



Regional District of Bulkley-Nechako
Electoral Area C (Fort St. James Rural)
Hazard, Risk & Vulnerability Analysis
February 24, 2023

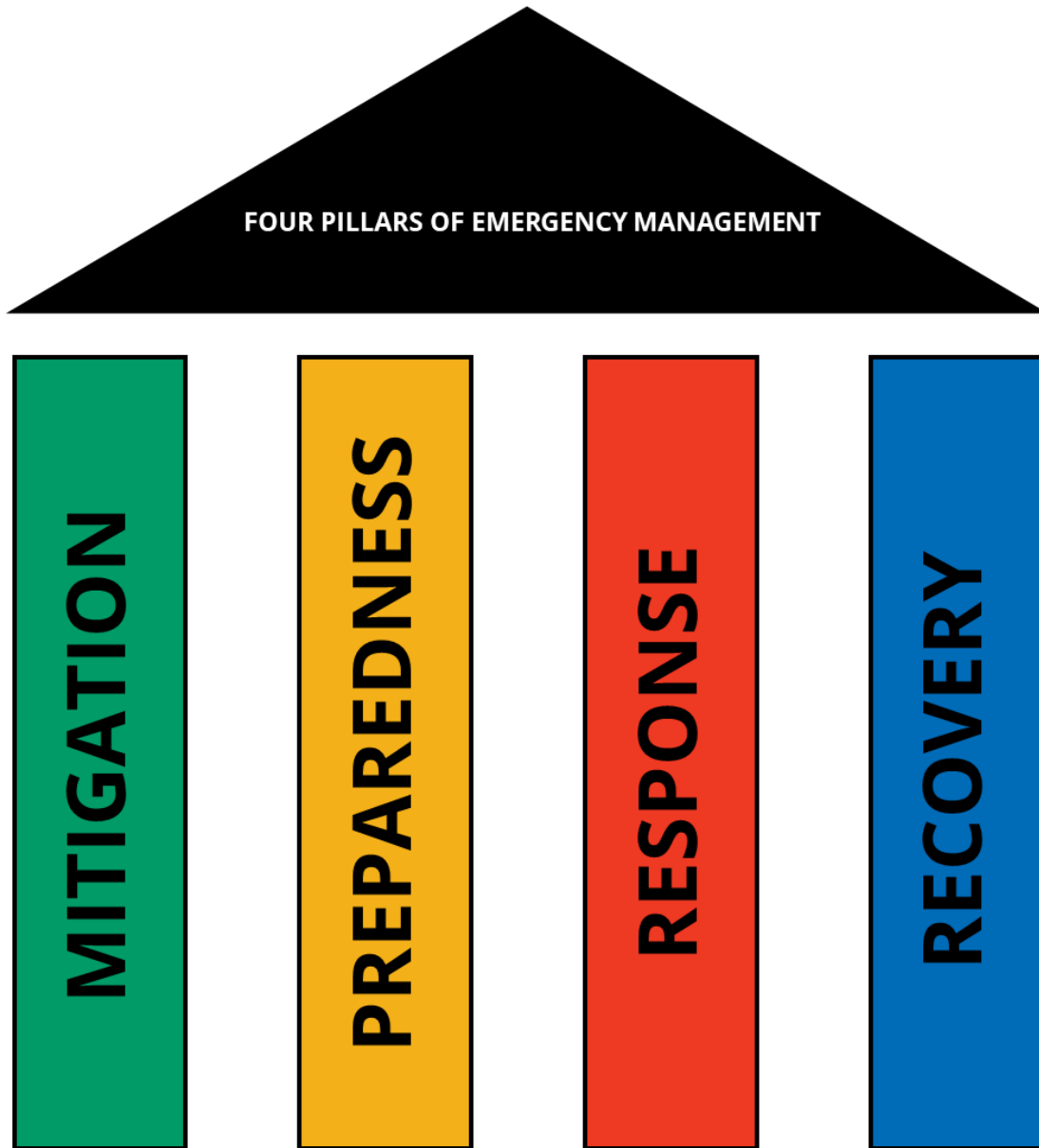
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Regional District of Bulkley-Nechako

Emergency Management Mission Statement

Building a safer future through effective partnerships with local government, First Nations, emergency services agencies, 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 A
EPA	<i>Emergency Program Act 1996</i>
HRVA	Hazard, Risk & Vulnerability Analysis
FSJSAR	Fort St. James Search & Rescue
LAEMR	<i>Local Authority Emergency Management Regulation</i>
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 HRVA is a foundational step towards enhancing the 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 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 all 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 for innovative solutions, and engagement of residents in emergency management.

The HRVA supports the development of a collective community understanding of hazards and the development 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 HRVA covered the geographic scope of the EA. The Committee reviewed all 57 natural and human caused hazards that could potentially disrupt the EA and require a response.

The Committee also received information on each of the hazards that had historically impacted the EA.

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 *LAEMR* of the *EPA*. Section 6 (2) of the *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.

Committee

The EA HRVA was conducted by a Committee made up of local community members, stakeholders, and the Electoral Area C Director.

The Committee members were:

- Tom Greenaway, EA C Director, Committee Chair
 - Chelsea Heyer, Forsite Forestry Consulting, RPF, SAS
 - Cheryl Peterson, School District 91
 - Craig Houghton, School District 91, President
 - Cynthia Hill, Yekooche First Nation, Director of Finance
 - Dawn Morris, Binche Keyoh, Band Manager
 - Drew Hunsaker, BC Emergency Health Services
 - Erika Wadelius, Victim Services
 - Jafar Gadzhiev, Mount Milligan
 - Jana Gainor, Fort St. James Chamber of Commerce, Manager
 - Jason Bouwman, RCMP, Sergeant
 - Jeremiah Louis, Takla Nation, Fire Chief/Emergency Program Coordinator
 - Keith Gordon, Resident
 - Nancy Schlamp, District of Fort St. James, Emergency Support Services Director
 - Nicole McVey, Fort St. James Health Centre
 - Paul Broen, Fort St. James Search and Rescue, President
 - Ryan D. McVey, District of Fort St. James, Fire Chief
 - Vale Gainor, Nak’azdli Whut’en First Nation, Emergency Operation Centre Director
- The Regional District of Bulkley-Nechako would like to thank each of the members for their contribution to the HRVA process.



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.”

United Nations Office for Disaster Risk Reduction

Geographic Setting

The EA covers 27,184 square kilometers, with the Southern Boundary along Highway 27 approximately 1 km north of Cook Road and about 1 km south of Pitka Creek Forest Service Road. The northern boundary runs along the 56 parallel North of Takla Lake.

The EA area has 1,266 residents identified in the 2021 Census. The EA includes:

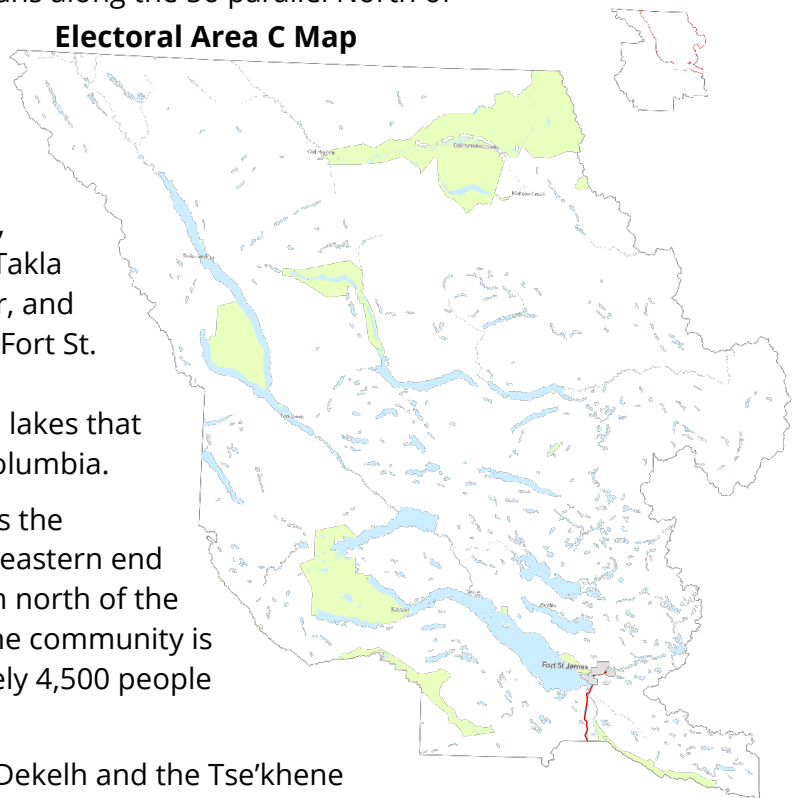
- Manson Creek, Germansen Landing, Leo Creek, Tachie, Nancut, Pinchie, Takla Landing, Old Hogem, and Trembleur, and the area surrounding the District of Fort St. James.
- The gateway to a chain of rivers and lakes that traverse 400 km of central British Columbia.

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

The geographic area of the EA is in the Dekelh 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.

Electoral Area C Map




- 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.

The Committee determined there were 39 of the 57 hazards that should be reviewed for the EA. The Committee determined the likelihood and potential severity of consequences for each of the 36 hazards.

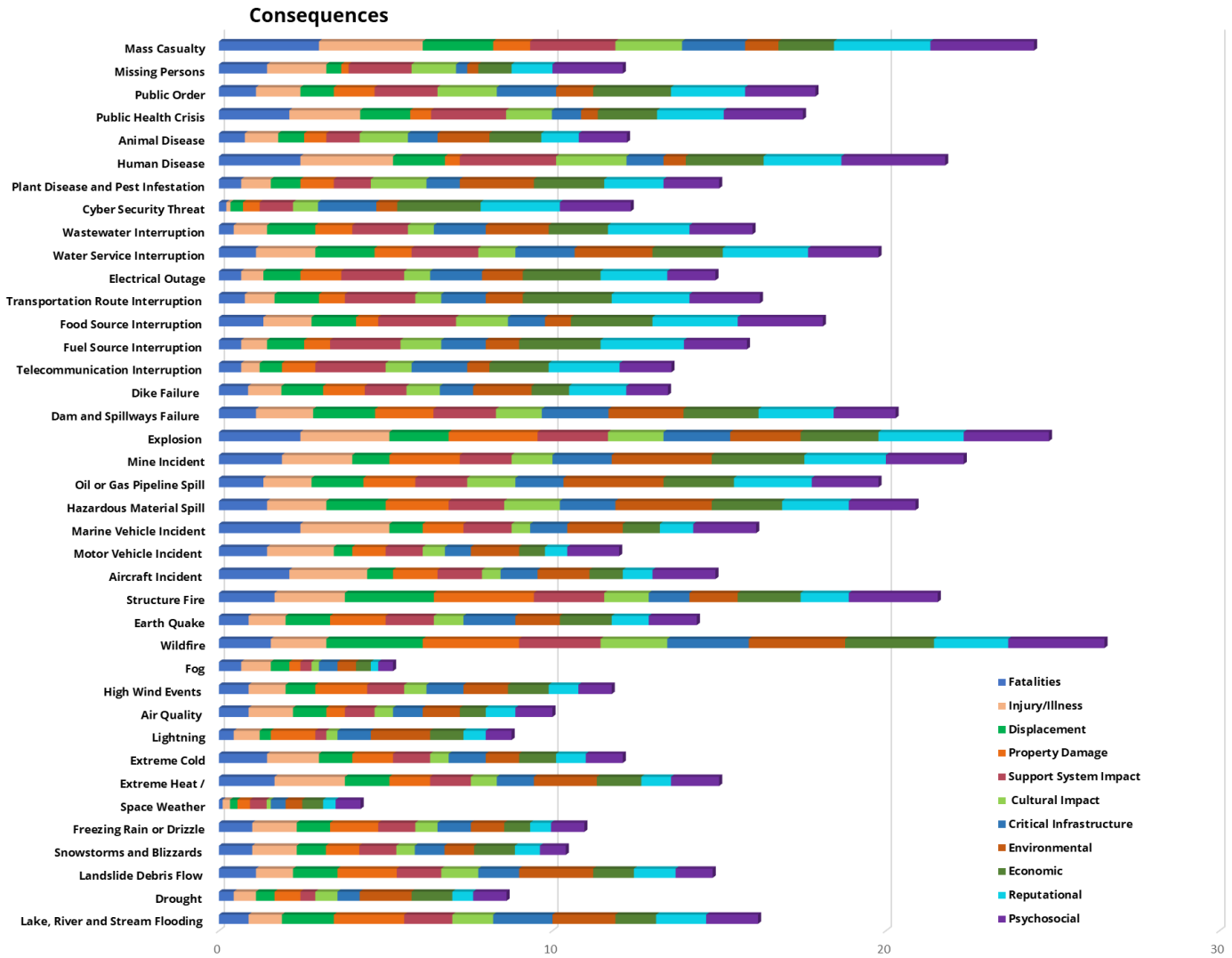
The following table and graphics reflect the results of the likelihood and consequence scoring by the committee.

Priority	Hazard List	Current Likelihood	Consequence Total	Future Likelihood
1 	Wildfire	D - Likely	27	E - Almost Certain
2 	Explosions	B - Unlikely	25	B - Unlikely
3 	Mass Casualty	B - Unlikely	24	B - Unlikely
4 	Mine Incident	C - Probable	22	C - Probable
5 	Human Disease	D - Likely	22	D - Likely
6 	Structure Fire	D - Likely	22	D - Likely
7 	Hazardous Material Spill	C - Probable	21	C - Probable
8 	Dam and Spillway Failure	B - Unlikely	20	D - Likely
9 	Oil or Gas Pipeline Spill	C - Probable	20	C - Probable
10 	Water Service Interruption	B - Unlikely	20	C - Probable
11 	Food Source Interruption	C - Probable	18	C - Probable
12 	Public Disturbance	C - Probable	18	C - Probable
13 	Public Health Crisis	C - Probable	18	D - Likely
14 	Transportation Route Interruption	C - Probable	16	C - Probable
15 	Lake, River, and Stream Flooding	D - Likely	16	D - Likely
16 	Marine Vessel Incident	C - Probable	16	C - Probable
17 	Electrical Outage	D - Likely	16	D - Likely
18 	Fuel Source Interruption	C - Probable	16	C - Probable
19 	Extreme Heat	C - Probable	15	D - Likely

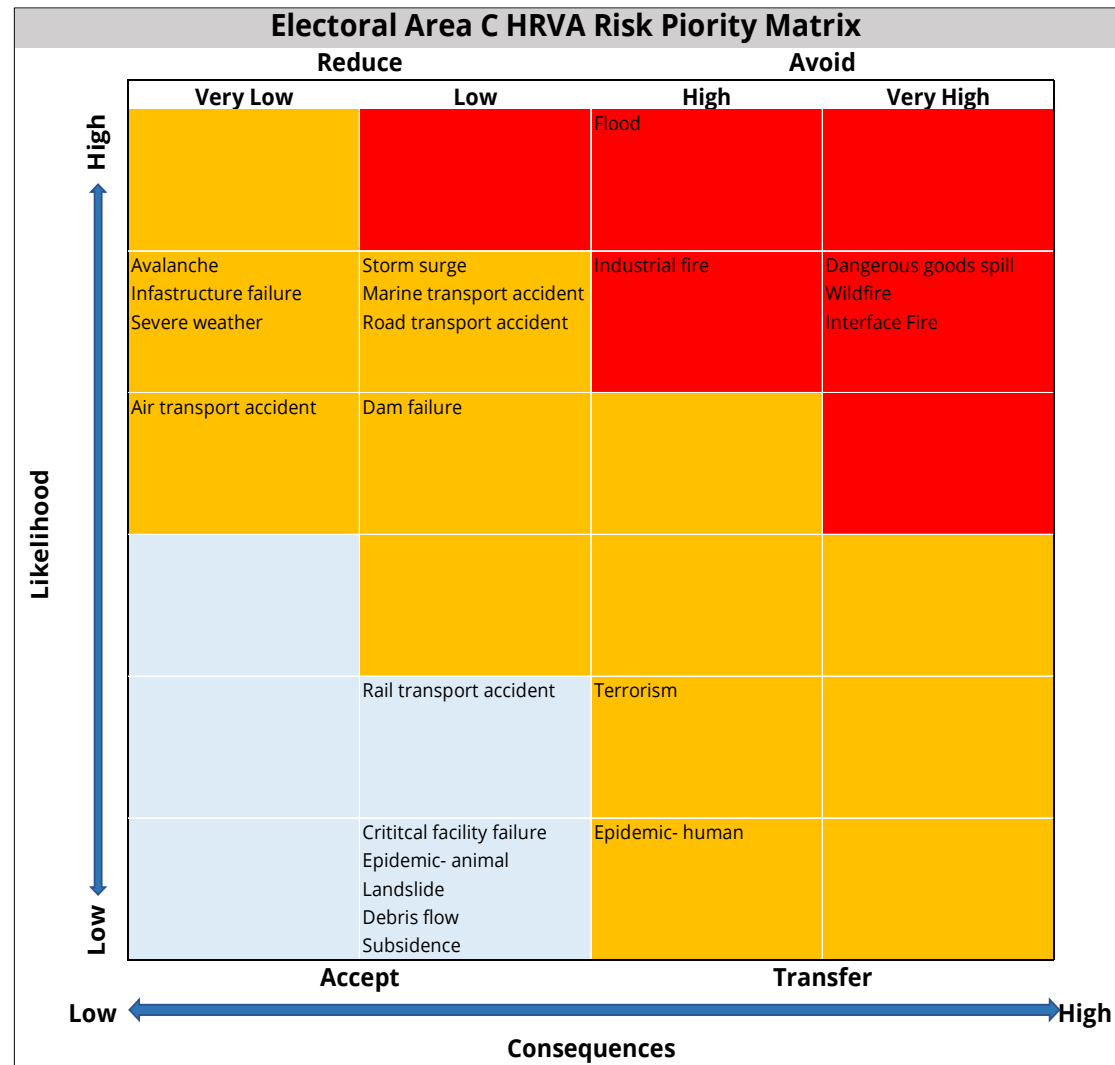


Priority	Hazard List	Current Likelihood	Consequence Total	Future Likelihood
20	 Plant disease and Pest Infestation	C - Probable	15	D - Likely
21	 Aircraft Incident	C - Probable	15	C - Probable
22	 Wastewater Interruption	B - Unlikely	15	B - Unlikely
23	 Landslide/Debris Flow	C - Probable	15	C - Probable
24	 Earthquake	B - Unlikely	14	B - Unlikely
25	 Telecommunications Interruption	C - Probable	14	C - Probable
26	 Dike Failure	B - Unlikely	13	B - Unlikely
27	 Cyber Security Threat	B - Unlikely	12	C - Probable
28	 Animal Disease	C - Probable	12	C - Probable
29	 Extreme Cold	D - Likely	12	D - Likely
30	 Missing Persons	D - Likely	12	D - Likely
31	 Motor Vehicle Incident	E - Almost Certain	12	E - Almost Certain
32	 Hurricane/ Typhoon/High Wind	D - Likely	12	D - Likely
33	 Freezing Rain or Drizzle	D - Likely	11	D - Likely
34	 Snowstorms and Blizzards	E - Almost Certain	10	E - Almost Certain
35	 Air Quality	C - Probable	10	D - Likely
36	 Lightning	D - Likely	9	E - Almost Certain
37	 Drought	C - Probable	9	C - Probable
38	 Fog	C - Probable	5	D - Likely
39	 Space Weather	B - Unlikely	4	B - Unlikely

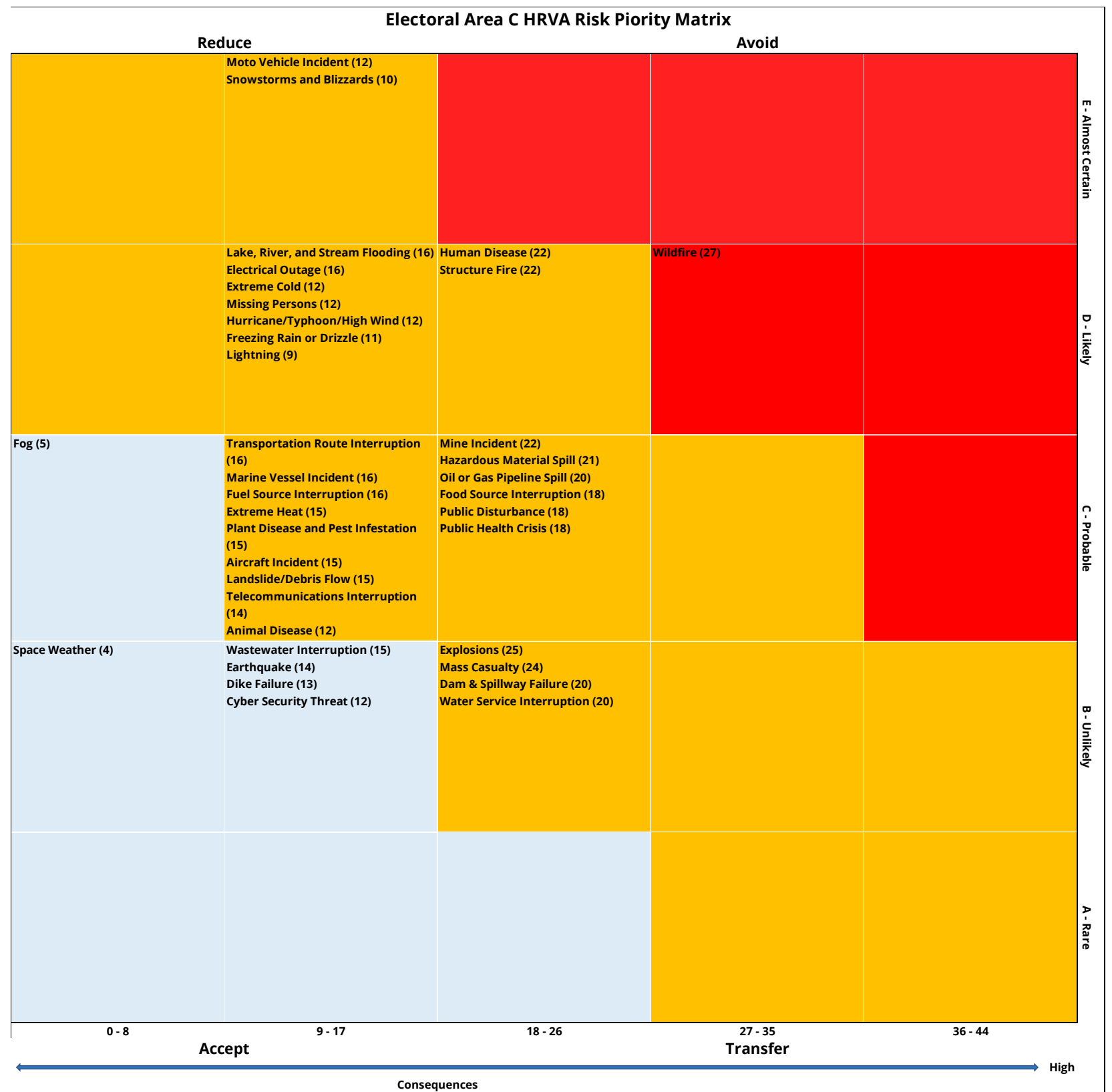
The following graphic reflects the results of the consequence scoring by the committee showing the 11 categories that were considered. Each Committee member had an opportunity to score on the 11 categories for each of the 39 identified hazards.



Below is the 2005 EA Hazard Matrix



Below is the revised EA Hazard Matrix



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

Identifying Risk Reduction Measures

With the identification of the hazards and risks, the Committee considered the existing Risk Reduction Measures and provided feedback on potential Risk Reduction Measures. The following section lists the known measures, resources, and community emergency planning documents that are available in the region and at the community level. Efforts to build resiliency are most effective when undertaken at the regional and community level.

Below is information that provides a snapshot of the existing strategies under the following categories:

- Emergency Response
- Programs, Services, and Education
- Social and Non-Structural Mitigation
- Environmental Mitigation
- Economic Mitigation

Emergency Response

Strategies for increasing response capacity and coordination.

- 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:
 - Farmed Animal Mass Carcass Disposal Emergency Plan 2010.
 - Livestock Evacuation Plan 2020.
 - Pandemic Response 2020.
 - Crisis Communication Plan 2021.
 - RDBN Business Continuity Plan 2021.
 - Evacuation Route Planning 2022.
 - Regional Emergency Support Services (ESS) Plan.
- District of Fort St James [Emergency Management Program Municipality Emergency Plan](#)
- Takla Nation Emergency Plan Updated Jan 2020.
- Nak'azdli Indian Band Emergency Plan.



- Tl'azt'en First Nations Emergency Plan.
- Yekooche First Nation Emergency Plan.
- Binche Whut'en First Nation Emergency Plan.

Regional Response Preparedness

- Annual Seasonal preparedness meeting with stakeholders and partners across the RDBN.
- Monthly and Semi-Annual Regional Emergency Support Services (ESS) meetings.
- Annual Network for Emergency Support Services Teams Conference.
- Voyent Alert – ongoing training and inclusion of indigenous community partners.

Rail Disaster

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

Oil and Gas Pipeline Spill

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

Programs, Services, and Education

Strategies for enhancing public awareness and capabilities of response personnel.

- [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.

Social and Non-Structural Mitigation

Plans, Bylaws, Regional Strategies for encouraging safer more sustainable communities.

Policies, plan, and other resources

Developing land-use policies and official community plans that integrate the HRVA lens to reduce risks and improve public safety.

- [RDBN Housing Needs Assessment 2021](#).
- 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](#).



Environmental and Structural Mitigation

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

Climate Change

- Takla Lake First Nations Climate Change Vulnerability & Risk Assessment 2016.

Rural Fire Department Support

- Annual Rural Fire Chief's Meeting.
- Support, training, administrative support, and funding support to rural fire departments through the RDBN Regional Fire Chief.

Rural Fire Protection

- Agreements with the District of Fort St. James to provide Fire Protection to two specified area of Electoral Area C. (see Appendix A)

Wildfire

- Village of Fort St James Community Wildfire Protection Plan 2013.

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](#).

Plant Infestations

- Northwest Invasive Plant Council Landowner Weed Removal Rebate. An annual rebate program for 50% up to \$500 for certified removal of invasive plants on private land.

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.

Economic Mitigation

Strategies for increasing regional economic resilience.

- Regional Economic Development Plan 2022 – 2024 includes 4 goals:



- To improve or develop critical infrastructure to support economic and social development.
 - To support stability and growth in the Agriculture Sector and for Small Business.
 - To increase and streamline communication and partnerships within and outside the region.
 - To develop and market the incredible built and natural amenities in the region.
- [NDIT Business Façade Improvement Program.](#)
- Regional Connectivity Service Establishment – the RDBN is pursuing partnerships to ensure that all residents have access to high-speed internet and cellular connectivity through the Connectivity Strategy.
- [Connecting Consumers and Producers](#) is a marketing project that promotes local food producers and provide 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.

Future Risk Reduction Strategy Suggestions

The Committee was asked to consider other possible Risk Reduction Strategies that would support efforts to build resiliency. Recommendations have been consolidated and listed in the final RDBN HRVA Report presented to the Board of Directors on April 6th, 2023.



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

Once all EA HRVA Final Reports are reviewed by their respective Committee a Final RDBN HRVA Report will be prepared that includes the EA HRVA results and identified Risk Reduction Actions.

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 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, as well as their families will be implemented.

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

