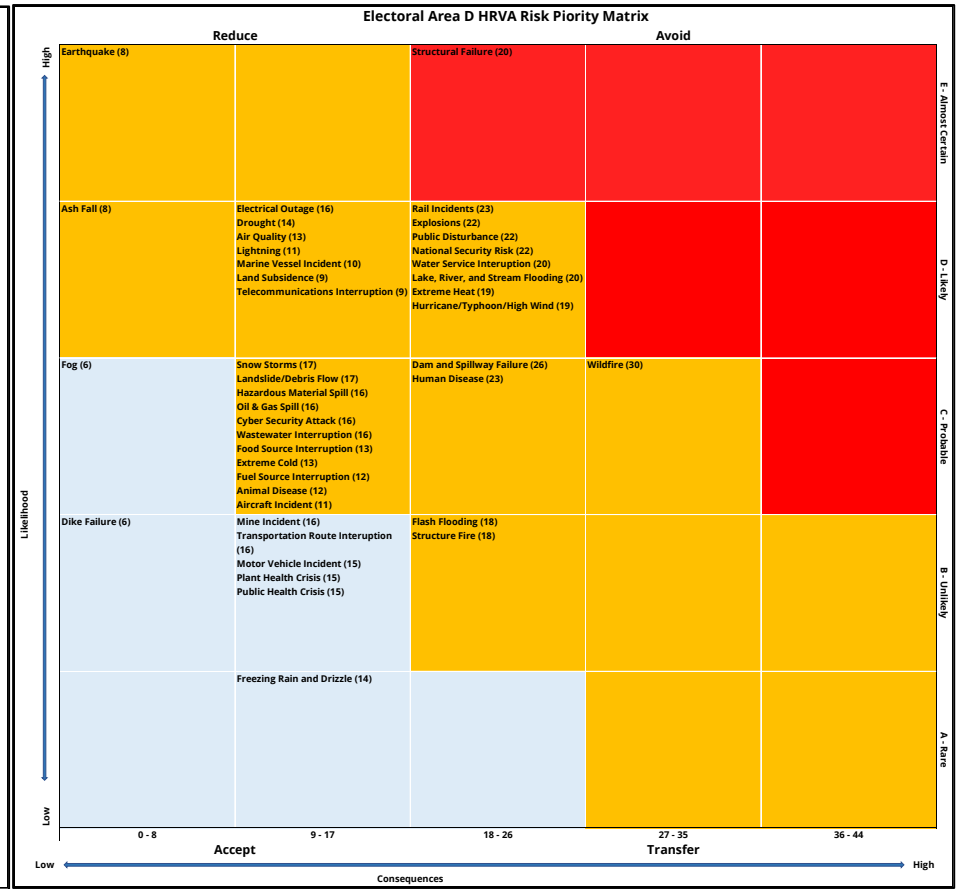
Consequence Summary

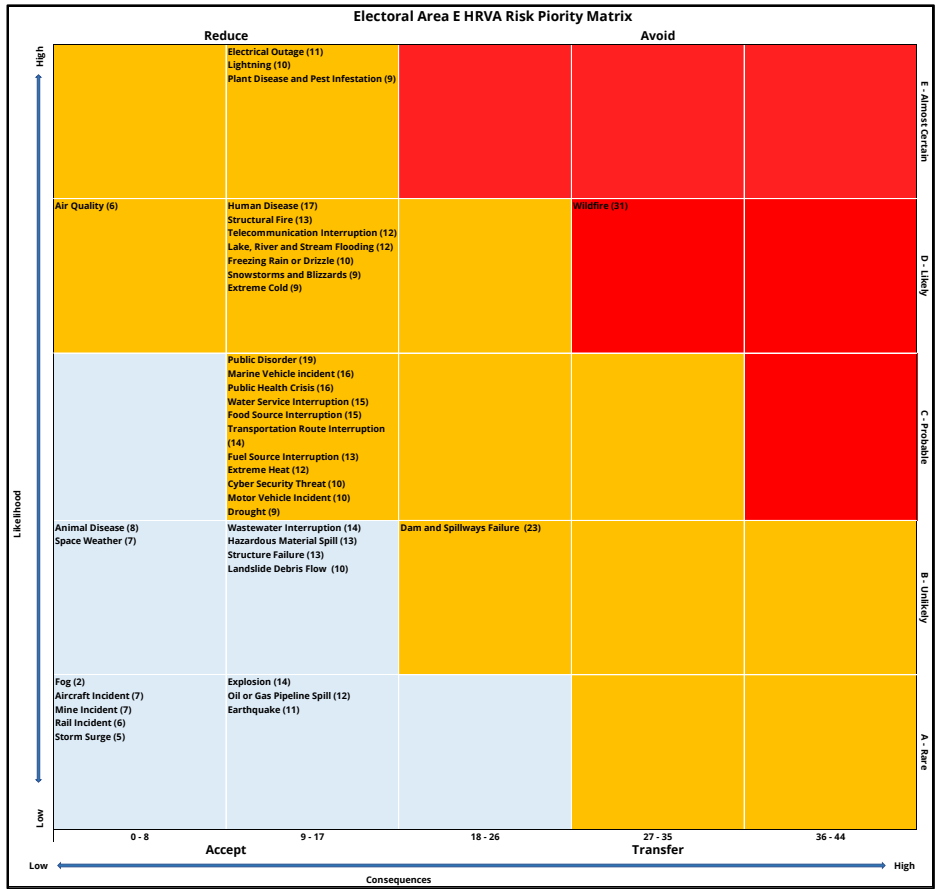


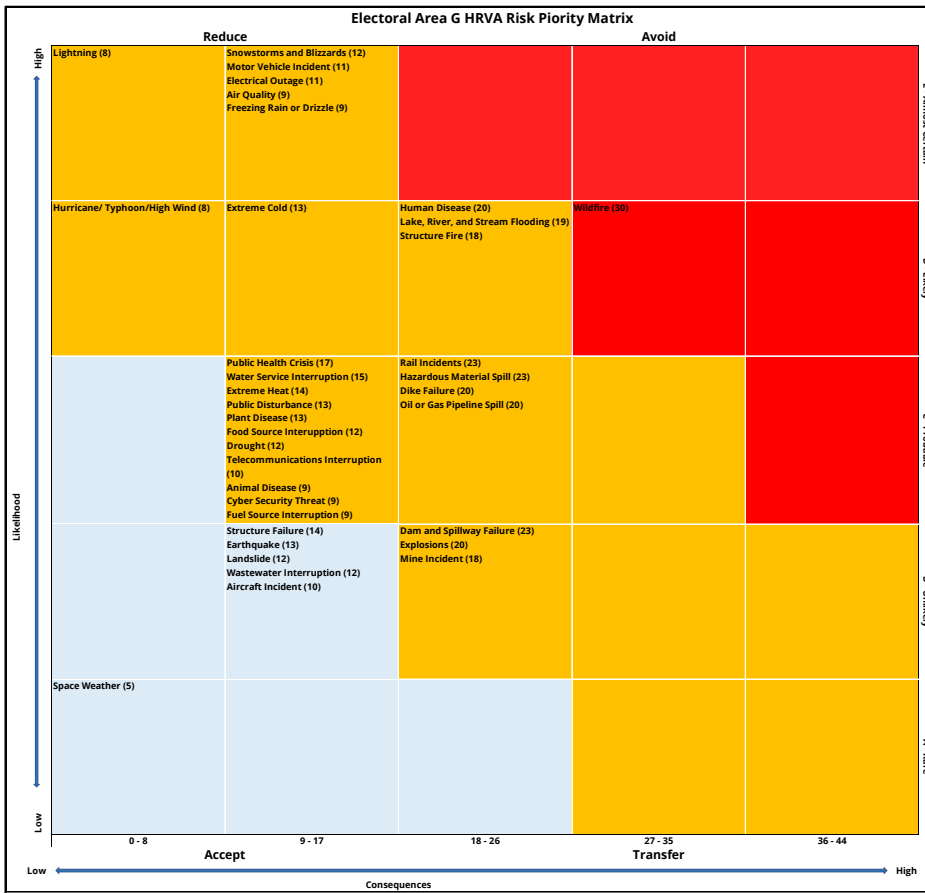
Risk Priority Matrix for each Electoral Area

The following graphs reflect the results of the likelihood and consequence scoring by the committee for each EA.









The following graph shows to Hazard Matrix for the RDBN as a whole:



RISK REDUCTION STRATEGIES

We cannot stop natural disasters, but we can arm ourselves with knowledge: so many lives wouldn't have to be lost if there was enough disaster preparedness."

Petra Nemcova, Advocate for UNDRR

Existing Risk Reduction Measures

With the identification of the hazards and risks, the committees considered the existing risk reduction measures and provided feedback on potential new ones. The following section lists the known measures, resources, and community emergency planning documents that are available both in the region and at the community level, listed by category. Efforts to build resilience and recovery capacity are most effective when undertaken at the regional and community level.

Emergency Response

Strategies for increasing response capacity and coordination:

Regional Strategies

Oil and Gas Pipeline Spill

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

Rail Disaster

- CN First Responder Training and Resources - [Transportation Community Awareness and Emergency Response](#).

Response Preparedness

- 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 2021.
 - Pandemic Response 2020.
 - Evacuation Route Planning 2022.
 - RDBN Business Continuity Plan 2021.
 - Farmed Animal Mass Carcass Disposal Emergency Plan 2010.
 - Regional Emergency Support Services (ESS) Plan.



- Annual Partners of Emergency Preparedness meeting inviting municipal, First Nation, Provincial, and volunteer program partners from across the geographic area of the RDBN.
- Annual Network for Emergency Support Services Teams Conference.
- Bulkley Nechako Emergency & Public Alerts, powered by Voyent Alert! – ongoing training and inclusion of Indigenous community partners.
- Monthly and semi-annual Regional Emergency Support Services (ESS) meetings.

Electoral Area Strategies

Airport Safety Plan

- The Smithers Regional Airport is mandated in accordance with Transport Canada Aerodrome Standards & Recommended Practices TP312E to maintain and update an Emergency Response Plan for the airport grounds, operations, and air space under their jurisdiction.

Local Authority and First Nations Response Preparedness

- Town of Smithers Emergency Preparedness Plan
- Village of Burns Lake Emergency Response Plan.
- Lake Babine Nation Community Emergency Preparedness Plan.
- District of Fort St. James Emergency Management Program Municipality Emergency Plan.
- Takla Nation Emergency Plan.
- Nak'azdli Indian Band Emergency Plan.
- Tl'azt'en First Nations Emergency Plan.
- Yekooche First Nation Emergency Plan.
- Village of Fraser Lake Emergency Plan.
- Binche Whut'en First Nation Emergency Plan.
- Village of Fraser Lake Emergency Preparedness Plan.
- Stelat'en Emergency Plan.
- Nadleh Whut'en Emergency Plan.
- Chinook Emergency Response Society.
- District of Vanderhoof Emergency Plan.
- District of Houston Emergency Response Plan.
- Village of Granisle Emergency Preparedness Plan.

Programs, Services, and Education

Strategies for enhancing public awareness and capabilities of response personnel.

Regional Strategies

- Public awareness for Emergency Preparedness on [Facebook](#) and the [RDBN Website](#).
- [RDBN FireSmart Program](#) - FireSmart is a federal, provincial, and community-based program that encourages the public to take simple, scientifically proven steps to increase wildfire resiliency.



Electoral Area Strategies

- [Neighbourhood Emergency Preparedness Program \(NEPP\) for Area A](#) residents 2022 pilot project– program designed to build neighbourhood level resiliency.

Social and Non- Structural Mitigation

Plans, bylaws, and regional strategies for encouraging safer, more sustainable communities. This includes ongoing work to update land-use policies and official community plans to integrate the HRVA lens to reduce risks and improve public safety.

Regional Strategies

- [Regional Adaptation Strategies: Bulkley-Nechako & Fraser-Fort George.](#)
- [RDBN Food and Agriculture Plan 2020.](#)
- [RDBN Housing Needs Assessment 2021.](#)

Electoral Area Strategies

- RDBN [Smithers Telkwa Official Community Plan](#) .
- Smithers [Official Community Plan 2010](#) includes flood and environmental development permit areas.
- Telkwa [Official Community Plan 2011.](#)
- [Village of Telkwa Housing Needs Assessment 2020.](#)
- [Town of Smithers Housing needs Assessment 2020.](#)
- Smithers [Age Friendly Assessment and Action Plan 2016.](#)
- [Village of Telkwa Integrated Community Sustainability Plan](#) .
- [Burns Lake Official Community Plan 2021.](#)
- [RDBN Burns Lake Rural and Francois Lake \(North Shore\) Official Community Plan.](#)
- [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 and Yekooche Community Transformation Plan.
- [Tl'azt'en Nation Comprehensive Community Plan in progress \(2021- current\).](#)
- [Nak'azdli Community Plan.](#)
- [RDBN Area D: Endako, Fort Fraser, Fraser Lake Rural Official Community Plan.](#)
- [Fraser Lake Official Community Plan 2010.](#)
- [Fraser Lake Age-Friendly Action Plan 2019.](#)
- [Regional District of Bulkley-Nechako Electoral Area E - Francois/Ootsa Lake Rural Electoral Areas Housing Needs Report.](#)
- [Cheslatta Carrier Nation Comprehensive Community Plan March 2017.](#)
- [RDBN Southside Rural Community Plan Resource Document \(Electoral Area E\).](#)
- [Lakes District Aboriginal Community Resource Guide – A tool for collaborative planning in patient care – Jan 2019.](#)
- [RDBN Housing Needs Assessment 2021.](#)
- [RDBN Vanderhoof Rural Official Community Plan.](#)



- [Vanderhoof Official Community Plan 2020.](#)
- Saik'uz Comprehensive Community Plan.
- [District of Vanderhoof Housing Needs Assessment 2020.](#)
- [RDBN, Houston, Topley, Granisle Rural Official Community Plan 2011.](#)
- [Houston Official Community Plan 2019.](#)
- [Granisle Official Community Plan 2019.](#)

Environmental and Structural Mitigation

Strategies for repairing or preventing further damage to the environment, infrastructure, and homes.

Regional Strategies

Flooding

- [RDBN Floodplain Management Bylaw No. 1878, 2020.](#)
- [Ministry of Environment Floodplain Mapping.](#)
- Sandbags, located at the Smithers/Telkwa Transfer Station
- Stormwater mitigation features in municipalities and in the region with MOTI, e.g., storm sewers, culverts, ditches, overland flow on roadways, and streams.

Geotechnical

- [Geotechnical Report Guidelines RDBN brochure.](#)

Plant Infestations

- [Northwest Invasive Plant Council Landowner Weed Removal Rebate.](#) Annual Rebate program for 50% up to \$500 for certified removal of invasive plants on private land.

Wildfire

- [Crown Land Wildfire Risk Reduction.](#)

Electoral Area Strategies

Air Quality

- [Bulkley Valley Lakes District \(BVL\) airshed management plan.](#)
- [Town of Smithers and the Bulkley Valley Woodstove Exchange.](#)
- [Towards a Healthy Nechako: Nechako Watershed Strategy – Version 1](#)
- [Vanderhoof Woodstove Exchange Program.](#)
- [Village of Granisle Open Air Burning Regulations Bylaw 2019.](#)
- [Village of Granisle Outdoor Solid Fuel Bylaw 2008.](#)

Climate Change

- Takla Lake First Nations Climate Change Vulnerability & Risk Assessment.

Drought

- [Town of Smithers Bylaw No. 1811 - Water Restriction.](#)
- [Village of Telkwa Water conservation plan policy and bylaw.](#)
- [District of Houston Bylaw No. 1064 - Water Restriction.](#)



Flooding

- [RDBN Ebenezer Flats Flood Mitigation Study 2019.](#)
- Village of Telkwa dike management and planning.
- [Village of Telkwa Floodplain Management Bylaw 2020.](#)
- Sandbags, located at the Smithers Fire Hall.
- 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.
- [Nechako Reservoir Dam Emergency Plan \(DEP\) Nov 2020.](#)
- [Nechako Reservoir Dam Inundation Maps.](#)
- Ministry of Environment Flood Plain mapping along the Nechako River.
- District of Vanderhoof Flood Plain Management Bylaw no. 1174, 2017.
- [District of Houston Floodplain mapping.](#)

Land Slides and Erosion

- [Alluvial Fan Study \(Lake Kathlyn Area, Smithers\).](#)
- [Geotechnical Assessment Potential Terrain Hazards \(Slope Stability\) Lower Viewmount Road Area 2006.](#)
- [Ebenezer Flats/Kidd Road Erosion Protection Study.](#)

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.](#)

Oil and Gas Pipeline Spill

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

Plant Infestations

- [Seymour Lake Conservation Society](#)
- [Lake Kathlyn Aquatic Weed Harvesting - Lake Kathlyn Protection Society.](#)
- [Lake Kathlyn Management Plan Rough Draft #1](#)

Rural Fire Protection

- Annual RDBN Rural Fire Chiefs Meeting.
- Training, administrative support and funding to four rural fire departments through the RDBN Regional Fire Chief.
- Agreements with the (see Appendix A for mapping of each services area):
 - Town of Smithers to provide Fire Protection to a specified area of EA A.
 - Village of Telkwa to provide Fire Protection to a specified area of EA A.
 - Village of Burns Lake to provide Fire Protection to a specified area of EA B.



- Topley Volunteer Fire Department to provide Fire Protection to a specified area of EA B and EA G.
- District of Fort St. James to provide Fire Protection to two specified areas of EA C.
- Fort Fraser Volunteer Fire Department to provide Fire Protection to a specified area of Electoral Area D.
- Southside Volunteer Fire Department to provide Fire Protection to a specified area of EA E.
- District of Vanderhoof to provide Fire Protection to a specified area of EA F.
- District of Houston to provide Fire Protection to a specified area of EA G.

Water

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

Wildfire

- [Smithers Wildfire Protection Plan 2012.](#)
- Telkwa Community Wildfire Protection Plan 2008.
- [Skeena Approved Wildfire Risk Reduction Projects.](#)
- [Village of Burns Lake Community Wildfire Protection Plan.](#)
- [Houston Wildfire Protection Plan](#) 2018.
- [Village of Granisle Community Wildfire Protection Plan](#) 2017.
- District of Fort St James Community Wildfire Protection Plan 2013.
- Village of Fraser Lake Community Wildfire Protection Plan 2013.
- [Trial by Fire: Nadleh Whut'en and the Shovel Lake Fire, 2018.](#)
- [Shovel Lake Wildfire Ecosystem Restoration Plan 2019.](#)
- [Community voices as agents of change: 2018 wildfire experiences in the southside. By Susan Miller, UNBC May 2021.](#)
- [Wildfire Risk Reduction Danskin and Southbank.](#)
- Saik'uz Community Wildfire Protection Plan.
- Vanderhoof Community Forest Wildfire Risk Management Plan 2018.

Economic Mitigation

Regional Strategies

- [Connecting Consumers and Producers](#) is a marketing project that promotes local food producers and provides resources to consumers that support eating locally produced food all year round. The program has an online directory and funding available for local food events in the region.
- [NDIT Business Façade Improvement Program.](#)
- Regional Connectivity Service Establishment - RDBN is pursuing partnerships to ensure that all residents have access to high-speed internet and cellular connectivity through the Connectivity Strategy.
- RDBN Regional Economic Development Plan 2022 – 2024 includes 4 goals:



- Improve or develop critical infrastructure to support economic and social development.
- Support stability and growth in the Agriculture Sector and for Small Business.
- Increase and streamline communication and partnerships within and outside the region.
- Develop and market the incredible built and natural amenities in the region.



Future Risk Reduction Strategy Suggestions

The Committee was asked to consider other possible Risk Reduction Strategies that would support efforts to build resiliency. The following suggestions were provided:

Risk Reduction Measure Ideas		
Description	Hazard(s)	Potential RDBN Partners
<p>Partner with local airshed management groups and the provincial government to improve air quality and reduce anthropogenic air quality episode events such as from dust and smoke. This could include:</p> <ul style="list-style-type: none"> ➤ Educational assistance (“Burn it Smart” seminars). ➤ Financial and/or in-kind support for local air quality monitoring where it does not exist. ➤ Ask Board to lobby Northern Health for air quality resources and education. 	Air quality	BC MOE, BVAMS, RDBN, Northern Health
Develop strategies/partnerships to reduce slash burn piles – bio energy or secondary products.	Air quality	Provincial Agencies
Maintain and expand (with potential additional partners and stakeholders) the Electoral Area HRVA Committees to assist with communications, coordination, and implementation of risk reduction measures into the future. This could be a great opportunity and foundation for fostering continued interagency cooperation.	All	Municipalities First Nations Provincial Agencies Federal Agencies Search & Rescue Emergency Support Services
<p>Suggested Public Education opportunities are:</p> <ul style="list-style-type: none"> ➤ Seniors Luncheons. ➤ Rotary Club Meetings. ➤ Chamber of Commerce Meetings. ➤ Door to Door Campaigns. <p>Develop a structured program. Provide residents with a better understanding of what BCWS and structural Fire Departments do.</p>	All	



Risk Reduction Measure Ideas		
Description	Hazard(s)	Potential RDBN Partners
Increase communication about extreme weather events.	All	Advocate for increased access to region specific information.
Advocate for the Province to bring funding models to the region that mimic Vancouver Island/Lower Mainland programs that pool resources and allow smaller communities to collaborate.	All	
The RDBN could give this information in booklet form to each community hall. They have dedicated people running each of them and they are all rural.	All	Public Education
Support local groups/neighbourhoods with increasing local communication capacity. Work with CERS on HAM radio and handheld radio communication efforts.	All	
Emergency Operations Centre training, host two tabletop exercises a year to address changes in personnel.	All	All local authorities All relevant agencies All First Nations
Conduct Regional tabletop exercise to include all electoral areas for one of the top three identified hazards.	All	RDBN and member municipalities
Planning and inspections. Consult and follow agriculture agency guidelines.	Animal Disease	CFIA Ministry of Agriculture
Do all the major service providers have access to emergency power generation? Could we create a list of residents in the community with significant generating power that could be called upon should the need arise? Examples include large portable generators or truck-mounted welding generators.	Catastrophic Power Failure	RDBN, Volunteers
Consult with RCMP on how to support their response.	Cyber Security Threat	RCMP



Risk Reduction Measure Ideas		
Description	Hazard(s)	Potential RDBN Partners
Create reservoirs on creeks to hold back water for drought years, while maintaining fish habitat.	Drought	Society for Eco System Restoration - SERN
Include marketing for "Connecting Consumers and Producers" in all community activities – if information about local producers was all in one place, more new residents would be able to access farm products.	Economic	RDBN
Map areas and facilities most likely to be affected and draw up plans. Map storage locations of hazardous explosive materials.	Explosions	
Create the RDBN's heat response plan in accordance with Provincial recommendations.	Extreme heat	HEMBC, RDBN
Advocate for funding to create free assessments for households that are in areas that have been identified as high risk of flood/landslide.	Flood/landslide	RDBN, Fire department, provincial /municipal government
Agricultural producers have a drainage management plan for lands in a floodplain.	Flooding	
Studies on climate change effects in RDBN. Use data to model and update plans.	Flooding	UNBC Ministry of Environment and Climate Change Canada Local governments
Disruption cause could be many kilometers away due to a highway closure. Consider rail or air support in such an event. Education/public awareness of local producers.	Food Source Interruption	
Increase local food storage capacity in the region.	Food source interruption	
Work with the Province to develop a catalogue of potential hazardous materials and response strategies for	Hazardous Material Spill	RDBN, EMBC



Risk Reduction Measure Ideas		
Description	Hazard(s)	Potential RDBN Partners
<p>materials that are being road and rail transported through the RDBN. This could include: Work with the province to develop a catalogue of potential hazardous materials and response strategies for materials that are being transported via road and rail through the RDBN. A catalogue of the most hazardous material, such as TIH (Toxic Inhalation Hazard) material, that is being transported and in what quantities. Who and where are hazardous material trained personnel stationed that can deal with particular materials. An assessment of response adequacy. Communication strategies to inform of a particular incident.</p>		
<p>Work with CN and Transport Canada to limit speeds of trains carrying hazardous materials through communities and settled areas of the RDBN to reduce derailment potential. This could be commodity-specific and season-specific, such as during periods of extreme cold.</p>	<p>Hazardous Material Spill, Rail Incidents</p>	<p>CN, TC, RDBN</p>
<p>Communicate Emergency Response Plans to residents who live in areas close to potential spill sites.</p>	<p>Hazardous Materials Spills</p>	<p>Pipeline companies Local governments</p>
<p>Improvement of communication strategies/methods in cases of health risks that impact the broad RDBN or specific EAs.</p>	<p>Human Disease</p>	<p>HEMBC RDBN</p>
<p>Take lessons learned from Covid 19 pandemic to forecast and make response plans for future disease outbreaks.</p>	<p>Human Disease</p>	<p>Northern Health Ministry of Health Local governments</p>
<p>Increase awareness of landowner rebate program, as well as work to make the program more accessible to landowners.</p>	<p>Invasive/pest plants Wildfire</p>	



Risk Reduction Measure Ideas		
Description	Hazard(s)	Potential RDBN Partners
Monitor stream flow and lake levels. Monitor and distribute River Forecast Center bulletins. Have sandbags available. Construction of dikes. Consider bylaws prohibiting construction in flood prone areas.	Lake River Stream Flooding	
Divert roads where banks are sloughing further away from the embankments	Landslide/ debris	
Identify and map potential hazard areas. Consider bylaws prohibiting construction	Landslide/Debris Flow	
Liaise with pipeline companies as to their spill response plans. Discourage construction in the immediate vicinity of pipelines. Map areas of higher risk near neighbourhoods and environmentally sensitive areas. Encourage pipelines to keep local staff once pipeline is active so response times are quicker.	Oil/Gas Pipeline Spill	
Encourage critical facilities to have backup capabilities.	Power Outage	
Provide snow removal and radio control on Helipads for emergency evacuations of injured or ill – BCEHS Adding Helipads for the Southside Health and Wellness Centre.	Public Health Crisis	
Investigate what will happen with CN once the pipeline is completed, will that reduce the LNG product moving through on cars?	Rail	Coastal Gas Link
Get Hazardous Material crews closer to our area instead of 12 hours away.	Rail and Hazardous material spills	CN Rail MoTI
Exceptional hot weather – identify and establish cooling shelters when required. Extreme cold – identify and establish warming shelters when required. Planning for the homeless in the above situations. Heavy snow – create a list of equipment from private industry to help facilitate	Severe Weather	



Risk Reduction Measure Ideas		
Description	Hazard(s)	Potential RDBN Partners
opening roads and rescuing/checking on snowbound travelers and citizens (especially seniors). Windstorm- broadcast warnings. Freezing Rain – broadcast warnings. Air Quality – broadcast warnings and instructions. Drought – wells and water systems going dry. Water delivery. Relocating livestock.		
Add to the Tax Notice a map of the Electoral Area showing where the Fire Protection Area is and asking the question 'Are you in a Fire Protection Area?'	Structural Fire	RDBN
Lists of major buildings that do or do not have sprinkler systems. List locations of firefighting equipment. Encourage FireSmart compliance.	Structural fire	
Advocate for funding to create area specific fire protection and prevention plans, activities, and events for the public Increase promotion of FireSmart program. There needs to be more engagement with the public for this program.	Structural/Wildfire	
Advocate for funding for public forums for households and properties that are not within the immediate fire protection zone. Rural properties are often not aware they are not protected. Public awareness campaign to inform public of what level of protection their house/property is under.	Structural/Wildfire	RDBN, Fire Departments
Increase signage around Smithers and outskirts – muster points, evacuation zones etc.	Structural/Wildfire	RDBN, Municipalities



Risk Reduction Measure Ideas		
Description	Hazard(s)	Potential RDBN Partners
Advocate for the Province to bring in the Resilient Minds Program – Building the Psychological Strength of Fire Fighters.	Structure/Wildfire	RDBN – Rural Fire Departments Volunteers
Increase cell tower reception throughout the region.	Telecommunication interruption	
Adding Cell Tower on the Southside and Colleymount areas for more communications – adds better access to internal information and communications.	Telecommunication Interruptions	
Training and equipment for First Responders. Mapping of alternate routes. Work with CN on joint planning and response. Address the main street curves in Burns Lake. Gather information on the hazards for the roadways areas, from MoTI, CN, and FLNRO. Wastewater interruption – maps of systems and regular inspections and maintenance.	Transportation Interruptions	CN, Fire Departments
Changing 800 Forest Service Road to a highway that is maintained so that it can be used if transportation routes are interrupted. If a road closure happens on the main road this would give another route out. Thirteen kilometers are already maintained by LDM Maintenance on both sides.	Transportation Route Interruptions	
There are ongoing complaints from many residents in Granisle re: road conditions in the wintertime – the roads are classed as a road B, there should be advocacy on the Village’s behalf to get it changed so the road have better maintenance during the winter months so there would a reduced risk of a road closure cutting that community off.	Transportation Route Interruption	Ministry of Transportation.
Wastewater interruption – maps of systems and regular inspections and maintenance.	Wastewater Interruption	RDBN



Risk Reduction Measure Ideas		
Description	Hazard(s)	Potential RDBN Partners
Map areas of water distribution systems. Regular inspections and maintenance. Plan for water delivery systems in case of a system failure. Also, for firefighting.	Water Service Interruption	
Adopt and engage in all 7 disciplines of FireSmart: Education, Fuel Management, Development Considerations, Legislation and Planning, Interagency Cooperation, Emergency Planning, and Cross-Training.	Wildfire	RDBN Fire Departments BCWS
RDBN in coordination with local municipalities and BCWS increase educational activities. Raising awareness of wildfire risk and opportunities for prevention and mitigation.	Wildfire	
Participate in and help promote fuels management activities including the use of prescribed fire.	Wildfire	
Value wildfire risk as a key factor when engaged in land use and development planning, that supports community wildfire resiliency and infrastructure survivability.	Wildfire	
Electoral Area serving fire departments to participate in annual field based operational cross training events with BCWS.	Wildfire	
Continue to develop Mutual Aid agreements with other Electoral Areas to include pre-organized Task Forces.	Wildfire	RDBN and Municipal Fire Chiefs
Most of the Fiber in the PG TSA is located north of Fort St. James, so it would make sense to have the Initial Attack Team located in Fort St. James.	Wildfire	RDBN-Minister of Forests
Complete FireSmart assessments on all properties in the RDBN and provide all owners with FireSmart pamphlets. Can do entire district over multiple years to control costs. Create a FireSmart assistance program	Wildfire	Home Partners Program BC FireSmart Program Community Resiliency Investment Grant



Risk Reduction Measure Ideas		
Description	Hazard(s)	Potential RDBN Partners
for senior homeowners who cannot financially or physically complete tasks to improve their fire rating.		
Have multiple structure protection units for each EA for deployment in case of wildfire activity.	Wildfire	Municipalities BCWS
Build on the Burns Lake Community Wildfire Plan (CWP) for all settled areas in Electoral Area B and integrate recent local First Nation Wildfire Planning (i.e., Lake Babine Nation CWPP) into a comprehensive RDBN led CWP. This could include: <ul style="list-style-type: none"> ➤ Fire Hazard Mapping. ➤ Response Coordination. ➤ FireSmart Initiatives. Create a catalogue of available fire equipment: <ul style="list-style-type: none"> ➤ Local Fire Departments. ➤ Industry. ➤ BCWS fire base. 	Wildfire	RDBN, local First Nations, VBL, FLNRO, Community Forests, Area Licensees
More Integration of Emergency Response Agencies: Fire, SAR, BCAS, Houston EOC, RDBN EOC, ESS, and RCMP. Annual multi agency training, annual mock emergency response scenario or tabletop exercises.	Wildfire Flood Rail Incidents Aircraft Incident Telecommunications Interruption	
Source and provide consistent regional annual training dollars for emergency response agencies. Provide joint training to promote multi agency response competencies (Fire, SAR, BCAS, Houston EOC, Regional EOC, ESS, RCMP). Training examples include: <ul style="list-style-type: none"> ➤ Incident Command. ➤ Swiftwater Flood Response. ➤ Critical Incident Stress Management. 	Wildfire Flood Rail Incidents Aircraft Incident Telecommunications Interruption	EMBC All agencies



Risk Reduction Measure Ideas		
Description	Hazard(s)	Potential RDBN Partners
<p>➤ Other emergency management courses.</p>		
<p>Source and provide consistent RDBN funding for emergency equipment. Coordinate emergency equipment acquisition to avoid duplication and share assets e.g., HSAR is willing to provide use of our Command vehicle, SAR hall, Starlink Satellite System, and/or trained Incident Command volunteers for local emergencies beyond SAR specific.</p>	<p>Wildfire Flood Rail Incidents Aircraft Incident Telecommunications Interruption</p>	<p>Municipalities All agencies</p>
<p>Partner to solidify the alternate evacuation route planning work done to date by partnering with MoTI, MOF, area licensees, regarding local Industry and FSR roads that may also be acceptable as through routes. This also includes maintenance planning for roads that may not be active with industrial traffic.</p>	<p>Wildfire/Emergency Evacuation/ Transportation Route interruption</p>	<p>MOTH, FLNRO, Licensees, Community Forests</p>



NEXT STEPS

“Emergency management responsibilities in Canada are shared by Federal, Provincial, and Territorial governments and their partners, including Indigenous peoples, municipalities/communities and individual citizens who have a responsibility to be prepared for disasters and contribute to community resiliency.”

An Emergency Management Framework for Canada - Third Edition

The Risk Reduction Actions identified by the Committee will be prioritized based on the likelihood and consequences of the hazard(s) they mitigate. Funding and partnership opportunities to support implementation of the Risk Reduction Actions identified will be sourced and options will be presented to the RDBN Board.

A public education campaign to provide information to residents on the identified risks, what risk reduction efforts are happening, and what they can do to reduce the risks for themselves, and their families will be implemented.

The RDBN will review the HRVA annually and amend the document based on new and emerging information. A full review of the HRVA will be conducted every 5 years.



Appendix A

Rural Fire Services Maps

