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## Regional District of Bulkley-Nechako HRVA Electoral Area 'E' Committee

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# Summary - Hazard Identification Workshop

Date: February 3<sup>rd</sup>, 2022

Time: 12 noon – 3 pm

Format: Zoom

## Participants

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Name	Organization
Area E Director	Clint Lambert
Chinook Community Forest	Ken Neilson
Chinook Emergency Response Society	Scott Zayac
SD91 Board Trustee	Nyree Hazelton
BC Ambulance	Unit Chief - Cynthia Rassveld
RDBN	Deborah Jones-Middleton
RDBN	Liliana Dragowska

## Overview

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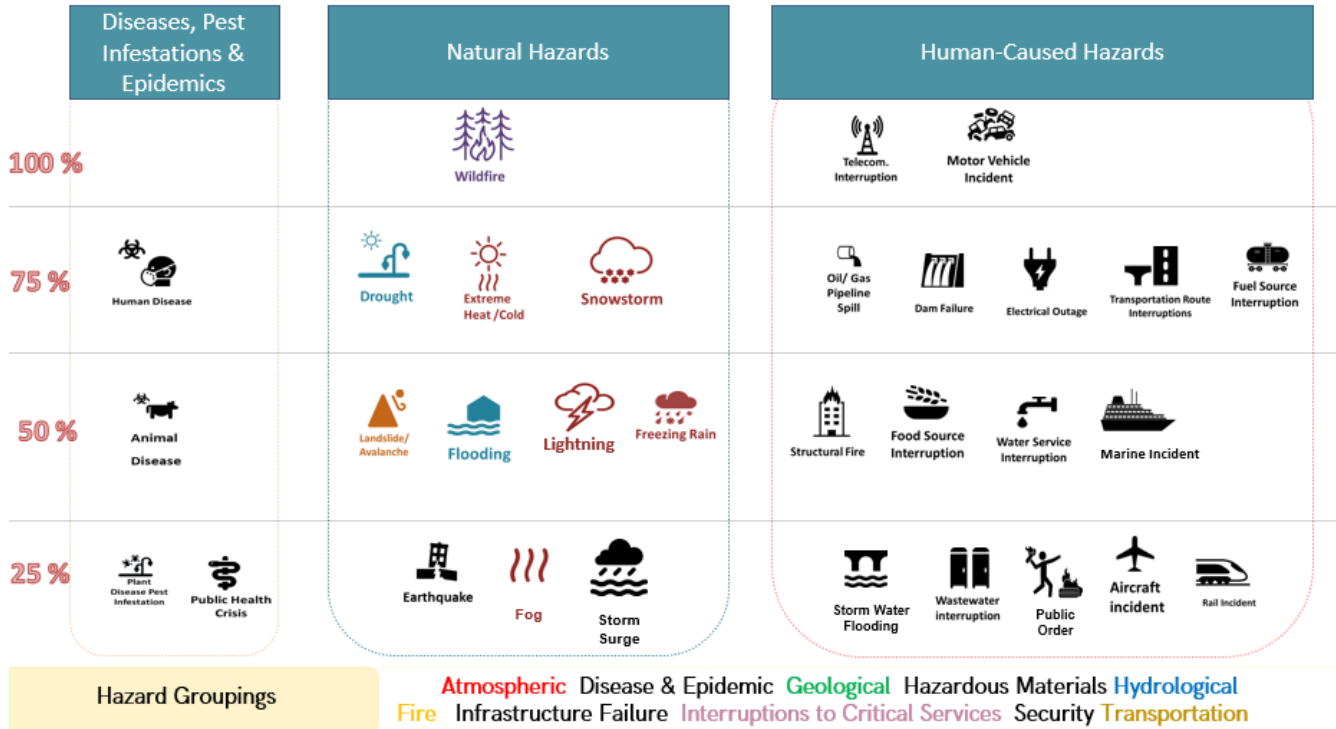
On Thursday, February 3<sup>rd</sup>, 2022, participants from the HRVA Committee for Electoral Area 'E' came together on Zoom to discuss and select the hazards that will be included in the process. This document provides a summary of what was discussed throughout the session. Thank you to everyone who took the time out of their evening to contribute to this session.

The Hazard Identification workshop objectives were as follows:

- select hazard for the electoral area 'E' HRVA project focus;
- review and discuss known and historical hazards in electoral area 'E';
- discuss, define, and identify on a map any unique local hazards in electoral area 'E';
- identify additional hazard information needs/ sources.

The session began with a round of introductions followed by a presentation from Liliana reviewing the objectives of the meetings, overview of the HRVA committee process, summary of the hazard identification background paper, and presenting the results of the hazard identification survey for Electoral Area 'E'. The hazards identified in the backgrounder were discussed by participants during the presentation and comments and notes were recorded.

The results of the HRVA committee Hazard Selection Survey were shared and discussed and can be found below:



## Hazard Discussion

Participants were asked to discuss the following questions with regards to each Hazard identified by staff and in the committee survey:











- Should this hazard be included in Area E HRVA?
- Is the hazard confined to a specific location in the electoral area? ID on map.
- What do you know about this hazard?
- What do we need to know about this hazard?




Participants were asked to refer to the two reference documents. The discussion notes and additional hazard research will be added to the Hazard Identification Background paper for Area 'E'. The revised hazard background paper will be distributed and used by the advisory committee to assist in scoring the likelihood and consequence of hazards in the Electoral Area.

The reference documents used included [Area E RDBN Hazard Identification Backgrounder](#) and [All 57 Hazard Definitions](#).

The notes below summarize the group discussions.









## Natural Hazards


Hazard Grouping	Notes	Include
<p style="color: #c00000; font-weight: bold;">Atmospheric</p> <div style="display: flex; flex-wrap: wrap; gap: 10px;"> <div style="text-align: center;"> Snowstorm</div> <div style="text-align: center;"> Air Quality</div> <div style="text-align: center;"> Lightning</div> <div style="text-align: center;"> Extreme Heat/Cold</div> <div style="text-align: center;"> Space Weather</div> <div style="text-align: center;"> Fog</div> <div style="text-align: center;"> Freezing Rain</div> </div>	<ul style="list-style-type: none"> <li>➤ BC Ambulance was monitoring COPD patient's lung conditions just last year during the Chief Loui Fire.</li> <li>➤ Air quality from Smoke is a big concern.</li> <li>➤ Until the large lakes freeze there is a lot of fog on the local roads and in the region.</li> <li>➤ Freezing Rain happens every year – there is a need for good warning systems to avoid mass casualty car accidents.</li> <li>➤ Wind, noticing is becoming more and more of an issue especially taking out power lines and falling across the roads, this happens very frequently.</li> </ul> <p style="font-weight: bold;">Comments and questions for consideration and further research:</p> <ul style="list-style-type: none"> <li>➤ Are there any up-to-date climatic patterns? 2021 was like -40 and plus 40.</li> </ul>	<p>Yes add winds</p>
<p style="color: #0070c0; font-weight: bold;">Hydrological</p> <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="text-align: center;"> Flooding</div> <div style="text-align: center;"> Drought</div> <div style="text-align: center;"> Storm Surge</div> </div>	<ul style="list-style-type: none"> <li>➤ Shortage of roads in and out of the area. Example Otsa Nadina Rd residents had to drive 1.5hrs around for a month and a half for them to get in and out of their properties. Date unknown?</li> <li>➤ Road washouts at Takysie and Wisteria in the last couple years.</li> <li>➤ East Tchesinkut Lake Road has had a couple large washouts in the past few years.</li> <li>➤ Transfer station at Takysie Lake, there was road erosion because the culvert was undersized and caused damage. Date unknown.</li> <li>➤ 2011 flooding at Francois Lake – 350 residents affected by Spring run-off, ice melt and rain on snow events.</li> <li>➤ Every year Ootsa Lake highwater line impacts farmers' fields and fences, even if the highwater mark is controlled by Rio Tinto and the reservoirs.</li> <li>➤ Floods affect Burial grounds on Cheslatta Lake when the gates to the reservoir are open in the spring.</li> <li>➤ Francois Lake Ferry Landing has a record of highwater mark.</li> <li>➤ Discussion how climate change may increase flooding in time.</li> <li>➤ Local Drought data and health of water table during droughts is of concern.</li> <li>➤ During the extreme heat events there were no cooling centers on the southside.</li> <li>➤ Algae blooms of Cyanobacteria Algae in lakes are another concerns and hazard. Takysie Lake a few years ago, Tatalrose Lake, in 2021 present on the shores of Francois Lake. – due to an increase cattle producing fecal bacteria in the waters.</li> </ul>	<p>Yes, add Cyanobacteria Algae Bloom as a hazard</p>

Hazard Grouping	Notes	Include
<p>Fire</p> 	<ul style="list-style-type: none"> <li>➤ WUI Fire ratings are not representative of the area – The strategic threat analysis and WUI is based off a specific density that the Area E residents do not meet.</li> <li>➤ All of Area E is high fire risk.</li> <li>➤ Southside is the foothills of the coastal mountains and Tweedsmuir Park – this rain shadow put the region at even higher risk for forest fires.</li> <li>➤ Lakes TSA is a natural disturbance 3 stand replacement by forest fire every 80-100 years – stand replacement time might be less due to climate change.</li> <li>➤ When wildfires get going, there is poor communication or reach past Grassy Plains and creates several challenges. Information is difficult to share.</li> <li>➤ This summer the BC Ambulance is going to put in a repeater tower for ambulance service communications on the south side.</li> <li>➤ Any day over 20°C puts the area at risk of fire.</li> <li>➤ BC Ambulance provides support to seniors' and would have an opportunity to share the Voyent Alert system with them. Provide information to Cynthia so she can take this information into seniors' homes.</li> <li>➤ Chinook Community Forest has a fire management plan, again addresses the BC wildfire 2km WUI. Identifies these WUI mitigation areas and includes Ket's landing on Ootsa, Danskin, Grassy Plains, and Takysie.</li> <li>➤ Need to add information about Chinook Community Forest.</li> <li>➤ When evacuating in 2018 that the bands have transportation "plans" where they know who needs transportation and will provide it. I also know that CSFS has and would help evacuate community members.</li> </ul> <p><b>Comments and questions for consideration and further research:</b></p> <ul style="list-style-type: none"> <li>➤ Find the definition for WUI and include in the backgrounder.</li> <li>➤ Insurance for fire can be upwards of \$15,000 per household, with lower income potential on the southside.</li> <li>➤ Add in the FireSmart stats for the electoral area – how much uptake was there in 2021? 27 properties in Electoral Area E completed home assessments in 2021.</li> <li>➤ Opportunity to educate the public on the risks and liabilities of living in the forest.</li> </ul>	<p>Yes</p>
<p>Geological</p>  	<ul style="list-style-type: none"> <li>➤ Chicken Creek slide, possibly because one side burnt and created soil instability.</li> <li>➤ Increase in slide risk because of forest fires.</li> <li>➤ Colleymount residents felt tremors from the 2012 earthquake.</li> <li>➤ Francois Lake is on a fault line.</li> <li>➤ Radon risk? Electoral Area E is high or at an elevated risk of Radon.</li> <li>➤ There has been multiple "sink holes" on Francois Lake Rd E.</li> </ul>	<p>Yes Add Radon Add Subsidence</p>





Hazard Grouping	Notes	Include
	<p><b>Comments and questions for consideration and further research:</b></p> <ul style="list-style-type: none"> <li>➤ How is MOTI Addressing sluffing and slides affecting culverts and roads?</li> <li>➤ Radon mitigation – what does the RD Building inspection department do about it? RDBN redirects inquires on Radon to the BC Lung association <a href="#">Radon Awareness Program</a>.</li> </ul>	

## Human-Caused Hazards

Hazard Grouping	Notes	Include
<p><b>Transportation</b></p>  <p>Rail Incident</p>  <p>Motor Vehicle Incident</p>  <p>Marine Incident</p>  <p>Aircraft Incident</p>	<ul style="list-style-type: none"> <li>➤ Concern and high risk with access to Southside being through Burns Lake and blocking of Highway 37.</li> <li>➤ Many crashes on the southside and rural areas are not reported for a variety of reasons including impaired driving.</li> <li>➤ Main aircraft routes are right over the southside, recently there has been an increase in commercial aircraft traffic in the skies.</li> <li>➤ Francois Lake Ferry.</li> </ul> <p><b>Comments and questions for consideration and further research:</b></p> <ul style="list-style-type: none"> <li>➤ Double check ICBC causality rates.</li> <li>➤ LDM, the road contractor or ICBC may track burnt or abandoned cars in Area E?</li> </ul>	Yes
<p><b>Hazardous Materials and Explosions</b></p>  <p>Explosions</p>  <p>Oil Gas Pipeline Spill</p>  <p>Mine Incident</p>  <p>Hazardous Material Spills</p>	<ul style="list-style-type: none"> <li>➤ There are lots of companies doing exploration in the region, as well as small mine sights and mining claims.</li> <li>➤ Potential for more pipelines to Kitimat, discussion on Chevron LNG and Enbridge.</li> <li>➤ Potential risk where CGL crosses Bald Hill Rd and Highway 37.</li> <li>➤ Concern that Tchesinkut Lake is downhill from the pipeline and concerns about explosive risk vs water contamination risk, both are a concern. Tchesinkut Lake is heavily populated, and this risk could be linked to wildfires.</li> </ul> <p><b>Comments and questions for consideration and further research:</b></p> <ul style="list-style-type: none"> <li>➤ How does mining exploration affect the areas?</li> <li>➤ Need to share evacuation route planning.</li> <li>➤ Do residents draw their water from Tchesinkut Lake or in ground wells?</li> </ul>	Yes

Hazard Grouping	Notes	Include
<p><b>Interruptions to Critical Services</b></p>  <p>Electrical Outage</p> <p>Food Source Interruption</p> <p>Telecommunications Interruptions</p> <p>Transportation Interruptions</p> <p>Wastewater Interruptions</p> <p>Water Interruptions</p> <p>Fuel Source Interruptions</p> <p>Storm Water Flooding</p>	<ul style="list-style-type: none"> <li>➤ 2006 winter storm caused power failures for over 3 weeks.</li> <li>➤ 2018 Wildfires resulted in the power being out for 60 days + from the end of July to September. No one reported it and assumed someone else reported it.</li> <li>➤ The Hydro Power Supply lines run under the lake in maybe three separate lines. Electrical system and lines are aging and not up to modern standards.</li> <li>➤ 3 phase power was installed to the south side but was never energized.</li> <li>➤ When power is out on the south side, kids are sent home because they cannot flush the toilets.</li> <li>➤ 3 Nations water distribution system goes out when the power goes out. There are no backups, and this water system supplies many people in the area.</li> <li>➤ Poor communication infrastructure.</li> <li>➤ TELUS land lines – aging infrastructure that is not reliable. Reports that the lines are from the 1960's and when there are repairs needed old equipment is salvaged rather than replaced with modern infrastructure.</li> <li>➤ <a href="#">Bulkley-Nechako Emergency and Public Alerts</a> – need to share and advertise this service to residents. The system will provide communication via landline, cell, app, and email; however, individuals need to sign up.</li> <li>➤ Wildlife populations and food supply of indigenous communities is being heavily impacted.</li> <li>➤ Food bank services is provided through the LINK every Wednesday to the Southside. The community paramedics then deliver to those who cannot leave their homes.</li> <li>➤ Salvation Army does not service the Southside.</li> <li>➤ Residents are extremely resourceful; some have been known to hitch hike into Burns Lake to get food.</li> <li>➤ Vulnerability of first responders when out of communication range with satellite or radio or cell communication.</li> <li>➤ SSHWC has a generator (quality not aware), but not at the Grassy School. Opportunity to use the facility as evacuation center, school is quite large.</li> </ul> <p><b>Comments and questions for consideration and further research:</b></p> <ul style="list-style-type: none"> <li>➤ What is the percentage of people who still have landlines?</li> <li>➤ Are there emergency backup generators on the south side?</li> <li>➤ Contact the LINK to get numbers on the # of households who depend on or use the service.</li> <li>➤ In 2018 there were cascading events that caused interruption of first response resources. BCEHS was not available during the fires, at times they were posted in the evacuation zones for shifts. Highlights a need to continue to build communications between BCEHS and the RDBN.</li> <li>➤ Is Amateur radio a resource on the South side? Are there members who are part of the PG club who can operate radios in an emergency? Ask John Illes for re-broadcasting society information and if they are a resource in the region.</li> </ul>	<p>Yes</p>



Hazard Grouping	Notes	Include
<p>Infrastructure</p>  <p>Dam Failure</p>  <p>Structural Fire</p>  <p>Cyber Security Threat</p>  <p>Public Order</p>	<ul style="list-style-type: none"> <li>➤ Affects or information on the Nechako Reservoir:  <a href="https://www.getinvolvednechako.ca/our-operations/">https://www.getinvolvednechako.ca/our-operations/</a></li> <li>➤ One dam at Tatalrose Lake on the Salake property 7km past Grassy Plains.</li> <li>➤ One dam at Totem Pole Lake that feeds into Tatalrose and could cause culvert failure on east Pickle Road and affect other roads in the area.</li> <li>➤ Structural Fires:                         <ul style="list-style-type: none"> <li>○ Ferry Dock on Southside was contained;</li> <li>○ Lost house in Southbank in the winter; and,</li> <li>○ 2021 house fire in height of summer – Chinook Emergency Response ensured resources were there.</li> </ul> </li> <li>➤ Colleymount and Techsinkut don't have volunteer firefighters and lost a house 4 years ago on Tchesinkut Lake Road and a home on Colleymount had a roof fire and luckily the owner and neighbours acted fast.</li> <li>➤ A unique hazard is the distance from the hospital.</li> </ul> <p><b>Comments and questions for consideration and further research:</b></p> <ul style="list-style-type: none"> <li>➤ Are there inundation maps or studies on the tailing's dams from Huckleberry mines as the mine is in maintenance and care?  <a href="https://mines.nrs.gov.bc.ca/p/5fa1e4104635c865df00cdac/docs">https://mines.nrs.gov.bc.ca/p/5fa1e4104635c865df00cdac/docs</a></li> <li>➤ Ducks unlimited dam – question if they are being maintained?</li> <li>➤ Potential for other private dams that might affect roads and infrastructure in the area. Can we survey landowners to determine where other unregistered dams might be?</li> <li>➤ Include RDBN has Rural Fire Department call out statistics and can these be broken down by fire, road rescue and medical call outs.</li> </ul>	<p>Yes                      Public Order and Cyber Security where not discussed.</p>

### Additional Vulnerability Discussion Notes:

- Highest concentration of seniors living on fixed incomes living alone with large distances between them and to services.
- Aging population and only getting older.
- Need to add in general description of the area. Better unique nature of the lakes and communities of Francois, Ootsa Lake, Danskin, and Grassy Plains.
- Is there an advantage to focus on specific hazards or do an all-hazards risk assessment? Discussion on the process identifying all hazards and then prioritizing the top ones to focus resiliency strategies on.
- In 2018 during the wildfires, it was hard to track seniors who evacuated and who didn't have communications. How do we find solutions to this and create seniors/contact when people are evacuating – community paramedics play a role.

### Hazards not discussed in the meeting:

- Disease, Pest Infestations, Epidemic Hazards were not discussed due to timing. Require further feedback and direction from committee member regarding the experience of these hazards in Electoral Area 'E'.

# Summary of Hazards Selected

The first step in the HRVA process was to identify the possible hazards that will need to be analyzed in the study area. The list below is an adaptation of hazards identified in the BC Emergency Management Regulation and a reflection of the HRVA Committees Selection of Hazards as discussed. Climate change is recognized as having impacts on the frequency and intensity of many hazards and may also cause new hazards to emerge. This list will guide the HRVA analysis moving forward. The objective moving forward will be to prioritize the mostly likely hazards and consider historic experiences and future likelihood when scoring the frequency, severity, and consequence of each specific hazard.



## HRVA Hazard List

Community: Electoral Area E

Date: 14-February-2022

This hazard list is an adaptation of hazards identified within the BC Emergency Management Regulation

### Atmospheric

- 1. Air Quality <sup>↗</sup>
- 2. Extreme Heat <sup>↗</sup>
- 3. Extreme Cold <sup>↗</sup>
- 4. Fog <sup>↗</sup>
- 5. Freezing Rain or Drizzle <sup>↗</sup>
- 6. Space Weather <sup>↗</sup>
- 7. Hail <sup>↗</sup>
- 8. Hurricane/Typhoon/High Wind Event <sup>↗</sup>
- 9. Lightning <sup>↗</sup>
- 10. Snowstorms and Blizzards <sup>↗</sup>
- 11. Tornado <sup>↗</sup>

### Disease & Epidemic

- 12. Animal Disease <sup>↗</sup>
- 13. Human Disease (Includes Pandemic/Epidemic) <sup>↗</sup>
- 14. Plant Disease and Pest Infestation <sup>↗</sup>
- 15. Public Health Crisis <sup>↗</sup>

### Fire

- 16. Structure Fire <sup>↗</sup>
- 17. Wildfire <sup>↗</sup>

### Geological

- 18. Avalanche <sup>↗</sup>
- 19. Landslide/Debris Flow <sup>↗</sup>
- 20. Land Subsidence (and Sinkholes) <sup>↗</sup>
- 21. Submarine Slides <sup>↗</sup>

### Seismic

- 22. Earthquake <sup>↗</sup>
- 23. Liquefaction <sup>↗</sup>
- 24. Tsunami (Telegenic and Terrestrial) <sup>↗</sup>

### Volcanic

- 25. Ash Fall <sup>↗</sup>
- 26. Volcanic Flow (Pyroclastic, Lava, Lahars) <sup>↗</sup>

### Hazardous Materials and Explosions

- 27. Explosions <sup>↗</sup>
- 28. Hazardous Materials Spill <sup>↗</sup>
- 29. Mine Incident <sup>↗</sup>

- 30. Nuclear Incident <sup>↗</sup>
- 31. Oil or Gas Pipeline Spill <sup>↗</sup>
- 32. Space Debris <sup>↗</sup>

### Hydrological

- 33. Drought <sup>↗</sup>
- 34. Seiche <sup>↗</sup>
- 35. Storm Surge <sup>↗</sup>

### Flooding

- 36. Lake, River, and Stream Flooding <sup>↗</sup>
- 37. Coastal Flooding <sup>↗</sup>
- 38. Storm Water Flooding (urban, local, pluvial) <sup>↗</sup>
- 39. Flash Flooding <sup>↗</sup>

### Infrastructure Failure

- 40. Dam and Spillways Failure <sup>↗</sup>
- 41. Dike Failure <sup>↗</sup>
- 42. Structure Failure <sup>↗</sup>

### Interruptions to Critical Services

- 43. Electrical Outage <sup>↗</sup>
- 44. Food Source Interruption (supply chain, or community food stores) <sup>↗</sup>
- 45. Telecommunications Interruption <sup>↗</sup>
- 46. Transportation Route Interruption <sup>↗</sup>
- 47. Wastewater Interruption <sup>↗</sup>
- 48. Water Service Interruption (Includes shortage and contamination) <sup>↗</sup>
- 49. Fuel Source Interruption <sup>↗</sup>

### Security

- 50. Cyber Security Threat <sup>↗</sup>
- 51. National Security Threat <sup>↗</sup>
- 52. Public Disturbance <sup>↗</sup>
- 53. Major Planned Event <sup>↗</sup>

### Transportation

- 54. Aircraft Incident <sup>↗</sup>
- 55. Marine Vehicle Incident <sup>↗</sup>
- 56. Motor Vehicle Incident <sup>↗</sup>
- 57. Rail Incident <sup>↗</sup>

**Note:** Climate change is recognized as having impacts on the frequency and intensity of many hazards and may also cause new hazards to emerge. Those hazards identified as being impacted by changing climatic conditions are indicated with a "↗".



## Next Steps

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Liliana has gathered additional information and resources on hazards identified by the committee and included them in the revised Hazard Background document for reference as the committee moves through the process. This document will be sent out to committee members and posted on the RDBN's website under the HRVA project update.

Committee members are asked to review the notes and selected hazard and provide additional thoughts, comments, stories, and experiences to form part of the project documentation.

Committee members discussed the need for Liliana to share a summary of selected hazards to be confirmed at the next committee meeting to be incorporated into the provinces online tool.

Committee members were asked to complete an evaluation of the meeting once a summary is sent out and to complete the doodle poll to determine availability for the next meeting day to discuss the understanding of community resiliency to the selected hazards.

DRAFT